



*Manage, Automate and Optimize  
Business Processes.*

# **Adeptia Server 4.9**

## **User Guide**

**Version 1.0**

**Release Date March 18, 2013**

Adeptia Inc.  
443 North Clark Ave,  
Suite 350  
Chicago, IL 60610, USA  
Phone: (312) 229-1727

## Copyright

© 2000-2008 Adeptia, Inc. All rights reserved.

## Trademarks

The Adeptia™ is a trademark of Adeptia, Inc.


## Statement of Conditions

Adeptia, Inc. provides this publication "as is" without warranty of any kind, either express or implied. In no event shall Adeptia be liable for any loss of profits, loss of business, loss of use or data, interruption of business, or for indirect, special, punitive, incidental, or consequential damages of any kind.

No part of this work covered by copyright herein may be reproduced in any form or by any means—graphic, electronic or mechanical—including photocopying, recording, taping, or storage in an information retrieval system, without prior written permission of the copyright owner.

This publication is subject to replacement by a later edition. To determine if a later edition exists, contact [www.adeptia.com](http://www.adeptia.com).

## Document Conventions

Convention	Description
Text Matter in font Verdana and font size 9 point.	Explains the User guide.
<a href="#">Text matter</a>	Click on link to reach target.
	Note:

## Abbreviations Used

Abbreviation	Description
JRE	Java Runtime Environment
SOA	Service Oriented Architecture
BPEL	Business Process Execution Language
BPMN	Business Process Modeling Notation
WSDL	Web Services Description Language
MIME	Multipurpose Internet Mail Extensions

MAPI	Messaging Application Programming Interface
CDO	Collaboration Data Objects

## Contact Information

In case of any queries, please contact us at:

Contact For	Email ID
Sales	<a href="mailto:sales@adeptia.com">sales@adeptia.com</a>
Support	<a href="mailto:support@adeptia.com">support@adeptia.com</a>

For latest updates and information, please visit us at [www.adeptia.com](http://www.adeptia.com)



# Table of Contents

<b>1</b>	<b>INTRODUCING ADEPTIA SERVER.....</b>	<b>15</b>
	TARGET AUDIENCE .....	16
	OVERVIEW OF ADEPTIA SERVER .....	16
	<i>Architecture of Adeptia Server .....</i>	<i>16</i>
	Modular Design.....	17
	Scalability.....	18
	Service Oriented Architecture .....	19
	Deployment Model.....	19
	<i>Key terms used in Adeptia Server.....</i>	<i>21</i>
	<i>Structure of the Adeptia Server.....</i>	<i>22</i>
	Manage.....	22
	Automate.....	22
	Optimize.....	24
	Administer.....	24
	<i>Top-Down Vs Bottom-Up Approach.....</i>	<i>24</i>
	Top-Down Approach.....	25
	Bottom-Up Approach .....	25
<b>2</b>	<b>GETTING STARTED.....</b>	<b>27</b>
	PRE-REQUISITES OF USING ADEPTIA SERVER.....	27
	STARTING ADEPTIA SERVER KERNEL AND WEB RUNNER.....	28
	LOGIN INTO ADEPTIA SERVER.....	29
	UNDERSTANDING THE ADEPTIA SERVER HOME PAGE.....	33
	CHANGE PASSWORD .....	38
<b>3</b>	<b>WORKING WITH PROCESS FLOW.....</b>	<b>41</b>
	UNDERSTANDING PROCESS DESIGNER .....	42
	CREATING PROCESS FLOW .....	52
	<i>Designing Process Flow using BPMN Graphical Elements.....</i>	<i>53</i>
	<i>Attaching Adeptia Server activities with the BPMN elements.....</i>	<i>59</i>
	Save Process Flow on Local Hard Disk.....	62
	Changing Transformer Type.....	63
	ACTIVATING/DE-ACTIVATING PROCESS FLOW .....	64
	TESTING A PROCESS FLOW .....	65
	UNDERSTANDING VALIDATION.....	67
	<i>Disabling Validation.....</i>	<i>69</i>
	USING UNDO REDO .....	70
	USING MULTIPLE SELECTIONS .....	70
	USING ZOOM IN AND ZOOM OUT.....	71
	USING ACTIONS IN PROCESS FLOW .....	72
	CREATING PROCESS FLOW VARIABLE .....	78
	CREATING CONTEXT VARIABLE .....	79
	USING CONTEXT SOURCE AND CONTEXT TARGET .....	83
	OVERRIDING PROCESS FLOW DESCRIPTION AT RUNTIME.....	85
	OVERRIDING ACTIVITY OF A PROCESS FLOW AT RUNTIME .....	87
	<i>Overriding an activity using Custom Plugin.....</i>	<i>87</i>
	<i>Overriding an activity using put-context-var.....</i>	<i>89</i>
	<i>Activities that can be overridden.....</i>	<i>90</i>
	Source Activity.....	90

Target Activity.....	91
Schema Activity .....	92
Polling Activity .....	92
Other Activities.....	92
<i>Overriding subject and body of email sent for a Human Workflow Task</i> .....	93
<i>Overriding Assignee User of a Human Workflow Task</i> .....	95
PROCESSING RECORD QUEUE.....	96
ADDING CONDITIONS IN PROCESS FLOW .....	100
<i>Process Flow Variable Condition</i> .....	100
Adding Condition Using Process Flow Activity Attributes.....	101
Adding Condition Using Process Flow Variable Other Condition .....	103
<i>Java Condition</i> .....	105
Adding Condition Using Java Condition .....	105
<i>Expression Condition Builder</i> .....	106
Adding Condition Using Expression Builder .....	107
DEFINING SEQUENCE FLOW ORDERING.....	113
CREATING MULTIPLE STREAMS.....	114
USING STREAM SELECTOR .....	121
USING REPEATER NODE .....	122
USING ERROR INTERMEDIATE EVENT.....	126
CREATING EXCEPTION HANDLER SCRIPT .....	128
<i>Creating Global Exception Handler Script</i> .....	128
<i>Creating Activity Exception Handler Script</i> .....	129
USING COMPRESSION/DECOMPRESSION .....	130
USING CUSTOM REPORT IN PROCESS FLOW .....	131
ATTACHING END PROCESS (MAIL NOTIFICATION) TO PROCESS FLOW .....	132
GENERATING PDF FILE OF PROCESS FLOW .....	134
WORKING WITH PROCESS DESIGNER IN OFFLINE AND ONLINE MODES .....	136
EXECUTING A PROCESS FLOW.....	138
USAGE RECOMMENDATION .....	139
<b>4 CREATING DATA DICTIONARY.....</b>	<b>141</b>
CREATING EDI DATA DICTIONARY.....	141
CREATING POSITIONAL DATA DICTIONARY .....	144
<b>5 TRANSFORMING DATA.....</b>	<b>148</b>
USING DATA MAPPER .....	148
<i>Accessing Data Mapper</i> .....	148
<i>Understanding Data Mapper Applet</i> .....	150
<i>Mapping Elements</i> .....	157
<i>Load Source and Target Schemas</i> .....	157
<i>Search Element in Source or Target Schema Tree</i> .....	159
<i>Map Source and Target Elements</i> .....	162
Map Elements Using Drag and Drop Approach .....	162
Map Elements using Buttons on the Tool Bar.....	165
Using Custom Auto Map Options .....	170
Using Add Value Map Options .....	176
Copy/Paste Mapping .....	180
Mapping Functions .....	181
<i>Save Mapping and Exit Data Mapper</i> .....	185
View and Validate Generated Mapping XSL.....	187
View Mapping XML.....	188

View and Validate Mapping Output.....	188
<i>Using Data Viewer</i> .....	192
<i>Viewing Mapping in PDF format</i> .....	199
<i>View Mapping in Read-Only Mode</i> .....	202
<i>Splitting Source Data</i> .....	203
<i>Set Splitter XPath</i> .....	207
<i>Set Merger XPath</i> .....	210
<i>Assign Data Streams</i> .....	211
<i>Remove Mapping of an Element</i> .....	212
<i>Using Mapping Functions</i> .....	213
Adding a Constant.....	213
Using Math Function.....	215
Using String Function.....	217
Using Date Function.....	221
Using Aggregation Functions.....	224
Using Conditional Function.....	227
Using Axis Function.....	236
Using Boolean Function.....	238
Using Context Functions.....	240
Using DB Function.....	249
<i>Using Textual Rules</i> .....	254
<i>Using Namespace</i> .....	255
Adding Namespace.....	255
Editing Namespace.....	256
<i>Using XSL Template</i> .....	257
Add XSL Template.....	257
Map Elements using XSL Template.....	260
<i>Using Global Variable</i> .....	262
<i>Using Local Variable</i> .....	268
<i>Using Custom Methods</i> .....	273
<i>Dynamically Loading Custom Methods</i> .....	278
<i>Using Key Function</i> .....	281
<i>Creating a Key</i> .....	282
<i>Mapping the Key with target element</i> .....	284
<i>Declaring Connection Info Variable</i> .....	287
<i>Setting Target Element Properties</i> .....	289
Setting For Each Property.....	290
Adding Comments to Target Schema Elements.....	292
Setting Sorting Rules.....	293
<i>Filtering of Elements/Attributes in Target Data</i> .....	297
Using Apply Filter Checkbox.....	297
<i>Creating Clone of Target Element</i> .....	298
Removing Clone of Target Element.....	299
<i>Removing Schema</i> .....	299
<i>Adding Custom XSL</i> .....	300
<i>Select Root</i> .....	305
<i>Populating extension type element</i> .....	306
USING RECORD TO RECORD SERVICE.....	307
<b>6 CREATING EXTENSIONS.....</b>	<b>312</b>
CREATING CUSTOM APPLICATION.....	312
<i>Creating an Application with Adeptia Look and Feel</i> .....	317

CREATING CUSTOM PLUGIN .....	318
<b>7 USING HUMAN WORKFLOW.....</b>	<b>322</b>
MANAGING DOCUMENT REPOSITORY.....	322
<i>Creating WebDAV Folder.....</i>	<i>324</i>
<i>Creating WebDAV Sub-Folder.....</i>	<i>325</i>
<i>Managing Files .....</i>	<i>326</i>
Uploading File in Document Repository .....	326
Downloading File from Document Repository .....	330
Viewing File in Document Repository .....	331
Deleting File from Document Repository .....	332
Maintaining Versions of a File in Document Repository .....	332
Downloading a Particular File Version .....	333
MANAGING TASKS USING HUMAN WORKFLOW .....	335
<i>Creating Human WorkFlow Activity .....</i>	<i>335</i>
<i>Integrating Custom Web Application in Human WorkFlow .....</i>	<i>346</i>
<i>Executing Human WorkFlow Task .....</i>	<i>347</i>
<b>8 MISCELLANEOUS.....</b>	<b>351</b>
CREATING CONTEXT DOWNLOAD ACTIVITY.....	351
CREATING CONTEXT UPLOAD ACTIVITY .....	356
CREATING CUSTOM REPORT.....	360
CREATING STORED PROCEDURE .....	365
<b>9 CREATING NATIVE SERVICE ACTIVITY .....</b>	<b>370</b>
CREATING NATIVE CALL ACTIVITY.....	370
<b>10 CREATING NOTIFICATION ACTIVITY.....</b>	<b>373</b>
CREATING MAIL NOTIFICATION ACTIVITY.....	373
CREATING NOTIFICATION TO SEND USER DEFINED MESSAGE.....	373
CREATING NOTIFICATION TO SEND PROCESS FLOW SUMMARY .....	376
<b>11 CREATING POLLING SERVICE ACTIVITY.....</b>	<b>379</b>
CREATING DATABASE POLLING SERVICE ACTIVITY .....	379
CREATING FILE POLLING SERVICE ACTIVITY .....	383
CREATING FTP POLLING SERVICE ACTIVITY .....	386
CREATING MAIL POLLING SERVICE ACTIVITY.....	390
<b>12 CREATING SCHEMA ACTIVITY.....</b>	<b>394</b>
CREATING ADVANCE DATABASE SCHEMA ACTIVITY .....	398
<i>Special Usage Scenario .....</i>	<i>406</i>
Delete Records from target table .....	406
Enable RollBackOn Error Attribute.....	406
CREATING ADVANCE POSITIONAL SCHEMA ACTIVITY.....	407
<i>Viewing Print-Friendly Page.....</i>	<i>419</i>
<i>Special Usage Scenario .....</i>	<i>421</i>
Enable IsRemoveHeader Attribute.....	421
CREATING ADVANCE TEXT SCHEMA ACTIVITY.....	421
CREATING DATABASE SCHEMA ACTIVITY.....	430
<i>Special Usage Scenario .....</i>	<i>437</i>
Delete Target Records.....	437

CREATING EDI SCHEMA ACTIVITY .....	437
<i>Manipulating EDI Schema Hierarchy</i> .....	440
CREATING EXCEL SCHEMA ACTIVITY.....	446
CREATING POSITIONAL SCHEMA ACTIVITY .....	461
CREATING TEXT SCHEMA ACTIVITY.....	467
CREATING WORD SCHEMA ACTIVITY .....	471
CREATING XML SCHEMA ACTIVITY .....	475
TESTING SCHEMA ACTIVITY .....	478
CREATING XML VALIDATOR ACTIVITY.....	480
<b>13 CREATING SOURCE ACTIVITY .....</b>	<b>482</b>
CREATING ADVANCED DATABASE SOURCE ACTIVITY .....	482
CREATING DATABASE SOURCE ACTIVITY.....	485
CREATING FILE SOURCE ACTIVITY .....	487
CREATING FTP SOURCE ACTIVITY.....	489
CREATING HTTP SOURCE ACTIVITY .....	492
CREATING JMS SOURCE ACTIVITY.....	494
CREATING LAN FILE SOURCE ACTIVITY .....	497
CREATING MAIL SOURCE ACTIVITY.....	499
CREATING WEBDAV SOURCE ACTIVITY.....	503
<b>14 CREATING TARGET ACTIVITY .....</b>	<b>506</b>
CREATING ADVANCED DATABASE TARGET ACTIVITY .....	506
<i>Understanding Record Count in Process Flow Logs</i> .....	508
CREATING DATABASE TARGET ACTIVITY .....	511
CREATING FILE TARGET ACTIVITY.....	514
CREATING FTP TARGET ACTIVITY .....	516
CREATING HTTP TARGET ACTIVITY .....	518
CREATING JMS TARGET ACTIVITY .....	520
CREATING LAN FILE TARGET ACTIVITY.....	522
CREATING MAIL TARGET ACTIVITY.....	524
CREATING WEBDAV TARGET ACTIVITY.....	528
<b>15 CREATING TRIGGER AND EVENTS .....</b>	<b>531</b>
CREATING CALENDAR EVENT .....	531
CREATING DATABASE EVENT .....	533
CREATING EVENT REGISTRY .....	537
CREATING FILE EVENT.....	539
CREATING FTP EVENT.....	543
CREATING HTTP TRIGGER.....	548
<i>Usage Recommendation</i> .....	550
CREATING JMS EVENT .....	550
CREATING MAIL EVENT.....	553
CREATING TIMER EVENT.....	558
TRIGGERING PROCESS FLOW USING WEB SERVICE TRIGGER .....	560
ACTIVATING TRIGGER EVENTS.....	562
<b>16 CREATING WEB SERVICES.....</b>	<b>563</b>
CREATING SECURITY POLICY ACTIVITY FOR WEB SERVICES.....	563
CREATING WEB SERVICE CONSUMER ACTIVITY.....	565

<i>Creating Web Services Consumer Activity using UDDI</i> .....	566
<i>Creating Web Services Consumer Activity using URI</i> .....	573
CREATING WEB SERVICE PROVIDER ACTIVITY .....	578
<b>17 CREATING MIME MESSAGE.....</b>	<b>582</b>
CREATING DECODER ACTIVITY .....	582
CREATING ENCODER ACTIVITY .....	584
<b>18 CREATING TRADING PARTNER.....</b>	<b>588</b>
CREATING B2B TRADING PARTNER.....	588
<b>19 MANAGING ACTIVITIES.....</b>	<b>591</b>
SEARCHING AN ACTIVITY.....	591
<i>Using Wildcards in Search</i> .....	592
VIEWING ACTIVITY PROPERTIES .....	593
EDITING AN ACTIVITY .....	593
DELETING AN ACTIVITY .....	595
VIEWING REVISION HISTORY.....	596
VIEWING DEPENDENT ACTIVITIES.....	596
CHANGING ADVANCED PROPERTIES .....	598
<b>20 USING DASHBOARD .....</b>	<b>602</b>
CREATING DASHBOARD COMPONENT ACTIVITY.....	603
<i>Creating Bar Chart Activity</i> .....	603
<i>Creating String Chart Activity</i> .....	606
<i>Creating Table Chart Activity</i> .....	607
<i>Creating PIE Chart Activity</i> .....	608
CREATING DASHBOARD DESIGN ACTIVITY .....	609
EXECUTING DASHBOARD DESIGN .....	611
<b>21 VIEWING ADEPTIA SERVER LOGS .....</b>	<b>613</b>
<i>Access Control to Logs</i> .....	614
VIEWING AUDIT TRAIL LOG .....	614
<i>Searching Text</i> .....	615
VIEWING EVENT LOG .....	616
<i>Searching Text</i> .....	617
VIEWING PROCESS FLOW LOG.....	617
VIEWING SYSTEM LOG.....	623
<i>Searching Text</i> .....	625
VIEWING TASK HISTORY .....	625
<i>Usage Scenario</i> .....	632
GENERATE CUSTOM REPORT .....	633
<b>22 ADMINISTERING ADEPTIA SERVER.....</b>	<b>636</b>
CREATING AND MANAGING USER GROUPS .....	636
<i>Creating a User Group</i> .....	636
<i>Viewing User Group Properties</i> .....	638
<i>Editing User Group Properties</i> .....	638
<i>Deleting a User Group</i> .....	639
CREATING AND MANAGING USERS .....	640

<i>Creating a User</i> .....	641
<i>Viewing User Properties</i> .....	647
<i>Editing User Properties</i> .....	647
<i>Deleting a User</i> .....	649
<i>Moving User's Objects</i> .....	651
MANAGING KEYSTORE OF USER.....	651
<i>Digital Certificate Activity</i> .....	652
Exporting Digital Certificate .....	652
Importing Digital Certificate.....	652
Deleting Digital Certificate .....	653
CREATING BUSINESS ROLE .....	654
MANAGING APPLICATION AND SYSTEM SETTINGS .....	656
<i>Viewing System Configuration</i> .....	656
<i>Updating System Properties</i> .....	657
<i>Reloading System Configuration</i> .....	660
MANAGING KERNEL.....	660
MANAGING SCHEDULER.....	661
<i>Scheduler Related Properties</i> .....	663
org.quartz.jobStore.maxMisfiresToHandleAtATime .....	663
org.quartz.jobStore.misfireThreshold .....	664
org.quartz.threadPool.threadCount.....	664
<b>23 DEPLOYING CLUSTERING .....</b>	<b>666</b>
ENABLING CLUSTERING .....	666
STARTING ADEPTIA SERVER IN CLUSTERING MODE .....	673
VIEWING CLUSTERING STATUS.....	673
<b>24 CREATING DATABASE CONNECTORS.....</b>	<b>674</b>
CREATING DATABASE DRIVER .....	674
CREATING DATABASE INFO .....	679
CREATING JMS PROVIDER .....	683
<b>25 MANAGING SECRET KEY .....</b>	<b>686</b>
CREATING SECRET KEY ACTIVITY .....	686
EXPORTING SECRET KEY .....	687
IMPORTING SECRET KEY.....	688
<b>26 MONITORING RUNNING PROCESS FLOWS AND LOGGED IN USERS .....</b>	<b>690</b>
MONITORING ADEPTIA SERVER CLUSTER SYSTEM .....	690
MONITORING SYSTEM STATUS OF NODE .....	693
MONITORING PROCESS FLOWS ON NODE.....	694
VIEWING PROCESS FLOW EXECUTION HISTORY OF NODE.....	698
CONFIGURING MONITORING PROPERTIES.....	699
<b>27 RECOVERY .....</b>	<b>701</b>
RECOVERABLE PROCESS FLOWS .....	701
HOW RECOVERY WORKS .....	701
ENABLING RECOVERY .....	702
CONFIGURING RECOVERY FOLDER IN CLUSTERING .....	702
<b>28 LOAD MANAGEMENT.....</b>	<b>703</b>

ENABLING QUEUE PROCESSOR .....	703
<b>29 DATA CLEANUP.....</b>	<b>704</b>
<b>30 LOG CLEANUP.....</b>	<b>705</b>
<b>31 APPENDIX A: ADEPTIA SERVER PROPERTIES.....</b>	<b>705</b>
LOAD MANAGEMENT .....	706
<i>abpm.cluster.enable</i> .....	706
<i>abpm.queue.processor.enable</i> .....	706
<i>abpm.queue.processor.concurrent.processes</i> .....	706
<i>abpm.queue.processor.reload.factor</i> .....	706
<i>abpm.queue.processor.job.restartwithoutRecoveryInfo</i> .....	707
KERNEL SETTINGS.....	707
<i>abpm.node.name</i> .....	707
<i>abpm.node.port</i> .....	707
<i>abpm.repository.address</i> .....	708
<i>abpm.repository.root</i> .....	708
<i>abpm.kernelout.file.enable</i> .....	708
<i>abpm.kernelout.file.location</i> .....	708
<i>abpm.kernelout.file.maxSize</i> .....	709
PERFORMANCE OPTIMIZATION .....	709
<i>abpm.internals.tuning.io.buffer.size</i> .....	709
<i>abpm.internals.tuning.io.pool.enabled</i> .....	709
<i>abpm.internals.tuning.io.gc.limit</i> .....	709
<i>abpm.dataMapper.dblookup.cache.limit</i> .....	710
PROCESS FLOW .....	710
VALIDATION.....	710
<i>abpm.transaction.validation.enable</i> .....	710
RECOVERY .....	710
<i>abpm.transaction.recovery.enable</i> .....	711
<i>abpm.recovery.repository.root</i> .....	711
ARCHIVAL .....	711
<i>abpm.transaction.repository.archive.server</i> .....	711
<i>abpm.transaction.repository.archive.path</i> .....	711
SERVICES .....	712
PROXY SETTINGS .....	712
<i>abpm.transportProxy</i> .....	712
<i>abpm.transportProxyHost</i> .....	712
<i>abpm.transportProxyHttpPort</i> .....	712
<i>abpm.transportProxyFtpPort</i> .....	712
WEB SERVICE CONFIGURATION.....	712
<i>abpm.webservice.uddisearch.maxrowsreturn</i> .....	712
<i>abpm.webservice.host</i> .....	713
<i>abpm.webservice.port</i> .....	713
<i>abpm.webservice.sPort</i> .....	713
<i>abpm.webservice.wsdlDeployPath</i> .....	713
<i>abpm.webservice.serverKeyStorePath</i> .....	713
BUSINESS CALENDAR.....	714
<i>org.quartz.scheduler.bCalendar</i> .....	714
HUMAN WORKFLOW .....	714



<i>abpm.hi.polling.frequency</i> .....	714
<i>abpm.hi.repository.type</i> .....	714
WEBDAV SERVER.....	715
<i>abpm.webdav.servername</i> .....	715
<i>abpm.webdav.port</i> .....	715
<i>abpm.webdav.dirbaselocation</i> .....	715
REPORTS LIBRARY.....	715
<i>abpm.reporting.repository</i> .....	715
DATABASE TARGET.....	716
<i>abpm.database.errorcodes</i> .....	716
DATABASE CONNECTION.....	716
<i>abpm.database.connectionWaitTime</i> .....	716
SCHEMA PROPERTY.....	716
<i>abpm.schemashowfieldcount</i> .....	716
MAIL EVENT PROPERTY.....	716
<i>abpm.mailEvent.processNumber</i> .....	716
<i>abpm.mailEvent.retry</i> .....	717
<i>abpm.mailEvent.sleepTime</i> .....	717
SYSTEMS.....	717
LOGGING.....	717
<i>log4j.rootLogger</i> .....	718
Console appender.....	718
<i>log4j.appender.console</i> .....	718
Database appender.....	719
<i>log4j.appender.jdbc</i> .....	719
<i>log4j.appender.jdbc.url</i> .....	719
<i>log4j.appender.jdbc.dbclass</i> .....	719
<i>log4j.appender.jdbc.username</i> .....	719
<i>log4j.appender.jdbc.password</i> .....	720
File logging.....	720
<i>log4j.appender.file</i> .....	720
<i>log4j.appender.file.Webrunner.file</i> .....	720
<i>log4j.appender.file.Kernel.file</i> .....	720
<i>log4j.appender.file.MaxBackupIndex</i> .....	720
<i>log4j.appender.file.MaxFileSize</i> .....	721
SECURITY.....	721
<i>abpm.security.secretkeystoreName</i> .....	721
<i>abpm.security.repository</i> .....	721
Expiry days.....	721
Expiry message flash.....	722
Comments.....	722
AUTHENTICATION AND AUTHORIZATION.....	722
<i>java.security.auth.login.config</i> .....	722
MAIL SERVER PARAMETER.....	722
MailProtocol.....	723
mailServer.....	723
Domian.....	723
CDOHostName.....	723
systemAdminEmailId.....	723
mailServerUserId.....	724

<i>mailServerPassword</i> .....	724
<i>mailsubject</i> .....	724
<i>sslEnabled</i> .....	724
<i>port</i> .....	724
<i>New password to be Sent</i> .....	724
MAINTENANCE.....	725
DATA CLEANUP PROPERTIES.....	725
<i>abpm.appmanagement.cleanupCronExpression</i> .....	725
<i>abpm.appmanagement.retainTime</i> .....	725
LOG CLEANUP PROPERTIES.....	725
<i>abpm.appmanagement.logCleanupCronExpression</i> .....	725
<i>abpm.appmanagement.logRetainTime</i> .....	725
WEB SERVER.....	726
<i>abpm.webserver.address</i> .....	726
<i>abpm.webserver.public.address</i> .....	726
<i>abpm.webserver.https.port</i> .....	726
<i>abpm.transactionmonitor.ActivityStatusRefreshTime</i> .....	727
<i>SessionTimeout</i> .....	727
<i>abpm.webrunnerout.file.enable</i> .....	727
<i>abpm.webrunnerout.file.location</i> .....	727
<i>abpm.webrunnerout.file.maxSize</i> .....	728
APPLET CONFIGURATION.....	728
DATA MAPPER.....	728
<i>abpm.dataMapper.minHeapsize</i> .....	728
<i>abpm.dataMapper.maxHeapsize</i> .....	728
MONITORING.....	728
<i>abpm.monitoring.minHeapsize</i> .....	728
<i>abpm.Monitoring.maxHeapsize</i> .....	729
PROCESS DESIGNER.....	729
<i>abpm.Process Designer.minHeapsize</i> .....	729
<i>abpm.Process Designer.maxHeapsize</i> .....	729
SOLUTION PROPERTIES.....	730
SALESFORCE INTEGRATION ACCELERATOR PARAMETERS.....	730
<i>abpm.Salesforce.UserId</i> .....	730
<i>abpm.Salesforce.Password</i> .....	730
<b>32 APPENDIX B: CRON EXPRESSION.....</b>	<b>731</b>
<b>33 ABOUT ADEPTIA INC. ....</b>	<b>734</b>
<b>34 TABLE OF FIGURES .....</b>	<b>735</b>
<b>35 TABLE OF TABLES .....</b>	<b>749</b>

# GETTING STARTED

# 1 INTRODUCING ADEPTIA SERVER

Adeptia Server is a Web-based enterprise software product to manage, automate and optimize business processes. It allows you to document and manage processes to make them consistent, repetitive, and visible. The Adeptia Server enables integration of disparate systems to manage enterprise-wide crucial information and automate information exchange. Its reporting capabilities provide transparent view of performance of business processes and resources, thus enabling their optimization.

Adeptia Server comprises of four different products that are designed to meet different business requirements. These products are outlined as:

- [Adeptia BPM Server](#)
- [Adeptia Integration Server](#)
- [Adeptia Workflow Server](#)
- [Adeptia Data Transformation Server](#)

## **Adeptia BPM Server**

Adeptia BPM Server is an enterprise software product that is designed to Manage, Automate and Optimize business processes. It combines process management with business-to-business integration. Adeptia BPM Server easily and quickly automates business processes using industry-specific standards. It allows customers to integrate disparate information sources, software applications and business users both within an enterprise and across customers, vendors and business partners. Adeptia BPM Server helps business users and IT personnel to collaborate so as to automate and optimize complex business processes. It offers a powerful business tool for managers to document, control and monitor critical processes and then improve them.

## **Adeptia Integration Server**

Adeptia Integration Server is an enterprise software product that is designed to integrate ANY APPLICATION with ANY DATA at ANY LOCATION. It combines process-based approach with application and partner integration. It allows customers to integrate disparate information sources, databases and software applications both within and across an enterprise. It has the ability to seamlessly connect with customers, partners, and co-workers while utilizing their existing heterogeneous IT landscape. It combines powerful data transport functionality with comprehensive data mapping and transformation capabilities. It is perfectly suited for Enterprise Application Integration (EAI), Business-to-Business integration (B2Bi) scenarios.

## **Adeptia Workflow Server**

Adeptia Workflow Server is an enterprise software that is used to document, model, automate and monitor business processes that are human centric. It combines a powerful easy to use process designer, and a full featured process engine with an easy to use GUI to create HTML based reusable human activities. The automated activities can be created using inbuilt extension support through custom plug-in. This feature makes this software lighter yet flexible. The software is supported by business activity monitoring and content management system, which makes it a comprehensive end-to-end solution for workflow automation requirements.

## Adeptia Data Transformation Server

Adeptia Data Transformation Server is comprehensive software that combines data transport with powerful metadata management and data transformation capability. It uses Service Oriented Architecture (SOA) and a process-based model to create flexible and loosely coupled data flows that suit any aggregation or data warehousing solutions. Data Transformation Server offers a powerful middleware application to document, automate and execute critical data processes especially for creating and populating data marts from various internal or external data sources. This allows data to be received from multiple sources in different formats and mapped to a common database schema. This enterprise-class software allows companies to centrally manage their data schema and mapping rules in a central repository and directly archive those rules in PDF documents for easy sign-off.

Most services of Adeptia are available with all the Adeptia Server products. A table is displayed at the beginning of each service. This table outlines the Adeptia products for which the service is available. Additionally, most services are available with the Adeptia base license. But some services are not available with the base license and have to be paid for. These paid services vary with licenses. This document describes all the services that are available with the base license as well as those that are paid services. For details on paid services based on licenses, please contact Adeptia support.

## TARGET AUDIENCE

The Adeptia Server can be used by:

- **Business Users:** Business users can make use of the existing activities of the Adeptia Server to create, update, and execute process flows as per their needs.
- **IT Professionals:** IT professionals can create and manage Adeptia Server objects (activities), administer activities such as user creation, update, and execute process flows.

## OVERVIEW OF ADEPTIA SERVER

### Architecture of Adeptia Server

Adeptia Server is a Java-based application designed using the J2EE framework. It is built using the state-of-the-art technologies and open standards. It uses XML, XSLT, Java (JMX, JDO, JCA, JMS, etc) Swing and web services. XML is the core data format used in the integration component. However, the application supports a wide range of disparate formats and structures.

The Adeptia Server utilizes the typical N-tier application architecture. This is displayed in Figure 1.1.

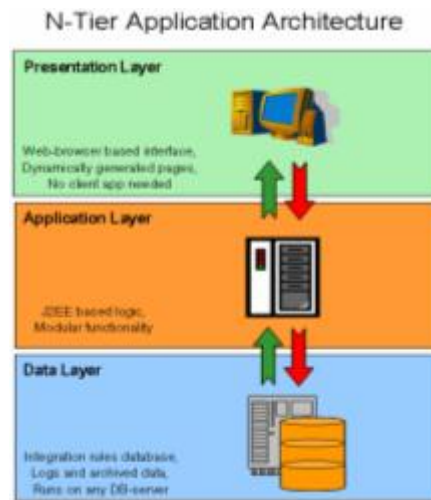


Figure 1.1: N-Tier Application Architecture

Its unique feature is that Presentation Layer is completely web-based, and thus can be used by business users or developers from anywhere at anytime. The user-interface layer is used by developers at design time and by business users at run time to interact with workflow tasks. The Application Layer is a set of java-based server side programs residing on the central server and is used for executing process flows. The Data Layer represents the database, where all business rules, design rules, activity instances and process flows are stored. Run time logs are also stored in the database.

The Adeptia Server follows a Hub-and-Spoke model in terms of deployment in an IT infrastructure. It acts as a central hub, with connections to other systems and external partners as spokes in this model. It is the main server that implements and executes process flows and integrations. It achieves great scalability in performance using its clustering feature. Additionally, it follows a Store and Forward framework. Any incoming data can be archived and then converted into an XML format for further processing.

### ***Modular Design***

Adeptia Server leverages a modular architecture that facilitates greater flexibility and extensibility. This modular design is depicted in Figure 1.2.

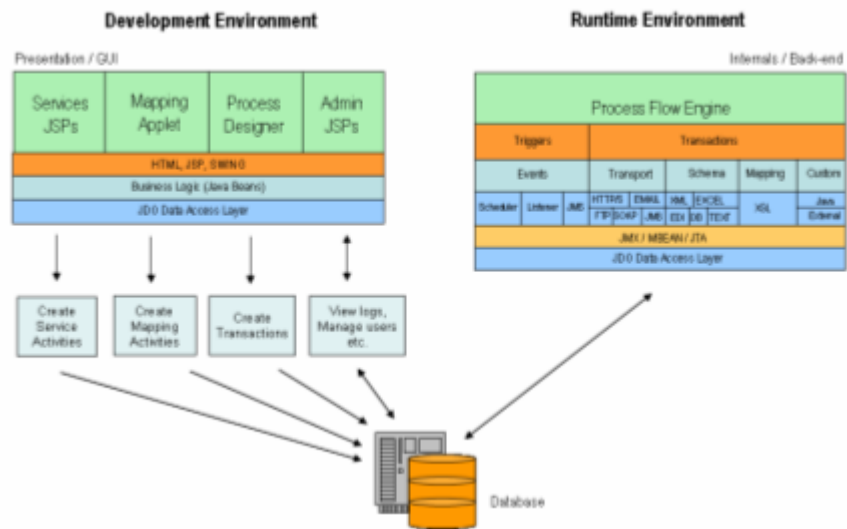


Figure 1.2: Modular Design

This approach has enabled the application to offer additional features and functionality. The biggest advantage is that the customers can easily expand the product and add their own custom modules for serving their business needs.

The N-tier architecture easily segregates the Presentation, Application and Data layers into independent modules. The Adeptia Server functionality is further separated into independent modules. For example, in the Application layer, the Process Engine, Events, Transport, Transformation and Workflow features are all parts of separate modules.

This modular design facilitates the expansion of the Adeptia Server by adding custom programs as new services in the process flow. Custom transports and application integration components can be easily configured to access legacy systems. Custom parsers, schemas can be added to support additional file formats.

## Scalability

Adeptia Server supports distributed execution by clustering of multiple nodes that run parallel on separate servers for load balancing and failover capability. This enables scalability both in terms of processing large data volumes, and large number of concurrent transactions.

To enable clustering, the Adeptia Server is installed on a set of servers that act as nodes in a cluster. A cluster actually represents multiple instances of the Application layer, each running on a separate server, and sharing one back-end data layer i.e. the database. The Presentation Layer also runs from one server.

To create a cluster, a network of nodes is created. One node acts as the primary node and the other nodes are secondary nodes. When process flows are triggered, they are distributed among the nodes of the cluster for execution. If a secondary node goes down in a cluster, it is taken out of the available list and the process flow execution is distributed among the other secondary nodes in the cluster. If a primary

node goes down in the cluster, then a secondary node is automatically assigned as the new primary node which continues the process flow execution.

A simple round-robin algorithm is used for distribution in the cluster. A complete process flow is assigned to a node for execution, thus ensuring that every activity of the process flow is run from that node.

### ***Service Oriented Architecture***

Customers deploy business solutions in the Adeptia Server, based on the Service Oriented Architecture (SOA). Its unique feature enables the Adeptia Server to allow SOA for a heterogeneous environment of Web services and other services.

The Adeptia Server achieves to be a successful and complete service-based solution by offering a wide range of services. These are outlined as:

- Ability to create independent, reusable services or activities
- Manage repository of these services or activities
- Ability to organize tasks in a process flow that represents a business function
- Ability to expose these business processes to be used by other applications

Many services such as triggers, data transport, transformation, workflow and web services are pre-built in the Adeptia Server. Developers create instances of these services, which are referred to as activities. These activities are reusable in multiple process flows. Developers can create custom services or add existing activities into the Adeptia Server. These services can be web services or custom programs. All these services are added in a service repository and activities may be assigned to these services with varied user permissions.

Process flows are created by sequencing individual activities together to create a complex and fully functional business process flow. A process flow represents a complete business operation such as 'Manage and process web site orders'.

A process flow can also be used in another process flow. It can be called as a sub-process in another process flow. Additionally, it can be published as a Web service and used in other processes or applications.

### ***Deployment Model***

Adeptia Server is delivered as a single product and can be deployed with one installation exercise. It is opposed to its competitor products that adopt a tool-kit approach and require installation of many different tools and products.

When the Adeptia Server is installed on a server, it installs all code modules related to Presentation, Application and Data layers. The back-end database can be installed on the same server or on another database server.

Depending upon the expected data and transaction volumes, clustering of nodes is setup facilitating enhanced performance and scalability. Similarly, backup database



can be setup to ensure higher uptime. The deployment model is depicted in Figure 1.3

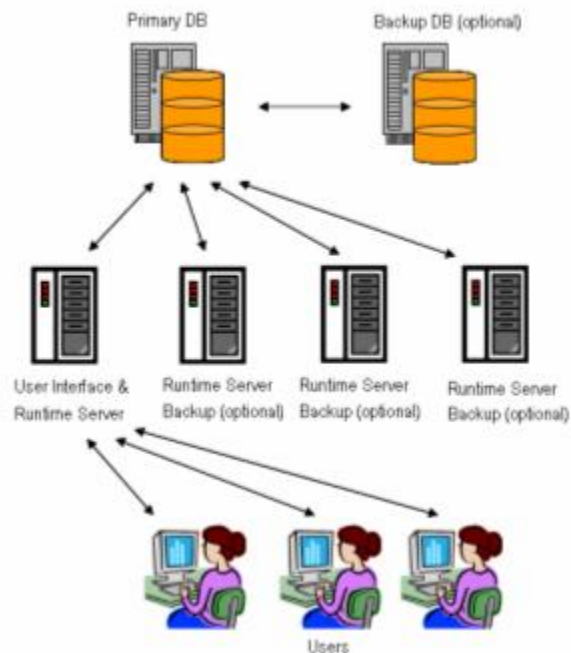


Figure 1.3: Deployment Model

The typical deployments of the Adeptia Server in a customer environment are described below:

- **Production Server:** This will be the instance of the Adeptia Server that is used for the final production environment. There will be multiple production servers to create a cluster.
- **Development Server:** This will be the instance of the Adeptia Server that is used by developers for design, creation and development of activities and process flows. Once a process flow is complete, it is migrated to the Production Server for deployment.
- **Staging and Testing Server:** This will be the instance of the Adeptia Server that is used when the process flows are complete and before they are deployed on the Production Server. The process flows are used for staging, testing and user acceptance. This is optional and may be combined with the Development Server.

## Key terms used in Adeptia Server

The key terms used in the Adeptia Server are defined in the table below.

Table 1.1: Key Terms used in Adeptia Server

Terms	Definition
Service	A service is a type or class of distinct business tasks or actions. It represents a specific feature category of the product. The Adeptia Server supports many pre-built services such as FTP, Email, Database, etc. Additionally, it also allows users to add a customized service such as an external custom program.
Activity	An activity is an instance of a service. It is an actionable business task and is executed at runtime.
Process Flow	A Process flow is a set of activities arranged in a sequence to perform a specific task(s). It is created by connecting various activities that are then executed in the run-time environment.
Trigger	A trigger is an event that initiates the execution of a process flow. It is required to deploy a process flow.
Business Users	Business users are analysts and managers who work on a business process flow that is automated with the Adeptia Server. They own the process flow, specify the business rules, make decisions and monitor the progress. They interact with developers during design time to specify the requirements of the process flow to be deployed. Once it is deployed, they interact with the running process flow using the Human Workflow service. Primarily, they interact with the Adeptia Server at run time.
Developers	Developers are the IT team members who design and implement the activities and the process flows, in addition to managing the Adeptia Server on an ongoing basis. They interact with the Adeptia Server primarily during design time. External consultants who help in deploying the Adeptia Server too are referred to as developers.
WebDAV	Web-based Distributed Authoring and Versioning (WebDAV) is a standard for the exchange of data between web authoring tools and web servers. It is a set of extensions to the HTTP protocol that enable editing of documents on a remote web Server.
Workflow	A workflow service allows business users to interact with running process flows. It is an instance of a service that relates to a specific task done by a specific business user in a specific manner.

Control Flow	A control flow represents the sequence of execution of activities in a process flow. All business rules and logic of a process flow are enforced by a control flow.
Decision Node	A decision node is a type of control flow that determines which activity is to be executed next, based on the prior results of the process flow.
Design time	Design time is referred to the phase when business users document and developers design and create activities and process flows.
Run time	Run time is referred to the phase when the process flow that has already been deployed, is executed.

## Structure of the Adeptia Server

The Adeptia Server is divided into four sub-systems:

- [Manage](#)
- [Automate](#)
- [Optimize](#)
- [Administer](#)

### ***Manage***

The **Manage** section of Adeptia Server allows business users to design a Process flow. Process flow is a set of activities arranged in a sequence to perform a specific task(s). Process flow is created by connecting various activities (i.e., Source, Target, Schema, and Mapping) that are then executed in the run-time environment.

Process flows are designed using Process Designer.

- **Process Designer:** The Process Designer allows users to create customized process flows using BPMN Notations.

### ***Automate***

The **Automate** section of the Adeptia Server allows user to instantiate activities from the list of Services. These activities can be reused in Process flows. For example, FTP activity is created using Adeptia Server's Source or Target Service, a Mapping Activity is created by using Data Transformation Service or an EDI Schema activity can be created using Schema Service.

Each activity performs a discreet function as listed below:

- **Data Dictionary:** Used to create and define record definitions that are commonly used in schemas.

- **Data Transform:** Used to map and convert source data to target data format. Mapper utilizes the source and target schema activities to enable element to element data mapping and application of complex business rules. It also includes defining of record-to-record service.
- **Extensions:** Used for creating custom applications and custom plugins.
- **Human Workflow:** The human workflow service manages the interaction of a user with the running Process flows. By using this functionality, users can enter their inputs in the system, in order to automate a decision at certain point of running a Process flow. It also includes the WebDAV folder. Web-based Distributed Authoring and Versioning (WebDAV) is a standard for the exchange of data between web authoring tools and web Servers. WebDAV is a set of extensions to the HTTP protocol allowing you to edit documents on a remote web Server. It makes HTTP Server an advanced file system that supports HTTP based file permissions, Faster File Transfer and S-HTTP. WebDAV provides authoring support for web resources of any media type, be they HTML, GIF, JPEG, or other. The ability to store arbitrary metadata for resources provides versioning of any media type and not just text-based objects. It also provides features like put, lock/unlock (long-duration transfer, move, copy and list files and directories.
- **MIME Message:** Used to encode and decode messages in the system.
- **Miscellaneous:** Used to create the Context Upload and Context Download variables and generate custom reports for process flows that are already executed. It also includes creating of stored procedures.
- **Native Service:** Used to run the .EXE, .BAT and .SH files asynchronously during the execution of Process flow.
- **Notification:** Notification is used to send e-mail at certain points in a process flow.
- **Polling:** Polling Services allow the Process flow to 'wait' and 'listen' to the arrival of new or updated data at a pre-defined location before it executes subsequent activities.
- **Schema:** Used to identify how a file is to be read or written. The Schema activity screen allows you to define meta-data rules for reading or writing data from text files, database tables, or XML files.
- **Source:** The Source activity screen allows you to identify specific data set (i.e., flat file, XML or database record) to be created, its location, and the transport protocol to be used to retrieve this data.

- **Target:** The Target activity screen allows you to identify specific data set (i.e., flat file, XML or database record) to be created, its location, and the transport protocol to be used to send this data.
- **Trading Partner:** Used to facilitate electronic exchange of standard business documents between trading partners (Buyers/Sellers).
- **Triggers and Events:** This activity enables you to specify when and how frequently the Process flow should be executed on a recurring basis.
- **Web Services:** These services are used to publish and consume Web Services.

## ***Optimize***

The **Optimize** section of Adeptia Server allows you to view system, process flow logs and generate process flow reports.

- **Dashboard:** Used to create a dashboard component and design the dashboard layout.
- **Reports:** Used to generate all reports such as Audit Trail log, Event Log, Process Flow log, System log and Task log.

## ***Administer***

The **Administer** section of the Adeptia Server allows you to manage Groups, Users, Application Settings, Scheduler, Clustering and Database Connectors etc.

- **Configure:** This includes administration of user and groups, system properties, and scheduler.
- **Connectors:** This helps to establish the connection for all databases to be used by the Adeptia Server.
- **Security:** This includes creation and management of secret key.
- **System Status:** The system monitors and displays the status of running process flow, Process Flow history, users currently logged in Adeptia Server, Cluster Statistic, memory usage, and the scheduler status.

## **Top-Down Vs Bottom-Up Approach**

In order to automate a business process flow, the Adeptia Server can be used in two ways:

- [Top-Down approach](#)

- **Bottom-Up approach**

To understand these two approaches, assume the following scenario:

A manager needs to process a purchase order based on the purchase value. If the purchase amount is less than \$50,000, then the purchase order is sent to the VP for approval. If the purchase amount is greater than \$50,000 then the purchase order is sent to the Director for approval.

To automate this scenario, process flow can be created using either Top-down approach or Bottom-Up approach.

### ***Top-Down Approach***

A business user, who is not technically proficient, can use the Top-Down approach. A business user may not know how to create different activities or the parameters that need to be entered in the activities. In this case, he/she can draw a blueprint of the process flow in Process Designer. Process Designer has different BPMN objects which can be used to draw the blueprint of the process flow. Now rest of the task can be assigned to developer or technical person, who is responsible to implement this process flow. The technical person will create each activities required for this process flow and attach it the blueprint of process flow.

The activities required to create the process flow are outlined as:

- **File Source:** Used to specify the text file containing the purchase order as the source. It is stored in the local drive. It picks up the file and passes it to the other activity.
- **Context Target:** Used for putting the data of the text file into the context of the process flow.
- **Context Source:** Used for taking the data from the context of the process flow and sending it to the decision node.
- **Decision Node:** Used to decide whether the purchase order is to be sent to the VP or the Director.
- **Repeater:** Used to send the stream coming from the Context Source to the File Target activity and the Decision node.
- **File Target:** Used to save a copy of the purchase order in the specified location.
- **Mail Target:** Used to send purchase order either to the VP or the Director, based on the purchase value amount.

### ***Bottom-Up Approach***

If it is the sole responsibility of a technical person to create a process flow, he/she does not need to first draw the blue print of the process flow and then create the activities. He/She can directly create the listed activities, and use them to create a process flow.

## 2 GETTING STARTED

This section helps you start the Adeptia Server and introduces you with the Adeptia Server Home page. It covers the following information:

- [Pre-Requisites of using Adeptia Server](#)
- [Starting Adeptia Server Kernel and Web Runner](#)
- [Login into Adeptia Server](#)
- [Understanding Adeptia Server Home Page](#)
- [Change Password](#)

### PRE-REQUISITES OF USING ADEPTIA SERVER

The pre-requisites of using Adeptia Server are outlined as:

- Internet Explorer 6.0 or above (Java enabled) browser (Adeptia Server is tested on Internet Explorer 6.0 and above).
- Java Runtime Environment (JRE)

Adeptia Server has two major components:

- Server End
- Client End

The JRE dependency of the Adeptia Server components is listed in the table below:

Table 2.1 : JRE Dependency of Adeptia Server Components

Adeptia Server Component	Applet	JRE Dependency
Server End	Adeptia Server Kernel	JRE 1.5 or above (JRE 1.5 is already bundled with Adeptia Server)
Client End Applets	Process Designer	JRE 1.5 or above
	Data Mapper	JRE 1.5 or above
	Monitoring	JRE 1.5 or above
	WebDAV	JRE 1.5 or above
	Custom Report	JRE 1.5 or above
	Dashboard	JRE 1.5 or above





In case JRE 1.4.2 or JRE 1.5 is installed on the client-end PC, then the applets will automatically download JRE 1.6 from the JAVA website.

The *Pop-Up Blocker* needs to be disabled in the web browser, in order to open the applets. By default, the *Pop-Up Blocker* is enabled.

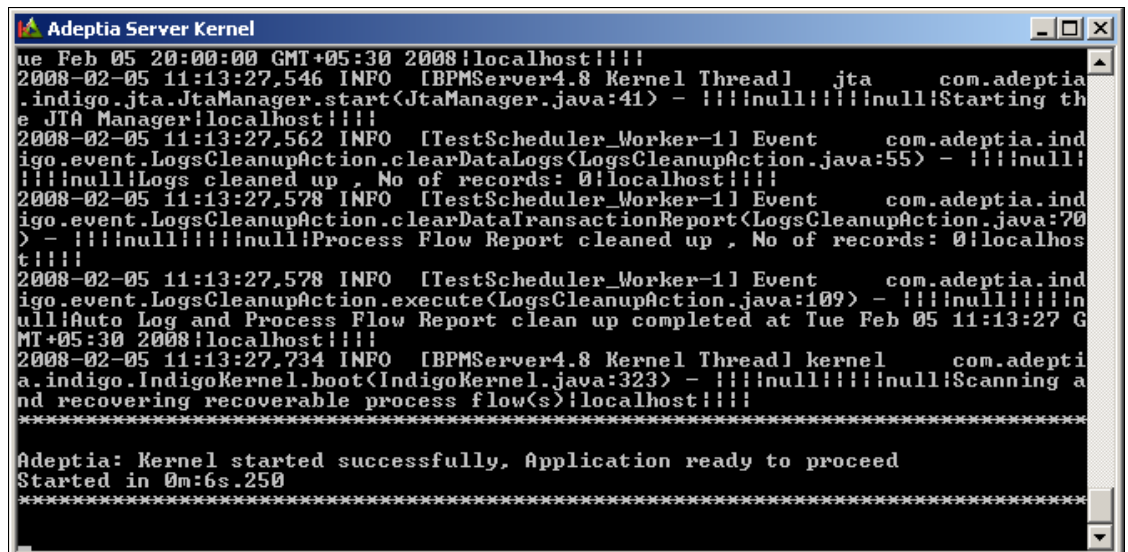
## STARTING ADEPTIA SERVER KERNEL AND WEB RUNNER



If you have installed Adeptia Server as Windows service, skip this section. Adeptia Server Kernel and Web Runner automatically start during windows startup. For more details, refer to Adeptia Server Installation Guide.

### Steps to start the Adeptia Server Kernel and WebRunner

1. Click **Start > Programs > Adeptia Server** and then select **Kernel**. The console window is displayed with kernel message (see Figure 2.1).



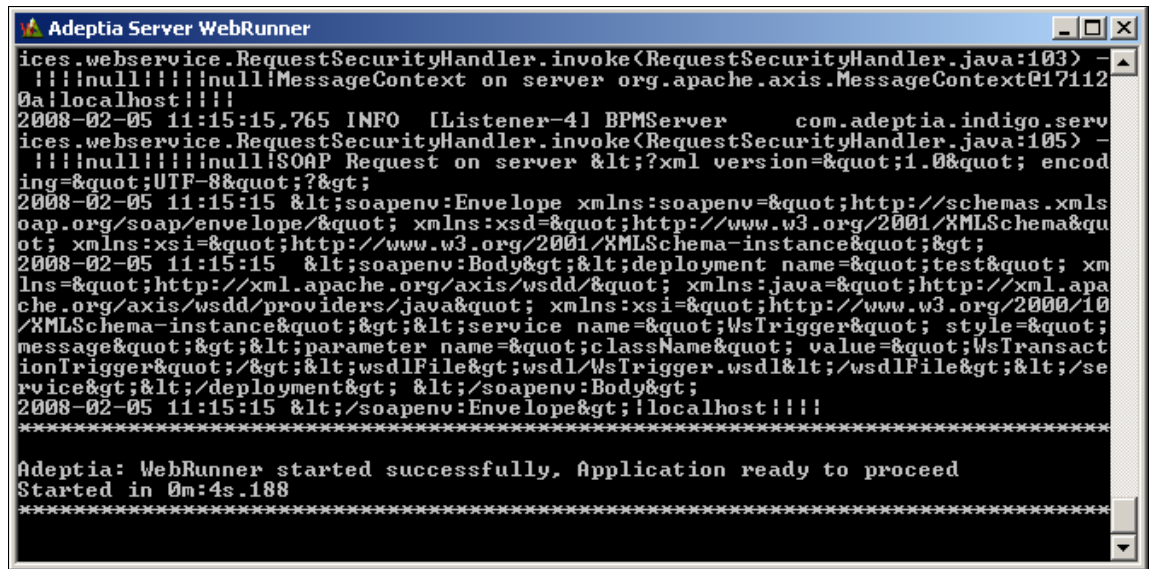
```

Tue Feb 05 20:00:00 GMT+05:30 2008!localhost!!!!
2008-02-05 11:13:27,546 INFO [BPMServer4.8 Kernel Thread] jta com.adeptia
.Indigo.jta.JtaManager.start(JtaManager.java:41) - !!!null!!!!!!Starting th
e JTA Manager!localhost!!!!
2008-02-05 11:13:27,562 INFO [TestScheduler_Worker-1] Event com.adeptia.ind
igo.event.LogsCleanupAction.clearDataLogs(LogsCleanupAction.java:55) - !!!null!
!!!null!Logs cleaned up , No of records: 0!localhost!!!!
2008-02-05 11:13:27,578 INFO [TestScheduler_Worker-1] Event com.adeptia.ind
igo.event.LogsCleanupAction.clearDataTransactionReport(LogsCleanupAction.java:70
) - !!!null!!!!!!Process Flow Report cleaned up , No of records: 0!localhos
t!!!!
2008-02-05 11:13:27,578 INFO [TestScheduler_Worker-1] Event com.adeptia.ind
igo.event.LogsCleanupAction.execute(LogsCleanupAction.java:109) - !!!null!!!!!!n
ull!Auto Log and Process Flow Report clean up completed at Tue Feb 05 11:13:27 G
MT+05:30 2008!localhost!!!!
2008-02-05 11:13:27,734 INFO [BPMServer4.8 Kernel Thread] kernel com.adepti
a.Indigo.IndigoKernel.boot(IndigoKernel.java:323) - !!!null!!!!!!Scanning a
nd recovering recoverable process flow(s)!localhost!!!!
*****
Adeptia: Kernel started successfully. Application ready to proceed
Started in 0m:6s.250
*****

```

Figure 2.1: Starting Adeptia Server Kernel

2. Check the kernel console for a message displaying time taken by the kernel to start. For example, '**Started in 0m: 6s.250**' implies that Kernel started in 6 seconds and 250 milliseconds.
3. To start the WebRunner, click **Start > Programs > Adeptia Server** and then select **Web Runner**. A new console window is displayed with the Web Runner message (see Figure 2.2).




```

ices.webservice.RequestSecurityHandler.invoke(RequestSecurityHandler.java:103) -
!!!null!!!null!MessageContext on server org.apache.axis.MessageContext@17112
0a!localhost!!!
2008-02-05 11:15:15.765 INFO [Listener-4] BPMServer com.adeptia.indigo.serv
ices.webservice.RequestSecurityHandler.invoke(RequestSecurityHandler.java:105) -
!!!null!!!null!SOAP Request on server <?xml version="1.0" encod
ing="UTF-8"?>
2008-02-05 11:15:15 <?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmls
oap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema&qu
ot; xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance&quot; >
<soap:Body>
<deployment name="test" xm
lns="http://xml.apache.org/axis/wsdd/" xmlns:java="http://xml.apa
che.org/axis/wsdd/providers/java" xmlns:xsi="http://www.w3.org/2000/10
/XMLSchema-instance&quot; >
<service name="WsTrigger" style="
message" >
<parameter name="className" value="WsTransact
ionTrigger" />
<wsdlFile wsdl="WsTrigger.wsdl" />
</service>
</deployment>
</soap:Body>
</soap:Envelope>
localhost!!!
*****
Adeptia: WebRunner started successfully. Application ready to proceed
Started in 0m:4s.188
*****

```

Figure 2.2: Starting Adeptia Server WebRunner

4. Check the WebRunner console for a message displaying time taken by the WebRunner to start. For example, '**Started in 0m:4s.188**' implies that WebRunner started in 4 seconds and 188 milliseconds.

	<ul style="list-style-type: none"> <li>▪ To learn how to start Adeptia Server kernel in clustering mode, refer to section <a href="#">Deploying Clustering</a>.</li> <li>▪ To stop the Kernel and WebRunner, use &lt;Control&gt;+ &lt;C&gt;. Alternately, you can stop the Kernel from the GUI. For details refer to the <a href="#">Managing Kernel</a> section. It is recommended to stop the Kernel from the GUI, as it will wait for all running transactions to execute and then stop the Kernel. However, &lt;Ctrl&gt; + &lt;C&gt; stops the kernel instantly terminating all transactions. If you close Kernel and WebRunner DOS windows by clicking on the cross (close) button, Java Virtual Machine (JVM) used by Adeptia Server may not shut down properly.</li> </ul>
---	---

## LOGIN INTO ADEPTIA SERVER

### Steps to login into the Adeptia Server

5. Start the Internet Explorer browser and type the address in the address bar <http://hostname:8080/adeptia/control/>

The Adeptia Server login screen is displayed (see Figure 2.3).



	<ul style="list-style-type: none"> <li>▪ “hostname” in the address is the name of the Server on which Adeptia Server is running. For example if the Adeptia Server is running on a Server named Adeptia, the URL will be <a href="http://adeptia:8080/adeptia/control/">http://adeptia:8080/adeptia/control/</a></li> <li>▪ If Adeptia Server is running on local machine, the URL will be <a href="http://localhost:8080/adeptia/control/">http://localhost:8080/adeptia/control/</a></li> <li>▪ The Adeptia Server is tested only on Internet Explorer.</li> </ul>
---	--



Figure 2.3: Adeptia Server Login screen

6. Enter the ID of the user in the *User ID* field.
7. Enter the password in the *Password* field.


	<ul style="list-style-type: none"> <li>▪ The password should be a minimum of 6 characters in length and should include a numeric value.</li> <li>▪ The password will expire after the number of days specified in the Value field, while setting the <i>Expiry Days</i> property. If this value is set to 0, then the password will not expire. By default, this value is set to 0. Additionally, you can generate a password expiry warning to be displayed at the time of login. For example, if 5 is specified in the <i>Value</i> field, while setting the <i>Expiry Message Flash</i> property, then a warning will be displayed 5 days before the password is to expire. It will be displayed each time you login. For changing these property settings, refer to Appendix A: <a href="#">Expiry Days</a>.</li> <li>▪ If the password is already expired, then the Change Password</li> </ul>
---	---

screen is displayed at the time of login.


8. Click **Submit**. The next screen is displayed, based on the user's workgroup. If the user is a member of more than one group, then the login screen is displayed again, with the *Group* field (see Figure 2.4). Else, the Adeptia Server Home Page is displayed with details associated with the logged in user's group (refer to Figure 2.5).




Figure 2.4: Adeptia Server Select Group screen

 The *Group* drop-down menu is populated with only those groups of which the logged in user is a member.

9. Select the group with which the user wants to login, from the *Group* drop-down list.

 A user can be a member of more than one group. But he can login and access objects associated with one group at a time. For example, a user is a member of two groups: *Administrators* and *Executives*. Both these groups vary in terms of objects. He can login as a member of either the *Administrators* or the *Executives* group at a time. For detailed information on groups, refer to the section [Creating and Managing User Groups](#).

10. Click **Submit**. The Adeptia Server Home Page is displayed with details associated with the selected user group (see Figure 2.5).



- Default User ID is *admin* and the password is *indigo1*.
- By default you are logged in the *Standard* mode. If you want to login into the *Secure* mode, use the following URL to login into Adeptia Server:

<https://hostname:8443/adeptia/control/>

- Click Yes to close the *Security Alert* dialog box.
- When you login into the *Secure* mode, the data transfer from your PC to the Server happens in encrypted form and through a secure channel.

## UNDERSTANDING THE ADEPTIA SERVER HOME PAGE

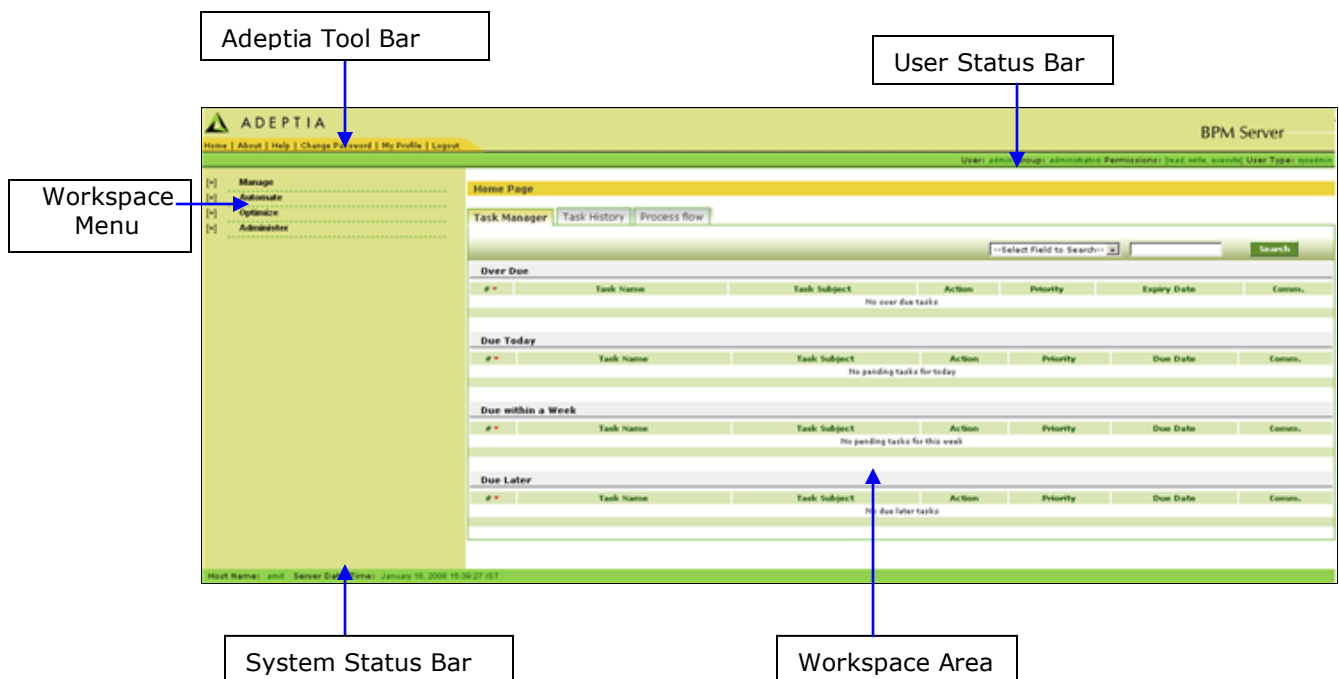


Figure 2.5: Adeptia Server Home Page

The Adeptia Server home page is divided into the sections:

- [Workspace Menu](#)
- [User Status Bar](#)
- [System Status Bar](#)
- [Adeptia Server Tool Bar](#)
- [Workspace Area](#)

### Workspace Menu

The Workspace Menu contains a list of all the services provided by the Adeptia Server, in alphabetical order. You can expand and view items of each service by clicking the **[+]** sign.

## User Status Bar

The User Status Bar shows the information of the user logged in i.e. User ID, User group, Permission and User type.

## System Status Bar

The System Status Bar shows the host name, date and time of the server where Adeptia Server is running.

## Adeptia Server Tool Bar

The Adeptia Server Tool Bar is used to:

- Go to Adeptia Server Home Page
- View Version and License Information
- Open Adeptia Server Help
- Change Password
- View User Profile
- Logout from Adeptia Server

## Workspace Area

The Workspace Area is used to create, modify and view Adeptia Server objects (Users, Groups, Activities and Process Flows etc). Once you login into Adeptia Server, the Home Page is displayed with a list of Tasks assigned.

The Home Page workspace area is displayed as a tabbed layout. It has four tabs:

- [Task Manager](#)
- [Staffs Task Manager](#)
- [Task History](#)
- [Process Flow](#)

## Task Manager

This section displays tasks as organized based on the date when they are due. The information includes the task name, description, action, priority, expiry date and comments (see Figure 2.6).

The tasks are organized as:

- **Over Due:** contains a list of tasks for which due dates have already passed.
- **Due Today:** contains a list of tasks which are due for today.

- **Due This Week:** contains a list of tasks, which are due for the next six days. Tasks that are listed in the Due Today list are not listed in this list.
- **Due Later:** contains a list of tasks for which due dates are more than seven days.

Home Page


Task Manager
Task History
Process flow

--Select Field to Search--
Search


**Over Due**

#	Task Name	Task Subject	Action	Priority	Expiry Date	Comm.
No over due tasks						

**Due Today**

#	Task Name	Task Subject	Action	Priority	Due Date	Comm.
1	Employee_Verification	Testing	<a href="#">Open Task</a>	Immediate	07/03/2008 19:15	


**Due within a Week**

#	Task Name	Task Subject	Action	Priority	Due Date	Comm.
1	PO_Review	Testing	<a href="#">Open Task</a>	Immediate	07/04/2008 19:17	

**Due Later**

#	Task Name	Task Subject	Action	Priority	Due Date	Comm.
No due later tasks						

Figure 2.6: Task Manager

The **comments** icon () appears for each task. Clicking this icon, displays the Comments screen (see Figure 2.7).



**View/Edit Comments for the task 'Employee\_Verification'**

Properties	Value
Task Id	192168001240121507470367100009
Task Name	Employee_Verification
Task Description	Testing
Process Flow Name	EMP_Approval
Assign To	admin
Task Priority	Immediate
Task Creation Date	07/03/2008 14:15
Task Due Date	07/03/2008 19:15
Task Expiry Date	07/05/2008 14:15

Comments

Save Comments

Cancel

Figure 2.7: Comments screen

This screen displays all details associated with the selected task. Enter the comments for the task in the Comments field and click **Save Comments**. This saves the entered comments and closes the screen.

### Staffs Task Manager

The Staff Task Manager tab is displayed when the user is assigned as Manager of other users. It displays tasks as organized based on the date when they are due. The information includes the task name, description, assign to, priority, expiry date, due date, action and comments (see Figure 2.8).

The tasks are organized as:

- **Over Due:** contains a list of tasks for which due dates have already passed.
- **Due Today:** contains a list of tasks, which are due for today.
- **Due This Week:** contains a list of tasks, which are due for the next six days. Tasks that are listed in the Due Today list are not listed in this list.
- **Due Later:** contains a list of tasks for which due dates are more than seven days.

- **Staff Profile:** Manager can view the calendar of the staffs for its availability. To view the dates at which user will not be available, click on View link in the user's profile.

Home Page
Task Manager
Staff Task Manager
Task History
Process flow

--Select Field to Search--
Search

**Over Due**

#	Task Name	Task Subject	Assign To	Priority	Expiry Date	Due Date	Action	Comm.
No over due tasks								

**Due Today**

#	Task Name	Task Subject	Assign To	Priority	Expiry Date	Due Date	Action	Comm.
1	Loss_Adjustment	Testing	Smith	Immediate	07/06/2008 11:58	07/04/2008 16:58	Update	

**Due within a Week**

#	Task Name	Task Subject	Assign To	Priority	Expiry Date	Due Date	Action	Comm.
1	Claim_Amount_Review	Testing	Smith	Immediate	07/06/2008 12:00	07/05/2008 17:00	Update	

**Due Later**

#	Task Name	Task Subject	Assign To	Priority	Expiry Date	Due Date	Action	Comm.
No due later tasks								

**Staff Profile**

#	User	Colleague	Calendar
1	Smith		View

Figure 2.8: Staffs Task Manager

The Manager can change the Assign To, Priority, Due Date, Expiry Date and comments of the tasks assigned to its staff. Manager can re-assign the task to any other user or users from the staff. After changing tasks properties, click **Update Task** button to save the changes. Manager can enter/update comments by clicking the **Comments** icon.

When a manager reassigns the task from one user to another, an email is sent to existing user that the task has been removed from his/her task manager. Similarly an email is send to the new user that a task is added to his/her task manager.

## Task History

The Task History tab displays history of tasks of a process instance or task instance based on the entered search criteria. For details, refer to the Viewing Task History section.

## Process Flow

The Process Flow tab displays the process flow screen (see Figure 2.9).

Home Page

Task Manager

Staff Task Manager

Task History

Process flow

New | Edit | Delete | Revisions | Dependencies

--Select Field to Search--

Search

Activate | Execute | BindEvent











#		Name	Description	Events	Owner	Perm.	Modified ▼
1		EMP_Approval	EMP_Approval	None	admin	RWX	11/18/08 17:59
2		PO_Verification	PO_Verification	None	admin	RWX	11/18/08 17:59
3		EvalPD_ProcessFlow	purchase order processing	None	admin	RWX	02/13/08 11:57
4		EvalXform_ProcessFlow	Process Flow to transfer data from DB to Excel	None	admin	RWX	10/08/07 11:45
5		EvalScript_ProcessFlow	Process Flow to Concatenate Employee records	None	admin	RWX	10/08/07 11:45
6		EvalRec_ProcessFlow	Process Flow to process records one by one	None	admin	RWX	10/08/07 11:44
7		EvalPF_ProcessFlow_SalesReport	Sales Report - Two formats	View	admin	RWX	10/08/07 11:44
8		EvalJMSE_ProcessFlow	Process Flow for JMS Event demo	View	admin	RWX	10/08/07 11:44

Figure 2.9: Process Flows tab

You can create new process flows, edit or delete existing process flows, and view revision history and dependencies of existing process flows from this screen.



To learn how to create Process Flow, refer to section [Working with Process Flow](#).

In addition to the tabs, the home page also includes the search utility. You can search a task or process flow based on the name or description criteria.

## CHANGE PASSWORD

### Steps to change password

1. Click **Change Password** on the Adeptia Server Toolbar. The Change Password screen is displayed (see Figure 2.10).

Change Password

Old Password

New Password

Confirm Password

Email \*


Email Id was not configure while creating the User

Please Note: You must save your work and close all applets (Process Designer, Data Mapper) before changing the password.  
If password is changed, any work done on the previously open applets will not be saved. To work on the applets re-login with the new password.


Save

Cancel


Figure 2.10: Change Password

	If the password is expired, then this screen is displayed at the time of login.
---	---

2. Enter the old password in the *Old Password* field.
3. Enter the new password in the *New Password* field.
4. Enter the new password again in the *Confirm Password* field.
5. Enter the email id of the logged in user in the *Email* field.

	This field will be displayed only if the email was not configured when creating the user.
---	---

6. Click **Save**. This changes the password.

	It is mandatory to save all activities and close all applets before changing the password. Else, the changes will not be reflected in the activities and applets.
---	---

## MANAGE

### 3 WORKING WITH PROCESS FLOW

A process flow is a set of activities arranged in a sequence to perform a specific task(s). Combining various activities i.e. Source, Target, Schema or Transformer etc. creates a process flow. The execution of a process flow is controlled by the Process Engine. The Process Engine starts the execution of process flow instances and all the activities present in a process flow. When the process flow is executed, data from the source is converted to the intermediate form and then it is dispatched to the target. The transformer does the conversion of data. In the Adeptia Server two types of transformers are used:

- **Stream2XMLStream/XMLStream2stream:** This transformer converts the source data to XML (i.e. Stream2XMLStream) and then XML to target data (i.e. XMLStream2Stream).
- **SchemaStream2Record/SchemaRecord2Stream:** This transformer converts source data to intermediate format (i.e. SchemaStream2Record) and then intermediate format to target data (i.e. SchemaRecord2Stream).

In the Adeptia Server, a **Process Flow** is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

#### Repository

When the process flow is executed, data from the source is converted to the intermediate form and then it is dispatched to the target. The intermediate data is stored in a repository folder. The path of the repository folder is `..././AdeptiaServer-4.9/ServerKernel/web/repository`. While creating a process flow, the user can specify whether to keep or delete the repository file.

Activities of a process flow are executed in two ways:

- **Synchronous Activity:** If an activity is synchronous, process flow initiates the execution of that activity and waits for its completion. The execution of subsequent activity is initiated only after the completion of first activity.
- **Asynchronous Activity:** If an activity is asynchronous, process flow initiates the execution of that activity and subsequent activities as defined in the process flow without waiting for the completion of the first activity.



Repository file is not generated for the activities which are used in **Asynchronous** mode.

## Controlling Synchronization

In a process flow, if an activity is synchronous, no signal is required to acknowledge the Process Engine about its completion as it runs in the main thread. If an activity is asynchronous, running parallel to main thread, some mechanism is required to notify the Process Engine about its completion. This is achieved by signaling.

## Signaling

Signaling facilitates coordination of asynchronous activities in a process flow. A signal is raised as an asynchronous activity completes. The Synch Node in the process flow waits for signal and ensures that all the activities raising that signal are completed before control moves further in the process flow. This is done using the Synch Node option while defining a process flow.

## Time Out

When an activity is used as asynchronous, a new property TimeOut is added to it. By default, its value is 300 seconds. If an asynchronous activity cannot connect to the next activity within this time limit, it gets aborted. To know how to use an activity in asynchronous mode and to change its property, refer to the section Creating Process Flow.

# UNDERSTANDING PROCESS DESIGNER

Process Designer allows users to design business processes and business rules. It enables comprehensive designing of a process flow by the simple *Point and Click* method. The Business Process Modeling Notation (BPMN) standard is used to graphically depict business processes. The Process Designer is easy to use and enables both technical and non-technical users to design processes. The Process Flow Designer applet is displayed in Figure 3.1.

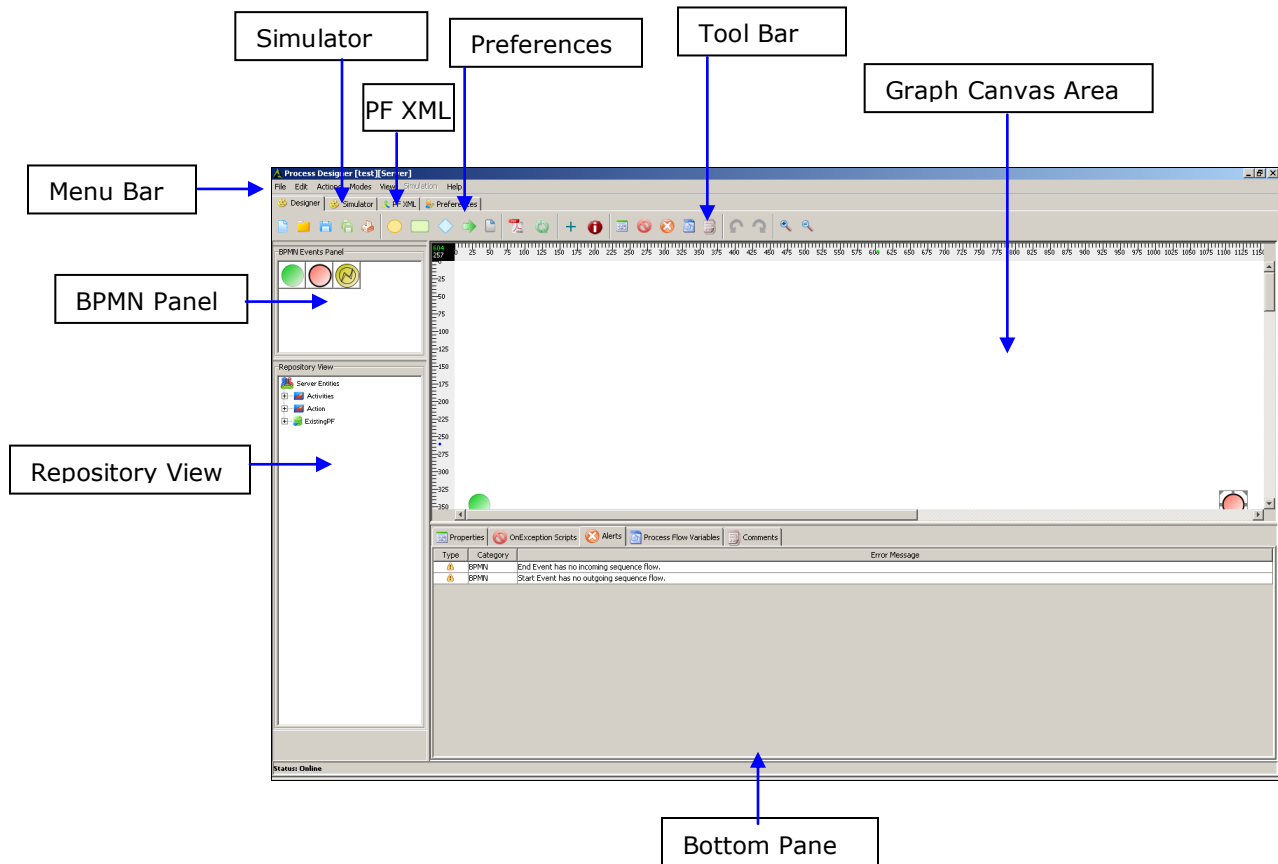


Figure 3.1: Process Designer Applet

The Process Flow Designer window is divided into nine sections:

- [Menu Bar](#)
- [Tool Bar](#)
- [BPMN Panel](#)
- [Repository View](#)
- [Graph Canvas](#)
- [Bottom Pane](#)
- [Simulator](#)
- [PF XML \(Process Flow XML\)](#)
- [Preferences](#)

### Menu Bar


Options of the Menu Bar are listed in the table below.



Table 3.1: Menu Bar Options

Menu Option	Sub-Option	Function
File	New	Open new Graph Canvas to create a new process flow.
	Open locally saved Process Flow	Open a process flow saved to a local machine.
	Save to Server	Save process flow to the Adeptia Server.
	Save Process Flow locally	Save process flow to a local machine.
	Print Process Flow XML	Print the XML output of the process flow.
	Exit	Close the Process Designer applet.
Edit	Undo	Undo the previous action.
	Redo	If you later decide you didn't want to undo an action, click the Redo button
	Zoom In	Zoom and magnify the current selection.
	Zoom Out	Zoom and minimize the current selection.
Actions	Synchronize PD with Server	Synchronize the process flow with a list of Adeptia Server objects such as activities and process flow.
	Enter Login Information	Enter login information for accessing process designer.
	Maximize Graph Canvas	Maximize the Graph Canvas workspace.
	Show Properties Tab	Display and activate the Properties tab at the bottom pane of the Graph Canvas.
	Show Exception Handler Tab	Display and activate the On-Exception Scripts tab at the bottom pane of the Graph Canvas.
	Show Errors Tab	Display and activate the Errors tab at the bottom pane of the Graph Canvas.
	Show Process Flow Variables Tab	Display and activate the Process Flow Variables tab at the bottom pane of the Graph Canvas.








	Show Comments Tab	Display and activate the Comments tab at the bottom pane of the Graph Canvas.
	Process Flow Attributes	Allow you to enter the properties of the process flow.
Modes	Online/Offline	Toggle between online and offline mode.
View	Show Flow Object Labels	Display labels of process flow objects.
	Show Connectivity Object Labels	Display labels while connecting objects.
	Show Artifacts and Associations	Display artifacts and associations.
	Show Control Flows	Display control flows.
Help	Help	Displays help for the Process Designer applet.
















 The sub-options of the File, Edit, Actions and Help menus can also be accessed by their keyboard shortcuts. To view a list of the defined shortcuts, refer to the [Keyboard Shortcuts](#) section.

## Tool Bar

Options of the Tool bar are explained in the table below.

Table 3.2: Tool Bar Options








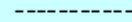
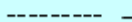


Button	Name	Function
	New Process Flow	Open new graph canvas to create a process flow
	Open Locally Saved Process Flow	Open process flow file saved on local hard disk.
	Save Process Flow to Adeptia Server	Save Process flow to the Adeptia Server.
	Save process Flow Locally	Save process flow on local hard disk.
	Print Process Flow XML	Print the Process Flow XML.
	Select BPMN Events	Show BPMN events in the BPMN Panel.
	Select BPMN Tasks	Show BPMN tasks in the BPMN Panel.

	Select BPMN Gateways	Show BPMN gateways in the BPMN Panel.
	Select BPMN Flows	Show BPMN flows in the BPMN Panel.
	Select BPMN Artifacts	Show BPMN artifacts in the BPMN Panel.
	Generate PDF	Generate PDF file of the process flow diagram. You can generate a <i>Graph PDF</i> , <i>Summary PDF</i> or <i>Entire Flow PDF</i> . A <i>Graph PDF</i> includes all the rules applied on all activities in the process flow. A <i>Summary PDF</i> includes only the activity details, and is implemented only on mapping and schema. The <i>Entire Flow PDF</i> includes all details of the process flow.
	Synchronize with Adeptia Server	Synchronize a list of Adeptia Server objects i.e. activities and process flow from the Adeptia Server.
	Maximize/Restore Flow Canvas	Maximize and restore graph canvas.
	Online Mode	Switch to Online Mode from Offline Mode.
	Offline Mode	Switch to Offline Mode from Online Mode.
	Show Properties Panel	Show the Properties panel in the bottom pane.
	Show Exception Handler Panel	Show the Exception Handler Script in the bottom pane.
	Show Error Panel	Show the Error panel in the bottom pane.
	Show Process Flow Variable Panel	Show the Process Flow Variable Panel in the bottom pane
	Show Comments Panel	Show the Comments panel in the bottom pane.
	Undo	Undo the last action.
	Redo	If you later decide you didn't want to undo an action, click the Redo button.
	Zoom In	Zoom In the Graph Canvas area.
	Zoom Out	Zoom Out the Graph Canvas area.


## BPMN Panel

The BPMN panel contains a list of BPMN graphical elements. BPMN graphical elements are used to define the flow of business processes. These BPMN graphical elements are listed in five different panels, listed in the table below.

Table 3.3: BPMN Graphical Elements

Element	Description	Notation
Events	An event is something that "happens" during the course of a business process. Events influence the flow of the process and usually have a cause (trigger) or an impact (result).	 Start  End  Intermediate Error
Activities	An activity is work that is performed within a business process. The rectangle image displayed in the next column is used to depict an Activity in a Process Flow.	 Activity
Gateways	A Gateway is used to control the divergence and convergence of a sequence flow. Thus it determines branching, forking, merging, and joining of paths.	 Gateway
Flows	A flow (control flow) is used to show the order that activities are performed in a business process. There are four types of flows: Uncontrolled flow Default flow Association Directional Association	 Unconditional  Default  Association  Directional Association
Artifacts	Artifacts do not have any direct effect on the sequence flow or message flow of the process. They are used to provide additional information for the reader of the Process flow diagram. You can add any amount of information in this element. However, you cannot add any color to the text. To	 Sample Text  Artifacts

	view the information, you can resize the frame in all directions.	
--	---	--


	All the BPMN Graphical Elements can be resized.
---	---

To know more details about BPMN (Business Process Modeling Notations) visit the site:

<http://www.bpmn.org/Documents/BPMN%20V1-0%20May%203%202004.pdf>

## Repository View

The Repository View lists the Adeptia Server objects, such as Activities, Process flows, Context variables and Actions.

	The Activities Panel has been renamed to Repository View. It is not reflected in the screenshots of this section.
---	---

## Graph Canvas

The Graph Canvas is the area where a process flow is drawn. BPMN specification and Adeptia Server activities are dragged onto the Graph Canvas and arranged in a sequence in order to create a process flow. The Graph Canvas can also be resized if an activity is dragged beyond the default size.

## Bottom Pane

The Bottom Pane is used to view properties of the activities, add comments to the activities, view error in a process flow and to create context variables. There are five panels in the Bottom Pane:

- Properties
- On Exception Script
- Errors
- Process Flow Variable
- Comments

## Simulator

The Simulator window displays the Adeptia Simulation tool that allows you to simulate a process flow using different resources and scenarios, before actually implementing the process flow. To view the Adeptia Simulation tool click **Simulator** tab (see Figure 3.2).

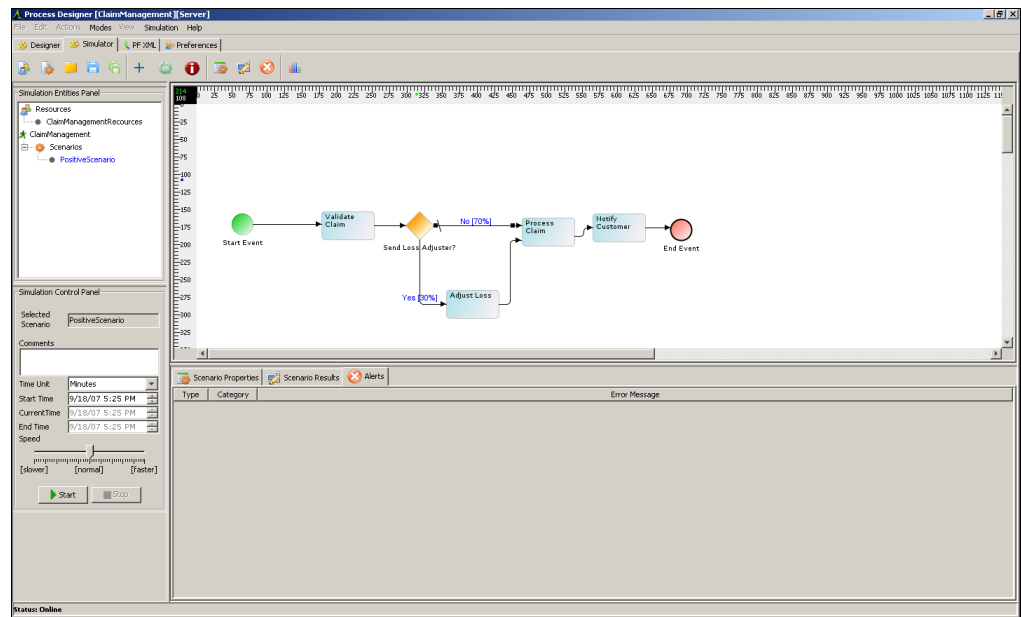



Figure 3.2: Adeptia Simulation Tool

 For details on the Adeptia Simulator tool, refer to the Simulation Guide.

## PF XML (Process Flow XML)

The Process Flow window displays Process Flow XML that is generated while designing a process flow. To view the XML of a process flow click **PF XML** tab (see Figure 3.3).

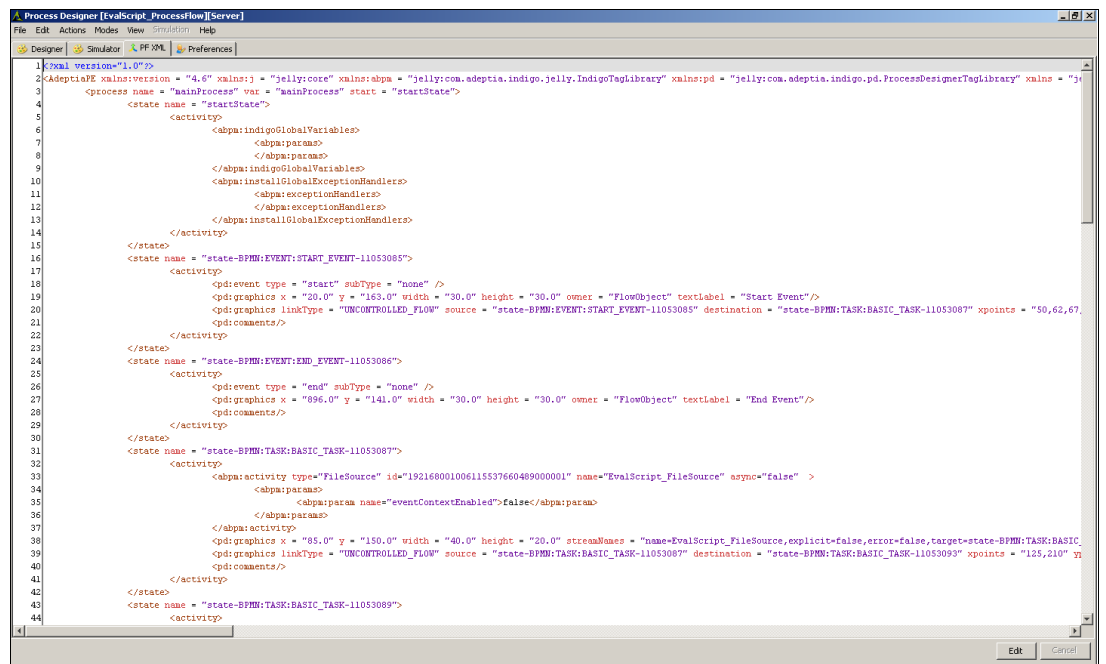


Figure 3.3: View Process Flow XML

## Preferences

The Preferences window allows you to select the background color of graph canvas and labels etc. To view the Preferences window, click **Preferences** tab (see Figure 3.4).

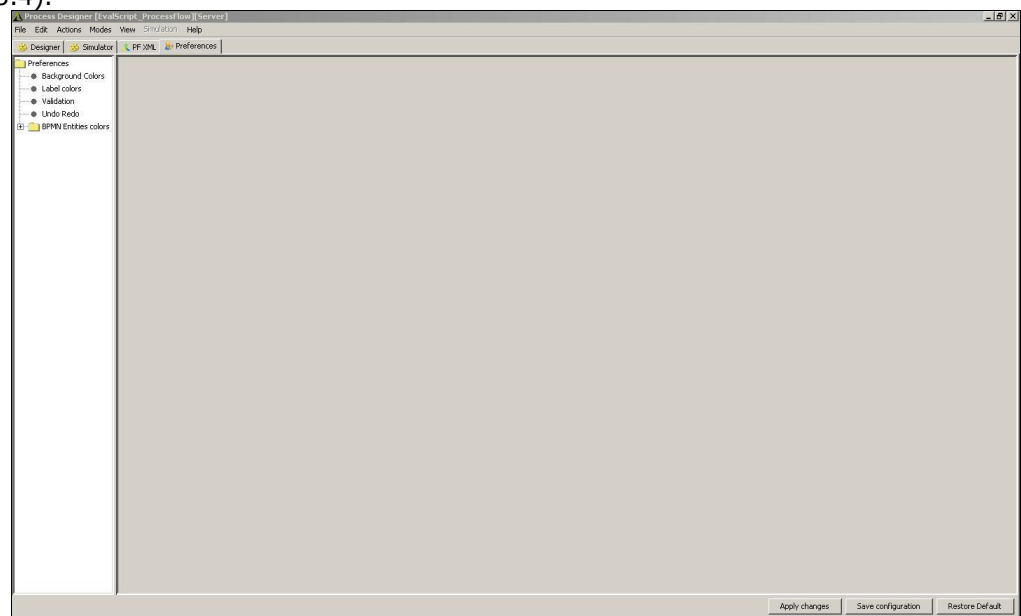


Figure 3.4: Preferences

You can modify various preferences. These are listed in the table below.

Table 3.4: Edit Preferences

Preferences	Description
Background Colors	Change the background color of the Graph Canvas, BPMN Events Panel or Activities Panel.
Label Colors	Change the colors of labels of activities displayed in the Graph Canvas.
Validation	Verifies that the process flow created in the Graph Canvas is correct as per the BPMN standard and Adeptia Server. You can enable/disable Validation in the Preferences window. By default, it is enabled.
Revert Action	Reverts the action done by the user in the Graph Canvas. You can enable/disable Validation in the Preferences window. By default, it is disabled.
Set Undo and Redo Limit	Set the number of actions that you can undo or redo.
BPMN Entities Colors	Change colors of Events, Activities, Gateway and Artifacts.

## Keyboard Shortcuts

Table 3.5: Keyboard Shortcuts

Menu Option	Sub-Option	Keyboard Shortcut
File	New	<Ctrl> + <N>
	Open locally saved Process Flow	<Ctrl> + <O>
	Save to Server	<Ctrl> + <S>
	Save Process Flow locally	<Ctrl> + <B>
	Print Process Flow XML	<Ctrl> + <P>
Edit	Undo	<Ctrl> + <Z>
	Redo	<Ctrl> + <Y>



	Zoom In	<Ctrl> + <NumPad +>
	Zoom Out	<Ctrl> + <NumPad ->
Actions	Synchronize PD with Server	<F5>
	Enter Login Information	<Ctrl> + <L>
	Maximize Graph Canvas	<Ctrl> + <M>
	Show Properties Tab	<Ctrl> + <R>
	Show Exception Handler Tab	<Ctrl> + <G>
	Show Alerts Tab	<Ctrl> + <E>
	Show Process Flow Variables Tab	<Ctrl> + <F>
	Show Comments Tab	<Ctrl> + <H>
Help	Help	<F1>

## CREATING PROCESS FLOW

### Prerequisites:

- JRE 1.5 or above needs to be installed on your system to open the Process Designer applet.
- The *Pop-up Blocker* needs to be disabled in the web browser, to open the Process Designer applet. By default, the *Pop-up Blocker* is enabled.
- The windows user must have administrative rights on the PC, where Process Designer will be opened.

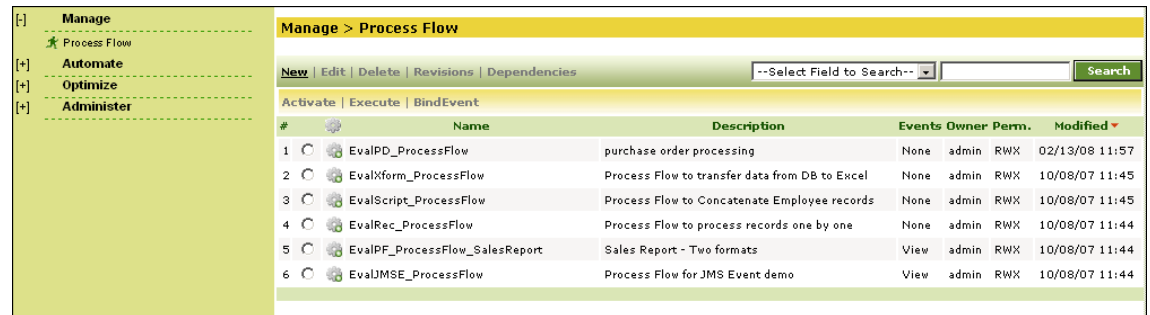
The Process Flow Creation using Process Designer comprises of two parts:

- [Designing Process Flow using BPMN Graphical Elements](#)
- [Attaching Adeptia Server activities with the BPMN elements](#)

## Designing Process Flow using BPMN Graphical Elements

### Steps to draw a Process Flow using Process Designer

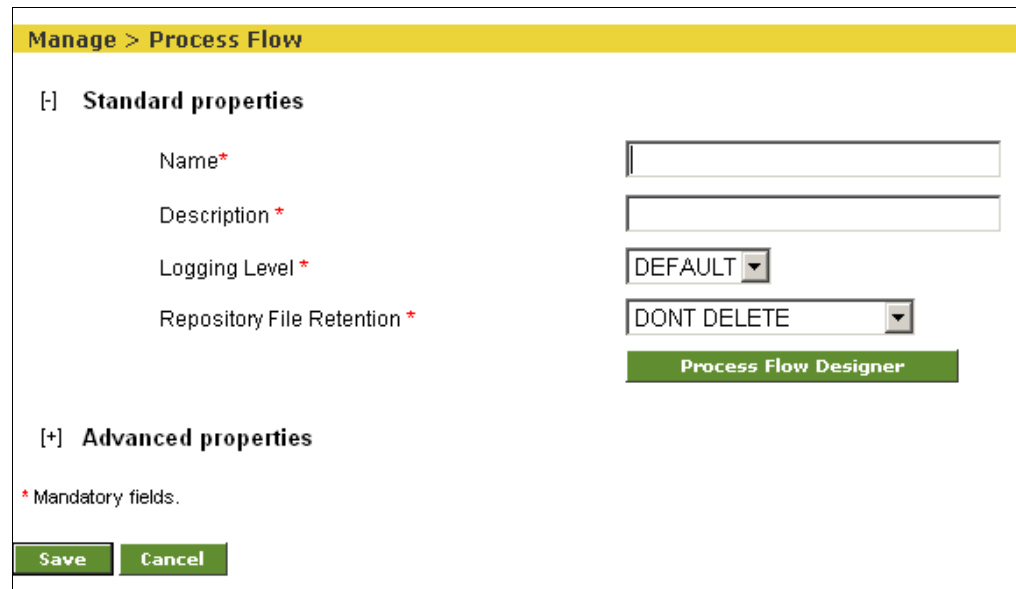
1. In the Adeptia Server Home Page, click **[+] Manage** to expand the tree. All the items in the Process Flow category are displayed.
2. Click **Process Flow**. The Manage Process Flow screen is displayed (see Figure 3.5).



Manage > Process Flow							
<a href="#">New</a>   <a href="#">Edit</a>   <a href="#">Delete</a>   <a href="#">Revisions</a>   <a href="#">Dependencies</a>							
<input type="text" value="--Select Field to Search--"/> <input type="button" value="Search"/>							
<a href="#">Activate</a>   <a href="#">Execute</a>   <a href="#">BindEvent</a>							
#		Name	Description	Events	Owner	Perm.	Modified
1	<input type="radio"/>	EvalPD_ProcessFlow	purchase order processing	None	admin	RWX	02/13/08 11:57
2	<input type="radio"/>	EvalXform_ProcessFlow	Process Flow to transfer data from DB to Excel	None	admin	RWX	10/08/07 11:45
3	<input type="radio"/>	EvalScript_ProcessFlow	Process Flow to Concatenate Employee records	None	admin	RWX	10/08/07 11:45
4	<input type="radio"/>	EvalRec_ProcessFlow	Process Flow to process records one by one	None	admin	RWX	10/08/07 11:44
5	<input type="radio"/>	EvalPF_ProcessFlow_SalesReport	Sales Report - Two formats	View	admin	RWX	10/08/07 11:44
6	<input type="radio"/>	EvalJMSE_ProcessFlow	Process Flow for JMS Event demo	View	admin	RWX	10/08/07 11:44

Figure 3.5: Manage Process Flow

3. Click **New** link. The Create Process Flow screen is displayed (see Figure 3.6).



**Manage > Process Flow**

**[-] Standard properties**

Name\*

Description\*

Logging Level\*


Repository File Retention\*

**[+] Advanced properties**

\* Mandatory fields.

Figure 3.6: Create Process Flow

4. Enter the name and description of the new process flow in the *Name* and *Description* fields respectively.

	Description of the process flow can be overridden during execution of the process flow. To know how to override the process flow description, refer to the section <a href="#">Overriding Process Flow Description at Runtime</a> .
---	---

- Select the logging level from the *Logging Level* drop-down list. The various logging levels are depicted in the table below.

Table 3.6: Types of Logging Levels


Level	Description
DEBUG	The DEBUG level logs are fine-grained informational events that are most useful to debug any problem. Debug level is useful for programmers.
INFO	The INFO level logs are informational messages that highlight the progress of Process flow execution. In INFO, status (successful or failure) of each activity is displayed.
ERROR	In ERROR, possible cause of failure of an activity is displayed.
DEFAULT	If you select Default, logging level, which is set as default in System Configuration, is selected.

- Select repository file retention from the *Repository File Retention* option. During execution, the process flow creates a temporary repository file to store intermediate data. These repository files can cause unnecessary disk space usage and you may want to delete them after execution of the process flow. On the other hand sometime these repository files can be helpful in case of the failure of the process flow execution. For each instance of the process flow execution a unique repository folder is created that contains Source, intermediate XML data files and target formatted data. By default, repository files are being stored in the repository folder of the Adeptia Server. You can also choose an option to delete them or to archive them in a different location. Options for Repository File Retention are outlined in the table below.

Table 3.7: Options for Repository File Retention

Retention Option	Description
DONTDELETE	Repository files are not deleted after execution of Process flow.
DELETE	Repository files are deleted after the process flow is executed.
ARCHIVE	Repository files are moved to another location. By default repository files are archived in C:/repo folder. To change the location where archived file is stored, refer to the section to any other folder or to WebDAV repository, you need to change <a href="#">abpm.transaction.repository.archive.server</a> property.
DELETE ON SUCCESS	Repository files are deleted only when the process flow is executed successfully and there is no error record.

7. Click **Process Flow Designer** button. The Process Designer window is displayed (see Figure 3.7).

 If you are starting the Process Designer on your system for the first time, then a warning message is displayed that prevents you from starting this application. Just ignore this message and click **Start** to continue.

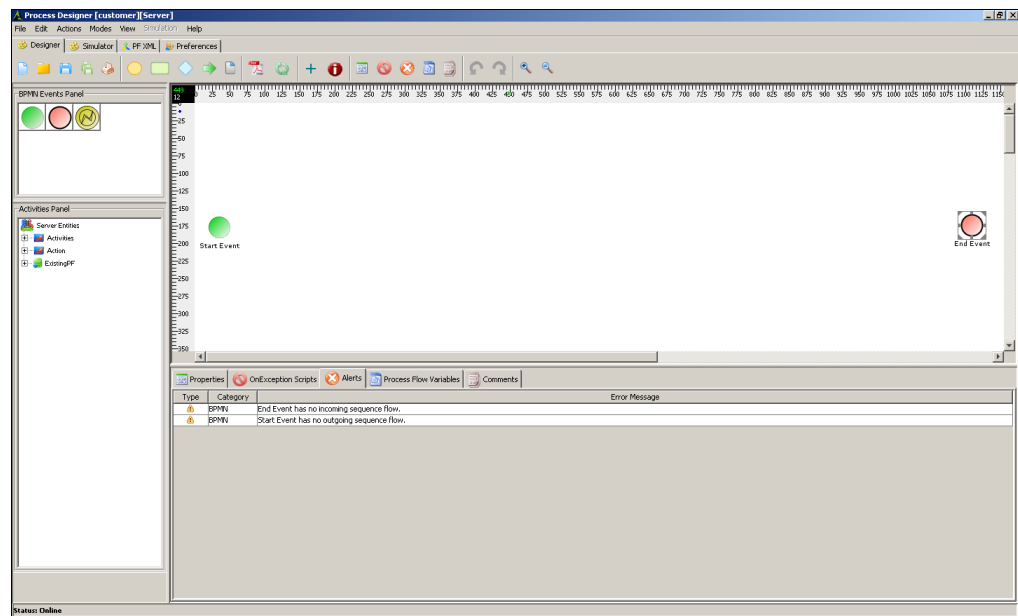



Figure 3.7: Process Designer

 The Process Designer window can be opened from the Adeptia Server home page also. To learn how to open Process Designer from Adeptia Server home page, refer to section Understanding the Adeptia Server Home Page.

8. Click **Show BPMN Task** () button on the Toolbar. Activity elements are displayed in the BPMN Activities Panel (see Figure 3.8).

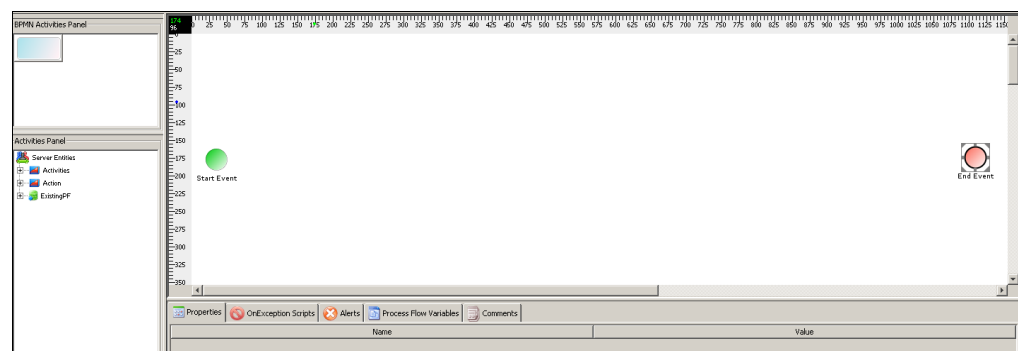


Figure 3.8: Select BPMN Activities

9. Click **Activity** element in the BPMN Activities Panel and drag it to the Graph Canvas. The dragged activity element is displayed in the Graph Canvas (see Figure 3.9).



Figure 3.9: Dragging BPMN Activity into Graph Canvas

10. By default, all BPMN elements except Event objects are blank. You can add a label to the BPMN element, once you drag it to the Graph Canvas. You can do this by double-clicking the element. This displays the properties associated with the element in the Properties Panel in the Bottom Pane. Alternately, you can right-click the element and select **View Properties** option (see Figure 3.10).

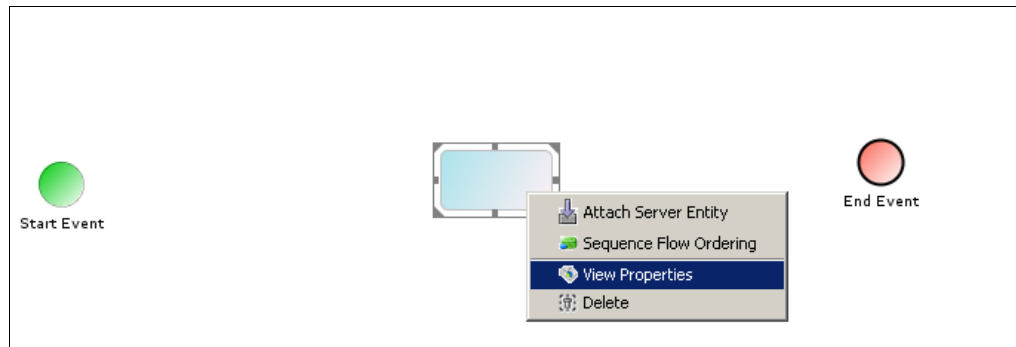


Figure 3.10: Right-Clicking an Activity

11. The Properties Panel is displayed in the Bottom Pane. Type the name of the element in the *Value* column of the *Label* field. Click the element again in the Graph Canvas to display the name in the element (see Figure 3.11).

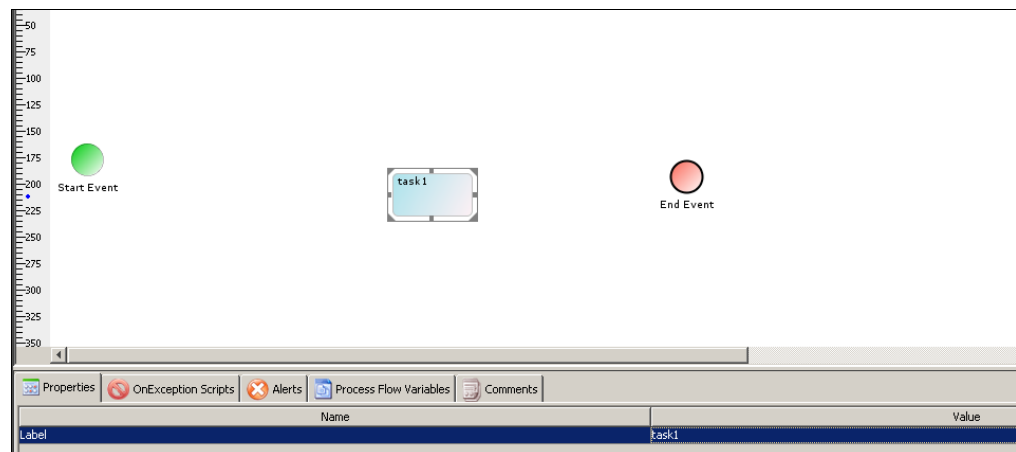




Figure 3.11: Displaying Name of Activity

 All BPMN elements can be labeled in the same way.

12. Repeat steps 9 and 10 to add more activities in Graph Canvas.

13. Similarly, to add the Gateway element, click **Show BPMN Gateway** () button in the toolbar. The Gateway element is displayed in the BPMN Panel (see Figure 3.12).

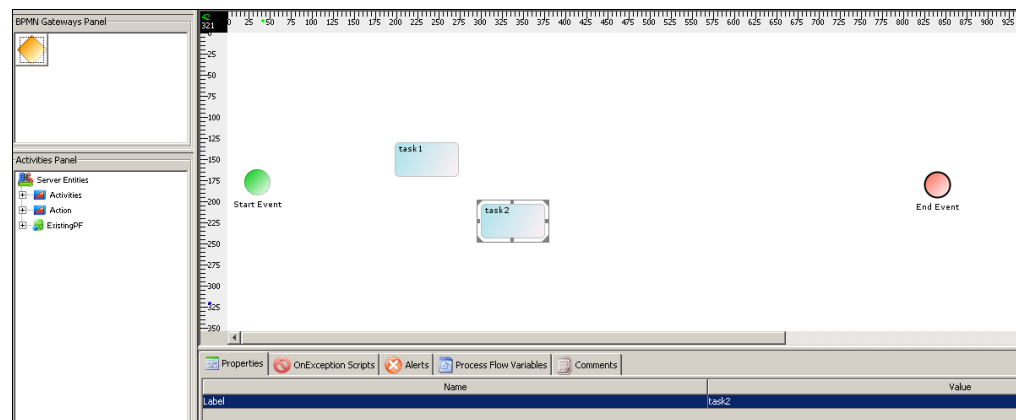


Figure 3.12: Selecting Gateway Element

14. Click **Gateway** element and drag it to desired location in the Graph Canvas. The Gateway element is displayed in the Graph Canvas area (see Figure 3.13).

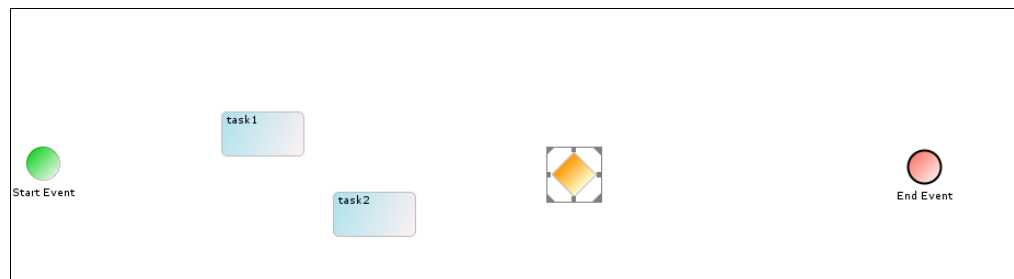
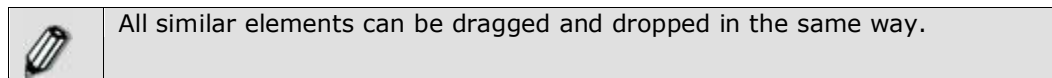



Figure 3.13: Dragging BPMN Gateway into Graph Canvas



15. Once the required BPMN elements are dragged to the Graph Canvas and proper labeling is done using the Properties Panel, it is necessary to connect them in order to design a business flow.
16. To select the control flows, click **Show BPMN Flows** (  ) button in toolbar. The control flows are displayed in the BPMN panel (see Figure 3.13).

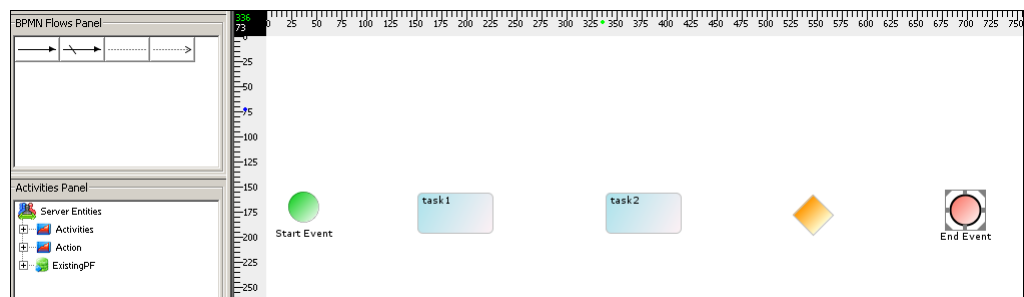


Figure 3.14: Selecting Control Flow

17. Click required flow. The control flow is selected.
18. Drag the cursor between two BPMN elements. Both BPMN elements are connected with the selected flows (see Figure 3.15).

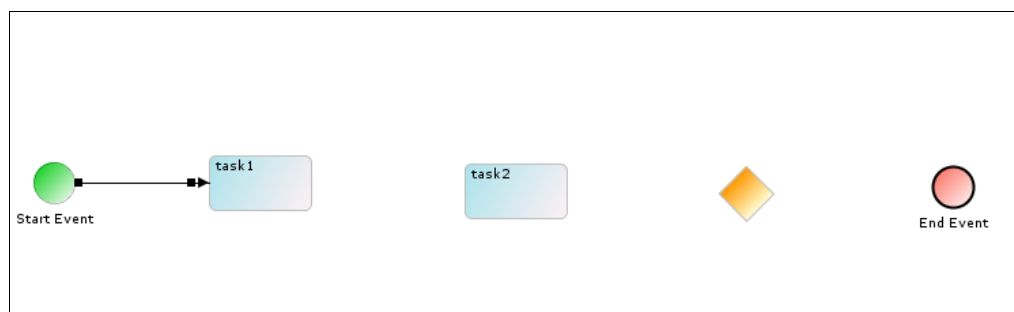


Figure 3.15: Connecting BPMN Elements

19. Connect all BPMN elements with appropriate control flow (see Figure 3.16).

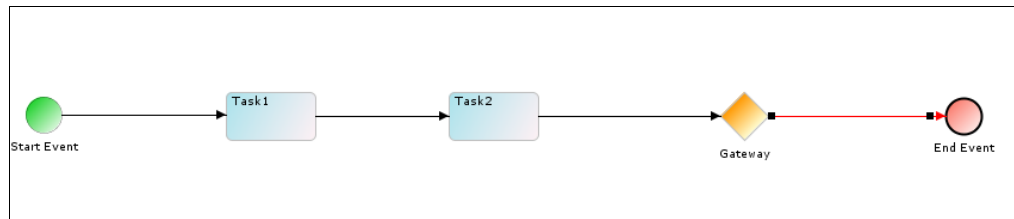



Figure 3.16: Connecting BPMN Elements

 You can reposition the BPMN elements by moving the arrow keys. All elements except Sequence Flow can be repositioned.

20. Once designing of business process is completed it is necessary to attach the Adeptia Server activities to BPMN elements of the business process.

## Attaching Adeptia Server activities with the BPMN elements

### Prerequisites

- Adeptia Server activities must be created before attaching them with BPMN elements in the Process flow. To learn how to create activities refer the section AUTOMATE.

### Steps to attach Adeptia Server activities with BPMN elements

1. Expand the **Entities** tree in the **Activities** panel. All the items in the Entities category are displayed (see Figure 3.17).

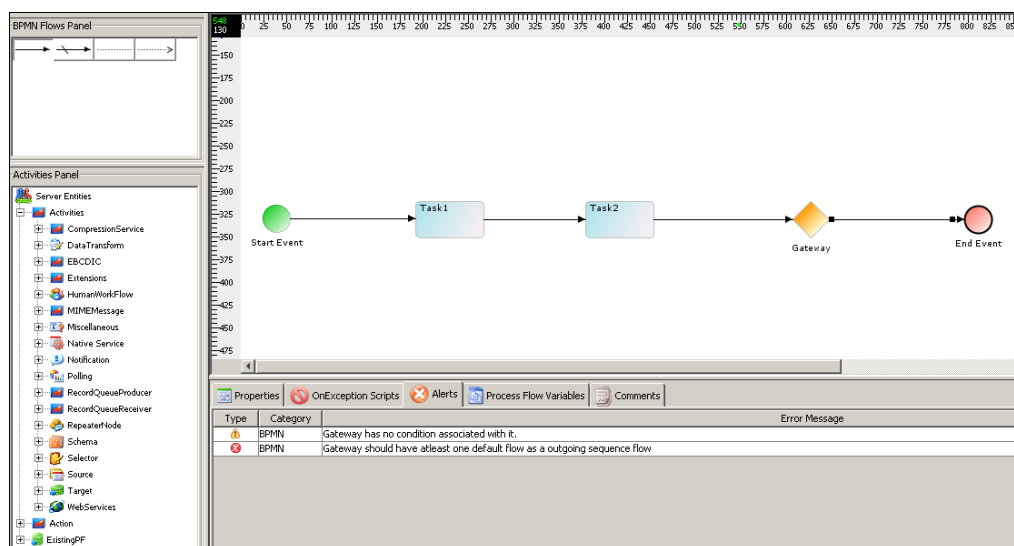


Figure 3.17: Selecting Adeptia Server Activity



2. Further expand the type of activities e.g. Human Workflow, Schema, Source, etc until you find the required activity (see Figure 3.18).

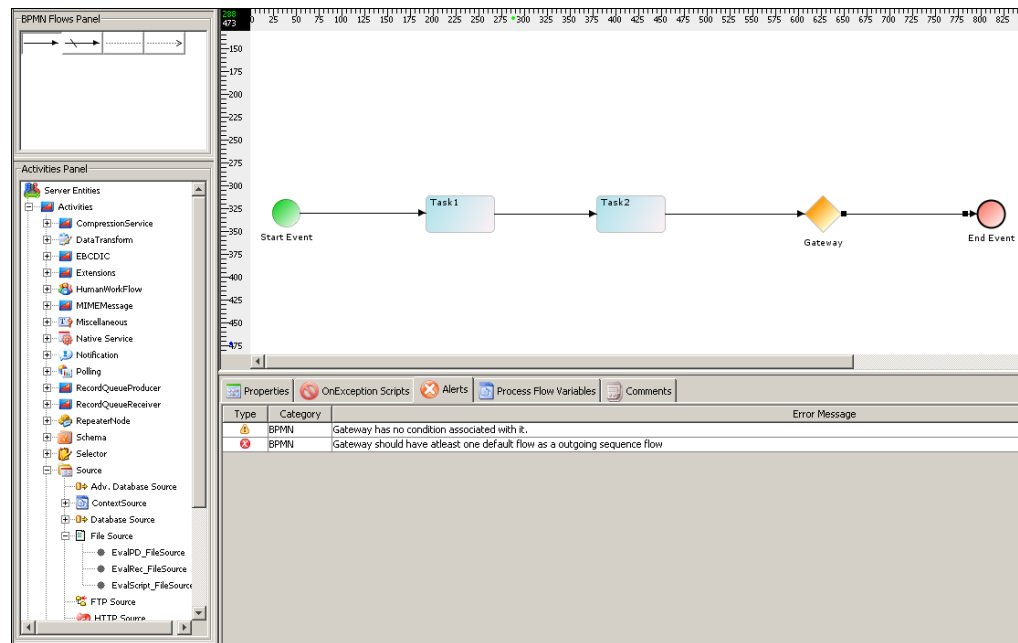


Figure 3.18: Selecting Adeptia Server Activity

3. Select the required activity, drag it to the Graph Canvas and drop it on the BPMN element with which you want to attach the activity. A small image of the activity is displayed at the top left corner of the BPMN element (see Figure 3.19).

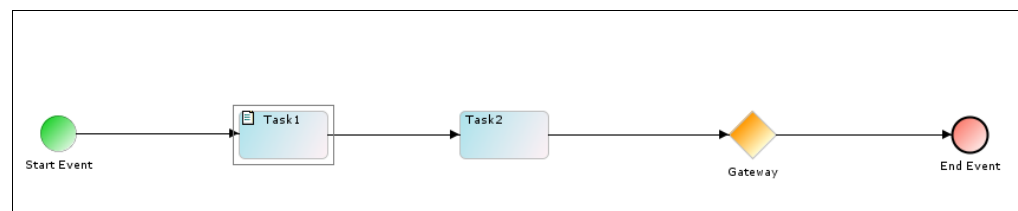



Figure 3.19: Attaching Adeptia Server activity



An activity can also be attached by right-clicking the BPMN element. Right-click BPMN element and select **Attach Adeptia Server Entity**. List of activities is displayed. Select the required activity and click **Ok** button.

You can change the label of the element if desired. If you attach an activity to a blank BPMN element, then the activity name is displayed in the BPMN element (see Figure 3.20).

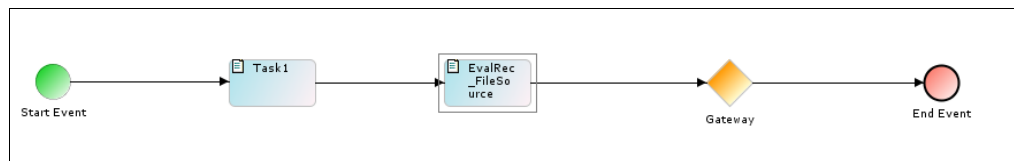


Figure 3.20: Adeptia Server activity name in BPMN element

4. Repeat step 1 to 3 to attach activities to other BPMN elements (see Figure 3.21).

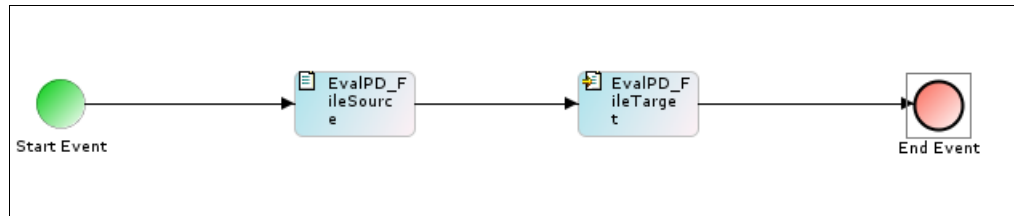
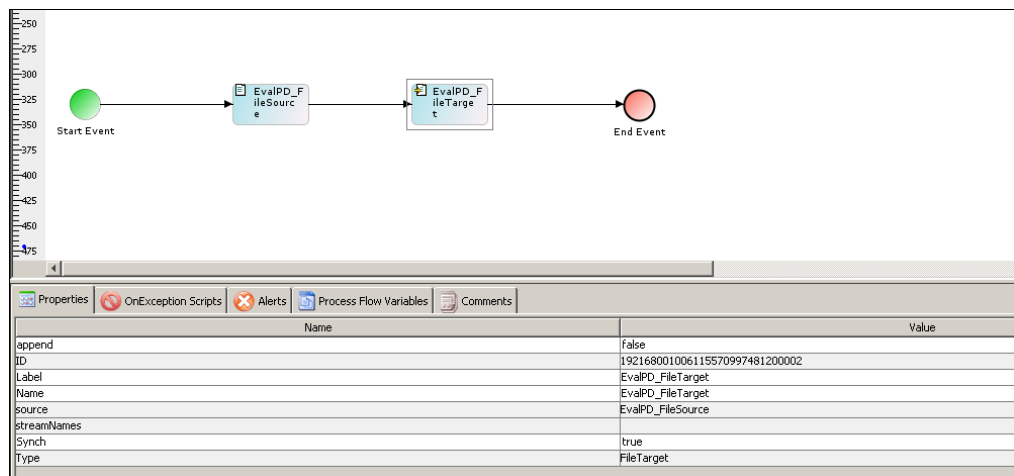


Figure 3.21: Attaching Adeptia Server activity

5. To view or edit the properties of the Adeptia Server activity attached with the BPMN elements, right-click activity and then select **View Properties**. The properties of the attached activity are displayed in the Properties Panel (see Figure 3.22).



The Properties Panel displays the following properties for the selected activity:

Name	Value
append	false
ID	192168001006115570997481200002
Label	EvalPD_FileTarget
Name	EvalPD_FileTarget
source	EvalPD_FileSource
streamNames	
Synch	true
Type	FileTarget

Figure 3.22: Edit Activity Properties

If mapping is used in a process flow, following things must be checked:

- Right-click source schema activity and select View Properties. *Transformer* property must be *Stream 2XMLStream*.
- Right-click target schema activity and select View Properties. *Transformer* property must be *XMLStream2Stream*.
- For details on Transformer types and changing from one type to

another, refer to the section [Changing Transformer Type](#).

6. By default activities are *Synchronous*. If you want to make the activity *asynchronous*, go to the **Properties Panel**, change the value of *Synch* from *true* to *false*.
7. Click **File** menu and then select **Save to Adeptia Server**, to save the process flow on the Adeptia Server. This displays a screen confirming that the process flow has been created successfully. If the comments property is enabled, then clicking **Save to Adeptia Server** will display a screen where you need to enter comments related to creating the process flow (see Figure 3.23).

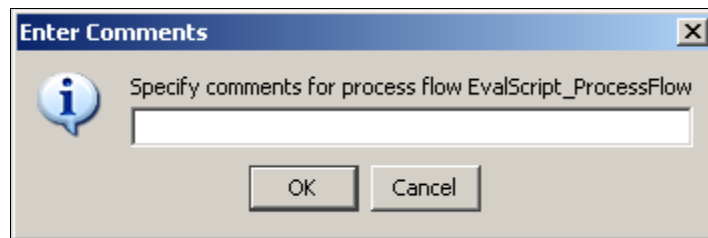



Figure 3.23: Enter Comments (Process Flow)

8. Enter the comments in the *Specify Comments for process flow* field.

	<ul style="list-style-type: none"> <li>▪ The comment should be at least 1 character in length.</li> <li>▪ If you enable/disable the <i>Comments</i> property in the middle of a process flow, you need to restart the process flow applet.</li> </ul>
---	---

9. Click **OK** to save the comments. This displays a screen confirming that the process flow has been created successfully.

	<p>By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a>.</p>
---	---

## Save Process Flow on Local Hard Disk

### Steps to save the Process Flow on local hard disk

1. Select **Save Process Flow Locally** from the **File** menu. The Save window is displayed (see Figure 3.24).

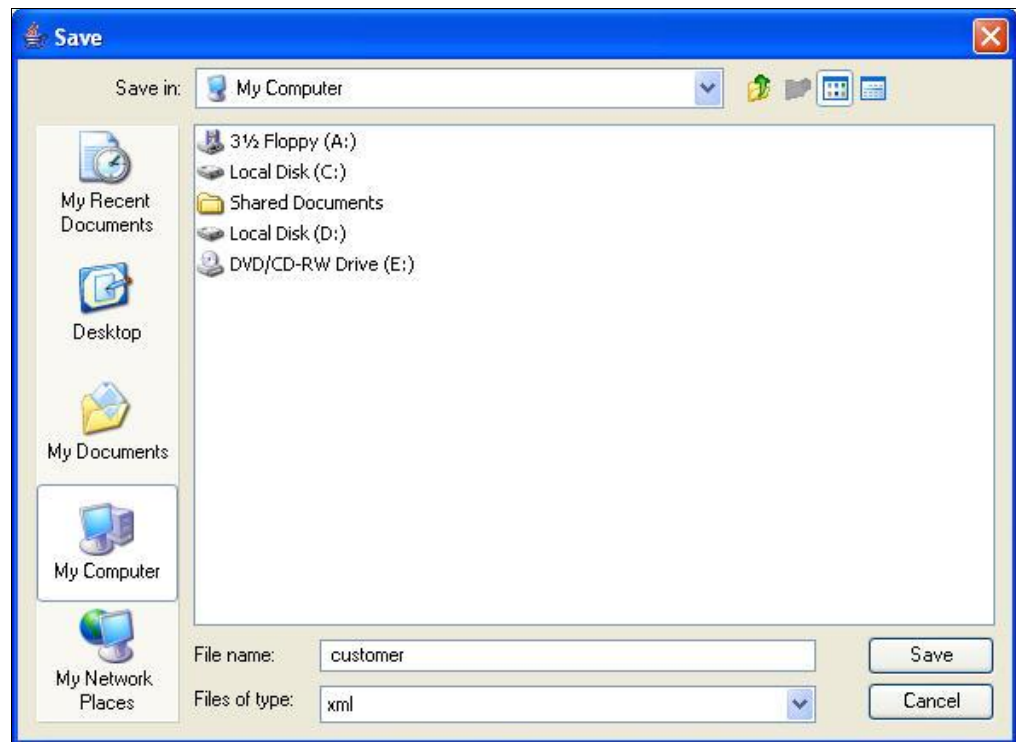





Figure 3.24: Save Process Flow

2. Enter the name of the file in *File Name* field and click **Save** button. The process flow is saved in XML format in the specified location.

	To create a Process flow, an IT user can simply drag the required Adeptia Server activities to the Graph Canvas and connect them using flow controls. In other words, an IT user does not need to draw process flow using BPMN elements and then attach Adeptia Server activities to the BPMN elements.
	You can view details of an event associated with a process flow, by clicking the event displayed under Associated Events on the Manage Process Flow screen.
	If a process flow is opened in <b>Read-Only</b> mode, you can view and modify it, but you cannot save the changes, as all Save options are disabled. However, if you open a process flow that has write permissions, from the Process Designer applet, then Save options become activated.

## Changing Transformer Type

In the Adeptia Server two types of transformers are used:

- **Stream2XMLStream/XMLStream2stream:** This transformer converts the source data to XML (i.e. Stream2XMLStream) and then the XML to target data (i.e. XMLStream2Stream). This transformer is used

when a mapping activity is used in the process flow. In this case, the *Stream2XMLStream* is used in the source schema and the *XMLStream2stream* is used in the target schema.

- **SchemaStream2Record/SchemaRecord2Stream:** This transformer converts the source data to intermediate format (i.e. *SchemaStream2Record*) and then the intermediate format to target data (i.e. *SchemaRecord2Stream*). This transformer is used when record to record process of the data is required.

### Steps to change the transformer type

1. Right-click the schema activity in the Graph Canvas Area, and select **View Properties**. Properties of the selected schema activity are shown in the Properties Panel (see Figure 3.25).

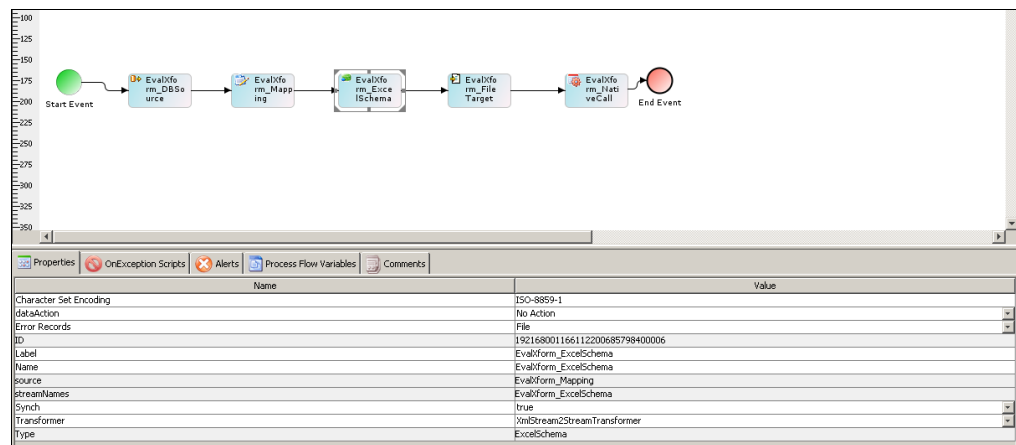


Figure 3.25: Changing Transformer Type

2. Select the required transformer type (e.g. *Stream2XMLStream* in case of source schema and *XMLStream2Stream* in case of target schema) from the *Transformer* drop-down list.

## ACTIVATING/DE-ACTIVATING PROCESS FLOW

Process flows can be in activated or de-activated state. You cannot execute a process flow, which is in de-activated state. If you want to execute a de-activated process flow, you have to first activate it. When a process flow is created, it is in activated state, if number of activated process flows is less than maximum allowed by license. Otherwise process flow is created in de-activated state.

### Steps to activate/de-activate a process flow

1. In the Adeptia Server Home Page, click **[+] Manage** to expand the tree. All the items in the Process Flow category are displayed.

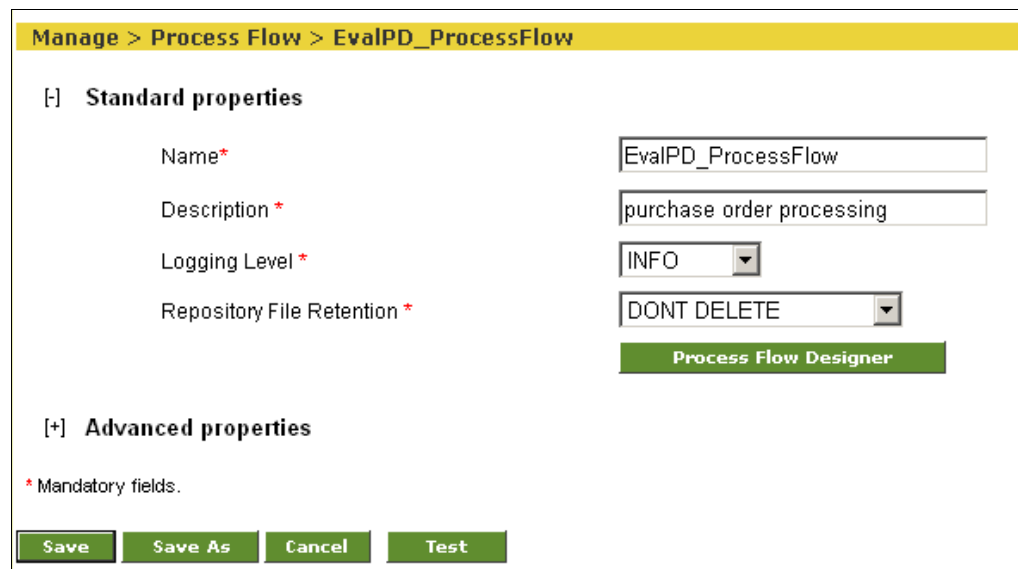
2. Click **Process Flow**. The Manage Process Flow screen is displayed.
3. If the process flow is in activated state, a **De-activate** link is highlighted when select the radio button adjacent to it.
4. To de-activate the process flow, click the **De-activate** link.
5. Similarly to activate a de-activated process flow, select the radio button adjacent to it and click **Activate** link.

## TESTING A PROCESS FLOW

Process flow can be tested, before executing it. By testing a process flow you will be able to know the behavior of the process flow, right before executing it in production environment. Testing is useful especially for those process flows, in which decision nodes are used. When you test a process flow, you can give values of different process flow variables used in the process flow and check its behavior. The values of process flow variables are given using a XML file.

### Steps to test a process flow

1. In the Adeptia Server Home Page, click **[+] Manage** to expand the tree. All the items in the Process Flow category are displayed.
2. Click **Process Flow**. The Manage Process Flow screen is displayed.
3. Click the radio button against the process flow that you want to edit. This selects the process flow and activates the *Edit* link. Clicking the **Edit** link displays the Edit Process Flow screen (see Figure 3.26).



Manage > Process Flow > EvalPD\_ProcessFlow

**[ - ] Standard properties**

Name\* EvalPD\_ProcessFlow

Description \* purchase order processing

Logging Level \* INFO

Repository File Retention \* DONT DELETE

Process Flow Designer

**[ + ] Advanced properties**

\* Mandatory fields.

Save Save As Cancel Test

Figure 3.26: Edit Process Flow

4. Click the **Test** button. The Test Process Flow screen is displayed. (see Figure 3.27).

Manage > Process Flow > Test EvalPD\_ProcessFlow

This test feature is applicable for Process Flow having variables whose value will be over-ridden by value provided in XML file.

Process Flow Name	EvalPD_ProcessFlow		
Process Flow Id	192168001006115571166220300005		
File Name	<input type="text"/>	<input type="button" value="Browse..."/>	
<input type="button" value="Upload XML"/>			

Uploaded XML Files

Figure 3.27: Test Process Flow

- Click **Browse** and select the required XML files. Following is the sample of XML file used to test the process flow. (see Figure 3.28).

```
<?xml version="1.0"?>
<Variables>
  <Variable name="Data" value="55000"/>
</Variables>
```

Figure 3.28: Sample XML

- Once the required file is selected, click **Upload XML** button. The uploaded file is show in the Test Process Flow screen. (see Figure 3.29).

Manage > Process Flow > Test EvalPD\_ProcessFlow

This test feature is applicable for Process Flow having variables whose value will be over-riden by value provided in XML file.

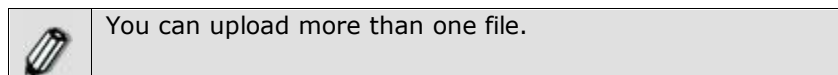
Process Flow Name	EvalPD_ProcessFlow
Process Flow Id	1921680010061155711662203000005
File Name	<input type="text"/> Browse...
Upload XML	

**Uploaded XML Files**

☐ Test.XML

Select any Uploaded XML File to **Unload** it or **Execute** Process Flow

Figure 3.29: Select XML File



7. Select the uploaded XML file and click the **Execute** button (the *Execute* link changes to a button when a file is selected). The following screen is displayed. (see Figure 3.30).

Request submitted for [EvalPD\\_ProcessFlow](#) execution at [Mon Sep 04 18:43:21 GMT+05:30 2006](#).  
See the [Process Flow Logs](#) for execution details.

Figure 3.30: View Process Flow Log

8. Click **Process Flow Logs** link, to check the status of the process flow.

## UNDERSTANDING VALIDATION

Validation is a mechanism, which ensures that the process flow created in Graph Canvas is correct as per the BPMN standard and Adeptia Server. If the process flow is not correct, a message is displayed in the Alerts Panel of Bottom Pane (see Figure 3.31).



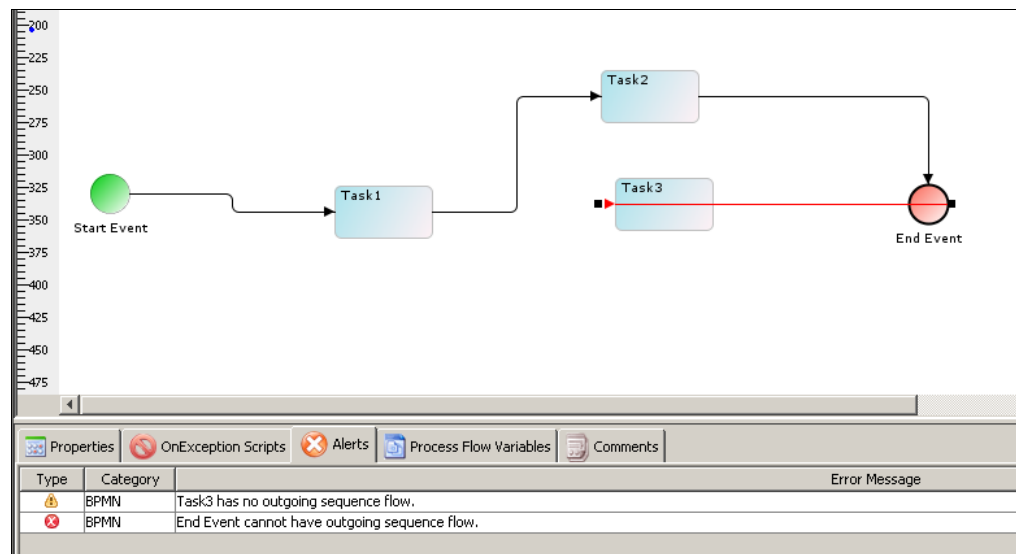


Figure 3.31: Validation

In Figure 3.31 shown above, you can see that *Task1* and *Task 2* are properly connected with the incoming and outgoing sequence flow but *Task3* has an incoming sequence but no outgoing sequence flow. The validation message is displayed in the Alerts Panel. There are two categories of validations:

- **BPMN Server specific Validation:** This includes Adeptia Server validation like file target has no input source stream, etc. This is displayed with "BPMServer" category in the Alerts Panel.
- **BPMN Specific Validation:** This includes BPMN specific validation like end event cannot have outgoing sequence flow, etc. This is displayed with "BPMN" category in the Alerts Panel.

Validation messages are further divided into two types:

- **Error:** These are displayed in the Alerts Panel with type (❌) along with error message and the corresponding user action is reverted if possible. If revert action takes place successfully then a warning message is displayed explaining the reason of revert operation. For example, start event cannot have incoming sequence flow, hence removed.
- **Warning:** These are displayed the Errors Panel with type (⚠️) and the corresponding warning message is displayed. For example, start event has no outgoing sequence flow.

By default, *Validation* is enabled and *Revert Action* is disabled. Revert action specifies reverting (if possible) wrong user action automatically by Process Designer.

## Disabling Validation

### *Steps to disable Validation*

1. Click **Preferences** tab in Process Designer screen. The Change Preferences screen is displayed (see Figure 3.32).

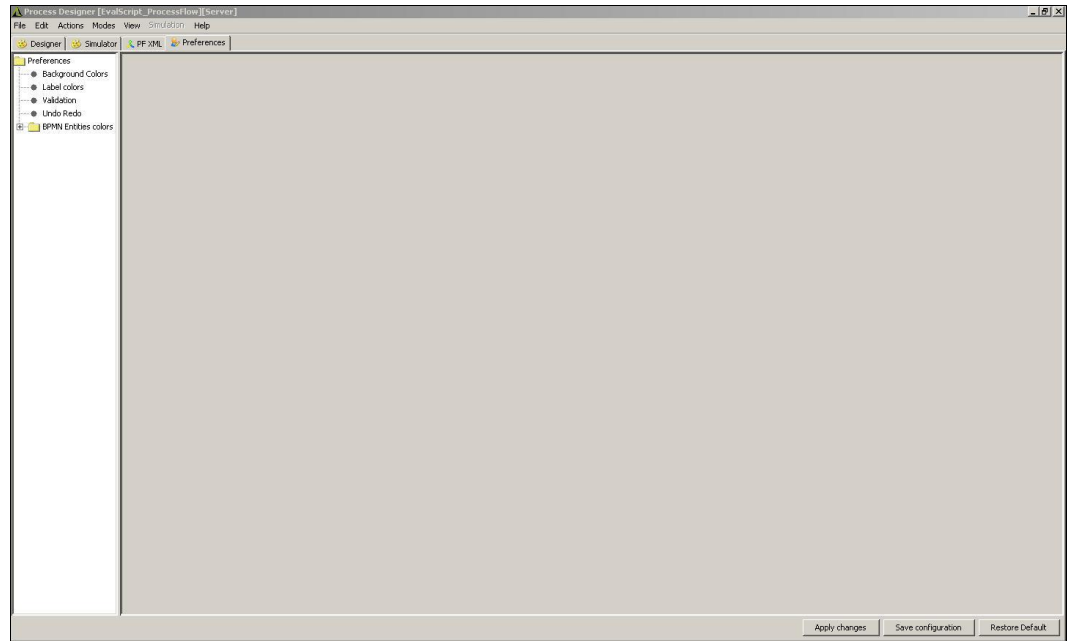


Figure 3.32: Changing Preferences

2. Click **Validation** under the **Preferences** Menu. The Validation Options screen is displayed (see Figure 3.33).

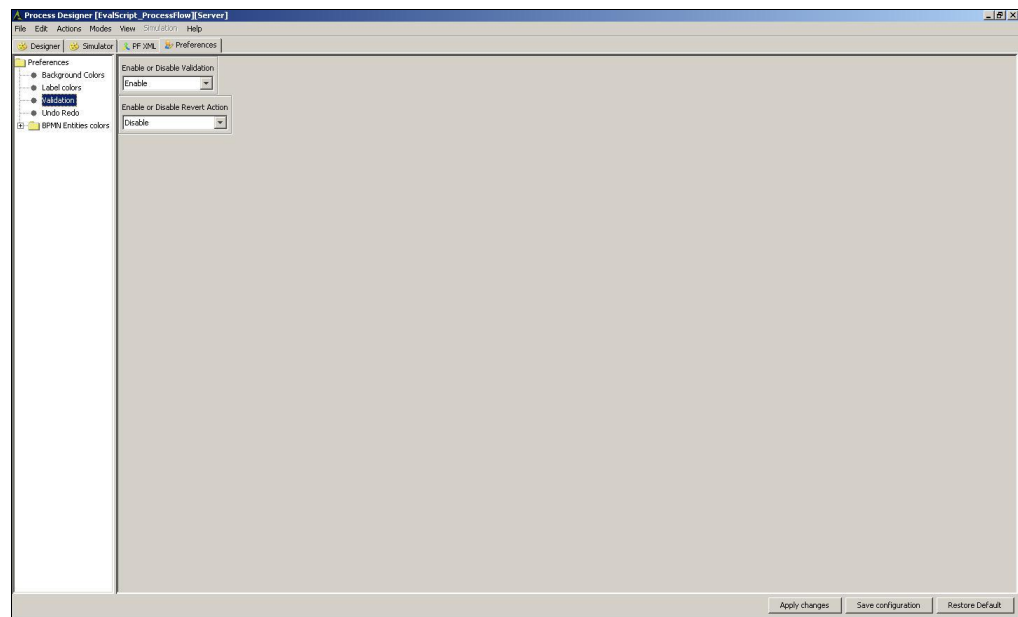



Figure 3.33: Disable Validation

3. Select **Disable** from *Enable or Disable Validation* drop-down list.
4. Click **Apply Changes** button and then click **Save Configuration** button.

 Similar steps need to be done to change the status of Revert Action.

## USING UNDO REDO

This feature allow user to perform UNDO and REDO operations. This can be done either through the **Undo** and **Redo** submenu under **Edit** menu or by clicking the

**Undo** () and **Redo** () buttons in the toolbar.

- **Undo:** This action will replace the user current action with the previous action. For example, moving the BPMN Element to its previous position.
- **Redo:** This action will replace the user recent action with his undone action. For example, moving the BPMN Element to its previous position where undo action took place.

## USING MULTIPLE SELECTIONS

User can select multiple BPMN Elements from the Flow Canvas and move them to other location in the Flow Canvas. Multiple BPMN Elements will be selected with the

combined event of left mouse click and **<CTRL>** key or drawing selection rectangle on flow canvas. A selection rectangle is a virtual rectangle drawn as the user press right mouse button and drag over the flow canvas. On release of mouse button the rectangle becomes invisible and the entities inside the drawn rectangle will be selected. An example of multiple selections is displayed in Figure 3.34.

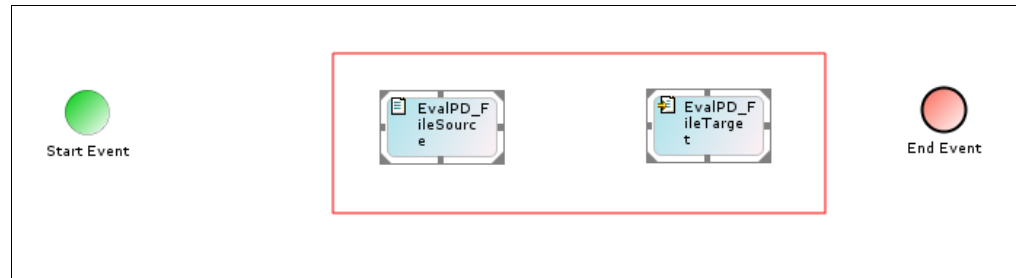





Figure 3.34: Multiple Selections

	<p>Multiple activities can be deleted by selecting multiple activities on the canvas and selecting delete from the right clicked popup menu. Alternately, you can select the activities and press <b>&lt;Delete&gt;</b> on the keyboard.</p>
---	--


## USING ZOOM IN AND ZOOM OUT

This feature allow user to perform ZOOM IN and OUT operations on the canvas. This can be done either through the **Zoom In** and **Zoom out** submenu under Edit menu or by clicking the **Zoom In** (  ) and **Zoom out** (  ) buttons in the toolbar.

In Zoom In/Zoom Out mode, all activities in the Graph Canvas will be resized. Additionally, all connecting sequence flows will be also redrawn. A process flow can be zoomed in to any limit. However when zooming out, it has to conform to certain limits. It will stop in the listed cases:

- Any element location becomes (0,0) coordinates
- Any element dimension becomes less than its minimum dimension

You can drag and move existing activities or add new activities in zoom mode, but when saving the process flow to server, they are resized and relocated to the default proportions. If any error event is attached to an activity, it will also be zoomed in the same proportion. The zoomed size is never saved to the server. When the process flow is reloaded, it will display in normal mode.

	<p>When a process flow is zoomed, the size of images inside a BPMN element will not be zoomed. Additionally, the size of an arrow head will also not change.</p>
---	--

## USING ACTIONS IN PROCESS FLOW

Actions enable necessary control over a process flow. Lists of actions that can be used to control a process flow are displayed in the table below.

Table 3.8: Actions for a Process Flow

Action	Description
Call:	This action is used to call another process flow (sub-flow) synchronously. Users need to specify the following properties while adding the Call action to a process flow:
	<p><i>flowId</i>: Name of the process flow (sub-flow).</p> <p>You can override its value dynamically during execution of the process flow. To override the flowId you can use custom plugin activity or put-context-var before call action.</p> <p>Following is the code which is used in custom plugin activity to override the flow id:  <code>context.setActivityParameter("Call1","flowId",  "192168001158117188341381200001");</code></p> <p>where <i>Call1</i> is the name of the call activity and <i>192168001158117188341381200001</i> is ID of the child process flow.</p> <p><i>Label</i>: The label displayed for the call action.  <i>Name</i>: Name for the call action  <i>resultCtxVarName</i>: Name of the context variable that contains the status of the sub-flow. Its value is Boolean.</p> <p>Using <i>Call</i> action you can select Parent Process flow itself to be executed as child process flow. In this case the process flow will run in infinite loop. You should use some condition, which is use to stop the process flow after certain recursion. If the condition fails, you can kill the process flow from System Monitoring.</p>
Checkpoint:	This action is used to resume the execution of a process flow from its current status if kernel stops unexpectedly. The Checkpoint action saves process flow state (context variable, checkpoint info, state name etc) in a file. When the Adeptia Server kernel is restarted it checks for the recoverable process flow by scanning all the existing process flow files and starts the particular process flow from its last checkpoint. Checkpoint should not be used within JTA block. It should be used before or after the JTA block.
	<p><i>Label</i>: The label displayed for the Checkpoint action.  <i>Name</i>: Name for the Checkpoint action.</p>
Delay:	This action is used to pause the propagation of process flow for a given time. The Delay action pauses the propagation of process flow but the asynchronous activities, which were started earlier,

	keep running in parallel. Users need to specify the following properties while adding the Delay action to a process flow:
	<i>Label:</i> The label displayed for the Delay action. <i>Name:</i> Name for the Delay action. <i>Time:</i> Specify the time in seconds till which the execution of process flow is paused.
JTA-Begin/ JTA-End:	These actions are used to create a JTA block. JTA block is used to create a set of activities within a process flow. When all the activities in a JTA block are completed successfully, the data is committed, and the process flow control can move beyond the JTA block to the next activity. If any of the activities in the JTA block fails to complete successfully, the rollback function is called and the whole process flow is stopped and error is logged. JTA is applicable only when source or target is a database.
	<i>Label:</i> The label displayed for the JTA-Begin/End action. <i>Name:</i> Name for the JTA-Begin/End action.
JTA-RollBack:	This action is used to call the rollback function at any point in a process flow. The JTA-RollBack function is always used within a JTA block.
	<i>Label:</i> The label displayed for the JTA-Rollback action. <i>Name:</i> Name for the JTA-Rollback action.
Put-Context- Var:	This action is used to declare one or more context variables with values assigned to it at any point in the process flow. A context variable is declared when this action is executed while running the process flow. Put-Context-Var is generally used to set the value of any field of an activity used in a process flow, during execution of the process flow. For example you can set/overwrite the subject of mail source activity during execution of process flow. Another example can be appending current date stamp at the end of the name of a file, created as target, during a process flow execution. User needs to specify the following properties while adding the Put-Context-Var action to a process flow:
	<i>Edit Context:</i> Displays a condition screen which allows you to add a new context variable or edit or delete existing context variables. <i>Label:</i> The label displayed for the Put-Context-Var action. <i>Name:</i> Name for the Put-Context-Var action. <i>Type:</i> Displays the type of action selected. This is a read-only field.
Set-Child- Context	This action is used to set the value of Process Flow Context Variable or Activity Context Variable from parent process flow to child process flow. Set-child-Context must be used before Call action. User needs to specify the following properties while adding the Set-Child-Context action to a process flow:

		<p><b>Activity:</b> Name of activity in parent process flow, whose 'Activity Context Variable' value will be used to set to the child context variable specified by Child Key. If name of the activity is not specified, then the 'Process Flow Context Variable' specified by Key will be used.</p> <p><b>ChildActivityName:</b> Name of activity of child process flow whose value will be set. If name of the activity is not specified, then the 'Process Flow Context Variable' specified by Child Key will be set.</p> <p><b>Childkey:</b> Name of Context Variable of the child process flow whose value will be set.</p> <p><b>ChildName:</b> Name of the Call or Spawn action, which is used to call or spawn child process flow. Set-child-context uses the ChildName to find out the call or spawn action and the corresponding process flow to set the context variable.</p> <p><b>Key:</b> Name of the context variable of the parent process flow whose value will be used to set the child context variable specified by Child Key.</p> <p><b>Label:</b> The label displayed for the Set-Child-Context action.</p> <p><b>Name:</b> Name for the Set-Child-Context action.</p>
Set-Parent-Context:		<p>This action is used to set the value of 'Process Flow Context Variable' or 'Activity Context Variable' from child process flow to the 'Process Flow Context Variable' or 'Activity Context Variable' of the parent process flow, which initiated the child process flow by call/spawn action. User needs to specify the following properties while adding the Set-Parent-Context action to a process flow:</p>
		<p><b>Activity:</b> Name of activity of the child process flow, whose 'Activity Context Variable' value specified by Key will be used to set the parent process flow variable specified by Parent key. If name of the activity is not specified, then the 'Process Flow Context Variable' specified by Key will be used.</p> <p><b>Key:</b> Name of the context variable of the child process flow whose value will be used to set the parent context variable specified by Parent Key.</p> <p><b>Label:</b> The label displayed for the Set-Parent-Context action.</p> <p><b>Name:</b> Name of Set-Parent-Context action</p> <p><b>ParentActivityName:</b> Name of activity of parent process flow whose 'Activity Context Variable' specified by Parent Key will be set. If name of the activity is not specified, then the 'Process Flow Context Variable' specified by Parent Key will be set.</p> <p><b>ParentKey:</b> Name of Context Variable of parent process flow whose value will be set.</p>

Spawn:	This action is used to call another process flow (sub-flow) asynchronously. Users need to specify the following properties while adding the Spawn action to a process flow:	
		<p><i>flowId</i>: Name of the process flow (sub-flow).</p> <p>You can override its value dynamically during execution of the process flow. To override the flowId you can use custom plugin activity or put-context-var before spawn action.</p> <p>Following is the code which is used in custom plugin activity to override the flow id:  <code>context.setActivityParameter("Spawn1","flowId",  "192168001158117188341381200001");</code></p> <p>where <i>Spawn1</i> is the name of the spawn activity and <i>192168001158117188341381200001</i> is ID of the child process flow.</p> <p><i>Label</i>: The label displayed for the Spawn action.  <i>Name</i>: Name for the Spawn action.  <i>resultCtxVarName</i>: Name of the context variable that contains the status of the sub-flow. Its value is Boolean.  <i>Signal</i>: Name for the signal that is generated after the asynchronous process flow (sub-flow) is completed. This property is applicable only when Wait for Child property is set to true.</p> <p><i>Wait for Child</i>: Specify whether the parent process flow's end event will wait for the completion of child process flow or not. If this property is set to true, the parent process flow end event will wait till the child process flow is completed. During this period, parent process flow will be in running state. Once the child process flow is completed, it raises the signal specified in the Signal property and then the end event is executed. If the value of Wait for Child property is set to false, the parent process flow does not wait for the child process flow to be completed.</p>
Synch:	This action is used to raise a signal to process engine when an asynchronous activity is completed. The following properties need to be specified while adding the Synch action in a process flow:	
		<p><i>Label</i>: The label displayed for the Synch action.  <i>Name</i>: Name for the Synch action.  <i>Signal</i>: Name of the signal that is specified in the signal properties of the Synch action.</p>
Trace:	This action is used to log a message, which can be used later for information, debugging, or error log purposes. User can check the values of variable at run time in a process flow. This action uses Adeptia Server logging framework. Users need to specify the	



	following properties while adding the Trace action to a process flow:	
		<p><i>Label:</i> The label displayed for the Trace action.</p> <p><i>Log Level:</i> Log Level is the level at which the message is to be logged. It can be logged at DEBUG, INFO or ERROR levels. Logging level for trace action should not be higher than the logging level of the Process Flow. For example if you have selected 'INFO' logging level in the process flow, you should select 'INFO' or 'ERROR' in trace action. If you select 'DEBUG' logging level in trace action, the trace message will not be logged in process flow log. Similarly while viewing the process flow log, if you select logging level, lower than the logging level of trace action, you cannot see this trace message in process flow logs. For detailed information about Logging Levels, refer to the <a href="#">Logging</a> section in Appendix A.</p> <p><i>Message:</i> Message that is logged when the trace action is executed. To print the value of a variable in logs, enter \$\$variablename\$\$ in the message field.</p> <p><i>Name:</i> Name for the Trace action.</p>
Wait:	This action waits for certain variable value to be changed in a process flow 'context' to a predefined value for a given timeout. Basically process engine waits for some event to happen then it moves forward. This action is related to polling of a variable and setting some variable in context. Users need to specify the following properties while adding the Wait action to a process flow:	
		<p><i>Label:</i> The label displayed for the Wait action.</p> <p><i>Name:</i> Name for the Wait action.</p> <p><i>pollinginterval:</i> Time interval in seconds the wait action will poll for the above specified variable value.</p> <p><i>resultCtxVarName:</i> Name of the context variable that contains the status of the Wait action. Its value is Boolean</p> <p><i>timeout:</i> Timeout duration in seconds</p> <p><i>value:</i> Value of the context variable.</p> <p><i>var:</i> Name of the context variable for which the Wait action 'waits'.</p>

### Steps to add Actions to a Process Flow

1. Click tree structure In the **Activities** panel, to expand the Action list of the Adeptia Server. The list of Adeptia Server actions is displayed (see Figure 3.35).

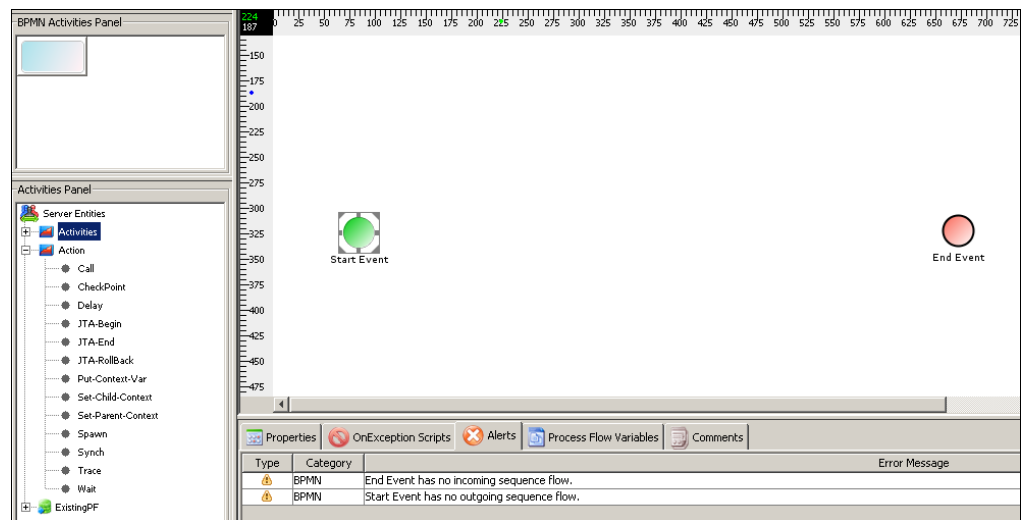


Figure 3.35: List of Actions in Adeptia Server

2. Select the required action and drag it to the Graph Canvas area. The dragged action is displayed in the Graph Canvas (see Figure 3.36).

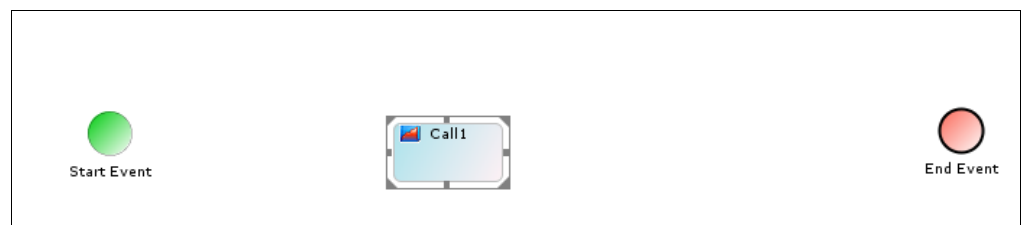


Figure 3.36: Dragging Action to Graph Canvas

3. Right-click **Action** element and select **View Properties**. The properties of the action element are displayed in the Properties Panel in the Bottom Pane (see Figure 3.37).

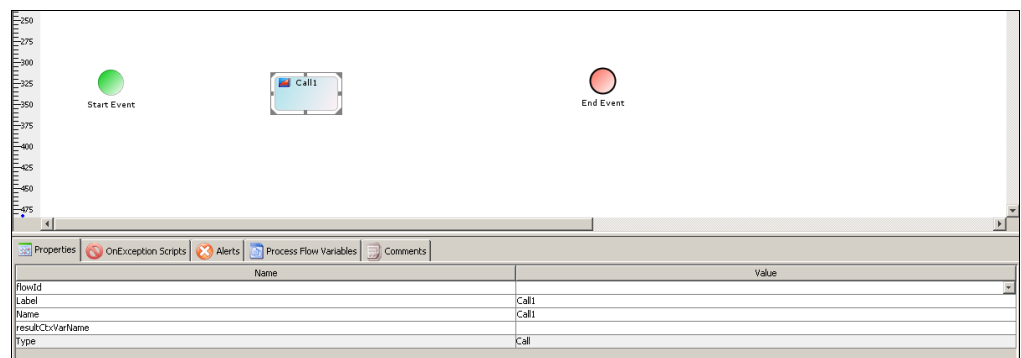


Figure 3.37: Action's Properties

4. Change the required properties and then click the action element in the Graph canvas area.

## CREATING PROCESS FLOW VARIABLE

Process Flow Variable are created and used throughout the execution of a process flow.

### Steps to create a Process Flow Variable

1. Click **Process Flow Variable** tab in the bottom pane. The Process Flow Variables Panel is displayed with the list of existing variables (see Figure 3.38).

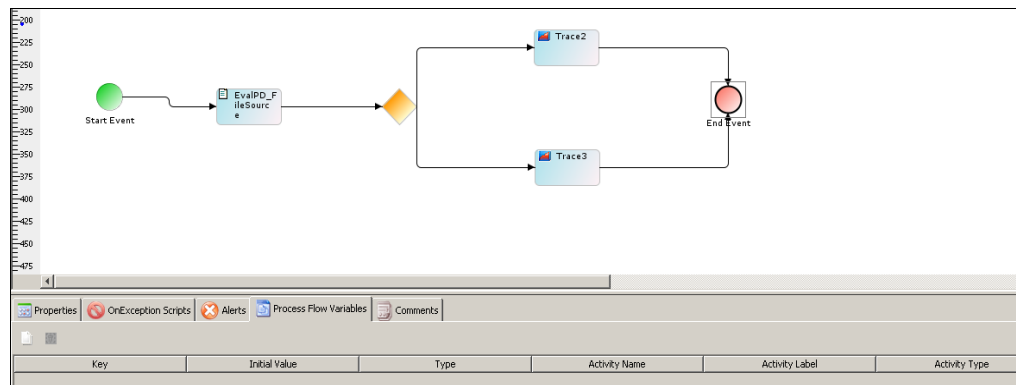



Figure 3.38: Process Flow Variable Panel

2. Click **New Process Flow Variable** (  ) button in the Process Flow Variable Panel. The Process Flow Variable Entry screen is displayed (see Figure 3.39).

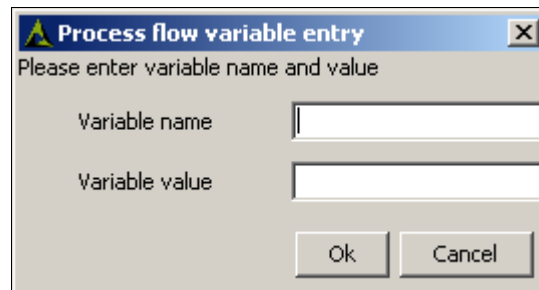


Figure 3.39: Create Process Flow Variable

3. Enter the name for the process flow variable in the *Variable Name* field.
4. Enter the value of process flow variable in the *Variable Value* field.
5. Click **OK** button to save the process flow variable and return to the Graph Canvas.
6. Once a new process flow variable is created, it is added to **PF Variable** node under **Entities** tree.

## CREATING CONTEXT VARIABLE

You can create multiple context variables in a process flow using the *PutContextVar* action. Once they are created, you can use these context variables in the context of the process context as and when required.

### Steps to create a Context Variable

1. Select the **Put-Context-Var** action under the Actions tree and drag it to the Graph Canvas area. The Put-Context-Var action is displayed in the Graph Canvas (see Figure 3.40).



Figure 3.40: Drag Put-Context-Var action in Graph Canvas

2. Right-click **Put-Context-Var** action and select **View Properties**. The properties of the *Put-Context-Var* action are displayed in the Properties Panel in the Bottom Pane (see Figure 3.40).

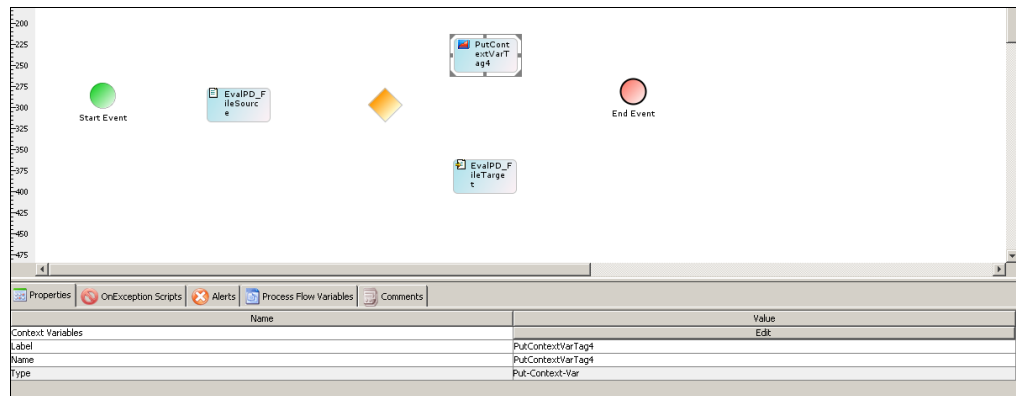


Figure 3.41: Properties of Put-Context-Var action






3. Click **Edit** button. The Edit Context Variables screen is displayed (see Figure 3.42). This screen displays a list of existing context variables and the Add Variable (  ), Edit Variable (  ) and Delete Variable (  ) buttons.



Figure 3.42: Edit Context Variables

 The **Edit Variable** and **Delete Variable** buttons appear as disabled if no context variables have been created or no existing context variables have been selected.

4. Click **Add Variable** () button to create a new context variable. The Context Variable Information screen is displayed (see Figure 3.43).

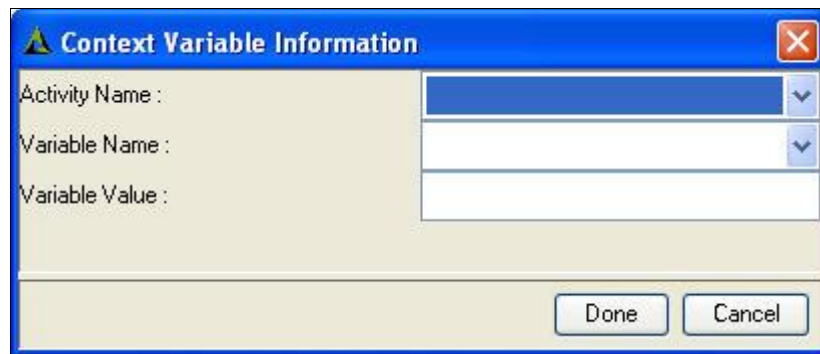




Figure 3.43: Context Variable Information


5. Select the name of the activity for which you want create the context variable, from the *Activity Name* drop-down list. This drop-down lists all the activities that are currently present on the Graph Canvas. Once you select the activity, all the attributes of the selected activity, are listed in the *Variable Name* drop-down list.

 If the *Activity Name* field is left blank, then a new context variable is declared.

6. Select the attribute for which you want to create the context variable, from the *Variable Name* drop-down list. For example, you can select the File Path field in case of a File Source or File Target activity.

 If the *Activity Name* field is blank, then the current context variables will be listed in the *Variable Name* drop-down list.

7. Enter the value that you want to set for the attribute/context variable, in the *Variable Value* field.

 You can even append the current date or time stamp with the name of the file in the *Variable Value* field. To do this, click in the *Variable Value* field, and press **<CTRL> + <Space Bar>**. A list of the date and time format is displayed. Selecting a format from this list, displays it in the *Variable Value* field. Alternately, you can enter the required file path with the file name as in the example:  
C:\target\File\_target%%yyyy-mm-dd%.txt

The *Variable Value* field does not support '&' and '<' symbols.

8. Click **Done**. This adds the context variable and takes the control back to the Edit Context Variables screen, where the new context variable is added to the list of existing context variables (see Figure 3.44).

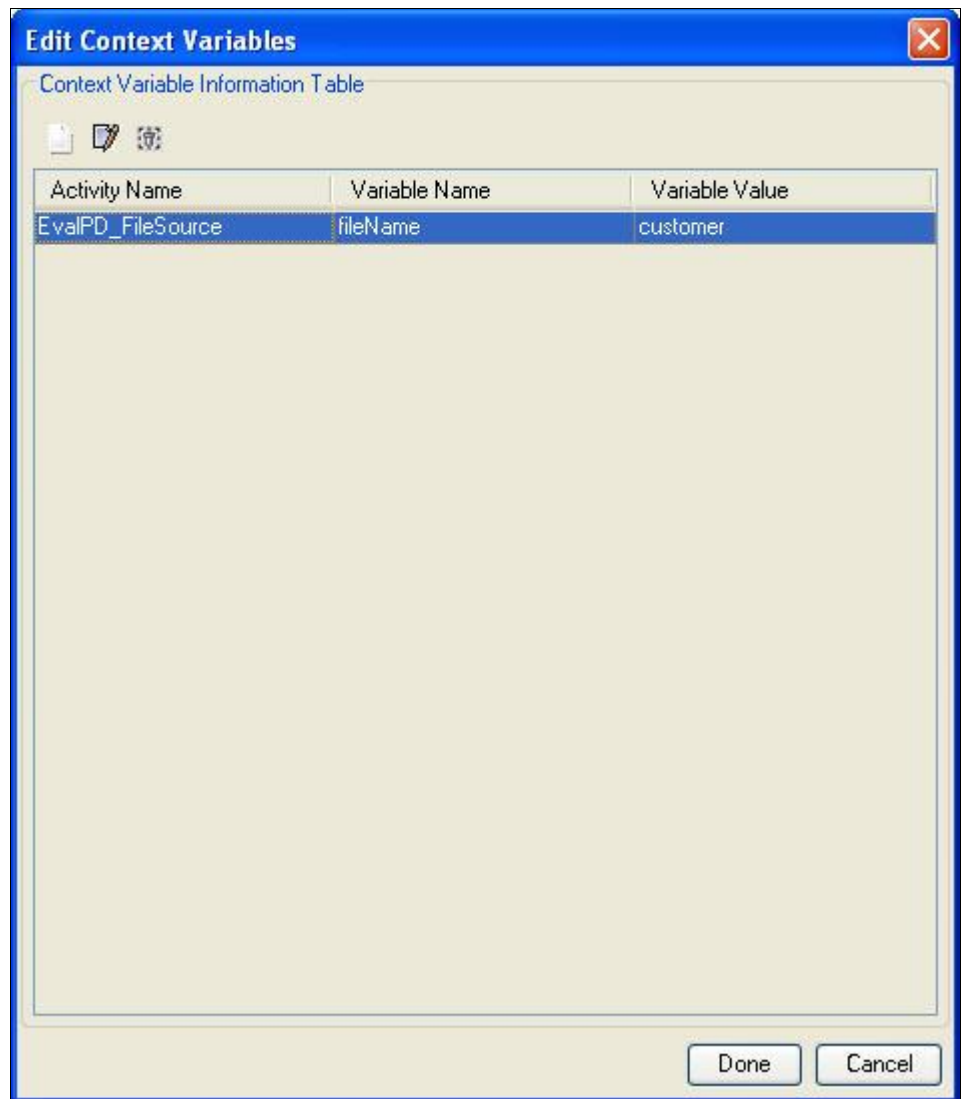




Figure 3.44: Context Variable Added

 You can add multiple context variables (up to a maximum of 100) for the process flow.

9. Click **Done** on the Edit Context Variables screen to add all the displayed context variables to the context of the process flow.

 Similarly, you can edit a context variable, by selecting it from the list of existing context variables on the Edit Context Variables screen. This selection will enable the **Edit Variable** button. Clicking this button will display the Context Variable Information screen with the selected context variable details in edit mode. You can make the necessary changes and click **Done** to save the modified context variable.

You can delete a context variable, by selecting it from the list of existing context variables on the Edit Context Variables screen. You can select

multiple context variables to delete, by pressing **<CTRL>** and the context variables. This selection(s) will enable the **Delete Variable** button. Clicking this button will delete the selected context variable(s).

## USING CONTEXT SOURCE AND CONTEXT TARGET

Process Flow keeps its data in memory called Process Flow Context, which is used by the process flow during its execution. When process flow takes any data from the context, it uses the context source activity. Context Source is used to read a variable and stream it out to other activities of the process flow. In addition to that Context Source can also read file from repository (WebDAV or File) and pass it to other activities. Similarly, when process flow sends any data to the context, it uses the context target activity.

### *Steps to create a Context Source/Target activity*

1. Expand the **Activities** tree and click **Source**. A list of source activities is displayed.
2. Select **Context Source**. Drag the Context Source to the Graph Canvas Area. A small image of the activity is displayed in the Graph Canvas Area (see Figure 3.45).



Figure 3.45: Drag Context Source

3. In the Graph Canvas area, right click the **Context Source** and select **View Properties**. This displays all properties for the context source in the Bottom Pane (see Figure 3.46).



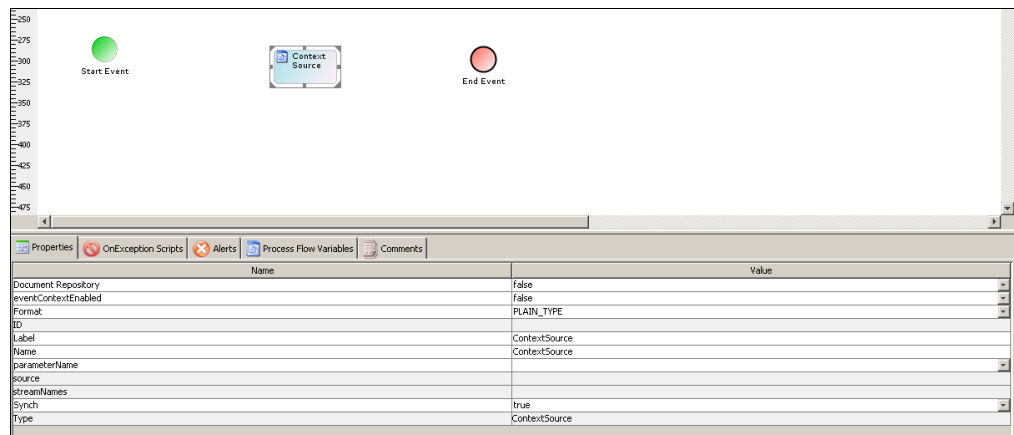


Figure 3.46: Properties of Context Source

4. A list of properties and their descriptions are displayed in the table below.

Table 3.9: Context Source/Target Activity Properties

Properties	Description
Document Repository	This property specifies whether the data to be taken from the value of process flow variable, or from the document repository. If it is set to false, the data is taken from the Process Flow variable, specified by the Parameter Name property. If it is set to true, the source data is taken from the repository file specified by the File Name (with full Path) Property. Specify the path of the document repository and the name of the repository file, from which the data is to be taken, in this field. Repository can be WebDAV repository or file repository. To know more about repository, refer to the section <b>Appendix A: Archival</b> .
eventContextEnabled	By default it is set to <b>NO</b> . If you want to pass any data from event, select <b>Yes</b> . For example, if you are triggering the process flow using Mail Event and you want to pass the content of the mail to the process flow, set this property to yes. To know about events, refer to the section <b>Creating Trigger and Events</b> .
Format	Data Format; whether Plain Type or Record Type. Select Plain Type, if data is in Byte Stream. Select Record type, if data is in record format.
Label	Label of the Context Source Activity displayed in the Graph Canvas area.
Name	Name of the Context Source activity. By default, it is same as the Process Variable name.
Repository Folder	Name and path of the WebDAV folder. This property is displayed only if the <b>Document Repository</b> property is set to <b>True</b> .
parameterName	Select the name of the Process Flow Variable, whose value is to be taken as context source. This property is applicable only when the <b>Document Repository</b>

	Property is set to <i>False</i> .
Source	Name of the stream being consumed by this activity. This property is applicable only for Context Target. It is non-editable.
streamNames	Name of the output stream name. This property is applicable only for Context Source. It is non-editable.
Synch	Specifies whether the activity will be executed in Synch mode or Asynch mode. To know more about Synch and Asynch mode of execution, refer to the section <a href="#">Working with Process Flow</a> .
Type	Activity Type; whether Context Source or Context Target. By Default Context Source is selected. If you want to use it as Context Target, select Context Target from the drop-down list.
Version Control	It specifies whether versions are to be maintained for the repository file, which is created by context target. This property is displayed only if the <b>Document Repository</b> property is set to <i>True</i> . If this property is set to false, then the versions are not maintained. If it is set to True, then all versions are tracked.

## OVERRIDING PROCESS FLOW DESCRIPTION AT RUNTIME

You can override the description of process flow during execution. To override the description put-context-var action is used. If the description of a process flow is overridden, in process flow log, new description is shown.

### **Steps to override Process Flow Description**

1. Click **[+] Action** to expand the Actions of the Adeptia Server. The list of Adeptia Server actions is displayed.
2. Select the **put-context-var** action and drag it to the Graph Canvas area anywhere within the process flow.
3. Connect the put-context-var action as shown in Figure 3.47 .

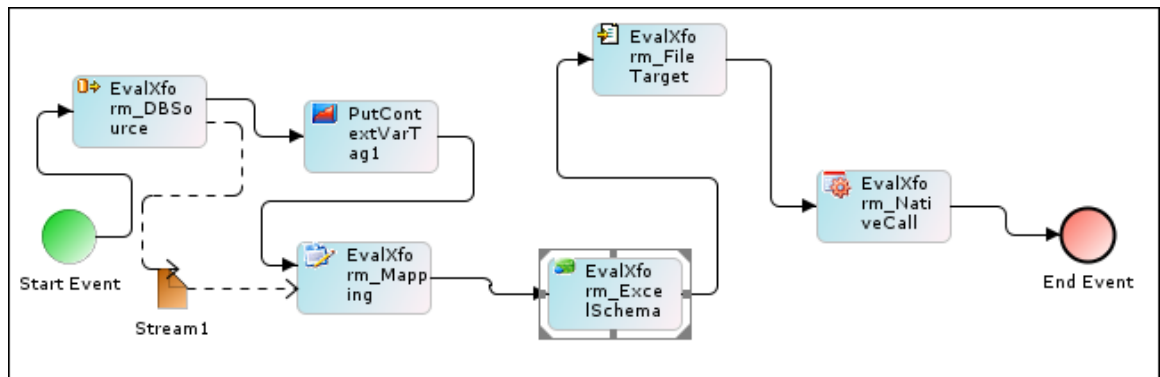


Figure 3.47: Connect Put-Context-Var to activity

4. Right-click **put-context-var** and select **View Properties**. Its properties are displayed in the Properties Panel in the Bottom Pane (see Figure 3.48).

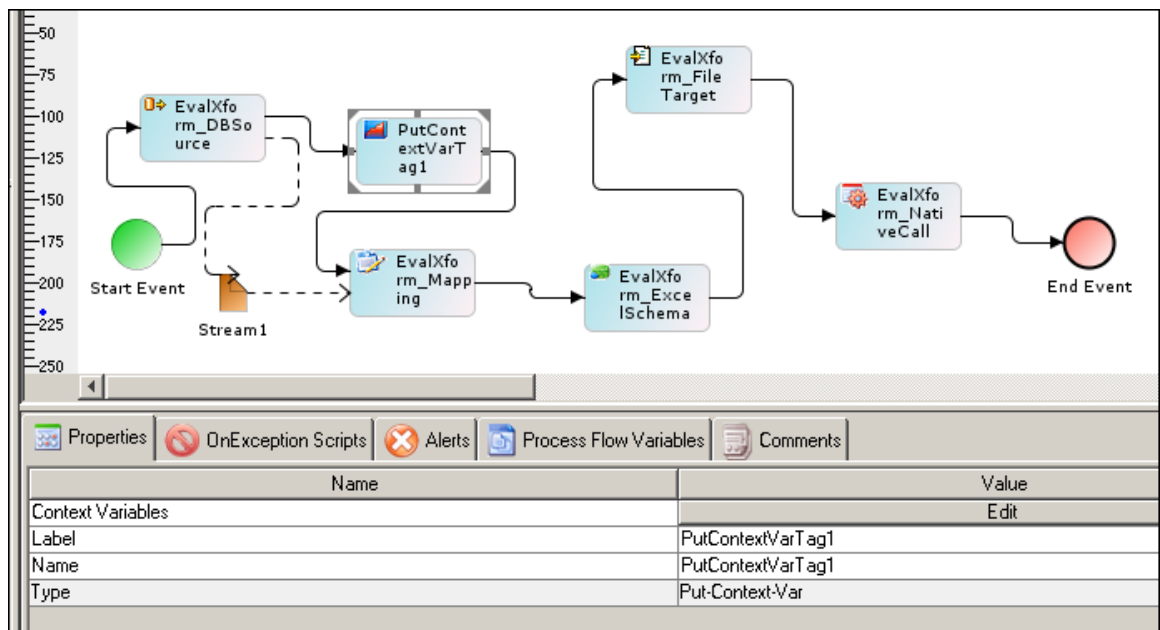



Figure 3.48: Properties of Put-Context-Var

5. Click **Edit** button to edit the value of context variable. The Edit Context Variables dialog box is displayed.
6. Click **Add Variable** (  ) to add new context variable. The Context Variable Information screen is displayed.
7. Leave the *Activity Name* field blank.
8. Select ProcessFlowDescription from Variable Name drop-down list.
9. Enter the new description of the process flow in the *Variable Value* field.
10. Click **Done** to close Context Variable Information screen. This takes the control back to the Edit Context Variables screen. The newly created variable is added to the list of existing context variables.

11. Click **Done** to close Edit Context Variables screen and return to Process Designer.
12. Save the process flow and exit from Process Designer.

## OVERRIDING ACTIVITY OF A PROCESS FLOW AT RUNTIME

An activity of a process flow can be overridden by another activity during execution of the process flow. For example let's assume the following process flow:

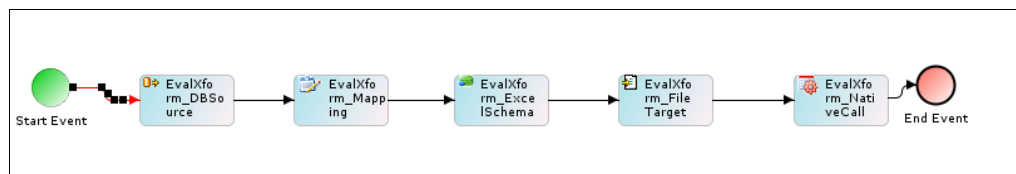


Figure 3.49: Usage Scenario

In Figure 3.49 the process flow uses the EvalXform\_ExcelSchema. You can override this activity with any other schema activity (for example, EvalXform\_Text Schema) during the execution of the process flow. In this case, EvalXform\_TextSchema is executed during the execution of the process flow.

This functionality is used when the actual activity to be executed is decided at execution time, not at design time of the process flow. For example, in a process flow that handles data coming in various formats, you have to first add the schema activity for each data format and then route the data to appropriate format using decision node. This results in the process flow being bulky and unmanageable. At times, you may even need to design one process flow for each data format. Now, this problem can be overcome by using the same process flow with a different schema activity. You can simply override the EvalXform\_ExcelSchema with any other schema of your choice. For details on the type of activities that can be overridden refer to the Activities that can be overridden section.

There are two ways of overriding an activity in a process flow. They are outlined as:

- [Overriding an activity using Custom Plugin](#)
- [Overriding an activity using put-context-var](#)

### Overriding an activity using Custom Plugin

You can override an activity by using a custom plugin activity just before the activity, which needs to be overridden by another activity.

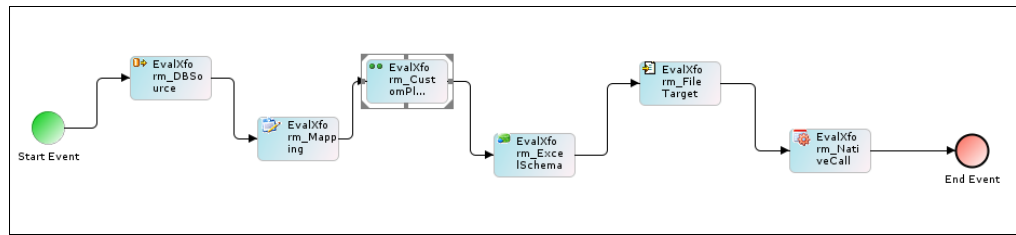


Figure 3.50: Overriding an Activity using Custom Plugin

As shown in Figure 3.50, the *EvalXform\_CustomPlugin* activity is used just before the *EvalXform\_ExcelSchema* activity.

The **setActivityParameter ( ) API** is used to override the activity.

The sample Java code, which is used to override a schema activity, is displayed in Figure 3.51.

```
context.setActivityParameter(ActivityName, "schemaTypeId",
activityType + ":" + dynamicActivityID);
```

Figure 3.51: Sample Java Code used to Override a Schema Activity

For all other activities the overriding is done using the Java code displayed in Figure 3.52.

```
context.setActivityParameter(activityName, "TypeId", activityType
":" + dynamicActivityID);
```

Figure 3.52: Sample Java Code used to Override Activities

Table 3.10: Arguments used in Java Code

#	Name	Description	Example
1	activityName	Name of the activity, which is to be overridden	EvalXfrom_ExcelSchema
2	activityType	Activity Type of the activity, which will override the existing activity. To know the Activity Type of the activity refer to the section Activities that can be overridden.	TextSchema
3	dynamicActivityID	Entity Id of the activity, which will override the existing activity. To know the Entity Id of an activity, in Manage activity screen, click on the activity.	192168001006115537684214000004



To know, how to create Custom Plugin activity, refer to the section [Creating Custom Plugin](#).

## Overriding an activity using put-context-var

You can override an activity using put-context-var action just before the activity, which needs to be overridden by another activity.

### Steps to override an activity using put-context-var

1. Click **[+]** **Action** to expand the Actions of the Adeptia Server. The list of Adeptia Server actions is displayed.
2. Select the put-context-var action and drag it to the Graph Canvas area just before the activity, which is to be overridden.
3. Connect the put-context-var action to the activity (see Figure 3.53).

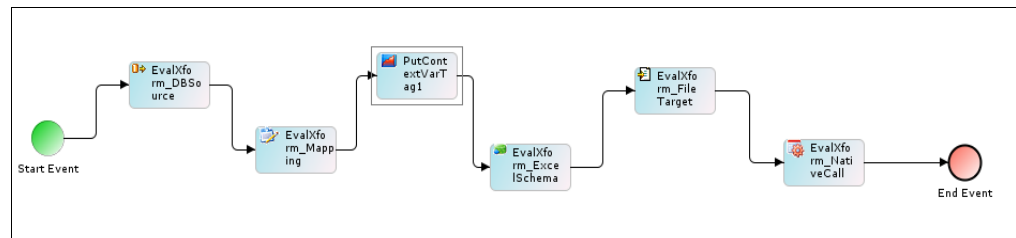


Figure 3.53: Connect Put-Context-Var to activity

4. Right-click **put-context-var** and select **View Properties**. Its properties are displayed in the Properties Panel in the Bottom Pane (see Figure 3.54).

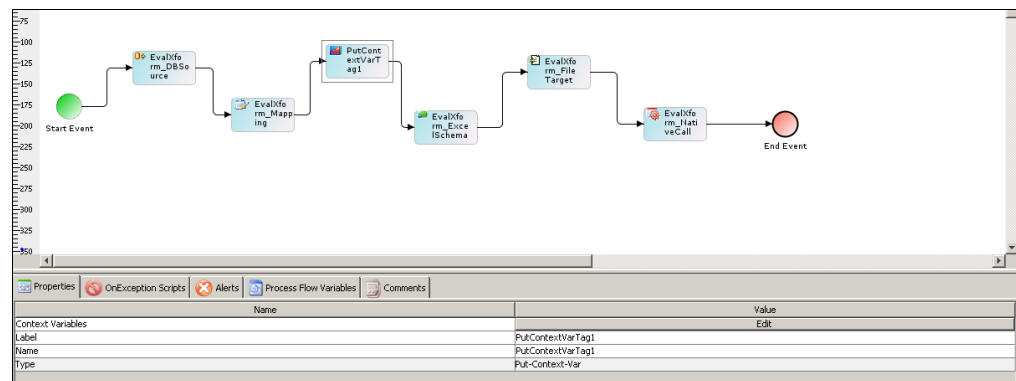




Figure 3.54: Properties of Put-Context-Var

5. Click **Edit** button to edit the value of context variable. The Edit Context Variables dialog box is displayed.
6. Click **Add Variable** (  ) to add new context variable. The Context Variable Information screen is displayed.
7. Select the activity, which is to be overridden (for example, *EvalXform\_ExcelSchema*) from *Activity Name* drop-down list.

8. Select `SchemaTypedId` (for Schema activity) or `TypedId` (for all other activities) from Variable Name drop-down list.
9. Enter the *Activity Type* and the *Entity Id* of the activity, which will override the existing activity in following format, in the *Variable Value* field.

Format : Activity Type: EntityID  
 For Example : TextSchema: 192168001006115537684214000004


 To know the Entity Id of an activity, in Manage activity screen, click the activity.

The entered information is displayed as shown in Figure 3.55.

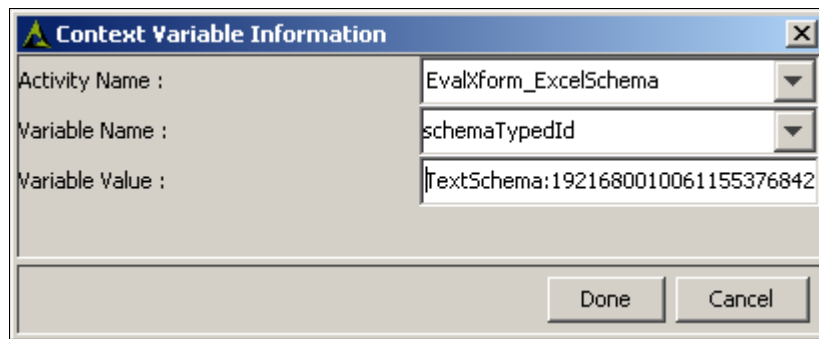


Figure 3.55: Context Variable Details for Overriding an Activity

10. Click **Done** to close Context Variable Information screen. This takes the control back to the Edit Context Variables screen. The newly created variable is added to the list of existing context variables.
11. Click **Done** to close Edit Context Variables screen and return to Process Designer.
12. Save the process flow and exit from Process Designer.

## Activities that can be overridden

You can override many types of activities in a process flow. These are outlined as:

- [Source Activity](#)
- [Target Activity](#)
- [Schema Activity](#)
- [Polling Activity](#)
- [Other Activities](#)

### Source Activity

Any type of source activity can be overridden by another type of source activity. For example, a file source activity can be overridden by an FTP source activity. The types of source activities, that can be overridden and their TypedId are listed in the table below.

Table 3.11: Source Types that can be Overridden

Source Type	Activity Type
Advanced Database Source	AdvancedDatabaseSource
Database Source	DatabaseSource
File Source	FileSource
FTP Source	FtpSource
HTTP Source	HttpSource
JMS Source	JmsSource
LAN File Source	LanFileSource
Mail Source	MailSource
WebDAV Source	WebdavSource

### ***Target Activity***

Any type of target activity can be overridden by another type of target activity. For example, a file target activity can be overridden by an FTP target activity. The types of target activities, that can be overridden and their TypeId are listed in the table below.

Table 3.12: Target Types that can be Overridden

Target Type	Activity Type
Advanced Database Target	AdvancedDatabaseTarget
Database Target	DatabaseTarget
File Target	FileTarget
FTP Target	FtpTarget
HTTP Target	HttpPost
JMS Target	JmsTarget
LAN File Target	LanFileTarget
Mail Target	MailTarget
WebDAV Target	WebdavTarget



## ***Schema Activity***

Any type of schema activity can be overridden by another type of schema activity. For example, a text schema activity can be overridden by an excel schema activity. The types of schema activities, that can be overridden and their schemaTypeId are listed in the table below.

Table 3.13: Schema Types that can be Overridden

<b>Schema Type</b>	<b>Schema Activity Type</b>
Excel Schema	ExcelSchema
Text Schema	TextSchema
XML Schema	XMLSchema
EDI Schema	EDISchema
Advanced Positional Schema	AdvancePositionalSchema
Positional Schema	PositionalSchema

## ***Polling Activity***

Any type of polling activity can be overridden by another type of polling activity. For example, a file polling activity can be overridden by a mail polling activity. The types of polling activities, that can be overridden and their TypeId are listed in the table below.

Table 3.14: Polling Types that can be Overridden

<b>Possible Polling Type</b>	<b>Activity Type</b>
Database Polling	DatabasePollingService
File Polling	FilePollingService
FTP Polling	FtpPollingService
Mail Polling	MailPolling

## ***Other Activities***

All other types of activity can be overridden by exactly the same type of activity. For example, a Custom Plugin activity can be overridden by another Custom Plugin activity only. Similarly, a Data Mapper activity can be overridden by another Data Mapper activity only. All other types of activities, that can be overridden and their TypeId are listed in the table below.

Table 3.15: Other Activity Types that can be Overridden

Activity	Activity Type
Data Mapping	DataMapping
Record to Record	ScriptedRecord2RecordTransformer
Custom Plugin	CustomPlugin
Human Workflow	HumanInteraction
Context Download	ContextDownload
Context Upload	ContextUpload
MIME Message:	
Decoder	MessageExtractor
Encoder	MessageComposer
Custom Report	IndigoReport
Native Call	NativeCall
Mail Notification	MailNotification
Web Service:	
WsMessage Call	WsMessageCall
WsRpc Call	WsRpcCall

## Overriding subject and body of email sent for a Human Workflow Task

The subject of emails sent when a Human Workflow task is created/updated, is already pre-defined in the code. Now, you can override this subject by using *put-context-var* action.

### Steps to override email subject using *put-context-var*

1. Click **[+] Actions** to expand the Actions of the Adeptia Server. The list of Adeptia Server actions is displayed.
2. Select the **put-context-var** action and drag it to the Graph Canvas area before the human work flow task whose email subject is to be overridden.
3. Connect the *put-context-var* action to the task (see Figure 3.56).

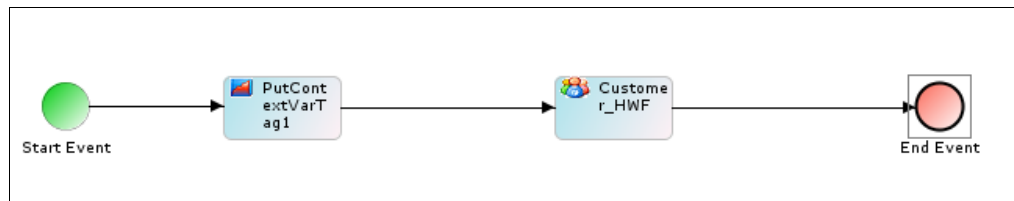



Figure 3.56: Connect put-context-var to Human Workflow task

4. Right-click **put-context-var** and select **View Properties**. Its properties are displayed in the Properties Panel in the Bottom Pane.
5. Click **Edit** button to edit the value of context variable. The Edit Context Variables dialog box is displayed.
6. Click **Add Variable** (  ) to add new context variable. The Context Variable Information screen is displayed.
7. Select the task, which is to be overridden (for example, *Customer\_HWF*) from *Activity Name* drop-down list. All variables of this task are listed in the *Variable Name* drop-down list.
8. Select *emailSubject* from *Variable Name* drop-down list.
9. Enter the new email subject that you want to display, in the *Variable Value* field. You can also define the subject as extracted from a variable, by entering \$\$ variable name \$\$ in the *Variable Value* field.

The entered information is displayed as shown in Figure 3.57.

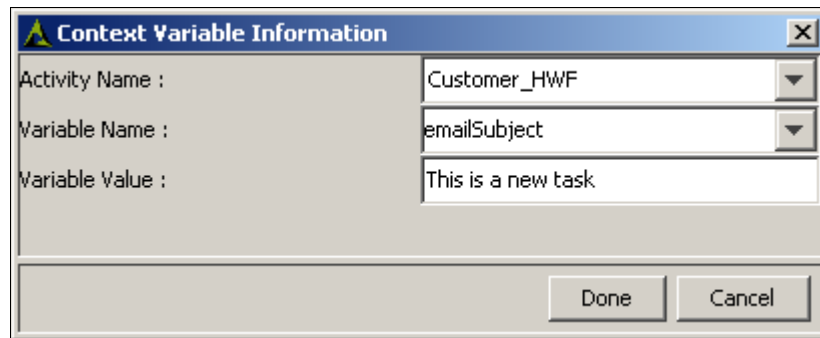



Figure 3.57: Context Variable Details for Overriding email subject


10. Click **Done** to close Context Variable Information screen. This takes the control back to the Edit Context Variables screen. The newly created variable is added to the list of existing context variables.
11. Click **Done** to close Edit Context Variables screen and return to Process Designer.
12. Save the process flow and exit from Process Designer. When you execute this process flow, and an email for a new task is sent, then 'New Task' is appended in the email subject. This is pre-defined in the code and is displayed when you override the email subject. It is subject to change, based on the action performed. If an existing task is deferred, then 'Deferred Task' is appended.

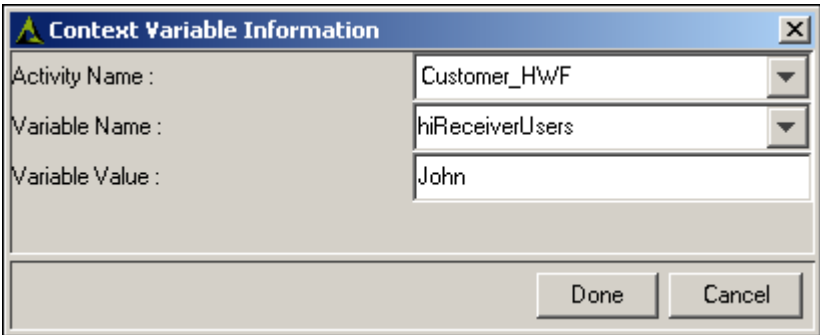
 Similarly, you can dynamically override the first line of the email subject.

## Overriding Assignee User of a Human Workflow Task

You can dynamically override the assignee (user to whom task is assigned) of a Human Workflow activity, during the execution of a process flow using *put-context-var* action.

### Steps to override assignee using *put-context-var*

1. Click **[+] Actions** to expand the Actions of the Adeptia Server. The list of Adeptia Server actions is displayed.
2. Select the **put-context-var** action and drag it to the Graph Canvas area before the Human Work flow task assignee is to be overridden.
3. Connect the *put-context-var* action to the task ( refer to Figure 3.56).
4. Right-click **put-context-var** and select **View Properties**. Its properties are displayed in the Properties Panel in the Bottom Pane.
5. Click **Edit** button to edit the value of context variable. The Edit Context Variables dialog box is displayed.
6. Click **Add Variable** (  ) to add new context variable. The Context Variable Information screen is displayed.
7. Select the task, which is to be overridden (for example, *Customer\_HWF*) from *Activity Name* drop-down list. All variables of this task are listed in the *Variable Name* drop-down list.
8. Select *hiReceiverUsers* from *Variable Name* drop-down list.
9. Enter the User Id of the user to whom you want to assign the Human Workflow task, in the *Variable Value* field. The entered information is displayed as shown in Figure 3.58.



The dialog box titled "Context Variable Information" contains three fields: "Activity Name" with a dropdown menu showing "Customer\_HWF", "Variable Name" with a dropdown menu showing "hiReceiverUsers", and "Variable Value" with a text input field containing "John". At the bottom right, there are "Done" and "Cancel" buttons.

Figure 3.58: Context Variable Details for Overriding email subject

10. Click **Done** to close Context Variable Information screen. This takes the control back to the Edit Context Variables screen. The newly created variable is added to the list of existing context variables.

11. Click **Done** to close Edit Context Variables screen and return to Process Designer.
12. Save the process flow and exit from Process Designer. When you execute this process flow, the process will be assigned to user (for example *John* instead of *admin*) to whom it was originally assigned.

## PROCESSING RECORD QUEUE

By default, during the execution of process flow, the entire input data is processed at a time. Adeptia allows you to process the input data record-by-record. To process the data record-by-record, Record Queue Processor is used. Using Record Queue Processor, you can:

- Process the input data record-by-record
- Specify the number of records to be processed

### How Record Queue Processor works?

Record Queue processor consists of *Record Queue Producer* and *Record Queue Receiver*. *Record Queue Producer* is an asynchronous activity, which sets records one by one in a queue and waits for it to get consumed by *Record Queue Receiver*. *Record Queue Receiver* consumes the record from the queue and produces a stream. This stream can be further processed by other activities of the process flow. Once the record is consumed by *Record Queue Receiver*, *Record Queue Producer* sets the next record and waits for it to get consumed by *Record Queue Receiver*. This loop continues until all the records are queued and processed. Once all the records are processed, the loop is broken and the process flow stops.

The usage of the Record Queue Processor is explained in Figure 3.59.

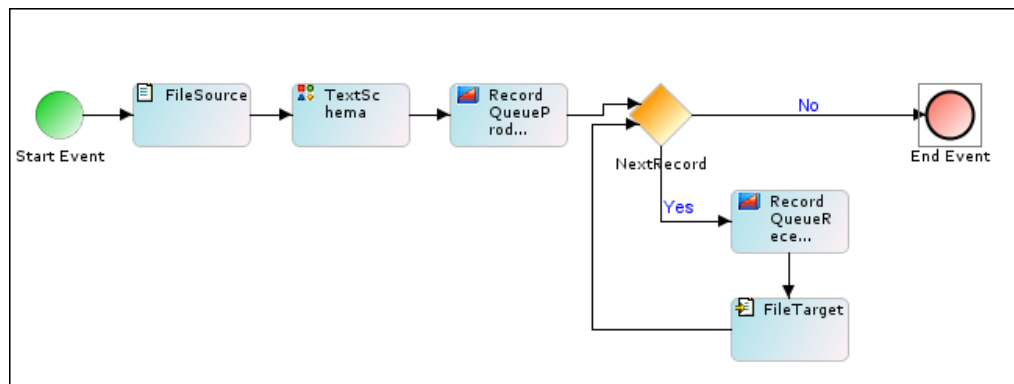


Figure 3.59: Using Record Queue Processor

As shown in the figure above, data from *File\_Source* is consumed by *Text\_Schema*, which further passes it to Record Producer. Record Producer takes the first record and sets it into Queue as specified by Record Queue Producer properties. Gateway is used to check availability of records. Following is the code, which is used at Gateway to check the availability of the record in queue.

```
String    queue    =    context.get("Service.queueName.nextRecord")
if(queue.equals("true")){
    return true;
}
return false;
```

Where *queueName* is the name of the queue specified in *Record Queue Producer*. "*nextRecord*" is a variable which is used to decide whether the record is available in the queue or not. Value of the variable *NextRecord* can be true or false. When *Record Queue Producer* sets a record in the queue, the value of *nextRecord* variable become true. If the value is true, it means the next record is available in queue for processing. In this case *Record Queue Receiver* takes the record from queue, changes the value of *nextRecord* variable to false and passes the record to file target. In the meantime *Record Queue Producer* again sets the record in the queue and changes the value of *nextRecord* to true and waits for it to get consumed by *Record Queue Receiver*. If the value of *NextRecord* variable is not changed to true, it means there is no record available for processing and the record queue processor is stopped.

#### **Steps to process records using Record Queue Producer and Record Queue Receiver**

1. Click **[+] Activities** to expand the Activities of the Adeptia Server. The list of Adeptia Server activities is displayed.
2. Select and drag the *File source* and *Text schema* activities to the Graph Canvas area.
3. Select the **RecordQueueProducer** activity and drag it to the Graph Canvas area.
4. Drag a gateway element to the Graph Canvas area.
5. Drag a *File target* to the Graph Canvas area.
6. Select the **RecordQueueReceiver** activity and drag it to the Graph Canvas area.
7. Connect all the activities as shown in Figure 3.59.
8. Right-click **RecordQueueProducer** and select **View Properties**. Its properties are displayed in the Properties Panel in the Bottom Pane (see Figure 3.60).

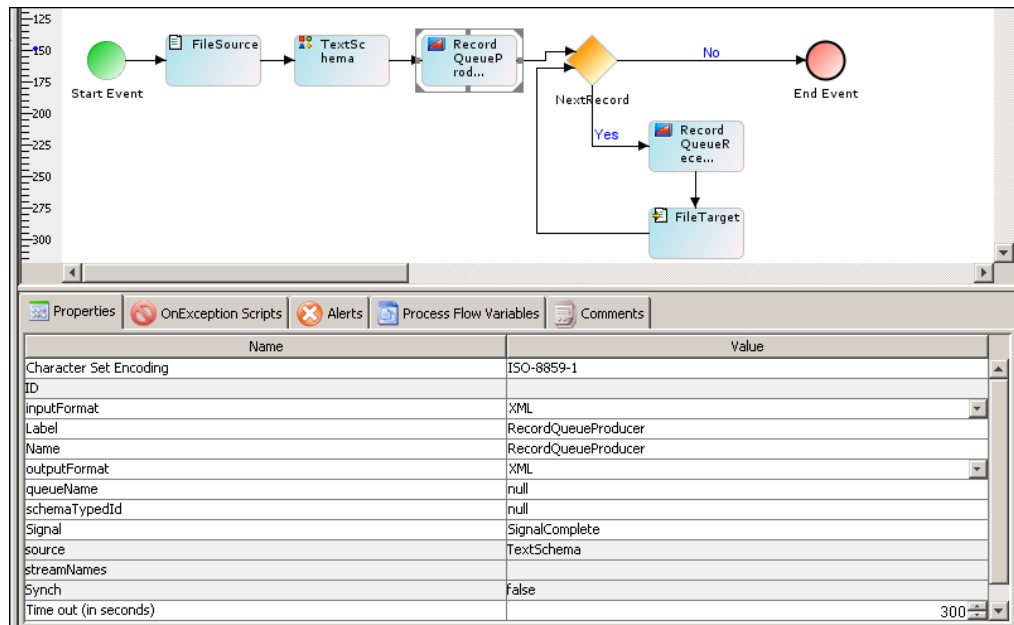


Figure 3.60: Properties of RecordQueueProducer

- Set the appropriate properties for the RecordQueueProducer. For details on the properties and their description, refer to the table below.

Table 3.16: Record Queue Producer Properties

Properties	Description
Character Set Encoding	Character set encoding that is used for parsing, incase input data is XML. By default it is ISO-8851-1
InputFormat	Format of the input data. It can be XML or Native.
Label	Label of the Record Queue Producer activity displayed in the Graph Canvas area.
Name	Name of the Record Queue Producer activity. By default, it is Record Queue Producer.
OutputFormat	Format of the output record. It can be XML or Native.
schemaTypedId	<p>TypeId and the 30 digit activity ID of the source schema separated by colon (:). For example TextSchema:192168001158117196729809300003</p> <p>To know the TypedID of Schema refer to Table 3.13.</p> <p>To know the 30 digit activity, click the activity name from the manage page. The 30 digit activity Id along with other properties are shown.</p>
Source	Name of the Activity, which is passing the record to Record Queue Producer. By default this field is

	populated. You cannot edit this field.
streamNames	Record Queue Producer doesn't produce any stream. This field remains blank.
queueName	Enter any queue name. This will be the queue name in which records are set. QueueName must be same as sourceQueueName of Record Queue Receiver activity used in the process flow.
Synch	Specifies whether the activity will be executed in Synch mode or Asynch mode. Record Queue Producer is always executed in asynch mode. This field is non editable. To know more about Synch and Asynch mode of execution, refer to the section Working with Process Flow.
Type	Type of the activity. By default this field is populated. This field is non editable.

10. Right-click **RecordQueueReceiver** and select **View Properties**. Its properties are displayed in the Properties Panel in the Bottom Pane (see Figure 3.61).

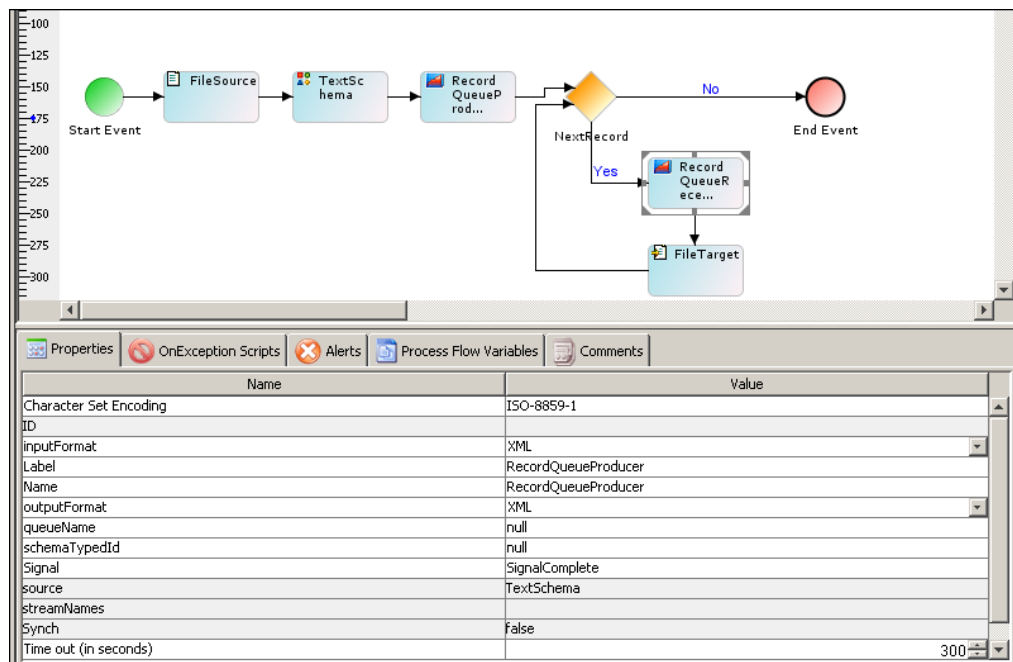


Figure 3.61: Properties of RecordQueueReceiver

11. Set the appropriate properties for the *RecordQueueReceiver*. For details on the properties and their description, refer to the table below.


Table 3.17: Record Queue Receiver Properties

Properties	Description
Label	Label of the Record Queue Producer activity displayed in the Graph Canvas area.
Name	Name of the Record Queue Producer activity. By default, it is Record Queue Producer.



Source	Record Queue Receiver does not consume any stream. This field remains blank.
streamNames	Name of the stream produced by Record Queue Receiver.
SourceQueueName	Enter the name of the queue from which Record Queue Receiver will fetch the record. sourceQueueName must be same as QueueName of Record Queue Producer activity used in the process flow.
Synch	Specifies whether the activity will be executed in Synch mode or Asynch mode. Record Queue receiver can be executed in Asynch or Synch mode. To know more about Synch and Asynch mode of execution, refer to the section Working with Process Flow.
Type	Type of the activity. By default this field is populated. You cannot edit this field.

12. Based on the selected properties for the *RecordQueueProducer* and *RecordQueueReceiver*, and the code specified for the Gateway element, the records are processed.


Record processing can be stopped based on specified conditions. If the condition is met, then the signal is set by the *RecordQueueReceiver* to stop further processing of records.

## ADDING CONDITIONS IN PROCESS FLOW

Conditions determine whether a certain transition is executed in a process flow. Conditions are used to change the direction of the process flow based on a decision. There are three types of conditions:


- Process Flow Variable Condition
- Java Condition
- Expression Condition Builder

### Process Flow Variable Condition

A transition can have condition based on the value of the context variable present in the current process flow. Once the condition is met, transition takes place. The Process Flow Variable Condition can be of two types:


- **Activity Attributes Condition**: Activity Attribute Condition is used to define condition based on the value activity specific context variable in a process flow.

- **Other Condition:** Other Condition is used to define condition using pre-created context variables.

 Process Designer allows Conditions to be added only for uncontrolled or default flow having gateway as its source. User cannot enter Condition for Association and Direction association flow under any circumstances.

## Adding Condition Using Process Flow Activity Attributes

### Steps to add a Condition in a Process Flow using Activity Attributes

1. To add the Gateway element, click **Show BPMN Gateway** () button in the Toolbar. The Gateway element is displayed in the BPMN Panel.
2. Select the **Gateway** element in the BPMN Panel and drag it to required place in the Graph canvas area. The Gateway element is displayed in the Graph canvas area (see Figure 3.62).

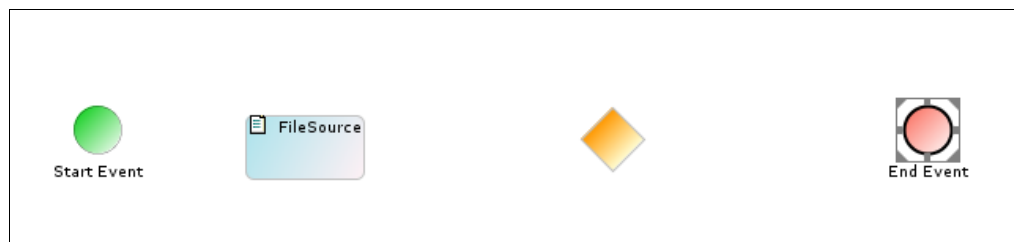


Figure 3.62: Drag Gateway Element to Graph Canvas Area

3. Connect the activities with the Gateway element using uncontrolled or default control flow (see Figure 3.63).

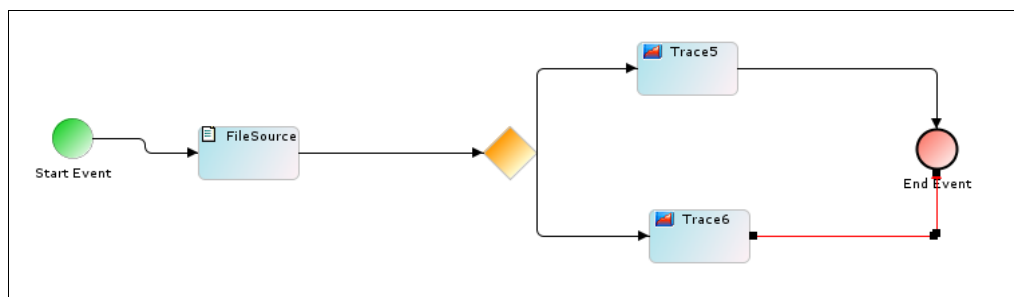



Figure 3.63: Connecting Elements

 To learn how to connect activities, refer to the Creating Process Flow section.

4. To add Condition, right-click control flow and select **View Properties**. The properties of the control flow are displayed in the Properties Panel in the Bottom Pane (see Figure 3.64).

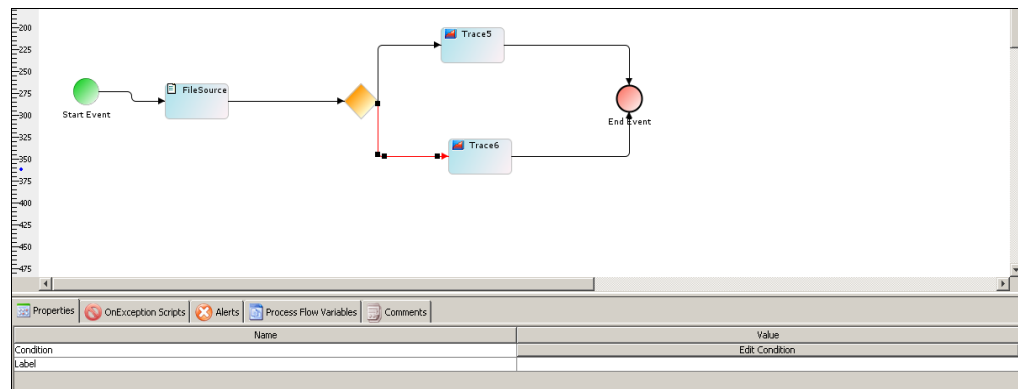


Figure 3.64: Change Gateway Element Properties

- Click **Edit Condition** button. The Condition Wizard screen is displayed (see Figure 3.65).

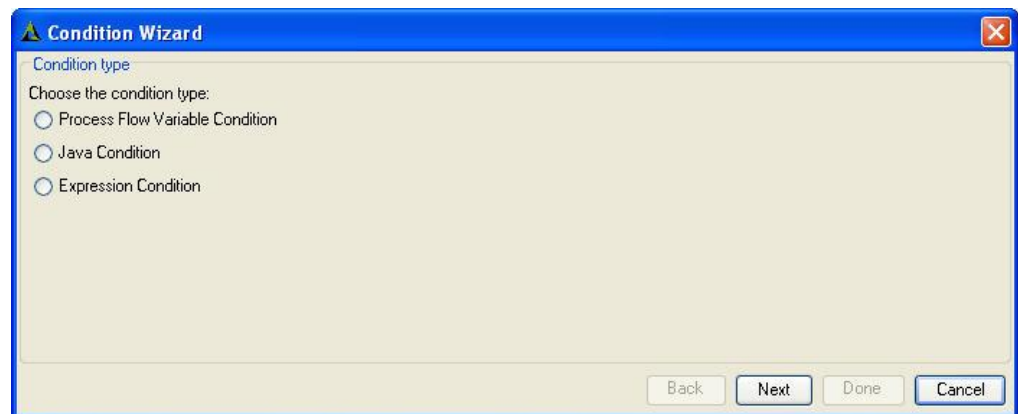


Figure 3.65: Condition Wizard

- Select the **Process Flow Variable Condition** and click **Next** button. The Choose Process Flow Variable Condition Type screen is displayed (see Figure 3.66).

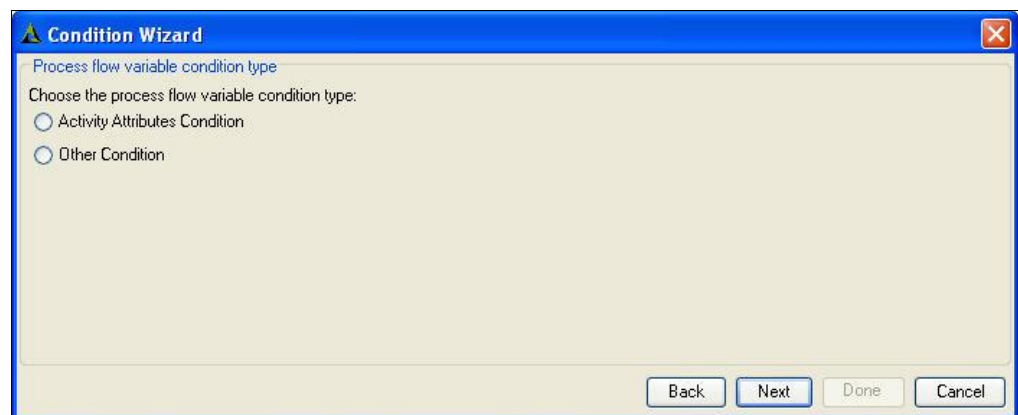


Figure 3.66: Select Process Flow Condition Type

7. Select **Activity Attribute Condition** and then click **Next** button. The Activity Attributes Condition screen is displayed (see Figure 3.67).

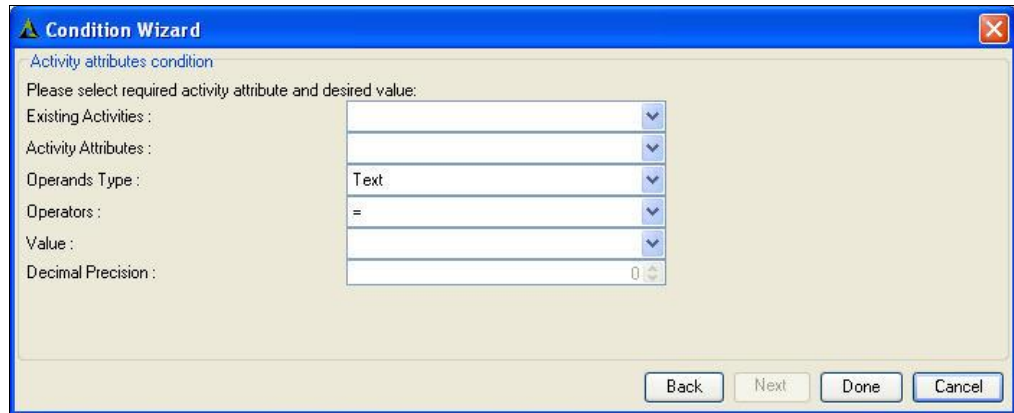


Figure 3.67: Activity Attributes Condition

8. Select the activities of the process flow from the *Existing Activities* drop-down list.
9. Select the attribute of the selected activity from the *Activity Attributes* drop-down list.
10. Select the data types of the value contained by the above specified attribute from *Operand Type* drop-down list. The data types supported for the value are listed in the table below.

Table 3.18: Data Types Supported for Operand Type Value

Data Type	Description
Number	This data type is selected if the specified activity attribute contains numeric value. For example, 1, 12.
Text	This data type is selected if the specified activity attribute contains text value. For example, abc, xyz.
Decimal	This data type is selected if the specified activity attribute contains decimal value. For example, 10.211, 100.50. The decimal precision can be defined under the decimal precision text field.

11. Select the operator's type from the *Operators* drop-down list. The operators supported are "=", "!=", ">", "<", ">=", "<=".
12. Enter or select the value of the above specified attribute from *Value* drop-down list.
13. Specify the decimal precision (only if operand type is "Decimal") under the *Decimal Precision* text field.
14. Click **Done** button to close the Condition Wizard and return to the Graph Canvas.
15. Repeat steps 4 to 14 to add condition on another control flow.


### ***Adding Condition Using Process Flow Variable Other Condition***


Using Process Flow Variable we specify that if the value of a specified variable is equal to the defined value, the transition will execute.

### Pre-Requisite:

- Process Flow variable must be created. To learn how to create process flow variable, refer to the Creating Process Flow Variable section.

### Steps to add a Condition in a process flow using Process Flow Variable

1. To add the Gateway element, click **Show BPMN Gateway** () button in the Toolbar. The Gateway element is displayed in the BPMN Panel.
2. Select the **Gateway** element in the BPMN Panel and drag it to required place in the Graph canvas area. The Gateway element is displayed in the Graph Canvas area (refer to Figure 3.62).
3. Connect the activities with the Gateway element using uncontrolled or default control flow (refer to Figure 3.63).

 To learn how to connect activities, refer to Creating Process Flow section.

4. To add Condition, right-click control flow and select **View Properties**. The properties of the control flow are displayed in the Properties Panel in the Bottom Pane (refer to Figure 3.64).
5. Click **Edit Condition** button. The Condition Wizard screen is displayed (refer to Figure 3.65).
6. To use Condition using Process Flow Variable, select the **Process Flow Variable Condition** and click **Next** button. The Select Process Flow Condition Type screen is displayed.
7. Select Other Condition and then click Next button. The Other Condition Process Details screen is displayed (see Figure 3.68).



The screenshot shows the 'Condition Wizard' dialog box with the 'Other Condition' tab selected. The dialog has a title bar with the Adeptia logo and the text 'Condition Wizard'. Inside, it says 'Other Condition' and 'Please enter arbitrary name-value:'. There are five input fields with dropdown arrows: 'Name', 'Operands Type' (set to 'Number'), 'Operators' (set to '='), 'Value', and 'Decimal Precision'. At the bottom right, there are four buttons: 'Back', 'Next', 'Done', and 'Cancel'.

Figure 3.68: Other Condition Process Details

8. Select the Process Flow Variable from the *Name* drop-down list and enter the Value in the *Value* field.
9. Select the data types of the value contained by the above specified context variable from *Operand Type* drop-down list. For information regarding data types supported for the value refer to Table 3.18.
10. Select the operator's type from the *Operators* drop-down list. The operators supported are "=", "!=", ">", "<", ">=", "<=".
11. Enter the value of the above specified context variable in the *Value* field.
12. Specify the decimal precision (only if operand type is "Decimal") under the *Decimal Precision* field.
13. Click **Done** button to apply the condition and return to the Graph Canvas.

## Java Condition

A transition can have condition, which can be in form of script. Once the condition is met, transition takes place. Java Condition is a part of transition.


The sample conditional transition is given as below:

```
<transition from="state.2" to="state.4">
  <guard>
    <indigo:scripted-guard>
      <![CDATA[
        ..script
      ]]>
    </indigo:scripted-guard>
  </guard>
</transition>
```


A State in Process XML either has normal transition(s) and/or conditional transition(s). If there are more than one transition from a State, only one transition takes place at a time and it depends upon the order of their occurrence and condition satisfaction (in case conditional transition). Conditional transition takes place based on appropriate condition defined in form of java code. When the condition is met, transition takes place. A Condition is satisfied when java code script returns true. The Java code script should return true or false otherwise exception is raised.

## Adding Condition Using Java Condition

### Steps to add a Condition in a process flow using Java Condition

1. To add the Gateway element, click **Show BPMN Gateway** () button in the toolbar. The Gateway element is displayed in the BPMN Panel.
2. Select the **Gateway** element in the BPMN Panel and drag it to required place in the Graph canvas area. The Gateway element is displayed in the Graph canvas area (refer to Figure 3.62).

3. Connect the activities with the Gateway element using uncontrolled or default control flow (refer to Figure 3.63).

 To learn how to connect activities, refer to Creating Process Flow section.

4. To add Condition, right-click control flow and select **View Properties**. The properties of the control flow are displayed in the Properties Panel in the Bottom Pane (refer to Figure 3.64).
5. Click **Edit Condition** under the Properties tab. The Condition Wizard screen is displayed.
6. To define Condition using Java Condition, select the **Java Condition** and click **Next** button. The Java Condition screen is displayed (see Figure 3.69).

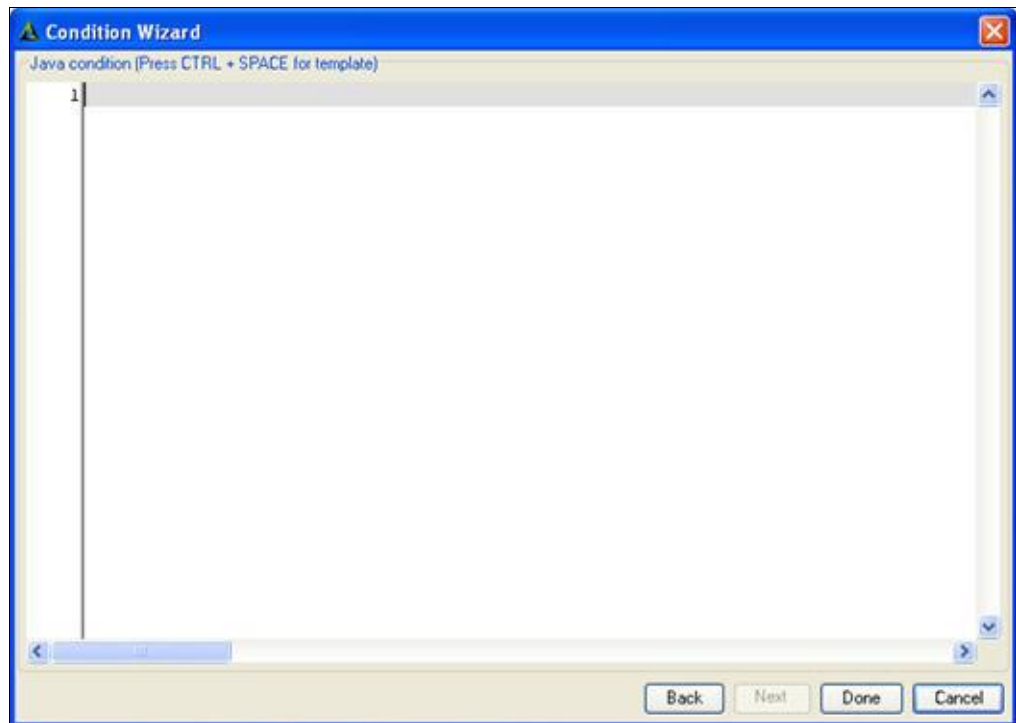



Figure 3.69: Enter Java Condition

7. Enter the Java Code in the *Java Condition* field and click **Done** button to return to the Graph Canvas area.

 You can use **<CTRL>+<Space Bar>** to view pre-defined template of Java Code, which can be used in creating Java Condition. You can select any of them and edit it according to your requirement.

8. Similarly, repeat steps 4 to 7 to add Condition to another control flow.


## Expression Condition Builder


A transition can have condition based on an expression. This expression is built using the Activity Attributes or the Process Flow variable with the 'AND' & 'OR' condition.

### ***Adding Condition Using Expression Builder***

Using Activity Attributes and Process Flow variables, and the 'AND' or 'OR' conditions, you can generate an expression.

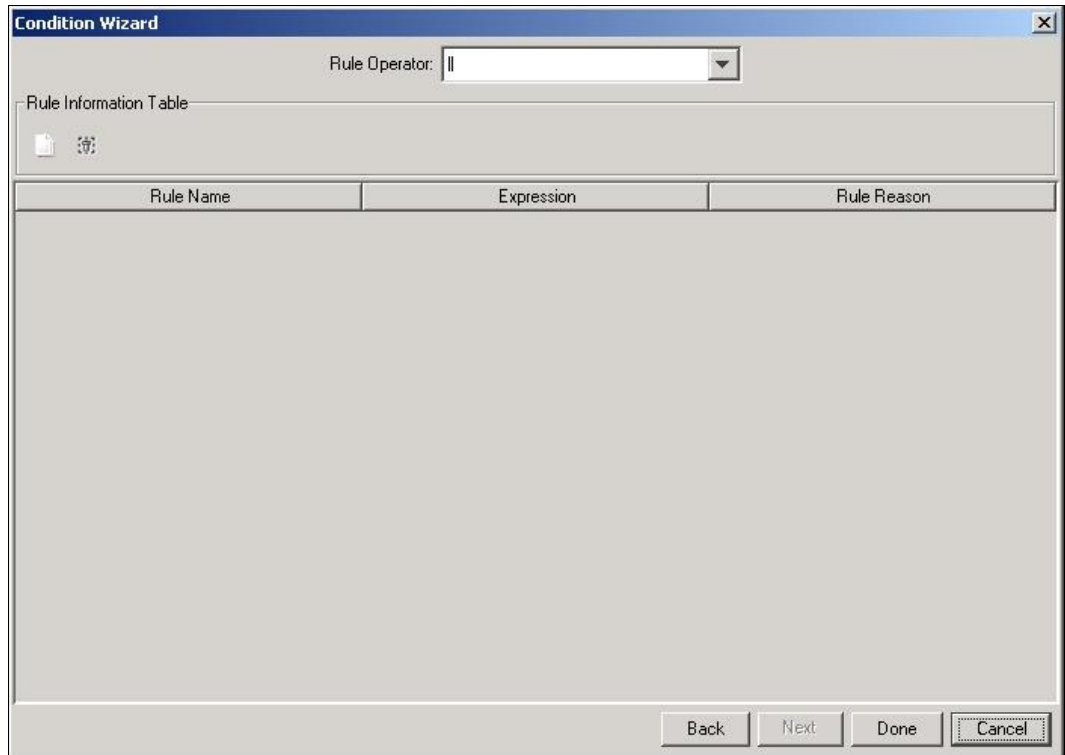
#### ***Steps to add a Condition in a process flow using Expression Builder***

1. To add the Gateway element, click **Show BPMN Gateway** () button in the Toolbar. The Gateway element is displayed in the BPMN Panel.
2. Select the **Gateway** element in the BPMN Panel and drag it to required place in the Graph canvas area. The Gateway element is displayed in the Graph Canvas area (refer to Figure 3.62).
3. Connect the activities with the Gateway element using uncontrolled or default control flow (refer to Figure 3.63).

	To learn how to connect activities, refer to Creating Process Flow section.
---	---

4. To add Condition, right-click control flow and select **View Properties**. The properties of the control flow are displayed in the Properties Panel in the Bottom Pane (refer to Figure 3.64).
5. Click **Edit Condition** button. The Condition Wizard screen is displayed.
6. To use Condition using Expression Builder, select the **Expression Condition** and click **Next** button. The Condition Wizard screen is displayed (see Figure 3.70).






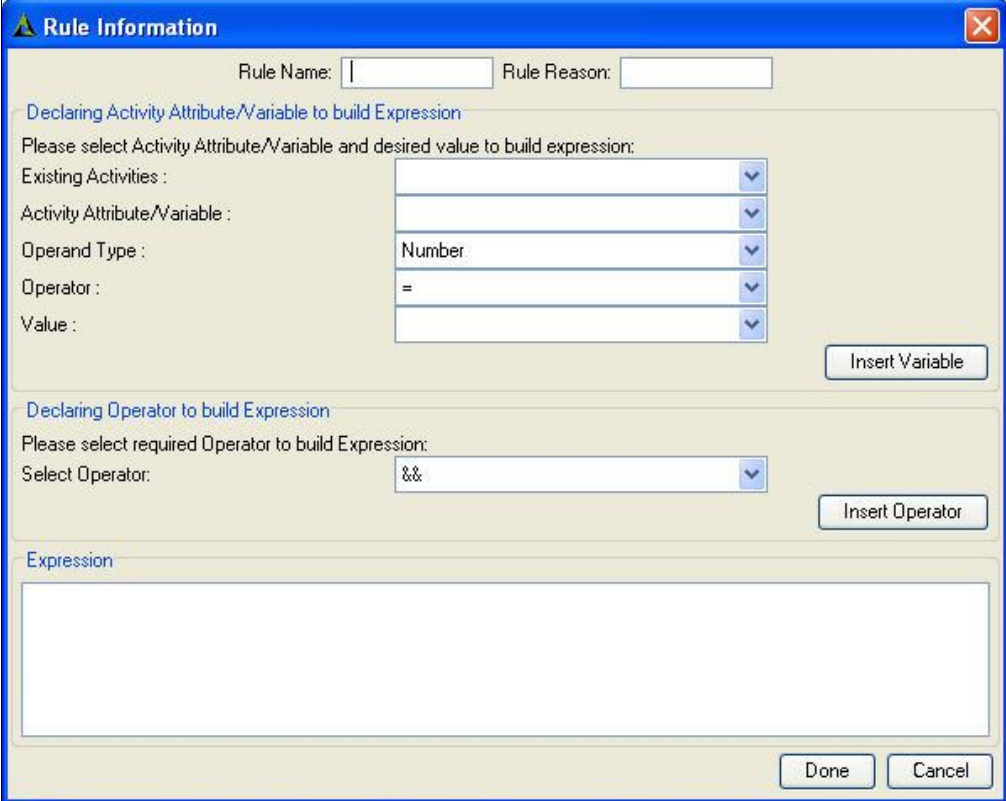
The Condition Wizard dialog box features a title bar with the text "Condition Wizard" and a close button. Below the title bar is a "Rule Operator:" label followed by a dropdown menu showing the symbol "||". Underneath is a "Rule Information Table" section containing a toolbar with a document icon and a plus icon. The table itself has three columns: "Rule Name", "Expression", and "Rule Reason". The table body is currently empty. At the bottom of the dialog are four buttons: "Back", "Next", "Done", and "Cancel".

Rule Name	Expression	Rule Reason
-----------	------------	-------------

Figure 3.70: Condition Wizard

For defining expressions you need to define rules. A rule supports multiple expressions. You can link the multiple expressions using the rule operator.

7. Click **Add Rule** (  ) to add a new rule. This displays the Rule Information screen (see Figure 3.71).



**Rule Information**

Rule Name:  Rule Reason:

**Declaring Activity Attribute/Variable to build Expression**

Please select Activity Attribute/Variable and desired value to build expression:

Existing Activities :

Activity Attribute/Variable :

Operand Type :

Operator :

Value :

**Declaring Operator to build Expression**

Please select required Operator to build Expression:

Select Operator:

**Expression**

Figure 3.71: Rule Wizard

8. Enter the name of the Rule (for example, Rule 1) in the *Rule Name* field.
9. Enter the reason on the basis of which the rule will be evaluated as true or false (for example, Rule 1 is valid), in the *Rule Reason* field. This is set in the context.
10. To build the expression, you first need to select the Activity Attribute or Process Flow variable to be used in the expression. Select the activity to be used, from the *Existing Activities* drop-down menu. This drop-down is populated with the current activities. Alternately, if you select a blank value, then a process flow variable is selected.
11. Select the activity attribute or the process flow variable, from the *Activity Attribute/Variable* drop-down menu. This drop-down is populated with values based on the selection in the *Existing Activities* field. If an activity is selected, then this drop-down lists all attributes of the selected activity. If a process flow variable is selected, then this drop-down lists the currently available process flow variables.
12. Select the data type of the selected activity attribute or process flow variable, from the *Operand Type* drop-down menu. This drop-down is populated with values of *Number*, *Text (String)* and *Decimal*. These are description are outlined in the table below.

Table 3.19: Data Types Supported for Operand Type Value

Data Type	Description
-----------	-------------

Number	This data type is selected if the specified activity attribute contains numeric value. For example, 1, 12.
Text	This data type is selected if the specified activity attribute contains text value. For example, abc, xyz.
Decimal	This data type is selected if the specified activity attribute contains decimal value. For example, 10.211, 100.50. The decimal precision can be defined under the decimal precision text field.

13. Select the operator to be applied on the activity attribute or process flow variable, from the *Operator* drop-down menu. This drop-down is populated with values based on the selection in the *Operand Type* field. The possible Operator values for various Operands are listed in the table below.

Table 3.20: Possible Operators for Operands


Operand	Possible Operators
Number	=, !=, <, >, <=, >=
Decimal	=, !=, <, >, <=, >=
Text	Equal, Not Equal, Equal Ignore Case and Not Equal Ignore Case

14. Select the value for the activity attribute or process flow variable that needs to be verified, from the *Value* drop-down menu. This drop-down is editable. The *Number* Operand type should be of data type *Long*. The *Decimal* Operand type should be of *Double* data type.
15. Click **Insert Variable** to insert the defined condition (comprising of activity attribute or process flow variable) into the *Expression* text area, displayed at the bottom of the screen.
16. Once the activity attributes or process flow variable is inserted, you can create another condition for building the expression. Select the condition to be used for building the expression, from the *Select Operator* drop-down menu. This drop-down is populated with values of && (*AND*) and || (*OR*).
17. Click **Insert Operator** to insert the selected operator into the *Expression* text area.
18. Both the conditions are displayed in the *Expression* text area. You can edit this expression for evaluation based on certain rules. These rules are outlined in the table below.

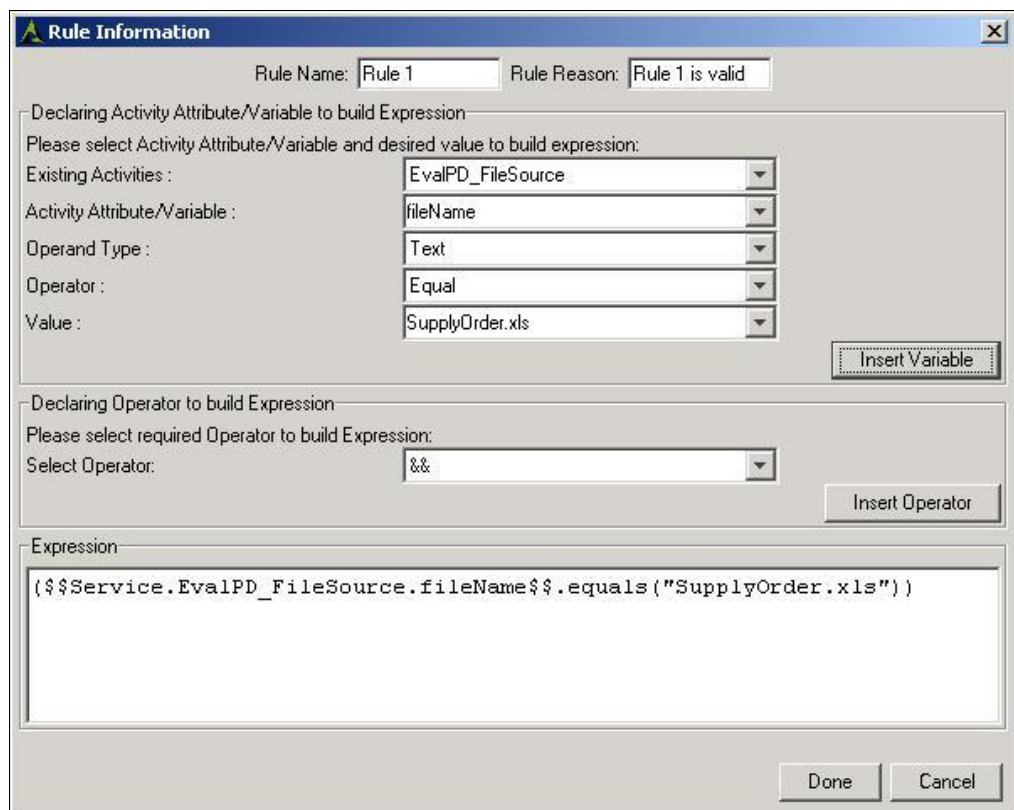
Table 3.21: Rules for Evaluation

Object	Rule
Activity Attribute/Process Flow Variable	It is to be displayed between \$\$\$. For example, Activity Attribute will be displayed as \$\$\$ Service. Activity. Activity Attribute \$\$\$ Process Flow variable will be displayed as \$\$\$ var1 \$\$\$
Operand Text	<ul style="list-style-type: none"> <li>All values are enclosed within double quotes. For example,</li> </ul>

	("text"). <ul style="list-style-type: none"> <li>▪ Values having \'\' are replaced by \'\'\'.</li> <li>▪ Values having double quotes (") are replaced by single quotes (').</li> </ul>
Operator Equal	The condition is replaced as (\$var\$.equals("text")).
Operator Not Equal	The condition is replaced as! (\$var\$.equals("text")).
Operator Equal Ignore Case	The condition is replaced as (\$var\$.equalsIgnoreCase("text")).
Operator Not Equal Ignore Case	The condition is replaced as! (\$var\$.equalsIgnoreCase("text")).

 If an invalid expression is entered in the Expression text area, the transaction will abort.

The information is displayed in the Rule Information screen as in Figure 3.72.



**Rule Information**

Rule Name:  Rule Reason:

☐ Declaring Activity Attribute/Variable to build Expression

Please select Activity Attribute/Variable and desired value to build expression:

Existing Activities :

Activity Attribute/Variable :

Operand Type :

Operator :

Value :

☐ Declaring Operator to build Expression

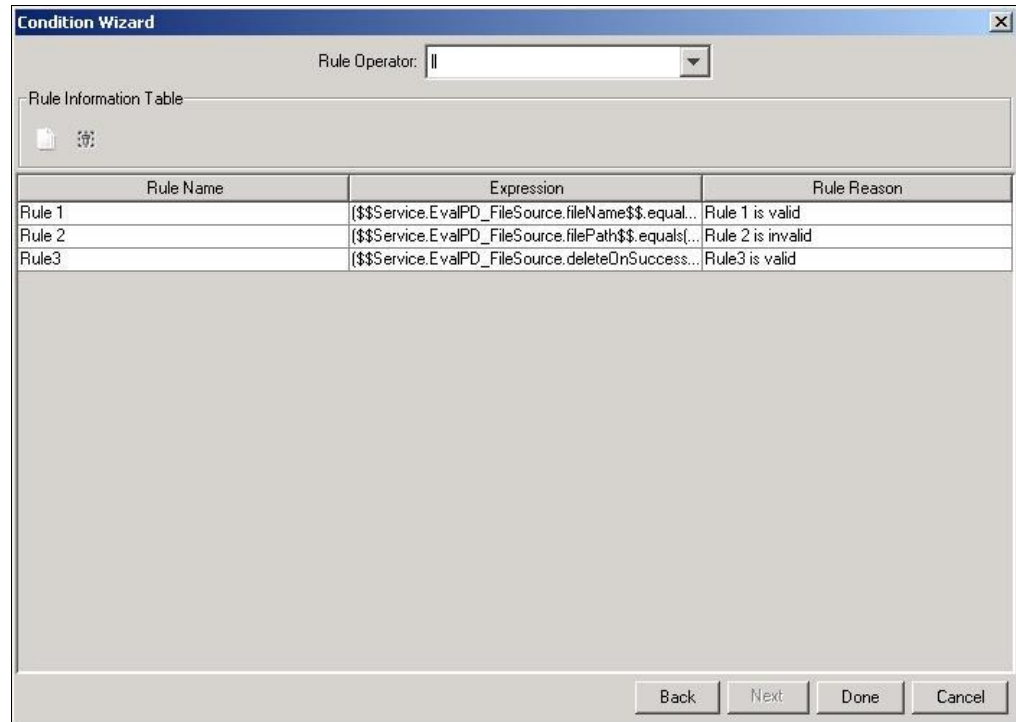
Please select required Operator to build Expression:

Select Operator:

☐ Expression

Figure 3.72: New Rule Information


19. Click **Done** button. This returns the control to the Condition Wizard screen with the newly added rule. Similarly, you can add more rules. They are displayed in the Condition Wizard screen (see Figure 3.73).



The Condition Wizard dialog box has a title bar with a close button. Below the title bar is a 'Rule Operator' dropdown menu showing '||'. Below that is a 'Rule Information Table' section with a plus icon and a minus icon. The table has three columns: 'Rule Name', 'Expression', and 'Rule Reason'. It contains three rows of rules. At the bottom of the dialog are four buttons: 'Back', 'Next', 'Done', and 'Cancel'.

Rule Name	Expression	Rule Reason
Rule 1	{{Service.EvalPD_FileSource.fileName\$.equal...	Rule 1 is valid
Rule 2	{{Service.EvalPD_FileSource.filePath\$.equal{...	Rule 2 is invalid
Rule3	{{Service.EvalPD_FileSource.deleteOnSuccess...	Rule3 is valid

Figure 3.73: Added Rules

 You can edit the *Rule Name* and *Rule Reason* from this screen.

20. Select the operator on the basis of which you want to evaluate these rules, from the *Rule Operator* drop-down list. The various rule operators are outlined in the table below.

Table 3.22: Rule Operators

Rule Operator	Description
	This evaluates the rules based on the OR operator. If any of the listed rules is true, then the decision value in the process flow will be executed as true.
&&	This evaluates the rules based on the AND operator. If all the listed rules are true, then only the decision value in the process flow will be executed as true. If any of the listed rules is false, then the decision value will be executed as false.

You can evaluate the rules using one operator at a time. For example, if you select ||, then all rules will be evaluated on the basis of the OR operator. You cannot evaluate two rules (for example, Rule 1 and Rule 2) based on OR operator and two rules (for example Rule 2 and Rule3) based on the AND operator.

21. Click **Done**. This closes the Condition Wizard screen and returns to the Graph Canvas.
22. Once you execute the process flow, all the listed rules will be evaluated in top to bottom sequential order.

If they are evaluated using the *OR* (||) rule operator, then if any of the listed rules is true, then the decision value will be true and the process flow will be executed in the True path. The reason for all rules that are evaluated as True, will be added as comma separated values and set as a single value in the context variable *ruleReason* in the format *ruleName (ruleReason)*.

If the rules are evaluated using the *AND* (&&) rule operator, then only if all the listed rules are true, then the decision value will be true and the process flow will be executed in the True path. Even if one rule is evaluated to false, then the decision value will be false and process flow will execute in the False path. The reason for all rules that are evaluated as True, will be added as comma separated values and set as a single value in the context variable *ruleReason* in the format *ruleName (ruleReason)*. The rules that are evaluated as False, will appear as an empty value in the *ruleReason* context variable.

## DEFINING SEQUENCE FLOW ORDERING

When more than one sequence flow is attached with an activity, the transition that was dragged first will be executed before the transition dragged later. You can specify the ordering of the execution of the transitions.

### Steps to define sequence flow ordering

1. Right-click the activity in the Graph Canvas to which more than one sequence flow is attached and select Sequence Flow Ordering (see Figure 3.74).

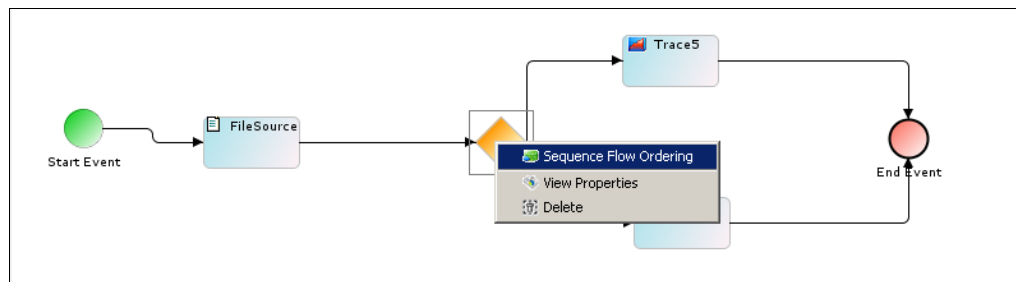


Figure 3.74: Define Sequence Flow Ordering

2. The Sequence Flow Ordering screen is displayed (see Figure 3.75).

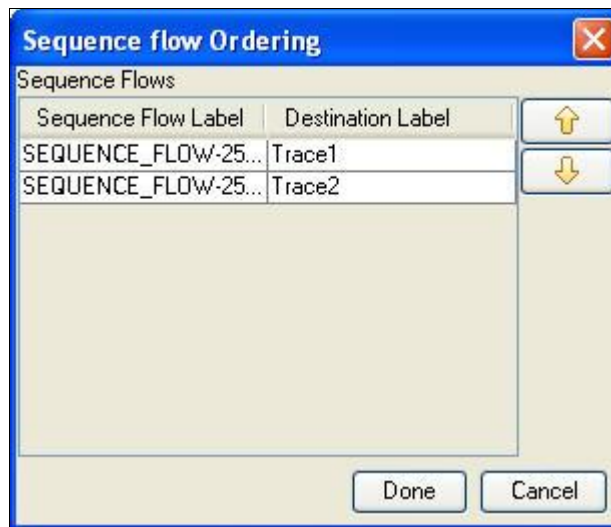


Figure 3.75: Sequence Flow Ordering

3. Select the required activity and move it using **Up** (↑) and **Down** (↓) arrow buttons to define the sequence.
4. Click **Done** button to return to the Graph Canvas.

## CREATING MULTIPLE STREAMS

Stream represents the flow of data in a process flow. Multiple streams are used when the output of an activity needs to be sent to two or more activities in a process flow.

### *Steps to create multiple streams for an activity*

1. Right-click the activity in the Graph Canvas from which multiple streams are to be generated and then select **Multiple Streams**. The Multiple Stream Dialog screen is displayed (see Figure 3.76).

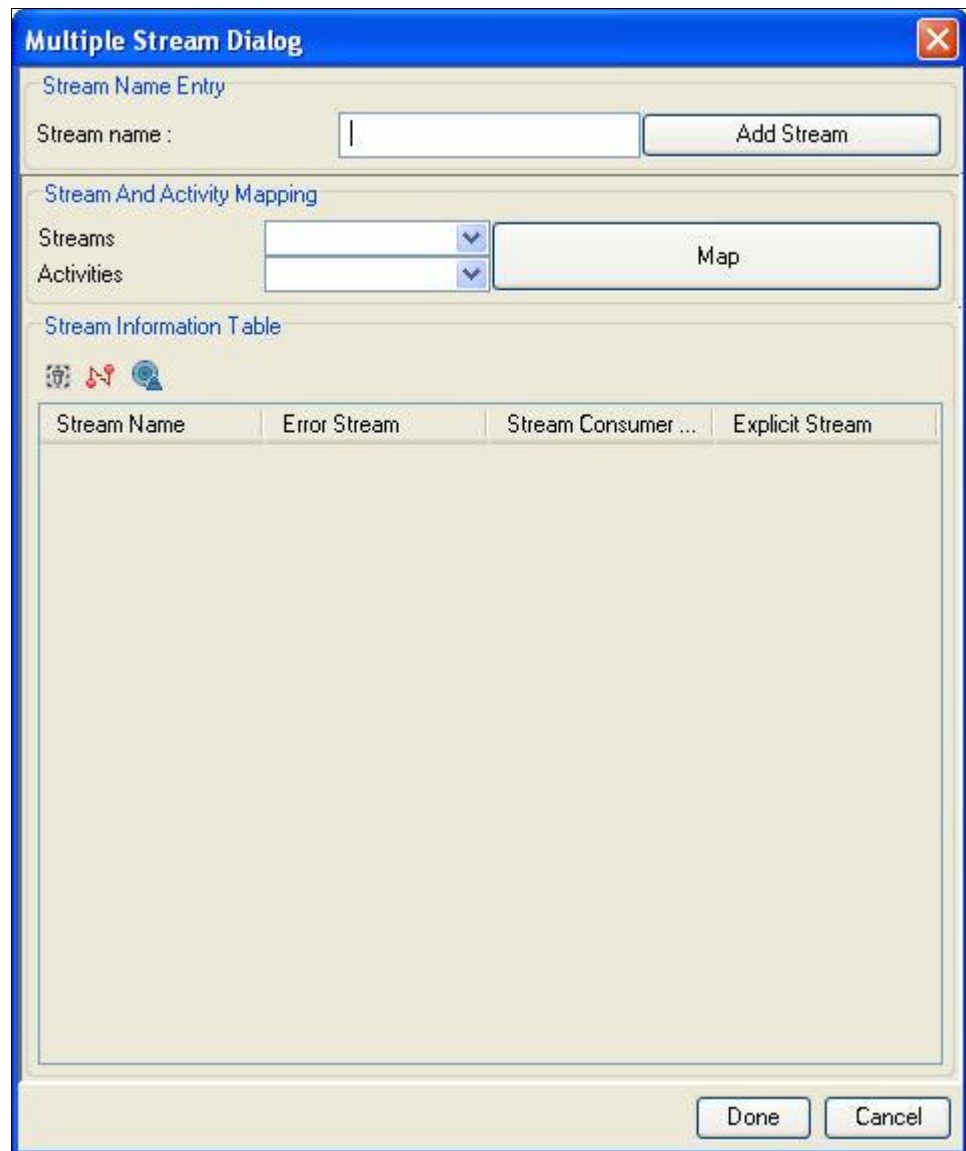



Figure 3.76: Multiple Stream Dialog Box

2. In the Stream Information Table, the existing stream is displayed.
3. If you want to delete the existing stream, click on the stream to select it and then click **Delete Stream** () button. The selected stream is deleted.
4. To create a new stream, enter the name for the Stream in the *Stream Name* field and then click **Add Stream** button. The name of the added Stream is displayed in the *Streams* drop-down list (see Figure 3.77).



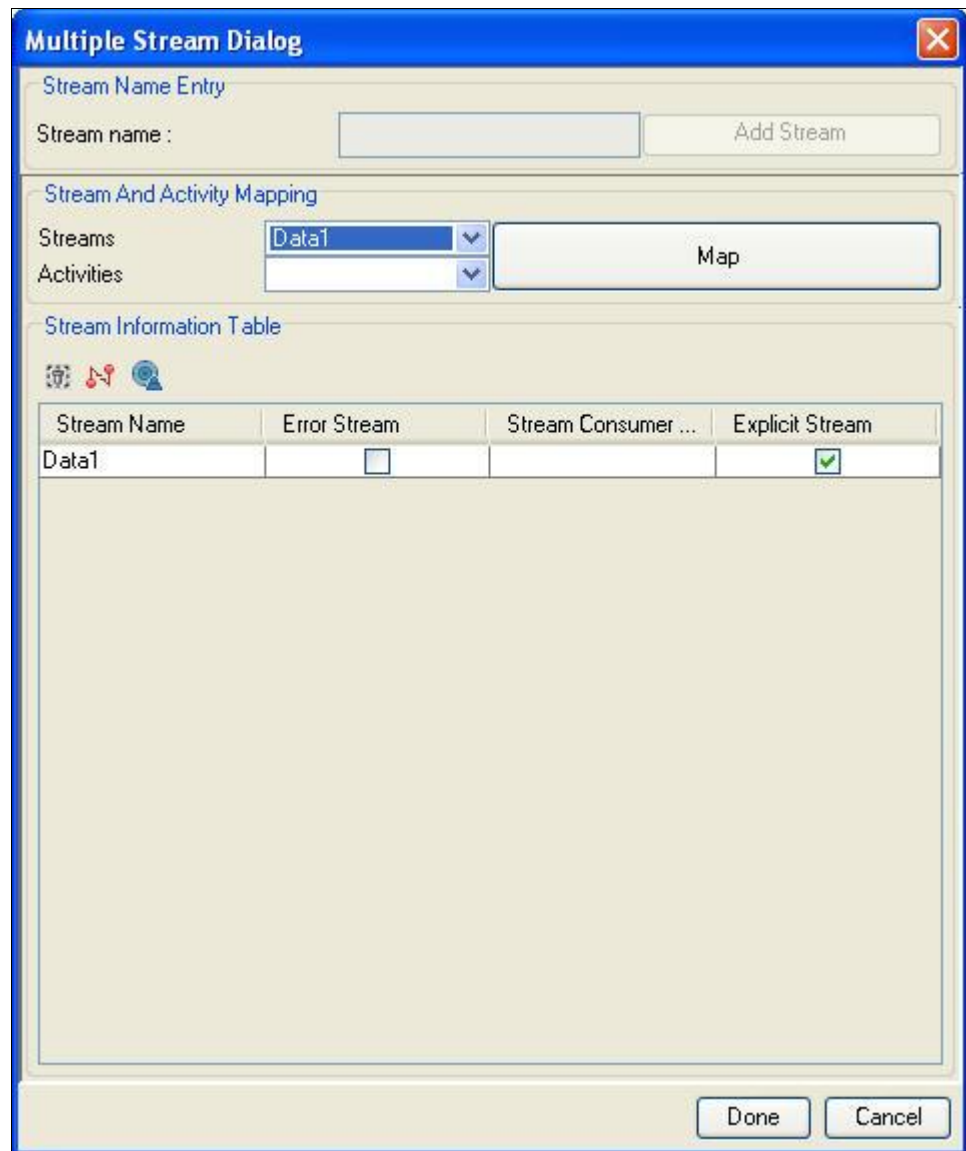


Figure 3.77: New Stream Added

5. Select the activity from the *Activities* drop-down list, which will consume the stream currently selected in the *Streams* drop-down list and then click **Map** button. The mapped stream and the activity are displayed in the *Stream Information Table* (see Figure 3.78).
6. Check the *Explicit Stream* checkbox.

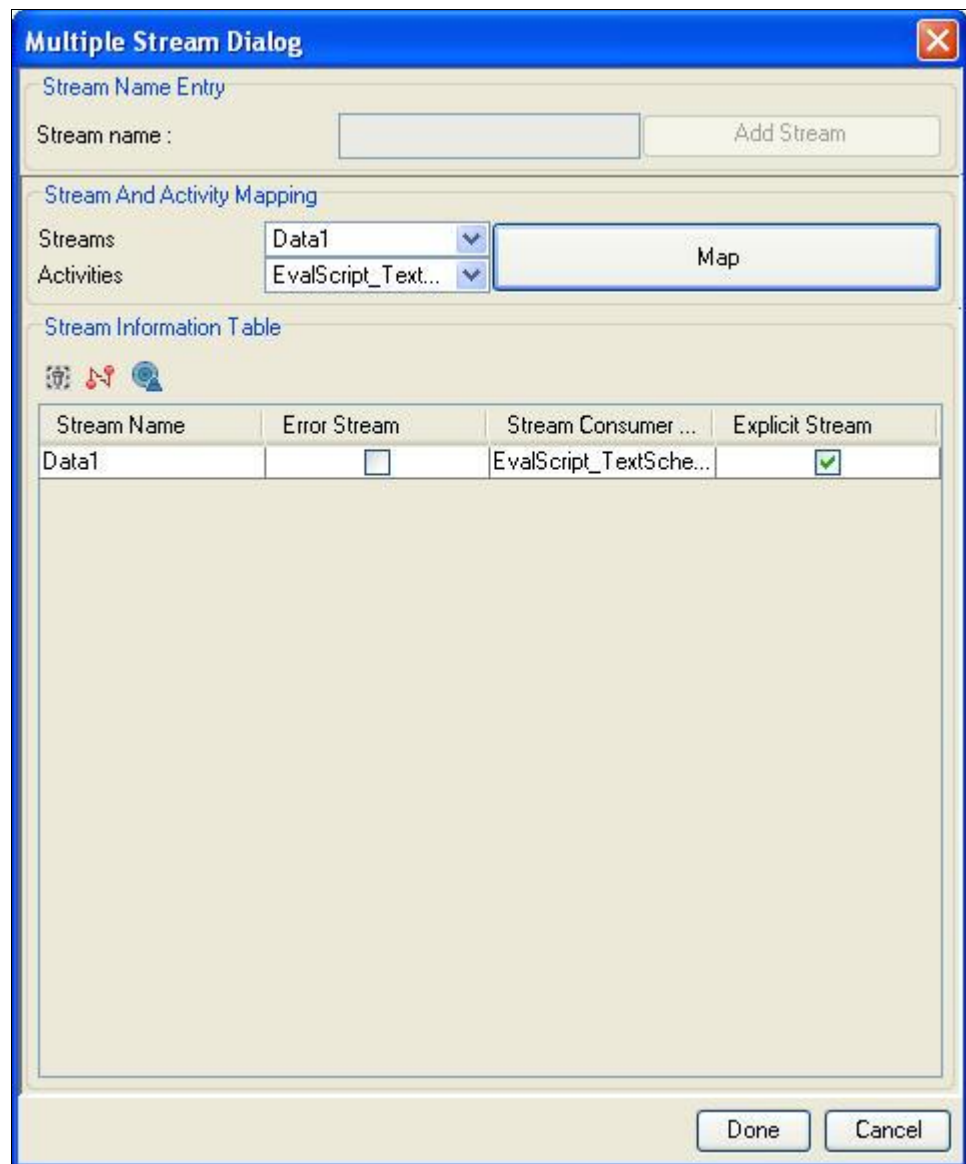



Figure 3.78: Stream Created

 If you are creating an error stream check the *Error Stream* checkbox.

7. Repeat steps 4 to 6 to create another stream.
8. Click **Done** button to return to the Graph Canvas. The created streams are displayed in the Graph canvas by data objects Artifact (see Figure 3.79).

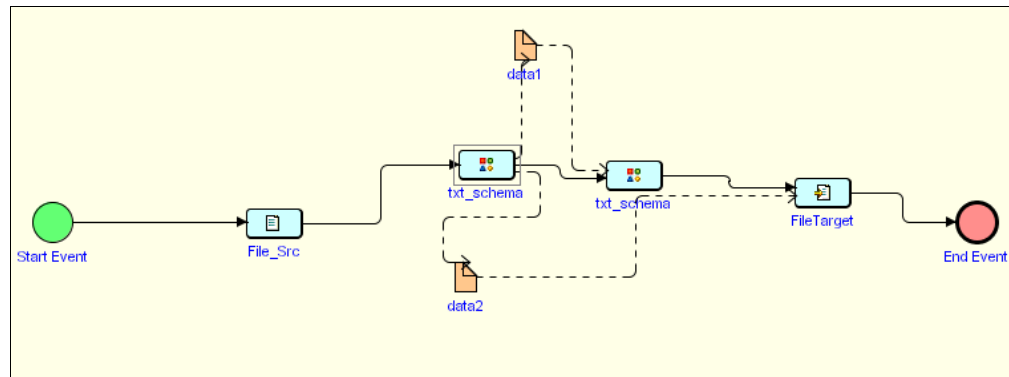




Figure 3.79: Showing Multiple Streams in Process Flow

	<p>The Artifacts are only to show the flow of streams therefore it is necessary to add the activities with appropriate flows. If user deletes a stream from the Multiple Stream Dialog box, then the corresponding Artifacts are also deleted. If an Artifact representing a stream is deleted then the stream is also deleted. Process Designer asks user if he/she wants to delete the underlying stream.</p> <p>To hide the Artifacts, click <b>View</b> in the menu bar and uncheck the <i>Show Artifacts and Associations</i> option.</p>
---	--

The Multiple Stream feature can be used in three scenarios:

- Creating more than one Stream

When data from one stream is sent to more than one activity, you can create more than one stream. However, more than one stream can be created only with the selected activities. These activities are Mapping Transformation, Scripted Service, Repeater Service, XML Validator and Decoder.

	<p>A Mapping activity does not always generate multiple streams. It is based on the schemas used in the mapping activity.</p>
---	---

- Creating Error Stream

If a source or target schema is not compliant with the corresponding source or target data, then the process flow execution will generate error records. Sometimes these error records are useful for users and user may want to store them for debugging. In such a case, error stream is created along with data stream. This error stream can be mapped to some other activity for further processing. For example, user may want to store the error records in a file target. To specify a stream as an error stream, check the *Error Stream* checkbox in the Multiple Stream Dialog Box. Error stream can be generated for Schema, Database source, Database target, Advanced Database target and XML Validator only.

- Creating Default Stream

Sometimes an action, for example the Delay action, is used between two activities. In such type of situation data from the first activity does not pass to another activity because the action Delay does not consume data from the first activity and hence cannot pass it to another. To avoid this condition default stream is used.

***Steps to create a default stream***

1. Right click the first activity and select **Multiple Stream**. The Multiple Stream dialog box appears (refer to Figure 3.76).
2. Delete the existing stream.
3. Select another activity from the *Activities* drop-down list.
4. Click **Default Stream** (🧠) button and then click **Map** button (see Figure 3.76).
5. Check the *Explicit Stream* checkbox.

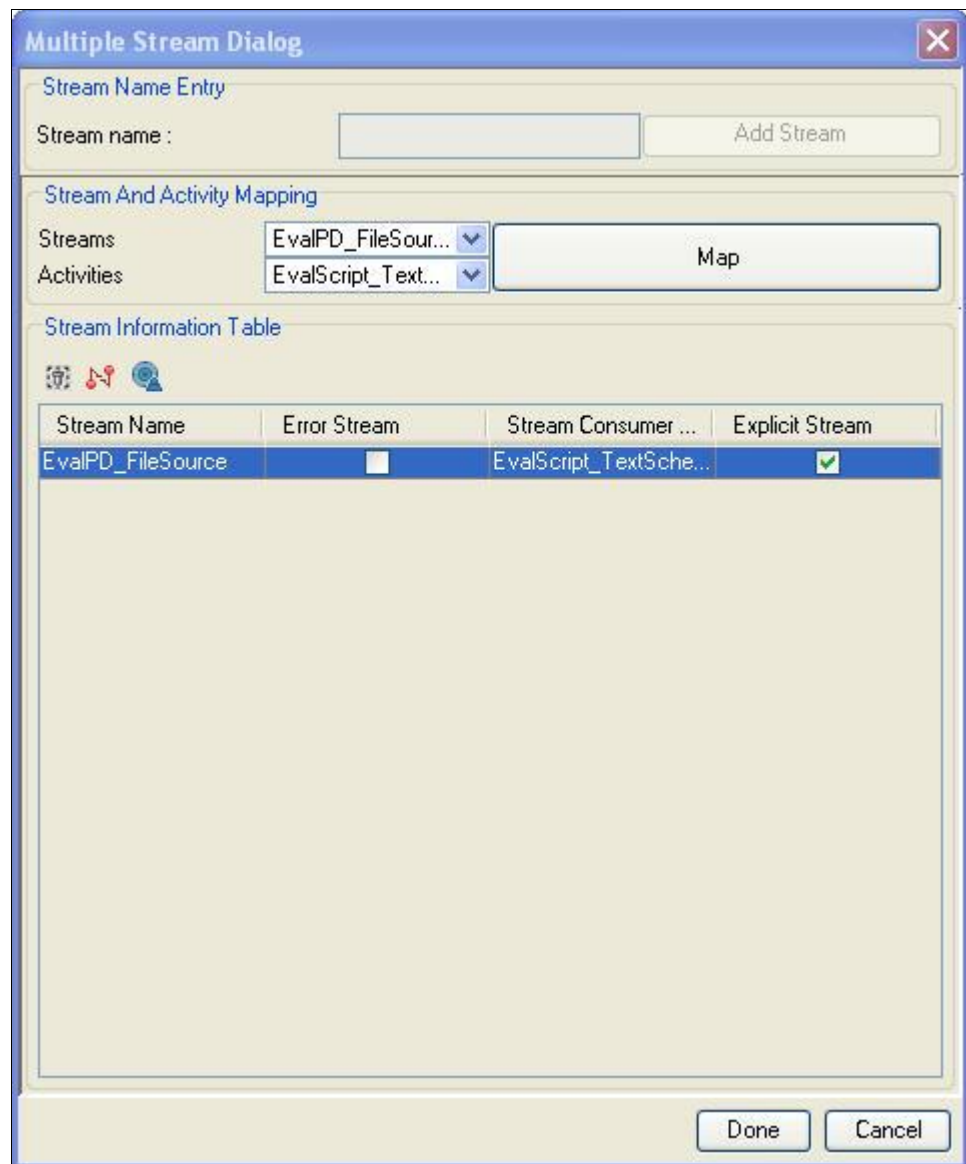


Figure 3.80: Creating Default Stream

6. Click **Done** button to save the stream and return to Process Designer screen.



If you map a stream from a source activity to multiple activities (for example, Schema or Target activities) using the Multiple Stream option, only one target activity can get the stream from the source activity. The other target activities do not get the stream from the source activity and thus get aborted. This in turn aborts the process flow. It will only work if a gateway element is used in a process flow. This element will include a condition, on the basis of which one target activity can be selected at runtime. Another way is to use a Repeater Node to pass the stream to more than one activity. For details on using a Repeater Node, refer to the Using Repeater Node section.

## USING STREAM SELECTOR

When more than one input stream is connected to an activity, Stream Selector is used to specify the input stream to be consumed by the activity. To understand the use of Stream Selector consider the following scenario (see Figure 3.81).

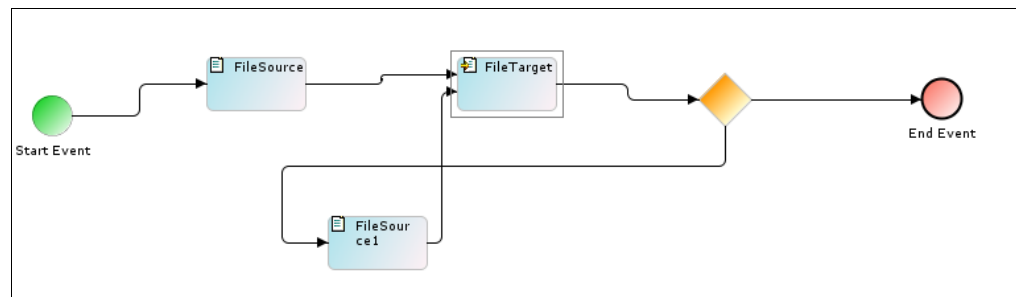


Figure 3.81: Scenario

In this process flow, you can see that two input streams are passed to the File Target. The desirable execution sequence is that first *File Source* will be executed then *File Target* and there after the *Gateway*. Now, if the condition specified at the *Gateway* is satisfied, the process flow will be finished. If the condition specified at *Gateway* is not satisfied, the control will be passed to the *File Source1* and further to *File Target*. Practically, when this process flow will be executed, the *File Target* activity will get confused whether to take input from *File Source* or from *File Source1*. Thus, this process flow will fail.

To avoid such a situation, **Stream Selector** is used. Streams from *File Source* and *File Source1* are passed to Stream Selector and then from Stream Selector to the *File Target*. The use of Stream Selector is displayed in Figure 3.82.

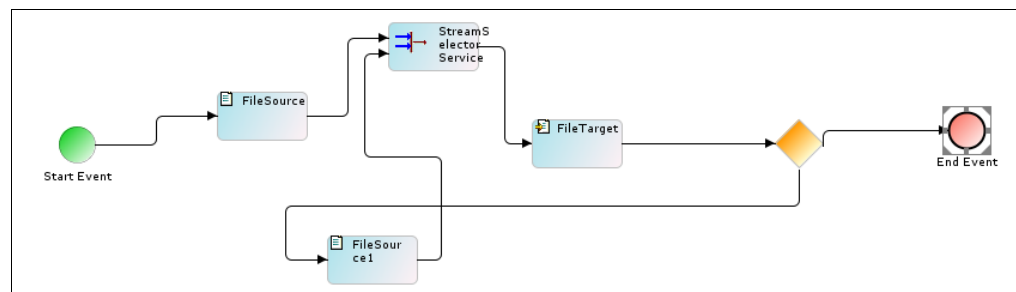


Figure 3.82: Stream Selector

Stream Selector takes input from the activity, which has just executed. If *File Source* has executed before the execution of stream selector, it will take input from *File Source*. If *File Source1* has just executed, it will take input from *File Source1*.

### Steps to use a Stream Selector



### Steps to use a Repeater Node

1. In the **Activities** panel, click the tree structure to expand the **Repeater Node** of the Adeptia Server. All the items under the Repeater Node category screen are displayed (see Figure 3.86).

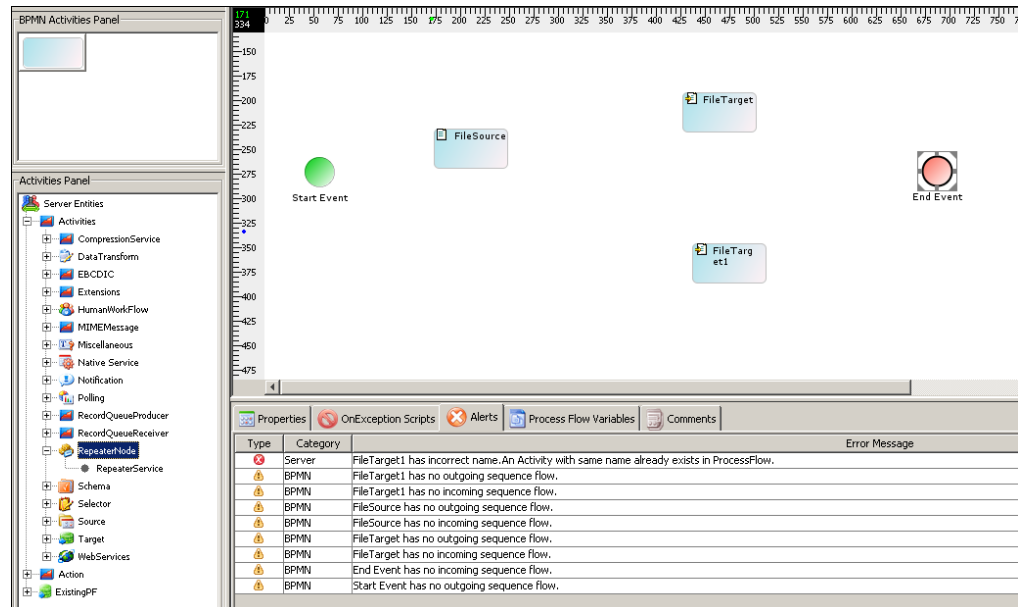


Figure 3.86: Expand Repeater Node

2. Select the **Repeater Service** under Repeater Node and drag it to the Graph Canvas. A Repeater Service node is displayed in the graph canvas (see Figure 3.87).

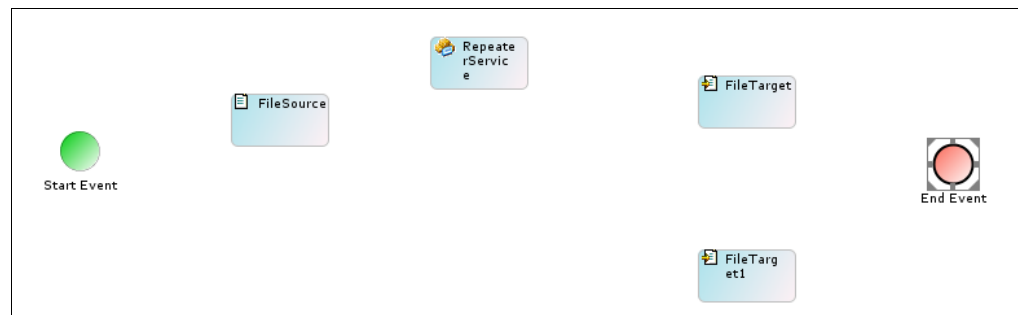


Figure 3.87: Repeater Service Node

3. Connect all activities with appropriate control flows in the Graph Canvas (see Figure 3.88).



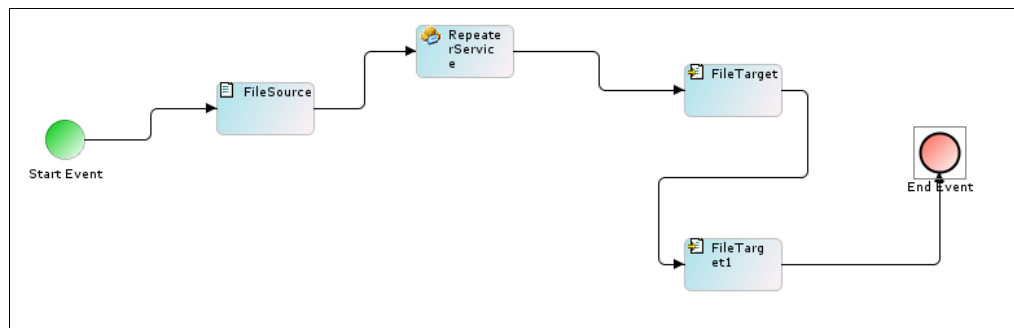



Figure 3.88: Connect Activities

	<p>The Figure 3.88 displayed above does not illustrate the data flow. It is showing the sequence in which activities will be executed. This should be noted that File Target and File Target1 activities must not be connected with Repeater Service in parallel to each other.</p> <p>Now to specify data flow, multiple streams must be created with Repeater Service.</p>
---	--

4. To create multiple streams, right click **Repeater Service** and select **Multiple Stream**. The Multiple Stream Dialog Box is displayed.
5. Enter number of streams in the *Enter Stream Count* field and click **Add Stream** button. Since we have two outputs from repeater node, enter 2 in the *Enter Stream Count* field.
6. Select 1 from the *Stream* drop-down list and select the first activity, which will consume the stream from the *Repeater Node*, from the *Activities* drop-down list.
7. Click **Map** button. The stream created is displayed in the *Stream Information Table*.
8. To create second stream, select 2 from the *Stream* drop-down list and select another activity, which will consume another stream from *Repeater Node* from *Activities* drop-down list.
9. Click **Map** button. The second stream is displayed in the *Stream Information Table* (see Figure 3.89).

**Multiple Stream Dialog**

Stream Count Entry  
Enter stream count(1 to 100):  Add Stream

Stream And Activity Mapping  
Streams:  Activities:  Map

Stream Information Table

Stream Name	Error Stream	Stream Consumer A...	Explicit Stream
1	<input type="checkbox"/>	EvalPD_FileTarget	<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	EvalPD_FileTarget1	<input checked="" type="checkbox"/>

Done Cancel

Figure 3.89: Create Second Stream

- Click **Done** button to save the streams created and return to the Graph Canvas. The created streams are displayed in the Graph Canvas by Artifact (see Figure 3.90).

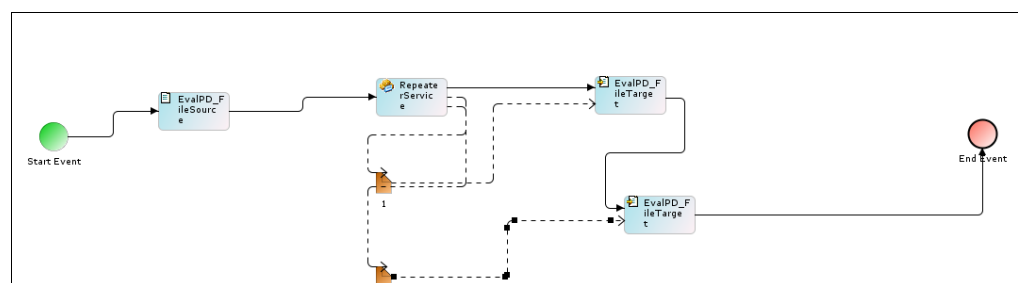


Figure 3.90: Repeater Node with Multiple Stream

## USING ERROR INTERMEDIATE EVENT

Error Intermediate Event is used to redirect Process Flow execution to an alternate path in case of failure of any activity during process flow execution. To understand the use of Error Intermediate Event consider the following scenario:

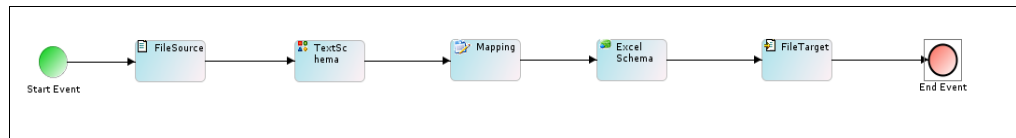


Figure 3.91: Scenario

In this process flow, data from a text file is converted to an excel file using schema and mapping activities. Now if the Mapping activity is critical for your business, you may want be notified, if mapping activity fails during process flow execution.

To handle this situation you can attach **Error Intermediate Event** with mapping activity so that, in case mapping activity fails, a notification activity is executed and sends an email to the specified email address. Use of Error Intermediate Event is displayed in the Figure 3.92

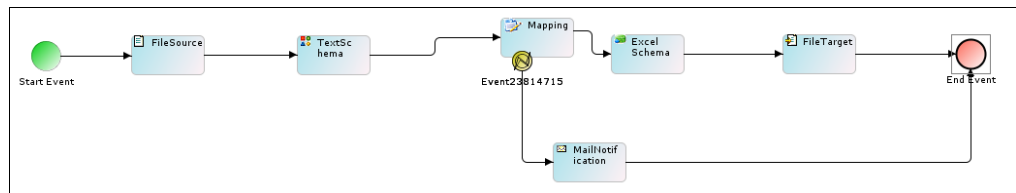



Figure 3.92: Use Error Intermediate Event

### Steps to use Error Intermediate Event

1. Create the required process flow.
2. Click **Show BPMN Events** (  ) button at tool bar. The BPMN Events are displayed in the BPMN Events Panel (see Figure 3.93).

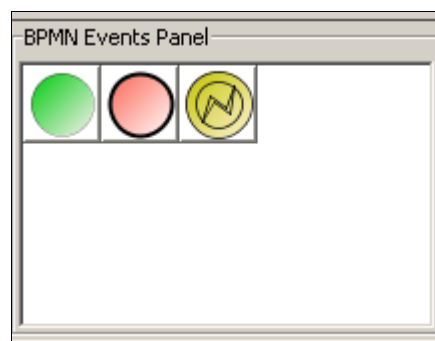


Figure 3.93: BPMN Events Panel

3. Select the **Error Intermediate Event** (  ) and drag it on the required activity (e.g. Mapping) of the process flow. The following dialog box is displayed (see Figure 3.94).

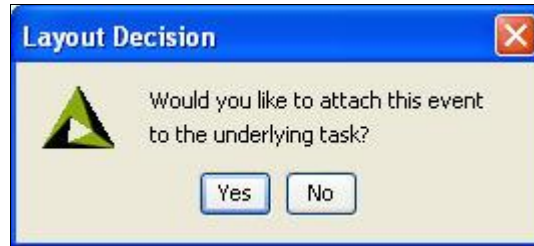


Figure 3.94: Confirmation Dialog Box

4. Click **Yes**. The Error Intermediate Event is attached with the selected activity (see Figure 3.95).



Figure 3.95: Error Immediate Event Attached

5. Drag another activity, which needs to be executed in case of failure of Mapping activity, to the Graph Canvas Area (see Figure 3.96).

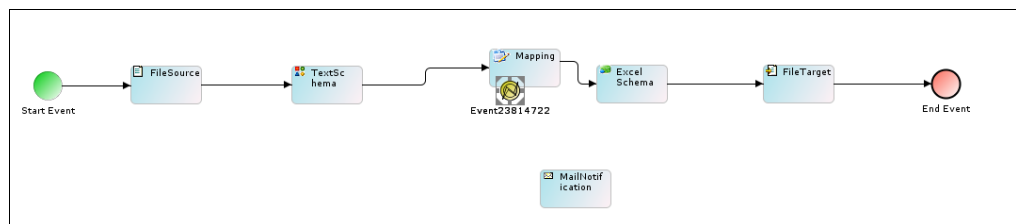


Figure 3.96: Drag Another Activity

6. Connect the Error Intermediate Event to Mail Notification activity and then Mail Notification activity to End Event (see Figure 3.97).

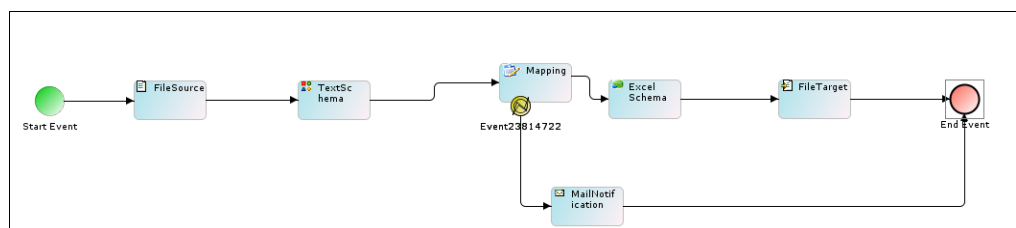



Figure 3.97: Connect Activities



While connecting Error Intermediate Event with Mail Notification activity, please ensure that you are connecting Error Event with Mail Notification not the Mapping activity with Mail Notification.

## CREATING EXCEPTION HANDLER SCRIPT

Exception Handler scripts are basically Java code, which is invoked, if any exception or error occurred during execution of a process flow. There are three types of Exception Handler Scripts:

- Service Exception
- Process Flow Exception
- Invalid Data Exception

These Exception Handler Scripts can be created at a global level (for all the activities in the Process Flow) or at the activity level (for a specific activity). If an exception or errors during the execution of a process flow, the activity level exception handler script is invoked first. If the activity level exception handler script is not created for that activity, then only the global level exception handler script is invoked.


These Exception Handlers are invoked at different stages of the process flow. These are depicted in the table below.

Table 3.23: Exception Handlers in a Process Flow

Service Exception	This exception handler script is invoked when any error related service (activity) occurs. For example: File not found, Stream closed etc.
Process Flow Exception	This exception handler script is invoked when any error occurs at Process Flow level. The Exception can only be declared at global level. For example: JMX not found, Repository not found etc.
Invalid Data Exception	This exception handler script is invoked when any error related to processing of data occurs. For example: Incorrect record format etc.

## Creating Global Exception Handler Script

### Steps to create a Process Flow (Global) Exception Handler Script

1. Click **On Exception Scripts** tab (  ) in the Bottom Pane. The Create Exception Handler screen is displayed (see Figure 3.98).

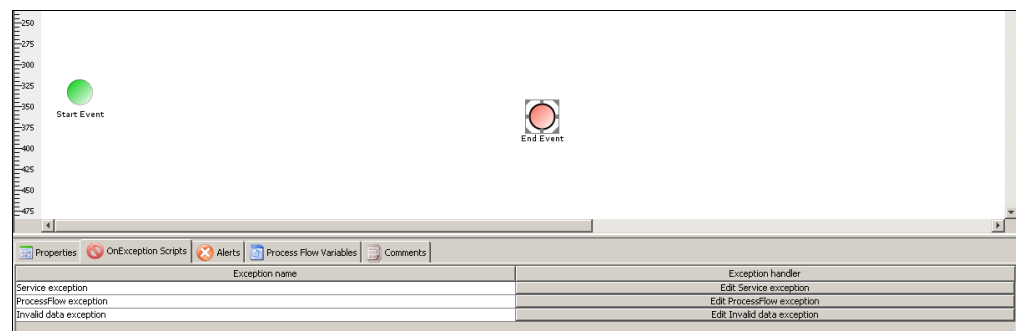


Figure 3.98: Creating Exception Handler Script

- Click **Edit Service Exception**. The Service Exception dialog box is displayed (see Figure 3.99).

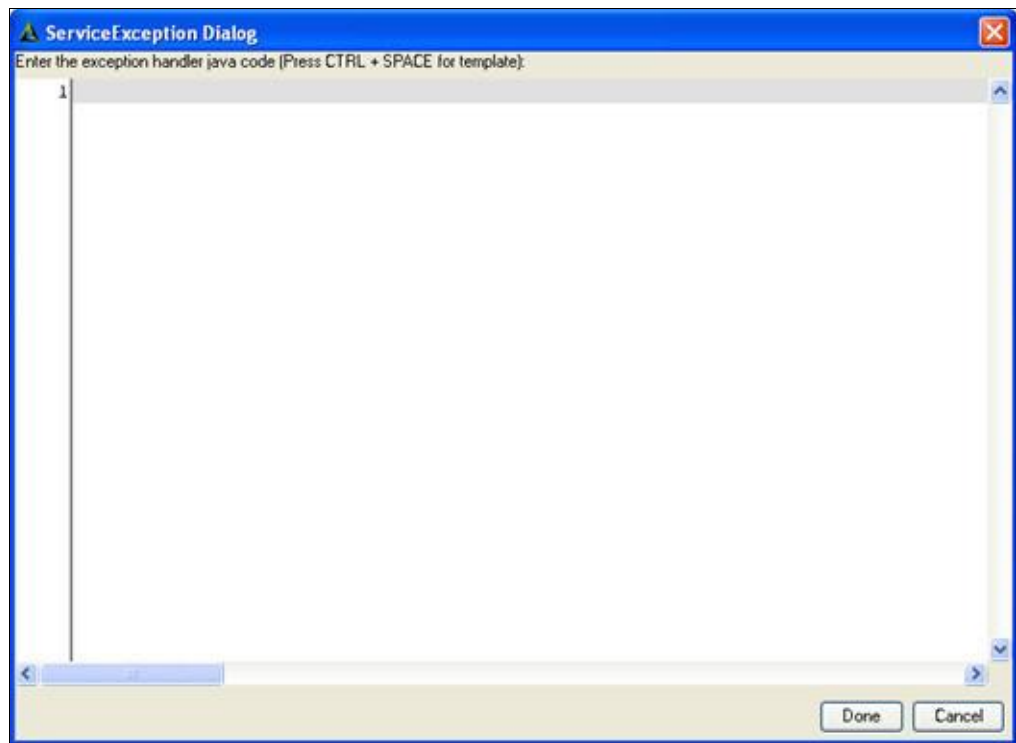



Figure 3.99: Service Exception Dialog Box

	<p>You can use <b>&lt;CTRL&gt;+&lt;Space Bar&gt;</b> to view pre-defined template of Java Code, which can be used in creating Java Condition. You can select any of them and edit it according to your requirement.</p> <p>If you want to create the process Flow Exception Handler or Invalid Data Handler script, click <b>Edit Process Flow Exception</b> or <b>Edit Invalid Data Exception</b> buttons respectively.</p>
---	--

- Enter the Java code in the *Service Exception* dialog box and click **Done** button.

## Creating Activity Exception Handler Script

### **Steps to create an Activity Exception Handler Script**

- Right-click the activity in the Graph Canvas and select **Service Exception Dialog**. The Service Exception Dialog Box is displayed (see Figure 3.99).
- Enter the Java code in the *Service Exception* field and click **Done** button.



You can use **<CTRL>+<Space Bar>** to view examples of Java Condition. **<CTRL>+<Space Bar>** show lists of example. You can select any of them and edit it according to your requirement.

If you want to create Invalid Data Handler script, right-click the activity and select **Invalid Data Exception Dialog**.

## USING COMPRESSION/DECOMPRESSION

Compression is used to compress any file into ZIP, RAR or JAR file. Similarly, Decompression is used to extract file from a ZIP, RAR or ZAR file. This feature supports Compression or Decompression of only one file.

### Steps to use Compression/Decompression

1. Drag the required file source activity in the Graph Canvas area.
2. In the **Activities** panel, click the tree structure to expand the **Compression Service** of the Adeptia Server. All the items under the Compression Service category are displayed.
3. Select **Compression** and drag it to the Graph Canvas area (see Figure 3.100).



Figure 3.100: Drag Compression Activity

4. Drag the required target activity to the Graph Canvas area.
5. Connect all activities in Graph Canvas with **Unconditional Control flow** as displayed in Figure 3.101.

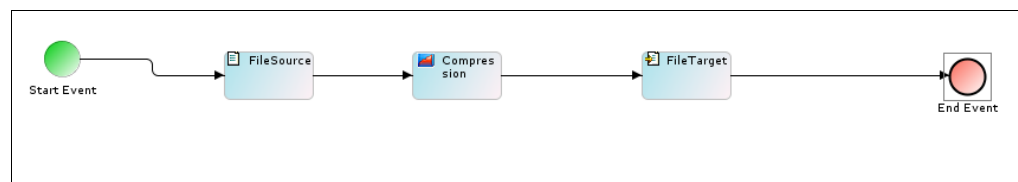


Figure 3.101: Connect Activities

6. Right-click the **Compression** activity and select **View Properties**. Properties of the Compression activity are displayed in the Properties Panel (see Figure 3.102).

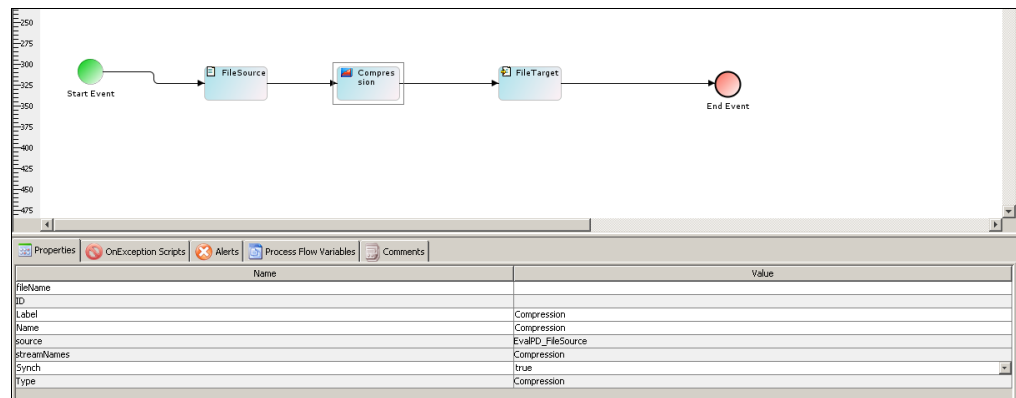



Figure 3.102: Compression Activity Properties

7. Enter the name of the file, which will be within the compressed file, in the *Filename* field.

 Name specified in the File Target activity will be the name of the compressed target file.

8. Similarly you can use Decompression feature.

## USING CUSTOM REPORT IN PROCESS FLOW

A custom report is used to send generated report (in PDF or HTML formats) to a file based target (in PDF or HTML formats).

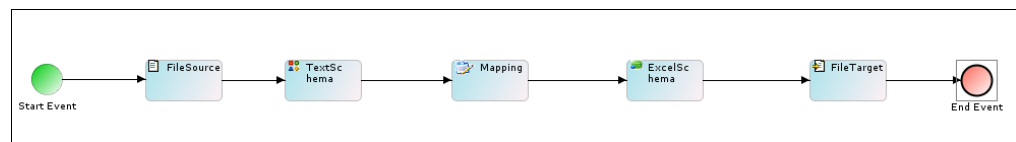


Figure 3.103: Scenario

In this process flow, data from a text file is converted to an excel file using the schema and mapping activities. The data generated in the excel file is converted to PDF/HTML format using a custom report and sent to a file target.

### Steps to use a Custom Report

1. In the **Activities** panel, click the tree structure to expand the **Miscellaneous** activity. All the items under the Miscellaneous category screen are displayed (see Figure 3.104).



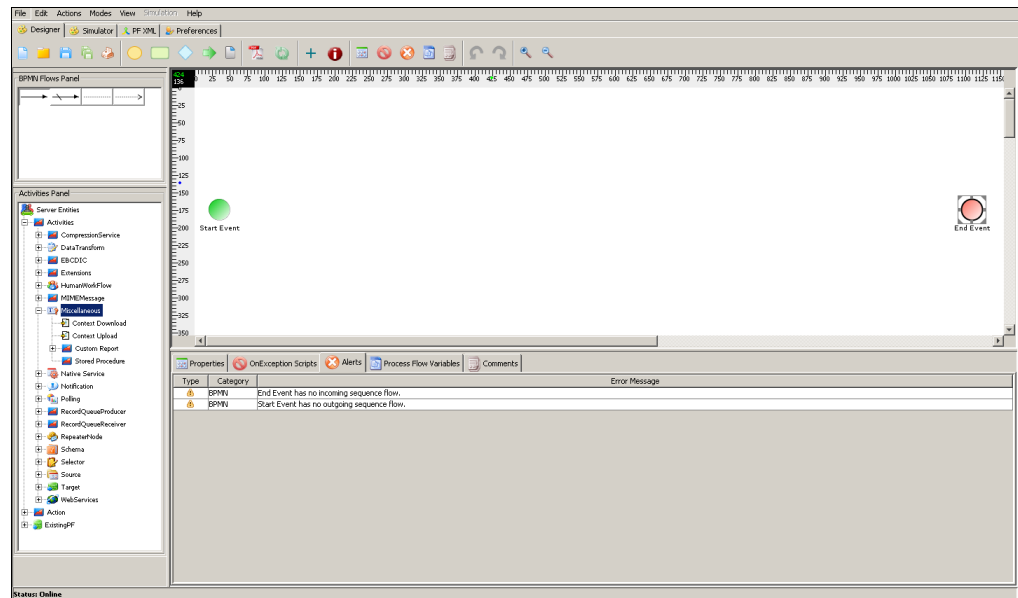


Figure 3.104: Expand Miscellaneous

2. Select the **Custom Report** and expand it to view the custom reports. Select the desired custom report and drag it to the Graph Canvas. The Custom Report node is displayed in the graph canvas (see Figure 3.105).

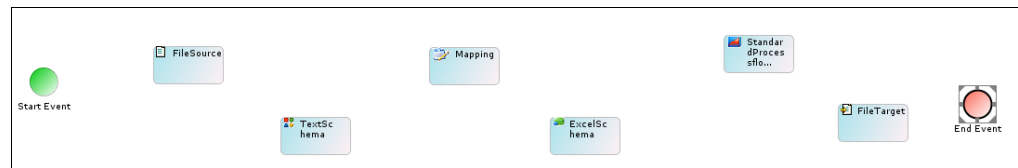


Figure 3.105: Custom Report Node

3. Connect all activities with appropriate control flows in the Graph Canvas as displayed below (see Figure 3.106).

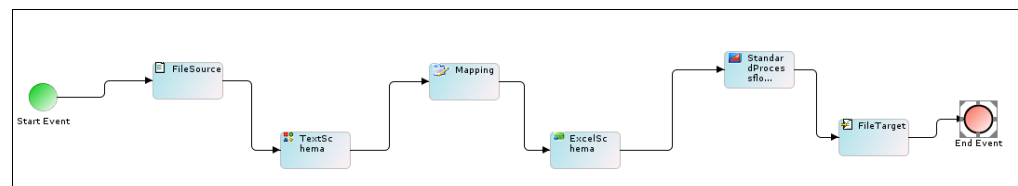


Figure 3.106: Connect Activities

4. Executing this process flow will send generated report to the file target.

## ATTACHING END PROCESS (MAIL NOTIFICATION) TO PROCESS FLOW

Attaching End Process adds a Mail Notification activity at the end of the process flow. Mail Notification is used to send e-mail to appropriate users at the certain point in process flow.

### **Steps to Attach a Mail Notification at the end of Process Flow**

1. In the Graph Canvas, right-click at the **End BPMN** element and then select the **View Properties**. The properties of the End BPMN element are displayed in the Properties Panel (see Figure 3.107).

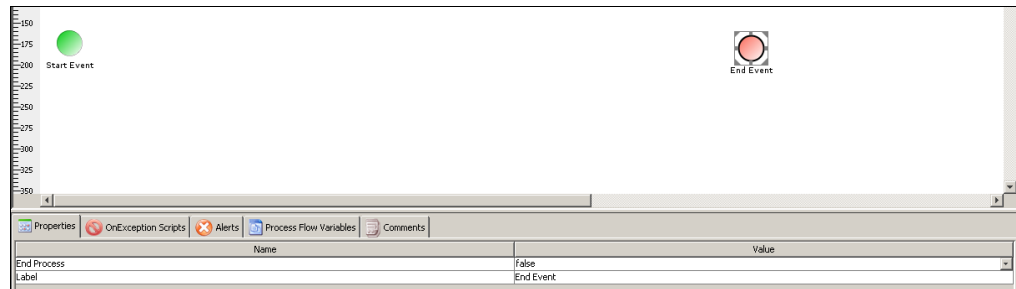


Figure 3.107: Attaching End Process

2. Click **End Process Value** column and select *True* from the drop-down list. The Select Notification screen is displayed with list of mail notification activities (see Figure 3.108).

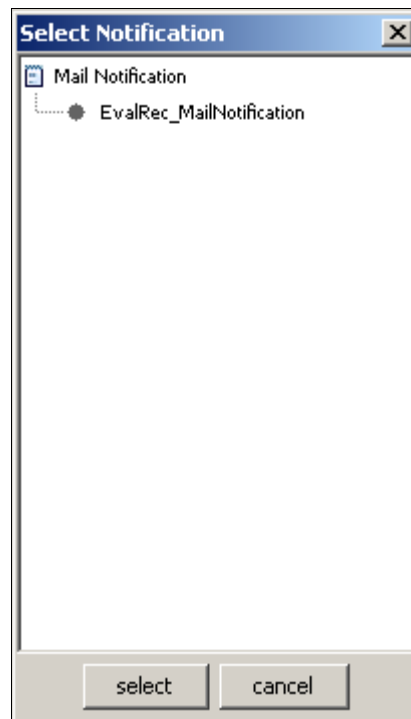


Figure 3.108: Selecting Mail Notification

3. Select the required mail notification activity and click **Select** button. The selected mail notification activity is attached at the end of the process flow.



To know, how to create Mail Notification activity, refer to the [Creating Mail Notification activity](#) section.

## GENERATING PDF FILE OF PROCESS FLOW

The process flow information can be saved into a PDF file for documentation purposes. There are three types of PDF files that can be generated from Process Designer.

- **Graph PDF:** Graph PDF only contains the screen shot of the Process Flow created in Graph Canvas area.
- **Summary PDF:** Summary PDF contains activity details of the Process Flow. It is implemented only for mapping and schema.
- **Entire Flow PDF:** Entire Flow PDF contains information regarding each and every activities of the Process Flow. List of information contained in the Entire Flow PDF is as below.

### Process Flow Details

- Process Flow Name
- Process Flow ID
- Process Flow Description
- Creation Date
- Modification Date
- Debug Level
- Group Owner

### Process Variable Details

- Key or Name of the Variable
- Initial Value
- Type (Global or Activity)
- Activity Name (If the Type is activity)
- Activity Label used in Process Designer
- Activity Type

### Graph Canvas Entity


- Name

- Description
- User Owner
- Group Owner
- Creation Date
- Modification Date
- Permission
- Comment
- Label
- Inbound Connecting Objects
- Outbound Connecting Objects
- Activity Specific Information

For example, path of the source file in case of File Source activity, information of fields in case of Schema Activity or mapxmlfile in case of Mapping Activity.

## Process Flow Graph

### *Steps to generate a PDF file of a Process Flow*

1. In Process Designer, click **Generate PDF** () button. The PDF Generation dialog box is displayed (see Figure 3.109).

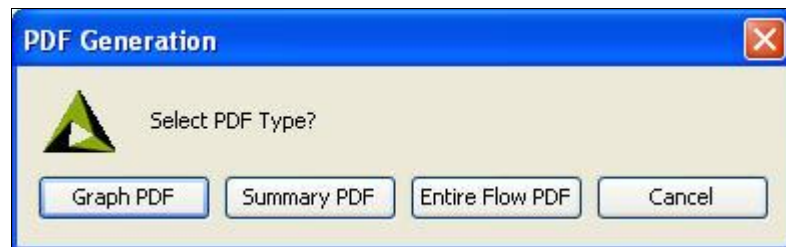


Figure 3.109: Select PDF Type

2. Select the type of PDF file to be generated. A *Graph PDF* includes all the rules applied on all activities in the process flow. A *Summary PDF* includes only the activity details, and is implemented only on mapping and schema. The *Entire Flow PDF* includes all details of the process flow. The Save box appears to select the path, where PDF file will be saved (see Figure 3.110).

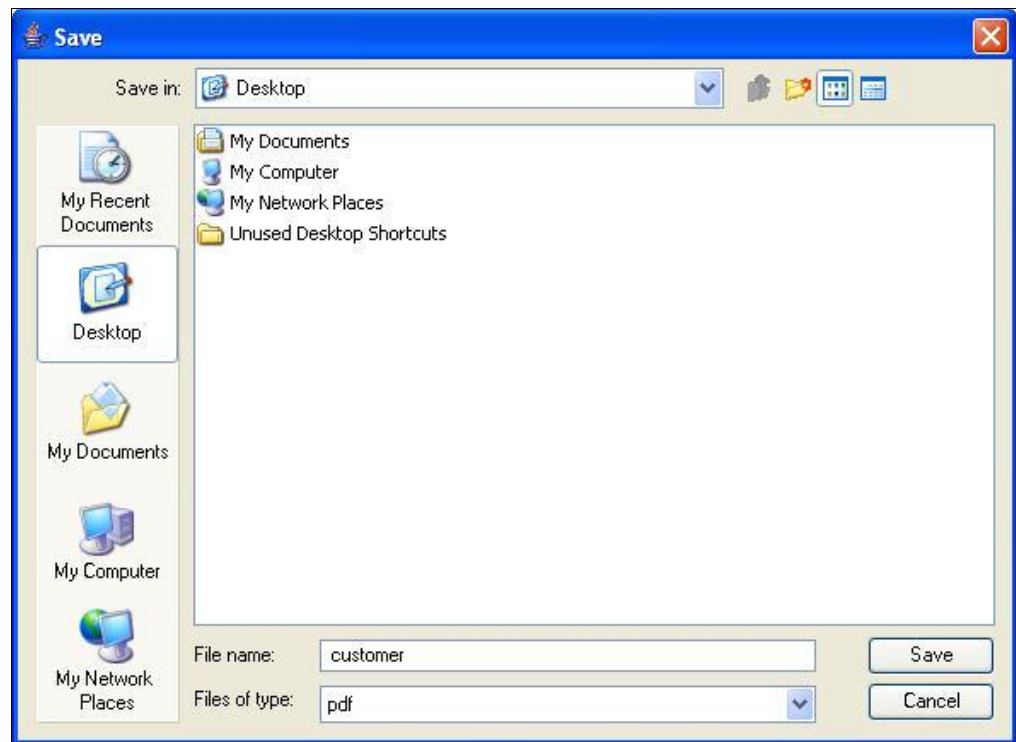




Figure 3.110: Save Box

3. Select the path and enter the name of the file in the *File Name* field.
4. Click **Save** button. The generated PDF file is saved in the specified folder.

## WORKING WITH PROCESS DESIGNER IN OFFLINE AND ONLINE MODES

The Adeptia Server Process Designer allows user to work in offline mode. A user can design a process flow even if he/she is not connected with the Adeptia Server. At any moment user can switch from Offline mode to Online and vice versa. The Online mode or Offline mode status is displayed in the bottom left side of the Process Designer window.

### Steps to switch to the Offline mode

1. Click **Modes** menu and then click **Online** option. The checkmark displayed next to the Online mode is removed and you will be shifted to the Offline mode (see Figure 3.111). Alternately, you can click the **Online** button (  ) on the Tool Bar. It will be shifted to the Offline (  ) mode.

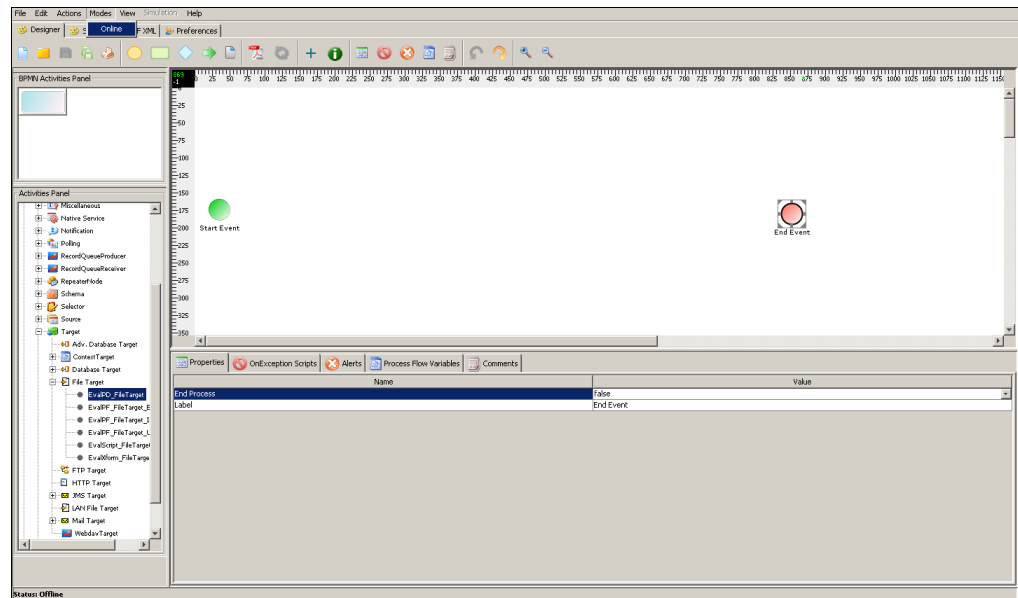



Figure 3.111: Changing Mode



While working in the Offline mode, you cannot save the Process Flow on the Adeptia Server. You can save the Process Flow on your local hard disk.

Users working in the Offline mode cannot see objects e.g. activities and process flows etc that other users create on Adeptia Server. To view those objects, shift to the Online mode. Click the Actions menu and then select Synchronize PD with Adeptia Server.

When switching to Online mode, you need to login again.

### Steps to switch to the Online mode



1. Click **Modes** menu and then click **Online** option. Alternately, you can click the **Offline** () button on the Tool Bar. It will be shifted to Online () mode. The Process Designer Login screen is displayed (see Figure 3.112).



Figure 3.112: Process Designer Login

2. Enter the User ID and the password in their respective fields and click **Submit**. This activates the online mode for the Process Designer screen. If the user belongs to more than one group, then the Select Group screen is displayed (see Figure 3.113).

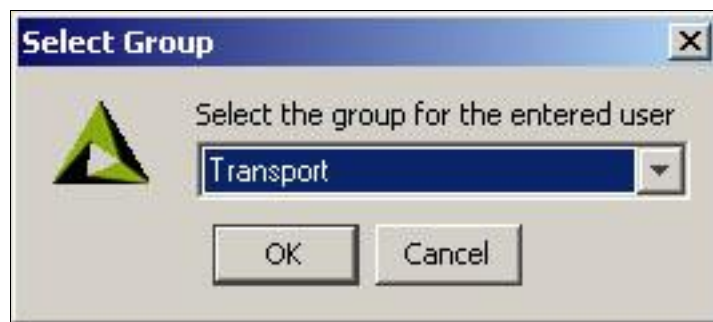



Figure 3.113: Select User Group

 The *Group* drop-down list is populated with only those groups of which the logged in user is a member.

3. Select the group from the *Group* drop-down list and click **OK**. This activates the online mode for the selected user.

## EXECUTING A PROCESS FLOW

### *Steps to execute a Process Flow*

1. Click **[+]** to expand the **Manage** tree. All the items in the Manage category are displayed.
2. Click **Process Flow**. The Manage Process Flow screen is displayed (see Figure 3.114).

[-] Manage

[-] Process Flow

[+] Automate

[+] Optimize

[+] Administrator

Manage > Process Flow

New | Edit | Delete | Revisions | Dependencies

--Select Field to Search--

Search

Activate | Execute | BindEvent

#	Name	Description	Events	Owner	Perm.	Modified
1	EvalPD_ProcessFlow	purchase order processing	None	admin	RWX	02/13/08 11:57
2	EvalXform_ProcessFlow	Process Flow to transfer data from DB to Excel	None	admin	RWX	10/08/07 11:45
3	EvalScript_ProcessFlow	Process Flow to Concatenate Employee records	None	admin	RWX	10/08/07 11:45
4	EvalRec_ProcessFlow	Process Flow to process records one by one	None	admin	RWX	10/08/07 11:44
5	EvalPF_ProcessFlow_SalesReport	Sales Report - Two formats	View	admin	RWX	10/08/07 11:44
6	EvalJMSE_ProcessFlow	Process Flow for JMS Event demo	View	admin	RWX	10/08/07 11:44

Figure 3.114: Manage Process Flow

- Select the radio button adjacent to the required process flow and click **Execute** link. The process flow execution screen is displayed (see Figure 3.115).

Request submitted for EvalXform\_ProcessFlow execution at Mon Jan 15 16:57:29 GMT+05:30 2007. See the [Process Flow Logs](#) for execution details.

Figure 3.115: Process Flow Executed

- To view the status of execution of the process flow, click **Process Flow Logs** link. The Process Flow Log screen is displayed (see Figure 3.116).

Reports > Process Flow Log

Search Criteria

Start Date

07/03/2007

Start Time

00

:

00

End Date

07/03/2007

End Time

23

:

59

Process Flow Name

Select All

Status


Executed

Get Details

Show Summary

Activity Name	Activity Type	Status	User ID	Start Time	End Time	Action		
						<input type="radio"/> ERROR	<input checked="" type="radio"/> INFO	<input type="radio"/> DEBUG
EvalXform_ProcessFlow	Process Flow	Executed	admin	07/03/2007 15:29:06	07/03/2007 15:29:13	Details	Repository	Status
EvalXform_NativeCall	NativeCall	Executed	admin	07/03/2007 15:29:13	07/03/2007 15:29:13	Details	Repository	Status
EvalXform_FileTarget	FileTarget	Executed	admin	07/03/2007 15:29:13	07/03/2007 15:29:13	Details	Repository	Status
EvalXform_ExcelSchema	XmlStream2StreamTransformer	Executed	admin	07/03/2007 15:29:10	07/03/2007 15:29:12	Details	Repository	Status
EvalXform_Mapping	DataMapping	Executed	admin	07/03/2007 15:29:08	07/03/2007 15:29:10	Details	Repository	Status
EvalXform_DBSource	DatabaseSource	Executed	admin	07/03/2007 15:29:07	07/03/2007 15:29:07	Details	Repository	Status

Figure 3.116: View Process Flow Log

 To learn more about Process Flow Log refer to the section [View Process Flow Logs](#).

## USAGE RECOMMENDATION

Following points should be kept in mind while working in Process Designer:

- User can View or change Process Flow properties from Process Flow Attribute in **Actions** menu.



- While working in Process Designer, user can login with different username or can switch to other Adeptia Server. To login with other username or switch to other Adeptia Server, select Enter Login Information from Actions menu. If you switch to another Adeptia Server, you must have an account to another Adeptia Server and that account must have permission to use Process Designer. For detailed information about different user types and their description, refer to Table 22.2 and Table 22.3.
- Process Designer allows multiple object deletion. More than one activity can be selected by dragging mouse pointer and deleted collectively.

## 4 CREATING DATA DICTIONARY

A data dictionary is a collection of record definitions that are commonly used when a schema is created. You can just select the data dictionary and display the required records. This feature avoids redundancy of information and reduces the additional effort for creating a schema. Adeptia supports the Data Dictionary feature for EDI and Positional schemas only.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### CREATING EDI DATA DICTIONARY

When creating EDI Schemas, some record definitions may be common across schemas. You can create and define the record definitions that are commonly used in EDI schemas in an EDI Data Dictionary. Thus, when creating an EDI Schema, you can select the EDI Data Dictionary and display the required records.

#### Steps to create EDI Data Dictionary

1. Click **[+] Automate** to expand the tree and then click **[+] Data Dictionary**. All items under the Data Dictionary tree are displayed.
2. Click **EDI Data Dictionary**. The Manage EDI Data Dictionary screen is displayed (see Figure 4.1).

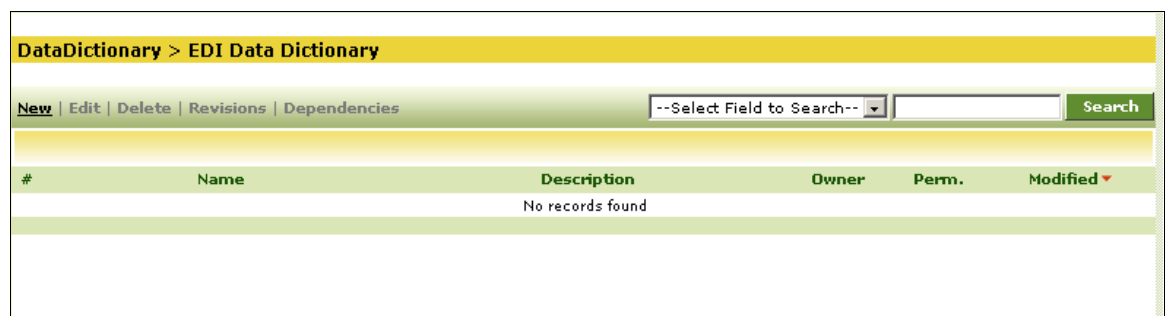


Figure 4.1: Manage EDI Data Dictionary

3. Click the **New** link. The Create EDI Data Dictionary screen is displayed (see Figure 4.2).

**DataDictionary > EDI Data Dictionary**

**[ - ] Standard properties**

Name \*

Description \*

Create Dictionary Definition\*

**Add EDI Specification**

#	EDI Specification	Description	Version	Action
---	-------------------	-------------	---------	--------

**[ + ] Advanced properties**

\* Mandatory fields.

**Save** **Cancel**

Figure 4.2: Create EDI Data Dictionary

- Enter the name and description for EDI Data Dictionary in the *Name* and *Description* fields respectively.
- Click **Add EDI Specification** button. The EDI Data Dictionary Builder screen is displayed (see Figure 4.3).

**EDI Data Dictionary Builder**

EDI Specification  **Browse...**

Description

Version

**Upload File**  
Click on the "Upload File" button. Please wait till your file appears in the "File Names" list below. Repeat the process to upload other files.

**File Names**

**Upload File**

Click on Save button to complete the upload process. Clicking on Unload Files button will unload all the files already uploaded.

**Save** **Cancel** **Unload Files**

Figure 4.3: Select EDI Specification

- Click **Browse** button and select the required EDI specification XSD.
- Enter any description for the selected XSD in the *Description* field.
- Enter the version of the selected EDI specification in the *Version* field.
- Click **Upload File** button. The file name is displayed in the *File Names* list (see Figure 4.4).

**EDI Data Dictionary Builder**

EDI Specification	<input type="text"/>	<a href="#">Browse...</a>
Description	<input type="text"/>	
Version	<input type="text"/>	

**Upload File**  
Click on the "Upload File" button. Please wait till your file appears in the "File Names" list below. Repeat the process to upload other files.

<b>File Names</b>
810Schema.xsd

[Upload File](#)

Click on Save button to complete the upload process. Clicking on Unload Files button will unload all the files already uploaded.

[Save](#)    [Cancel](#)    [Unload Files](#)

Figure 4.4: EDI Specification File Uploaded

10. Repeat steps 5 to 8 to upload additional XSD files.
11. To unload XSD file, click **Unload Files** button.
12. Click **Save** button to return to the Create EDI Data Dictionary screen. The uploaded XSD file(s) is displayed in the create EDI Data Dictionary screen (see Figure 4.5).

**DataDictionary > EDI Data Dictionary**

**[-] Standard properties**

Name \*

Description \*

Create Dictionary Definition \*

[Add EDI Specification](#)


#	EDI Specification	Description	Version	Action
1	810Schema.xsd	Sample	2040	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>

**[+] Advanced properties**

\* Mandatory fields.

[Save](#)    [Cancel](#)

Figure 4.5: Create EDI Data Dictionary



You can view, edit or delete the added EDI specification by clicking **View**, **Edit** or **Delete** link respectively.

13. Click **Save** button. This displays a screen confirming that the EDI Data Dictionary has been created successfully. If the *comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the EDI Data Dictionary (see Figure 4.6).

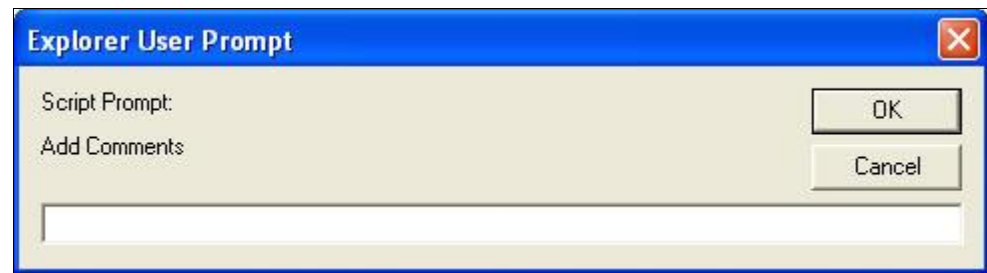



Figure 4.6: Enter Comments

14. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

15. Click **OK** to save the comments. This displays a screen confirming that the EDI Data Dictionary has been created successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

## CREATING POSITIONAL DATA DICTIONARY

When creating Positional schemas, some record definitions may be common across schemas. You can create and define the record definitions commonly used in Positional schemas in a Positional Data Dictionary. Thus, when creating a Positional Schema, you can select the data dictionary and display the required records. Later, you can also view or delete a record from the Positional schema screen itself.

### Steps to create Positional Data Dictionary

1. Click **[+] Automate** to expand the tree and then click **[+] Data Dictionary**. All items under the Data Dictionary tree are displayed.
2. Click **Positional Data Dictionary**. The Manage Positional Data Dictionary screen is displayed (see Figure 4.7).

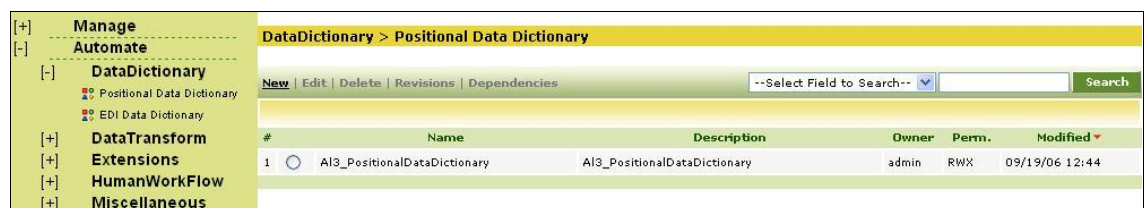


Figure 4.7: Manage Positional Data Dictionary

3. Click **New Positional Data Dictionary** button. The Create Positional Data Dictionary screen is displayed (see Figure 4.8).

4. Enter the name and description for Positional Data Dictionary in the *Name* and *Description* fields respectively.
5. You need to define records to be stored in the Data Dictionary. You can do this in two ways. These are outlined as:
  - Use Definition file
  - Define records manually
6. To define the records using **definition file** click the *Use Definition File* radio button, select the type of file from the drop-down list and click **Browse** button to select the required file.
7. To enter the records manually, click the *Define Records Manually* radio button and click **Add Record** button. This displays the Data Dictionary Record Builder screen (see Figure 4.9).

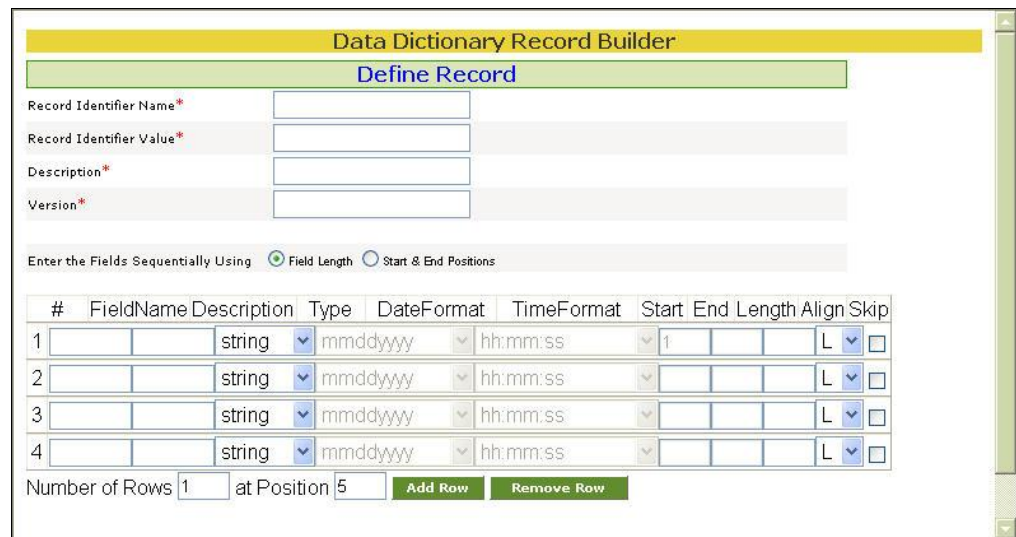


Figure 4.9: Data Dictionary Record Builder

8. Enter the name of the Record Identifier in the *Record Identifier Name* field.
9. Enter the value of the Record Identifier in the *Record Identifier Value* field.
10. Enter the description and version of the record identifier in the *Description* and *Version* fields respectively.
11. You can now enter fields for the record. Enter the name and description of the field in the *Field Name* and *Description* fields respectively.
12. Select the type of data from *Type* drop-down list.
13. If data type is *Date*, select the format of date and time from the *DateFormat* and *TimeFormat* drop-down lists respectively.
14. To define field position select one of the following options:
  - Field Length
  - Start & End Positions
15. To define the field position using field length, select *Field Length* radio button and enter the length of the field in the *Length* box.
16. To define the field position using start and end position, select the *Start and End Position* radio button and enter the start and end positions of the field in the *StartPos* and *EndPos* fields respectively.



The starting position of a row in a positional file is 1. In a positional file, tab is counted as one position and not eight positions. By default, field positions are created in sequence. You can also create a data dictionary with fields that are not in sequence. For details, refer to the [Defining Field Positions Non-Sequentially](#) section.

17. Select the alignment of the field from the *Align* drop-down list.



From *Align* field select  
**L** if the field is left aligned.

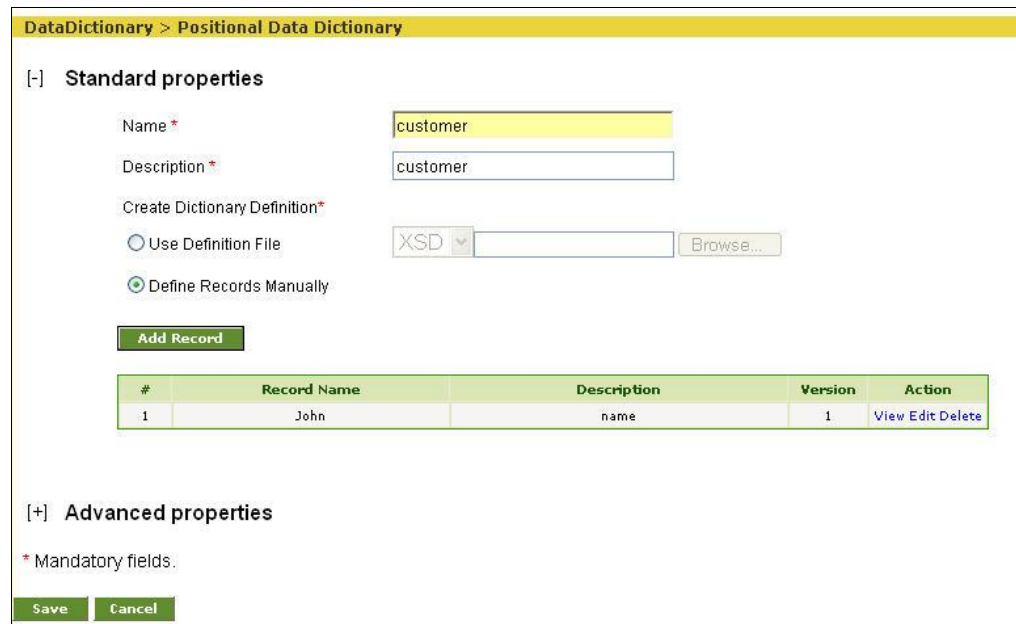
**R** if the field is right aligned.

To insert rows, specify the number and position of the rows to be added in the *Number of Rows* and at *Position* fields respectively and click **Add Row** button. A maximum of 99 rows can be added at a time.

18. Check the *Skip* checkbox if you want to skip this field while generating the XML. This selection skips the fields that are not required for the data dictionary.
19. Click **Save** to save the records. The saved records are displayed on the Create Positional Data Dictionary screen (see Figure 4.10). You can view, edit or delete a record from this screen by clicking the appropriate button for that record.



Once the Data Dictionary activity is saved, you can view the Print-friendly page. To know, how to view Print-friendly page of Data Dictionary activity refer to the [View Print-Friendly Page](#) section.



**DataDictionary > Positional Data Dictionary**

**[-] Standard properties**

Name \*

Description \*

Create Dictionary Definition\*

☐ Use Definition File

☒ Define Records Manually

#	Record Name	Description	Version	Action
1	John	name	1	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>

**[+] Advanced properties**

\* Mandatory fields.

Figure 4.10: Records created for the Positional Data Dictionary

20. Click **Save** to save the Positional Data Dictionary. If the *comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the data dictionary (refer to Figure 4.6).
21. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

22. Click **OK** to save the comments. This displays a screen confirming that the data dictionary has been created successfully.



## 5 TRANSFORMING DATA

Adeptia Server can transform any type of data into another type i.e. it facilitates any-to-any transformation. For example, the Adeptia Server can transform a text file into an XML file. Data transformation can be done in two ways. These are outlined as:

- Using Data Mapper
- Using Record To Record Service

### USING DATA MAPPER

Data Mapper is a visual data-mapping tool used for mapping elements in advanced data integration projects. This tool allows you to specify source and target schemas and to map data fields from source schema to target schema.

The Data Mapper tool is used to map source schema elements to target schema elements. You can map one source schema element to a target schema element directly using the drag and drop approach. Additionally, this tool also offers certain mapping functions using which you can map source and target schema elements.

Furthermore, the Data Mapper supports multiple source and target schemas. This implies that you can select more than one schema at a time, both at the source and the target end. This facilitates mapping of multiple source and target schema elements.

In the Adeptia Server, this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

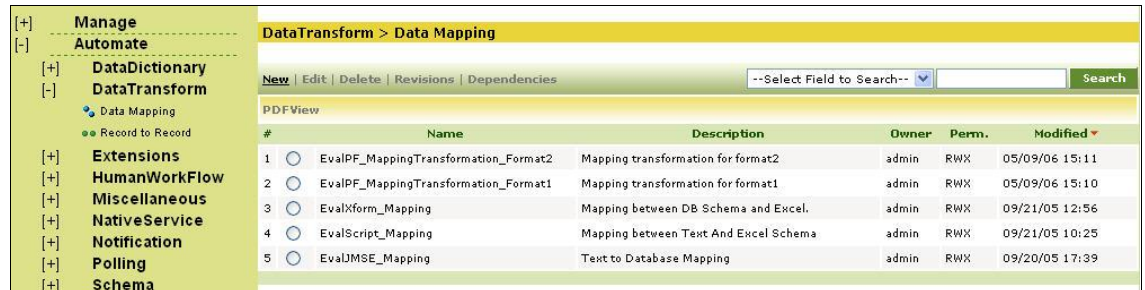
### Accessing Data Mapper

#### Pre- Requisites

- JRE 1.5 or above needs to be installed on your system to open the Data Mapper applet.
- The *Pop-up Blocker* needs to be disabled in the web browser, to open the Data Mapper applet. By default, the *Pop-up Blocker* is enabled.

#### Steps to access Data Mapper

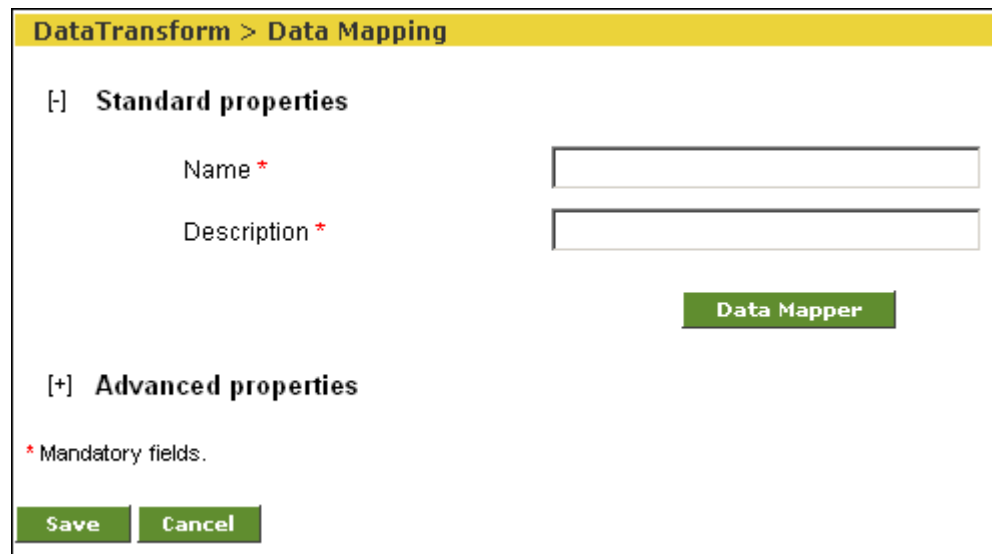
1. Click **[+] Automate** to expand the tree and then click **[+] Data Transform**. All the items in the Data Transform category are displayed.
2. Click **Data Mapping**. The Manage Data Mapping screen is displayed (see Figure 5.1).



DataTransform > Data Mapping						
New   Edit   Delete   Revisions   Dependencies						
--Select Field to Search-- Search						
PDFView						
#	Name	Description	Owner	Perm.	Modified	
1	EvalPF_MappingTransformation_Format2	Mapping transformation for format2	admin	RWX	05/09/06 15:11	
2	EvalPF_MappingTransformation_Format1	Mapping transformation for format1	admin	RWX	05/09/06 15:10	
3	Evalform_Mapping	Mapping between DB Schema and Excel.	admin	RWX	09/21/05 12:56	
4	EvalScript_Mapping	Mapping between Text And Excel Schema	admin	RWX	09/21/05 10:25	
5	EvalMSE_Mapping	Text to Database Mapping	admin	RWX	09/20/05 17:39	

Figure 5.1: Manage Data Mapping

3. Click **New** link. The Create Data Mapping screen is displayed (see Figure 5.2).



**DataTransform > Data Mapping**

**[-] Standard properties**

Name \*

Description \*

**[+] Advanced properties**

\* Mandatory fields.

**Data Mapper**

**Save** **Cancel**

Figure 5.2: Create Data Mapping

4. Enter the name and description of the new mapping activity in the *Name* and *Description* fields respectively.
5. Click **Data Mapper** button. This displays the Data Mapper screen (refer to Figure 5.3).



If you are starting the Data Mapper on your system for the first time, then a warning message is displayed that prevents you from starting this application. Ignore this message and click **Start** to continue.



If you have *read-only* permissions, you can view a mapping activity in read-only mode. You can view the applied mapping, create new mapping

rules, edit existing mapping rules and even run the simulation. For details, refer to the View Mapping in Read-Only Mode section.

6. Click **Advanced Properties** if you want to set options for splitting data. You can split the source data into different chunks. You can specify the size of chunks in terms of the number of records. In the output however, only one file is generated at the location specified in the target activity. To know more about splitting data, refer to the Splitting Source Data section.



You can set the **Advanced Properties** at any time of the mapping activity.

7. Once you have set the Advanced Properties, click **Save** to save the splitting options. If the *comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the mapping transformation. (refer to Figure 5.35).
8. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

9. Click **OK** to save the comments.



By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.

## Understanding Data Mapper Applet

The Data Mapper screen is displayed below (see Figure 5.3).

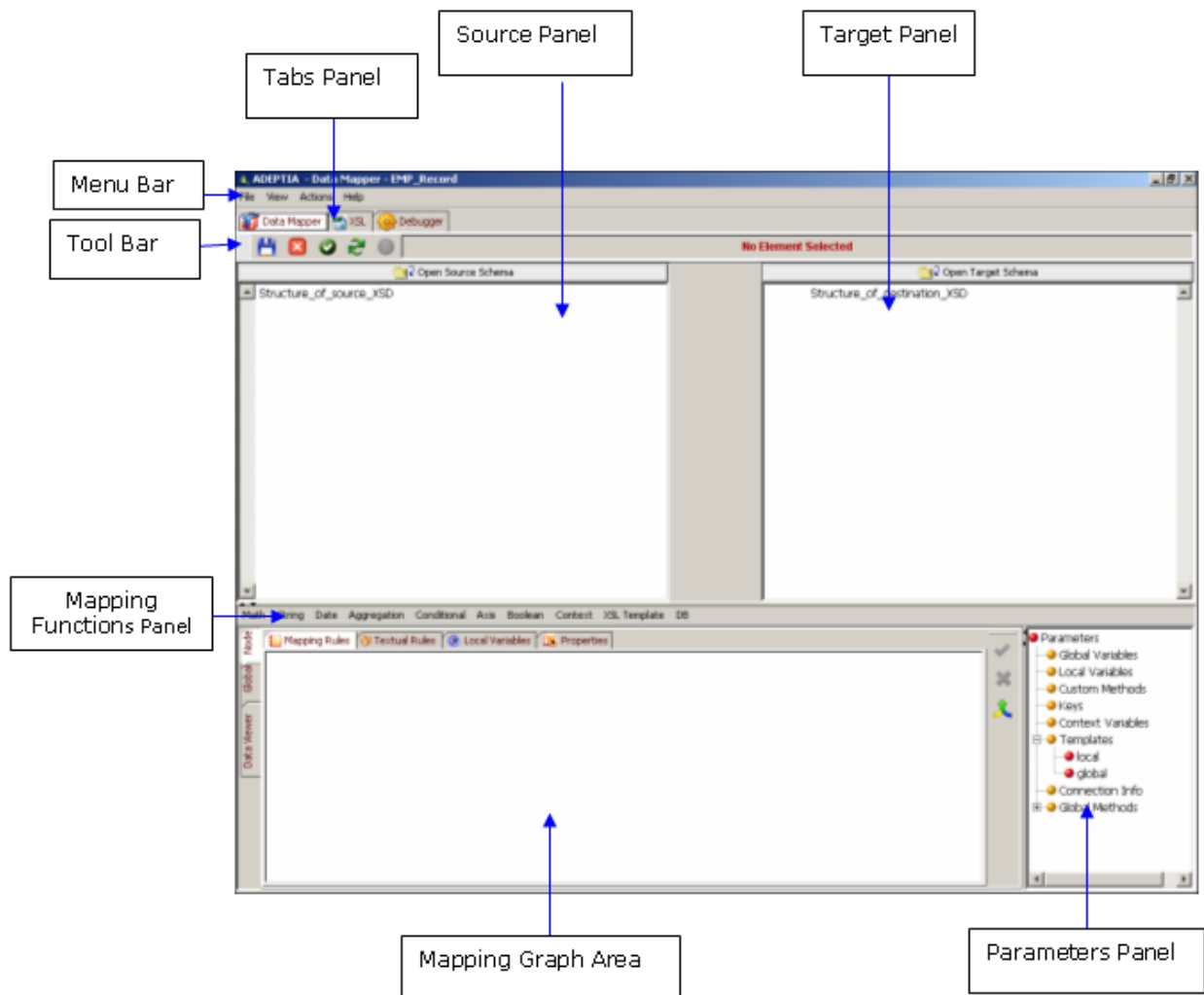


Figure 5.3: Data Mapper Applet

The Data Mapper screen is divided into eight sections. These are outlined as:

- Menu Bar
- Tabs Panel
- Tool Bar
- Source Panel
- Target Panel
- Mapping Functions Panel
- Mapping Graph Area
- Parameters Panel

## Menu Bar

Options of the Menu Bar are explained in the table below.

Table 5.1: Options of Menu Bar




Menu Option	Sub-Option	Function
File	Save	Save mapping activity
	Exit	Exit Data Mapper
View	Enable Tool Tips For Source/Target Tree	Activate or deactivate Tool Tips to be displayed at source or target leaf elements. Tool Tips are always displayed as active for root elements.
	Move Connection Ends	Set the width of connecting lines. By default, it is set to 50px.
	View Mapping XML	Display generated XML file with line numbers. It is displayed in read-only mode.
Actions	Validate XSL	Validate the generated XSL file.
	Global Custom XSL Before	Add custom XSL code at the top of the mapping XSL.
	Global Custom XSL After	Add custom XSL code at the bottom of the mapping XSL.
	On Demand (optimized) loading of XML Schema tree	If the XSD is complex, then this option allows you to process only the root level element and not the complete XSD. Only when you expand the tree elements, it processes the child elements and loads them into the memory. The tree elements expansion is now displayed in the applet. This option is applicable only on XML schemas. It optimizes the processing of XML schemas and loads the XSD elements only up to 2 levels in the source and target panels. You need to click a tree element to load its further child elements.
	Namespace	Manage Namespace
	Enable DBQuery caching	Enable DBQuery cache. This implies that if the same DBQuery is fired on another element, it will generate the result from the existing query, instead of creating a new connection. By default, the DBQuery cache is disabled.
	Search Element	Search an element in the Source or Target schema tree.
	Set Data Viewer Record Count	Set maximum number of records that can be shown in data viewer
	Add Custom Auto Map Options	Add custom options for Auto Mapper
	Add Value Map Options	Add options for value map

Help	Data Mapper Help	Display online help for the Data Mapper section.
	Mapping Functions Help	Display online help for mapping functions.
	About Data Mapper	Display the About box for the Data Mapper tool.

## Tabs Panel

Options of the Tabs Panel are explained in the table below.








Table 5.2: Options of Tabs Panel

Button	Name	Function
	Data Mapper	Display the Data Mapper screen for mapping source and target elements.
	XSL	Display the generated XSL code with line numbers for the mapping activity.
	Debugger	Validate and view output of the mapping activity.

## Tool Bar

Options of the Tool Bar are explained in the table below.

Table 5.3: Options of Tool Bar

Button	Name	Function
	Save Mapping	Save mapping activity
	Remove All Mappings	Remove all the mapping between the source and the target elements
	Validate XSL	Validate generated XSL
	Auto Mapper	Map the source and the target elements if the structure of the source and the target schemas and the names of the source and the target elements are similar
	One to One Mapping	Map all the source and the target elements under a parent element if the number of elements in the source and the target schemas are same
	Open Source Schema	Open source schema
	Open Target Schema	Open target schema

## Source Panel

The Source Panel is used to display a source schema. All the elements of the source schema are listed in the Source Panel. When multiple source schemas are loaded, then all elements of each schema are listed under their respective source nodes.

## Target Panel

The Target Panel is used to display a target schema. All the elements of the target schema are listed in the Target Panel. When multiple target schemas are loaded, then all elements of each schema are listed under their respective target nodes.

## Mapping Functions Panel

The Mapping Functions Panel displays all mapping functions that can be used to map source and target schema elements. Mapping functions are supported by XSLT. However, the Data Mapper also includes some customized functions, which are not standard of XSLT. Refer to Using Mapping Functions for details on mapping elements using these functions.

In addition to the mapping functions, an option of XSL Template is also displayed on the Mapping Functions Panel. This option enables you to  
Add XSL Template  
and further manage XSL templates from the Manage XSL Template screen.

## Mapping Graph Area

The Mapping Graph Area is used to map the source and the target elements. You can apply the mapping function between source and target elements in this section. Mapping of the selected target element is displayed in the Mapping Graph Area. This mapping is displayed in the form of Mapping Rules (graphical representation) or as Textual Rules (code representation). Additionally, you can view and [set target element properties](#) such as [adding comments](#) for target elements and also repeat occurrences of a target element based on the occurrences of a source element, by applying the [For Each property](#). Further, you can [apply sorting rules](#) for elements and also set the Disable-Output-Escaping property.

Additionally, you can create [Local](#), [Global](#) and [Context Variables](#) in Mapping Graph Area. You can also define [Custom Methods](#) and [Key Functions](#) in this section.

The Mapping Graph Area comprises of two tabs. These tabs further list sub tabs using which you can perform various functions. These are outlined in the table below.









Table 5.4: Tabs of Mapping Graph Area

Tab	Sub Tabs	Function
Node	Mapping Rules	Display graphical representation of the mapping of source and target elements.



	Textual Rule	Display the textual code representation of the mapping of source and target elements.
	Local Variables	Create and define local variables for mapping source and target elements.
	Properties	Display and set properties for source and target elements. Enables you to add comments for elements and applies sorting rules for target elements. It allows you to set the <i>Disable-Output-Escaping</i> property.
Global	Global Variables	Create and define global variables for mapping source and target elements.
	Custom Methods	Create global methods for mapping source and target elements.
	Key Functions	Create and define keys for mapping source and target elements.
	Context Variables	Create and define context variables for mapping source and target elements.
	Connection Info	Create and define connection info variables for mapping source and target elements.
Data Viewer	Source	Preview Data of the uploaded file at the source end.
	Target	Preview Data at the target end according the uploaded source file and mapping rule applied.


The Mapping Graph Area also comprises of buttons. These buttons are displayed based on the selected tabs. All buttons of the Mapping Graph Area are explained in the table below.

Table 5.5: Buttons of Mapping Graph Area

Button	Name	Function
	Apply Mapping	Map the selected source elements to the selected target elements.
	Remove Mapping	Remove the mapping between the selected source and the target elements
	Pop Out Parameters Panel	Pop out the Parameters Panel and display it as maximized.
	Add Global/Local/Context Variable/Key	Add a new global, local, context variable or a key.
	Save Global / Local /Context Variable/Key	Save a new local, global, context variable or a key.
	Remove Selected Global/Local /Context Variable/Key	Remove the selected global variable, local variable, context variable or key.
	Remove all Global/Local/Context Variables/Keys	Remove all existing global variables, local variables, context variables or keys.
	Clears Global / Local variable name and value text fields	Clear all data entry fields while adding a local or global variable.



	Add New Method	Add a new custom method.
	Remove Selected Method	Remove the selected custom method.


	You can expand the Mapping Graph Area by clicking <b>Maximize</b> (⏏) button displayed on the Split Bar below the Source and Target Panels. Similarly, by clicking <b>Minimize</b> (⏏) button, you can restore the Mapping Graph Area to its original size. Alternately, you can drag the Split Bar to resize the Mapping Graph Area and Source and Target Panels.
---	--


## Parameters Panel

The parameters listed in the Parameters Panel are explained in the table below.

Table 5.6: Parameters Listed in the Parameters Panel

Parameters	Description
Global Variables	Display a list of all the global variables defined for the mapping of source and target elements in the current mapping object.
Local Variables	Display a list of all the local variables defined for the mapping of source and target elements in the current mapping object.
Custom Methods	Display a list of all the methods defined for the mapping of source and target elements in the current mapping object.
Keys	Display a list of all the keys defined for the mapping of source and target elements in the current mapping object.
Context Variables	Display a list of all the context variables defined for the mapping of source and target elements in the current mapping object. All context variables created in the Data Mapper are transferred to the Process Flow Designer.
Templates	Display a list of all the XSL templates created for the mapping of source and target elements in the current mapping object.
Global Methods	Display a list of all class files present in the Custom Classes folder.

	All parameters are displayed in this section as and when they are created in the mapping process. You can remove a parameter by right-clicking the parameter and selecting the Remove option.
---	--

	You can expand the Parameters Panel horizontally by clicking <b>Maximize</b> (⏏) button displayed on the Split Bar left to the Parameters Panel. Similarly, by clicking <b>Minimize</b> (⏏) button, you can restore the Parameters Panel to its original size. Alternately, you can drag the Split Bar to resize the Mapping Graph Area and Parameters Panel.
---	---


## Mapping Elements

The process of mapping elements comprises of various steps. These are outlined as:

1. [Load Source and Target Schemas](#)
2. [Map Source and Target Elements](#)
3. [Save Mapping and Exit Data Mapper](#)

## Load Source and Target Schemas

### Steps to load Source and Target Schemas

1. Click **Open Source Schema** (  ) button displayed on the Tool Bar. The Select Schema screen with a list of existing source schemas is displayed (see Figure 5.4).

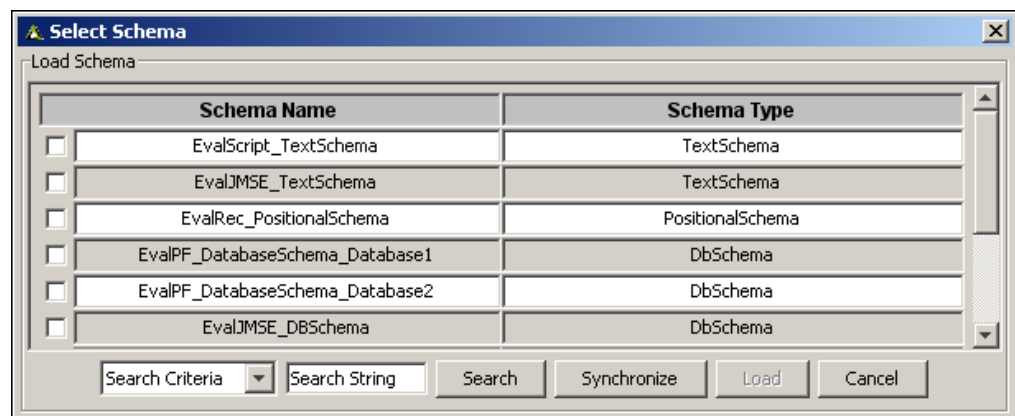


Figure 5.4: Select Schema





If you have created a new schema, then it will not be displayed in this list. To refresh the list of schemas and add the new schema to this list, click **Synchronize** button.

2. Select the checkbox of the source schema that you want to load. This will enable the **Load** button.



You can select more than one schema at a time to load multiple schemas. At times, the list of schemas is very long. In such a case, you can search for schemas to be loaded, on the basis of the *schema name* or *type* by selecting the appropriate search criteria from the drop-down list and entering the search criteria in the text box. Clicking **Search** button will display only those schemas that conform to the entered criteria. You can also enter wildcard characters like '\*', '?' and '[' in the search criteria. You need to click the **Synchronize** button to synchronize the schema list before using the *Search* feature.

3. Click **Load** button. This loads the selected source schemas with all their elements in the Source Panel.
4. Click **Open Target Schema** (  ) button displayed on the Tool Bar. This displays the Select Schema screen with a list of existing target schemas (refer to Figure 5.4).
5. Select the checkbox(s) of the target schema(s) that you want to load.
6. Click **Load** button. This loads the selected target schemas with all their elements in the Target Panel.

 The schema name is displayed against the root node of the source and target trees. This is useful in case of loading multiple source and target schemas.

7. Click the **Expand** (+) button to expand and display all elements of the selected schemas in their respective panels (see Figure 5.5).

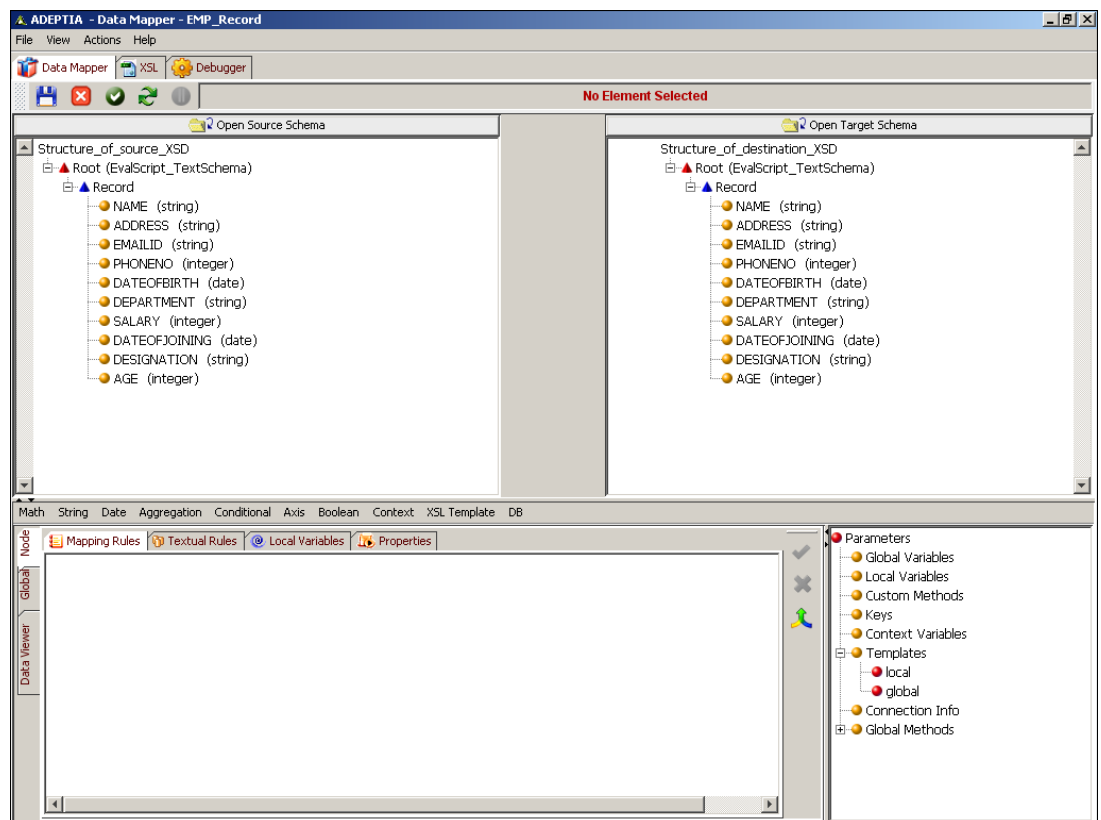







Figure 5.5: Source and Target Schema Elements

 The Data Mapper tool allows you remove a loaded schema. For details, refer to the section [Removing a Schema](#).

Elements in the Source and Target Panels are identified by the legends displayed before the name of the element. These legends are explained in the table below.

Table 5.7: Legends of Elements

Legend	Description
	Root Element
	Parent/Complex Element
	Leaf Element
	Attribute Element



If no schema is loaded, then all tabs of the Data Mapper appear as disabled.

## Search Element in Source or Target Schema Tree

At times, when the source or target schemas are quite large, then searching an element can be very cumbersome. The Data Mapper applet eases this task by allowing you to search for an element in a source or target schema.

### *Steps to search an element in a source or target schema tree*

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click the **Actions** menu and select **Search Element** option (see Figure 5.6). Alternately you can press **<Ctrl> + <F>** on the keyboard.

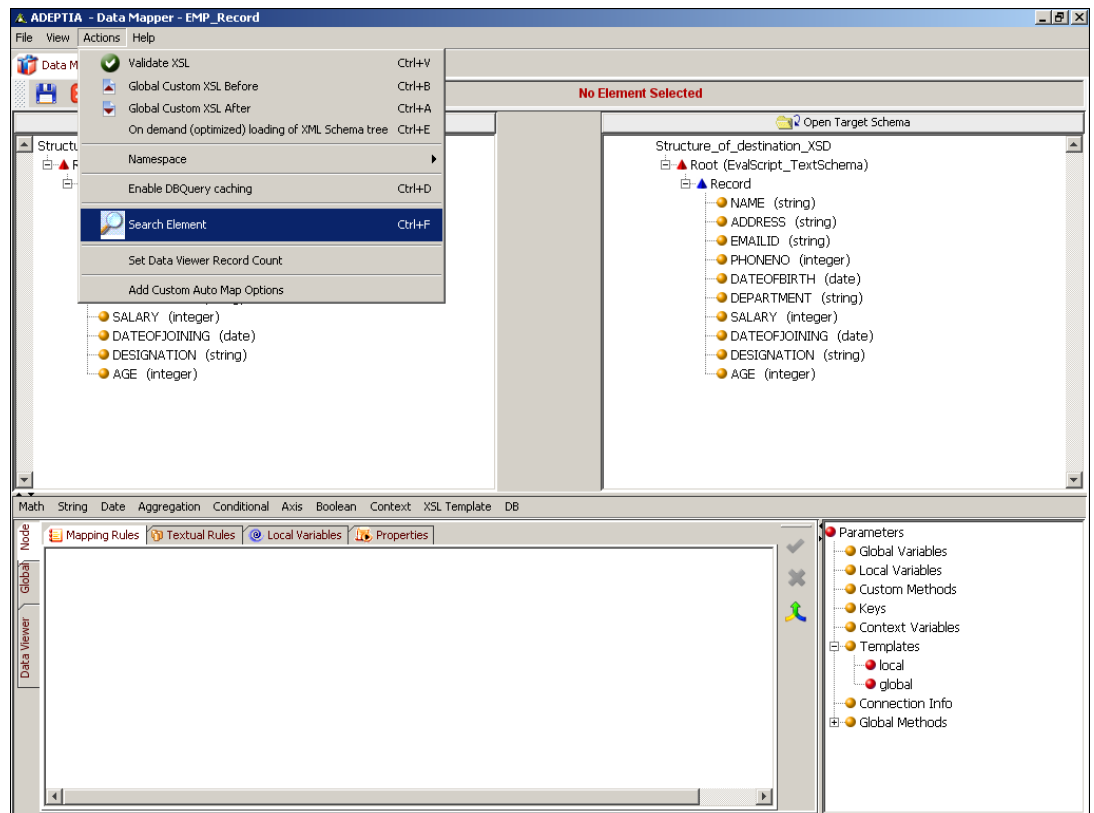


Figure 5.6: Select Search Element from Actions Menu

3. The Element Search dialog box is displayed (see Figure 5.7).

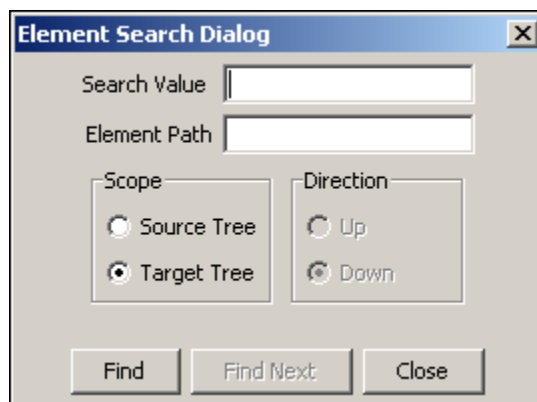


Figure 5.7: Element Search Dialog Box

4. Enter the name of the element that you want to search for, in the *Search Value* field. You can also use Wildcard character(s) to search for an element. The Xpath of the element is automatically displayed in the *Element Path* field.
5. Select the appropriate option in the *Scope Panel*, to search the element in the Source or Target schema tree. For example, if you want to search in the Source schema tree, then select *Source Tree* option. Only one option

can be selected at a time. By default, *Target Tree* is selected (see Figure 5.8).

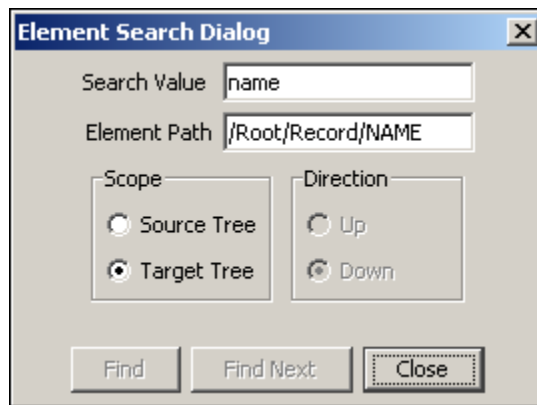


Figure 5.8: Enter Parameters in Element Search Dialog Box

6. Click **Find**. This searches for the first occurrence of the element in the selected tree. If the element match is found, then that element is selected and highlighted. The Xpath of that node is displayed in the *Element Path* field (see Figure 5.9).

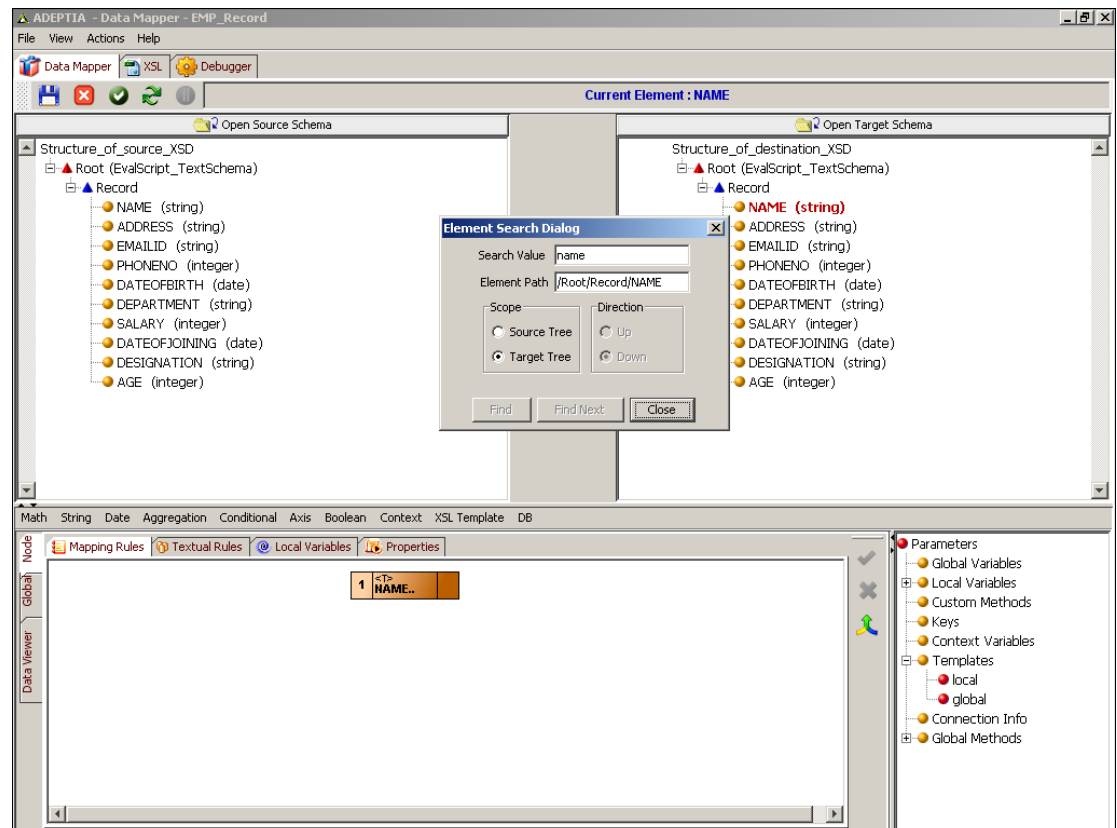


Figure 5.9: Element Match Found

7. If multiple matches are found for the search criteria, then the *Direction Panel* and the **Find Next** button is activated (see Figure 5.10). You can

select the direction in which you want to search in the selected tree. For example, if you want to search upwards in the tree, select *Up* option. Only one option can be selected at a time. By default, *Down* is selected.

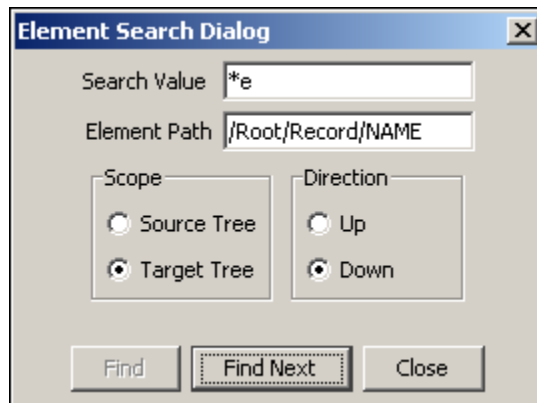


Figure 5.10: Multiple Matches Found

8. Click **Find Next** to search for the next element in the tree, based on the selected direction. Once the element match is found, click **Close** to close the Search Element dialog box. In case no element match is found, then a warning message is displayed (see Figure 5.11).

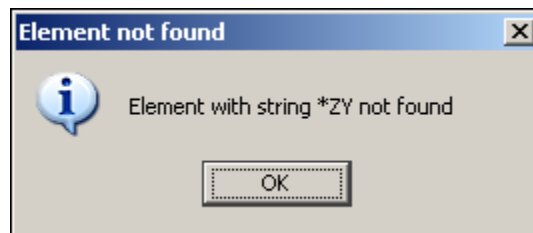


Figure 5.11: Warning Message

## Map Source and Target Elements

You can map source and target elements using any of the listed methods:

- [Drag and Drop Approach](#)
- [Buttons on the Tool Bar](#)
- [Copy/Paste Mapping](#)
- [Mapping Functions](#)

### *Map Elements Using Drag and Drop Approach*

This is the default and most commonly used method for mapping source and target elements.

#### *Steps to map elements using Drag and Drop approach*

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click a source element and drag it to the desired target element. A line is displayed, indicating the mapping between the selected source and target element. The graphical representation of the above mapping is displayed in the Mapping Graph Area (see Figure 5.12).

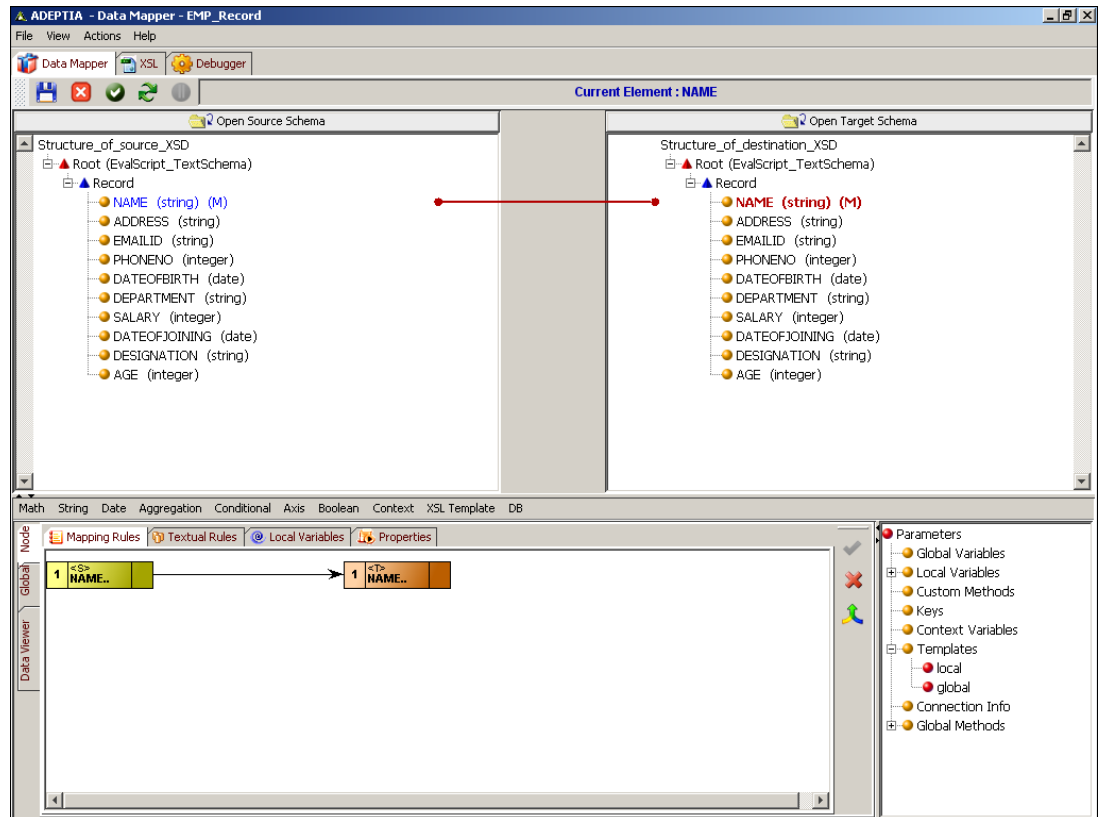


Figure 5.12: Map Source and Target Element using Drag and Drop Approach

Once a source and target element is mapped, the letter **(M)** is displayed next to each mapped source and target element. This signifies that the target element has been mapped to a source element. Refer to [Table of Suffixes](#) for details on suffixes displayed next to an element.

3. Similarly, drag and drop each source and target element that you want to map. The mapping between all source and target elements will be displayed (see Figure 5.13).



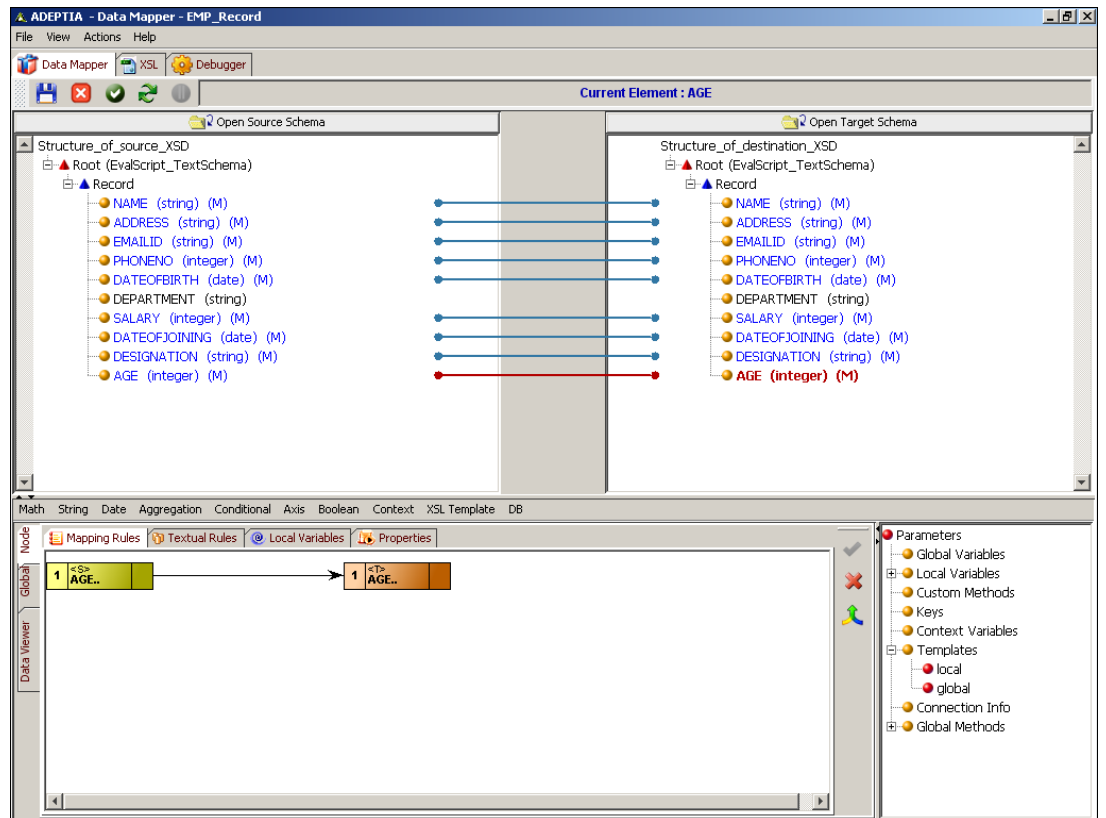


Figure 5.13: Map Source and Target Elements

- If you have loaded multiple source and target schemas, then drag and drop the source and target elements you want to map. The mapping between these elements will be displayed (see Figure 5.14).

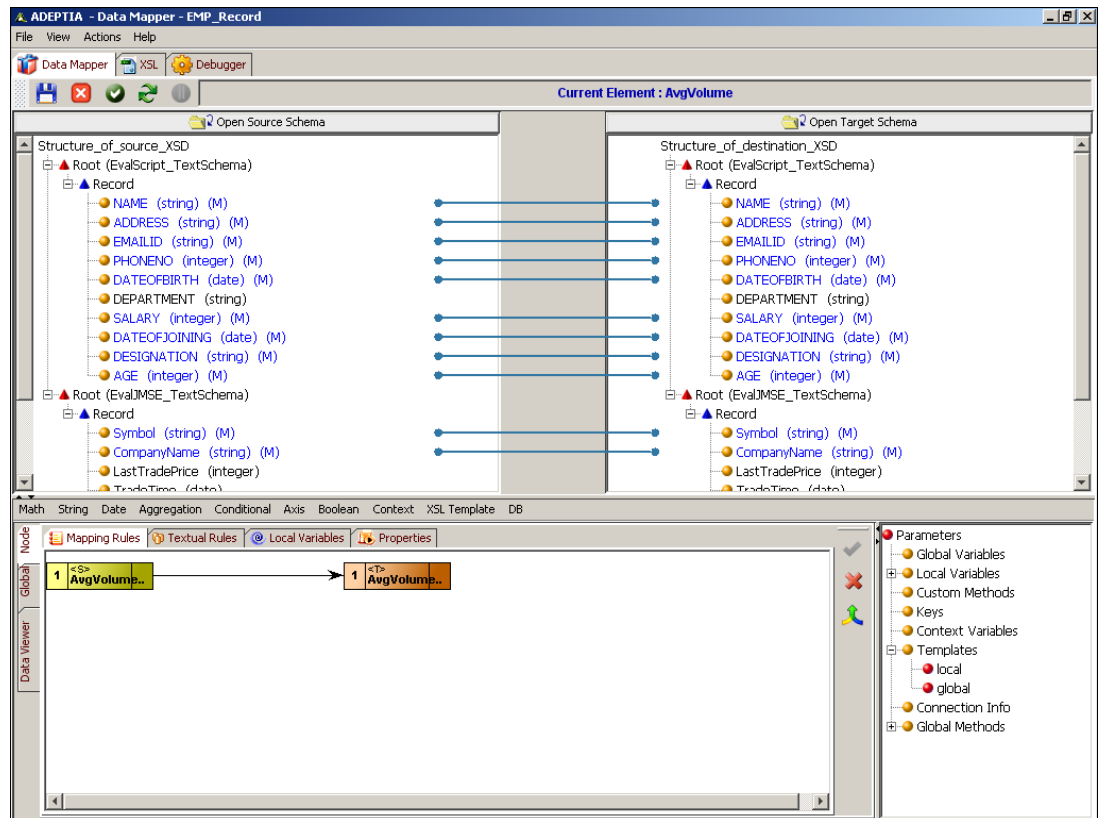


Figure 5.14: Map Multiple Source and Target Schema Elements

5. **Save** the mapping activity and exit the Data Mapper.



If you are mapping multiple source and target schema elements, then you need to [assign data streams](#), before saving the mapping activity.



Once you have mapped source and target elements, you can [view and validate the generated mapping XSL](#), from the Data Mapper screen. You can also [view the target XML](#) and [view and validate mapping output](#) from this screen.

### Map Elements using Buttons on the Tool Bar


You can map source and target elements using certain buttons on the Tool Bar. These buttons are explicated as:

- [One To One Mapping](#) (  )
- [Auto Mapper](#) (  )
- [Remove All Mappings](#) (  )

## One to One Mapping

If the number of leaf elements of the parent element in the source and target schema is same, then you can use the One to One mapping button to map all the source elements to the corresponding target elements.

### Steps to use One to One mapping

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click and drag the parent element of the source schema to the parent element of the target schema. This will apply template of the source parent element on the target parent element, and activate the **One to One Mapping** button.
3. Click **One to One Mapping** (  ) button. All the leaf elements of the parent element in the source schema will be mapped to their respective leaf elements of the parent element in the target schema.



Only leaf elements are mapped using this button. It does not map complex elements. To map complex elements, you need to use the [drag and drop](#) method.



If multiple schemas are loaded, then dragging a source parent element will map all leaf elements of schemas displayed previous to the current schema. Moreover, in multiple schemas, mapping can be performed between parents at any level, if the number of their leaf elements is the same.

## Auto Mapper

If the hierarchy and the names of the complex elements are similar, then you can use the **Auto Mapper** option to map the source elements to the corresponding target elements. In case of complex elements, the hierarchy and the name of all elements must be the same.

### Steps to use the Auto Mapper

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes. Additionally, the hierarchy and name of the all elements is the same (see Figure 5.15).

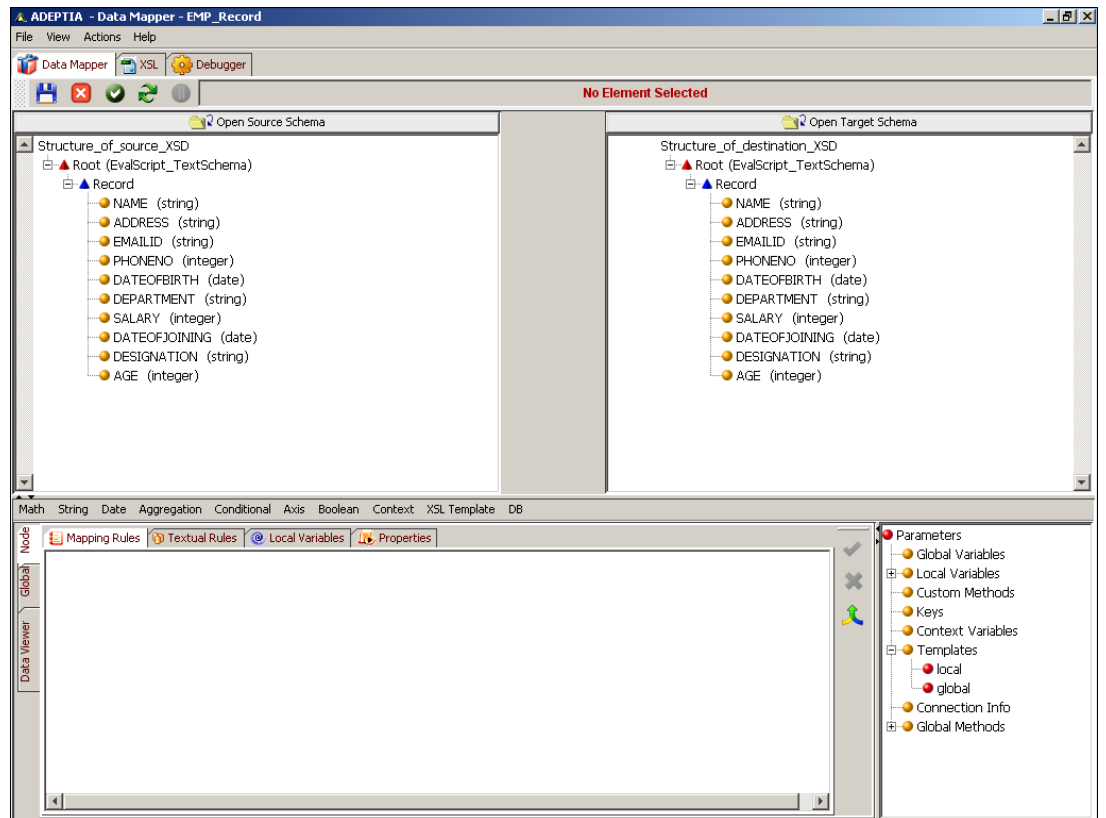



Figure 5.15: Same Hierarchy and Element Names

- Click **Auto Mapper** (  ) button. The Auto Mapper Options dialog box is displayed (see Figure 5.16).

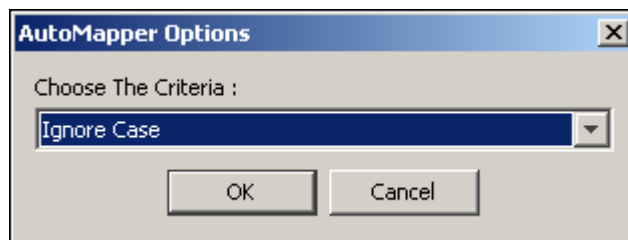


Figure 5.16: Auto Mapper Options

- Select the mapping criteria from the *Choose the Criteria* drop-down list. Its options are listed as:
  - Ignore Case:** The source and the target elements are mapped even if they are of different case. Their attributes are not mapped.
  - Case Sensitive:** The source and target elements are mapped only if they are of the same case. Their attributes are not mapped.

- **Ignore Case and Include Attributes:** The source and target elements and their attributes are mapped even if they are of different case.
  - **Case Sensitive and Include Attributes:** The source and target elements and their attributes are mapped, only if they are of the same case.
  - **Consider Only Leaf Element Count:** The source and target elements are mapped only if the number of leaf elements in the source schema and target schema are the same. It is not necessary that names of source and target elements are similar. Their attributes are not mapped.
  - **Consider Only Leaf Element Count and Include Attributes:** The source and target elements and their attributes are mapped only if the number of leaf elements in the source schema and target schema are the same. It is not necessary that names of source and target elements are similar.
4. Click **OK** button. All elements of the source and target schema will automatically be mapped based on the selected criteria (see Figure 5.17).

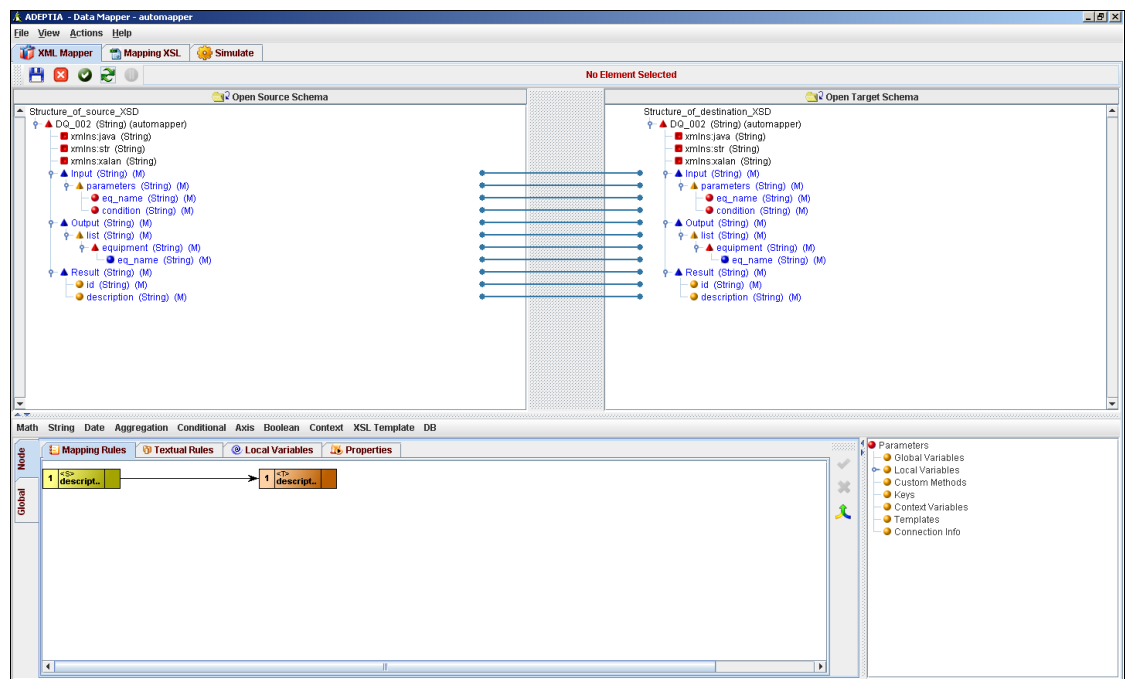



Figure 5.17: Mapped Elements using Auto Mapper

## Remove All Mappings

You can use the Remove All Mappings option to remove all mappings from the Data Mapper.

### Steps to remove all mappings between source and target elements

1. Click **Remove all Mapping** (  ) button. A Remove Options screen is displayed (see Figure 5.18).

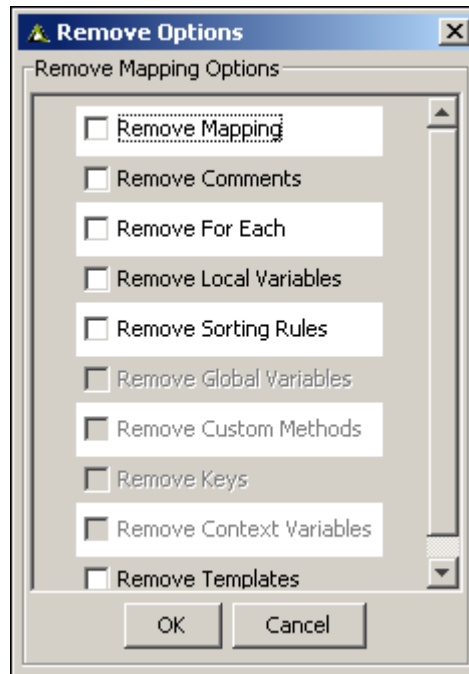


Figure 5.18: Remove Options

This screen displays a list of the properties, variables, custom methods, keys and templates associated with a mapped element, which can be removed with the mapping.



The *Remove Mapping*, *Remove Comments*, *Remove For Each* and *Remove Local Variables* options are always enabled. The other options are enabled only if they have been defined for the mapped element.

2. Select the checkbox(s) of the options that you want to remove and click **OK** button. All the selected options and all mappings between source and target elements will be removed.



You can remove mapping associated with each element individually. For details, refer to the section [Remove Mapping of an Element](#).

## Using Custom Auto Map Options

You can use Auto Mapper feature only when the elements of source and target schema are in same hierarchy and have same names. Now if you want to automatically map elements of source and target schemas where hierarchy and elements are different. In that case you can use *Custom Auto Map Options*. This option allows you to define custom options for Auto Mapper. For example you can define, if the source element is *EmpName*, it should map to *Name*.

All the Custom Auto Map Options that you create, are saved globally and can be used in any mapping activity.

### Steps to use Custom Auto Map Options

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes (see Figure 5.15).

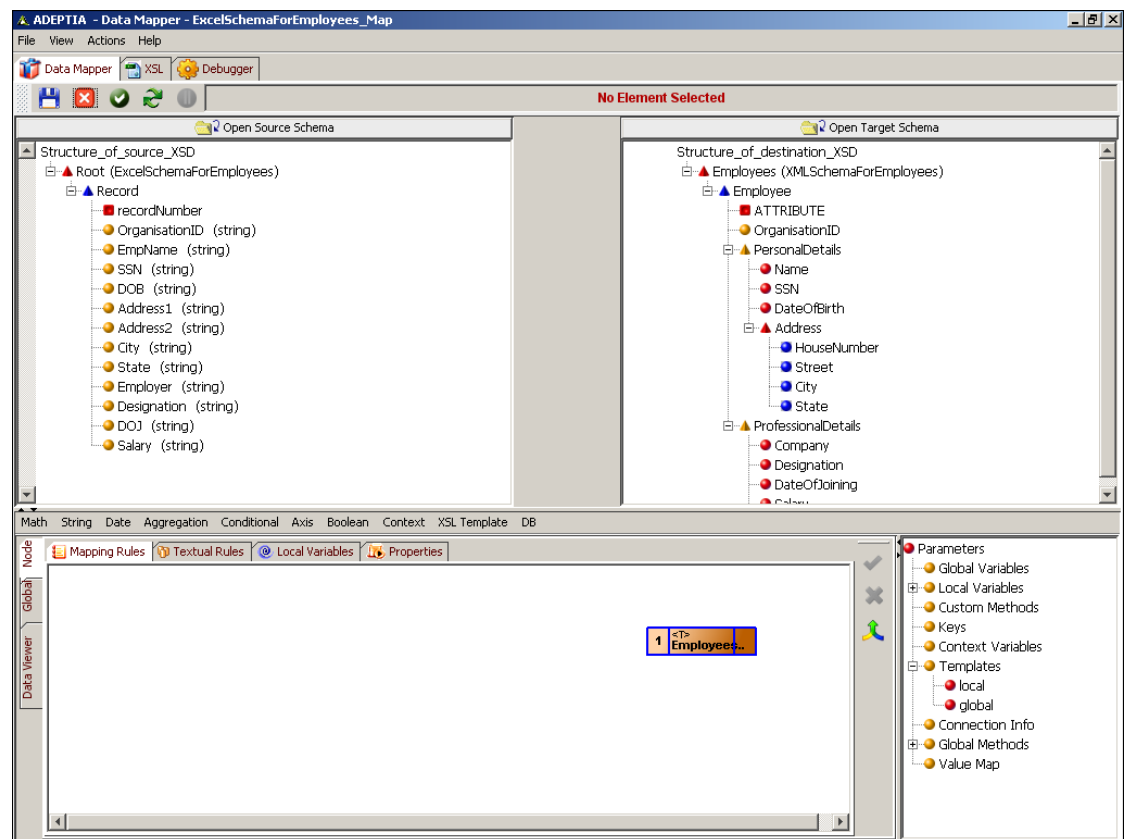


Figure 5.19: Same Hierarchy and Element Names

2. Click *Actions* menu and select *Add Custom Map Options* (see Figure 5.20 ).

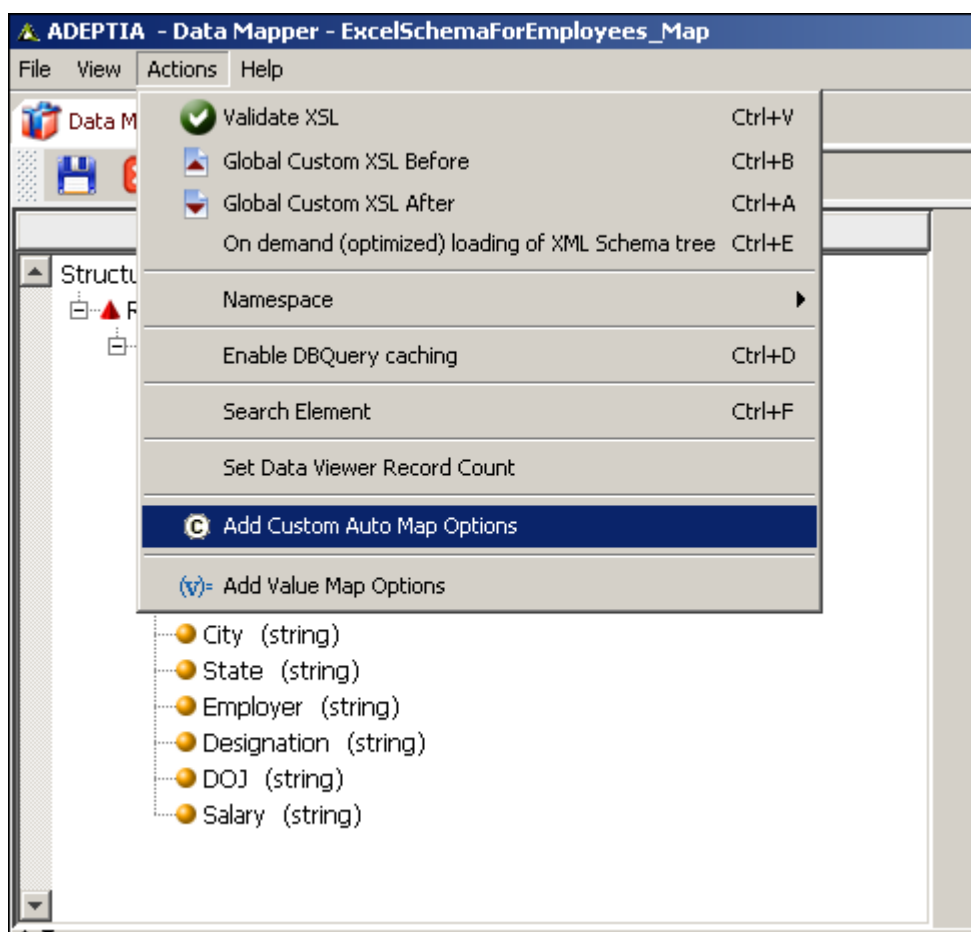


Figure 5.20: Select Add Custom Map Options

3. When you select *Add Custom Auto Map Options*, following dialog box is shown (see Figure 5.21 ).



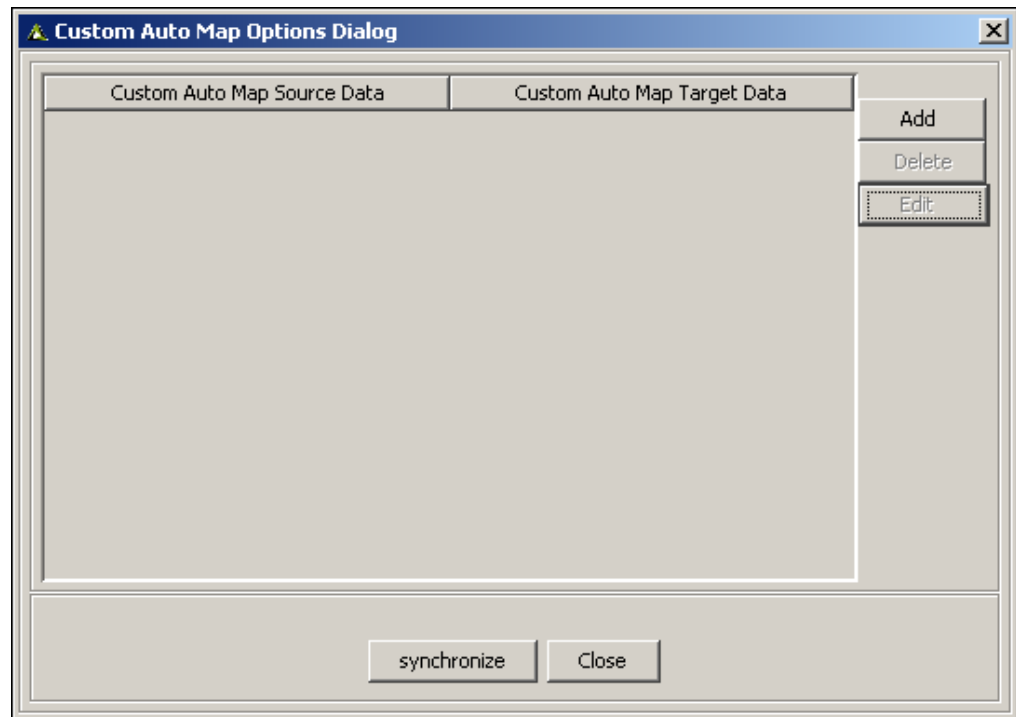


Figure 5.21: Custom Auto Map Options Dialog box

4. Click **Add** button. The *Add Data Dialog* box is shown (see Figure 5.22).

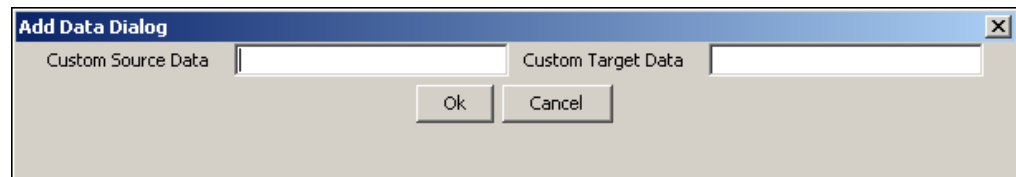


Figure 5.22: Add Data Dialog box

5. Enter the name of the source element for which you want to define custom auto map option in the *Custom Source Data* field.
6. Enter the name of the target element to which you want to map the source element specified in previous step, in the *Custom Target Data* field.
7. Click **OK** to close the *Add Data* dialog box. The added entry is shown in *Custom Auto Map options* dialog box (see Figure 5.23).

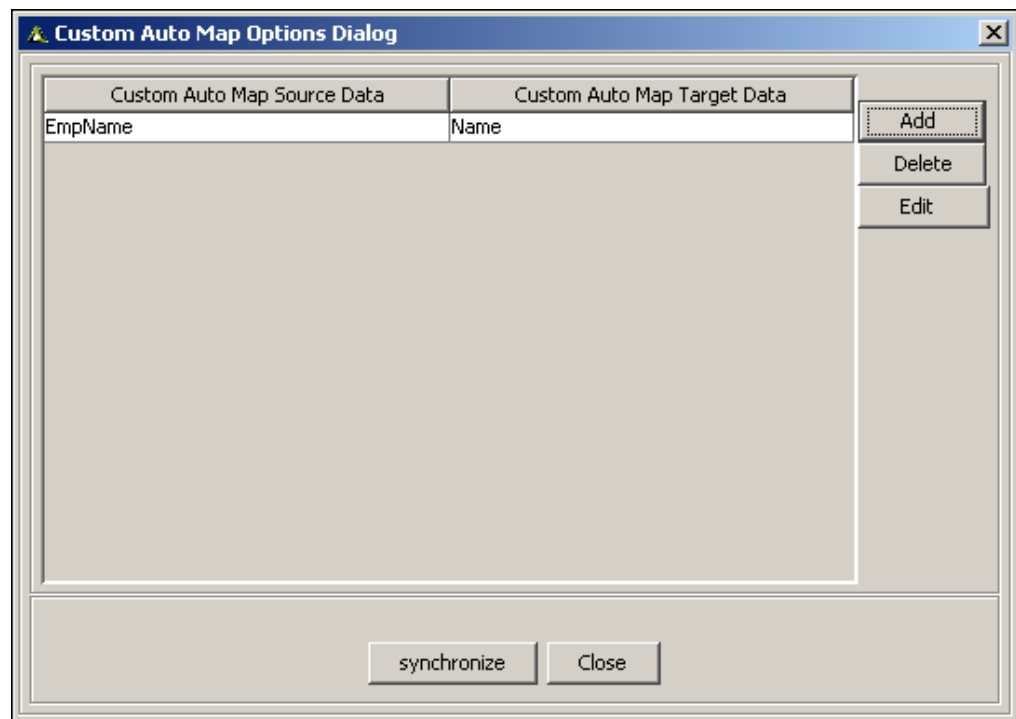


Figure 5.23: Added Entry for Custom Auto Map

8. Similarly you can add other entries.
9. Click close this dialog box.
10. Map the parent record of Source and Target Schema.
11. Now right click the parent record of the target schema and select *Connect Matching Record* options (see Figure 5.24).

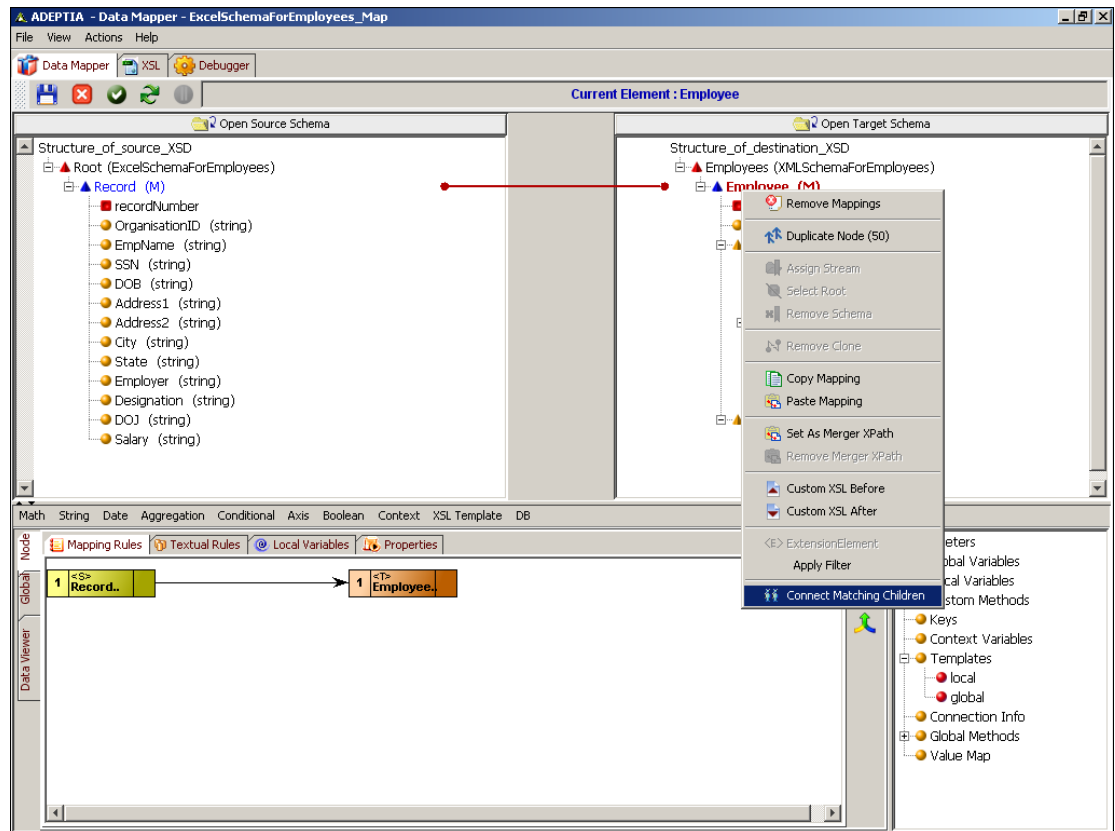


Figure 5.24: Select Connect Matching Children

12. When you select the *Connect Matching Children* option, the following dialog box is shown (see Figure 5.25 ).

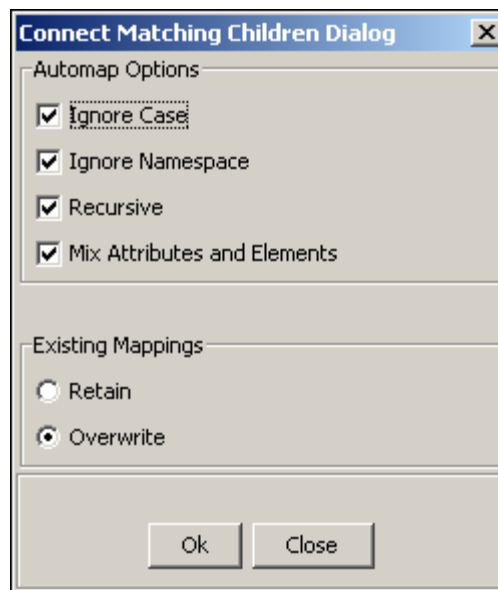


Figure 5.25: Connect Matching Children Options

13. Select the mapping criteria from the *Automap options* list. Its options are listed as:

- **Ignore Case:** The source and the target elements are mapped even if they are of different case. Their attributes are not mapped.
- **Ignore Namespace:** The source and target elements are mapped, when their names are same but source schema has any namespace prefix.
- **Recursive:** Elements of parent level as well as all child level with the corresponding target elements.
- **Mix Attributes:** Attributes of source and target schemas are mapped.

14. Also select the mapping criteria from the *Existing Options* list. These options are :

- **Retain:** If any source and target elements are already mapped, those mapping will not be overwritten.
- **Override:** Overrides all the existing mappings.

15. Click **OK**. This will map source and target schema as per the criteria selected (see Figure 5.26).

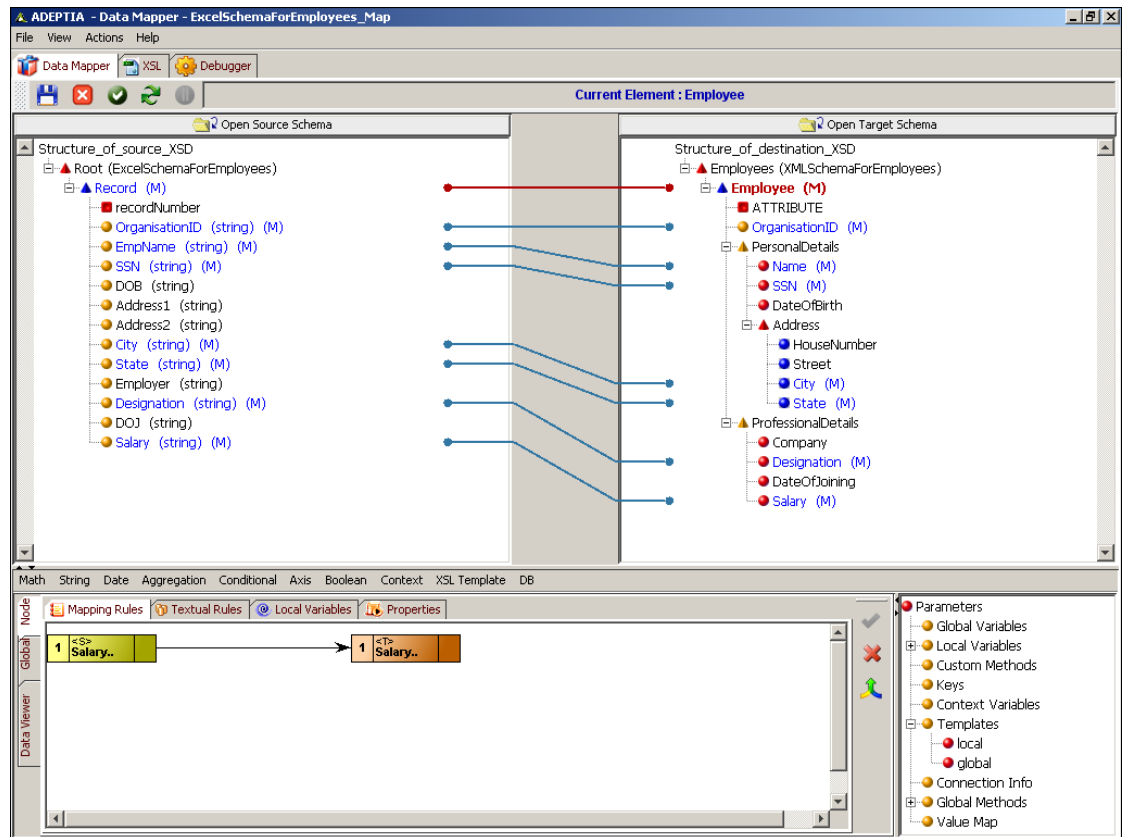


Figure 5.26: Source and Target elements are mapped

## Using Add Value Map Options

Using this feature you can set the Map for a particular value of an element. For example if value of an element say as **EmpGender** from source schema is coming as F and M then you can set the map for these values as Female and Male respectively and pass it to the target element.

All the Value Map Options that you create, are saved globally and can be used in any mapping activity.

## Steps to use Value Map Options

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes (see Figure 5.27).

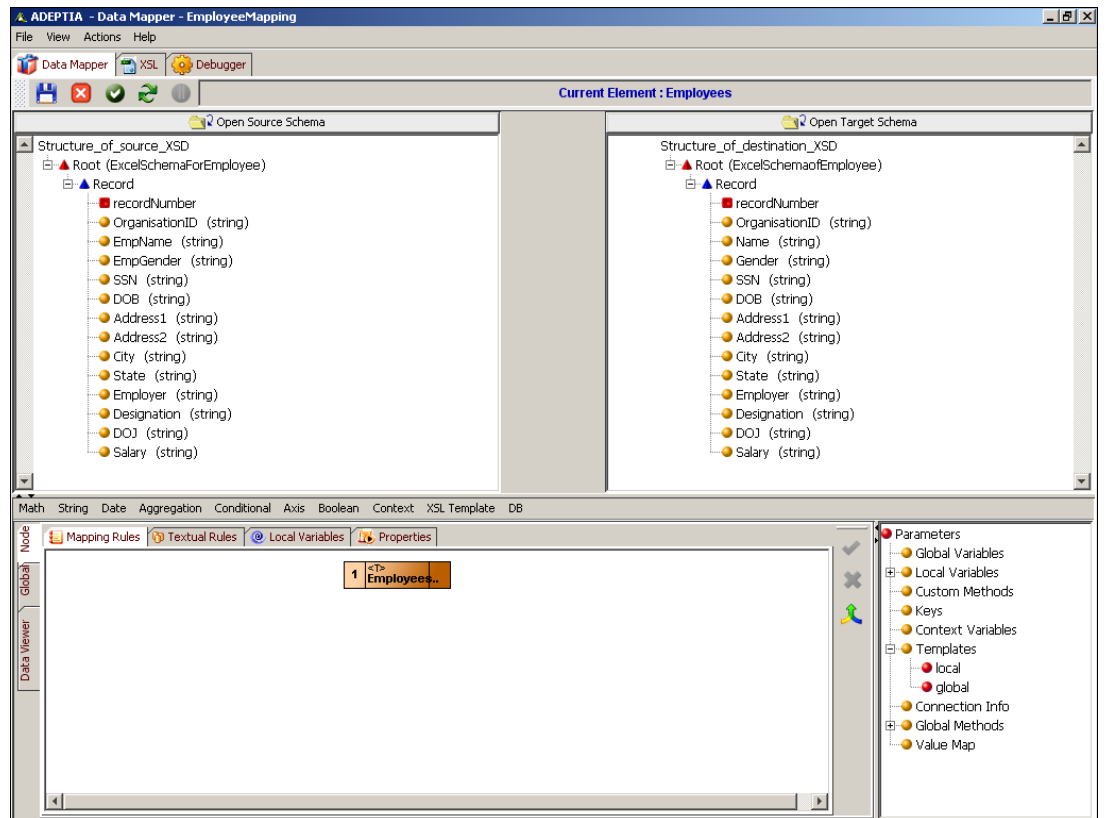


Figure 5.27: Elements of Source and Target Schema

2. Click *Actions* menu and select *Add Value Map Options* (see Figure 5.28).

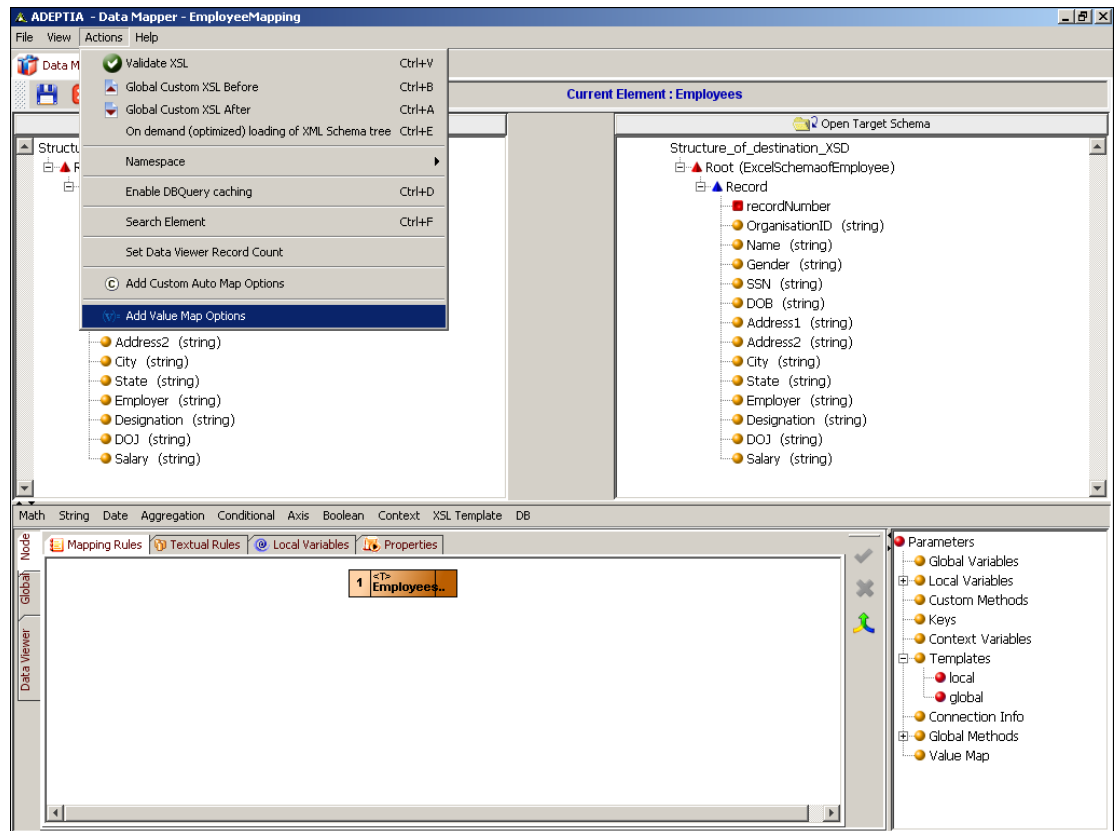


Figure 5.28: Select Add Value Map Option

3. When you select *Add Value Map Options*, following dialog box is displayed (see Figure 5.29).

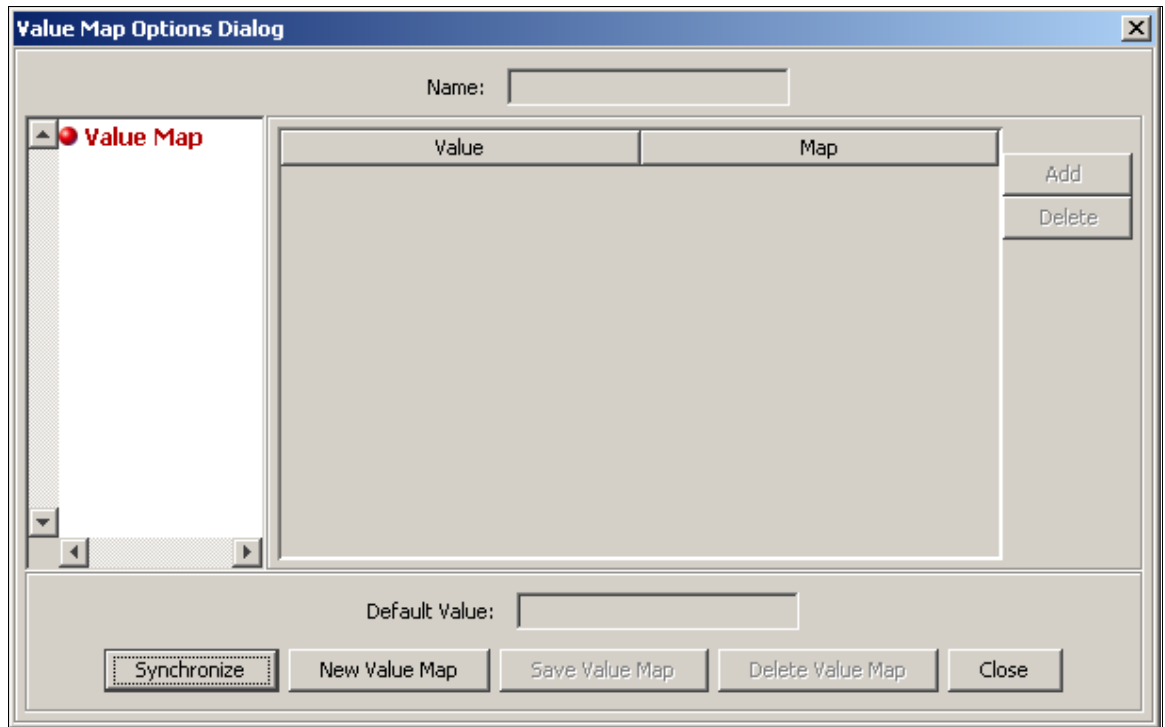


Figure 5.29: Value Map Options Dialog box

4. Click *New Value Map* button and enter the name of value map in *Name* field. For Example *GenderMap*.
5. Click *Add* button and enter the value in *Value* field and enter its map value in *Map* field. For example enter *F* in *Value* and *Female* in its *Map* field.
6. Similarly you can add more *Value* and *Map* fields.
7. You can provide the default Map value in the *Default Value* field for e.g. *Not Provided*. Incase at source side the value is neither *F* nor *M* then *Not Provided* value is mapped set to the target element ( see Figure 5.30 ).



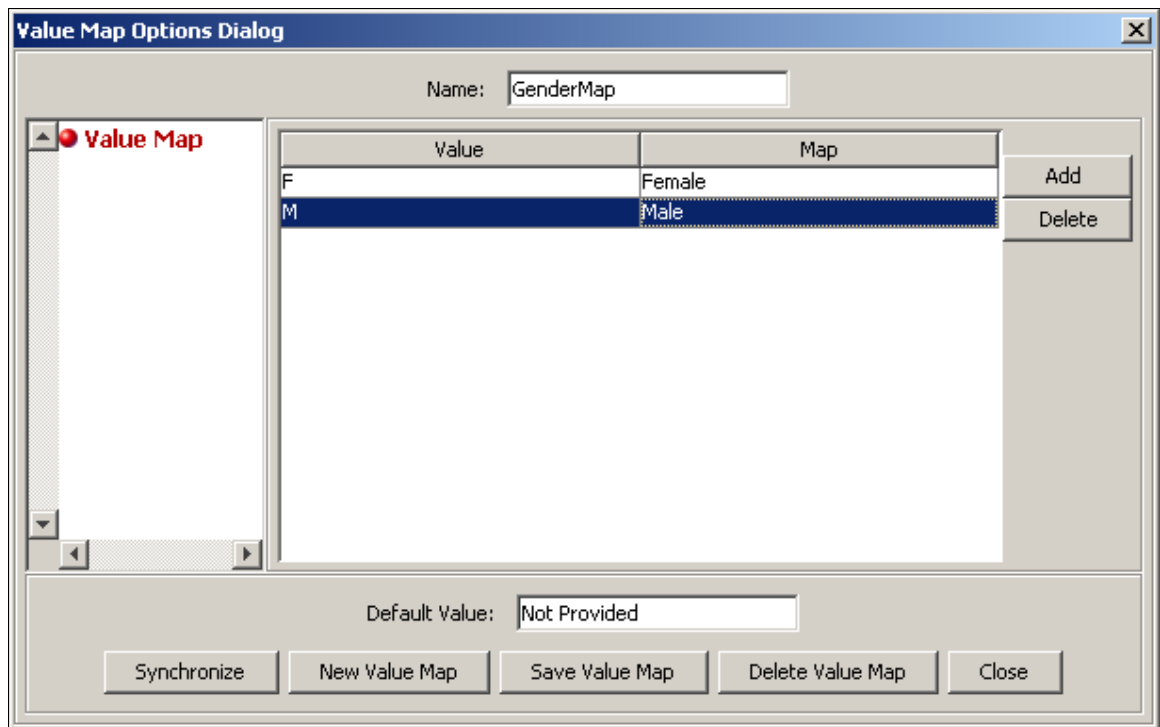


Figure 5.30: Add Value Map

8. Click the **Save Value Map** button to save the value map. This will add the newly saved value map in *Value Map* tree of *Add Value Map Options* dialog box and *Parameter Panel*. Similarly you can add more Value Map.
9. To synchronize the list of value map, click **Synchronize** button. This will list value maps created by other users.
10. Click **Close** to close the *Value Map Options Dialog* box.
11. Now to map it, select a target element, for example *Gender*. The selected target element is shown in *Mapping Graph Area*.
12. Double click on a value map you want to use, from the Value Map tree of *Parameter Panel*. For example *GenderMap*.
13. Now double click the source element. For example *EmpGender*.
14. Connect the output of the source element to input of value map and then connect the output of value map to the input of the target element.
15. Once you have performed the mapping activity, click **Apply Mapping** (✓) button to save the mapping.

### Copy/Paste Mapping

This is an additional feature of mapping elements. You can copy the mapping associated with a target element and paste it on other target elements.

#### Steps to copy the mapping of a target element

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes. Additionally, a source and target element should be mapped.
2. Right-click the target element whose mapping you want to copy and select the **Copy Mapping** option. This copies the mapping of the selected target element.

#### **Steps to paste the mapping on a target element**

3. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes. Additionally, the mapping of a target element should be copied.
4. Right-click the target element on which you want to paste the mapping and select the **Paste Mapping** option. The Paste Mapping Options screen is displayed with a list of Paste options (see Figure 5.31).

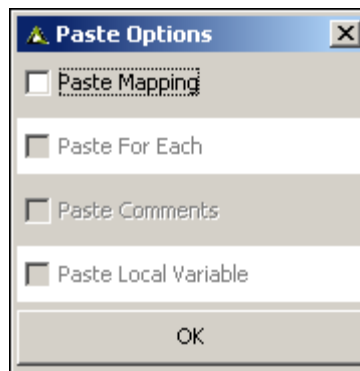


Figure 5.31: Paste Mapping Options

This screen displays a list of options that can be pasted with the mapping. It includes the *For Each* and *Comments* properties and local variables.



The **Paste Mapping** option is always enabled. The other options are enabled only if they have been defined for the copied element.

5. Select the checkbox(s) of options you want to paste with the mapping, and click **OK** button. The mapping with the selected options is pasted on the target element.



If local variables are pasted for a target element, they are not overwritten, but are added to the existing local variables of that target element.



You can also copy a mapping instance and paste it onto another instance. This is possible only if the schemas are same in both the mapping instances.

### **Mapping Functions**

You can use the mapping functions built-in the Data Mapper to map source schema elements to the target schema elements. These mapping functions are listed as:

- [Math](#)
- [String](#)
- [Date](#)
- [Aggregation](#)
- [Conditional](#)
- [Axis](#)
- [Boolean](#)
- [Context](#)
- [DB](#)

All these mapping functions comprise of sub-functions using which you can map elements.

### ***Steps to map elements using Mapping Function***

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click a target element. The target element node is displayed in the Mapping Graph Area (see Figure 5.32).

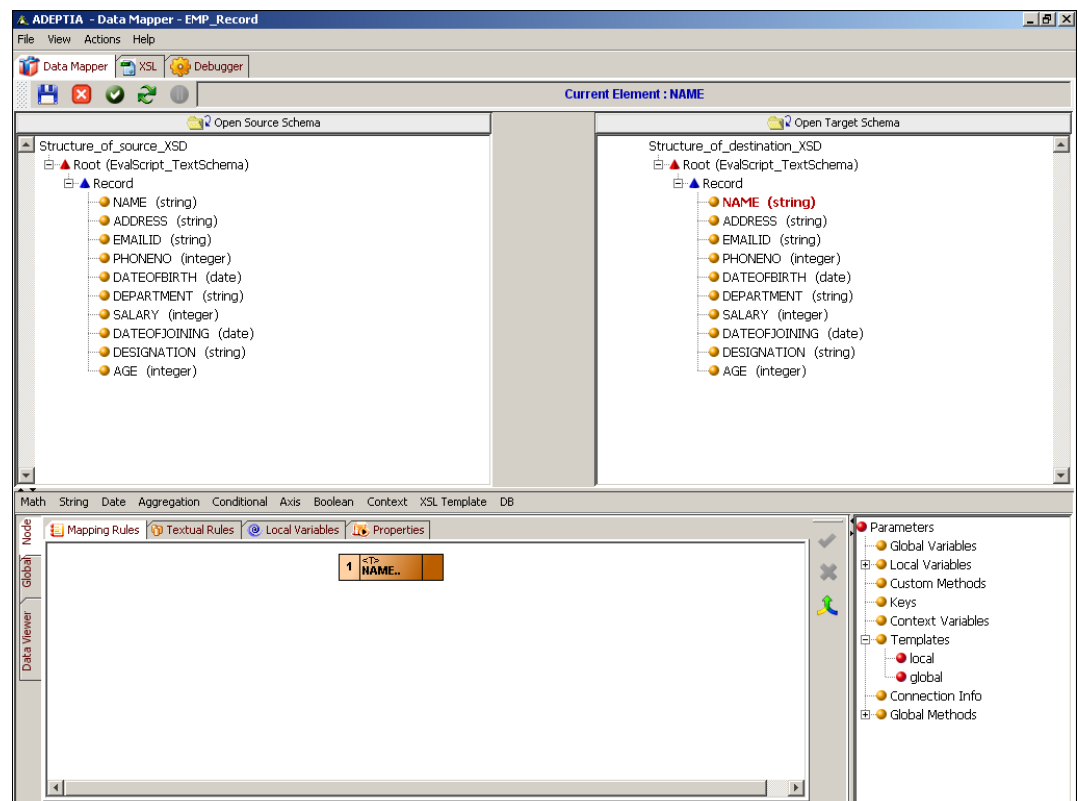


Figure 5.32: Select Target Element

- Double-click a source element. The source element is displayed in the Mapping Graph Area (see Figure 5.33).

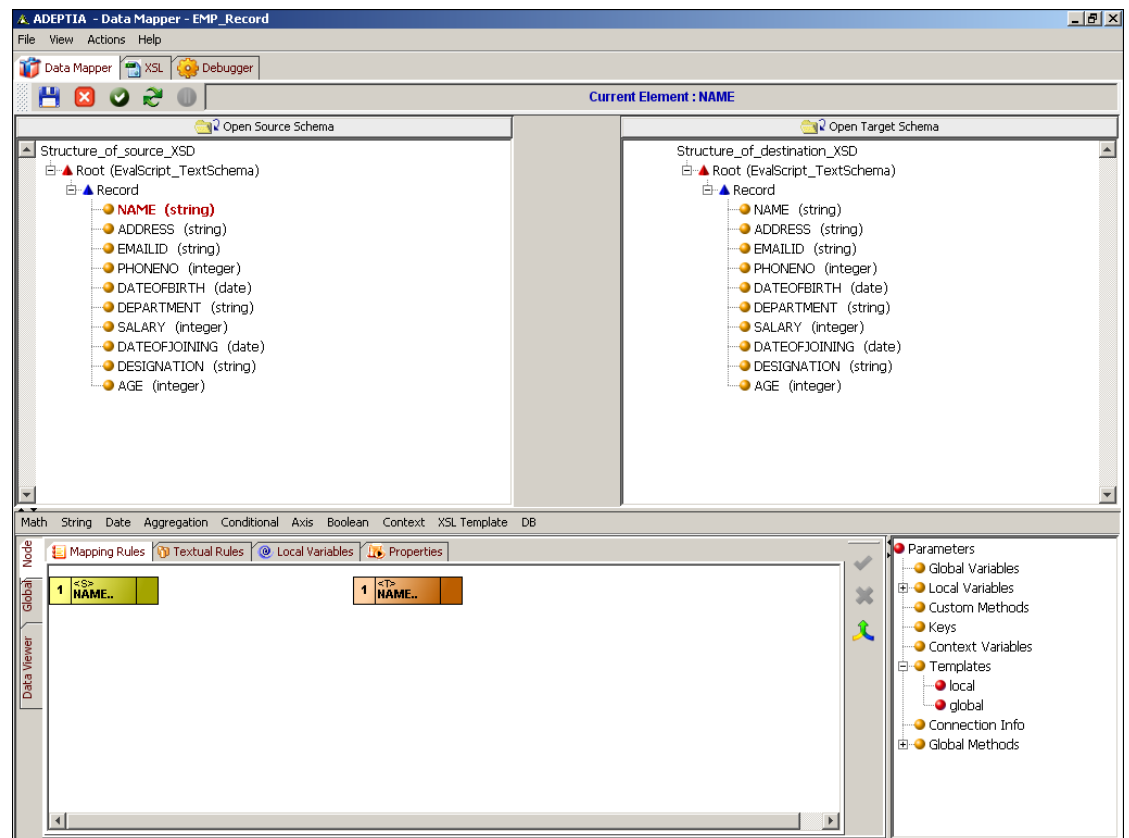


Figure 5.33: Select Source Element



You can double-click more source elements if required. This will display the selected source elements in the Mapping Graph Area (see Figure 5.34: Select Second Source Element).

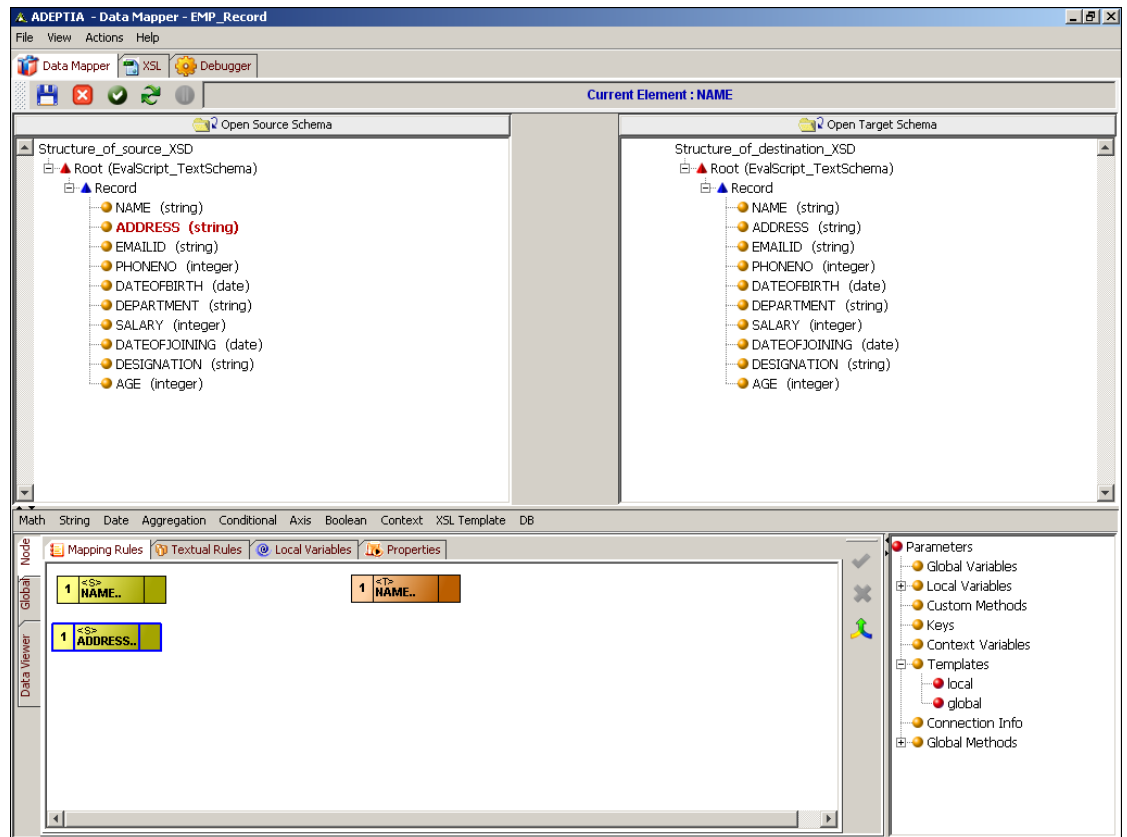


Figure 5.34: Select Second Source Element

4. Click the desired mapping function. This displays a list of sub-functions associated with the selected mapping function.
5. Select the desired sub-function and use it to map the displayed source and target elements.
6. Once you have performed the mapping activity, click **Apply Mapping** (✓) button to save the mapping.



Once you have mapped source and target elements, you can [view and validate the generated mapping XSL](#), from the Data Mapper screen. You can also [view the target XML](#) and [view and validate mapping output](#) from this screen.

For details on using these mapping functions, refer to the section [Using Mapping Functions](#).

While mapping elements, certain suffixes are displayed next to source and target elements in the Source and Target Panels. These suffixes are explained in the table below.

Table 5.8: Suffixes of Source and Target Elements

Suffix	Description
--------	-------------

(C)	Target element can be cloned to create another target element. Only a parent element can be cloned in case of a text schema.
(CM)	Comments have been added for the target element.
(F)	For Each property has been applied for the target element.
(LV)	A local variable has been declared to the target element.
(M)	Element has been mapped.
(SR)	Target Element has been sorted.
(S)	Source Element has been set as Splitter XPath. Target element has been set as Merger XPath.
(FL)	Filter has been applied on the target element.



More than one suffix can be displayed next to a source and target element.

## Save Mapping and Exit Data Mapper

Once you have mapped source and target elements, you can save the mapping and exit the Data Mapper.

### Steps to save the mapping and exit the Data Mapper



1. Click **File** menu and select **Save** to save the mapping. Alternately, you can click the **Save** () button on the toolbar. The server first validates the mapping activity. If successful, it displays a dialog box confirming that the mapping has been saved successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to the mapping. (see Figure 5.35).



Figure 5.35: Add Comments (Mapping)

2. Enter the comments in the Specify comments for mapping object (object name) field.

 The comment should be at least 1 character in length.  
If you enable/disable the *Comments* property in the middle of a mapping activity, you need to restart the mapping applet.

3. Click **OK** to save the comments. This displays a dialog box confirming that the mapping has been saved successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

4. Click **File** menu and select **Exit** to close the Data Mapper applet. A confirmation dialog box is displayed (see Figure 5.36).

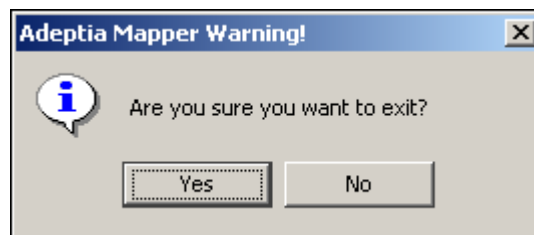


Figure 5.36: Exit from Data Mapper

5. Click **Yes** button to exit the Data Mapper screen and return to the [Manage Data Mapping](#) screen. If the mapping object has not been saved, then the Save Mapping Object dialog box is displayed (see Figure 5.37).

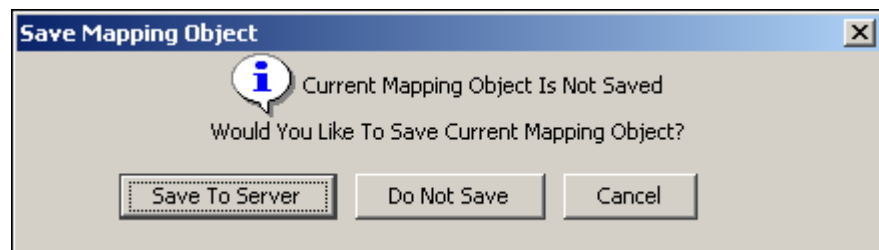




Figure 5.37: Save Mapping Object

6. Click **Save To Server** button to save the mapping object to the Adeptia Server. A screen is displayed where you need to enter comments related to the mapping. (refer to Figure 5.35).
7. Enter the comments in Specify comments for mapping object (object name) field.
8. Click **OK** to save the comments. This displays a confirmation dialog box stating that the mapping has been saved successfully. The control returns to the Manage Data Mapping screen, where a list of mapping activities is displayed.
9. Refresh the Internet browser to view the saved mapping activity.

 You can [view and validate the generated mapping XSL](#), [view the mapping XML](#) and [view and validate mapping output](#), before saving the mapping activity.

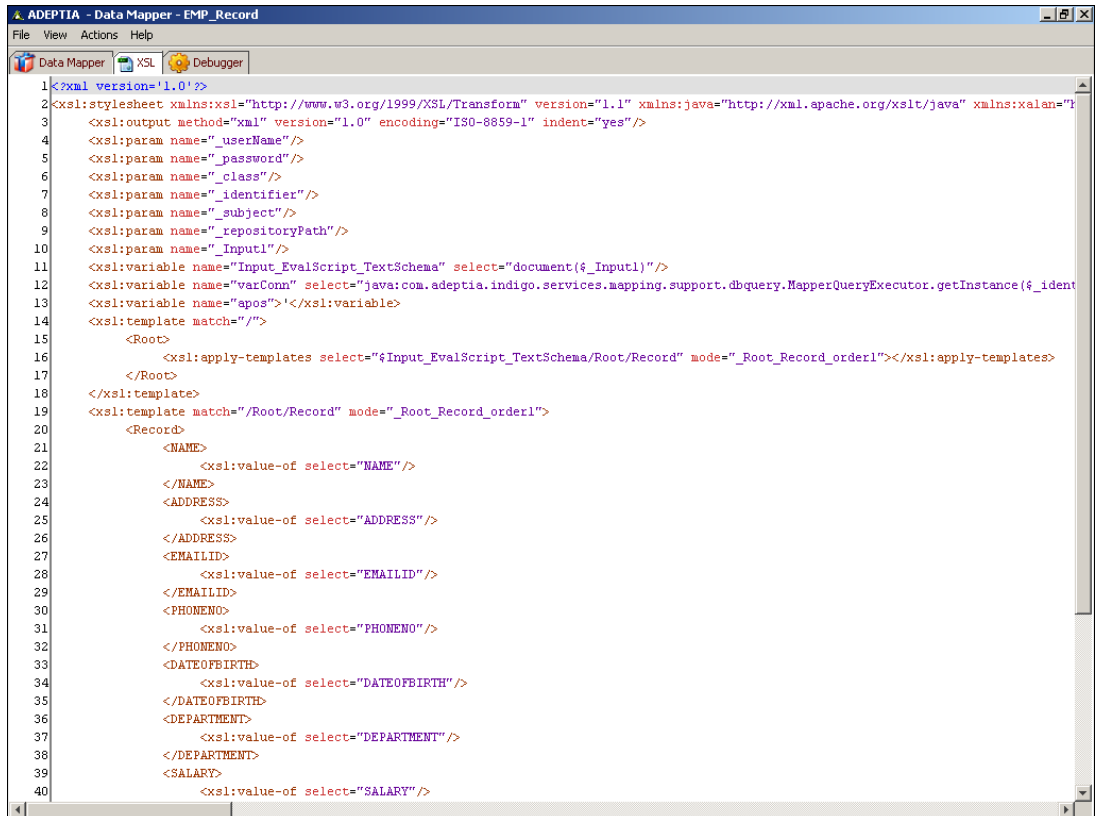
 At times, on saving a mapping activity, the memory usage may exceed its actual capacity depending on the JVM and the operating system.

## View and Validate Generated Mapping XSL

This is a very useful feature of the Data Mapper. It enables you to validate and test the generated XSL before saving the mapping activity.

### Steps to view and validate the generated mapping XSL

1. Click **XSL** tab on the Tabs Panel to view the generated mapping XSL. The generated XSL code with line numbers is displayed (see Figure 5.38).



```

1 <?xml version='1.0'?>
2 <xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="1.1" xmlns:java="http://xml.apache.org/xslt/java" xmlns:xalan="http://xml.apache.org/xalan" >
3   <xsl:output method="xml" version="1.0" encoding="ISO-8859-1" indent="yes"/>
4   <xsl:param name="_userName"/>
5   <xsl:param name="_password"/>
6   <xsl:param name="_class"/>
7   <xsl:param name="_identifier"/>
8   <xsl:param name="_subject"/>
9   <xsl:param name="_repositoryPath"/>
10  <xsl:param name="_Input1"/>
11  <xsl:variable name="Input_EvalScript_TextSchema" select="document($Input1)"/>
12  <xsl:variable name="varConn" select="java:com.adeptia.indigo.services.mapping.support.dbquery.MapperQueryExecutor.getInstance($identifier)"/>
13  <xsl:variable name="apos">'</xsl:variable>
14  <xsl:template match="/">
15    <Root>
16      <xsl:apply-templates select="$Input_EvalScript_TextSchema/Root/Record" mode="_Root_Record_order1"/></xsl:apply-templates>
17    </Root>
18  </xsl:template>
19  <xsl:template match="/Root/Record" mode="_Root_Record_order1">
20    <Record>
21      <NAME>
22        <xsl:value-of select="NAME"/>
23      </NAME>
24      <ADDRESS>
25        <xsl:value-of select="ADDRESS"/>
26      </ADDRESS>
27      <EMAILID>
28        <xsl:value-of select="EMAILID"/>
29      </EMAILID>
30      <PHONENO>
31        <xsl:value-of select="PHONENO"/>
32      </PHONENO>
33      <DATEOFBIRTH>
34        <xsl:value-of select="DATEOFBIRTH"/>
35      </DATEOFBIRTH>
36      <DEPARTMENT>
37        <xsl:value-of select="DEPARTMENT"/>
38      </DEPARTMENT>
39      <SALARY>
40        <xsl:value-of select="SALARY"/>

```

Figure 5.38: Mapping XSL

2. Click the **Action** menu and select **Validate XSL** option to validate the generated XSL. A dialog box is displayed confirming that the XSL is valid.





If generated XSL is invalid, then an error is displayed as a selected line. Error details are displayed in the XSL Errors Pane. It displays one error at a time.

3. Click **OK** button to close the above dialog box.



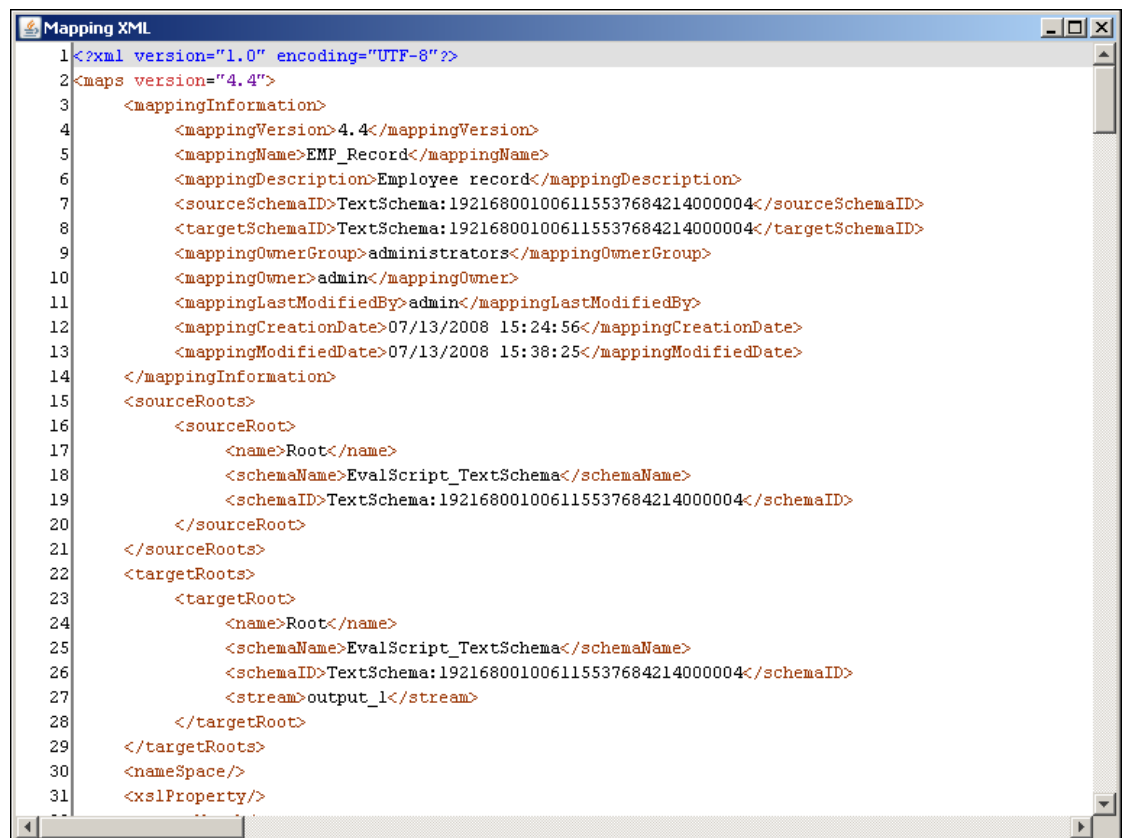
You can also validate the generated XSL from the Create Data Mapping screen. For more details, refer to the section [Splitting Source Data](#).

## View Mapping XML

The Data Mapper allows you to view the generated XML code, before saving the mapping activity.

### Steps to view Mapping XML

1. Click the **View** menu and select **View Mapping XML** option. This displays the generated XML code with line numbers, in read-only mode (see Figure 5.39).



```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <maps version="4.4">
3   <mappingInformation>
4     <mappingVersion>4.4</mappingVersion>
5     <mappingName>EMP_Record</mappingName>
6     <mappingDescription>Employee record</mappingDescription>
7     <sourceSchemaID>TextSchema:192168001006115537684214000004</sourceSchemaID>
8     <targetSchemaID>TextSchema:192168001006115537684214000004</targetSchemaID>
9     <mappingOwnerGroup>administrators</mappingOwnerGroup>
10    <mappingOwner>admin</mappingOwner>
11    <mappingLastModifiedBy>admin</mappingLastModifiedBy>
12    <mappingCreationDate>07/13/2008 15:24:56</mappingCreationDate>
13    <mappingModifiedDate>07/13/2008 15:38:25</mappingModifiedDate>
14  </mappingInformation>
15  <sourceRoots>
16    <sourceRoot>
17      <name>Root</name>
18      <schemaName>EvalScript_TextSchema</schemaName>
19      <schemaID>TextSchema:192168001006115537684214000004</schemaID>
20    </sourceRoot>
21  </sourceRoots>
22  <targetRoots>
23    <targetRoot>
24      <name>Root</name>
25      <schemaName>EvalScript_TextSchema</schemaName>
26      <schemaID>TextSchema:192168001006115537684214000004</schemaID>
27      <stream>output_1</stream>
28    </targetRoot>
29  </targetRoots>
30  <nameSpace/>
31  <xslProperty/>

```

Figure 5.39: View Mapping XML

## View and Validate Mapping Output

Once you have mapped source and target schema elements, you can view and validate the output of the mapping activity. This feature enables you to test the data and make modifications to the mapping activity, before saving it.

### Steps to view and validate mapping output

1. Click **Debugger** tab on the tabs panel to view and validate the output of the mapping activity. The Debugger is displayed on the Data Mapper screen (see Figure 5.40).

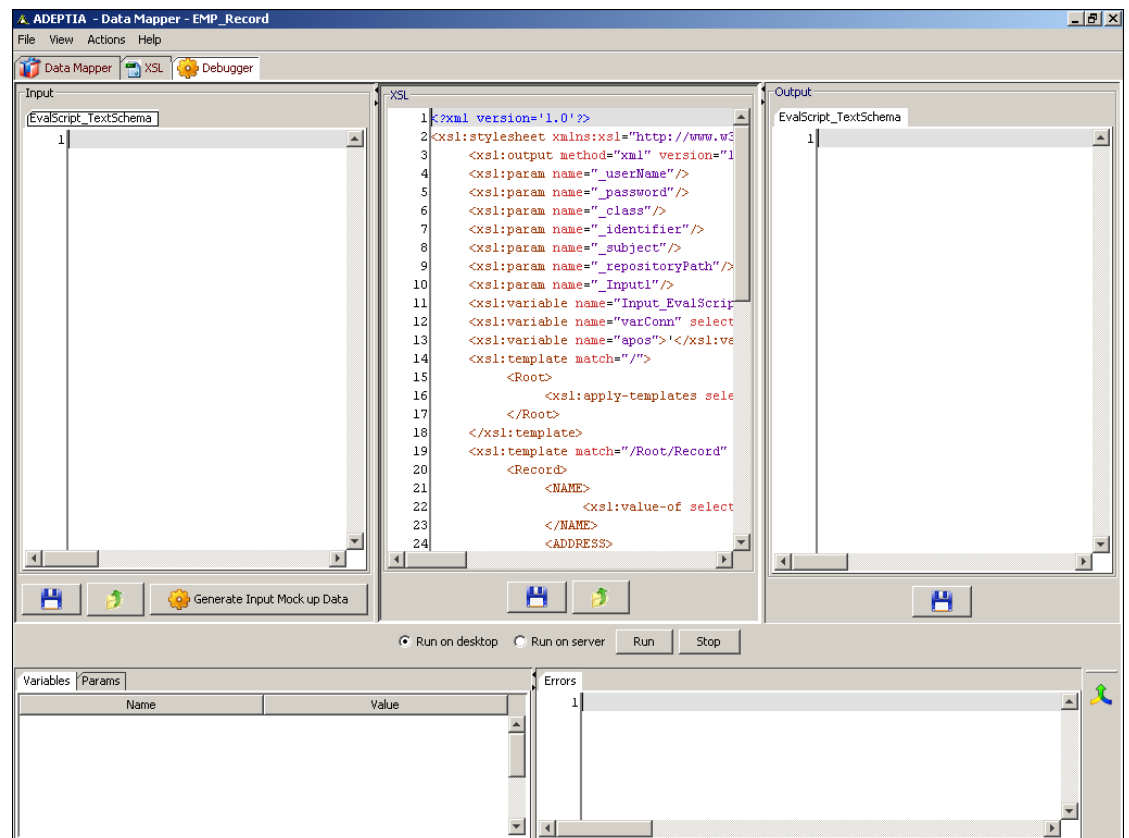


Figure 5.40: Debugger screen

This screen is divided into five sections as listed in the table below.

Table 5.9 : Options of the Debugger Screen

Section	Description
Input	Displays data for all input schemas in XML format. This data can be mockup data or a selected XML file.
XSL	Displays the generated XSL. You can generate sample output data based on the input data.
Output	Displays the generated output data for all schemas.
Variables/ Params	This section comprises of two tabs: Variables Params

	<p>The Variables tab displays the local variables that are encountered in the generated XSL.</p> <p>The Params tab displays all parameters that are defined for a XSL template. These parameters are displayed only if that XSL template is used in the mapping activity.</p>
Errors	Displays all errors encountered during debugging.

- Click **Generate Input Mock up Data** button displayed in the *Input* section, to generate the sample input data in XML format. The sample input data contains name of the element as XML Tags and some randomly generated values as their data. The sample input XML file is displayed in the *Input* section (see Figure 5.41).

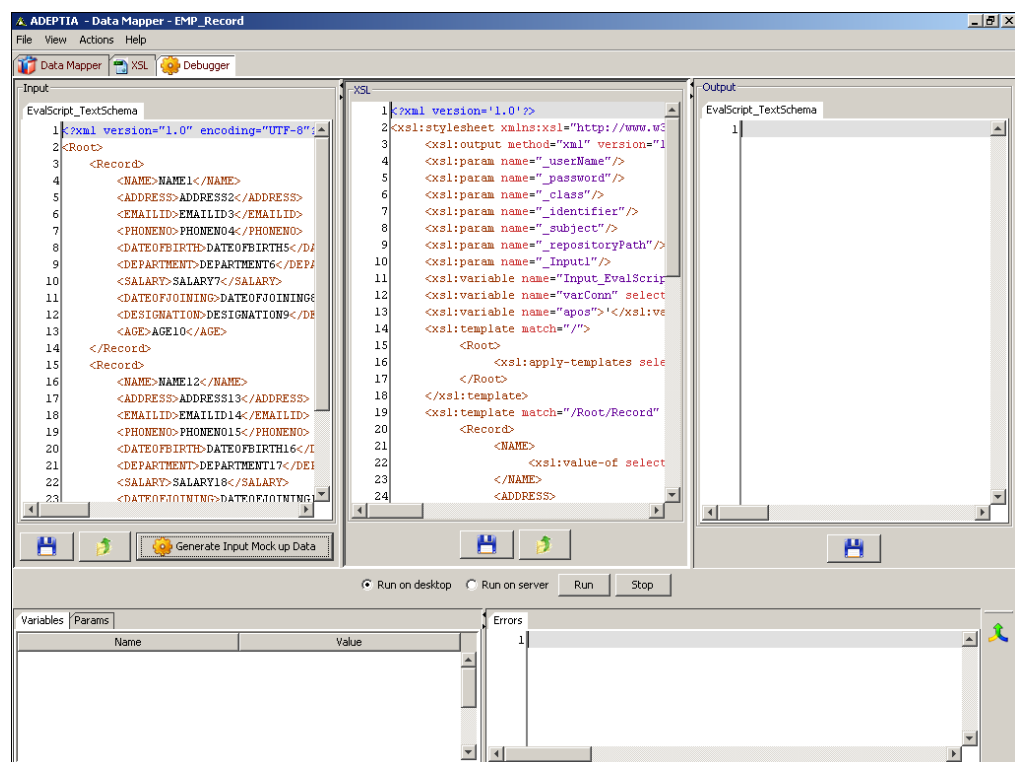





Figure 5.41: Generate Mockup Data

 Data will be generated for all input schemas.

- Alternately, you can display input data from an existing XML file. Click **Load Input XML** button () displayed in the *Input* section to select and upload the existing XML file.

 Another way of uploading the XML file is right-clicking the *Input* section and clicking the **Load** option.  
If you load an XML file, then the existing XML code is overwritten. It is not

appended.

4. Click **Save** button () displayed in the Input section to save the generated input data.



You can simulate the mapping either on the desktop or on the server. By default, simulation is done on the desktop. Simulating on the server supports global functions, custom methods, Context Variable, Set Context, Get Context and the DBlookup () functions. However, it can be used only in case of mapping of single source and target elements.

While simulating on the server using context variables, if you assign a value to the context variable using the Set Context function and retrieve its value using the Get Context function, it will return the default value of the context variable, instead of the new value assigned. For example, a context variable 'Var1' has the default value as 10 and is later assigned the value of 20 by Set Context function. When the Get Context function is used to retrieve the value of the variable, it returns 10 instead of 20.

5. Click the *Run on Server* radio button if you want to simulate the mapping activity on the server.
6. Click **Run** button displayed in the XSL section to generate sample output data based on input data. The generated sample output data is displayed in the Output section (see Figure 5.42).

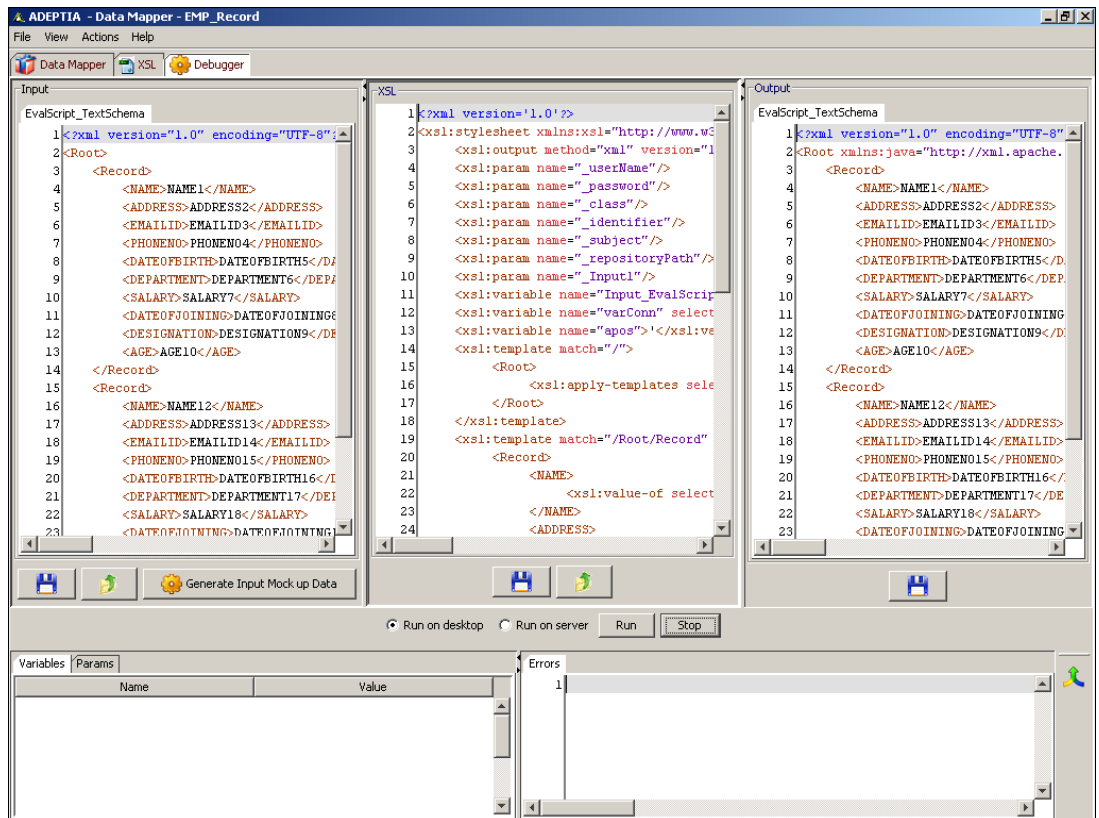




Figure 5.42: Output XSL



You can stop the generation of output data at any time by clicking the **Stop** button displayed in the XSL section.

In case XML Schema is used at target end, then unmapped elements are filtered out automatically.

7. Click **Save** button () displayed in the Output section to save the generated mapping output.
8. A dialog box is displayed using which you can save the XML file at the desired location.

## Using Data Viewer

Data Viewer is an advanced feature of Data Mapper which is used to view actual input and output data after applying mapping rules. In data viewer you can upload actual input file and view the actual output. If there are any error record, those are also shown in the data viewer. Data Viewer also validates the enumerated values and displays the list of enumerated literals for the target element incase XML Schema is used at target.

Data Viewer is helpful incase you want to know what will the output of the mapper. In this case you need not to execute the process flow. You can simply upload the source file and view input and output record.

In data viewer, records are displayed in Grid View as well as Tree View. Table 5.10 lists the schemas, whose records can be displayed in data viewer.

Table 5.10: List of schema whose records can be shown in Data Viewer

Schema	Tree View	Grid View
Adv. Text Schema	√	X
Excel Schema	√	√
Hierarchical Excel Schema	√	X
Text Schema	√	√
XML Schema	√	X
Adv. Positional Schema	√	X
Positional Schema	√	√

#### **Steps to use Data Viewer**

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Map source and target elements and apply the mapping rule as per your need.
3. To use Data Viewer, click **Data Viewer** tab. The **Data Viewer** panel is displayed (see Figure 5.43 ).

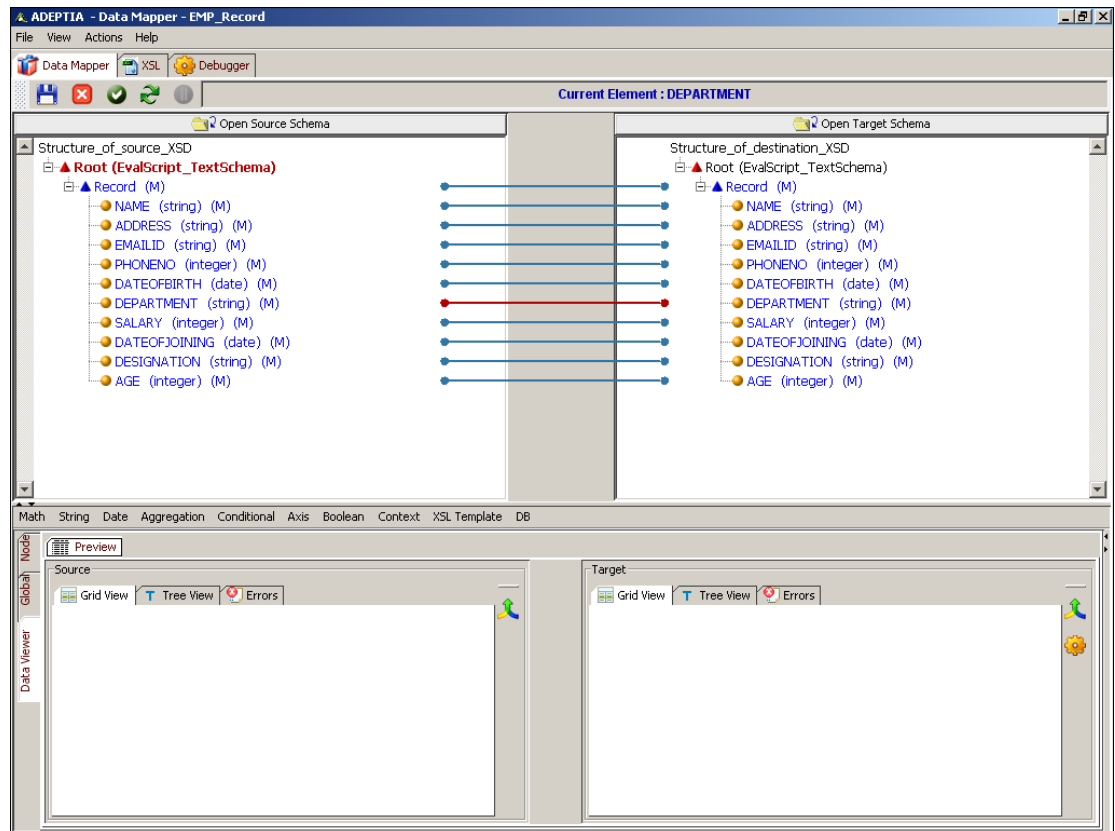


Figure 5.43: Data Viewer

4. To attach the source file, right click the *Root* element in the *Source Panel* and select *Attach Source* option and select the source file (see Figure 5.44).

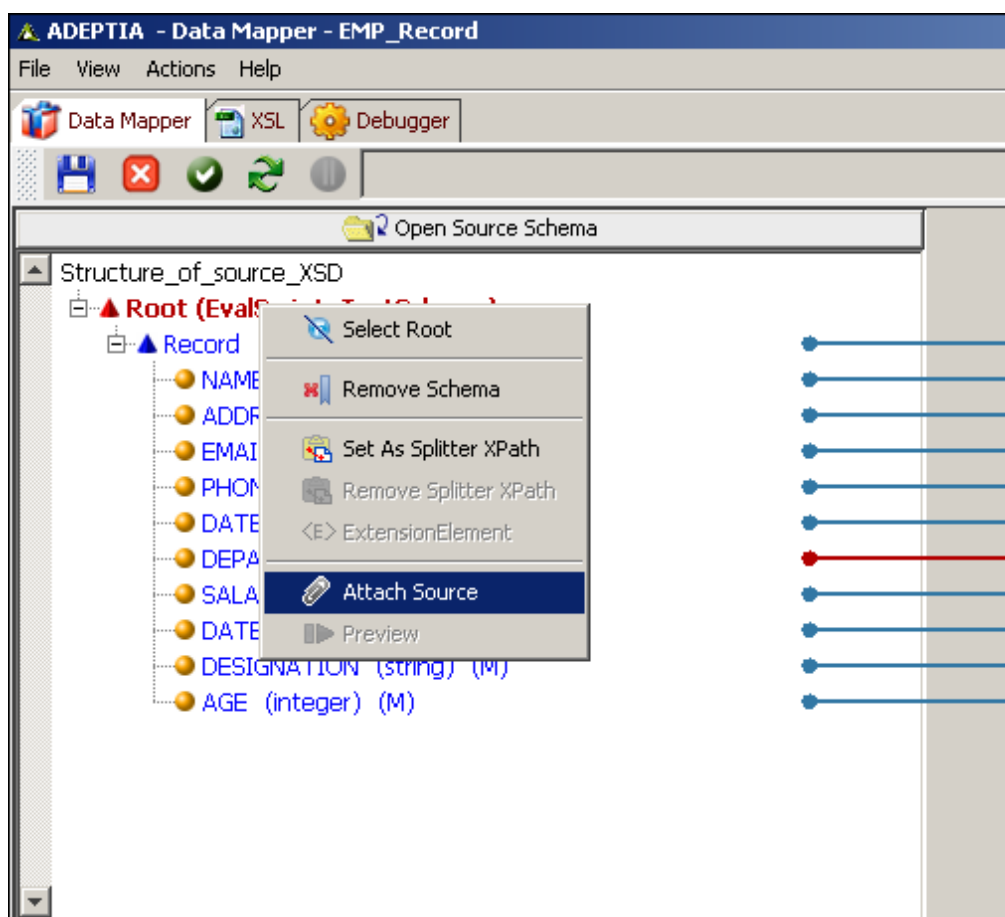


Figure 5.44: Attach Source

5. After selecting the source file, again right click the *Root* element in source panel and select *Preview*. Source Data is displayed in the *Grid View* panel (see Figure 5.45).



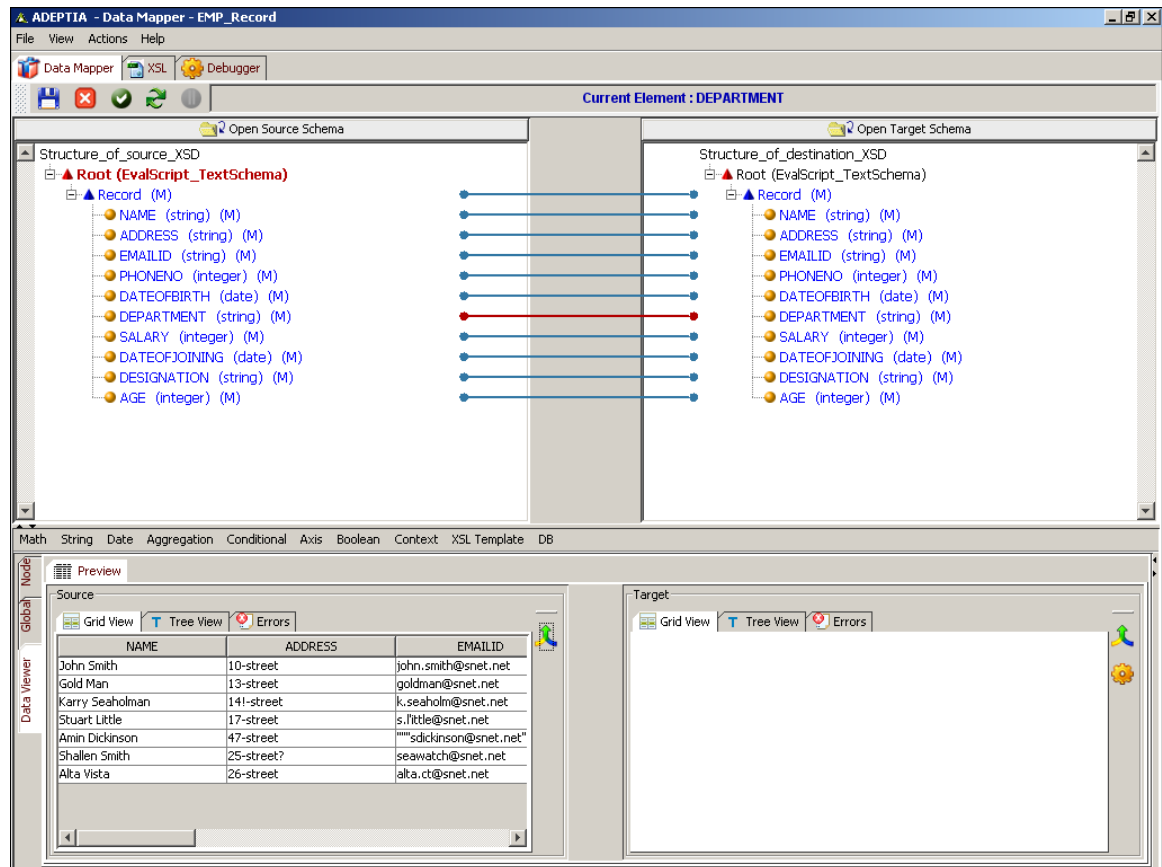


Figure 5.45: Source records in Grid View

By default maximum 50 records are displayed in the Data Viewer. To view more records, click *Action* menu and select *Set Data Viewer Record Count* and enter the desired value. When you change this value, you need re-attach the source.

- If there is any error record in the source file, a pop-up message is displayed that "Error Records found in the source data." (see Figure 5.46).

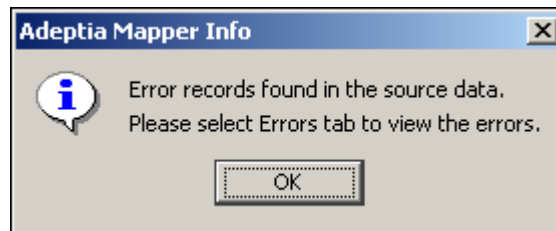


Figure 5.46: Pop-up message

- Click **OK** to close this pop-up message.
- To view the source data in *Tree View*, click the *Tree View* tab. The source data is selected in the tree view (see Figure 5.47).

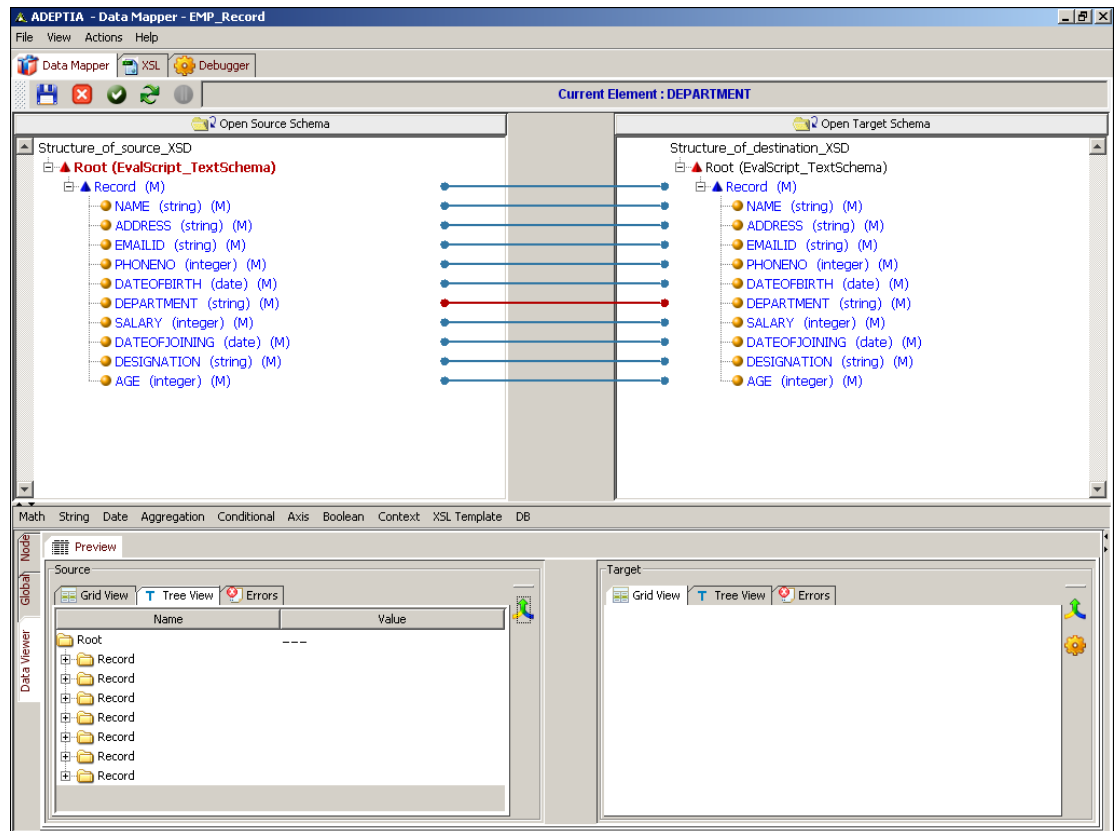


Figure 5.47: Tree View

9. To view the values of the record, click **+** to expand the *Record*. Values of the expanded record are shown (see Figure 5.48).

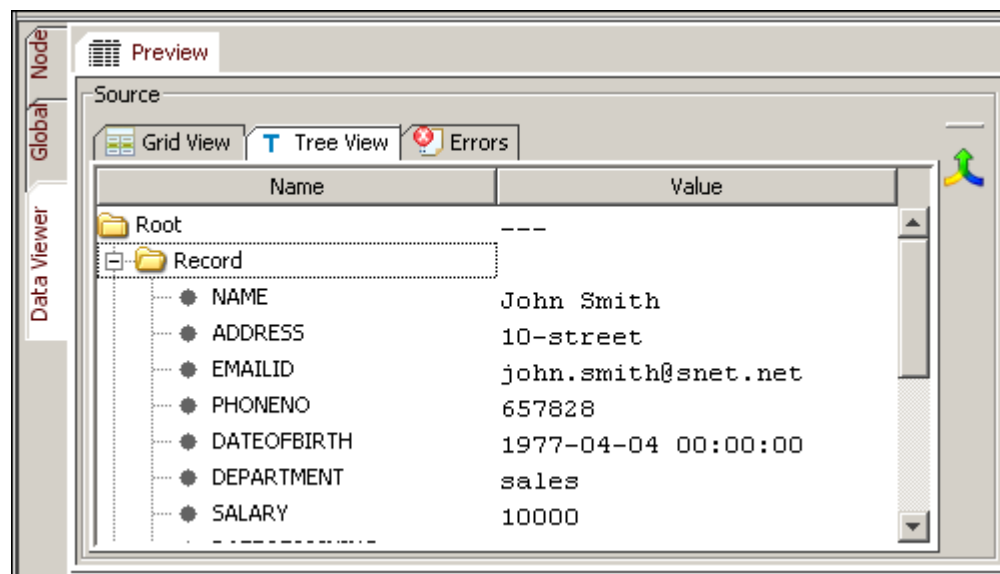


Figure 5.48: Records in Tree View

10. Similarly to view values of other record, expand other records.
11. If there is any error encountered in the source data, those error records are shown in the *Errors* tab. To view the error records, click **Errors** tab(see Figure 5.49).

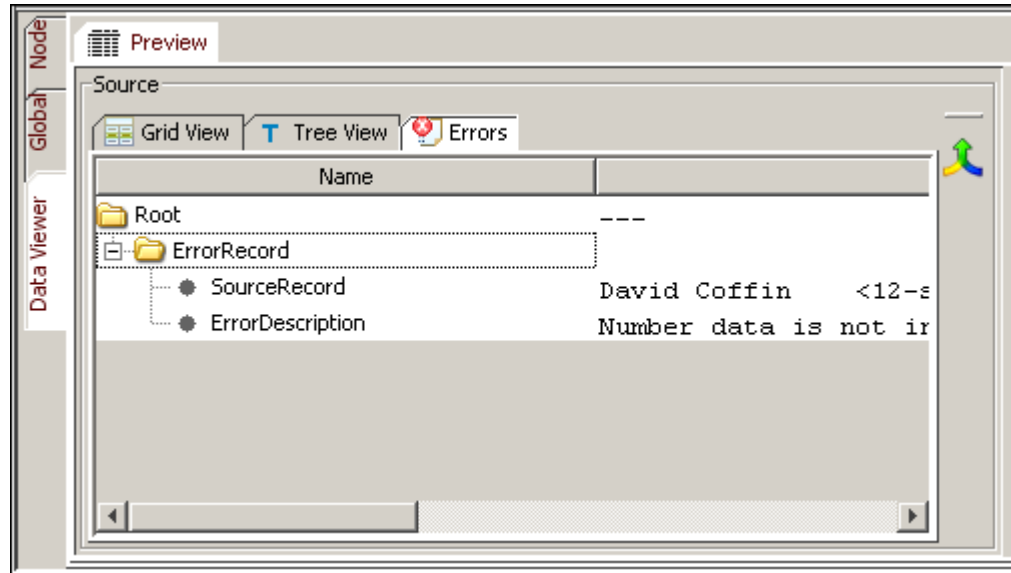


Figure 5.49: Error Record

12. To view the output record, right click the *Root* element of the target panel and select *Preview* option. The generated output records are displayed in the *Target* panel of *Preview* pane (see Figure 5.50).

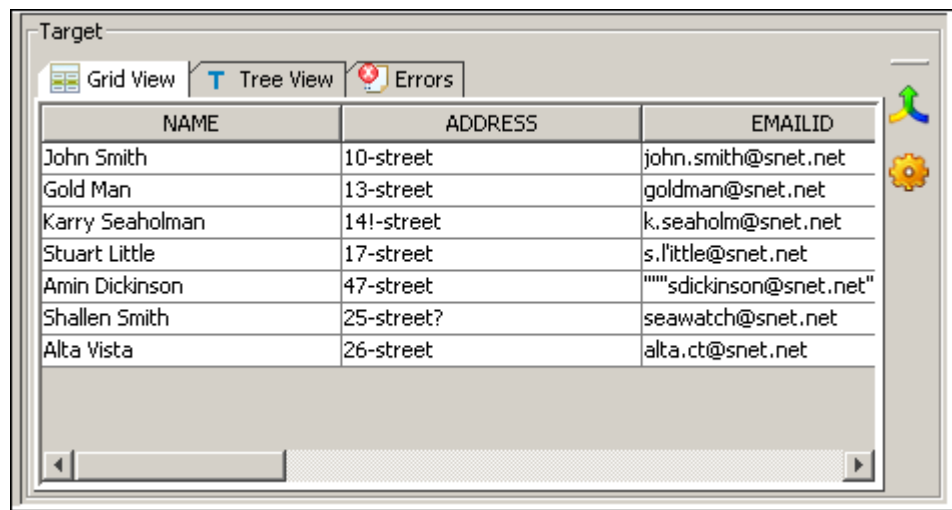



Figure 5.50: Target Records in Grid View




In case XML Schema is used at target end, then unmapped elements are filtered out automatically.

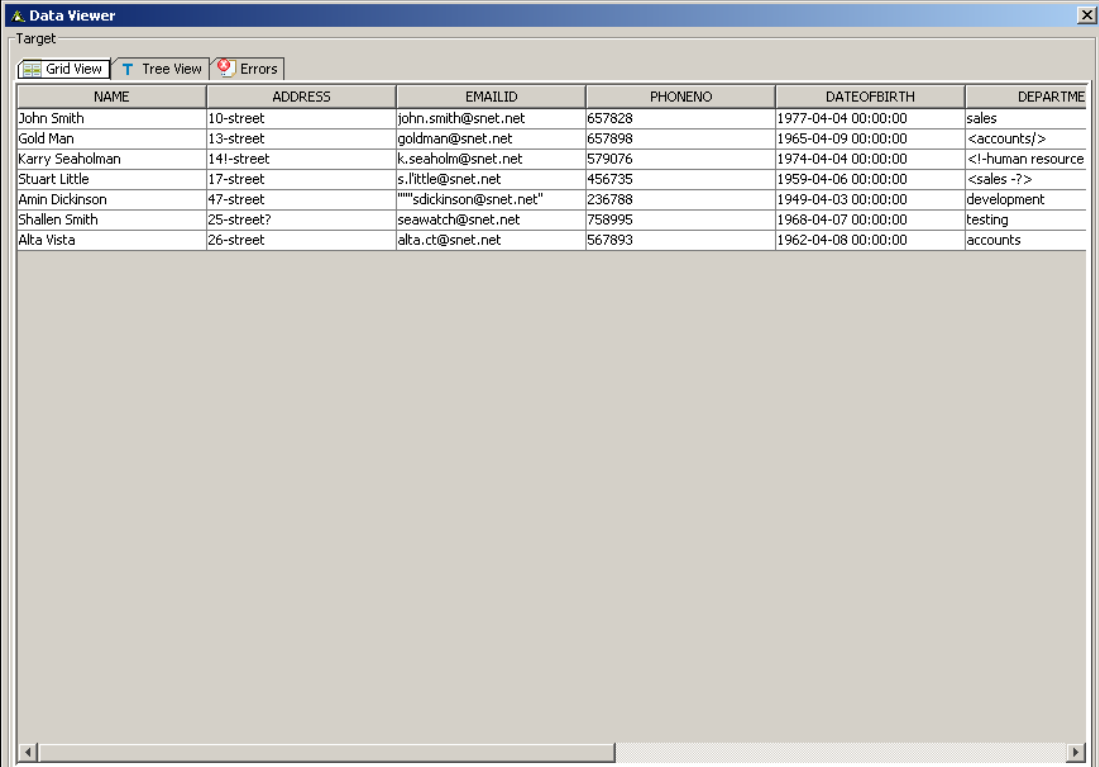
13. To view the error records at the target end, click *Errors* tab of target panel of Data Viewer. It displays:

- The number of errors occurred during transformation.
- The list of errors occurred during transformation.
- List of enumerated literals for the target element if invalid data is mapped to the target element which is restricted to the enumerated values.

14. In case you do any changes in mapping rules, you need to click  to refresh the target data according to mapping rules applied.

15. You can also view the output data in tree view, by clicking the *Tree View* tab.

16. To expand the **Source** or **Target** panel, click . The **Source** or **Target** panel is shown in the expanded (see Figure 5.51).



NAME	ADDRESS	EMAILID	PHONENO	DATEOFBIRTH	DEPARTME
John Smith	10-street	john.smith@snet.net	657828	1977-04-04 00:00:00	sales
Gold Man	13-street	goldman@snet.net	657898	1965-04-09 00:00:00	<accounts/>
Karry Seaholman	14!-street	k.seaholm@snet.net	579076	1974-04-04 00:00:00	<!-human resource
Stuart Little	17-street	s.little@snet.net	456735	1959-04-06 00:00:00	<sales -?>
Amin Dickinson	47-street	""sdickinson@snet.net"	236788	1949-04-03 00:00:00	development
Shallen Smith	25-street?	seawatch@snet.net	758995	1968-04-07 00:00:00	testing
Alta Vista	26-street	alta.ct@snet.net	567893	1962-04-08 00:00:00	accounts

Figure 5.51: Target Panel in expanded mode

17. To close the expanded **Source** or **Target** panel, click .

## Viewing Mapping in PDF format

### *Steps to view mapping activity in PDF format*

1. Click **[+] Automate** to expand the tree and then click **[+] Data Transform**. All the items in the Data Transform category are displayed.
2. Click **Data Mapping**. The Manage Data Mapping screen is displayed (refer to Figure 5.1).
3. Click the radio button against the mapping activity whose PDF details you want to view. This selects the mapping activity and activates the *PDF View* link. Clicking this link displays a PDF file with all information associated with the mapping activity.
4. This file displays divides the mapping information into various pages. The first page contains mapping information such as mapping name, description; creation details and the group owner (see Figure 5.52).

Adeptia Mapping Information Document	
Mapping Name	EMP_Record
Mapping Description	Employee record
Creation Date	07/13/2008 15:24:56
Last Modified On	07/13/2008 15:38:25
Created By	admin
Last Modified By	admin
Group Owner	administrators

Figure 5.52: Mapping Information Document

5. The next page displays all source and target schema information (see Figure 5.53).

Schema Information

Source Schemas			
Schema Name	Schema ID	Schema Root	
EvalScript_TextSchema	TextSchema:192168001006115537684214000004	Root	

Target Schemas			
Schema Name	Schema ID	Schema Root	Stream Name
EvalScript_TextSchema	TextSchema:192168001006115537684214000004	Root	output_1

Figure 5.53: Schema Information

- The next page displays all other mapping information such as XSL templates used, variables defined, properties, keys, and sorting rules (see Figure 5.54).

Global Variables

Variable Name	Value
var2	50

Custom Methods

Alias Name	Class Name	Method Name	Paramaters
java	class1	add	02

Mapping Information

TARGET NAME	TARGET FIELD	MAPPING FIELD	FOR EACH	SORTING RULES		COMMENTS	LOCAL VARIABLES	
				SourceData ElemenType	Order		Variable Name	Value
EvalScript_TextSchema	/Root/Record/NAME	\$input_EvalScript_TextSchema/Root/Record/NAME						
EvalScript_TextSchema	/Root/Record/ADDRESS	\$input_EvalScript_TextSchema/Root/Record/ADDRESS						
EvalScript_TextSchema	/Root/Record/EMAILID	\$input_EvalScript_TextSchema/Root/Record/EMAILID						
EvalScript_TextSchema	/Root/Record/PHONE NO	\$input_EvalScript_TextSchema/Root/Record/PHONE NO						
EvalScript_TextSchema	/Root/Record/DATE OF BIRTH	\$input_EvalScript_TextSchema/Root/Record/DATE OF BIRTH						
EvalScript_TextSchema	/Root/Record/DEPARTMENT	\$input_EvalScript_TextSchema/Root/Record/DEPARTMENT						
EvalScript_TextSchema	/Root/Record/SALARY	\$input_EvalScript_TextSchema/Root/Record/SALARY						
EvalScript_TextSchema	/Root/Record/DATE OF JOINING	\$input_EvalScript_TextSchema/Root/Record/DATE OF JOINING						
EvalScript_TextSchema	/Root/Record/DESIGNATION	\$input_EvalScript_TextSchema/Root/Record/DESIGNATION						
EvalScript_TextSchema	/Root/Record/AGE	\$input_EvalScript_TextSchema/Root/Record/AGE						
EvalScript_TextSchema	/Root/Record	\$input_EvalScript_TextSchema/Root/Record						

Figure 5.54: Detailed Mapping Information

## View Mapping in Read-Only Mode

If you have read-only rights, you can still view a mapping activity. You can view the applied mapping, create new mapping rules, edit existing mapping rules and run simulation. However, you cannot save the mapping activity.

### Steps to view mapping in read-only mode

1. Click **[+] Automate** to expand the tree and then click **[+] Data Transform**. All the items in the Data Transform category are displayed.
2. Click **Data Mapping**. The Manage Data Mapping screen is displayed (refer to Figure 5.1 ).
3. Click the mapping activity that you want to view in read-only mode. The View Data Mapping screen is displayed (see Figure 5.55).

View Data Mapping 'EMP_Record'	
Properties	Value
Description	Employee record
Source Schema	EvalScript_TextSchema(TextSchema:192168001006115537684214000004)
Target Schema	EvalScript_TextSchema(TextSchema:192168001006115537684214000004)
Splitting Data	No
Optimized Loading	No
PDF File Name	Adp_Map_Rules46988.pdf
Character Set Encoding	ISO-8859-1
Mapping XSL	<pre>&lt;?xml version="1.0"?&gt; &lt;xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="1.1" xmlns:java="http://xml.apache.org/xslt/java" xmlns:xalan="http://xml.apache.org/xalan" xmlns:str="http://exslt.org/strings" xmlns:redirect="org.apache.xalan.xslt.extensions.Redirect" extension-element- prefixes="redirect" &gt;</pre>
Mapping XML	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;maps version="4.4"&gt;   &lt;mappingInformation&gt;     &lt;mappingVersion&gt;4.4&lt;/mappingVersion&gt;     &lt;mappingName&gt;EMP_Record&lt;/mappingName&gt;     &lt;mappingDescription&gt;Employee record&lt;/mappingDescription&gt;</pre>
Entity Id	192168001240121594370904600001
Owner	admin
Owner's Group	administrators
Creation Date	07/13/2008 15:38:28
Last Modified Date	07/13/2008 16:01:42
Last Modified By	admin
Permissions	Owner(R,W,X) Group(R,X)
Maximum Concurrent Processors	1
Parallel processing	No
Data Action	No Action
Transformer Type	Xalan
<span>Data Mapper</span> <span>Close</span>	

Figure 5.55: View Data Mapping

4. Click **Data Mapper** button. This displays the selected mapping activity in the Data Mapper applet in read-only mode (see Figure 5.56).

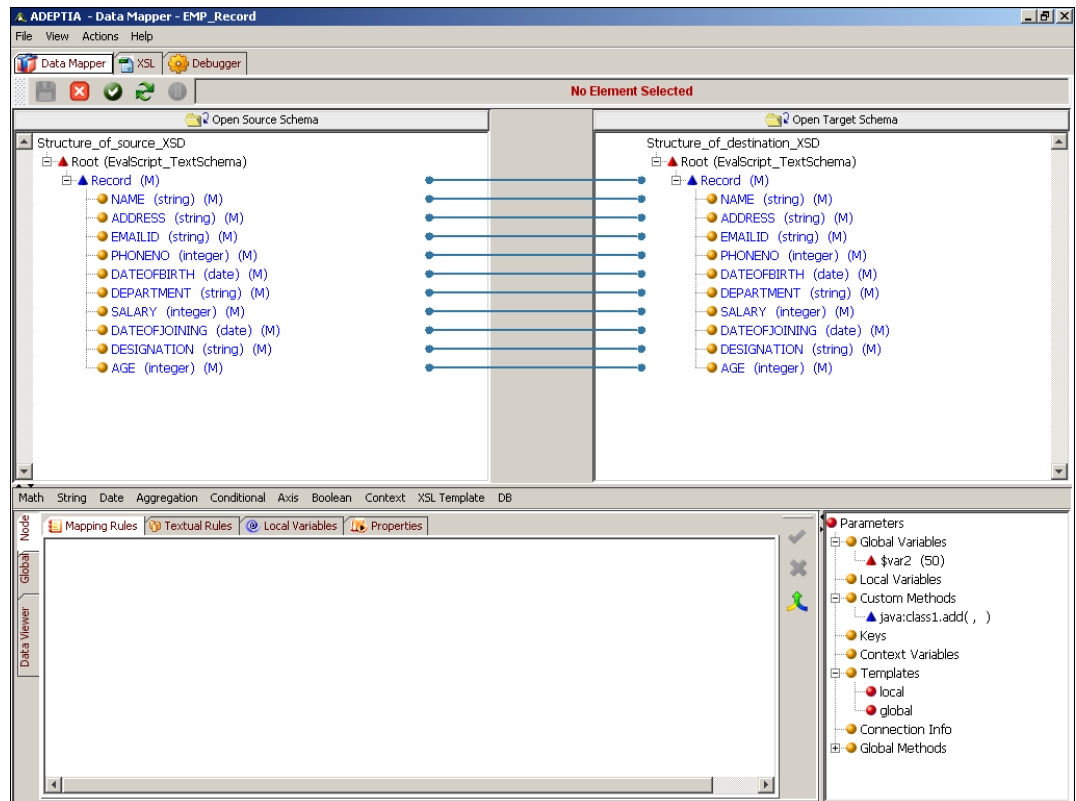



Figure 5.56: Data Mapper in Read-Only Mode



In the read-only mode all save options in the Data Mapper are disabled.

5. You can edit this mapping activity, by adding new mapping rules, or modifying existing ones. Additionally, you can also run simulation on this mapping.
6. Once you have made all changes, if you try and save the modified mapping, you will not be able to save it, as all save options are disabled in read-only mode. The **Save** () icon and the **Save** option in the **File** menu are disabled. Additionally, after making the changes, if you close the Data Mapper applet, then the pop-up to save the mapping activity before exiting, will not appear.

## Splitting Source Data

Splitting feature enables you to process large files. You must use splitting if your source file is huge. If you do not use splitting in this case, then Data Mapper may not be able to map it. If the data in the source file is huge, you can split the source data into different chunks. You can specify the size of the chunks in terms of the number of records or data streams. In the output, however, only one file is generated at the location specified in the target activity.

### Steps to split the source data



1. Click **[+] Advanced Properties** on the Create Data Mapping screen to expand the advanced properties of the new Mapping activity (see Figure 5.57).

DataTransform > Data Mapping

[-] **Standard properties**

Name \*

Description \*

Data Mapper

[-] **Advanced properties**

Splitting Data

☐

Split Number of Records

500

Parallel processing

☐

Maximum Concurrent Processors

1

Owner \*

John (John) ▼

Permissions \*

	Read	Write	Execute
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Group	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Mapping XSL \*

Mapping XML \*

\* Mandatory fields.

Save

Cancel

Figure 5.57: Advanced Properties

2. Select the *Splitting Data* checkbox to enable the splitting of data.



If you select this checkbox, then it is necessary to [set the Splitter XPath](#) in the Data Mapper applet. Else, the splitting will fail at runtime. However, it is not necessary to select this checkbox for splitting data. You can set the Splitter XPath even without selecting this checkbox.

3. Enter the number of records into which you want to split the data, in the *Split Number of Records* field. For example, if you have a source file of 100,000 records and you want split this file into records of 10,000 each, then you need to enter 10,000 in this field.
4. Select the *Parallel Processing* checkbox to parallel process these records. By default, records are processed sequentially.
5. Enter the number of records you want to process concurrently, in the *Maximum Concurrent Processes* field. By default, value of 1 is entered.



It is advised to change this value, if *Parallel Processing* is selected. Else, the records will be processed at one time only and hence sequentially.

6. Select the owner from the *Owner* drop-down list. By default, *Administrator* is selected.
7. Select the *Read*, *Write* and *Execute* checkboxes to set permissions for the Owner, Group or Other entities. By default, permissions are selected for the Owner and Group entities.
8. If mapping has been saved in the Data Mapper applet, then the XSL code is displayed in *Mapping XSL* field. This is a very useful feature. You can enter new XSL code or edit existing code to test or debug the mapping. If you save these changes, then they are reflected in the applet. For example, if you need to change the value of a constant, you can change it from this screen itself, instead of the applet. Additionally, any modifications made in the Mapping XSL code in the Data Mapper applet, will overwrite the XSL code in this field.



If the Advanced Properties and the Data Mapper screens are open simultaneously, then the changes made in the Mapping XSL field in the Advanced Properties screen will not be reflected in the Data Mapper screen.

9. The mapping XML code is displayed in *Mapping XML* field. You can enter new code or edit existing code. If you save these changes, they will be reflected in the applet.
10. Click **Save** to save the splitting details. A screen is displayed where you need to enter comments related to the splitting done. (refer to Figure 5.35).
11. Enter the comments in the *Add Comments* field.
12. Click **OK** to save the comments. This displays a screen confirming that the mapping transformation activity has been updated successfully.

## Set Splitter XPath

To split data you need to set the Splitter XPath on the source tree. The data is split and sent to the transformer which executes the split data. You can set the Splitter XPath in case of a single source schema only. You can also set multiple Splitter XPaths in a source schema.

The following example explains the use of multiple XPath splitting:

```
Root
|
|- R1
|   |-R1C1
|   |-R1C2
|- R2
|   |-R2C1
|   |-R2C2
```

In this scenario we have **Root** element as the Root for schema. It has two child elements **R1** and **R2** at the first level. R1 element has two children **R1C1** and **R1C2**. **R2** element has two children **R2C1** and **R2C2**.

If in the source xml, there are multiple occurrences for **R1** and **R2** elements, then we need to set split XPath on both **R1** and **R2** elements. If we set split XPath on **R1** element only then the Data Mapper will assume that **R2** has only one occurrence and vice versa. Similarly, if child elements **R1C1**, **R1C2**, **R2C1** and **R2C2** have multiple occurrences, then also **R1** and **R2** should be set as split XPath. Thus the thumb rule is that the top most node which is repeating, should be set as splitter XPath.

Once splitter XPath is defined, during execution, mapping will split the source tree using each splitter XPath and each chunk will have records specified by *Split Number of Records*.

In this scenario, when we set **R1** and **R2** as split XPath then *Split Number of Records* property is applied for both **R1** and **R2**. For example if the value of *Split Number of Records* property is 500 then 500 records of **R1** and 500 records of **R2** are selected.

Splitting data and setting Splitter XPath is very effective when the source data is very large. You can set the Splitter XPath in case of a single source and target schema. You can also set multiple Splitter XPaths in a source and target schema.



It is advised to always split the file and set the Splitter XPath if the file size is greater than 50 MB. This enhances the performance and increases data reliability, as in some cases such execution of large data can fail and generate errors.

### Steps to set Splitter XPath

1. Ensure that all the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.

2. Right-click the source schema element that you want to split and select the **Set as Splitter XPath** option. A screen showing the Splitter XPath details is displayed (see Figure 5.58).

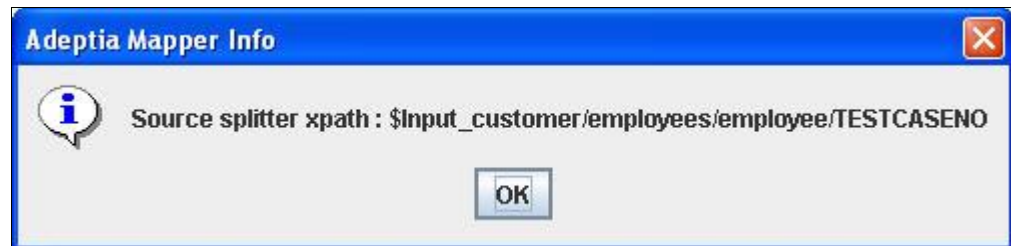




Figure 5.58: Splitter XPath Details

	Splitting can be set only on root or record levels. You cannot split on an element level.
---	---

3. Click **OK**. This splits and sets the Splitter XPath on the selected source element.

	Once a Splitter XPath is set for a source element, the letter <b>(S)</b> is displayed next to that source element. This signifies that the source element has been split and the Splitter XPath has been set. Refer to <a href="#">Table of Suffixes</a> for details on suffixes displayed next to an element.
---	--

Once you have set a Splitter XPath, you can view it in the Output XML.

### **Steps to view Splitter XPath**

1. Click **View** menu and select **View Mapping XML**. The Mapping XML window is displayed. The Splitter XPath details are displayed with a \$Input tag prefixed to Source XPath code (see Figure 5.59).

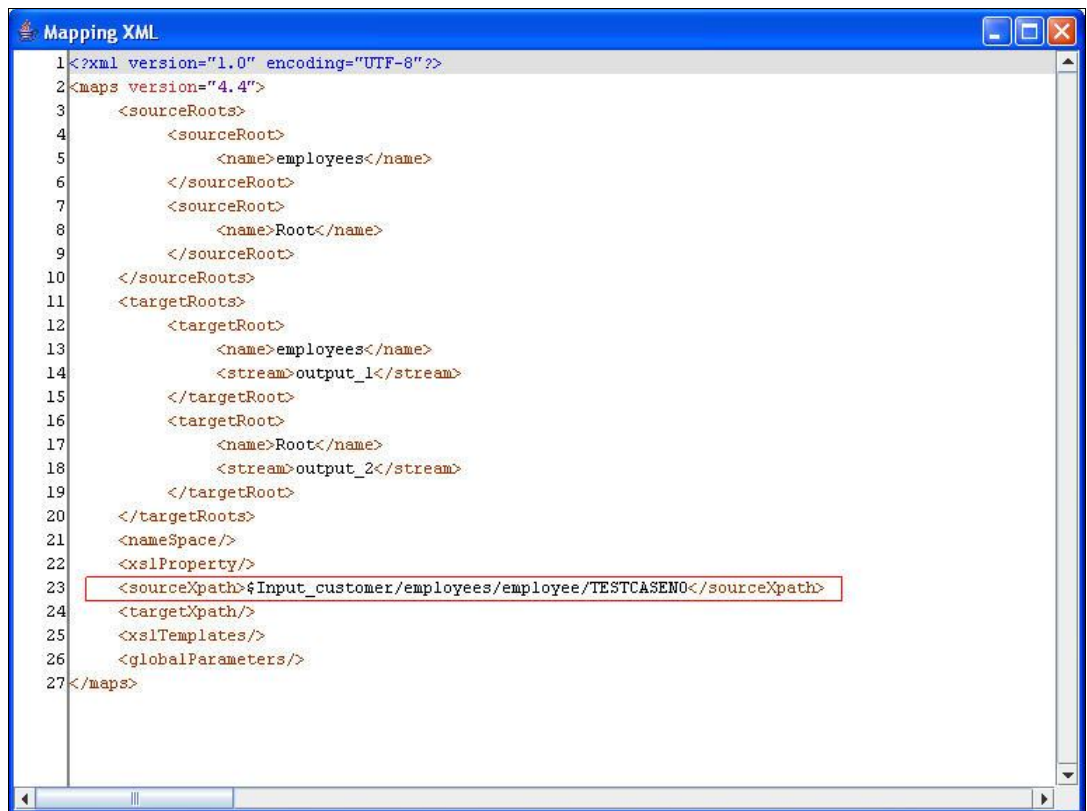


Figure 5.59: Splitter XPath in Mapping XML

You can remove a Splitter XPath that has been set for a source element.

#### Steps to remove Splitter XPath

1. Right-click the source schema element whose Splitter XPath you want to remove and select the **Remove Splitter XPath** option. A screen showing the Splitter XPath details is displayed (see Figure 5.60).

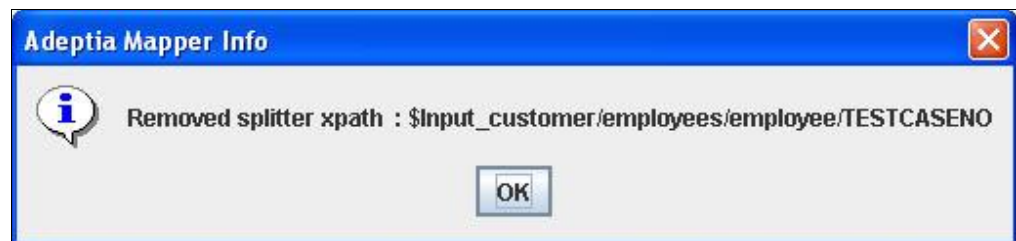


Figure 5.60: Remove Splitter XPath Details

2. Click OK. This removes the Splitter XPath set on the selected source element.

## Set Merger XPath

Once you have split the source data by setting the Splitter XPath on a source element, you need to merge the split data at the target end. For this, you need to set the Merger XPath on a target element.

Setting the Merger XPath is largely dependent upon the Splitter XPath. You need to ensure that the number of Splitter XPaths and the Merger XPaths at the source and target schemas respectively are the same.

### Steps to set Merger XPath

1. Ensure that all the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Ensure that a Splitter XPath has been set for a source schema element.
3. Right-click the target schema element on which you want to merge the split data and select the **Set as Merger XPath** option. A screen showing the Merger XPath details is displayed (see Figure 5.61).

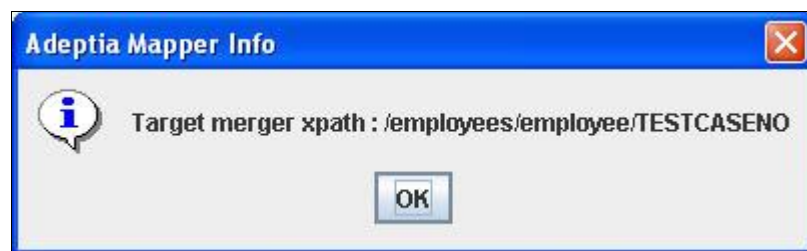


Figure 5.61: Merger XPath Details



Merging can be set only on root or record levels. You cannot merge on an element level.

4. Click **OK**. This merges the split data and sets the Merger XPath on the selected target element.



Once a Merger XPath is set for a target element, the letter **(S)** is displayed next to that target element. This signifies that the split data has been merged on the target element and the Merger XPath has been set. Refer to [Table of Suffixes](#) for details on suffixes displayed next to an element.



You can view Merger XPath details in the output XML. A \$ input tag is prefixed to the line containing the Splitter XPath details.

Once you have set a Merger XPath, you can view it in the Output XML.

### Steps to view Merger XPath

1. Click **View** menu and select **View Mapping XML**. The Mapping XML window is displayed. The Merger XPath details are displayed with *Target* XPath code (refer to Figure 5.59).

You can remove a Merger XPath that has been set for a target element.

### Steps to remove Merger XPath

1. Right-click the target schema element whose Merger XPath you want to remove and select the **Remove Merger XPath** option. A screen showing the Merger XPath details is displayed (see Figure 5.62).

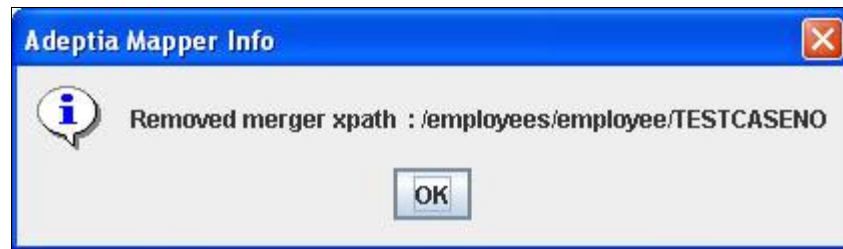


Figure 5.62: Remove Merger XPath Details

2. Click **OK**. This removes the Merger XPath set on the selected target element.

## Assign Data Streams

When mapping multiple source and target schema elements, you need to assign streams to the root element of the target schema structures.

### Steps to assign data streams

1. Ensure that all the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Right-click the root element of a target schema structure and select the **Assign Stream** option. The Assign Streams dialog box is displayed (see Figure 5.63).

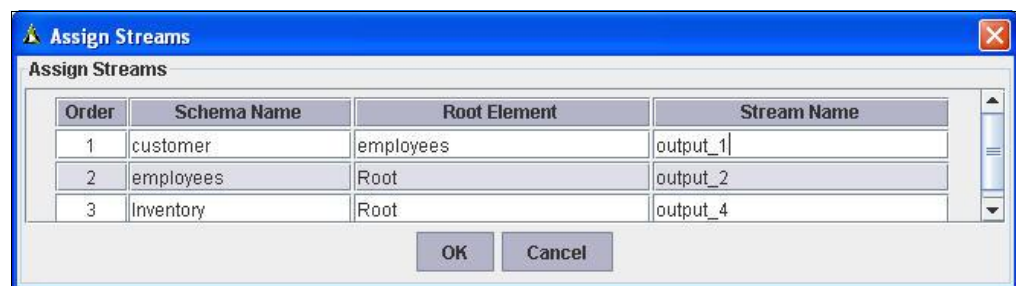


Figure 5.63: Assign Streams


This dialog box contains the fields listed in the table below. All fields are populated with values.


Table 5.11: Fields of Assign Streams Screen

Field	Description
-------	-------------




Order	Represents the order of occurrence of target schema in the Data Mapper. This field is a read-only field and is automatically populated with value.
Schema Name	Represents the name of the schema which includes the root to which the stream is to be assigned. This field is a read-only field and is automatically populated with value.
Root Element	Represents the root element to which the stream is to be assigned. This field is a read-only field and is automatically populated with value.
Stream Name	Represents the name of the stream to be assigned. This field is automatically populated with value, but is an editable field.

 The root elements, occurrence order and default stream names of all the loaded target schemas are listed in the Assign Streams dialog box. You can edit the stream name.

 It is important to note that the order of streams and the stream names, listed in the Assign Streams dialog box (Mapping) and the Multiple Streams defined in Process Designer should be the same. If you edit a stream name of a mapping activity or add or delete a stream or schema after the activity has already been used in the Process Designer, then you need to update it manually in the Process Designer (Create Multiple Streams section). To know how to use multiple stream in Process Designer, refer to the section Creating Multiple Stream.

3. Enter the name of the data stream(s) that you want to edit, for the target element(s), in the *Stream Name* field.

 The name of the data stream does not accept special characters and white spaces.

4. Click **OK** to assign the stream(s), else click **Cancel**.

## Remove Mapping of an Element

You can remove mapping associated with a particular element.

### **Steps to remove mapping of a particular element**

1. Ensure that all the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Right-click the target element whose mapping you want to remove and select the **Remove Mappings** option. The Remove Options screen is displayed (see Figure 5.64).

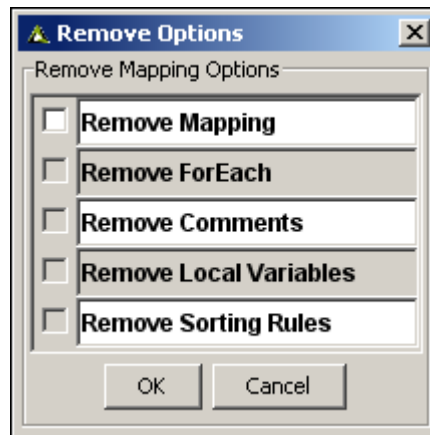



Figure 5.64: Remove Options (Particular Element)

This screen displays a list of properties and variables associated with the selected element that can be removed with the mapping.

 Only the *Remove Mapping* is displayed as always enabled. The other options are enabled only if they have been defined for the particular element.

3. Select the checkbox(s) of the options that you want to remove and click OK button. All the selected options and mapping associated with the particular element will be removed.

## Using Mapping Functions

You can map source and target schema elements using the various mapping functions built-in the Data Mapper. All these mapping functions comprise of sub-functions, which are used to map elements.

Some mapping functions require use of constant values for mapping elements. For this, you need to add the constant node to the Mapping Graph Area.

### ***Adding a Constant***

#### ***Steps to add a Constant***

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Ensure that the [source and target elements to be mapped are selected and displayed](#) in the Mapping Graph Area.
3. Right-click the blank space in the Mapping Graph Area and select the **Constants** option. A Constant node is displayed in the Mapping Graph Area (see Figure 5.65).

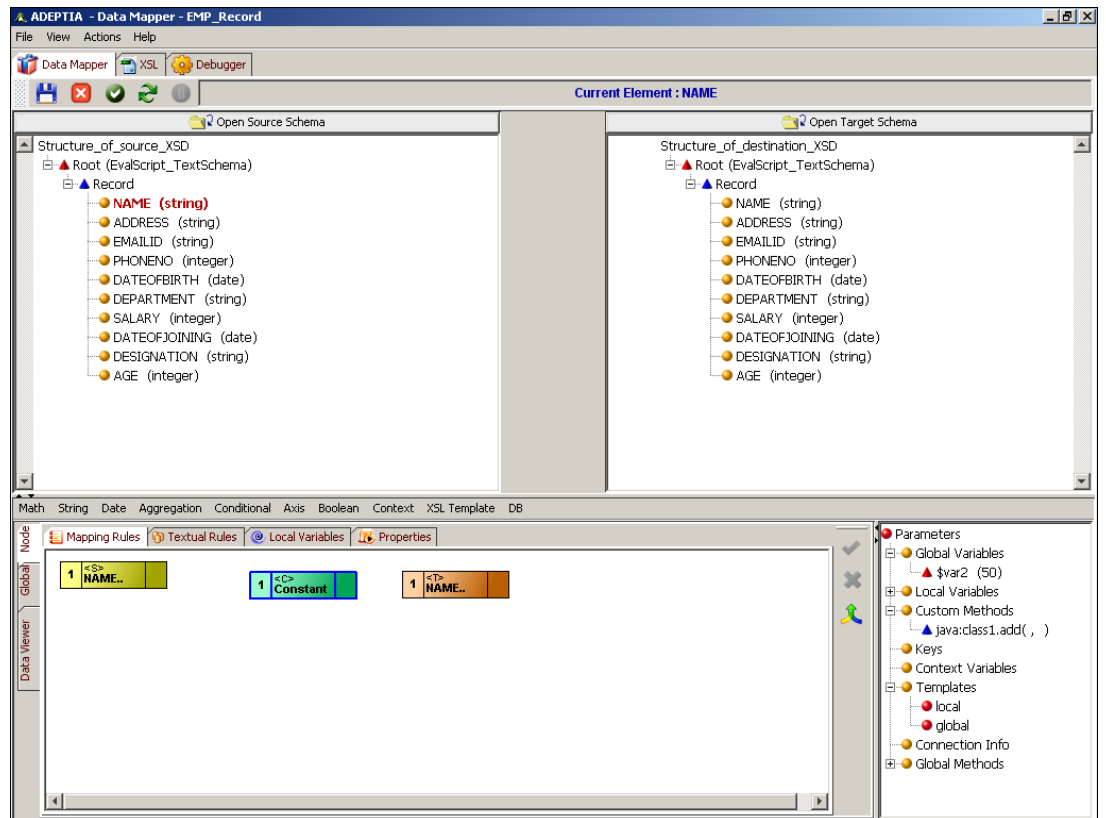


Figure 5.65: Add a Constant Node

4. Double-click the **Constant** node. The Input dialog box is displayed (see Figure 5.66).

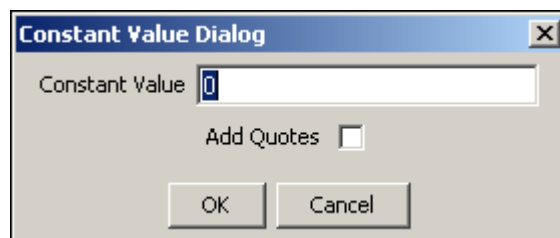


Figure 5.66: Enter Constant Value

5. Enter the desired constant value in the *Constant Value* field.
6. Mark the *Add Quotes* checkbox as checked, if you want to define the constant as a string. Else, the constant is defined as numeric data. By default, this checkbox is unchecked, implying that a constant is defined as a number. However, you can change the constant to string datatype by checking this checkbox anytime.



If the constant is defined as a string data type, then Apposetrophy (') symbol is supported. Additionally, you can enter constants as an input for Select query too.

You can also define an element name as a constant, and leave the *Add Quotes* checkbox as unchecked. This will generate a valid XSL.

7. Click **OK** button. This displays the entered value in the *Constant* node in the Mapping Graph Area.

### Using Math Function

The Math mapping function enables you to map elements by performing simple mathematic operations. It comprises of various sub-functions, which are listed in the table below.

Table 5.12: Sub-Functions of Math Mapping Function

Mapping Function	Sub Functions	Description	Example
Math	Add	Adds two numeric elements.	(10) + (5) returns 15
	Ceiling	Rounds a passed number to the smallest integer that is greater than or equal to the passed number.	Ceiling (33.9) returns 34
	Division	Divides two numeric elements.	(100) div (5) returns 20
	Floor	Rounds a passed number to the largest integer that is not larger than the passed number.	floor (33.9) returns 33
	Mod	Returns the remainder of a division between two numeric values.	(50) mod (3) returns 2
	Multiply	Multiplies two numeric elements.	(10) * (5) returns 50
	Round	Rounds a passed number to the nearest integer.	round (4.6) returns 5
	Subtract	Subtracts one numeric value from other.	(10) - (5) returns 5
	Number	Converts parameter to a number.	number ("17.3") returns 17.3
	Format-number	Transforms input data into a specific format. The specific formats allowed are decimals (upto 2 places) and %. This function can be used only if the target node is of string data type.	format-number (12.5, '\$#.00') returns \$12.50

You can use the required sub-function of Math mapping function to map elements. The process of using the Math function is the same for all its sub-functions. Thus, the mapping process using one sub- function is outlined below.

### Steps to map elements using the 'Division' Math Mapping Function

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Ensure that the [source and target elements to be mapped are selected and displayed](#) in the Mapping Graph Area.
3. You need to [add a constant value](#) for using this function. Once it is added, a *Constant* node with its value is displayed in Mapping Graph Area.
4. Click **Math** function menu and select the **Division** sub-function. A *div* node is displayed in the Mapping Graph Area (see Figure 5.67).

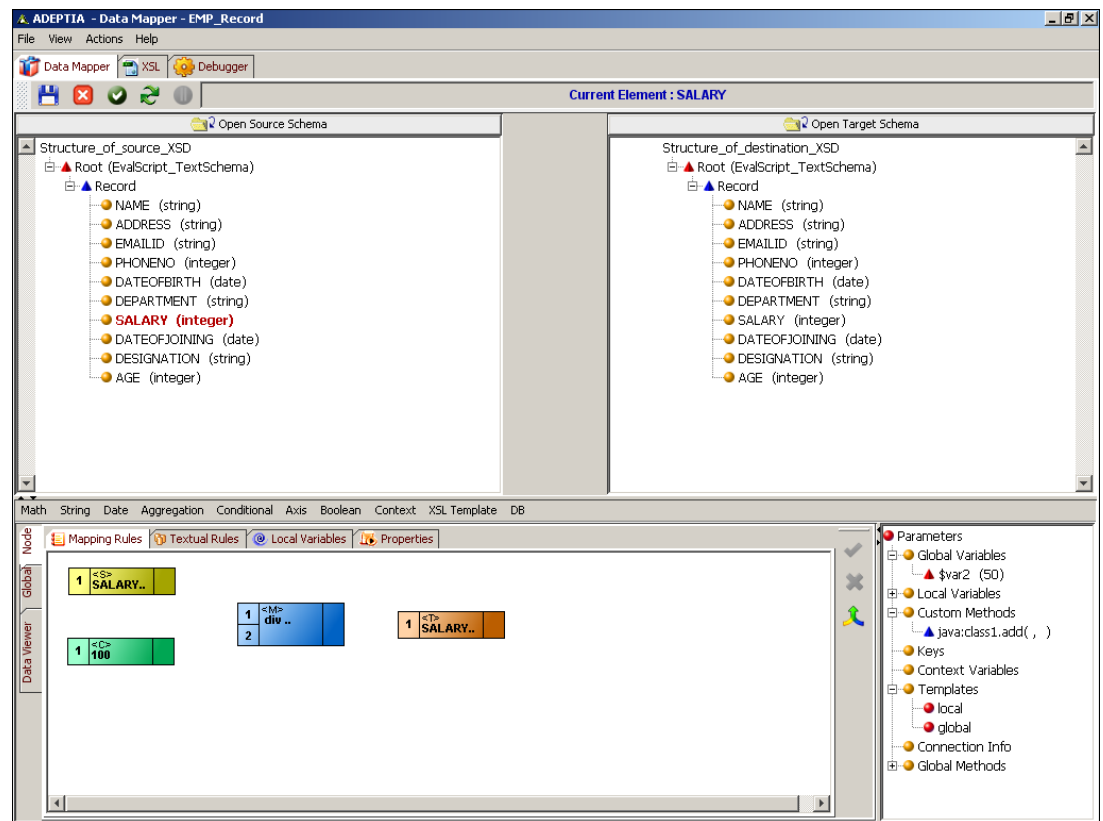


Figure 5.67: Add Div Sub-Function Node

5. Create a link from the output of the *Source* element to the first input of the *div* node.
6. Create a link from the output of *Constant* node to the second input of the *div* node.
7. Create a link from the output of the *div* function node to the *Target* element (see Figure 5.68).

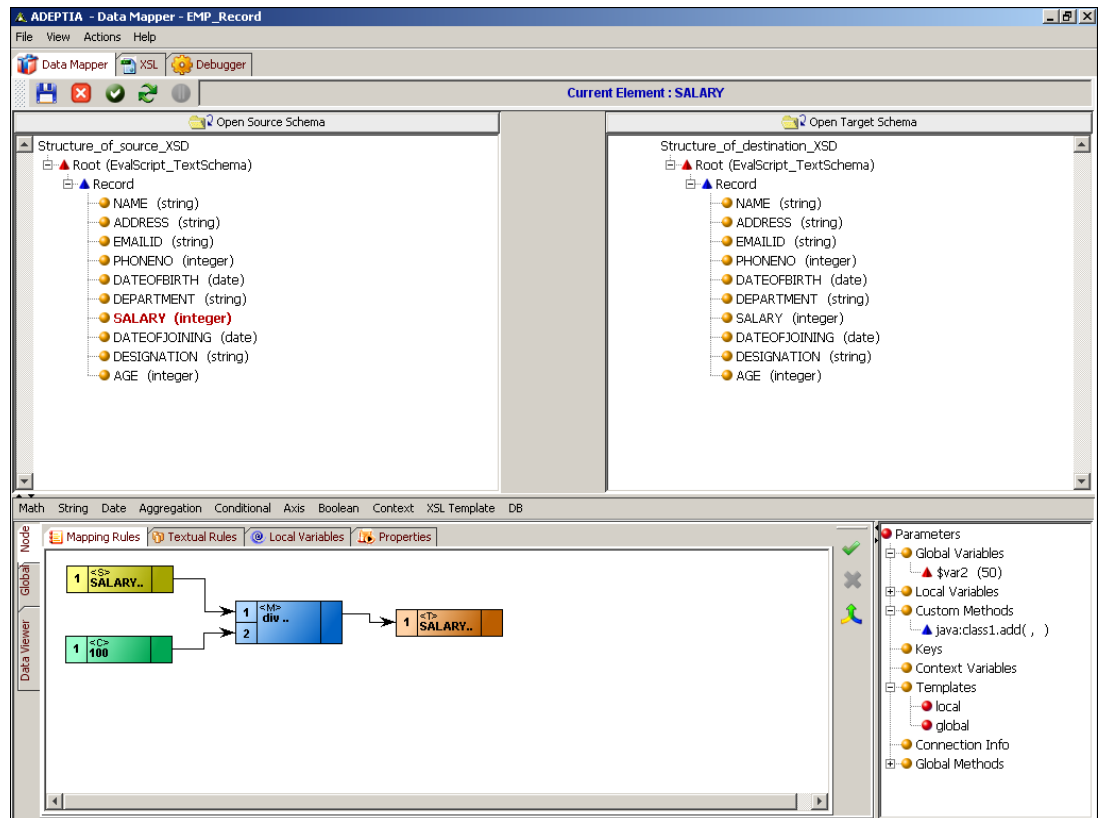



Figure 5.68: Create Links between Nodes for Mapping Elements using Div Function

8. Click **Apply Mapping** (  ) button. This maps elements using the *div* sub-function. A line is displayed between the source and target panels showing the mapping of the source element to the target element.

### Using String Function

The String mapping function enables you to map elements by manipulating strings. It comprises of various sub-functions, which are listed in the table below.

Table 5.13 : Sub-Functions of String Mapping Function

Mapping Function	Sub Functions	Description	Example
------------------	---------------	-------------	---------

String	Concat	Concatenates the second string after the first string. This function accepts only two parameters in graphical mode. However, there is no limitation to the number of parameters in text mode.	concat ('Jane', 'Brown') returns the string JaneBrown
	Substring	Returns the sub string from the string starting from the specified position and of the specified length. When using this function, you always start counting its position from 1. This implies that the second argument (position) is always greater than or equal to 1.	substring ('abcdef', 3, 4) returns cdef
	String	Returns the string value of the argument.	string ('1000') returns the string 1000
	Translate	Translates each occurrence of the first argument in the specified string to the second argument. Both the arguments must consist of one or equal number of characters.	translate ('alphabet', 'a','t') returns tlphbet
	Substring-after	Returns the string after the specified argument from the string.	substring-after ('print=yes', '=') returns yes
	Substring-before	Returns the string before the specified argument from the string.	substring-before ('print=yes', '=') returns print
	Starts-with	Returns true if the string starts with the specified argument or false otherwise.	starts-with ('Sales', 'S') returns True
	String-length	Returns the length of the specified string.	string-length ('adeptia') returns 7
	Contains	Returns true if the string contains the specified argument or false otherwise.	contains ('adeptia', 'tia') returns True

	Normalize-space	Removes leading and trailing white space (space, tab and new line) from a string, and replaces internal sequences of white space with a single space character.	normalize-space (' Adeptia Inc ') returns Adeptia Inc
	Name	Returns the name of the source node and field name on which mapping is currently done.	If the context node is an element named <code>&lt;ms:schema&gt;</code> , then <code>name ()</code> will return <code>ms:schema</code>
	Local-name	Returns name with the name prefix. If no prefix was specified, then name and local name are same.	If context node is an element named <code>&lt;ms:schema&gt;</code> , then <code>local-name ()</code> will return <code>schema</code>

You can use the required sub-function of String mapping function to map elements. The process of using the String function is the same for all its sub-functions. Thus, the mapping process using one sub- function is outlined below.

#### **Steps to map elements using the 'Concat' String Mapping Function**

9. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
10. Ensure that the [source and target elements to be mapped are selected and displayed](#) in the Mapping Graph Area.



You need to load two source elements for using this mapping function.

11. Click **String** mapping function and select **Concat** sub-function. A *Concat* node is displayed in the Mapping Graph Area (see Figure 5.69).



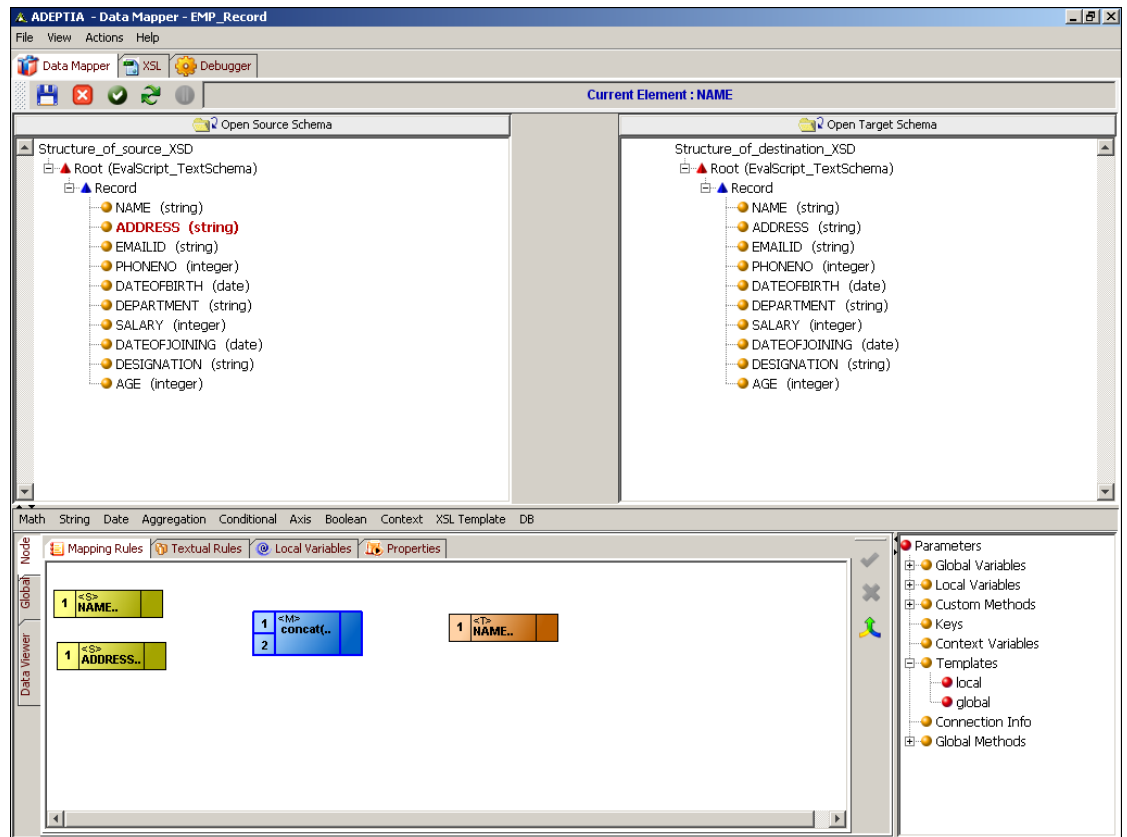


Figure 5.69: Add Concat Sub-Function Node

12. Create a link from the output of the first *Source* element to the first input of the *concat* node.
13. Create a link from the output of the second *Source* element to the second input of the *concat* node.
14. Create a link from the output of the *concat* node to input of the *target* element node (see Figure 5.70).

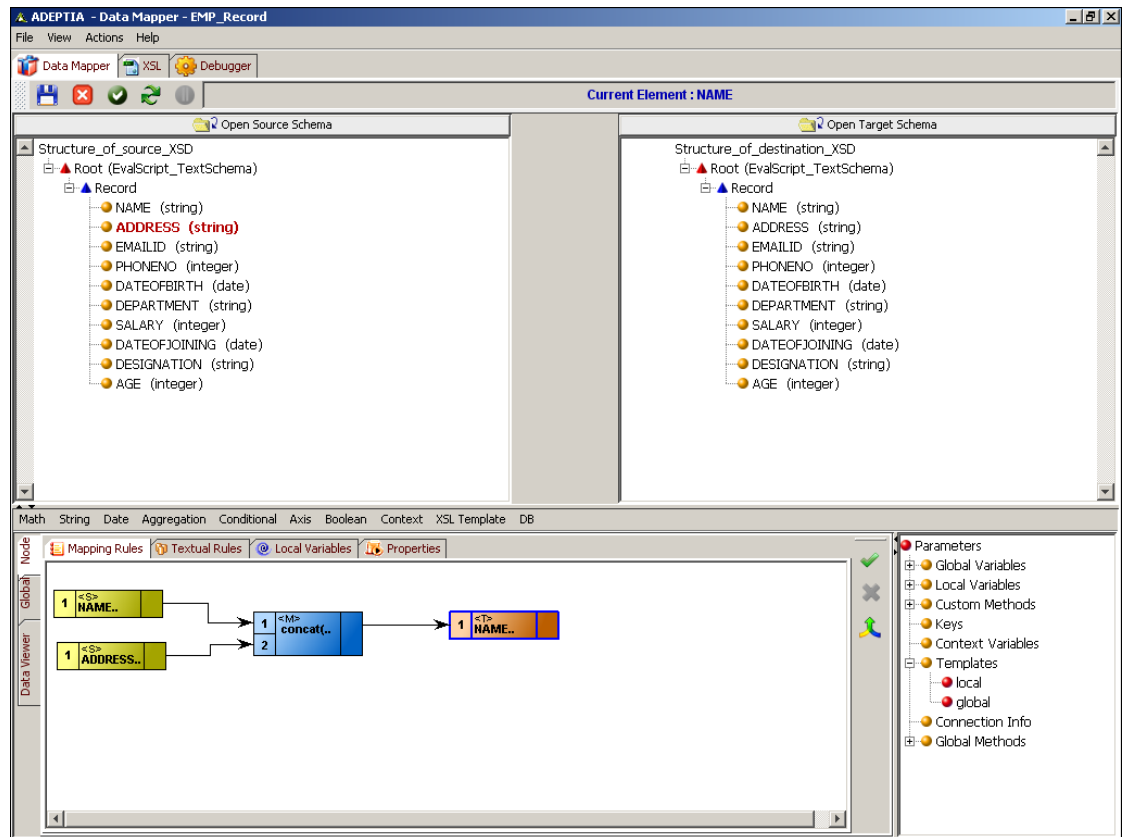



Figure 5.70: Create Links between Nodes for Mapping Elements using Concat Function

15. Click **Apply Mapping** (  ) button. This maps elements using the *concat* sub-function. A line is displayed between the source and target panels showing the mapping of the source element to the target element.

### Using Date Function

The Date mapping function enables you to map elements by generating dates in specific formats. It also returns the current date and the difference between two dates. It comprises of various sub-functions, which are listed in the table below.



All Date functions are applicable, only for XML Schemas at source and target.

Table 5.14: Sub-Functions of Date Mapping Function

Mapping Function	Sub Functions	Description	Example
------------------	---------------	-------------	---------

Date	Date-Format	This is a customized mapping function. Changes the date from the input date format to specified output date format.	date-format ( <i>employee/ 1998-03-31</i> , 'yyyy-mm-dd', 'dd-mm-yyyy') returns 31-03-1998
	Date -Difference	Generates the difference between two dates in milliseconds. Supports all java date formats.	date-difference('12-08-2006','dd-mm-yyyy','12-08-2005', 'dd-mm-yyyy') returns 31536000000
	Current Date	Returns the current system date in Month-day-year format. It accepts the argument according to standard Java arguments as defined for SimpleDateFormat class.	current date ('MM-dd-yyyy') returns the current date in month-day-year format.

You can use the required sub-function of Date mapping function to map elements. The process of using the Date function is the same for all its sub-functions. Thus, the mapping process using one sub- function is outlined below.

#### **Steps to map elements using the 'Date-Difference' Date Mapping Function**

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Ensure that the [source and target elements to be mapped are selected and displayed](#) in the Mapping Graph Area.
3. You need to [add a constant value](#) for using this function. Once it is added, a *Constant* node with its value is displayed in Mapping Graph Area.



This function requires four inputs. The first input represents the value of *Date1*. The second input represents the value as the format of *Date1*. The third input represents the value as *Date2*. The fourth input represents the value as format of *Date2*. The *Date1* and *Date2* values can either be in the form of constants or XPath values. The formats of *Date1* and *Date2* are however always in the form of constants.

4. Click **Date** mapping function and select **Date-Difference** sub-function. A date-difference node is displayed in the Mapping Graph Area (see Figure 5.71).

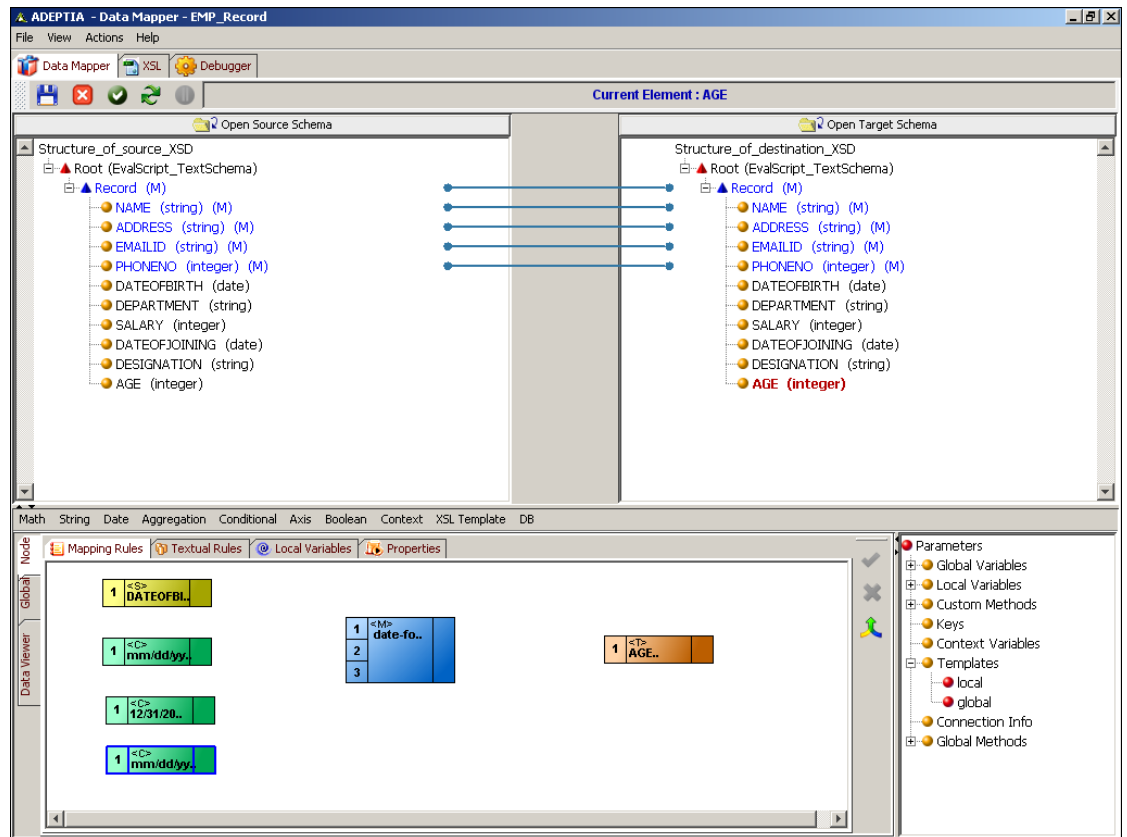


Figure 5.71: Add Date-Difference Sub-Function Node

5. Create a link from the output of the first *constant* value to the first input of the *date-difference* node.
6. Create a link from the output of the second *constant* value to the second input of the *date-difference* node.
7. Create a link from the output of the third *constant* value to the third input of the *date-difference* node.
8. Create a link from the output of the fourth *constant* value to the fourth input of the *date-difference* node.
9. Create a link from the output of the *date-difference* node to input of the *target* element node (see Figure 5.72).

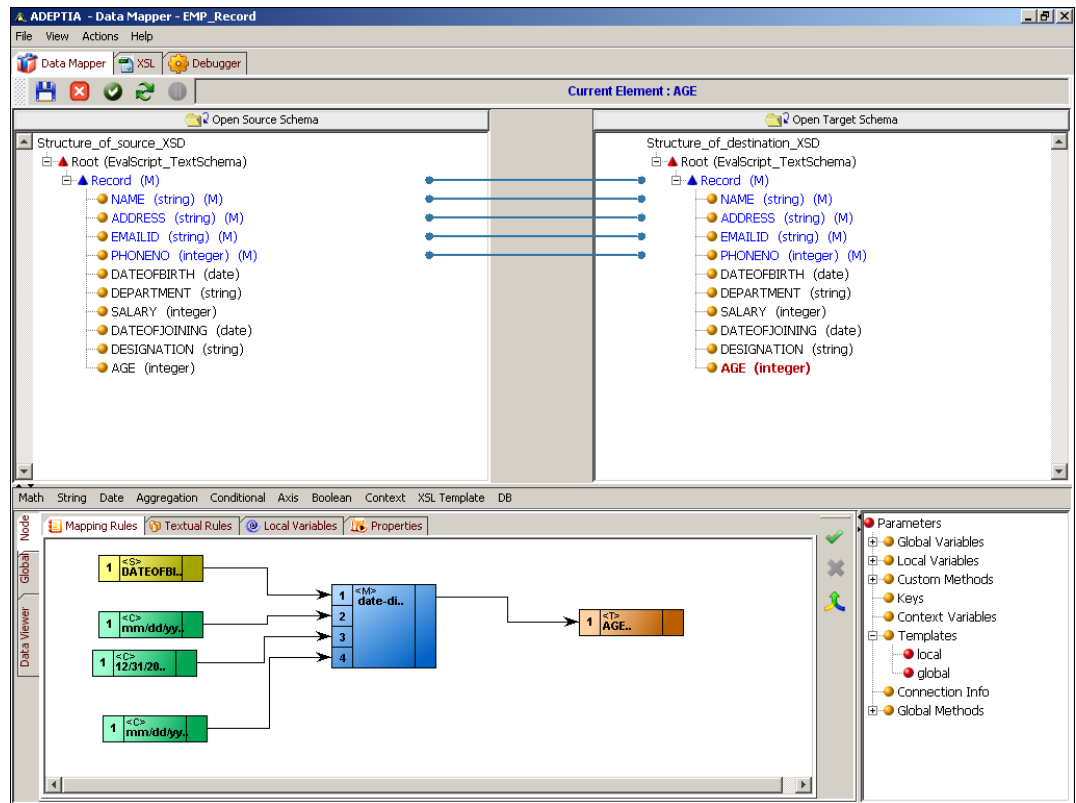



Figure 5.72: Create Links between Nodes for Mapping Elements using Date-Difference Function

10. Click **Apply Mapping** (  ) button. This maps elements by generating the difference between *Date1* and *Date2* using the date-difference sub-function.

## Using Aggregation Functions

The Aggregation function enables you to map elements by aggregating or counting the values of all nodes in an element. It comprises of various sub-functions, which are listed in the table below.

Table 5.15: Sub-Functions of Aggregation Mapping Function

Mapping Function	Sub Functions	Description	Example
Aggregation	Sum	Returns total of all values under all nodes of the specified element.	Sum (Age) returns the sum of all Age elements under the specified node.

	Count	Returns the total number of nodes for the specified element.	Count (Age) returns the total number of records under the Age element.
	Position	Returns the position of the current context node in the specified element.	position() returns 1 for the first node, 2 for second node and so on.
	Key	Returns matched records using two parameters: Name of key to be used Fields to be matched	Refer to the section <a href="#">Using Key Function</a> .

You can use the required sub-function of Aggregation mapping function to map elements. The process of using the Aggregation function is the same for all its sub-functions. Thus, the mapping process using one sub- function is outlined below.

#### ***Steps to map elements using the 'Sum' Aggregation Mapping Function***

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Ensure that the [source and target elements to be mapped are selected and displayed](#) in the Mapping Graph Area.
3. Click **Aggregation** function and select the **Sum** sub-function. A Sum node is displayed in the Mapping Graph Area (see Figure 5.73).

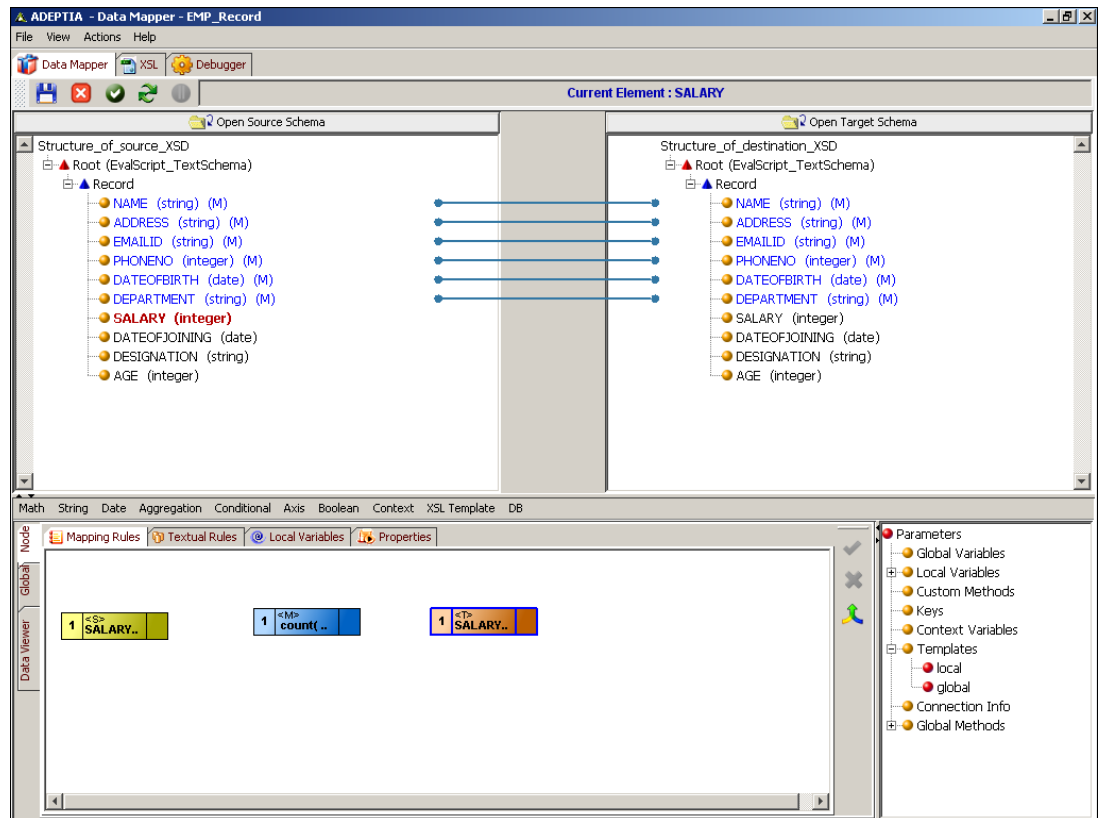


Figure 5.73: Add Sum Sub-Function Node

4. Create a link from the output of the *Source* element to the input of the *Sum* node.
5. Create a link from the output of the *Sum* function node to the *Target* element (see Figure 5.74).

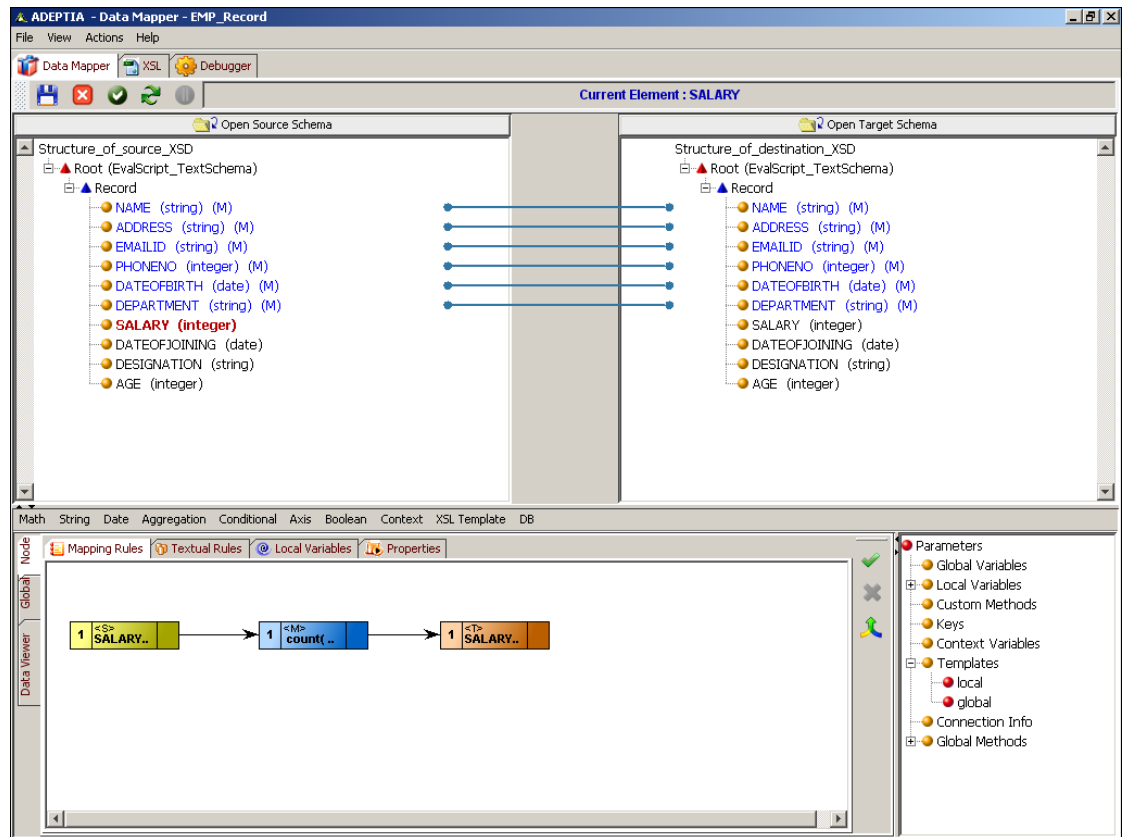



Figure 5.74: Create Links between Nodes for Mapping Elements using Sum Function

- Click **Apply Mapping** (  ) button. This maps elements using the Sum sub-function. A line is displayed between the source and target panels showing the mapping of the source element to the target element.

### Using Conditional Function

The Conditional mapping function enables you to map elements by building conditional expressions. It comprises of various sub-functions, which are listed in the table below.

Table 5.16: Sub-Functions of Conditional Mapping Function

Mapping Function	Sub Functions	Description	Example
Conditional	IF Conditions	This function comprises of two sub functions:	



	For Filtering Records	Filters the records/elements on basis of the specified condition.	<p><i>IFF CONDITION {#Age=25} Value= [100]</i></p> <p>Returns the filtered target node-set/node if the Age is 25 in the source record.</p>
	For Mapping To Elements	Returns a value if the specified condition is true.	<p><i>IF CONDITION {#Age=25} Value= [100]</i></p> <p>Returns 100 if the Age has the value of 25 in the source record.</p>
	When Condition	Returns a particular value if the specified condition is true, else it returns another value.	<p><i>WHEN Condition {contains (Email_ID, '@')} Value= [100] Otherwise Value= [200]</i></p> <p>Returns 100 if the Email_ID contains @, else it returns 200.</p>
	Select Query	<p>This is a customized mapping function.</p> <p>Returns the output based on the applied select query on a table in the any of the three databases (Oracle, Sql, IBM DB2).</p> <p>Select Query supports single field selection and returns first matching record.</p>	<p><i>SELECT FIELD = [Value1] FROM DB.TAB = [Value2].[Value3] WHERE {Condition}</i></p> <p>Here:  Value1 = Field name in the table, whose value is to be retrieved  Value 2 = Name of the Database Info object where the table exists. It contains database location and the user ID and password to connect to that database.  Value 3 = Name of the table for which the select query is implemented  Condition = Condition, based on which value is returned  For example:  <i>SELECT FIELD = [EMPNO] FROM DB.TAB = [oracle_databaseserver].[EMP] WHERE {ENAME= 'Smith'}</i></p> <p>Returns Employee number of employee from the table EMP with the name Smith.</p>

	Sequence	This is a customized mapping function. Returns integer values starting from the first argument and incrementing it by the second argument for each record. Both the arguments must be integer constants.	<p><i>Sequence {10, 20}</i></p> <p>Returns 10, 30, 50....and so on.</p> <p>You can also use multiple where condition. Incase of multiple where condition each condition must be within square braces as shown in the example below:</p> <pre>SELECT FIELD = [EMPNO] FROM DB.TAB = [oracle_databaseserver].[EMP] WHERE {[ENAME= 'Smith'} AND [AGE = 28]}</pre>
	Append	This is a customized mapping function. Appends the second string after the first string. Used to append only IF Condition.	<p><i>Append ('IF CONDITION {condition} Value [Value1]', ('IF CONDITION {condition} Value [Value2]'</i></p> <p>Returns IF CONDITION {condition} Value [Value1] Value [Value2]</p>

Some conditional sub-functions are not included in the Data Mapper screen, but are implemented by extending the 'IF' and 'When' conditions declared in Table 13.14. These sub-functions are listed in Table 13.15.

Table 5.17: Conditional Functions ('If' and 'When')

Sub Function	Custom Function	Description	Example
IF Condition	Nested IF	<p>Contains IF condition inside the value of previous IF condition. Returns output when all IF conditions are satisfied.</p> <p>For example:</p> <pre>IF CONDITION {condition1} VALUE=[IF CONDITION {condition2} VALUE=[IF CONDITION {condition3} VALUE=[Value1]]] Returns Value1 when all IF conditions are</pre>	<pre>IF CONDITION {#Age=25} Value= [IF CONDITION {#Designation= 'Manager'} Value = IF CONDITION {#Salary= 20000} Value = [100]]]</pre> <p>Returns 100 if all conditions are satisfied such that a manager of age 25 has a salary of 20000.</p>

		satisfied.	
When Condition	Nested When	<p>Contains When condition inside the value of previous When condition. Returns varied output based on the When conditions being satisfied.</p> <p>For example:</p> <pre>WHEN CONDITION {condition1} VALUE=[WHEN CONDITION {condition2} {VALUE=['value1'] OTHERWISE VALUE=['value2']} OTHERWISE VALUE=['value3']</pre> <p>Returns Value1 when both When conditions are satisfied.</p> <p>Returns Value3 when the first When condition fails.</p> <p>Returns Value2 when the first When condition is satisfied, but the second one fails.</p>	<pre>WHEN CONDITION {/employees/employee/ Age=25} Value= [WHEN CONDITION {/employees/employee/ Designation= 'Manager'} Value = ['100'] OTHERWISE Value = ['200'] OTHERWISE Value = ['300']]</pre> <p>Returns 100 if both conditions are satisfied such that the employee is a manager of age 25. It returns 300 if the employee is a manager but not of 25 years of age. It returns 200 if the employee is 25 years of age, but is not a manager.</p>
IF and When Condition	IF and When conditions return Boolean	<p>Returns value based on the function used as whether the condition returns True or False.</p> <p>If a string or source element contains a character or group of characters, then True is returned, else False is returned. Based on the return value of the condition, the output value is generated.</p> <p>For example:</p> <pre>WHEN CONDITION {contains (var1, str)} VALUE=[var2] OTHERWISE VALUE=[var3]</pre> <p>If var1 contains str, then True is returned, else False is returned. If the condition</p>	<pre>WHEN CONDITION {contains (var1, str)} Value= ['100'] OTHERWISE Value = ['200']</pre> <p>Returns true if Var1 contains Str, else it returns False. If the condition returns true, then this function returns 100, else it returns 200.</p>

		returns True, then var2 is generated as output, else var1 is the output value.	
IF and When Condition	Mixed condition	<p>Contains IF condition inside the value part of When condition or vice versa.</p> <p>Returns varied output based on the conditions being satisfied.</p> <p>For example:</p> <pre>WHEN CONDITION {condition1} VALUE=[IF CONDITION {condition2} VALUE=['value1']] OTHERWISE VALUE=['value2']</pre> <p>Returns Value1 when both conditions are satisfied.</p> <p>Returns Value2 when the first condition fails.</p> <p>Returns no output when the first condition is satisfied but second condition fails or when both conditions fail.</p>	<pre>WHEN CONDITION {/employees/employee/ Salary=50000} Value= IF CONDITION {/employees/employee/ Designation= Project Manager} Value = ['100'] OTHERWISE Value = ['200']</pre> <p>Returns 100 if the employee is a Project Manager and has a salary of 50000. It returns 200 if the employee is a Project Manager but does not have a salary of 50000.</p>
IF Condition	Multiple IF	<p>Contains IF conditions placed sequentially, with each IF having its value part.</p> <p>Two IF conditions are appended using Append sub-function of the String Function.</p> <p>Returns varied output based on the condition being satisfied.</p> <p>For Example:</p> <pre>IFCONDITION {condition1} VALUE=['value1'] IF CONDITION {condition2} VALUE=['value2']</pre> <p>Returns Value1 if condition1 is satisfied.</p> <p>Returns Value2 if condition2 is satisfied.</p>	<pre>IF CONDITION {#Age=25} Value= ['500'] IF CONDITION {#Designation= 'Manager'} Value = ['1000']</pre> <p>Returns 500 if employee is of age 25. It returns 1000 if employee is a Manager.</p>

When Condition	When condition with more than one conditions in it.	<p>Contains When condition containing logical operators like and/not to make multiple conditions inside the When condition. There are many permutations/combinations for this sub-function.</p> <p>Example 1:  <b>WHEN</b> <b>CONDITION</b> (cond1 and cond2)  Value = ['value1']  otherwise value = ['value2']  Returns Value1 if both conditions are satisfied, else returns Value2.</p> <p>Example 2:  <b>WHEN</b> <b>CONDITION</b> (cond1 or cond2)  Value = ['value1']  otherwise value = ['value2']  Returns Value1 when either one or both conditions are satisfied, else returns Value2.</p>	<pre>WHEN    CONDITION {/employees/employee/ Age=25      and /employees/employee/D esignation=Manager} Value=      ['100'] <b>OTHERWISE</b> Value = ['200']</pre> <p>Returns 100 if both conditions are satisfied such that the employee is a manager of age 25. Else it returns 200.</p>
IF Condition	IF condition with more than one conditions in it.	<p>Contains IF condition containing logical operators like and/not to make multiple conditions inside the IF condition. There are many permutations/combinations for this sub-function.</p> <p>Example 1:  <b>IF</b> <b>CONDITION</b> (cond1 and cond2) Value = []  Returns Value1 when both conditions are satisfied, else no output is returned.</p> <p>Example 2:  <b>IF</b> <b>CONDITION</b> (cond1 or cond2) Value = []  Returns Value1 when either one or both conditions are</p>	<pre><b>IF</b>    <b>CONDITION</b> {/employees/employee/ Age=25      and /employees/employee/D esignation=Manager} Value= ['100']</pre> <p>Returns 100 if both conditions are satisfied such that the employee is a manager of age 25. Else it returns 200.</p>

		satisfied, else no output is returned.	
--	--	--	--

You can use the required sub-function of Conditional mapping function to map elements. The process of using the Conditional function is the same for all its sub-functions. Thus, the mapping process using one sub- function is outlined below.

**Steps to map elements using the 'IF' Condition (IF CONDITION {} VALUE=[])** Conditional Mapping Function

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Ensure that the [source and target elements to be mapped are selected and displayed](#) in the Mapping Graph Area.
3. Click Boolean function menu and then select the >=Greater than Equal operator. A >= node is displayed in the Mapping Graph Area (see Figure 5.75).

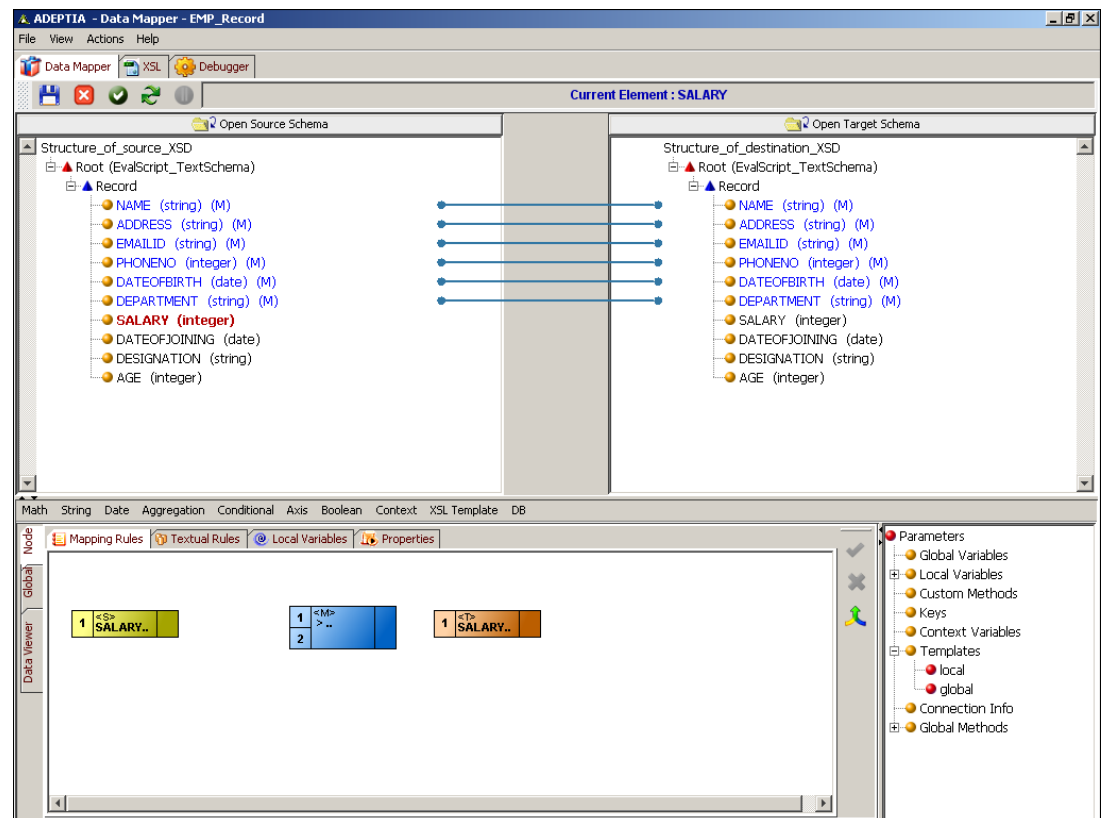



Figure 5.75: Add Greater Than or Equal To Boolean Function Node

 To learn more about Boolean Functions, refer to the section [Using Boolean Functions.](#)

4. [Add a constant value](#) in the Mapping Graph Area.
5. Create a link from the output of the *source* element to the first input of the  $\geq$  operator node.
6. Create a link from the output of the *Constant* node to the second input of the  $\geq$  operator node (see Figure 5.76).

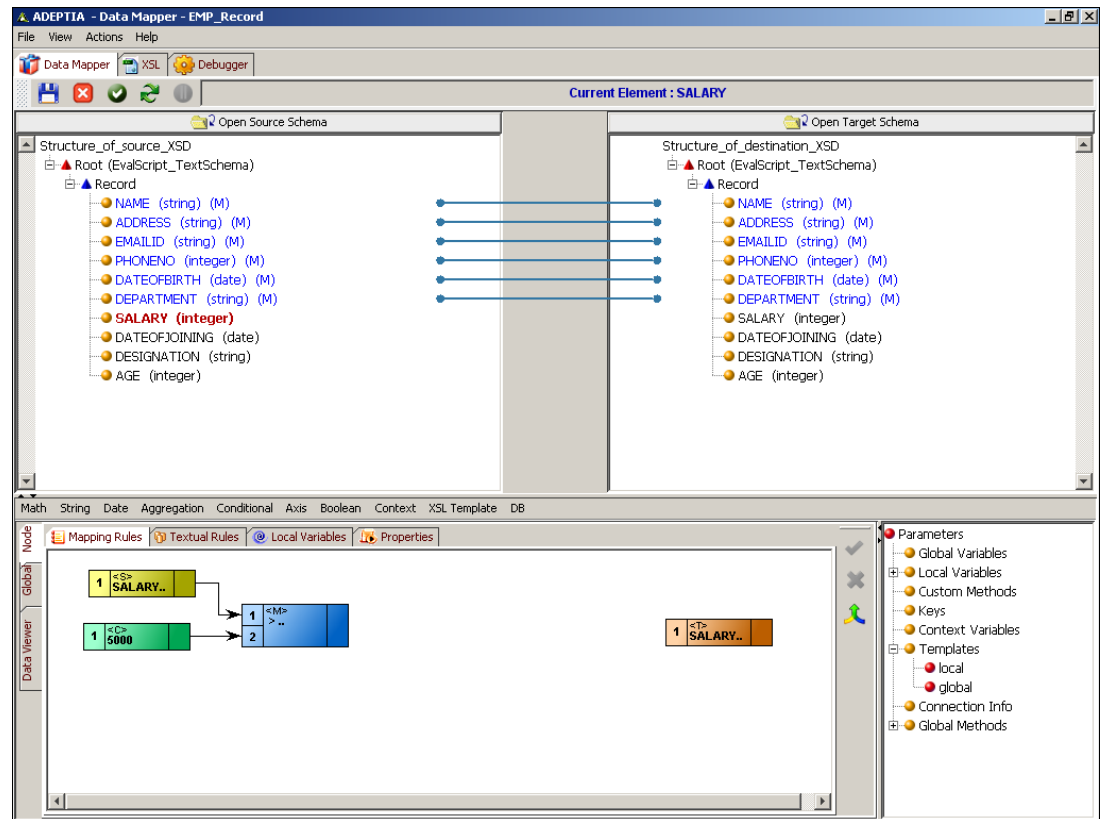


Figure 5.76: Create Links between Nodes for Mapping Elements using Greater Than Equal To Function

7. Click **Conditional** mapping function and select **IF CONDITION** sub-function. Further select For Mapping to Elements option. An *IF CONDITION* node is displayed in the Mapping Graph Area (see Figure 5.77).

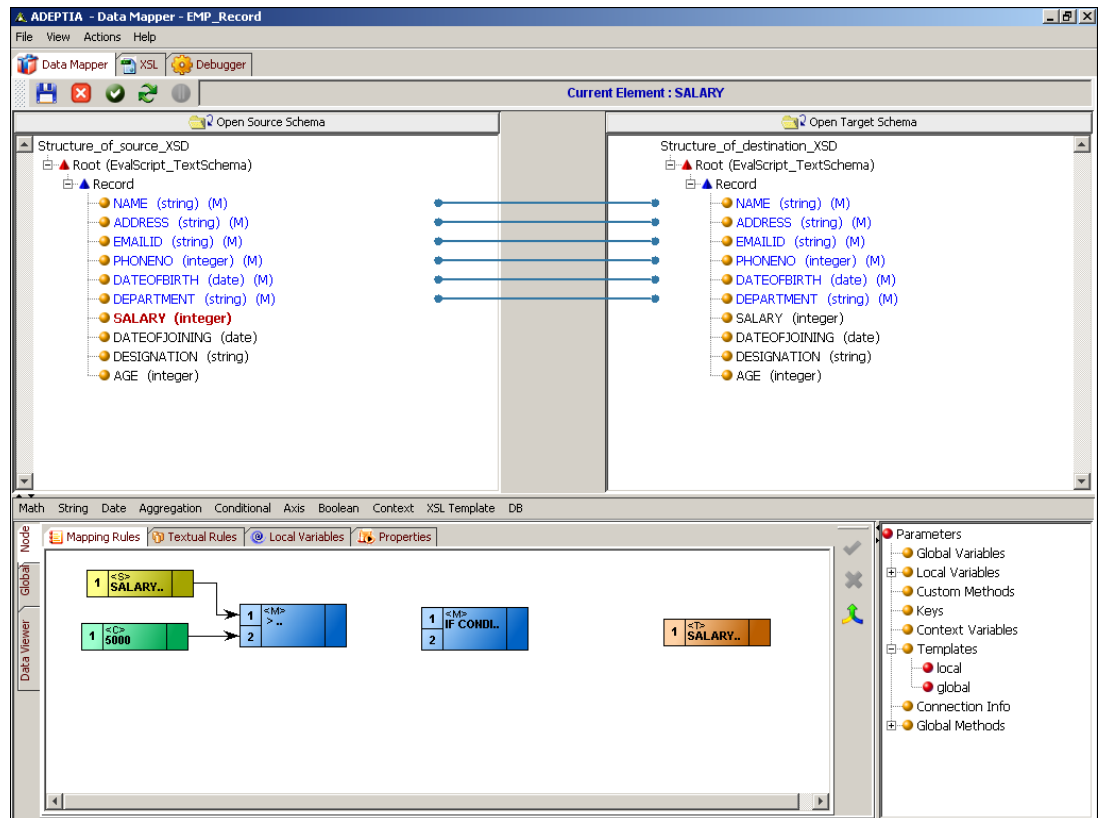


Figure 5.77: Add IF Conditional Function Node

8. Create a link from the output of the  $\geq$  operator element to the first input of the *IF CONDITION* node.
9. [Add a constant value](#) of integer type (for example, 25) in the Mapping Graph Area.
10. Create a link from the output of the *Constant* element to the second input of the *IF CONDITION* node.
11. Create a link from the output of the *IF CONDITION* node to the input of the *target* element node (see Figure 5.78).



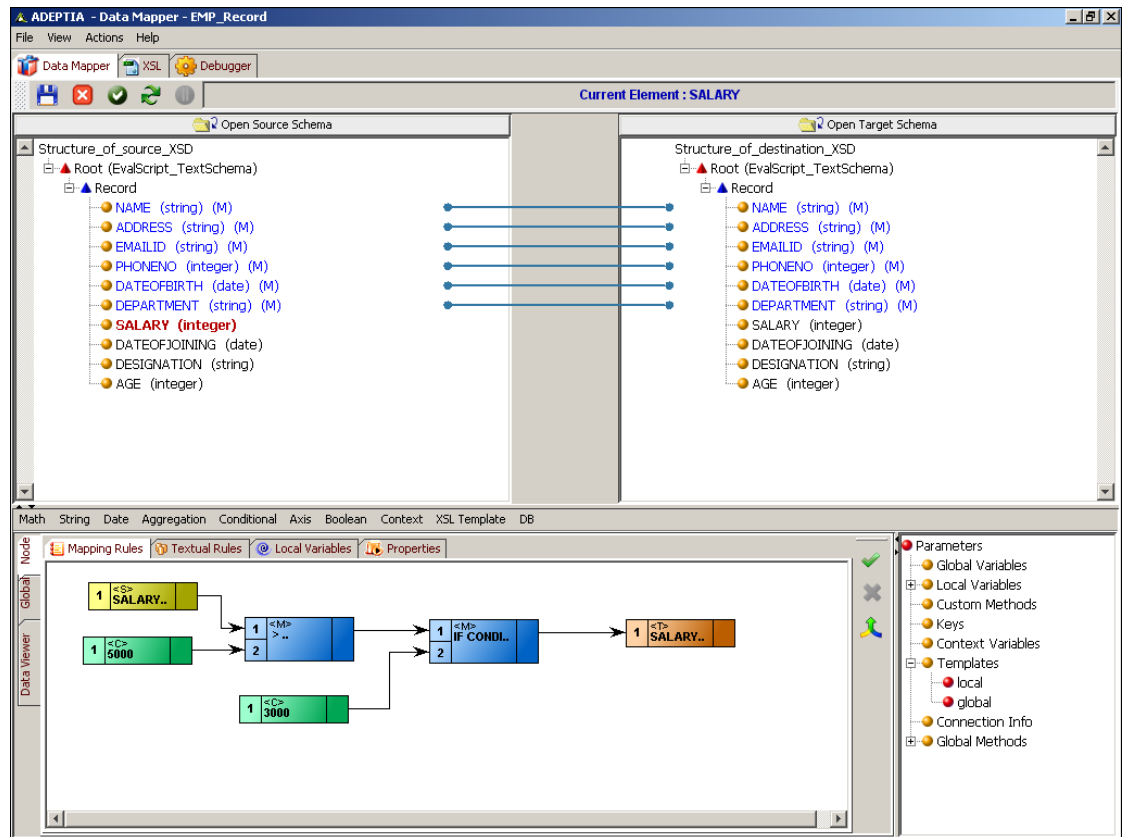





Figure 5.78: Creating Links between Nodes for Mapping Elements using IF Conditional Function

 If the value of *SALARY* element in the source data is greater than or equal to 5000, output will be 3000. If the value of *TESTCASENO* element in the source data is less than 100, output will be an empty tag.

12. Click **Apply Mapping** () button. This maps elements using IF CONDITION function. A line is displayed between source and target panels showing the mapping of the source element to the target element.

 This function simply filters the records based on the specified Boolean condition, but it does not create a data stream of the filtered records. You need to explicitly create the filtered data stream by creating another mapping (or adding same output schema in Target Panel) and using the IFF CONDITION () function based on the opposite Boolean condition.

## Using Axis Function

The Axis function contains a list of advance XSL functions that are used to map elements only when the For Each function is applied on the Target node. It comprises of various sub-functions, which are listed in the table below.

Table 5.18: Sub-Functions of Axis Mapping Function

Mapping Function	Sub Functions	Description	Example
Axis	File Path – XPath	This is a customized mapping function. This is an XML Lookup which returns the value of the element/attribute within the XML file whose path is specified. The File path and XPath must be specified in single quotes.	<p>FilePath  ['C:/correct_file.xml'] XPath  {/employees/employee/Name}</p> <p>Returns value of Name element from the file correct_file.xml.</p>
	Self	Returns the element which is the context node itself.	<p><i>Self::Employee</i></p> <p>Returns Employee which is the context node itself.</p>
	Child	Returns the element which is the child of the context node.	<p><i>Self::Name</i></p> <p>Returns Name which is a child of the context node.</p>
	Parent	Returns the element, which is the parent (if any) of the context node.	<p><i>Parent::Name</i></p> <p>Returns Name which is a parent of the context node.</p>
	Following-sibling	This axis contains all the following siblings of the context node. It returns the first occurrence of the element/attribute in the next sibling of the context node. If the context node is an attribute node or namespace node, then this axis is empty.	<p><i>following-sibling:employee/Name</i></p> <p>Returns the first occurrence of Name in the next employee node.</p>
	Ancestor	Returns the element which is the ancestor of the context node. This axis always includes the root node, unless the context node is the root node.	<p><i>Parent::Name</i></p> <p>Returns Name which is an ancestor of the context node.</p>

	Ancestor-or-self	This axis contains the context node and the ancestors of the context node. It always includes the root node. It returns the context node or ancestors of the context node.	<i>ancestor-or-self::employees/@val</i>  Returns context node or ancestors of context node.
	Preceding-sibling	This axis contains all the preceding siblings of the context node. It returns the first occurrence of the element/attribute in the preceding sibling of the context node. If the context node is an attribute node or namespace node, then this axis is empty.	<i>preceding-sibling:employee/Name</i>  Returns the first occurrence of Name in the previous employee node.
	Descendant	Returns the element which is the descendant of the context node. This axis does not contain attribute nodes.	<i>descendant::Name</i>  Returns Name, which is a descendant of the context node.
	Descendant-or-self	This axis contains the context node and the descendants of the context node. It returns the context node or descendants of the context node.	<i>descendant-or-self::employees/salary</i>  Returns context node or descendants of context node.
	Generate-id	Generates a unique id for the element/attribute specified by the XPath argument.	<i>generate-id(employees/employee/Name)</i>  Returns unique ID for Name element
	Current	Removes all tags from the specified xml file and returns the data.	<i>current()</i>  Returns data of the xml file without tags.

You can use the required sub-function of Axis mapping function to map elements. The process of using the Axis function is the same for all its sub-functions.

### Using Boolean Function

The Boolean mapping function enables you to map elements by applying various logical operators in building Boolean expressions. It comprises of various sub-functions, which are listed in the table below.

Table 5.19: Sub-Functions of Boolean Mapping Function

Mapping Function	Sub Functions	Description	Example
Boolean	Equal	Returns TRUE the first variable argument is equal to the second variable argument.	$(5) = (5)$ returns true
	Not Equal	Returns TRUE the first variable argument is not equal to the second variable argument.	$(5) \neq (50)$ returns true
	Greater Than	Returns TRUE the first variable argument is greater than the second variable argument.	$(5) > (3)$ returns true
	Less Than	Returns TRUE the first variable argument is less than the second variable argument.	$(5) < (8)$ returns true
	Greater than Equal	Returns TRUE the first variable argument is greater than or equal to the second variable argument.	$(5) \geq (5)$ returns true $(5) \geq (3)$ returns true
	Less than Equal	Returns TRUE the first variable argument is less than or equal to the second variable argument.	$(5) \leq (8)$ returns true $(5) \leq (5)$ returns true
	Or	Returns TRUE if either of the two variable arguments evaluate to TRUE otherwise FALSE. These variable arguments can only be of Boolean data type. Hence, their value can either be TRUE or FALSE only.	$(True) Or (True)$ returns true $(True) Or (False)$ returns true

	And	Returns TRUE if both of the two variable arguments evaluate to TRUE otherwise FALSE. These variable arguments can only be of Boolean data type. Hence, their value can either be TRUE or FALSE only.	(True) And (True) returns true (True) And (False) returns false
--	-----	--	--

A Boolean sub-function is always used in conjunction with a Conditional function. Thus for the process of using the Boolean function, refer to [Steps to map elements using the IF Conditional Mapping Function.](#)

### Using Context Functions

The Context mapping function enables you to map elements by setting or getting value of process flow context variables. It comprises of various sub-functions, which are listed in the table below.

Table 5.20: Sub-Functions of Context Mapping Function

Mapping Function	Sub Functions	Description	Example
Context	Set-Context	This is a customized mapping function. Sets the value of the specified variable argument in the process flow context. This value can be string constant, numeric constant, XPath or output of limited set of mapping function, which can be used before set-context function. This function does not return a value. If mapped to a target element, it creates an empty tag of that target element in output XML.	<i>set-context ('index', '123')</i>  sets the value of index variable as 123 in the process flow.

	Get-Context	<p>This is a customized mapping function.</p> <p>Returns the value of the specified variable argument from process flow Context. This value can be string constant, numeric constant, XPath or output of limited set of mapping function. If no value has been set, then the value specified in the second argument is returned.</p>	<p><i>get-context ('index', '100')</i></p> <p>Returns the value of index variable from the process flow. If no value has been set for index, then 100 is returned.</p> <p>In get-context function you can also use any variable, which is not declared. In such case get-context creates a variable with the specified name and value, which can be further used with the selected target element. This can be done only in Textual Rule panel.</p>
--	-------------	--	---

You can use the Set-Context sub-function of Context mapping function to set value of the process flow variable and send it to the Process Designer. The Get-Context sub-function is used to return the value of the process flow variable.

## Using Set-Context Function

You can use the Set-Context Function in various ways. These are outlined as:

- [Mapping Set-Context function using local variable](#)
- [Global declaration of Set-Context function](#)
- [Mapping Set-Context function to any target element](#)

### Mapping Set-Context function using local variable

#### Concept

You can map the Set-Context function to a local variable, when you want to set the value of process flow context variable based on output of a mapping function or condition. You can pass the output of mapping function or condition to a local variable and use that local variable as value of set-context function.

For example, if you want to set the value of process flow context variable based on the output of WHEN condition. The WHEN condition is used to return "True" when value of a source element "SALARY" is greater than 8000, else it will return "False". The output of WHEN condition is mapped to a local variable "BoSalary8K". To set the value of "BoSalary8K" to the process flow context variable, you can use Set-Context function. You have to create another local variable "Var1", where value of process flow context variable "ContextVar" is set using Set-Context function. This is done by mapping Set-Context to the value part of the local variable "Var1". The first argument of the Set-Context function is the name of the process flow context variable "ContextVar" and second argument is the local variable "BoSalary8K", which contains the output of WHEN condition.

### ***Advantages***

- Need not be mapped to a target element
- Local variable can be used as second argument of Set-Context function
- XPath of a source element can be used as second argument of Set-Context function
- Set-Context function is executed for each record of the source data

### ***Disadvantages***

- Local Variable used to map set-context function will have an empty value.

## **Map Set-Context Function using Local Variable**

### ***Steps to pass output of mapping function or condition to a local variable***

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
3. Click **Local Variables** tab. The Local Variable pane is displayed. (refer to Figure 5.104).
4. Click any *target* element to declare the local variable in the Local Variable pane.
5. Click *Local Variable Name* text field and enter the name of the local variable you want to create (e.g. BolSalary8K). Press the **Tab** or **Enter** key. This takes the control to the Local Variable Value field.
6. Enter the value of the local variable in the *Local Variable* Value field. In this example, you have to specify the WHEN condition as displayed in Figure 5.79.

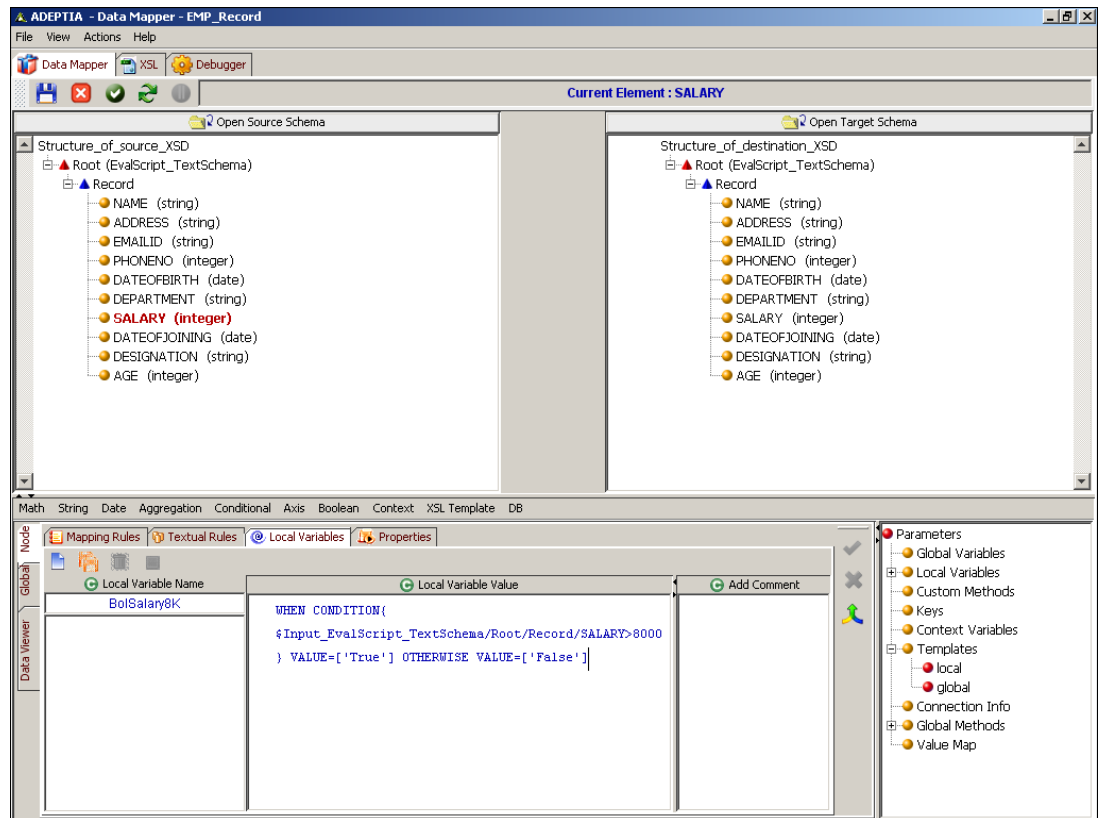



Figure 5.79: Create Local Variable

7. Click **Save Local Variable** () button to save the declared local variable.

### Steps to map Set-Context function using local variable

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
3. Click **Local Variables** tab. The Local Variable pane is displayed. (refer to Figure 5.104).
4. Click any *target* element to declare the local variable in the Local Variable pane.
5. Click *Local Variable Name* text field and enter the name of the local variable you want to create (e.g. Var1). Press the **Tab** or **Enter** key. This takes the control to the *Local Variable Value* field.
6. Click **Context** mapping function menu and select **Set-Context** sub-function. Syntax for Set-Context function is displayed in *Local Variable Value* field (see Figure 5.80).



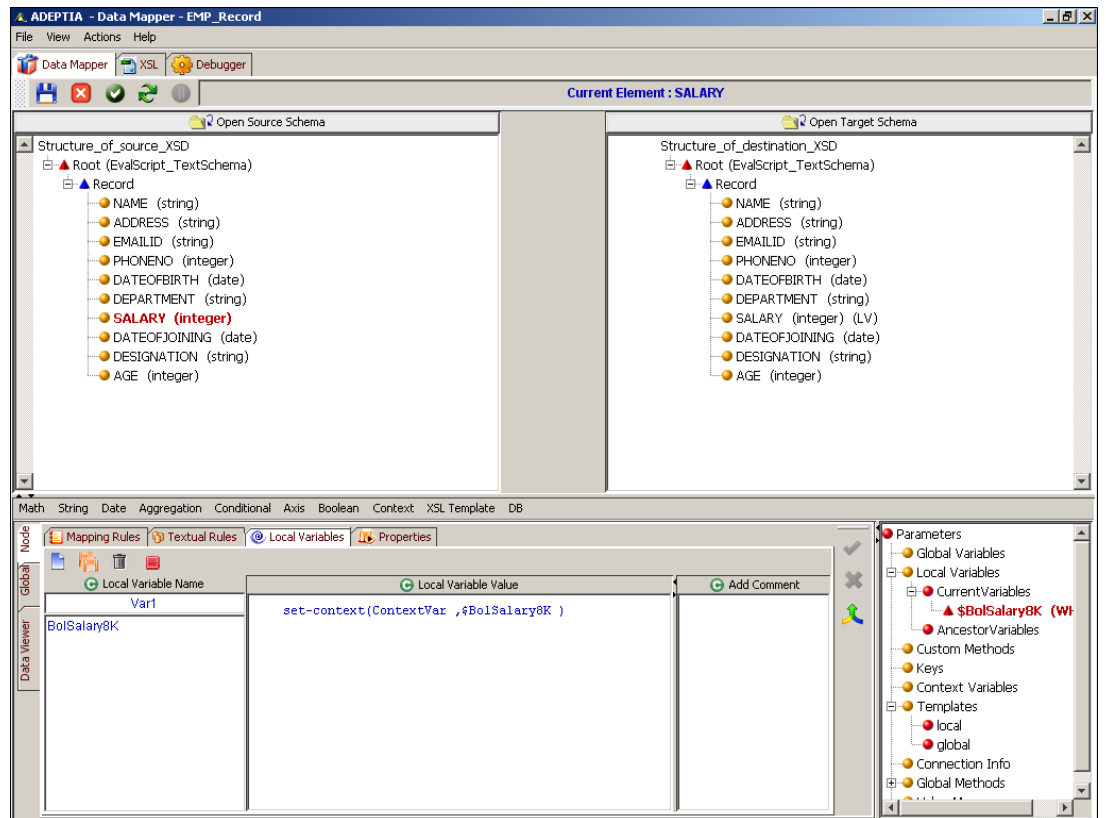




Figure 5.80: Mapping Set-Context to Local Variable

7. Enter the process flow variable name you want to create (e.g. *ContextVar*) in the first argument of the *Set-Context* function.
8. Enter the value of the variable in the second argument of the *Set-Context* function.

 Second argument can be string constant, integer constant, XPath, local variable or output of limited set of mapping function, which can be used before *Set-Context* function. In this example, *BolSalary8K* variable is used as second argument of *set-context* function.

9. Click **Save Local Variable** () button to save the declared local variable.

## Global Declaration of Set-Context Function

### Concept

Another way of using the *Set-Context* function is to declare it globally. When doing this, you need not map it to a target element or local variable.

### Advantages

- Easy to use
- Need not be mapped to a target element
- Need not create any local variable

### ***Disadvantages***

- Local variable cannot be used in value part of Set-Context function
- If XPath of a source path is used, Set-Context function is executed for the first record only.

## **Declare Set-Context Function Globally**

### ***Steps to declare Set-Context function globally***

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Global** tab displayed in the Mapping Graph Area. All tabs of the Global tab are displayed.
3. Click **Context Variables** tab. The Context Variables pane is displayed (see Figure 5.81).

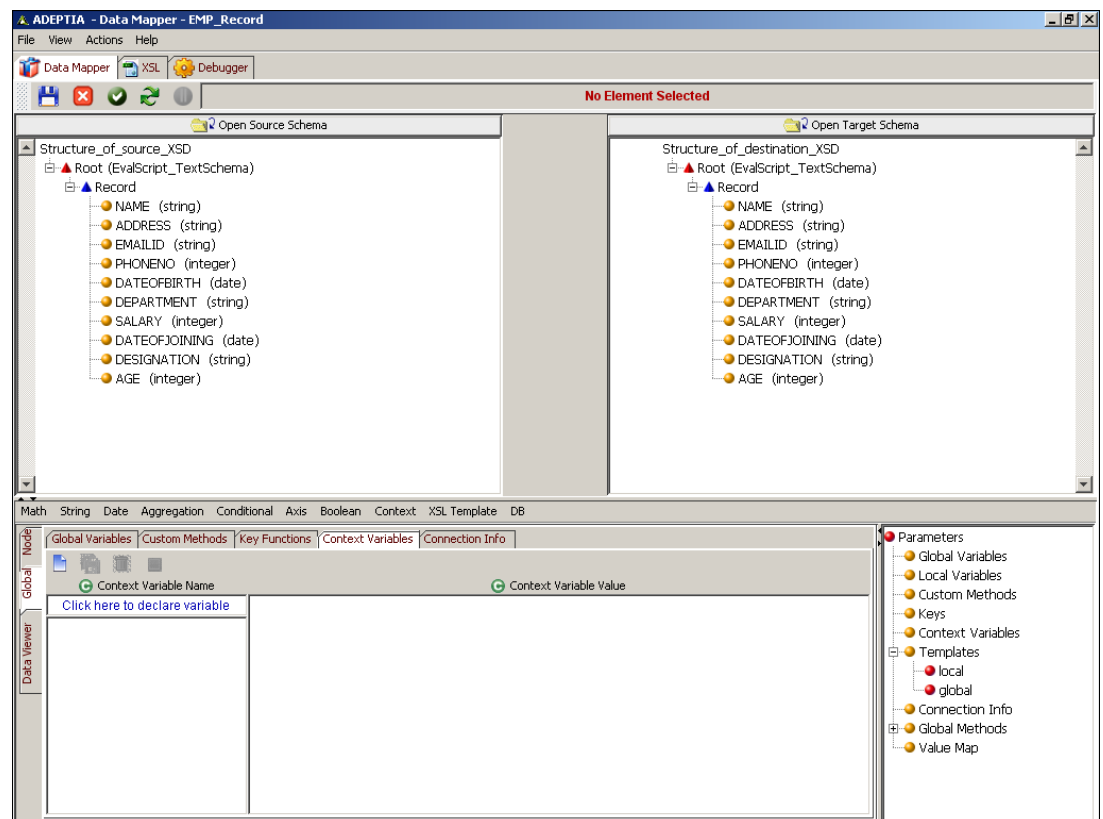


Figure 5.81: Context Variables Pane

4. Click *Context Variable Name* text field and enter the name of process flow context variable you want to create (e.g. *Var1*) Press the **Tab** or **Enter** key. This takes the control to the Context Variable Value field.
5. Enter the value of process flow context variable in *Context Variable Value* field (see Figure 5.82).

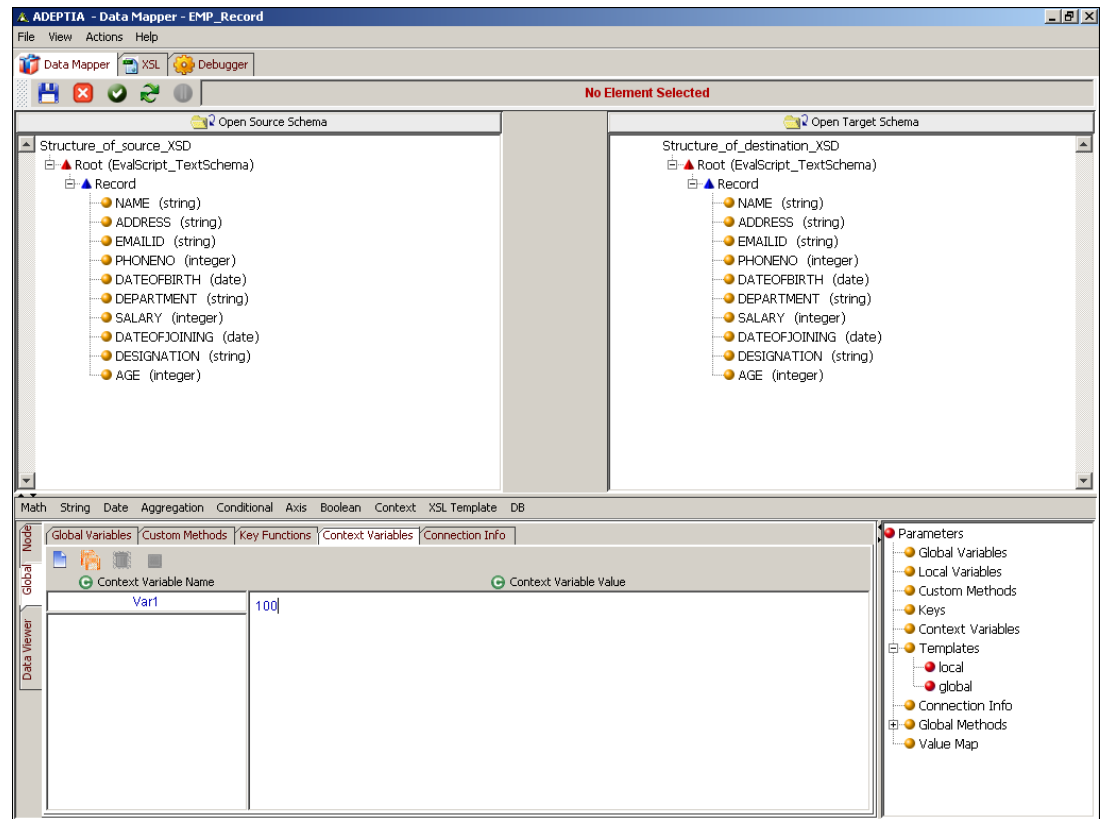



Figure 5.82: Enter Context Variable Value

6. Click the **Save Context Variable**  button to save the declared process flow context variable. This context variable is added to the list of existing context variables in the Context Variables tab. It is also displayed under Context Variables in the Parameters Panel. If you shift focus to another node, or click any of the Mapping Rules, Textual Rules, Node, Properties, XSL or Debugger tabs, without saving the context variable, an alert message is displayed (refer to Figure 5.99).
7. Click **No** to save the context variable and shift focus to the other object. If you click **Yes**, then the defined context variable is cleared and the focus is shifted to the other object.



You can also set the value of a context variable that is used in a particular condition. For example, if the context variable *Var1* is used in an IFF condition in such a way the value of *Var1* depends on the condition being True or False. If it is True then *Var1* will have a different value. You can set this value of *Var1* if the condition is True, using the Set Context function.

Similarly, you can retrieve the value of a context variable used in a particular condition, if the condition is True.



You can edit or delete a context variable from the Parameters Panel itself. For details, refer to the [Managing a Global Variable from Parameter Panel](#) section.

## Mapping Set-Context function to any target element

### **Concept**

You can map the Set-Context function to a target element. Since this function does not return a value, it will create an empty tag of that target element in output XML. Thus, it is recommended that you should map the Set-Context function to a target element, whose value is not required at the target end.

### **Advantages**

- Need not to create any local variable
- Executed for each record

### **Disadvantages**

- Need an additional target element, whose value is not required at the target end

## Map Set-Context Function to a Target Element

### **Steps to map Set-Context function to a target element**

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Select the target element that you want to map with Set-Context function.
3. Click **Context** mapping function menu and select **Set-Context** sub-function. A set-context node is displayed in the Mapping Graph Area (see Figure 5.83).

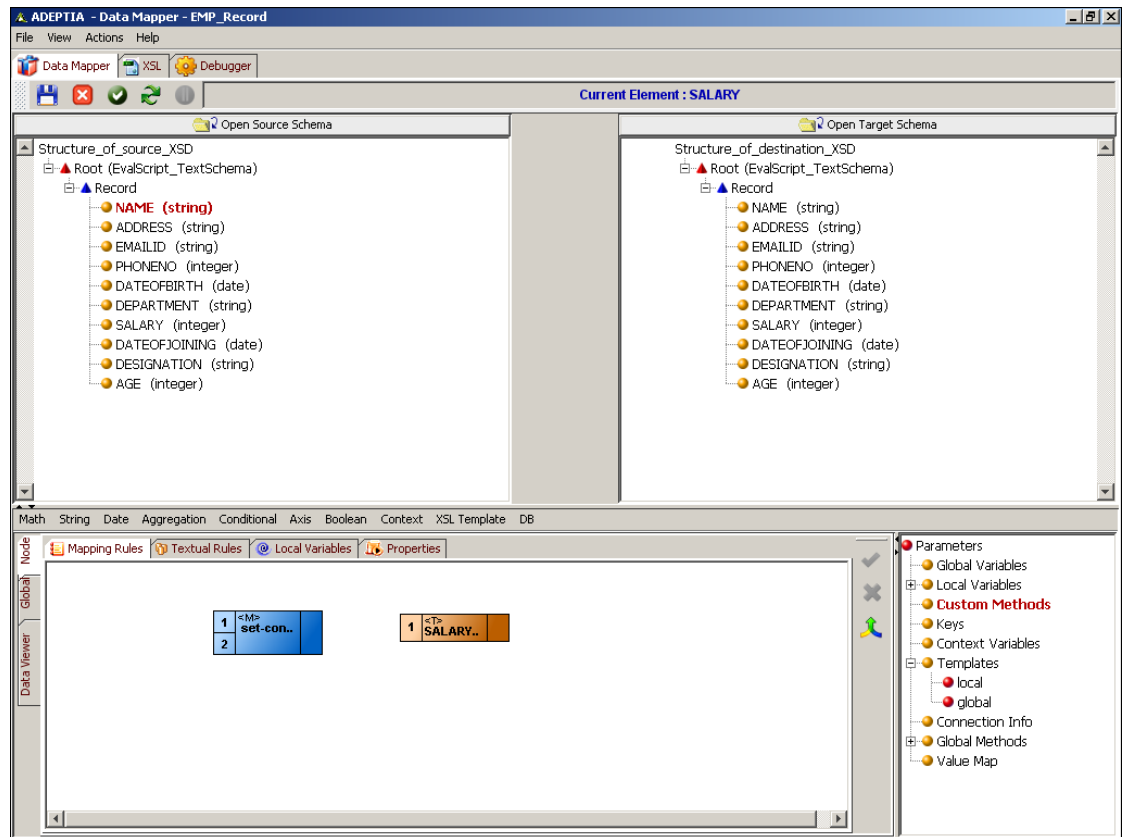



Figure 5.83: Set-Context Node

4. [Add a constant node](#) with the name of variable (e.g. *index*), whose value is to be set in the process flow context.
5. Create a link from the output of the *constant* node (*index*) to the first input of the *set-context* node.
6. [Add another constant node](#) for the second argument (e.g. 100) of the *set-context* function.

 Second argument can be string constant, integer constant, XPath, local variable or output of limited set of mapping function, which can be used before Set-Context function.

7. Create a link from the output of second *constant* node (100) to the second input of the *set-context* node.
8. Create a link from the output of the *set-context* node to the *target* element (see Figure 5.84).

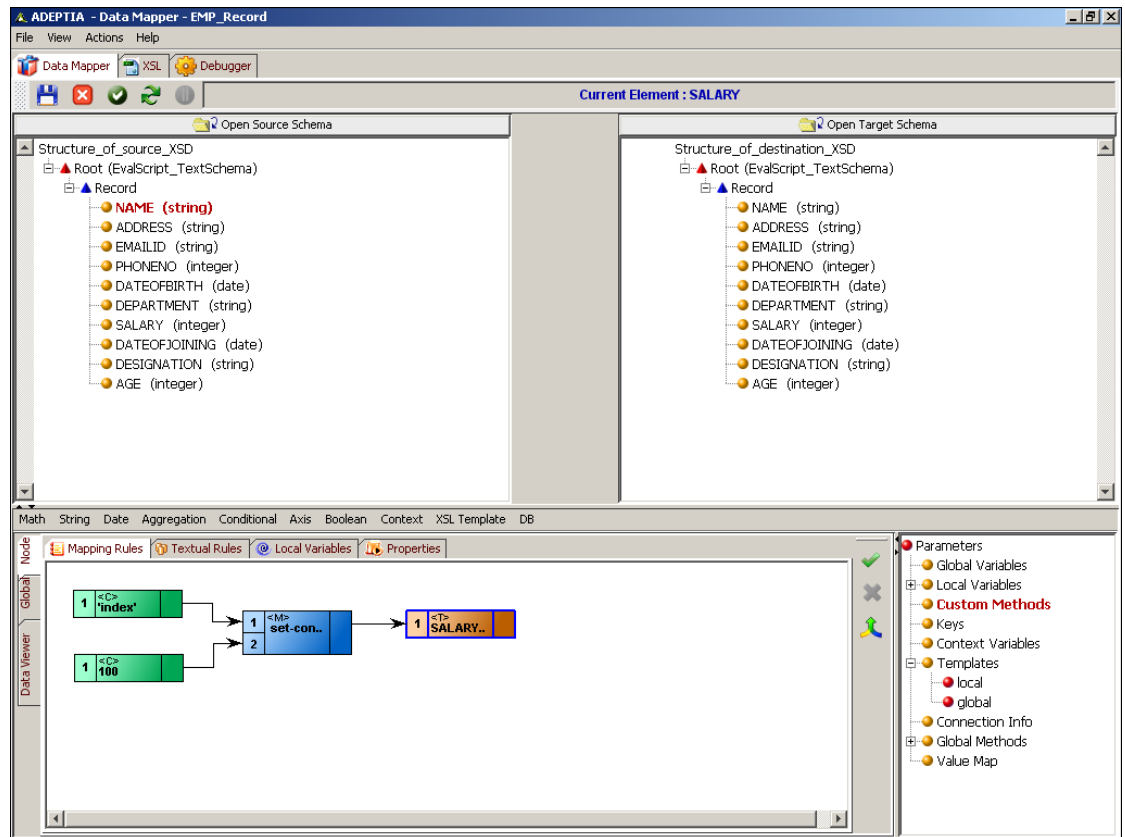



Figure 5.84: Create Links between Nodes for Mapping Set-Context Function to Target Element

9. Click **Apply Mapping** (  ) button. This maps the Set-Context function to the target element. The defined variable (*index*) is passed to the process flow with the value 100. If you shift focus to another node, or click any of the *Mapping Rules*, *Textual Rules*, *Node*, *Properties*, *XSL* or *Debugger* tabs, without applying the mapping, an alert message is displayed (refer to Figure 5.99).
10. Click **No** to apply the mapping and shift focus to the other object. If you click **Yes**, then the mapping activity is cleared and is replaced by the previous mapping in the Mapping Graph Area and the focus is shifted to the other object.



At times the mapping is too large and the applet memory may exceed 256M. In such cases, the mapping will fail and return an error of insufficient memory. You can overcome this situation by increasing the applet memory. Refer to [Appendix A](#) for details.

## Using DB Function

The DB function enables you to get data from the database, based on a condition. It comprises of a sub-function, which is listed in the table below.

Table 5.21: Sub-Function of DB Mapping Function

Mapping Function	Sub Functions	Description	Example
DB	DBQuery	Returns data from the database, based on a query.	<i>DBQuery( 'select EmpID from EMP where EMPID=1035', var1, 'true')</i> returns all the records from the EMP table, where EMPID is 1035. Here, 'var1' is the Connection Info variable. If you change the last boolean argument from <i>true</i> to <i>false</i> , only the first record is returned.

You can use this sub-function of DB mapping function to get data from the database. The process of using this sub-function is outlined below.

**Steps to get data from the database using the 'DBQuery' DB Mapping Function**

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Ensure that a *Connection Info* variable is created for the DBQuery and is listed in the Parameters Panel.



For details on creating a Connection Info variable, refer to the Declaring Connection Info Variable section.

3. Double-click the *target* element that you want to map with the DBQuery. It is displayed in the Mapping Graph Area.
4. Click **DB** function and select the **DBQuery** sub-function. A DBQuery node is displayed in the Mapping Graph Area (see Figure 5.85).

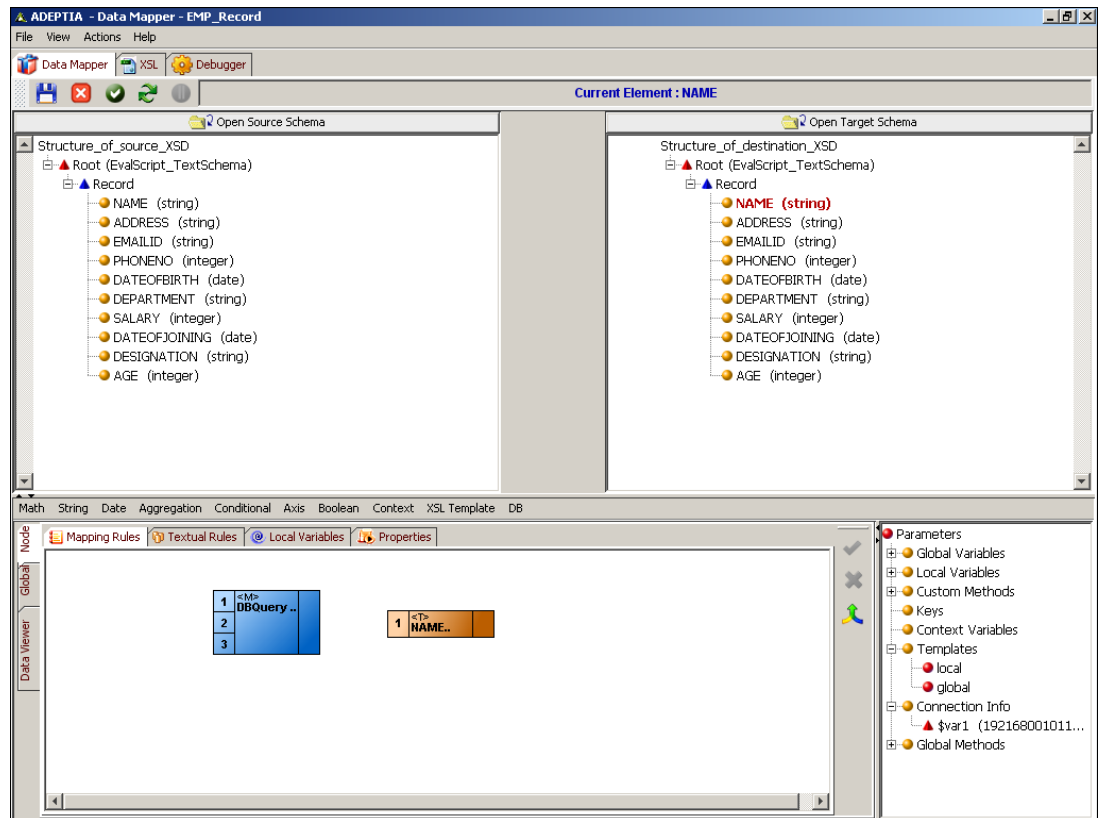


Figure 5.85: Add DBQuery Sub-Function Node

5. [Add a constant node](#) with the query for searching data from the database based on the specified condition (e.g. *select Name from EMP where designation= 'Manager'*).
6. Create a link from the output of the *constant* node to the first input of the *DBQuery* node.
7. Double-click the required **Connection Info** variable under *Connection Info* in the Parameters Panel. The selected Connection Info variable node is displayed in the Mapping Graph Area (see Figure 5.86).



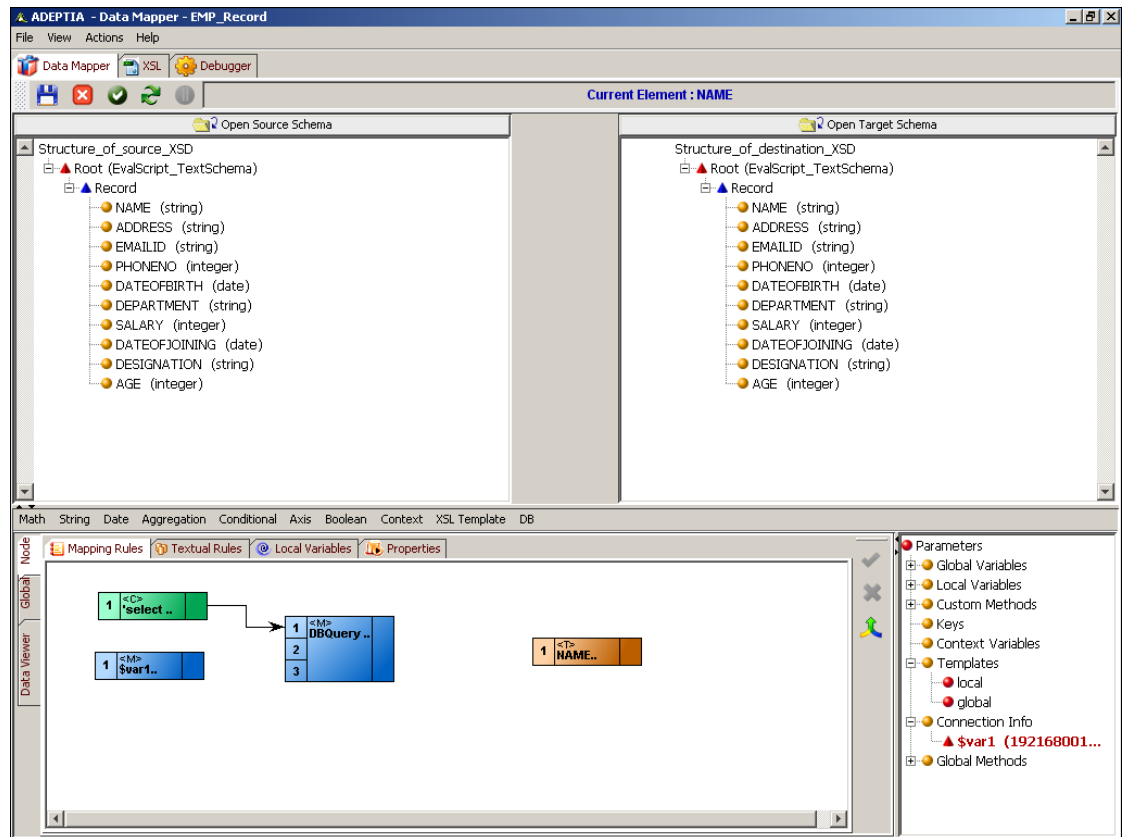


Figure 5.86: Connection Info Variable in Mapping Graph Area

8. Create a link from the output of the *Connection Info* variable to the second input of the *DBQuery* node.
9. **Add another constant node** for the third argument of the *DBQuery* function. This is a Boolean value as True or False.
10. Create a link from the output of this *constant* node to the third input of the *DBQuery* node.
11. Create a link from the output of the *DBQuery* node to the input of the *target* element (see Figure 5.87).

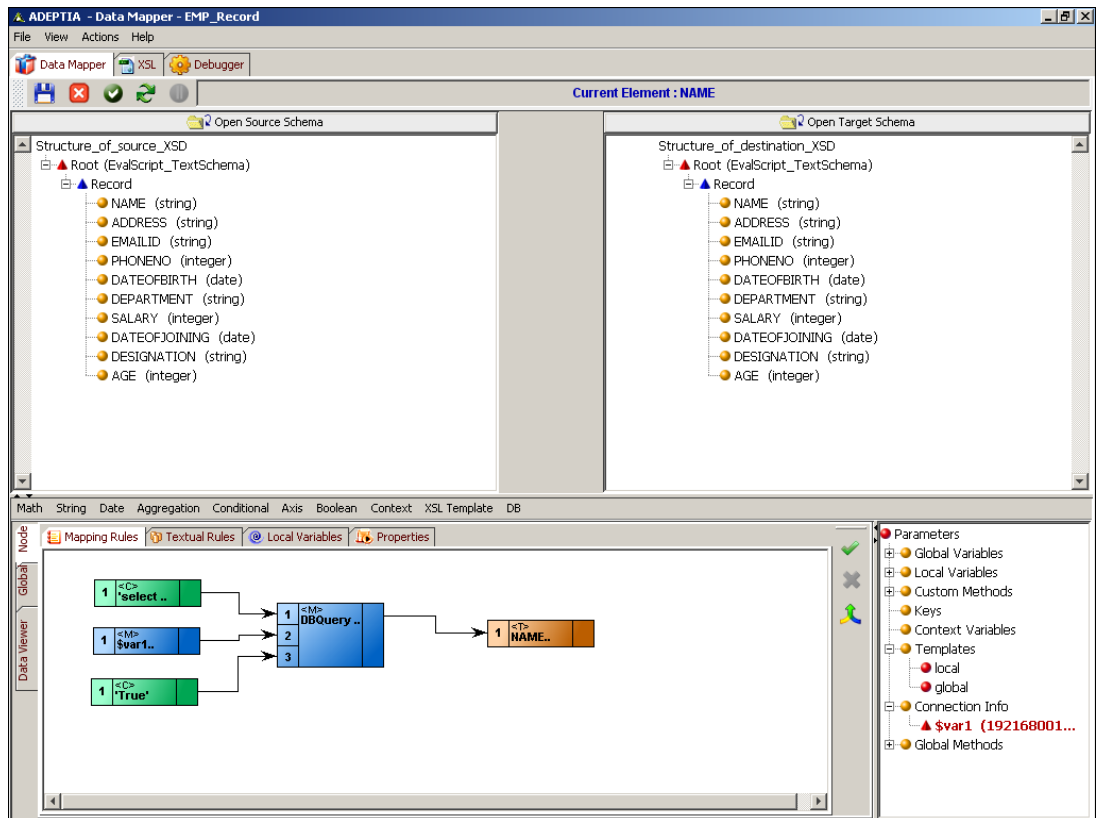



Figure 5.87: Create Links between Nodes for Mapping DBQuery Function to Target Element

12. Click **Apply Mapping** (  ) button. This maps the DBQuery function to the target element. The defined query is passed to the database where a connection is created using the Connection Info variable. If the Boolean value is set as 'True' then the database fetches all the values that match the query. If the value is 'False', then the database fetches only the first matching value. If you shift focus to another node, or click any of the *Mapping Rules*, *Textual Rules*, *Node*, *Properties*, *XSL* or *Debugger* tabs, without applying the mapping, an alert message is displayed (refer to Figure 5.99).
13. Click **No** to apply the mapping and shift focus to the other object. If you click **Yes**, then the mapping activity is cleared and is replaced by the previous mapping in the Mapping Graph Area and the focus is shifted to the other object.



At times the mapping is too large and the applet memory may exceed 256M. In such cases, the mapping will fail and return an error of insufficient memory. You can overcome this situation by increasing the applet memory. Refer to [Appendix A](#) for details.

## Using Textual Rules

Textual Rules are used for mapping source elements, mapping functions or constants to target elements, by defining the elements in syntax form.

### Steps to map elements using the Concat function using Textual Rules

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Select the *target* element that you want to map. It is displayed in the Mapping Graph Area.
3. Click **Textual Rules** tab in the Mapping Graph Area.
4. Click **String** mapping function and select **Concat** sub-function. The syntax for the Concat sub-function is displayed in the Mapping Graph Area (see Figure 5.88).

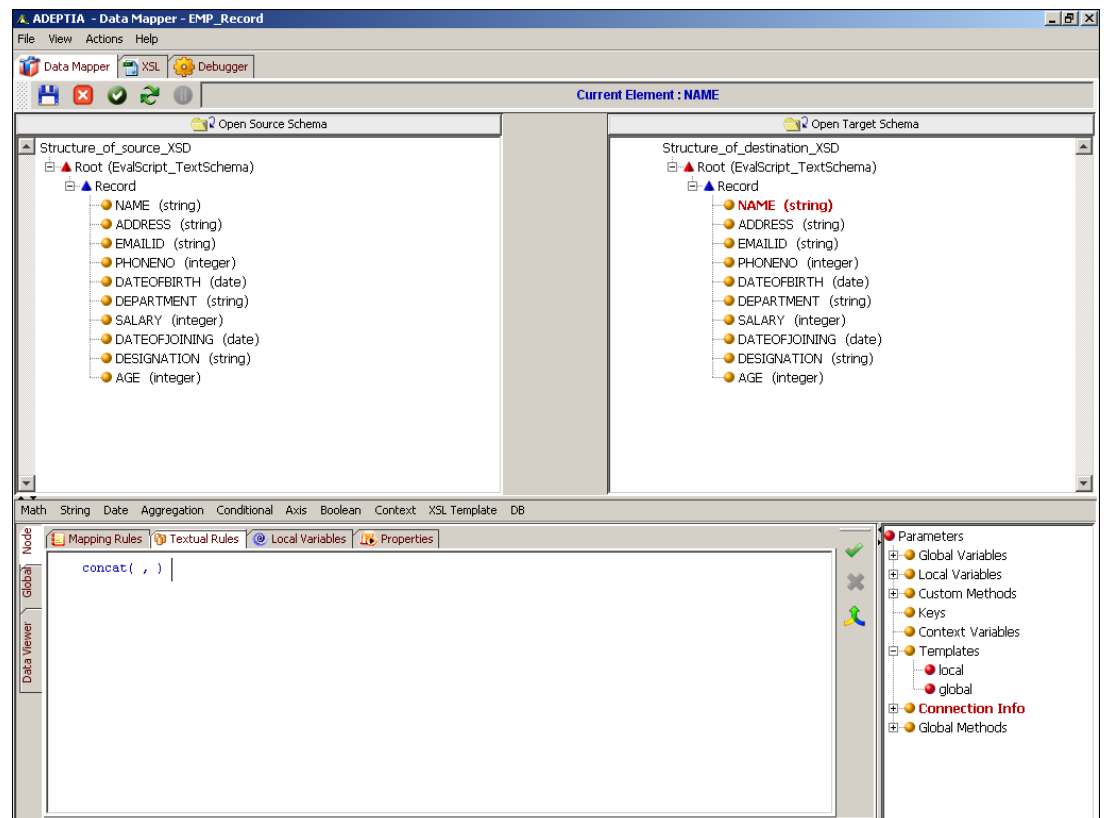


Figure 5.88: Syntax for Concat Sub-Function

5. This syntax has two parameters. Double-click a *source* element that you want to set as the first parameter. This displays the selected source element in the syntax.
6. Similarly, double-click another *source* element as the second parameter. This is displayed in the syntax (see Figure 5.89).

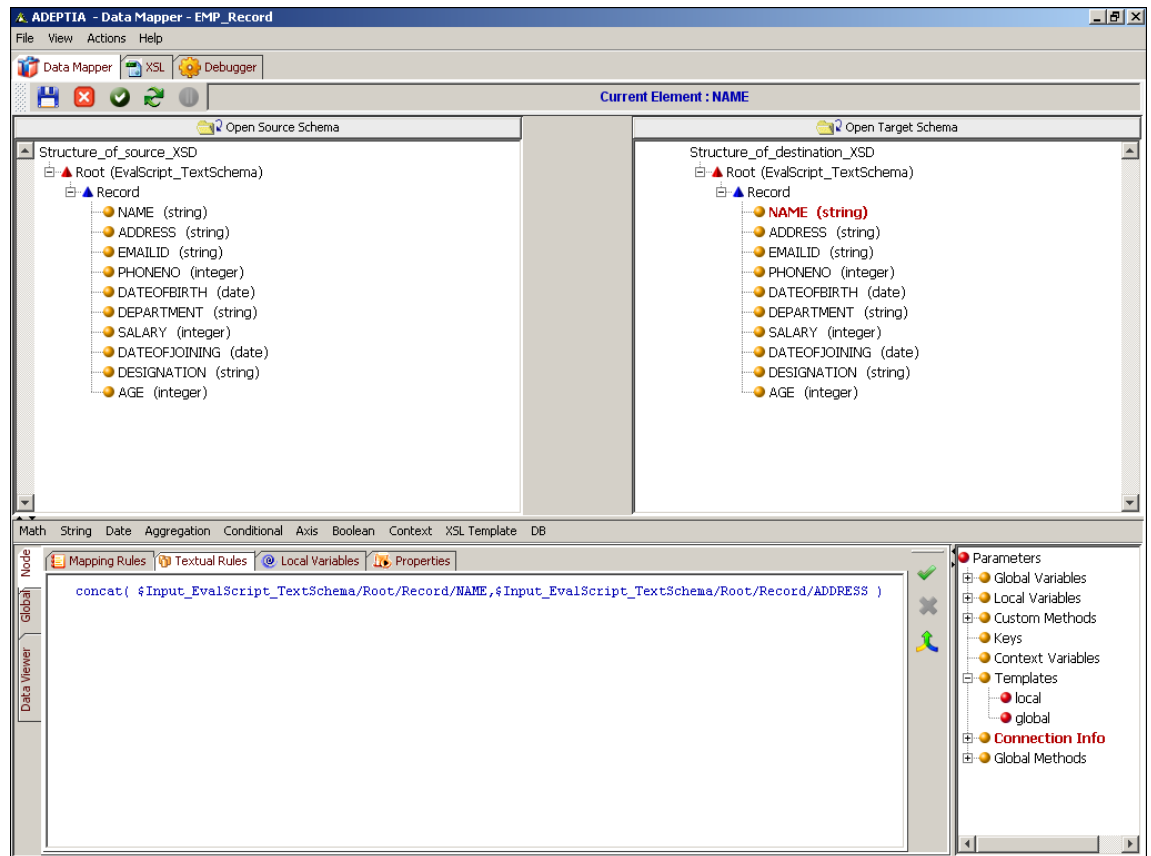



Figure 5.89: Parameters of the Concat Syntax



You can indent the textual rule content as per your requirement.

- Click **Apply Mapping** (  ) button. This maps elements using the concat sub-function. A line is displayed between the source and target panels showing the mapping of the source element to the target element.

## Using Namespace

Namespace allows you to add, view, edit, and remove the namespace in the XSL. All the Namespaces present in the source and target XSD's are automatically placed in the XSL generated. These Namespaces can be viewed using **View Namespace** option in the **Namespace** submenu.

### Adding Namespace

#### Steps to add a Namespace in the XSL

- Click **Actions** menu and select **Namespace**.

- Click the **Namespace** submenu and select **Add Namespace**. The Namespace dialog box is displayed (see Figure 5.90).

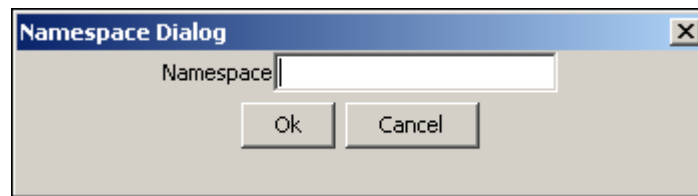


Figure 5.90: Adding Namespace

- Enter the Namespace and click OK button. The Namespace is added to the XSL.

For Example, `xmlns:oa="http://www.openapplications.org/oagis"`



The namespace added is shown in the XSL stylesheet tag.

## Editing Namespace

### Steps to edit a Namespace in the XSL

- Click **Actions** menu and select **Namespace**.
- Click the **Namespace** submenu and select **Edit Namespace**. The Select Namespace screen is displayed (see Figure 5.91).

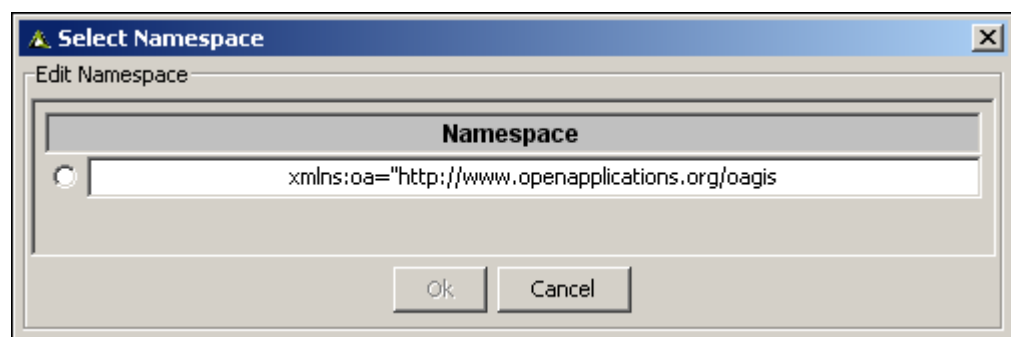


Figure 5.91: Select Namespace

- Select the namespace you want to edit. This activates the **OK** button. This displays the *Namespace* dialog box in edit mode.
- Make the necessary changes.
- Click **OK** to save the modifications.



Similarly, you can view or remove an existing namespace.

## Using XSL Template

An XSL template is a customized template. If you need to repeatedly perform a set of functions, you can create an XSL template defining those functions, and then later call that XSL template whenever required. For example, if you need to perform addition of two numbers at regular intervals, you can define the addition function in an XSL template. You can then call this XSL template whenever required.

The XSL Template option enables you to manage XSL templates. You can add, update or delete an XSL template using this option.

Once you have added an XSL template, you can use it to map elements.

There are two type of XSL Templates:

**Local:** Local templates are available within the mapping activity, in which you have created the template.

**Global:** Global templates are available within all the mapping activities. Once you create a global template in a mapping activity, you can use it in all the mapping activities.

### *Add XSL Template*

#### *Steps to add an XSL template*

1. Click **XSL Template** option displayed next to mapping functions on the Mapping Functions Panel. Then select **Manage XSL Template** option. The Manage XSL Template screen is displayed (see Figure 5.92).

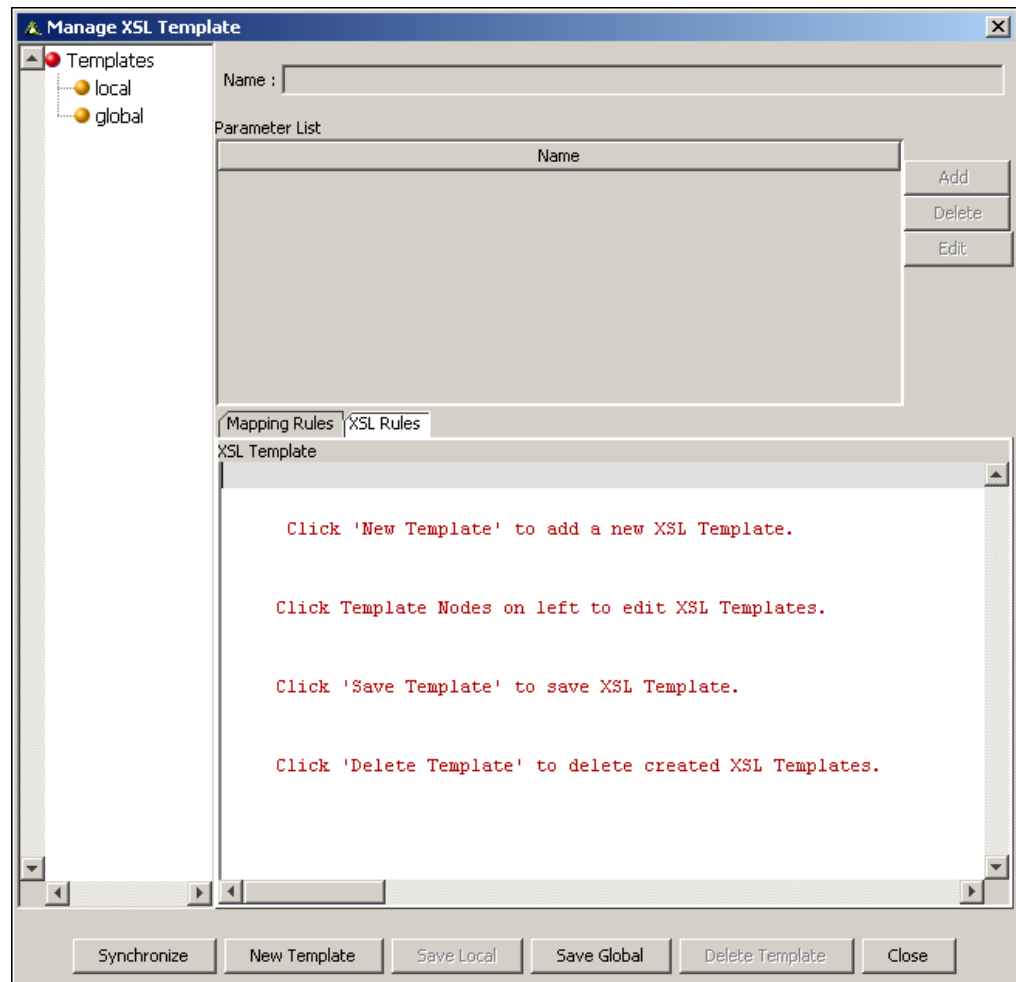


Figure 5.92: Manage XSL Template

2. Click **New Template** button. This activates the *Name* and *Parameter List* fields.
3. Enter the name of the new XSL template that you want to create, in the *Name* field.
4. Click **Add** button to add parameters for the new XSL template. This displays the Parameter Dialog box (see Figure 5.93).

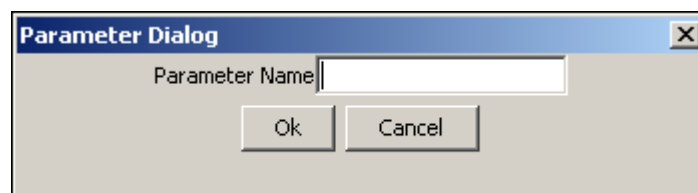


Figure 5.93: Parameter Dialog Box

5. Enter the name of the parameter you want to add, in the *Parameter Name* field and click **OK**. This closes this screen and adds the new parameter in

the Parameter List field. It also generates the corresponding XSL in the XSL Template editor on the Manage XSL Template screen (see Figure 5.94).

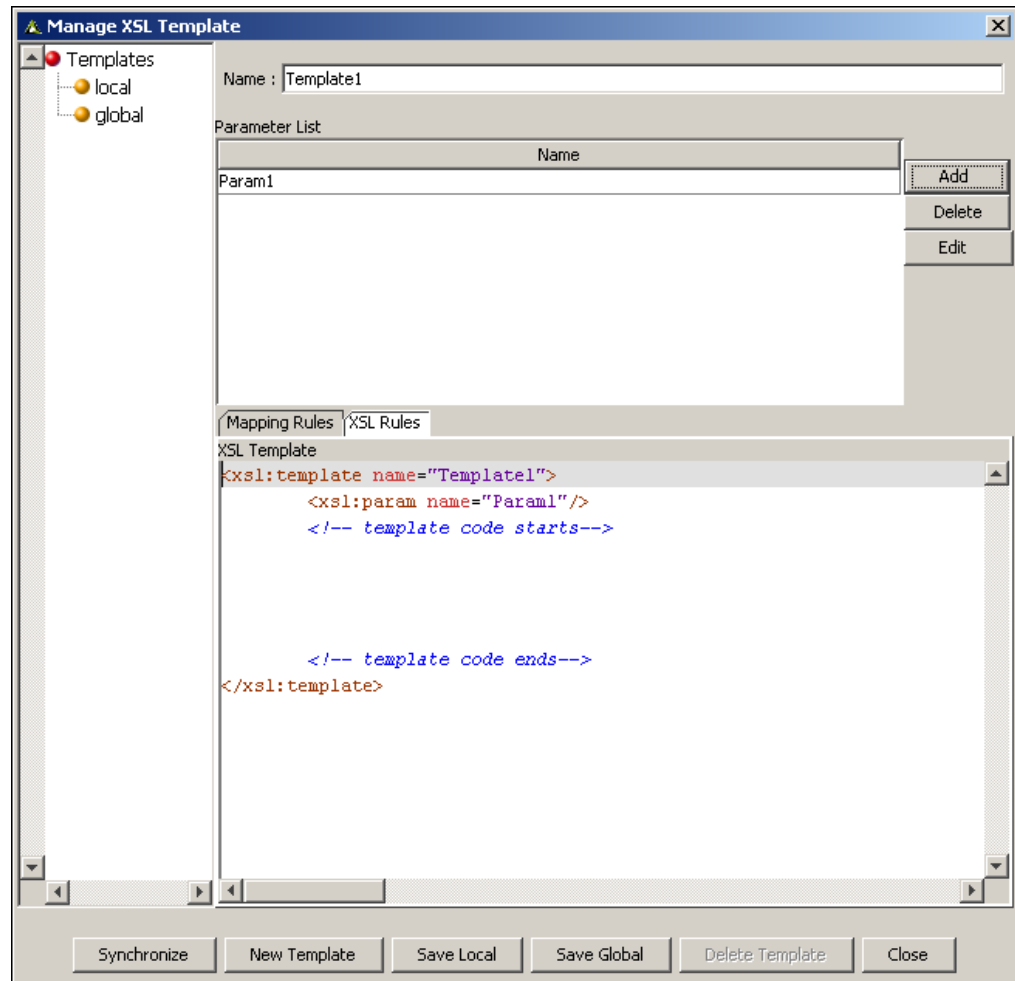


Figure 5.94: Parameters Added in XSL Template

6. Similarly, add additional parameters to the XSL template.



You can also define variables as the parameters of the XSL Template. To add a global variable, refer to the section [Using Global Variable](#).

7. Enter the code for the function that you want to perform, for example, addition of two numbers, in the 'add here' line, in the XSL Template field. The syntax of the addition function would be:

```
<xsl: value-of select = "$param1 + $param2"/>
```

where:

*value-of* is the syntax for the value to be returned  
*param1* and *param 2* are the defined parameters



8. Once you have entered the code, click **Save Local** button to save the Local XSL template. This displays the saved template under the Templates list on the XSL Template screen. It is also displayed under Templates in the Parameters Panel.
9. If you want to save the template as Global Template, click **Save Global** button. This will save the XSL template as Global XSL template and can be used in any mapping activity.



On saving the template, XSL validation is performed. If XSL is invalid, then an alert message is displayed specifying the line number and reason for error.



The name and parameters of the new XSL template also get displayed under the Templates list in the Parameters Panel. You can edit or delete an XSL template from the Parameters Panel itself. For details, refer to the [Managing a Global Variable from Parameter Panel](#) section.



To delete a parameter, click **Delete** button next to the Parameter List field.  
 To delete the active XSL template, click **Delete Template** button.  
 To edit a template, click **template** node of the template you want to edit, under the Templates list.  
 To exit the screen at any time, click **Close** button.

Once you have created a XSL template, you can use it to map elements.

## ***Map Elements using XSL Template***

### ***Steps to map elements using an XSL Template***

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Ensure that the [source and target elements to be mapped are selected and displayed](#) in the Mapping Graph Area.
3. Click the XSL template that you want to use for performing the required function, from the *Templates* list in the Parameters Panel. A Call XSL Template node is displayed in the Mapping Graph Area (see Figure 5.95).

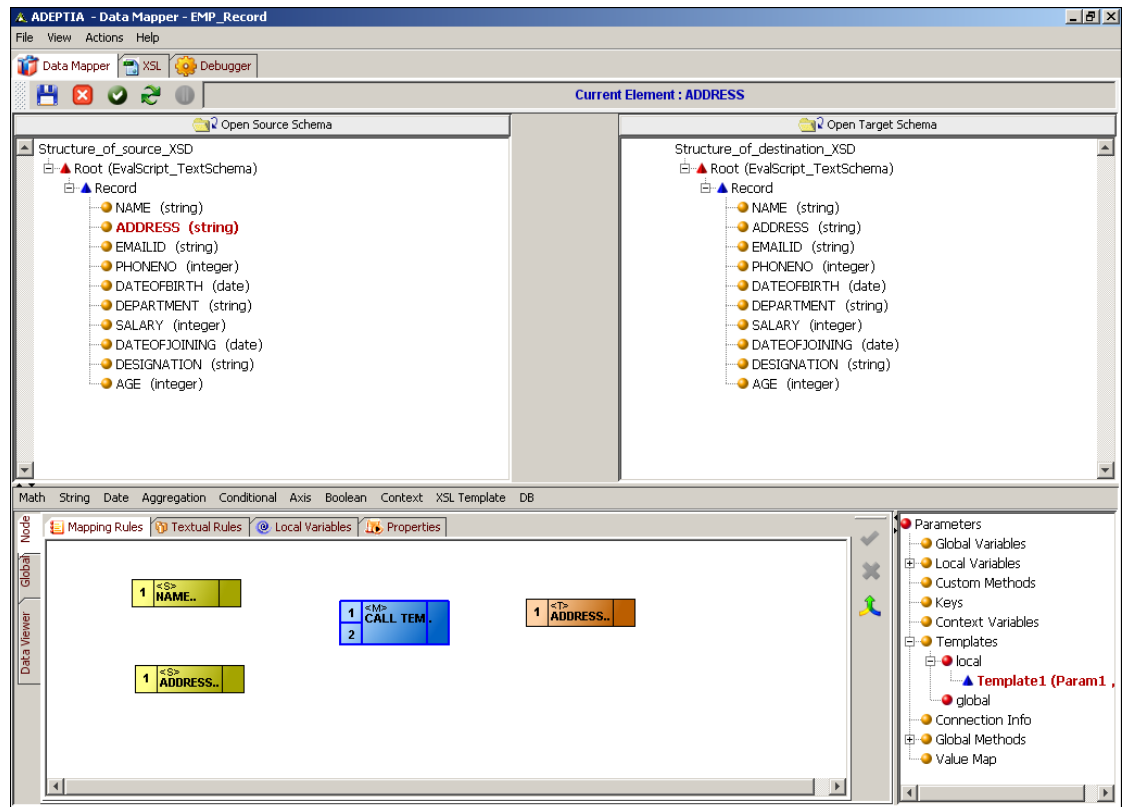


Figure 5.95: Call XSL Template Node

4. Create a link from the output of the first *Source* element to the first input of the *Call XSL Template* node.
5. Create a link from the output of the second *Source* element to the second input of the *Call XSL Template* node.
6. Create a link from the output of the *Call XSL Template* function node to input of the *Target* element node (see Figure 5.96).

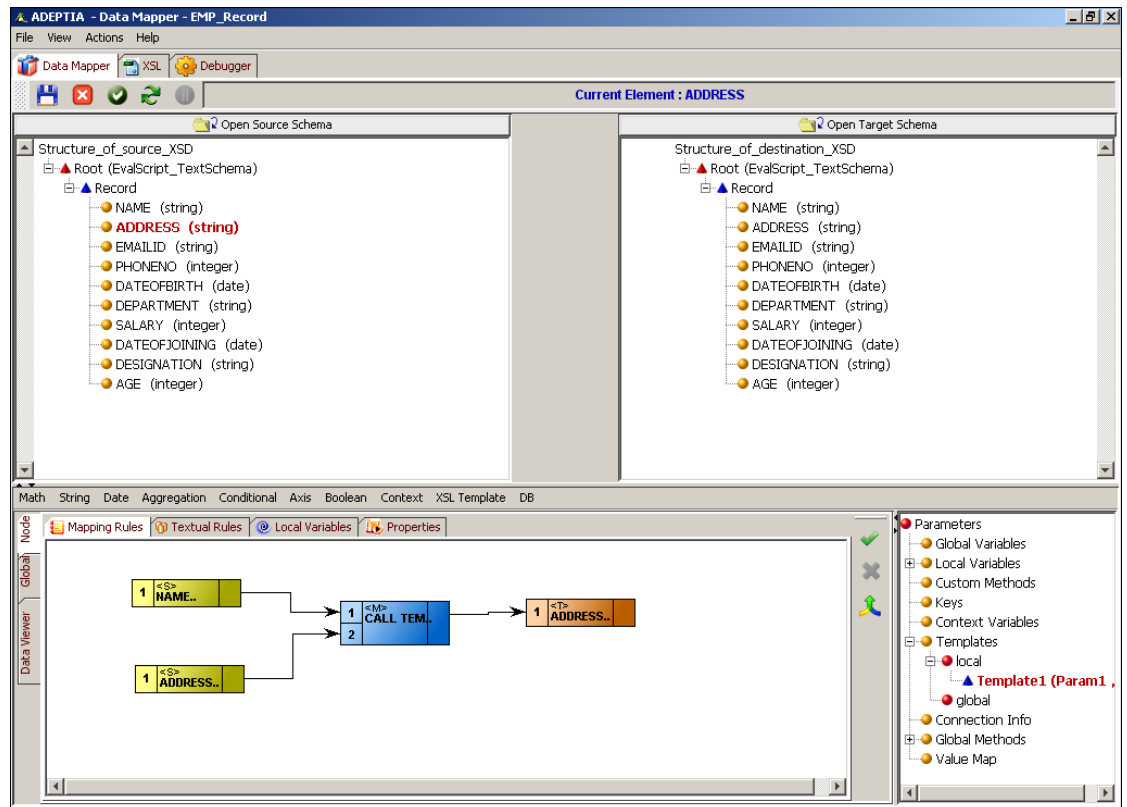



Figure 5.96: Create Links between Nodes for Mapping Elements using XSL Template

- Click **Apply Mapping** (  ) button. This maps elements using the Call XSL Template function node.

## Using Global Variable

Global variables are used for mapping source elements, mapping functions or constants to target elements. They are declared and used globally for all target elements.

To use a global variable in a mapping activity, you need to map it to a target element. This will successfully execute the global variable when you execute the mapping activity in the process flow.



A global variable differs from a context variable, in the respect that it is available only within the selected mapping activity. Context variables are available in the process designer too.

## Declare Global Variable

### *Steps to declare a Global Variable*

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Global** tab in the Mapping Graph Area. All tabs of the Global tab are displayed.
3. Click **Global Variables** tab. The Global Variable pane is displayed in the Mapping Graph Area (see Figure 5.97).

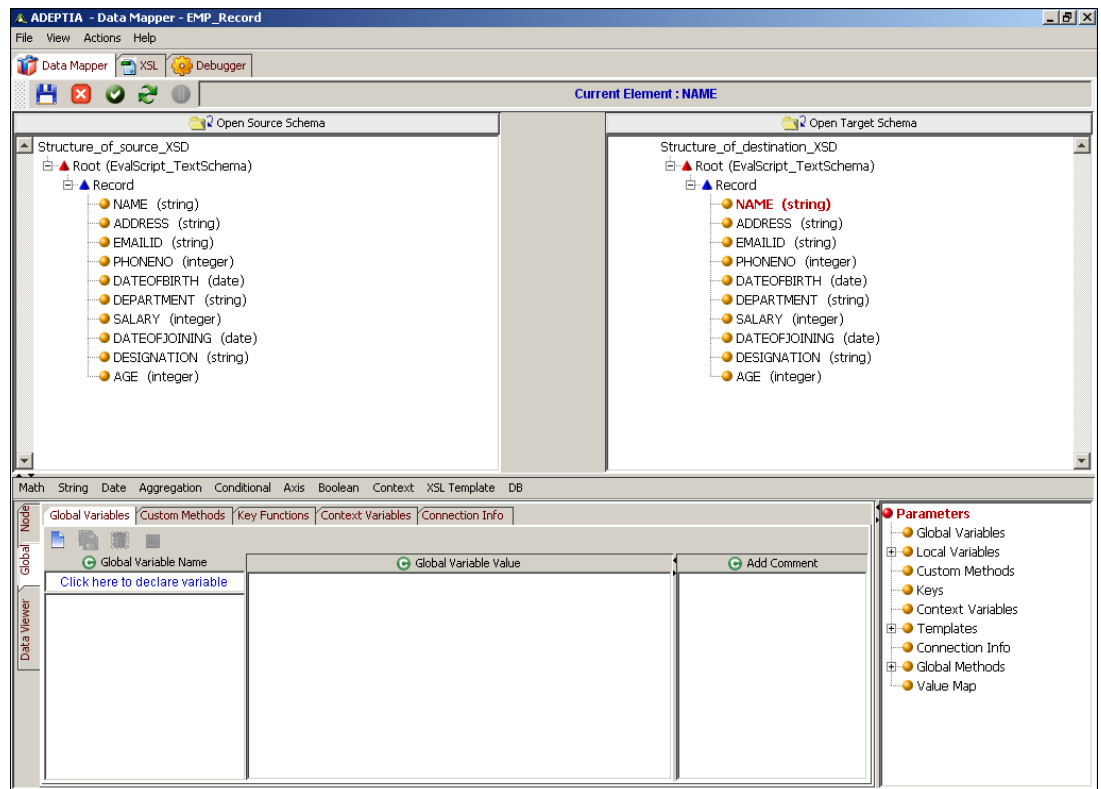


Figure 5.97: Global Variable Pane

4. Click *Global Variable Name* text field and enter the name of the global variable you want to create (e.g. *emp\_age*). Press the **Tab** or **Enter** key. This takes the control to the *Global Variable Value* field.
5. Enter the value of the global variable in the *Global Variable Value* field. You can enter the value of the global variable using one of the listed methods:
  - Click required source element
  - Select the required Mapping function
  - Type the required value manually
  - Select a Custom Method



To select a Custom Method as the value of a global variable, double click the desired **Custom Method** under *Custom Methods* in the Parameters Panel. The selected Custom Method is displayed in the Variable Definition field.

To learn how to declare a Custom Method, refer to section [Using Custom Method](#).

- Enter comments for the global variable in the *Add Comment* field (see Figure 5.98). For example, if the global variable value contains complex XSLT logic, you can enter its description in this field.



The *Comments* field is resizable.

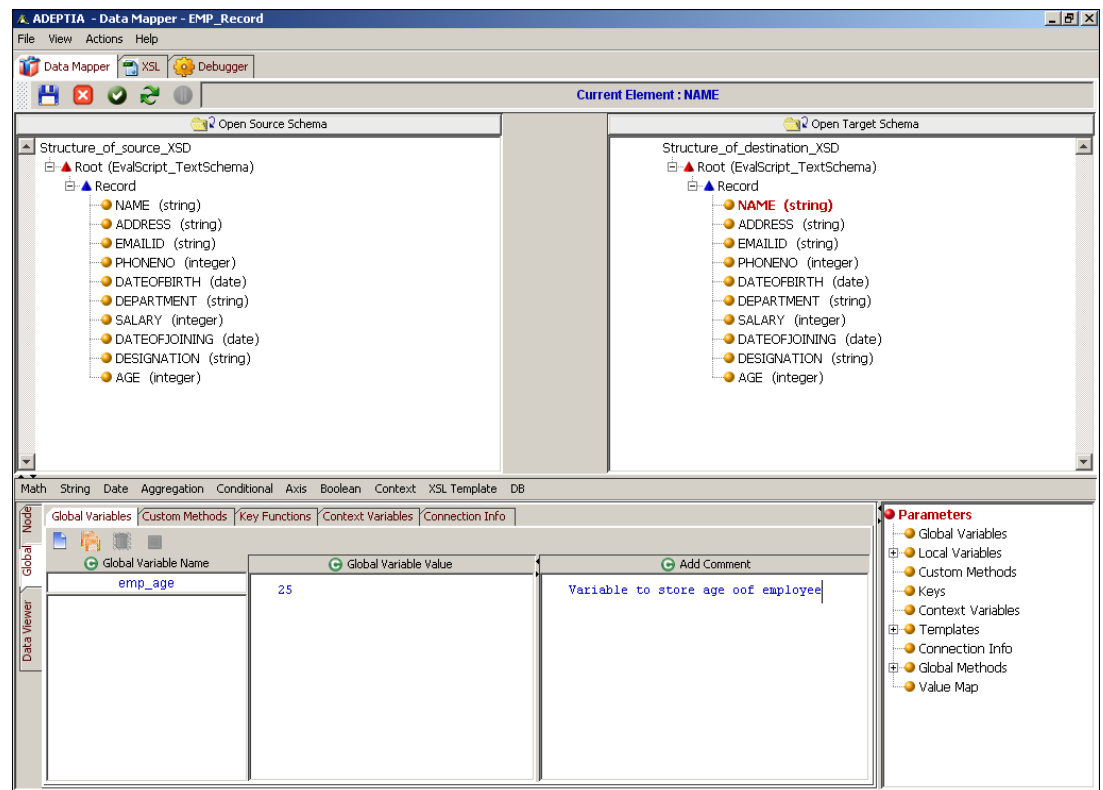



Figure 5.98: Enter Name, Value and Comments of Global Variable

- Click **Save Global Variable** () button to save the global variable. This global variable is added to the list of existing variables in the *Global Variable Name* field. It is also displayed under *Global Variables* in the *Parameters Panel*. If you shift the focus to another node, or click any of the *Mapping Rules*, *Textual Rules*, *Local Variables*, *Properties*, *XSL* or *Debugger* tabs, without saving the global variable, an alert message is displayed. (see Figure 5.99). The comments added for the global variable are saved and displayed above the global variable declaration in the Mapping XSL (refer to Figure 5.100).

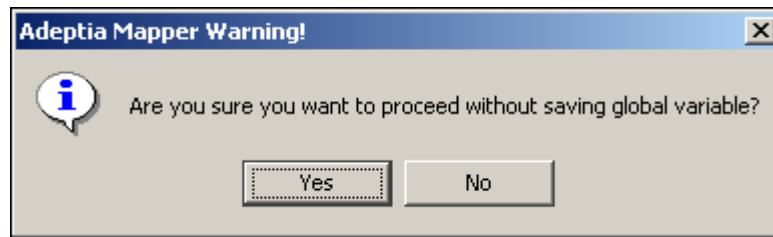


Figure 5.99: Alert Message



For example, you have defined a global variable *Var1*, and you click the **Name** target element, without saving *Var1*, then the alert message is displayed.

The alert message is also displayed when shifting focus between Global and Node tabs.

8. Click **No** to save the global variable and shift the focus to the other object. If you click **Yes**, then the defined global variable is cleared and the focus is shifted to the other object.

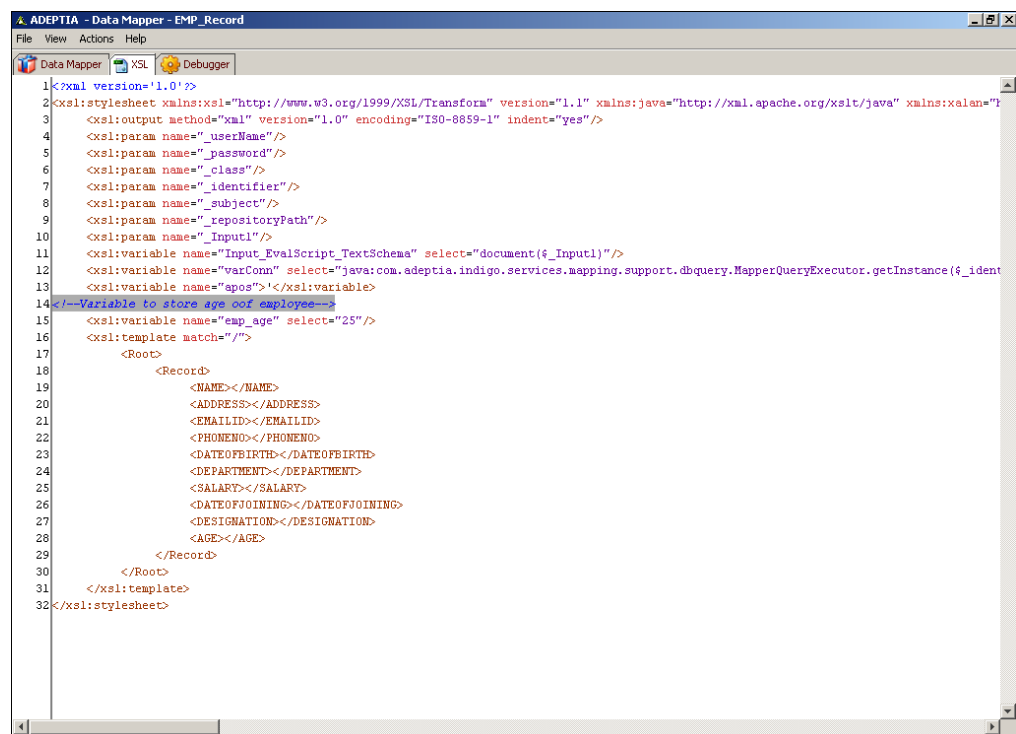



Figure 5.100: Comment in Mapping XSL



You can rearrange the global variables by dragging it up or down in the list.



To remove a global variable, select the global variable and click **Remove selected global variable** (  ) button.

To remove all global variables, click **Remove all global variables** (  ) button.

## Managing a Global Variable from the Parameters Panel

Once the global variable is added to the Parameters Panel, you can edit it or delete it anytime from this Panel itself.

### Steps to manage a Global Variable from the Parameters Panel

1. Right-click the **global variable** that you want to edit or delete. This displays the right drop-down menu (see Figure 5.101).

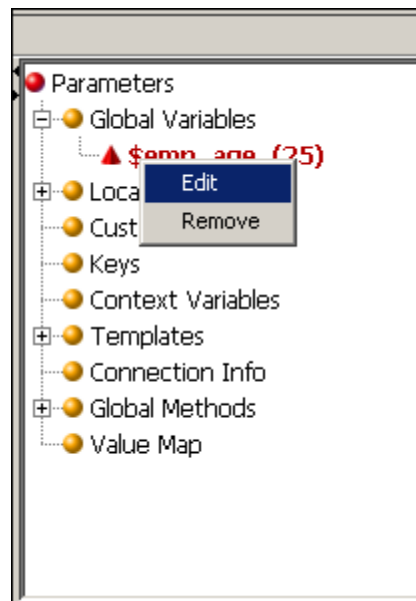


Figure 5.101: Right-Click Menu of Elements in Parameter Panel

2. Select **Edit** to edit the variable. This displays the selected global variable in Edit mode. You can edit the value of the global variable in the *Global Variable Value* field.
3. Alternately, select **Remove** to delete the selected variable. This displays a confirmation screen for the delete operation (see Figure 5.102).

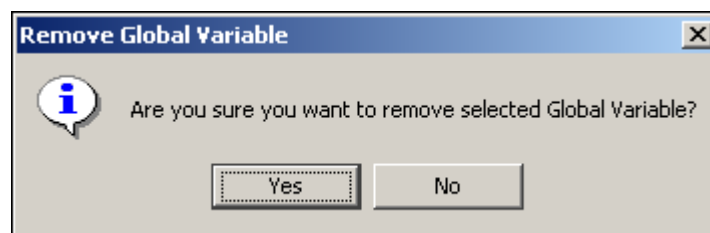


Figure 5.102: Confirm Delete of Global Variable

4. Click **Yes** to delete the selected variable.

## Map Global Variable to Target Element

Once you have created a global variable, you can map it to a target element.

### Steps to map Global Variable to target element

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed. Click **Mapping Rules** tab.
3. Select a *target* element. This displays the selected target element node in the Mapping Graph Area.
4. Double-click the required **global variable** under *Global Variables* in the Parameters Panel. The selected global variable node is displayed in the Mapping Graph Area (see Figure 5.103).

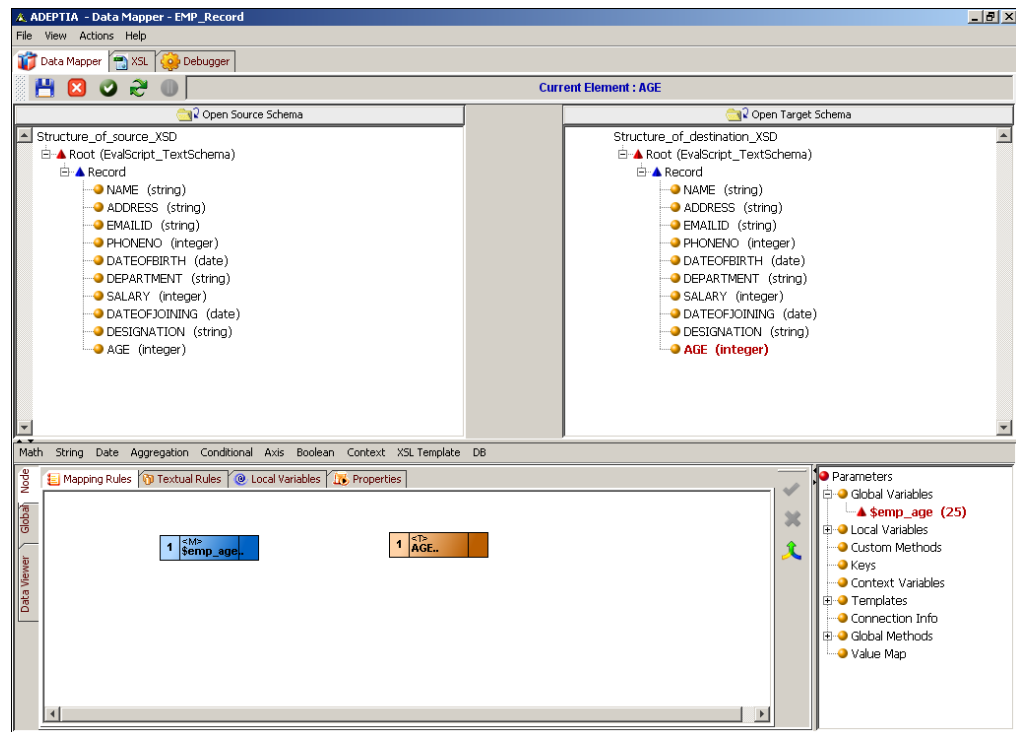


Figure 5.103: Add Global Variable Node

5. Create a link from the output of the global variable to the input of the target element.
6. Click **Apply Mapping** (✓) button. This maps the global variable to the target element. If you shift the focus to another target element, or click any of the *Node*, *XSL* or *Debugger* tabs, without applying the mapping, then an alert message is displayed. (refer to Figure 5.99).
7. Click **No** to apply the mapping and then shift the focus to the other object. If you click **Yes**, then the mapping activity is cleared and is replaced by



the previous mapping in the Mapping Graph Area and the focus is shifted to the other object.



Once a global variable is mapped to a target element, the letter **(M)** is displayed next to the mapped target element. This signifies that a target element has been mapped. Refer to [Table of Suffixes](#) for details on suffixes displayed next to a target element.

8. [Save](#) the mapping activity and exit the Data Mapper.



You can [view and validate the generated mapping XSL](#), [view the target XML](#) and [view and validate mapping output](#), before saving the mapping activity.

## Using Local Variable

Local variables are used for mapping source elements, mapping functions or constants to a specific target element. They are declared and used only for the specific target element or attribute for which they are declared.

To use a local variable in a mapping activity, you need to map it to the specific target element or attribute. This will successfully execute the local variable when you execute the specific mapping activity in the process flow.

### Declare Local Variable

#### *Steps to declare a Local Variable*

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
3. Click **Local Variables** tab. The Local Variable pane is displayed in the Mapping Graph Area (see Figure 5.104).

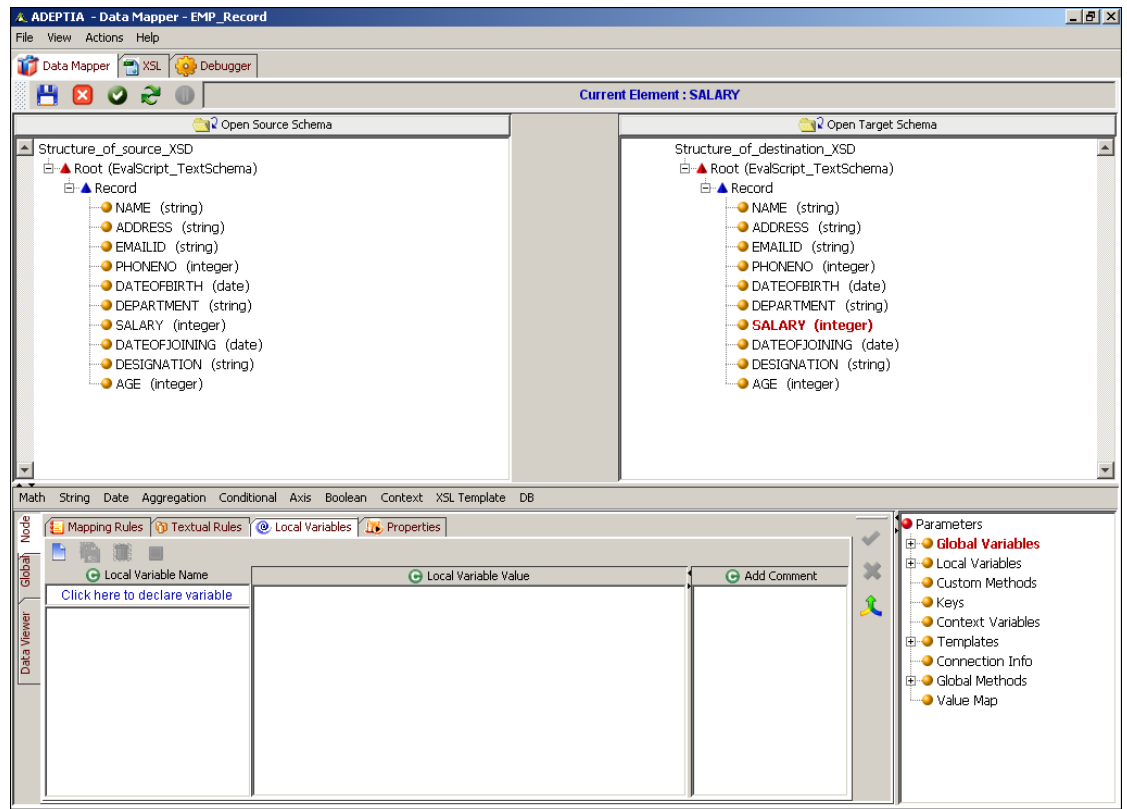


Figure 5.104: Local Variable Pane

4. Click *Local Variable Name* text field and enter the name of the local variable you want to create (e.g. *varQuery*). Press the **Tab** or **Enter** key. This takes the control to the *Local Variable Value* field.
5. Enter the value of the local variable in the *Local Variable Value* field. You can enter the value of the local variable using one of the listed methods:
  - Click required source element
  - Select the required Mapping function
  - Type the required value manually
  - Select a Custom Method
6. Enter comments for the local variable in the *Add Comment* field (see Figure 5.105). For example, if the local variable value contains complex XSLT logic, you can enter its description in this field.



The *Comments* field is resizable.

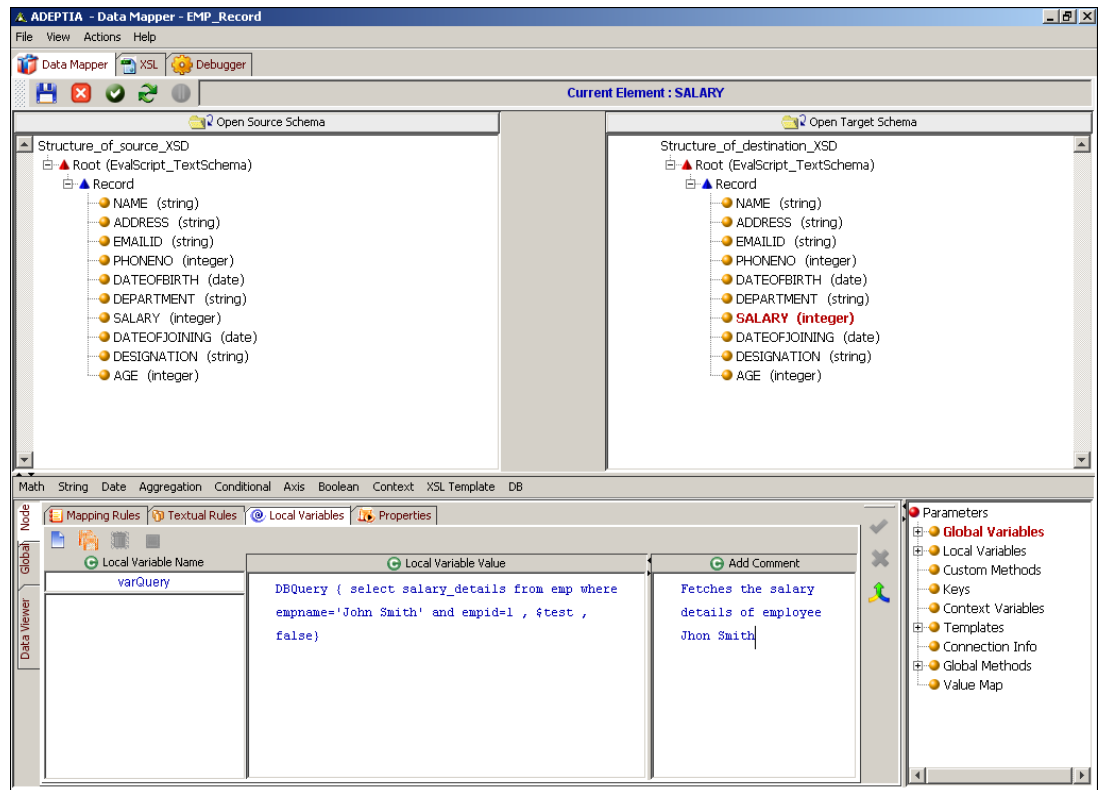



Figure 5.105: Enter Name, Value and Comment for Local Variable



To select a Custom Method as the value of a local variable, double click the desired **Custom Method** under *Custom Methods* in the Parameters Panel. The selected Custom Method is displayed in the *Variable Definition* field.






To learn how to declare a Custom Method, refer to section [Using Custom Method](#).

- Click **Save Local Variable** () button to save the local variable for the selected target element. This local variable is added to the list of existing variables in the *Local Variable Name* field. It is also displayed under *Local Variables* in the Parameters Panel. If you shift the focus to another node, or click any of the *Mapping Rules*, *Textual Rules*, *Global Variables*, *Properties*, *XSL* or *Debugger* tabs, without saving the local variable, an alert message is displayed (refer to Figure 5.99). The comments added for the local variable are saved and displayed above the local variable declaration in the Mapping XSL (refer to Figure 5.100).



The alert message is also displayed when shifting focus between Global and Node tabs.

- Click **No** to save the local variable and shift the focus to the other object. If you click **Yes**, then the defined local variable is cleared and the focus is shifted to the other object.

	Once the local variable is saved, it is categorized as <i>Current Variable</i> or <i>Ancestor Variable</i> in the Parameters Panel. If it is created for a child node, then it is saved as a <i>Current Variable</i> . If it is created for a parent's parent node, then it is saved as an <i>Ancestor Variable</i> .
	You can rearrange the local variables by dragging it up or down in the list.
	<p>To remove a local variable, select the local variable and click <b>Remove selected local variable</b> () button.</p> <p>To remove all local variables, click <b>Remove all local variables</b> () button.</p> <p>Alternately, you can edit or delete a local variable from the Parameters Panel itself. For details, refer to the <a href="#">Managing a Global Variable from Parameter Panel</a> section.</p>

## Map Local Variable to Target Element

Once you have created a local variable, you can map it to the specific target element or attribute.

### Steps to map Local Variable to specific target element

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed. Click **Mapping Rules** tab.
3. Select a *target* element. This displays the selected target element node in the Mapping Graph Area.
4. Double-click the required **local variable** under *Local Variables* in the Parameters Panel. The selected local variable node is displayed in the Mapping Graph Area (see Figure 5.106).

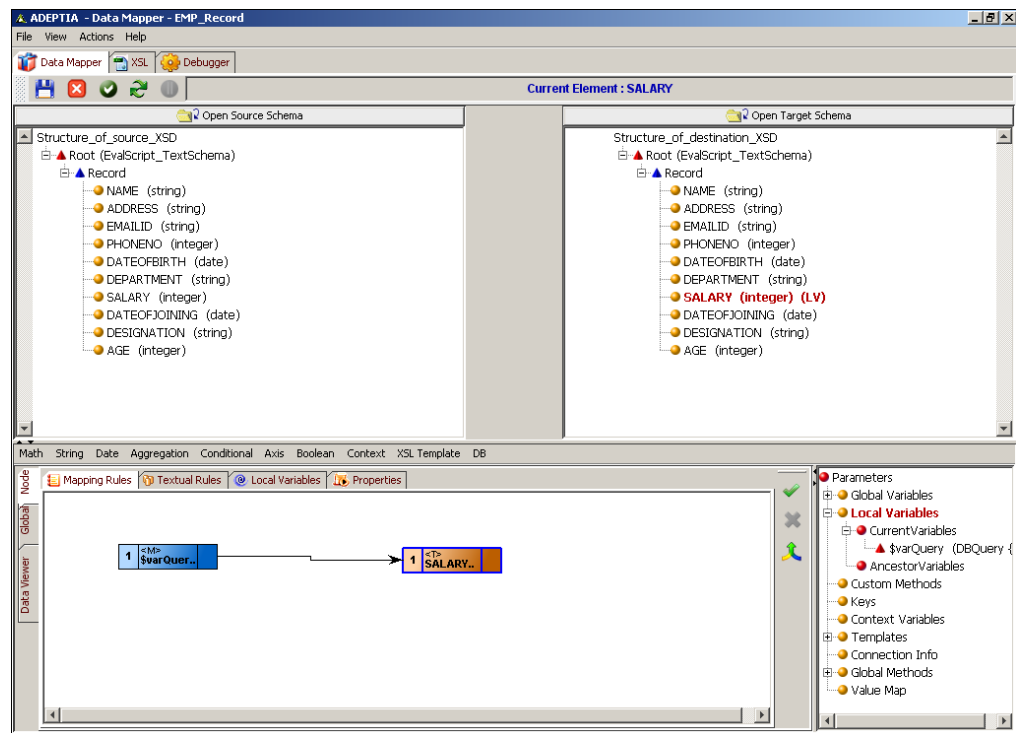


Figure 5.106: Add Local Variable Node

5. Create a link from the output of the *local variable* to the input of the *target* element.
6. Click **Apply Mapping** (✓) button. This maps the local variable to the selected target element. If you shift the focus to another target element, or click any of the *Global*, *XSL* or *Debugger* tabs, without applying the mapping, then an alert message is displayed (refer to Figure 5.99).
7. Click **No** to apply the mapping and then shift focus to the other object. If you click **Yes**, then the mapping activity is cleared and is replaced by the previous mapping in the Mapping Graph Area and the focus is shifted to the other object.



Once a local variable is mapped to a target element, the letter **(LV)** is displayed next to the mapped target element. This signifies that a local variable has been mapped to the target element. The letter **(M)** is also displayed indicating the target element has been mapped. Refer to [Table of Suffixes](#) for details on suffixes displayed next to a target element.



Local variables do not allow duplicate names at the same level. You need to right-click to edit the local variable, where you can select the source.

8. [Save](#) the mapping activity and exit the Data Mapper.



You can [view and validate the generated mapping XSL](#), [view the target XML](#) and [view and validate mapping output](#), before saving the mapping activity.

## Using Custom Methods

A custom method is used to call a function from a custom Java class in a package. It is declared and used globally for all target elements.

To use a custom method in a mapping activity, you need to map it to a target element. This will successfully execute the custom method when you execute the mapping activity in the process flow.

### Prerequisites:

The package containing the custom java class must be copied in the folder `../..../AdeptiaServer-4.9/ServerKernel/customClasses`.

## Declare a Custom Method

### *Steps to declare a Custom Method*

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Global** tab displayed in the Mapping Graph Area. All tabs of the Global tab are displayed.
3. Click **Custom Methods** tab. The Custom Methods pane is displayed (see Figure 5.107).

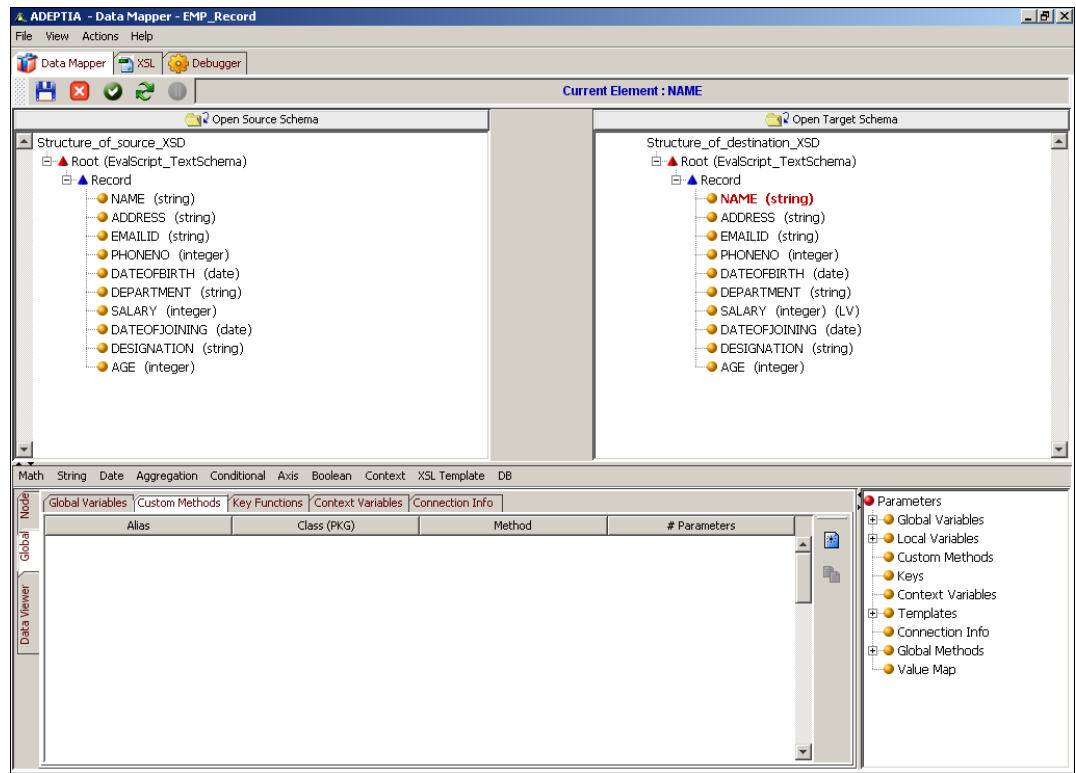



Figure 5.107: Custom Methods Pane

4. Click **Add New Method** () button to add a Custom Method. A row is inserted with the listed columns as displayed in Figure 5.108:
  - Alias
  - Class (PKG)
  - Method
  - # Parameters

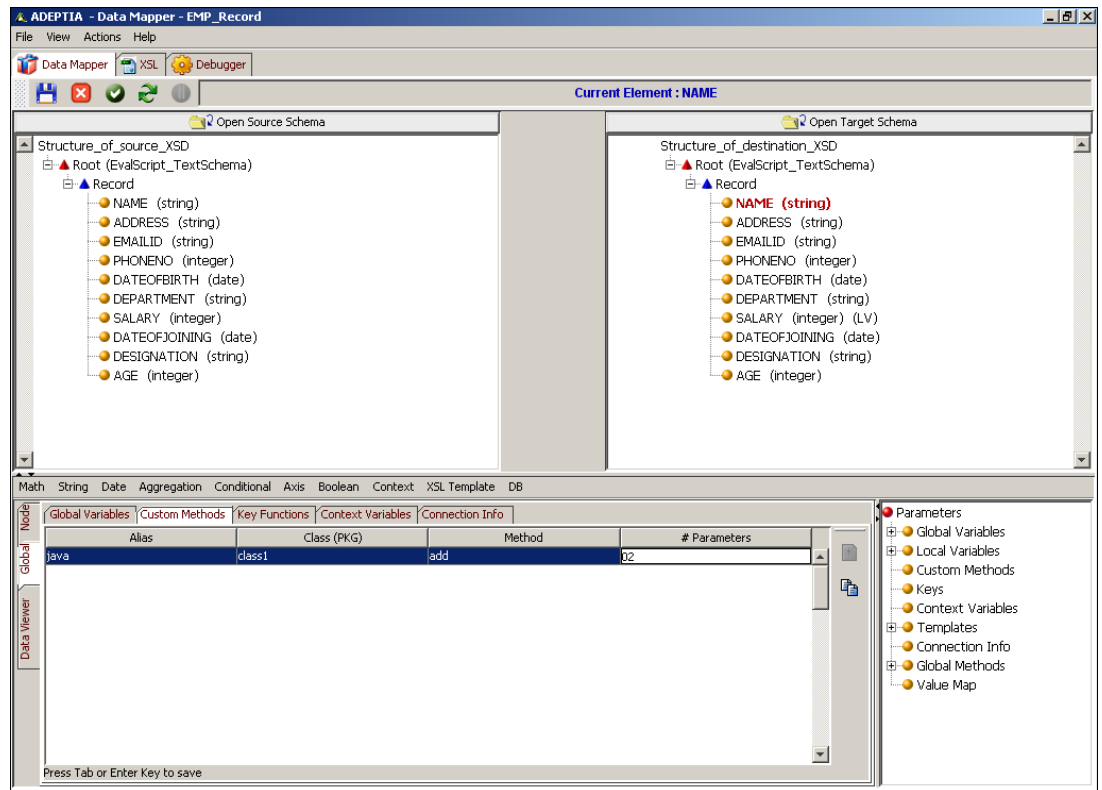


Figure 5.108: Add Custom Method

5. The value 'java' is automatically displayed in the *Alias* column. This is a read-only field.
6. Click *Alias* field and then press **Enter** or **Tab** key to activate the *Class (PKG)* field.
7. Enter the fully qualified name of the Java class in the *Class (PKG)* field and press **Enter** or **Tab** key to activate the *Method* field.
8. Enter the name of the custom method in the *Method* column and press **Enter** or **Tab** key to activate the *#Parameter* field.
9. Enter the number of arguments taken by Method in the *# Parameter* column. A custom method can take any number of arguments. However, if you enter a value greater than 4, then a warning message appears (see Figure 5.109).

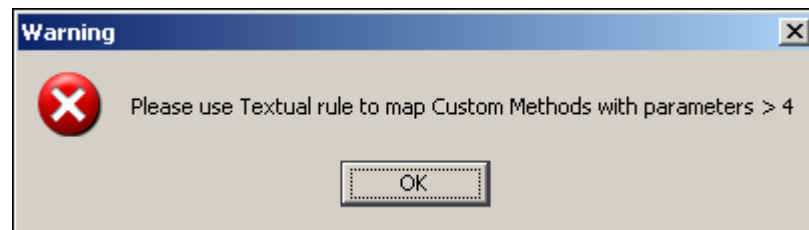


Figure 5.109: Warning for Adding more than 4 Parameters

10. Click **OK** to close the message. This saves the custom method and displays it under *Custom Methods* in the Parameters Panel (see Figure 5.110).



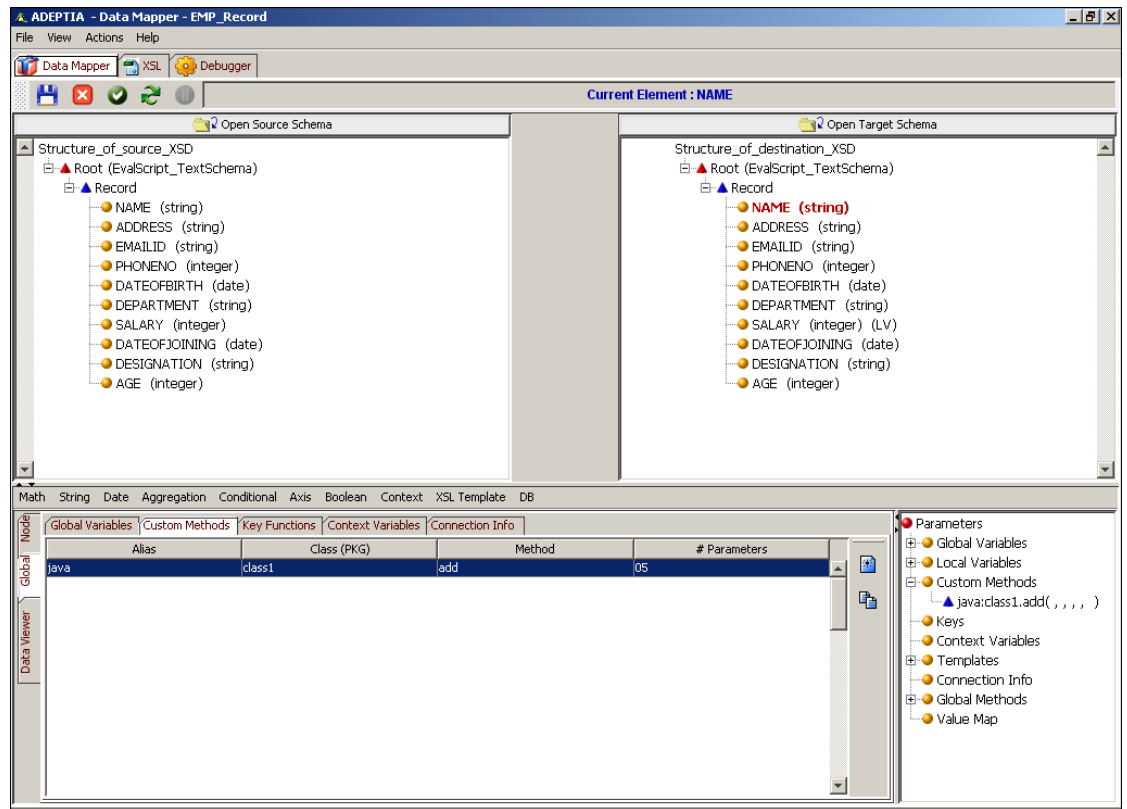




Figure 5.110: Custom Method added to Parameters Panel



To remove a custom method, select the custom method and click **Remove selected method** (  ) button.

Alternately, you can edit or delete a custom method from the Parameters Panel itself. For details, refer to the [Managing a Global Variable from Parameter Panel](#) section.

## Map Custom Method to Target Element

Once you have created a custom method, you can map it to a target element.

### Steps to map Custom Method to target element

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed. Click **Mapping Rules** tab.
3. Select a *target* element. This displays the selected target element node in the Mapping Graph Area.

4. Double-click the required **custom method** under *Custom Methods* in the Parameters Panel. The selected method node is displayed in the Mapping Graph Area (see Figure 5.111).

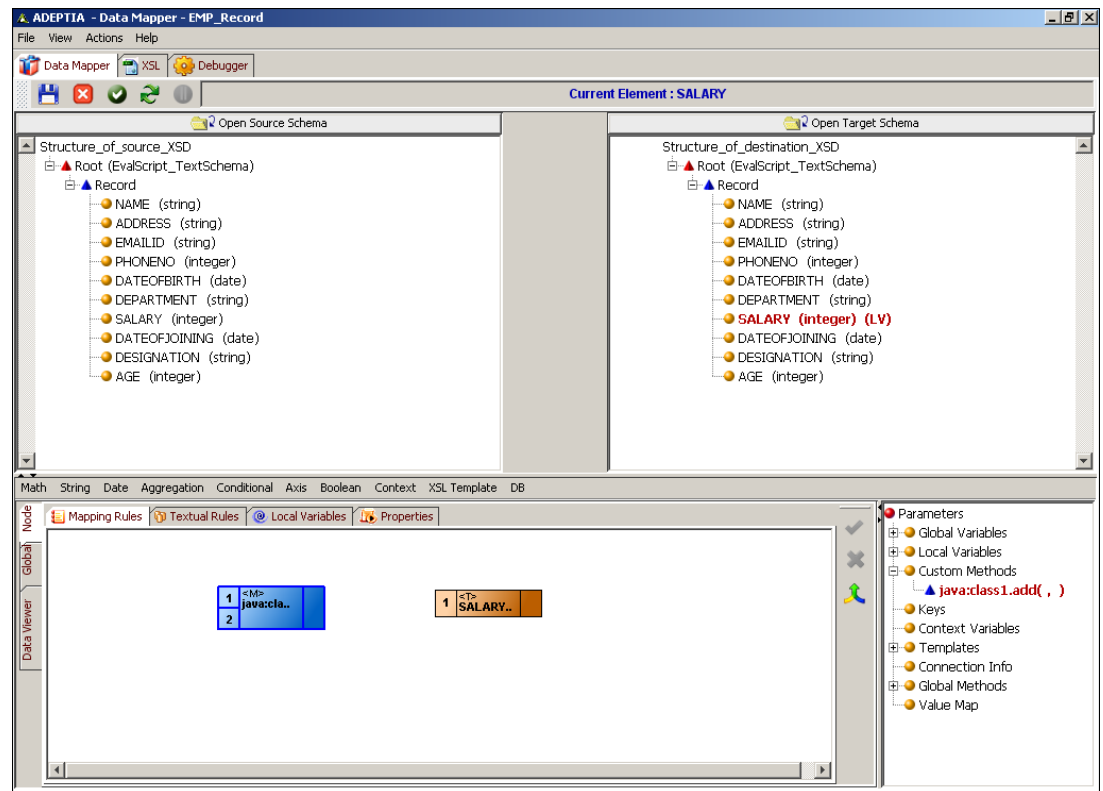


Figure 5.111: Add Custom Method Node



If the custom method is defined with more than 4 parameters, then double-clicking the custom method will display the warning message (refer to Figure 5.109). Once you click **OK**, you need to define the mapping using Textual Rules.

5. Click two *source* elements. The selected source nodes are displayed in the Mapping Graph Area.
6. Create a link from the output of the first *source* element to the first input of the *custom method* node.
7. Create a link from the output of the second *source* element to the second input of the *custom method* node.
8. Create a link from the output of the *custom method* node to the input of the *target* element (see Figure 5.112).

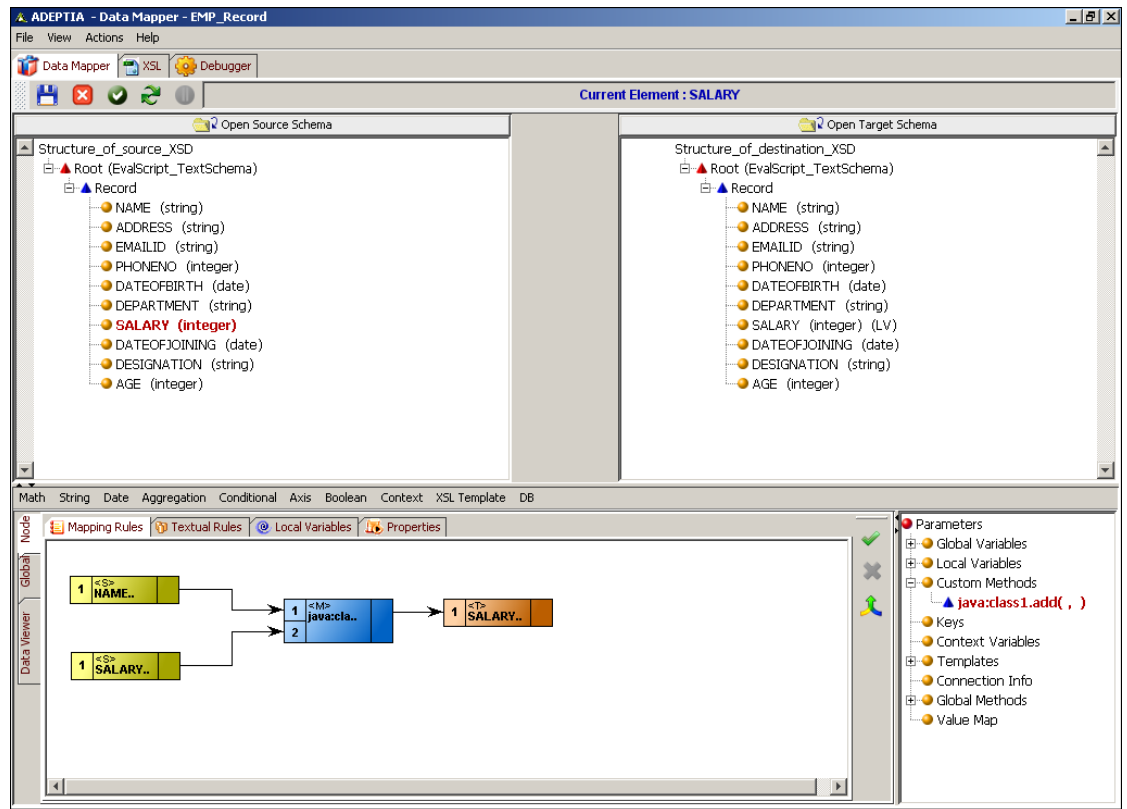




Figure 5.112: Create Links between Nodes

9. Click **Apply Mapping** (  ) button. This maps the custom method to the target element.
10. [Save](#) the mapping activity and exit the Data Mapper.

 You can [view and validate the generated mapping XSL](#), [view the target XML](#) and [view and validate mapping output](#), before saving the mapping activity.

## Dynamically Loading Custom Methods

Adeptia supports dynamic loading of custom methods in the Data Mapper. It loads the custom methods available in the Custom Classes folder, under the Global Methods node in the Parameters Panel. This enables you to access any custom method from the Data Mapper itself, without any need to specify method parameters, such as class name, method name and the number of arguments in the Data Mapper applet.

### Steps to dynamically load Custom Methods

1. Copy all the class files in the Custom Classes folder and then restart the kernel.



The current implementation of Global Methods does not support package hierarchy. So all class files that are directly placed in the Custom Classes folder, will be visible through the Global Methods node in the Parameters Panel.

2. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes. The *Global Methods* node is already displayed in the Parameters Panel, each time Data Mapper is opened (see Figure 5.113)

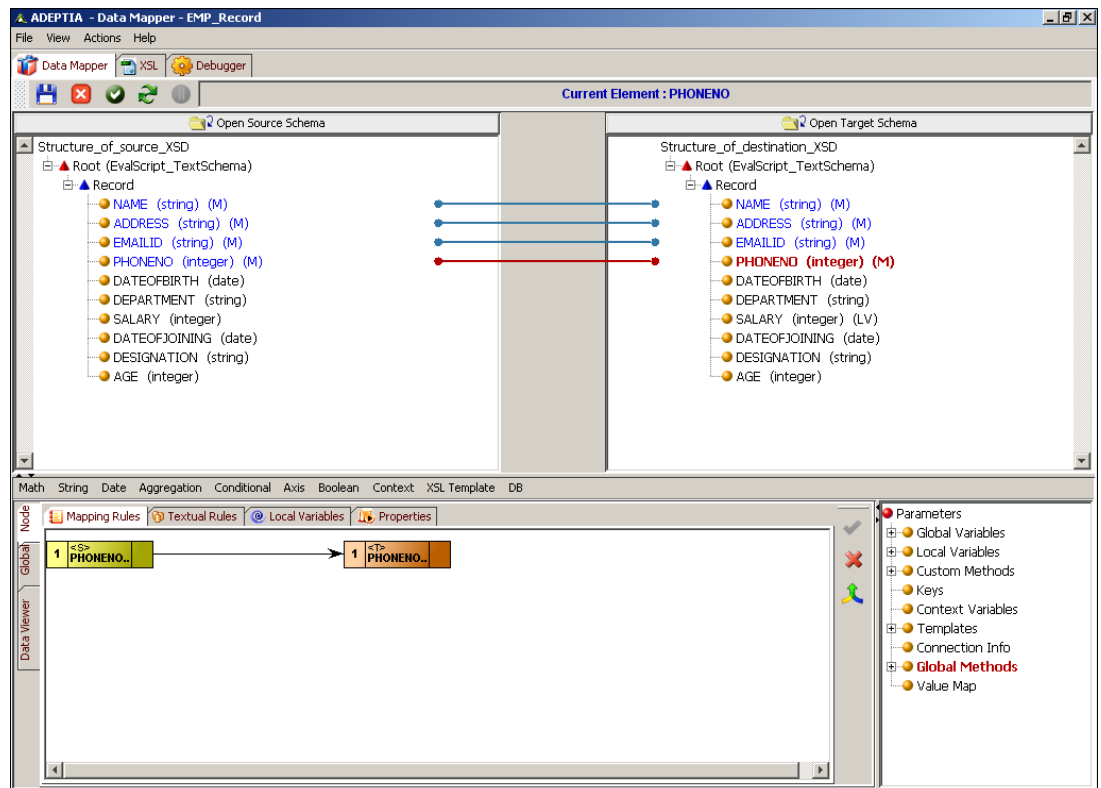


Figure 5.113: Global Methods Node

3. Expand the **Global Methods** node to display all the class files present in the Custom Classes folder (see Figure 5.114).

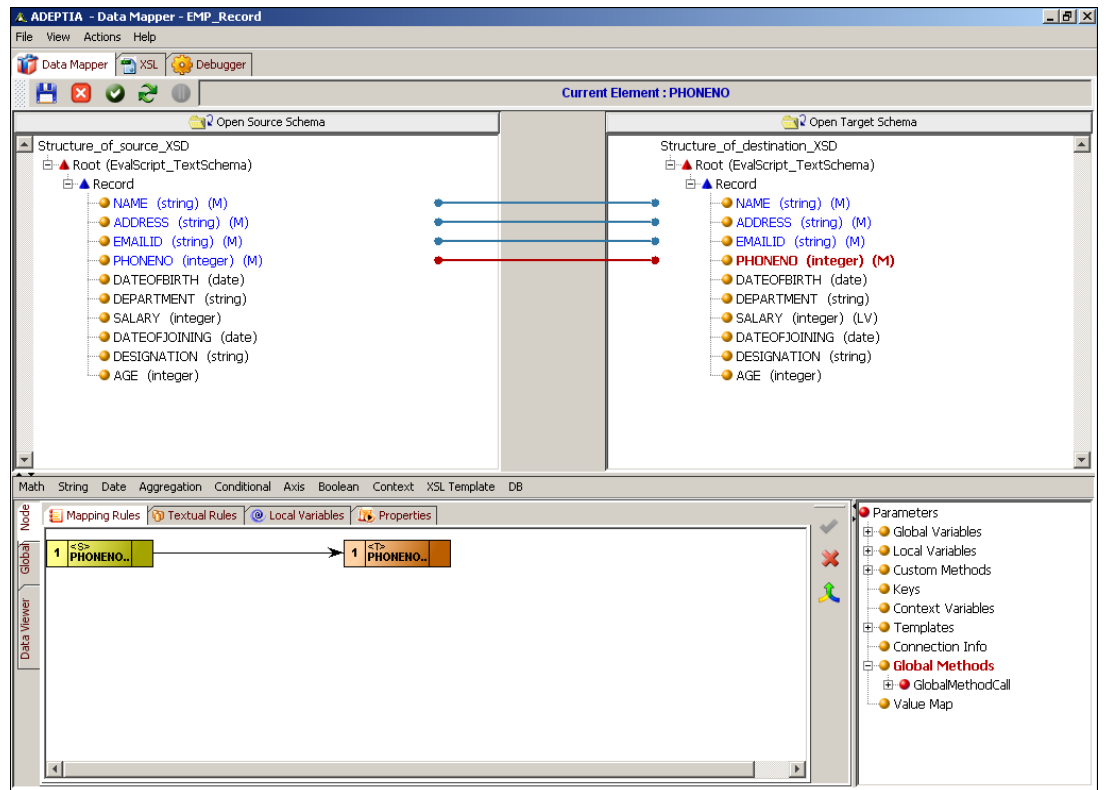


Figure 5.114: List of Class Files in Custom Classes Folder

- Expand a class node to display all custom methods available for that class (see Figure 5.115).

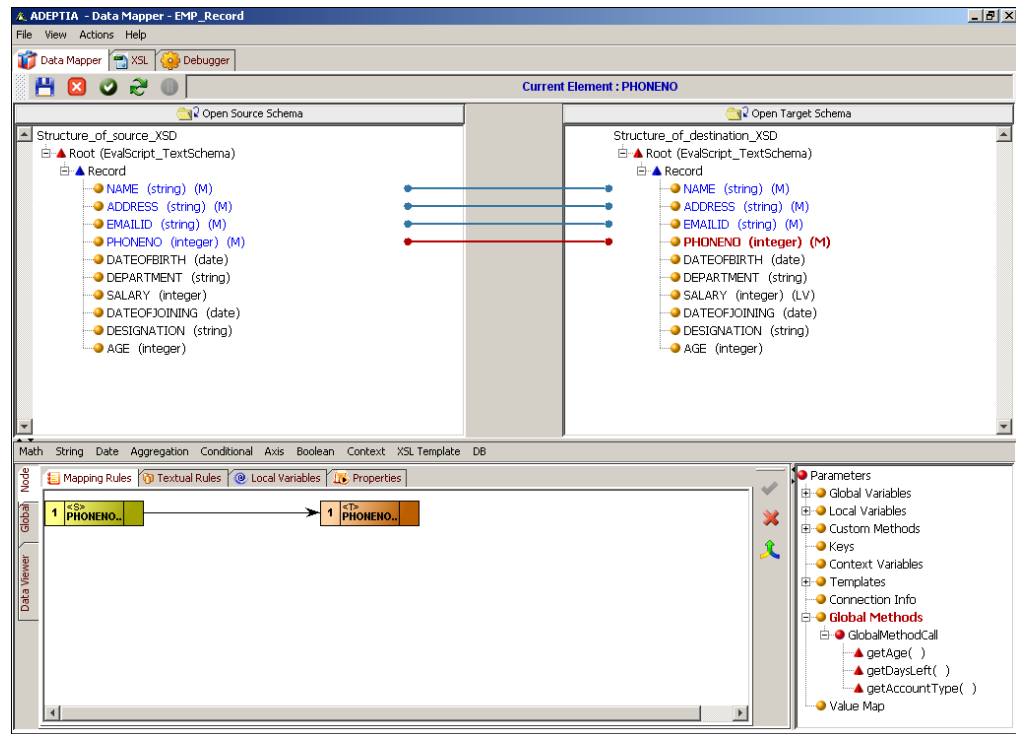


Figure 5.115: Custom Methods in a Custom Class



You can view more information (such as return type and parameter types) about a custom method as a tooltip, by placing the cursor over the custom method node.

You can then map the custom method to a target element by double-clicking the custom method and then mapping by providing the input parameters.

## Using Key Function

The Key function returns a node set that contains the nodes in the same document as the context node that have a value for the named key that is equal to this string.

For example there are two schemas namely *Source1* and *Source2* at the source end. *Source1* schema contains employee information fields such as *Name*, *EmailId*, *PhoneNo*, *Salary* and *Age*. *Source2* schema contains address details in field *Address*. An element "*EmpId*" exists in both *Source1* and *Source2* schemas. This element can be used as a key to merge the data between the two source schemas. You can map *Source1* schema elements to target schema elements. Since *Source1* schema does not contain the *Address* field, you can retrieve the *Address* details for the current record, by using the *Empid* element as a key. You can match the value of *Empid* in *Source1* schema with the value of *Empid* in *Source2* schema and get the *Address* details on the basis of the matched values.

Using key function involves:

- [Creating a key](#)
- [Mapping the Key with target element](#)

## Creating a Key

### Steps to create a key

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Global** tab displayed in the Mapping Graph Area. All tabs of the Global tab are displayed.
3. Click **Key Functions** tab. A list of existing keys is displayed in the Key Functions pane (see Figure 5.116).

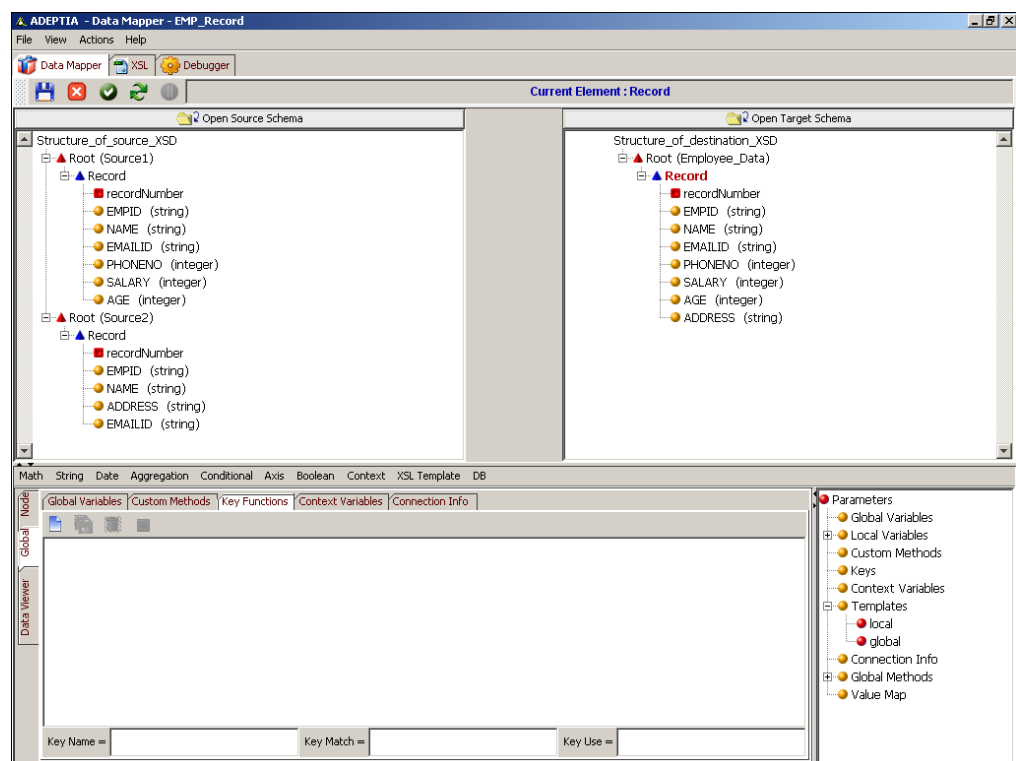



Figure 5.116: Key Functions Tab

4. Click **Add Key** () button to activate the *Key Name* field.
5. Enter the name of the new key in the *Key Name* field.
6. Enter the path of the source element (at the root node) to be matched, in the *Key Match* field. The path always starts with a '/ '.




Here in the field, you need not to enter the complete Xpath. In path you need to enter only the *Root* and *Record*. For example */Root/Record* .

7. Enter the name of the field to be matched in the *Key Use* field For Example *EMPID*.



The *Key Match* and the *Key Use* fields are case-sensitive.

8. Click **Save Key** () button to save the key. This key is added to the list of existing keys in the **Key Function** tab. It is also displayed under Keys in the Parameters Panel. (see Figure 5.117).

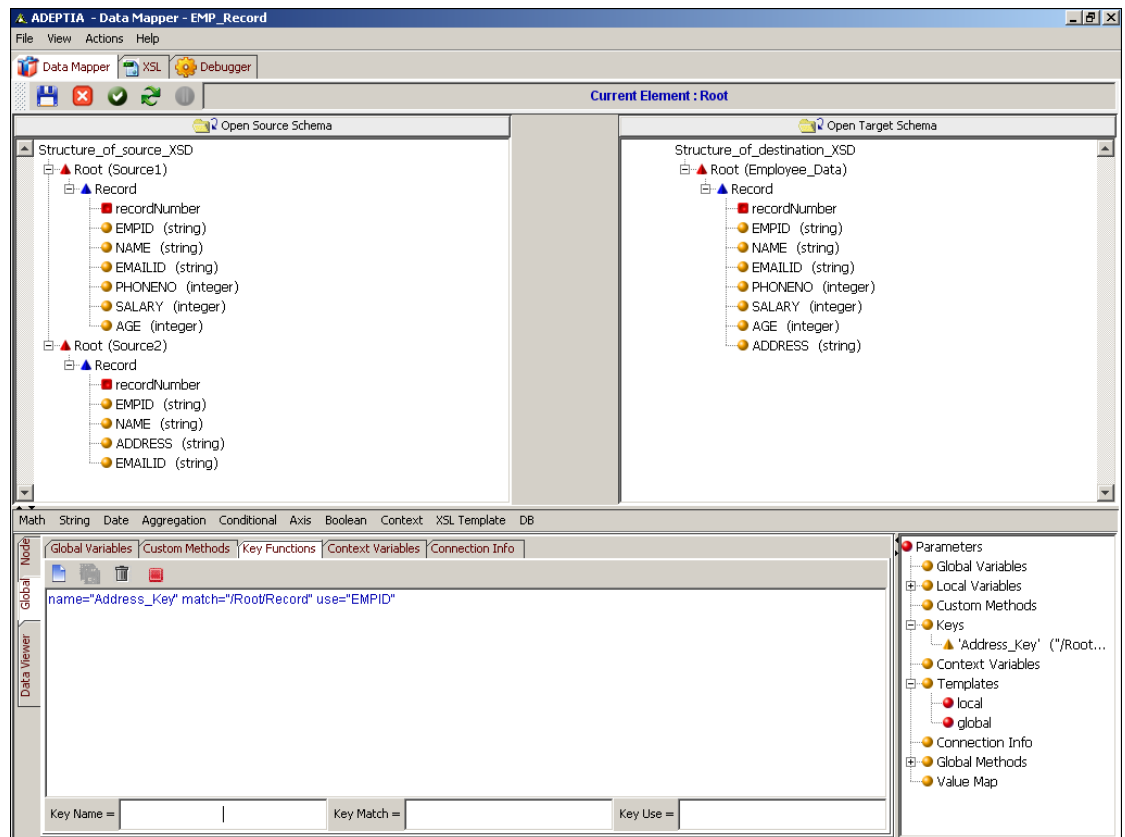


Figure 5.117: Key Added to Parameters Panel

9. If you shift focus to another node, or click any of the *Mapping Rules*, *Textual Rules*, *Properties*, *XSL* or *Debugger* tabs, without saving the key, an alert message is displayed (refer to Figure 5.99).



The alert message is also displayed when shifting focus between the *Global* and *Node* tabs.

10. Click **No** to save the key and shift the focus to the other object. If you click **Yes**, then the defined key is cleared and focus is shifted to the other object.





You can rearrange the keys by dragging it up or down in the list.



You can edit or delete a key from the Parameters Panel itself. For details, refer to the [Managing a Global Variable from Parameter Panel](#) section.

## Mapping the Key with target element

### Steps to use the Key Function

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Map source and target elements as displayed in figure below (see Figure 5.118).

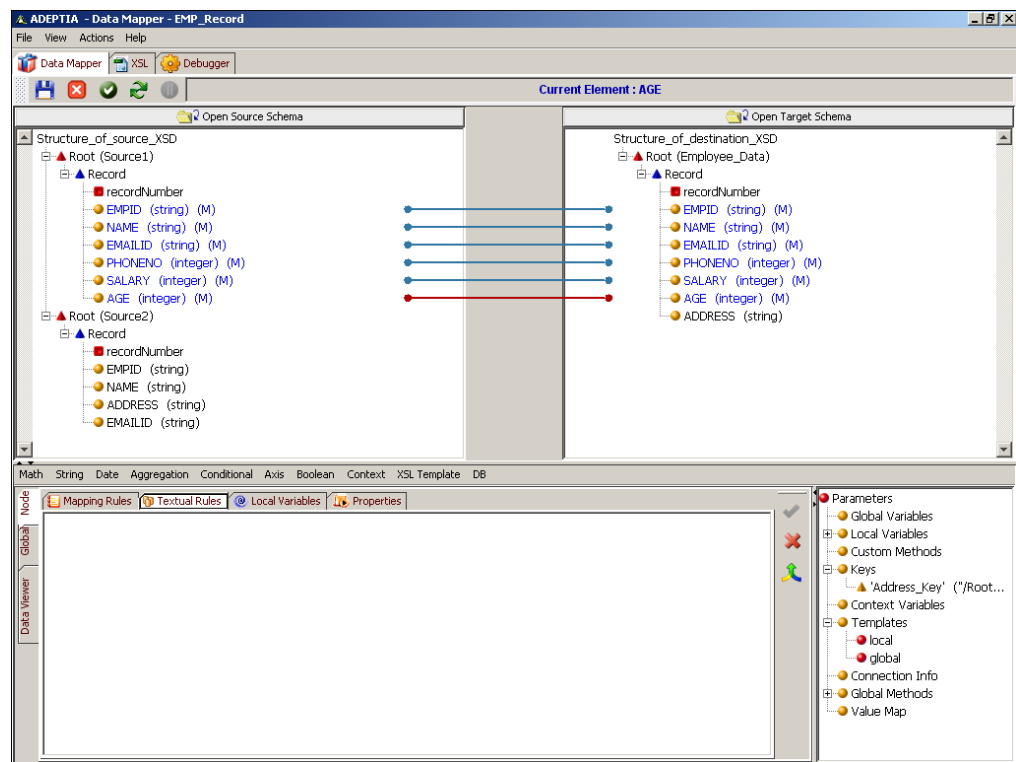


Figure 5.118: Map Source and Target Elements

3. Click the parent node (e.g. *Record*) of the target element and apply the *For Each* for parent node (e.g. *Record*) of schema *Source1*
4. Create a local variable at *Record* level of the target schema. Select *EMPID* element of *Source1* schema as the value of the variable.
5. Click *target* element (e.g. *Address*) on which you want to apply the key.

6. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
7. Click **Textual Rules** tab. The Textual Rules pane is displayed in the Mapping Graph Area.
8. Click **Aggregation** mapping function and select **Key** sub-function. The Key function is displayed in the Textual Rules pane (see Figure 5.119).

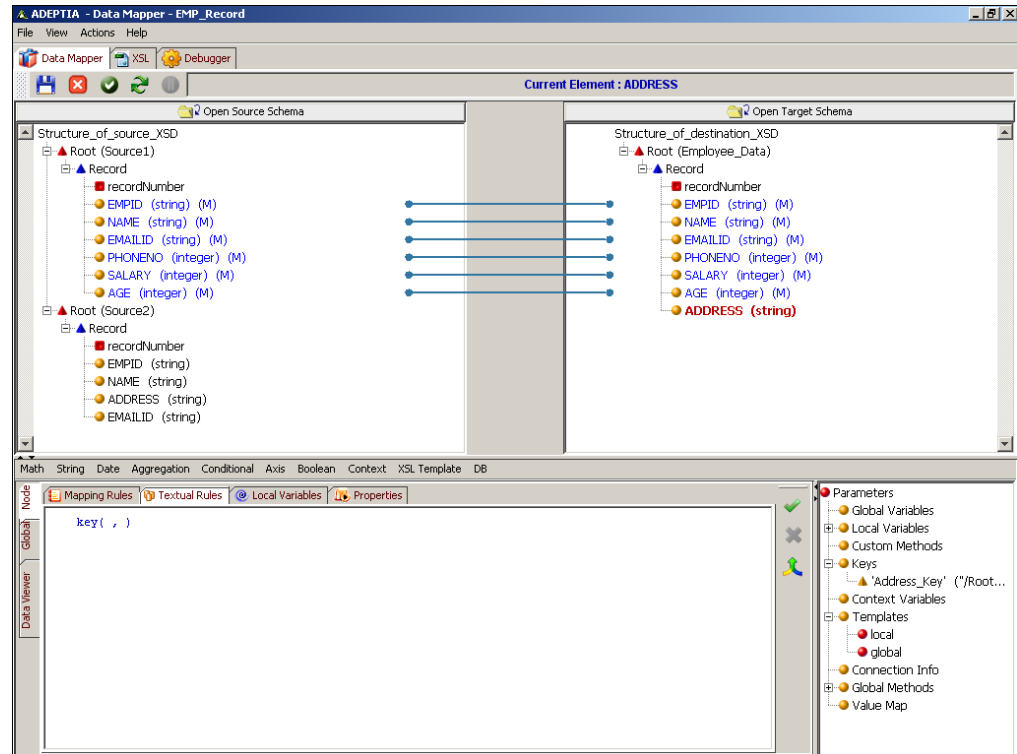


Figure 5.119: Key Function

9. Place the cursor, at the first argument of key function and double-click the required *key* that you want to apply, from *Keys* in the Parameters Panel. This is the first argument for the key function.
10. Place the cursor at the second argument of key function and double click the required *local variable*, under *Local/Ancestor Variables* in the Parameters Panel. This is the second argument for the key function.
11. The syntax of the key function in the textual rules pane will be displayed as:

```
key ("key1" , $VarEmpidSource1)
```

12. Append the name of the element (*Address*), of the *source2* schema, which needs to be mapped to the target element (*Address*). Now the syntax of the mapping will be displayed as:

```
key ("key1" , $ VarEmpidSource1)/Address
```

(see Figure 5.120)

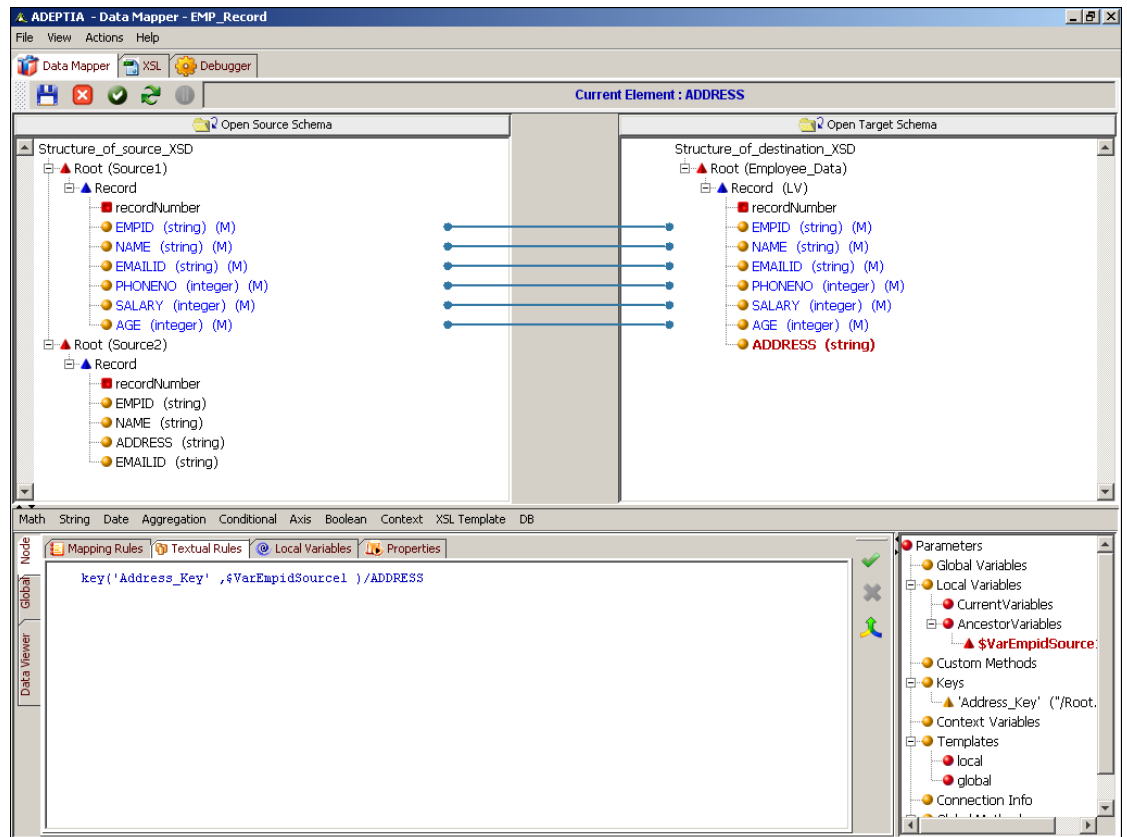


Figure 5.120: Map Key Function Node to Target Element

13. Click **Apply Mapping** (✓) button. This maps the key to the address element of the target schema. If you shift the focus to another target element, or click any of the *Mapping Rules*, *Textual Rules*, *Properties*, *Node*, *XSL* or *Debugger* tabs, without applying the mapping, then an alert message is displayed (refer to Figure 5.99).
14. Click **No** to apply the mapping and shift focus to the other object. If you click **Yes**, then the mapping activity is cleared and is replaced by the previous mapping in the Mapping Graph Area and the focus is shifted to the other object.
15. Apply *For Each* on element *address* of target schema from Root level of *Source2* schema. This will execute key in the context of second source schema (i.e. *Source2*).
16. [Save](#) the mapping activity and exit the Data Mapper.



You can [view and validate the generated mapping XSL](#), [view the target XML](#) and [view and validate mapping output](#), before saving the mapping activity.

## Declaring Connection Info Variable

Connection Info variables are used as a parameter in the DBQuery function, when extracting information from the database.

### Steps to declare a Connection Info Variable

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click **Global** tab in the Mapping Graph Area. All tabs of the Global tab are displayed.
3. Click **Connection Info** tab. The Connection Info Variable pane is displayed in the Mapping Graph Area (see Figure 5.121).

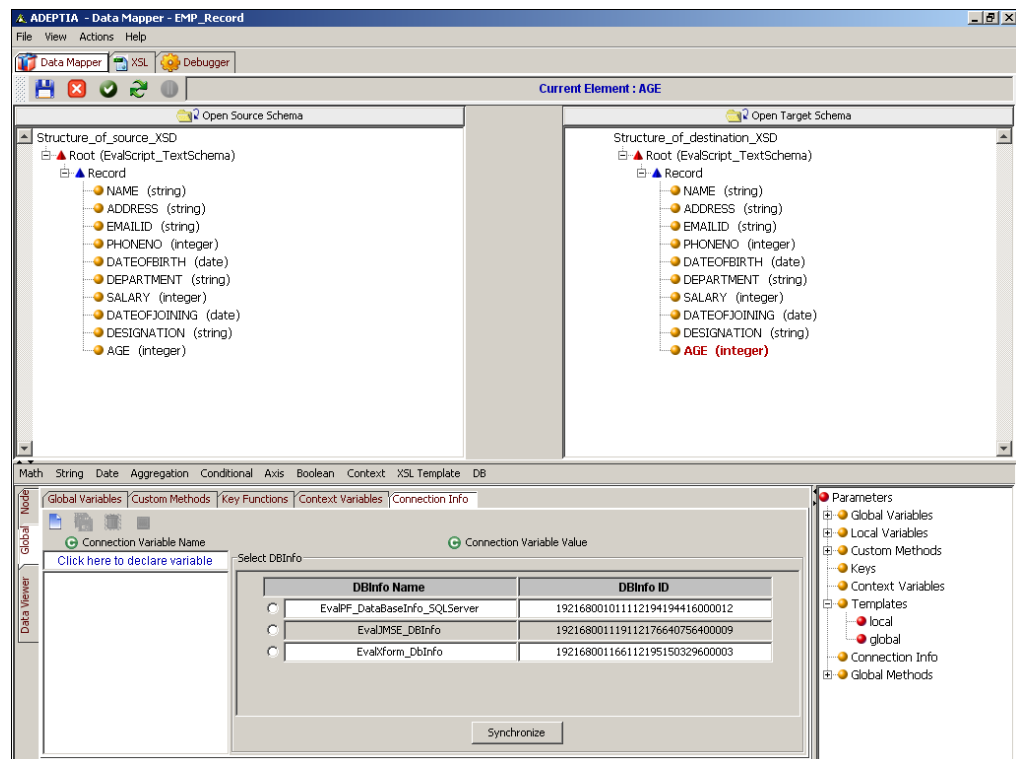


Figure 5.121: Connection Info Variable Pane

4. Click *Connection Variable Name* text field and enter the name of the *Connection Info* variable you want to create (e.g. Var1). Press the **Tab** or **Enter** key. This takes the control to the *Connection Variable Value* field.
5. The Connection Info variable accepts a **DBInfo** as its value. Thus, the *Connection Variable Value* field displays a list of existing **DBInfo Names** and their **IDs**. Select the **DBInfo** name that you want to assign for the *Connection Info* variable (see Figure 5.122).

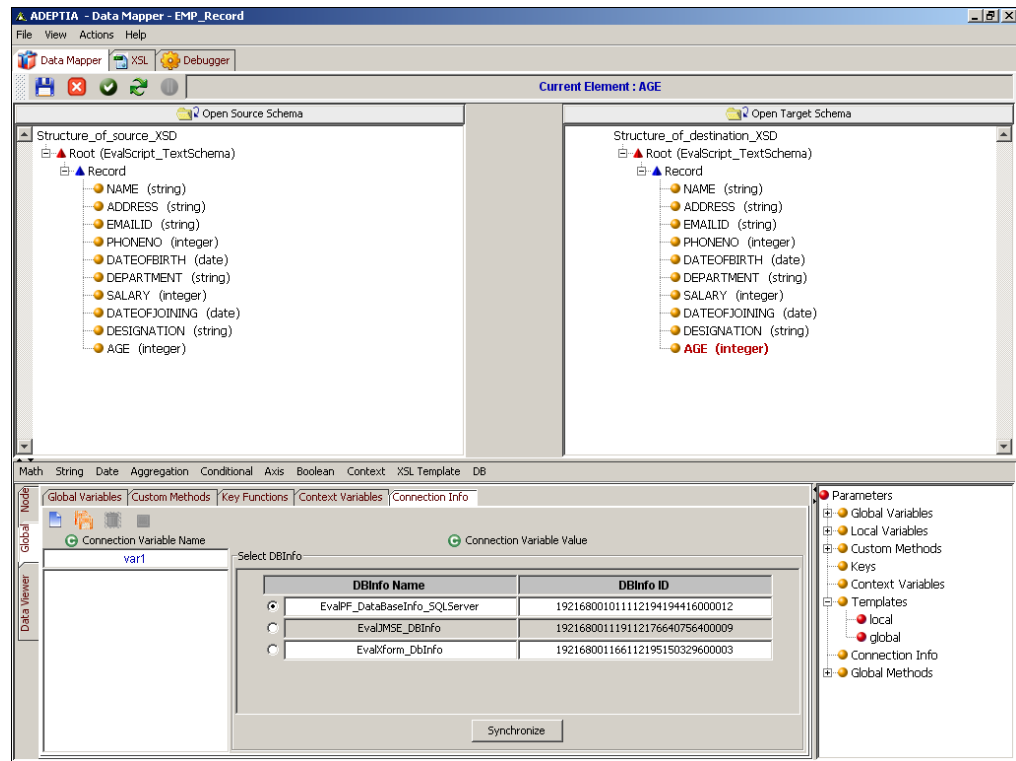



Figure 5.122: Enter Connection Variable Value



You can click **Synchronize** to reload the **DBInfo** list.

6. Click **Save Connection Variable** () button to save the *Connection Info* variable. This Connection Info variable is added to the list of existing variables in the *Connection Variable Name* field. It is also displayed under *Connection Info* in the Parameters Panel. If you shift the focus to another node, or click any of the *Mapping Rules*, *Textual Rules*, *Local Variables*, *Properties*, *XSL* or *Debugger* tabs, without saving the Connection Info variable, an alert message is displayed (refer to Figure 5.99).
7. Click **No** to save the Connection Info variable and shift the focus to the other object. If you click **Yes**, then the defined Connection Info variable is cleared and the focus is shifted to the other object.



You can rearrange the Connection Info variables by dragging it up or down in the list.



You can edit or delete a Connection Info variable from the Parameters Panel itself. For details, refer to the [Managing a Global Variable from Parameter Panel](#) section.

## Setting Target Element Properties

You can set various properties of a target element.

### Steps to set target element properties

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click the *target* element for which you want to set properties.
3. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
4. Click **Properties** tab. The Properties pane is displayed (see Figure 5.123)

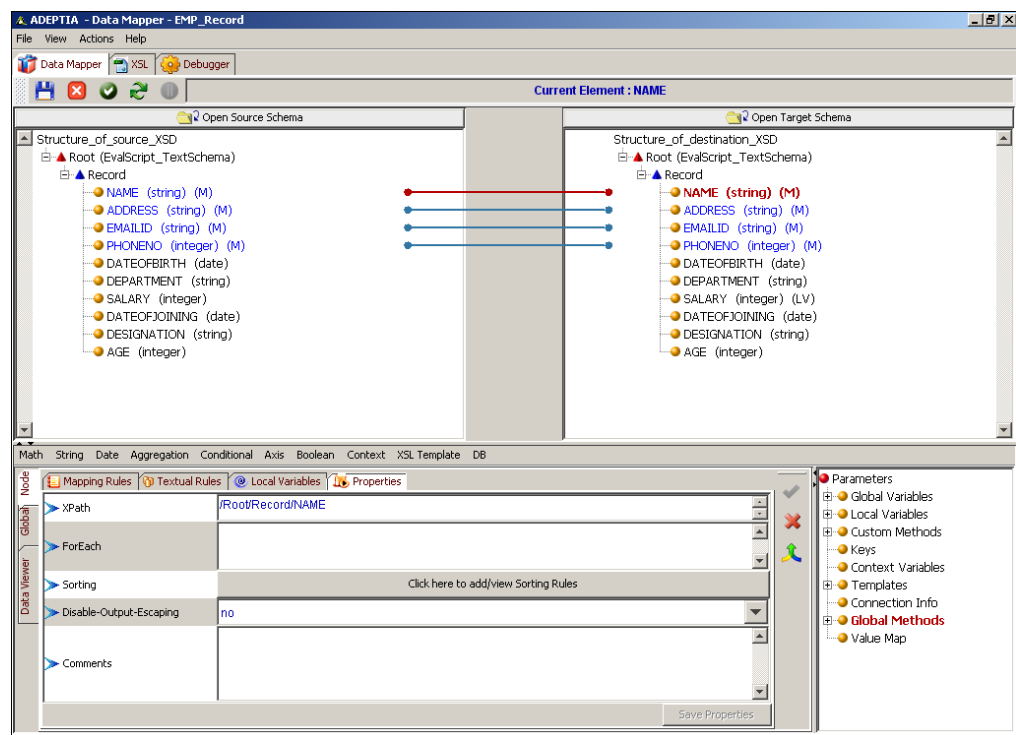


Figure 5.123: Properties Pane

The Properties pane comprises of various properties, which are outlined in the table below.

Table 5.22: Properties of a Target Element

Property	Description
XPath	Displays the XPath of the selected target element. It is a read-only field.
For Each	Sets the For Each property for the target element. It is used to repeat occurrences of a target element depending on the total occurrences of a source element in the source file. To set the For Each property refer to the section Setting the For Each Property.

Sorting	Sets the Sorting rules for the target element. It also allows you to view or remove sorting rules for the target element. To set the Sorting Rules, refer to the section Setting Sorting Rules.
Disable-Output-Escaping	Sets the disable-output –escaping property for the target element. It is used to include this property under the 'value-of' element in the generated XSL. By default, this property is set as 'no'. For details on this property, refer to the section Using XSL Property.
Comments	Displays comments entered for the target element. This is a data entry field and allows you to enter comments for the target element. To enter comments, refer to the section Adding Comments for Target Element.

- Enter the properties required for the selected target element.
- Click **Save Properties** to save the properties entered for the target element. If you shift focus to another node, or click any of the *Mapping Rules*, *Textual Rules*, *Global Variables*, *Properties*, *XSL* or *Debugger* tabs, without saving the properties, an alert message is displayed (refer to Figure 5.99).
- Click **No** to save the properties and shift focus to the other object. If you click **Yes**, then the defined properties are cleared and the focus is shifted to the other object.

### Setting For Each Property

The *For Each* property is used to repeat the occurrences of a target element or node, depending on the total occurrences of a source element or a node in the source file.

For example, an XML schema with a node customer has three elements, first\_name, last\_name, and state. This schema is used both at the source and at the target end. Supposing, the source file has 10 occurrences of the customer. Applying the For Each property on the target node customer, for the source node customer, generates an output file containing 10 occurrences of the customer in it.



If *For Each* property is not used, an output file is generated with only one occurrence of customer in it.  
*For Each* and *Apply Template* both can not be used simultaneously on one node.

### Steps to set the For Each property

- Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
- Click the *target* element for which you want to set the For Each property.
- Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
- Click **Properties** tab. The Properties pane is displayed (refer to Figure 5.123).

- Click the *For Each* property field and then double-click the *source* element using which you want to apply the For Each property. This displays the entire path of the source element in the *For Each* field (see Figure 5.124).

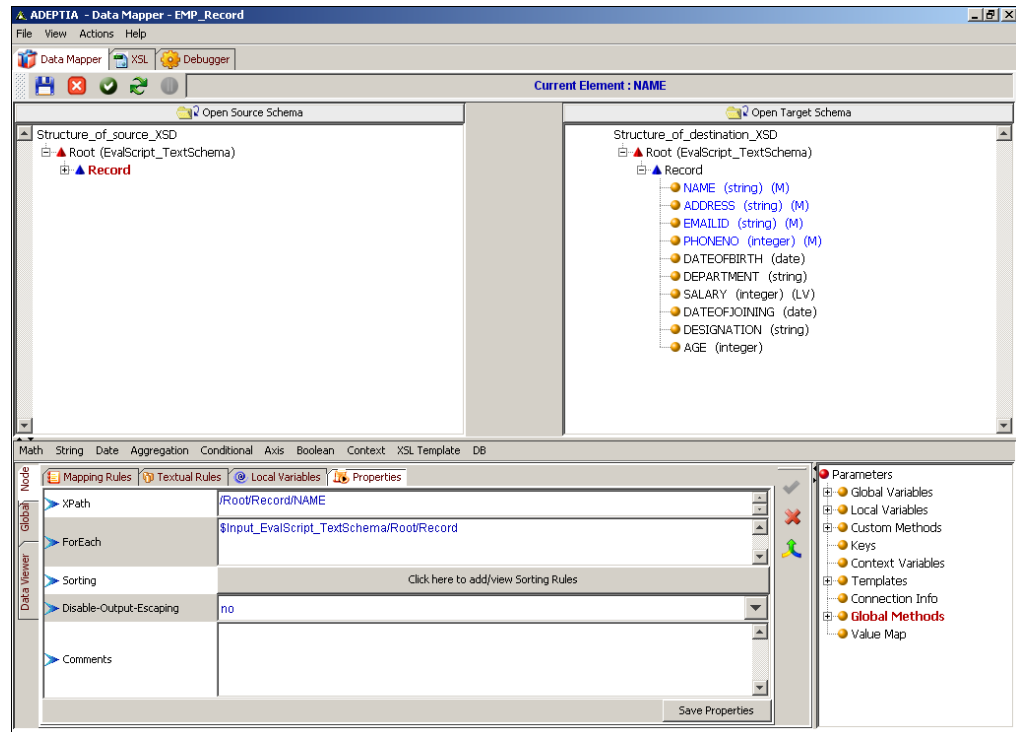


Figure 5.124: Source Element in For Each Property



You can set the *For Each* property on more than one source element. You can use the | character as a separator between the XPath of each source element.

- Click **Save Properties**. This applies the For Each property for the selected target element. If you shift focus to another node, or click any of the *Mapping Rules*, *Textual Rules*, *Global Variables*, *Properties*, *XSL* or *Debugger* tabs, without saving the For Each property, an alert message is displayed (refer to Figure 5.99).
- Click **No** to save the For Each property and shift focus to the other object. If you click **Yes**, then the defined For Each property is cleared and the focus is shifted to the other object.



Once the For Each property is applied to a target element, the letter **(F)** is displayed next to the target element. Refer to [Table of Suffixes](#) for details on suffixes displayed next to a target element.



To remove the *For Each* property from the target element, right-click *target* element and select **Remove Mappings** option. This displays the Remove Mapping Options dialog box. Select the *Remove For Each* checkbox and click **OK**.



## Adding Comments to Target Schema Elements

Comments are used to provide additional information to target nodes and elements. Comments are displayed as tool tips and are reflected in the XSL generated under the XSL tab.

### Steps to add a comment to the target element

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click the *target* element for which you want to add a comment.
3. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
4. Click **Properties** tab. The Properties pane is displayed (refer to Figure 5.123).
5. Click the *Comments* property field and enter the comment for the selected target element (see Figure 5.125)

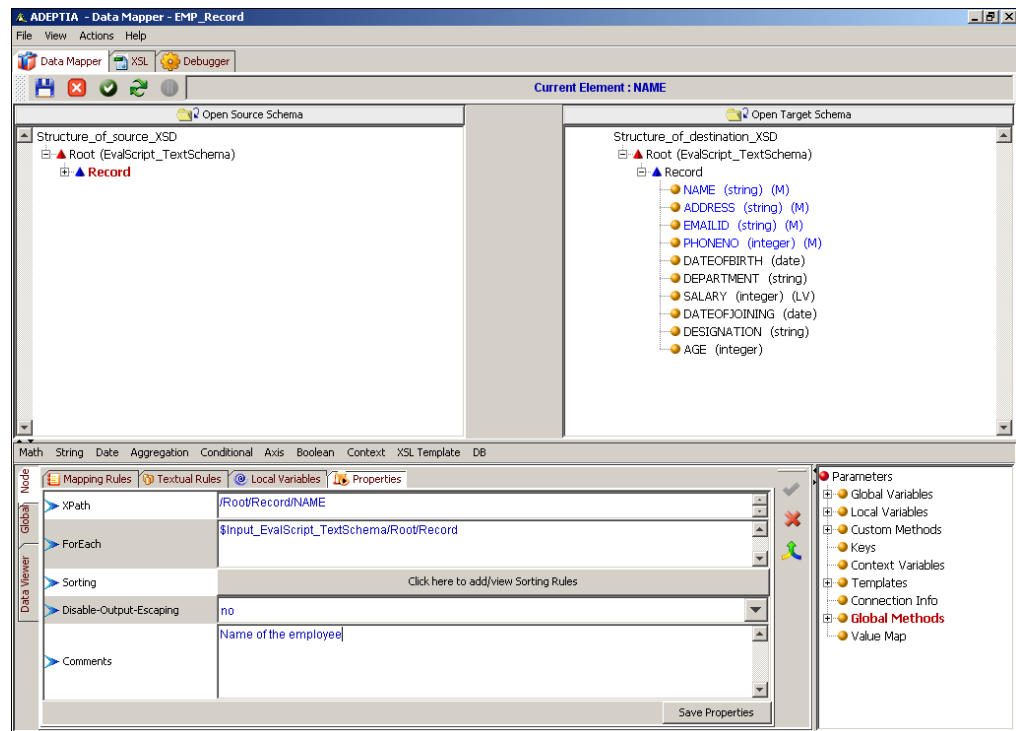


Figure 5.125: Enter Comment

6. Click **Save Properties**. This adds the comment for the target element. If you shift focus to another node, or click any of the *Mapping Rules*, *Textual Rules*, *Global Variables*, *Properties*, *XSL* or *Debugger* tabs, without saving the comments, an alert message is displayed (refer to Figure 5.99).

7. Click **No** to save the comments and shift focus to the other object. If you click **Yes**, then the defined comments are cleared and the focus is shifted to the other object.



Once a comment is added to a target element, the letter **(CM)** is displayed next to the target element. This signifies that a comment has been created for the target element. Refer to [Table of Suffixes](#) for details on suffixes displayed next to a target element.

## Setting Sorting Rules

You can set sorting rules for a target element. It is used to sort value of elements in the generated output. While generating the output XML, the value of elements can be sorted either in ascending or descending order. For example, records of the employee can be sorted on the basis of their salaries. Figure 5.126 shows input XML before sorting.

```
<?xml version="1.0" encoding="UTF-8" ?>
<employees>
<employee attribute="14" attribute1="15">
<TESTCASENO>TESTCASENO1</TESTCASENO>
<DESCRIPTION>DESCRIPTION1</DESCRIPTION>
<NAME>John</NAME>
<ADDRESS>Address1</ADDRESS>
<EMAILID>EMAILID1</EMAILID>
<PHONENO>PHONENO1</PHONENO>
<DOB>DOB1</DOB>
<DEPT>DEPT1</DEPT>
<SALARY>10000</SALARY>
<DOJ>DOJ1</DOJ>
<DESIGNATION>DESIGNATION1</DESIGNATION>
<AGE>34</AGE>
</employee>
<employee attribute="14" attribute1="15">
<TESTCASENO>TESTCASENO2</TESTCASENO>
<DESCRIPTION>DESCRIPTION2</DESCRIPTION>
<NAME>David</NAME>
<ADDRESS>ADDRESS2</ADDRESS>
<EMAILID>EMAILID2</EMAILID>
<PHONENO>PHONENO2</PHONENO>
<DOB>DOB2</DOB>
<DEPT>DEPT2</DEPT>
<SALARY>8000</SALARY>
<DOJ>DOJ2</DOJ>
<DESIGNATION>DESIGNATION2</DESIGNATION>
<AGE>45</AGE>
</employee>
<employee attribute="14" attribute1="15">
<TESTCASENO>TESTCASEN3</TESTCASENO>
<DESCRIPTION>DESCRIPTION3</DESCRIPTION>
```

```
<NAME>Ricky</NAME>
<ADDRESS>ADDRESS3</ADDRESS>
<EMAILID>EMAILID3</EMAILID>
<PHONENO>PHONENO3</PHONENO>
<DOB>DOB3</DOB>
<DEPT>DEPT3</DEPT>
<SALARY>15000</SALARY>
<DOJ>DOJ3</DOJ>
<DESIGNATION>DESIGNATION3</DESIGNATION>
<AGE>36</AGE>
</employee>
</employees>
```

Figure 5.126: Sample Input XML

Figure 5.127 shows the Output XML after sorting.


```
<?xml version="1.0" encoding="UTF-8" ?>
- <employees xmlns:java="http://xml.apache.org/xslt/java"
xmlns:str="http://exslt.org/strings">
- <employee attribute="" attribute1="">
  <TESTCASENO>TESTCASEN3</TESTCASENO>
  <DESCRIPTION>DESCRIPTION3</DESCRIPTION>
  <NAME>Ricky</NAME>
  <ADDRESS>ADDRESS3</ADDRESS>
  <EMAILID>EMAILID3</EMAILID>
  <PHONENO>PHONENO3</PHONENO>
  <DOB>DOB3</DOB>
  <DEPT>DEPT3</DEPT>
  <SALARY>15000</SALARY>
  <DOJ>DOJ3</DOJ>
  <DESIGNATION>DESIGNATION3</DESIGNATION>
  <AGE>36</AGE>
  </employee>
- <employee attribute="" attribute1="">
  <TESTCASENO>TESTCASENO1</TESTCASENO>
  <DESCRIPTION>DESCRIPTION1</DESCRIPTION>
  <NAME>John</NAME>
  <ADDRESS>Address1</ADDRESS>
  <EMAILID>EMAILID1</EMAILID>
  <PHONENO>PHONENO1</PHONENO>
  <DOB>DOB1</DOB>
  <DEPT>DEPT1</DEPT>
  <SALARY>10000</SALARY>
  <DOJ>DOJ1</DOJ>
  <DESIGNATION>DESIGNATION1</DESIGNATION>
  <AGE>34</AGE>
  </employee>
```

```

- <employee attribute="" attribute1="">
  <TESTCASENO>TESTCASENO2</TESTCASENO>
  <DESCRIPTION>DESCRIPTION2</DESCRIPTION>
  <NAME>David</NAME>
  <ADDRESS>ADDRESS2</ADDRESS>
  <EMAILID>EMAILID2</EMAILID>
  <PHONENO>PHONENO2</PHONENO>
  <DOB>DOB2</DOB>
  <DEPT>DEPT2</DEPT>
  <SALARY>8000</SALARY>
  <DOJ>DOJ2</DOJ>
  <DESIGNATION>DESIGNATION2</DESIGNATION>
  <AGE>45</AGE>
</employee>
</employees>

```

Figure 5.127: Output XML

	<p>The Sorting rules can be set only for record where <i>For Each Mapping</i> or <i>Apply Template</i> is used. The <code>&lt;xsl:apply-templates&gt;</code> element applies a template to the current element or to the child nodes of the current element, when the parent elements of source and target schemas are mapped.</p>
---	--

### Steps to set Sorting Rules

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Ensure that the [source and target elements to be mapped are selected and displayed](#) in the Mapping Graph Area.
3. To use Apply template, click *Employee* (parent) element in the source panel and drag the mouse pointer to the *Employee* (parent) element in the target panel. A line is displayed between the source and target panels indicating the mapping between source and target elements (see Figure 5.128).

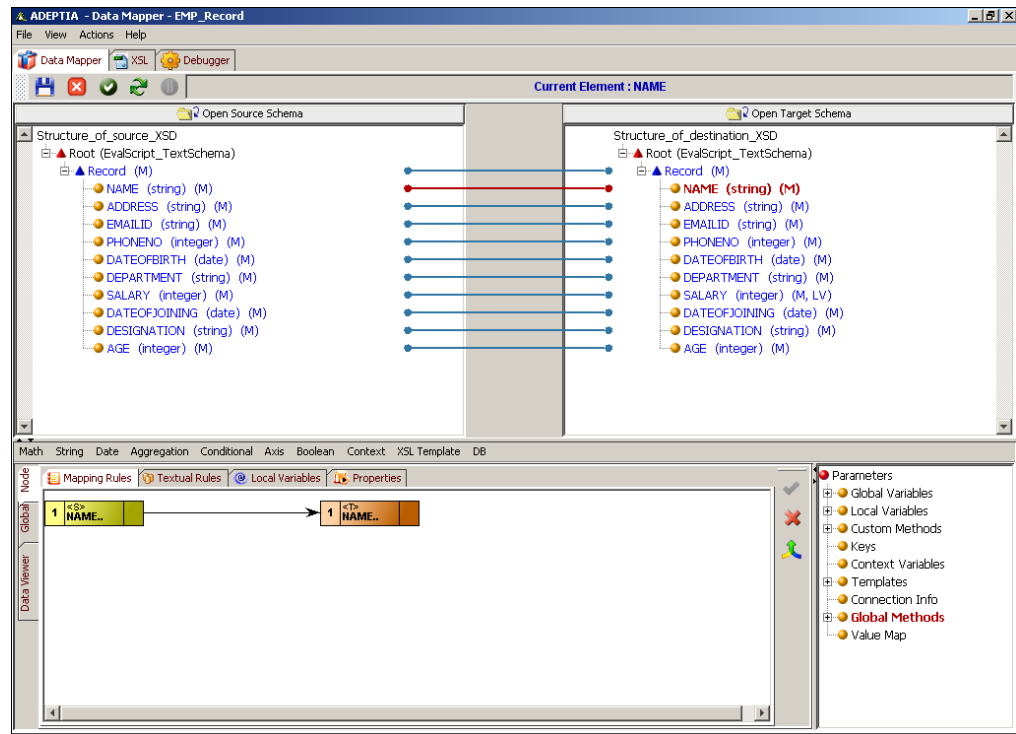


Figure 5.128: Apply Template



To learn how to set For Each property on employee element refer to the section [Setting For Each Property](#).

4. Click **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
5. Click **Properties** tab. The Properties pane is displayed (refer to Figure 5.123).
6. Click the **Click here to add/view Sorting Rules** option displayed against the Sorting property field. This displays the Add New Sorting Rules dialog box (see Figure 5.129)

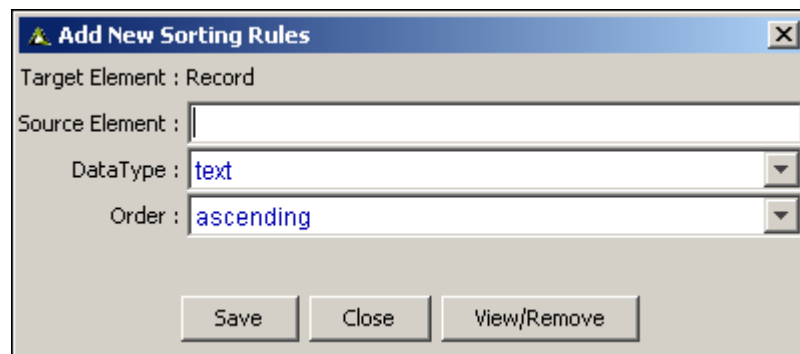


Figure 5.129: Sorting Rules Dialog Box

7. This screen displays the name of the selected target record to be sorted. Type the name of the source element on the basis of which you want to sort output (e.g. SALARY), in the *Source Element* field.
8. Select the data type as either text or numeric from the *Data Type* drop-down list. This specifies how the input value is to be interpreted. By default, text is selected.
9. Select the sorting order as ascending or descending from the *Order* drop-down list. By default, ascending is selected.
10. Click **Save** to save the sorting rule.
11. Click **Close** to return the Data Mapper screen. The letter **(SR)** is displayed next to the sorted target element. This signifies that the target element has been sorted based on the specified source element. Refer to the [Table of Suffixes](#) for details on suffixes displayed next to an element.



More than one sorting can also be applied to a single target element. For example, if salary of two employees is same, they can be further sorted out based on their age.

To delete sorting, click **View/Remove** button. The Remove Sorting Rules dialog box is displayed with a list of existing sorting rules. Select sorting rule and click **Remove/Remove All** to delete sorting rules.

Once the sorting is applied based on the set rules, the output XML is displayed as displayed in Figure 5.127.

## Filtering of Elements/Attributes in Target Data

You can filter elements or attributes from appearing in the target XML. There are two ways to filter data:

- Using IFF Condition
- Using Apply Filter checkbox from right-click popup menu



The Apply Filter checkbox method is recommended as it is easy to use and can be done individually on multiple nodes, directly from the data mapper applet.

### Using Apply Filter Checkbox

#### Steps to filter using Apply Filter Checkbox

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Right-click the *target* element that you want to filter, and mark the *Apply Filter* checkbox as checked (see Figure 5.130). By default, this checkbox is unchecked.

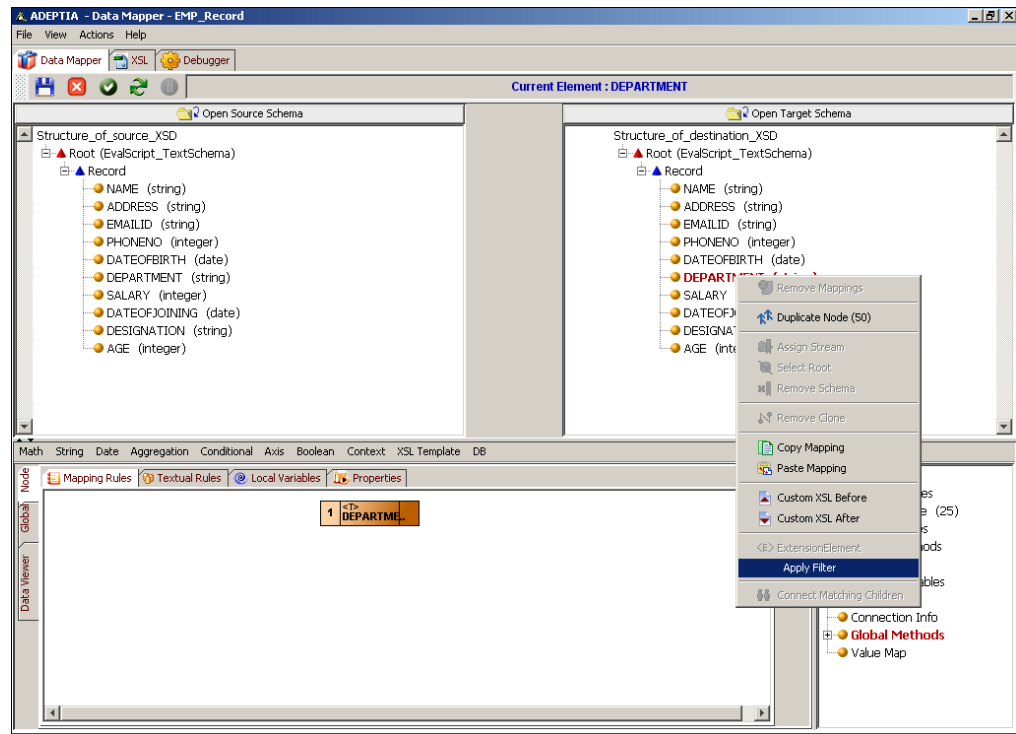




Figure 5.130: Checking Apply Filter Checkbox

3. This selection will filter the selected element from the target output XML data. You can uncheck this checkbox anytime to display the element in the target data.

	You can apply this filtering option on the element or attribute levels.
	Once the filter is applied on the target element, the letters (FL) are displayed next to each filtered target element. This signifies that the filter has been applied for the target element. Refer to <a href="#">Table of Suffixes</a> for details on suffixes displayed next to an element.

## Creating Clone of Target Element

Cloning means generating replicas of the target elements or nodes. You can create clones of all target elements.

### Steps to create a clone

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Right-click the *target* element and select the **Duplicate Node** option.



You can create a clone of all target nodes except the root node. Thus, the *Duplicate Node* sub-option is displayed as inactive for the root node.

3. The element which is created using cloning is displayed with the suffix [1] after its name. Subsequent clones that are created for that element will have the suffix [2] and so on. You can create a maximum of 20 occurrences of an element, with one main element and 19 clones

## Removing Clone of Target Element

### Steps to remove a clone

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Right-click the *cloned* element that you want to remove and select the **Remove Clone** option.
3. A screen is displayed confirming the removal of the selected clone (see Figure 5.131).

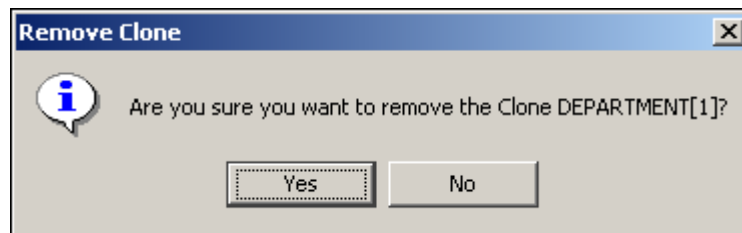


Figure 5.131: Confirm Remove Clone

4. Click **Yes** to remove the clone. This removes the selected clone from the target schema.



If more than one clone has been created for an element, then you need to remove the clones in descending order.

## Removing Schema

You can remove a schema from the source or target panels. If a source or target schema is removed, everything associated with the mapping of the schema such as Mapping Graph Area, Connection Lines or For Each property is removed.

### Steps to remove a schema

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.



2. Right-click the *root* element of the schema that you want to remove and select the **Remove Schema** option.
3. A screen is displayed confirming the removal of the selected schema (see Figure 5.132).

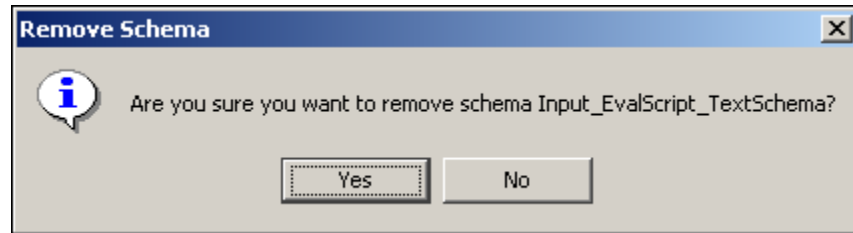



Figure 5.132: Confirm Remove Schema

4. Click **Yes** to remove the schema. This removes the selected clone from the target schema.

 A schema can be removed only from the root element. Thus, the *Remove Schema* option is displayed as active only for the root element.

## Adding Custom XSL

At times, you may want to add some additional specialized XSL to a target element, or at the top or bottom of the mapping XSL. You can do this by adding custom XSL code.

### ***Steps to add custom XSL code for a Target Element***

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Right-click the *target* element and select the **Custom XSL Before** option (see Figure 5.133).

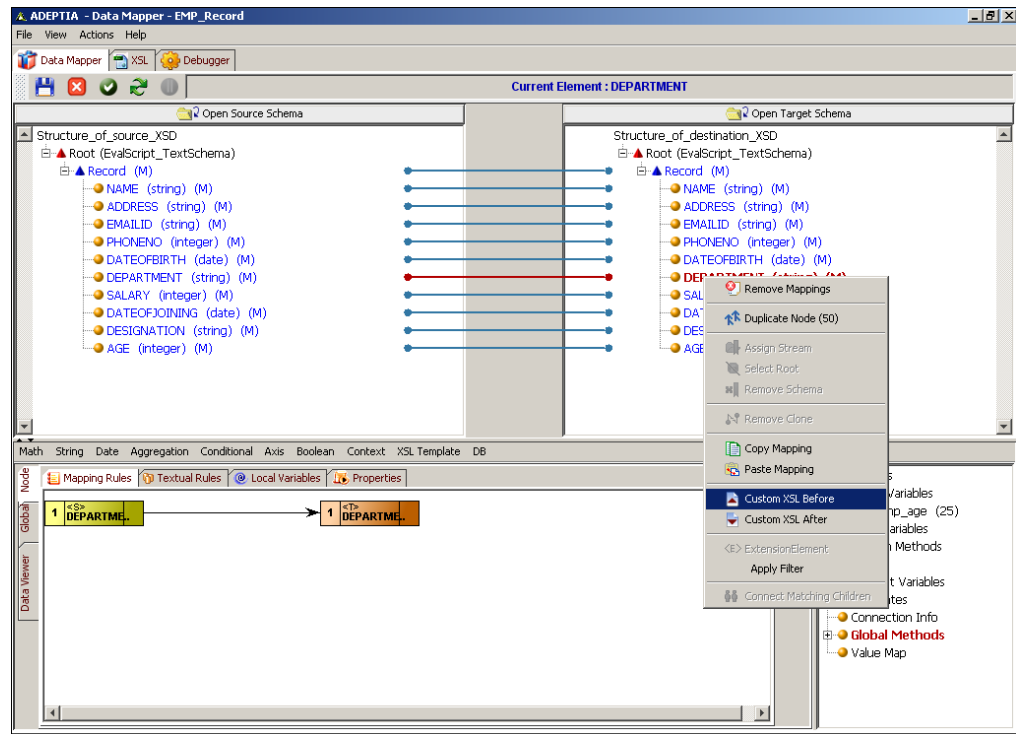


Figure 5.133: Select Custom XSL Before Option

3. The Add Custom XSL Before screen is displayed for the target element. Enter the custom XSL code for the target element (see Figure 5.134).

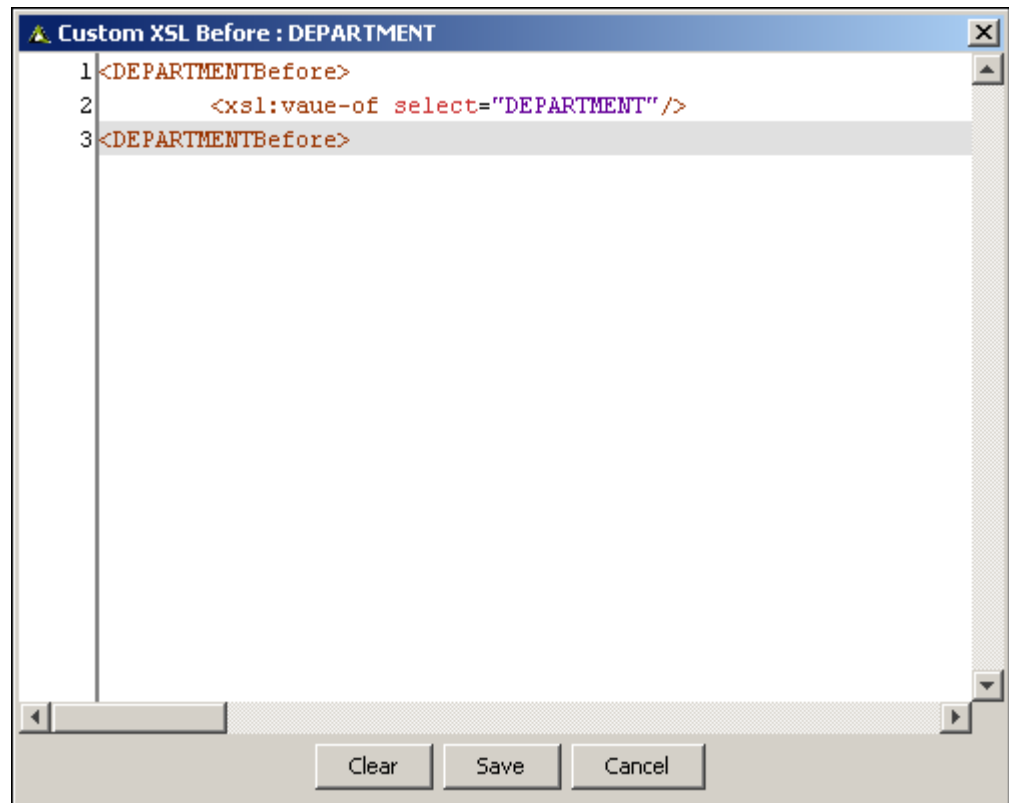


Figure 5.134: Enter Custom XSL Code

4. Click **Save** to save the XSL code and close the screen. Alternately, click **Clear** to clear the XSL code, or **Cancel** to close the screen without saving the changes.



Similarly, you can add custom XSL code after a target element, by selecting **Custom XSL After** option from the right menu (refer to Figure 5.133).

#### **Steps to add global custom XSL code**

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Click the **Actions** menu and select **Global Custom XSL Before** option (see Figure 5.135).

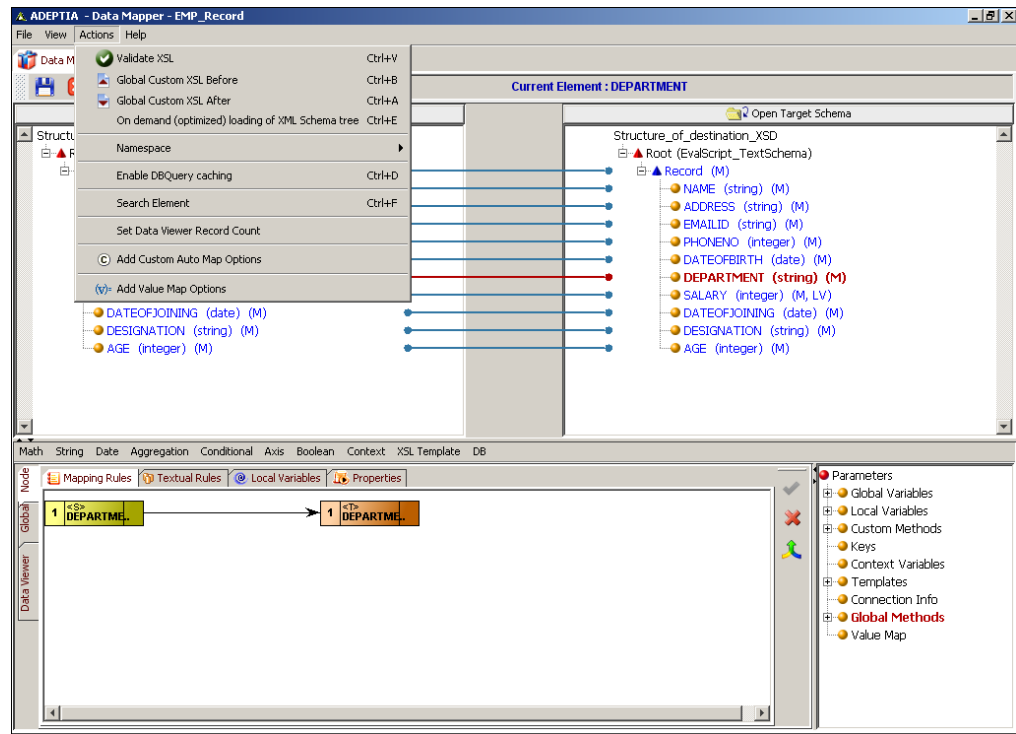


Figure 5.135: Select Global Custom XSL Before Option

3. The Add Global Custom XSL Before screen is displayed. Enter the global custom XSL code (see Figure 5.136).

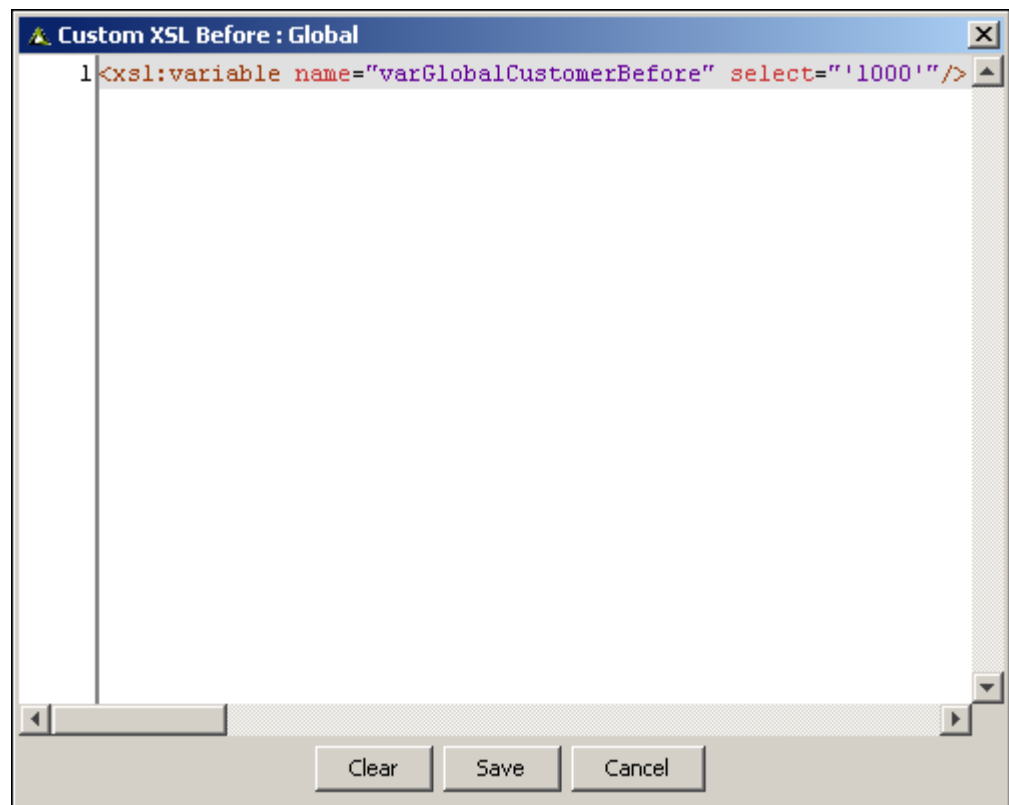


Figure 5.136: Enter Global Custom XSL Code

- Click **Save** to save the XSL code and close the screen. Alternately, click **Clear** to clear the XSL code, or **Cancel** to close the screen without saving the changes.



Similarly, you can add global custom XSL code after mapping XSL, by selecting **Global Custom XSL After** option from the Actions menu (refer to Select Global Custom XSL Before Option screen).

Once you have entered the custom XSL code, it is saved in the Mapping XSL screen (see Figure 5.137).

```

1<?xml version="1.0"?>
2<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="1.1" xmlns:java="http://xml.apache.org/xslt/java" xmlns:xalan="
3  <xsl:output method="xml" version="1.0" encoding="ISO-8859-1" indent="yes"/>
4  <xsl:param name="_userName"/>
5  <xsl:param name="_password"/>
6  <xsl:param name="_class"/>
7  <xsl:param name="_identifier"/>
8  <xsl:param name="_subject"/>
9  <xsl:param name="_repositoryPath"/>
10 <xsl:param name="_Input1"/>
11 <xsl:variable name="Input_Demo_EmployeeSchema" select="document($Input1)"/>
12 <xsl:variable name="apos" '<\/xsl:variable>
13<\/Global PreCustom XSL starting-->
14 <xsl:variable name="varGlobalCustomBefore" select="'1000'"/>
15<\/Global PreCustom XSL ending-->
16 <xsl:template match="/">
17   <employees>
18     <employee>
19<\/PreCustom XSL starting for element EMPID-->
20       <EMPIDBefore>
21         <xsl:value-of select="EMPID"/>
22       <\/EMPIDBefore>
23<\/PreCustom XSL ending for element EMPID-->
24       <EMPID>
25         <xsl:value-of select="$Input_Demo_EmployeeSchema/employees/employee/EMPID"/>
26       <\/EMPID>
27<\/PostCustom XSL starting for element EMPID-->
28       <EMPIDAfter>
29         <xsl:value-of select="EMPID"/>
30       <\/EMPIDAfter>
31<\/PostCustom XSL ending for element EMPID-->
32       <FIRSTNAME>
33         <xsl:value-of select="$Input_Demo_EmployeeSchema/employees/employee/FIRSTNAME"/>
34       <\/FIRSTNAME>
35       <LASTNAME>
36         <xsl:value-of select="$Input_Demo_EmployeeSchema/employees/employee/LASTNAME"/>
37       <\/LASTNAME>
38     <\/employee>
39   <\/employees>
40 <\/xsl:template>
41<\/Global PostCustom XSL starting-->
42 <xsl:variable name="varGlobalCustomBefore" select="'1000'"/>
43<\/Global PostCustom XSL ending-->

```

Figure 5.137: Custom XSL Code in Mapping XSL

## Select Root

You can change the root element when XML schemas are loaded. The root element always appears as a tag in the Output section on the *Debugger* screen. You can change this tag by selecting the desired root element.

### Steps to select root element of a schema

1. Ensure that the [source and target schemas are loaded](#) and all their elements are listed under their respective nodes.
2. Right-click the *root element* of the schema whose root element you want to change and select the **Select Root** option.
3. The Select Root Element screen is displayed (see Figure 5.138). This screen displays a list of existing root elements for the selected schema in a drop-down list.

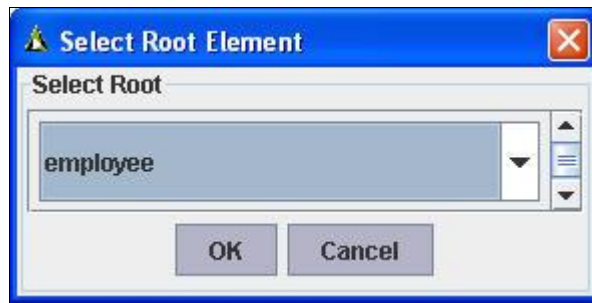


Figure 5.138: Select Root Element



All elements that are declared as global in the XSD are listed in this drop-down list.

4. Select the *root element* that you want to change from the *Select Root* drop-down list and click OK.
5. A screen is displayed confirming the change of the root element (see Figure 5.139).

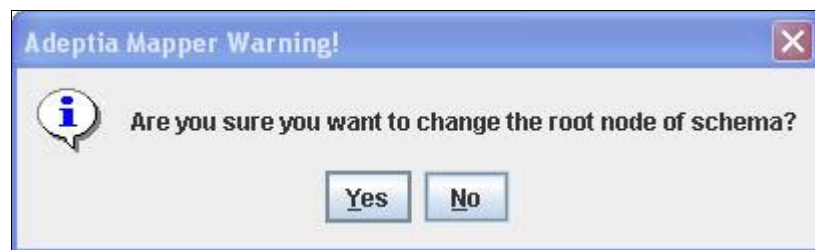


Figure 5.139: Confirm Change of Root Element

6. Click **Yes** to change the root element. This changes the root element and displays the selected root element.




The *Select Root* sub-option is displayed as active only for the root element.

## Populating extension type element

If complex type of element is an extension type i.e. other complex types are extending from this type, then you have the option to load the hierarchy from the list of complex types, which are extending from original element type.

### Steps to select extension element

1. Ensure that the source and target schemas are loaded and all their elements are listed under their respective nodes.
2. Right-click the extension element of the schema whose element hierarchy you want to change and select the **Extension Element** option.

 The *Extension Element* sub-option is displayed as active only for the extension element.

3. The Select Extension Element screen is displayed (see Figure 5.140). This screen displays a list of extension element type.

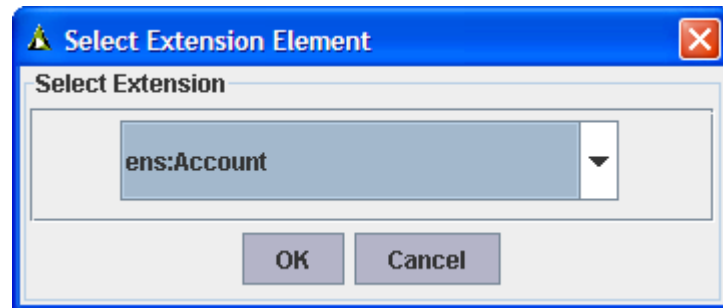


Figure 5.140: Select Extension Element

4. Select the required extension type that you want to load from the *Select Extension Element* drop-down list and click **OK**.
5. A screen is displayed confirming the change of extension element (see Figure 5.141).

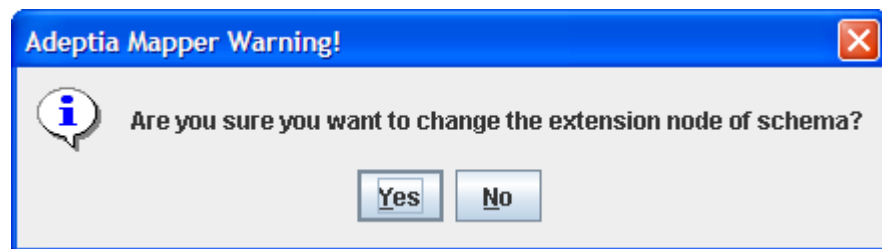


Figure 5.141: Confirm Change of Extension Element

6. Click **Yes** to change the extension element. The selected hierarchy will be loaded.

## USING RECORD TO RECORD SERVICE

Record to Record Service takes inputs record by record and processes them according to the defined logic using java programming construct, and gives the output one record at a time. User can write Java logic that will be executed in this service. The Java logic has access to Record to Record script service, context of the process flow this service belongs to, input and output Stream handlers, which allow Java logic to access and manipulate input data to generate output and pass it to another service in the process flow.



In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Prerequisites:

- Schema activity must be created before creating Record to Record Service.

### Steps to create Record to Record activity:

- Click **[+] Automate** to expand the tree and then click **[+] Data Transform**. All the items in the Data Transform category are displayed.
- Click **Record to Record**. The Manage Record to Record screen is displayed (see Figure 5.142).

[+]

Manage

[-]

Automate

[+]

DataDictionary

[-]

DataTransform

Data Mapping

Record to Record

[+]

Extensions

[+]

HumanWorkflow

[+]

Miscellaneous

DataTransform > Record to Record

New

Edit

Delete

Revisions

Dependencies

--Select Field to Search--

Search

#	Name	Description	Owner	Perm.	Modified
1	<div><div></div><div>EvalRec_Record2Record</div></div>	Record 2 Record Transformer	admin	RWX	08/12/05 17:21

Figure 5.142: Manage Record to Record Service

- Click the **New** link. The Create Record to Record screen is displayed (see Figure 5.143).

**DataTransform > Record to Record**

**[-] Standard properties**

Name \*

Description \*

Script \*

Input Format \* XML

Schema Name (Input data) \* EvalXform\_DbSchema (Database Schema to parse...)

Output Format \* XML

**[+] Advanced properties**

\* Mandatory fields.

Figure 5.143:Create Record to Record Service

4. Enter the name and description of the new Record to Record service in the *Name* and *Description* fields respectively.
5. Enter the sample Java script displayed in Figure 5.144 to perform the desired transformation.

#### Template Script

**Note: the complete script is executed for each record.**

```
// setting data into process flow context
// context - This object represents the process flow context which is
implicitly available to Script
context.put("Variable name", "Object value") ;

// reading data from process flow context
Object value=context.get("Variable name");

// Reading the input Record
// record - represents the input data record object, which is implicitly
```

```

available to Script
    String name = record.getField("name");
    String email = record.getField("email");

// Creating an Empty record
    com.adeptia.indigo.io.Record outputRecord =
    com.adeptia.indigo.io.IoObjectPool.borrowRecord();

// Populating output Record
    outputRecord.addField(name);
    outputRecord.addField(email);

// Writing output record to output stream read by another activity
// service- This is the "Record to Record" Service object which is also
available implicitly to the script.
// "default"- this is the name of the output stream.keep this as it is.while
making process flow make sure you use the default stream only.
    service.write(outputRecord, "default");

// To wait for certain flag in process flow context so that next record
can be processed based on the value of flag
    while(true)
    {
        String isRecievedAck = (String) context.get("recievedAck");
        if(isRecievedAck == null || (isRecievedAck.equals("false")))
        {
            try
            {
                Thread.sleep(300);
            }
            catch(Exception e)
            {
            }
        }
        else
        {
            break;
        }
    } // end

```

Figure 5.144: Sample Java Script

6. Select input and output format as either XML or Native (non XML) from the *Input Format* and *Output Format* drop-down lists respectively.
7. Select the source schema activity from the *Schema Name* drop-down list.



If any XML Schema is selected in the *Schema Name* drop-down list, then the *Input Format* must be selected as XML.  
 To learn how to create Schema activity, refer to section [Creating Schema Activity](#).  
 To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

8. Click the **Save** button. A screen is displayed confirming that the Record-to-Record activity has been created successfully. If the comments property is enabled, then clicking Save will display a screen where you need to enter comments related to creating the Record-to-Record service (refer to Figure 4.6).
9. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

10. Click **OK** to save the comments. This displays a screen confirming that the Record-to-Record service has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the [Updating Properties](#) section.

## 6 CREATING EXTENSIONS

This section allows you to create the following activities:

- [Custom Application](#)
- [Custom Plugin](#)

### CREATING CUSTOM APPLICATION

Adeptia allows you to integrate a custom application into the Adeptia server using its graphical user interface. You can upload any custom JSP or HTML file, written to serve a specific purpose. This feature facilitates smooth management of multiple JSPs and HTML files, saves time and allows seamless integration into the Adeptia server.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	

#### To create a custom application

1. Click **[+] Automate** to expand the tree and then click **[+] Extensions**. All the items in the Extensions category are displayed.
2. Click **Custom Application**. The Manage Custom Application screen is displayed (see Figure 6.1).



This feature is visible to only those users who have *Write* and *Execute* permissions.

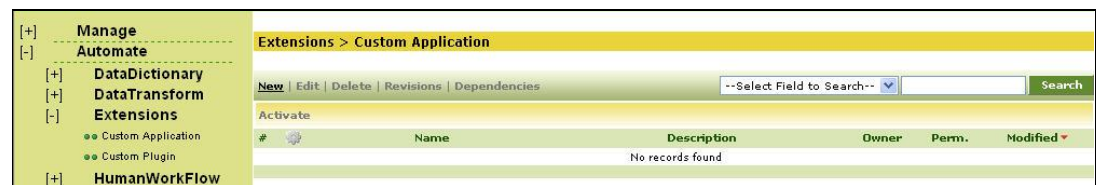


Figure 6.1: Manage Custom Application

3. Click the **New** link. The Create Custom Application screen is displayed (see Figure 6.2).

Extensions > Custom Application

**[+] Standard properties**

Name \*

Description \*

Add as Link ☒

MajorLevel Category Name

MinorLevel Category Name

Link Name

Upload Custom files \*  Add/Remove File(s)

Main File

**[+] Advanced properties**

\* Mandatory fields.

Save Cancel

Figure 6.2: Create Custom Application

4. Enter the name and description of the new custom application in the *Name* and *Description* fields respectively.
5. Mark the *Add as Link* checkbox as checked, if you want to access this application through a link in the Workspace Menu. By default, it is checked.
6. Enter the major category name under which the link would appear in the Workspace Menu, in the *MajorLevel Category Name* field. The link is added in a hierarchical format. First the *MajorLevel Category Name* link is displayed. Under this, the *MinorLevel Category Name* is displayed, and under that is displayed the link name. The custom jsp is uploaded under this link. For example, in the Adeptia BPM Product, **Automate** will be considered as a *MajorLevel Category Name*.



Any Custom Application can not be added under **Manage** Category.

7. Enter the minor category name to in the *MinorLevel Category Name* field. For example, in the Adeptia BPM Product, **Extensions** will be considered as a *MinorLevel Category Name*.
8. Enter the name of the link that appears on the Workspace Menu, in the *Link Name* field. For example, you can enter the link name as *Configuration files*. Under this link, you can upload the custom configuration files.



If the *Add as Link* checkbox is marked as unchecked, then the *MajorLevel Category Name*, *MinorLevel Category Name* and *Link Name* fields appear as disabled.

9. Click **Add/Remove File(s)** button to upload the custom JSPs. HTMLs and support files. This displays the Add/Remove Files screen (see Figure 6.3).

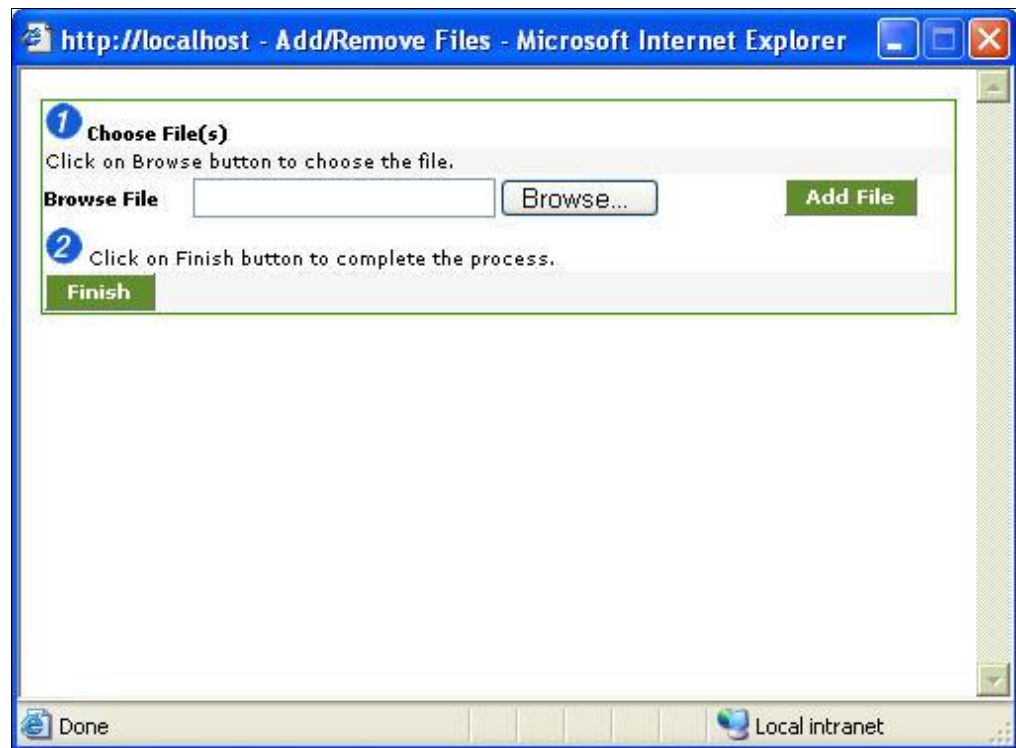


Figure 6.3: Add/Remove Files

10. Click **Browse** button to select the file to be uploaded. Once it is selected, it appears in the *Browse File* field.
11. Click **Add File** button to add the selected file. This displays the file with a checkbox. Similarly, you can add multiple files to be uploaded (see Figure 6.4).

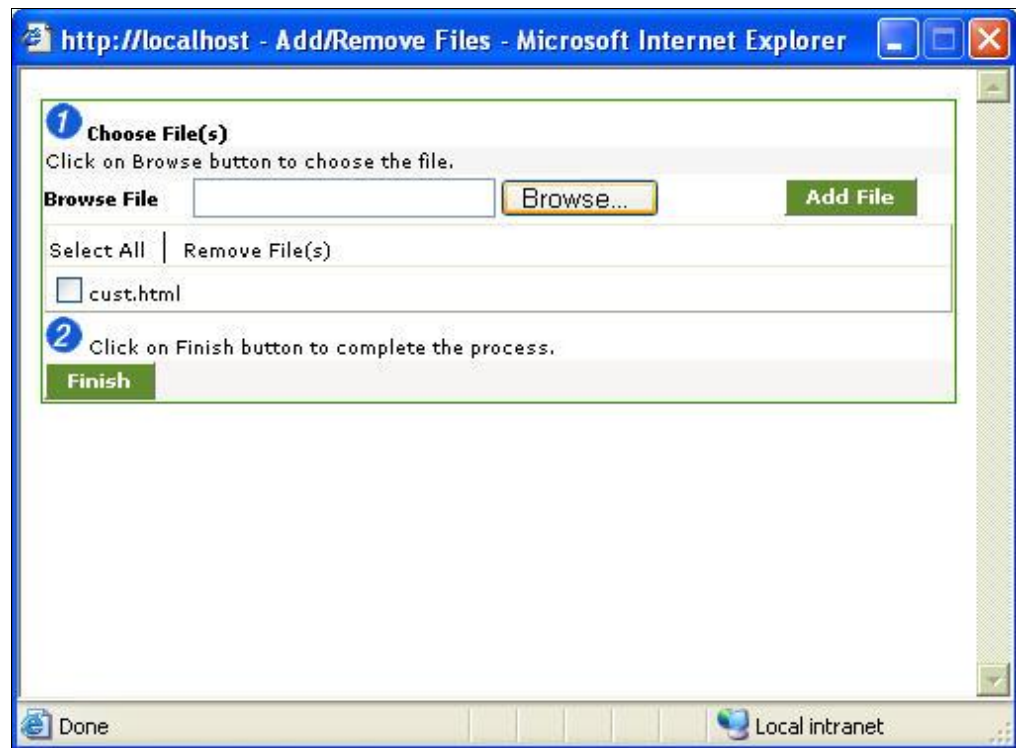


Figure 6.4: Added File(s)



There is no limit to the files that you can upload into the Adeptia server.

12. To remove the uploaded file, mark the checkboxes of the files that you want to remove and click *Remove Files* link. To select all files, click **Select All**.
13. Click **Finish** button. This closes the Add/Remove Files screen and displays the selected files in the *Upload Custom Files* field (see Figure 6.5).



Extensions > Custom Application

**[+] Standard properties**

Name *	<input type="text" value="ErrorReport"/>
Description *	<input type="text" value="report"/>
Add as Link	<input checked="" type="checkbox"/>
MajorLevel Category Name	<input type="text" value="My Menu"/>
MinorLevel Category Name	<input type="text" value="Error Reports"/>
Link Name	<input type="text" value="View"/>
Upload Custom files *	<input type="text" value="Cust.html"/> <input type="button" value="Add/Remove File(s)"/>
Main File	<input type="text" value="Cust.html"/>

**[+] Advanced properties**

\* Mandatory fields.

Figure 6.5: Uploaded File(s)



You can upload only JSP and HTML files and all their supported classes and jar files using this feature.


Once the files are uploaded, if an error occurs due to the connection being disconnected, then the system displays an error message. When you upload the files, a folder is created with name as specified in *Link Name* field, in the `../../AdeptiaServer/AdeptiaServer-4.9/ServerKernel/web/custom` folder and the uploaded file are copied into this directory. If your application is referring to any JS, CSS or image file, you need to mention the path of these files relative to custom folder. Following is the sample HTML file.

```
<Html>
<TITLE> Adeptia BPM Server </TITLE>
<script                                type="text/javascript"
src="Custom/ErrorReports/calendar.js"></script>
<Body>
<H1>
Hi!
</H1>
<img src='Custom/ErrorReports/nature2.jpg'>
</Body>
</Html>
```

Here ErrorReports is the name of the link.

14. All the uploaded files are displayed in the *Main File* drop-down list. Select the file that you want to select as the main file from this list.

15. Click the **Save** button. A screen is displayed confirming that the custom application has been created successfully. If the comments property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the custom application (refer to Figure 4.6).
16. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

17. Click **OK** to save the comments. This displays a screen confirming that the custom application has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.

18. By default, the custom application is created in deactivate state. To access it, you need to select it and then click **Activate** on the Manage Custom Application screen. Refreshing the page will activate the custom application and display its link at the bottom, in the Workspace Menu (see Figure 6.6).

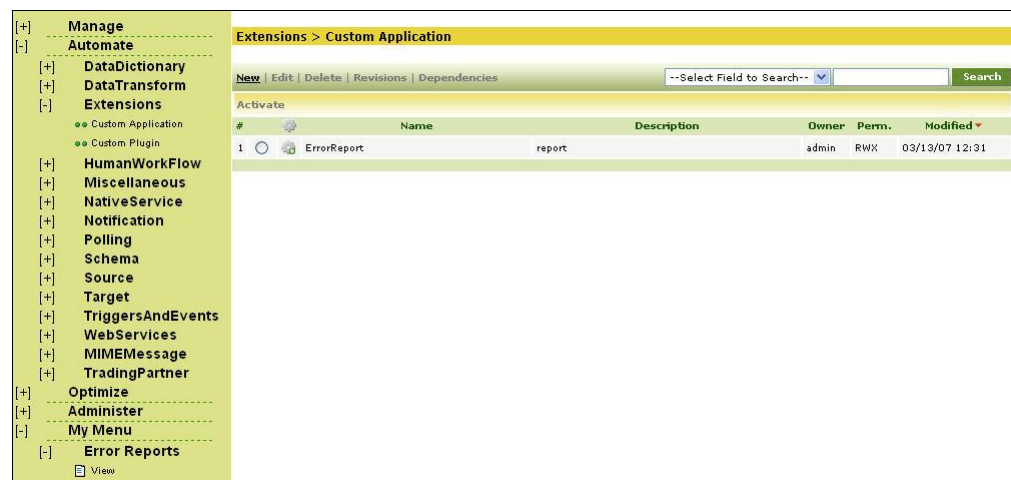



Figure 6.6: Activated Custom Application

 Clicking **Deactivate** will deactivate the application and remove the link from the Workspace Menu.

## Creating an Application with Adeptia Look and Feel

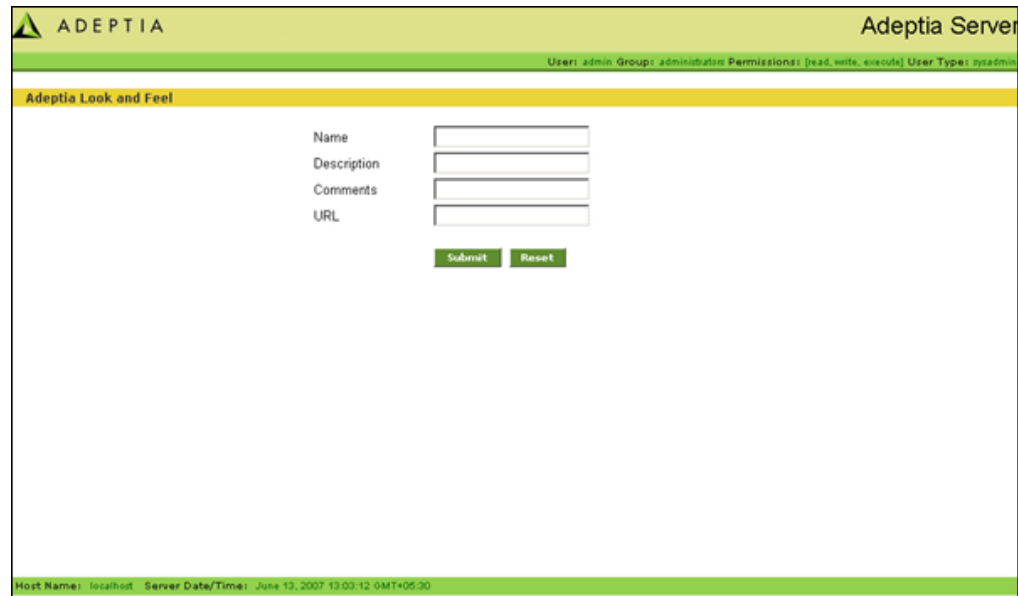
When creating a custom application, Adeptia provides a template jsp, which enables you to create the application with the Adeptia look and feel. This template has pre-designed fields and the Adeptia logo and colors, using which you can create the custom application easily. You can add the business logic to this template and create the custom jsp. This template facilitates you to seamlessly create the custom application and further reduces the effort of designing the Adeptia look and feel.

For creating an application with the Adeptia look and feel, you need to upload some files into the application. These files, their location and purpose are outlined in the table below.

Table 6.1: Files for Creating Adeptia Look and Feel

File	Location	Purpose
UI. CSS	Web/ css / UI.CSS	Style Sheet
adeptia-Logo.gif	Web/ images/ Adeptia-logo.gif	Adeptia logo
AdeptiaLookandFeel.jsp	../Adeptia/ Web / AdeptiaLookandFeel.jsp	Custom JSP

Before uploading these files into the application, you can test the custom jsp. You can do this by typing the URL <http://<localhost>:port/adeptia/control/AdeptiaLookandFeel.jsp> in the web browser. This will display the custom jsp with the Adeptia look and feel (see Figure 6.7).



The screenshot shows the Adeptia Server web interface. At the top, there is a green header bar with the Adeptia logo and the text 'ADEPTIA' on the left, and 'Adeptia Server' on the right. Below the header, a green bar displays user information: 'User: admin Group: administration Permissions: [read, write, execute] User Type: sysadmin'. The main content area has a yellow header bar with the text 'Adeptia Look and Feel'. Below this, there is a form with four input fields labeled 'Name', 'Description', 'Comments', and 'URL'. To the right of each label is a corresponding text input box. At the bottom of the form are two green buttons labeled 'Submit' and 'Reset'. At the very bottom of the page, a green footer bar contains the text 'Host Name: localhost Server Date/Time: June 13, 2007 13:03:12 GMT+05:30'.

Figure 6.7: Custom Jsp with Adeptia Look and Feel

## CREATING CUSTOM PLUGIN

A custom plugin is a scripted service that can process data in a customized manner using java-programming constructs and provides an extension point for adding any customized data processing logic. It takes the input as a stream and generates the output as a stream. You can write a Java logic that will be executed in this service. Java logic has access to the script service, context of the process flow this service belongs to, input and output stream handlers that allow Java logic to access and manipulate input data to generate the output and pass it to another service in process flow.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create custom plugin activity:

1. Click **[+] Automate** to expand the tree and then click **[+] Extensions**. All the items in the Extensions category are displayed.
2. Click **Custom Plugin**. The Manage Custom Plugin screen is displayed (see Figure 6.8).

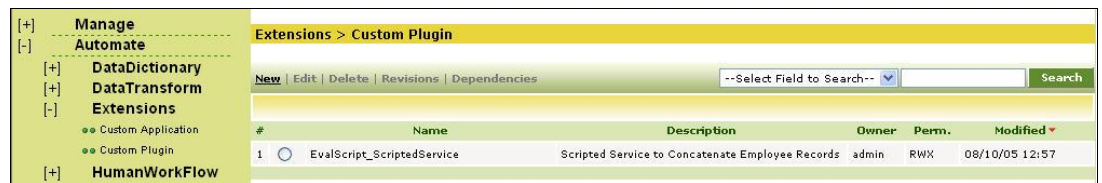
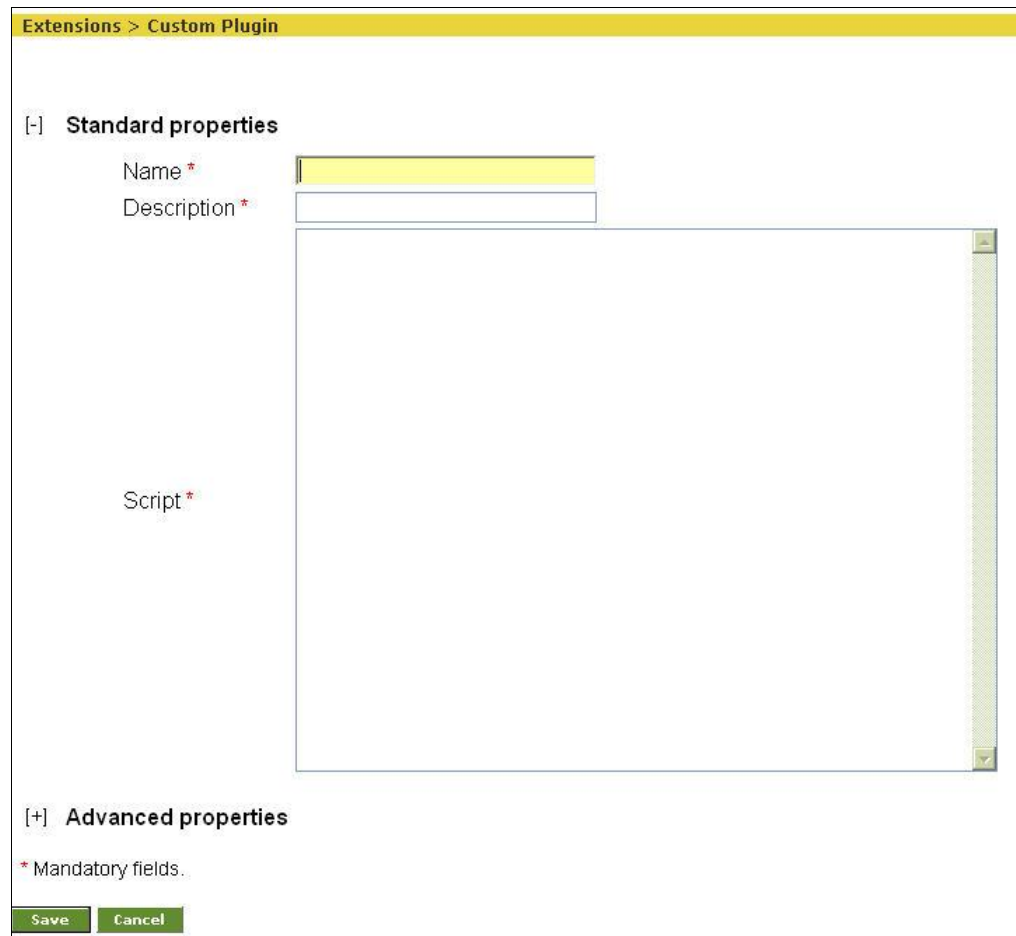


Figure 6.8: Manage Custom Plugin

3. Click the **New** link. The Create Custom Plugin screen is displayed (see Figure 6.9).



Extensions > Custom Plugin

**[-] Standard properties**

Name \*

Description \*

Script \*

**[+] Advanced properties**

\* Mandatory fields.

Figure 6.9: Create Custom Plugin

4. Enter the name and description of the new Scripted Service in the *Name* and *Description* fields respectively.
5. Enter the sample Java script displayed in Figure 6.10 to perform the desired transformation.

**Template Script:**

```
// Setting data into process flow context
// context - This object represents the process flow context,
which is implicitly available to Script
context.put("Variable name", "Object value");

// Reading data from process flow context
Object value = context.get("Variable name");

// Reading the input data
// inputStream - represents the input data Stream, which is
implicitly available to Script
BufferedInputStream bstream = new
BufferedInputStream(inputStream);

// Any data processing logic
```

```
ZipInputStreamzin = new ZipInputStream(new
BufferedInputStream(inputStream));
byte[] data = zin.compress().getBytes();

// Writing output data to output stream read by another activity
// service - this is the "Scripted Service" Service object, which
is also available implicitly to the script.
// "default" - this is the name of the output stream. Keep this
as it is. While making process flow make sure you use the default
stream only.
service.write(data, "default");
```

Figure 6.10: Sample JAVA Script



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

6. Click the **Save** button. A screen is displayed confirming that the scripted service activity has been created successfully. If the *comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the scripted service (refer to Figure 4.6).
7. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

8. Click **OK** to save the comments. This displays a screen confirming that the scripted service has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.

## 7 USING HUMAN WORKFLOW

This section describes the Human Workflow activity and its usage in Adeptia. Additionally, it explains the managing of documents using WebDAV document repository.

- [Managing Document Repository](#)
- [Managing Tasks using Human Workflow](#)

### MANAGING DOCUMENT REPOSITORY

Web-based Distributed Authoring and Versioning (WebDAV) is a set of extensions to the HTTP protocol that enables users to collaboratively edit and manage documents (files) on remote web servers. Document Repository is an applet, which allows you to manage documents in WebDAV repository.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√		

The Document Repository applet consists of two parts as displayed (see Figure 7.1).

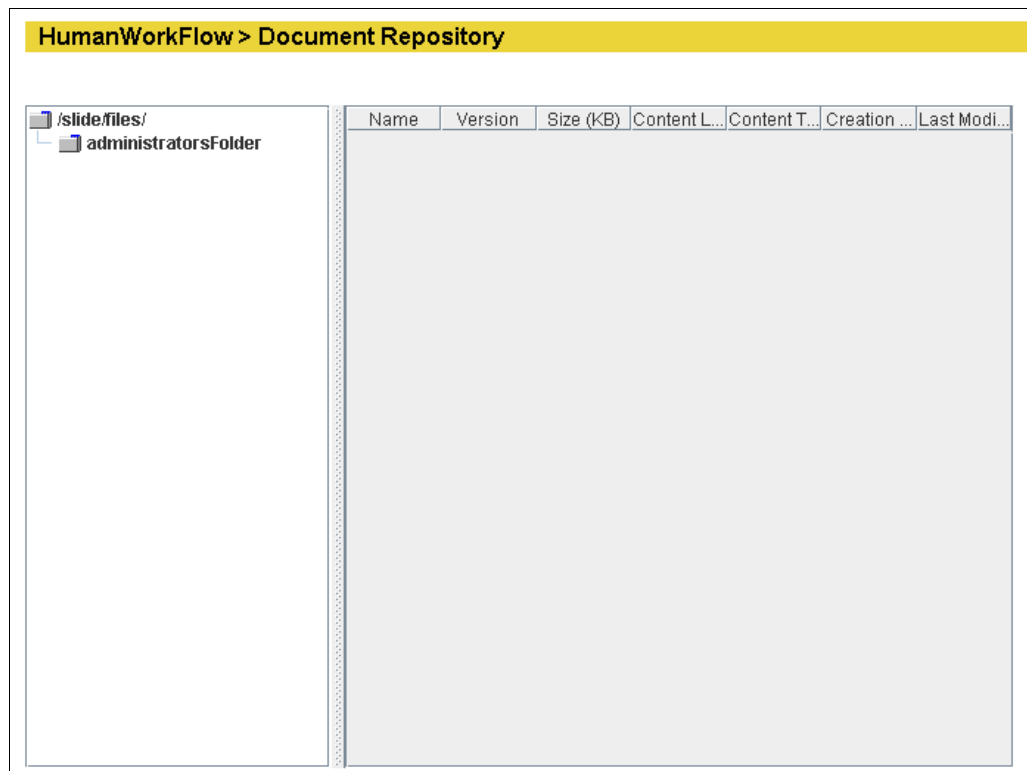


Figure 7.1: WebDAV Document Repository Structure

The left pane displays the directory structure and all WebDAV folders and sub-folders within directories. The right pane displays properties of the selected documents.

You can manage your documents through this applet. You can create top-level folders using the WebDAV folder activity. By default, for every group, top-level folder is created with the name of that group. For example for "Administrators" group the folder will "AdministratorsFolder". You can also create your own top level WebDAV folder. You can further create sub folders under a folder. Additionally, you can upload files anywhere in this folder hierarchy and once uploaded you can view, download and delete these files. You can also maintain versions of files using the Document Repository.



A maximum of 10 versions can be maintained for a document.

Whenever a Human WorkFlow activity is executed, documents associated with that activity are stored in the WebDAV folder specified in the Human WorkFlow directory.

This section explains:

- [Creating WebDAV folder](#)
- [Creating WebDAV Sub-Folders](#)
- [Managing Files in a Document Repository](#)



## Creating WebDAV Folder

A WebDAV folder for a group is created at the time of the creation of a group. Besides these folders, you can further create top-level folders in the Document Repository.

### Steps to create a top-level WebDAV folder

1. Click **[+] Automate** to expand the tree and then click **[+] Human WorkFlow**. This displays all items in the Human WorkFlow category.
2. Click **WebDAV Folder**. The Manage WebDAV Folder screen is displayed (see Figure 7.2).

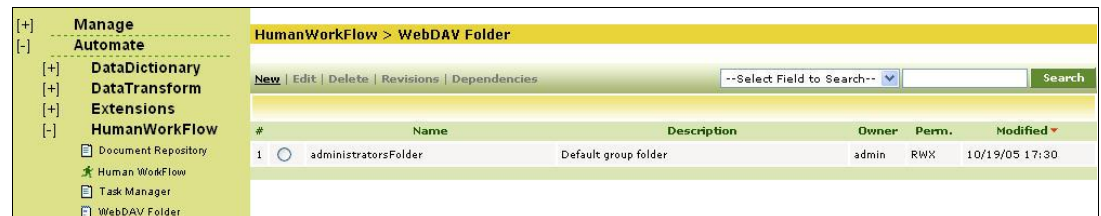


Figure 7.2: Manage WebDAV Folder

3. Click **New** link to create a WebDAV folder. The Create WebDAV folder screen is displayed (see Figure 7.3).

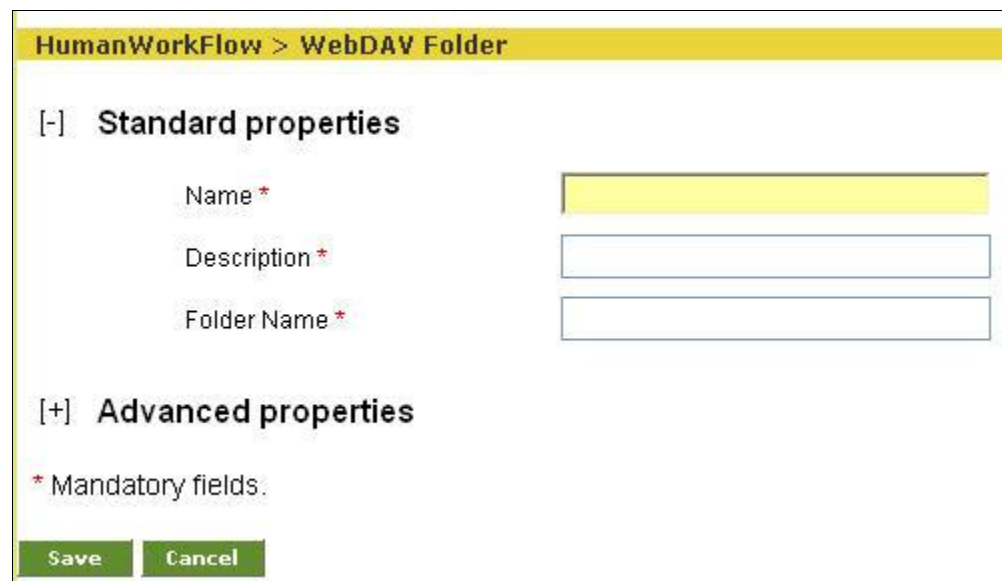



Figure 7.3: Create WebDAV Folder


4. Enter the name and description of the new WebDAV folder activity, in the *Name* and *Description* fields respectively.
5. Enter the name of the WebDAV folder that you want to create, in the *Folder Name* field.
6. Click **Save** button. This displays a screen confirming that the WebDAV folder has been created successfully. If the *comments* property is enabled,


then clicking **Save** will display a screen where you need to enter comments for creating the WebDAV folder (refer to Figure 4.6).

7. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

8. Click **OK** to save the comments. This displays a screen confirming that the WebDAV folder has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.

 To define Advanced Properties for a WebDAV folder, edit or create a copy of an existing WebDAV folder, view, delete or search a WebDAV folder, refer to the section [Managing Activities](#).

## Creating WebDAV Sub-Folder

You can create a WebDAV sub-folder in the Document Repository.

### Steps to create a WebDAV sub-folder

1. Click **[+] Automate** to expand the tree and then click **[+] Human WorkFlow**. This displays all items in the Human WorkFlow category.
2. Click **Document Repository**. The WebDAV Document Repository Structure screen is displayed (refer to Figure 7.1).
3. Select the WebDAV folder in which you want to create a sub folder, and right-click it. This displays a list of options on the right-click menu. Select the **Add Folder** option (see Figure 7.4).

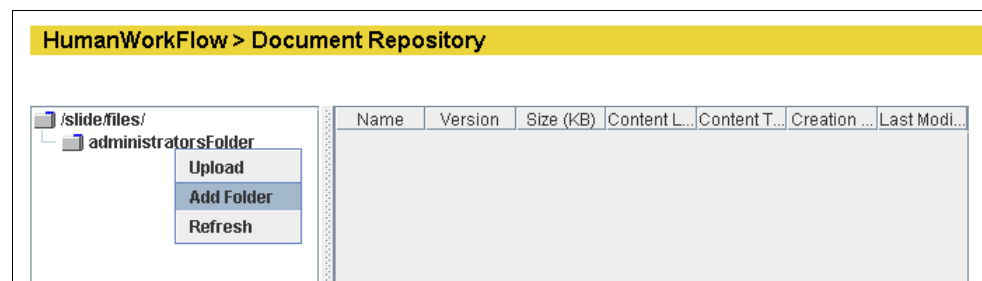


Figure 7.4: Select Add Folder Option

4. The Add Folder dialog box is displayed (see Figure 7.5).

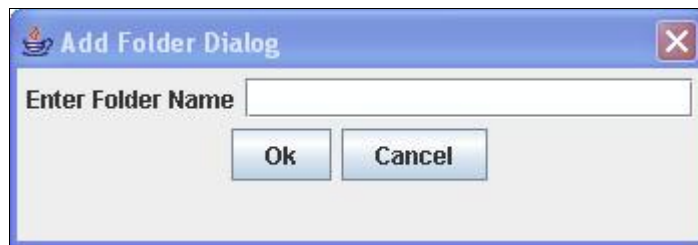


Figure 7.5: Add Folder Dialog Box

5. Enter the name of the new WebDAV sub-folder in the *Enter Folder Name* field.
6. Click **OK** button. This creates the sub-folder under the selected folder.

## Managing Files

You can manage files and maintain various file versions in the Document Repository. This section covers:

- [Uploading File in Document Repository](#)
- [Downloading File from Document Repository](#)
- [Viewing File in Document Repository](#)
- [Deleting File from Document Repository](#)
- [Maintaining Versions of a File in Document Repository](#)
- [Downloading a particular File Version from Document Repository](#)

### *Uploading File in Document Repository*

#### *Steps to upload a file in the Document Repository*

1. Click **[+] Automate** to expand the tree and then click **[+] Human WorkFlow**. This displays all items under the Human WorkFlow category.
2. Click **Document Repository**. The WebDAV Document Repository Structure screen is displayed (refer to Figure 7.1).
3. Select the WebDAV folder in which you want to upload a file and right-click it. This displays a list of options on the right-click menu. Select the **Upload** option from the right-click menu (see Figure 7.6).

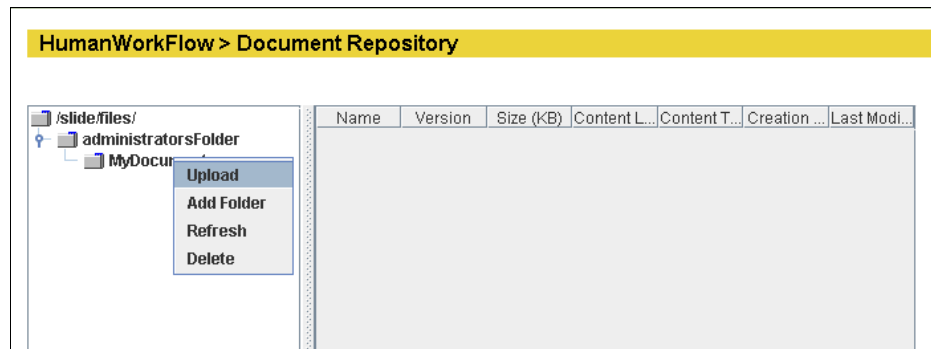


Figure 7.6: Select Upload Option

4. The WebDAV File Upload screen is displayed (see Figure 7.7).

WebDAV File Upload

**1 Choose File**  
 Click on Browse button to choose the file.  
 Browse File

**2 Upload File**  
 Click on the "Upload File" button. Please wait till your file appears in list. Repeat the process to upload other files.  
**File Names**

**3** Click on Finish button to complete the process.

Figure 7.7: WebDAV File Upload Screen

5. Click **Browse** button to select the file that you want to upload. This displays the Choose File screen (see Figure 7.8).

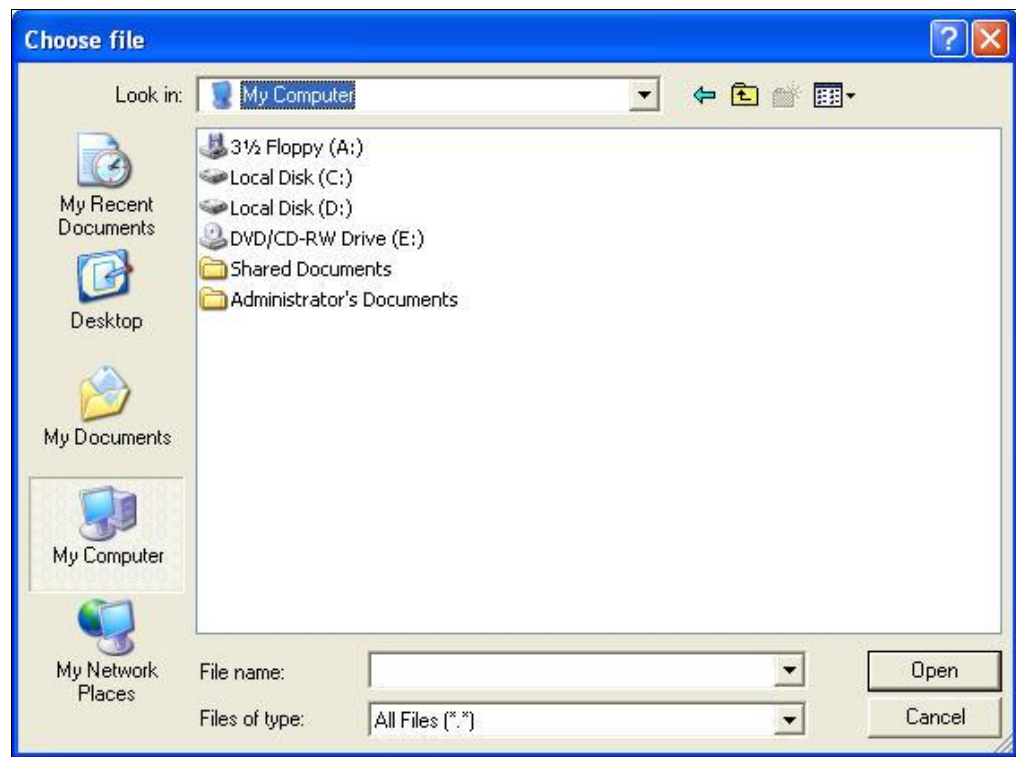



Figure 7.8: Choose File Screen

6. Select the file that you want to upload and click **Open** button. This displays the selected file in the *Browse File* field on the WebDAV File Upload screen (see Figure 7.9).

	<ul style="list-style-type: none"> <li>▪ Multiple files can be uploaded in a folder.</li> <li>▪ File with more than 10 MB of size cannot be uploaded.</li> <li>▪ There should not be any space in File Name.</li> </ul>
---	---

**WebDAV File Upload**

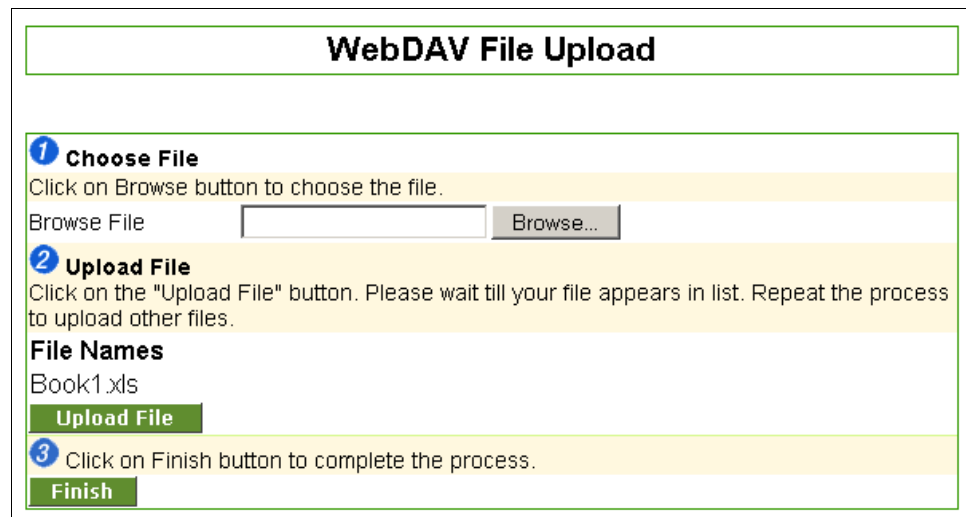
**1 Choose File**  
Click on Browse button to choose the file.  
Browse File

**2 Upload File**  
Click on the "Upload File" button. Please wait till your file appears in list. Repeat the process to upload other files.  
**File Names**

**3** Click on Finish button to complete the process.

Figure 7.9: WebDAV File Added

7. Click **Upload File** button. This displays the name of the uploaded file in the File Names field (see Figure 7.10).



**WebDAV File Upload**

- 1 Choose File**  
Click on Browse button to choose the file.  
Browse File
- 2 Upload File**  
Click on the "Upload File" button. Please wait till your file appears in list. Repeat the process to upload other files.  
**File Names**  
Book1.xls
- 3** Click on Finish button to complete the process.

Figure 7.10: File Names Added

8. Click **Finish** button to complete the File Upload process and return to the WebDAV Document Repository Structure screen.
9. Right click the WebDAV folder in which you have uploaded the file and select **Refresh** from the right-click menu options (see Figure 7.11). This refreshes the files in the selected folder.

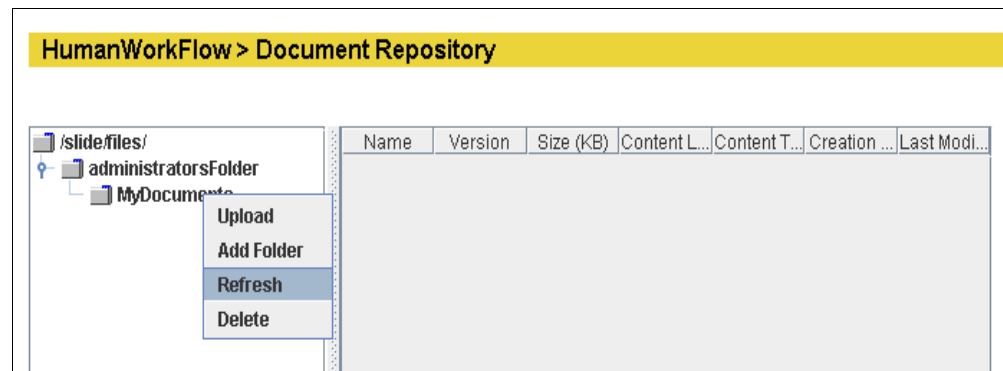


Figure 7.11: Refresh WebDAV Folder

10. Click the selected WebDAV folder. This displays all files stored in the selected folder, in the right pane of the screen (see Figure 7.12).

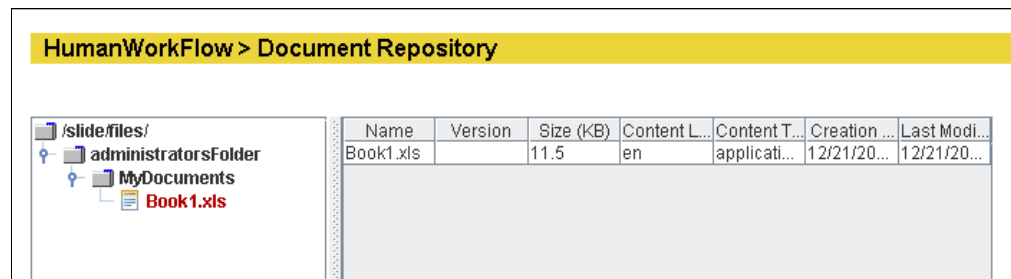


Figure 7.12: Files stored in a WebDAV Folder

## Downloading File from Document Repository

### Steps to download a file from the Document Repository

1. Click **[+] Automate** to expand the tree and then click **[+] Human WorkFlow**. This displays all items under the Human WorkFlow category.
2. Click **Document Repository** item. The WebDAV Document Repository Structure screen is displayed (refer to Figure 7.1).
3. Select the WebDAV folder and expand it. This displays all files in the selected folder.
4. Select the file which you want to download and right-click it. This displays a list of options on the right-click menu. Select the **Download** option from the right-click menu (see Figure 7.13).

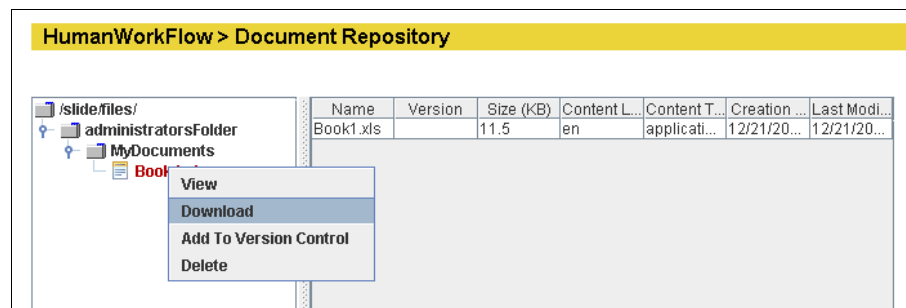


Figure 7.13: Select Download Option

5. The File Download screen is displayed (see Figure 7.14).



Figure 7.14: File Download Screen

6. Click **Save** button and specify the path to save the file on your system.
7. Click **Open** button to view the file without saving the file.

## Viewing File in Document Repository

### Steps to view a file in the Document Repository

1. Click **[+] Automate** to expand the tree and then click **[+] Human WorkFlow**. This displays all items under the Human WorkFlow category.
2. Click **Document Repository** item. The WebDAV Document Repository Structure screen is displayed (refer to Figure 7.1).
3. Select the WebDAV folder and expand it. This displays all files in the selected folder.
4. Select the file which you want to view and right-click it. This displays a list of options on the right-click menu. Select the **View** option from the right-click menu (see Figure 7.15). This will open the selected file.

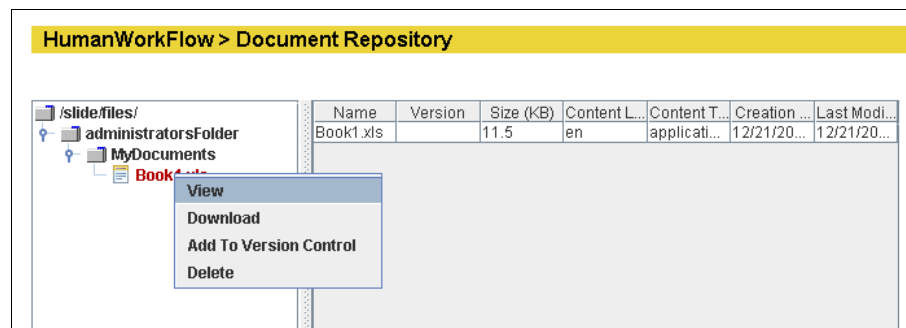


Figure 7.15: Select View Option



## Deleting File from Document Repository

### Steps to delete a file from the Document Repository

1. Click **[+] Automate** to expand the tree and then click **[+] Human WorkFlow**. This displays all items under the Human WorkFlow category.
2. Click **Document Repository** item. The WebDAV Document Repository Structure screen is displayed (refer to Figure 7.1).
3. Select the WebDAV folder and expand it. This displays all files in the selected folder.
4. Select the file which you want to delete and right-click it. This displays a list of options on the right-click menu. Select the **Delete** option from the right-click menu (see Figure 7.16). This will delete the selected file.

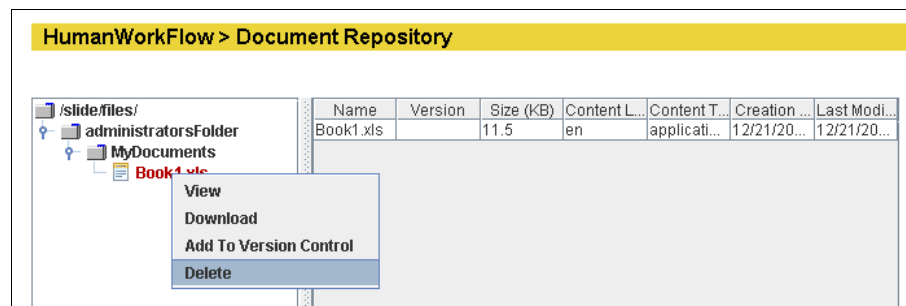


Figure 7.16: Select Delete Option



You can delete a WebDAV folder and sub-folders too by selecting the folder/sub-folder and selecting **Delete** from the right-click menu.

## Maintaining Versions of a File in Document Repository

You can maintain different versions of a file stored in the Document Repository. Right click on a file and select **Add to Version Control**. Now the version of the file will be maintained. If you upload the same file again, the uploaded document is stored with the new version.

### Steps to maintain version of a file in the Document Repository

1. Click **[+] Automate** to expand the tree and then click **[+] Human WorkFlow**. This displays all items under the Human WorkFlow category.
2. Click **Document Repository** item. The WebDAV Document Repository Structure screen is displayed (refer to Figure 7.1).
3. Select the WebDAV folder and expand it. This displays all files in the selected folder.

4. Select the file whose versions you want to maintain and right-click it. This displays a list of options on the right-click menu. Select the **Add to Version Control** option from the right-click menu (see Figure 7.17).

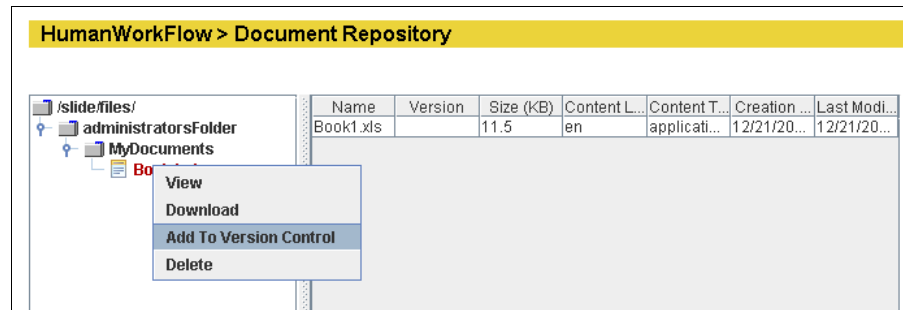


Figure 7.17: Select Add to Version Control Option

5. The WebDAV Directory Structure screen is displayed again, with the selected file displayed as *Version 1.0*, on the right pane of the screen (see Figure 7.18).

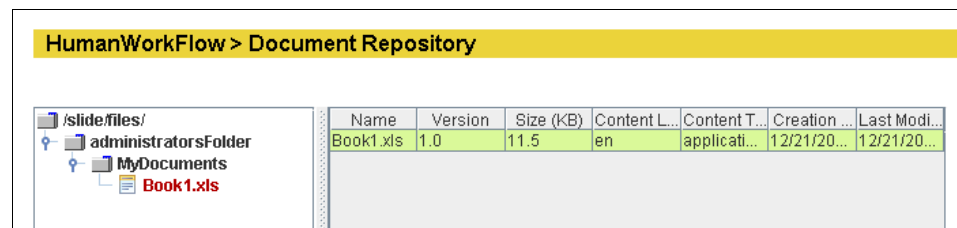


Figure 7.18: Version 1.0 of File



If you upload the selected file it will be saved as *Version1.1*. The right pane hides the previous versions and displays only the latest version of a file.

If you want to view a particular version of a file, you need to download it.

## Downloading a Particular File Version

### Steps to download a particular version of a file

1. Select the file whose version you want to download. This displays the latest version of the file in the right pane.
2. Select the file displayed in the right pane and right click it. This displays a list of options in the right-click menu. Select the **Get Version** option from the right-click menu (see Figure 7.19).

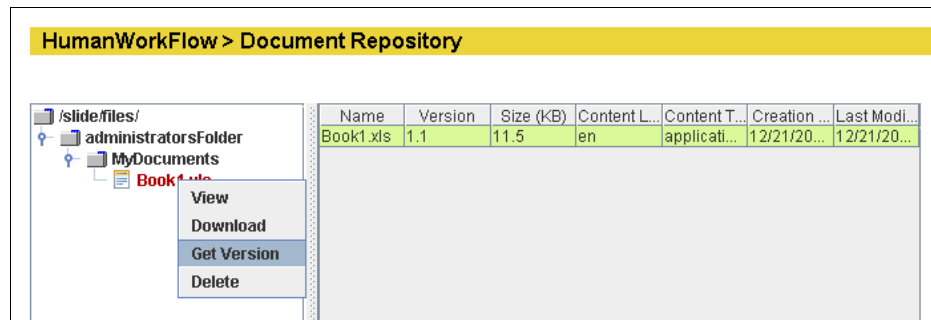


Figure 7.19: Select Get Version Option

- The Select Version dialog box is displayed as displayed in Figure 7.20.

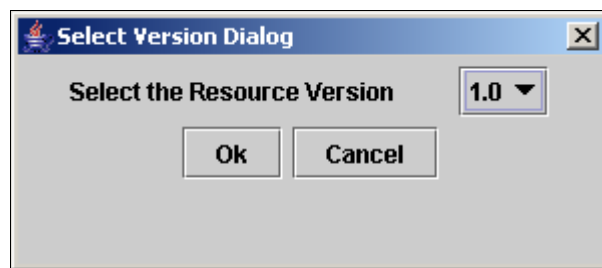


Figure 7.20: Select Version Dialog Box

- Select the version that you want to download, from the list of existing versions of the file and click **OK** button. This displays File Download dialog box (see Figure 7.21).

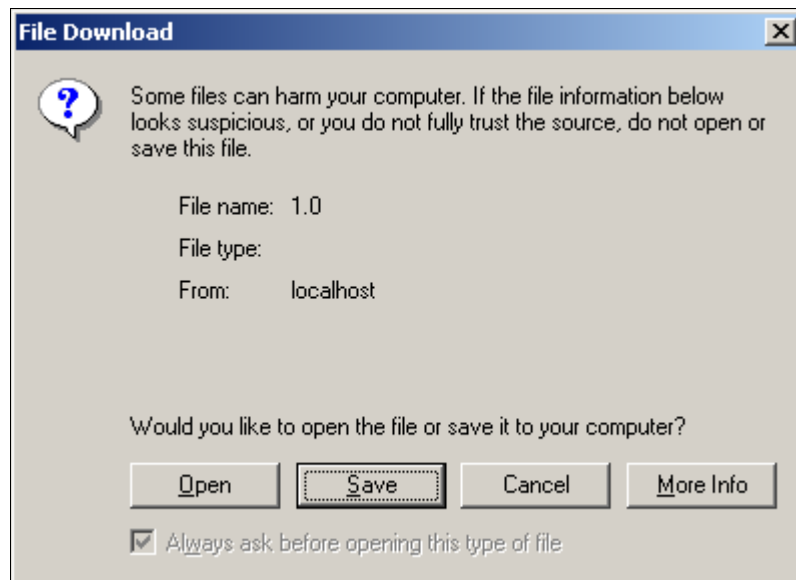


Figure 7.21: File Download Option

- Click **Save** button and specify the path to save the selected file version on your system.
- Click **Open** button to view the file version without saving the file.

## MANAGING TASKS USING HUMAN WORKFLOW

Human Workflow activity allows running process flows to interact with the user(s). It can provide data and/or get data from the process flow at runtime. Users can decide the execution path of the process flow based on the data processed.

For example, if a purchase order is issued for \$75,000, it may require approval from the Manager. The user can use the Human Workflow activity in such a case. The Human Workflow activity allows you to design an HTML page to perform this task. This HTML page can have all details of the purchase order and a button to **Approve** or **Reject**. Further, the Human Workflow activity allows you to assign this task to required person such as the manager, in this case. Once the Human Workflow activity is created, you can use this activity in the required process flow. When the process flow is executed, this Human Workflow activity gets listed as a task in the Manager's Task List. The Manager can open that task and click appropriate button to accept or reject the purchase order. If the manager accepts it, then the process flow will continue, else a rejection message will be sent to the user.

The Manager can enter input by clicking the **Open Task** link on the Task Manager screen. This displays the HTML form, where the Manager can enter input and click **Complete Task** or **Save Task** button.

Thus, users can use the Human Workflow service to perform various tasks such as:

- Design HTML page to show details of the task to be executed
- Assign tasks to other users and send them emails requesting for their necessary actions. These assigned tasks get listed in the Task Manager.
- Set Due date and Expiry date of the assigned task
- Defer the task to other users in not completed with due date



At times, the execution of tasks listed in the Task Manager, may get interrupted due to the kernel getting disconnected. To retain the executed data, the Human Workflow activity is equipped with the *Recovery Support* feature, which recovers all the executed data, at the next login.

This section allows you to use the Human Workflow activity for the following tasks:

- [Create Human Workflow Activity](#)
- [Integrate Custom Web Applications in Human Workflow](#)
- [Execute Human Workflow task](#)

## Creating Human WorkFlow Activity

Creation of Human WorkFlow activity involves designing a web page using HTML code. Users can write the HTML code manually or can use an in-built template. Users can specify the files to be downloaded from the Adeptia Server or can upload its own files.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create a Human WorkFlow activity

1. Click **[+] Automate** to expand the tree and then click **[+] Human WorkFlow**. This displays all items in the Human WorkFlow category.
2. Click **Human WorkFlow**. The Manage Human WorkFlow screen is displayed (see Figure 7.22).

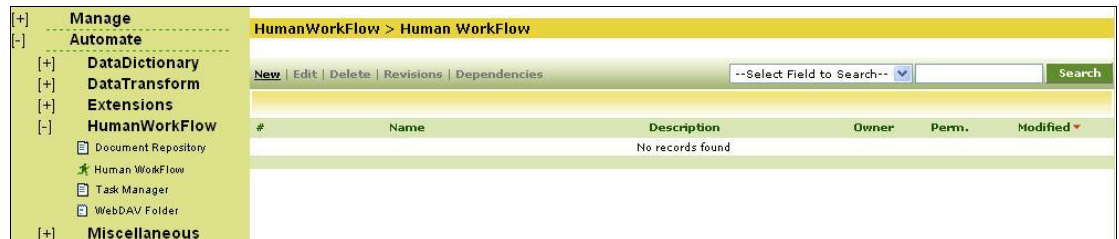


Figure 7.22: Manage Human Workflow

3. Click **New** link to create a Human WorkFlow activity. The Create Human WorkFlow screen is displayed (see Figure 7.23).

HumanWorkflow > Human Workflow

[-] **Standard properties**

Name \*

Description \*

User(s)

Role(s)

Task Priority \*

Task Due for \*

Task Expires after \*

Defer task to colleague upon Due date

Defer task to manager upon Due date

File Download/Upload

Repository Folder

HTML Type \*

HTML Code \*

Email Body

None  
admin (Default Administrator)

None

Immediate ▾

dd
  hh
  mm

Never ▾
  dd
  hh
  mm

☐ Defer task to colleague upon Due date

☐ Defer task to manager upon Due date

None ▾

Adeptia Layout ▾ Show Template

[+] **Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 7.23: Create Human Workflow Activity

4. Enter the name and description of the new Human Workflow activity in the *Name* and *Description* fields respectively.

5. Select the user to whom you want to assign this task, from the *User ID* list box. You can override this user with another user dynamically, at the time of process flow execution. For details on how to override assignee during process flow execution, refer to [Overriding Assignee User of a Human Workflow Task](#) section.
6. To assign this task to Business Role, select the Business Role from the *Role(s)* list box.



To select more than one user or business role, press the **<Ctrl>** key and click on the user(s) or business role(s) with the mouse. To select no user or business role, select **None**. At least one user or business role should be selected.  
To learn about Business Role, refer to the section [Creating Business Roles](#).

7. Select the priority of this task from the *Task Priority* drop-down list.



Task priority does not have any direct impact on the task execution. It is just a flag so that user will be able to know that which task should be completed first.

8. Enter the due time for this task in days, hours and minutes, in the *Task Due for* field.
9. Select the expiry time for this task in days, hours and minutes, from the *Task Expires after* drop-down list.



Time entered into *Task Due for* and *Task Expires after* fields are counted after the task is listed in the Task Manager not from the creation of the task.  
If a task is not completed within its due time, it will be listed in the *Over Due* list in the Task Manager of the user. If it is not completed within its expiry time, then it will be deleted from the Task Manager.

10. Check the *Defer task to colleague upon Due Time* check box, to defer the task to a colleague, if it is not completed within its due time.
11. Check the *Defer task to manager upon Due Time* check box, to defer the task to the Manager, if it is not completed within its due time.




Both the *Defer task to colleague* and *Defer task to manager* check boxes can be checked at the same time.

12. Select file download or upload action from the *File Download/Upload* drop-down list, if you want to add a link for download or upload or both in the HTML page.



If HTML Type is selected as *Manual*, link for the selected *File Download/Upload* option will appear in the HTML page.  
If HTML Type is selected as *Template*, you will have to select the location for *File Download/Upload* link. To select the location for File Download/Upload link, click the button (**Header**, **Footer** or **Bar**) of the required location in HTML Template and click **Add File Download/Upload** button.

13. Enter the name of folder in the *Repository Folder* field. This will be folder where file attached with Human Workflow activity is stored. Here you can specify either any WebDAV folder or process flow repository folder.



To specify, whether the defined folder is a WebDAV folder or a process flow repository folder, you need to change [abpm.hi.repository.type](#).

If you set the *repository type* property as *WebDav* and leave the *Repository Folder* field blank, the files are saved into a default group folder created in "WebDAV folder" object. If files are stored in the default folder, its path would be <group name folder\Process Flow name\Transaction Id>. Here the "group name folder" is the folder of the group, the executor belongs to. Process Flow name id name of the process flow and Transaction Id is execution instance Id of the process flow.

If you set the *repository type* property as *default* and leave the *Repository Folder* field blank, the files are saved into process flow repository.

It is important to ensure that the folder path is correct and executor has write permissions to the folder; else the process flow will be created but will fail at runtime.

To know more about WebDAV Repository, refer to the section [Managing Document Repository](#).

14. Select the method to create the HTML page from the *HTML Type* drop-down menu. The methods used to create HTML page are described in the table below.

Table 7.1: HTML Types

HTML Type	Description
Adeptia Layout	When <i>Adeptia Layout</i> is selected, you do not need to design Header, Footer, Left Bar and Right Bar. You only need to design the form and Upload/Download link, if required. When HTML is designed using <i>Adeptia Layout</i> , the task opens within the workspace with Adeptia Look and Feel.
Template	When <i>Template</i> is selected, an <i>HTML template</i> opens, where you can define the HTML page. When HTML is designed using <i>Template</i> , the task opens in a new page.
Manual	When <i>Manual</i> is selected, you need to write complete HTML code manually. When HTML is designed using <i>Manual</i> option, the task opens in a new page.

15. To design the HTML page, using Adeptia Layout, select *Adeptia Layout* from the *HTML Type* drop-down menu.
16. To design the HTML Page using template, select *Template* from the *HTML Type* drop-down menu.
17. If you select *Manual* from the *HTML Type* drop-down menu, then you need to write HTML code in the *HTML Code* field for the page that is displayed to the user. Sample HTML code which is used to design an HTML Page is displayed below (see Figure 7.24).




```

<TABLE height="90%" cellSpacing=0 cellPadding=0 width="100%"
border=0>
  <TBODY>
    <TR height="15%">
      <TD colSpan=3>
        <H1 align=center><FONT face="Times New Roman" color=brown
size=8>Adeptia
BPM Server</FONT></H1></TD></TR>
    <TR height="70%">
      <TD width="15%">
        </TD>
      <TD width="70%">
        <TABLE height="100%" width="100%" border=0>
          <TBODY>
            <TR height=10>
              <TD>
                <H1 align=center><FONT face="Times New Roman" color=brown
size=6>Employee Management Form </FONT></H1></TD></TR>
            <TR height=80>
              <TD>
                <FORM name=HTMLForm>
                  <TABLE>
                    <TBODY>
                      <TR>
                        <TD>Employee Id</TD>
                        <TD><BR><INPUT name=Employeeid type=text></TD></TR>
                      <TR>
                        <TD>Employee Address</TD>
                        <TD><BR><INPUT name=Employeeaddress type=text
></TD></TR>
                      <TR>
                        <TD>Employee Work Experience</TD>
                        <TD><BR><SELECT name=Workexperience><OPTION value=1
selected>One</OPTION><OPTION
value=2>Two</OPTION><OPTION
value=3>Three</OPTION><OPTION
value=4>Four</OPTION></SELECT></TD></TR>
                      <TR>
                        <TD>Are these details are fine?</TD>
                        <TD><BR><INPUT type=radio value=Yes
name=Checkdetails>Yes<INPUT type=radio value=No
name=Checkdetails>No</TD></TR>
                      <TR>
                        <TD colSpan=2><INPUT type=submit value="Save Task"
name=partialSubmit>
<INPUT type=submit value="Complete Task"
name=fullSubmit></TD></TR>
                    <TR height=10>
                      <TD>
                        <H1 align=center><FONT face="Times New Roman" color=brown
size=4>Press Save Task button to save this form </FONT>
                        <H1 align=center><FONT face="Times New Roman" color=brown
size=4>Press Complete Task button to complete this form
                        </FONT>

```

Figure 7.24: Sample HTML Code



**Tips:**

While creating an HTML page, certain points need to be considered:

- User must specify HTML Form Name.
- User must specify only one **Complete Task** button. There should not be any other action i.e. Cancel or Back etc.
- User can also specify **Save Task** button. **Save** button is used when user wants to save the partial completed task.
- User must specify *fullsubmit* and *partialsubmit* variable for **Complete Task** and **Save Task** button respectively.
- There could be any number of radio buttons.
- Variable defined in the HTML Code is automatically gets created in the Process flow.

18. Click **Show Template** button. This displays the Create HTML Template screen (see Figure 7.25), which allows the user to design the HTML page.

Define Header

Define LeftBar

Define FormHeader

Define Form

Define FormFooter

Define RightBar

Define Footer

Cancel

Preview

Submit

Figure 7.25: Create HTML Template



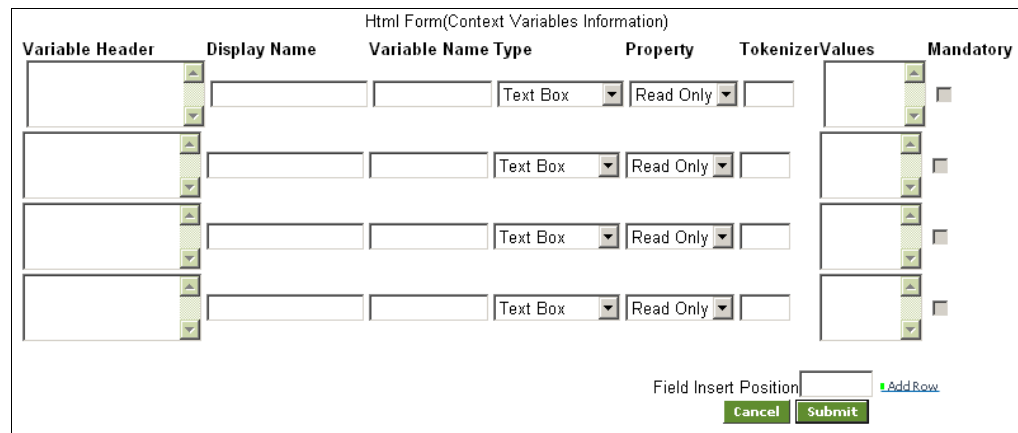
When you select *Adeptia Layout*, in *HTML template*, the **Define Header**, **Define Footer**, **Define Left Bar** and **Define Right Bar** buttons are disabled.

19. To define header, click **Define Header** button. The following screen is displayed (see Figure 7.26).

Html Area		
Add/Manage Image		
Available Images :	image012.jpg ▾	<b>Add Image</b>
Upload New Image :	<input type="text"/> <input type="button" value="Browse..."/>	<b>Upload Image</b>
Format		
Header/Paragraph:	Header One ▾	<b>Add</b> <b>Add Font</b>
<b>Add File Download/Upload</b>		
<b>Clear</b>	<b>Cancel</b>	<b>Submit</b>

Figure 7.26: Define Header

20. To add an image into header, select the image from *Available Images* drop-down list and click **Add Image** button.
21. To upload any new image in the list of *Available Images*, browse the required image and click **Upload Image** button. The selected image is added to the *Available Images* list.
22. Select header type from *Header/Paragraph* drop-down list and click **Add** button. Tags for selected header are added into HTML area. Enter the required text between the header tags.
23. To change the fonts of the text, click **Add Font** button and select the required font and color.
24. To add link for File Download/Upload option, click **Add File Download/Upload** button.
25. Click **Submit** button to return to HTML template screen.
26. Repeat step 20 to 26 to design other portion (except Form) of the HTML page.
27. To define form, click **Define Form** button. The following screen is displayed (see Figure 7.27).



Variable Header	Display Name	Variable Name	Type	Property	Tokenizer	Values	Mandatory
<input type="text"/>	<input type="text"/>	<input type="text"/>	Text Box	Read Only	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	Text Box	Read Only	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	Text Box	Read Only	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	Text Box	Read Only	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

Field Insert Position:  [Add Row](#)

Figure 7.27: Define Form

28. Enter the name of the variable header in the *Variable Header* field.
29. Enter the name of the variable, which will be displayed in the HTML page, in the *Display Name* field.
30. Enter the name of the variable, corresponding to Display Name in the *Variable Name* field.
31. Select the type of the field from the *Type* drop-down list.
32. Select the property of the field whether *Read Only* or *Editable* from the *Property* drop-down list.
33. Enter the tokenizer (e.g. comma) in the *Tokenizer* field.
34. Enter the possible values of the field separated by the tokenizer character in the *Values* field.
35. Check the *Mandatory* checkbox against the field that you want to define as mandatory entry field.



If the property of the variable is selected as *Editable*, variable is exposed in Process Designer, while creating process flow using this activity and you can further change its value. In case the property of the variable is selected as *Read Only*; you have to create the variable with same name in Process Designer. Otherwise Human Workflow task will give an error.

36. After defining variables for all required field, click **Submit** button to return to the HTML template screen.
37. Once you have created the template, click **Submit** button. This displays the Human Workflow screen with the HTML code displayed, as displayed in Figure 7.28.



Click **Preview** button to view a preview of the new HTML template, before submitting it.

HTML Type \*

Template

Show Template

HTML Code \*

```

<table width='100%' height=90% cellpadding=0
cellspacing=0 border=0><tr height='15%'><td
colspan=3></td></tr><tr height=70%><td width=15%
></td><td width=70%><table width='100%' height='100%'
border=0><tr height='10'><td><!DNLOAD#UPLOAD!
></td></tr><tr height=80'><td><form
name=HTMLForm><TABLE><TR><TD>name</TD><TD><br>
<input type=text name=name></TD></TR><TR><TD
colspan=2><input type=submit name='partialSubmit'
value='Save Task'><input type=submit name='fullSubmit'
value='Complete
Task'></TD></TR></TABLE></form></td></tr><tr
height='10'><td></td></tr></table></td><td width=15%
></td></tr><tr height='15%'><td
colspan=3></td></tr></table>

```

Email Body

[+] Advanced properties

\* Mandatory fields.

Save

Save As

Cancel

Figure 7.28: HTML Code

38. Enter your email message in the *Email Body* field. If you do not specify this message, then the default email with subject is sent. The subject of the email that is sent is defined in the code. You can override this subject and the first line of the email body by dynamically changing it. Refer to [Overriding Email Subject](#) for details.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

39. Click **[+] Advanced Properties** to expand Advanced Properties. The Advanced Properties of Human Workflow activity are shown (see Figure 7.29).

[-] **Advanced properties**

Send Email to user on addition of new task ☐

Send reminder Email to user before due date of task ☐  dd  hh  mm (Provide duration in days/hours/minutes)

Send reminder Email to user before expiry date of task ☐  dd  hh  mm (Provide duration in days/hours/minutes)

Email on Due Date

None  
User(s)  
Colleague(s)  
Manager(s)

Email on Expiry Date

None  
User(s)  
Colleague(s)  
Manager(s)

Owner\*

admin (Default Administrator) ▼

Permissions\*

Read Write Execute

Owner ☒ ☒ ☒  
Group ☒ ☐ ☒  
Other ☐ ☐ ☐

\* Mandatory fields.

Save

Cancel

Figure 7.29: Advanced Properties of Human Workflow Task

40. If you want to notify the user by email when the task is listed in user's task list, check *Send Email to User on addition of new task* check box.
41. If you want to send a reminder email to user, before the task's due date, check the *Send reminder email to user before due date of task* check box and specify the time in days, hours and minutes. For example if you specify 1 day, the reminder email is send 1 day before the due date of the task.
42. If you want to send a reminder email to user, before the task's expiry date, check the *Send reminder email to user before expiry date of task* check box and specify the time in days, hours and minutes.
43. Select the User(s), Colleague(s) or Manager(s) from the *Email on Due Date* list box, to send an email to a user, colleague or manager if the task is not completed by due date and time.
44. Select the User(s), Colleague(s) or Manager(s) from the *Email on Expiry Date* list box, to send an email to a user, colleague or manager if the task is not completed by due date and time.



Email sent to user(s), Colleague(s) or Manager(s), on Due Date or Expiry Date, contains URL of the Adeptia Server Login Page (e.g. <http://localhost:8080/adeptia/control>).  
To login into Adeptia Server and to access task manager, replace 'localhost'

with name or IP address of the machine, where Adeptia Server is running.

45. Click **Save** button. This displays a screen confirming that the human workflow has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the Human Workflow task (refer to Figure 4.6).

46. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

47. Click **OK** to save the comments. This displays a screen confirming that the human workflow has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.

## Integrating Custom Web Application in Human Workflow

While creating a Human Workflow activity, at times, some business scenarios cannot be addressed by simple HTML code. To implement these scenarios, you need more dynamic behavior of Human Workflow web pages and interaction with server end to get the required information. The Adeptia Server allows you to integrate the custom web application that you have created using JSP or AJAX.

To integrate the custom web application, you need to take care of the following points:

- While writing HTML code for a Human Workflow activity, you need to define a hidden variable named PID using following code:

```
<input Type=hidden name=PID readOnly>
```

This variable is used to pass the Process Flow ID (unique value generated for each execution of Process Flow) to the custom web application, which you have created.

- In the HTML code, create a hyperlink to call your custom web application and the corresponding Java script. The sample code (see Figure 7.30) creates a "Review" link in the Human Workflow page. Clicking the "Review" link calls the "review" function.

```
<a href='javascript:review();'>
<font color=blue>Review</font></a>
```

```
<script>
function review()
{
var pid=document.HTMLForm.PID.value;
var vWinTrans=window.open("custom/Review.jsp?PID="+pid
,"_blank","toolbar=yes,location=no,directories=no,status=no,menubar=
yes,scrollbars=yes,resizable=yes,copyhistory=no");
}
</script>
```

Figure 7.30: Sample Code for "review" Function

In the above mentioned code, *Review.jsp* is the custom jsp, which is called when you click the "Review" link in Human Workflow page.

- In the custom web application, add the following code to access the value of Process Flow ID.

```
string pid=request.getParameter("PID");
```

- To create instance of class transactioninformation add the following code.

```
TransactionInformation ti=new TransactionInformation(request,session);
```

- A custom web application allows you to perform any kind of operation that is required. In addition, you can use Adeptia API to perform operations like logging information in process flow log, viewing variables, service objects etc. For Adeptia API documentation contact [support@adeptia.com](mailto:support@adeptia.com).
- Create a subfolder "custom" in *../..AdeptiaServer/AdeptiaServer-4.9/ServerKernel/web* and copy your custom JSP in the "custom" folder.

## Executing Human WorkFlow Task

You can view a Human WorkFlow task assigned to you and execute it by entering inputs.

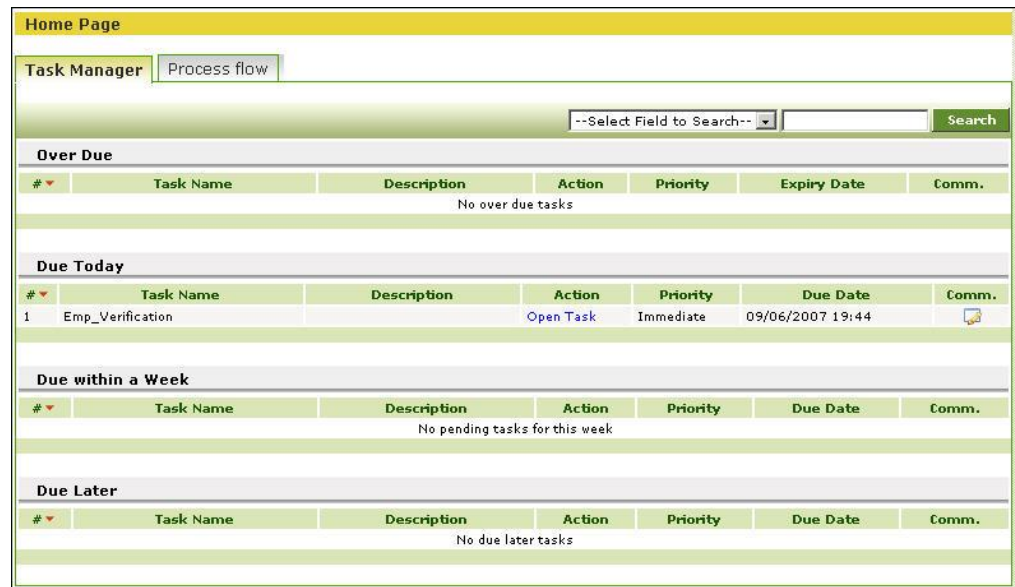
In the Adeptia Server, the Task Manager is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√



### Steps to execute a task assigned to a user

1. Click **[+] Automate** to expand the tree and then click **[+] Human WorkFlow**. This displays all items in the Human WorkFlow category.
2. Click **Task Manager**. The Task Manager screen is displayed (see Figure 7.31). This screen displays a list of activities that are assigned to a user.




#	Task Name	Description	Action	Priority	Expiry Date	Comm.
No over due tasks						
Due Today						
1	Emp_Verification		Open Task	Immediate	09/06/2007 19:44	
Due within a Week						
No pending tasks for this week						
Due Later						
No due later tasks						

Figure 7.31: Manage Task Manager



You can dynamically set the task description during execution of the process flow. While creating the process flow, this description is specified by using the *put-context-var* action. The *put-context-var* is connected in the process designer, before the Human Workflow activity. It is attached to the activity, by right-clicking the *put-context-var* action and selecting **View Properties**, and then selecting the name of the Human Workflow activity from the *Activity* drop-down list. The description is specified by selecting "taskDescription" from *Key* drop-down list, and entering the required description in the *Value* field. This description is displayed in the *Description* field of the assigned task in Task Manager.

3. To add comments to your task, click the **Comments** icon (). A dialog box is displayed to add the comments (refer to Figure 2.7)
4. Enter your comments and click **Save Comments**.
5. Click **Open Task** link of the task you want to execute in the Task Manager screen. This opens the activity as displayed in the Human WorkFlow Task screen (see Figure 7.32).

# Adeptia BPM Server

## Employee Management Form

Employee Id

Employee Address

Employee Work Experience

Are these details are fine? ☐ Yes ☐ No

File Upload [Upload](#)

**Press Save Task button to save this form**

**Press Complete Task button to complete this form**

Figure 7.32: Human Workflow Task

6. Enter information for the displayed activity.
7. To upload the any file, click the **Upload** link. The following screen appears (see Figure 7.33).

### Human Workflow File Upload

File Upload :

Version Control: ☐

Figure 7.33: Upload File

8. Click **Browse** and select the file that you want to upload.

9. To maintain versions of the file, check the *Version Control* check box. Now the version of the file will be maintained. If you upload the same file again, the uploaded document is stored with the new version.

## 8 MISCELLANEOUS

This section allows you to create the following activities:

- [Context Download](#)
- [Context Upload](#)
- [Custom Report](#)
- [Stored Procedure](#)

### CREATING CONTEXT DOWNLOAD ACTIVITY

Context Download activity is used to generate XML from a context variable. This is required when the context variable's information is to be stored in some target. This information can be passed as stream to other activities. For example, if you want to store variables and their values present in the context as per schema defined to any target activity like database target, file target, then context download activity can be used. It will generate XML of context variables and their values, which can be further used.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

#### Steps to Create Context Download activity

1. Click **[+] Automate** to expand the tree and then click **[+] Miscellaneous**. All the items in the Miscellaneous category are displayed.
2. Click **Context Download**. The Manage Context Download screen is displayed (see Figure 8.1)

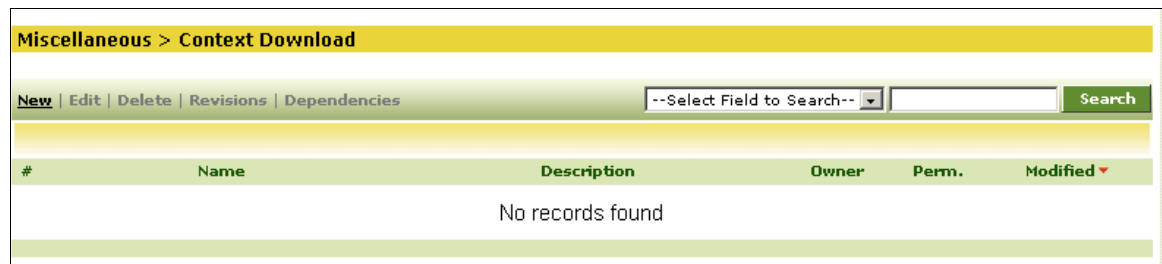


Figure 8.1: Manage Context Download

3. Click **New** link. The Create Context Download screen is displayed (see Figure 8.2).

**Miscellaneous > Context Download**

**[-] Standard properties**

Name \*

Description \*

Schema Name \*

**Define Context Variable(s)**

**[+] Advanced properties**

\* Mandatory fields.

**Save** **Cancel**

Figure 8.2: Create Context Download

4. Enter the name and description for Context Download in the *Name* and *Description* fields respectively.
5. Select the schema activity from the *Schema Name* drop-down list.
6. To define the context variable, click **Define context variable(s)** button. The Map Context Variable screen is displayed (see Figure 8.3).

**Map Context Variable**

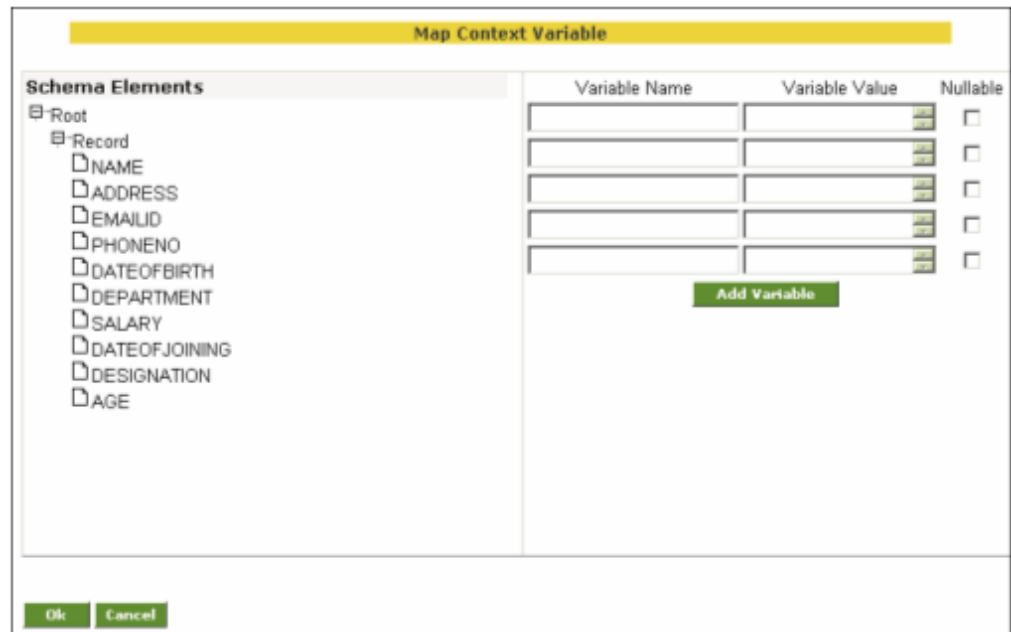
Schema Elements	Variable Name	Variable Value	Nullable
[-] Root	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

**Add Variable**

**Ok** **Cancel**

Figure 8.3: Define Context Variable

7. Expand the selected schema by clicking **[+]**. All fields of selected schemas are displayed (see Figure 8.4).

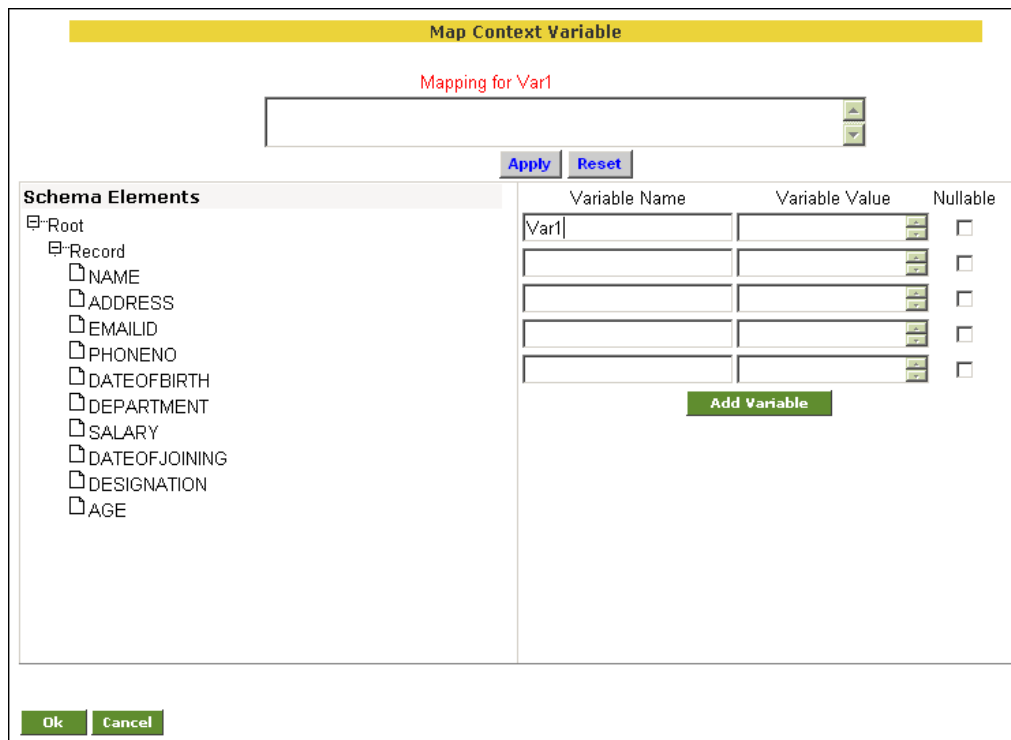


Schema Elements	Variable Name	Variable Value	Nullable
Root			<input type="checkbox"/>
Record			<input type="checkbox"/>
NAME			<input type="checkbox"/>
ADDRESS			<input type="checkbox"/>
EMAILID			<input type="checkbox"/>
PHONENO			<input type="checkbox"/>
DATEOFBIRTH			<input type="checkbox"/>
DEPARTMENT			<input type="checkbox"/>
SALARY			<input type="checkbox"/>
DATEOFJOINING			<input type="checkbox"/>
DESIGNATION			<input type="checkbox"/>
AGE			<input type="checkbox"/>

Ok Cancel

Figure 8.4: Expand Schema

- Enter a name for the context variable in the *Variable Name* field (see Figure 8.5).



Mapping for Var1

Apply Reset

Schema Elements	Variable Name	Variable Value	Nullable
Root	Var1		<input type="checkbox"/>
Record			<input type="checkbox"/>
NAME			<input type="checkbox"/>
ADDRESS			<input type="checkbox"/>
EMAILID			<input type="checkbox"/>
PHONENO			<input type="checkbox"/>
DATEOFBIRTH			<input type="checkbox"/>
DEPARTMENT			<input type="checkbox"/>
SALARY			<input type="checkbox"/>
DATEOFJOINING			<input type="checkbox"/>
DESIGNATION			<input type="checkbox"/>
AGE			<input type="checkbox"/>

Ok Cancel

Figure 8.5: Enter Variable Name

9. Select the schema element, which you want to map with the above defined variable. The XPath of the selected element is displayed in the Mapping field (see Figure 8.6).

Map Context Variable

Mapping for Var1

/Root/Record/NAME
▼

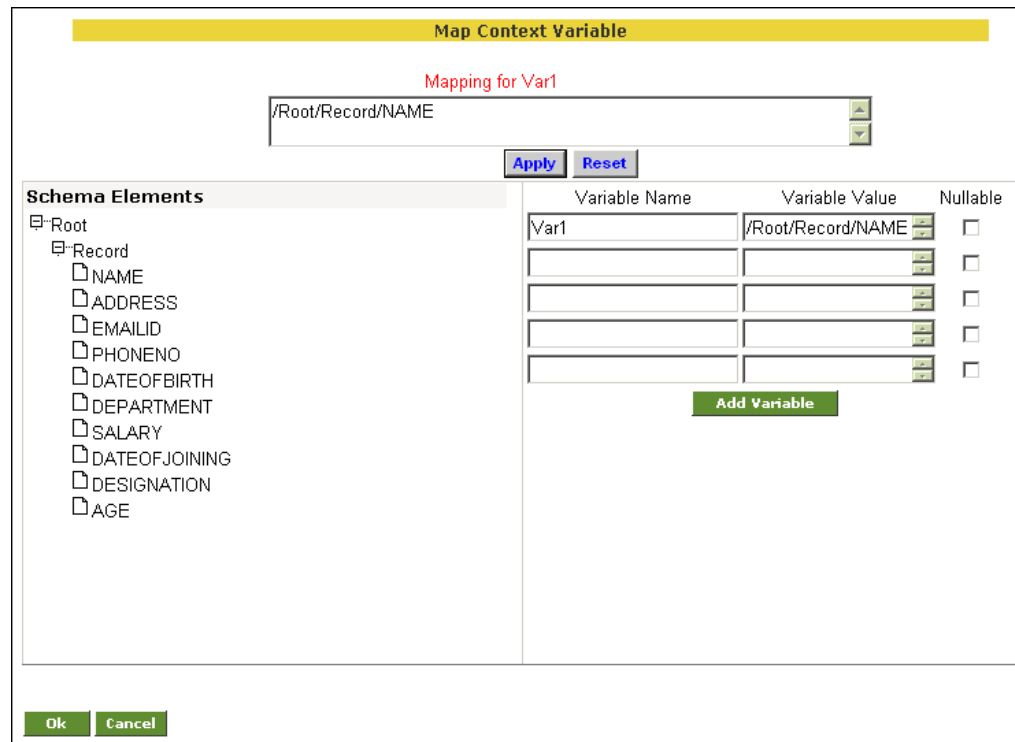
Apply
Reset

Schema Elements	Variable Name	Variable Value	Nullable
<div style="margin-left: 15px;"> <div>Root</div> <div>Record</div> <div>NAME</div> <div>ADDRESS</div> <div>EMAILID</div> <div>PHONENO</div> <div>DATEOFBIRTH</div> <div>DEPARTMENT</div> <div>SALARY</div> <div>DATEOFJOINING</div> <div>DESIGNATION</div> <div>AGE</div> </div>	<div>Var1</div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div>	<div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div>
<div style="background-color: #4F81BD; color: white; padding: 5px 20px; display: inline-block;">Add Variable</div>			

Ok
Cancel

Figure 8.6: Map Schema Element with Variable

10. Click **Apply** button. Value of the selected schema element is displayed in the *Variable Value* field (see Figure 8.7).



**Map Context Variable**

Mapping for Var1

/Root/Record/NAME

Apply Reset

**Schema Elements**

- Root
  - Record
    - NAME
    - ADDRESS
    - EMAILID
    - PHONENO
    - DATEOFBIRTH
    - DEPARTMENT
    - SALARY
    - DATEOFJOINING
    - DESIGNATION
    - AGE

Variable Name	Variable Value	Nullable
Var1	/Root/Record/NAME	<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

Add Variable

Ok Cancel

Figure 8.7: Apply Map

- Repeat steps from 8 to 10 to map the context variable with other elements.
- Check the *Nullable* checkbox in case you want this variable to allow blank value.
- Click **OK** button to return to the Create Context Download screen.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

- Click **Save** button. This displays a screen confirming that the Context Download activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the context download activity (refer to Figure 4.6).
- Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

- Click **OK** to save the comments. This displays a screen confirming that the Context download activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.



## CREATING CONTEXT UPLOAD ACTIVITY

Context Upload is used to map any field of a schema to the Process Flow Context Variable. Once the variable is set in process flow context, it can be used by any activity in the Process Flow.

Context Upload variables can be created for all types of schemas. In case of XML Schema, only those XML schemas, which are created by uploading XSD file, or DTD file (with Convert to XSD option enabled) can be used to create Context Upload variables.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to Create Context Upload activity

1. Click **[+] Automate** to expand the tree and then click **[+] Miscellaneous**. All the items in the Miscellaneous category are displayed.
2. Click **Context Upload**. The Manage Context Upload screen is displayed (see Figure 8.8)



Figure 8.8: Manage Context Upload

3. Click **New** link. The Create Context Upload screen is displayed (see Figure 8.9).



Miscellaneous > Context Upload

**[-] Standard properties**

Name \*

Description \*

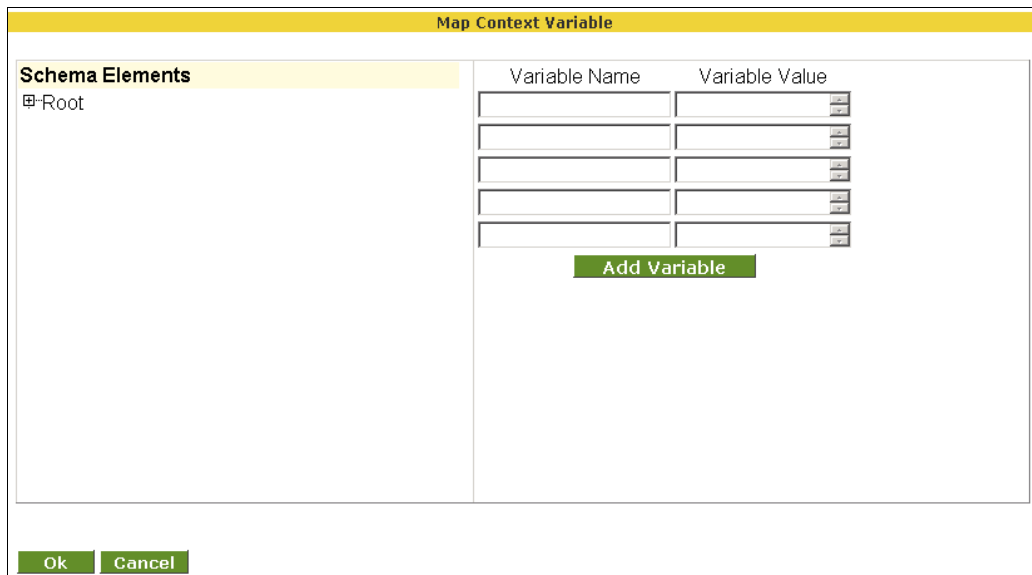
Schema Name \* -- SELECT --

**[+] Advanced properties**

\* Mandatory fields.

Figure 8.9: Create Context Upload

4. Enter the name and description for Context Upload in the *Name* and *Description* fields respectively.
5. Select the schema activity from the *Schema Name* drop-down list.
6. To define the context variable, click **Define context variable(s)** button. The Map Context Variable screen is displayed (see Figure 8.10).



Map Context Variable

Schema Elements	Variable Name	Variable Value
[-] Root	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>

Figure 8.10: Map Context Variable

7. Expand the selected schema by clicking **[+]**. All fields of selected schemas are displayed (see Figure 8.11).

8. Enter a name for the context variable in the *Variable Name* field (see Figure 8.12).

Map Context Variable

Mapping for Var1

Apply Reset

**Schema Elements**


- Root
  - Record
    - TestCaseNo
    - Desc
    - Date1
    - Date2
    - Date3
    - Date4
    - Date5
    - Date6
    - Date7
    - Date8
    - Date9
    - Date10
    - Date11
    - Date12
    - Date13

Variable Name	Variable Value
Var1	

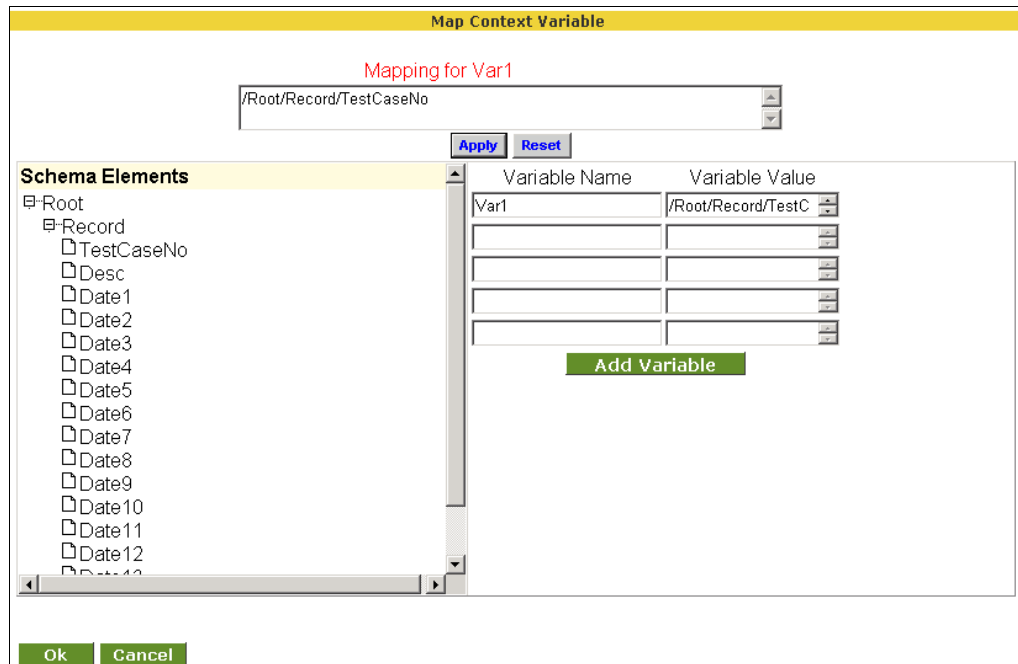
Add Variable

Ok Cancel

9. Select the schema element, which you want to map with the above defined variable. The XPath of the selected element is displayed in the Mapping field (see Figure 8.13).

	<p>The Context Upload variable accepts only string and list as parameters. When it is used in a process flow, then you need to specify the XPath value. If you select 'String' as the Data Type property, then the first XPath value is used.</p>
---	---

- Adeptia Server 4.9 User Guide Ver. 1.0



The dialog box is titled "Map Context Variable". It features a text field at the top labeled "Mapping for Var1" containing the path "/Root/Record/TestCaseNo". Below this are "Apply" and "Reset" buttons. The main area is divided into two panes. The left pane, titled "Schema Elements", shows a tree structure with "Root" expanded, revealing "Record" and its sub-elements: "TestCaseNo", "Desc", "Date1" through "Date12", and "Date13". The right pane contains a table with two columns: "Variable Name" and "Variable Value". The first row shows "Var1" mapped to "/Root/Record/TestC". Below the table is an "Add Variable" button. At the bottom of the dialog are "Ok" and "Cancel" buttons.

Variable Name	Variable Value
Var1	/Root/Record/TestC

Figure 8.14: Apply Map

11. Repeat step 8 to 10 to map the context variable with other elements.
12. Click **OK** button to return to the Create Context Upload screen.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

13. Click **Save** button. This displays a screen confirming that the Context Upload activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the context upload activity (refer to Figure 4.6).
14. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

15. Click **OK** to save the comments. This displays a screen confirming that the Context Upload activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.

## CREATING CUSTOM REPORT

A Custom Report can be used to generate customize report of any set of data. Using Custom Report, you can also generate report for already executed or running process flows.

A custom report activity is created using the custom report template (jrxml file), which is generated by the *iReport* software. This custom report activity is further used to select the process flow and generate reports into PDF, XLS, CSV, TXT and HTML format.

*iReport* is a third party software which provides a graphical tool to design report template. For detailed information about iReport software refer to following website.

[http://www.jasperforge.org/jaspersoft/opensource/business\\_intelligence/ireport/](http://www.jasperforge.org/jaspersoft/opensource/business_intelligence/ireport/)

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	

### Steps to create a custom report activity

1. Click **[+] Automate** to expand the tree and then click **[+] Miscellaneous**. All the items in the Miscellaneous category are displayed.
2. Click **Custom Report**. The Manage Custom Report screen is displayed (see Figure 8.15).



Figure 8.15: Manage Custom Report

3. Click the **New** link. The Create Custom Report screen is displayed (see Figure 8.16).

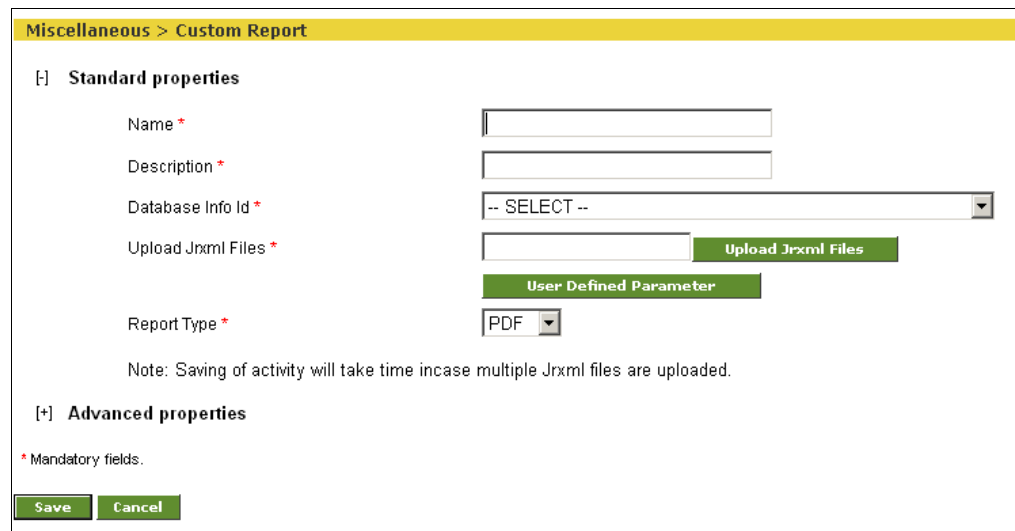


Figure 8.16: Create Custom Report Activity

4. Enter the name of Custom Report in the *Name* field. Then, enter the description for the Custom Report in the *Description* field.
5. Select the Database Info activity which points to the database Server to fetch the data, from the *Database Info ID* drop-down list.



To learn how to create Database Info activity, refer to section [Creating Database Info](#).

6. To upload the Jrxml file (custom report template) generated using *iReport* software, click **Upload Jrxml File** button. The Upload Jrxml File screen is displayed (see Figure 8.17).

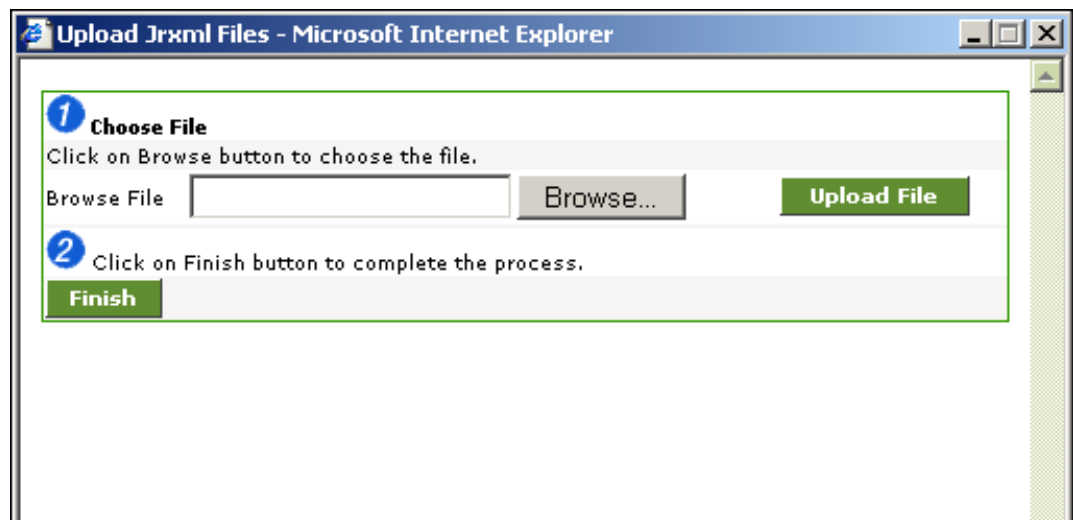


Figure 8.17: Select Jasper File

7. Click **Browse** button and select the Jrxml file. The path of the Jrxml file is displayed in the *Browse File* field (see Figure 8.18).

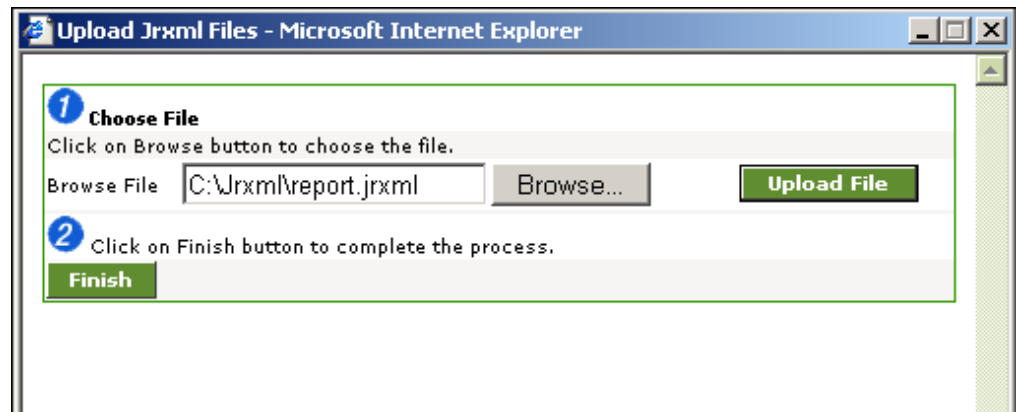


Figure 8.18: Select Jasper File

8. Click **Upload File** button. The file name is displayed in the *File Names* list (see Figure 8.19).

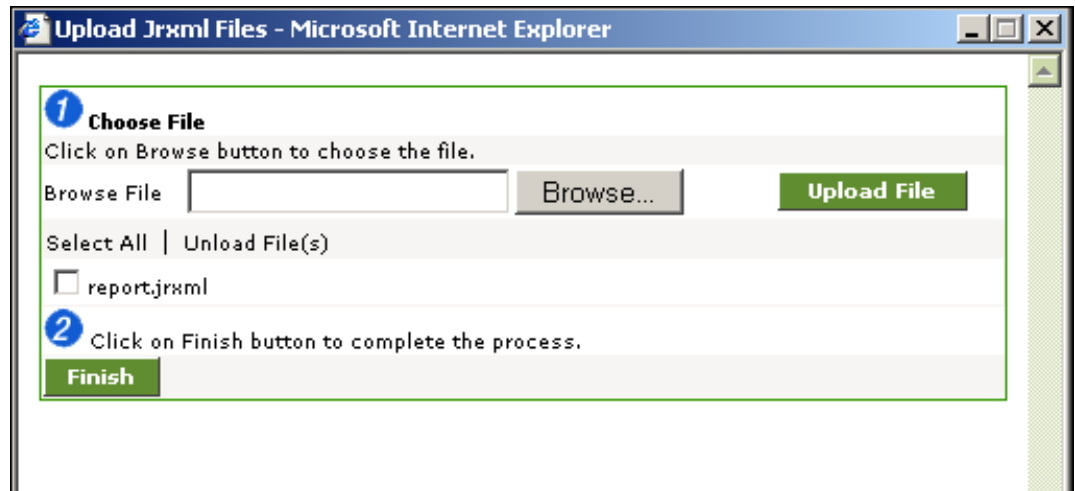


Figure 8.19: Jasper File Uploaded

9. Click **Finish** button. The uploaded *iReport* file is displayed in the *Upload Jrxml files* field (see Figure 8.20).



Miscellaneous > Custom Report > StandardProcessflowReport

**[-] Standard properties**

Name \*

Description \*

Database Info Id \*

Upload Jrxml files \*  **Upload Jrxml Files**

**User Defined Parameter**

Report Type \*

**[+] Advanced properties**

\* Mandatory fields.

**Save Save As Cancel**

Figure 8.20: Uploaded Jasper Files in Create Custom Report

10. To change value of user defined Parameter defined in the Jrxml file, click **User Defined Parameter** button. The Jasper Report Parameter screen is displayed with list of parameters defined in the Jrxml file (see Figure 8.21).

**Jasper Report Parameters**

**StandardReportTemplate.jrxml**

Parameter Name	Parameter Value
sucessCount	<input type="text"/>
totalCount	<input type="text"/>
activityNames	<input type="text"/>
sqlQuery	<input type="text"/>

**OK Close**

Figure 8.21: Define Jasper Report Parameters

11. Enter the value of the parameter in the *Parameter Value* field.



In *Parameter Value* field you can enter any constant value or any value which is set in context. To enter the constant value, directly enter the value in the *Parameter Value* field. To enter the value from the context, enter the

name of the context variable starting and ending with \$\$\$. For example \$\$\$Eid\$\$\$.

12. Click **OK** to close the Jasper Report Parameter screen.
13. Select the format in which the custom report is to be generated, from the *Report Type* drop-down list.
14. Click **Save** button. This displays a screen confirming that the custom report activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the custom report (refer to Figure 4.6).
15. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

16. Click **OK** to save the comments. This displays a screen confirming that the custom report activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.



A custom report can be used as a service in a process flow. For details, refer to the section [Using Custom Report in Process Flow](#).

A custom report activity named *StandardprocessflowReport* comes pre-created with the Adeptia Server. You can use that activity to generate the report for a Process Flow.

## CREATING STORED PROCEDURE

A stored procedure is a group of SQL statements that form a logical unit and perform a particular task. Stored procedures are used to encapsulate a set of operations or queries to execute on a database server. Stored procedures can be compiled and executed with different parameters and they may have any combination of input, output, and input/output parameters.

Using Adeptia Server's Stored Procedure activity, you can execute a database stored procedure. Stored Procedure activity takes IN parameters from process flow context. So you need to set the value of IN parameters in the process flow context. For Example if the selected stored procedure has IN parameters as *empid*, you have to set an input variable in process flow context with the name *Service.<ActivityName>.InParams.empid*, where *<Activity Name>* is the name of the stored procedure activity, which is used in the process flow. You can set this input variable using put-context-var, Process flow Variable or custom plugin.

Similarly OUT parameters of the stored procedure are set to process flow context. For example if the selected stored procedure has OUT parameters as *salary*, the output variable is set in the process flow context as *Service.<ActivityName>.OutParams.salary*, where *<Activity Name>* is the name of the activity, which is used to execute the process flow. You can further use this variable and its value is the process flow. Value of output variable set by stored procedure activity, is always in string format. You need to type cast it in required format. Stored procedure doesn't generate a stream. So you have to use context

source activity after stored procedure activity. To know how to create a context source, refer to the section [Using Context Source and Context Target](#).

Variable `name` for INOUT parameter will be `Service.<ActivityName>.InOutParams.count`, where `<Activity Name>` is the name of the activity, which is used to execute the process flow and count is the INOUT parameter of the stored procedure.

#### Limitation:

- Adeptia Server stored procedure activity is supported for MS SQL, Oracle and Sybase version 9.0.2.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

#### Prerequisites:

- Database Info activity must be created before creating Stored Procedure activity.

#### Steps to create Stored Procedure activity

1. Click **[+] Automate** to expand the tree and then click **[+] Miscellaneous**. All the items in the Miscellaneous category are displayed.
2. Click **Stored Procedure**. The Manage Stored Procedure screen is displayed (see Figure 8.22).

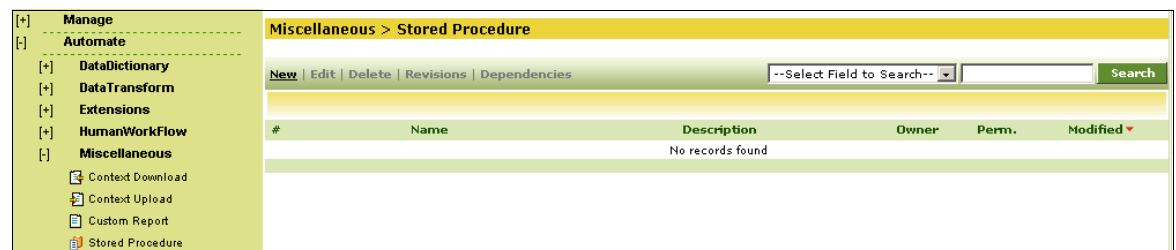


Figure 8.22: Manage Stored Procedure

3. Click the **New** link. The Create Database Schema screen is displayed (see Figure 8.23).

Miscellaneous > Stored Procedure

**[ - ] Standard properties**

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
Database Info	<div style="border: 1px solid #ccc; padding: 2px;">-- SELECT --</div>
Stored Procedure Name *	<input style="width: 90%;" type="text"/> <span style="float: right; background-color: #4F81BD; color: white; padding: 2px 5px; border: 1px solid #4F81BD;">Browse Stored Procedures</span>
Stored Procedure Parameters	
In	<div style="border: 1px solid #ccc; padding: 2px; position: relative;"> <input style="width: 95%;" type="text"/> <div style="position: absolute; right: 0; top: 0; bottom: 0; width: 10px; background: linear-gradient(to top, transparent 49%, #ccc 49%, #ccc 51%, transparent 51%);"></div> </div>
Out	<div style="border: 1px solid #ccc; padding: 2px; position: relative;"> <input style="width: 95%;" type="text"/> <div style="position: absolute; right: 0; top: 0; bottom: 0; width: 10px; background: linear-gradient(to top, transparent 49%, #ccc 49%, #ccc 51%, transparent 51%);"></div> </div>
InOut	<div style="border: 1px solid #ccc; padding: 2px; position: relative;"> <input style="width: 95%;" type="text"/> <div style="position: absolute; right: 0; top: 0; bottom: 0; width: 10px; background: linear-gradient(to top, transparent 49%, #ccc 49%, #ccc 51%, transparent 51%);"></div> </div>


**[ + ] Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 8.23: Create Stored Procedure

4. Enter the name and description for new stored procedure activity in the *Name* and *Description* fields respectively.
5. Select the database info activity from the *Database Info Id* drop-down list.

 To learn how to create Database Info activity, refer to section [Creating Database Info](#).

6. To select the database stored procedure, click **Browse Stored Procedure** button. The Select Stored Procedure screen with list of stored procedure is displayed (see Figure 8.24)

**Select Stored Procedure:**

☐ SYSTEM.AGENT1

☐ SYSTEM.ININOUTOUT

☐ SYSTEM.INOUT

☐ SYSTEM.INTERNAL\_SURROGATE\_SYSTEM

☐ SYSTEM.ORA\$\_SYS\_REP\_AUTH

☐ SYSTEM.SP\_PROC1

☐ SYSTEM.SP\_PROC2

☐ SYSTEM.SP\_PROC3

☒ SYSTEM.SP\_PROC31

☐ SYSTEM.SP\_PROC32

☐ SYSTEM.TEST

Get Parameters
Close

Figure 8.24: Select Stored Procedure

7. Select the required stored procedure and click **Get Parameters** button. The stored procedure parameter screen is displayed with list of parameters (see Figure 8.25).

**Stored Procedure In Paramters :** ANO NUMBER

**Stored Procedure Out Paramters :** NAME VARCHAR2

**Stored Procedure In Out Paramters :** AGENT\_NO NUMBER

OK
Cancel
Back

Figure 8.25: View Parameters

8. Click **OK** to return to Stored Procedure activity screen. Parameters of the selected procedure are populated in *Stored Procedure Parameters* field (see Figure 8.26).

Miscellaneous > Stored Procedure

**[-] Standard properties**

Name \*

Description \*

Database Info

Stored Procedure Name \*

Stored Procedure Parameters


Parameter Type	Parameter Name
In	ANO NUMBER 22
Out	NAME VARCHAR2 null
InOut	AGENT_NO NUMBER 22

**[+] Advanced properties**


\* Mandatory fields.

Figure 8.26: Manage Stored Procedure

- In the Stored Procedure activity screen click **Save** button. This displays a screen confirming that the Stored Procedure activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the database schema (refer to Figure 4.6).
- Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

- Click **OK** to save the comments. This displays a screen confirming that the Stored Procedure activity has been created successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

## 9 CREATING NATIVE SERVICE ACTIVITY

This section describes the process of [creating a Native Call activity](#).

### CREATING NATIVE CALL ACTIVITY

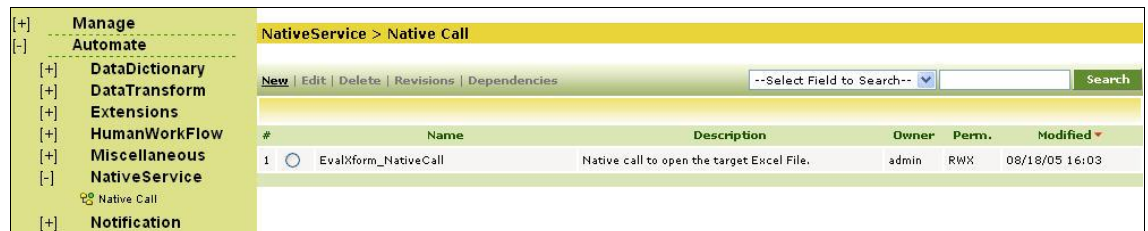
Native Call is used to run the .EXE, .BAT or .SH files asynchronously during the execution of a process flow.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

#### Steps to create Native Call activity

1. Click **[+] Automate** to expand the tree and then click **[+] Native Service**. All the items in the Native Service category are displayed.
2. Click **Native Call**. The Manage Native Call screen is displayed (see Figure 9.1).



[+] Manage		NativeService > Native Call				
[-] Automate						
[+] DataDictionary						
[+] DataTransform						
[+] Extensions						
[+] HumanWorkFlow						
[+] Miscellaneous						
[-] NativeService						
Native Call						
[+] Notification						

New   Edit   Delete   Revisions   Dependencies						
				--Select Field to Search--		Search
#	Name	Description	Owner	Perm.	Modified	
1	EvalXform_NativeCall	Native call to open the target Excel File.	admin	RWX	08/18/05 16:03	

Figure 9.1: Manage Native Call

3. Click the **New** link. The Create Native Call screen is displayed (see Figure 9.2).

NativeService > Native Call

**[-] Standard properties**

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
Default Extension	Select Extension ▼
File Name(Absolute Path) *	<input style="width: 90%;" type="text"/>
Argument(s) space separated	<input style="width: 90%;" type="text"/>
Working Directory (Absolute Path)	<input style="width: 90%;" type="text"/>

**[+] Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 9.2: Create Native Call

4. Enter the name and description of the new Native Call activity in the *Name* and *Description* fields respectively.
5. Select the extension of the file i.e. .exe, .bat or .sh from the *Default Extension* drop-down list.
6. Enter the filename with full path in the *File Name(Absolute Path)* field.
7. To specify any arguments for selected batch or executable file enter the arguments in the *Argument(s) space separated* field.
8. Enter the path of directory, where you want the run the specified batch or executable file, in the *Working Directory (Absolute Path)* field.



All the files specified into batch or executable file must be placed on the server on which the Adeptia Server is running.



If Working Directory is not specified, the home directory of Adeptia Server, (i.e. `../..AdeptiaServer/AdeptiaServer-4.9`) becomes the working directory. All the files specified into batch or executable file will be looked into Adeptia Server home path.  
For example, there is batch file *Mybatch.bat* and it is placed on C drive. The contents of batch file are *Copy File1.txt File2.txt*. *File1.txt* is placed in C drive. Since the working directory is not specified the batch file will look for *File1.txt* into `../..AdeptiaServer/AdeptiaServer-4.9` and it will cause error. So you can either specify the working directory (i.e. `C:\`) or specify



the absolute path (e.g. *copy C:\File1.txt C:\File2.txt*) in the batch file.

9. Click **Save** button. This displays a screen confirming that the native call activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the native call (refer to Figure 4.6).

10. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

11. Click **OK** to save the comments. This displays a screen confirming that the native call activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.



When using a native call in a process flow, the *waitForEnd* property is set to *False* by default. This implies that the native call and other activities in the process flow are executed simultaneously. If you want to wait till the native call is complete, before executing the next activity in the process flow, you need to set this property to *True*.

## 10 CREATING NOTIFICATION ACTIVITY

This section covers the following topics:

- [Creating Mail Notification activity](#)
- [Creating Notification to send User Defined Message](#)
- [Creating Notification to send Process Flow Summary](#)

### CREATING MAIL NOTIFICATION ACTIVITY

In the Adeptia Server, Notification is used to send mail to users about the execution status of a process flow. You can add the Mail Notification activity anywhere in the process flow. You can add more than one Mail Notification activities in a process flow.

The Mail Notification activity is of two types:

- **User Defined Message:** This type of mail notification is used to send custom email message to any user during execution of a process flow. Any file can be attached to the mail.
- **Process Flow Summary:** This type of mail notification is used by the Adeptia Server to dynamically send summary of a process flow execution.

This feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### CREATING NOTIFICATION TO SEND USER DEFINED MESSAGE

#### *Steps to create User Defined Message Notification*

1. Click **[+] Automate** to expand the tree and then click **[+] Notification**. All the items in the Notification category are displayed.
2. Click **Mail Notification**. The Manage Mail Notification screen is displayed (see Figure 10.1).

Figure 10.1: Manage Mail Notification

- Click the **New** link. The Create Mail Notification screen is displayed (see Figure 10.2).

Notification > Mail Notification

[-]

**Standard properties**

Name \*

Description \*

Notification Type\*

Mail Subject\*

To Adeptia User(s)

To Email-Id(s) (comma separated)\*

Message

Notification Criteria

Attachment

File Path

File Name

User Defined Message
▼

None  
admin (Default Administrator)

Running or Executed Successfully
▼

☐

[+]

**Advanced properties**


\* Mandatory fields.

Save


Cancel

Figure 10.2: Create Mail Notification


4. Enter the name of the new Mail Notification in the *Name* field. Then, enter the description for the Mail Notification in the *Description* field.
5. Select User Defined Message from the *Notification Type* drop-down list.
6. Enter subject for the email message in the *Mail Subject* field.
7. Select the user(s) to whom you want to send the notification email from *To Adeptia user(s)* field.
8. Enter the recipient(s) email address in *To Email Id(s) (comma separated)* field.

	<p>You can select the recipient of the notification mail either by selecting user from <i>To Adeptia user(s)</i> or by specifying email address in <i>To Email Id(s) (comma separated)</i> field.</p> <p>When you select user, the notification mail is sent to the email address specified while creating the user.</p>
---	--


9. Enter the email message in the *Message* field.
10. To send a file as attachment, check the *Attachment* checkbox and enter the file path and file name in the *File Path* and *File Name* fields respectively.

	<p>To learn about Advanced Properties refer to section <a href="#">Changing Advanced Properties</a>.</p>
---	--

11. Click **Save** button. This displays a screen confirming that the mail notification activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the mail notification (refer to Figure 4.6).
12. Enter the comments in the *Add Comments* field.

	<p>The comment should be at least 1 character in length.</p>
---	--

13. Click **OK** to save the comments. This displays a screen confirming that the mail notification activity has been created successfully.


	<p>By default, the Comments property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a>.</p>
---	--

## CREATING NOTIFICATION TO SEND PROCESS FLOW SUMMARY

### **Steps to create Process Flow Summary Notification**

1. Click **[+] Automate** to expand the tree and then click **[+] Notification**. All the items in the Notification category are displayed.
2. Click **Mail Notification**. The Manage Mail Notification screen is displayed (refer to Figure 10.1).
3. Click the **New** link. The Create Mail Notification screen is displayed (refer to Figure 10.2).
4. Enter the name of the new mail notification in the *Name* field. Then, enter the description for the mail notification in the *Description* field.
5. Select Process Flow Summary from the *Notification Type* drop-down list.
6. Enter subject for the email message in the *Mail Subject* field.

7. Select the user(s) to whom you want to send the notification email from *To Adeptia user(s)* field.
8. Enter the recipient(s) email address in *To Email Id(s) (comma separated)* field.




You can select the recipient of the notification mail either by selecting user from *To Adeptia user(s)* or by specifying email address in *To Email Id(s) (comma separated)* field.

When you select user, the notification mail is sent to the email address specified while creating the user.

9. Select one of the criteria from the *Notification Criteria* drop-down list. All criteria are explained in the table below.


Table 10.1: Notification Criteria

Notification Criteria	Description
Running or Executed Successfully	Email is sent only when the process flow is running or executed successfully.
Failure	Email is sent only when the process flow execution is failed. However, if any activity before the mail notification fails, then all activities (including Mail Notification activity) are skipped and no email is sent. Thus, it is recommended to use the Mail Notification activity with the End Event of process flow. To know how to use Mail Notification Activity with End Event of the Process Flow, refer to section <a href="#">Attaching End Process (Mail Notification) to Process Flow</a> .
Always	Email is sent whether the process flow execution is successful or failed. However, if any activity before the mail notification fails, then all activities (including Mail Notification activity) are skipped and no email is sent. Thus, it is recommended to use the Mail Notification activity with the End Event of process flow. To know how to use Mail Notification Activity with End Event of the Process Flow, refer to section <a href="#">Attaching End Process (Mail Notification) to Process Flow</a> .



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

10. Click **Save** button. A screen is displayed where you need to enter comments related to creating the mail notification (refer to Figure 4.6).
11. Enter comments in the *Add Comments* field.



The comment should be at least 1 character in length.

12. Click **OK** to save the comments. This displays a screen confirming that the mail notification activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## 11 CREATING POLLING SERVICE ACTIVITY

Polling Services allow the process flow to 'wait' and 'listen' to a defined location, at which specific file, mail or data is to arrive or is to be modified before the execution of next activity. The Polling Services perform the 'listen' action at a frequency specified while creating the Polling activity.

There are four types of Polling Service:

- [Database Polling Service](#)
- [File Polling Service](#)
- [FTP Polling Service](#)
- [Mail Polling Service](#)

### Polling Status

When a polling service is used in a process flow, it creates a *PollingStatus* activity variable. This variable is assigned value based on the execution of the polling service in the process flow. The Polling Status activity variable can take the following values:

- Timeout
- Aborted
- Success

## CREATING DATABASE POLLING SERVICE ACTIVITY

The Database Polling Service activity is used to check any changes in the data stored in a database table.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Prerequisites:

- Database Info activity must be created before creating Database Polling Service activity.

### ***Steps to create a Database Polling Service activity***



1. Click **[+] Automate** to expand the tree and then click **[+] Polling**. All the items in the Polling category are displayed.
2. Click **Database Polling Service**. The Manage Database Polling Service screen is displayed (see Figure 11.1).



Figure 11.1: Manage Database Polling Service

3. Click the **New** link. The Create Database Polling Service screen is displayed (see Figure 11.2).

**Polling > Database Polling Service**

**[ - ] Standard properties**

Name \*

Description \*

Database Info Id \*

Define Database Polling Criteria\*

☒ SQL Query

☐ SQL Trigger

Check Condition ☒

Operator

Value

SQL Trigger Name

Frequency  Duration

Polling Frequency \*

Expiry Time \*

**[ + ] Advanced properties**

\* Mandatory fields.

Figure 11.2: Create Database Polling Service


4. Enter the name and description of the new Database Polling Service in the *Name* and *Description* fields respectively.
5. Select the Database Info Id activity from the *Database Info Id* drop-down list.



To learn how to create database Info activity, refer to section [Creating Database Info](#).

6. You can create the database event definition by entering an SQL Query or a database trigger command. By default, *SQL Query* option is selected. Enter the query in the *SQL Query* field. Select the operator for the query from the *Operator* drop-down list. Enter the value to be compared in the query in the *Value* field. The query should return only one record. If the query returns multiple records, then only the first record is accepted. If the query returns one record, then it will compare the value of the first field with the value specified in the *Value* field.

7. Alternately, enter the database trigger command in the *SQL Trigger* field.



Following is the format of SQL trigger

```
<Trigger Text>
INSERT INTO dbpollingtable VALUES ('Query =<WHERE CLAUSE>');
END <trigger name> ;
```

Edit the parts, which are within < >. You can define a 'Where' clause that indicates the row that is updated. When the command is parsed, it will return the updated row from the database source.

Do not delete the Insert query.

<trigger name> after the END tag should be used for Oracle only. In case of SQL server, <trigger name> is not needed.

Following is the example of the trigger used for SQL Server :

```
create trigger Trigger_test on emp for
insert,update
as
declare @empname varchar(20)
begin
set @empname=(select empname from inserted);
INSERT INTO dbpollingtable VALUES ('Query =WHERE empname=''+
+@empname+'');

END ;
```

Following is the example of the trigger used for Oracle:

```
CREATE OR REPLACE TRIGGER Trigger_test
AFTER INSERT OR UPDATE ON Emp FOR EACH ROW BEGIN
INSERT INTO dbpollingtable VALUES ('Query = where rowid= ' || :new.rowid
); END Trigger_test;
```


Here :

*Trigger\_test* is name of the trigger.

*Emp* is the name of the user table on which insert or update operation has to be done.

*dbpollingtable* is the name of the temporary table used. Do not change it.

8. Enter the name of Trigger in the *SQL Trigger Name* field.
9. Enter the time interval for Polling in the *Polling Frequency* field. Enter the digit in the *Frequency* field and select the unit of time i.e. seconds, minutes or hours etc from the *Duration* drop-down list.
10. Enter the expiry time in the *Expiry Time* field. After expiry time process flow does not poll for data.



Recommended minimum Polling Frequency is 30 seconds.

To learn about Advanced Properties refer to section [Changing Advanced Properties](#).



When a database polling service is used in a process flow, it creates a *Polling Status* activity variable. For details, refer to [Polling Status](#) section.

11. Click **Save** button. This displays a screen confirming that the database polling service has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the database polling service (refer to Figure 4.6).

12. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

13. Click **OK** to save the comments. This displays a screen confirming that the database polling service has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING FILE POLLING SERVICE ACTIVITY

The Polling Service activity is used to check the arrival or modification of file(s) on the Local LAN location.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create a File Polling Service

1. Click **[+] Automate** to expand the tree and then click **[+] Polling**. All the items in the Polling category are displayed.
2. Click **File Polling Service**. The Manage File Polling Service screen is displayed (see Figure 11.3).



Figure 11.3: Manage File Polling Service

- Click the **New** link. The Create File Polling Service screen is displayed (see Figure 11.4).

Polling > File Polling Service

[-] Standard properties

Name \*

Description \*

Trigger Type \*  
On FileCreated ▾

File Include Criteria \*

File Exclude Criteria

File Base Location \*

Use VFS \*  
☐

Secure  
☒

UserId \*

Password

Confirm Password

Frequency

Duration

Polling Frequency \*

Select One ▾

File Stable Time \*

Select One ▾

Expiry Time \*

Select One ▾

[+] Advanced properties

\* Mandatory fields.

Save

Cancel

, 2007 23:04:37 IST

Figure 11.4: Create File Polling Service

- Enter the name and description of the new File Polling Service in the *Name* and *Description* fields respectively.
- Select the trigger type from the *Trigger Type* drop-down list. The effect on the selection is listed in the table below.

Table 11.1: Trigger Type Selection Values

Trigger Type Selection	Description
On FileCreated	To configure the File Polling service to check for the creation of a new file(s).


On FileExists	To configure the File Polling service to check for the existence of the file(s)
On FileModified	To configure the File Polling service to check for any modification in file(s)

6. Enter the name of file that File Polling service needs to verify, in *File Include Criteria* field.
7. Enter the name of file that File Polling service does not need to verify, in *File Exclude Criteria* field. For example \*.txt is entered in *File Include Criteria*, but two files *Gdata.txt* and *Gdata1.txt* are not required to be verified by File Polling service. Then *Gdata.txt* and *Gdata1.txt* file name need to be entered separated by comma in *File Exclude Criteria* field. You can use regular expressions listed in the table below.

Table 11.2: Expressions used in File Include Criteria and File Exclude Criteria


Expression	Description
*.*	For all files with some extension
*	For all files in a directory
a*.txt	For files starting with a and having extension txt (e.g. arch.txt)
a?????.txt	For files starting with a and have 6 more character followed by txt extension (e.g. archive.txt)
a[1-9]	For a1, a2 ,a3 .....a9
b[aiu]t	For bat, bit or but
a.txt, a.doc	For two files named as a.txt and a.doc

8. Enter the path of file in *File Base Location*. Example c:/Gmdata.



You can also use regular expression for folders, in *File Include Criteria* and *File Exclude Criteria* fields. For example, if you enter *h\*/\*.txt* in *File Include Criteria* field and *C:/Gmdata* in *File Base Location* field, it will search for all .txt file inside all directories which starts from h under C:\Gmdata.

9. When Adeptia Server is installed on Windows Operating System, File Polling uses windows service to connect to remote machine to access any file. It just connects once and uses the same connection with the same User ID and Password (which is stored in the cache) every time. If you want to enforce the validation of User ID and Password every time while accessing the file on a remote machine, check *Use VFS* checkbox.
10. Enter username and password in the *User ID* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.
11. Enter the time interval, the file polling service will check for the arrival of any file or modification of existing file in the *Polling Frequency* field. Enter the digit in the *Frequency* field and select the unit of time i.e. seconds, minutes or hours etc from the *Duration* drop-down list.



Recommended minimum Polling Frequency is 30 seconds.

12. Enter the file stable time in the *File Stable Time* field. This is applicable only when user selects *On FileModified* in trigger type. Polling will wait for the above specified time to become a file stable.
13. Enter the expiry time in the *Expiry Time* field. After expiry time process flow does not poll for the file.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).



When a file polling service is used in a process flow, it creates a *Polling Status activity* variable. For details, refer to [Polling Status](#) section.

14. Click **Save** button. This displays a screen confirming that the file polling service has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the file polling service (refer to Figure 4.6).
15. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

16. Click **OK** to save the comments. This displays a screen confirming that the file polling service has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING FTP POLLING SERVICE ACTIVITY

The FTP Polling Service activity is used to check the arrival or modification of a file(s) on a FTP location.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create a FTP Polling Service

1. Click **[+] Automate** to expand the tree and then click **[+] Polling**. All the items in the Polling category are displayed.
2. Click **FTP Polling Service**. The Manage FTP Polling screen is displayed (see Figure 11.5).



Figure 11.5: Manage FTP Polling Service

3. Click the **New** link. The Create FTP Polling Service screen is displayed (see Figure 11.6).



Polling > FTP Polling Service

[-] Standard properties

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
Host name *	<input style="width: 90%;" type="text"/>
Port *	<input style="width: 90%;" type="text" value="21"/>
User Id *	<input style="width: 90%;" type="text"/>
Password	<input style="width: 90%;" type="password"/>
Confirm Password	<input style="width: 90%;" type="password"/>
Transfer Type	<span>PASSIVE ▾</span>
Trigger Type *	<span>On FileCreated ▾</span>
Secured (SSH Secured) *	<input type="checkbox"/>
File Include Criteria *	<input style="width: 90%;" type="text"/>
File Exclude Criteria	<input style="width: 90%;" type="text"/>
File Base Location *	<input style="width: 90%;" type="text"/>
	Frequency    Duration
Polling Frequency *	<input style="width: 40%;" type="text"/> <span>Select One ▾</span>
File Stable Time *	<input style="width: 40%;" type="text"/> <span>Select One ▾</span>
Expiry Time *	<input style="width: 40%;" type="text"/> <span>Select One ▾</span>

[+] Advanced properties

\* Mandatory fields.

Save
Cancel

Figure 11.6: Create FTP Polling Service

4. Enter the name and description of the new FTP Polling Service in the *Name* and *Description* fields respectively.
5. Enter the name and port number of the FTP Server in the *Host Name* and *Port* fields respectively.
6. Enter username and password required to access FTP Server in the *User ID* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.
7. Select the transfer type as either *Active* or *Passive* from the *Transfer Type* drop-down list. *Active* transfer is more secure since the client only initiates communication to the Server on one port whereas in case of *Passive*

transfer the client initiates communication to the Server over two ports. Passive mode is useful when you are behind a firewall or a proxy.

8. Select the trigger type from the *Trigger Type* drop-down list. For selection of values, refer to Table 11.1.
9. Check the *Secured (SSH Secured)* checkbox if the specified FTP server is a secured server.
10. Enter the name of file that FTP event needs to verify in the *File Include Criteria* field.
11. Enter the name of file that file event does not need to verify in the *File Exclude Criteria* field. For example \*.txt is entered in *File Include Criteria*, but two files *Gdata.txt* and *Gdata1.txt* are not required to be verified by FTP Polling Service. Then *Gdata.txt* and *Gdata1.txt* file name need to be entered separated by comma in *File Exclude Criteria* field. You can use regular expressions listed in Table 11.2.
12. Enter the path of file in *File Base Location*. Example c:/Gmdata.



You can also use regular expression for folders, in *File Include Criteria* and *File Exclude Criteria* fields. For example, if you enter *h\*/\*.txt* in *File Include Criteria* field and *C:/Gmdata* in *File Base Location* field, it will search for all .txt file inside all directories which starts from h under C:\Gmdata.

13. Enter the time interval, the FTP Polling Service will check for the arrival of any file or modification of existing file in the *Polling Frequency* field. Enter the digit in the *Frequency* field and select the unit of time i.e. seconds, minutes or hours etc from the *Duration* drop-down list.



Recommended minimum Polling Frequency is 30 seconds.

14. Enter the file stable time in the *File Stable Time* field. This is applicable only when user selects On *FileModified* in trigger type. Polling will wait for the above specified time to become a file stable.
15. Enter the expiry time in the *Expiry Time* field. After expiry time process flow does not poll for the file.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).



When a FTP polling service is used in a process flow, it creates a *Polling Status* activity variable. For details, refer to [Polling Status](#) section.

16. Click **Save** button. This displays a screen confirming that the FTP polling service has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the FTP polling service (refer to **Error! Reference source not found.**).
17. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

18. Click **OK** to save the comments. This displays a screen confirming that the FTP polling service has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING MAIL POLLING SERVICE ACTIVITY

The Mail Polling activity is used to 'listen' for the arrival of any mails on the mail Server.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create a Mail Polling activity

1. Click **[+] Automate** to expand the tree and then click **[+] Polling**. All the items in the Polling category are displayed.
2. Click **Mail Polling**. The Manage Mail Polling screen is displayed (see Figure 11.7).



Figure 11.7: Manage Mail Polling Service

3. Click the **New** link. The Create Mail Polling screen is displayed (see Figure 11.8).

Polling > Mail Polling Service

**[ - ] Standard properties**

Name \*

Description \*

Protocol \*

Incoming Mail Server \*

Domain

CDO host machine

Secure ☐

Port \*

User Id \*

Password \*

Confirm Password

Search based on following filter criteria \*

Sender E-mail

Mail Subject

File Attachment

Polling Frequency \*

Expiry Time \*

POP3 ▼



☐





Frequency

Duration

Select One ▼

Select One ▼

**[ + ] Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 11.8: Create Mail Polling Service

4. Enter the name and description of the new Mail Polling activity in the *Name* and *Description* fields respectively.
5. Select the Internet standard protocol to be used for retrieving incoming mails, from the *Protocol* drop-down list. You can select either the *POP3*,

IMAP4 or the MAPI protocol. Based on the selected protocol, the default port number for that protocol is displayed in the *Port* field.

6. Enter the address of the incoming mail server in the *Incoming Mail Server* field.



To access mails from Microsoft Exchange Server use *MAPI* in the *Protocol* drop-down list. To connect Adeptia Server with Microsoft Exchange Server, you need to buy a third party tool called *J-Integra for Exchange*. J-Integra for Exchange is a high performance middleware bridge that enables Java Exchange interoperability. If you want to retrieve mails from an Exchange Server using J-Integra, select *MAPI* in the *Protocol* drop-down list.

If *MAPI* is selected in the *Protocol* drop-down list:

- Enter name of the exchange server in *Incoming Mail Server* field
- Enter the domain name in the *Domain* field
- Enter the name of the CDO host machine in *CDO host machine* field. CDOConfig.exe is a tool that comes with the J-Integra for Exchange SDK and is used for configuring CDO. Host where CDO is configured is called CDO host machine.

For detailed information about JIntegra for Exchange, refer to <http://j-integra.intrinsyc.com/products/exchange/>.

7. Check the *Secure* checkbox, if the specified incoming mail server is SSL enabled.
8. The default port number of the selected protocol is displayed in the *Port* field. If you want to change this port number, enter the new port number in the *Port* field.
9. Enter the user Id and password of mail server in the *User ID* and *Password* fields respectively. Then re-enter the password in the *Confirm Password* field.
10. Select any of the following filter criteria:
  - Sender E-mail
  - Mail Subject
  - File Attachment

You may select more than one filter criteria.

11. Enter the sender's email address and subject of email in the *Sender Email* and *Mail Subject* fields respectively.
12. Enter the name of the file attached with mail, in the *File Attachment* field.
13. Enter the time interval for Polling in the *Polling Frequency* field. Enter the digit in the *Frequency* field and select the unit of time i.e. seconds, minutes or hours etc from the *Duration* drop-down list.



Recommended minimum Polling Frequency is 30 seconds.

14. Enter the expiry time in the *Expiry Time* field. After expiry time process flow does not poll for the mail.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).



When a mail polling service is used in a process flow, it creates a *Polling Status activity* variable. For details, refer to [Polling Status](#) section.

15. Click **Save** button. This displays a screen confirming that the mail polling service has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the mail polling service (refer to Figure 4.6).

16. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

17. Click **OK** to save the comments. This displays a screen confirming that the mail polling service has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## 12 CREATING SCHEMA ACTIVITY

Schema is the structure of a file format and it specifies information about different data fields and record types that a message or a data file may contain. Designing a schema is the process of providing metadata information. Schema can be used both at the source end and the target end. At the source end, it is used to read data from the source file and at the target end, it is used to write data to the target file. The Adeptia Server provides following types of Schema activities:

- [Advance Database Schema](#)
- [Advance Positional Schema](#)
- [Advance Text Schema](#)
- [Database Schema](#)
- [EDI Schema](#)
- [Excel Schema](#)
- [Positional Schema](#)
- [Text Schema](#)
- [Word Schema](#)
- [XML Schema](#)
- [XML Validator](#)

Adeptia Server allows you to create schema in two ways:

- [Using Definition File](#)
- [Entering the Fields Sequentially](#)

### Using Definition File

You can create a schema using a Definition File in three ways:

- [Using Data File](#)
- [Using Field File](#)
- [Using XSD File](#)

These methods may vary across different schemas. Their compatibility with the schemas are outlined in the table below.

Table 12.1: Definition File Methods used for Creating Schemas

Schema	Data File	Field File	XSD File
Advance Database Schema	√		√
Advance Positional Schema		√	√

Advance Text Schema		√	√
Database Schema			√
Excel Schema	√	√	√
Positional Schema		√	√
Text Schema	√	√	√

## Using Data File

Data file is the file, which contains the actual data used as source or target during execution of a process flow. It could be same file, which is used in the process flow or another sample file of same format.

## Using Field File

Field file is Comma Separated Values (CSV) file, which contains names of the fields and their definition, separated by comma. This option is helpful in case the number of fields in source or target data is very large. All the field names are picked up from this CSV file. Each line of the CSV file should contain one field name and its definition separated by comma. If the data type is *Date*, format of the date must be specified after data type, separated by comma.



Incase a field is defined as *Date* type and date format and time format is not defined, the default date format will be mm/dd/yy and time format will be blank.  
When copying a field file, you need to verify that the field format is correct and there are no extra lines in the document. Else, an error is generated when converting to HTML.

## Field File format for Advance Positional Schema

The Field file format for Advance Positional Schema can be of two types:

- [Based on Start Position and End Position](#)
- [Based on Field Length](#)

### Field File format for Advance Positional Schema based on Start and End Position

```
<Record Identifier1>:<Value>,<Record Identifier2>:<Value>
<RecordIdentifier
Value>,<FieldName>,<Description>,<DataType>,[DateFormat],[TimeFormat],<Start
Position>,<EndPosition>,<Alignment>,<Skip>
```

In case of Advance Positional Schema, Record Identifier and Value should be specified at the beginning of the CSV file as displayed below:

```
a:first,b:second
first,a,first_field,string,,,1,11,L,F
```



```
first,name,name_of_employee,string,,,12,21,L,T
first,empid,employee_ID,int,,,22,36,L,F
second,b,second_field,string,,,1,11,L,F
second,DOB,date
birth,date,yyyy/dd/MM,HH:mm:ss,12,24,L,F
second,Address,Address
employee,string,,,25,44,L,T
```

where: **L** means left alignment  
**R** means right alignment

**T** means True  
**F** means False

### Field File format for Advance Positional Schema based on Field Length

<RecordIdentifier  
 Value>, <FieldName>, <Description>, <DataType>, [DateFormat], [TimeFormat], <Length>, <Alignment>, <Skip>

In case of Advance Positional Schema, Record Identifier and Value should be specified at the beginning of the CSV file as displayed below:

```
a:first,b:second
first,a,first_field,string,,,11,L,F
first,name,name_of_employee,string,,,10,L,T
first,empid,employee_ID,int,,,15,L,F
second,b,second_field,string,,,11,L,F
second,DOB,date
birth,date,yyyy/dd/MM,HH:mm:ss,13,L,F
second,Address,Address
employee,string,,,20,L,T
```

where: **L** means left alignment  
**R** means right alignment

**T** means True  
**F** means False

### Field File format for EDI Schema

<Field Separator>  
 <Segment Identifier>, <Field Name>, <Description>, <ID>, <Minimum Size>, <Maximum Size>

Field Separator should be specified at the beginning of the CSV file. Following is the content of sample CSV file used to create EDI schema:

```
~
ISA,Name,Employee Name,1,2,2
ISA,Age, Employee Age,2,10,10
ISA,DOB,Date of Birth,3,2,2
```

```
ISA,MaritalStatus,Employee
Marital Status,4,10,10
```

## Field File format for Excel and Text Schema

*<Field Name>,<Data Type>,[Date Format],[Time Format]*

Following is the content of sample CSV file used to create Text and Excel schema:

```
NAME,string,,
PHONE_NO,int,,
DOB,date,MM/dd/yy,hh:mm:ss
DOJ,date,MM/dd/yy,
```

## Field File format for Positional Schema

Field file format for Positional Schema can be of two types:

- [Based on Start Position and End Position](#)
- [Based on Field Length](#)

### Field File format for Positional Schema based on Start and End Position

*<Field Name>,<Description>,<Data Type>,[Date Format],[Time Format],  
<Start Position>,<End Position>,<Alignment>,<Skip>*

Following is the content of sample CSV file used to create Positional schema:

```
name,name of employee,string,,,1,10,L,F
empid,employee ID,int,,,11,30,L,T
DOB,Dat of birth,date,yyyy-dd-MM,HH:mm,31,60,L,F
```

where: **L** means left alignment  
**R** means right alignment

**T** means True  
**F** means False

### Field File format for Positional Schema based on Field Length

*<Field Name>,<Description>,<Data Type>,[Date Format],[Time Format],  
<Length>,<Alignment>,<Skip>*

Following is the content of sample CSV file used to create Positional schema:

```
name,name of employee,string,,,10,L,F
empid,employee ID,int,,,20,L,T
DOB,Dat of birth,date,yyyy-dd-MM,HH:mm,30,L,F
```

where: **L** means left alignment  
**R** means right alignment

**T** means True  
**F** means False

## Using XSD File

XML Schema Definition (XSD) file describes the elements in an XML document. XSD file used to create the schema must be compliant to the Adeptia Server format. To get the Adeptia Server compliant XSD, you can edit any existing schema and download the XSD file. You can further edit the field in XSD file and use it to create the schema. For example you already created a schema with 100 fields and you want to create another schema with same 90 fields out of 100. You can download the XSD file from existing schema, delete 10 additional field by editing the XSD file and use that XSD file to create another schema.

## Entering Fields Sequentially

This is manual way of creating the schema. If you select this option, you have to enter the field's name, their data type manually in correct sequence.

When creating a schema (except XML schema), a *Record Number* attribute is automatically created at the record level. It is available for each record. If the schema is used at the source level, then this attribute will be populated in the intermediate XML file at the record level. It always starts at 1. If an error is detected, then this attribute will be generated in the Error File. For example, if error is found at record number 5 in the source file, then Record Number 5 is displayed in the Error File.

## CREATING ADVANCE DATABASE SCHEMA ACTIVITY

The Advance Database Schema activity is created to define how the data from multiple tables can be obtained or inserted into selected tables. The Advance Database schema uses the predefined *Database Info* to connect to the database.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Prerequisites:

- Database Info activity must be created before creating Advance Database Schema activity.

### Steps to create the Advance Database Schema

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Adv. Database Schema**. The Manage Advance Database Schema screen is displayed (see Figure 12.1).



Figure 12.1: Manage Advance Database Schema

3. Click the **New** link. The Create Advance Database Schema screen is displayed (see Figure 12.2).

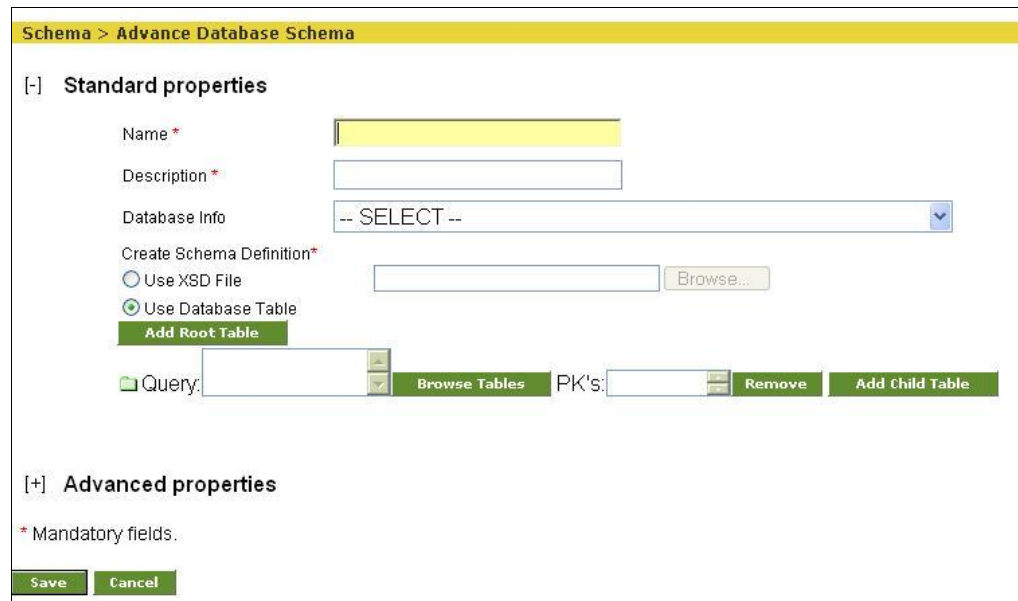


Figure 12.2: Create Advance Database Schema

4. Enter the name and description for new Advance Database Schema in *Name* and *Description* fields respectively.
5. Select the database info activity from the *Database Info Id* drop-down list.



To learn how to create Database Info activity, refer to section [Creating Database Info](#).

6. To define schema definition, select one of the following options:
  - Use XSD File
  - Use Database Table

7. To select the XSD file, which contains schema information, select the *Use XSD File* radio button and click **Browse**.
8. To define schema using database table, select the *Use Database Table* radio button and click **Browse Tables**. The Select Schema screen is displayed with the list of RDBMS Schema in case of *SQL Server* and *DB2 Database Info* (see Figure 12.3). If *HSQLDB Database Info* is selected, then the Select Table screen is displayed (refer to Figure 12.4).

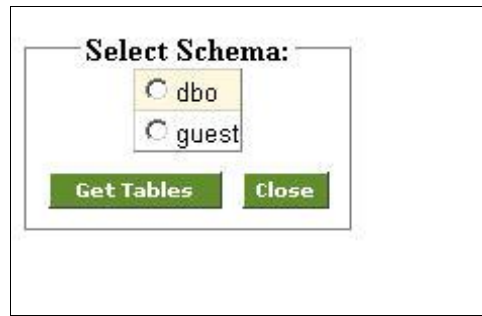


Figure 12.3: Select Schema

9. Select the required RDBMS schema and click **Get Tables**. The Select Table screen is displayed with the list of tables (see Figure 12.4).

### Select Table

<input type="radio"/> dbo.syscolumns
<input type="radio"/> dbo.syscomments
<input type="radio"/> dbo.sysdepends
<input type="radio"/> dbo.sysfilegroups
<input type="radio"/> dbo.sysfiles
<input type="radio"/> dbo.sysfiles1
<input type="radio"/> dbo.sysforeignkeys
<input type="radio"/> dbo.sysfulltextcatalog
<input type="radio"/> dbo.sysfulltextnotify
<input type="radio"/> dbo.sysindexes
<input type="radio"/> dbo.sysindexkeys
<input type="radio"/> dbo.sysmembers
<input type="radio"/> dbo.sysobjects
<input type="radio"/> dbo.syspermissions
<input type="radio"/> dbo.sysproperties
<input type="radio"/> dbo.sysprotects
<input type="radio"/> dbo.sysreferences

Get Columns

Close

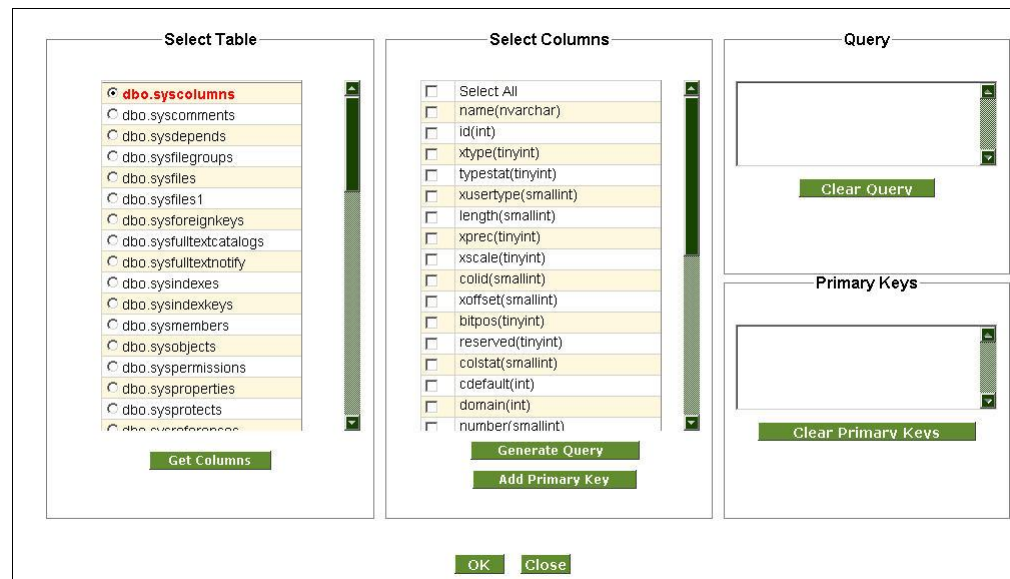
Figure 12.4: Select Tables



A **Close** button appears on the Select Table screen, in case of SQL Server or DBO Database Info. Clicking this button takes the control to the Select Schema screen.

If the schema and its tables are created on DB2, then you need to remember that the schema name in DB2 is case-sensitive. Else, it will display the same table more than once.

10. Select the required table and click **Get Columns** button. The following screen is displayed with the list of columns and their data types (see Figure 12.5).



**Select Table**

- ☒ **dbo.syscolumns**
- ☐ dbo.syscomments
- ☐ dbo.sysdepends
- ☐ dbo.sysfilegroups
- ☐ dbo.sysfiles
- ☐ dbo.sysfiles1
- ☐ dbo.sysforeignkeys
- ☐ dbo.sysfulltextcatalogs
- ☐ dbo.sysfulltextnotify
- ☐ dbo.sysindexes
- ☐ dbo.sysindexkeys
- ☐ dbo.sysmembers
- ☐ dbo.sysobjects
- ☐ dbo.syspermissions
- ☐ dbo.sysproperties
- ☐ dbo.sysprotects
- ☐ dbo.sysreferences

**Select Columns**

- ☐ Select All
- ☐ name(nvarchar)
- ☐ id(int)
- ☐ xtype(tinyint)
- ☐ typestat(tinyint)
- ☐ xusertype(smallestint)
- ☐ length(smallestint)
- ☐ xprec(tinyint)
- ☐ xscale(tinyint)
- ☐ colid(smallestint)
- ☐ xoffset(smallestint)
- ☐ bitpos(tinyint)
- ☐ reserved(tinyint)
- ☐ colstat(smallestint)
- ☐ cdefault(int)
- ☐ domain(int)
- ☐ number(smallestint)

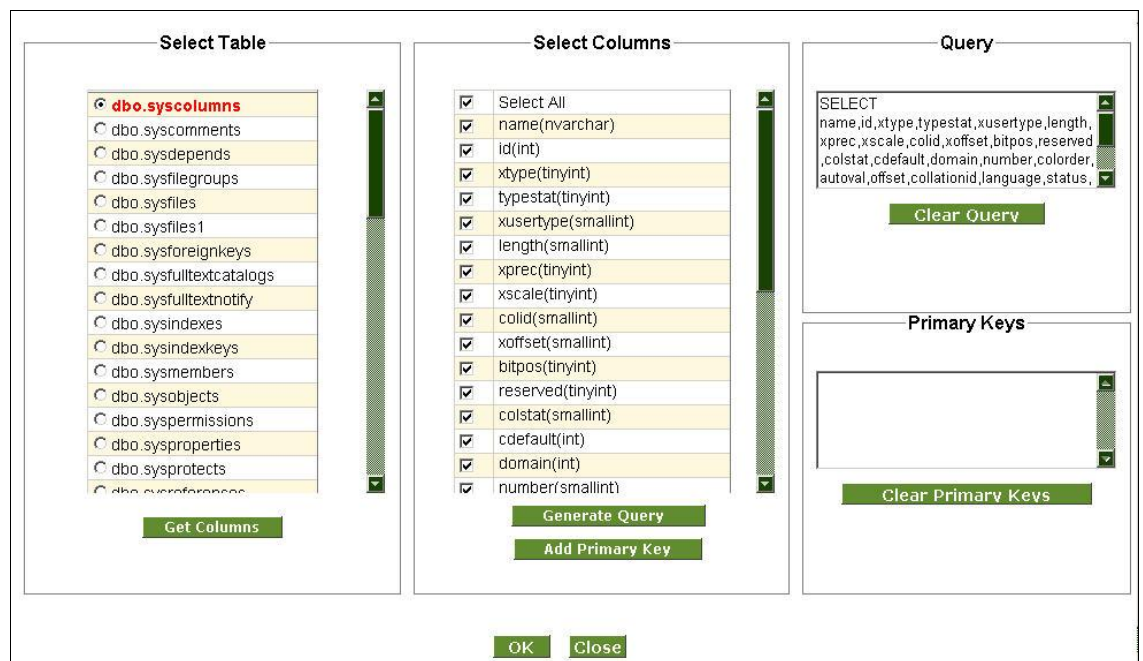
**Query**

**Primary Keys**

OK Close

Figure 12.5: Select Columns and Primary Key

11. In *Select Columns*, select the required column(s) and click **Generate Query** button to generate the database query. The generated query is displayed in the *Query* field. You can also specify the where clause within the generated select query (see Figure 12.6).



**Select Table**

- ☒ **dbo.syscolumns**
- ☐ dbo.syscomments
- ☐ dbo.sysdepends
- ☐ dbo.sysfilegroups
- ☐ dbo.sysfiles
- ☐ dbo.sysfiles1
- ☐ dbo.sysforeignkeys
- ☐ dbo.sysfulltextcatalogs
- ☐ dbo.sysfulltextnotify
- ☐ dbo.sysindexes
- ☐ dbo.sysindexkeys
- ☐ dbo.sysmembers
- ☐ dbo.sysobjects
- ☐ dbo.syspermissions
- ☐ dbo.sysproperties
- ☐ dbo.sysprotects
- ☐ dbo.sysreferences

**Select Columns**

- ☒ Select All
- ☒ name(nvarchar)
- ☒ id(int)
- ☒ xtype(tinyint)
- ☒ typestat(tinyint)
- ☒ xusertype(smallestint)
- ☒ length(smallestint)
- ☒ xprec(tinyint)
- ☒ xscale(tinyint)
- ☒ colid(smallestint)
- ☒ xoffset(smallestint)
- ☒ bitpos(tinyint)
- ☒ reserved(tinyint)
- ☒ colstat(smallestint)
- ☒ cdefault(int)
- ☒ domain(int)
- ☒ number(smallestint)

**Query**

```
SELECT
name,id,xtype,typestat,xusertype,length,
xprec,xscale,colid,xoffset,bitpos,reserved,
colstat,cdefault,domain,number,colorder,
autoval,offset,collationid,language,status,
```


**Primary Keys**

OK Close

Figure 12.6: Generate Query




There should not be any special character (except \$ and SID#) in column name.



- This query is validated, once you click the **Save** button.
- In case some SQL function is used or some calculation is done over the Column Name(s), use the alias name for that Column Name(s).

For example, for a query like:  
`SELECT SID,Name+Dept,Salary FROM dbo.Employee`  
 You can use:  
`SELECT SID, (Name+Dept) as AliasName,Salary FROM dbo.Employee`  
 Reason:  
 While getting the result set, you have the assign the output of (Name+Dept) to some new field.

12. To designate a column as Primary Key, select the required column(s) and click **Add Primary Key**. The selected column is displayed in the *Primary Key* field.



At times, you may not use the Primary Key in the query, but append it internally in the query. You need to ensure that the Primary Key name should be the same at both the places. Else, the schema will fetch the data twice for the Primary Key column and result in errors.

13. Click **OK** to return to the Create Advance Database Schema screen. The selected query and primary key are displayed in their respective fields.
14. To add the child table of the selected table, click **Add Child Table** in the Create Advance Database Schema screen. A child table is displayed under the root table (see Figure 12.7).

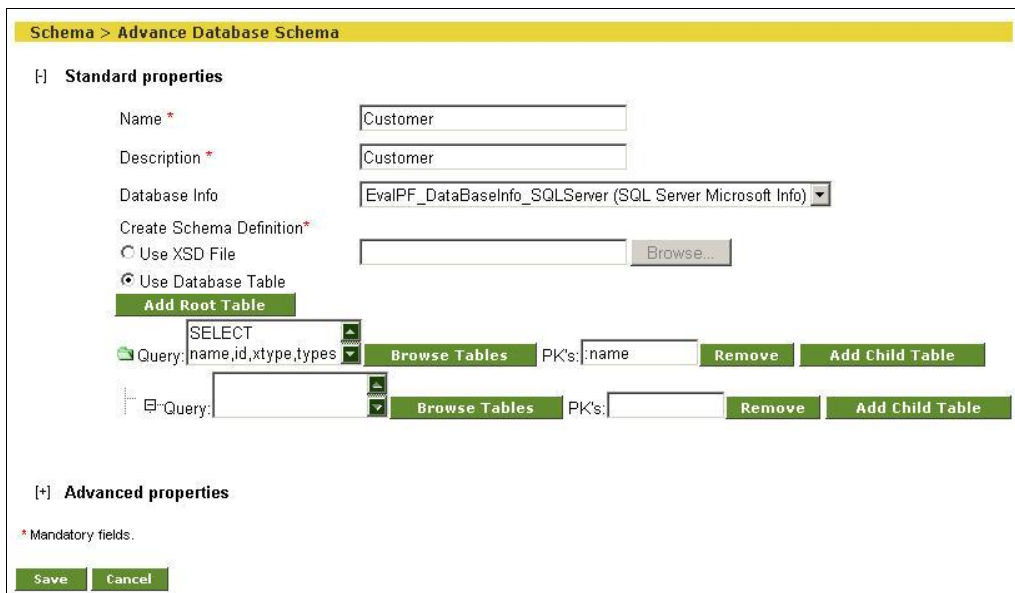


Figure 12.7: Create Child Table

15. Click **Browse Tables** in the child table. The Select Schema screen is displayed with a list of RDBMS Schema in case of *SQL Server* and *DB2* Database Info (refer to Figure 12.3). If *HSQLDB* Database Info is selected, then the Select Table screen is displayed (refer to Figure 12.4).

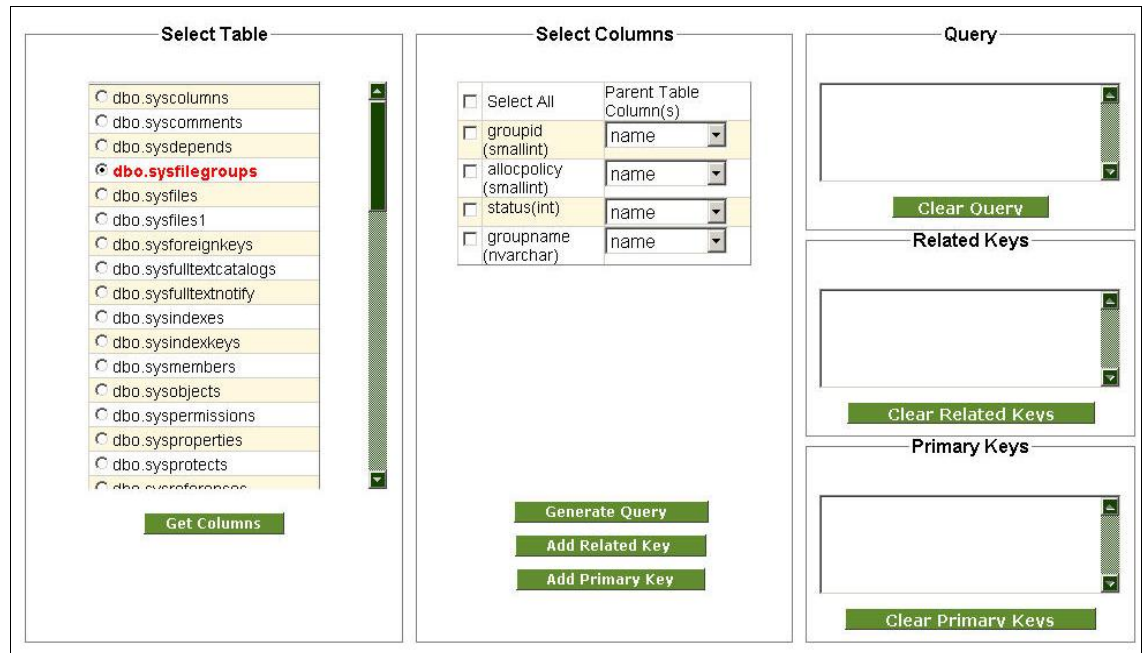


16. In the Select Schema screen, select the required RDBMS schema and click **Get Tables**. The Select Table screen is displayed with the list of tables (refer to Figure 12.4).



A **Close** button appears on the Select Table screen, in case of *SQL Server* or *DBO Database Info*. Clicking this button takes the control to the Select Schema screen.

17. Select the required table and click **Get Columns**. The following screen is displayed (see Figure 12.8).



The screenshot shows the 'Select Table' screen with the following components:

- Select Table:** A list of system tables including `dbo.syscolumns`, `dbo.syscomments`, `dbo.sysdepends`, `dbo.sysfilegroups` (selected), `dbo.sysfiles`, `dbo.sysfiles1`, `dbo.sysforeignkeys`, `dbo.sysfulltextcatalogs`, `dbo.sysfulltextnotify`, `dbo.sysindexes`, `dbo.sysindexkeys`, `dbo.sysmembers`, `dbo.sysobjects`, `dbo.syspermissions`, `dbo.sysproperties`, `dbo.sysprotects`, and `dbo.sysreferences`. A **Get Columns** button is at the bottom.
- Select Columns:** A table with columns: ☐ Select All, ☐ groupid (smallint), ☐ allocpolicy (smallint), ☐ status(int), and ☐ groupname (nvarchar). The 'Parent Table Column(s)' column has dropdown menus set to 'name'. Below this table are buttons: **Generate Query**, **Add Related Key**, and **Add Primary Key**.
- Query:** A text area for the generated query, with a **Clear Query** button below it.
- Related Keys:** A text area for related keys, with a **Clear Related Keys** button below it.
- Primary Keys:** A text area for primary keys, with a **Clear Primary Keys** button below it.

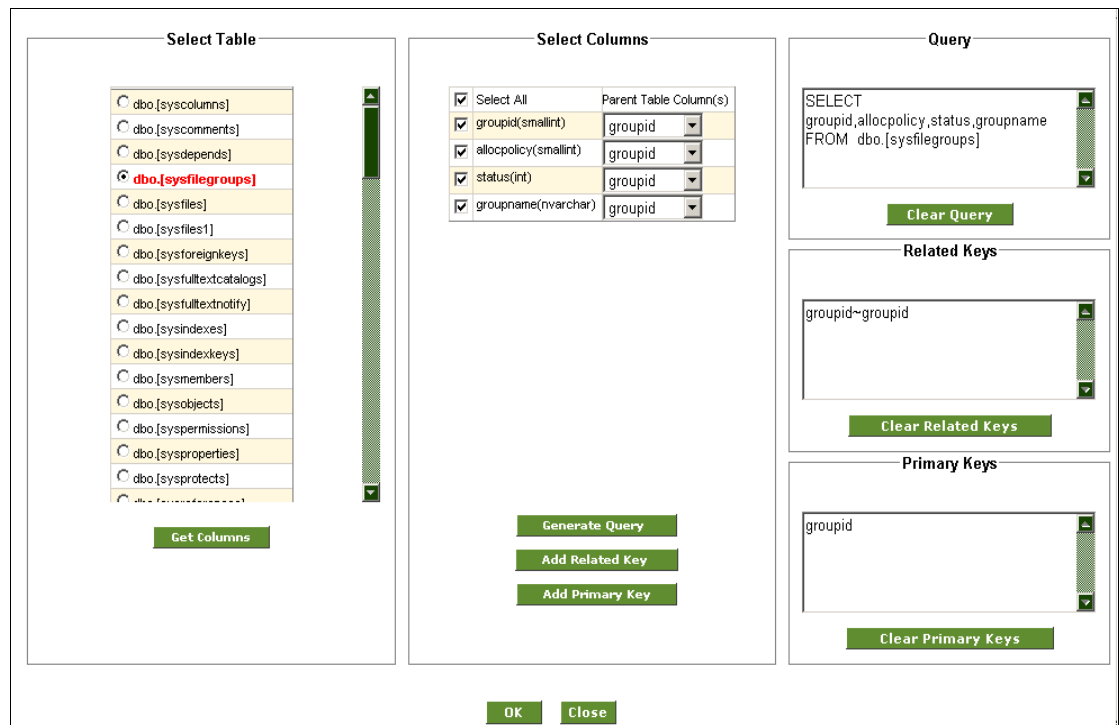
Figure 12.8: Select Column, Primary and Related Keys

18. In Select Columns, select the required column(s) and click **Generate Query** button to generate the database query. The generated query is displayed in the *Query* field. You can also specify the where clause within the generated select query.



A column name should not include any standard SQL keyword (for example, *Identity*), as it generates an error, when the Advance Database schema is used as a source or target database.

19. To designate a column as a Related Key, select the required column(s) and click **Add Related Key**. The selected column is displayed in the *Related Key* field (see Figure 12.9).



**Select Table**

- ☐ dbo.[syscolumns]
- ☐ dbo.[syscomments]
- ☐ dbo.[sysdepends]
- ☒ **dbo.[sysfilegroups]**
- ☐ dbo.[sysfiles]
- ☐ dbo.[sysfiles1]
- ☐ dbo.[sysforeignkeys]
- ☐ dbo.[sysfulltextcatalogs]
- ☐ dbo.[sysfulltextnotifiy]
- ☐ dbo.[sysindexes]
- ☐ dbo.[sysindexkeys]
- ☐ dbo.[sysmembers]
- ☐ dbo.[sysobjects]
- ☐ dbo.[syspermissions]
- ☐ dbo.[sysproperties]
- ☐ dbo.[sysprotects]

**Select Columns**

Select All	Parent Table Column(s)
<input checked="" type="checkbox"/>	groupid <small>(smallint)</small>
<input checked="" type="checkbox"/>	allocpolicy <small>(smallint)</small>
<input checked="" type="checkbox"/>	status <small>(int)</small>
<input checked="" type="checkbox"/>	groupname <small>(nvarchar)</small>

**Query**

```
SELECT
groupid,allocpolicy,status,groupname
FROM dbo.[sysfilegroups]
```

**Related Keys**


groupid~groupid

**Primary Keys**

groupid

Figure 12.9: Add Related Key

20. To change the Primary Key, select the required column(s) and click **Add Primary Key**. The selected column is displayed in the *Primary Key* field.
21. Click **OK** to return to the Advance Database Schema screen.
22. To add another independent database table, click **Add Root Table** and repeat the steps from 8 to 13. Alternately, you can create a root table from the Create Advance Database Schema screen by clicking **Add Root Table**.



- At the Root level, the same table should not be used more than once.
- To learn about Advanced Properties refer to section [Changing Advanced Properties](#).
- There are some Unicode Characters, which are reserved characters in XML. You can filter these characters by enabling Filter Unicode Character option. To enable Filter Unicode Character option, mark the *Filter Unicode Character* checkbox as checked in Advanced Properties.

23. Click **Save** button. This displays a screen confirming that the Advance Database Schema activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the Advance Database schema (refer to Figure 4.6).

24. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

25. Click **OK** to save the comments. This displays a screen confirming that the Advance Database Schema activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Special Usage Scenario

### *Delete Records from target table*

In Advance Database schema, you can set action attribute to delete the records from the target database table, if they are matching with the records of source database table. Source and target records are matched based on primary key. This attribute is enabled in Data Mapper, while mapping source and target schemas.

#### **Steps to set action attribute to delete matching records**

1. Load required source and target schema in Data Mapper. In target schema, there will be an *Action* attribute.
2. Create a constant '*delete*' and map it to *Action* attribute of the target schema.



In order to delete records where the target end database is ORACLE, IBM DB2, MS SQL server or HSQLDB, the keyword "*delete*" should be used. However for MS SQL server DBMS, the "*cancel*" keyword can also be used. "*cancel*" keyword cannot be used for other RDBMS except Ms SQL server.

3. Save the Mapping activity.




To learn how to use Data Mapper, refer to section [Using Data Mapper](#).

### **Enable RollBackOn Error Attribute**

In Advance Database schema, you can set the *RollBackOnError* attribute. To roll back data updation or insertion, in case any error is encountered in the target database, you need to enable *RollBackOnError* attribute. This attribute is enabled in Data Mapper, while mapping source and target schemas.

#### **Steps to Enable RollBackOnError attribute**

1. Load required source and target schema in Data Mapper. In target schema, there will be a *RollBackOnError* attribute.
2. Create a constant '*true*' and map it to *RollBackOnError* attribute of the target schema.
3. Save the Mapping activity.



Suppose there is an hierarchy as:  
R1  
- R1C1  
- R1C1C1

If *RollbackOnError* is applied on *R1C1*, then in case of error condition in *R1C1* or *R1C1C1*, rollback will be up to *R1C1* only. *R1* will be unaffected. Error count will also be shown according to this implementation.

To learn how to use Data Mapper, refer to section [Using Data Mapper](#).

## CREATING ADVANCE POSITIONAL SCHEMA ACTIVITY

The Advance Positional schema activity defines the procedure to read data from a multiple record format positional file and write data in a multiple record format. To do so, user needs to specify the names and positions of the required fields in order to enable identification of those fields.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

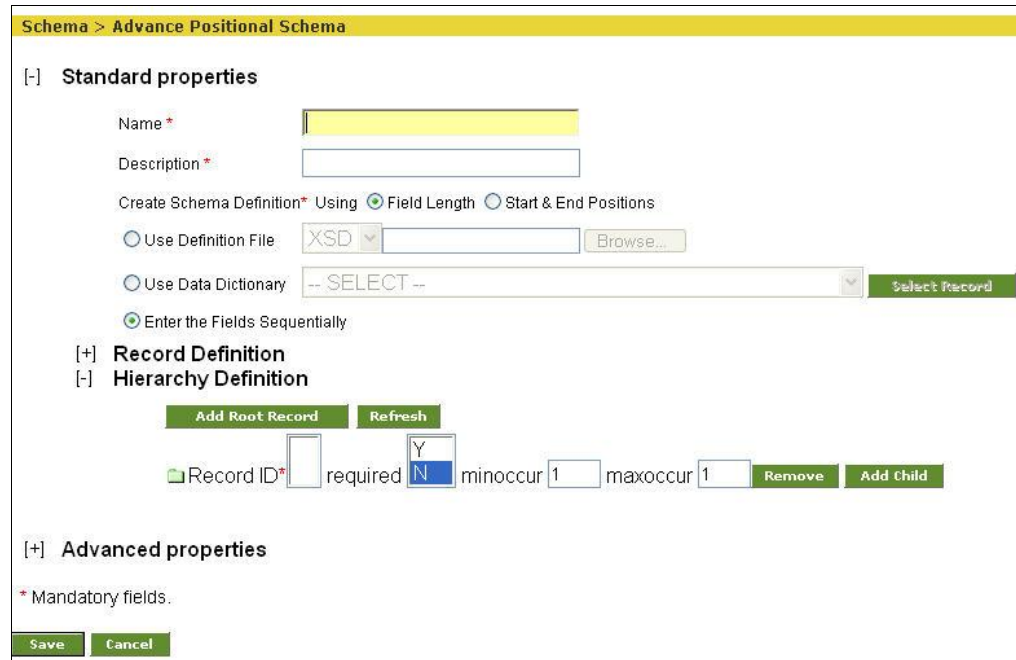
### Steps to create Advance Positional schema

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Adv. Positional Schema**. The Manage Advance Positional Schema screen is displayed (see Figure 12.10).



Figure 12.10: Manage Advance Positional Schema

- Click the **New** link. The Create Advance Positional Schema screen is displayed (see Figure 12.11).



Schema > Advance Positional Schema

**[-] Standard properties**

Name \*

Description \*

Create Schema Definition\* Using ☒ Field Length ☐ Start & End Positions

☐ Use Definition File XSD

☐ Use Data Dictionary -- SELECT --

☒ Enter the Fields Sequentially

**[+] Record Definition**

**[-] Hierarchy Definition**

Record ID*	required	minoccur	maxoccur	
<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Remove"/> <input type="button" value="Add Child"/>

**[+] Advanced properties**

\* Mandatory fields.

Figure 12.11: Create Advance Positional Schema


- Enter the name and description for Advance Positional Schema in the *Name* and *Description* fields respectively.
- You need to create the schema definition for the Advance Positional Schema. You can define the schema in three ways. These are outlined as:
  - Use Definition file
  - Use Data Dictionary
  - Enter the Fields Sequentially
- To define the schema using [definition file](#), select the *Use Definition File* radio button, select the type of file from the drop-down list and click **Browse** button to select the required file.
- To define the schema using a data dictionary, click the *Use Data Definition* radio button, select the name of the data dictionary from the drop-down list and click **Select Record** button. This displays the Select Record screen (see Figure 12.12).

**Select Records**


**Data Dictionary Name : customer**

Record	Description	Version
<input type="checkbox"/> Select All		
<input type="checkbox"/> John	name	1

Figure 12.12: Select Data Dictionary

 To know, how to create Data Dictionary, refer to the section [Creating Data Dictionary](#).

8. This screen displays the name of the selected data dictionary and a list of all the records defined in the dictionary. Check the checkbox against the record that you want to display in the Advance Positional schema.

 To display all records, check the *Select All* checkbox.

9. Click **OK**. This closes the Select Record screen and displays the selected records under Record Definition on the Manage Advance Positional Schema screen (see Figure 12.13). You can view or delete a record from this screen by clicking the appropriate button for that record.

**Schema > Advance Positional Schema**

**[+] Standard properties**

Name \*

Description \*

Create Schema Definition\*

☐ Use Definition File

☒ Use Data Dictionary

☐ Enter the Fields Sequentially Using ☒ Field Length ☐ Start & End Positions

**[+] Record Definition**

#	Record Name	Description	Version	Action
1	John	name	1	<a href="#">View</a> <a href="#">Delete</a>

**[+] Hierarchy Definition**

☒ Record ID\*  required  minoccur  maxoccur

**[+] Advanced properties**

\* Mandatory fields.

Figure 12.13: Create Record Definition using Data Dictionary

- To enter the fields manually, select the *Enter the Fields Sequentially Using* radio button and click **(+) Record Definition**. This expands to display the Record Definition fields (see Figure 12.14).

**Schema > Advance Positional Schema**

**[+] Standard properties**

Name \*

Description \*

Create Schema Definition\* Using ☒ Field Length ☐ Start & End Positions

☐ Use Definition File

☐ Use Data Dictionary

☒ Enter the Fields Sequentially

**[+] Record Definition**

1) Field Definition for Record Identifier\*  Value\*

#	FieldName	Description	Type	DateFormat	TimeFormat	Start	End	Length	Align	Skip
1	<input type="text"/>	<input type="text"/>	string	mmddyyyy	hh:mm:ss	1			L	<input type="checkbox"/>
2	<input type="text"/>	<input type="text"/>	string	mmddyyyy	hh:mm:ss				L	<input type="checkbox"/>
3	<input type="text"/>	<input type="text"/>	string	mmddyyyy	hh:mm:ss				L	<input type="checkbox"/>
4	<input type="text"/>	<input type="text"/>	string	mmddyyyy	hh:mm:ss				L	<input type="checkbox"/>

Number of Rows  at Position

**[+] Hierarchy Definition**

required  minoccur  maxoccur

**[+] Advanced properties**


\* Mandatory fields.

Figure 12.14: Create Record Definition


11. Enter name and description of the field in *FieldName* and *Description* fields respectively.
12. Select the type of data from *Type* drop-down list. For data type selection, refer to Table 12.2.
13. If data type is *Date*, select the format of date and time from the *DateFormat* and *TimeFormat* drop-down lists respectively.
14. To define field position select one of the following options:
  - Field Length
  - Start & End Positions
15. To define the field position using field length, select *Field Length* radio button and enter the length of the field in the *Length* field.
16. To define the field position using start and end position, select the *Start & End Positions* radio button.
17. Enter the start position of the field in the *Start* field.




18. Enter the end position of the field in the *End* field.

	<p>The starting position of a row in a positional file is 1. In a positional file, tab is counted as one position and not eight positions. By default, field positions are created in sequence. You can also create a schema with fields that are not in sequence. For details, refer to the Defining Field Positions Non-Sequentially section.</p>
---	---

19. Select the alignment of the field from the *Align* drop-down list.

	<p>From <b>Align</b> select  <b>L</b> if the field is left aligned.  <b>R</b> if the field is right aligned.</p> <p>To insert rows, specify the number and position of the rows to be added in the <i>Number of Rows</i> and at <i>Position</i> fields respectively and click <b>Add Row</b> button. Maximum 99 rows can be added at a time.</p>
---	--

20. Check the *Skip* checkbox if you want to skip this field while generating the XML. This selection skips the fields that are not required for the schema. For example, the source file has over 1500 fields, but you just need to use 1000 fields. This selection skips the 500 unrequired fields, and does not read them, when the data is parsed to the XML. When the data file is created, the skipped fields are displayed in the file but are not read. If the schema is created using an existing XSD, the skipped fields will appear as a blank value. However, when the schema is used in other activities such as Mapping, all its fields are displayed.

	<p>The skipping of unrequired fields is useful in case of a standard XSD with a large number of fields, as it reduces the size of the generated XML which now contains only the required fields. While editing the schema, when the data file is downloaded, the skipped fields are represented by 'T' and the unskipped fields by 'F' (see Figure 12.15). Similarly, while viewing the Print-Friendly Page, the skipped fields are represented by 'T' and the unskipped fields by 'F'.</p>
---	---

### Download AdvancePositionalSchema Definition File

AdvancePositionalSchema Name: customer

Select Definition File

xsd

```

<?xml version="1.0" encoding="ISO-8859-1"?>
<!-- W3C Schema generated by Adeptia Editor -->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="Root">
    <xs:annotation><xs:appinfo><XsdType>Advanced</XsdType>

```

Field

```

Name:John
John,Name,Name,string,,,1,10,L,F
John,Age,Age,string,,,11,14,L,I

```

Figure 12.15: Skipped and Unskipped Fields in the Data File

21. Enter the name of any field in *Record Identifier* field and the value of the field in the *Value* field.
22. Click **Add Record** to define another set of data and repeat the steps from 6 to 20.
23. After defining records you need to define their hierarchy. This is mandatory for creating an Advance Positional schema.
24. Once you have added the records and defined the Record Identifiers and their values, click the **Refresh** button under **Hierarchy Definition**. This populates the Record Identifiers of the defined records, in the Record ID field under Hierarchy Definition (see Figure 12.16).

Schema > Advance Positional Schema

**[+] Standard properties**

Name \*

Description \*

Create Schema Definition\*

☐ Use Definition File

☐ Use Data Dictionary

☒ Enter the Fields Sequentially Using ☒ Field Length ☐ Start & End Positions

**[+] Record Definition**

1) Field Definition for Record Identifier\*  Value\*

#	FieldName	Description	Type	DateFormat	TimeFormat	Start	End	Length	Align
1	Customer	Name	string	mmddyyyy	hh:mm:ss	1	50	50	L
2	Age	Age	string	mmddyyyy	hh:mm:ss	51	54	4	L
3			string	mmddyyyy	hh:mm:ss				L
4			string	mmddyyyy	hh:mm:ss				L

Number of Rows  at Position

2) Field Definition for Record Identifier\*  Value\*

#	FieldName	Description	Type	DateFormat	TimeFormat	Start	End	Length	Align
1	Product N:	Product	string	mmddyyyy	hh:mm:ss	1	50	50	L
2	Category		string	mmddyyyy	hh:mm:ss	51	100	50	L
3			string	mmddyyyy	hh:mm:ss				L
4			string	mmddyyyy	hh:mm:ss				L

Number of Rows  at Position

3) Field Definition for Record Identifier\*  Value\*

#	FieldName	Description	Type	DateFormat	TimeFormat	Start	End	Length	Align
1	Location	Location	string	mmddyyyy	hh:mm:ss	1	10	10	L
2			string	mmddyyyy	hh:mm:ss				L
3			string	mmddyyyy	hh:mm:ss				L
4			string	mmddyyyy	hh:mm:ss				L

Number of Rows  at Position

**[+] Hierarchy Definition**

Record ID\*   required   minoccur  maxoccur

**[+] Advanced properties**

\* Mandatory fields.

Figure 12.16: Create Record Hierarchy Definition

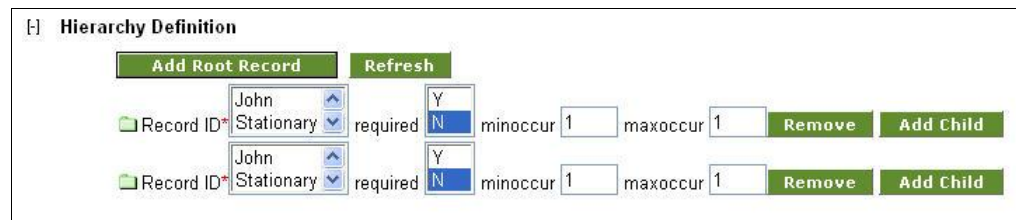
25. Select a record from the *Record ID* listbox.

26. Select *Y* or *N* from the required listbox, to indicate whether the selected record needs to present in the source file.
27. Enter the minimum number of occurrences of the selected record required in the source file, in the *minoccur* field. This value is based on the selection in the required field. If it has the value as 'Y', then the minoccur field should have a value as a minimum of 1. If the value is 'N', then the minoccur field can be 0.
28. Enter the maximum number of occurrences of the selected record required in the source file, in the *maxoccur* field. It should be a maximum of 2147483647.
29. You can now create a hierarchy either at the root level or at the child level.

## Using Hierarchy at Root Level

### To use a hierarchy at the Root Level

30. Click **Add Root Record** button. This creates a record at the same level as that of the displayed record (see Figure 12.17).



The screenshot shows a window titled "Hierarchy Definition". At the top are two buttons: "Add Root Record" and "Refresh". Below these are two identical record entries. Each entry consists of a "Record ID\*" field with a dropdown menu (showing "John"), a "Stationary" dropdown menu (showing "Stationary"), a "required" listbox (showing "Y" and "N" with "Y" selected), "minoccur" and "maxoccur" input fields (both showing "1"), and "Remove" and "Add Child" buttons.

Figure 12.17: Create Root Record

31. Select a record from the *Record ID* field of the displayed record and enter all its related information.
32. Similarly, select a record from the *Record ID* listbox of the root record and repeat step 25-26 to create another root record.



Every record must have a unique Record ID. For example, if *John* is selected as the first root record, then you need to select *Stationary* in the next root record.

## Using Record at Child Level

### To use a record at the Child Level

33. Click **Add Child** button. This creates a record at a level below that of the displayed record (see Figure 12.18).

**[+] Hierarchy Definition**

**Add Root Record** **Refresh**

Record ID*	John	Stationary	required	Y	N	minoccur	1	maxoccur	1	Remove	Add Child
Record ID*	John	Stationary	required	Y	N	minoccur	1	maxoccur	1	Remove	Add Child
Record ID*	John	Stationary	required	Y	N	minoccur	1	maxoccur	1	Remove	Add Child

Figure 12.18: Create Child Record

34. Select a record in the *Record ID* field of the displayed record and enter all its related information.
35. Select a record from the *Record ID* listbox of the root record and repeat step28-29 to create a child record.



A parent and child record must have a unique Record ID in one hierarchy. For example, if *John* is selected as the parent record, then you need to select *Stationary* as the child record. Similarly, if you create another child record under *Stationary*, then you need to select *North* as its Record ID (seeFigure 12.19).

**[+] Hierarchy Definition**

**Add Root Record** **Refresh**

Record ID*	John	Stationary	required	Y	N	minoccur	1	maxoccur	1	Remove	Add Child
Record ID*	Stationary	North	required	Y	N	minoccur	1	maxoccur	1	Remove	Add Child
Record ID*	Stationary	North	required	Y	N	minoccur	1	maxoccur	1	Remove	Add Child
Record ID*	John	Stationary	required	Y	N	minoccur	1	maxoccur	1	Remove	Add Child

Figure 12.19: Create another Child Record



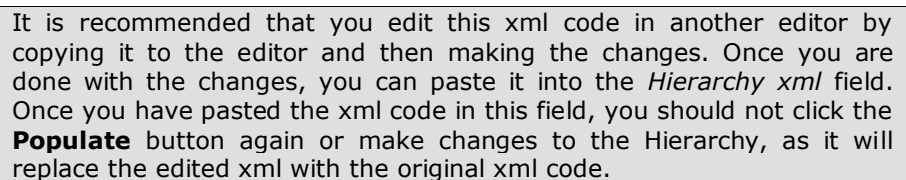
You can remove a record by selecting the record and clicking **Remove**. This will display a confirmation delete message, where on clicking **OK**, will delete the record.

Alternately, if you delete the last fieldname of a record, and then save the schema, the entire field gets deleted. For example, a record has three fields – *Name*, *Description* and *Age*. If you delete *Age*, the entire field will get deleted.

If a record has one or more child records, deleting the parent record will delete all its child records too.

36. Click **[+]** to expand **Advanced Properties**. Advanced properties of advance positional schema are displayed (see Figure 12.20).

37. Click **Populate** to display the XML code for the defined hierarchy. This field is editable. In case there are numerous records, you can create a flat hierarchy and then edit this xml code to change to the desired hierarchy. If you edit or enter new XML code for the hierarchy, then it will override the existing hierarchy.



- 417

42. Check the *Allow Less Fields* checkbox, if you want to parse the data even if the number of fields in the data file is less than the number of field specified in the schema. If *Allow Less Fields* checkbox is checked and the schema is used at source end, schema will parse the input data and insert the empty tag of missing fields. If the schema is used at target end, it will write all the tags coming in input XML.
43. In case number of fields in source data is more than the number of fields specified in the schema, only those fields are parsed, which are specified in schema. Other fields are ignored. If you want to generate error records, when number of fields in source data is more than the number of fields specified in schema, uncheck the *Allow More Fields* checkbox.
44. In case the input data contains some characters that are invalid in XML, then this may result in the mapping getting aborted. You can filter these invalid XML characters by checking the *Filter Invalid XML Characters* checkbox.



To learn about other Advanced Properties refer to section [Changing Advanced Properties](#).

45. Click **Save** button. This displays a screen confirming that the Advance Positional schema activity has been created successfully. If the *Comments* property is enabled, then clicking Save will display a screen where you need to enter comments related to creating the Advance Positional schema (refer to Figure 4.6).
46. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

47. Click **OK** to save the comments. This displays a screen confirming that the Advance Positional schema activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Defining Field Positions Non-Sequentially

By default, the fields of a schema are created in a sequence. At times, you may need to create a schema with field positions that are not in sequence. For example, there are 500 fields in the source file, but you need to create a schema with only 200 fields. But these 200 fields are not in sequence. In such a case, you can create a schema by defining the start and end position of the fields in a non-sequential manner.

### Steps to define field positions non-sequentially

1. Click the *Start & End Positions* radio button.
2. Enter the end position of the field in the *End* field, after which you want to create a field position that is not in sequence.
3. The *Start* field of the next field is activated, where you can define a new start position for the field. For example, you can define a start position (other than 11) such as 15 and the end position such as 25 for the Address field (see Figure 12.21).



**Schema > Advance Positional Schema**

**[-] Standard properties**

Name \*

Description \*

Create Schema Definition\* Using ☐ Field Length ☒ Start & End Positions

☐ Use Definition File

☐ Use Data Dictionary

☒ Enter the Fields Sequentially

**[-] Record Definition**

1) Field Definition for Record Identifier\*  Value\*

#	FieldName	Description	Type	DateFormat	TimeFormat	Start	End	Length	Align	Skip
1	Name	Name	string	mmddyyy	hh:mm:ss	1	10	10	L	<input type="checkbox"/>
2	Address	Address	string	mmddyyy	hh:mm:ss	15	25	11	L	<input type="checkbox"/>
3			string	mmddyyy	hh:mm:ss				L	<input type="checkbox"/>
4			string	mmddyyy	hh:mm:ss				L	<input type="checkbox"/>

Number of Rows  at Position

**[-] Hierarchy Definition**

☒ Record ID\*   minoccur  maxoccur

**[+] Advanced properties**

\* Mandatory fields.

Figure 12.21: Defining Field Positions Non-Sequentially

- This implies that when the schema is created, the *Name* field is created with 10 positions. However, the *Address* field starts at the 15th position. The positions between 11 and 14 remain blank.



You can also change the field positions non-sequentially, while editing the schema. This feature is available in the case of Advance Positional and Positional Schemas only.

## Viewing Print-Friendly Page

You can view a summary of the schema and its record definition and hierarchies in edit mode.

### Steps to view Print-friendly page

- Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
- Click **Advance Positional Schema**. The Manage Advance Positional Schema screen is displayed (refer to Figure 12.10).



- Click the radio button against the schema activity whose summary you want to view. This selects the schema and activates the **Edit** link. Clicking this link displays the Edit Advance Positional Schema screen (see Figure 12.22).

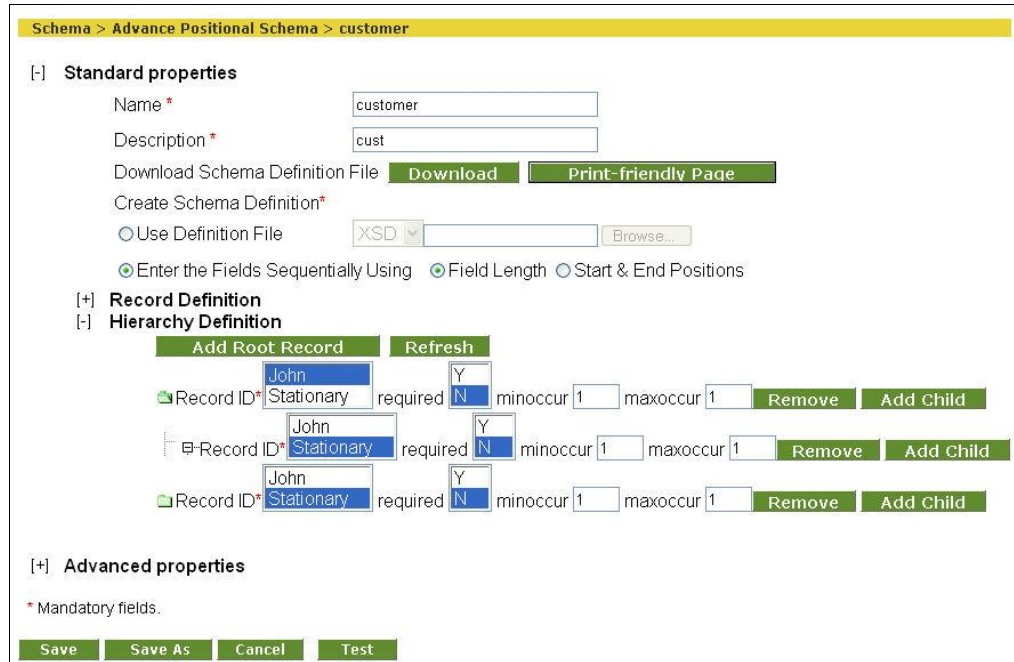


Figure 12.22: Edit Advance Positional Schema

- Click **Print-friendly Page** button. The summary screen is displayed (see Figure 12.23).

Advance Positional Schema Field Definition								
<b>Advance Positional Schema Name: Customer</b>								
<b>1) Record Identifier Name = CustomerName, Record Identifier Value = John</b>								
FieldName	Description	Type	DateFormat	TimeFormat	StartPos	EndPos	Length	Alignment
CustomerName	Name	string			1	50	50	L
Age	Age	number			51	54	4	L
<b>2) Record Identifier Name = Category, Record Identifier Value = Stationary</b>								
FieldName	Description	Type	DateFormat	TimeFormat	StartPos	EndPos	Length	Alignment
ProductName	Product	string			1	50	50	L
Category	Category	string			51	100	50	L
<b>Record Hierarchy Definition</b>								
Record ID = John, required = N, minOccurs = 1, maxOccurs = 1								
Record ID = Stationary, required = N, minOccurs = 1, maxOccurs = 1								

Figure 12.23: Print-Friendly Page



You can print a summary of the EDI segment definition and hierarchies too.  
Similarly, you can view the Print-friendly page for the Positional Data Dictionary, by clicking the **Print-friendly Page** button on the Edit Positional Data Dictionary screen.  
If the source file of the schema contains skipped fields, then the skipped fields are represented by 'T' and the unskipped fields by 'F'.

## Special Usage Scenario

### *Enable IsRemoveHeader Attribute*

In Advance Positional schema used as target schema, you can set the *IsRemoveHeader* attribute. To skip a record from the source file to be inserted/updated in the target database, you need to set *IsRemoveHeader* attribute to 'True'. This attribute is set in Data Mapper, while mapping source and target schemas.

#### **Steps to set IsRemoveHeader attribute**

1. Load required source and target schema in Data Mapper. In target schema, there will be an *IsRemoveHeader* attribute.
2. Create a constant 'true' and map it to *IsRemoveHeader* attribute of the target schema.
3. Save the Mapping activity.



To learn how to use Data Mapper, refer to section [Using Data Mapper](#).

## CREATING ADVANCE TEXT SCHEMA ACTIVITY

The Advance Text Schema activity is used to define how to read data from advance text files and how to write data in advance text file. Advance text file refers to text file which can have multiple record formats and multiple field separators.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

Figure 12.24 displays a sample Advanced Text file.

```
12345678D 07/12/2007 XYZ SYSTEMS, INC. 443 NORTH CLARK AVE, SUITE 350 CHICAGO, IL
60610
Agent: JOHN SMITH 443 NORTH CLARK AVE, SUITE 350 CHICAGO, IL 60610
```

Officer: JOHN SMITH 443 NORTH CLARK AVE, SUITE 350 CHICAGO, IL 60610  
 56789101D 07/16/2007 XYZ INTERNATIONAL INC 443 NORTH CLARK AVE, SUITE 350  
 CHICAGO, IL 60610  
 Agent: NICK MASSA 443 NORTH CLARK AVE, SUITE 350 CHICAGO, IL 60610  
 Officer: NICK MASSA 443 NORTH CLARK AVE, SUITE 350 CHICAGO, IL 60610

Figure 12.24: Sample Advanced Text File

In the Text File shown in Figure 12.24 there are three types of records. The first field of all record is considered as the *Record Identifier*. In this example, the record identifier of the first record is an eight-digit number followed by character 'D' (e.g. 12345678D). It could be any number followed by 'D'. The second and third record identifiers are *Agent* and *Officer* respectively. In this text file, two field separators ':' colon and space are used.

### Steps to create Advance Text Schema

1. Click **[+] Automate** to expand the tree and then click on **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Adv. Text Schema**. The Manage Advance Text Schema screen is displayed (see Figure 12.25).

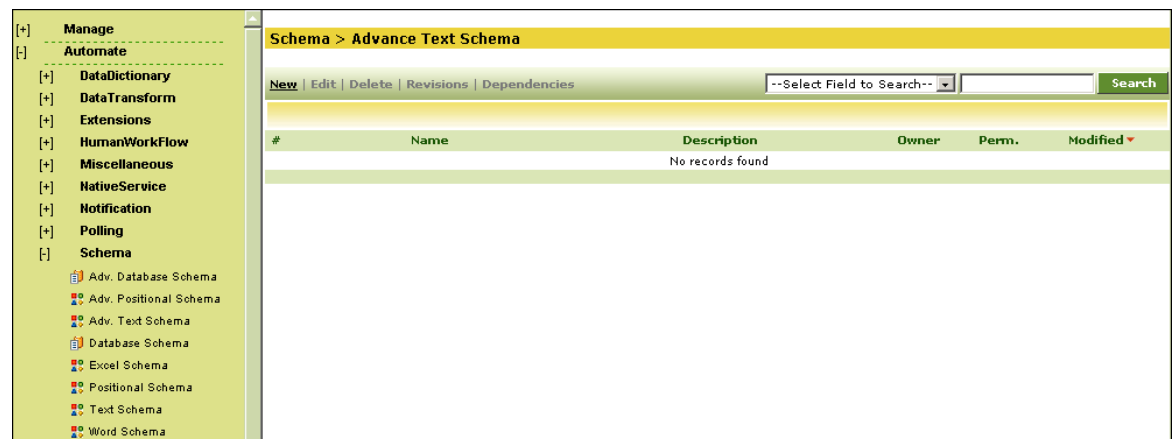


Figure 12.25: Manage Advance Text Schema

3. Click the **New** link. The Create Advance Text Schema screen is displayed (see Figure 12.26).

**Schema > Advance Text Schema**

**[-] Standard properties**

Name \*

Description \*

Record Separator\*

Field Separator\*

Create Schema Definition\*

☐ Use Definition File

☒ Enter the Fields Sequentially

**[+] Record Definition**

**[-] Hierarchy Definition**

☐ Record ID\*  required  minoccur  maxoccur

**[+] Advanced properties**

\* Mandatory fields.

Figure 12.26: Create Advance Text Schema

4. Enter the name and description of new Advance Text schema activity in *Name* and *Description* fields respectively.
5. Enter the record separator, for example `\n` for new line or `\s` for space, in the *Record Separator* field. The record separator is used to separate records.
6. Enter the Field Separator, for example `\t` for Tab or `\s` for space in the *Field Separator* field. Field Separator is used to separate fields.



- You can specify multiple Record Separators and Field Separators. You can use regular expressions to specify Field Separators. For example "`\s|:`" can be used to specify space or colon (:) as field separator.
- Special characters, which are used by regular expression such as `+`, `*`, or `|` cannot be directly used as field separator. To use such character as field separator you need to use these characters within parentheses e.g. `[+]`, `[*]` or `[|]` in *field separator* field.
- But if same schema is used at target end, in target data file, field separator will be `[+]`, `[*]` or `[|]`. To avoid it enter `+`, `*`, or `|` etc in the *Target Field Separator* in the *Advanced Properties*.

7. To define schema definition, select one of the following options:
  - Use Definition File
  - Enter the Fields Sequentially
8. To define the schema using [definition file](#), select the *Use Definition File* radio button, select the type of file from the drop-down list and click the **Browse** button to select the required file.
9. To enter the fields sequentially, select *Enter the Fields Sequentially* radio button and click **(+) Record Definition**. This expands to display the Record Definition fields (see Figure 12.27).

Schema > Advance Text Schema

[-] **Standard properties**

Name \*   
 Description \*   
 Record Separator\*   
 Field Separator\*   
 Create Schema Definition\*  

☐ Use Definition File

☒ Enter the Fields Sequentially

[-] **Record Definition**

1) Field Definition for Record Identifier\* 

#	FieldName	Match Pattern	Skip Pattern	Min Size	Max Size	Position
1						
2						
3						
4						

Number of Rows  at Position

[-] **Hierarchy Definition**

Record ID\*

required ☒

☒ minoccur  maxoccur

[+] **Advanced properties**

\* Mandatory fields.

Figure 12.27: Create Record Definition

10. Enter the record identifier in the *Record Identifier* field. You can use regular expression in Record Identifier.
11. Enter name the field in the *FieldName* field.

12. Enter the match pattern, against which you want the record to be matched, in the *Match Pattern* field.



You can use regular expression in the Match Pattern. For example, in the data file, there is field Company Name which can have value like **XYZ SYSTEMS, INC.** Since **\S** is used as Field Separator, **XYZ, SYSTEM,** and **INC** will be considered separate fields. But they need to be a part of the same field. To parse this type of data, you can use match pattern. For example **\S+.\***  
**(INC\.|INC(ORPORATED)?)** match pattern is used specify that the field can have spaces and end with INC. or INCORPORATED.

13. Enter the Skip Pattern in the *Skip Pattern* field. Skip Pattern is used to skip a particular pattern. You can use regular expression in Skip Pattern.
14. Enter the minimum and maximum size of the field in the *Min Size* and *Max Size* fields respectively.
15. Enter the position in the *Position* field.
16. Click **Add Record** to define another type of Record format, and follow the steps from 10 to 15.



For adding more fields in the same record format, click **Add Row** button. To insert rows, specify the number and position of the rows to be added in the *Number of Rows* and at *Position* fields respectively and click **Add Row** button. A maximum of 99 rows can be added at a time.

Advance text schema supports only *String* data type.

To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

You can enable quotes handling, by marking the *Quotes Handling on* checkbox as checked, in Advanced Properties.

If a character (say \$) is specified as Field Separator in a record, then any \$ character in the field data of that record (Chocolate\$20\$perpack) will be considered as a Field Separator, even though it is part of the field data. In the above example the \$ after 20 will also be considered as Field Separator, whereas it is the data. To avoid this situation put that field within the double quote i.e. (Chocolate"\$20\$perpack")

When *Quotes Handling on* is checked regular expression doesn't work on any field.

Header contains the information about the different record structure of the Text file. You may not want to send the header information to target. In this case you can mark the *Ignore Header* checkbox as checked in Advanced Properties. This ignores the header information. This property is applicable only when schema is used at source end. This property is not applicable when schema is used at target end.

If there are multiple record separators in an input file, then to parse this input file, you need to mark the *Look Ahead* checkbox as checked in the Advanced Properties.

At times the input data may contain some characters that are invalid in XML, thus resulting in the mapping getting aborted. You can filter these

	invalid XML characters by marking the <i>Filter Invalid XML Characters</i> checkbox as checked, in Advanced Properties.
--	---

17. After defining records you need to define their hierarchy. This is mandatory for creating an Advance Text schema.
18. Once you have added the records and defined the Record Identifiers, click the **Refresh** button under **Hierarchy Definition**. This populates the Record Identifiers of the defined records, in the *Record ID* field under **Hierarchy Definition** (see Figure 12.28).

Schema > Advance Text Schema > AdvanceTextSource

**[+] Standard properties**

Name \*

Description \*

Download Schema Definition File

Record Separator\*

Field Separator\*

Create Schema Definition\*

☐ Use Definition File

☒ Enter the Fields Sequentially

**[+] Record Definition**

1) Field Definition for Record Identifier\*

#	FieldName	Match Pattern	Skip Pattern	Min Size	Max Size	Position
1	fld2			0	97	1
2	fld3	\S+.* (INC\ INC(OF		0	97	1
3	fld4			0	97	1

Number of Rows  at Position

2) Field Definition for Record Identifier\*

#	FieldName	Match Pattern	Skip Pattern	Min Size	Max Size	Position
1	fld6	(\D+\s)+		0	97	2
2	fld7			0	97	2

Number of Rows  at Position

3) Field Definition for Record Identifier\*

#	FieldName	Match Pattern	Skip Pattern	Min Size	Max Size	Position
1	fld9	(\w+\.\?\s?)+(\s?\!+\s,		0	97	3
2	fld10	(\D+\s)+		0	97	3
3	fld11			0	97	3

Number of Rows  at Position

**[+] Hierarchy Definition**

Record ID\*   required  minoccur  maxoccur

**[+] Advanced properties**

\* Mandatory fields.

Figure 12.28: Create Record Hierarchy Definition

19. Select a record from the *Record ID* list box.

20. Select Y or N from the required list box, to indicate whether the selected record needs to present in the source file.

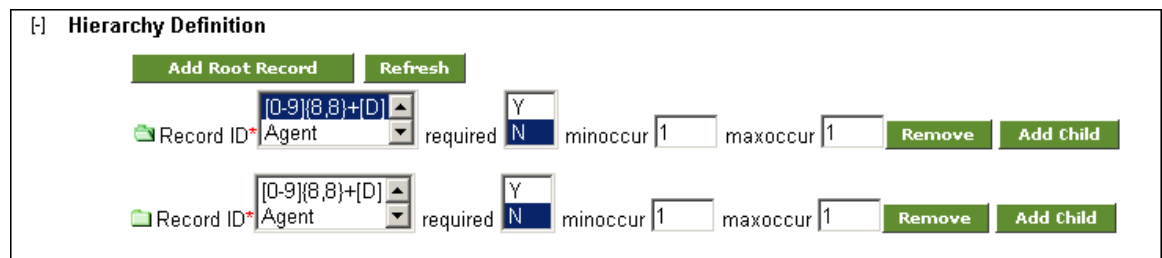


21. Enter the minimum number of occurrences of the selected record required in the source file, in the *minoccur* field. It should be a minimum of 1.
22. Enter the maximum number of occurrences of the selected record required in the source file, in the *maxoccur* field. It should be a maximum of 2147483647.
23. You can now create a record either at the root level or at the child level.

## Using Record at Root Level

### To use a Record at the Root Level

24. Click **Add Root Record** button. This creates a record at the same level as that of the displayed record (see Figure 12.29).



[-] Hierarchy Definition

Add Root Record Refresh

Record ID\* [0-9][8,8]+[D] Agent required N minoccur 1 maxoccur 1 Remove Add Child

Record ID\* [0-9][8,8]+[D] Agent required N minoccur 1 maxoccur 1 Remove Add Child

Figure 12.29: Create Root Record

25. Select a record in the *Record ID* field of the displayed record and enter all its related information.
26. Select a record from the *Record ID* listbox of the root record and repeat step 24-25 to create another root Record.

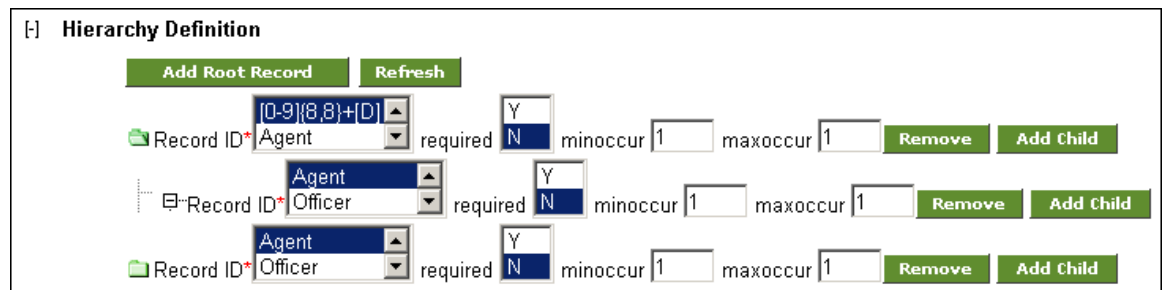


Each root Record must have a unique Record ID. For example, if `[0-9][8,8]+[D]` is selected as the first root record, then you need to select *Agent* in the next root record.

## Using Record at Child Level

### To create a record at the Child Level

27. Click **Add Child** button. This creates a record at a level below that of the displayed record (see Figure 12.30).



[-] Hierarchy Definition

Add Root Record Refresh

Record ID\* [0-9][8,8]+[D] Agent required N minoccur 1 maxoccur 1 Remove Add Child

Record ID\* Agent Agent required N minoccur 1 maxoccur 1 Remove Add Child

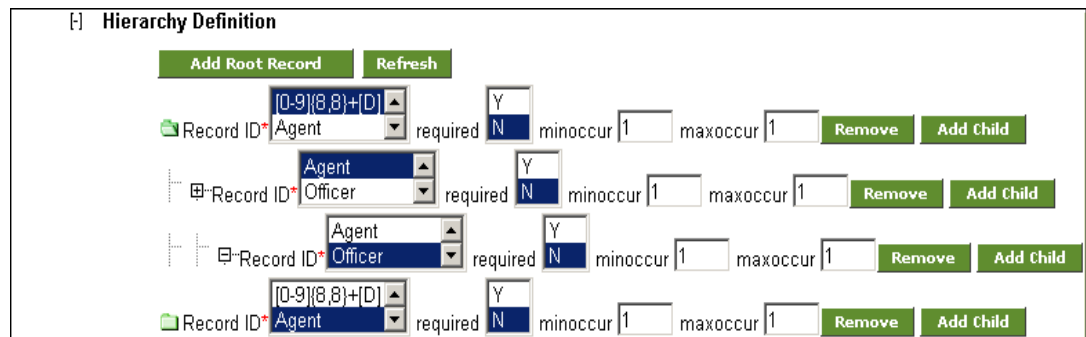
Record ID\* Officer Officer required N minoccur 1 maxoccur 1 Remove Add Child

Figure 12.30: Create Child Record

28. Select a record in the *Record ID* field of the displayed record and enter all its related information.
29. Select a record from the *Record ID* listbox of the root record and repeat step 28-29 to create a child record.



A parent and child record must have a unique Record ID in one hierarchy. For example, if  $[0-9][8,8]+[D]$  is selected as the parent record, then you need to select *Agent* as the child record. Similarly, if you create another child record under *Agent*, then you need to select *Officer* as its Record ID (see Figure 12.31).



The screenshot shows the 'Hierarchy Definition' window. It contains a tree structure of records. At the top are buttons 'Add Root Record' and 'Refresh'. Below them is a list of records. Each record has a 'Record ID' field, a 'required' checkbox, a 'minoccur' field, a 'maxoccur' field, and 'Remove' and 'Add Child' buttons. The records are: 
 

- Record ID:  $[0-9][8,8]+[D]$ , required: Y, minoccur: 1, maxoccur: 1. It has two children: 'Agent' and 'Officer'.
- Record ID: Agent, required: N, minoccur: 1, maxoccur: 1. It has one child: 'Officer'.
- Record ID: Officer, required: N, minoccur: 1, maxoccur: 1. It has no children.
- Record ID: Agent, required: N, minoccur: 1, maxoccur: 1. It has no children.

Figure 12.31: Create another Child Record



You can remove a record by selecting the record and clicking **Remove**. This will display a confirmation delete message, where on clicking **OK**, will delete the record. Alternately, if you delete the last fieldname of a record, and then save the schema, the entire field gets deleted. For example, a record has three fields – *Name*, *Description* and *Age*. If you delete *Age*, the entire field will get deleted. If a record has one or more child record, deleting the parent record will delete all its child record too.

30. Click **Save** button. This displays a screen confirming that the Advance Text Schema activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the Advanced Text Schema. (refer to Figure 4.6).
31. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

32. Click **OK** to save the comments. This displays a screen confirming that the Advanced Text Schema activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING DATABASE SCHEMA ACTIVITY

The Database schema activity defines the procedure to read data from a database table and to insert/update/delete data into a database table. Database schema uses the predefined Database Info activity to connect to the database.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Prerequisites:

- Database Info activity must be created before creating Database Schema Activity.

### Steps to create Database Schema

- Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
- Click **Database Schema**. The Manage Database Schema screen is displayed (see Figure 12.32).



Figure 12.32: Manage Database Schema

- Click the **New** link. The Create Database Schema screen is displayed (see Figure 12.33).

**Schema > Database Schema**

**[ - ] Standard properties**

Name \*

Description \*

Select Database Info\*

☒ Use Existing

☐ Create New  **Create Database Info**

Create Schema Definition\*

☐ Use XSD File  **Browse...**

☒ Table Name  **Browse Tables**

SQL Query

Primary Key

**[ + ] Advanced properties**

\* Mandatory fields.

**Save** **Cancel**

Figure 12.33: Create Database Schema

4. Enter the name and description for new database schema in the *Name* and *Description* fields respectively.
5. Select the database info activity.



To learn how to create Database Info activity, refer to section [Creating Database Info](#).

6. To select an existing database info activity, select the *Use Existing* radio button and select the database info activity from the drop-down list.
7. To create a new database info activity, select the *Create New* radio button and then click *Create Database Info* button. *Create Database Info* page is displayed.
8. In *Create Database Info* page enter the required parameters and click *Save* to save the database driver activity and return to *Create Database Schema* page.
9. To define schema definition, select one of the following options:
  - Use XSD File
  - Table Name

10. To select the XSD file, which contains schema information, select the *Use XSD File* radio button and click **Browse**.
11. To define schema using a database table, select *Table Name* radio button and click **Browse Tables** button. The Select Schema screen is displayed with the list of RDBMS Schemas in case of *SQL Server* and *DBO* Database Info (see Figure 12.34). If *HSQLDB* Database Info is selected, then the Select Table screen is displayed (refer to Figure 12.35).

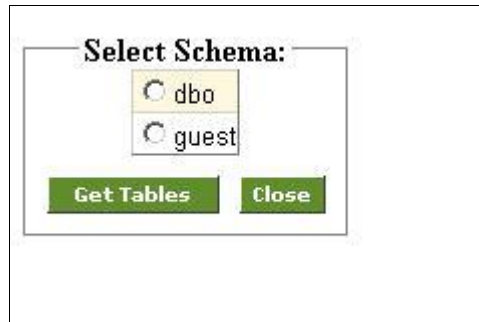


Figure 12.34: Select Schema

12. In the Select Schema screen, select the required RDBMS schema and click **Get Tables**. The Select Table screen is displayed with list of database tables (see Figure 12.35).

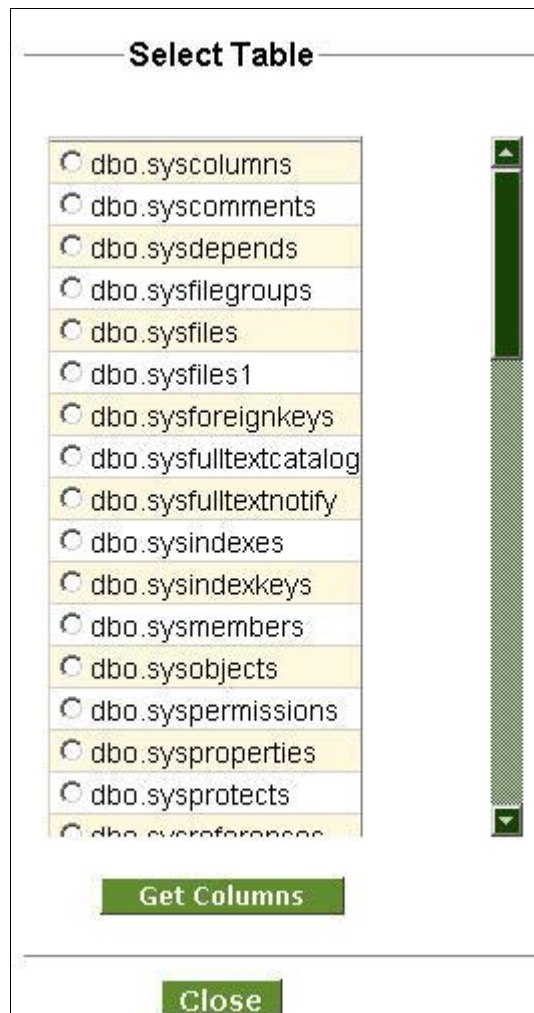


Figure 12.35: Select Tables



A Close button appears on the Select Table screen, in case of *SQL Server* or *DBO* Database Info. Clicking this button takes the control to the Select Schema screen.

If the schema and its tables are created on *DB2*, then you need to remember that the schema name in *DB2* is case-sensitive. Else, it will display the same table more than once.

13. Select the required table and click **Get Columns** button. The Select Table Column(s) screen is displayed with list of columns and their data types along with the data format whether encrypted or plaintext (see Figure 12.36).

**Select Table Column(s):**

**Table name is : dbo.[sysfilegroups]**

**Select All**

(Click on Select all to select all the Columns from specified table) or click on individual column name and write the simple **Select** query with Comma (,) Separated Column names.)

<b>groupid</b> (smallint)	Plain Text ▼
<b>allocpolicy</b> (smallint)	Plain Text ▼
<b>status</b> (int)	Plain Text ▼
<b>groupname</b> (nvarchar)	Plain Text ▼

Ok
Back
Close

Figure 12.36: Select Table Column(s)

14. Click **Select All** link to get select query for all columns or click on individual column names to get only those columns in select query in the provided text field. You can also specify the where clause in the generated select query.



There should not be any special character (except \$ and SID#) in column name.  
A column name should not include any standard SQL keyword (for example, *Identity*), as it generates an error, when the database schema is used as a source or target database.

15. Select the mode of data in the column, whether *Encrypted* or *Plain Text* from the drop-down list. If the table column is used at source end and encrypted data is coming from the source, select *Encrypted* from the drop-down list. Similarly if the table column is used at the target end and you want to send the encrypted data to the target, select *Encrypted* from the drop-down list.



- If *Encrypted* is selected in table column, you must select *Encryption/Decryption secret key* from Advanced Properties.
- If *Encrypted* is selected, the encrypted data length can be more

than the source data length. In this case you must define the target table column length more than the corresponding source table column length.

- If *Encrypted* is selected in table column, you must set the *Data Action* property in Process Designer, while creating the process flow. To know more about Process Designer, refer to the section Working with Process Flow.

16. Click **OK** to return to the Database Schema screen. The generated select query is displayed in the *SQL Query* field. You can edit this query, if required.



- This query is validated, once you click the **Save** button.
- In case some SQL function is used or some calculation is done over the Column Name(s), use the alias name for that Column Name(s).  
For example, for query like:  
`SELECT SID,Name+Dept,Salary FROM dbo.Employee`  
You can use:  
`SELECT SID, (Name+Dept) as AliasName,Salary FROM dbo.Employee`  
Reason:  
While getting the result set, you have the assign the output of (Name+Dept) to some new field.

17. Enter the Primary Key in the *Primary Key* field. Primary is the name of the field on the basis of which target database table is updated. Primary key is only used, when the database schema is used with database target.

18. Click **[+]** to expand **Advanced Properties**. Advanced properties of the Database Schema are displayed (see Figure 12.37).



[-] **Advanced properties**

Query Batch Update

☐

Query Batch Size

Use NoLock Option

☐

Update Empty Tag

☐

Encryption Secret Key

None

Decryption Secret Key

None

Owner\*

admin (Default Administrator)

Permissions\*

Read Write Execute

Owner

☒

☒

☒

Group

☒

☐

☒

Other

☐

☐

☐

Figure 12.37: Advanced Properties of Database Schema

19. By default one record at a time is updated in Database Target. You can specify the number of records that can be updated at a time in database target. To enable batch update, check the *Query Batch Update* checkbox and enter the number of records in the Query Batch Size field.
20. To enable the No Lock option, check the *Use No Lock Option* checkbox. Whenever there are chances of locking the database table, you can enable Use No Lock Option. When this option is enabled, database schema can read the data from the database table even if the database table is locked.
21. When *Update Empty Tag* option is checked, empty tag (e.g. -<id/> ) in the input XML to the database target is handled as given below:

Number Type	:	updated to null value
Date Type	:	updated to null value
String type	:	updated to empty value



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

22. In the Database Schema screen click **Save** button. This displays a screen confirming that the database schema activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the database schema (refer to Figure 4.6).
23. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

24. Click **OK** to save the comments. This displays a screen confirming that the database schema activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Special Usage Scenario

### Delete Target Records

In Database schema, you can set *Action* attribute to delete the records from the target database table, if they are matching with the records of source database table. If Primary Key is defined in the source and target schemas, source and target records are matched based on primary key. If primary key is not defined, whole records are matched. This attribute is enabled in Data Mapper, while mapping source and target schemas.

#### Steps to set action attribute to delete matching records

1. Load required source and target schema in Data Mapper. In target schema, there will be an *Action* attribute.
2. Create a constant '*delete*' and map it to *Action* attribute of the target schema.



In order to delete records where the target end database is ORACLE, IBM DB2, MS SQL server or HSQLDB, the keyword "delete" should be used. However for MS SQL server DBMS, the "cancel" keyword can also be used. "cancel" keyword cannot be used for other RDBMS except Ms SQL server.

3. Save the Mapping activity.



To learn how to use Data Mapper, refer to section [Using Data Mapper](#).

## CREATING EDI SCHEMA ACTIVITY

The EDI (Electronic Data Interchange) Schema activity is created to define how the data in predefined EDI format; an industry standard is managed.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create EDI Schema

1. Click **[+] Automate** to expand the tree and then click on **[+] Schema**. All the items in the Schema category are displayed.
2. Click **EDI schema**. The Manage EDI Schema screen is displayed (see Figure 12.38).



Figure 12.38: Manage EDI Schema

3. Click the **New** link. The Create EDI Schema screen is displayed (see Figure 12.39).

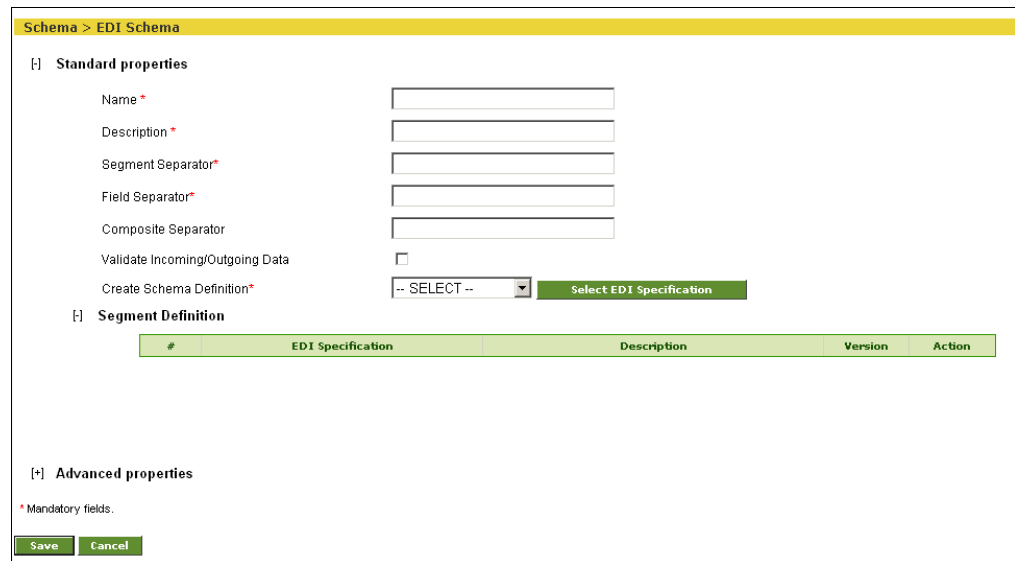
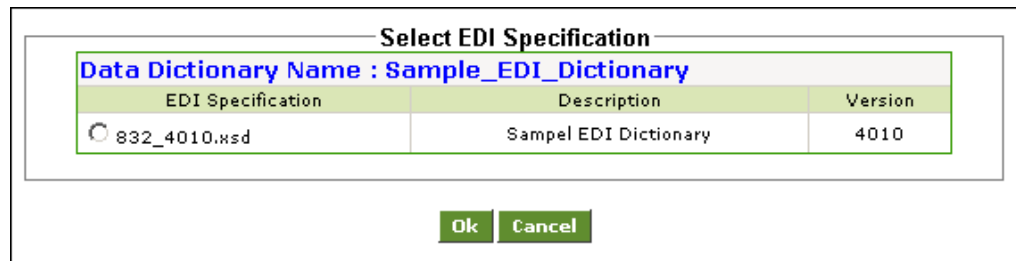


Figure 12.39: Create EDI Schema

4. Enter the name and description of new EDI schema activity in the *Name* and *Description* fields respectively.
5. Enter the Segment Separator, e.g. '~' in the *Segment Separator* field.
6. Enter the Field Separator, e.g. '~' in the *Field Separator* field.


7. Enter the Composite Separator, e.g. '+' in the *Composite Separator* field. A Composite Separator is used to separate composite fields (a field which contains more than one sub-fields) in an EDI file.
8. Check *Validate Incoming/Outgoing Data* checkbox if you want to validate the incoming and outgoing EDI Data. If this schema is used at source end, it validates the incoming EDI file and generates intermediate XML stream and an EDI acknowledgment stream. If this schema is used at target end, then it validates the input XML and generates error records if there is any error.
9. Select the required EDI Data Dictionary from the *Create Schema Definition* field and click **Select EDI Specification** button. This displays the Select EDI Specification screen (see Figure 12.40).



The dialog box titled "Select EDI Specification" contains a text field with the value "Data Dictionary Name : Sample\_EDI\_Dictionary". Below this is a table with three columns: "EDI Specification", "Description", and "Version". The table has one row with the values "832\_4010.xsd", "Sample EDI Dictionary", and "4010". At the bottom of the dialog are "Ok" and "Cancel" buttons.

EDI Specification	Description	Version
832_4010.xsd	Sample EDI Dictionary	4010

Figure 12.40: Select EDI Specification

 To know how to create EDI Data Dictionary, refer to the section Creating EDI Data Dictionary.

10. Select the required EDI Specification and click **Ok** button. This closes the Select EDI Specification screen. The selected EDI specification is populated under Segment Definition in Create EDI Schema screen (see Figure 12.41).

Schema > EDI Schema

**[ - ] Standard properties**

Name \*

Description \*

Segment Separator\*

Field Separator\*

Create Schema Definition\*  Select EDI Specification

**[ - ] Segment Definition**

#	EDI Specification	Description	Version	Action
1	832_4010.wsd	Sample EDI Dictionary	4010	<a href="#">View</a> <a href="#">Delete</a>

**[ + ] Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 12.41: Populated Create EDI Schema screen



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

11. Click **Save** button. This displays a screen confirming that the EDI schema activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the EDI schema (refer to Figure 4.6).

12. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

13. Click **OK** to save the comments. This displays a screen confirming that the EDI schema activity has been created successfully.



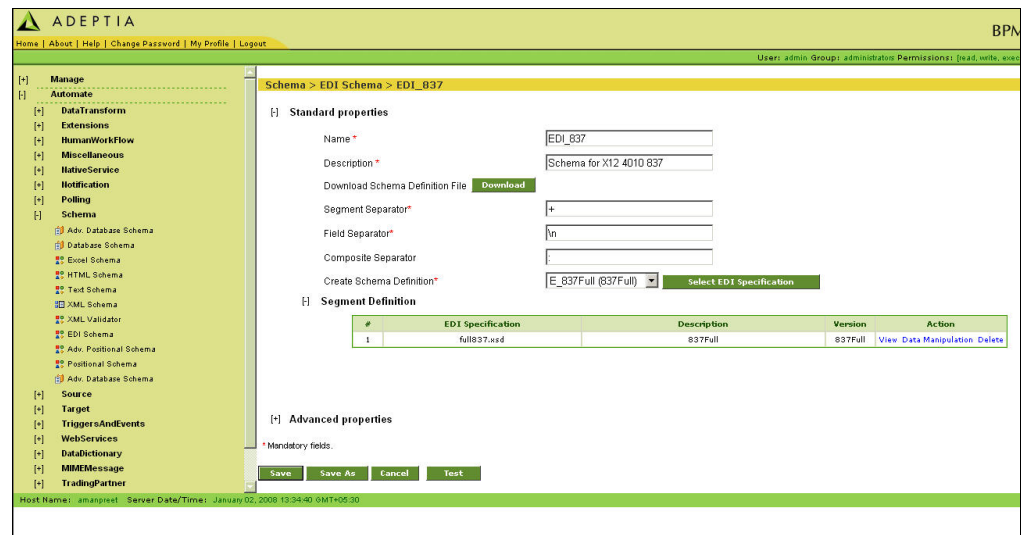
By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Manipulating EDI Schema Hierarchy

At times you may not need all the elements of an EDI schema hierarchy. In such cases, you can remove the elements that you do not require, from the hierarchy. If you remove an element at the parent level, then all its sub-level elements are also removed.

### Steps to manipulate EDI Schema hierarchy

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **EDI Schema**. The Manage EDI Schema screen is displayed (refer to Figure 12.38).
3. Click the EDI schema whose hierarchy you want to manipulate, and click the **Edit** link. This displays the EDI schema in the Edit mode (see Figure 12.42).



**Manage**

**Schema > EDI Schema > EDI\_837**

**Standard properties**

Name \*

Description \*

Download Schema Definition File [Download](#)

Segment Separator\*

Field Separator\*

Composite Separator

Create Schema Definition\*  [Select EDI Specification](#)

**Segment Definition**

#	EDI Specification	Description	Version	Action
1	full837.xsd	837Full	837Full	<a href="#">View</a> <a href="#">Data Manipulation</a> <a href="#">Delete</a>

**Advanced properties**

\* Mandatory fields.

[Save](#) [Save As](#) [Cancel](#) [Test](#)

Host Name: amapiest Server Date/Time: January 02, 2009 13:34:40 GMT+05:30

Figure 12.42: Edit EDI Schema

4. Click the **Data Manipulation** link against the EDI Segment whose hierarchy you want to manipulate. This displays the Schema XSD Tree at the root level (see Figure 12.43).

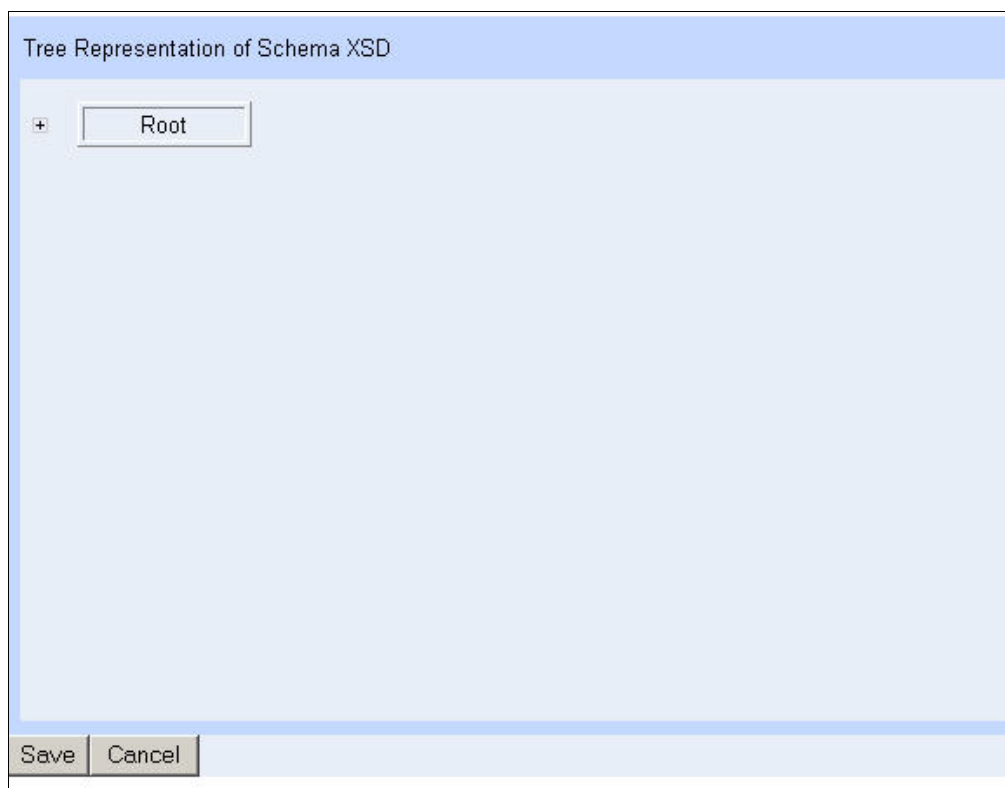


Figure 12.43: Tree Representation of Schema XSD

5. Expand the Root node to view the segment hierarchy (see Figure 12.44).

Tree Representation of Schema XSD

☒ Root

☒ ISA minOccurs :: 1 maxOccurs :: 1

☒ GS minOccurs :: 1 maxOccurs :: 1

☒ TS\_837 minOccurs :: 1 maxOccurs :: unbounded

☒ GE minOccurs :: 0 maxOccurs :: 1

☒ IEA minOccurs :: 0 maxOccurs :: 1

Figure 12.44: Expand Root Node

6. Expand a parent node to view its child nodes (see Figure 12.45).



Tree Representation of Schema XSD

- [-] Root
  - + ☒ ISA minOccurs :: 1 maxOccurs :: 1
  - + ☒ GS minOccurs :: 1 maxOccurs :: 1
  - [-] ☒ TS\_837 minOccurs :: 1 maxOccurs :: unbounded
    - + ☒ ST minOccurs :: 1 maxOccurs :: 1
    - + ☒ BHT minOccurs :: 1 maxOccurs :: 1
    - + ☒ REF minOccurs :: 0 maxOccurs :: 3
    - + ☒ SE minOccurs :: 1 maxOccurs :: 1
    - + ☒ GE minOccurs :: 0 maxOccurs :: 1
    - + ☒ IEA minOccurs :: 0 maxOccurs :: 1

Save Cancel

Figure 12.45: Expand Parent Node

7. You can remove a child node by unchecking the checkbox (see Figure 12.46). If you uncheck a parent node, then all its child nodes will also be removed.

Tree Representation of Schema XSD

☐ Root

☒ ISA minOccurs :: 1 maxOccurs :: 1

☒ GS minOccurs :: 1 maxOccurs :: 1

☒ TS\_837 minOccurs :: 1 maxOccurs :: unbounded

☒ ST minOccurs :: 1 maxOccurs :: 1

☐ BHT minOccurs :: 1 maxOccurs :: 1

☒ REF minOccurs :: 0 maxOccurs :: 3

☒ SE minOccurs :: 1 maxOccurs :: 1

☒ GE minOccurs :: 0 maxOccurs :: 1

☒ IEA minOccurs :: 0 maxOccurs :: 1

Save Cancel

Figure 12.46: Remove Child Node

8. You can also change the occurrence of the elements in the hierarchy by changing the values in the *minOccurs* and *maxOccurs* fields.
9. Once all the changes are done, click **Save**. This saves the changes and displays the manipulated hierarchy (see Figure 12.47).

Tree Representation of Schema XSD

☐ Root

☒ ISA minOccurs :: 1 maxOccurs :: 1

☒ GS minOccurs :: 1 maxOccurs :: 1

☒ TS\_837 minOccurs :: 1 maxOccurs :: unbounded

☒ ST minOccurs :: 1 maxOccurs :: 1

☒ REF minOccurs :: 0 maxOccurs :: 3

☒ SE minOccurs :: 1 maxOccurs :: 1

☒ GE minOccurs :: 0 maxOccurs :: 1

☒ IEA minOccurs :: 0 maxOccurs :: 1

Save Cancel

Figure 12.47: Saved Manipulation

## CREATING EXCEL SCHEMA ACTIVITY

The Excel Schema activity is used to define how to read data from an Excel file, and write data to an Excel file. To do so, user needs to specify the name of the Excel sheet and required fields, so as to enable identification of those fields.

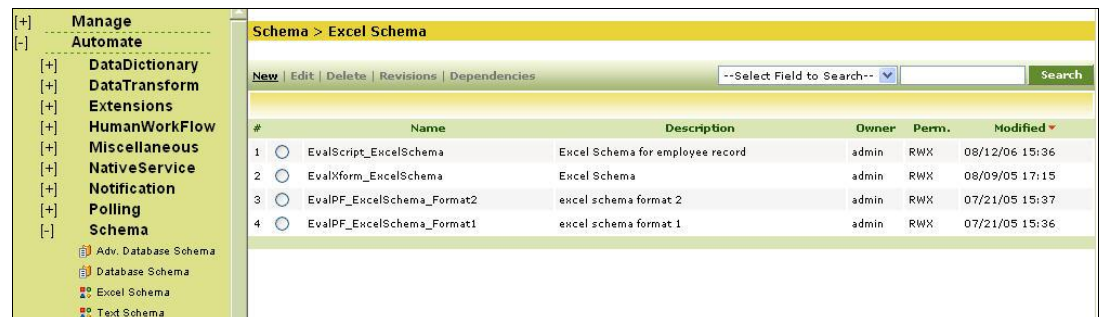
While creating Excel Schema you can also define hierarchy (parent-child relationship) between the records. Parent-child relationship can be defined only when you create the schema using data file.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create Excel Schema

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Excel Schema**. The Manage Excel Schema screen is displayed (see Figure 12.48).



#	Name	Description	Owner	Perm.	Modified
1	EvalScript_ExcelSchema	Excel Schema for employee record	admin	RWX	08/12/06 15:36
2	EvalXform_ExcelSchema	Excel Schema	admin	RWX	08/09/05 17:15
3	EvalPF_ExcelSchema_Format2	excel schema format 2	admin	RWX	07/21/05 15:37
4	EvalPF_ExcelSchema_Format1	excel schema format 1	admin	RWX	07/21/05 15:36

Figure 12.48: Manage Excel Schema

3. Click the **New** link. The Create Excel Schema screen is displayed (see Figure 12.49).

Schema > Excel Schema

**[ - ] Standard properties**

Name \*

Description \*

Data Header Present ☐

Create Schema Definition\*

☐ Use Definition File Data Upload File

☒ Enter the Fields Sequentially

Sheet Name\*

#	FieldName	Type	Format	SubFormat	Data Mode
1	<input type="text"/>	string	mmddyyyy	hh:mm:ss	Plain Text
2	<input type="text"/>	string	mmddyyyy	hh:mm:ss	Plain Text
3	<input type="text"/>	string	mmddyyyy	hh:mm:ss	Plain Text
4	<input type="text"/>	string	mmddyyyy	hh:mm:ss	Plain Text

Number of Rows  at Position  Add Row Remove Row

Define Hierarchy ☐ --Merge Criteria-- --Merge Key--

**[ + ] Advanced properties**

\* Mandatory fields.

Save
Cancel
Save & Launch Data Mapper

Figure 12.49: Create Excel Schema

4. Enter the name and description of new excel schema in the *Name* and *Description* fields respectively.
5. Data Header usually contains the name of the fields in an excel file. If schema is used at source end, and data header is present in the file, check the *Data Header Present* checkbox. If the schema is used at the target end, and the *Data Header Present* checkbox is checked, the Header will be written in the target excel file.



Name of the Headers in the data file and the FieldNames in schema must be same and in same order. If they are not same, then you need to use Dynamic Header Support option. To know how to use Dynamic Header Support, refer to the section [Using Dynamic Header Support](#).

6. To define the schema using [definition file](#), select the *Use Definition File* radio button; select the type of file from the drop-down list and click the **Upload File** button to select the required file. The *Schema File upload* screen is shown (see Figure 12.50).

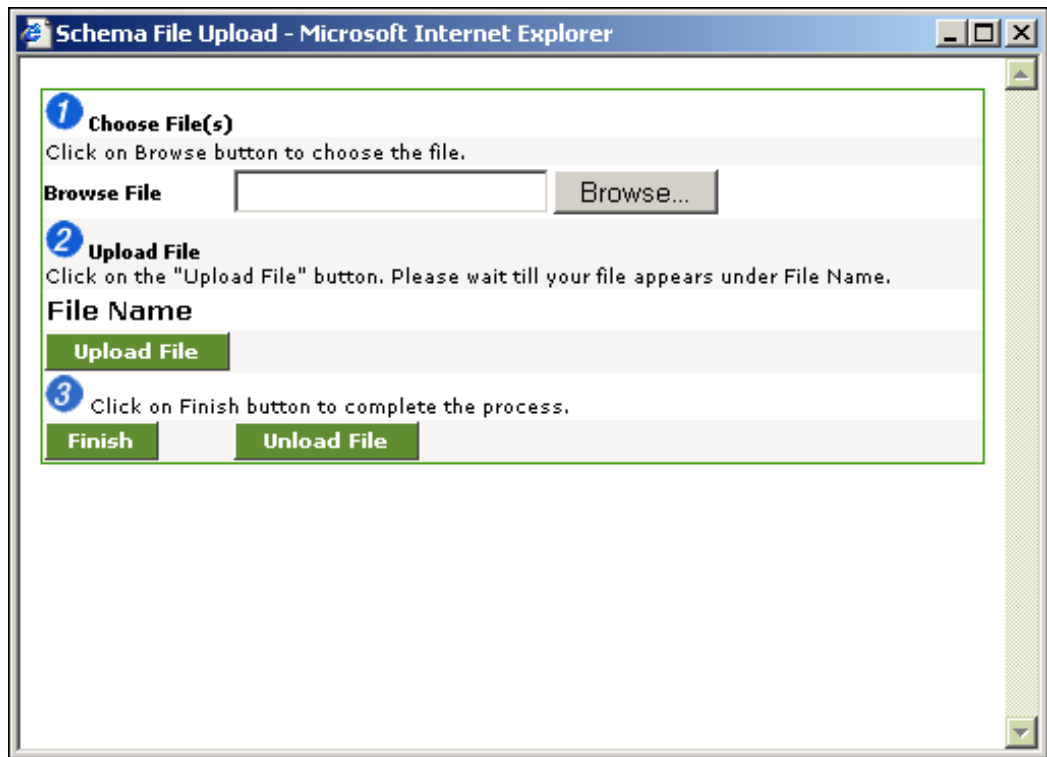
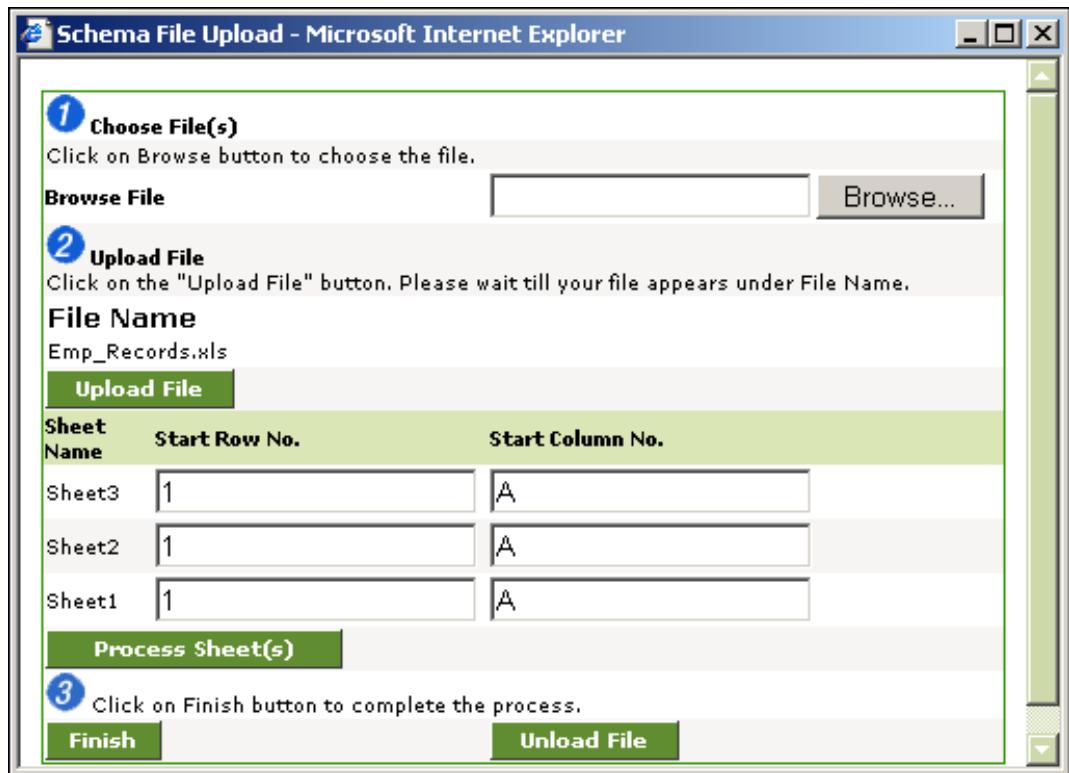


Figure 12.50: Upload file

7. Click *Browse* and select the file, you want to upload. Path of the selected file is shown in the *Browse File Field*.
8. Now click *Upload File* button. Name of the uploaded file is shown in the *File Name* list and list of sheets of the excel file is shown (see Figure 12.51 ).



**1 Choose File(s)**  
Click on Browse button to choose the file.

**Browse File**  **Browse...**

**2 Upload File**  
Click on the "Upload File" button. Please wait till your file appears under File Name.

**File Name**  
Emp\_Records.xls

**Upload File**

Sheet Name	Start Row No.	Start Column No.
Sheet3	1	A
Sheet2	1	A
Sheet1	1	A


**Process Sheet(s)**

**3 Click on Finish button to complete the process.**

**Finish** **Unload File**

Figure 12.51: Specify Start Row and Start Column No.

9. Specify the Start Row No. and Start Column No. of the sheets in respective fields and then click *Process Sheet(s)*. This will read the sheets and field names.



Start Row No. and Start Column No. specifies that from which row and Column onwards data should be fetched. For example if you have an excel file in which first 4 rows of sheet1 are blank. So in that case you have to specify 5 in sheet1 *Start Row No.* Another scenario can be that the data is there in first 4 row, but you don't want to fetched those records.

10. Once the processing is done, click *Finish* to close the *Schema File Upload* screen and return to create schema page (see).
11. Select the sheet name of the excel file for which you are creating this schema activity, from the *Sheet Name* drop-down list. Fields of the selected sheet are populated.
12. If you want to create schema by entering the fields manually, select *Enter the Fields Sequentially* radio button and follow the steps given below:
13. Enter the sheet name of the excel file in the *Sheet Name* field.
14. Enter the name of each field in the *FieldName* field.
15. Select the type of data from the *Type* drop-down list. The datatypes supported by Excel schema are listed in the table below.

Table 12.2: Supported Datatypes

Data Type	Description
String	This data type is selected if the field will accept a string value.
Number	This data type is selected if the field will accept a numeric value.
Date	This data type is selected if the field will accept a Date or Date and Time value.
Currency	This data type is selected if the field will accept a currency value.



The Currency datatype is supported by Excel Schema only.

16. If data type is *Date*, select the format of date and time from the *Format* and *SubFormat* drop-down lists respectively.



In case date format is defined in any column of the Excel file, please ensure that every row of that column should have same date format as defined in the first row, else an error record will be generated.

In case date format is selected as *\*3/14/2001*, and the schema is used at source end, the date is parsed according to local date format. This date format is not supported when the schema is used at target end.

The time format should be defined as *hh:mm:ss*.



17. If the datatype is selected as *Currency*, select the required currency from *Format* drop-down list. The currencies supported by excel schema are listed in the table below.

Table 12.3: Currencies Supported by Excel Schema

Currency	Description
Dollar(\$)	Dollar
USD	US Dollar
CAD	Canadian Dollar
CNY	Chinese Yen
EUR	Euro
GBP	British Pound
JPY	Japanese Yen

18. Select the mode of data, whether *Encrypted* or *Plain Text* from the *Data Mode* drop-down list. If the schema is used at source end and encrypted data is coming from the source, select *Encrypted* from the *Data Mode* drop-down list. Similarly if the schema is used at the target end and you want to send the encrypted data to the target, select *Encrypted* from the *Data Mode* drop-down list.



- |   |  |
|---|--|
|  | <ul style="list-style-type: none"><li>▪ If Encrypted is selected in Data Mode, you must select <i>Encryption/Decryption secret key</i> from Advanced Properties.</li><li>▪ If Encrypted is selected in Data Mode, you must set the <i>Data Action</i> property in Process Designer, while creating the process flow. To know more about Process Designer, refer to the section Working with Process Flow.</li><li>▪ To insert rows, specify the number and position of the rows to be added in the <i>Number of Rows</i> and at <i>Position</i> fields respectively and click <b>Add Row</b> button. Maximum 99 rows can be added at a time.</li><li>▪ To remove rows, specify the number and position of the rows to be deleted in the <i>Number of Rows</i> and at <i>Position</i> fields respectively and click <b>Remove Row</b> button.</li></ul> |
|  | <p>If you delete the last fieldname of a record, and then save the schema, the entire field gets deleted. For example, a record has three fields – <i>Name</i>, <i>Description</i> and <i>Age</i>. If you delete <i>Age</i>, the entire field will get deleted.</p>  |

19. Click **[+]** to expand the **Advanced Properties**. The following screen is displayed (see Figure 12.52).

[-] **Advanced properties**

Target XML Schema

Row Start Position

1

Column Start Position

A

Dynamic Header Support

☐

Filter Invalid XML Characters

☐

Handle Enclosing Character

Encryption Secret Key

None

Decryption Secret Key

None

Owner\*

admin (Default Administrator)

Permissions

	Read	Write	Execute
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Group	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\* Mandatory fields.

Save

Cancel

Save & Launch Data Mapper

Figure 12.52: View Advanced Properties of Excel Schema

20. Enter the Row Start Position in the *Row Start Position* field. Row Start Position specifies which row of the Excel Sheet is counted as first row. For example if you entered 5 in the *Row Start Position* field, 5th row of the Excel Sheet is counted as first row. If this schema is used at source end, the data from 5th row onwards is taken for processing. If this schema is used at target end, data is copied into the 5th row onwards. From 1st to 4th row of the target excel sheet will remain blank.
21. Similarly, enter the Column Start Position in the *Column Start Position* field.
22. If you want to enable Dynamic Header Support, check the *Dynamic Header Support* check box. For detailed information about Dynamic Header Support refer to the section [Using Dynamic Header Support](#).
23. In case the input data contains some characters that are invalid in XML, then this may result in the mapping getting aborted. You can filter these invalid XML characters by checking the *Filter Invalid XML Characters* checkbox.
24. If you want to remove enclosing characters (e.g. ` , " , & , < , > ) from the data file while parsing, enter the enclosing character that you want to remove, in *Handle Enclosing Character* field. Currently following enclosing characters are supported:

Single Quote (')

Double Quote (")

Ampersand (&)

Less than symbol (<)

Greater than symbol (>)

25. If schema is used at target end and you want to convert the data from Plain Text to encrypted mode, select the secret key activity from the *Encryption Secret Key* drop-down list. The selected secret key activity is used to encrypt the data.
26. If schema is used at source end and you want to convert the data from Encrypted Mode to Plain Text, select the secret key activity from the *Decryption Secret Key* drop-down list. The selected secret activity is used to decrypt the data.



To know, how to create secret key activity, refer to the section [Creating Secret Key Activity](#).  
To learn more about Advanced Properties refer to section [Changing Advanced Properties](#).

27. Click **Save** button. This displays a screen confirming that the excel schema activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the excel schema (refer to Figure 4.6).



You can directly open the Data Mapper applet from the *Create Excel Schema* page. You can use this feature if you want to use the same excel schema in mapping, which you are creating. In this case you can only use XML Schema at target end. To launch Data Mapper applet, enter the ID of the XML schema that you want to use at target end, in *Target XML Schema* and click *Save and Launch Data Mapper*.

To view the ID of XML Schema, in *Manage XML Schema* page, click on the XML Schema that you want to use. A 30 digit entity ID is shown in the view page.

28. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

29. Click **OK** to save the comments. This displays a screen confirming that the excel schema activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Defining Field Hierarchy

You can define hierarchy (parent-child relationship) between the records of an excel file using *Define Hierarchy* option of excel schema. To understand how to define hierarchy lets assume that you have an excel file which contains records of insurance policies of families (see Figure 12.53).

ID	EMPFIRSTNAME	EMPLASTNAME	SSN	GENDER	DOB	ADDR1	ADDR2	CITY	STATE	COVERAGETYPE
7812	John	Smith	8989	M	4/11/1960	123 DummySt	Apt 12	Gowen	MI	1
	Mary	Smith	7871	F	1/1/1962	123 DummySt	Apt 12	Gowen	MI	1
	Kevin	Smith	1211	M	5/7/1989	89 Main St		Chicago	IL	4
2311	Larry	Johnson	8672	M	2/4/1967	123 DummySt	Apt 2A	Gowen	MI	1
	Samantha	Johnson	5430	F	11/8/1971	123 DummySt	Apt 2A	Gowen	MI	1
	Anna	Johnson	9231	F	9/10/1995	123 DummySt	Apt 2A	Gowen	MI	4
	Rea	Johnson	9231	F	3/15/1998	123 DummySt	Apt 2A	Gowen	MI	4

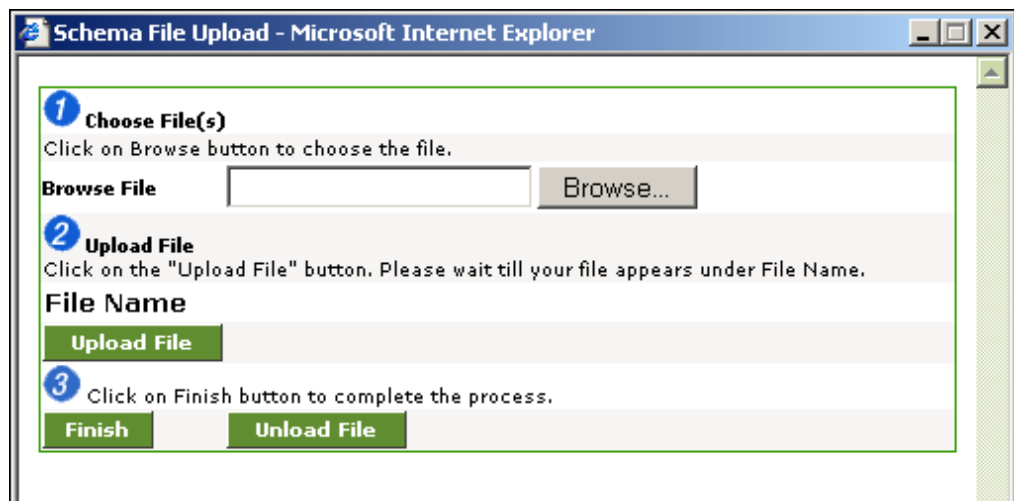
Figure 12.53: Policy Details

As you can see in the above table for ID 7812 there are three policies and similarly for ID 2311 there are four policies. While defining schema you can specify the criteria based on that the hierarchy can be defined. For example you can select that if the ID field is blank, merge the record in the previous record which is having ID. Similarly you can define the criteria for the matching record. For example if value of the ID field is matching with that of the previous record, merge the record with the previous record.

*Define Hierarchy* option works only when you define the schema using data file.

### Steps to define hierarchy

1. While creating schema, select *Use Definition File* radio button and then select *Data* from the drop-down list.
2. Click *Upload File* button. The *Schema File Upload* screen is displayed (see Figure 12.54).



**Schema File Upload - Microsoft Internet Explorer**

**1 Choose File(s)**  
Click on Browse button to choose the file.

**Browse File**  **Browse...**

**2 Upload File**  
Click on the "Upload File" button. Please wait till your file appears under File Name.

**File Name**

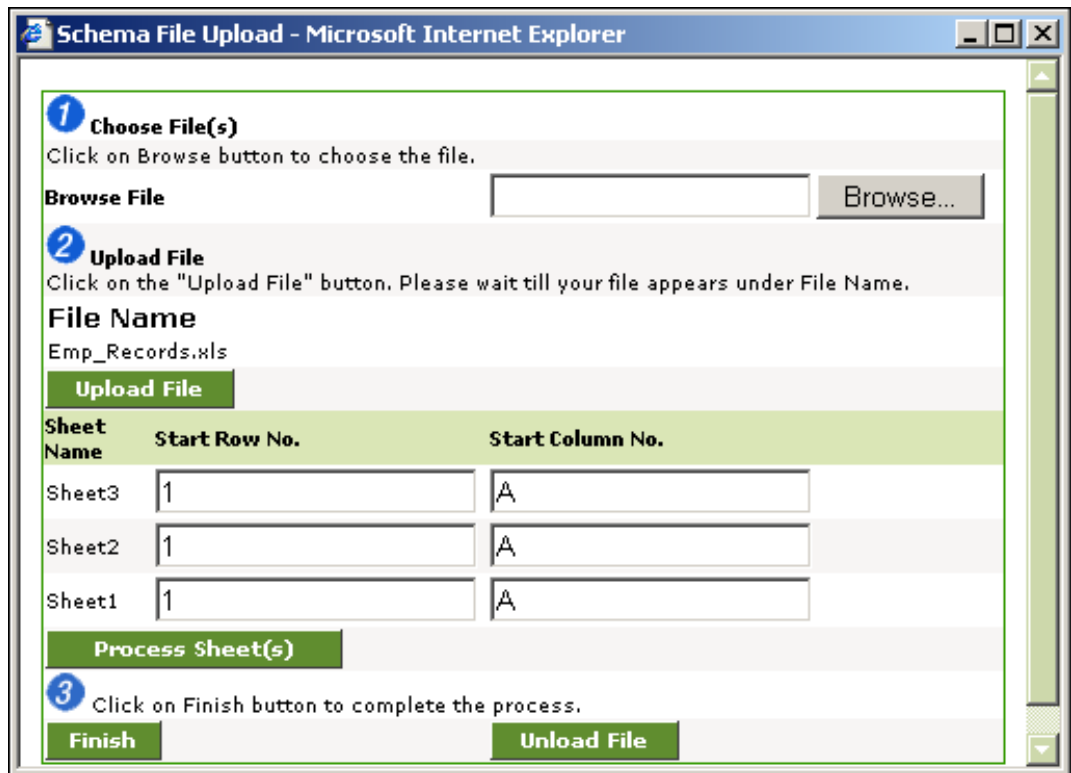
**Upload File**

**3** Click on Finish button to complete the process.

**Finish** **Unload File**

Figure 12.54: Select Data File

3. Click *Browse* and select the file, you want to upload. Path of the selected file is shown in the *Browse File Field*.
4. Now click *Upload File* button. Name of the uploaded file is shown in the *File Name* list and list of sheets of the excel file is shown (see Figure 12.55).



**1 Choose File(s)**  
Click on Browse button to choose the file.

**Browse File**  **Browse...**

**2 Upload File**  
Click on the "Upload File" button. Please wait till your file appears under File Name.

**File Name**  
Emp\_Records.xls

**Upload File**

Sheet Name	Start Row No.	Start Column No.
Sheet3	<input type="text" value="1"/>	<input type="text" value="A"/>
Sheet2	<input type="text" value="1"/>	<input type="text" value="A"/>
Sheet1	<input type="text" value="1"/>	<input type="text" value="A"/>


**Process Sheet(s)**

**3** Click on Finish button to complete the process.


**Finish** **Unload File**

Figure 12.55: Specify Start Row and Start Column No.

- Specify the Start Row No. and Start Column No. of the sheets in respective fields and then click *Process Sheet(s)*. This will read the sheets and field names.

 Start Row No. and Start Column No. specifies that from which row and Column onwards data should be fetched. For example if you have an excel file in which first 4 rows of sheet1 are blank. So in that case you have to specify 5 in sheet1 *Start Row No.* Another scenario can be that the data is there in first 4 row, but you don't want to fetched those records.

- Once the processing is done, click *Finish* to close the *Schema File Upload* screen and return to create schema page (see).
- Once the file is uploaded the *Sheet Name* field is converted into *Drop-down* list and all the sheet names of the selected excel file are populated in this drop-down list.
- Select the sheet name from the *Sheet Name* drop-down list. All the fields of the selected sheet are populated.
- To define the hierarchy, select *Define Hierarchy* checkbox and select the merge criteria from the *Merge Criteria* drop-down list.

 Currently two merge criteria are supported:

**Matching Child Record:** Records are merged in case the value Key fields are matching.

**Blank Child Record:** In case the value of key field is blank, the records

are merged with the previous record which is having some value in the key field.

10. Select the field name from the *Merge Key* drop-down list on basis of which record are merged.
11. Click Save to save the excel schema.

## Using Dynamic Header Support

Dynamic Header is an advanced feature of Excel Schema, which is used to parse an excel file, if:

- *FieldNames* defined in the Excel Schema and the Data Headers (Column Name) of the excel file are same but not in same order.
- *FieldNames* defined in the Excel Schema and the Headers of the excel file are not same. They may or may not be in same order.

## Pre requisites

- Data Header must be present in the Excel file
- Data Type must be same in the Excel Schema and the excel file

To parse an excel file, whose Headers are same but not in order with the FieldNames of the Excel Schema, check the *Dynamic Header Support* checkbox in the Advanced Properties. Now the Excel Schema will parse the data from the respective columns.

To parse an excel file, whose headers are different and not even in order with the fieldnames of the Excel Schema, check the *Dynamic Header Support* checkbox in the Advanced Properties. Apart from this an XML file is used by the schema, which contains the mapping between the headers of the excel file and the fieldnames of the Excel Schema. Following is the sample XML (see Figure 12.56).

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<HeaderMap type="Name">
  <Map>
    <SchemaHeader>Name</SchemaHeader>
    <DataFileHeader>EMP_Name</DataFileHeader>
  </Map>
  <Map>
    <SchemaHeader>DOB</SchemaHeader>
    <DataFileHeader>EMP_DOB</DataFileHeader>
  </Map>
  <Map>
    <SchemaHeader>Age</SchemaHeader>
    <DataFileHeader>EMP_Age</DataFileHeader>
  </Map>
  <Map>
    <SchemaHeader>Address</SchemaHeader>
```

```
<DataFileHeader>EMP_Address</DataFileHeader>
</Map>
</HeaderMap>
```

Figure 12.56: XML to map Field Name with Data Header

where:

*SchemaHeader* is the *FieldName* defined in the Excel Schema.

*DataFileHeader* is the name of the *Header* in excel file.

Excel Schema reads this XML file from process flow context. So you have to pass this XML file to the process flow context. The following figure shows a sample process flow to depict this scenario:

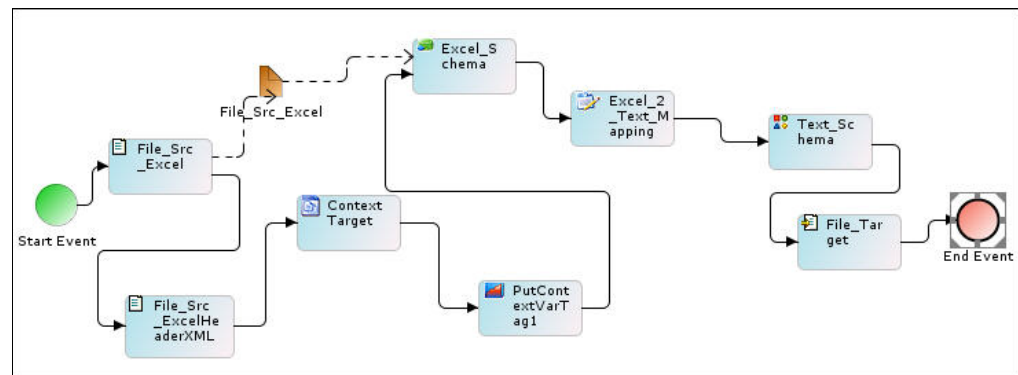


Figure 12.57: Sample Process Flow

In the process flow shown in Figure 12.57, a file source activity is used to read an excel file. An Excel Schema is used to parse the data from the excel file. FieldNames defined in the excel Schema and Headers in Excel file are different. To parse the data from the excel file, an XML file, which contains the mapping between FieldName and the Header is passed to the process flow context. To pass the XML file to process flow context, another File source activity (*File\_Src\_ExcelHeaderXML*) is used. This file source activity reads the XML file from a specified location and passes it to the context target activity. In context Target activity, you need to define the value of the *parameterName* property. Properties of the Context Target activity are shown in Figure 12.58:

Properties   OnException Scripts   Errors   Process Flow Variables   Comments	
Name	Value
Document Repository	false
ID	
Label	ContextTarget
Name	ContextTarget
parameterName	FieldName_Header_Mapping
source	File_Src_ExcelHeaderXML
streamNames	
Synch	true
Type	ContextTarget

Figure 12.58: Context Target Properties

In this process flow, value of *parameterName* is given as *FieldName\_Header\_Mapping*.

After context target, *PutContextVar* action is used. This action is used to set the value of a variable *Service.<ActivityName>.excelHeaderMappingXML* of XML Schema. The properties of *PutContextVar* action are shown in Figure 12.59:

Properties   OnException Scripts   Errors   Process Flow Variables   Comments	
Name	Value
Context Variables	Edit
Label	PutContextVarTag1
Name	PutContextVarTag1
Type	Put-Context-Var

Figure 12.59: PutContextVar Properties

30. Click **Edit** to define the variable name and the value to be set. The Edit Context variable screen is displayed (see Figure 12.60).





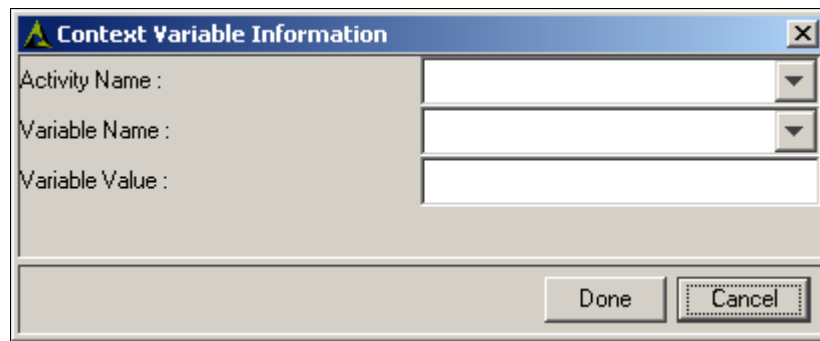


Figure 12.61: Context Variable Information

32. Enter *Service.<ActivityName>.excelHeaderMappingXML* in the *Variable Name* field. For Example *Service.Excel\_Schema.excelHeaderMappingXML*

where

*Activity Name* is name of the Excel Schema Activity. For Example *FieldName\_Header\_Mapping*.

33. In the *Variable Value* field enter the value, which you defined in the *parameterName* in the *ContextTarget* activity.

34. Click **Done** twice to return to graph canvas area.

35. Make sure to create a stream from file source to Excel Schema activity.



To Know how to create a process flow, refer to the section Working with Process Flow.

## CREATING POSITIONAL SCHEMA ACTIVITY

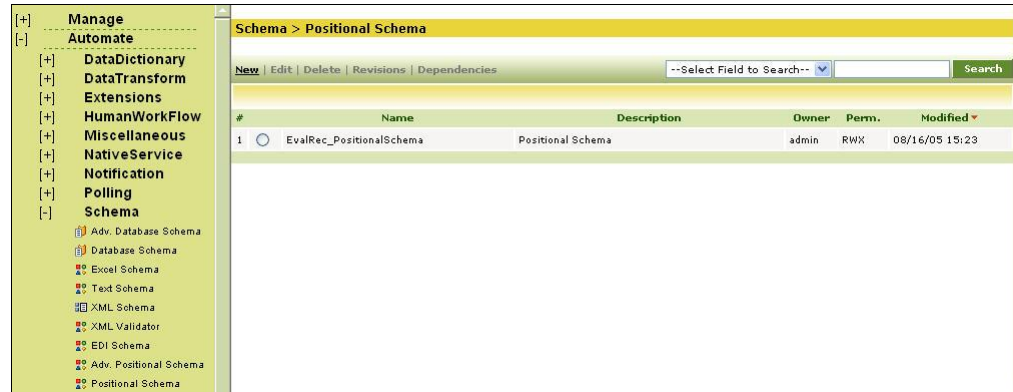
The Positional Schema activity defines the procedure to read data from a Positional file, and write data in a Positional file. User needs to specify the names and the positions of required fields in order to enable identification of those fields.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### **Steps to create Positional schema**

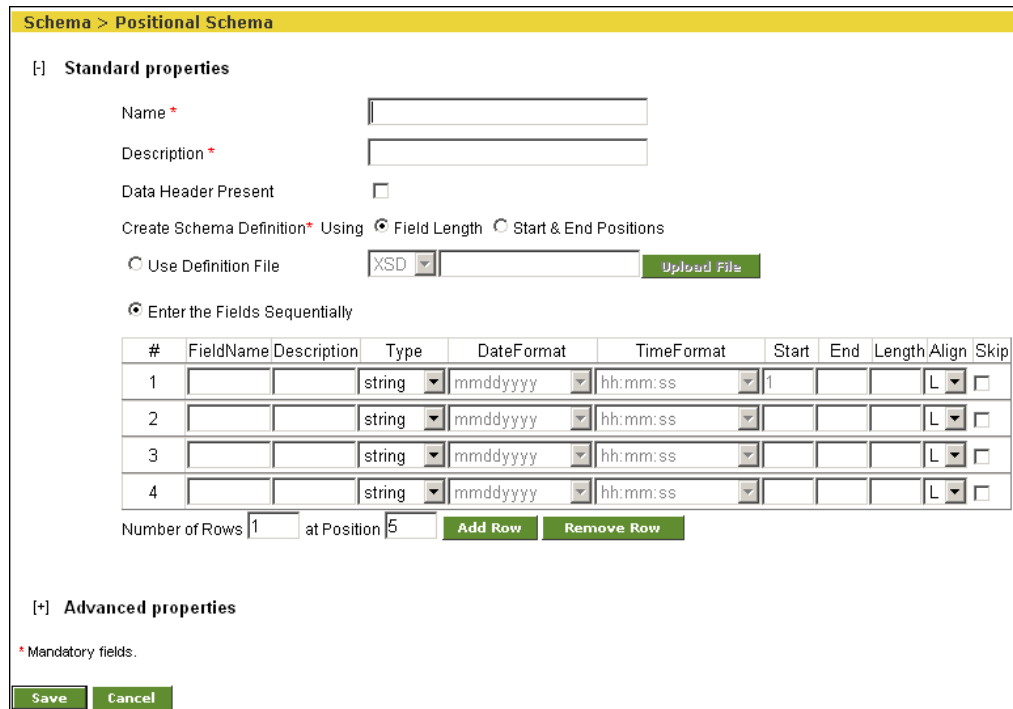
1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Positional Schema**. The Manage Positional Schema screen is displayed (see Figure 12.62).



#	Name	Description	Owner	Perm.	Modified
1	EvalRec_PositionalSchema	Positional Schema	admin	RWX	08/16/05 15:23

Figure 12.62: Manage Positional Schema

3. Click the **New** link. The Create Positional Schema screen is displayed (see Figure 12.63).



**Standard properties**

Name \*

Description \*

Data Header Present ☐

Create Schema Definition\* Using ☒ Field Length ☐ Start & End Positions

☐ Use Definition File

☒ Enter the Fields Sequentially

#	FieldName	Description	Type	DateFormat	TimeFormat	Start	End	Length	Align	Skip
1	<input type="text"/>	<input type="text"/>	string	mmddyyyy	hh:mm:ss	<input type="text"/>	<input type="text"/>	<input type="text"/>	L	<input type="checkbox"/>
2	<input type="text"/>	<input type="text"/>	string	mmddyyyy	hh:mm:ss	<input type="text"/>	<input type="text"/>	<input type="text"/>	L	<input type="checkbox"/>
3	<input type="text"/>	<input type="text"/>	string	mmddyyyy	hh:mm:ss	<input type="text"/>	<input type="text"/>	<input type="text"/>	L	<input type="checkbox"/>
4	<input type="text"/>	<input type="text"/>	string	mmddyyyy	hh:mm:ss	<input type="text"/>	<input type="text"/>	<input type="text"/>	L	<input type="checkbox"/>

Number of Rows  at Position

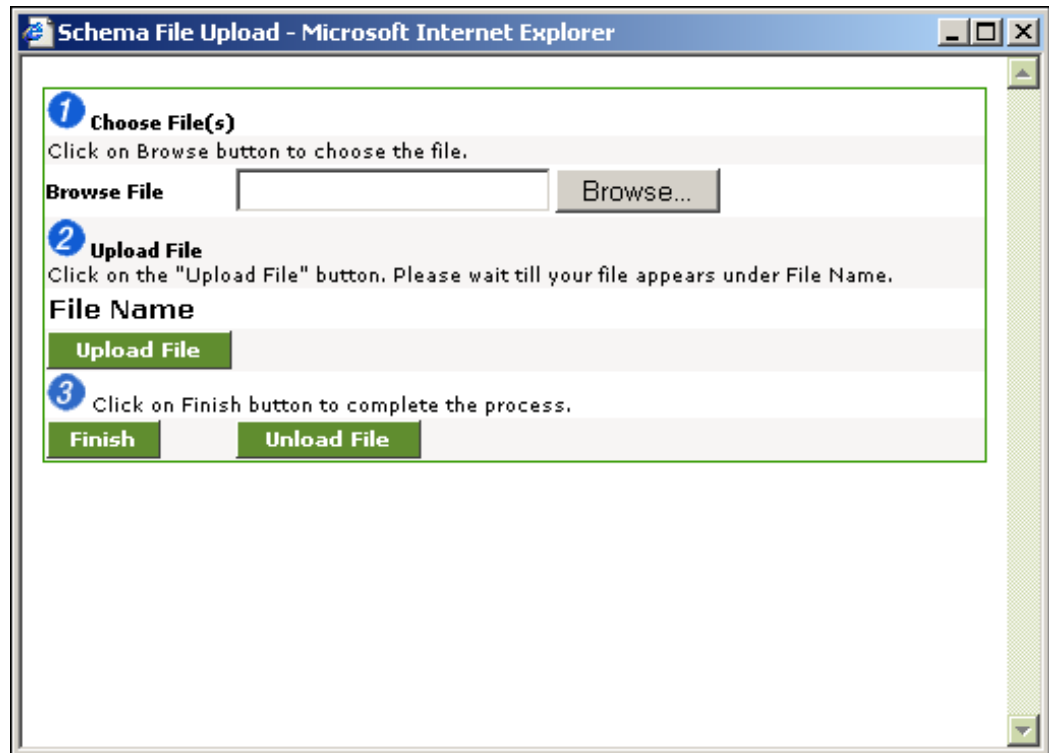
**Advanced properties**

\* Mandatory fields.

Figure 12.63: Create Positional Schema

4. Enter the name and description for new Positional Schema in the *Name* and *Description* fields respectively.
5. Data Header usually contains the titles of the fields in a text file. If data header is present in the text file, check the *Data Header Present* checkbox.

6. To define the schema using [definition file](#), select the *Use Definition File* radio button; select the type of file from the drop-down list and click the **Upload File** button to select the required file. The *Schema File upload* screen is shown (see Figure 12.64).



**1 Choose File(s)**  
Click on Browse button to choose the file.

**Browse File**  **Browse...**

**2 Upload File**  
Click on the "Upload File" button. Please wait till your file appears under File Name.

**File Name**

**Upload File**

**3** Click on Finish button to complete the process.

**Finish** **Unload File**

Figure 12.64: Upload file

7. Click *Browse* and select the file, you want to upload. Path of the selected file is shown in the *Browse File Field*.
8. Now click *Upload File* button. Name of the uploaded file is shown in the *File Name* list (see Figure 12.65).

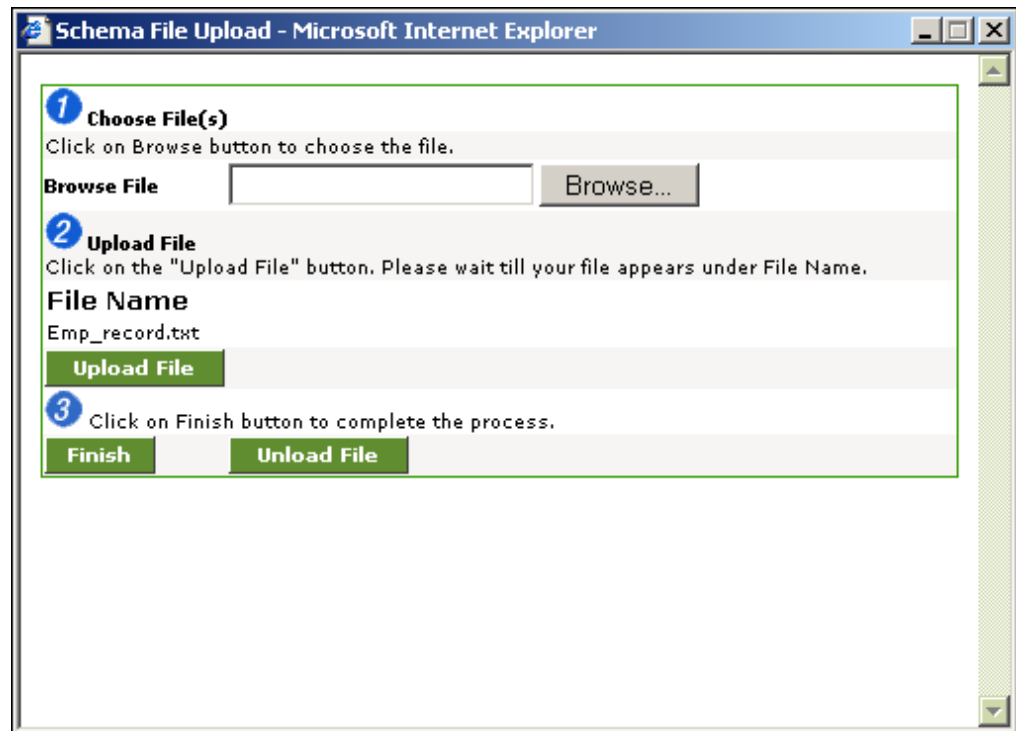


Figure 12.65:Uploaded File

9. Click *Finish* to close the *Schema File Upload* screen and return to create schema page.
10. If you want to create schema by entering the fields manually, select *Enter the Fields Sequentially* radio button and follow the steps given below:
11. Enter name and description of the field in the *Name* and *Description* fields respectively.
12. Select the type of data from the *Type* drop-down list. For data type selection, refer to Table 12.2.
13. If data type is *Date*, select the format of date and time from the *DateFormat* and *TimeFormat* drop-down lists respectively.
14. To define field position select one of the following option:
  - Field Length
  - Start & End Positions
15. To define the field position using field length, select *Field Length* radio button and enter the length of the field in the *Length* field.
16. To define the field position using start and end position, select the *Start* and *End Position* radio button.
17. Enter the start position of the field in the *StartPos* field.
18. Enter the end position of the field in the *EndPos* field.



The starting position of a row in a positional file is 1.  
In a positional file, tab is counted as one position and not eight positions.  
By default, field positions are created in sequence. You can also create a

schema with fields that are not in sequence. For details, refer to the Defining Field Positions Non-Sequentially section.

19. Select the alignment of the field from the *Align* drop-down list.



From **Align** select

**L** if the field is left aligned.

**R** if the field is right aligned.

To insert rows, specify the number and position of the rows to be added in the *Number of Rows* and at *Position* fields respectively and click **Add Row** button. Maximum 99 rows can be added at a time.

To remove rows, specify the number and position of the rows to be deleted in the *Number of Rows* and at *Position* fields respectively and click **Remove Row** button.

To learn about Advanced Properties refer to section [Changing Advanced Properties](#).



If you delete the last fieldname of a record, and then save the schema, the entire field gets deleted. For example, a record has three fields – *Name*, *Description* and *Age*. If you delete *Age*, the entire field will get deleted.

20. Check the *Skip* checkbox if you want to skip this field while generating the XML. This selection skips the fields that are not required for the schema. For example, the source file has over 1500 fields, but you just need to use 1000 fields. This selection skips the 500 unrequired fields, and does not read them, when the data is parsed to the XML. When the data file is created, the skipped fields are displayed in the file but are not read. If the schema is created using an existing XSD, the skipped fields will appear as a blank value. However, when the schema is used in other activities such as Mapping, all its fields are displayed.



The skipping of unrequired fields is useful in case of a standard XSD with a large number of fields, as it reduces the size of the generated XML which now contains only the required fields.

While editing the schema, when the data file is downloaded, the skipped fields are represented by 'T' and the unskipped fields by 'F' (refer to Figure 12.15). Similarly, while viewing the *Print-Friendly Page*, the skipped fields are represented by 'T' and the unskipped fields by 'F'.

21. Click **[+]** to expand **Advanced Properties**. Advanced properties of positional schema are displayed (see Figure 12.66).

[-] Advanced properties

Handle CR/LF(Source Data)☒

Target Record Separator

Data Truncation☐

Allow Less Fields☐

Allow More Fields☒

Filter Invalid XML Characters☐

Owner\*

Read Write Execute

Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Group	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\* Mandatory fields.

Save

Cancel


Figure 12.66: Advanced Properties of Positional Schema

22. Uncheck the *Handle CR/LF (Source Data)* checkbox, if the source file does not have any carriage return. By default, this option is checked, and schema expects file with carriage return. *Handle CR/LF (Source Data)* option is applicable only for the schema used at the source end.
23. Enter the target record separator in the *Target Record Separator* field, if you want to write each record in new line in target file. By default records are written in single line. This option is applicable only for the schema used at target end.
24. Check the *Data Truncation* checkbox, in case the data length is more than specified in the schema and you want to pass the specified length of data and ignore the rest of the data.
25. Check the *Allow Less Fields* checkbox, if you want to parse the data even if the number of fields in the data file is less than the number of field specified in the schema. If *Allow Less Fields* checkbox is checked and the schema is used at source end, schema will parse the input data and insert the empty tag of missing fields. If the schema is used at target end, it will write all the tags coming in input XML.
26. In case number of fields in source data is more than the number of fields specified in the schema, only those fields are parsed, which are specified in schema. Other fields are ignored. If you want to generate error records, when number of fields in source data is more than the number of fields specified in schema, uncheck the *Allow More Fields* checkbox.
27. In case the input data contains some characters that are invalid in XML, then this may result in the mapping getting aborted. You can filter these

invalid XML characters by checking the *Filter Invalid XML Characters* checkbox.

28. Click **Save** button. This displays a screen confirming that the positional schema activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the positional schema (refer to Figure 4.6).

29. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

30. Click **OK** to save the comments. This displays a screen confirming that the positional schema activity has been created successfully.

	By default, the Comments property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	--

## CREATING TEXT SCHEMA ACTIVITY

The Text Schema activity is used to define how a text file is to be read or written in a predefined format. To create a Text Schema activity, you need to specify the format of text file.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### *Steps to create a text schema activity*

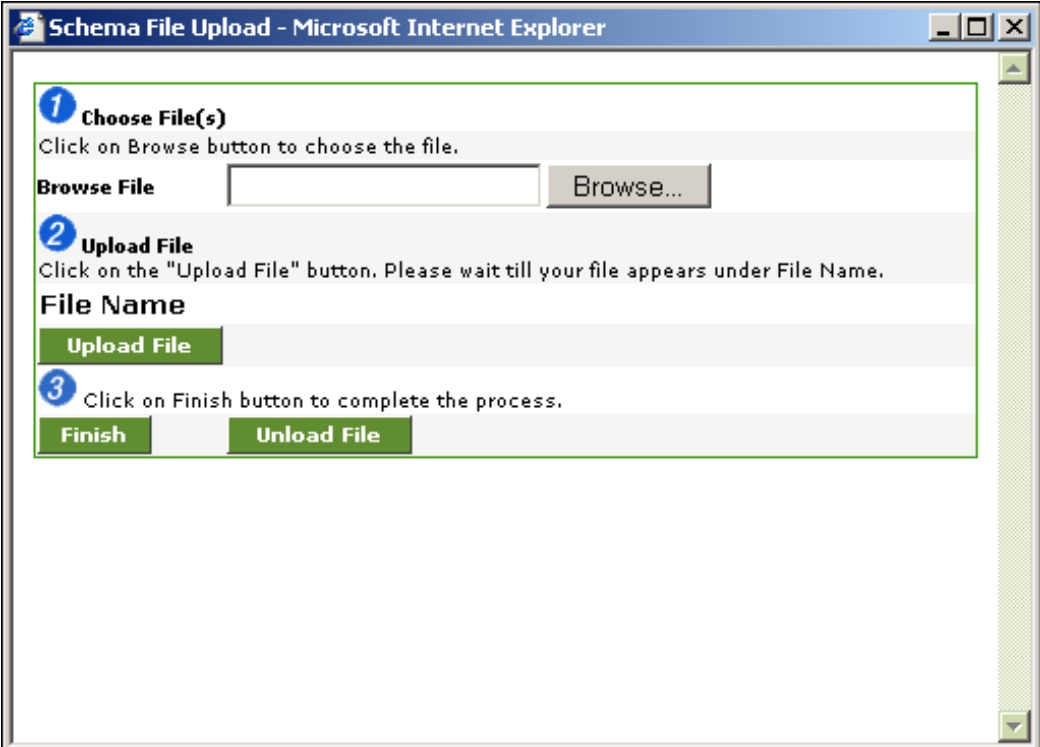
1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Text schema**. The Manage Text Schema screen is displayed (see Figure 12.67).



3. Click the **New** link. The Create Text Schema screen is displayed (see Figure 12.68).

Figure 12.68: Create Text Schema

4. Enter the name and description of the new text schema in the *Name* and *Description* fields respectively.
5. Data Header usually contains the titles of the fields in a text file. If data header is present in the text file, check the *Data Header Present* checkbox.
6. Enter the record separator, for example `\n` for new line or `" "` for space, in the *Record Separator* field. The record separator is used to separate records.
7. Enter the Field Separator, for example `\t` for Tab or `" "` for space. In the *Field Separator* field. Field Separator is used to separate fields.
8. To define the schema using [definition file](#), select the *Use Definition File* radio button; select the type of file from the drop-down list and click the **Upload File** button to select the required file. The *Schema File upload* screen is shown (see Figure 12.69).



**Schema File Upload - Microsoft Internet Explorer**

**1 Choose File(s)**  
Click on Browse button to choose the file.

**Browse File**  **Browse...**

**2 Upload File**  
Click on the "Upload File" button. Please wait till your file appears under File Name.

**File Name**

**Upload File**

**3** Click on Finish button to complete the process.

**Finish** **Unload File**

Figure 12.69: Upload file

9. Click *Browse* and select the file, you want to upload. Path of the selected file is shown in the *Browse File Field*.
10. Now click *Upload File* button. Name of the uploaded file is shown in the *File Name* list (see Figure 12.70).

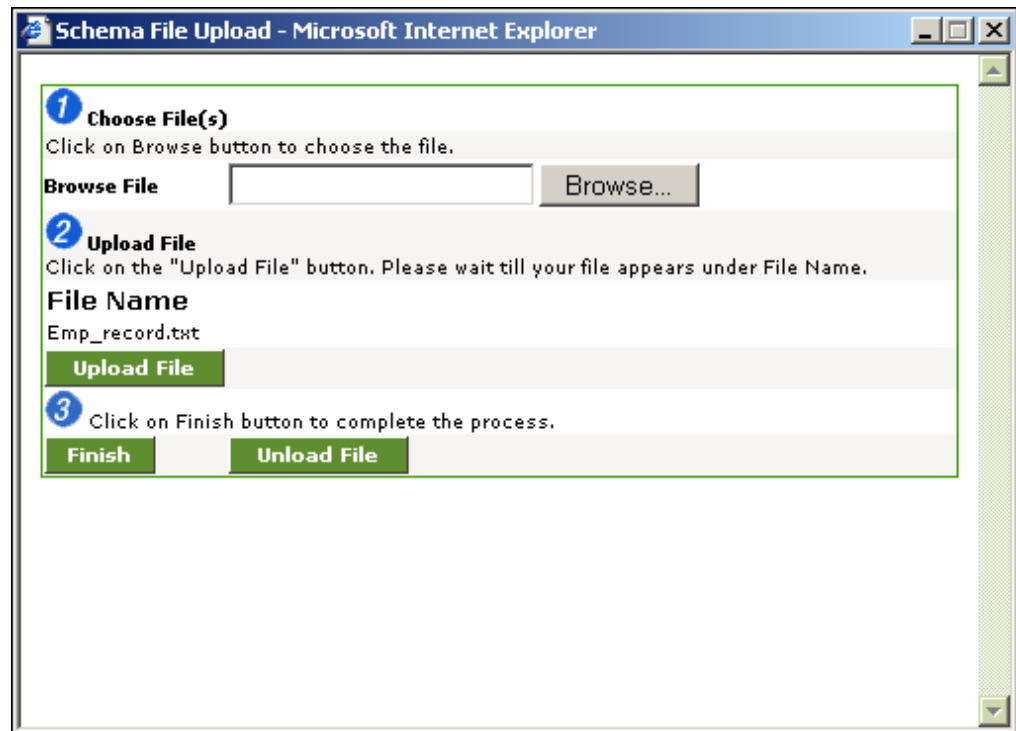


Figure 12.70:Uploaded File

11. Click *Finish* to close the *Schema File Upload* screen and return to create schema page
12. If you want to create schema by entering the fields manually, select *Enter the Fields Sequentially* radio button and follow the steps given below:
13. Enter the name of each field in the *FieldName* field.
14. Select the type of data from the *Type* drop-down list. For datatype selection, refer to Table 12.2.



The Currency datatype is supported by Excel Schema only.

15. If data type is *Date*, select the format of date and time from the *DateFormat* and *TimeFormat* drop-down lists respectively.




To insert rows, specify the number and position of the rows to be added in the *Number of Rows* and at *Position* fields respectively and click **Add Row** button. Maximum 99 rows can be added at a time.  
To remove rows, specify the number and position of the rows to be deleted in the *Number of Rows* and at *Position* fields respectively and click **Remove Row** button.



If you delete the last fieldname of a record, and then save the schema, the entire field gets deleted. For example, a record has three fields – *Name*, *Description* and *Age*. If you delete *Age*, the entire field will get deleted.


16. To enable quotes handling, click **[+]** to expand the **Advanced Properties** and check the *Quotes Handling On* checkbox.

	If a character (say \$) is specified as Field Delimiter in a record, then any \$ character in the field data of that record (Chocolate\$20\$perpack) will be considered as a Field Delimiter, even though it is part of the field data. In the above example the \$ after 20 will also be considered as Field Delimiter, whereas it is the data. To avoid this situation put that field within the double quote i.e. (Chocolate\$"20\$perpack")
---	---

17. If you want to remove enclosing characters (e.g. ` , " , & , < , > ) from the data file while parsing, enter the enclosing character that you want to remove, in *Handle Enclosing Character* field. Currently following enclosing characters are supported:


Single Quote (')  
 Double Quote (")  
 Ampersand (&)  
 Less than symbol (<)  
 Greater than symbol (>)

18. In case the input data contains some characters that are invalid in XML, then this may result in the mapping getting aborted. You can filter these invalid XML characters by checking the *Filter Invalid XML Characters* checkbox in Advanced Properties.

	To learn about Advanced Properties refer to section <a href="#">Changing Advanced Properties</a> .
--	--

19. Click **Save** button. This displays a screen confirming that the text schema activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the text schema (refer to Figure 4.6).

20. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

21. Click **OK** to save the comments. This displays a screen confirming that the text schema activity has been created successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

## CREATING WORD SCHEMA ACTIVITY

Word Schema is used to convert MS Word file into XML format, so that it can be further processed. Word Schema uses a pre-built template XSD XMSW.xsd, which defines the structure of the XML file. When a word schema is created, this XSD is stored into the backend database to define the structure of the schema. Word to XML conversion is done at execution time.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create Word Schema

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Word Schema**. The Manage Word Schema screen is displayed (see Figure 12.71).

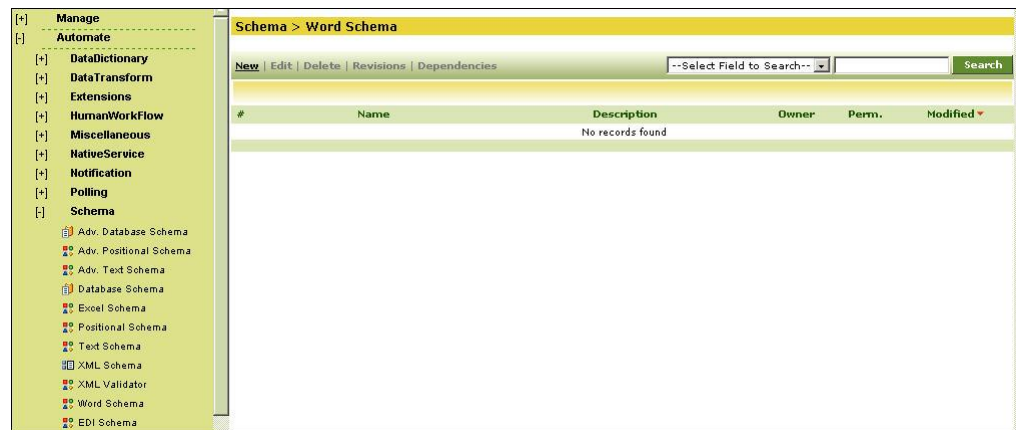


Figure 12.71: Manage Word Schema

3. Click the **New** link. The Create Word Schema screen is displayed (see Figure 12.72).

Schema > Word Schema

**[ - ] Standard properties**

Name \*

Description \*

Create Schema Definition using\* Pre-built Template XSD ▾

Generate XML from Word(doc) file  Browse...


**[ + ] Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 12.72: Create Word Schema

4. Enter the name and description for Word Schema in the *Name* and *Description* fields respectively.
5. Leave the *Create Schema Definition Using* field as default.
6. If you want to view the XML of the word file, which you want to convert, click the **Browse** button and select the required word file.



This field is not mandatory because at execution time, Word file is taken from the File Source activity.

This field is required only if you want to view the XML of the Word file. To view the XML of the Word file, first browse and select the required word file. Save the Word Schema activity and then edit the word schema activity that you have created. Click **Download** in the Edit Word Schema screen. The Download Word Schema Definition File screen is displayed (see Figure 12.73).

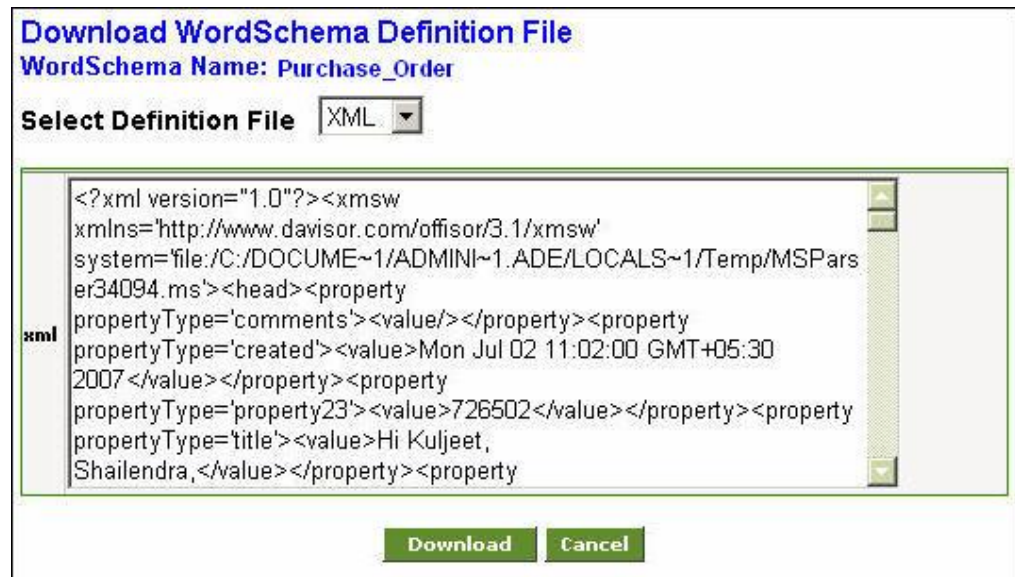


Figure 12.73: Download Word Schema Definition File



To download the XML, select XML from the *Select Definition File* drop-down list and click **Download**.  
 To download the word file select Word from the select *Definition File* drop-down list and click **Download**.  
 Click **Cancel** to close the Download Word Schema Definition File dialog box.



To learn more about Advanced Properties refer to section [Changing Advanced Properties](#).

7. Click **Save** button. This displays a screen confirming that the word schema activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the Word schema (refer to Figure 4.6).
8. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

9. Click **OK** to save the comments. This displays a screen confirming that the Word schema activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING XML SCHEMA ACTIVITY

The XML Schema activity defines the procedure to read data from an XML file, and write data in an XML file. To do so, user needs to specify the schema definition location.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create XML Schema

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **XML schema**. The Manage XML Schema screen is displayed (see Figure 12.74).



Figure 12.74: Manage XML Schema

3. Click the **New** link. The Create XML Schema screen is displayed (see Figure 12.75).



Schema > XML Schema

[-] **Standard properties**

Name \*

Description \*

Validate XML

Upload XSD/DTD/XML from\*

☒ File Path
☐ Web Service Consumer

Consumer ID

XSD Type

Not Available

Browse...

[+] **Advanced properties**

\* Mandatory fields.

Save

Cancel

Validate XSD


Figure 12.75: Create XML Schema

4. Enter the name and description for XML Schema in the *Name* and *Description* fields respectively.
5. Select one of the following Schema Definition Location:
  - File Path
  - Web Service Consumer
6. Select the desired option in the *Upload XSD/DTD/XML from* field. The selection process of options is explained in the table below.

Table 12.4: Selection Process of Value for Upload XSD/DTD/XML from Field

Option	Process
File Path	Click the <b>Browse</b> button and select the DTD, XSD or XML file. If the DTD, XSD or XML file is located on an HTTP URL, enter the URL, where DTD/XSD/XML file is located in the <i>HTTP URL</i> field.

Web Service Consumer	<p>In this case, XSD is picked up from pre-defined Web Service Consumer activity. Each WS Consumer activity has two XSD's associated with it (i.e. Input Data XSD and Output Data XSD).</p> <p>Select the Web Service Consumer activity from the <i>Consumer ID</i> drop-down list.</p> <p>Select the type of XSD as either Input or Output from the <i>XSD Type</i> drop-down list.</p> <ul style="list-style-type: none"> <li>Input: XSD for input data format.</li> <li>Output: XSD for output data format.</li> </ul>
----------------------	---

 Check the *Validate XML* checkbox if you want to validate the XML during execution. It validates the input XML file at runtime.

- Click **Validate XSD** button to validate file entered in the *Filepath* field. You can validate all file types such as XML, XSD or DTD. If it is not an XSD file, then it will convert it to XSD format and then validate.
- Click **[+]** to expand **Advanced Properties**. The Advanced Properties of XML Schema activity is displayed (see Figure 12.76).

[-] **Advanced properties**

Convert to XSD/DTD \*

☒

Owner\*

admin (Default Administrator) ▼

Permissions\*

	Read	Write	Execute
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Group	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


\* Mandatory fields.

Save

Cancel

Figure 12.76: Advanced Properties of XML Schema

- The *Convert to XSD/DTD* checkbox is marked as checked. This implies that all xml file will be converted to XSD or DTD. The XSD file remains as XSD file whereas, DTD file is converted to XSD file. If you don't want to convert the uploaded XML file into DTD, uncheck this checkbox.

 XML Schema converts the XML file into DTD before passing it to Mapping activity. Sometime large DTD causes error while loading into Data Mapper. In this case you can uncheck the *Convert to XSD/DTD* checkbox. XML Schema will pass the XML file as it is to Mapping activity without converting them into DTD.

Sometime, in case of recursive XML Schema, proper hierarchy may not be displayed, while loading the schema in Mapper. This is because of the limitation is JDOM. In this case, check the *Convert to XSD/DTD* checkbox.

To learn more about Advanced Properties refer to section [Changing Advanced Properties](#).

10. Click **Save** button. This displays a screen confirming that the XML schema activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the XML schema (refer to Figure 4.6).

11. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

12. Click **OK** to save the comments. This displays a screen confirming that the XML schema activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## TESTING SCHEMA ACTIVITY

Once a schema is created, you can verify the schema activity. Schema can be tested for both source and target end. In order to test a schema you have to supply the source file, and schema will show you the output file and the error file if any. When a schema is tested, it parses the supplied file as per the structure defined in the schema and generates the output and error files. The output file contains the record which are parsed successfully error file contains the record which are not parsed. The process of testing a text schema is explained below.

### Steps to verify text schema activity

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Text Schema**. The Manage Text Schema screen is displayed (refer to Figure 12.67).
3. Select the radio button adjacent to required schema activity that you want to test and click **Edit** link. This displays the Edit Text Schema screen (refer to Figure 19.4).
4. Click **Test** button. The Test Schema screen is displayed (see Figure 12.77).

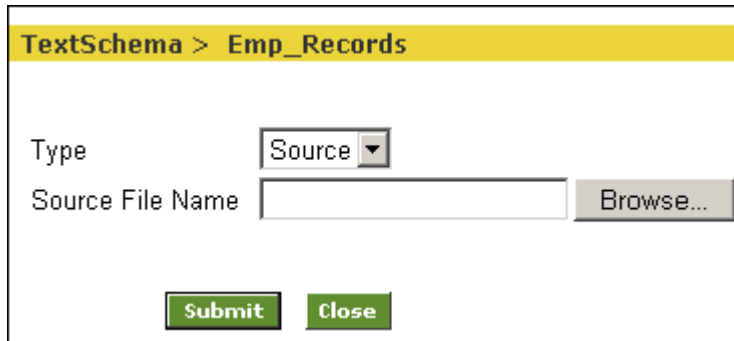


Figure 12.77: Test Schema

5. Select the type of schema to test, from the *Type* drop-down list. By default, *Source* is selected.
6. Click *Browse* button and select the file which you want to test.

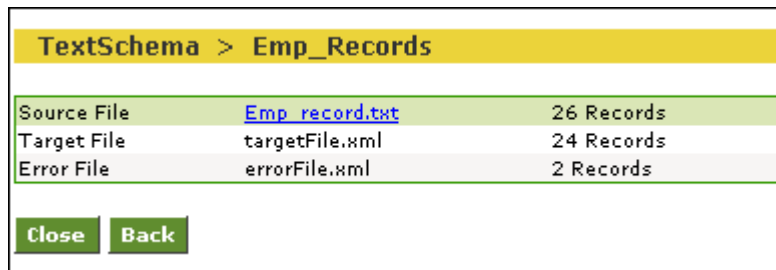


The file extension in this field will vary based on the schema being tested. If a text schema is being tested, then the file will have *.txt* extension. If an excel schema is being tested, then the extension will be *.xls*.



If you want to test this schema for the target end, select *Target* from the *Type* drop-down list. Now the source file will be an xml file that is generated by the mapping activity used in the process flow. In this case target file will be the file which will be generated by schema as output. For example if your are testing Text Schema which will be used at target end, the target file will a *.txt* file.

7. Click **Submit** button. This tests the specified source file according to the defined schema and give you the link of out files generated (see Figure 12.78).



Source File	<a href="#">Emp_record.txt</a>	26 Records
Target File	targetFile.xml	24 Records
Error File	errorFile.xml	2 Records

Figure 12.78: Test Schema



Once you click the **Submit** button, there files are generated:

*Source File:* File which you have selected

*Target File:* File which is generated by schema as output

*Error File:* File which contains erroneous record if any.

8. To view the file click on the link of file you want to view.



All schemas except Advance Database schema, Database schema and XML Schema can be tested.

## CREATING XML VALIDATOR ACTIVITY

XML Validator is used to validate the whole XML file or part of it. For validation user needs to supply the Xpath from which part of the XML starts and the path of the XSD against which that XML file is validated.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

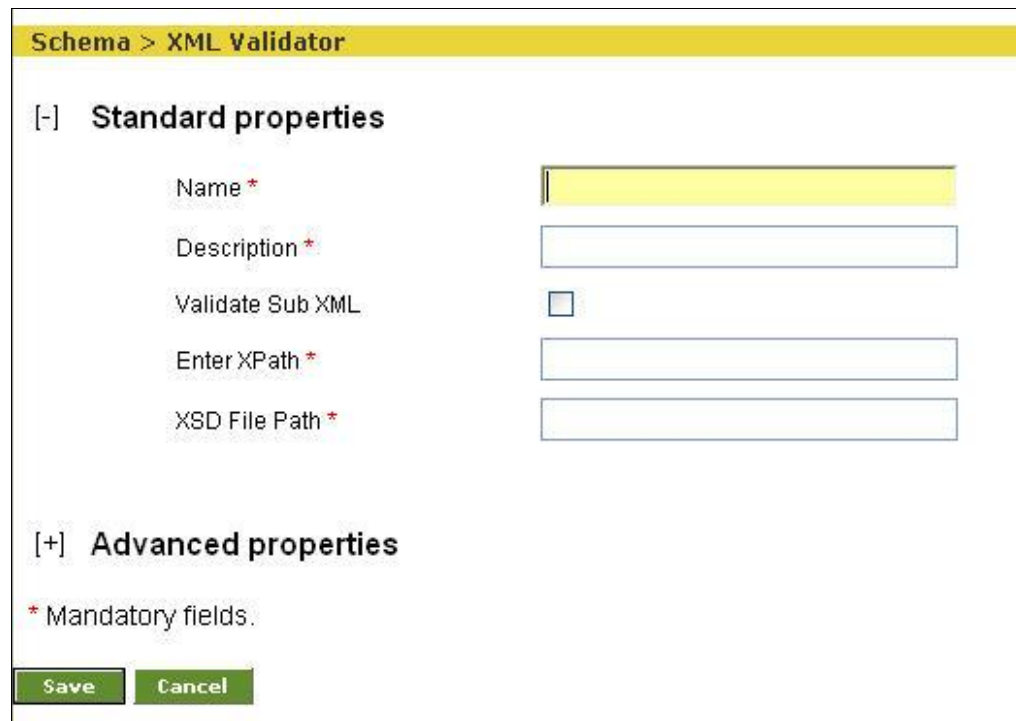
### Steps to create a XML Validator activity

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **XML Validator**. The Manage XML Validator screen is displayed (see Figure 12.79).



Figure 12.79: Manage XML Validator

3. Click the **New** link. The Create XML Validator screen is displayed (see Figure 12.80).



**Schema > XML Validator**

**[-] Standard properties**

Name \*

Description \*

Validate Sub XML ☐

Enter XPath \*

XSD File Path \*


**[+] Advanced properties**

\* Mandatory fields.


**Save** **Cancel**

Figure 12.80: Create XML Validator

4. Enter the name and description of new XML Validator activity in *Name* and *Description* fields respectively.
5. If you want to validate the Sub XML, check the *Validate Sub XML* checkbox.
6. Enter the XPath of the XML, which needs to be validated in the *Enter XPath* field.
7. Enter the path of the XSD file, against which the above defined XML is validated, in the *XSD File Path* field.

 To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

8. Click **Save** button. This displays a screen confirming that the XML Validator activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the XML Validator (refer to Figure 4.6).
9. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

10. Click **OK** to save the comments. This displays a screen confirming that the XML Validator activity has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## 13 CREATING SOURCE ACTIVITY

The Source activity enables you to identify specific source data to be read, its location and the transport protocol that is used to retrieve data. The Adeptia Server allows following types of Source activities:

- [Advance Database Source](#)
- [Database Source](#)
- [File Source](#)
- [FTP Source](#)
- [HTTP Source](#)
- [JMS Source](#)
- [LAN File Source](#)
- [Mail Source](#)
- [WebDAV Source](#)
- [Context Source](#)

Context Source is used to get the data from the process flow context. To know how to use Context Source refer to the section [Using Context Source and Context Target](#) activity.



When using a source activity in a process flow, the *eventContextEnabled* property is set to *True* by default. This implies that all variables are allowed to be passed from events to the source activity. For example, if a mail event has a file attached, its filename can be passed to the source activity easily.

## CREATING ADVANCED DATABASE SOURCE ACTIVITY

The Advanced Database Source activity provides the ability to specify multiple tables of a database as source.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Prerequisites:

- *Database Info* activity and *Advance Database Schema* must be created before creating Advanced Database Source activity.

### Steps to create an Advanced Database Source Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Source**. All the items in the Source category are displayed.
2. Click **Adv. Database Source**. The Manage Advanced Database Source screen is displayed (see Figure 13.1).

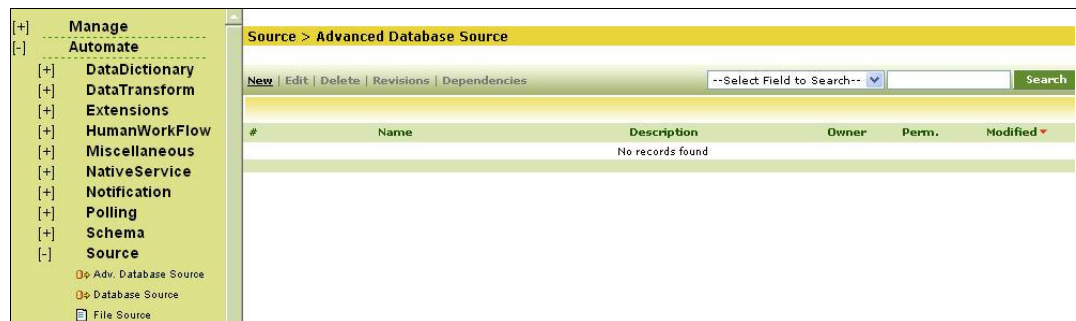


Figure 13.1: Manage Advanced Database Source

3. Click the **New** link. The Create Advanced Database Source screen is displayed (see Figure 13.2).



Figure 13.2: Create Advanced Database Source

4. Enter the name and the description of the new Advanced Database Source in the *Name* and *Description* fields respectively.
5. Select the database info activity and advanced database schema activity from the *Database Info* and the *Schema Name* drop-down lists respectively.



To learn how to create Database Info activity and Schema activity, refer to the section [Creating Database Info](#) and [Creating Advance Database Schema](#).

6. To edit the database query of the selected schema, click **Edit Queries** button. The Edit Query(s) screen is displayed (see Figure 13.3).



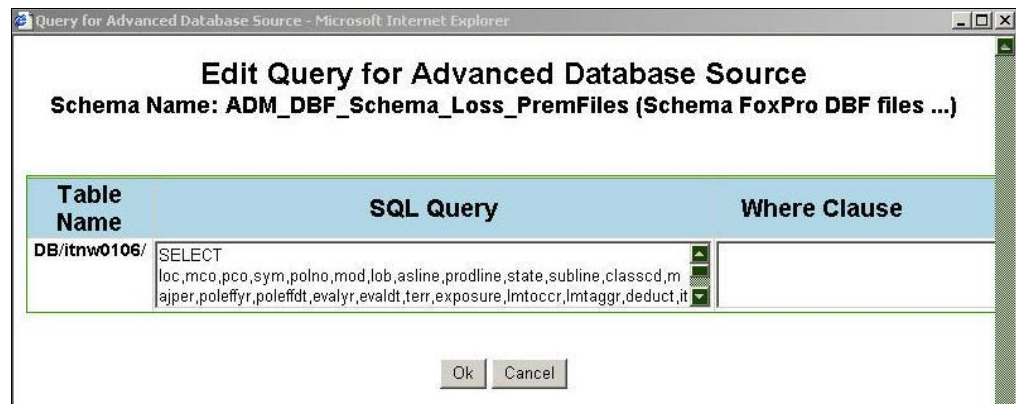




Figure 13.3: Edit Query

7. Edit the query and click **OK** button to submit the edited query and return to the Manage Advanced Database Source screen.




- While creating Advanced Database Source, *Edit Query* button is disabled. You can edit the query only after saving the Advance Database Source activity. First you have to save the Advance Database Source and edit it to edit the query.
- You can edit the Query only for *Where* clause and not to change the table name or column names. To change the table name or select different columns, go to Advance Database Schema and edit the schema over there.
- If you specify where clause in Advance Database Source as well as in Advance Database Schema, the *Where* clause of Advance Database schema is used during execution.
- To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

8. Click **[+]** to expand **Advanced Properties**.
9. In *Query Definition* field, Database Query is displayed in XML form. If you edit this query, database query defined using *Edit Query* button is overwritten.
10. You can check the *Use Optimize Algorithm* checkbox. If this option is enabled, data fetching from the source database table becomes faster. Enable this option only if the database source is an SQL database.
11. You can check the *With (No Lock) Option* checkbox. If this option is enabled, records are fetched from the source database without any lock constraint. This option is applicable, only when *Use Optimize Algorithm* option is enabled.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

12. Click **Save** button. This displays a screen confirming that the Advanced Database source activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the Advanced Database source (refer to Figure 4.6).
13. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

14. Click **OK** to save the comments. This displays a screen confirming that the Advanced Database source activity has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING DATABASE SOURCE ACTIVITY

The Database Source activity provides the ability to specify a database as source.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Prerequisites:

- *Database Info* activity and *Database Schema* must be created before creating Database Source activity.

### Steps to create a Database Source Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Source**. All the items in the Source category are displayed.
2. Click **Database Source**. The Manage Database Source screen is displayed (see Figure 13.4).

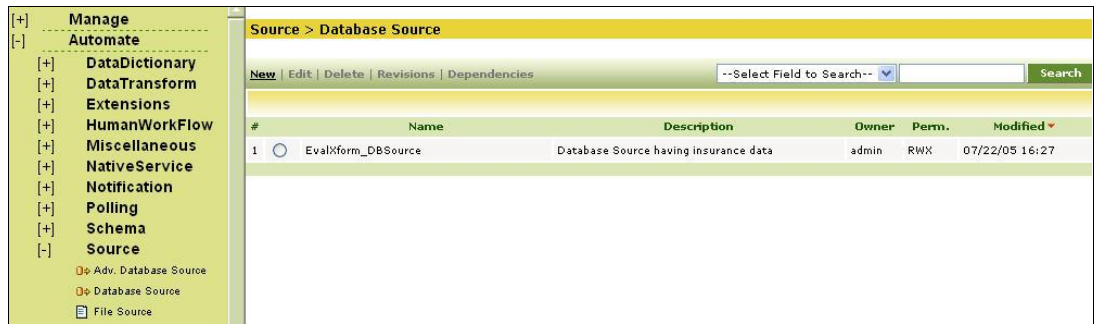
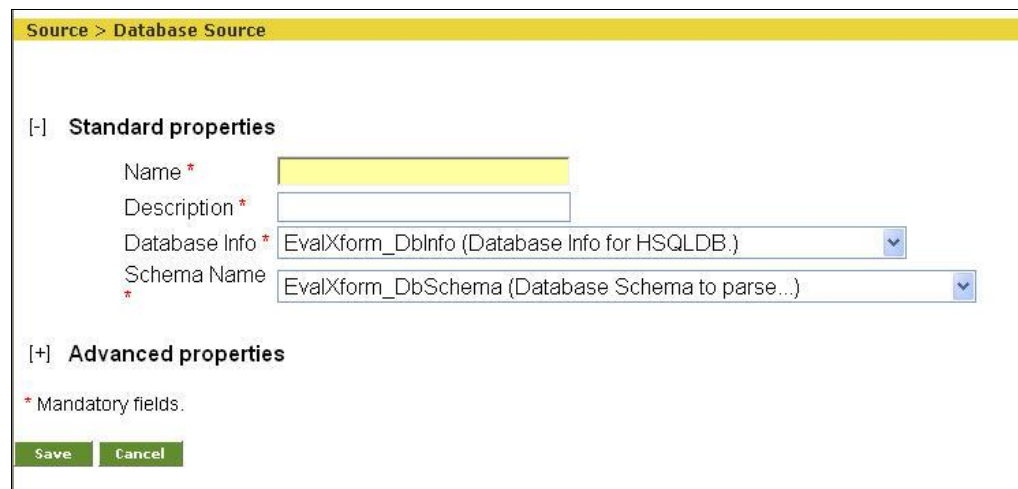


Figure 13.4: Manage Database Source

- Click the **New** link. The Create Database Source screen is displayed (see Figure 13.5).



**Standard properties**

Name \*

Description \*

Database Info \* EvalXform\_DbInfo (Database Info for HSQLDB.)


Schema Name \* EvalXform\_DbSchema (Database Schema to parse...)


**Advanced properties**

\* Mandatory fields.


Figure 13.5: Create Database Source

- Enter the name and the description of the new Database Source in the *Name* and *Description* fields respectively.
- Select the database info activity and database schema activity from the *Database Info* and the *Schema Name* drop-down lists respectively.

 To learn how to create Database Info activity and Schema activity, refer to the section [Creating Database Info](#) and [Creating Database Schema](#).

 To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

- Click **Save** button. This displays a screen confirming that the database source activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the database source (refer to Figure 4.6).
- Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

8. Click **OK** to save the comments. This displays a screen confirming that the database source activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING FILE SOURCE ACTIVITY

The File Source activity provides the ability to specify any file that is located on the local hard disk, as a source.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create a File Source Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Source**. All the items in the Source category are displayed.
2. Click **File Source**. The Manage File Source screen is displayed (see Figure 13.6).



Figure 13.6: Manage File Source

3. Click the **New** link. The Create File Source screen is displayed (see Figure 13.7).

Source > File Source

**[-] Standard properties**

Name *	
Description *	
File Path *	
File Name *	

**[+] Advanced properties**

\* Mandatory fields.

Save
Cancel
Test

Figure 13.7: Create File Source

4. Enter the name and the description of the new File Source in the *Name* and *Description* fields respectively.
5. Specify the full path of the source file name in the *File Path* field. For example, if a file named *sales.txt* is stored in a directory *Employee*, on the host where Adeptia Server is running, the File Path will be *c:/Employee*.
6. Specify the source file name in the *File Name* field. With respect to the above example, enter the file name *sales.txt* in this field.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

If you want to delete the source file after it is used in the process flow execution, you can check the *Delete File on Success* checkbox, while defining the Advanced Properties. This selection will delete the source file once the JTA block in which the source file exists, is executed successfully during the process flow execution.

7. Click **Save** button. This displays a screen confirming that the file source activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the file source (refer to Figure 4.6).
8. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

9. Click **OK** to save the comments. This displays a screen confirming that the file source activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the file source activity at design time. For this, click **Test**. This verifies the values in the *File Path* and *Filename* fields and checks whether the file actually exists in the specified location.

## CREATING FTP SOURCE ACTIVITY

The FTP Source provides the ability to specify a file as a source that is accessible via FTP.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create a FTP Source Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Source**. All the items in the Source category are displayed.
2. Click **FTP Source**. The Manage FTP Source screen is displayed (see Figure 13.8).

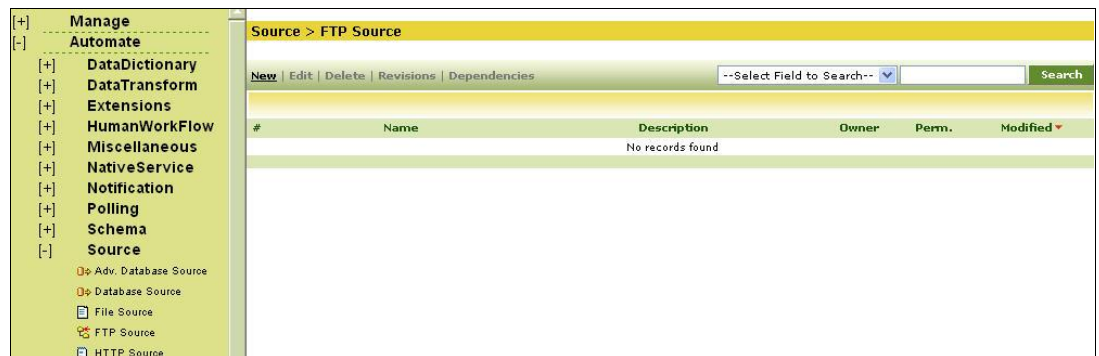


Figure 13.8: Manage FTP Source

3. Click the **New** link. The Create FTP Source screen is displayed (see Figure 13.9).

Source > FTP Source

**[+] Standard properties**

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
Host name *	<input style="width: 90%;" type="text"/>
Port *	<input style="width: 90%;" type="text" value="21"/>
User Id *	<input style="width: 90%;" type="text"/>
Password	<input style="width: 90%;" type="password"/>
Confirm Password	<input style="width: 90%;" type="password"/>
Remote File Path	<input style="width: 90%;" type="text"/>
File Name *	<input style="width: 90%;" type="text"/>
Transfer Mode *	<span style="border: 1px solid #ccc; padding: 2px;">BINARY ▼</span>
Transfer Type *	<span style="border: 1px solid #ccc; padding: 2px;">PASSIVE ▼</span>
Secured (SSH Secured) *	<input type="checkbox"/>

**[+] Advanced properties**


\* Mandatory fields.

Save
Cancel
Test


Figure 13.9: Create FTP Source

4. Enter the name and the description for FTP Source in the *Name* and *Description* fields respectively.
5. Enter the host name/IP address and port of the FTP Server in the *Host Name* and *Port* fields respectively.
6. Enter the username in the *User ID* field.
7. Enter the password, if required, in the *Password* field. Then re-enter the password in the *Confirm Password* field.
8. Enter the path of source file in the in the *Remote File Path* field.
9. Enter the name of the source file in the *File Name* field.
10. Select the transfer mode as either BINARY or ASCII from *Transfer Mode* drop-down list respectively. In BINARY mode a file is copied bit for bit from one machine to the other. Both files (the original and the transferred file) will contain exactly the same sequence of bytes. In ASCII mode a file may be changed slightly to maintain the meaning of EOL (End Of Line) characters.

11. Select the transfer type as either Active or Passive from the *Transfer Type* drop-down list. Active transfer is more secure since the client only initiates communication to the Server on one port whereas in case of Passive transfer the client initiates communication to the Server over two ports. Passive mode is useful when you are behind a firewall or a proxy.
12. Check the *SSH (Secure Shell)* checkbox if the FTP source accesses a secure FTP Server. When SSH is used to protect FTP Server, the control connection between the FTP client and Server is encrypted.


	<ul style="list-style-type: none"> <li>▪ To learn about Advanced Properties refer to section <a href="#">Changing Advanced Properties</a>.</li> <li>▪ If you want to delete the FTP source file after it is used in the process flow execution, you can check the <i>Delete File on Success</i> checkbox, while defining the Advanced Properties. This selection will delete the FTP source file once the JTA block in which the FTP source file exists, is executed successfully during the process flow execution.</li> <li>▪ At times, when the Adeptia server is connected with the FTP server, there could be connectivity issues. This could result in an infinite loop with no output. This issue can be resolved by setting a time limit if no data is transferred between Adeptia and FTP servers. You can set this limit (in seconds) in the <i>Data Timeout</i> field. By default, this is set to 60 seconds. This implies that if there is no data transfer for 60 seconds between both servers, the connection is broken and an error message is displayed.</li> </ul>
---	---

13. Click **Save** button. This displays a screen confirming that the FTP source activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the FTP source (refer to Figure 4.6).
14. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

15. Click **OK** to save the comments. This displays a screen confirming that the FTP source activity has been created successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

	You can verify the FTP source activity at design time. For this, click <b>Test</b> . This verifies the values in the <i>Host Name</i> , <i>Port</i> , <i>User ID</i> , <i>Password</i> and <i>Secured</i> fields and checks whether the specified FTP Server exists or not.
---	---



## CREATING HTTP SOURCE ACTIVITY

The HTTP Source provides the ability to specify a file as a source that is accessible via HTTP.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create a HTTP Source Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Source**. All the items in the Source category are displayed.
2. Click **HTTP Source**. The Manage HTTP Source screen is displayed (see Figure 13.10).



Figure 13.10: Manage HTTP Source

3. Click the **New** link. The Create HTTP Source screen is displayed (see Figure 13.11).

Source > HTTP Source

**[-] Standard properties**

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
HTTP URL *	<input style="width: 90%;" type="text"/>
Secure	<input checked="" type="checkbox"/>
HTTP Login Id *	<input style="width: 90%;" type="text"/>
Password	<input style="width: 90%;" type="password"/>
Confirm Password	<input style="width: 90%;" type="password"/>

**[+] Advanced properties**

\* Mandatory fields.

Save
Cancel
Test

Figure 13.11: Create HTTP Source

4. Enter the name and description of the new HTTP Source in the *Name* and *Description* fields respectively.
5. Enter the URL of the HTTP Server in the HTTP URL field. For example, <http://www.adeptia.com/Employee/sales.txt>
6. If authentication is required to access the specified file then check the *Secure* checkbox.
7. Enter the username and password in the *HTTP Login Id* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

8. Click **Save** button. This displays a screen confirming that the HTTP source activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the HTTP source (refer to Figure 4.6).
9. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

10. Click **OK** to save the comments. This displays a screen confirming that the HTTP source activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the HTTP source activity at design time. For this, click **Test**. This verifies the values in the *HTTP URL* and *HTTP Login Id* fields and checks whether the source activity actually exists in the specified location.

## CREATING JMS SOURCE ACTIVITY

The JMS Source activity provides the ability to specify a message of a queue or topic of a JMS Server as a source.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Prerequisites:

- JMS Provider activity must be created before creating JMS Source Activity.

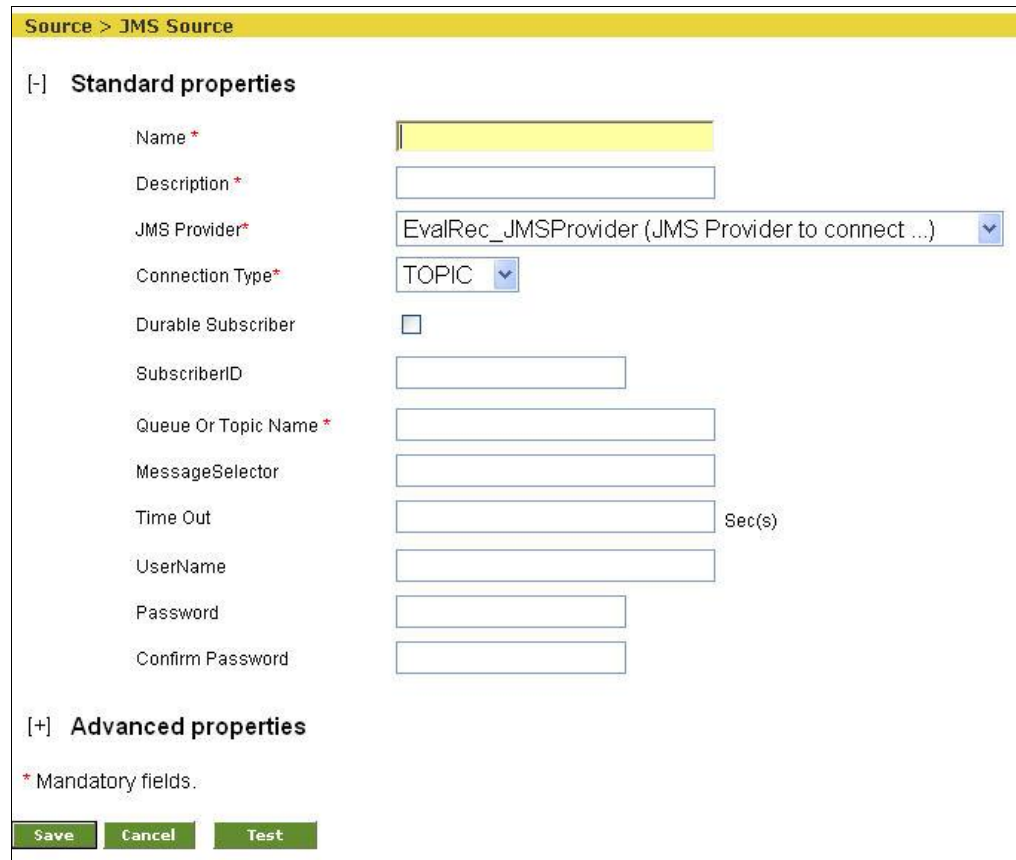
### Steps to create a JMS Source Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Source**. All the items in the Source category are displayed.
2. Click **JMS Source**. The Manage JMS Source screen is displayed (see Figure 13.12).



Figure 13.12: Manage JMS Source

- Click the **New** link. The Create JMS Source screen is displayed (see Figure 13.13).



**Source > JMS Source**

**[-] Standard properties**

Name \*

Description \*

JMS Provider\* EvalRec\_JMSProvider (JMS Provider to connect ...) ▾

Connection Type\* TOPIC ▾

Durable Subscriber ☐

SubscriberID

Queue Or Topic Name \*

MessageSelector

Time Out  Sec(s)

UserName

Password

Confirm Password

**[+] Advanced properties**

\* Mandatory fields.


Figure 13.13: Create JMS Source

- Enter the name and the description of the new JMS Source in the *Name* and *Description* fields respectively.
- Select the JMS Provider activity from the *JMS Provider* drop-down list.



To learn how to create JMS Provider activity, refer to section [Creating JMS Provider Activity](#).

- Select the Connection Type as either Topic or Queue from the *Connection Type* drop-down list.
- Check the *Durable Subscriber* check box if the JMS Subscriber is durable. If a client needs to receive all the messages published on a topic, including the ones published while the subscriber is inactive, it uses a Durable Subscriber. This is applicable only when the connection type is Topic.
- Enter the subscriber ID in the *Subscriber ID* field.
- Enter the name of queue or topic as configured in the JMS Server in the *Queue Or Topic Name* field.
- If you want to select a specific message from the JMS Server, enter the message selector in the *Message Selector* field.



The message selector is used to specify the filter criterion to receive a message that the user is interested in. The messages can be filtered based on only header references and properties references of the message. The message selector uses SQL92 query syntax to define the filter criteria. SQL92 is widely used to query the entire standard databases i.e. Oracle, SQL Server. The only difference between the database query and the message selector query is that the message selector uses, only a part of the query which is after the where clause.


The following message selector selects messages with a message type of car and color of blue and weight greater than 2500 pounds:

```
JMSType = 'car' AND color = 'blue' AND weight > 2500
```

The following message selector selects message with the property Sport has value either as Basketball or Football.


```
Sport in ('Basketball', 'Football')
```

11. Enter the time in seconds in the Time Out field. If any message is not received in this interval, process flow execution will be stopped. If *Time Out* field is left blank, JMS Source activity checks for the specified message and if message is not available, process flow is aborted, without waiting for message.
12. Enter the username and password (if required) to connect to JMS Server in the *UserName* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

13. Click **Save** button. This displays a screen confirming that the JMS source activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the JMS source (refer to Figure 4.6).
14. Enter the comments in the *Add Comments* field.




The comment should be at least 1 character in length.

15. Click **OK** to save the comments. This displays a screen confirming that the JMS source activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the JMS source activity at design time. For this, click **Test**. This verifies the values in the *JMS Provider*, *Connection Type* and *Queue/Topic Name* fields and checks whether the source activity actually exists in the specified location.

## CREATING LAN FILE SOURCE ACTIVITY

The LAN File Source provides the ability to specify a file location that is accessible on the network.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create a LAN File Source Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Source**. All the items in the Source category are displayed.
2. Click **LAN File Source**. The Manage LAN File Source screen is displayed (see Figure 13.14).

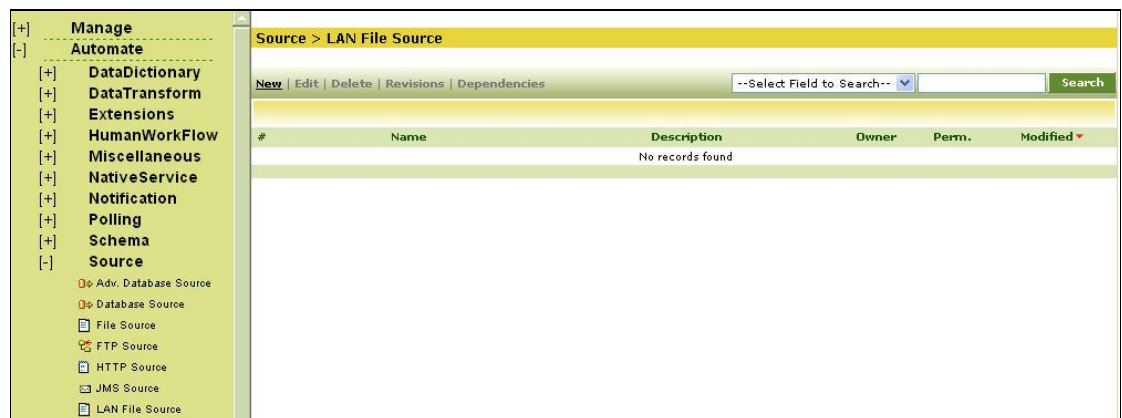


Figure 13.14: Manage LAN File Source

3. Click the **New** link. The Create LAN File Source screen is displayed (see Figure 13.15).

Source > LAN File Source

**[ - ] Standard properties**

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
File Path *	<input style="width: 90%;" type="text"/>
File Name *	<input style="width: 90%;" type="text"/>
File System *	<div style="border: 1px solid black; padding: 2px; display: inline-block;">UNIX ▼</div>
Use VFS *	<input type="checkbox"/>
Secure	<input checked="" type="checkbox"/>
User Id *	<input style="width: 90%;" type="text"/>
Password	<input style="width: 90%;" type="password"/>
Confirm Password	<input style="width: 90%;" type="password"/>

**[ + ] Advanced properties**

\* Mandatory fields.

Save
Cancel
Test

Figure 13.15: Create LAN File Source

4. Enter the name and the description of the new LAN File Source in the *Name* and *Description* fields respectively.
5. Enter the network path of the source file in the *File Path* field in the following format:

`\\hostname\folder name`

For example, if a file named *sales.txt* is stored in a shared folder *employee* of a host *Server*. The File Path will be `\\Server\employee\`

6. Enter the name of the source file in *File Name* field. For Example *Sales.txt*.
7. Select the file system whether Windows or Unix from the *File System* drop-down list.
8. When Adeptia Server is installed on Windows, the LAN File Source uses windows service to connect to remote machine to access any file. It just connects once and uses the same connection with the same User ID and Password (which is stored in the cache) every time. If you want to enforce the validation of User ID and Password every time while accessing the file on a remote machine, check *Use VFS* checkbox.

9. If authentication is required to access the source file, check the *Secure* checkbox.
10. Enter the username in the *User ID* field.
11. Enter the password, if required, in the *Password* field. Then re-enter the password in the *Confirm Password* field.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

If you want to delete the LAN source file after it is used in the process flow execution, you can check the *Delete File on Success* checkbox, while defining the Advanced Properties. This selection will delete the LAN source file once the JTA block in which the LAN source file exists, is executed successfully during the process flow execution.

12. Click **Save** button. This displays a screen confirming that the LAN File Source activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the LAN file source (refer to Figure 4.6).
13. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

14. Click **OK** to save the comments. This displays a screen confirming that the LAN File Source activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the LAN file source activity at design time. For this, click **Test**. This verifies the values in the *File Path*, *User ID* and *Password* fields. and checks whether the file actually exists in the specified location.

## CREATING MAIL SOURCE ACTIVITY

Mail Source provides the ability to specify a file as a source that is accessible via Mail.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create a Mail Source Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Source**. All the items in the Source category are displayed.
2. Click **Mail Source**. The Manage Mail Source screen is displayed (see Figure 13.16).



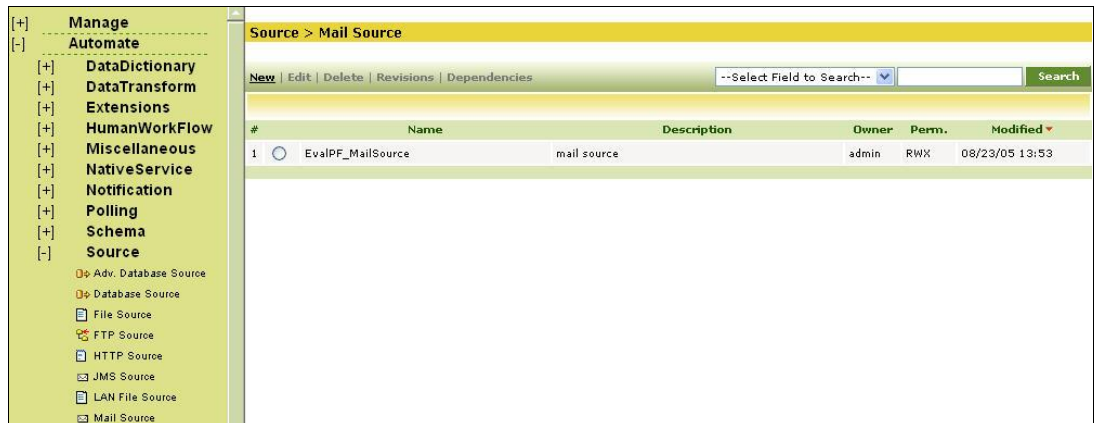


Figure 13.16: Manage Mail Source

3. Click the **New** link. The Create Mail Source screen is displayed (see Figure 13.17).

Source > Mail Source

**[+] Standard properties**

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
Protocol *	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">POP3 ▼</div>
Incoming Mail Server *	<input style="width: 90%;" type="text"/>
Domain	<input style="width: 90%;" type="text"/>
CDO host machine	<input style="width: 90%;" type="text"/>
Enable SSL	<input type="checkbox"/>
Port	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">110</div>
User Id *	<input style="width: 90%;" type="text"/>
Password *	<input style="width: 90%;" type="password"/>
Confirm Password *	<input style="width: 90%;" type="password"/>
Search based on following filter criteria *	
Sender E-mail	<input style="width: 90%;" type="text"/>
Subject	<input style="width: 90%;" type="text"/>
Data Location*	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Attachment ▼</div>
File Name	<input style="width: 90%;" type="text"/>
Leave Copy On Server	<input checked="" type="checkbox"/>

**[+] Advanced properties**

\* Mandatory fields.

Save

Cancel


Test

Figure 13.17: Create Mail Source

4. Enter the name and the description of the new Mail Source in the *Name* and *Description* fields respectively.
5. Select the Internet standard protocol to be used for retrieving incoming mails, from the *Protocol* drop-down list. You can select either POP3, IMAP4


or MAPI protocol. Based on the selected protocol, the default port number for that protocol is displayed in the *Port* field.

6. Enter the incoming mail server address in *Incoming Mail Server* field.

	<p>To access mails from Microsoft Exchange Server use MAPI in the <i>Protocol</i> drop-down list. To connect Adeptia Server with Microsoft Exchange Server, you need to buy a third party tool called <i>J-Integra for Exchange</i>. J-Integra for Exchange is a high performance middleware bridge that enables Java Exchange interoperability. If you want to retrieve mails from an Exchange Server using J-Integra, select <i>MAPI</i> in the <i>Protocol</i> drop-down list.</p> <p>If <i>MAPI</i> is selected in the <i>Protocol</i> drop-down list:</p> <ul style="list-style-type: none"> <li>▪ Enter name of the exchange server in the <i>Incoming Mail Server</i> field</li> <li>▪ Enter the domain name in the <i>Domain</i> field</li> <li>▪ Enter the name of the CDO host machine in the <i>CDO host machine</i> field. CDOConfig.exe is a tool that comes with the J-Integra for Exchange SDK and is used for configuring CDO. Host where CDO is configured is called CDO host machine.</li> </ul> <p>For detailed information about JIntegra for Exchange, refer to <a href="http://j-integra.intrinsyc.com/products/exchange/">http://j-integra.intrinsyc.com/products/exchange/</a>.</p>
---	---

7. Check the *Enable SSL* checkbox, if the specified incoming mail server requires a secure connection.
8. The default port number for the selected protocol is displayed in the *Port* field. If you want to change this port number, enter the new port number in the *Port* field.
9. Enter the username and password of Mail Server in the *User ID* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.
10. Select any of the following filter criteria:
  - Sender E-mail
  - Mail Subject

You may select more than one filter criteria.
11. Enter the sender's email address and subject of email in the *Sender Email* and *Subject* fields respectively.
12. Select the location of data in the mail whether it is in attachment or in email body from the *Data Location* drop-down list. This is mandatory.
13. If you select an *Attachment* in the *Data Location* field, enter the name of the file in the *File Name* field.

	Mail Source activity does not support more than one file attachment.
---	--

14. If you want to leave a copy of the mail on the Server, check the *Leave Copy On Server* checkbox.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

15. Click **Save** button. This displays a screen confirming that the Mail source activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the Mail file source (refer to Figure 4.6).

16. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

17. Click **OK** to save the comments. This displays a screen confirming that the Mail source activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the mail source activity at design time. For this, click **Test**. This verifies the values in the *Incoming Mail (POP3) Server*, *Port*, *User ID* and *Password* fields and checks whether the source activity actually exists in the specified location.



When a mail event triggers process flows, each process flow uses a mail source. At times, when multiple process flows use a mail source, errors can occur. In such a case, you can retry the action before exiting the mail source. You can set the number of retries and the sleep time between each retry, in case an error occurs while using a mail box. To change the settings, refer to [Appendix A](#).

## CREATING WEBDAV SOURCE ACTIVITY

The WebDAV Source activity provides the ability to specify files that is stored in a WebDAV Server, as a source.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create WebDAV Source Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Source**. All the items in the Source category are displayed.

- Click **WebDAV Source**. The Manage WebDAV Source screen is displayed (see Figure 13.18).



Figure 13.18: Manage WebDAV Source Activity

- Click the **New** link. The Create WebDAV Source screen is displayed (see Figure 13.19).

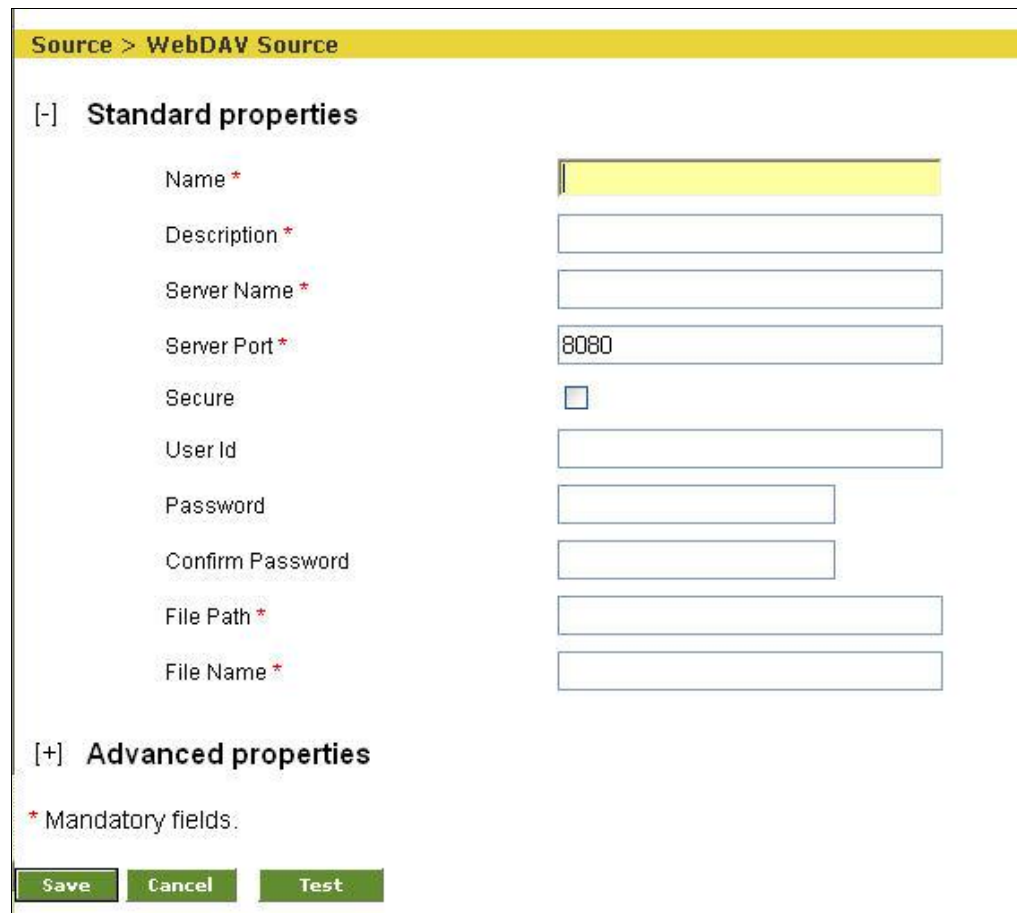


Figure 13.19: Create WebDAV Source

4. Enter the name and description of the new WebDAV Source in the *Name* and *Description* fields respectively.
5. Enter the name of the WebDAV Server and Server port on which WebDAV Server is running, in the *Server Name* and *Server Port* fields respectively.
6. If the WebDAV is secured i.e. username and password are required to access it, then check the *Secure* checkbox and enter the username and password of the WebDAV Server in the *User ID* and *Password* fields respectively. Re-enter the password in the *Confirm Password* field.



If you are using WebDAV Server, which is built in with Adeptia Server, the default Username is "Admin" and the password is "indigo".

7. Enter the source file with full path in the *File Name* (full path) field. For example, */slide/files/Documents/File.txt*, where Documents is name of the folder and *File.txt* is the name of the file.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

8. Click **Save** button. This displays a screen confirming that the WebDAV source activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the WebDAV source (refer to Figure 4.6).
9. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

10. Click **OK** to save the comments. This displays a screen confirming that the WebDAV source activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the WebDAV source activity at design time. For this, click **Test**. This verifies the values in the *Server Name* and *Server Port* fields and checks whether the source activity actually exists in the specified location.

## 14 CREATING TARGET ACTIVITY

A Target Activity allows you to identify specific data to be created and the means to deliver it. The Target activity screen allows you to identify specific data set (i.e., flat file, XML or database record) to be created, its location, and the transport protocol to be used to send this data. The Adeptia Server allows following types of Target activities:

- [Advanced Database Target](#)
- [Database Target](#)
- [File Target](#)
- [FTP Target](#)
- [HTTP Target](#)
- [JMS Target](#)
- [LAN File Target](#)
- [Mail Target](#)
- [WebDAV Target](#)
- [Context Target](#)

Context Target is used to put the data in process flow context. To know how to use Context Target refer to the section [Using Context Source and Context Target](#) activity.

### CREATING ADVANCED DATABASE TARGET ACTIVITY

The Advanced Database Target activity provides the ability to specify multiple tables of a database as Target.

In the Adeptia Server this feature is available in :

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

#### Prerequisites:

- *Database Info* activity and *Advanced Database Schema* must be created before creating Advanced Database Target activity.

#### ***Steps to create an Advanced Database Target Activity***

1. Click **[+] Automate** to expand the tree and then click **[+] Target**. All the items in the Target category are displayed.
2. Click **Adv. Database Target**. The Manage Advanced Database Target screen is displayed (see Figure 14.1).

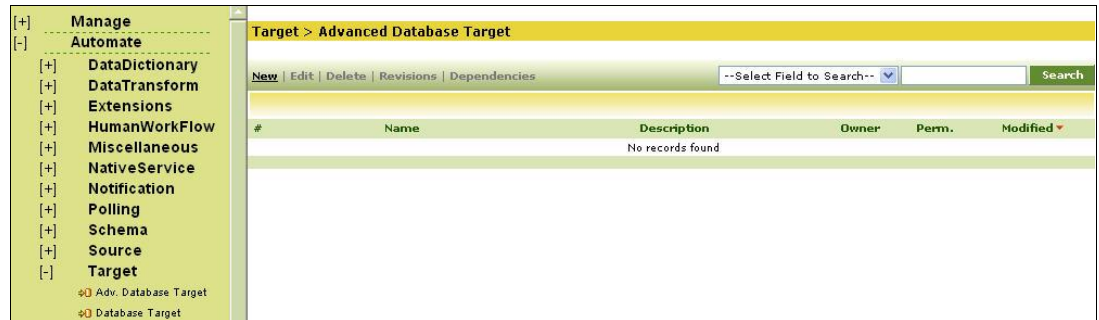


Figure 14.1: Manage Advanced Database Target

3. Click the **New** link. The Create Advanced Database Target screen is displayed (see Figure 14.2).

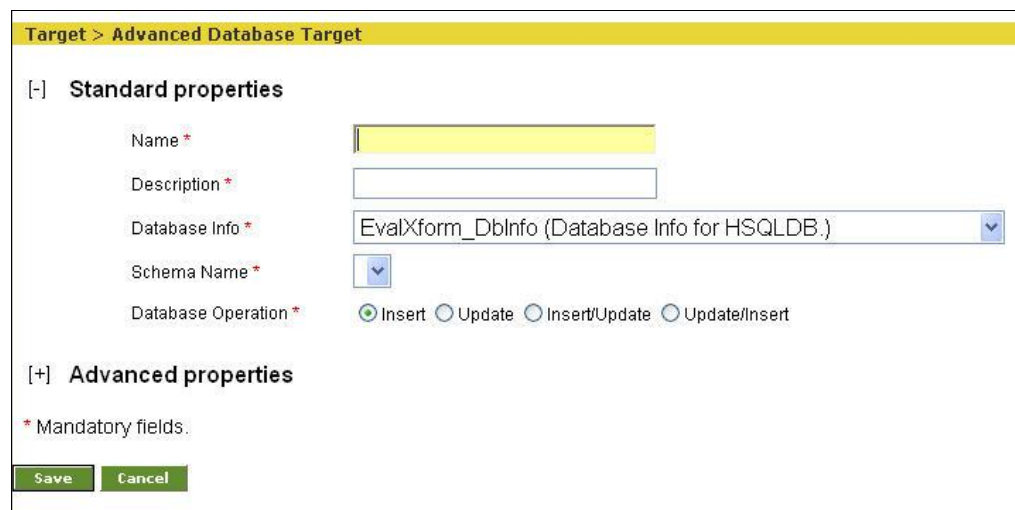



Figure 14.2: Create Advanced Database Target

4. Enter the name of the new Advanced Database Target in the *Name* field. Then, enter the description for the Advanced Database Target in the *Description* field.
5. Select the database info activity and database schema activity from the *Database Info* and *Schema Name* drop-down lists respectively.
6. Database Operation specifies how data records are inserted into database tables. Select one of the following database operations:
  - Insert
  - Update
  - Insert/Update
  - Update/Insert






If the specified database operation fails on any source data, error records are created. While creating a process using an Advance Database Source, you can specify what to do with error records.

- Error records can be saved into repository file.
- Error records can be ignored.
- It can be further processed (e.g. can be sent to file target).
- Process Flow can be aborted, if there is any error record.

In process designer, right click on the advance database source activity and select view properties. Select the value of the "Error Record" properties.

To learn, how to use Process Designer, refer to the section Using Process Designer.


To learn how to create Database Info activity and Schema activity, refer to the section [Creating Database Info](#) and [Creating Advanced Database Schema](#).



When an excel file is used as a database target, only *Insert* operation is supported. The *Update*, *Insert/Update* and *Update/Insert* operations are not supported.

When an excel file is used as a database target, the error records are not generated in case of data type mismatch.


When a database operation is selected, the database is affected. For details, refer to Table 14.2.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

7. Click **Save** button. This displays a screen confirming that the Advanced Database target activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the advanced database target (refer to Figure 4.6).

8. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

9. Click **OK** to save the comments. This displays a screen confirming that the Advanced Database target activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Understanding Record Count in Process Flow Logs

The number of records processed by an Advanced Database Target activity during the execution of a process flow is displayed in the Process Flow Log. This record count differs based on its type. The various types of record counts are explained below.

### Transaction Commit Count

This record count type includes the total number of records in the input at root level, which are successfully processed and committed by the Advanced Database Target activity. It includes inserted, deleted and updated records.

### Insert Query: Submitted/Successful

This record count type includes the Insert Query which are submitted or successful. Submitted is the total number of Insert Query submitted/executed by the Advanced Database Target activity. Successful is the total number of records, which are inserted and committed in the table for the Insert Query and which are not rolled back.



The 'Successful' count can be equal or less than the 'Submitted' count in case of "Insert" operation.

### Delete Query: Submitted /Successful

This record count type includes the Delete Query which are submitted or successful. Submitted is the total number of Delete Query submitted/executed by the Advanced Database Target activity. Successful is the total number of records, which are deleted and committed from the table for the Delete Query and which are not rolled back.

### Update Query: Submitted /Successful

This record count type includes the Update Query which are submitted or successful. Submitted is the total number of Update Query submitted/executed by the Advanced Database Target activity. Successful is the total number of records, which are updated and committed in the table for the insert query and which are not rolled back.



The 'Successful' count can be greater than the 'Submitted' count in case of "Update" or "Delete" operation.

### Rollback Transaction Count

This record count type includes the total number of records in the input at root level, which are rolled back by the Advance Database Target activity.

### Rollback Insert Count

This record count type includes the total number of records, which are supposed to be inserted but rolled back due to any error.

### Rollback Delete Count

This record count type includes the total number of records, which are supposed to be deleted but rolled back due to any error.

### Rollback Update Count

This record count type includes the total number of records, which are supposed to be updated but rolled back due to any error.

To further understand the different counts, assume the following example.

R1 (10)	R1C1 (20)	R1C1C1 (100)
R2 (20)	R2C1 (40)	R2C1C1 (80)

Suppose there are two records *R1* and *R2* at root level of input. *R1* has a child *R1C1* and further *R1C1* has a child *R1C1C1*. Similarly *R2* has a child *R2C1* and further *R2C1* has a child *R2C1C1*.

Their number of records is displayed in the brackets. For these records, insert queries are issued by the Advanced Database Target activity. Records from *R1*, its child (*R1C1*) and sub-child (*R1C1C1*) are successfully inserted in the target table. At the same time, while inserting the records from *R2C1C1* the Advance Database Target activity encountered an error in 8 records. Now, the record of *R2* and its child (*R2C1*) corresponding to erroneous records will be rolled back. Thus, the number of records rolled back from *R2C1C1*, *R2C1*, *R2* will be 8, 4 and 2 respectively.

Thus, in this scenario, the values of the record count types will differ as displayed below.

Table 14.1: Record Count Type Values

Record Count Type	Value	Description
Transaction Commit Count	28	10 records from R1 and 18 records from R2
Insert Query: Submitted/Successful	270/256	Total number of records (270) – Total number of rolled back records (14)
Rollback Transaction Count	2	Number of records rolled back from root level
Rollback Insert Count	14	R2 (2) + R2C1 (4) + R2C1C1 (8)

All the other counts will be zero.

## CREATING DATABASE TARGET ACTIVITY

The Database Target activity provides the ability to specify a database as target.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Prerequisites:

- *Database Info* activity and *Database Schema* must be created before creating Database Target activity.

### Steps to create a Database Target Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Target**. All the items in the Target category are displayed.
2. Click **Database Target**. The Manage Database Target screen is displayed (see Figure 14.3).



Figure 14.3: Manage Database Target

3. Click the **New** link. The Create Database Target screen is displayed (see Figure 14.4).

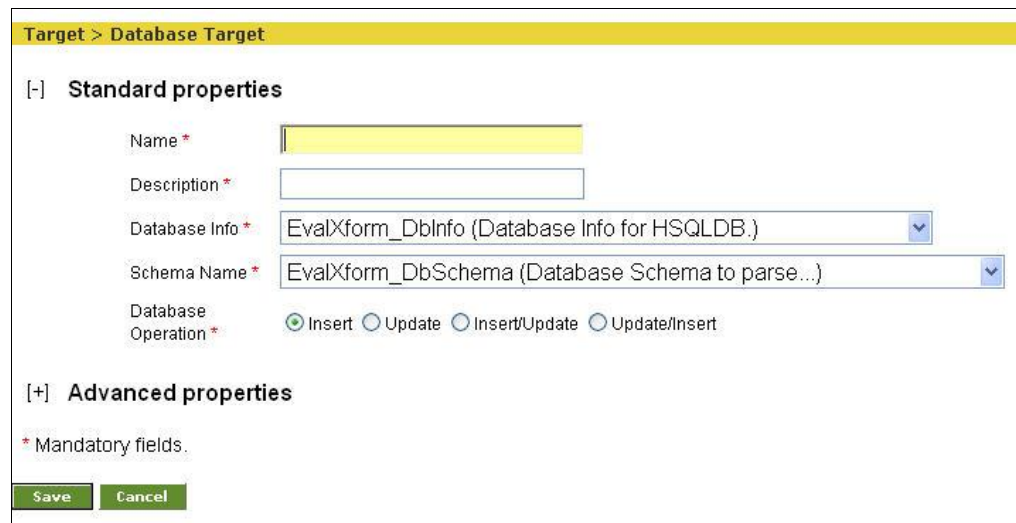


Figure 14.4: Create Database Target

4. Enter the name and description of the new Database Target in the *Name* and *Description* fields respectively.
5. Select the database info activity and database schema activity from the *Database Info* and *Schema Name* drop-down lists respectively.



To learn how to create Database Info activity and Schema activity, refer to the section [Creating Database Info](#) and [Creating Database Schema](#).



Database target can insert/update current date in the database. This current date is added in the input XML in two ways:

- Source XML
- Mapping

It can be added through the source XML which has the current date already defined in its code.

It can be added through mapping, if current date is defined as a constant in the Date field, or as a variable which has the value "Current Date". In this case, when mapping is done, then database target accesses the current date and inserts/updates it accordingly.

6. Database Operation specifies how data records are inserted into database tables. Select one of the following database operations:
  - Insert
  - Update
  - Insert/Update
  - Update/Insert

The effect that the selection has on the database is listed in the table below.

Table 14.2: Effect on Database based on the selected Database Operation

Database Operation	Effect on Database
Insert	This option is selected when you want to insert records into the database tables. If records already exist in the database table, new records are added in the database table along with existing records. When a column e.g. CompanyName of database table is marked as Primary Key, more than one record cannot exist in the database table for the same Company Name. In this case if data of a company i.e. Microsoft Corporation already exist, insert operation fails and data is not inserted into the database.
Update	This option is selected when you want to update the existing record. To use updated option a column of database must be marked as Primary Key. When Update option is selected, database target first checks which column of the database table is marked as Primary Key. Suppose CompanyName column is marked as Primary Key. Now database target check whether data of a company e.g. Microsoft Corporation already exist or not. If data for Microsoft Corporation already exists, database target updates the existing records. If none of the column is marked as Primary key, Update operation fails.
Insert/Update	This option is selected when the database target first tries to insert the data into database table. If insert operation fails, database target tries to update the data.
Update/Insert	This option is selected when the database target first tries to update the database table. If update operation fails, database target tries to insert the data.



If the specified database operation fails on any source data, error records are created. While creating a process using Database Target, you can specify what to do with error records.

- Error records can be saved into repository file.
- Error records can be ignored.
- It can be further processed (e.g. can be sent to file target).
- Process Flow can be aborted, if there is any error record.

In process designer, right click on the database target activity and select view properties. Select the value of the "Error Record" properties.

To learn, how to use Process Designer, refer to the section Using Process Designer.


To learn about Advanced Properties refer to section [Changing Advanced Properties](#).



When an excel file is used as a database target, only *Insert* operation is supported. The *Update*, *Insert/Update* and *Update/Insert* operations are

	not supported. When an excel file is used as a database target, the error records are not generated in case of data type mismatch.
--	---

- Click **Save** button. This displays a screen confirming that the database target activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the database target (refer to Figure 4.6).
- Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

- Click **OK** to save the comments. This displays a screen confirming that the database target activity has been created successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

## CREATING FILE TARGET ACTIVITY

The File Target activity provides the ability to specify the name and path of the target file to be created.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create a File Target Activity

- Click **[+] Automate** to expand the tree and then click **[+] Target**. All the items in the Target category are displayed.
- Click **File Target**. The Manage File Target screen is displayed (see Figure 14.5).

<div> <div>[+] Manage</div> <div>[-] Automate</div> <div>[+] DataDictionary</div> <div>[+] DataTransform</div> <div>[+] Extensions</div> <div>[+] HumanWorkflow</div> <div>[+] Miscellaneous</div> <div>[+] NativeService</div> <div>[+] Notification</div> <div>[+] Polling</div> <div>[+] Schema</div> <div>[+] Source</div> <div>[+] Target</div> <div>Adv. Database Target</div> <div>Database Target</div> <div>File Target</div> <div>FTP Target</div> <div>HTTP Target</div> </div>	<div>Target &gt; File Target</div> <div> <a href="#">New</a>   <a href="#">Edit</a>   <a href="#">Delete</a>   <a href="#">Revisions</a>   <a href="#">Dependencies</a> </div> <div> --Select Field to Search-- <div>Search</div> </div> <table> <thead> <tr> <th>#</th><th>Name</th><th>Description</th><th>Owner</th><th>Perm.</th><th>Modified</th></tr> </thead> <tbody> <tr> <td>1</td><td>EvalScript_FileTarget</td><td>File Target for Appended Employee Records</td><td>admin</td><td>RWX</td><td>08/12/06 15:41</td></tr> <tr> <td>2</td><td>EvalPF_FileTarget_ErrorRecord</td><td>Erroneous records in input excel</td><td>admin</td><td>RWX</td><td>08/22/05 18:51</td></tr> <tr> <td>3</td><td>EvalPF_FileTarget_UpdateError</td><td>Erroneous records found while updating records in database2</td><td>admin</td><td>RWX</td><td>08/22/05 18:51</td></tr> <tr> <td>4</td><td>EvalPF_FileTarget_InsertError</td><td>Erroneous records found while inserting records in database1</td><td>admin</td><td>RWX</td><td>08/22/05 18:50</td></tr> <tr> <td>5</td><td>EvalXform_FileTarget</td><td>excel file target</td><td>admin</td><td>RWX</td><td>08/18/05 16:02</td></tr> <tr> <td>6</td><td>EvalPD_FileTarget</td><td>file target with purchase order</td><td>admin</td><td>RWX</td><td>08/12/05 16:17</td></tr> </tbody> </table>					#	Name	Description	Owner	Perm.	Modified	1	EvalScript_FileTarget	File Target for Appended Employee Records	admin	RWX	08/12/06 15:41	2	EvalPF_FileTarget_ErrorRecord	Erroneous records in input excel	admin	RWX	08/22/05 18:51	3	EvalPF_FileTarget_UpdateError	Erroneous records found while updating records in database2	admin	RWX	08/22/05 18:51	4	EvalPF_FileTarget_InsertError	Erroneous records found while inserting records in database1	admin	RWX	08/22/05 18:50	5	EvalXform_FileTarget	excel file target	admin	RWX	08/18/05 16:02	6	EvalPD_FileTarget	file target with purchase order	admin	RWX	08/12/05 16:17
#	Name	Description	Owner	Perm.	Modified																																										
1	EvalScript_FileTarget	File Target for Appended Employee Records	admin	RWX	08/12/06 15:41																																										
2	EvalPF_FileTarget_ErrorRecord	Erroneous records in input excel	admin	RWX	08/22/05 18:51																																										
3	EvalPF_FileTarget_UpdateError	Erroneous records found while updating records in database2	admin	RWX	08/22/05 18:51																																										
4	EvalPF_FileTarget_InsertError	Erroneous records found while inserting records in database1	admin	RWX	08/22/05 18:50																																										
5	EvalXform_FileTarget	excel file target	admin	RWX	08/18/05 16:02																																										
6	EvalPD_FileTarget	file target with purchase order	admin	RWX	08/12/05 16:17																																										

Figure 14.5: Manage File Target

- Click the **New** link. The Create File Target screen is displayed (see Figure 14.6).

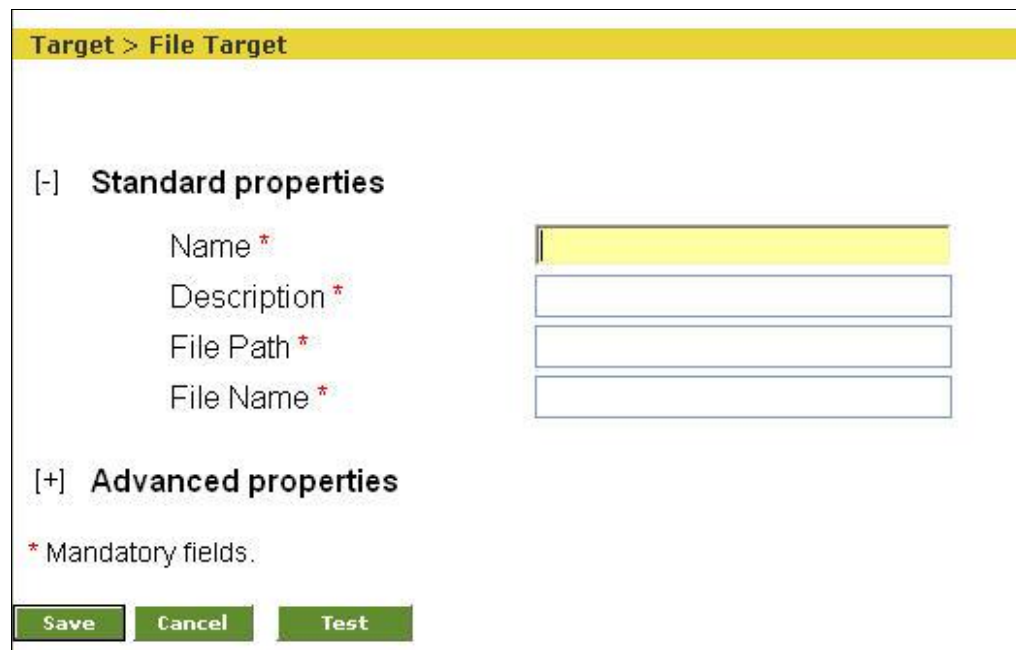




Figure 14.6: Create File Target

- Enter the name and description of the new File Target in the *Name* and *Description* fields respectively.
- To specify the target location, enter the full path of the target file in the *File Path* field.
- Enter the name of the target file in the *File Name* field.


 To learn about Advanced Properties refer to section [Changing Advanced Properties..](#)

- Click **Save** button. This displays a screen confirming that the file target activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating file target (refer to Figure 4.6).
- Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

- Click **OK** to save the comments. This displays a screen confirming that the file target activity has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties.](#)

 You can verify the file target activity at design time. For this, click **Test**. This verifies the values given in the *File Path* field. When using a file target activity in a process flow, the *append* property is



set to *False* by default. This implies that an existing target activity is overwritten by the new target activity. If you want to append the new target activity to the existing target activity, you need to set this property to *True*. However, this feature is supported for Excel and Text files only. In Excel, this append feature is supported for only single sheet. Append feature for multiple sheet is not supported.

## CREATING FTP TARGET ACTIVITY

FTP Target provides the ability to specify a target location that is accessible via FTP.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	

### Steps to create a FTP Target Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Target**. All the items in the Target category are displayed.
2. Click **FTP Target**. The Manage FTP Target screen is displayed (see Figure 14.7).



Figure 14.7: Manage FTP Target

3. Click the **New** link. The Create FTP Target screen is displayed (see Figure 14.8).

Target > FTP Target

**[-] Standard properties**

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
Host Name *	<input style="width: 90%;" type="text"/>
Port *	<input style="width: 90%;" type="text" value="21"/>
User Id *	<input style="width: 90%;" type="text"/>
Password	<input style="width: 80%;" type="password"/>
Confirm Password	<input style="width: 80%;" type="password"/>
Remote File Path	<input style="width: 90%;" type="text"/>
File Name *	<input style="width: 90%;" type="text"/>
Transfer Mode *	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">BINARY ▼</div>
Transfer Type *	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">PASSIVE ▼</div>
Secured (SSH secured) *	<input type="checkbox"/>

**[+] Advanced properties**

\* Mandatory fields.

Save
Cancel
Test

Figure 14.8: Create FTP Target

4. Enter the name and description of the new FTP Target in the *Name* and *Description* fields respectively.
5. Enter the host name/IP address and port number of the FTP Server in the *Host Name* and *Port* field respectively.
6. Enter the username and password of FTP Server in the *User ID* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.
7. Enter the full path of the target file in the *Remote File Path* field.
8. Enter the name of the target file in the *File Name* field.
9. Select the transfer mode as either BINARY or ASCII from *Transfer Mode* drop-down list. In BINARY mode a file is copied bit for bit from one machine to the other. Both files (the original and the transferred file) will contain exactly the same sequence of bytes. In ASCII mode a file may be changed slightly to maintain the meaning of EOL (End Of Line) characters.

10. Select the transfer type as either Active or Passive from the *Transfer Type* drop-down list. Active transfer is more secure since the client only initiates communication to the Server on one port whereas in case of Passive transfer the client initiates communication to the Server over two ports. Passive mode is useful when you are behind a firewall or a proxy.
11. Check the *SSH (Secure Shell)* checkbox if the FTP target accesses a secure FTP Server. When SSH is used to protect FTP Server, the control connection between the FTP client and Server is encrypted.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

12. Click **Save** button. This displays a screen confirming that the FTP target activity has been created successfully. If the *Comments* property is enabled, then clicking Save will display a screen where you need to enter comments for creating the FTP target (refer to Figure 4.6).
13. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

14. Click **OK** to save the comments. This displays a screen confirming that the FTP target activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the FTP target activity at design time. For this, click **Test**. This verifies the values given in the *Host Name*, *Port*, *User ID*, *Password*, and *Secured* fields.

## CREATING HTTP TARGET ACTIVITY

HTTP Target provides the ability to specify file location that is accessible via HTTP.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	

### Steps to create a HTTP Target Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Target**. All the items in the Target category are displayed.
2. Click **HTTP Target**. The Manage HTTP Target screen is displayed (see Figure 14.9).



Figure 14.9: Manage HTTP Target

- Click the **New** link. The Create HTTP Target screen is displayed (see Figure 14.10).

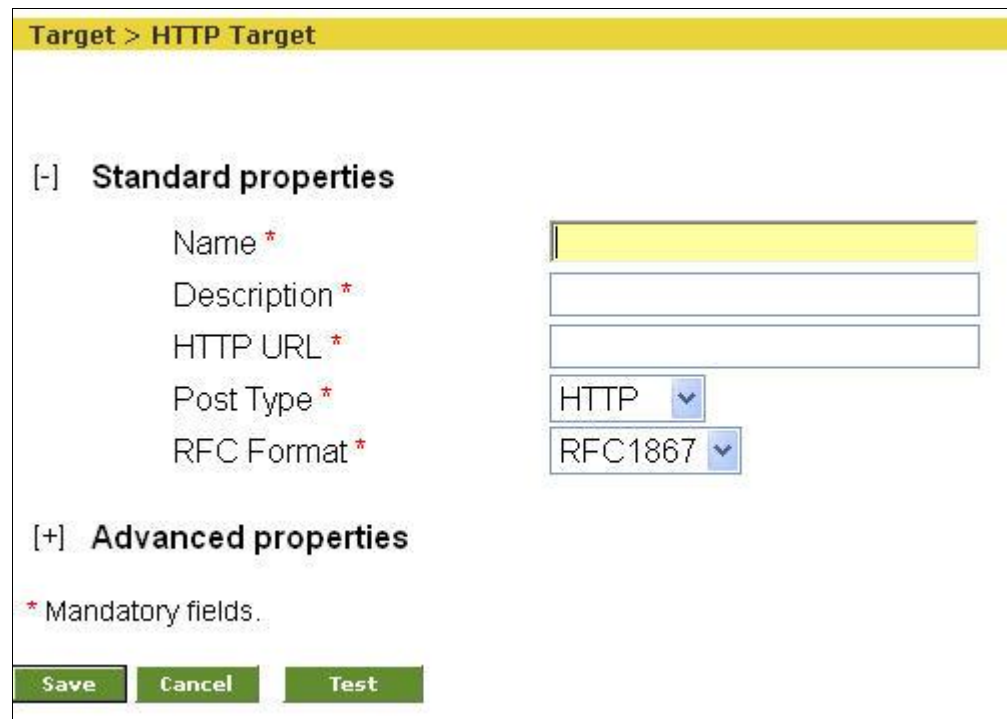


Figure 14.10: Create HTTP Target

- Enter the name and description of the new HTTP Target in the *Name* and *Description* fields respectively.
- Enter the URL of the target application to which you want to post the data, in the *HTTP URL* field.

For example, <http://www.adeptia.com/Employee/sales.jsp>.



In above example sales.jsp is an application which handles the posted data. This application could be any server program like ASP and servlet etc.

6. Select the post type whether HTTP or HTTPS from the *Post Type* drop-down list.
7. Select RFC format from the *RFC Format* drop-down list.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

8. Click **Save** button. A screen is displayed confirming that the HTTP Target activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the HTTP target (refer to Figure 4.6).
9. Enter the comments in *Add Comments* field.



The comment should be at least 1 character in length.

10. Click **OK** to save the comments. A screen is displayed confirming that the HTTP Target activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the HTTP target activity at design time. For this, click **Test**. This verifies the values given in the *HTTP URL* and *Port Type* fields.

## CREATING JMS TARGET ACTIVITY

The JMS Target activity provides the ability to specify a queue or topic of a JMS Server as a Target. JMS target is used to publish the target data in a topic or to post the data in the queue of a JMS Server.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Prerequisites:

- JMS Provider activity must be created before creating JMS Target activity.

### Steps to create a JMS Target Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Target**. All the items in the Target category are displayed.
2. Click **JMS Target**. The Manage JMS Target screen is displayed (see Figure 14.11).

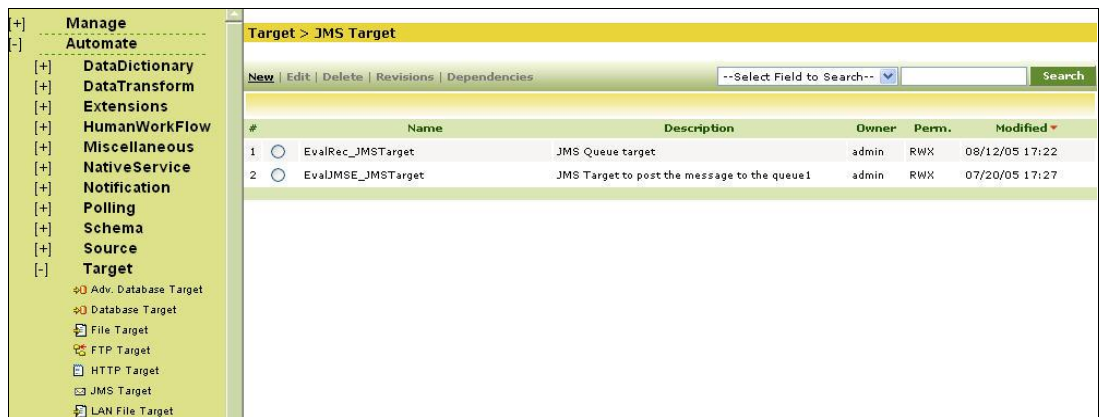
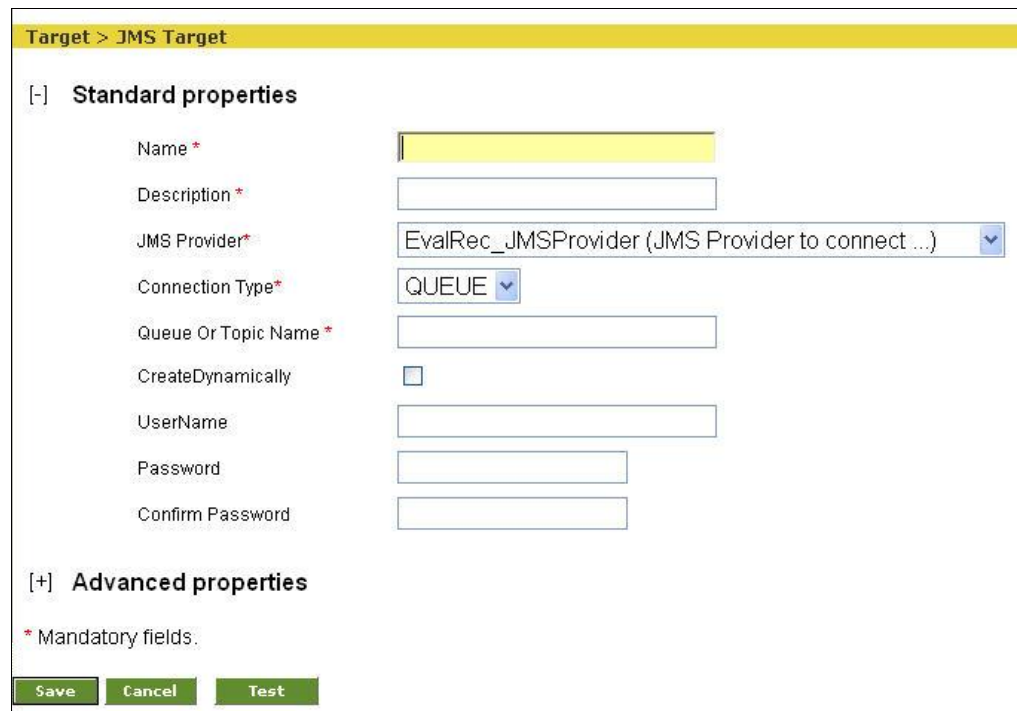


Figure 14.11: Manage JMS Target

- Click the **New** link. The Create JMS Target screen is displayed (see Figure 14.12).



**Target > JMS Target**

**[-] Standard properties**

Name \*

Description \*

JMS Provider \* EvalRec\_JMSProvider (JMS Provider to connect ...)

Connection Type \* QUEUE

Queue Or Topic Name \*

Create Dynamically ☐

Username

Password

Confirm Password

**[+] Advanced properties**

\* Mandatory fields.

Figure 14.12: Create JMS Target

- Enter the name and description of the new JMS Target in the *Name* and *Description* fields respectively.
- Select the JMS Provider activity from the *JMS Provider* drop-down list.



To learn how to create JMS Provider activity, refer to section [Creating JMS Provider Activity](#).

- Select the connection type as either queue or topic from the *Connection Type* drop-down list.

7. Enter the name of queue or topic as configured in the JMS Server in the *Queue Or Topic Name* field.
8. Check the *Create Dynamically* checkbox, if queue or topic specified above, doesn't already exist on the JMS Server. If you enable create dynamically check box, it will create the queue or topic specified above on the JMS Server.
9. Enter the username and password required to connect to JMS Server in the *UserName* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

10. Click **Save** button. This displays a screen confirming that the JMS target activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the JMS target (refer to Figure 4.6).
11. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

12. Click **OK** to save the comments. This displays a screen confirming that the JMS target activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the JMS target activity at design time. For this, click **Test**. This verifies the values given in the *JMS Provider* and *Connection Type* fields.

## CREATING LAN FILE TARGET ACTIVITY

LAN File Target provides the ability to specify a target file location that is accessible on the network.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create a LAN File Target Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Target**. All the items in the Target category are displayed.
2. Click **LAN File Target**. The Manage LAN File Target screen is displayed (see Figure 14.13).



Figure 14.13: Manage LAN File Target

- Click the **New** link. The Create LAN File Target screen is displayed (see Figure 14.14).

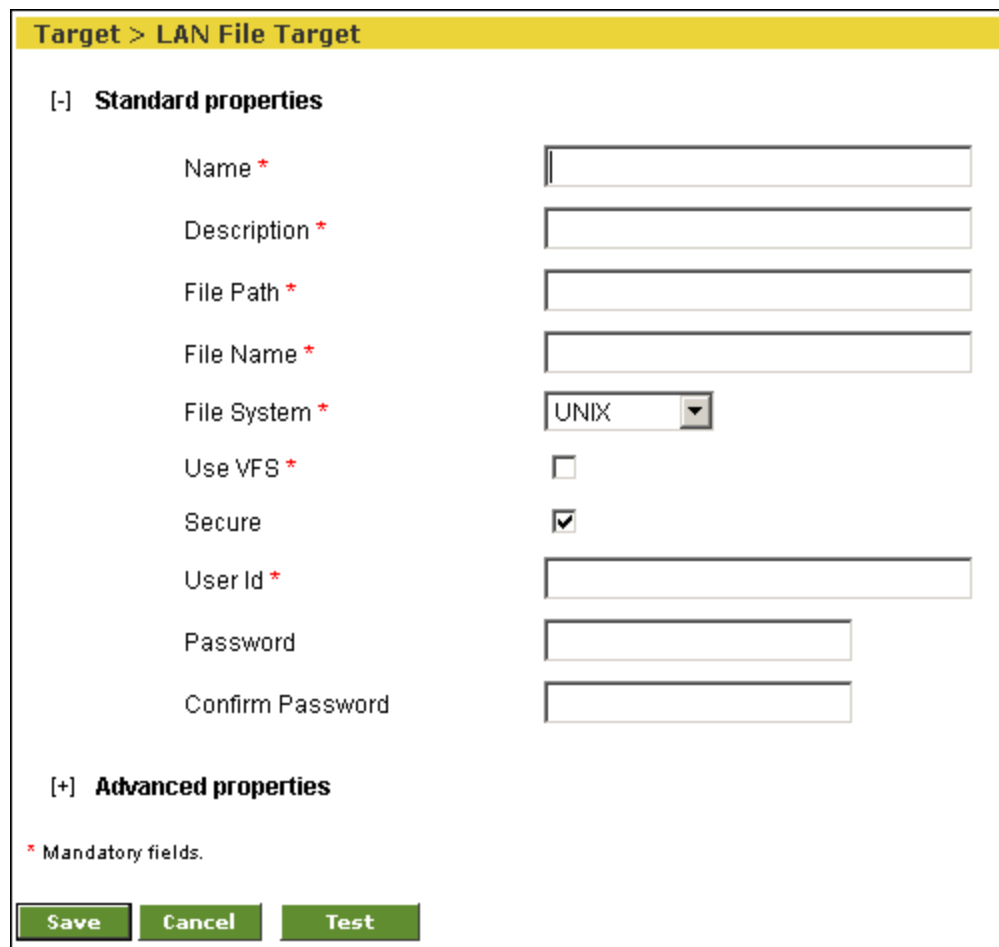


Figure 14.14: Create LAN File Target

- Enter the name and description for the new LAN File Target in the *Name* and *Description* fields respectively.



5. Enter the network path of the folder where you want the target file to be created in the *File Path* field in the following format:  
 \\hostname\folder name
6. Enter the name of target file in the *File Name* field.
7. Select the target file system, whether Windows or Unix from the *File System* drop-down list.
8. When Adeptia Server is installed on Windows Operating System, LAN File Target uses windows service to connect to remote machine. It just connects once and uses the same connection with the same User ID and Password (which is stored in the cache) every time. If you want to enforce the validation of User ID and Password every time while accessing the remote machine, check the *Use VFS* checkbox.
9. If username and password is required to access the target location, check the *Secure* checkbox.
10. Enter the username and password in the *User ID* and *Password* fields respectively. Then re-enter the password in the *Confirm Password* field.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

11. Click **Save** button. This displays a screen confirming that the LAN file target activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the LAN file target (refer to Figure 4.6).
12. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

13. Click **OK** to save the comments. This displays a screen confirming that the LAN file target activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the LAN file target activity at design time. For this, click **Test**. This verifies the values given in the *File Path*, *User ID* and *Password* fields.  
 When using a LAN file target activity in a process flow, the *append* property is set to *False* by default. This implies that an existing target activity is overwritten by the new target activity. If you want to append the new target activity to the existing target activity, you need to set this property to *True*. However, this feature is supported for Excel and Text files only.

## CREATING MAIL TARGET ACTIVITY

Mail Target provides the ability to specify target location that is accessible via Mail.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	

### Steps to create a Mail Target Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Target**. All the items in the Target category are displayed.
2. Click **Mail Target**. The Manage Mail Target screen is displayed (see Figure 14.15).

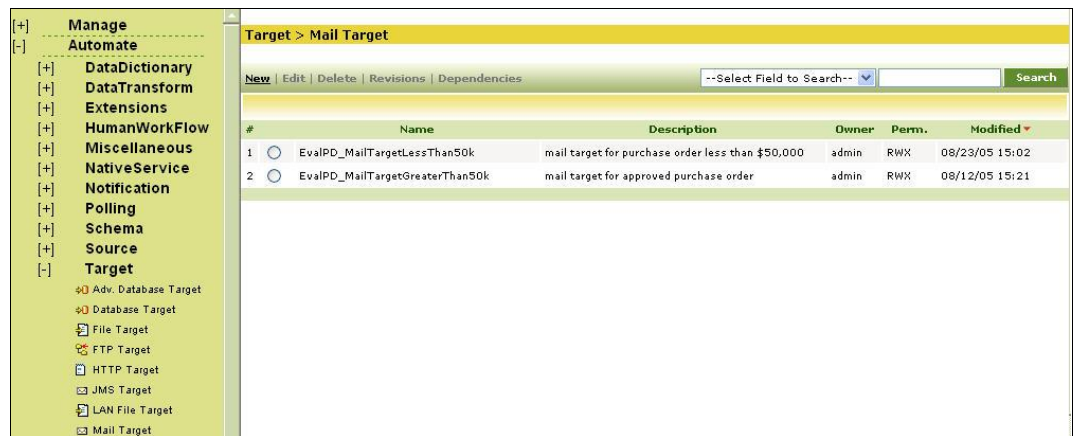


Figure 14.15: Manage Mail Target

3. Click the **New** link. The Create Mail Target screen is displayed (see Figure 14.16).

Target > Mail Target

**[−] Standard properties**

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
Protocol *	<span>SMTP ▾</span>
Outgoing Mail Server *	<input style="width: 90%;" type="text"/>
Domain	<input style="width: 90%;" type="text"/>
CDO host machine	<input style="width: 90%;" type="text"/>
Enable SSL	<input type="checkbox"/>
Port	<input style="width: 90%;" type="text" value="25"/>
From(Email-Id) *	<input style="width: 90%;" type="text"/>
To Email-Id(s) (comma separated) *	<input style="width: 90%;" type="text"/>
Subject *	<input style="width: 90%;" type="text"/>
User Id *	<input style="width: 90%;" type="text"/>
Password *	<input style="width: 80%;" type="password"/>
Confirm Password *	<input style="width: 80%;" type="password"/>
Message Content Type	<span>Plain ▾</span>
Data Location *	<span>Attachment ▾</span>
File Name	<input style="width: 90%;" type="text"/>

**[+] Advanced properties**


\* Mandatory fields.

Save
Cancel
Test

Figure 14.16: Create Mail Target

4. Enter the name and description of the new Mail Target in the *Name* and *Description* fields respectively.
5. Select the Internet standard protocol to be used for sending outgoing mails, from the *Protocol* drop-down list. You can select either the SMTP or

the MAPI protocol. Based on the selected protocol, the default port number for that protocol is displayed in the *Port* field.




To access mails from Microsoft Exchange Server use *MAPI* in *Protocol* drop-down list. To connect Adeptia Server with Microsoft Exchange Server, you need to buy a third party tool called J-Integra for Exchange. J-Integra for Exchange is a high performance middleware bridge that enables Java Exchange interoperability. If you want to retrieve mails from an Exchange Server using J-Integra, Select MAPI in the *Protocol* drop-down list. If *MAPI* is selected in *Protocol* drop-down list:

- Enter name of the exchange server in *Outgoing Mail Server* field
- Enter the domain name in the *Domain* field
- Enter the name of the CDO host machine in *CDO host machine* field. CDOConfig.exe is a tool that comes with the J-Integra for Exchange SDK and is used for configuring CDO. Host where CDO is configured is called CDO host machine.


For detailed information about JIntegra for Exchange, refer to <http://j-integra.intrinsyc.com/products/exchange/>.

6. Enter the outgoing mail (SMTP) Server address in the *Outgoing Mail (SMTP) Server* field.
7. Check the *Enable SSL* checkbox, if the specified outgoing mail server requires a secure connection.
8. Enter the port of Outgoing Mail Server in the *Port* field.
9. Enter the sender's Email-Id in the *From (Email-Id)* field.
10. Enter the Email-Id(s) of the email recipients separated by commas in the *To Email-Id(s) (comma separated)* field.
11. Enter the subject of Target email in the *Subject* field.
12. Enter the username and password of Mail Server in the *User ID* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.
13. Select the content type of the outgoing message (as Plain or HTML) from *Message Content Type* drop-down list.



This field is enabled only when SMTP is selected in the *Protocol* field.

14. Select the location of data in the mail whether it is to be sent as an attachment or in email body from the *Data Location* drop-down list.
15. If the data is to be sent as attachment, enter the name of the file in the *File Name* field.




To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

16. Click **Save** button. This displays a screen confirming that the mail target activity has been created successfully. If the *Comments* property is


enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the mail target (refer to Figure 4.6).

17. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

18. Click **OK** to save the comments. This displays a screen confirming that the mail target activity has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

 You can verify the mail target activity at design time. For this, click **Test**. This verifies the values given in the *Outgoing Mail (SMTP) Server, Port, User ID* and *Password* fields.

## CREATING WEBDAV TARGET ACTIVITY

The WebDAV Target activity provides the ability to specify a WebDAV Server as a target.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√		√	√

### Steps to create WebDAV Target Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Target**. All the items in the Target category are displayed.
2. Click **WebDAV Target**. The Manage WebDAV Target screen is displayed (see Figure 14.17).

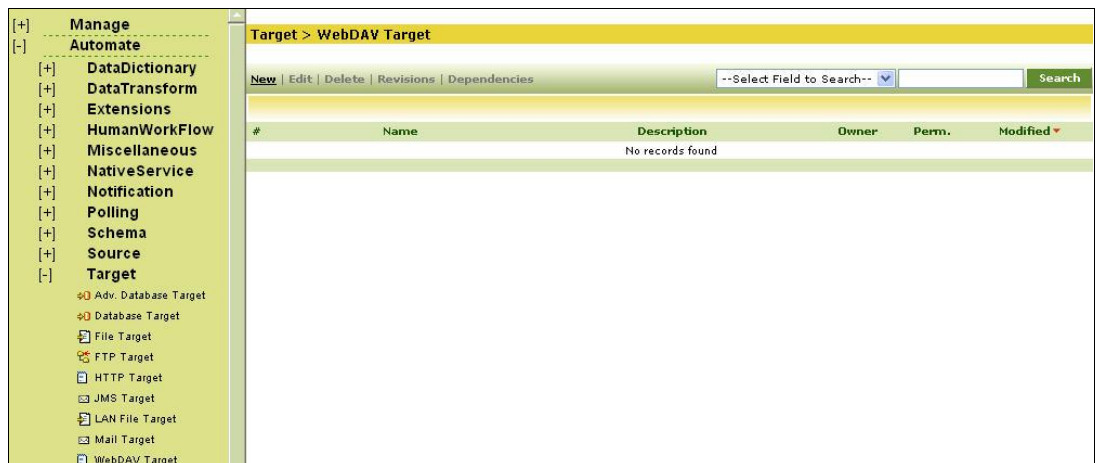


Figure 14.17: Manage WebDAV Target

3. Click the **New** link. The Create WebDAV Target screen is displayed (see Figure 14.18).

Target > WebDAV Target

[-] Standard properties

Name \*

Description \*

Server Name \*

Server Port \*

Secure

User Id

Password

Confirm Password

File Location \*

File Name \*

[+] Advanced properties

\* Mandatory fields.

Save

Cancel

Test

Figure 14.18: Create WebDAV Target Activity

4. Enter the name and description of the new WebDAV target in the *Name* and *Description* fields respectively.
5. Enter the name of WebDAV Server and port on which WebDAV Server is running in the *Server Name* and *Server Port* fields respectively.
6. If the WebDAV is secured i.e. username and password is required to access it, then check the *Secure* checkbox and enter the username and password of the WebDAV Server in the *User ID* and *Password* fields respectively.



If you are using WebDAV Server, which is built in with Adeptia Server, the default Username is "Admin" and the password is "indigo".

7. Re-enter the password in the *Confirm Password* field.
8. Enter the path of the target file in the *File location* field.
9. Enter the name of the target file in the *File Name* field.



Directory specified in the *File location* field, must be available in the WebDAV repository.  
To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

10. Click **Save** button. This displays a screen confirming that the WebDAV target activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the WebDAV target (refer to Figure 4.6).
11. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

12. Click **OK** to save the comments. This displays a screen confirming that the WebDAV target activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can verify the WebDAV target activity at design time. For this, click **Test**. This verifies the values in the *Server Name* and *Server Port* fields and checks whether the file actually exists in the specified location.

## 15 CREATING TRIGGER AND EVENTS

Trigger Events are used to schedule and trigger a process flow. Trigger Events enable you to specify when and how frequently the process flow should be executed on a recurring basis. The types of trigger events are outlined as:

- [Calendar Event](#)
- [Database Event](#)
- [Event Registry](#)
- [File Event](#)
- [FTP Event](#)
- [HTTP Trigger](#)
- [JMS Event](#)
- [Mail Event](#)
- [Timer Event](#)
- [Web Service Trigger](#)

By default, a trigger event remains deactivated after its creation. To trigger a process flow using the trigger events, you must bind it with appropriate trigger events and then activate those events.

### CREATING CALENDAR EVENT

This service enables you to specify the recurring execution of process flow between the specified dates in conjunction with a specified calendar.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

#### *Steps to create a Calendar Event*

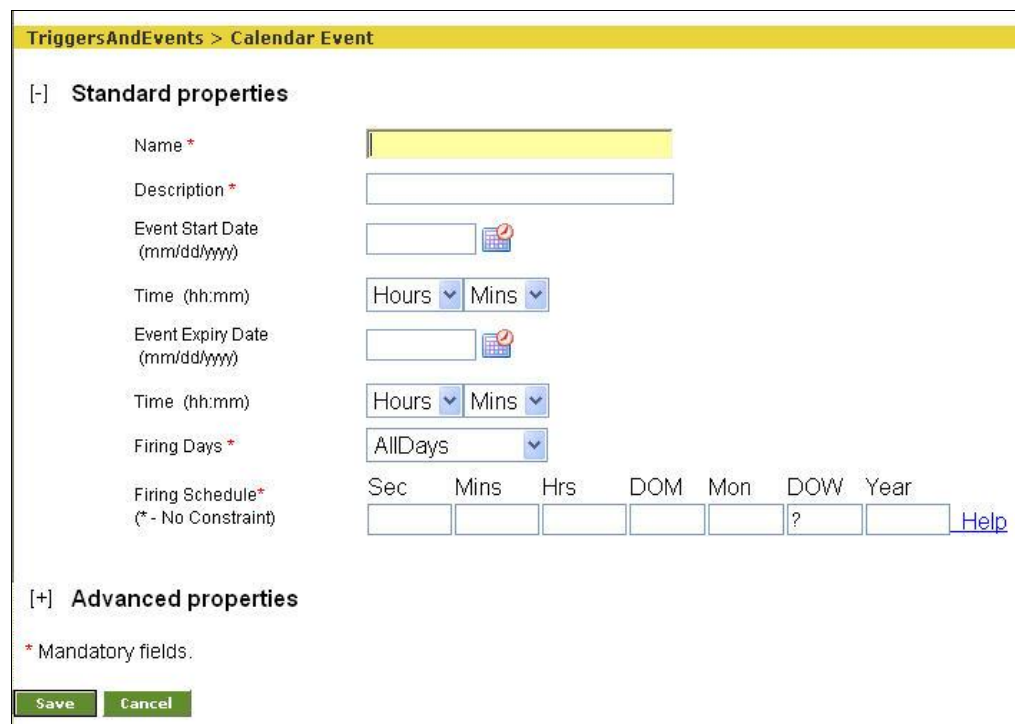
1. Click **[+] Automate** to expand the tree and then click **[+] Triggers And Events**. All the items in the Triggers And Events category are displayed.
2. Click **Calendar Event**. The Manage Calendar Event screen is displayed (see Figure 15.1).





Figure 15.1: Manage Calendar Event

- Click the **New** link. The Create Calendar Event screen is displayed (see Figure 15.2).




**TriggersAndEvents > Calendar Event**


**[-] Standard properties**

Name \*

Description \*

Event Start Date (mm/dd/yyyy)  

Time (hh:mm) Hours  Mins

Event Expiry Date (mm/dd/yyyy)  

Time (hh:mm) Hours  Mins

Firing Days \* AllDays

Firing Schedule\* (\* - No Constraint) Sec  Mins  Hrs  DOM  Mon  DOW  Year  [Help](#)

**[+] Advanced properties**

\* Mandatory fields.

Figure 15.2: Create Calendar Event

- Enter the name and description of the new Calendar Event activity in the *Name* and *Description* fields respectively.
- Enter the date from which Calendar event will start triggering; in the *Event Start Date* field. The date must be in *mm/dd/yyyy* format. Click the calendar icon to select the required date from the calendar.
- Enter the start time from the *Time* drop-down list.
- Enter the date on which Calendar event will stop triggering, in the *Event Expiry Date* field. The date must be in *mm/dd/yyyy* format. Click the calendar icon and select the required date from the calendar.
- Enter the expiry time from the *Time* drop-down list.


9. Select the days of week on which the event should fire from the *Firing Days* drop-down list.

Types of firing days are described in the table below.

Table 15.1: Types of Firing Days

Days	Description
All Days	The event will fire on all days (Mon to Sun) of the week.
Business Days	The event will fire from Monday to Friday excluding holidays. To know how to specify holidays, refer to the <a href="#">Business Calendar</a> section of Appendix A
Week Days	The event will fire from Monday to Friday even if there are any holidays.


10. Define the frequency of execution in the Firing Schedule fields.



For more details about Firing Schedule, click **Help** or refer to [Appendix B: Cron Expression](#).  
To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

11. Click **Save** button. This displays a screen confirming that the Calendar event has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the calendar event (refer to Figure 4.6).

12. Enter the comments in the *Add Comments* field.




The comment should be at least 1 character in length.

13. Click **OK** to save the comments. This displays a screen confirming that the calendar event has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can view details of a process flow associated with a calendar event, by clicking the process flow displayed under *Associated Process Flows* on the Manage Calendar Event screen.

## CREATING DATABASE EVENT

The Database Event enables you to schedule a process flow to be triggered when a record is inserted, updated or deleted in a database table.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

## Prerequisites:

- Database Info activity must be created before creating Database Event activity.

## Steps to create a Database Event

- Click **[+] Automate** to expand the tree and then click **[+] Triggers And Events**. All the items in the Triggers And Events category are displayed.
- Click **Database Event**. The Manage Database Event screen is displayed (see Figure 15.3).

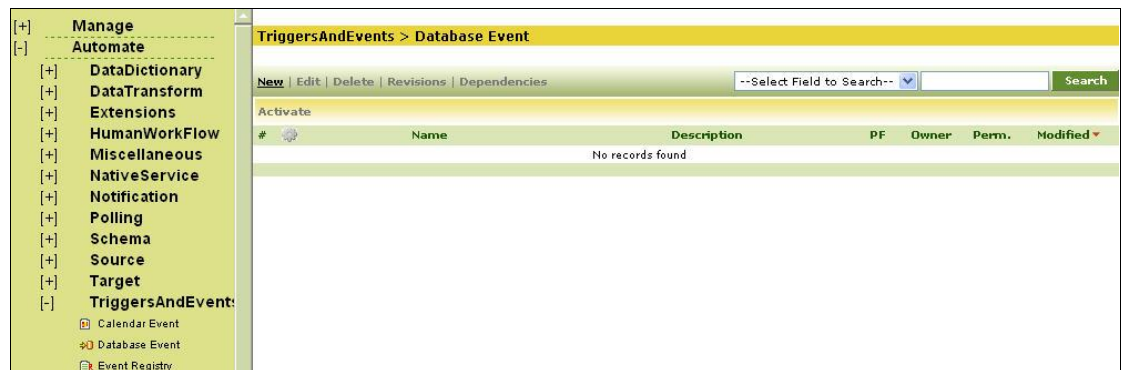


Figure 15.3: Manage Database Event

- Click the **New** link. The Create Database Event screen is displayed (see Figure 15.4).

TriggersAndEvents > Database Event

**[ - ] Standard properties**

Name \*

Description \*

Database Info Id \* -- SELECT -- ▼

Define Database Polling Criteria\*

☒ SQL Query

Check Condition ☒

Operator Select ▼

Value

☐ SQL Trigger

SQL Trigger Name

Event Start Date (mm/dd/yyyy)

Time (hh:mm) Hours Mins ▼ ▼

Event Expiry Date (mm/dd/yyyy)

Time (hh:mm) Hours Mins ▼ ▼

Frequency Select One ▼

Duration

Polling Frequency \*  ▼

**[ + ] Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 15.4: Create Database Event

4. Enter the name and description of the new Database Event activity in the *Name* and *Description* fields respectively.
5. Select the Database Info Id activity from the *Database Info Id* drop-down list.



To create Database Info ID activity, refer to section [Creating Database Info](#).

6. You can create the database event definition by entering an SQL Query or a database trigger command. By default, *SQL Query* option is selected. Enter the query in the *SQL Query* field. Mark the *Check Condition* checkbox as checked, if you want to trigger the process flow based on a condition. The result of the query will be compared with a conditional value, and the process flow will be triggered, if the values match. Select the operator for the query from the *Operator* drop-down list. Enter the value to be compared in the query in the *Conditional Value* field. The query should return only one record. If the query returns multiple records, then only the first record is accepted. If the query returns one record, then it will compare the value of the first field with the value specified in the *Conditional Value* field. If the value matches, then the process flow is triggered. If the value does not match, then the system simply logs an error. It does not trigger the process flow.



If the *Check Condition* checkbox is marked as unchecked, then the process flow is triggered each time a row is returned.

7. Alternately, enter the database trigger command in the *SQL Trigger* field.



Following is the format of trigger used to trigger the process flow:

```
<Trigger Text>
INSERT INTO dbeventtriggertable VALUES ('Query =<WHERE CLAUSE>');
END <trigger name> ;
```

Edit the parts, which are within < >. You can define a 'Where' clause that indicates the row that is updated. When the command is parsed, it will return the updated row from the database source.

Do not delete the Insert query.

<trigger name> after the END tag should be used for Oracle only. In case of SQL server, <trigger name> is not needed.

Following is the example of the trigger used for SQL Server :

```
create trigger Trigger_test on emp for
insert,update
as
declare @empname varchar(20)
begin
set @empname=(select empname from inserted);
INSERT INTO dbeventtriggertable VALUES ('Query =WHERE empname="
+@empname+""');

```

END ;

Following is the example of the trigger used for Oracle:

```
CREATE OR REPLACE TRIGGER Trigger_test
AFTER INSERT OR UPDATE ON Emp FOR EACH ROW BEGIN
INSERT INTO dbeventtriggertable VALUES ('Query = where rowid= ' || :new.
rowid ); END Trigger_test;
```

Here :

*Trigger\_test* is name of the trigger.

*Emp* is the name of the user table on which insert or update operation has

to be done.  
*dbeventtriggertable* is the name of the temporary table used. Do not change it.

8. Enter the name of Trigger in the *SQL Trigger Name* field.
9. Enter the date from which Database event will start triggering; in the *Event Start Date* field. The date must be in *mm/dd/yyyy* format. Click calendar icon and select the required date from the calendar.
10. Enter the start time from the *Time* drop-down list.
11. Enter the date on which Database event will stop triggering, in the *Event Expiry Date* field. The date must be in *mm/dd/yyyy* format. Click the calendar icon and select the required date from the calendar.
12. Enter the expiry time from the *Time* drop-down list.
13. Enter the time interval, the database event checks the database Server in the *Polling Frequency* field. Enter the digit in the *Frequency* field and select the unit of time i.e. seconds, minutes or hours etc from the *Duration* drop-down list.



Recommended minimum Polling Frequency is 30 seconds.  
To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

14. Click **Save** button. This displays a screen confirming that the database event has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the database event (refer to Figure 4.6).
15. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

16. Click **OK** to save the comments. This displays a screen confirming that the database event has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can view details of a process flow associated with a database event, by clicking the process flow displayed under *Associated Process Flows* on the Manage Database Event screen.

## CREATING EVENT REGISTRY

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to Register a Process Flow with a Trigger Event

1. Click **[+] Automate** to expand the tree and then click **[+] Triggers And Events**. All the items in the Triggers And Events category are displayed.
2. Click **Event Registry**. The Manage Event Registry screen is displayed (see Figure 15.5).

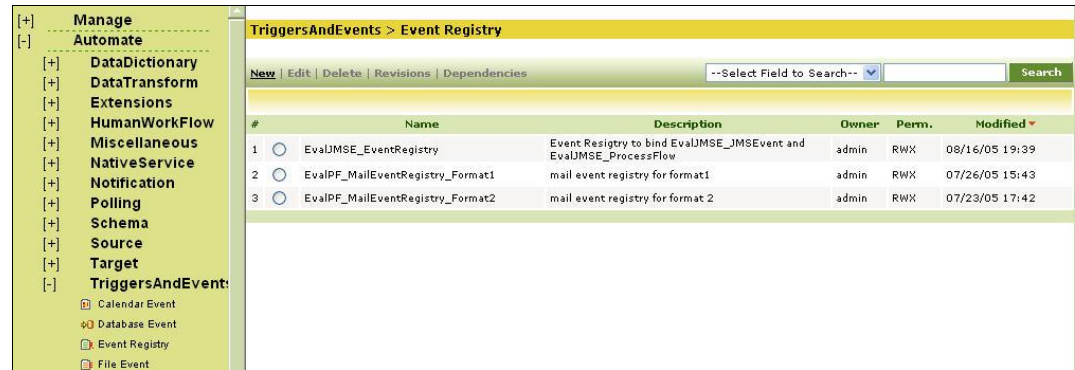
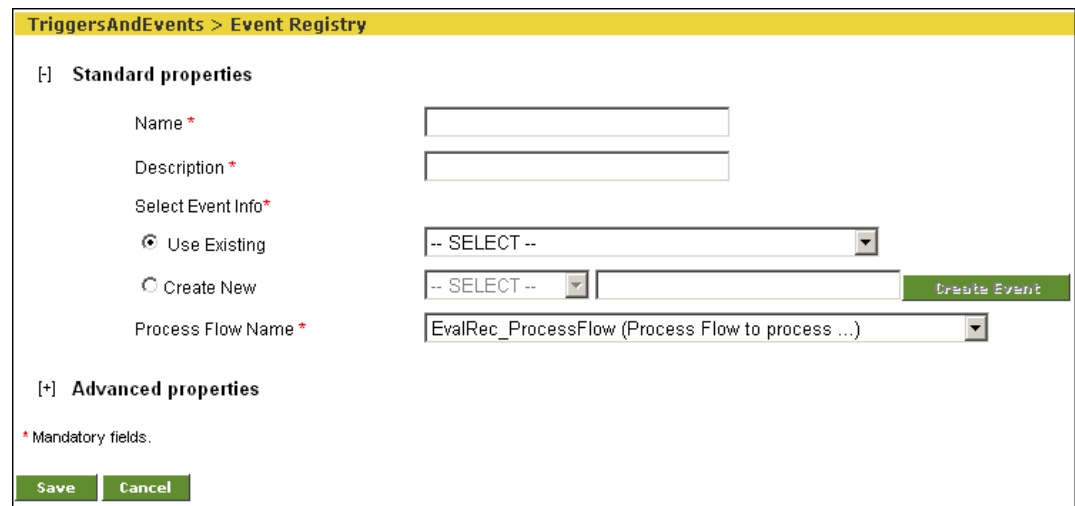


Figure 15.5: Manage Event Registry

3. Click the **New** link. The Create Event Registry screen is displayed (see Figure 15.6).



**Standard properties**

Name \*

Description \*

Select Event Info \*

☒ Use Existing

☐ Create New


Process Flow Name \*

**Advanced properties**

\* Mandatory fields.

Figure 15.6: Create Event Registry

4. Enter the name and description of the new Event Registry activity in the *Name* and *Description* fields respectively.
5. Select the required Events activity.

 To learn how to create event activity, refer to section [Creating Trigger and Events](#).

6. To select an existing event activity, select the *Use Existing* radio button and select the event activity from the drop-down list.

7. To create a new event activity, select the *Create New* radio button, select the event type from the drop down list and then click *Create Event* button. *Create Event* page is displayed.
8. In *Create Event* page enter the required parameters and click *Save* to save the event activity and return to *Create Event Registry* page.
9. Select the required Trigger Event from the *Event Name* drop-down list.
10. Select the required process flow from the *Process Flow Name* drop-down list.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

11. Click **Save** button. This displays a screen confirming that the event registry has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the event registry (refer to Figure 4.6).
12. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

13. Click **OK** to save the comments. This displays a screen confirming that the event registry has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING FILE EVENT

The File Event enables you to specify when and how frequently a process flow should be executed based on either creation of a new file, or existence of a file(s) in a pre-defined location or upon its modification.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create a File Event

1. Click **[+] Automate** to expand the tree and then click **[+] Triggers And Events**. All the items in the Triggers And Events category are displayed.
2. Click **File Event**. The Manage File Events screen is displayed (see Figure 15.7).





Figure 15.7: Manage File Event

3. Click the **New** link. The Create File Event screen is displayed (see Figure 15.8).

TriggersAndEvents > File Event

**[-] Standard properties**

Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
Trigger Type *	On FileCreated ▾
File Include Criteria *	<input style="width: 90%;" type="text"/>
File Exclude Criteria	<input style="width: 90%;" type="text"/>
File Base Location *	<input style="width: 90%;" type="text"/>
Use VFS *	<input type="checkbox"/>
Secure	<input checked="" type="checkbox"/>
User Id *	<input style="width: 90%;" type="text"/>
Password	<input style="width: 90%;" type="password"/>
Confirm Password	<input style="width: 90%;" type="password"/>
Event Start Date (mm/dd/yyyy)	<input style="width: 80%;" type="text"/>
Time (hh:mm)	Hours ▾ Mins ▾
Event Expiry Date (mm/dd/yyyy)	<input style="width: 80%;" type="text"/>
Time (hh:mm)	Hours ▾ Mins ▾
Frequency	Duration
Polling Frequency *	<input style="width: 80%;" type="text"/> Select One ▾
File Stable Time *	<input style="width: 80%;" type="text"/> Select One ▾

**[+] Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 15.8: Create File Event

4. Enter the name and the description of the new File Event activity in the *Name* and *Description* fields respectively.
5. Select the trigger type from *Trigger Type* drop-down list. The effect on the selection is listed in the table below.

Table 15.2: Trigger Type Selection Values

Trigger Type Selection	Description
------------------------	-------------

On FileCreated	To configure the file event to check for the creation of a new file(s).
On FileExists	To configure the file event to check for the existence of the file(s)
On FileModified	To configure the file event to check for any modification in file(s)

- Enter the file name that the file event needs to verify, in the *File Include Criteria* field.
- Enter the name of file that file event does not need to verify, in the *File Exclude Criteria* field. For example \*.txt is entered in *File Include Criteria*, but two files *Gdata.txt* and *Gdata1.txt* file are not required to be verified by File Event. Then *Gdata.txt* and *Gdata1.txt* file name need to be entered separated by comma in *File Exclude Criteria* field. To specify more than one file in *File Include Criteria* and *File Exclude Criteria*, you can use regular expressions listed in the table below.

Table 15.3: Expressions used in File Include Criteria and File Exclude Criteria

Expression	Description
*,*	For all files with some extension
*	For all files in a directory
a*.txt	For files starting with a and having extension txt (e.g. arch.txt)
a?????.txt	For files starting with a and have 6 more character followed by txt extension (e.g. archive.txt)
a[1-9]	For a1, a2 ,a3 .....a9
b[aiu]t	For bat, bit or but
a.txt, a.doc	For two files named as a.txt and a.doc



If more than one file is specified in the *File Include Criteria* field, process flow will triggered for each file.

- Enter the path of file in *File Base Location* field. Example c:/Gmdata



You can also use regular expression for folders, in *File Include Criteria* and *File Exclude Criteria* field. For example, if you enter *h\*/\*.txt* in *File Include Criteria* field and *C:/Gmdata* in *File Base Location* field, it will search for all .txt file inside all directories which starts from h under C:\Gmdata.

- When Adeptia Server is installed on Windows Operating System, File Event uses windows service to connect to remote machine to access any file. It just connects once and uses the same connection with the same User ID and Password (which is stored in the cache) every time. If you want to enforce the validation of User ID and Password every time while accessing the file on a remote machine, check *Use VFS* checkbox.
- If the File Event is secured i.e. username and password are required to access it, then check the *Secure* checkbox and enter the username and password required to access the file in the *User ID* and *Password* fields

respectively. This option is applicable only when the file specified is located on a remote machine.

11. Enter the date from which file event will start triggering, in the *Event Start Date* field. The date must be in *mm/dd/yyyy* format. Click calendar icon and select the required date from the calendar.
12. Enter the start time from the *Time* drop-down list.
13. Enter the date on which file event will stop triggering, in the *Event Expiry Date* field. The date must be in *mm/dd/yyyy* format. Click calendar icon and select the required date from the calendar.
14. Enter the expiry time from the *Time* drop-down list.
15. Enter the time interval for which file event will check for the arrival of any file or upon modification of existing file in the *Polling Frequency* field. Enter the digit in the *Frequency* field and select the unit of time i.e. seconds, minutes or hours etc from the *Duration* drop-down list.



Recommended minimum Polling Frequency is 30 seconds.

16. Enter the file stable time in the *File Stable Time* field. This is applicable only when user selects On FileCreated or On FileModified in trigger type. Trigger will wait for the specified time for the file to become stable.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

17. Click **Save** button. This displays a screen confirming that the file event has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the file event (refer to Figure 4.6).

18. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

19. Click **OK** to save the comments. This displays a screen confirming that the file event has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can view details of a process flow associated with a file event, by clicking the process flow displayed under *Associated Process Flows* on the Manage File Event screen.

## CREATING FTP EVENT

The FTP Event enables you to specify when and how frequently a process flow should be executed based on either creation of a new file, or existence of a file(s) on a FTP Server or upon its modification.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create a FTP Event

1. Click **[+] Automate** to expand the tree and then click **[+] Trigger and Events**. All the items in the Trigger Events category are displayed.
2. Click **FTP Event**. The Mange FTP Event screen is displayed (see Figure 15.9).



Figure 15.9: Manage FTP Event

3. Click the **New** link. The Create FTP Event screen is displayed (see Figure 15.10).

TriggersAndEvents > FTP Event

[-] **Standard properties**

Name *	<input type="text"/>
Description *	<input type="text"/>
Host name *	<input type="text"/>
Port *	<input type="text" value="21"/>
User Id *	<input type="text"/>
Password	<input type="password"/>
Confirm Password	<input type="password"/>
Transfer Type *	<span>PASSIVE ▾</span>
Trigger Type *	<span>On FileCreated ▾</span>
Secured (SSH Secured) *	<input type="checkbox"/>
File Include Criteria *	<input type="text"/> <span style="background-color: #4F81BD; color: white; padding: 2px 5px; font-weight: bold;">Define List</span>
File Exclude Criteria	<input type="text"/>
File Base Location *	<input type="text"/>
Event Start Date (mm/dd/yyyy)	<input type="text"/>
Time (hh:mm)	<span>Hours ▾</span> <span>Mins ▾</span>
Event Expiry Date (mm/dd/yyyy)	<input type="text"/>
Time (hh:mm)	<span>Hours ▾</span> <span>Mins ▾</span>
	Frequency      Duration
Polling Frequency *	<input type="text"/> <span>Select One ▾</span>
File Stable Time *	<input type="text"/> <span>Select One ▾</span>

[+] **Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 15.10: Create FTP Event

4. Enter the name and description of the new FTP Event in the *Name* and *Description* fields respectively.
5. Enter the name and port number of the FTP Server in the *Host Name* and *Port* field respectively.

6. Enter username and password required to access FTP Server in the *User ID* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.
7. Select the transfer type as either Active or Passive from the *Transfer Type* drop-down list. Active transfer is more secure since the client only initiates communication to the server on one port whereas in case of Passive transfer the client initiates communication to the Server over two ports. Passive mode is useful when you are behind a firewall or a proxy.
8. Select the trigger type from the *Trigger Type* drop-down list. For details of the selection, refer to Table 15.2.
9. Check the *SSH (Secure Shell)* checkbox if the FTP event accesses a secure FTP Server. When SSH is used to protect FTP Server, the control connection between the FTP client and Server is encrypted.
10. Enter the name of file that FTP event needs to verify, in the *File Include Criteria* field.



In File Include Criteria and File Exclude Criteria you can also give the folder name along with the file name. For example suppose you have entered *C:\Gmdata* in *File Base Location* field. There are two sub-folders *Purchase* and *Purchase1* in *Gmdata* folder. Now suppose you don't know whether the file is in *Purchase* or *Purchase1* folder. To handle this scenario you can define File Include Criteria as defined below:

*Purchase/\*.txt,Purchase1/\*.txt.*

You can also use regular expression in the folder name as given below:

*Pur\*/\*.txt*

This path includes both the folder *Purchase* and *Purchase1*.

If you have large number of paths that need to be define, you can also use *Define List* option.

11. To define path in *File Include Criteria*, click *Define List* button. The *File Include Criteria List* screen is displayed (see Figure 15.11).

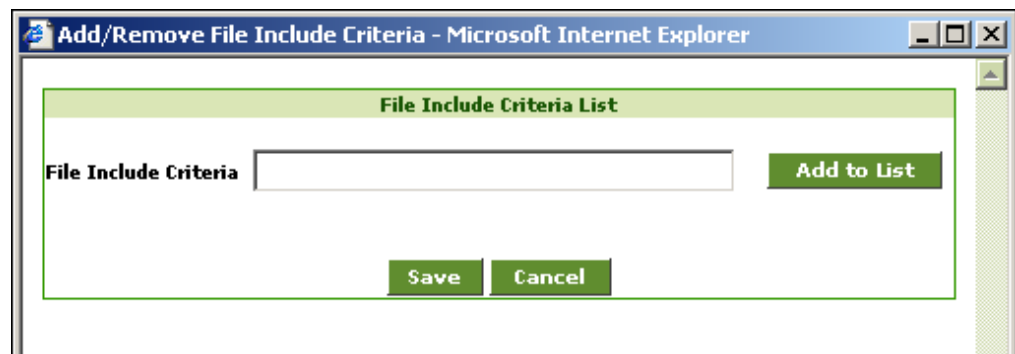


Figure 15.11: Add Include Criteria List

12. To add path enter the path in *File Include Criteria* field and click *Add to List* button. The added path are shown in *File Include Criteria List* (see Figure 15.12 ).

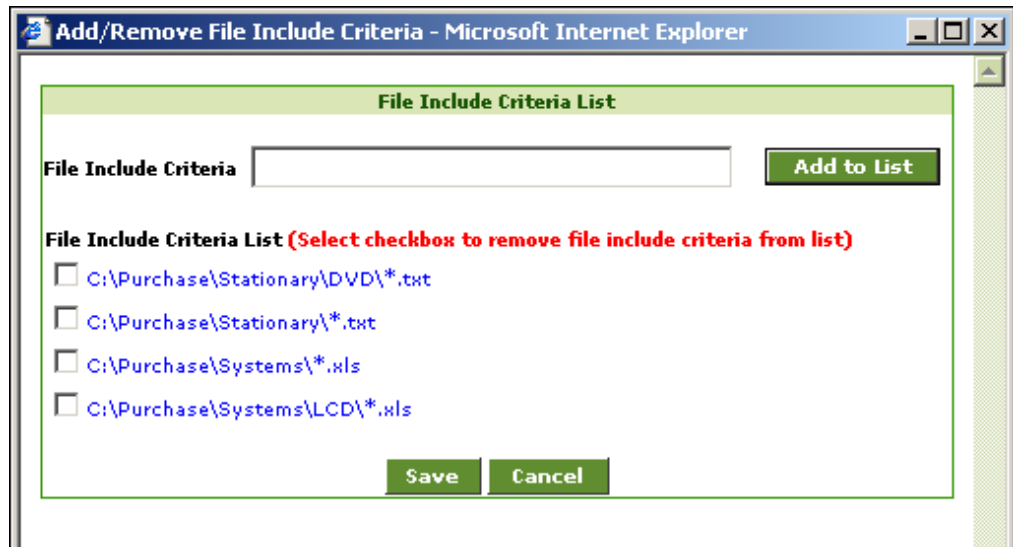




Figure 15.12: File Include Criteria List

13. Click *Save* button to save the added path in *File Include Criteria* field. The added paths are populated in the *File Include Criteria Field* in the *Create FTP Event* page.

	<p>If you want to remove some path form the <i>File Include Criteria</i>, Check the checkbox adjacent to the required path and then click <i>Save</i>. The selected path is not populated in the <i>File Include Criteria</i> field of the <i>Create FTP Event</i> page.</p>
---	--

14. Enter the name of file that file event does not need to verify, in the *File Exclude Criteria* field. For example \*.txt is entered in *File Include Criteria*, but two files *Gdata.txt* and *Gdata1.txt* file are not required to be verified by FTP Event. Then *Gdata.txt* and *Gdata1.txt* file name need to be entered separated by comma in *File Exclude Criteria* field. To specify more than one file in *File Include Criteria* and *File Exclude Criteria*, you can also use regular expressions. These are listed in Table 15.3

	<p>If more than one file is specified in the <i>File Include Criteria</i> field, process flow will triggered for each file.</p>
---	---

15. Enter the path of file in *File Base Location* field. Example c:/Gmdata.
16. Enter the date from which FTP event will start triggering, in the *Event Start Date* field. The date must be in mm/dd/yyyy format. Click calendar icon and select the required date from the calendar.
17. Enter the start time from the *Time* drop-down list.
18. Enter the date on which FTP event will stop triggering, in the *Event Expiry Date* field. The date must be in mm/dd/yyyy format. Click the calendar icon and select the required date from the calendar.



19. Enter the expiry time from the *Time* drop-down list.
20. Enter the time interval for which FTP event will check for the arrival of any file or modification of existing file in the *Polling Frequency* field. Enter the digit in the *Frequency* field and select the unit of time i.e. seconds, minutes or hours etc from the *Duration* drop-down list.



Recommended minimum Polling Frequency is 30 seconds.

21. Enter the file stable time in the *File Stable Time* field. This is applicable only when user selects On FileModified in trigger type. Trigger will wait for the specified time for the file to become stable.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

22. Click **Save** button. This displays a screen confirming that the FTP event has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the FTP event (refer to Figure 4.6).

23. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

24. Click **OK** to save the comments. This displays a screen confirming that the FTP event has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can view details of a process flow associated with a FTP event, by clicking the process flow displayed under *Associated Process Flows* on the Manage FTP Event screen.

## CREATING HTTP TRIGGER

The HTTP trigger enables you to schedule a process flow to be triggered when an HTTP request is made to Adeptia Server. It also allows the request to pass the data to the process flow. The trigger can be used by a HTTP client application to integrate with process flow, deployed on the Adeptia Server.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create a HTTP Trigger

1. Click **[+] Automate** to expand the tree and then click **[+] Trigger and Events**. All the items in the Trigger Events category are displayed.
2. Click **HTTP Trigger**. The Manage HTTP Trigger screen is displayed (see Figure 15.13).

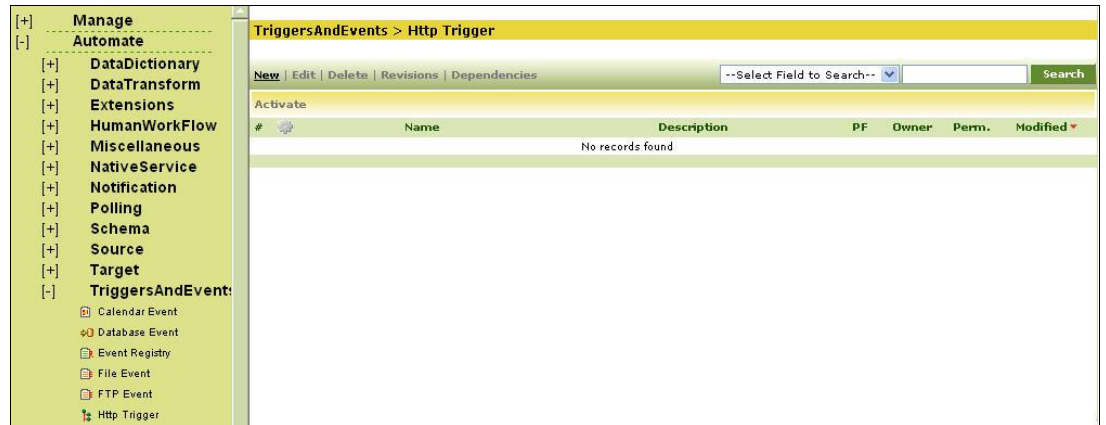


Figure 15.13: Manage Http Trigger

3. Click the **New** link. The Create HTTP Trigger screen is displayed (see Figure 15.14).

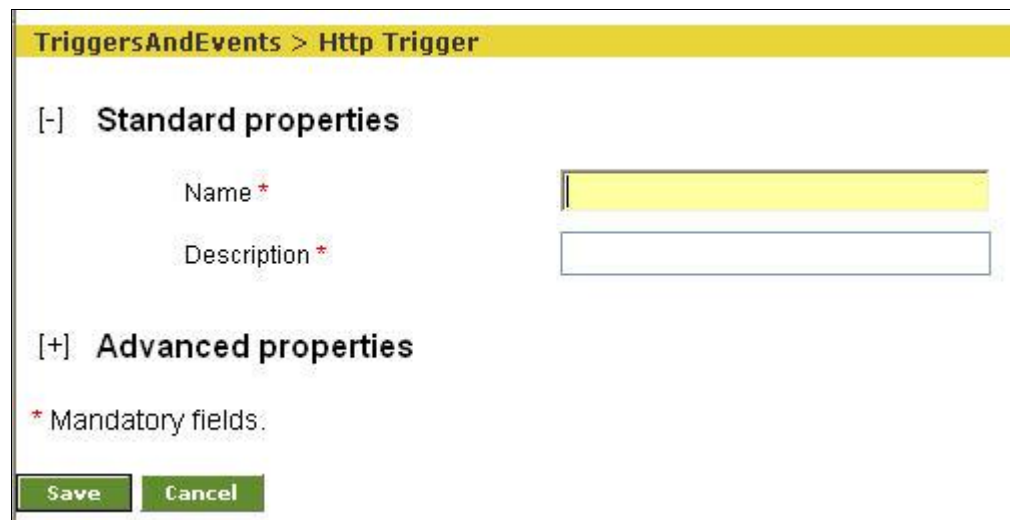


Figure 15.14: Create Http Trigger


4. Enter the name and description of the new HTTP Trigger activity in the *Name* and *Description* fields respectively.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).


5. Click **Save** button. This displays a screen confirming that the HTTP event has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the HTTP event (refer to Figure 4.6).

6. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

7. Click **OK** to save the comments. This displays a screen confirming that the HTTP event has been created successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

	You can view details of a process flow associated with a HTTP event, by clicking the process flow displayed under <i>Associated Process Flows</i> on the Manage HTTP Event screen.
---	--

## Usage Recommendation

To read the context variable, within a process flow following steps are required:

1. While creating the process flow, create a process flow variable. To know, how to create Process Flow Variable, refer to the section [Creating Process Flow Variable](#).
2. Use this process flow variable as Context Source within process flow. To know, how to use a Process Flow Variable as Context Source, refer to the section [Using Context Source and Context Target](#).
3. Change the value of the Property Event Context Enabled to yes.
4. Post the data using your HTTP client application to the following URL:

<http://<ServerName>:<ServerPort>/adeptia/receiveservlet?activityID=<EntityID>&userID=<LoginName>&password=<LoginPassword>&group=IndigoGroup:<Group ID>>

where

<i>ServerName</i>	: Name of the server where Adeptia Server is running
<i>ServerPort</i>	: Port at which Adeptia Server is running. By default, it is 8080.
<i>EntityID</i>	: 30 digit ID of the HTTP Trigger activity. To view Entity ID of the HTTP Trigger, click View in the HTTP Trigger Page.
<i>LoginName</i>	: User ID of the Adeptia Server
<i>LoginPassword</i>	: Password of the Adeptia Server
<i>Group ID</i>	: 30 digit ID of the group, the user belongs to. To view Group ID of the group, click View in the Manage group page.

## CREATING JMS EVENT

The JMS Event enables you to specify when and how frequently the process flow should be executed if any message is updated in a queue or topic of a JMS Server.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Prerequisites:

- JMS Provider activity must be created before creating JMS Event activity.

### Steps to create a JMS Event

1. Click **[+] Automate** to expand the tree and then click **[+] Trigger and Events**. All the items in the Trigger Events category are displayed.
2. Click **JMS Event**. The Manage JMS Event screen is displayed (see Figure 15.15).

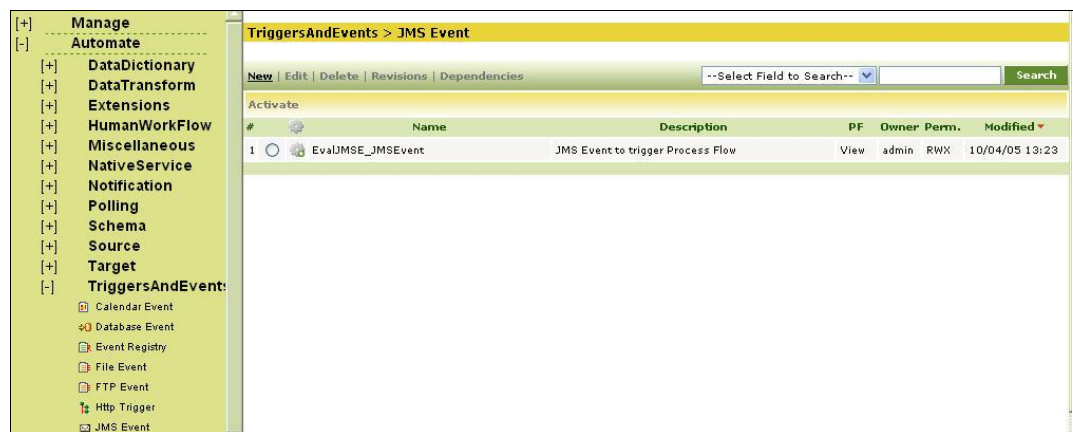


Figure 15.15: Manage JMS Event

3. Click the **New** link. The Create JMS Event screen is displayed (see Figure 15.16).

TriggersAndEvents > JMS Event

**[-] Standard properties**

Name \*

Description \*

JMS Provider\*  ▼

Connection Type\*  ▼

Durable Subscriber ☐

SubscriberID

Queue Or Topic Name \*

MessageSelector

UserName

Password


Confirm Password

**[+] Advanced properties**


\* Mandatory fields.

Figure 15.16: Create JMS Event


4. Enter the name for the new JMS Event in the *Name* field. Then, enter the description for the JMS Event in the *Description* field.
5. Select the JMS Provider activity from the *JMS Provider* drop-down list.

 To learn how to create JMS Provider activity, refer to section [Creating JMS Provider](#).


6. Select the Connection Type as either Topic or Queue from the *Connection Type* drop-down list.
7. Check the *Durable Subscriber* check box if the JMS Subscriber is durable. If a client needs to receive all the messages published on a topic, including the ones published while the subscriber is inactive, it uses a Durable Subscriber. This is applicable only when the connection type is Topic.
8. Enter the subscriber ID in the *Subscriber ID* field.
9. Enter the name of queue or topic as configured in the JMS Server in the *Queue Or Topic Name* field.
10. If you want to select a specific message from the JMS Server, enter the message selector in the *Message Selector* field.

	<p>The message selector is used to specify the filter criterion to receive a message that the user is interested in. The messages can be filtered based on only header references and properties references of the message. The message selector uses SQL92 query syntax to define the filter criteria. SQL92 is widely used to query the entire standard databases i.e. Oracle, SQL Server. The only difference between the database query and the message selector query is that the message selector uses, only a part of the query which is after the where clause.</p> <p>The following message selector selects messages with a message type of car and color of blue and weight greater than 2500 pounds:</p> <pre>JMSType = 'car' AND color = 'blue' AND weight &gt; 2500</pre> <p>The following message selector selects message with the property Sport has value either as Basketball or Football.</p> <pre>Sport in ('Basketball','Football')</pre>
---	---

11. Enter the username and password required to connect to JMS Server in the *UserName* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.


	<p>To learn about Advanced Properties refer to section <a href="#">Changing Advanced Properties</a>.</p>
--	--

12. Click **Save** button. This displays a screen confirming that the JMS event has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the JMS event (refer to Figure 4.6).
13. Enter the comments in the *Add Comments* field.

	<p>The comment should be at least 1 character in length.</p>
---	--

14. Click **OK** to save the comments. This displays a screen confirming that the JMS event has been created successfully.

	<p>By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a>.</p>
---	---

	<p>You can view details of a process flow associated with a JMS event, by clicking the process flow displayed under <i>Associated Process Flows</i> on the Manage JMS Event screen.</p>
---	---

## CREATING MAIL EVENT

The Mail Event allows you to schedule a process flow to be triggered when a specified mail arrives on the mail Server.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create a Mail Event

1. Click **[+] Automate** to expand the tree and then click **[+] Trigger and Events**. All the items in the Trigger and Events category are displayed.
2. Click **Mail Event**. The Manage Mail Event screen is displayed (see Figure 15.17).



**TriggersAndEvents > Mail Event**

[New](#) | [Edit](#) | [Delete](#) | [Revisions](#) | [Dependencies](#)    --Select Field to Search--    [Search](#)

Activate



#	Name	Description	PF	Owner	Perm.	Modified
1	EvalPF_MailEvent_Format1	Mail event for format1	View	admin	RWX	09/01/06 15:03
2	EvalPF_MailEvent_Format2	Mail event for format2	View	admin	RWX	09/01/06 15:03

Figure 15.17: Manage Mail Event

3. Click the **New** link. The Create Mail Event screen is displayed (see Figure 15.18).

TriggersAndEvents > Mail Event

**[ - ] Standard properties**

Name *	<input type="text"/>
Description *	<input type="text"/>
Protocol *	<input type="text" value="POP3"/>
Incoming Mail Server *	<input type="text"/>
Domain	<input type="text"/>
CDO host machine	<input type="text"/>
Enable SSL	<input type="checkbox"/>
Port	<input type="text" value="110"/>
User Id *	<input type="text"/>
Password *	<input type="password"/>
Confirm Password *	<input type="password"/>
Search based on following filter criteria *	
Sender E-mail	<input type="text"/>
Mail Subject	<input type="text"/> <input checked="" type="checkbox"/> ignoreCase
File Attachment	<input type="text"/> <input type="checkbox"/> ignoreCase
Event Start Date (mm/dd/yyyy)	<input type="text"/> 
Time (hh:mm)	<input type="text" value="Hours"/> <input type="text" value="Mins"/>
Event Expiry Date (mm/dd/yyyy)	<input type="text"/> 
Time (hh:mm)	<input type="text" value="Hours"/> <input type="text" value="Mins"/>
Frequency	Duration
Polling Frequency *	<input type="text"/> <input type="text" value="Select One"/>

**[ + ] Advanced properties**

\* Mandatory fields.

Figure 15.18: Create Mail Event


4. Enter the name and description of the new Mail Event activity in the *Name* and *Description* fields respectively.
5. Select the Internet standard protocol to be used for retrieving incoming mails, from the *Protocol* drop-down list. You can select the POP3 protocol, IMAP4 protocol or the MAPI protocol. Based on the selected protocol, the default port number for that protocol is displayed in the *Port* field. The MAPI protocol is used to access mails on the Microsoft Exchange Server. It uses J-Integra as a bridge and uses a domain for exchanging mails, instead of a port. Thus, if the MAPI protocol is selected, then the port number field appears as disabled.




6. Enter the address of the incoming mail server in the *IncomingMail Server* field.
7. Enter the domain name that is configured for the Microsoft Exchange Server in the *Domain* field. This field appears as enabled only when the MAPI protocol is selected in the *Protocol* drop-down list.
8. Enter the host machine name on which CDO is installed and configured, in the *CDO Host Machine* field. This field appears as enabled only when the MAPI protocol is selected in the *Protocol* drop-down list. When Java applications use J-Integra to exchange mails on Microsoft Exchange Server, then CDO serves as the intermediary between the Java application and Microsoft Exchange Server.
9. Check the *Secure* checkbox, if the specified incoming mail server is SSL enabled.
10. The default port number for the selected protocol is displayed in the *Port* field. If you want to change this port number, enter the new port number in the *Port* field. If MAPI protocol is selected, then the port number field appears as disabled.
11. Enter the username and password required to access the mail Server in the *User ID* and *Password* fields respectively. Then, re-enter the password in the *Confirm Password* field.
12. Select any of the following filter criteria:
  - Sender E-mail
  - Mail Subject
  - File Attachment

You may select more than one filter criteria.

13. Enter the sender's email address and subject of email in the *Sender Email* and *Mail Subject* fields respectively.

	You can define the mail subject as case sensitive or insensitive by checking/unchecking the <i>Ignore Case</i> checkbox displayed next to the <i>Mail Subject</i> field. By default, the mail subject is defined as case insensitive, with this checkbox being checked.
---	---

14. Enter the name of the file attached with mail, in the *File Attachment* field.

	You can define the filename that is added as an attachment, as case sensitive or insensitive by checking/unchecking the <i>Ignore Case</i> checkbox displayed next to the <i>File Attachment</i> field. By default, the file attachment is defined as case sensitive, with this checkbox being unchecked.
---	---

15. Enter the date from which Mail event will start triggering; in the *Event Start Date* field. The date must be in *mm/dd/yyyy* format. Click calendar icon and select the required date from the calendar.
16. Enter the start time from the *Time* drop-down list.
17. Enter the date on which the Mail event will stop triggering; in the *Event Expiry Date* field. The date must be in *mm/dd/yyyy* format. Click the calendar icon and select the required date from the calendar.

18. Enter the expiry time from the *Time* drop-down list.
19. Enter the time interval, the Mail event will check for the existence of the mail, in the *Polling Frequency* field. Enter the digit in the *Frequency* field and select the unit of time i.e. seconds, minutes or hours etc from the *Duration* drop-down list.



Recommended minimum Polling Frequency is 30 seconds.

20. To specify maximum number of emails to be processed at a time, click **[+]** to expand Advanced Properties and enter the required value in the *Mail Process Concurrency* field.



If there is large number of emails in the mailbox, which meet the search criteria of the mail event, all the mails will be processed at a time. If you want to limit the number of emails to be process at a time with this event, enter the appropriate value in the *Mail Process Concurrency* field. Now mail event will process only the specified number of emails at a time. Remaining emails will be processed at the next polling frequency. Mails are processed on First In First Out (FIFO) basis.

To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

21. Click **Save** button. This displays a screen confirming that the mail event has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the mail event (refer to Figure 4.6).
22. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

23. Click **OK** to save the comments. This displays a screen confirming that the mail event has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



If a mail event is deactivated and then activated again, it will trigger an event for an existing email.

You can view details of a process flow associated with a mail event, by clicking the process flow displayed under *Associated Process Flows* on the Manage Mail Event screen.

A mail event can trigger multiple process flows at a time. Each process flow uses a mail source. When multiple process flows use a mail source at a time, errors can occur. Thus it is advisable to limit the number of process flows triggered by a mail event. You can also set the number of retries and the sleep time between each retry, in case an error occurs when using a mail box. For details on these settings, refer to [Appendix A](#).

## CREATING TIMER EVENT

The Timer Event enables you to specify the date, time and frequency at which a process flow should be executed.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create a Timer Event

1. Click **[+] Automate** to expand the tree and then click **[+] Trigger and Events**. All the items in the Trigger Events category are displayed.
2. Click **Timer Event**. The Manage Timer Event screen is displayed (see Figure 15.19).

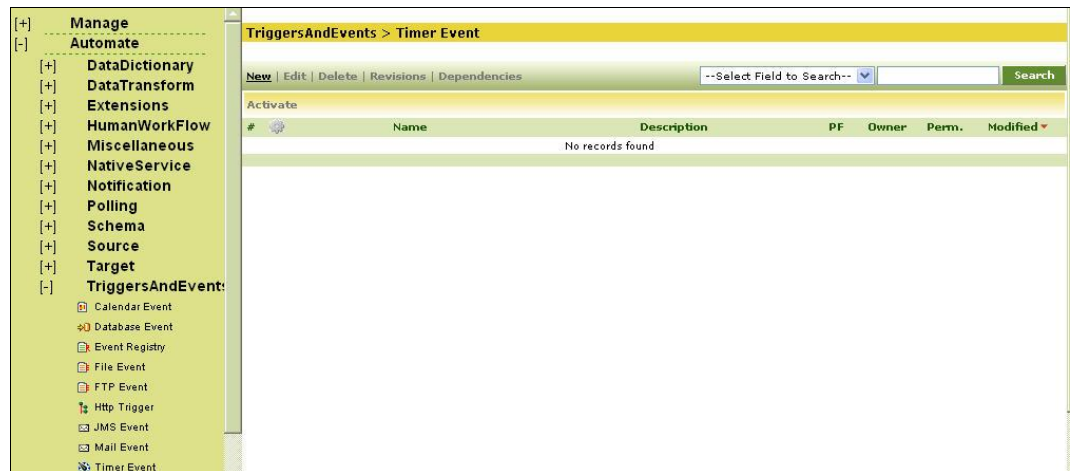


Figure 15.19: Manage Timer Event

3. Click the **New** link. The Create Timer Event screen is displayed (see Figure 15.20).

TriggersAndEvents > Timer Event

**[ - ] Standard properties**

Name \*

Description \*

Event Start Date (mm/dd/yyyy) \*

Time (hh:mm)

Expiry Criteria \*

☒ Run only Once

☐ Repeat Count

☐ Expiry By Date/Time

Frequency \*

Hours
Mins

(number)

Date (mm/dd/yyyy)

Time (hh:mm)

Count
Duration

**[ + ] Advanced properties**

\* Mandatory fields.

Save
Cancel

Figure 15.20: Create Timer Event

4. Enter the name and description of the new Timer Event activity in the *Name* and *Description* fields respectively.
5. Enter the date from which the Timer event will start triggering, in the *Event Start Date* field. The date must be in *mm/dd/yyyy* format. Click the calendar icon to select the required date from the calendar.
6. Enter the start time from the *Time* drop-down list.
7. Select one of the *Expiry Criteria* displayed in the table below.

Table 15.4: Expiry Criteria

Expiry Criteria	Description
-----------------	-------------

Run Only Once	Select this option if the process flow needs to be triggered only once.
Repeat Count	Select this option if the process flow needs to be triggered for given number of times. Enter the required number in the Repeat Count field. Progress flow is triggered Repeat Count + 1 times.
Expiry By Date/Time	Select this option if the process flow needs to be triggered up to the given date and time on a given interval. To select the expiry date click on the calendar and select the required date. Select the expiry time using Hours and Mins drop-down list.

8. If *Repeat Count* or *Expiry By Date/Time* option is selected as expiry criteria, enter the time interval in the *Frequency* field.



Recommended minimum Polling Frequency is 30 seconds.  
To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

9. Click **Save** button. This displays a screen confirming that the timer event has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the timer event (refer to Figure 4.6).

10. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

11. Click **OK** to save the comments. This displays a screen confirming that the timer event has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



You can view details of a process flow associated with a timer event, by clicking the process flow displayed under *Associated Process Flows* on the Manage Timer Event screen.

## TRIGGERING PROCESS FLOW USING WEB SERVICE

### TRIGGER

Web Service Trigger is an interface, which allows a Web Service client to trigger any process flow in Adeptia Server. The Web Service client needs to pass the ID of the process flow and any input parameters that need to be passed into the Process Flow.

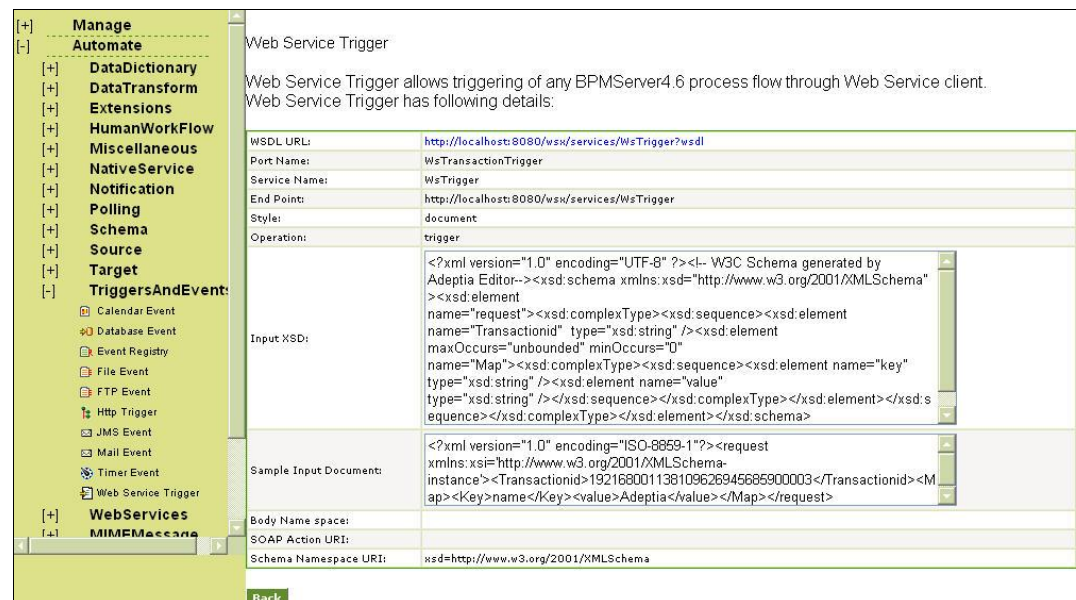
To trigger a Process Flow, the Web Service client needs to know details of the Web Service published and format in which input parameter can be passed.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### **Steps to get the information required by Web Service Client to trigger a Process Flow**

1. Click **[+] Automate** to expand the tree and then click **[+] Triggers And Events**. All the items in the Triggers And Events category are displayed.
2. Click **Web Service Trigger**. The Web Service Trigger screen is displayed (see Figure 15.21).



**Web Service Trigger**

Web Service Trigger allows triggering of any BPM Server 4.6 process flow through Web Service client. Web Service Trigger has following details:

WSDL URL:	http://localhost:8080/wsxf/services/WsTrigger?wsdl
Port Name:	WsTransactionTrigger
Service Name:	WsTrigger
End Point:	http://localhost:8080/wsxf/services/WsTrigger
Style:	document
Operation:	trigger

**Input XSD:**

```
<?xml version="1.0" encoding="UTF-8" ?><!-- W3C Schema generated by Adeptia Editor--><xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"><xsd:element name="request"><xsd:complexType><xsd:sequence><xsd:element name="Transactionid" type="xsd:string"/><xsd:element maxOccurs="unbounded" minOccurs="0" name="Map"><xsd:complexType><xsd:sequence><xsd:element name="key" type="xsd:string"/><xsd:element name="value" type="xsd:string"/></xsd:sequence></xsd:complexType></xsd:element></xsd:sequence></xsd:complexType></xsd:element></xsd:schema>
```

**Sample Input Document:**

```
<?xml version="1.0" encoding="ISO-8859-1"?><request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"><Transactionid>192168001138109626945685900003</Transactionid><Map><Key>name</Key><value>Adeptia</value></Map></request>
```

Body Name space:

SOAP Action URI:

Schema Namespace URI: xsd=http://www.w3.org/2001/XMLSchema

**Back**

Figure 15.21: Web Service Trigger

3. This screen shows the details of the Web Service published. All the parameters needed by the Web Service client to invoke the service are displayed in this screen.
4. Use the WSDL URL and Sample Input Document displayed in the Figure 15.21 to trigger the Process Flow.
5. A Sample Input Document which is to be used to trigger the process flow is displayed below (see Figure 15.22).

```
<?xml version="1.0" encoding="ISO-8859-1"?><request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"><Transactionid>192168001138109626945685900003</Transactionid><Map><Key>name</Key><value>Adeptia</value></Map></request>
```

Figure 15.22: Sample Input Document used to Trigger Process Flow

6. Make sure to replace the Transaction ID with the ID of the Process Flow, which is to be triggered.



While creating the Web Service trigger, you need to ensure that Transport security type is selected, as this trigger does not support Message security type.

7. To pass the parameter to the process flow, enter the key(name) and the value of the parameter in the *Map* tag of the XML shown above.



To know the ID of a Process Flow, In the Manage Process Flow page, click **View** link against the process flow.

## ACTIVATING TRIGGER EVENTS

### Steps to Activate a Trigger Event

1. Click **[+] Automate** to expand the tree and then click **[+] Triggers And Events**. All the items in the Triggers And Events category are displayed.
2. Click **File Event**. The Manage File Event screen is displayed with the list of existing events (see Figure 15.23).

TriggersAndEvents > File Event

New | Edit | Delete | Revisions | Dependencies

--Select Field to Search--

Search

Activate


#		Name	Description	PF	Owner	Perm.	Modified
1		File_Event	File Event to trigger EMP Approval PF	None	admin	RWX	03/24/07 12:14

Figure 15.23: Manage File Event

3. To activate the trigger event, select the radio button adjacent to the event and click **Activate**. A screen is displayed confirming the trigger event activity has been activated successfully.

## 16 CREATING WEB SERVICES

The Web Services module has two components:

- [Consumer](#)
- [Provider](#)

The *Consumer* component allows users to access any Web Services on the Web unless the service to be accessed has restricted access. Using the *Provider* component users can publish their Web Services for access to others. Access to Web Services to be published can also be restricted to selected users

This section also describes the creation process of:

- [Security Policy activity for Web Services](#)
- [Consumer Web Services using UDDI](#)
- [Consumer Web Services using URI](#)
- [Provider or Publisher Web Services](#)

### CREATING SECURITY POLICY ACTIVITY FOR WEB SERVICES

Since Web Services expose crucial business information, Web services security is critically important. A Web service can be secured using Security Policy activity. It is recommended that users create an appropriate security policy before they publish Web services using the Web service provider.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

#### ***Steps to create a Security Policy Activity***

1. Click **[+] Automate** to expand the tree and then click **[+] Web Services**. All the items in the Web Services category are displayed.
2. Click **Security Policy**. The Manage Security Policy screen is displayed (see Figure 16.1).





Figure 16.1: Manage Security Policy

- Click the **New** link. The Create Security Policy screen is displayed (see Figure 16.2).

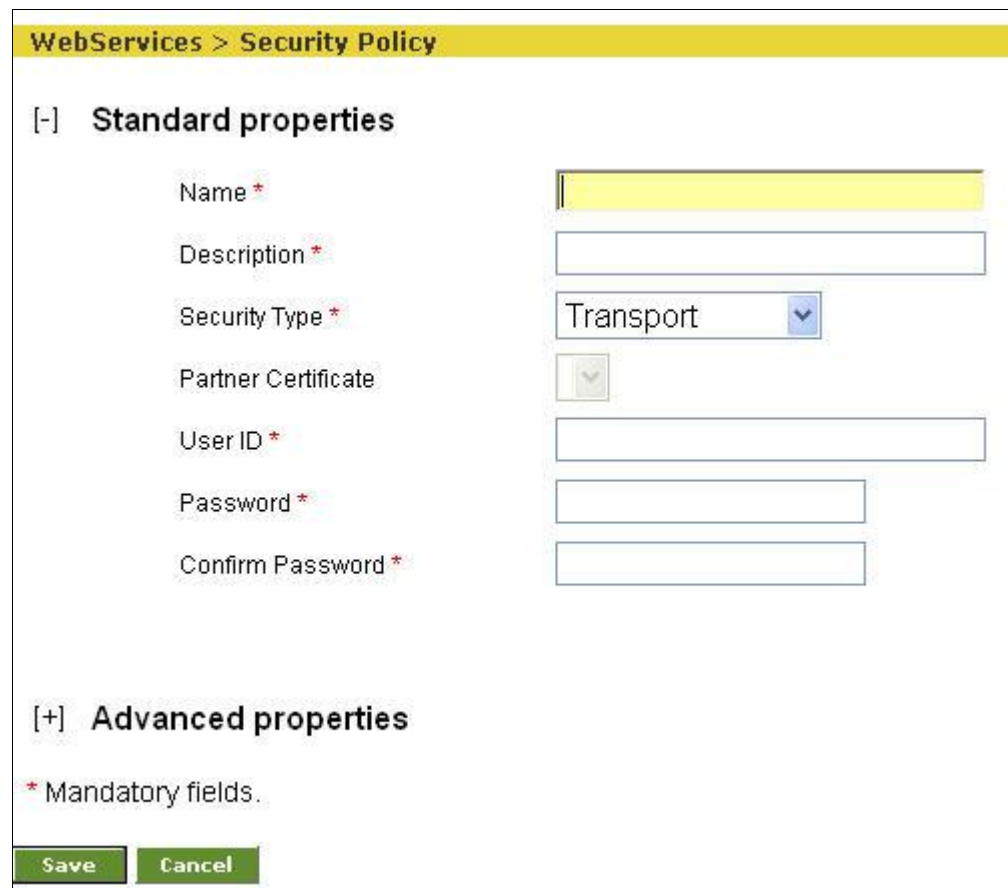


Figure 16.2: Create Security Policy

- Enter the name and description of the new Security Policy in the *Name* and *Description* fields respectively.
- Select the type of security as either Transport or Message Level depending upon the security level of Web Service, from the *Security Type* drop-down list. The types of Security are listed in the table below.

Table 16.1: Security Types

Security Type	Description
Transport	If user selects Transport type then SSL and basic authentication security is provided. System asks for the User ID and Password.
Message Level	If user selects Message Level type then security is provided as per WS-security standard. System asks for the Partner certificate name, User ID and Password.

6. Select required Partner Certificate from the *Partner Certificate* drop-down list.



Partner certificate is an electronic signature, which is used to validate the consumer who is accessing the Web Services.

7. Enter the User ID and password in the *User ID* and *Password* fields respectively. Then re-enter password in the *Confirm Password* field.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

8. Click **Save** button. This displays a screen confirming that the security policy has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the security policy (refer to Figure 4.6).

9. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

10. Click **OK** to save the comments. This displays a screen confirming that the security policy has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING WEB SERVICE CONSUMER ACTIVITY

A Web Service Consumer locates a Web service and invokes the operations it provides. A Web Service consumer activity is created to access any Web Service.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

A Web Service can be located in two ways, explained in the table below.

Table 16.2: Web Services

Method	Description
UDDI	UDDI (Universal Description, Discovery, and Integration) provides a mechanism for clients to dynamically find other Web Services. Using the UDDI interface, businesses can dynamically connect to services provided by external business partners. UDDI is a public registry, where one can publish and inquire about Web Services. A UDDI registry has two kinds of clients: businesses that want to publish a service (and its usage interfaces), and clients who want to obtain services of a certain kind and bind programmatically to them.
URI	URI (Uniform Resource Identifiers) provides a way for clients to define the location of Web Services by giving an HTML URL or Local LAN path for a WSDL file.

## Creating Web Services Consumer Activity using UDDI

### Steps to create a Web Service Consumer Activity using UDDI

1. Click **[+] Automate** to expand the tree and then click **[+] Web Services**. All the items in the Web Services category are displayed.
2. Click **Web Service Consumer**. The Manage Web Service Consumer screen is displayed (see Figure 16.3).



Figure 16.3: Manage Web Service Consumer Activity

3. Click the **New** link. The Create Web Service Consumer screen is displayed (see Figure 16.4).

**WebServices > Web Service Consumer**

**[-] Standard properties**

Specify web service definition location.

Name \*

Description \*

Web Service Definition Location\* ☒ UDDI ☐ URI

**Next** **Cancel**

Figure 16.4: Create Web Service Consumer Activity

4. Enter the name and description of the new Web Service Consumer activity in the *Name* and *Description* fields respectively.
5. Select UDDI in *Web Service Definition Location*.



WSDL (Web Service Definition Language) is a document written in XML. The document describes a Web service. It specifies the location of the service and the operations (or methods) the service exposes.

6. Click **Next** button. The Web Service Consumer screen is displayed (see Figure 16.5).

**WebServices > Web Service Consumer**

Search allows you to search for a Business, Service, or Technical Model by NAME. You may use the '%' symbol as a wildcard that matches any character.

Name \*

Description \*

Enquiry URL \*

Search For a \*

Starting with \*

Match Case ☐

Find Whole Words Only ☐



Figure 16.5: Search a Web Service

7. Enter the URL of UDDI search site in *Enquiry URL* field.  
For example, <http://uddi.microsoft.com/inquire>
8. Select the required category from the *Search For a* drop-down list.
9. Enter the relevant letter or word in the *Starting with* field.
10. You can check the *Match Case* and the *Find Whole Words* only checkbox to filter the search result.
11. Click **Next** button. A screen is displayed with the search result (see Figure 16.6).

Web Services > Web Service Consumer

Find Technical model results

Your query returned a total of 2 matching model(s). Press the Back button to search again.

Technical Models			
	Technical Model Name	Description	Overview URL
	Country Details	Get Currency, Currency code, International Dialing code, ISO Country code for all countries	<a href="http://www.webservices.net/country.asmx?WSDL">http://www.webservices.net/country.asmx?WSDL</a>
	Country State	Country State	<a href="http://9.182.151.177/WSCountryState/?wsdl">http://9.182.151.177/WSCountryState/?wsdl</a>

Back

Next

Cancel

Figure 16.6: Web Service search result

12. Select the required search result and click **Next** button. The Web Service screen is displayed with list of operations (see Figure 16.7).



**Web Service Consumer**

Select operation name for web service consumer activity Abc.

Name \*

Description \*

Service Name \*

Port Type \*

Port \*

Style Name \*

Operation(s) \*

- GetCountryByCountryCode
- GetISD
- GetCountries
- GetCurrencyCodeByCurrencyName
- GetISOCountryCodeByCountyName
- GetCurrencyCode

Figure 16.7: Select Web Service Operation

13. Select the name of Service from the *Service Name* drop-down list.
14. Select the port type from the *Port Type* drop-down list. A port type can support multiple ports. This selection populates the options in the *Ports* drop-down list.
15. Select the port for the selected port type from the *Ports* drop-down list.



Currently, the Soap12 port is not supported by Adeptia.

16. Select the required operation from the *Operation(s)* field. This selection automatically displays the style name in the *Style Name* field.



The *Style Name* field is automatically populated according to the specified operation. There are two types of Style: **document** and **rpc**.

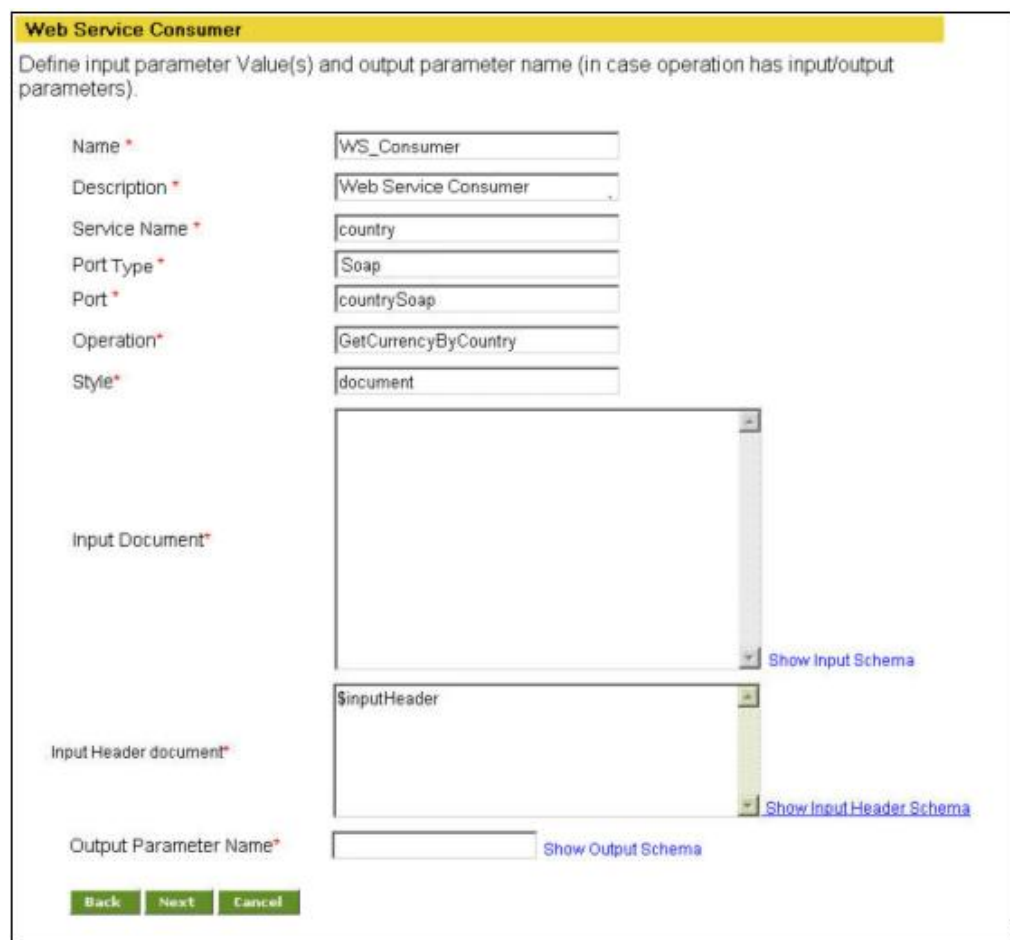
**Document:** When a WS Consumer invokes a *document* style Web service, the consumer typically sends it an entire document, such as a purchase order, rather than a discrete set of parameters. The Web service accepts the entire document, processes it, and may or may not return a result document. In a *document* style, the input can be read from context or a stream coming from another activity. Similarly, output can be set to context or can be generated as stream to other activities. In case the output is set to context, a variable is created in the context with name as specified in the

*Output Parameter Name* field and then output is set into that variable.

**rpc:** In *rpc* style when WS Consumer invokes the Web service, the consumer sends parameter values to the Web service, which executes the required methods, and then sends back the return values. In *rpc* style, input can be read from the context only and the output parameter is set in the context only. This style does not generate a stream. A variable is created in the context with name as specified in the Output Parameter Name field and then output is set into that variable.

In the current example, the specified Web Service is of *document* style.

17. Click **Next** button. The Web Service Consumer Screen is displayed (see Figure 16.8).



**Web Service Consumer**

Define input parameter Value(s) and output parameter name (in case operation has input/output parameters).

Name *	<input type="text" value="WS_Consumer"/>
Description *	<input type="text" value="Web Service Consumer"/>
Service Name *	<input type="text" value="country"/>
Port Type *	<input type="text" value="Soap"/>
Port *	<input type="text" value="countrySoap"/>
Operation *	<input type="text" value="GetCurrencyByCountry"/>
Style *	<input type="text" value="document"/>

Input Document *	<div style="border: 1px solid gray; height: 100px; width: 100%;"></div> <a href="#">Show Input Schema</a>
Input Header document *	<div style="border: 1px solid gray; height: 50px; width: 100%;"></div> <a href="#">Show Input Header Schema</a>
Output Parameter Name *	<input type="text"/> <a href="#">Show Output Schema</a>

Figure 16.8: Enter Input XML

18. Enter the Input XML in the *Input Document* field. Input document is used to define the input data for WS Consumer activity. The actual value could be given in three ways, explained in the table below.

Table 16.3: Value for WS Consumer Activity


Method	Description
Definition Time	Here the complete XML document, which is compliant with the Input XSD, has to be copied in the <i>Input Document</i> field. To view sample XSD, click <b>Show Input Schema</b> link. The sample input schema is displayed. Do not paste this schema in the <i>Input Document</i> field.
Run Time	Here a variable prefixed with \$ is defined in the <i>Input Document</i> field. For example \$variable1. The value of variable1 will be searched in process flow context during process flow execution as the control reaches web service consumer activity. The value must be an XML string.
Streaming	WS Consumer activity can also consume stream as input data from another activity. This behavior is controlled at the time of the process flow creation not at the time of WS Consumer activity creation. At creation time user must give either an XML document or variable as defined above.

At execution time WS consumer activity will search for its input in following order:

1. Take input from Stream
2. Search variable in process flow context
3. Get XML document

The way input is passed to the WS Consumer activity depends upon the style *document* or *rpc* not on WSDL locator UDDI or URI.

19. Enter Header XML in the "*Input Header Document*" field to define this at design time. You can also enter a variable with \$ prefix if you want read this value dynamically from context. This value cannot be read from stream.

	<ul style="list-style-type: none"> <li>▪ The WS Header element supports multiple headers.</li> <li>▪ Header is optional it may be there in some operations or may not be there in other.</li> <li>▪ If there is any fault as an output of web service call, it sets as "Output Parameter Name" + "Fault" in the process context.</li> <li>▪ Web service response may also have header. The header is set into context with variable "output Parameter Name" + "Header".</li> </ul>
---	--

20. Enter relevant context variable in the *Output Parameter Name* field. Web Service stores the output in this context variable.

21. Click **Next** button. The Select Security Policy screen is displayed (see Figure 16.9).



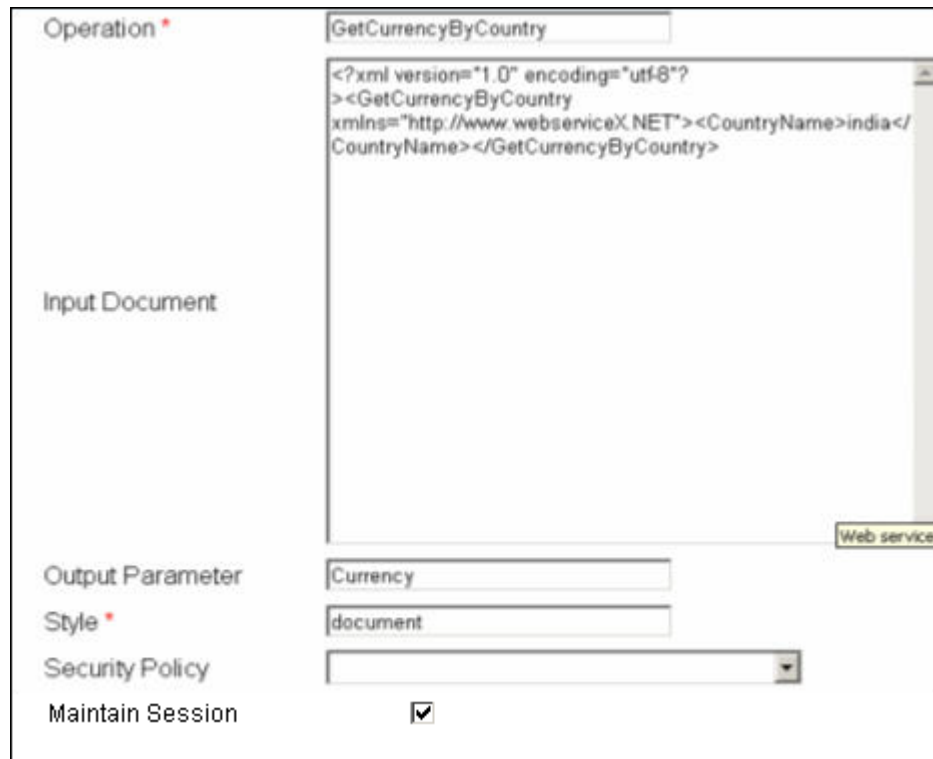




Figure 16.9: Select Security Policy

22. Select the Security Policy activity from the *Security Policy* drop-down list.
23. Enable *Maintain Session* checkbox if the web service, which you are accessing, maintains session through cookie. This field is applicable for only *Document* style web services.

 To change timeout duration of the web service, click **[+]** to expand Advanced Properties and enter the time in *Timeout(in seconds)* field. The *Timeout* duration controls how long the connectivity should be there with the web service in case it takes longer time to execute a web service. The *Timeout* duration should be higher than the actual execution time. This field is applicable for only *Document* style web services.

To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

24. Click **Save** button. This displays a screen confirming that the web service consumer has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the web service consumer (refer to Figure 4.6).
25. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

26. Click **OK** to save the comments. This displays a screen confirming that the web service consumer has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Creating Web Services Consumer Activity using URI

### Steps to create a Web Service Consumer Activity using URI

1. Click **[+] Automate** to expand the tree and then click **[+] Web Services**. All the items in the Web Services category are displayed.
2. Click **Web Service Consumer**. The Manage Web Service Consumer screen is displayed (refer to Figure 16.3).
3. Click the **New** link. The Create Web Service Consumer screen is displayed (refer to Figure 16.4).
4. Enter the name of the new Web Service Consumer activity in the *Name* field. Then, enter the description for the Web Service Consumer activity in the *Description* field.
5. Select URI in *Web Service Definition Location*. The Web Service Consumer screen is displayed (see Figure 16.10).



WSDL (Web Service Definition Language) is a document written in XML. The document describes a Web service. It specifies the location of the service and the operations (or methods) the service exposes.

WebServices > Web Service Consumer


[-] Standard properties

Specify web service definition location.

Name *	<input type="text" value="Ws_Consumer_Temp"/>
Description *	<input type="text" value="Ws Consumer to Convert temperature"/>
Web Service Definition Location*	<input type="radio"/> UDDI <input checked="" type="radio"/> URI
URI Location	<input type="radio"/> HTTP <input checked="" type="radio"/> Local/LAN
WSDL URL (HTTP URL)*	<input type="text"/>
WSDL File Path(Local/Lan)*	<input type="text"/> <input type="button" value="Browse..."/>
Secure	<input type="checkbox"/>
UserId	<input type="text"/>
Password	<input type="text"/>

Figure 16.10: Locate WSDL

6. Select the location of URI.

	<p>In the URI Location, select:</p> <ul style="list-style-type: none"> <li>▪ HTTP, if the WSDL file is located on an HTTP Site.</li> <li>▪ LocalLAN, if the WSDL file is located Local LAN.</li> </ul>
---	--

7. Check the *Secure* checkbox if the path specified in *WSDL URL* field is secured. Then enter User ID in the *User ID* field and password in the *Password* field.
8. Click **Next** button. The Web Consumer screen is displayed (see Figure 16.11).

### Web Service Consumer

Select operation name for web service consumer activity Ws\_Consumer\_Temp.

Name *	<input type="text" value="Ws_Consumer_Temp"/>
Description *	<input type="text" value="Ws Consumer to Convert temprature"/>
Service Name *	<input type="text" value="TemperatureConversions"/>
Port Type *	<input type="text" value="TemperatureConversionsSoapType"/>
Ports *	<input type="text" value="TemperatureConversionsSoap"/>
Style Name *	<input type="text"/>
Operation(s) *	<div style="border: 1px solid black; padding: 5px;">           CelciusToFahrenheit            FahrenheitToCelcius            WindChillInCelcius            WindChillInFahrenheit         </div>

Figure 16.11: Select Web Service Operation

9. Select the name of Service from the *Service Name* drop-down list.
10. Select the port type from the *Port Type* drop-down list. A port type can support multiple ports. This selection populates the options in the *Ports* drop-down list.
11. Select the port for the selected port type from the *Ports* drop-down list.



Currently, Soap12 port is not supported by Adeptia Server.

12. Select the required operation from the *Operation(s)* field. This selection automatically displays the style name in the *Style Name* field.



The *Style Name* field is automatically populated according to the specified operation. There are two types of Style: **document** and **rpc**.

**Document:** When a WS Consumer invokes a *document* style Web service, the consumer typically sends it an entire document, such as a purchase order, rather than a discrete set of parameters. The Web service accepts the entire document, processes it, and may or may not return a result document. In a *document* style, the input can be read from context or a stream coming from another activity. Similarly, output can be set to context or can be generated as stream to other activities. In case the output is set to context, a variable is created in the context with name as specified in the *Output Parameter Name* field and then output is set into that variable. Additionally, the XSD of the Web Service Consumer can be used to create XML schema.

**rpc:** In *rpc* style when WS Consumer invokes the Web service, the consumer sends parameter values to the Web service, which executes the required methods, and then sends back the return values. In *rpc* style, input can be read from the context only and the output parameter is set in the context only. This style does not generate a stream. A variable is created in the context with name as specified in the *Output Parameter Name* field and then output is set into that variable.

In the current example, the specified Web Service is of *rpc* style.

13. Select required operation in the *Operation* field.
14. Click **Next** button. The Web Service Consumer screen is displayed (see Figure 16.12).

**Web Service Consumer**

Define input parameter Value(s) and output parameter name (in case operation has input/output parameters).

<b>Name *</b>	<input type="text" value="WS_Consumer_Temp"/>
<b>Description *</b>	<input type="text" value="WS Consumer to Convert Tempera"/>
<b>Service Name *</b>	<input type="text" value="TemperatureConvertService"/>
<b>Port Type *</b>	<input type="text" value="TemperatureConvert"/>
<b>Port *</b>	<input type="text" value="TemperatureConvert"/>
<b>Operation *</b>	<input type="text" value="CelsiusTOFahrenheit"/>
<b>Style *</b>	<input type="text" value="rpc"/>

<b>Input Parameter *</b>	<b>Parameter Name</b>	<b>Type</b>	<b>Value</b>
	<input type="text" value="temp"/>	<input type="text" value="float"/>	<input type="text"/>

<b>Output Parameter *</b>	<b>Parameter Name</b>	<b>Type</b>	
	<input type="text"/>	<input type="text" value="float"/>	

Figure 16.12: Enter Input and Output Parameters

15. Enter the input value in the *Input Parameter Value* field. Input Parameter is used to define the input data for WS Consumer activity. The actual value could be given in two ways, as shown in the table below.

Table 16.4: Input Parameter Value for WS Consumer Activity

Input Value	Description
Definition Time	Here the actual value is given based on the data type of the parameter.
Run Time	Here a variable prefixed with \$ is defined in the input document field. For example \$variable1. The value of variable1 will be searched in process flow context during process flow execution as the control reaches web service consumer activity. The value will be of Java primitive type.

At execution time Ws consumer activity will search for its input in following order:

1. Search variable in process flow context
2. Get XML document

The way input is passed to the WS Consumer activity depends upon the style *document* and *rpc* not on WSDL locator UDDI or URI.

16. Enter relevant variable in the *Output Parameter Name* field.



Do not prefix \$ with the variable name defined in *Output Parameter Name* field.

17. Click **Next** button. The Web Service Consumer screen is displayed (see Figure 16.13).

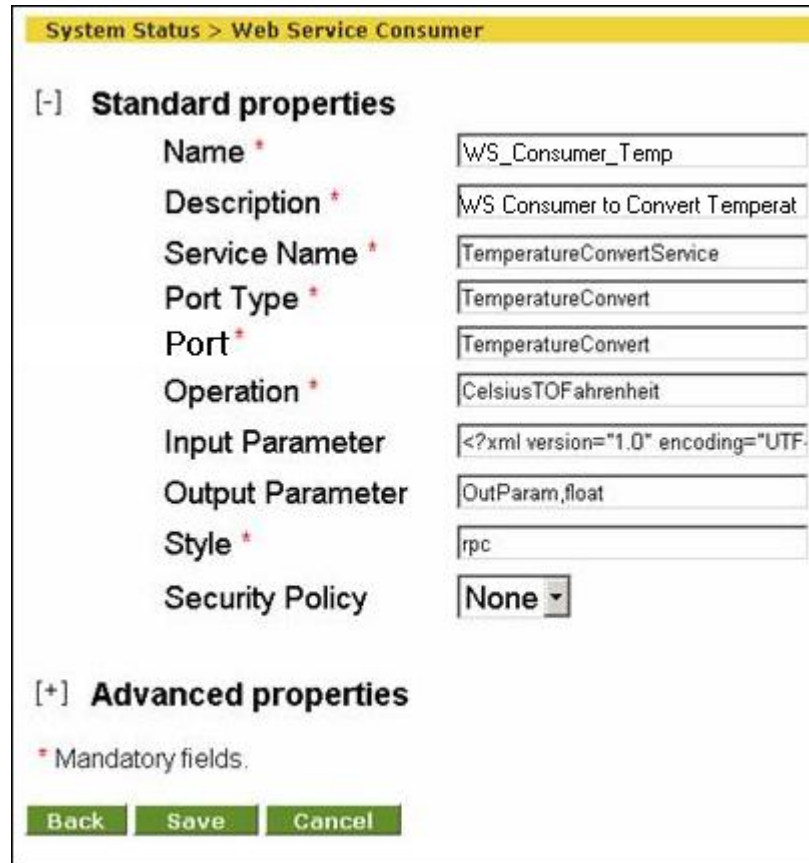


Figure 16.13: Select Security Policy

18. Select the required Security Policy activity from the *Security Policy* drop-down list.



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

19. Click **Save** button. This displays a screen confirming that the web service consumer has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments for creating the web service consumer (refer to Figure 4.6).

20. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

21. Click **OK** to save the comments. This displays a screen confirming that the web service consumer has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING WEB SERVICE PROVIDER ACTIVITY

Web Service Provider is used to publish process flows that are accessed by Web Service consumers. Once a Web Service is published, it creates a WSDL and makes it available to the Adeptia Server users. The user can use this WSDL to invoke the Web Service. The Web Service can be published in two modes:

- **Synchronous:** In case the Web Service is published in synchronous mode the consumer waits for the completion of the process flow and hence for the output of the process flow.
- **Asynchronous:** In case the Web Service is published in asynchronous mode the consumer does not wait for the process flow to be completed. Thus consumer gets only a Co-relation ID not the output of the process flow. Later on, using this Co-relation ID, consumer can get the output.

### Prerequisites:

- To use Adeptia Server as Web Service Provider, you must change the value of following property:

*abpm.webservice.host*

Replace its value from localhost to machine name, where Adeptia Server is running. For more details refer to the section [Appendix A: Adeptia Server Properties](#).

### Steps to create a Web Service Provider Activity

1. Click **[+] Automate** to expand the tree and then click **[+] Web Services**. All the items in the Web Services category are displayed.
2. Click **Web Service Provider**. The Manage Web Service Provider screen is displayed (see Figure 16.14).

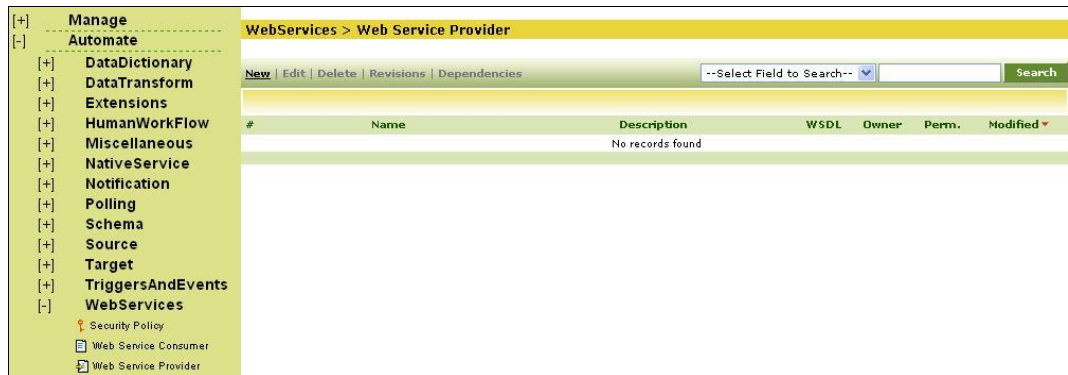


Figure 16.14: Manage Web Service Provider Activity

- Click the **New** link. The Create Web Service Provider screen is displayed (see Figure 16.15).

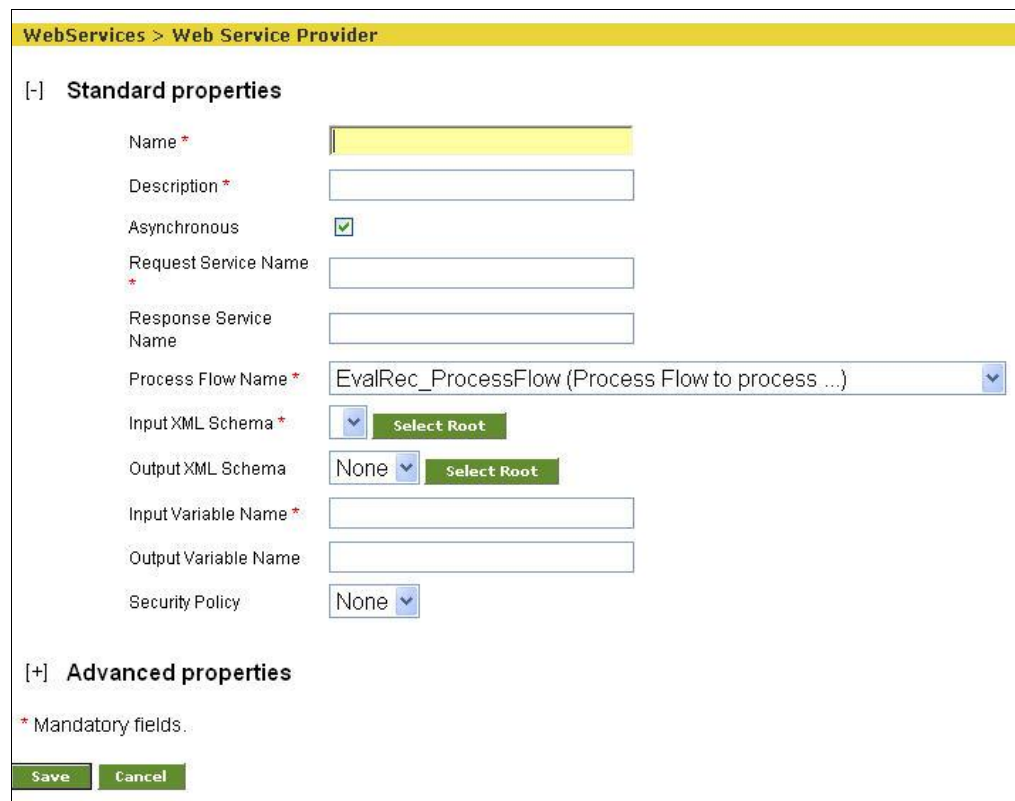



Figure 16.15: Create Web Service Provider Activity

- Enter the name and description of the new Web Service Provider activity in the *Name* and *Description* fields respectively.
- Uncheck the *Asynchronous* checkbox if you want to publish Web Service in *Synchronous* mode or else the Web Service will be published in asynchronous mode.

 In case the Web Service is published in *synchronous* mode, one WSDL is available which provides an operation. The operation takes an XML



document as an input passes it to the process flow, which processes the data and generates an output XML document. This output XML document is returned back to WS Consumer.

In case the Web Service is published in *asynchronous* mode, two WSDL's are available. First WSDL provides a web service to post the data and other to retrieve the data. First the WS Consumer posts the data (XML Document) to the Web Service and gets the correlation Id in form of an XML document. The actual data is not returned as the Web Service may take hours or days to process the input data. The second WSDL provides a web service to retrieve the data processed by the first web service. The consumer passes input as the correlation Id XML document obtained from output of first web service and get the processed data

In *asynchronous* case the same data exchange took two steps where as in *synchronous* only one. The main advantage of the first one is loose coupling.

6. Enter the request service name and response service name in the *Request Service Name* and *Response Service Name* respectively. The Web Service will be published with the respective service name given in *Request/Response Service Name* field.



In case the *Asynchronous* checkbox is unchecked, the *Response Service Name* field will be disabled.

7. Select the process flow, which you want to publish as Web Service from the *Process Flow Name* drop-down list.
8. Select Input XML Schema from the *Input XML Schema* drop-down list. This XML Schema corresponds to the XML Input provided by Web Service consumer activity.
9. Select the Output XML Schema from the *Output XML Schema* drop-down list.



If case, selected XML Schema is having multiple roots, click the **Select Root** button and select the required root.




10. Enter the Input and Output Variables in the *Input Variable* and *Output Variable* fields respectively.
11. Select the Security Policy activity from the *Security Policy* drop-down list.



If any security policy is not selected, then the web service is published in anonymous mode.

To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

12. Click **Save** button. This displays a screen confirming that the Web Service Provider activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the web service provider activity (refer to Figure 4.6).
13. Enter the comments in the *Add Comments* field.

-  The comment should be at least 1 character in length.
14. Click **OK** to save the comments. This displays a screen confirming that the Web Service Provider activity has been created successfully.
-  By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).
-  In case the process flow is published as *asynchronous* web service, the Manage Web Services Provider screen looks like as displayed in Figure 16.16.

WebServices > Web Service Provider						
New   Edit   Delete   Revisions   Dependencies				--Select Field to Search--	Search	
#	Name	Description	WSDL	Owner	Perm.	Modified
1	WSP_Provider	WSP_Provider	Service to post data: <a href="#">View/Download</a> Service to receive data: <a href="#">View/Download</a>	Shilpi	RWX	06/15/07 11:36

Figure 16.16: Manage Web Service Provider (asynchronous web service)

## 17 CREATING MIME MESSAGE

MIME means Multipurpose Internet Mail Extensions, and refers to an official Internet standard that specifies how messages must be formatted so that they can be exchanged between different email systems. MIME is a very flexible format, permitting one to include virtually any type of file or document in an email message.

This section allows you to create the following activities:

- [Decoder](#)
- [Encoder](#)

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

## CREATING DECODER ACTIVITY

Decoder is used to obtain messages that are coming either in S/MIME (Secure MIME) or MIME depending on whether the user has attached the digital signatures to the message or not.

### Steps to create a Decoder activity

1. Click **[+] Automate** to expand the tree and then click **[+] MIMEMessage**. All the items in the MIMEMessage category are displayed.
2. Click **Decoder**. The Manage Decoder screen is displayed (see Figure 17.1).



Figure 17.1: Manage Decoder Activity

3. Click the **New** link. The Create Decoder screen is displayed (see Figure 17.2).

**MIMEMessage > Decoder**

**[ - ] Standard properties**

Name \*

Description \*

Digital Certificate Verification Required ☐

Message Type \* ☒ RosettaNet Message ☐ EDI

RosettaNet Message Parts \*


Stream Name	<input type="text"/>	Content Location	<input type="text" value="RN-Preamble"/>
Stream Name	<input type="text"/>	Content Location	<input type="text" value="RN-Delivery-Header"/>
Stream Name	<input type="text"/>	Content Location	<input type="text" value="RN-Service-Header"/>
Stream Name	<input type="text"/>	Content Location	<input type="text" value="RN-Service-Content"/>

**[ + ] Advanced properties**

\* Mandatory fields.

Figure 17.2: Create Decoder Activity

4. Enter the name and description of the new Decoder in the *Name* and *Description* fields respectively.
5. Check the *Digital Certificate Verification Required* checkbox if required. It enables verification of the signatures received along with the message.

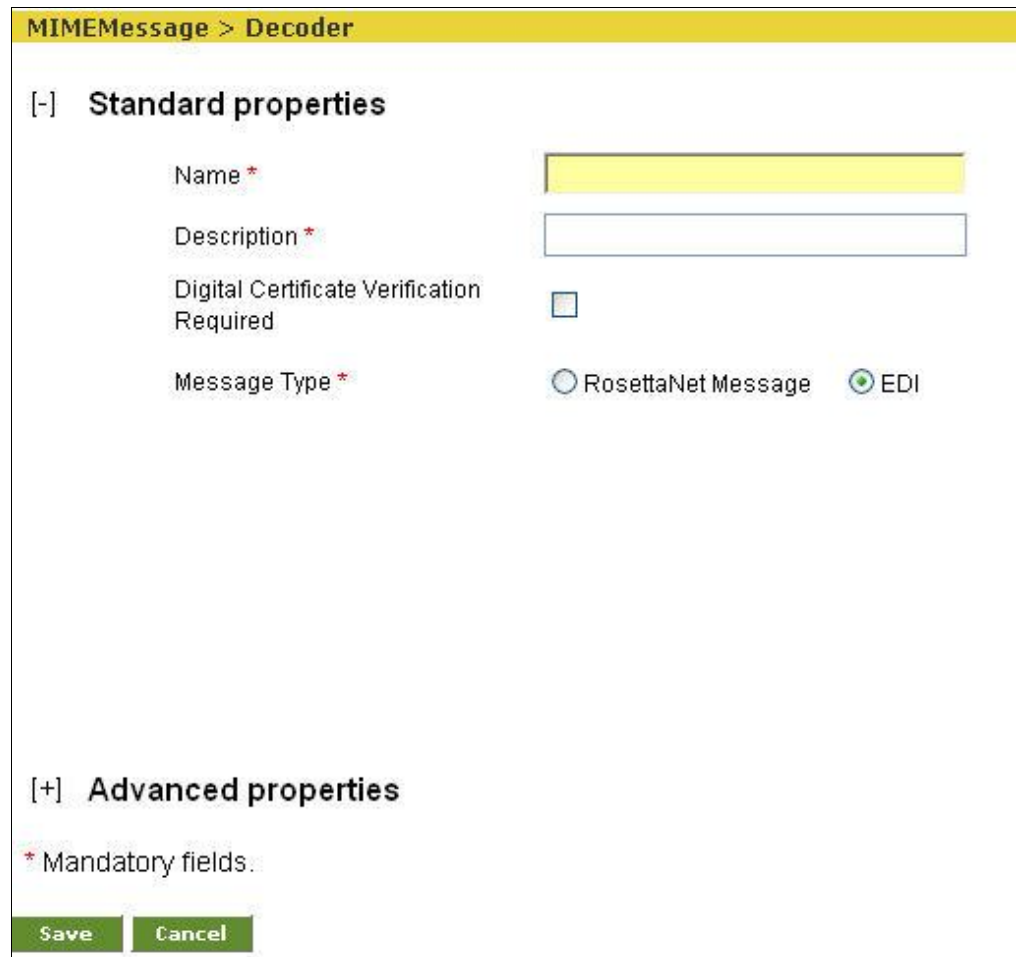


The Verification process involves extraction of Business ID from the incoming message and its corresponding certificate from the Adeptia Server. The signatures and hence the message is verified using this certificate.

The certificate used for verification would be taken from the trading partner after the trading partner is created.

For more information on trading partners, refer section [Creating B2B Trading Partners](#).

6. Select the type of message as either *RosettaNet Message* or *EDI* by clicking on the respective radio button.
7. For the RosettaNet Message type, under the RosettaNet Message Parts, enter the stream name containing the Preamble part of the message in the first *Stream Name* field. In the subsequent *Stream Name* fields, enter the stream names containing the Delivery-Header, Service-Header, and Service-Content parts of the message respectively.
8. The *Content Location* field marks the location of the various parts of the messages, content location being fixed for each part as displayed in figure above.
9. For the EDI type of message, select the *EDI* radio button (see Figure 17.3).



**MIMEMessage > Decoder**

**[-] Standard properties**

Name \*

Description \*

Digital Certificate Verification Required ☐

Message Type \* ☐ RosettaNet Message ☒ EDI


**[+] Advanced properties**

\* Mandatory fields.


**Save** **Cancel**

Figure 17.3: Create Decoder Activity

10. Click **Save** button. This displays a screen confirming that the Decoder activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the decoder activity (refer to Figure 4.6).
11. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

12. Click **OK** to save the comments. This displays a screen confirming that the Decoder activity has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.

## CREATING ENCODER ACTIVITY

Encoder is used to create MIME or S/MIME (Secure MIME) messages for RosettaNet or EDI, which may be signed or unsigned depending on the choice of the user.



RosettaNet is a set of standards based on XML to align specific business processes with those of business partners so that two companies' back end systems can talk directly to each other.

For more information on RosettaNet, refer:

<http://www.RosettaNet.org/>

<http://xml.coverpages.org/RosettaNet.html>

<http://edocs.bea.com/wli/docs81/tpintro/RosettaNet.html#1056110>

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create an Encoder activity

1. Click **[+] Automate** to expand the tree and then click **[+] MIMEMessage**. All the items in the MIMEMessage category are displayed.
2. Click **Encoder**. The Manage Encoder screen is displayed (see Figure 17.4).



Figure 17.4: Manage Encoder Activity

3. Click the **New** link. The Create Encoder screen is displayed (see Figure 17.5).

**MIMEMessage > Encoder**

**[-] Standard properties**

Name \*

Description \*

Digital Signing Required ☐

Message Type \* ☒ RosettaNet Message ☐ EDI

RosettaNet Message Parts \*


Stream Name	<input type="text"/>	Content Location	<input type="text" value="RN-Preamble"/>
Stream Name	<input type="text"/>	Content Location	<input type="text" value="RN-Delivery-Header"/>
Stream Name	<input type="text"/>	Content Location	<input type="text" value="RN-Service-Header"/>
Stream Name	<input type="text"/>	Content Location	<input type="text" value="RN-Service-Content"/>

**[+] Advanced properties**

\* Mandatory fields.

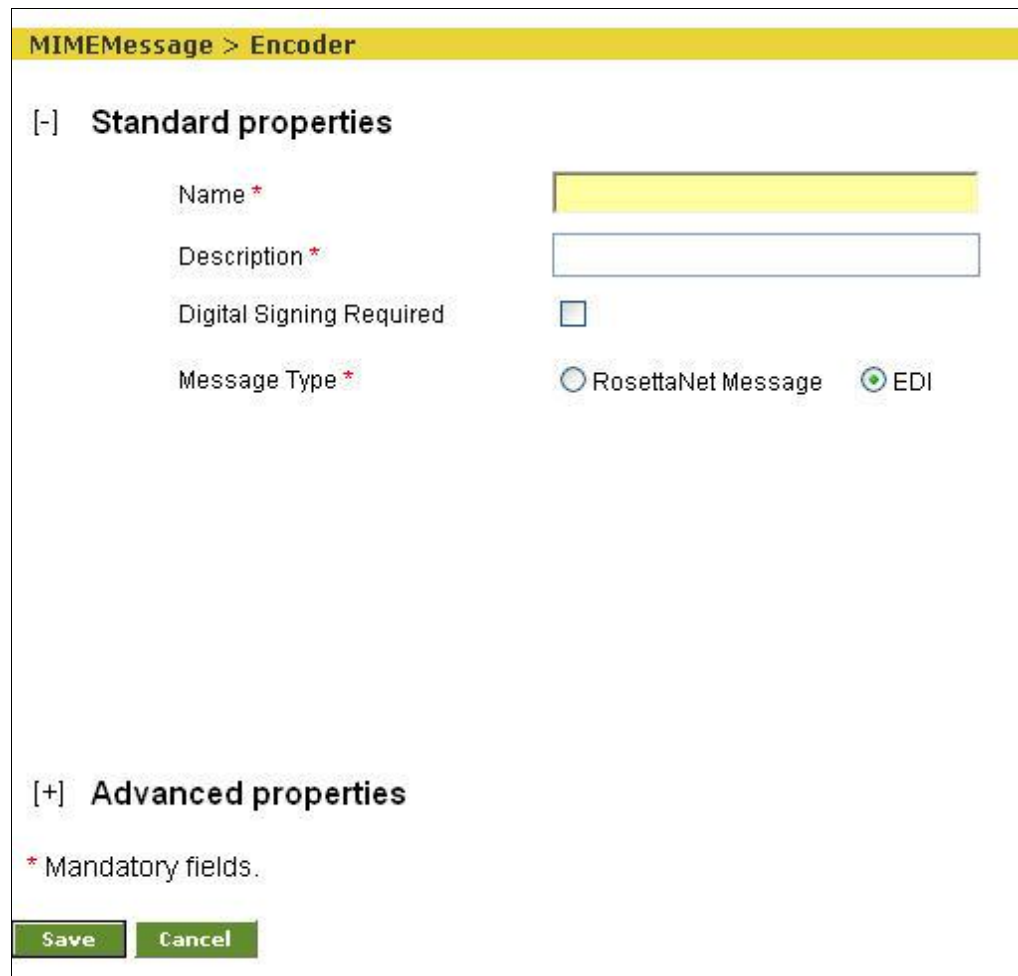
Figure 17.5: Create Encoder Activity

4. Enter the name and description of the new Encoder in the *Name* and *Description* fields respectively.
5. Check the *Digital Signing Required* checkbox if required. If checked, it enables digital signing and appends a digital signature at the end of the message and the data is converted into S/MIME (Secure MIME) form.
6. Select the type of message as either *RosettaNet Message* or *EDI* by clicking on the respective radio button.
7. For the RosettaNet Message type, under the RosettaNet Message Parts, enter the stream name (source file name in BPM) of the Preamble part of the message in the first *Stream Name* field. In the subsequent *Stream Name* field enter the stream names of the Delivery-Header, Service-Header, and Service-Content parts of the messages respectively.

	<ul style="list-style-type: none"> <li>▪ <i>Preamble</i> identifies the standard and the version of the standard with which this message structure is compliant.</li> <li>▪ <i>Delivery Header</i> identifies the message sender and the recipient.</li> <li>▪ <i>Service Header</i> identifies the PIP, PIP instance, activity, and the action to which the message belongs.</li> <li>▪ <i>Service Content</i> contains business content in XML format and is either an action message or a signal message.</li> </ul>
---	---

8. The *Content Location* field marks the location of the various parts of the messages, content location being fixed for each part as displayed in figure above.

9. For the EDI type of message, select the *EDI* radio button (see Figure 17.6).



**MIMEMessage > Encoder**

**[-] Standard properties**

Name \*

Description \*

Digital Signing Required ☐

Message Type \* ☐ RosettaNet Message ☒ EDI


**[+] Advanced properties**

\* Mandatory fields.


**Save Cancel**

Figure 17.6: Create Encoder Activity

10. Click **Save** button. This displays a screen confirming that the Encoder activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the encoder activity (refer to Figure 4.6).
11. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

12. Click **OK** to save the comments. This displays a screen confirming that the Encoder activity has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the [Updating System Properties](#) section.



## 18 CREATING TRADING PARTNER

This section describes the process of creating a B2B Trading Partner.

### CREATING B2B TRADING PARTNER

A Trading Partner (Buyer/Seller) is an entity that has an agreement with another entity to participate in a specific business transaction, or service, by playing a predefined role associated with a distinct business purpose. For example, a Seller sends an Order Status to Buyer by collecting and combining all the parts of a RosettaNet message, into one MIME or S/MIME (Secure MIME) message. Buyer on receiving this message would parse and validate the message, and an acknowledgement is sent back to the seller.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

#### Steps to create a B2B Trading Partner activity

1. Click **[+] Automate** to expand the tree and then click **[+] Trading Partner**. Trading Partner. All items under the Trading Partner category are displayed.
2. Click **B2B Trading Partner**. The Manage B2B Trading Partner screen is displayed (see Figure 18.1).



Figure 18.1: Manage B2B Trading Partner Activity

3. Click the **New** link. The Create B2B Trading Partner screen is displayed (see Figure 18.2).

TradingPartner > B2BTradingPartner

**[ - ] Standard properties**


Trading Partner's Name *	<input style="width: 90%;" type="text"/>
Description *	<input style="width: 90%;" type="text"/>
Business ID Type *	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">DUNS ▼</div>
Business ID *	<input style="width: 90%;" type="text"/>
Email *	<div style="background-color: yellow; height: 20px; width: 100%;"></div>
Address *	<input style="width: 90%;" type="text"/>
Phone *	<div style="background-color: yellow; height: 20px; width: 100%;"></div>
Fax *	<input style="width: 90%;" type="text"/>
Certificate Required	<input type="checkbox"/>
Certificate Path *	<div style="display: flex; align-items: center;"> <input style="width: 70%;" type="text"/> <input style="margin-left: 10px;" type="button" value="Browse..."/> </div>

**[ + ] Advanced properties**

\* Mandatory fields.

Figure 18.2: Create B2B Trading Partner

4. Enter the new Trading Partner's name in the Trading Partner's *Name* field and its description in the *Description* field.
5. Select the Business ID Type from the *Business ID Type* drop-down list and enter Business ID in the *Business ID* field.



- Business ID* is used for uniquely identifying trading partners in business processes.
- Business ID Type* categorizes the type of Business ID such as DUNS (Data Universal Numbering System) or Sender ID.

6. Enter the Trading Partner's Email ID, Address (Mailing Address), Telephone Number, and Fax Number in their respective fields to provide for the Trading Partner's contact information.
7. Check *Certificate Required* checkbox in order to save Trading Partner's certificate in Adeptia Server. This certificate would help to verify an SMIME message sent by the Trading Partner. If unchecked, the Trading Partner's profile would be saved without the certificate.

8. If *Certificate Required* checkbox is checked, then enter the path of the certificate file in the *Certificate Path* field. The user may also use the **Browse** option to search for the required file. The certificate so chosen is stored in the location *etc/security/keystore/<filename>*, where filename is same as the Business ID in the Adeptia Server.
9. Click **Save** button. This displays a screen confirming that the B2B Trading Partner activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the B2B trading partner (refer to Figure 4.6).
10. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

11. Click **OK** to save the comments. This displays a screen confirming that the B2B Trading Partner activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## 19 MANAGING ACTIVITIES

Managing activities involves creating new activities, editing or deleting the existing activities, and saving another instance of those activities. It also includes viewing a revision history of activities and a list of related activities associated with an activity. Creation of various Adeptia Server activities has been covered in previous sections.

This section allows you to perform the following tasks related to an activity:

- [Search an Activity](#)
- [View an Activity](#)
- [Edit an Activity](#)
- [Delete an Activity](#)
- [View Revision History of an Activity](#)
- [View Dependant Activities of an Activity](#)
- [Change Advanced Properties of an Activity](#)

For editing, deleting and saving another instance of activities, viewing revision history and list of related activities, refer to the sections below.

### SEARCHING AN ACTIVITY

An activity can be searched by its name or description from the list of activities.

#### Steps to search an activity (for example Text Schema activity)

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Text Schema**. The Manage Text Schema screen is displayed (see Figure 19.1).



Figure 19.1: Manage Activity

3. Select the field to search from *Select Field* drop-down list.
4. Enter the search criteria in the *Search* field. For example, if Name is selected in *Select Field* drop-down list then enter the name of the *Search* field.



Figure 19.2: Enter Search Criteria

5. Click **Search** button. The searched activity is displayed.

## Using Wildcards in Search

If you do not remember the entire name or description of the activity, you can use wildcard characters to search the activity. Once you select the option from the *Select Search Option* drop-down list, you can use a wildcard character in the *Criteria* field. The wildcard characters supported by Adeptia are described in the table below.

Table 19.1: Wildcard characters supported by Adeptia

Wildcard Character	Description	Example
?	Signifies one character in the string	<ul style="list-style-type: none"> <li>▪ Eval?MSE_TextSchema Searches for a string which has a character between Eval and MSE_TextSchema. Thus it displays EvalJMSE_TextSchema.</li> <li>▪ Eval???E?TextSchema Searches for a string which has three characters after Eval and one character after E. Thus it displays EvalJMSE_TextSchema.</li> </ul>
*	Signifies multiple characters in a string	<ul style="list-style-type: none"> <li>▪ Eval*E_TextSchema Searches for a string which has one or more characters after Eval and before E_TextSchema. Thus, it displays EvalJMSE_Text Schema.</li> <li>▪ Eval * Searches for a string which has one or more characters after Eval. In such a case, it can display more than one strings such as <i>EvalJMSE_TextSchema</i>, <i>EvalScript_TextSchema</i> <i>EvalXForm_ExcelSchema</i>, etc. You can select the string that you want from this list.</li> </ul>

## VIEWING ACTIVITY PROPERTIES

### Steps to View Activity Properties (for example Text Schema activity)

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Text Schema**. The Manage Text Schema screen is displayed (refer to Figure 19.1).
3. Click the activity name. A screen is displayed displaying the properties of the selected activity (see Figure 19.3).

View Text Schema 'EvalJMSE\_TextSchema'

Properties	Value																																																		
Description	Text Schema for Stock Quotes																																																		
Data Header Present	Yes																																																		
Quotes Handling On	Yes																																																		
Field Definition	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #d9ead3;"> <th>#</th><th>FieldName</th><th>Type</th><th>DateFormat</th><th>TimeFormat</th></tr> </thead> <tbody> <tr><td>1</td><td>Symbol</td><td>string</td><td>mmddyyyy</td><td>hh:mm:ss</td></tr> <tr><td>2</td><td>CompanyName</td><td>string</td><td>mmddyyyy</td><td>hh:mm:ss</td></tr> <tr><td>3</td><td>LastTradePrice</td><td>number</td><td>mmddyyyy</td><td>hh:mm:ss</td></tr> <tr><td>4</td><td>TradeTime</td><td>date</td><td>mm/dd/yy</td><td>hh:mm:ss</td></tr> <tr><td>5</td><td>PreviousClosePrice</td><td>number</td><td>mmddyyyy</td><td>hh:mm:ss</td></tr> <tr><td>6</td><td>OpenPrice</td><td>number</td><td>mmddyyyy</td><td>hh:mm:ss</td></tr> <tr><td>7</td><td>OneYearTargetEst</td><td>number</td><td>mmddyyyy</td><td>hh:mm:ss</td></tr> <tr><td>8</td><td>AvgVolume</td><td>number</td><td>mmddyyyy</td><td>hh:mm:ss</td></tr> <tr><td>9</td><td>MarketCap</td><td>number</td><td>mmddyyyy</td><td>hh:mm:ss</td></tr> </tbody> </table>	#	FieldName	Type	DateFormat	TimeFormat	1	Symbol	string	mmddyyyy	hh:mm:ss	2	CompanyName	string	mmddyyyy	hh:mm:ss	3	LastTradePrice	number	mmddyyyy	hh:mm:ss	4	TradeTime	date	mm/dd/yy	hh:mm:ss	5	PreviousClosePrice	number	mmddyyyy	hh:mm:ss	6	OpenPrice	number	mmddyyyy	hh:mm:ss	7	OneYearTargetEst	number	mmddyyyy	hh:mm:ss	8	AvgVolume	number	mmddyyyy	hh:mm:ss	9	MarketCap	number	mmddyyyy	hh:mm:ss
#	FieldName	Type	DateFormat	TimeFormat																																															
1	Symbol	string	mmddyyyy	hh:mm:ss																																															
2	CompanyName	string	mmddyyyy	hh:mm:ss																																															
3	LastTradePrice	number	mmddyyyy	hh:mm:ss																																															
4	TradeTime	date	mm/dd/yy	hh:mm:ss																																															
5	PreviousClosePrice	number	mmddyyyy	hh:mm:ss																																															
6	OpenPrice	number	mmddyyyy	hh:mm:ss																																															
7	OneYearTargetEst	number	mmddyyyy	hh:mm:ss																																															
8	AvgVolume	number	mmddyyyy	hh:mm:ss																																															
9	MarketCap	number	mmddyyyy	hh:mm:ss																																															
XSD	<pre>&lt;?xml version="1.0" encoding="ISO-8859-1"?&gt; &lt;!-- W3C Schema generated by Adeptia Editor --&gt; &lt;xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"&gt;   &lt;xs:element name="Root"&gt;     &lt;xs:annotation&gt;       &lt;xs:appinfo&gt;</pre>																																																		
Entity Id	192168001119112176617282600007																																																		
Owner	admin																																																		
Owner's Group	administrators																																																		
Creation Date	07/19/2005 15:12:52																																																		
Last Modified Date	08/22/2005 17:46:38																																																		
Last Modified By	admin																																																		
Permissions	User(R,W,X) Group(R,X)																																																		

Close

Figure 19.3: View Activity Properties

4. Click **Close** button to return to the Manage Activity screen.

## EDITING AN ACTIVITY

### Steps to edit an activity (for example Text Schema Activity)

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Text Schema**. The Manage Text Schema screen is displayed (refer to Figure 19.1).
3. Select the radio button adjacent to the activity, which you want to edit and then click the **Edit** link. A screen is displayed that allows you to change the properties of the selected activity (see Figure 19.4).

Schema > Text Schema > EvalJMSE\_TextSchema

**[+] Standard properties**

Name \* EvalJMSE\_TextSchema

Description \* Text Schema for Stock Quotes

Data Header Present ☒

Record Separator\* \n

Field Separator\* ,

Download Schema Definition File **Download**

Create Schema Definition\*

☐ Use Definition File Data  **Browse...**

☒ Enter the Fields Sequentially

#	FieldName	Type	DateFormat	TimeFormat
1	Symbol	string	mmddyyyy	hh:mm:ss
2	CompanyName	string	mmddyyyy	hh:mm:ss
3	LastTradePrice	number	mmddyyyy	hh:mm:ss

Number of Rows 1 at Position 10 **Add Row** **Remove Row**

**[+] Advanced properties**

\* Mandatory fields.

**Save** **Save As** **Cancel** **Test**


Figure 19.4: Edit Activity



You can edit only those activities, in which you have write permission.


4. After changing the properties, click **Save** button to save the changes. This displays a screen confirming that the activity has been updated successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to editing the activity (refer to Figure 4.6).


5. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

6. Click **OK** to save the comments. This displays a screen confirming that the activity has been updated successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

	To save another instance of the edited activity with different name, change the activity name in the <i>Name</i> field and then click <b>Save As</b> button. A screen is displayed confirming that the activity has been created successfully.
---	--

	You can verify a source or target activity at design time. For this, click <b>Test</b> . This verifies the values in the fields of the activity and checks whether the source or target actually exists in the specified location. The verifications on the fields vary with each activity.
---	---

## DELETING AN ACTIVITY


### Steps to delete an activity

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Text Schema**. The Manage Text Schema screen is displayed (refer to Figure 19.1).
3. Select the radio button adjacent to the activity that you want to delete and then click the **Delete** link. A screen is displayed asking for the confirmation to delete an activity (see Figure 19.5).



Figure 19.5: Delete an Activity

4. Click **OK** button if you are sure to delete the activity. If the *Comments* property is enabled, then clicking **OK** will display a screen where you need to enter comments related to deleting the activity (refer to Figure 4.6).
5. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---



6. Click **OK** to save the comments. This displays a screen confirming that the activity has been deleted successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## VIEWING REVISION HISTORY

The Revision History of an activity displays a log of actions that have been performed on the activity.

### **Steps to view Revision History of an activity (for example Text Schema activity)**

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Text Schema**. The Manage Text Schema screen is displayed (refer to Figure 19.1).
3. Select the radio button adjacent to the activity whose revision log you want to view, and then click the **Revisions** link. A screen is displayed that shows a list of actions performed on the selected activity, in descending order (see Figure 19.6).

Revision history for Text Schema 'EvalScript_TextSchema'				
# ▼	Date	User	Group	Comments
1	03/24/2007 12:26:54	admin	administrators	Changed record separator
2	03/24/2007 12:26:29	admin	administrators	Added Age Field
3	03/24/2007 12:19:37	admin	administrators	
Close				

Figure 19.6: View Revision History

4. This screen displays the date and time of the action, the User's name and group of the user who performed the action and also the comments (if any) entered for an action.
5. Click **Back** to go to the Manage Text Schema screen.



The *Revision History* option is dependent on the property *"abpm.appmanagement.logRetainTime"*. For example, to check last year's history of activities, you need to change the system date and then click the **Revision History** option.

## VIEWING DEPENDENT ACTIVITIES

The Dependent Activities of an activity displays a list of activities that are using or are dependent on the activity. It includes activities that are directly or indirectly

dependent upon the selected activity. If an activity is edited, then all the related activities will, in turn, be affected.

For example, there is a database driver namely DBDriver1. This driver is used by the database info DBInfo. The database info DBInfo is further used by the database schema DBSchema. The DBSchema is loaded while mapping source and target elements.

When the mapping activity is used in a process flow, it extracts the elements from the DBSchema. This implies that the mapping activity uses the DBSchema directly and the process flow indirectly. The DBSchema further extracts information from the DBInfo. This implies that the DBSchema uses the DBInfo directly and the process flow indirectly. The DBInfo further locates the driver DBDriver1. This implies that the DBInfo uses the DBDriver1 directly and the process flow indirectly.

The Dependent Activities will display the process flow and a list of all activities that are directly related to the selected activity. In the above example, the related activities for DBDriver1 will display the process flow and DBInfo. The related activities for DBInfo will display the process flow and DBSchema. The related activities of DBSchema will further include the process flow and the mapping activity.

#### **Steps to view Dependent Activities of an activity (for example Text Schema activity)**

1. Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
2. Click **Text Schema**. The Manage Text Schema screen is displayed (refer to Figure 19.1).
3. Select the radio button adjacent to the activity, whose list of dependant activities you want to view, and then click the **Dependencies** link. A screen is displayed that shows a list of activities directly and indirectly dependent on the selected activity (see Figure 19.7).

Dependent activities for Text Schema 'EvalJMSE_TextSchema'				
#	Activity Name	Activity Type	Description	Action
1	EvalJMSE_Mapping	Data Mapping	Text to Database Mapping	<a href="#">View</a> <a href="#">Dependencies</a> <a href="#">Edit</a>
2	EvalJMSE_ProcessFlow	Process Flow	Process Flow for JMS Event demo	<a href="#">View</a> <a href="#">Dependencies</a> <a href="#">Edit</a>
<a href="#">Back</a>				


Figure 19.7: View Dependant Activities

4. This screen displays the name and type of the activity that is using this activity. It also displays the activity description. In addition to the **View** link, it also shows a **Dependencies Edit** link, against each activity which further have activities dependent upon them. For example, click **Dependencies Edit** against the activity. A screen is displayed which lists all activities dependent upon the activity (see Figure 19.8).

Dependent activities for Data Mapping 'EvalJMSE_Mapping'				
#	Activity Name	Activity Type	Description	Action
1	EvalJMSE_ProcessFlow	Process Flow	Process Flow for JMS Event demo	<a href="#">View</a> <a href="#">Dependencies</a> <a href="#">Edit</a>
<a href="#">Back</a>				

Figure 19.8: View Related Activities

- Click **Back** to go to the Manage Text Schema screen.

	Related Activities cannot be viewed for Process Flows, WebDAV Folder and the Dashboard. It is also not displayed for the Users and Groups as all activities are dependent upon Users and Groups.
---	--

## CHANGING ADVANCED PROPERTIES

Advanced properties of an activity show the name of the Owner, Creation Date, Last Modified Date, Modified By and Permissions.

The advanced properties vary for each activity. However, the process of changing advanced properties is similar for all activities. The process of changing advanced properties for a Text schema is explained below.

### *To change the permission of an activity:*

- Click **[+] Automate** to expand the tree and then click **[+] Schema**. All the items in the Schema category are displayed.
- Click **Text Schema**. The Manage Text Schema screen is displayed (refer to Figure 19.1).
- Select the radio button adjacent to the activity that you want to edit and then click the **Edit** link. The Edit Text Schema screen is displayed in edit mode. (refer to Figure 19.4).
- To change the advance properties, click **[+] Advanced Properties**. All the fields of advance properties are displayed (see Figure 19.9).

[-] **Advanced properties**

Quotes Handling On

☒

Owner\*

admin (Default Administrator) ▼

Creation Date

07/19/2005 15:12:52

Last Modified Date

08/22/2005 17:46:38

Last Modified By

admin

Permissions\*

Read Write Execute

Owner

☒

☒

☒

Group

☒

☐

☒

Other

☐

☐

☐

\* Mandatory fields.

Save

Save As

Cancel

Test

Figure 19.9: View Advanced Properties

- To change the ownership of the activity, select the owner from the *Owner* drop-down list.



A user can select another user within its group only as the owner of the activity.

- The Creation Date, Last Modified Date and Last Modified By fields are non editable. A user cannot change the values of these fields.
- To change the permissions, check the required checkboxes beside Permissions according to the following tables.

Table 19.2: Owner Permissions

Owner	
Read	Read permission allows the owner user to view the activity. The Read checkbox is pre-selected and cannot be unchecked.
Write	Write permission allows the owner user to Edit the activity.
Execute	Execute permission allows the owner user to Execute the activity.


Table 19.3: Group Permissions

Group	
Read	Read permission allows the other users of the owner's group to view the activity.
Write	Write permission allows the other users of the owner's group to Edit the activity.
Execute	Execute permission allows the other users of the owner's group to Execute the activity.

Table 19.4: Other Permissions

Other	
Read	Read permission allows the users of the other group to view the activity.
Write	Write permission allows the users of the other group to Edit the activity.
Execute	Execute permission allows the users of the other group to Execute the activity.

8. After changing the properties, click **Save** button to save the changes. This displays a screen confirming that the activity has been updated successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to editing the activity (refer to Figure 4.6).
9. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

10. Click **OK** to save the comments. This displays a screen confirming that the activity has been updated successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

# OPTIMIZE

## 20 USING DASHBOARD

DashBoard collects data from various data sources, even outside Adeptia Server. As a user executes DashBoard, it displays the results in a graphical format with four different components clubbed together to form a single DashBoard. Monitoring DashBoard provides Adeptia Server user with real-time visibility into the performance of decisive services.

Monitoring DashBoard enables administrators to analyze discrepancies between expected and actual performance and to monitor compliance with IT operational best practices in real-time.

DashBoard enables the user to represent data in the form of *PIE chart*, *Bar Chart*, *String chart* and *Table chart*.

DashBoard applet represents data using the four components:

- Bar Chart
- String Chart
- Table Chart
- PIE Chart

DashBoard enables business users to view business level information like the number of orders received per customer (Bar Chart), Orders processed per business users (Bar Chart), Orders received per item (PIE Chart), List of new customers today (Table Chart), maximum order of the day (String Chart).

Using DashBoard can be broadly classified into three parts:

- [Creating DashBoard Component](#)
- [Designing DashBoard](#)
- [Executing DashBoard](#)

### Prerequisites

- To create any DashBoard activity, *Database Driver* and *Database Info* should be already created and table used for selection of columns for customized DashBoard creation should exist.
- JRE 1.5 or above needs to be installed on your system to open the Dashboard applet.
- The *Pop-up Blocker* needs to be disabled in the web browser, to open the Dashboard applet. By default, the *Pop-up Blocker* is enabled.

## CREATING DASHBOARD COMPONENT ACTIVITY

A DashBoard Component activity can be created using one of the following:

- [Bar Chart](#)
- [String Chart](#)
- [Table Chart](#)
- [PIE Chart](#)

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	

### Creating Bar Chart Activity

#### Steps to create Bar Chart

1. Click **[+] Optimize** to expand the tree and then click **[+] DashBoard**. All the items in the DashBoard category are displayed.
2. Click **DashBoard Component**. The Manage DashBoard Component screen is displayed (see Figure 20.1 ).

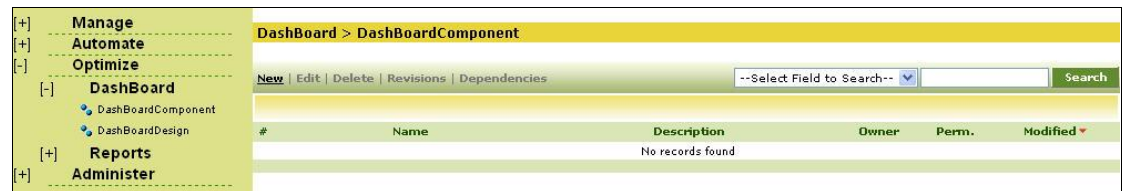
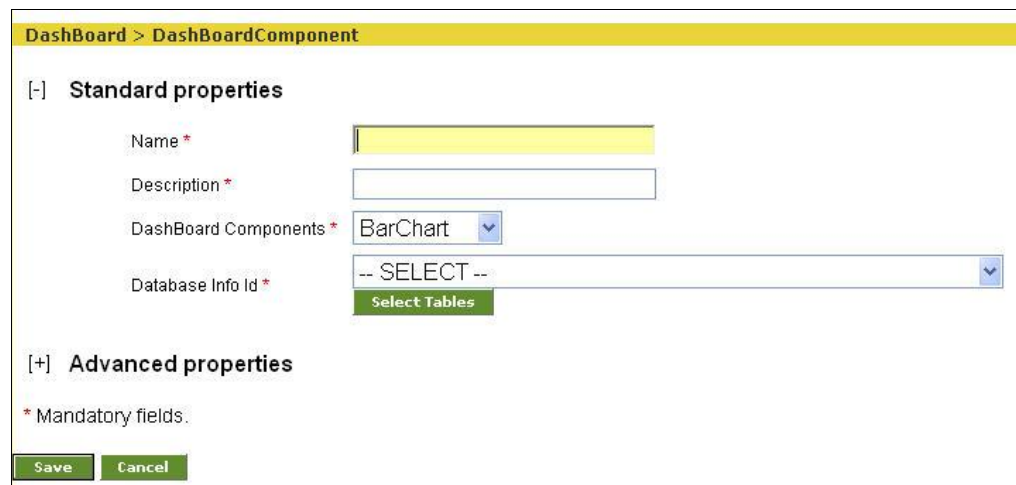


Figure 20.1: Manage Dashboard Component

3. Click the **New** link. The Create DashBoard Component screen is displayed (see Figure 20.2).





Dashboard > DashboardComponent

**[-] Standard properties**

Name \*

Description \*

Dashboard Components \*

Database Info Id \*

**[+] Advanced properties**

\* Mandatory fields.

Figure 20.2: Create Dashboard Component

4. Enter the name and description of the new Dashboard Component in the *Name* and *Description* fields respectively.
5. Select Bar Chart from the *Dashboard Component* drop-down list.
6. Select the appropriate Database Info, depending on the database you want to use, from the *Database Info Id* drop-down list.
7. Click **Select Tables** button. The Select Table screen is displayed (see Figure 20.3).



Dashboard Component [Bar Chart]

Select Table

☐ SYSTEM\_ALIASES  
☐ SYSTEM\_ALLTYPEINFO  
☐ SYSTEM\_BESTROWIDENTIFIER  
☐ SYSTEM\_CACHEINFO  
☐ SYSTEM\_CATALOGS  
☐ SYSTEM\_CHECK\_COLUMN\_USAGE  
☐ SYSTEM\_CHECK\_CONSTRAINTS  
☐ SYSTEM\_CHECK\_ROUTINE\_USAGE  
☐ SYSTEM\_CHECK\_TABLE\_USAGE  
☐ SYSTEM\_CLASSPRIVILEGES  
☐ SYSTEM\_COLUMNPRIVILEGES  
☐ SYSTEM\_COLUMNS  
☐ SYSTEM\_CROSSREFERENCE  
☐ SYSTEM\_INDEXINFO  
☐ SYSTEM\_PRIMARYKEYS  
☐ SYSTEM\_PROCEDURECOLUMNS

Figure 20.3: Select Table

8. Select the required table and click **Get Columns** button. The Columns in Bar Chart screen is displayed (see Figure 20.4).

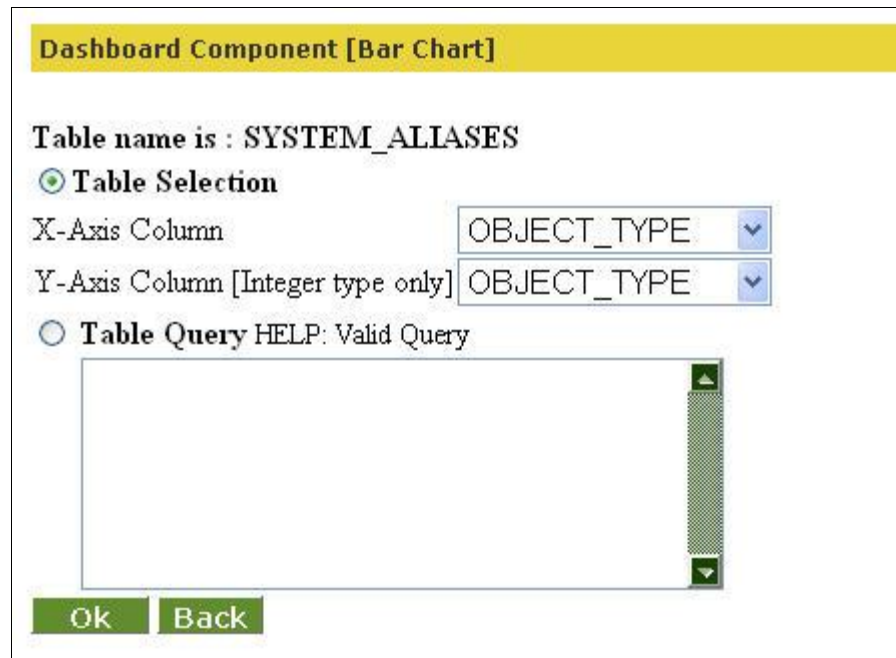




Figure 20.4: Select Columns for Bar Chart

9. Select the X-Axis and Y-Axis components for the Bar Chart from the *X-Axis Column* and *Y-Axis Column [Integer type only]* drop-down lists respectively.

	<p>In Bar Chart Component Y-Axis can take only integer values or values which could be evaluated to an integer e.g. a string with value "2". Any other value will cause erroneous behavior.</p> <p>You can write, SQL query to define X axis and Y axis of Bar chart. To write SQL query, click Table Query radio button and enter your query in the Table Query field.</p>
---	---

10. Click **Save** button to save the Bar Chart information. A screen is displayed confirming that the Dashboard Component activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the dashboard component (refer to Figure 4.6).
11. Enter comments in the *Add Comments* field.

	<p>The comment should be at least 1 character in length.</p>
---	--

12. Click **OK** to save the comments and return to the Create Dashboard Component screen.
13. Click **Save** button. A screen is displayed confirming that the Dashboard Component activity has been created successfully.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Creating String Chart Activity

### *Steps to create String Chart*

1. Click **[+] Optimize** to expand the tree and then click **[+] DashBoard**. All the items in the DashBoard category are displayed.
2. Click **DashBoard Component**. The Manage DashBoard component screen is displayed (refer to Figure 20.1).
3. Click the **New** link. The Create DashBoard Component screen is displayed (refer to Figure 20.2).
4. Enter the name and description for the new DashBoard Component in the *Name* and *Description* fields respectively.
5. Select String Chart from the *DashBoard Components* drop-down list.
6. Select the appropriate Database Info, depending on the database user wants to use, from the *Database Info Id* drop-down list.
7. Click **Select Tables** button. The Select Tables screen is displayed (refer to Figure 20.3).
8. Click **Get Columns** button. The Select Fields screen is displayed (see Figure 20.5).

Dashboard Component [String Chart]

**Select Fields:**

Table name is : **SYSTEM\_ALIASES**

**Select All** (Click on Select all to select all the Columns from specified table) or click on individual column name and write the simple **Select** query with Comma (,) Separated Column names.

**OBJECT\_TYPE** (VARCHAR)

**OBJECT\_CAT** (VARCHAR)

**OBJECT\_SCHEM** (VARCHAR)

**OBJECT\_NAME** (VARCHAR)

**ALIAS\_CAT** (VARCHAR)


**ALIAS\_SCHEM** (VARCHAR)

**ALIAS** (VARCHAR)

Ok
Back

Figure 20.5: Select Fields

9. Click **Select All** to select all the columns from specified table or click individual column name and write the simple Select query with Comma (,) Separated Column names and click **OK** button to return to the Create Dashboard Component screen.
10. Click **Save** button. This displays a screen confirming that the DashBoard Component activity has been created successfully. If the *Comments* property is enabled then clicking **Save** will display a screen where you need to enter comments related to creating the dashboard component (refer to Figure 4.6).
11. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.


12. Click **OK** to save the comments. This displays a screen confirming that the DashBoard Component activity has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Creating Table Chart Activity

### *Steps to create a Table Chart*

1. Click **[+] Optimize** to expand the tree and then click **[+] Dashboard**. All the items in the Dashboard category are displayed.
2. Click **Dashboard Component**. The Manage Dashboard component screen is displayed (refer to Figure 20.1).
3. Click the **New** link. The Create Dashboard Component screen is displayed (refer to Figure 20.2).
4. Enter the name and description for the new Dashboard Component in the *Name* and *Description* fields respectively.
5. Select Table Chart from the *Dashboard Components* drop-down list.
6. Select the appropriate Database Info, depending on the database user wants to use, from the *Database Info Id* drop-down list.
7. Click **Select Tables** button. The Select Table screen is displayed (refer to Figure 20.3).
8. Click **Get Columns** button. The Select Fields screen is displayed (refer to Figure 20.5).
9. Click **Select All** to select all the columns from specified table or click individual column name and write the simple Select query with Comma (,) Separated Column names and click **OK** button to return to the Create Dashboard Component screen.
10. Click **Save** button. This displays a screen confirming that the Dashboard Component activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the dashboard component (refer to Figure 4.6).
11. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

12. Click **OK** to save the comments. This displays a screen confirming that the Dashboard Component activity has been created successfully.


	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

## Creating PIE Chart Activity


### Steps to create a PIE Chart

1. Click **[+] Optimize** to expand the tree and then click **[+] Dashboard**. All the items in the Dashboard category are displayed.
2. Click **Dashboard Component**. The Manage Dashboard component screen is displayed (refer to Figure 20.1).
3. Click the **New** link. The Create Dashboard Component screen is displayed (refer to Figure 20.2).
4. Enter the name and description for the new Dashboard Component in the *Name* and *Description* fields respectively.

5. Select **PIE Chart** from the *DashBoard Components* drop-down list.
6. Select the appropriate Database Info, depending on the database user wants to use, from the *Database Info Id* drop-down list.
7. Click **Select Tables** button. The Select Table screen is displayed (refer to Figure 20.3).
8. Click **Get Columns** button. The Select Columns screen is displayed (refer to Figure 20.4).
9. Select the X-Axis and Y-Axis for the PIE Chart from the *X-Axis Column* and *Y-Axis Column [Integer type only]* drop-down lists respectively.

 In PIE Chart Y-Axis Column can take only integer values or values which could be evaluated to an integer e.g. a string with value "2". Any other value will cause erroneous behavior.  
You can write, SQL query to define columns of PIE chart. To write SQL query, click Table Query radio button and enter your query in the Table Query field.

10. Click **Save** button. This displays a screen confirming that the DashBoard Component activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the dashboard component (refer to Figure 4.6).
11. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

12. Click **OK** to save the comments and return to the Create Dashboard Component screen.
13. Click **Save** button. A screen is displayed confirming that the DashBoard Component activity has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING DASHBOARD DESIGN ACTIVITY

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	

### Steps to create a DashBoard Design activity

1. Click **[+] Optimize** to expand the tree and then click **[+] Dashboard**. All the items in the Dashboard category are displayed.

- Click **Dashboard Design**. The Manage Dashboard Design screen is displayed (see Figure 20.6).

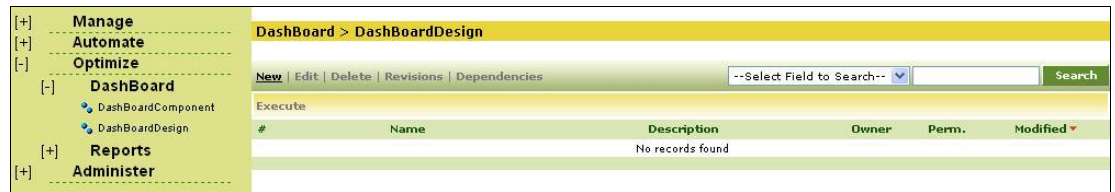


Figure 20.6: Manage Dashboard Design

- Click the **New** link. The Create Dashboard Design screen is displayed (see Figure 20.7).

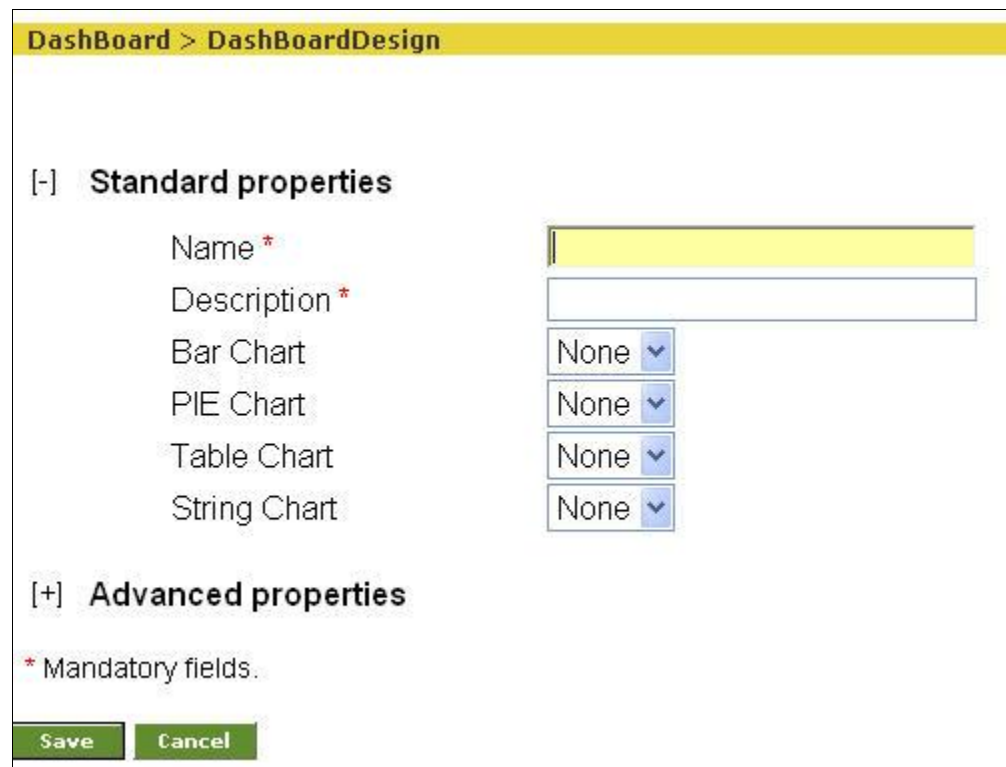



Figure 20.7: Creating Dashboard Design

- Enter the name and description of the new Dashboard Design in the *Name* and *Description* fields respectively.
- Then select any of the components from the *Bar Chart*, *PIE Chart*, *Table Chart* and *String Chart* drop-down lists. You may select one component from each chart and any number of charts.
- Click **Save** button. This displays a screen confirming that the Dashboard Design activity has been created successfully. If the *Comments* property is enabled then clicking **Save** will display a screen where you need to enter comments related to creating the dashboard design (refer to Figure 4.6).

7. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

8. Click **OK** to save the comments. This displays a screen confirming that the DashBoard Design activity has been created successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

## EXECUTING DASHBOARD DESIGN

### *Steps to execute a DashBoard Design activity*

1. Click **[+] Optimize** to expand the tree and then click **[+] DashBoard**. All the items in the DashBoard category are displayed.
1. Click **DashBoard Design**. The Manage DashBoard Design screen is displayed (refer to Figure 20.6).
2. Select the radio button adjacent to required dashboard design activity that you want to execute and then click **Execute** link.
3. A DashBoard applet appears displaying the component that was chosen while creating the DashBoard Design activity (see Figure 20.8).



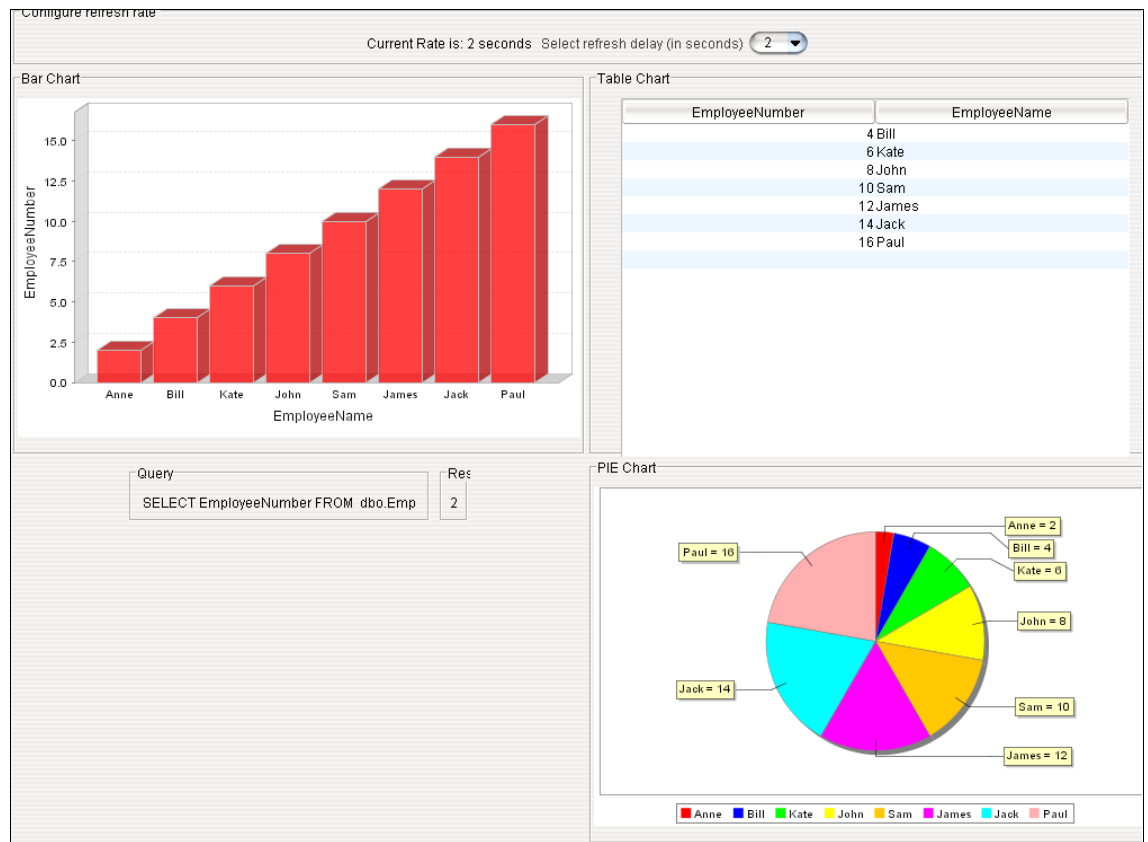


Figure 20.8: View Dashboard

- To configure the refresh time, select the refresh time from the *Select refresh delay (in seconds)* drop-down list.

## 21 VIEWING ADEPTIA SERVER LOGS

The information of the Adeptia Server, process flows and activities are stored in the Adeptia Server Logs. There are three levels of logging:

- **ERROR:** This is the minimal setting. The following message types are logged:
  - **SEVERE** errors are the ones that cause premature termination.
  - **ERROR** and **FATAL** type messages deal with other runtime errors or unexpected conditions.
- **INFO:** This is the typical setting. It is the default setting in both the properties file and at the Process flow creation. The following message types are logged:
  - All messages as defined in the **ERROR** category.
  - **Warning (WARN)** messages such as runtime situations that are undesirable or unexpected, but not necessarily "wrong" will be logged.
  - All Process flow Start and End messages.
  - Detailed information about each Process flow and activity details (**INFO**) will be logged such as start and end time for each activity/module/node, number of records processed etc.
- **DEBUG:** This is the most detailed setting. It is expected that the user will want this level of detail to help with tracing errors, and troubleshooting. The following message types are logged:
  - All messages as defined in the **ERROR** category.
  - All messages as defined in the **INFO** category.
  - Detailed messages for each module, activity or node as it is executed including trace messages and flow information.
  - Display of Process flow global variables after end of every activity.
  - Any other information that may be helpful in debugging.

The Adeptia Server logs are classified into four categories:

- [Audit Trail Log](#)
- [Event Log](#)
- [System Log](#)
- [Process Flow Log](#)
- [Task History](#)


## Access Control to Logs

Log information that is displayed in the Adeptia Server logs is not filtered as per the user's permissions. Every user with the minimal read permissions can view the logs. Only the logs specific to the Users group are displayed to them. A user cannot view log information for other Groups.

## VIEWING AUDIT TRAIL LOG

Audit Trail log maintains a log of all changes made to the Adeptia Server activities. These changes include creating, editing, deleting and saving of activities. Additionally, it also includes comments, change of password and login/logout details.

You can view the Audit Trail log for a specific period by entering search criteria.

 Only the *Admin* and *SysAdmin* are authorized to view the Audit Trail log.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to view Audit Trail Logs

1. Click **[+] Optimize** to expand the tree and then click **[+] Reports**. All the items in the Reports category are displayed.
2. Click **Audit Trail Log**. The Audit Trail Log screen is displayed (see Figure 21.1).

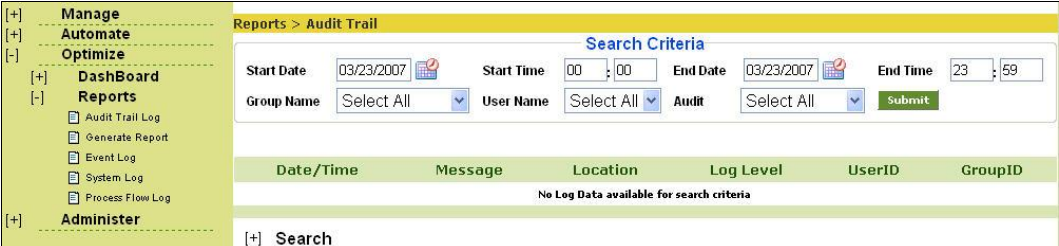



Figure 21.1: Select Search Criteria



3. Enter the start date and start time in the *Start Date* and *Start Time* fields respectively.
4. Enter the end date and end time in the *End Date* and *End Time* fields respectively.




Click **Calendar** icon  to select the *Start Date* and *End date* from calendar.

5. Select the user group and the user whose audit trail you want to view, from the *Group Name* and *User Name* drop-down lists respectively.
6. Select the audit type that you want to view, from the *Audit* drop-down list. You can view the audit trail log for either objects or Login/Logout details or both audit types. The *Objects* audit type displays all changes made to the Adeptia Server activities, whereas the *Login/Logout* audit type displays only login/logout details. By default, both audit type details are displayed.
7. To view the audit log for the entered criteria, click **Submit** button. The audit log information for the selected criteria is displayed (see Figure 21.2).

Reports > Audit Trail

**Search Criteria**

Start Date: 03/01/2007  Start Time: 00 : 00 End Date: 03/23/2007  End Time: 23 : 59

Group Name: Select All  User Name: Select All  Audit: Select All  **Submit**

Date/Time	Message	Location	Log Level	UserID	GroupID
03/23/2007 15:41:16	admin [administrators] logged-in at 2007-03-23 03:41:16.578	web.SessionLoginContext.valueBound (SessionLoginContext.java:110)	INFO	admin	administrators
03/23/2007 11:11:21	admin [administrators] logged-in at 2007-03-23 11:11:21.453	web.SessionLoginContext.valueBound (SessionLoginContext.java:110)	INFO	admin	administrators
03/21/2007 23:41:40	admin [administrators] logged-in at 2007-03-21 11:41:40.500	web.SessionLoginContext.valueBound (SessionLoginContext.java:110)	INFO	admin	administrators
03/21/2007 11:04:09	admin [administrators] logged-in at 2007-03-21 11:04:09.031	web.SessionLoginContext.valueBound (SessionLoginContext.java:110)	INFO	admin	administrators
03/20/2007 22:46:57	admin [administrators] logged-in at 2007-03-20 10:46:57.343	web.SessionLoginContext.valueBound (SessionLoginContext.java:110)	INFO	admin	administrators
03/20/2007 22:10:48	admin [administrators] logged-in at 2007-03-20 10:10:48.250	web.SessionLoginContext.valueBound (SessionLoginContext.java:110)	INFO	admin	administrators
03/20/2007 17:46:25	admin [administrators] logged-in at 2007-03-20 05:46:25.870	web.SessionLoginContext.valueBound (SessionLoginContext.java:110)	INFO	admin	administrators

[+] Search

Figure 21.2: View Audit Trail Log

8. In case Log Level is **ERROR**, you can click **ERROR** link to view the details of the error.

## Searching Text

### Steps to view Audit Logs by searching text

1. Click **[+] Search** to expand its options on the View Audit Trail Log screen. The Search options are displayed (see Figure 21.3).

[-] Search

Select Search Option

Message

Criteria

Search

Figure 21.3: Search Text

- Enter the text to be searched in the *Criteria* field.
- Click **Submit**. This searches the *Message* field for the entered text and displays the audit logs containing the searched text.

## VIEWING EVENT LOG

Event log displays only those messages, which related to the Triggers and Events of the Adeptia Server.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to view Event Logs

- Click **[+] Optimize** to expand the tree and then click **[+] Reports**. All the items in the Reports category are displayed.
- Click **Event Log**. The Event Log screen is displayed (see Figure 21.4).

[+] Manage

[+] Automate

[+] Optimize

[+] Dashboard

[+] Reports

Audit Trail Log

Generate Report

Event Log

System Log

Process Flow Log

[+] Administer

Reports > Event Log

Search Criteria

Start Date

03/23/2007

Start Time

00:00

End Date

03/23/2007

End Time

23:59

Select Level:

ERROR

INFO

DEBUG

Submit

Date/Time

Message

Location

Log Level

UserID


GroupID


No Log Data available for search criteria

[+] Search

Figure 21.4: Select Search Criteria

- Enter the start date and start time in the *Start Date* and *Start Time* fields respectively.
- Enter the end date and end time in the *End Date* and *End Time* fields respectively.



Click **Calendar** icon  to select the *Start Date* and *End date* from calendar.

5. Select the logging level from the *Select Level* options.
6. To view the logs for the time interval defined above, click **Submit** button. The log information for the selected time interval is displayed (see Figure 21.5).

**Reports > Event Log**

**Search Criteria**

Start Date: 03/01/2007 Start Time: 00:00 End Date: 03/23/2007 End Time: 23:59

Select Level: ☐ ERROR ☒ INFO ☐ DEBUG **Submit**

Date/Time	Message	Location	Log Level	UserID	GroupID
03/23/2007 15:38:30	DEFAULT:autoLogCleanup will run at: Fri Mar 23 20:00:00 GMT+05:30 2007	event.QuartzEventFactory.activateAutoLogCleanupService (QuartzEventFactory.java:341)	INFO	admin	administrators
03/23/2007 15:38:30	Auto Data Cleanup scheduled	event.QuartzEventFactory.activateAutoCleanupService (QuartzEventFactory.java:315)	INFO	admin	administrators
03/23/2007 15:38:30	DEFAULT:autoCleanup will run at: Fri Mar 23 20:00:00 GMT+05:30 2007	event.QuartzEventFactory.activateAutoCleanupService (QuartzEventFactory.java:309)	INFO	admin	administrators
03/23/2007 15:38:27	Error in activating Jms Event =JmsEvent:192168001001112419882071800001 due toError in activating JMS Event "EvalJMS_E_JMSEvent (192168001001112419882071800001)": Failed to retrieve RMIServer stub: javax.naming.NameNotFoundException: localhost	event.jms.JmsEventFactory.initialize (JmsEventFactory.java:104)	ERROR	admin	administrators
03/23/2007 11:10:31	Auto Log and Process Flow Report clean up completed at Fri Mar 23 11:10:31 GMT+05:30 2007	event.LogsCleanupAction.execute (LogsCleanupAction.java:109)	INFO	admin	administrators

Figure 21.5: View Event Log

## Searching Text

### Steps to view Event Logs by searching text

1. Click **[+] Search** to expand its options on the View Event Log screen. The Search options are displayed (refer to Figure 21.3).
2. Enter the text to be searched in the *Criteria* field.
3. Click **Submit**. This searches the *Message* field for the entered text and displays the event logs containing the searched text.

## VIEWING PROCESS FLOW LOG

The Process Flow log displays all details about the process flow execution and its associated activities. It also displays the status of the associated (Parent or Child) Process Flow.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√


### Steps to view Process Flow log


1. Click **[+] Optimize** to expand the tree and then click **[+] Reports**. All the items in the Reports category are displayed.
2. Click **Process Flow Log**. The Process Flow Log screen is displayed (see Figure 21.6).




Figure 21.6: Select Search Criteria

3. Enter the start date and start time in the *Start Date* and *Start Time* fields respectively.
4. Enter the end date and end time in the *End Date* and *End Time* fields respectively.



Click **Calendar** icon  to select the *Start Date* and *End Date* from calendar.


5. Select the Process flow from the *Process Flow Name* drop-down list.



In the *Process Flow Name* drop-down list, process flows are listed based on their time of execution. The process flow which has executed recently is listed first. To sort process flows based on their name, click **Sort By Name** button. This sorts the process flows based on their name and changes the button to **Sort By Date**. Again, to sort the process flows based on their execution date, click **Sort By Date** button.

6. Select the process flow status whether *Executed*, *Aborted*, *Successful*, *Queued*, *Running* or *Waiting* from the *Status* drop-down list.
7. To view the logs for the time interval defined above, click **Details** button. The log information for the selected time interval is displayed with the following information:

- Parent/Child (whether the Process Flow is a Parent, Child, both or none)
- Process Flow Name
- Description
- Status
- User ID
- Start Time
- End Time
- Action

 In Process Flow log, maximum 500 records are shown.

8. If the process flow is still running, then clicking **Details** button displays the Process Flow Logs with a **Context Info** link (see Figure 21.7).

**Reports > Process Flow Log**

**Search Criteria**

Start Date: 09/13/2007 Start Time: 16:22 End Date: 09/13/2007 End Time: 23:59

Process Flow Name: EvalScript\_ProcessFlow Sort By: Name Status: Executed Details Summary

P/C	Process Flow Name	Description	Status	User ID	Start Time	End Time	Action
C	EvalScript_ProcessFlow	Process Flow to Con...	Running	admin	09/13/2007 16:37:48	NA	Details Repository Summary Context Info
C	EvalScript_ProcessFlow	Process Flow to Con...	Executed	admin	09/13/2007 16:23:32	09/13/2007 16:23:37	Details Repository Summary

Figure 21.7: View Process Flow Log (Running)

9. Clicking **Context Info** displays the Process Flow Context Information screen (see Figure 21.8).

**Process Flow Context Information**

**Process Flow Name:** EvalScript\_ProcessFlow **Date:** Sat Jul 07 12:58:22 GMT+05:30 2007

**Process Flow System Variables**

#	Name	Value
1	LoggingLevel	INFO
2	TransactionAddress	localhost://indigo.Transaction[192168001006115537870829600010!192168001218118379329845300355];type=Transaction,name=EvalScript_ProcessFlow,id=192168001006115537870829600010,pid=192168001218118379329845300355
3	currentState	state-BPMN:TASK:BASIC_TASK-11053099

**Process Flow User Variables**

#	Name	Value
---	------	-------

**Service Addresses**

#	Service Name	Address
1	EvalScript_ExcelSchema	localhost://indigo.Transaction[192168001006115537870829600010!192168001218118379329845300355];type=XmlStream2StreamTransformer,name=EvalScript_ExcelSchema,id=null,pid=192168001218118379330189000397
2	EvalScript_FileSource	localhost://indigo.Transaction[192168001006115537870829600010!192168001218118379329845300355];type=FileSource,name=EvalScript_FileSource,id=192168001006115537660489000001,pid=1921680012181183793298454600362
3	EvalScript_Mapping	localhost://indigo.Transaction[192168001006115537870829600010!192168001218118379329845300355];type=DataMapping,name=EvalScript_Mapping,id=1921680010061155377622687000008,pid=192168001218118379330079600386
4	EvalScript_ScriptedService	localhost://indigo.Transaction[192168001006115537870829600010!192168001218118379329845300355];type=CustomPlugin,name=EvalScript_ScriptedService,id=192168001006115537797739000009,pid=192168001218118379329864000369
5	EvalScript_TextSchema	localhost://indigo.Transaction[192168001006115537870829600010!192168001218118379329845300355];type=Stream2XmlStreamTransformer,name=EvalScript_TextSchema,id=null,pid=192168001218118379329970300378

**Close Window**

Figure 21.8: Process Flow Context Information

10. Click **Close** Window button to close this screen and return to the Process Flow Log screen.
11. To view execution details of each activity of the process flow, click **Details** link in the View Process Flow Log (Running) screen. The Process Flow Log Detail screen is displayed (see Figure 21.9). This screen is divided into two parts: *Process Flow Log Details* and *Parent/Child Process Flow Log Details*. The first part shows the details of the selected process flow. The second




part shows the list of Parent or Child Process flow of the selected process flow. Following details are shown in Process Flow Log Details screen:

- Process Flow Log Details
- Date/Time
- Activity Name
- Activity Type
- Status
- Message
- Level
- Location
- Activity ID
- Activity PID
- User ID
- Group ID
- Parent/Child Process Flow Log Details
- Process Flow Name
- Description
- Status
- Parent/Child
- User ID
- Start Time
- End Time
- Action

Process Flow Log Details						
<b>Process Flow Name :</b> EvalScript_ProcessFlow <b>Process Flow PID :</b> 192168001010118968166812500195						
Date/Time	Activity Name	Activity Type	Status	Message	Level	Location
09/13/2007 16:37:53	EvalScript_ProcessFlow	Transaction	Executed	Activity disposed. Start Time:2007-09-13 16:37:48 End Time:2007-09-13 16:37:53 Run Time:5 second(s) 390 ms	INFO	services.Abstra se(AbstractServ
09/13/2007 16:37:53	EvalScript_ProcessFlow	Transaction	Running	Context Information: {TransactionAddress=localhost://Indigo.Transaction n[192168001006115537870829600010] 19216800101011896 8166812500195}type=Transaction.name=EvalScript_Pr ocessFlow.id=192168001006115537870829600010,pid=19 2168001010118968166812500195, currentState=state- BPMN:TASK:BASIC_TASK-11053089, EvalScript_FileTarget.params={fileName=EvalScript_EmployeeData[2007-09-13].zip}, LoggingLevel=INFO}	INFO	services.Abstra se(AbstractServ
09/13/2007 16:37:53	EvalScript_FileTarget	FileTarget	Executed	Activity disposed. Start Time:2007-09-13 16:37:53 End Time:2007-09-13 16:37:53 Run Time:16 ms. Operation count:2322 Bytes Average:145125.0 operations/sec	INFO	services.Abstra se(AbstractServ
09/13/2007 16:37:53	EvalScript_FileTarget	FileTarget	Running	Execute	INFO	services.Abstra te(AbstractServ
09/13/2007 16:37:53	EvalScript_FileTarget	FileTarget	Running	Initialize	INFO	services.Abstra lize(AbstractS
09/13/2007 16:37:53	Compression	Compression	Executed	Activity disposed. Start Time:2007-09-13 16:37:52 End Time:2007-09-13 16:37:53 Run Time:1 second(s) 16 ms. Operation count:14848 Bytes Average:14614.173 operations/sec	INFO	services.Abstra se(AbstractServ
09/13/2007 16:37:52	Compression	Compression	Running	Execute	INFO	services.Abstra te(AbstractServ
						services.Abstra
Parent/Child Process Flow Log Details						
Process Flow Name	Description	Status	Parent/child	User ID	Start Time	End Time
EvalXform_ProcessFlow	Process Flow to tra...	Executed	Parent	admin	09/13/2007 16:37:45	09/13/2007 16:37:53
						<input type="radio"/> ERROR <input checked="" type="radio"/> INFO <input type="radio"/> DEBUG <a href="#">Details</a> <a href="#">Repository</a> <a href="#">Status</a>
Close Window						

Figure 21.9: View Process Flow Detail Log

	If a context variable is defined for the process flow, then its details are displayed under the heading <b>Context Information</b> , in the <i>Message</i> column.
	If an Advance Database Target activity is executed in the process flow, then its record count details are displayed in the <i>Message</i> column. For details on Record Count, refer to the section Understanding Record Count in Process Flow Logs
	To view the log information of the Parent/Child Process Flow, click the required link from the <i>Action</i> column of the Parent/Child Process Flow Log Details section.

- To view intermediate repository files of the process flow, click **Repository** link in theView Process Flow Log (Running) screen. A screen is displayed with list of repository files, created during execution of the Process Flow (see Figure 21.10).

Repository listing for [ EvalScript_ProcessFlow ]		
Filename	Size	Last Modified
Compression_default	2 KB	July 07, 2007 13:10:12 GMT+05:30
ErrorRecordEvalScript_TextSchema.xml	1 KB	July 07, 2007 13:10:10 GMT+05:30
EvalScript_ExcelSchema_default.xls	14 KB	July 07, 2007 13:10:12 GMT+05:30
EvalScript_FileSource_default.zip	1 KB	July 07, 2007 13:10:08 GMT+05:30
EvalScript_Mapping_default.xml	3 KB	July 07, 2007 13:10:10 GMT+05:30
EvalScript_ScriptedService_default	1 KB	July 07, 2007 13:10:08 GMT+05:30
EvalScript_TextSchema_default.xml	4 KB	July 07, 2007 13:10:09 GMT+05:30
PID [ 192168001218118379400842100477 ]		July 07, 2007 14:31:11 GMT+05:30
Click on the filename to view the file. To download Right click and use option "Save Target As..."		
Close Window		

Figure 21.10: Repository screen

- To open any file from the list, click on the name of the file.
- Clicking **Summary** link in the *Action* column displays the Process Flow Status screen (see Figure 21.11).

Process Flow Status							
Process Flow Status							
Process Flow Name		EvalScript_ProcessFlow					
Process Flow Id		192168001006115537870829600010					
Process Flow PID		192168001218118379400842100477					
Status		Executed					
Start Time		07/07/2007 13:10:08 PM					
End Time		07/07/2007 13:10:30 PM					
Process Flow Execution Time		21 second (s) 703 ms					
Activity Name (ID)	Activity Type	Start Time	End Time	Execution Time	Status	Processed Data (Bytes/Records)	Error Records
EvalScript_FileSource (192168001006115537660489000001)	FileSource	07/07/2007 13:10:08 PM	07/07/2007 13:10:08 PM	47 ms	Executed	1063	0
EvalScript_ScriptedService (192168001006115537797739000009)	CustomPlugin	07/07/2007 13:10:08 PM	07/07/2007 13:10:09 PM	1 second (s) 31 ms	Executed	0	0
EvalScript_Mapping (1921680010061155377622687000008)	DataMapping	07/07/2007 13:10:10 PM	07/07/2007 13:10:11 PM	1 second (s) 62 ms	Executed	4396	0
Compression (N/A)	Compression	07/07/2007 13:10:12 PM	07/07/2007 13:10:13 PM	1 second (s) 31 ms	Executed	14848	0
PutContextVarTag1 (N/A)	Put-Context-Var	07/07/2007 13:10:13 PM	07/07/2007 13:10:14 PM	16 ms	Executed	0	0
Delay1 (N/A)	Delay	07/07/2007 13:10:14 PM	07/07/2007 13:10:30 PM	16 second (s) 31 ms	Executed	0	0
EvalScript_FileTarget (192168001006115537667132800002)	FileTarget	07/07/2007 13:10:30 PM	07/07/2007 13:10:30 PM	63 ms	Executed	2322	0
Close Window							


Figure 21.11: Process Flow Status

- Click **Close** Window button to close this screen.

16. To view the information about the context variable used in the process flow, click the **Context Info** link in the View Process Flow Log (Running) screen.
17. If you want to view summary of the process flow execution for the selected time interval, click **Show Summary** button on the Select Search Criteria for Process Flow Logs screen. This displays the summary for all statuses of the process flow, based on the selected criteria (see Figure 21.12).

Process Flows Summary between 07/07/2007 00:00:00 and 07/07/2007 23:59:59				
Process Flows				
Start Time ->	before 07/07/2007 00:00:00	after 07/07/2007 00:00:00		
End Time ->	before 07/07/2007 23:59:59	after 07/07/2007 23:59:59		
Process Flows	Successful	0	5	0
	Aborted	0	0	0
	Executed	0	5	0
Close Window				

Figure 21.12: Summary for all Process Flows

	The process flow summary displays the process flows based on three categories:
	<ul style="list-style-type: none"> <li>Process flows that started before the specified start time and ended before the specified end time</li> <li>Process flows that started after the specified start time and ended before the specified end time</li> <li>Process flows that started after the specified start time and ended after the specified end time</li> </ul>
	You can view the process flow summary based on all criteria except the process flow status. The system always displays the summary for all process flows status.

## VIEWING SYSTEM LOG

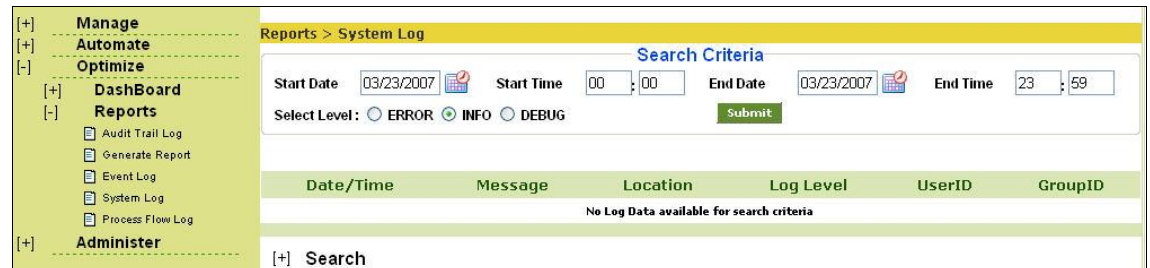
System log displays messages related to the Adeptia Server system. It also includes change of password and login/logout details.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to view System Logs


1. Click **[+] Optimize** to expand the tree and then click **[+] Reports**. All the items in the Reports category are displayed.
2. Click **System Log**. The System Log screen is displayed (see Figure 21.13).




The screenshot shows the 'Reports > System Log' interface. On the left is a navigation tree with categories: Manage, Automate, Optimize, Dashboard, Reports, and Administer. The 'Reports' category is expanded, showing sub-items: Audit Trail Log, Generate Report, Event Log, System Log, and Process Flow Log. The 'System Log' item is selected. The main area displays search criteria: Start Date (03/23/2007), Start Time (00:00), End Date (03/23/2007), and End Time (23:59). There are calendar icons for the date fields. Below these are radio buttons for 'Select Level': ERROR, INFO (selected), and DEBUG. A 'Submit' button is present. Below the search criteria is a table with columns: Date/Time, Message, Location, Log Level, UserID, and GroupID. The table currently displays the message 'No Log Data available for search criteria'.

Figure 21.13: Select Search Criteria

3. Enter the start date and start time in the *Start Date* and *Start Time* fields respectively.
4. Enter the end date and end time in the *End Date* and *End Time* fields respectively.



Click **Calendar** icon  to select the *Start Date* and *End Date* from calendar.

5. Select the logging level from the *Select Level* options.
6. To view the logs for the time interval defined above, click **Submit** button. The log information for the selected time interval is displayed (see Figure 21.14).

Reports > System Log					
Search Criteria					
Start Date	03/01/2007	Start Time	00 : 00	End Date	03/23/2007
				End Time	23 : 59
Select Level: <input type="radio"/> ERROR <input checked="" type="radio"/> INFO <input type="radio"/> DEBUG			<input type="button" value="Submit"/>		
Date/Time	Message	Location	Log Level	UserID	GroupID
03/23/2007 15:41:16	admin [administrators] logged-in at 2007-03-23 03:41:16.578	web.SessionLoginContext.valueBound (SessionLoginContext.java:110)	INFO	admin	administrators
03/23/2007 15:38:35	SOAP Request on server <?xml version="1.0" encoding="UTF-8"?> <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns: xsi="http://www.w3.org/2001/XMLSchema-instance"> <soapenv:Body><deployment name="test" xmlns="http://xml.apache.org/axis/wsdd/" xmlns:java="http://xml.apache.org/axis/wsdd/providers/java" xmlns: xsi="http://www.w3.org/2000/10/XMLSchema-instance"> <service name="WsTrigger" style="message"> <parameter name="className" value="WsTransactionTrigger"/> <wsdlFile>wsdl/WsTrigger.wsdl</wsdlFile></service></deployment> </soapenv:Body> </soapenv:Envelope>	services.webservice.RequestSecurityHandler.invoke (RequestSecurityHandler.java:105)	INFO	admin	administrators
03/23/2007 15:38:35	MessageContext on server org.apache.axis.MessageContext@14b74a7	services.webservice.RequestSecurityHandler.invoke (RequestSecurityHandler.java:103)	INFO	admin	administrators
03/23/2007 15:38:33	Mlet registered MBean: org.mortbay.util.Code	WebRunner.checkMBeansLoadedSuccessfully(WebRunner.java:197)	INFO	admin	administrators

Figure 21.14: View System Log

- In case Log Level is ERROR, you can click **ERROR** link to view the details of the error.
- You can also view a system log report by searching for particular text in the *Message* field.

## Searching Text

### Steps to view Event Logs by searching text

- Click **[+] Search** to expand its options on the View System Log screen. The Search options are displayed (refer to Figure 21.3).
- Enter the text to be searched in the *Criteria* field.
- Click **Submit**. This searches the Message field for the entered text and displays the system logs containing the searched text.

## VIEWING TASK HISTORY

Task history displays the details of a Human Workflow task. It displays the detailed information of each action taken on the task either by user or by the Adeptia Server application.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to view Task history

1. Click **[+] Optimize** to expand the tree and then click **[+] Reports**. All the items in the Reports category are displayed.
2. Click **Task History**. The Task History screen is displayed (see Figure 21.15).

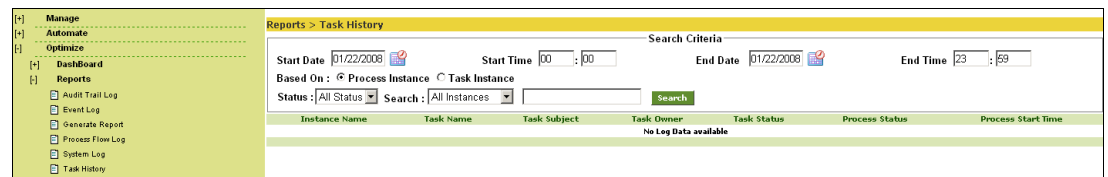




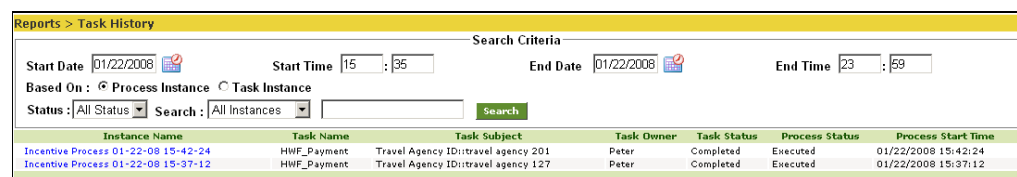
Figure 21.15: Select Search Criteria

3. Enter the start date and start time in the *Start Date* and *Start Time* fields respectively.
4. Enter the end date and end time in the *End Date* and *End Time* fields respectively.



Click **Calendar** icon  to select the *Start Date* and *End Date* from calendar.  
 This date range implies that the system will search the **Task History** for tasks that have been modified (including a task being saved or reassigned) within the entered date and time range.

5. You can search for tasks based on a process instance or task instance, by selecting the appropriate radio button in the *Based On* field. If *Process Instance* is selected, then it displays the latest task for all process instances that match the entered search criteria. If *Task Instance* is selected, then it displays all tasks within the entered search criteria. By default, *Process Instance* is selected.
6. If *Process Instance* option is selected, you can search for the latest task of a process instance based on a specific date range, by entering the start and end dates and time in their respective fields. You can further filter the search by selecting the process status as Executed, Running or Aborted from the *Status* drop-down list. Additionally, you can search for the task of a particular process instance by selecting Instance Name from the *Search* drop-down list and then entering the instance name in the adjoining text box. Once you have entered all criteria, click **Search** button. This displays the latest task of all process instances that match the entered criteria (see Figure 21.6).



Instance Name	Task Name	Task Subject	Task Owner	Task Status	Process Status	Process Start Time
Incentive Process 01-22-08 15:42:24	HWF_Payment	Travel Agency ID:travel agency 201	Peter	Completed	Executed	01/22/2008 15:42:24
Incentive Process 01-22-08 15:37:12	HWF_Payment	Travel Agency ID:travel agency 127	Peter	Completed	Executed	01/22/2008 15:37:12

Figure 21.16: Process Instance Search Results

7. This screen displays the following information:

- **Process Instance Name:** This is the process flow description. If this description is dynamically overridden, the latest description is displayed.
  - **Task Name:** This is the name of Human Workflow task.
  - **Task Subject:** This is the task description that has been dynamically set or else defined. The latest description is displayed.
  - **Task Owner:** This is the name of the user to whom the task is assigned.
  - **Task Status:** This is the status of task as *Assigned*, *Overdue*, *Expired* or *Completed*. The latest task status within the specified time range is displayed.
  - **Process Status:** This is the status of the process as *Running*, *Executed*, *waiting* or *Aborted*. The latest process status within the specified time range is displayed.
  - **Process Start Time:** This is the start time of the process instance. It is retrieved from the Process Flow Log.
8. Alternately, if you select the *Task Instance* radio button, then you can search for all tasks which are completed or are still running within a specific date range by entering the start and end dates and time in their respective fields. You can further filter the search by selecting the task status as New, Completed, OverDue or Expired from the *Status* drop-down list. Additionally, you can search for a particular task by selecting Task Name, Task Subject, or Owner from the *Search* drop-down list and then entering the value in the adjoining text box. Once you have entered all criteria, click **Search** button. This displays all tasks that are completed or still running, within the entered criteria (see Figure 21.17).


Reports > Task History							
Search Criteria							
Start Date	01/22/2008	Start Time	15 : 35	End Date	01/22/2008	End Time	23 : 59
Based On : <input type="radio"/> Process Instance <input checked="" type="radio"/> Task Instance							
Status :	All Status	Search :	All Tasks				
Instance Name	Task Name	Task Subject	Task Owner	Task Status	Process Status	Process Start Time	
Incentive Process 01-22-08 15-42-24	HWF_Payment	Travel Agency ID:travel agency 201	Peter	Completed	Executed	01/22/2008 15:42:24	
Incentive Process 01-22-08 15-42-24	HWF_GMRReview	Travel Agency ID:travel agency 201	steve	Completed	Executed	01/22/2008 15:42:24	
Incentive Process 01-22-08 15-42-24	HWF_FMRReview	Travel Agency ID:travel agency 201	craig	Completed	Executed	01/22/2008 15:42:24	
Incentive Process 01-22-08 15-42-24	HWF_SalesDirectorReview	Travel Agency ID:travel agency 201	adam	Completed	Executed	01/22/2008 15:42:24	
Incentive Process 01-22-08 15-42-24	HWF_SalesSupportDataEntry	Travel Agency ID:travel agency 201	mark	Completed	Executed	01/22/2008 15:42:24	
Incentive Process 01-22-08 15-42-24	HWF_SalesDataEntry	New	john	Completed	Executed	01/22/2008 15:42:24	
Incentive Process 01-22-08 15-37-12	HWF_Payment	Travel Agency ID:travel agency 127	Peter	Completed	Executed	01/22/2008 15:37:12	
Incentive Process 01-22-08 15-37-12	HWF_GMRReview	Travel Agency ID:travel agency 127	steve	Completed	Executed	01/22/2008 15:37:12	
Incentive Process 01-22-08 15-37-12	HWF_FMRReview	Travel Agency ID:travel agency 127	craig	Completed	Executed	01/22/2008 15:37:12	
Incentive Process 01-22-08 15-37-12	HWF_SalesDirectorReview	Travel Agency ID:travel agency 127	adam	Completed	Executed	01/22/2008 15:37:12	
Incentive Process 01-22-08 15-37-12	HWF_SalesSupportDataEntry	Travel Agency ID:travel agency 127	mark	Completed	Executed	01/22/2008 15:37:12	
Incentive Process 01-22-08 15-37-12	HWF_SalesDataEntry	New	john	Completed	Executed	01/22/2008 15:37:12	

Figure 21.17: Task Search Results

9. This screen displays the following information:
- **Process Instance Name:** This is the process flow description. If this description is dynamically overridden, the latest description is displayed.
  - **Task Name:** This is the name of Human Workflow task.



- **Task Subject:** This is the task description that has been dynamically set or else defined. The latest description is displayed.
- **Task Owner:** This is the name of the user to whom the task is assigned.
- **Task Status:** This is the status of task as *Assigned*, *Overdue*, *Expired* or *Completed*. The latest task status within the specified time range is displayed.
- **Process Status:** This is the status of the process as *Running*, *Executed*, *waiting* or *Aborted*. The latest process status within the specified time range is displayed.
- **Process Start Time:** This is the start time of the process instance. It is retrieved from the Process Flow Log.

 You can use wildcards in the value to search.

10. Click the *Instance name* whose details you want to view, on Process Instance Search Results or Task Search Results screen. The Process Instance Details screen is displayed (see Figure 21.18).

Task History > Incentive Process 01-22-08 15-42-26							
Process							
Detail Log   Execution View							
Name		Incentive_Process		Instance Name		Incentive Process 01-22-08 15-42-26	
Start Time		01/22/2008 15:42:26		End Time		01/22/2008 15:47:09	
Status		Executed					
Tasks							
View History   View Business Data							
	Task Name	Task Subject	Task Assignee	Task Status	Task Due Date	Task Expiry Date	Task Priority
<input type="radio"/>	HWF_Payment	Travel Agency ID:TravelAgency201	Peter	Completed	01/22/2008 15:48	01/22/2008 17:46	immediate
<input type="radio"/>	HWF_GMRReview	Travel Agency ID:TravelAgency201	steve	Completed	01/22/2008 15:47	01/22/2008 17:45	immediate
<input type="radio"/>	HWF_FMRReview	Travel Agency ID:TravelAgency201	craig	Completed	01/22/2008 15:46	01/22/2008 17:44	immediate
<input type="radio"/>	HWF_SalesDirectorReview	Travel Agency ID:TravelAgency201	adam	Completed	01/22/2008 15:46	01/22/2008 17:44	immediate
<input type="radio"/>	HWF_SalesSupportDataEntry	Travel Agency ID:TravelAgency201	mark	Completed	01/22/2008 15:45	01/22/2008 17:43	immediate
<input type="radio"/>	HWF_SalesDataEntry	New	John	Completed	01/22/2008 15:44	01/22/2008 17:42	immediate
Documents							
All Revisions							
	Name	Revision	Related Task	Uploaded By	Uploaded Date		
<input type="radio"/>	Quarterly Sales Reports.xls	1.0	HWF_SalesSupportDataEntry	mark	01/22/2008 15:44:20		
Close Window							

Figure 21.18: Process Instance Details

11. This screen is divided into three parts. The first part displays information related to a process instance. You can view the process flow log by clicking the **Detail Log** link. The Process Flow Log screen is displayed (see Figure 21.19).

Process Flow Log Details							
Process Flow Name : Incentive_Process Process Flow PID : 192168001033120099674426500081							
Date/Time	Activity Name	Activity Type	Status	Message	Level	Location	Activity ID
01/22/2008 15:45:20	Incentive_Process	Transaction	Executed	Activity disposed. Start Time:2008-01-22 15:42:24 End Time:2008-01-22 15:45:20 Run Time:2 minute(s) 55 second (1) 925 ms Content Information: {HWF_SalesDataEntry.params={taskDescription=Travel Agency ID=travel agency 2013, gmComments=approved, HWF_GMRReview.param={taskDescription=Travel Agency ID=travel agency 2013, gmComments=approved, ProcessFlowId=Incentive_Process 01-22-08 15-42-24, salesContactPerson=Adam, TransactionAddress=local/submit/Inclig/Transaction [1921680012301198661659796000161 192168001033120099674426500081]Type=Transaction, name=Incentive_Process, id=192168001230119866165979600016, guid=192168001033120099674426500081, currentState=state-BRMN-TASK-BASIC_TASK-24006121, gmApproval=Yes, PID=Inclig/Transaction [1921680012301198661659796000161 192168001033120099674426500081], requestMessage=Process not found, PaymentApprovalNotification.param={receiverEmail Id=travelagency201@travelagency.com, mailReceiverUser=fordpollster192168001230119865992554600005, message=Your incentive request has been Approved. The payment check number is 4598263 and date is 28/01/2008, mailSubject=Incentive Request Approved}, checkNumber=4598263, deliveredDate=28/01/2008, travelAgencyId=travel agency 201, LoggingLevel=DEBUG, paymentComments= salesDirectorComments=approved, HWF_Payment.param={taskDescription=Travel Agency ID=travel agency 2013, HWF_SalesSupportDataEntry.param={taskDescription=Travel Agency ID=travel agency 2013}, agentEmail=travelagency201@travelagency.com, HWF_SalesDirectorReview.param={taskDescription=Travel Agency ID=travel agency 2013}}	INFO	services.AbstractService.dispose(AbstractService.java:258)	192168001230119866165979600016
01/22/2008 15:45:20	Incentive_Process	Transaction	Running	Waiting for asynchronous activities to complete in the process [mainProcess]	INFO	services.AbstractService.dispose(AbstractService.java:199)	192168001230119866165979600016
01/22/2008 15:45:18	Incentive_Process	Transaction	Running	Flow execution completed	DEBUG	processflow.BlazedProcessFlow.executeBlazedProcessFlow.java:199	192168001230119866165979600016
01/22/2008 15:45:18	Incentive_Process	Transaction	Running	Checking the connectivity of source(s),transformer(s) with target(s)	DEBUG	processflow.BlazedProcessFlow.executeBlazedProcessFlow.java:215	192168001230119866165979600016
01/22/2008 15:45:03	Incentive_Process	Transaction	Running	Activity disposed. Start Time:2008-01-22 15:45:03 End Time:2008-01-22 15:45:03 Run Time:0 second (1) 925 ms	INFO	services.AbstractService.dispose(AbstractService.java:258)	192168001230119866165979600016

Figure 21.19: Process Flow Log screen

12. Click **Close Window** to close this screen and return to the Process Instance Details screen. You can view the graphical representation of the process flow by clicking **Execution View** link (see Figure 21.20).

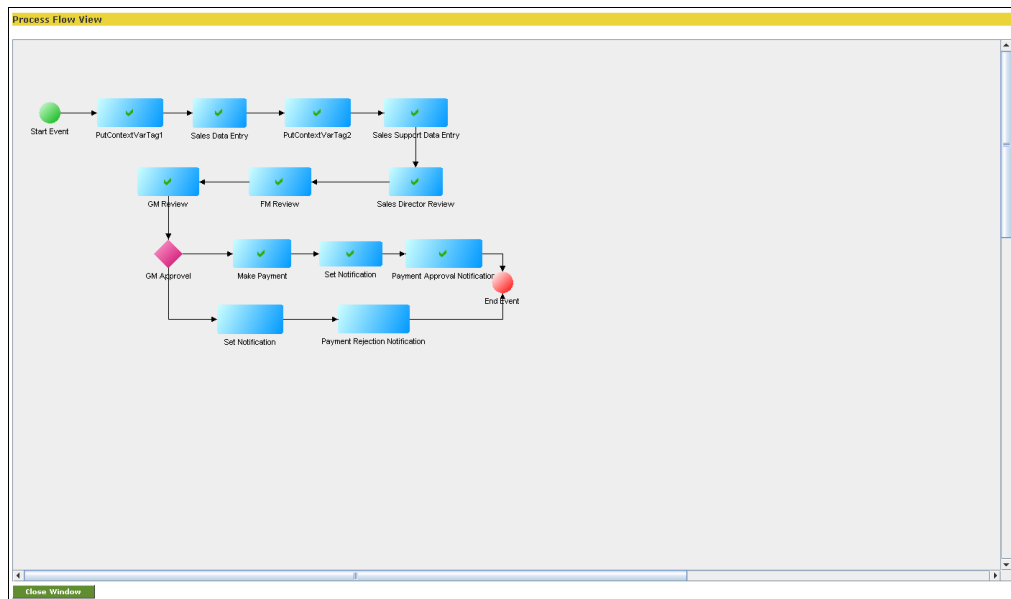


Figure 21.20: View Process Flow

13. The second part of the Process Instance Details screen displays information related to the tasks of the process flow. You can view the history of the task by selecting a task and clicking the **View History** link. The Task History screen is displayed (see Figure 21.21).

Task History									
Task Name		HWF_Payment							
Task Subject		Travel Agency ID/travel agency 201							
Task Current Status		Completed							
Task Current Owner		Peter							
Task Creation Date		01/22/2008 15:44:28							
Action	Action By	Action With	Log Time	Business Data	Status	Task Due Date	Task Expiry Date	Task Priority	Uploaded File
Task is completed	Peter	Peter	01/22/2008 15:45:01	<a href="#">Business Data</a>	Completed	01/22/2008 15:46	01/22/2008 17:44	immediate	
Task is opened	Peter	Peter	01/22/2008 15:44:37	N/A	Assigned	01/22/2008 15:46	01/22/2008 17:44	immediate	
New Task is assigned	Application	Peter	01/22/2008 15:44:28	N/A	Assigned	01/22/2008 15:46	01/22/2008 17:44	immediate	
Close Window									

Figure 21.21: Task History

14. This screen displays the task history in descending order. If business data is added or modified for the task, then the **Business Data** link appears at that stage. Click the **Business Data** link to view the details of the Business Data at that point for the task (see Figure 21.22).

Business Data Detail > Travel Agency ID::travel agency 201

### Sales Information

Travel Agency ID	<input type="text" value="travel agency 201"/>
Sales Contact Person	<input type="text" value="Adam"/>
Request Message	<div style="border: 1px solid black; padding: 2px;">Process initiated</div>
Sales Director Comments	<div style="border: 1px solid black; padding: 2px;">verified</div>
FM Comments	<div style="border: 1px solid black; padding: 2px;">approved</div>
GM Comments	<div style="border: 1px solid black; padding: 2px;">approved</div>
Check Number*	<input type="text" value="4598267"/>
Delivery Date*	<div style="border: 1px solid black; padding: 2px;">Enter Date in dd/mm/yyyy Format 28/01/2008</div>
Comments	<div style="border: 1px solid black; height: 40px;"></div>

\*Mandatory fields.

Close Window

Figure 21.22: Business Data Detail

15. Alternately, you can view the details of the business data from the Process Instance Details screen by selecting the task and clicking the **View Business Data** link. It displays the latest details of the business data.
16. The third part of the Process Instance Details screen displays information related to the documents that have been uploaded in the process instance. You can view the revisions of a document by selecting the document and clicking the **All Revisions** link. Click **Close Window** to return to the Task History screen.

## Usage Scenario

A process flow *Incentive Process* is run twice thus generating two process instances namely *Incentive Process 01-23-08 10-03-14* and *Incentive Process 01-23-08 10-12-37*. Process instance *Incentive Process 01-23-08 10-03-14* has six tasks namely *HWF\_SalesDataEntry*, *HWF\_SalesSupportDataEntry*, *HWF\_SalesDirectorReview*, *HWF\_FMReview*, *HWF\_GMReview* and *HWF\_Payment*.

*HWF\_SalesDataEntry* is started at 10:00AM and is completed at 11:30AM. However, it is modified and saved at 11:00AM. Once the task is completed, its status changes from *Assigned* to *Completed*. Next *HWF\_SalesSupportDataEntry* is executed starting at 11:30AM and completing at 12:30PM. *HWF\_SalesDirectorReview* is started at 12:30PM and completed at 2:00PM.

### Case:

#### Search Based on Process Instance

If you search the task log for tasks of the *Incentive Process 01-23-08 10-03-14* process instance, between 10:00AM and 12:15PM, based on *Process Instance*, then it will display *HWF\_SalesSupportDataEntry*, as that is the latest task of the process instance within the specified time range (see Figure 21.23).

Reports > Task History

Search Criteria

Start Date 01/23/2008

Start Time 10:00

End Date 01/23/2008

End Time 12:15

Based On: ☒ Process Instance ☐ Task Instance

Status: All Status Search: All Instances

Search

Instance Name	Task Name	Task Subject	Task Owner	Task Status	Process Status	Process Start Time
Incentive Process 01-23-08 10-03-14	HWF_SalesSupportDataEntry	Travel Agency ID::TravelAgency501	mark	Assigned	Executed	01/23/2008 10:03:14

Figure 21.23: Tasks search based on Process Instance

#### Search Based on Task Instance

If you search the task log for tasks of the *Incentive Process 01-23-08 10-03-14* process instance, between 10:00AM and 12:15PM, based on *Task Instance*, then it will display *HWF\_SalesDataEntry* and *HWF\_SalesSupportDataEntry*, as these are the tasks of the process instance, which are modified within the specified time range (see Figure 21.24).

Reports > Task History

Search Criteria

Start Date 01/23/2008

Start Time 10 : 00

End Date 01/23/2008

End Time 12 : 15

Based On : ☐ Process Instance ☒ Task Instance

Status : All Status Search : All Tasks Search

Instance Name	Task Name	Task Subject	Task Owner	Task Status	Process Status	Process Start Time
Incentive Process 01-23-08 10-03-14	HWF_SalesSupportDataEntry	Travel Agency ID::TravelAgency501	mark	Assigned	Executed	01/23/2008 10:03:14
Incentive Process 01-23-08 10-03-14	HWF_SalesDataEntry	New	john	Completed	Executed	01/23/2008 10:03:14

Figure 21.24: Tasks search based on Task Instance

## GENERATE CUSTOM REPORT

Once you create a custom report, you can execute it from this section.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	

### Steps to generate custom report

1. Click **[+] Optimize** to expand the tree and then click **[+] Reports**. All the items in the Reports category are displayed.
2. Click **Generate Report**. The Custom Report screen is displayed (see Figure 21.25).

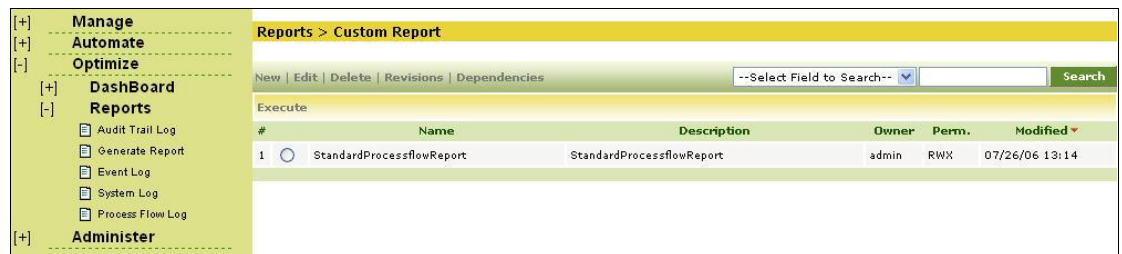


Figure 21.25: Custom Report

3. Click the radio button against the report that you want to generate and then click **Execute**. This displays the Standard Process Flow screen (see Figure 21.26).

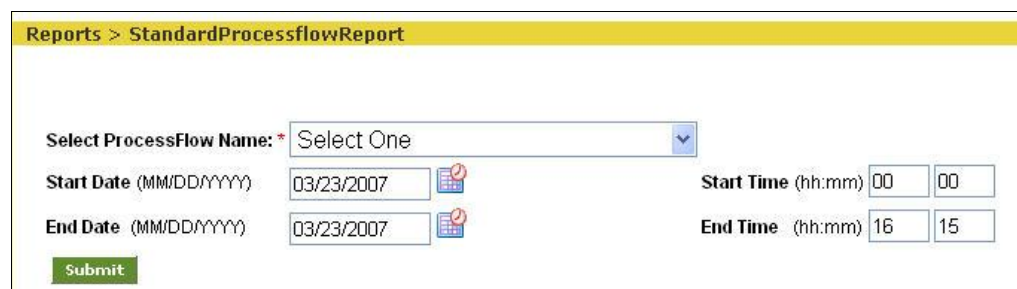


Figure 21.26: Standard Process Flow

4. Select the Process Flow name from the drop-down list.
5. Enter the Start Date, End Date, Start time and End time in their respective fields.

6. Click **Submit**. This displays the standard process flow report in the Jasper Viewer (see Figure 21.27).


 <h2>BPM Server Process Flow</h2>			
<b>Report Between Fri, Mar 23, '07 12:00:00 AM and Fri, Mar 23, '07 04:15:47 PM</b> Generated by - admin <span style="float: right;">Generated on: Fri, Mar 23, '07 04:17:49 PM</span>			
<b>Process Flow: EvalScript_ProcessFlow</b>			
Activity Name	Activity Type	Activity Status	Time (in Sec)
<b>Executed at: Fri, Mar 23, '07 03:56:52 PM</b>			
EvalScript_FileSource	FileSource	Executed	0.64
EvalScript_ScriptedService	CustomPlugin	Executed	1.49
EvalScript_TextSchema	Stream2XmlStreamTransformer	Executed	1.12
EvalScript_Mapping	DataMapping	Failed	2.59
PutContextVarTagl	Put-Context-Var	Started	1179.65
<b>Time taken by transaction (in sec):</b>			<b>13.44</b>
<b>Executed at: Fri, Mar 23, '07 03:57:49 PM</b>			
EvalScript_FileSource	FileSource	Executed	0.09
EvalScript_ScriptedService	CustomPlugin	Executed	1.17
EvalScript_TextSchema	Stream2XmlStreamTransformer	Executed	1.03
EvalScript_Mapping	DataMapping	Failed	1.08
PutContextVarTagl	Put-Context-Var	Started	1179.65
<b>Time taken by transaction (in sec):</b>			<b>4.02</b>

Figure 21.27: Standard Process Flow Report in Jasper Viewer

# ADMINISTER



## 22 ADMINISTERING ADEPTIA SERVER

Administration of Adeptia Server involves creation and management of the Users and Groups. The Administrator's role also involves configuration of system properties, creating database connectors and monitoring system status. In this chapter you will learn how to:

- [Create and manage User Groups](#)
- [Create and manage Users](#)
- [Manage Keystore of Users](#)
- [Create Business Role](#)
- [Change Adeptia Server configuration](#)
- [Managing Kernel](#)
- [Managing Scheduler](#)
- [Create Database Connector which is used to connect to different databases](#)
- [Create Secret Keys](#)
- [Monitor System Status](#)

### Prerequisites

- You must have administrative rights to perform all the administrative tasks. Users of *Admin* and *Sys Admin* type have administrative rights. You can create more users of *Sys Admin* type that are equivalent to *Admin*.

## CREATING AND MANAGING USER GROUPS

### Creating a User Group

Groups enable easy organization and management of individual users of the Adeptia Server.

A Group, in essence, is a self-contained entity that can perform all of its work without affecting the work of another User Group. Each group has a *Group Admin*, responsible for creating and managing individual users within the group. The *Group Admin* can perform the same work as any regular user with an additional ability to manage users within its group as well.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

## Prerequisites

- Only a user of *Admin* or *Sys Admin* type can create a User Group.

## Steps to create a user group

- Click **[+] Administer** to expand the tree and then click **[+] Configure**. All the items in the Configure category are displayed.
- Click **Group**. The Manage Group screen is displayed (see Figure 22.1).

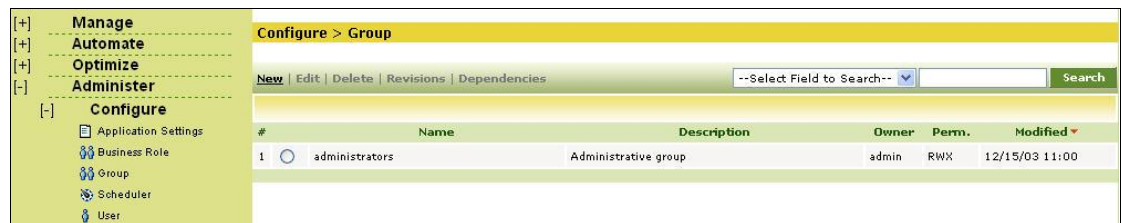


Figure 22.1: Manage Group

- Click the **New** link. The Create Group screen is displayed (see Figure 22.2).

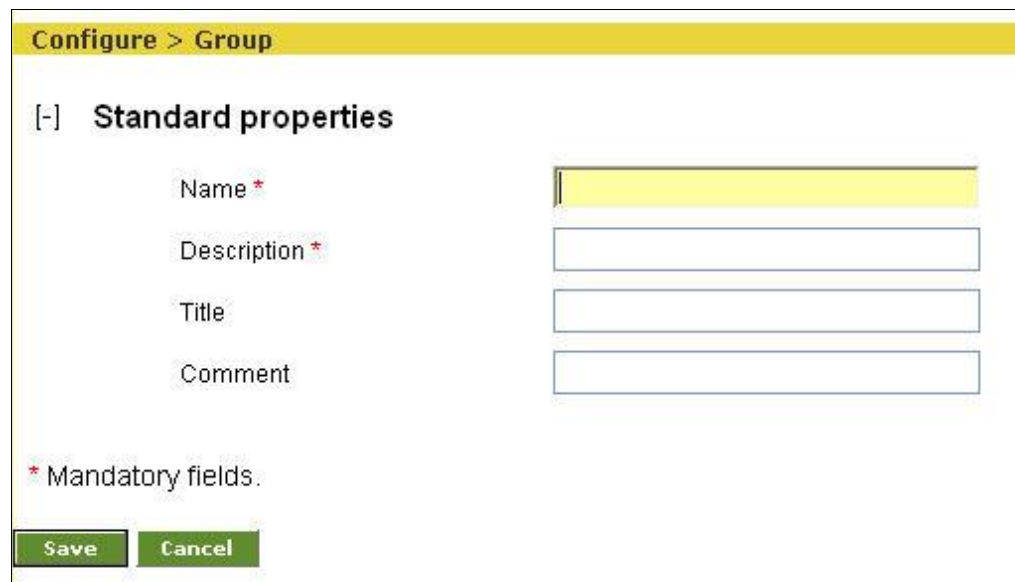




Figure 22.2: Create Group


- Enter the name and description of the Group in the *Name* and *Description* fields respectively.
- Enter the group title and comments (if any) in the *Title* and *Comment* fields respectively.

6. Click **Save** button. This displays a screen confirming that the User Group has been created successfully. If the *Comments* option is enabled, then clicking **Save** will display a screen, where you need to enter comments related to creating the User Group (refer to Figure 4.6).
7. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

8. Click **OK** to save the comments. This displays the screen confirming that the User Group has been created successfully.

 By default, the *Comments* option is disabled. To enable it, refer to the section [Updating System Properties](#).

 The Group name must be unique. You cannot create more than one group with the same name.

## Viewing User Group Properties

### Steps to view the properties of a user group

1. In the Manage Group screen, click the name the group whose properties you want to view. A screen is displayed showing the properties of the group (see Figure 22.3).

View Group 'administrators'	
Properties	Value
Description	Administrative group
Entity Id	127000000001107055548721600002
Owner	admin
Creation Date	12/04/2003 10:31:16
Last Modified Date	12/15/2003 11:00:28
Last Modified By	admin
WebDAV Folder Name	administratorsFolder
<a href="#">Close</a>	

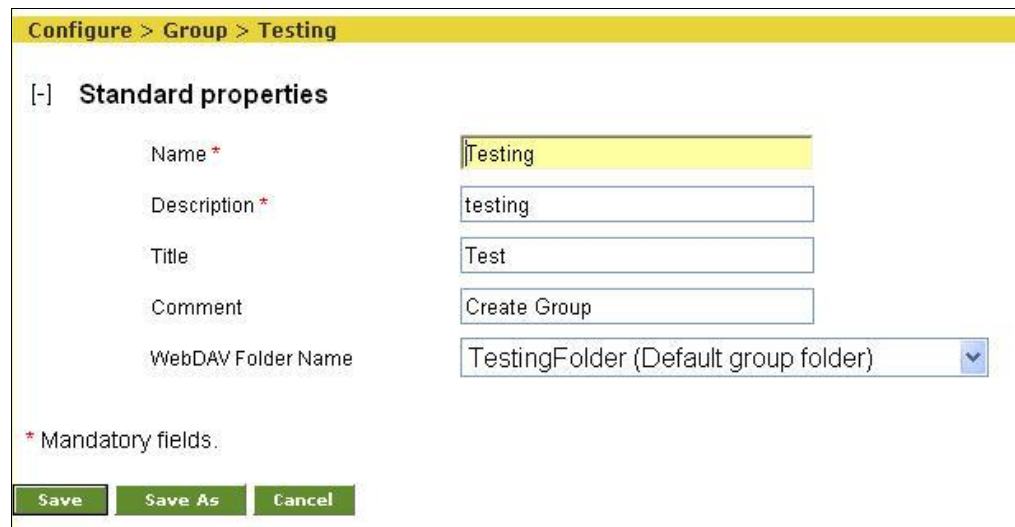
Figure 22.3: View Group Properties

2. Click **Close** button to close this screen and return to the Manage Group screen.

## Editing User Group Properties

### Steps to edit the properties of a user group

1. In the Manage Group screen, click the radio button against the group whose properties you want to edit and then click the **Edit** link. A screen is displayed where you can change the name and description of a Group (see Figure 22.4).



Configure > Group > Testing

**[-] Standard properties**

Name \*

Description \*

Title


Comment

WebDAV Folder Name

\* Mandatory fields.


Figure 22.4: Edit Group

- After changing the properties, click **Save** button to save the changes. This displays a screen confirming that the User Group has been updated successfully. If the *Comments* option is enabled, then clicking **Save** will display a screen where you need to enter comments related to editing the Group (refer to Figure 4.6).
- Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

- Click **OK** to save the comments. This displays a screen confirming that the User Group has been updated successfully.

 By default, the *Comments* option is disabled. To enable it, refer to the section [Updating System Properties](#).

 You cannot edit the *Administrator* group.  
If you want to save a copy of a group, change the name of the group and click **Save As** button.

## Deleting a User Group

### Steps to delete a user group

- In the Manage Group screen, click the radio button against the group that you want to delete and then click the **Delete** link. A screen is displayed for a confirmation to delete the Group (see Figure 22.5).



Figure 22.5: Confirm Deleting a Group

2. Click **OK** button to delete the group, else click **Cancel**.
3. If you click **OK**, a screen is displayed confirming that the group has been deleted successfully. If the *Comments* property is enabled, then clicking **OK** will display a screen where you need to enter comments related to deleting the Group (refer to Figure 4.6).
4. Enter the comments in the *Add Comments* field.



The comment should be at least 1 character in length.

5. Click **OK** to save the comments. This displays a screen confirming that the Group has been deleted successfully.
6. Click **Group** to return to the screen.



By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).



- The *Administrator* group cannot be deleted.
- A Group having users cannot be deleted. All the users of a group must be deleted before deleting the Group.
- Once a Group is deleted it cannot be recovered.

## CREATING AND MANAGING USERS

Users are the individual members of a User Group. User can perform common tasks depending on the permission levels granted by the *Admin*.

You can perform tasks such as:

- Create, modify, and delete his/her activities and process flows
- Execute process flows
- View system logs and process flow logs
- Create custom reports to view process flow statistics

You, as a user, cannot perform tasks such as:

- Create a user or group

- Change Adeptia Server system properties
- Stop or start scheduler
- View clustering status
- Create database connectors



Only a user with administrative rights can perform all these actions. A Regular User cannot perform these actions.

## Creating a User

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Prerequisites

- You need to have Administrator privileges of *Sys Admin* or a *Group Admin* type.

### Steps to create a user

1. Click **[+] Administer** to expand the tree and then click **[+] Configure**. All the items in the Configure category are displayed.
2. Click **User**. The Manage User screen is displayed (see Figure 22.6).

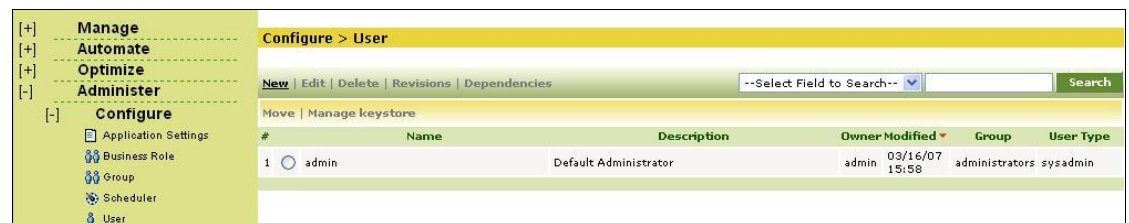


Figure 22.6: Manage User

3. Click the **New** link. The Create User screen is displayed (see Figure 22.7).

Configure > User

[-] Standard properties

User ID *	<input type="text"/>
Description *	<input type="text"/>
First Name *	<input type="text"/>
Last Name *	<input type="text"/>
Address1	<input type="text"/>
Address2	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Zip	<input type="text"/>
Country	<input type="text"/>
Fax	<input type="text"/>
Phone	<input type="text"/>
Mobile	<input type="text"/>
Email *	<input type="text"/>
Title	<input type="text"/>
Comment	<input type="text"/>
Organization Name	<input type="text"/>
Organization URL	<input type="text"/>
Password *	<input type="password"/>
Confirm Password *	<input type="password"/>
User Permissions	<input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Write <input checked="" type="checkbox"/> Execute
User Type	Developer <input type="button" value="v"/>
Business User View Level	Normal <input type="button" value="v"/>
Colleague	None <input type="button" value="v"/>
Manager	None <input type="button" value="v"/>
Calendar	<a href="#">View</a>
Status	Activate <input type="button" value="v"/>
Group(s) *	Testing (testing) administrators (Administrative group)
Certificate Status	<input type="checkbox"/>

\* Mandatory fields.


Save Cancel

Figure 22.7: Create a User

4. Enter the User ID, Description, Name, Address, and other related information in their respective fields.
5. To select the User Permissions, check the required checkboxes. The various permissions entitle a user to various rights, as outlined in the table below.

Table 22.1: User Permissions

Permission	Description
Read	Read permission allows a user to view the Adeptia Server activities and process flows. The <i>Read</i> checkbox is pre-selected and cannot be unchecked.
Write	Click to check the <i>Write</i> checkbox to grant the user the permission to create, edit, delete and Save As Adeptia Server activities and process flows.
Execute	Check the <i>Execute</i> checkbox to grant the user permission to execute a process flow.

	These user permissions are checked prior to object level permissions so as to allow a user to or restrict a user from performing any task.
---	--

6. Select the type of user from the *User Type* drop-down list. There are four types of user as outlined in the table below.

Table 22.2: User Types

Type	Description
Developer	A Developer can create, edit and delete activities as well as process flows.
Business User	Business user has restricted rights. A Business User can create, edit, delete and execute only process flows. Business User cannot create or edit any activity.
Group Admin	Each group has one or more " <i>admin</i> ", who is able to manage the users within that group. A group admin can create, edit and delete users within its group. Group admin can also change the permissions of users. Group admin can also perform all the tasks that a developer can.
Sys Admin	Sys Admin user has permissions equivalent to the <i>Admin</i> user. A Sys Admin can create and delete users and groups as well as perform all the tasks that a developer can. Only Admin and Sys Admin Users can update system properties, enable clustering and restart scheduler. He can also stop/pause the Kernel.

7. If Business User is selected, then select the level of view from *Business User View Level* drop-down list. There are two types of Business User View Levels, as outlined in the table below.

Table 22.3: Business User View Levels


Level	Description
Normal	A Business User with Normal view can see Adeptia Server report and logs. He can create and execute process flows with the help of existing activities. He should also have the rights to monitor process flows using Monitoring.




Limited	A Business User with Limited view can only view Task Manager and execute the assigned task. A Business User with Limited View cannot create or execute process flows. It cannot see Adeptia Server reports and logs.
---------	--

8. You can select colleague of the User from the *Colleague* drop-down list.


9. You can select Manager of the User from the *Manager* drop-down list.

	<ul style="list-style-type: none"> <li>▪ Colleague or Manager can be any other user. In Human Workflow activity, any task assigned to the user can be deferred to its Colleague or Manager.</li> <li>▪ A Manager can monitor tasks assigned to its staff. Manager can defer a task to any other user; change the priority, Due date and Expiry Date of the task.</li> <li>▪ To learn how to defer a task to Colleague or Manager, refer to the section <a href="#">Managing Task Using Human Workflow</a>.</li> </ul>
---	---

10. In the *Status* drop-down list, select the status of the user. The status of a user can be either Activate or Deactivate. The default status is *Activate*.

	If you select <i>Deactivate</i> , the user is disabled and therefore cannot login into the Adeptia Server.
--	--

11. In *Group* drop-down list, select the group to which user is being added. You can add the user to multiple groups. Hold the **<Ctrl>** key and select multiple groups.

	A user can be a member of more than one group. But he can login and access objects associated with one group at a time. For example, a user is a member of two groups: <i>Administrators</i> and <i>Executives</i> . Both these groups vary in terms of objects. He can login as a member of either the <i>Administrators</i> or the <i>Executives</i> group at a time.
---	---

12. Using calendar you can select the days on which user will not be available. To select days, click the **View** link in the *Calendar* field. Following calendar screen is displayed (see Figure 22.8).

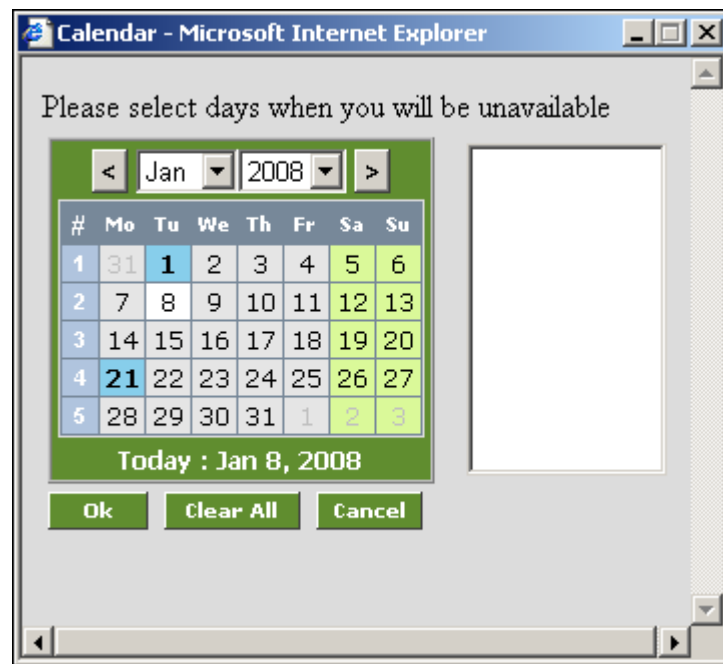


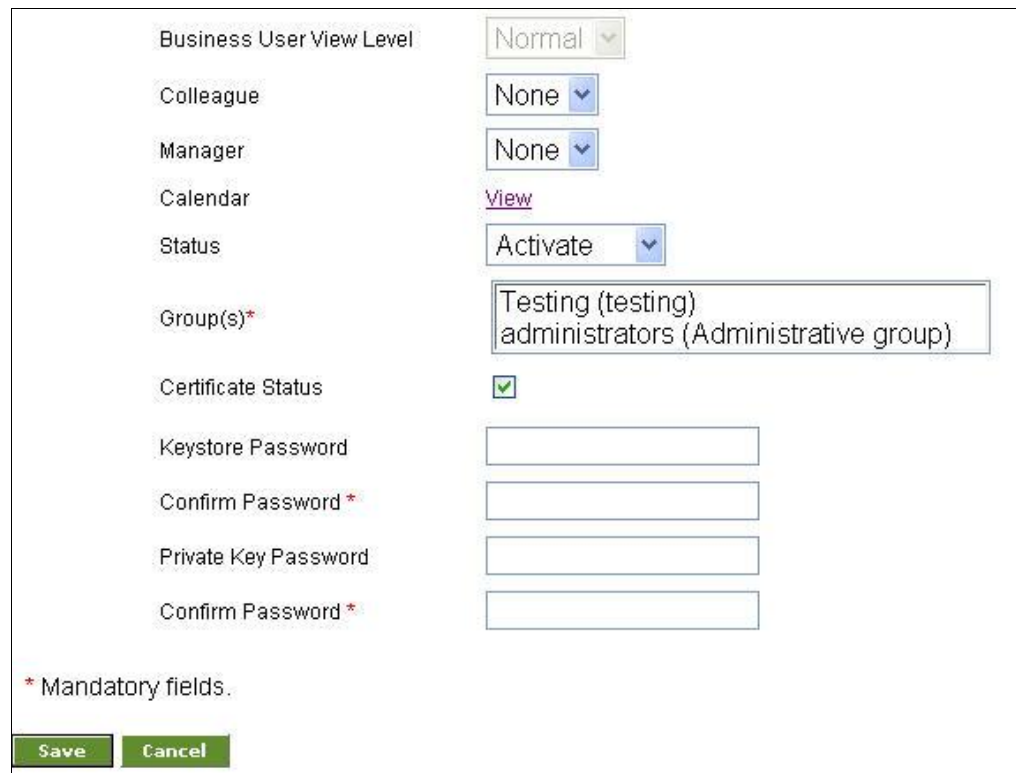
Figure 22.8: Calendar

13. Click dates, user will not be available and then click **Submit** button.



While deferring a task of any user to this user, manager can view these dates from his own home page.

14. Check the *Certificate Status* checkbox to attach a digital certificate to the user. Digital Certificate is used to authenticate a user. When you check the *Certificate Status* check box, a digital certificate is attached to the user. A Keystore is also created for the user, which is used as a repository of digital certificates (see Figure 22.9).



Business User View Level: Normal

Colleague: None

Manager: None

Calendar: View

Status: Activate

Group(s)\*: Testing (testing) administrators (Administrative group)

Certificate Status: ☒

Keystore Password:

Confirm Password \*:

Private Key Password:


Confirm Password \*:

\* Mandatory fields.

Save Cancel


Figure 22.9: Certificate Status

15. Enter password for Keystore in the *Keystore Password* and *Confirm Password* fields respectively. User uses the keystore password to access the keystore.
16. Enter password for the private key in the *Private Key Password* and *Confirm Password* fields respectively.
17. Click **Save** button. This displays a screen confirming that the user has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the user (refer to Figure 4.6).
18. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

19. Click **OK** to save the comments. This displays a screen confirming that the user has been created successfully.

 By default, the *Comments* option is disabled. To enable it, refer to the section [Updating System Properties](#).

 To learn how to manage digital certificates of users refer to section [Managing Keystore of Users](#). To learn how to use digital certificates to sign outgoing data and how to receive incoming data, which is digitally signed refer to the section [Digital Certificate Activity](#).

## Viewing User Properties

### Steps to view the properties of a user

1. In the Manage User screen, click the user whose properties you want to view. A screen is displayed showing the properties of the User (see Figure 22.10).

View User 'admin'	
Properties	Value
Description	Default Administrator
First Name	John
Last Name	Smith
Address1	233 East Wacker Dr
Address2	NA
City	Chicago
State	IL
Zip	60610
Country	US
Fax	301-000-000
Title	IT Manager
Phone	301-000-000
Mobile	301-000-000
Organization Name	Adeptia Inc
Organization URL	http://www.adeptia.com
Password	*****
Group(s)	administrators
User Type	sysadmin
User Permissions	User(R,W,X)
Entity Id	127000000001107055536473900001
Owner	admin
Creation Date	03/16/2007 15:58:41
Last Modified Date	03/16/2007 15:58:41
Last Modified By	admin
LastPasswordChanged	03/16/2007 15:58:41
Status	Activated

Close

Figure 22.10: View User Properties

2. Click **Close** button to close this screen and return to the User Screen.

## Editing User Properties

### Steps to edit the properties of user

1. In the Manage User screen, click the radio button against the user whose properties you want to edit and then click the **Edit** link. A screen is displayed where you can change the properties of a User (see Figure 22.11).

Configure > User > admin

[-] Standard properties


User ID *	admin
Description *	Default Administrator
First Name *	John
Last Name *	Smith
Address1	233 East Wacker Dr
Address2	NA
City	Chicago
State	IL
Zip	60610
Country	US
Fax	301-000-000
Phone	301-000-000
Mobile	301-000-000
Email *	
Title	IT Manager
Comment	
Organization Name	Adeptia Inc
Organization URL	http://www.adeptia.com
Password *	.....
Confirm Password *	.....
Colleague	None
Manager	None
Calendar	<a href="#">View</a>
* Certificate Status	<input type="checkbox"/>

\* Mandatory fields.

Save
Save As
Cancel

Figure 22.11: Edit User

2. After changing the properties, click **Save** button to save the changes. This displays a screen confirming that the user has been updated successfully. If the *Comments* option is enabled, then clicking **Save** will display a screen where you need to enter comments related to editing the user (refer to Figure 4.6).
3. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

4. Click **OK** to save the comments. This displays a screen confirming that the user has been updated successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Deleting a User

### Steps to delete a user

1. In the Manage User screen, click the radio button against the user that you want to delete and then click the **Delete** link. A screen is displayed for a confirmation to delete the User (see Figure 22.12).

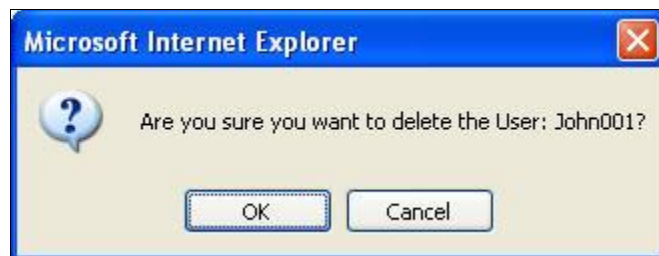


Figure 22.12: Confirm Deletion


2. Click **OK** to delete the user. Before being deleted, the user needs to transfer his objects to another user. The Select User screen is displayed (see Figure 22.13).

Changing ownership for User [ John001 ]

Select any of the following user to whose account you want to transfer the object/s owned by user [ John001 ]

**Caution:** Objects may no longer be available to other members of group if selected user does not belong to same group

Figure 22.13: Select User

 Once the user is deleted, his objects cannot be viewed by any other member of his group.

3. Select the user to whom you want to transfer the objects, from the drop-down list. Click **Get Group(s)** button to transfer the objects to the selected user's group. This displays the Select group screen (see Figure 22.14).



Figure 22.14: Select Group

4. Select the group to which you want to transfer the objects and click **Change Ownership** button. This displays the Permanent Delete screen (see Figure 22.15).



 The *Group* drop-down list displays only those groups, of which the selected user is a member.



Figure 22.15: Permanent Delete

5. Click **OK** button to permanently delete the user. A screen is displayed with a message stating "User activity permanently deleted successfully." If the *Comments* property is enabled, then clicking **OK** will display a screen where you need to enter comments related to deleting the User (refer to Figure 4.6).
6. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

7. Click **OK** to save the comments. This displays a screen confirming that the User has been deleted successfully.

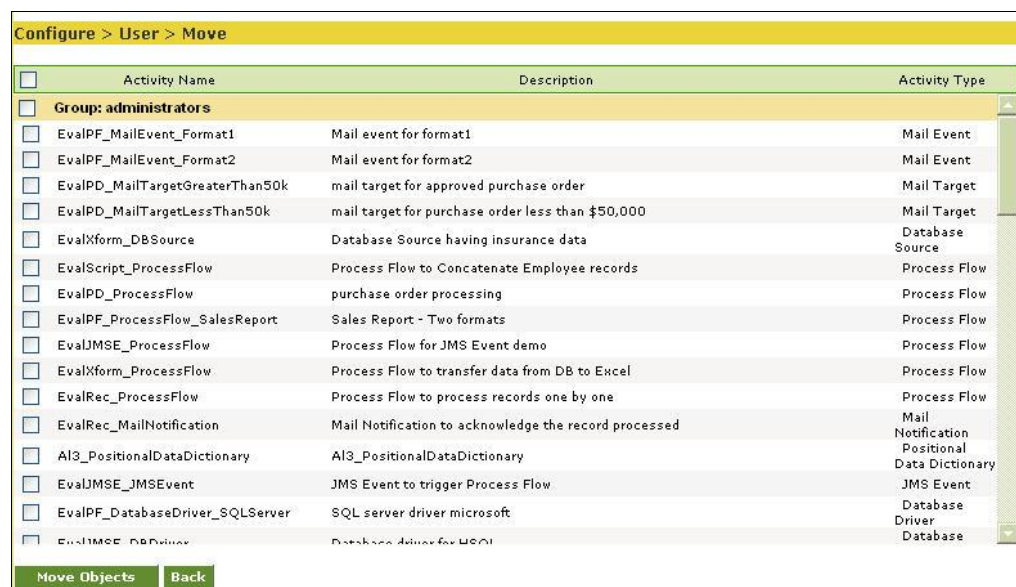
 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## Moving User's Objects

Objects (activities, process flows etc.) of one user can be moved to another user. When you move objects from one user to another user, ownership of those objects is transferred to new user. If a user belongs to more than one group, it can move its object from one group to another group.

### Steps to move object from one user to another User

1. In the Manage User screen, click the radio button against the user that you want to move and then click the **Move** link. The Select Activities screen is displayed with the list of activities belongs to the user (see Figure 22.16).



Activity Name	Description	Activity Type
<b>Group: administrators</b>		
<input type="checkbox"/> EvalPF_MailEvent_Format1	Mail event for format1	Mail Event
<input type="checkbox"/> EvalPF_MailEvent_Format2	Mail event for format2	Mail Event
<input type="checkbox"/> EvalPD_MailTargetGreaterThan50k	mail target for approved purchase order	Mail Target
<input type="checkbox"/> EvalPD_MailTargetLessThan50k	mail target for purchase order less than \$50,000	Mail Target
<input type="checkbox"/> EvalXform_DBSource	Database Source having insurance data	Database Source
<input type="checkbox"/> EvalScript_ProcessFlow	Process Flow to Concatenate Employee records	Process Flow
<input type="checkbox"/> EvalPD_ProcessFlow	purchase order processing	Process Flow
<input type="checkbox"/> EvalPF_ProcessFlow_SalesReport	Sales Report - Two formats	Process Flow
<input type="checkbox"/> EvalJMSE_ProcessFlow	Process Flow for JMS Event demo	Process Flow
<input type="checkbox"/> EvalXform_ProcessFlow	Process Flow to transfer data from DB to Excel	Process Flow
<input type="checkbox"/> EvalRec_ProcessFlow	Process Flow to process records one by one	Process Flow
<input type="checkbox"/> EvalRec_MailNotification	Mail Notification to acknowledge the record processed	Mail Notification
<input type="checkbox"/> AI3_PositionalDataDictionary	AI3_PositionalDataDictionary	Positional Data Dictionary
<input type="checkbox"/> EvalJMSE_JMSEvent	JMS Event to trigger Process Flow	JMS Event
<input type="checkbox"/> EvalPF_DatabaseDriver_SQLServer	SQL server driver microsoft	Database Driver
<input type="checkbox"/> EvalJMSE_DatabaseDriver	Database driver for MS SQL	Database

Move Objects Back

Figure 22.16: Select Objects

2. Select the required object(s) and click **Move Objects** button. The Change Ownership screen is displayed (refer to Figure 22.13).
3. Select the user to whom the objects will be moved, from the drop-down list and then click **Get Group(s)** button. The Select Group screen is displayed with Group(s), the selected User belongs to (refer to Figure 22.14).
4. Select the group, the user belong to and click **Change Ownership** button. A confirmation screen is displayed that the ownership of selected objects has been changed successfully.

## MANAGING KEYSTORE OF USER

Keystore of a user is a protected repository that holds digital certificates owned by the user. Keystore is created during creation of the user. Access to a keystore is guarded by a password defined at the time of creation of user. Keystore is created only for those users whose certificate status is enabled during their creation.



## Digital Certificate Activity

A Digital Certificate is an attachment to an electronic message that is used to maintain its integrity. The most common use of a digital certificate is to authenticate a user.

*Admin* and *Group Admin* can export the digital certificates of a user into a digital certificate directory and then import that digital certificate into the keystore of another user. The *Admin* also has the right to delete the digital certificate of a user.

### Exporting Digital Certificate


#### Steps to export the digital certificate of a user

1. In the Manage User screen, click the radio button adjacent to the user for whom you want to export digital certificate and then click the **Manage Keystore** link. The Keystore Management screen is displayed (see Figure 22.17).



Figure 22.17: Keystore Management

2. Select Export Certificate. A screen is displayed confirming that the Digital Certificate has been exported successfully.

 Once the digital certificate of a user is exported, Admin can import it for any other user.

### Importing Digital Certificate

#### Steps to import digital certificate


1. In the Manage User screen, click the radio button adjacent to the user for whom you want to import the digital certificate and then click the **Manage Keystore**. The Keystore Management screen is displayed (refer to Figure 22.17).

- Click **Import Certificate**. The Import Certificate for user screen is displayed (see Figure 22.18).




Figure 22.18: Import Certificate


- Click **Browse** button and select the Digital Certificate file (.cer) from *Digital Certificate* folder.

	<p>All exported digital certificates are stored in the <code>../AdeptiaServer-4.9/ServerKernel/etc/security/digitalcertificate</code> where first two dots (..) represent drive letter and next two dots (..) represent base directory where Adeptia Server is installed.</p>
---	---

- Select the certificate you want to import and then click **Open**. The selected certificate file with the file path is displayed in the *Certificate Path* field.

	<p>The extension of certificate file is .cer. For example if you are importing the certificate of <i>User1</i>, name of the certificate file will be <i>user1.cer</i>.</p>
---	--

- Click **Save** button. A screen is displayed confirming that the certificate has been added successfully.

	<p>The Digital Certificates that has been imported is stored in Keystore of the user.</p>
---	---

## Deleting Digital Certificate

### Steps to delete any of the certificates of a user from its Keystore

- In the Manage User screen, click **Manage Keystore**. The Keystore Management screen is displayed.
- Click **Delete Certificate**. The Delete Certificate screen is displayed (see Figure 22.19).

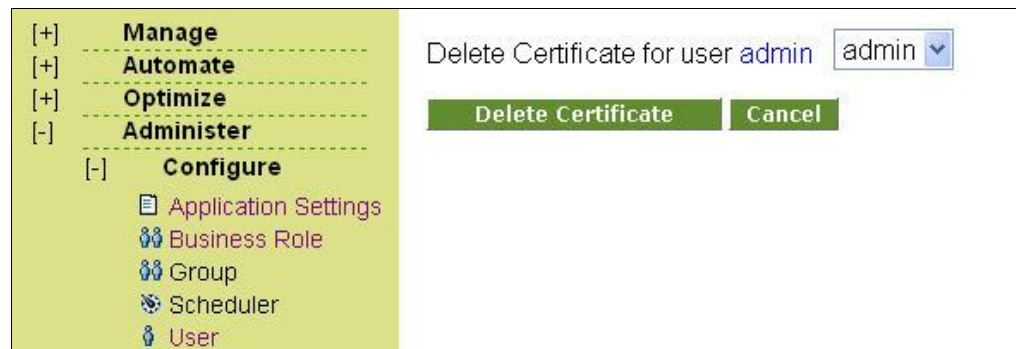


Figure 22.19: Delete Certificate

3. Select the certificate you want to delete from the *Delete Certificate for* user drop-down list. Then click **Delete Certificate** button. A confirmation screen for deleting the certificate is displayed (see Figure 22.20).



Figure 22.20: Confirm Deletion

4. Click **OK** button to delete the digital certificate. A screen is displayed confirming that the certificate has been deleted successfully from the keystore of the user.

## CREATING BUSINESS ROLE

In any business operation, it is required that a task can be assigned to all the users of a department. One way is to select all the users of the department one by one while assigning the task in Human workflow. Another way is to make a group of users and assign the task to a group rather than assigning it to all the users. This group of users is called a Business Role. Task assigned to a Business Role is listed in the Task Manager of every user of the Business Role. Any one user of the Business Role can complete this task.

It should be noted that the Business Role is different than a User Group. The purpose of the User Group is to minimize the work of a user of *Sys Admin* or *Group Admin* type while giving access permissions on Adeptia Server objects. On the other hand purpose of Business Role is to assign the task to a group of users.

### Steps to create a Business Role

1. Click **[+] Administer** to expand the tree and then click **[+] Configure**. All the items in the Configure category are displayed.

- Click **Business Role**. The Manage Business Role screen is displayed (see Figure 22.21).

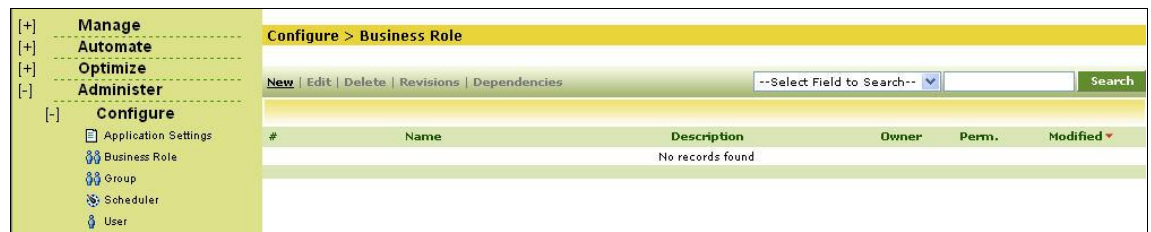


Figure 22.21: Manage Business Role

- Click the **New** link. The Create Business Role screen is displayed (see Figure 22.22).

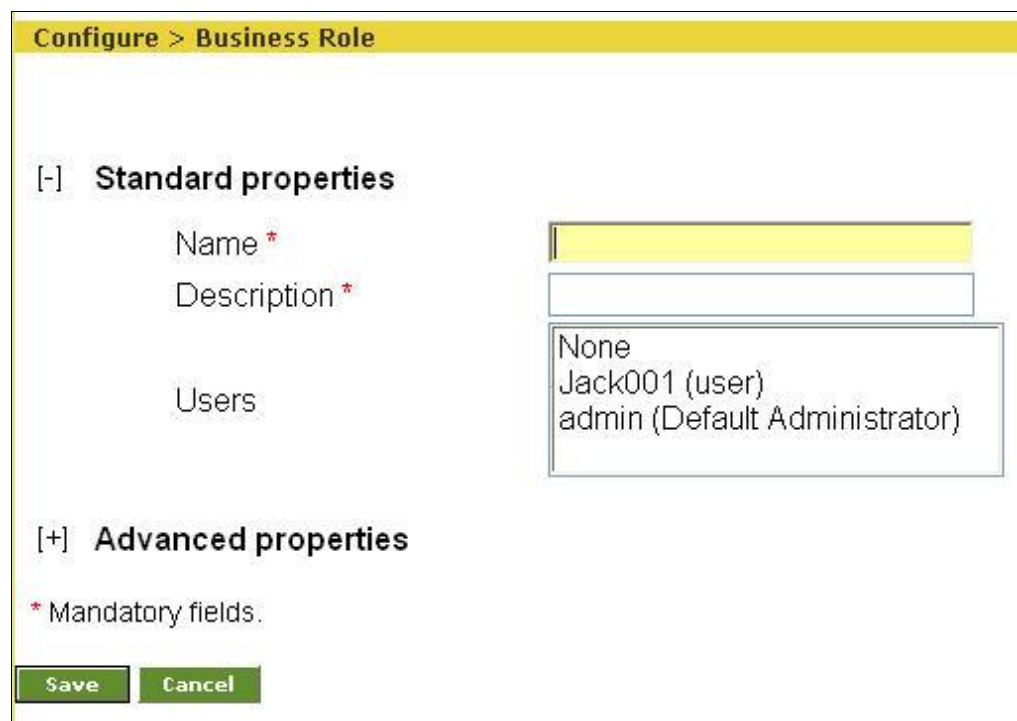



Figure 22.22: Create Business Role

- Enter the name and description of the Business Role in the *Name* and *Description* fields respectively.
- To select the users, press **<CTRL>** key and click users. The selected users are highlighted.
- Click **Save** button. This displays a screen confirming that the Business Role has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the Business Role (refer to Figure 4.6).
- Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

8. Click **OK** to save the comments. This displays a screen confirming that the Business Role has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## MANAGING APPLICATION AND SYSTEM SETTINGS

Users of *Admin* and *Sys Admin* type can view System Configuration and update System Properties of the Adeptia Server.

### Viewing System Configuration

The System configuration module displays the Adeptia Server related information such as Java Classpath, Database Information, Session Time Out and Process Flow Recovery Settings etc. System configurations are non-editable and can be viewed only by the *Admin* for troubleshooting purpose.

#### Steps to view System Configuration

1. Click **[+] Administer** to expand the tree and then click **[+] Configure**. All the items in the Configure category are displayed.
2. Click **Application Settings**. The Application Settings screen is displayed (see Figure 22.23).

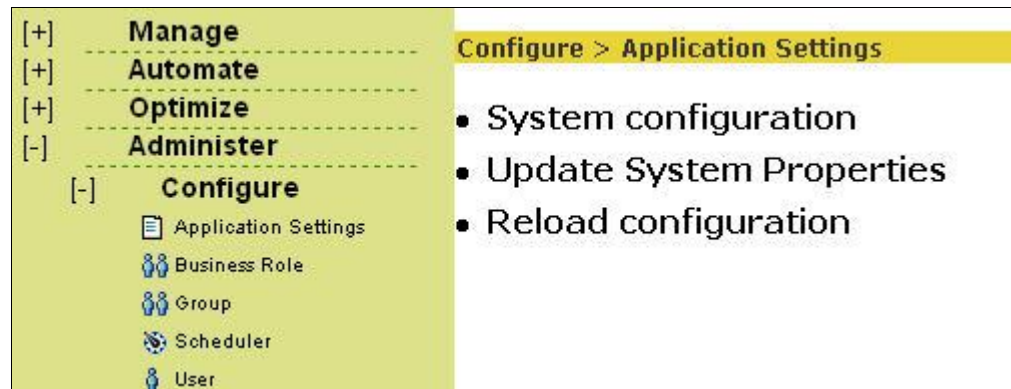


Figure 22.23: Application Settings

3. Click **System configuration**. The System configuration screen is displayed (see Figure 22.24).


Configure > Application Settings > System configuration	
SessionTimeOut	1440
abpm.appmanagement.cleanupCronExpression	0 0 20 ** ?
abpm.appmanagement.logCleanupCronExpression	0 0 20 ** ?
abpm.appmanagement.logRetainTime	14
abpm.appmanagement.retainTime	14
abpm.cluster.enable	no
abpm.dataMapper.dblookup.cache.limit	10000
abpm.dataMapper.maxHeapSize	256M
abpm.dataMapper.minHeapSize	128M
abpm.database.connectionWaitTime	60
abpm.database.errorcodes	942,208
abpm.hi.polling.frequency	30
abpm.hi.repository.type	WebDav
abpm.internals.tuning.io.buffer.size	16384
abpm.internals.tuning.io.gc.limit	75000
abpm.internals.tuning.io.polling.interval	1000
abpm.internals.tuning.io.pool.enabled	no
abpm.jdo.database.name	indigo
abpm.jdo.driver	org.hsqldb.jdbcDriver
abpm.jdo.engine.name	hsqldb
abpm.jdo.mapping.file	mapping.xml
abpm.jdo.maxActive	10
abpm.jdo.maxIdle	10

Back

Figure 22.24: View System Configuration

## Updating System Properties

The System Properties can be updated to change the properties of the Adeptia Server. For example, you can change the mail server settings, enable or disable clustering and database settings etc.

 Only the users of *Admin* and *Sys Admin* type can update the System Properties.

### Steps to update the system properties of the Adeptia Server

1. Click **[+] Administer** to expand the tree and then click **[+] Configure**. All the items in the Configure category are displayed.
2. Click **Application Settings**. The Application Settings screen is displayed (refer to Figure 22.23).
3. Click **Update System Properties**. The Update System Properties screen is displayed (see Figure 22.25).

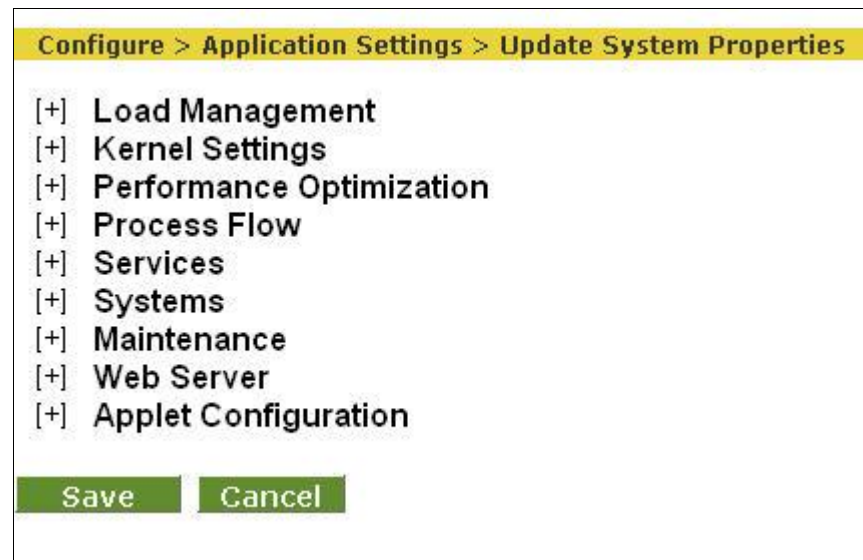


Figure 22.25: Update System Properties

4. Click **[+]** to expand the required properties (see Figure 22.26).



Configure > Application Settings > Update System Properties

**[-] Load Management**

Property Name	abpm.cluster.enable
Value	no
Description	Cluster Enable and Disable Option
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.queue.processor.enable
Value	no
Description	Queue Processor Enable and Disable Option
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.queue.processor.concurrent.processes
Value	50
Description	Queue Processor Concurrent Processes Allowed
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.queue.processor.reload.factor
Value	100
Description	Thresh Hold Value To Lookup For More Jobs
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.queue.processor.job.restartWithoutRecovery Info
Value	no
Description	Restart Uncompleted Jobs(Process Flows) Without Reco
Note :- To activate this property after any change, you need to Restart Server.	

[+] Kernel Settings  
 [+] Performance Optimization  
 [+] Process Flow  
 [+] Services  
 [+] Systems  
 [+] Maintenance  
 [+] Web Server  
 [+] Applet Configuration

Figure 22.26: Expand Properties

5. Edit the required properties and click **Save** button. A screen is displayed confirming that System Properties have been saved.



Changes made in the System Properties do not come into effect until you reload the configuration. Value of the properties is not validated while editing. For detailed description of Adeptia Server System Properties and their possible values, refer to [Appendix A](#).



## Reloading System Configuration

Re-load 'commits' the changes made to the Adeptia Server configuration system properties.

### *Steps to reload the System configuration*

1. Click **[+] Administer** to expand the tree and then click **[+] Configure**. All the items in the Configure category are displayed.
2. Click **Application Settings**. The Application Settings screen is displayed (refer to Figure 22.23).
3. Click **Reload Configuration**. A screen is displayed confirming that the configuration has been reloaded.

## MANAGING KERNEL

At times, you may want to stop or pause the kernel without stopping it as a service (if the kernel is running as a service) or stopping it by pressing **<Ctrl> + <C>** from the console. In such cases you can stop or even pause the kernel from the GUI. When the kernel is stopped or paused, no requests for new process flows are executed.


### **Process Flow Status when Kernel is Stopped**

When the kernel is stopped, the system does not accept any new process flow requests for triggering. It just completes the existing process flows that are running, and then shuts down the kernel.

### **Process Flow Status when Kernel is Paused**

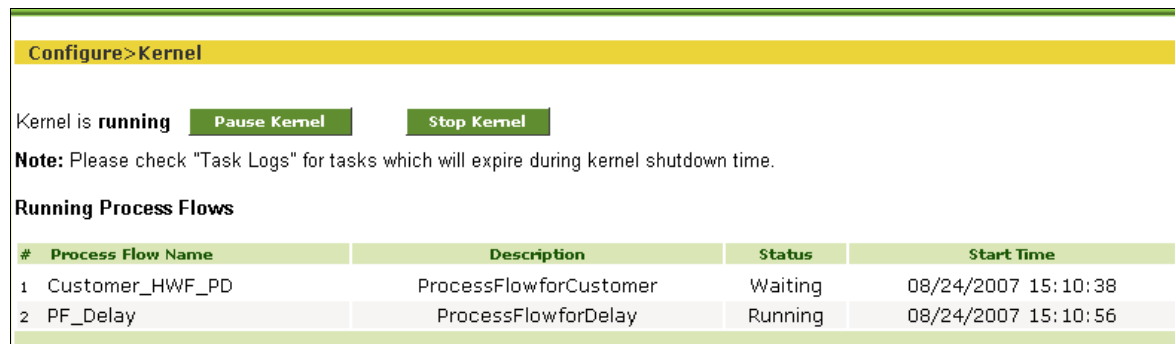
When the kernel is paused, the system just completes the existing process flows that are running. However, it does not accept any new process flow requests for triggering. Additionally, it does not accept any waiting process flows which could be manual execution requests or those in the *Queue Processor*. When the kernel is paused, the *Queue Processor* is also paused. It does not activate any process flows or escalate them from the waiting queue to ready queue. It just maintains them in the queue list.

The pausing of the kernel pauses the scheduler too. It does not allow triggering of any transactions through any events except JMS and HTTP events. The pausing/resuming/stopping of scheduler synchronizes with the pausing/resuming/stopping of the kernel.

	If sub processes are being executed with <b>Call</b> action when the kernel is paused or stopped, then they need to be made recoverable with the <b>Call</b> action, when the process flow shuts down, as the parent process flow will not stop unless all child process flows are executed.
---	--

### *Steps to manage the kernel*

1. Click **[+] Administer** to expand the tree and then click **[+] Configure**. All the items in the Configure category are displayed.
2. Click **Kernel**. The Change Kernel State screen is displayed showing the status of kernel (see Figure 22.27).



Configure > Kernel

Kernel is **running** **Pause Kernel** **Stop Kernel**


**Note:** Please check "Task Logs" for tasks which will expire during kernel shutdown time.

**Running Process Flows**


#	Process Flow Name	Description	Status	Start Time
1	Customer_HWF_PD	ProcessFlowforCustomer	Waiting	08/24/2007 15:10:38
2	PF_Delay	ProcessFlowforDelay	Running	08/24/2007 15:10:56

Figure 22.27: Change Kernel State

3. This screen is divided into two parts. The first part displays the status of the kernel and allows you to change the status as and when required. The second part displays a list of process flows that are running (if kernel is running).
4. To stop the Kernel, click **Stop Kernel** button. A confirmation screen is displayed. Click **OK** to stop the Kernel. This stops the Kernel and displays a screen with a message that the Kernel has been stopped successfully.

 To restart the Kernel, refer to Starting Adeptia Server Kernel and Web Runner section.

5. To pause the Kernel, click **Pause Kernel** button. A confirmation screen is displayed. Click **OK** to pause the Kernel. This pauses the Kernel and displays a screen with the message that the Kernel has been paused.

 The **Pause Kernel** button changes to **Resume Kernel**, once the Kernel is paused.  
When the Kernel is Stopped or Paused, the list of running process flows is not displayed.

6. To resume the Kernel, click **Resume Kernel** button. This resumes the Kernel and displays the Change Kernel State screen. Once the Kernel is resumed, it starts accepting new process flow requests for execution. The Queue Processor also activates and escalates process flows in queue, and the Scheduler resumes triggering of events.

## MANAGING SCHEDULER

Scheduler is a component of Adeptia Server that manages events and triggers process flows based on the occurrence of events. The normal state of the Scheduler is Running. However, it may be required to pause or stop occasionally for system performance or maintenance reasons. When the scheduler is Paused or Stopped, no scheduler supported Event will be fired.

Events managed by the scheduler (time based events) are:

- File Event
- FTP Event
- Mail Event
- Database Event
- Timer Event
- Calendar Event

Self-driven events i.e. events that are not managed by the scheduler (action based events) are:

- JMS Event
- HTTP Event

### Misfire Event Handling

An event may not be fired at the scheduled time due to multiple reasons. These are outlined as:

No thread is available (refer to [org.quartz.threadPool.threadCount](#) property)  
System is busy

When the event is not fired at the scheduled time, it is considered as a delayed event. The delayed event will be fired, when the thread becomes available or the system is not too busy. This will happen as long as delay is not more than misfire threshold. If delay is more than misfire threshold, event is considered as a misfired event. The misfire threshold is specified by following parameter defined in quartz.properties file:

*org.quartz.jobStore.misfireThreshold = 60000*

*60000 = 60 Seconds*

60 seconds is the default value of misfire threshold, which can be changed, based on your requirements.

Misfired events are handled based on two factors:

- Smart Misfire Policy
- Repeat Count

The Smart Misfire Policy is dependant on the Repeat Count value. In case of all events except Timer event, the Repeat Count value is Infinity. However, in case of a Timer event, the Repeat Count value is based on the Expiry Criteria value. This is described in the table below.


Table 22.4: Repeat Count Value of Timer Event and Misfire Policy

Expiry Criteria	Repeat	Misfire Policy
-----------------	--------	----------------

	Count	
Timer Event- Run only Once	0	The misfired event will be triggered only once
Timer Event-Repeat Count specified value e.g. 10	Specified value e.g. 10	All misfired events and the remaining events will be triggered. The number of misfired event triggered at a time is controlled by <a href="#">org.quartz.jobStore.maxMisfiresToHandleAtATime</a> properties defined the quartz.properties file.
Timer Event-Expiry by Date/time or All other Events	Infinity	Only the remaining events will be triggered. All misfired events will be lost.


### Firing of Events when Scheduler is Stopped

The events that are scheduled to fire while the scheduler is stopped will be fired upon restarting of the scheduler based on the Repeat Count value as described in Table 22.4 .

	When the scheduler is stopped, events cannot be activated or deactivated.
--	---

### Firing of Events when Scheduler is Paused

When the scheduler is paused, the events that are scheduled to be fired will not be triggered. When the scheduler is resumed, only the remaining events will be triggered. The misfired events will be lost.

	When the scheduler is paused, events can be activated, but they will not trigger.
---	---

## Scheduler Related Properties

For scheduler related properties, you can refer to the quartz.properties file that is located in the `../AdeptiaServer-4.9/ServerKernel` directory. These include:

### *org.quartz.jobStore.maxMisfiresToHandleAtATime*

Description	This property is used to define the maximum number of misfired triggers that the jobstore can handle at a given time
Default Value	5

Possible Value	1-100
Selection Criteria	NA
Comments	If the jobstore handles many triggers at once then the database tables could get locked, thus hampering the performance of other triggers. This property limits the maximum number of misfired events that can be fired at a time. If there are numerous misfired events, then they are fired in batches.

### ***org.quartz.jobStore.misfireThreshold***

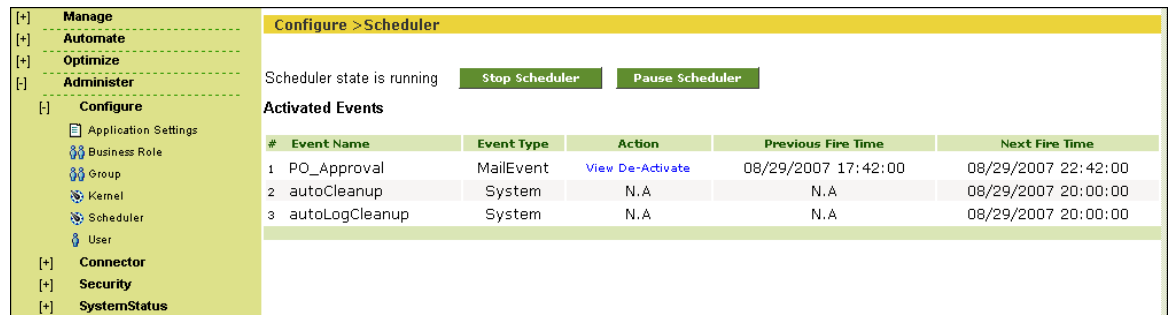
<b>Description</b>	<b>This property is used to define the number of milliseconds that the scheduler will retain a trigger, before passing it to the next firing time, before it is considered as misfired</b>
Default Value	60000
Possible Value	Any positive integer
Selection Criteria	
Comments	

### ***org.quartz.threadPool.threadCount***

<b>Description</b>	<b>This property is used to define the number of threads available for concurrent execution of jobs (for firing of events)</b>
Default Value	15
Possible Value	1-100
Selection Criteria	NA
Comments	If only few jobs are fired a few times in a day, then 1 thread is sufficient. If thousands of jobs are fired every minute, then 50 or 100 threads are required, based on the jobs count and system resources.

### ***Steps to manage the scheduler***

1. Click **[+] Administer** to expand the tree and then click **[+] Configure**. All the items in the Configure category are displayed.
2. Click **Scheduler**. The Change Scheduler State screen is displayed showing the status of scheduler (see Figure 22.28).



#	Event Name	Event Type	Action	Previous Fire Time	Next Fire Time
1	PO_Approval	MailEvent	<a href="#">View</a> <a href="#">De-Activate</a>	08/29/2007 17:42:00	08/29/2007 22:42:00
2	autoCleanup	System	N.A	N.A	08/29/2007 20:00:00
3	autoLogCleanup	System	N.A	N.A	08/29/2007 20:00:00

Figure 22.28: Change Scheduler State

3. This screen is divided into two parts. The first part displays the status of the scheduler and allows you to change the status as and when required.

The second part displays a list of events that are activated (only if scheduler is running). You can deactivate an event by clicking **Deactivate** against the event. This will deactivate the event and remove it from the list.



The *autoCleanup* and *autoLogCleanup* events cannot be deactivated as they are generated by the system.

4. To view an event, click the **View** link against the required event. The properties of the event are displayed.
5. To stop the Scheduler, click **Stop Scheduler** button. A screen is displayed showing that scheduler stopped successfully.
6. To start the scheduler, in the Change Scheduler State screen, click **Start Scheduler**. A screen is displayed showing that the scheduler started successfully.
7. To pause the Scheduler, click **Pause Scheduler** button. A screen is displayed showing that scheduler stopped successfully.



The **Pause Scheduler** button changes to **Resume Scheduler**, once the scheduler is paused.  
When the scheduler is Stopped or Paused, the list of activated events is not displayed.

8. To resume the scheduler, click **Resume Scheduler** button. This resumes the scheduler and displays the scheduler screen.

## 23 DEPLOYING CLUSTERING

Adeptia Server provides integrated clustering services to deliver higher levels of service and availability. A cluster is a group of independent Adeptia Servers working collectively as a single system. Clustering provides high-availability, scalability, and manageability for resources and applications by grouping multiple servers running Adeptia Server.

Clustering is used for:

- **Load Balancing:** This is used to distribute the execution of process flows evenly between the members of the cluster so that no single Adeptia Server is overloaded. Load balancing is especially important for networks where it is difficult to predict the number of requests that is issued to a server.

Adeptia Server supports Round- Robin method for load balancing.

- **Fail Over Capability:** When one of the Adeptia Servers in a cluster environment fails then other Adeptia Servers detect this failure and automatically handle any new process flow execution request.
- **Scalability:** Cluster services can grow to meet rising demands. When the overall load exceeds the capabilities of the cluster, additional nodes can be added.

The first Adeptia Server to start in a cluster is designated as a Primary Node and all subsequent Adeptia Servers are designated as secondary nodes in that cluster. The Primary node regularly checks the secondary nodes for their status to determine their availability for process flow execution. In case of a primary node failure, one of the secondary nodes automatically takes over the responsibility of the primary node for managing load distribution in the cluster.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

## ENABLING CLUSTERING

Clustering, by default, is disabled. To enable clustering, you need to enable clustering, as described below, in each of the node of the cluster.

## Prerequisites

- Adeptia Server must be installed on each node of the cluster.
- All the nodes of the cluster should use same database as Adeptia Server backend defined in server-configure.properties file in `../../AdeptiaServer-4.9/ServerKernel/etc` folder.

## Steps to enable Clustering service

1. Click **[+] Administer** to expand the tree and then click **[+] Configure**. All the items in the Configure category are displayed.
2. Click **Application Settings**. The Application Settings screen is displayed (see Figure 23.1).

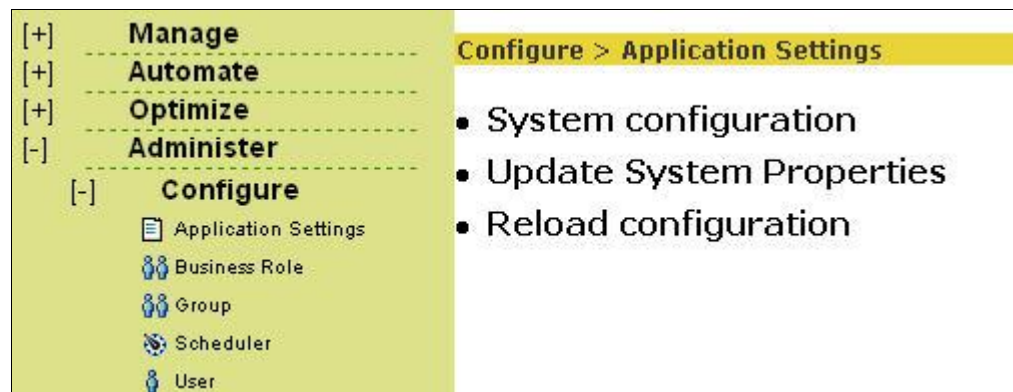


Figure 23.1: Application Settings

3. Click **Update System Properties**. The Update System Properties screen is displayed (see Figure 23.2).



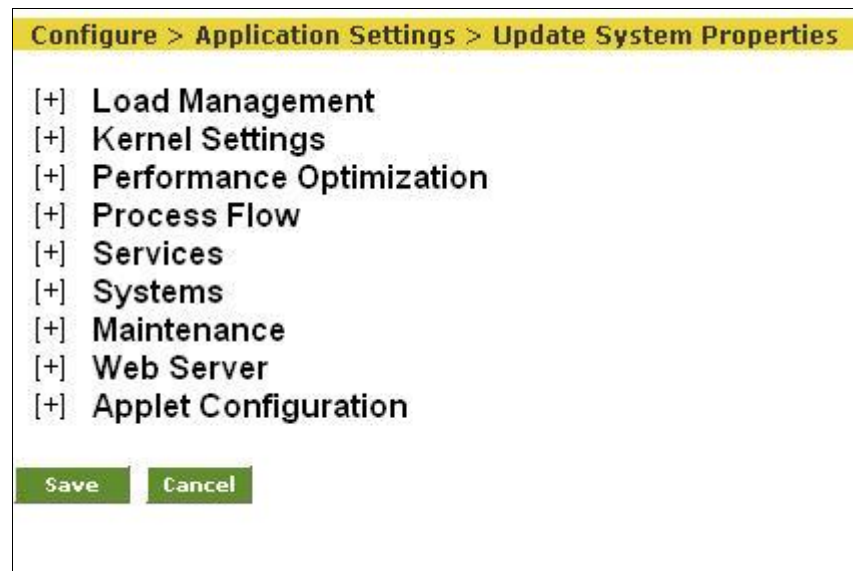


Figure 23.2: Update System Properties

4. Click **[+]** to expand **Load Management** (see Figure 23.3).

Configure > Application Settings > Update System Properties

**[-] Load Management**

Property Name	abpm.cluster.enable
Value	no
Description	Cluster Enable and Disable Option
Note :- To activate this property after any change, you need to Restart Server.	

Property Name	abpm.queue.processor.enable
Value	no
Description	Queue Processor Enable and Disable Option
Note :- To activate this property after any change, you need to Restart Server.	

Property Name	abpm.queue.processor.concurrent.processes
Value	50
Description	Queue Processor Concurrent Processes Allowed
Note :- To activate this property after any change, you need to Restart Server.	

Property Name	abpm.queue.processor.reload.factor
Value	100
Description	Thresh Hold Value To Lookup For More Jobs
Note :- To activate this property after any change, you need to Restart Server.	

Property Name	abpm.queue.processor.job.restartWithoutRecovery Info
Value	no
Description	Restart Uncompleted Jobs(Process Flows) Without Reco
Note :- To activate this property after any change, you need to Restart Server.	

[+] Kernel Settings  
 [+] Performance Optimization  
 [+] Process Flow  
 [+] Services  
 [+] Systems  
 [+] Maintenance  
 [+] Web Server  
 [+] Applet Configuration

Figure 23.3: Expand Load Management Properties

5. In *Value* field of the property *abpm.cluster.enable*, replace the no with yes (see Figure 23.4).

Configure > Application Settings > Update System Properties

**[-] Load Management**

Property Name	abpm.cluster.enable
Value	yes
Description	Cluster Enable and Disable Option
Note :- To activate this property after any change, you need to Restart Server.	

Figure 23.4: Edit Load Management Properties

6. Click **[+]** to expand **Kernel Settings** (see Figure 23.5).

Configure > Application Settings > Update System Properties

**[+] Load Management**

**[-] Kernel Settings**


Property Name	abpm.node.name
Value	localhost
Description	Cluster Node Name
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.node.port
Value	21000
Description	Cluster Node Port
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.repository.address
Value	localhost://indigo.core:service=repository
Description	Repository Address
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.repository.root
Value	./web/repository
Description	Server Repository Path
Note :- To activate this property after any change, you need to Restart Server.	

**[+] Performance Optimization**


**[+] Process Flow**

Figure 23.5: Edit Kernel Settings Properties

7. In *Value* column of the property *abpm.node.name*, replace the localhost with the name of the server on which the Adeptia Server is installed.

 For example, if the name of the server where Adeptia Server is installed is 'Server' the value should be Server.

8. In *Value* column of the property *abpm.repository.address*, replace the localhost with the name of the Server on which the Adeptia Server is installed (see Figure 23.6).

 For example, if the name of the Server where Adeptia Server is installed is 'Server' the value should be Server://indigo.core:service=repository.


Configure > Application Settings > Update System Properties

[+] Load Management  
[-] Kernel Settings

Property Name	abpm.node.name
Value	server
Description	Cluster Node Name
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.node.port
Value	21000
Description	Cluster Node Port
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.repository.address
Value	localhost://indigo.core:service=repository
Description	Repository Address
Note :- To activate this property after any change, you need to Restart Server.	
Property Name	abpm.repository.root
Value	./web/repository
Description	Server Repository Path
Note :- To activate this property after any change, you need to Restart Server.	

Figure 23.6: Enable Clustering

9. The value of property *abpm.repository.root* must be same for all nodes of the cluster. This property defines a location where intermediate data files are stored for each of the nodes. Preferably this should be a shared folder in the network, which can be accessed by all the nodes of the cluster, for example \\Server\_A\Repository. Here Server\_A is the machine name and Repository is the shared folder on Server\_A. There should not be any username/password required to connect to this folder.
10. Click **Save** button to save the changes. A screen is displayed confirming that system properties have been saved.

 Changes made in the System properties do not come into effect until you reload the configuration. To reload the configuration, click **Reload Configuration** link in the Application Settings screen.

11. Go to the folder `../AdeptiaServer-4.9/ServerKernel/etc/Cluster` on the server where Adeptia Server is installed.
12. Open the clustering-service.xml file in text editor. The contents of the file are as displayed (see Figure 23.7).

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<mbeans-descriptors>
  <mbean
    descriptor="com.adeptia.indigo.cluster.ClusterMember"
    name="bpm.core.cluster:name=BPMCluster,node=node1" port="21000">
  </mbean>
</mbeans-descriptors>
```

Figure 23.7: XML File in Text Editor

13. Replace the word *node1* with the name of the server where Adeptia Server is installed and will be a part of the cluster. When a Adeptia Server starts in cluster environment, it looks for the name of server, where it has been installed in clustering-service.xml
14. To add more nodes in the cluster, for each node, add the following lines in the clustering-service.xml file and replace the node1 with the name of the server.


```
<mbean
  descriptor="com.adeptia.indigo.cluster.ClusterMember"
  name="bpm.core.cluster:name=BPMCluster,node=node1" port="21000">
</mbean>
```

For example, if there are three Servers (Server\_A, Server\_B and Server\_C) in the cluster, the clustering-service.xml file will be as displayed below (see Figure 23.8)

```
<?xml version="1.0" encoding="UTF-8"?>
<mbeans-descriptors>
  <mbean
    descriptor="com.adeptia.indigo.cluster.ClusterMember"
    name="bpm.core.cluster:name=BPMCluster,node=Server_A" port="21000">
  </mbean>
  <mbean
    descriptor="com.adeptia.indigo.cluster.ClusterMember"
    name="bpm.core.cluster:name=BPMCluster,node=Server_B" port="21000">
  </mbean>
  <mbean
    descriptor="com.adeptia.indigo.cluster.ClusterMember"
    name="bpm.core.cluster:name=BPMCluster,node=Server_C" port="21000">
  </mbean>
</mbeans-descriptors>
```

Figure 23.8: Edited XML File

15. Save the file and close it.

	<p>Step 1 to 15 must be performed on all the servers that will be part of Cluster.</p> <p>Instead of making same changes in clustering-service.xml file of all servers, you can make changes in only one server and copy the file on other servers.</p>
---	---

## STARTING ADEPTIA SERVER IN CLUSTERING MODE

### Steps to start the Adeptia Server in Clustering Mode

1. Open the command prompt and change the directory to:  
`../../AdeptiaServer-4.9/ServerKernel`
2. Enter the command **application CL** to start the Adeptia Server Kernel in clustering mode.
3. In the same directory enter the command **application WB** to start the Adeptia Server Web Runner in clustering mode.



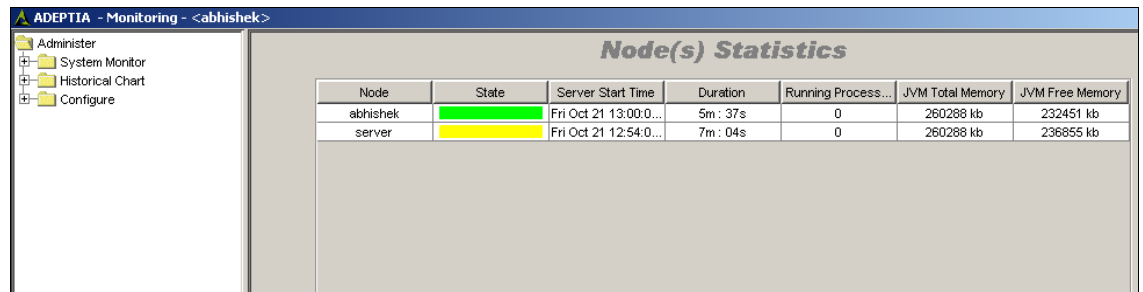
The Adeptia Server kernel on all members PC must be started in the clustering mode.  
To learn how to login into the Adeptia Server, refer to section [Login into Adeptia Server](#).

## VIEWING CLUSTERING STATUS

The Clustering status shows a list of the member servers and their status whether available or not.

### Steps to view clustering status

1. Click **[+] Administer** to expand the tree and then click **[+] System Status**. All the items in the System Status category are displayed.
2. Click **System Monitor**. The Monitoring applet is displayed with the list of nodes of the cluster (see Figure 23.9).



Node(s) Statistics						
Node	State	Server Start Time	Duration	Running Process...	JVM Total Memory	JVM Free Memory
abhishek	Primary (Green)	Fri Oct 21 13:00:0...	5m : 37s	0	260288 kb	232451 kb
server	Secondary (Yellow)	Fri Oct 21 12:54:0...	7m : 04s	0	260288 kb	236855 kb

Figure 23.9: Node(s) Statistics

The Green color in the State column implies that the node is in Primary state.  
The Yellow color in the State column implies that the node is in Secondary state.



To know, how to view the details of each node of a cluster, refer to the section [Monitoring System Status of Node](#).

## 24 CREATING DATABASE CONNECTORS

Database Connector is used to make connection between a particular database server (e.g. SQL, Oracle and DB2 etc) and Adeptia Server. There are several services of Adeptia Server, which require database connector to connect to any database server. Examples of database connectors are Database Schema, Database Source, Database Target and Database Events. Database connectors consist of two parts:

- [Database Driver](#)
- [Database Info](#)

### CREATING DATABASE DRIVER

A database driver is used to specify the type of database and driver jar files that are required to connect to that database. Database jar files are drivers, which are used to connect to database Servers. There are specific jar files for specific database server. These jar files are not provided with the Adeptia Server. These jar files are available with the database servers. Driver jar files can also be obtained from following locations:

#### *Oracle Server*

[http://www.oracle.com/technology/software/tech/java/sqlj\\_jdbc/index.html](http://www.oracle.com/technology/software/tech/java/sqlj_jdbc/index.html).

#### *SQL Server*

<http://www.microsoft.com/downloads/details.aspx?FamilyID=07287B11-0502-461A-B138-2AA54BFDC03A&displaylang=en>

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

#### *Steps to create a database driver*

1. Click **[+] Administer** to expand the tree and then click **[+] Connector**. All the items in the Connector category are displayed.
2. Click **Database Driver**. The Manage Database Driver screen is displayed (see Figure 24.1).



[+]

Manage

[+]

Automate

[+]

Optimize

[-]

Administer

[+]

Configure

[-]

Connector

Database Driver

Database Info

JMS Provider

[+]

Security

[+]

SystemStatus

Connector > Database Driver

New | Edit | Delete | Revisions | Dependencies

--Select Field to Search--

Search

#	Name	Description	Owner	Perm.	Modified
1	<div><div></div> EvalXform_DbDriver</div>	Database driver for HSQLDB.	admin	RWX	08/18/05 15:51
2	<div><div></div> EvalPF_DatabaseDriver_SQLServer</div>	SQL server driver microsoft	admin	RWX	07/26/05 15:41
3	<div><div></div> EvalJMSE_DbDriver</div>	Database driver for HSQL	admin	RWX	07/20/05 17:16

Figure 24.1: Manage Database Driver

- Click the **New** link. The Create Database Driver screen is displayed (see Figure 24.2).

Connector > Database Driver

[-] Standard properties

Name \*

Description \*

Upload Driver Jar/Zip files

Driver Main Class Name \*

Browse Jars

Get Driver Class...

[+] Advanced properties

\* Mandatory fields.

Save

Cancel

Figure 24.2: Create Database Driver

- Enter the name and description of the new database driver in the *Name* and *Description* fields respectively.
- Click **Browse Jars** button to upload the driver jar files for the database. The Browse Database Jar screen is displayed (see Figure 24.3).



1
Choose File

Click on Browse button to choose the file.

Browse File
Browse...

2
Upload File

Click on the "Upload File" button. Please wait till your file appears in list. Repeat the process to upload other files.

File Names

Upload File

3
Click on Finish button to complete the process/ unload jars to unload presently uploaded jars.

Finish
unload jars

Figure 24.3: Browse Database Jar

- Click **Browse** button and select the required jar file. The path of the selected jar file is displayed in the *Browse File* field (see Figure 24.4). A list of required Jar files for different databases is displayed in the table below.

Table 24.1: Jar Files for Database Servers

Database Server	Driver Jar Files
Oracle	Classes12.jar For Oracle BLOB Datatype: base.jar,oracle.jar and util.jar These Jars can be downloaded from <a href="http://www.datadirect.com/download/index.jsp">http://www.datadirect.com/download/index.jsp</a>
IBM DB2 (Ver 7.1)	db2java.zip (7.1 version)
IBM DB2 (Ver 8.1)	db2jcc.jar
MS SQL	msbase.jar, mssqlServer.jar and msutil.jar
JTDS-SQL Server	Jtds.jar
HSQl DB	hsqldb-1.7.2.jar

1
**Choose File**

Click on Browse button to choose the file.

Browse File

2
**Upload File**

Click on the "Upload File" button. Please wait till your file appears in list. Repeat the process to upload other files.

**File Names**

3
Click on Finish button to complete the process/ unload jars to unload presently uploaded jars.

Figure 24.4: Select Jar File

7. Click **Upload File** button. The file name is displayed in the *File Names* list (see Figure 24.5).

1
**Choose File**

Click on Browse button to choose the file.

Browse File

2
**Upload File**

Click on the "Upload File" button. Please wait till your file appears in list. Repeat the process to upload other files.

**File Names**

classes12.jar

3
Click on Finish button to complete the process/ unload jars to unload presently uploaded jars.

Figure 24.5: Jar Files Uploaded

8. Repeat steps 6 and 7 to upload additional jar files.
9. To unload jars files, click **Unload jars** button.
10. Click **Finish** button to return to the Manage Database Driver screen. The uploaded jar file(s) is displayed in the Upload Driver Jar files field (see Figure 24.6).

**Connector > Database Driver**

**[f] Standard properties**

Name \*

Description \*

Upload Driver Jar/Zip files  **Browse Jars**

Driver Main Class Name \*  **Get Driver Class...**

**[+] Advanced properties**

\* Mandatory fields.

**Save** **Cancel**

Figure 24.6: Uploaded Driver Jar Files

11. Enter the Driver Main Class Name of the database in the *Driver Main Class Name* field. Driver Main Class Name is a fully qualified java class name for the main database driver class. The driver class name typically starts with a com., net. or org. followed by the company domain. For example, the JDBC driver class for mysql.com is called com.mysql.jdbc.Driver. Click **Get Driver Class...** button to select Driver Main Class Name from a drop-down list (see Figure 24.7).

**Unable to determine the Driver Main Class name. Please select the class name from the list given below.**

**Database Driver Main Class Definition**

Select Driver Main Class Name

**OK** **CANCEL**

Figure 24.7: Select Database Driver Main Class Name


12. Select the Driver Main Class Name from the drop-down list and click **OK** button. A list of Driver Main Class Name of different databases is displayed in the table below.

Table 24.2: Driver Main Class Names for Database Servers

Database Server	Driver Main Class Definition
Oracle	oracle.jdbc.driver.OracleDriver For Oracle BLOB Datatype: com.ddtek.jdbc.oracle.OracleDriver
IBM DB2 (Ver 7.1)	COM.ibm.db2.jdbc.net.DB2Driver
IBM DB2 (Ver 8.1)	com.ibm.db2.jcc.DB2Driver
MS SQL	com.microsoft.jdbc.sqlServer.SQLServerDriver
JTDS-SQL Server	net.sourceforge.jtds.jdbc.Driver
HSQLDB	org.hsqldb.jdbcDriver

MS Access	sun.jdbc.odbc.JdbcOdbcDriver
MS Excel	sun.jdbc.odbc.JdbcOdbcDriver

13. Click **Save** button. This displays a screen confirming that the Database Driver has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the Database Driver (refer to Figure 4.6).
14. Enter the comments in the *Add Comments* field.

	The comment should be at least 1 character in length.
---	---

15. Click **OK** to save the comments. This displays a screen confirming that the Database Driver has been created successfully.

	By default, the <i>Comments</i> property is disabled. To enable it, refer to the section <a href="#">Updating System Properties</a> .
---	---

## CREATING DATABASE INFO

Database Info activity is used to specify the Server URL (JDBC URL), Username and Password to access the database. Server URL points to a specific database on a specified database Server. There is no standard for Server URL. Every JDBC driver uses a slightly different syntax. For example, a Server URL for a MySQL database using the `com.mysql.jdbc.Driver` might look like this: `jdbc:mysql://localhost/databaseName`. Database Info uses database driver to connect to specified Database Server.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Prerequisites

- Database Driver activity must be created before creating Database Info Activity.

### Steps to create Database Info

1. Click **[+] Administer** to expand the tree and then click **[+] Connector**. All the items in the Connector category are displayed.
2. Click **Database Info**. The Database Info screen is displayed (see Figure 24.8).

[+]

Manage

[+]

Automate

[+]

Optimize

[+]

Administer

[+]

Configure

[-]

Connector

[-]

Database Driver

[-]

Database Info

[-]

JMS Provider

[+]

Security

[+]

SystemStatus

Connector > Database Info

New

Edit

Delete

Revisions

Dependencies

--Select Field to Search--

Search

#	Name	Description	Owner	Perm.	Modified
1	EvalPF_DatabaseInfo_SQLServer	SQL Server Microsoft Info	admin	RWX	08/23/05 11:54
2	EvalXform_DbInfo	Database Info for HSQldb.	admin	RWX	08/22/05 17:58
3	EvalJMSE_DbInfo	Database Info for HSQL	admin	RWX	08/17/05 13:06

Figure 24.8: Manage Database Info

- Click the **New** link. The Create Database Info screen is displayed (see Figure 24.9).

Connector > Database Info

[-] Standard properties

Name \*

Description \*

Select JDBC Driver\*

☒ Use Existing

-- SELECT --

☐ Create New

Create Database Driver

Server URL \*

User \*

Password

Confirm Password

Test Database Connection

Help...


[+] Advanced properties

\* Mandatory fields.

Save Cancel

Figure 24.9: Create Database Info

- Enter the name and description of the Database Info in the *Name* and *Description* fields respectively.
- Select the database driver activity.

 To learn how to create database driver activity, refer to section [Creating Database Driver](#).

- To select an existing database driver activity, select the *Use Existing* radio button and select the database driver activity from the drop-down list.
- To use a new database driver activity, select the *Create New* radio button and then click *Create Database Driver* button. *Create Database Driver* page is displayed.

8. In *Create Database Driver* page enter the required parameters and click **Save** to save the database driver activity and return to *Create Database Info* page.
9. Click **Help** button next to the *Server URL* field to define Server URL. The Database URL Definition screen is displayed (see Figure 24.10).

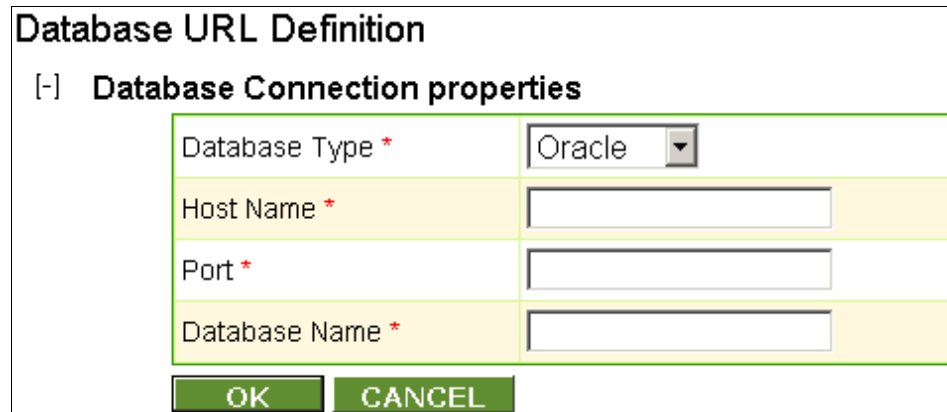


Figure 24.10: Define Server URL

10. Select the type of database from the *Database Type* drop-down list.
11. Enter the name of database Server, port number and name of the database in *Host Name*, *Port* and *Database Name* fields respectively.
12. Click **OK** button to return to the Manage Database Info screen. The defined database URL is displayed in the *Server URL* field (see Figure 24.11).

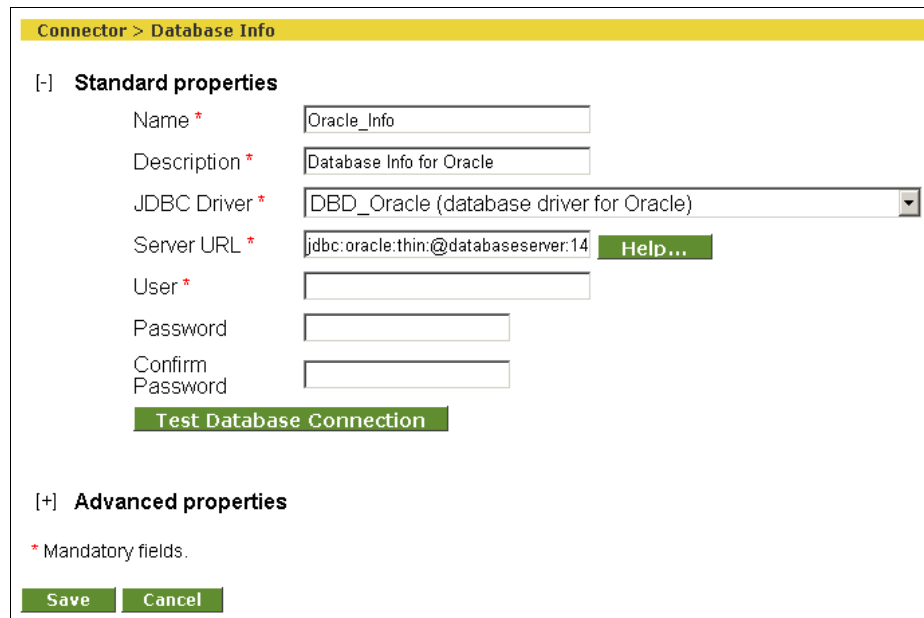



Figure 24.11: Defined Database Server URL


A list of Server URL's of different databases is displayed in the table below.

Table 24.3: Server URL for Database Servers


Database Server	Server URL
Oracle	jdbc:oracle:thin:@databaseServer:1521:orcl For Oracle BLOB Datatype: jdbc:datadirect:oracle://databaseserver:1521;ServiceName=test
IBM DB2 (Ver 7.1)	jdbc:db2://databaseServer:6789/TOOLSDB
IBM DB2 (Ver 8.1)	jdbc:db2://databaseServer:50000/TOOLSDB
MS SQL	jdbc:microsoft:sqlServer://databaseServer:1433;DatabaseName=master
SQL JTDS	jdbc:jtds:sqlserver://databaseserver:1433/master
MS Access	jdbc:odbc:Driver={Microsoft Access Driver (*.mdb)};DBQ=c:/test/db1.mdb
MS Excel	Jdbc:odbc:ExcelJDBCTest where ExcelJDBCTest is the ODBC object that you need to create using DSN.
HSQL DB	jdbc:hsqldb:hsq://databaseserver:2476

 DatabaseServer in Table 24.3 is the name of the server on which the database is running.

13. Enter the username that is used to connect database server in the *User* field.
14. Click **Test Database Connection** button to verify the connection between the Adeptia Server and the database.
15. Enter the password in the *Password* and *Confirm Password* fields respectively, if required.
16. Click **Save** button. This displays a screen confirming that the Database Info activity has been created successfully. If the *Comments* option is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the Database Info activity (refer to Figure 4.6).
17. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

18. Click **OK** to save the comments. This displays a screen confirming that the Database Info activity has been created successfully.

 By default, the *Comments* option is disabled. To enable it, refer to the section [Updating System Properties](#).

## CREATING JMS PROVIDER

JMS Provider is used to connect to JMS Server. While creating JMS Provider, you need to specify the Provider Jar files, which are used to connect to JMS Server. There are several services of Adeptia Server, which require JMS Provider to connect to JMS Server.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### Steps to create JMS Provider

1. Click **[+] Administer** to expand the tree and then click **[+] Connector**. All the items in the Connector category are displayed.
2. Click **JMS Provider**. The Manage JMS Provider screen is displayed (see Figure 24.12).

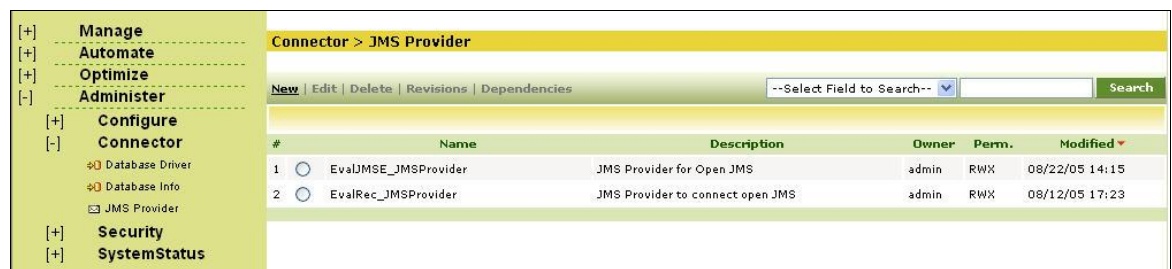


Figure 24.12: Manage JMS Provider

3. Click the **New** link. The Create JMS Provider screen is displayed (see Figure 24.13).



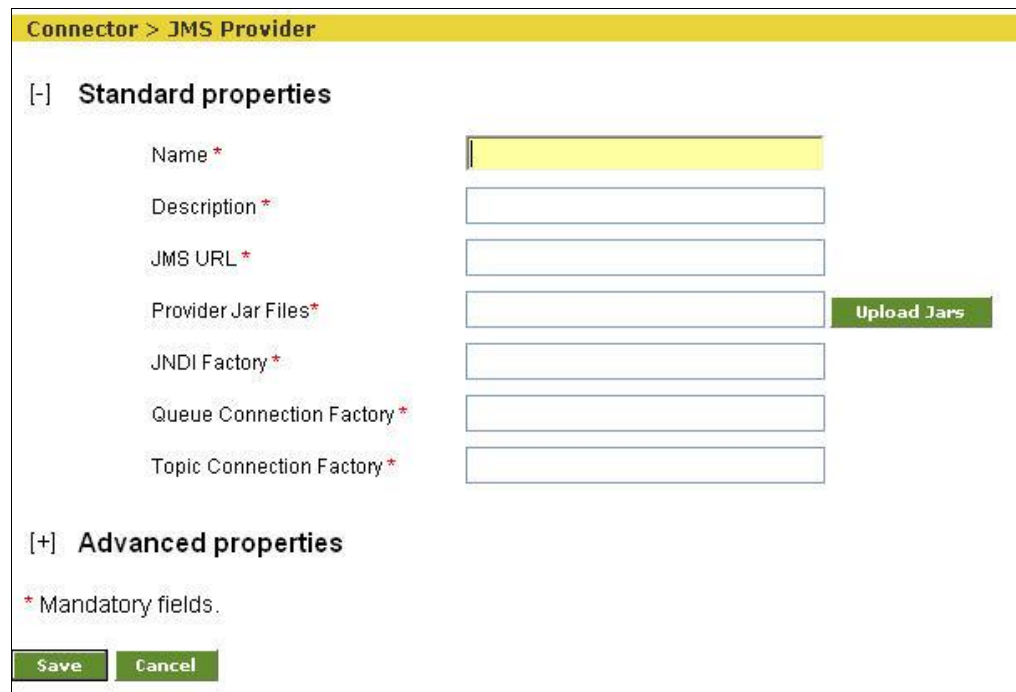



Figure 24.13: Create JMS Provider

4. Enter the name and description for the new JMS Provider in the *Name* and *Description* fields respectively.
5. Enter the URL of the JMS Server in the *JMS URL* field. For example, for OpenJMS running on the same server, use *rmi://localhost:2099/JndiServer*
6. Click **Upload Jars** button to upload the driver jar files for the JMS Server. The Browse Jar Files screen is displayed (refer to Figure 24.3).

 JMS Jar files are drivers, which are used to connect JMS Servers. There are specific jar files for different JMS Servers. These jar files are not provided with the Adeptia Server. Users should use the jar files that are available with the JMS Servers.

7. Click **Browse** button and select the required jar files. The path of the selected jar file is displayed in the *Browse File* field (refer to Figure 24.4).
8. Click **Upload File** button. The file name is displayed in the *File Names* list (refer to Figure 24.5).
9. Repeat steps 7 and 8 to upload additional jar files.
10. Click **Finish** button to return to the Manage JMS Provider screen. The uploaded jar file(s) is displayed in the Provider Jar Files field (see Figure 24.14).

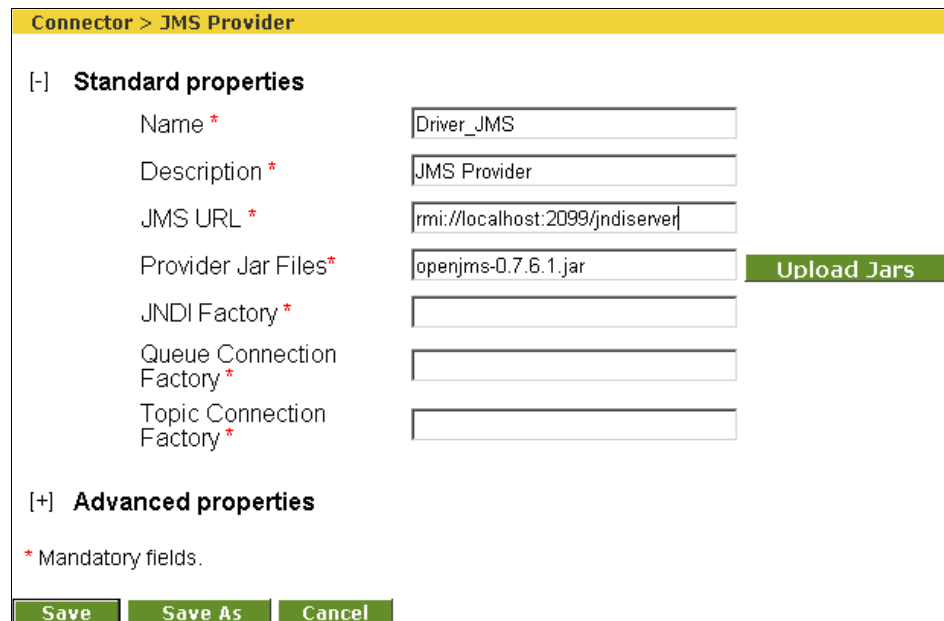



Figure 24.14: Uploaded Provider Jar Files

11. Enter the JNDI Factory class name as specified by the JMS Provider in the *JNDI Factory* field. For Example, in case of OpenJMS, the value is *org.exolab.jms.jndi.rmi.RmiJndiInitialContextFactory*.
12. Enter the JMS Provider Queue connection Factory in the *Queue Connection Factory* field. For example, in case of OpenJMS, Queue Connection Factory is *JmsQueueConnectionFactory*.
13. Enter the JMS Provider Topic Connection Factory in the *Topic Connection Factory* field. For example, in case of OpenJMS, Topic Connection Factory is *JmsTopicConnectionFactory*.
14. Click **Save** button. This displays a screen confirming that the JMS Provider activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the JMS Provider (refer to Figure 4.6).
15. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

16. Click **OK** to save the comments. This displays a screen confirming that the JMS Provider activity has been created successfully.

 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## 25 MANAGING SECRET KEY

A secret key helps you to create encryption or decryption activity. Encryption and decryption activities are required to encrypt outgoing data and decrypt incoming data respectively.

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

### CREATING SECRET KEY ACTIVITY

#### Steps to create a Secret Key activity

1. Click **[+] Administer** to expand the tree and then click **[+] Security**. All the items in the Security category are displayed.
2. Click **Secret Key**. The Manage Secret Key screen is displayed (see Figure 25.1).

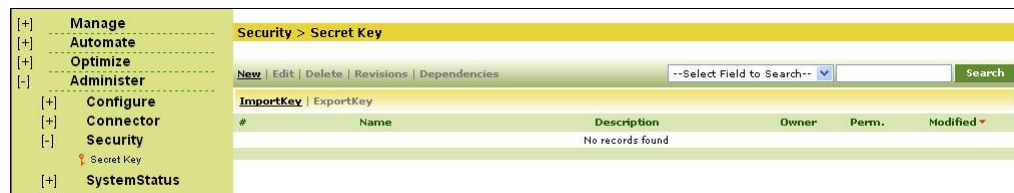


Figure 25.1: Manage Secret Key

3. Click the **New** link. The Create Secret Key Activity screen is displayed (see Figure 25.2).

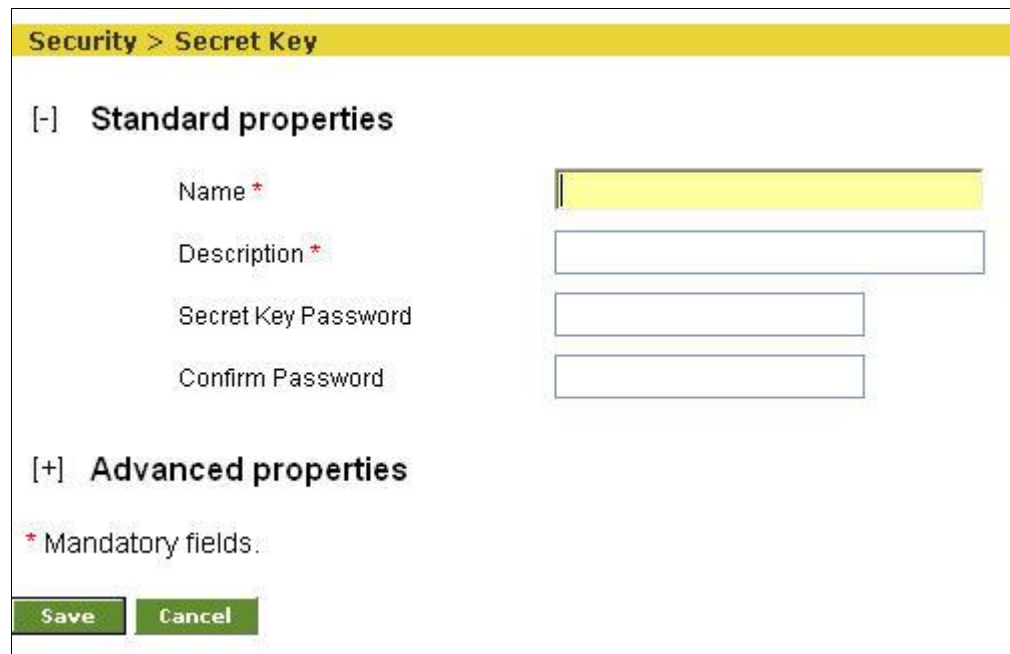




Figure 25.2: Create Secret Key Activity

4. Enter the name and description of the new Secret Key in the *Name* and *Description* fields respectively.
5. Enter the password in the *Secret Key Password* and *Confirm Password* fields respectively.

 To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

6. Click **Save** button. This displays a screen confirming that the Secret Key activity has been created successfully. If the *Comments* property is enabled, then clicking **Save** will display a screen where you need to enter comments related to creating the Secret Key (refer to Figure 4.6).
7. Enter the comments in the *Add Comments* field.

 The comment should be at least 1 character in length.

8. Click **OK** to save the comments. This displays a screen confirming that the Secret Key activity has been created successfully.


 By default, the *Comments* property is disabled. To enable it, refer to the section [Updating System Properties](#).

## EXPORTING SECRET KEY

### Steps to export a Secret Key

1. Click **[+] Administer** to expand the tree and then click **[+] Security**. All the items in the Security category are displayed.

2. Click **Secret Key**. The Manage Secret Key screen is displayed (refer to Figure 25.1).
3. Select the radio button adjacent to required secret key activity that you want to export and then click **Export** link. A screen is displayed confirming that the Secret Key has been exported successfully.

 The exported Secret Key is stored in `../AdeptiaServer-4.9/ServerKernel/etc/security/secret keys` folder.

## IMPORTING SECRET KEY

### Steps to import a Secret Key

1. Click **[+] Administer** to expand the tree and then click **[+] Security**. All the items in the Security category are displayed.
2. Click **Secret Key**. The Manage Secret Key screen is displayed (refer to Figure 25.1).
3. Click **Import Secret Key** link. The Import Secret Key screen is displayed (see Figure 25.3).



**Security > Secret Key > Import Secret Key**

**[-] Standard properties**

Name \*

Description \*

Secret Key Password

Confirm Password

SecretKey File \*

**[+] Advanced properties**

\* Mandatory fields.

Figure 25.3: Import Secret Key

4. Enter the name and description for the Import Secret Key activity in the *Name* and *Description* fields respectively.
5. Enter the Secret Key to be used for encryption and decryption in *Secret Key Password* and *Confirm Password* fields respectively.
6. Click **Browse** button and select the Secret Key file to be imported from `../AdeptiaServer-4.9/ServerKernel/etc/security/secretkeys` folder.

The path of Secret Key file is displayed in *SecretKey File* field (see Figure 25.4).

[-] **Standard properties**

Name \*

Import\_SecretKey

Description \*

Import Secret Key

Secret Key Password

\*\*\*\*\*

Confirm Password

\*\*\*\*\*

SecretKey File

C:\BPMServer\BPMServer

Browse...


[+] **Advanced properties**

\* Mandatory fields.

Save

Cancel

Figure 25.4: Select Secret Key File



To learn about Advanced Properties refer to section [Changing Advanced Properties](#).

- Click **Save** button. A screen is displayed confirming that the Secret Key activity has been imported successfully.

## 26 MONITORING RUNNING PROCESS FLOWS AND LOGGED IN USERS

The Monitoring applet of the Adeptia Server allows you to view running activities and memory usage of the system. It displays information about the nodes that are part of cluster, details of each node in the cluster and the Process Flow Execution Report. It provides information about the following:

- System Load Analysis (Process Flow Execution History of the Cluster)
- Cluster Nodes (Nodes of the Cluster)
- Details of each Node
- System Activities at each node
- Current Users logged in
- Kernel Memory usage
- Process Flow Status
- Node Load Analysis
- Configuring Refresh Time

In the Adeptia Server this feature is available in:

Adeptia BPM Server	Adeptia Workflow Server	Adeptia Integration Server	Adeptia Data Transformation Server
√	√	√	√

## MONITORING ADEPTIA SERVER CLUSTER SYSTEM

### Prerequisites

- JRE 1.5 or above needs to be installed on your system to open the Monitoring applet.
- The *Pop-up Blocker* needs to be disabled in the web browser, to open the Monitoring applet. By default, the *Pop-up Blocker* is enabled.

### Steps to monitor Adeptia Server Cluster

1. Click **[+] Administer** to expand the tree and then click **System Status**. All the items in the System Status category are displayed.
2. Click **System Monitor**. This loads the Monitoring applet and displays Adeptia Server cluster status (see Figure 26.1).

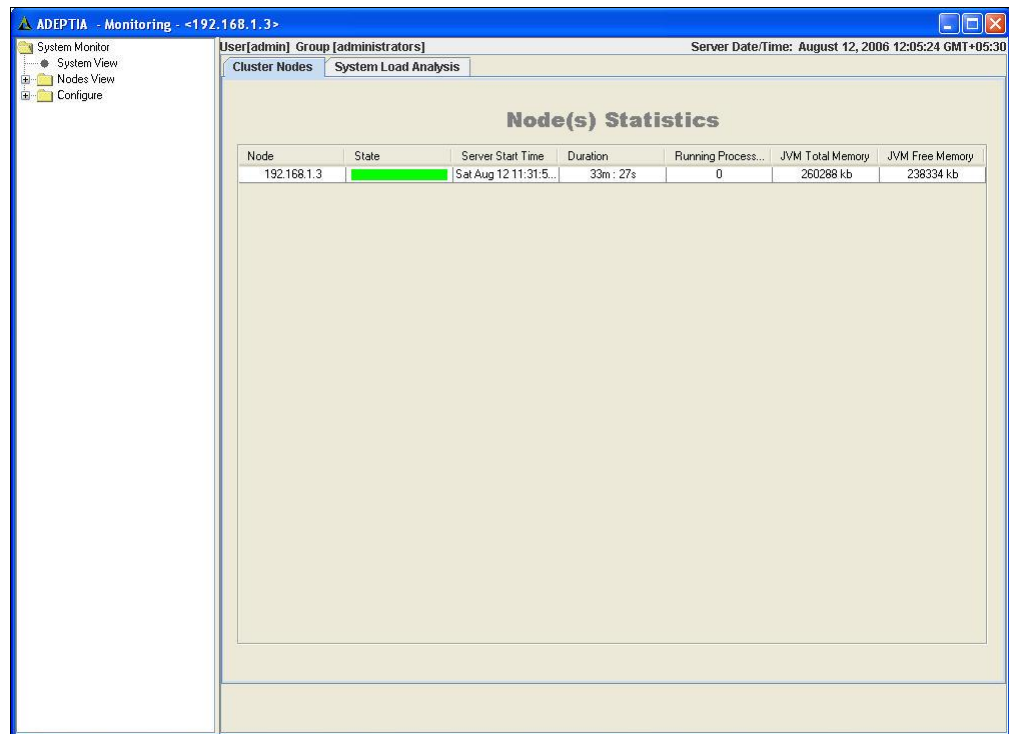


Figure 26.1: Adeptia Server Cluster Status

3. The Monitoring applet is divided into two parts. The left pane displays the list of components that can be monitored or configured. The right pane displays the details of the components selected in the left pane. The right pane is further divided into two parts. *Cluster Nodes* tab displays the Node statistics of the Adeptia Server. The *System Load Analysis* tab displays the Process Flow execution history of the Adeptia Server Cluster. The *Cluster Nodes* tab is selected by default.
4. The *Cluster Nodes* tab displays a list of nodes of the cluster (refer to Figure 26.1). There are various cluster nodes listed under the Cluster Nodes tab. These are listed in the table below.

Table 26.1: Node Statistics

Node	Name of each Node
Node	Name of the Node
State	State of the Node whether Active, Inactive or running as Primary Node i.e. Server
Server Start Time	Starting time of Adeptia Server Kernel on the selected Node
Duration	Time elapsed since the Adeptia Server Kernel has started
Running Processes	Number of process flows that are currently in running state
JVM Total Memory	Memory allocated to Adeptia Server Kernel
JVM Free Memory	Available memory of Adeptia Server Kernel

5. Click the **System Load Analysis** tab. This displays the Process Flow Execution history (see Figure 26.2).



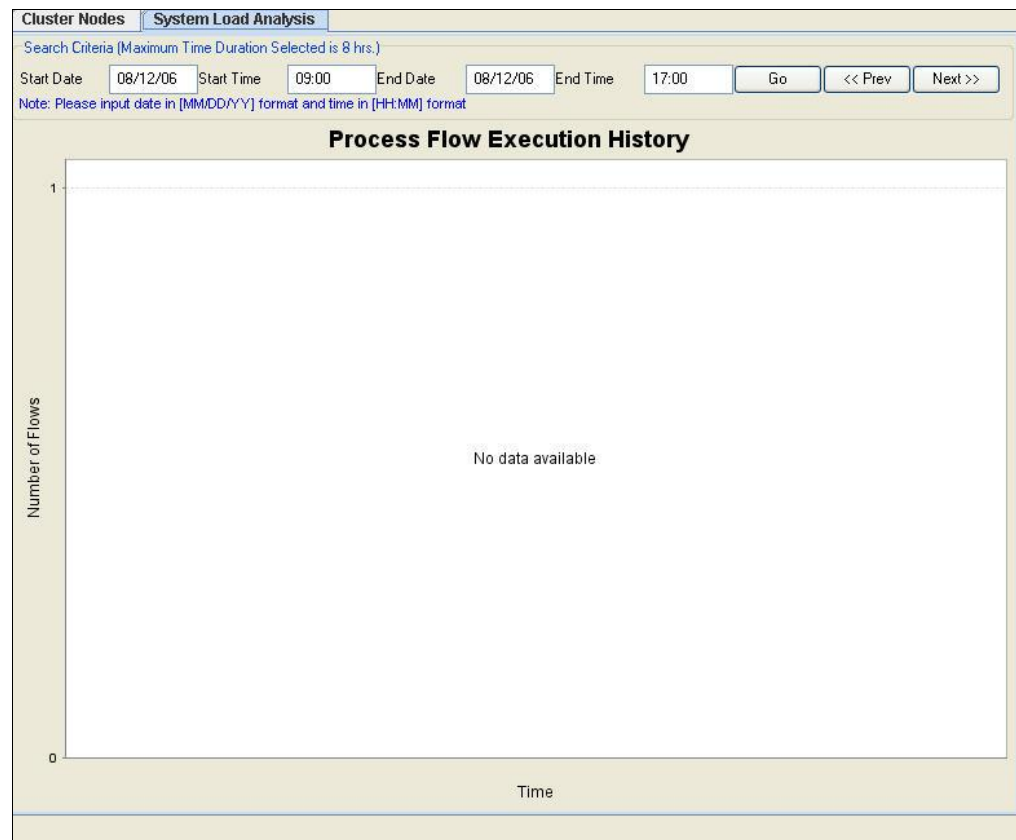


Figure 26.2: Process Flow Execution History

6. Enter the date range and the time interval for which you want view the Process Flow execution history and click **Go** button. This displays the process flow history for the specified time interval (see Figure 26.3)

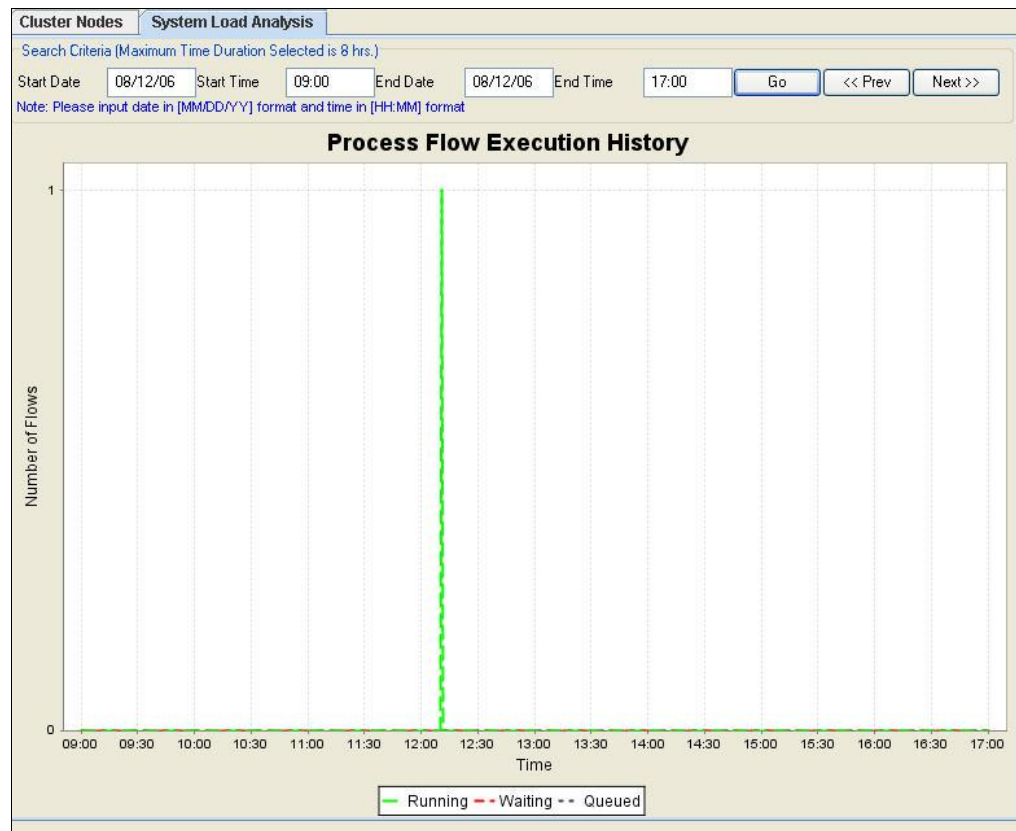


Figure 26.3: Process Flow Execution History

## MONITORING SYSTEM STATUS OF NODE

### *Steps to view all system activities of a node*

7. Click **[+] Node View** on the Node(s) Statistics screen to expand the tree and then click required node. This displays the system status of the selected node (see Figure 26.4).

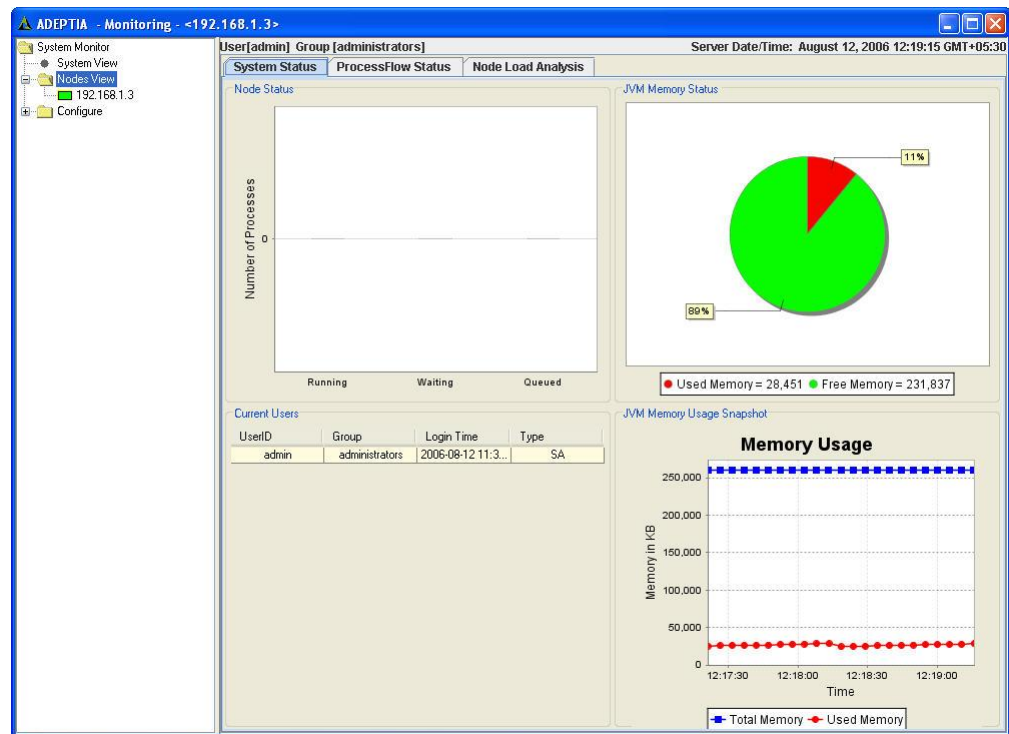


Figure 26.4: View System Status

8. This screen has three tabs: *System Status*, *Process Flow Status* and *Node Load Analysis*. By default, the *System Status* tab is selected and shows the following information:
  - **Node Status** bar chart displays the number of Process Flows that are *Running*, *Waiting* and *Queued*.
  - **Memory Status** pie chart displays the Adeptia Server kernel as *Used Memory* and *Free Memory*.
  - **Memory Usage** snapshot shows a graph of *Memory Usage* (in KB) against *Time*.
  - **Logged In Users** shows the list of users currently logged in, group to which they belong, their login time and the user type.

## MONITORING PROCESS FLOWS ON NODE

### *Steps to view status of process flows on a node*

1. Click **Process Flow Status** tab on the screen displayed in Figure 26.4. This tab displays the Process Flow Status screen (see Figure 26.5).

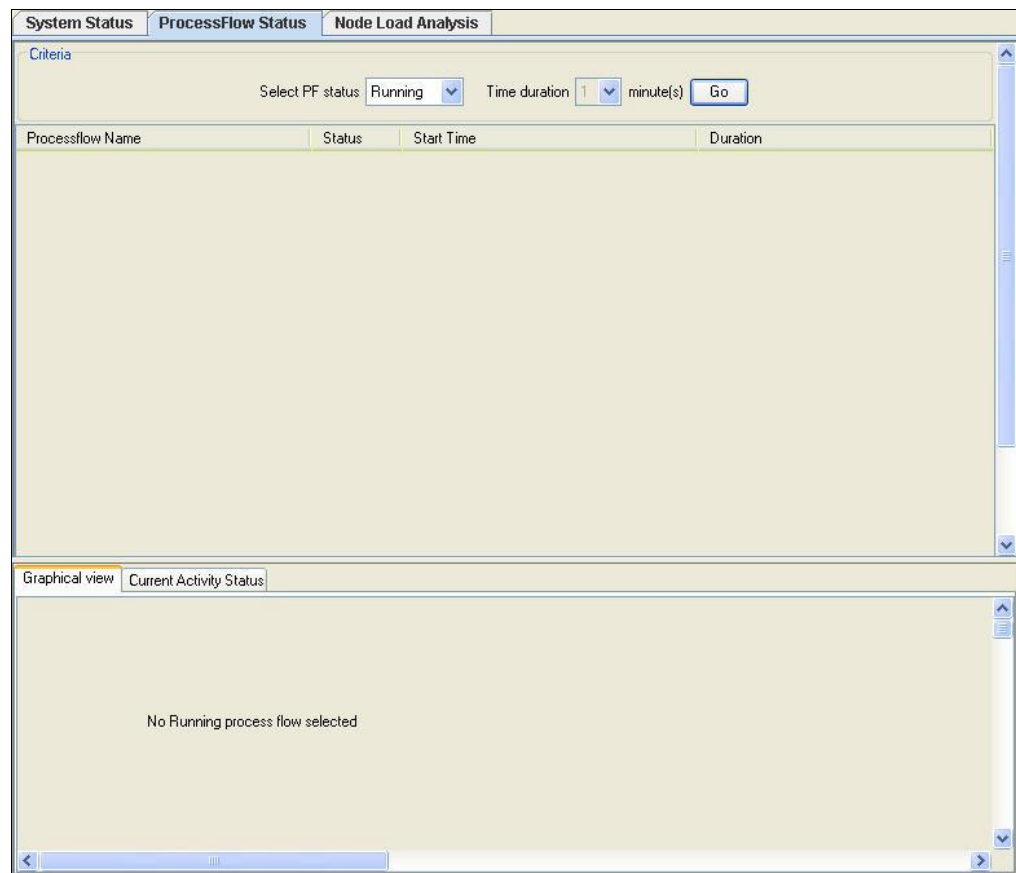


Figure 26.5: Process Flow Status

2. This screen is divided into two parts. The first part displays the statistical graph of the process flow with respect to the time elapsed. By default it shows the currently running Process Flows. It further enables you to view this graph based on specified search criteria. The second part displays details and a graphical view of the selected process flow.
3. Enter the criteria to view the statistical graph of the process flow in the first part of the screen. Select the status of the process flow that you wish to view, from the *Select PF Status* drop-down menu. By default, *Running* is selected.
4. Select the time duration elapsed (in minutes) for which you wish to view the statistical graph, from the *Time Duration* drop-down menu. By default, 1 is selected. This time duration is considered from the time when last process flow is executed. For example, if you select 15 minutes and the last process flow is executed before half an hour from now, the process flows which are executed within 45 minutes from now, are shown.
5. Click **Go** button. This displays a list of the process flows based on the entered criteria, in a tabular format (see Figure 26.6).

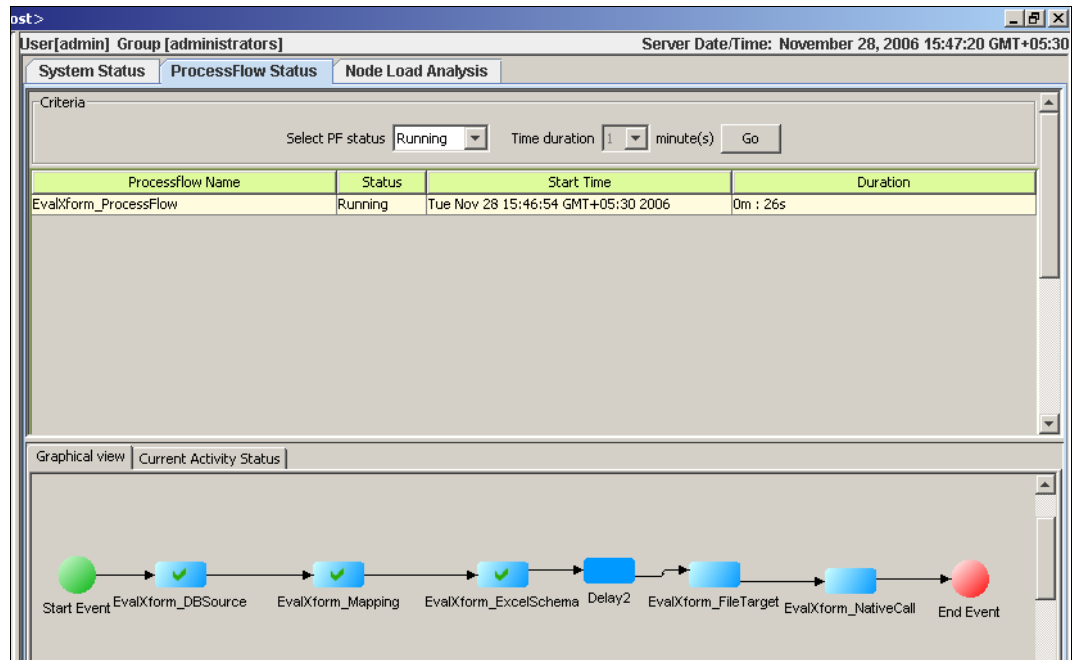



Figure 26.6: Process Flow Status

6. Click the required Process Flow, from the first part of the screen to view the details of the Process Flow. Details of the selected Process Flow are displayed in the second part of the screen. By default first process flow is selected (refer to Figure 26.6).
7. The second part of the screen has two tabs: *Graphical View* and *Current Activity Status*. By default, *Graphical View* is selected. This tab displays a graphical presentation of the selected process flow.



- The activity that is currently running on the Adeptia Server is indicated as blinking.
- If the activity has been executed successfully, then a check sign (✓) is displayed on the activity field.
- If the activity has been aborted or failed due to some reason, then a cross sign (✗) is displayed on the activity field.

8. Click the **Current Activity Status** tab (see Figure 26.7).

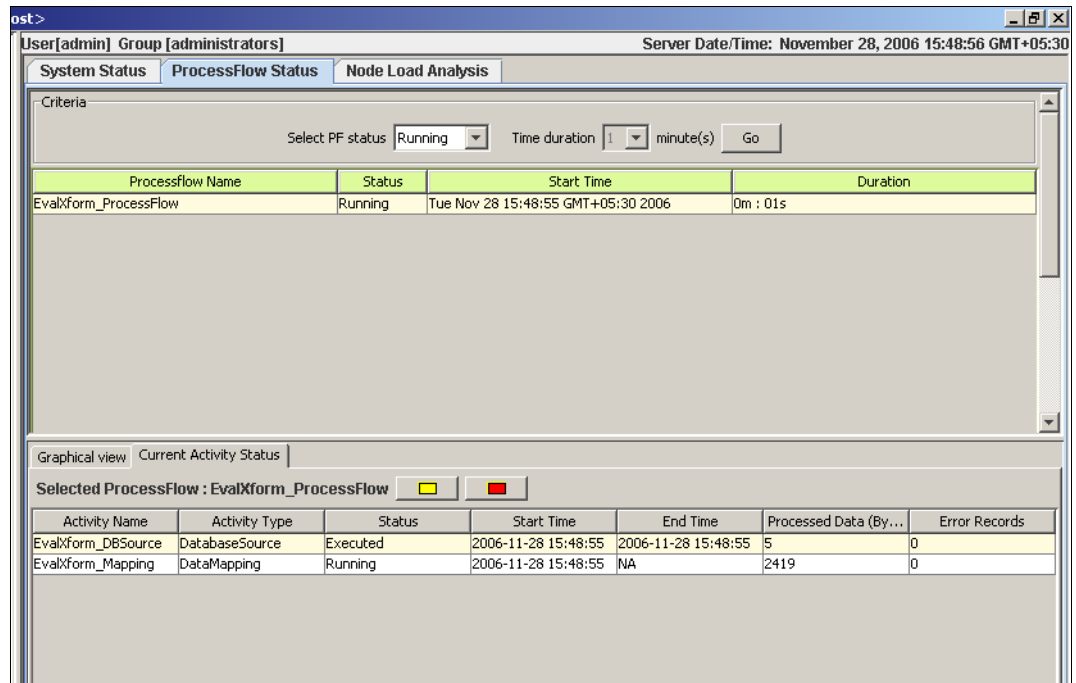




Figure 26.7: Current Activity Status

9. This screen displays the following details of all activities in the currently running process flow:
- Name of the Process Flow
  - Activity Type
  - Current status of each activity of the process flow
  - Start and end time of the execution of activity
  - Processed data
  - Number of Error records

 Processed Data shows the data of a particular activity that is processed. Processed data is shown either in bytes or as records depending on the type of activity. For example, processed data is shown in bytes for a source activity and as records for mapping activity.

10. To abort a running process flow, click  button.

11. To kill the running process flow, click  button.

 When you abort a process flow, it waits for the currently running activity to be executed and then the process flow execution is stopped.

- When you kill a process flow, it immediately stops the currently running activity and the process flow execution is stopped.

## VIEWING PROCESS FLOW EXECUTION HISTORY OF NODE

### *Steps to view Execution History of Process Flows of a node*

1. Click **Node Load Analysis** tab on the screen displayed in Figure 26.4. This displays the Process Flow Execution History screen (see Figure 26.8).

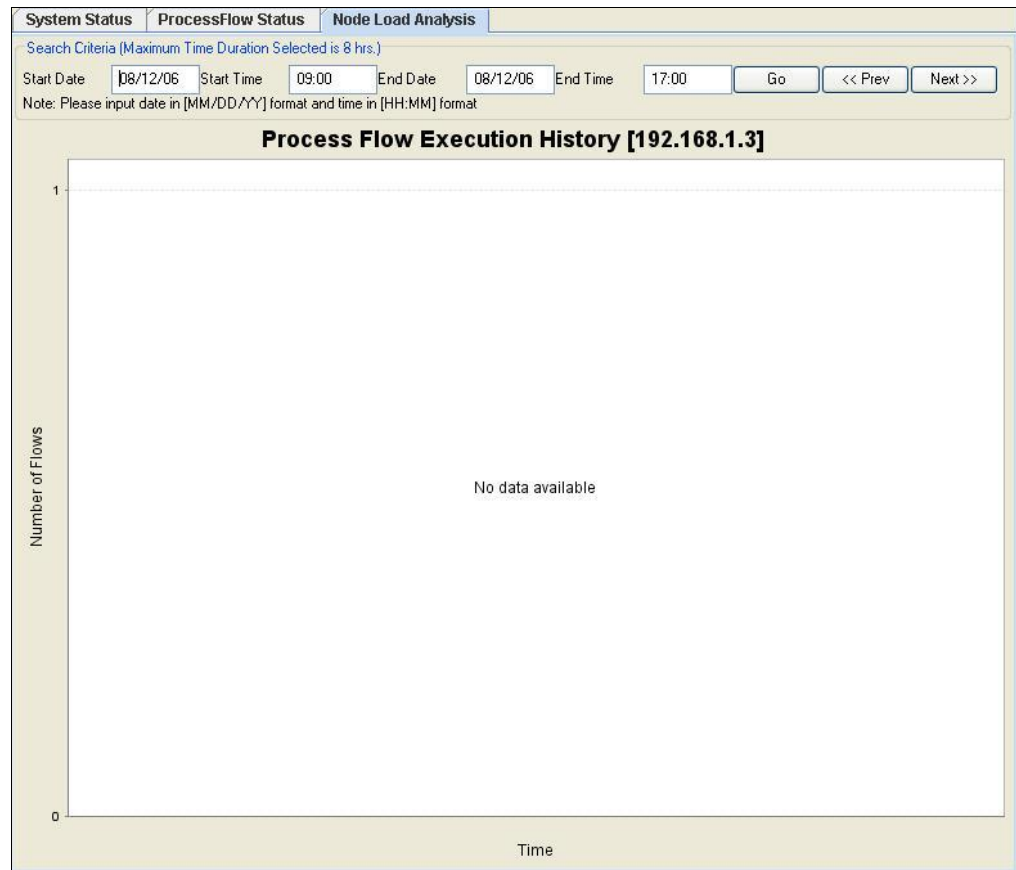


Figure 26.8: Node Load Analysis

2. Enter the time interval for which you want view the Process Flow execution history and click **Go** button. This displays the process Flow History for the specified time interval (see Figure 26.9).

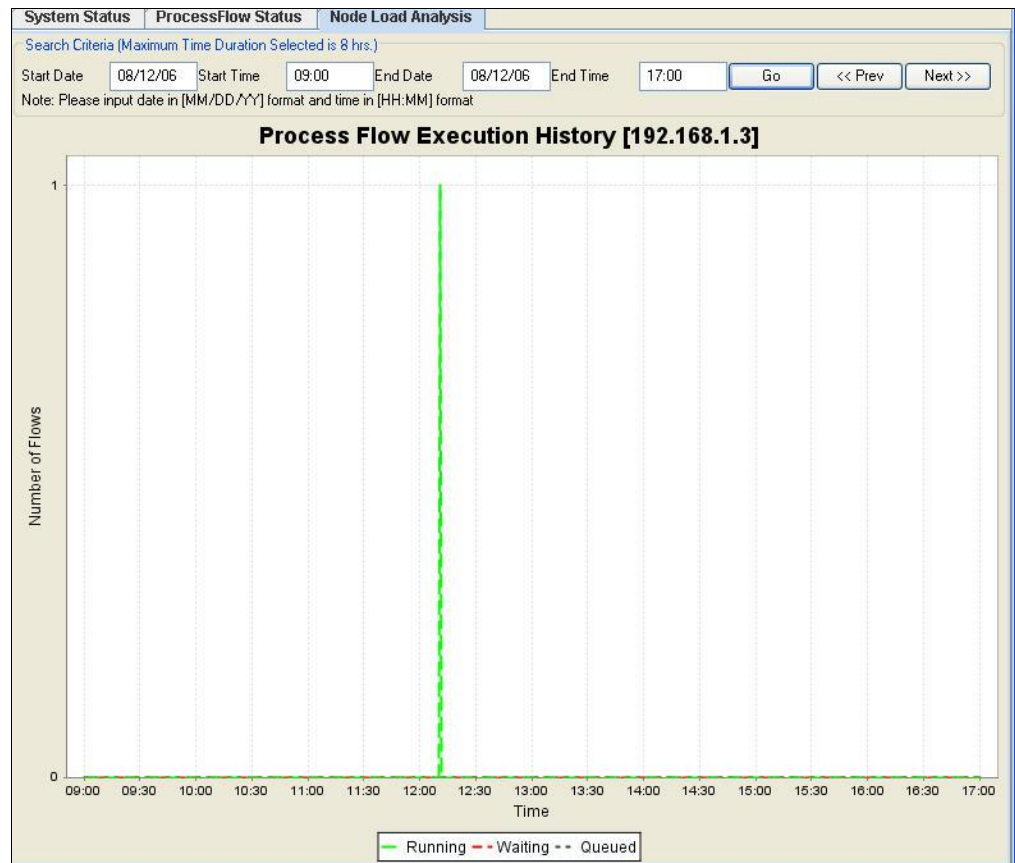



Figure 26.9: Process Flow Execution History

3. This screen displays a statistical view of all process flows that are *running*, *waiting* or *queued* at various time intervals on the selected node.

 Process Flows are identified based on their status color.

## CONFIGURING MONITORING PROPERTIES

### Steps to configure monitoring related properties

1. Click **[+] Configure** on the Node(s) Statistics screen to expand the tree and then click **Properties**. This displays the Configure Properties screen (see Figure 26.10).



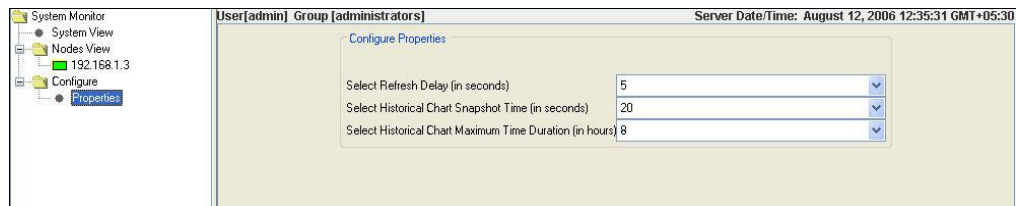


Figure 26.10: Configure Monitoring Properties

2. This screen displays options to configure following properties:
  - **Refresh Delay:** Time duration (in seconds) after which monitoring statistics are refreshed
  - **Historical Chart Snapshot Time:** Time interval (in seconds) between two successive snapshots taken to show system load in the Historical Chart. For example if this is set to 60 second (1 Minute), Historical Chart will take snapshot at every 1 minute interval (e.g. 12.00.00, 12.01.00). If a process flow starts and stops within snapshot interval, it will not be displayed in Historical chart.
  - **Historical Chart Maximum Time Duration:** Maximum time duration (in hours) for which process flow execution history can be viewed

## 27 RECOVERY

Adeptia BPM Server has a recovery feature to automatically recover process flows, which are not executed completely due to BPM Server Kernel shutdown. BPM Server kernel shutdown can occur due to following reasons:

- System is shutdown
- Adeptia Server Kernel is stopped

When Adeptia Server restarts, all incomplete process flows are recovered.

### RECOVERABLE PROCESS FLOWS

BPM Server recovers only those process flows, which are created as recoverable process flow. Process flows, which have checkpoints, are recoverable. Checkpoint is an action which can be used in a process flow during its creation. There can be any number of checkpoints in a process flow. If checkpoints are not added in the process flow, that process flow cannot be recovered. To know how to add checkpoint refer to the section [Using Actions in Process Flow](#).

### HOW RECOVERY WORKS

During execution of a process flow, at every checkpoint BPM Server stores the current state of the process flow in a recovery file. There is one recovery file for each execution of a process flow. These recovery files are stored in a recovery folder defined in the property `abpm.recovery.repository.root`. If BPM Server kernel goes down during execution of process flow, recovery file will have the state of the process flow till the last checkpoint. If no checkpoint is reached, no recovery file is created and the process flow can never be recovered after failure. In the recovery file only state of the process flow is saved. Intermediate data of the process flows are stored in the repository folder. Once system is restarted and if recovery is enabled, BPM Server looks for the state of the uncompleted process flow in the recovery file, picks up the intermediate data from the repository file and resumes the process flow.

The recovery file, remains in the recovery folder unless the process flow execution is completed. The recovery of process flows cannot be completed if intermediate data are not available in repository folder. Intermediate data gets deleted automatically by Data Cleanup or user can delete it manually to free disk space. To know more about data cleanup, refer to the section [Data Cleanup](#).

Even if recovery is not enabled, the recovery files created during execution of the process flows are stored in the recovery folder. But in this case recovery of the uncompleted process flows are not done. Later on if you want to recover those process flows, you need to enable recovery and restart the kernel. After Kernel is restarted, the uncompleted process flows are recovered.

## ENABLING RECOVERY

By default recovery is disabled. To enable the recovery, change the value of the property *abpm.transaction.recovery.enable* from no to yes. To know how to change the property, refer to the section [Updating BPM Server Properties](#).

If Queue Processor is enabled, Queue Processor does the recovery. The property *abpm.transaction.recovery.enable* will not have any effect on recovery process. Queue processor tracks all the jobs (request for execution of process flows). If jobs are not completed in previous run, then queue processor will recover them automatically. To know more about Queue Processor, refer to the section [Load Management](#).

## CONFIGURING RECOVERY FOLDER IN CLUSTERING

If BPM Server is running in cluster mode, it is must to keep a common recovery folder for all nodes (servers) of the cluster. For example if there are three nodes in a cluster namely *Server\_A*, *Server\_B* and *Server\_C*. You can share a folder on one of the nodes. For example you can make a share folder Recovery on *Server\_A*. In the *abpm.recovery.repository.root* property of the other two nodes (i.e. *Server\_B* and *Server\_C*), enter the value *//server\_A/Recovery*. In the *abpm.recovery.repository.root* property of *Server\_A*, enter the absolute path of Recovery folder. Now recovery information of all three nodes of the cluster is stored into a single folder.

## 28 LOAD MANAGEMENT

Load Management is an advanced feature of Adeptia BPM Server. BPM Server uses Queue Processor to manage the load. Queue Processor is used to limit the number of process flows executing simultaneously to improve the performance of the system. It also helps in minimizing process flow execution failures due to lack of system resources such as CPU and Memory. All the process flows, which are to be executed, are submitted to the Queue Processor. Queue Processor allows only specified number of process flows to be executed at a time. Rest of the process flows are queued with the Queue Processor and are stored in the database.

In clustering mode, only the Queue Processor of primary node is used to fire the jobs (request for execution of process flows). If primary node goes down, any other node from the clusters becomes the primary node. So it is recommended to enable the Queue Processor on all the nodes of the cluster. The queuing of jobs (request for execution of process flows) can be done by any node in cluster mode.

### ENABLING QUEUE PROCESSOR

By default Queue Processor is disabled. To enable the Queue Processor, change the value of the property *abpm.queue.processor.enable* from no to yes. To know how to change the property, refer to the section [Updating Adeptia Server Properties](#).

After Queue Processor is enabled, you need to specify the following properties:

#### [\*\*abpm.queue.processor.concurrent.processes\*\*](#)

Concurrent Process Size is the maximum number of process flows, queue processor allows to be executed simultaneously.

#### [\*\*abpm.queue.processor.reload.factor\*\*](#)

Reload Factor specifies the threshold of number of process flows, which can be queued into Queue Processor memory. Once the number of process flows queued in to Queue Processor memory becomes less than Reload Factor, the Queue Processor looks for other process flows from database.

By Default Concurrent Processes Size is set to 50 and Reload Factor is set to 100. To change the Concurrent Processes Size and Reload Factor, refer to the section [Updating Adeptia Server Properties](#).

## 29 DATA CLEANUP

When Adeptia Server process flows are executed, process flow creates temporary files to store intermediate data called repository files. For each instance of the Process flow execution a unique repository folder is created that contains Source, intermediate XML data files and target formatted data. By default repository files are being stored in the `../AdeptiaServer-4.9/ServerKernel` folder.

These files can cause disk space problem if they are accumulated over a long period of time. To make sure Adeptia Server runs without disk space issue Adeptia Server contains Data Cleanup task that is scheduled to run at a specified time to cleanup repository files older than specified number of days. This cleans unnecessary files from server's hard disk.

By Default, Data Cleanup is scheduled to be executed at 8 P. M. daily. It deletes repository file older than 14 days.

To change data cleanup schedule you need to change the value of following properties:

`abpm.appmanagement.cleanupCronExpression`

`abpm.appmanagement.retainTime`



To know how to change the BPM Server Properties, refer to section [Updating System Properties](#).

## 30 LOG CLEANUP

BPM Server keeps application logs/errors in log files and/or database based on the logging properties. These logs are used for viewing Process flow logs and for debugging and troubleshooting.

BPM Server keeps Process flow reports in Process flow report database table. This data is used by Monitoring GUI.

These logs can cause database issues if they accumulate over a long period of time. BPM Server contains Log Cleanup task that is scheduled to run at a specified time to cleanup repository logs older than specified number of days. This cleans unnecessary logs from server's hard disk.

By Default, Data Cleanup is scheduled to be executed at 8 P. M. daily. It deletes repository file older than 14 days.

To change log cleanup schedule you need to change the value of following properties:

abpm.appmanagement.logCleanupCronExpression

abpm.appmanagement.logRetainTime



To know how to change the BPM Server Properties, refer to section [Updating System Properties](#).

## 31 APPENDIX A: ADEPTIA SERVER PROPERTIES

This appendix describes Adeptia Server Properties, their default values and other possible values. Adeptia Server properties are grouped into following categories:

- [Load Management](#)
- [Kernel Settings](#)
- [Performance Optimization](#)
- [Process Flow](#)
- [Services](#)
- [Systems](#)
- [Maintenance](#)
- [Web Server](#)
- [Applet Configuration](#)



Possible values of the properties are case sensitive. So use the exact case mentioned in the possible values of the properties.

## LOAD MANAGEMENT

### **abpm.cluster.enable**

Description	Enable Adeptia Server Clustering
Default Value	no
Possible Value	yes/no
Selection Criteria	If yes Adeptia Server clustering will be enabled. If no Adeptia Server clustering will not be enabled.

### **abpm.queue.processor.enable**

Description	Enable Adeptia Server's Queue Processor Server
Default Value	no
Possible Value	yes/no
Selection Criteria	To limit the number of process flows executing concurrently, set this attribute value to yes

### **abpm.queue.processor.concurrent.processes**

Description	Maximum number of Process Flows, Queue Processor should allow to execute
Default Value	50
Possible Value	Any Integer value
Selection Criteria	Depends upon the configuration of the server, where Adeptia Server is running

### **abpm.queue.processor.reload.factor**

Description	Reload Factor specifies the threshold of number of process flows, which can be queued into Queue Processor memory. Once the number of process flows queued in to Queue Processor memory becomes less than Reload Factor, the Queue Processor loads more queued process flows from its database into queue processor memory to execute them.
Default Value	100
Possible Value	Any number between 1 to 1000

Selection Criteria	Depends upon the configuration of the server, where Adeptia Server is running
--------------------	---

## **abpm.queue.processor.job.restartwithoutRecoveryInfo**

<b>Description</b>	<b>Specifies whether to restart the execution of incomplete Process Flow, even if recovery information for that Process Flow is not available.</b>
Default Value	no
Possible Value	Yes/no
Selection Criteria	If Yes, Queue Processor will restart the execution incomplete Process Flow right from the beginning. If no, Queue Processor will not restart the execution incomplete Process Flow.



To know more about Queue Processor, refer to the section [Load Management](#).

## **KERNEL SETTINGS**

### **abpm.node.name**

<b>Description</b>	<b>Name of machine where Adeptia Server runs</b>
Default Value	localhost
Possible Value	localhost/machine name
Selection Criteria	Use localhost only if Adeptia Server is running in a single node configuration. In clustering environment use machine name
Comments	NA

### **abpm.node.port**

<b>Description</b>	<b>Port used by Adeptia Server Kernel</b>
Default Value	21000
Possible Value	Any port number which is free i.e. no other application is using that port
Selection Criteria	
Comments	NA



### abpm.repository.address

Description	Address of the repository used by Adeptia Server
Default Value	localhost://indigo.core:service=repository
Possible Value	localhost/machine name
Selection Criteria	Use localhost only if Adeptia Server is running in a single node configuration. In clustering environment use machine name

### abpm.repository.root

Description	Directory path to store intermediate files to be created during process flow execution
Default Value	./web/ repository
Possible Value	Any valid directory path
Selection Criteria	Always a directory path
Comments	By default the repository directory is 'repository' present under the ../../AdeptiaServer-4.9/ServerKernel/ .

### abpm.kernelout.file.enable

Description	Specifies whether the output of kernel is logged in a file or not
Default Value	false
Possible Value	true/false
Selection Criteria	If you want to log the output of kernel in a file, then select true, otherwise select false.
Comments	NA

### abpm.kernelout.file.location

Description	Specifies the location, where the log file is generated
Default Value	logs\applicationlogs
Possible Value	Any absolute path or relative path from server kernel folder.
Selection Criteria	This property specifies the path, where output log file of kernel is created.
Comments	<p>This property is applicable, only when the abpm.kernelout.file.enable is set to true.</p> <p>Do not specify the file name in the value of this property. By default the file name is KernelApplication.log.</p>

### **abpm.kernelout.file.maxSize**

Description	Specifies the maximum size of the log file
Default Value	5
Possible Value	Any positive integer
Selection Criteria	NA
Comments	<p>This property specifies the maximum size of the log file. Once the log file reaches the specified maximum size, it is renamed to KernelApplication-[Date].log. Where Date specifies the current date in yyyy-MM-dd hh-mm-ss format.</p> <p>This property is applicable, only when the abpm.kernelout.file.enable is set to true.</p>

## **PERFORMANCE OPTIMIZATION**

These properties are related to tuning of Adeptia Server performance.

### **abpm.internals.tuning.io.buffer.size**

Description	Buffer size in bytes used by data stream in process flow
Default Value	16384
Possible Value	Any integer non zero, non negative integer value
Selection Criteria	It should be multiple of 1024.
Comments	Default value is 16*1024. It is tuning parameter data stream to copy from source to target.

### **abpm.internals.tuning.io.pool.enabled**

Description	IO Pool Enable and Disable Option
Default Value	no
Possible Value	yes/no
Selection Criteria	If pooling is required to pass pooled objects from source to target, in case of transformer type services, in process flow, then this parameter is set to yes. This parameter is internal to process flow.

### **abpm.internals.tuning.io.gc.limit**

Description	It defines the limit of garbage collection explicitly done by Adeptia Server. After writing these many records into a pool Adeptia Server call garbage collector to free all the records, which are already read. This property is applicable when IO Pool is enabled.
-------------	--

Default Value	75000
Possible Value	NA
Selection Criteria	There should be a positive integer value.
Comments	This limit is used internally by process flow when it has transformer type services.

### **abpm.dataMapper.dblookup.cache.limit**

Description	Number of Data Mapper Select Query and result string pair to be cached
Default Value	10000
Possible Value	Any integer
Selection Criteria	NA
Comments	Number of Data Mapper Select Query and result string pair to be cached. This limit applies on whole Adeptia Server not on individual Data Mapper applet.

## **PROCESS FLOW**

### **VALIDATION**

#### **abpm.transaction.validation.enable**

Description	To enable or disable process flow validation
Default Value	no
Possible Value	yes/no
Selection Criteria	To validate the process flow (i.e. syntax check etc.) before execution.

### **RECOVERY**

These properties are related to the recovery of the process flow, which are not completed due to system crash. Process flow is only recoverable if it has some checkpoints defined in it. On reaching each of the checkpoints, state (data, context variables) of process flow is written to a file in recovery directory. When system restarted after failure, it checks the recovery directory and find out the recoverable process flow and restart the process flow execution from the last successful checkpoint saved. The recovery information saved in the recovery folder remains there unless the process flow is recovered and completed. After the process flow is executed, this information is deleted. There is one file for each process flow. If the recovery option is set to NO the recovery information are saved but recovery is not done. If you enable the recovery property, the failed process flows are recovered.

### **abpm.transaction.recovery.enable**

Description	This property is used to enable or disable recovery of process flow after system failure
Default Value	yes
Possible Value	yes/no
Selection Criteria	NA
Comments	If queue processor is enabled then queue processor will do recovery.

### **abpm.recovery.repository.root**

Description	This is a folder, where recovery information of process flow is saved
Default Value	recovery
Possible Value	Any valid directory path
Selection Criteria	There should be valid directory path
Comments	By default the path to recovery directory is 'recovery'. This directory is present under Adeptia Server directory.

## **ARCHIVAL**

### **abpm.transaction.repository.archive.server**

Description	Specifies where to archive the process flow repository files
Default Value	default
Possible Value	Webdav/default
Selection Criteria	Select webdav if you want to archive repository files in webdav repository. If webdav is selected, repository files are archived into the default folder of the group, executor of Process Flow belongs to. Select default if want to archive repository files into a folder specified in abpm.transaction.repository.archive.path property.
Comments	NA

### **abpm.transaction.repository.archive.path**

Description	This is a folder where process flow repository files are archived
Default Value	C:/Repo
Possible Value	Any valid directory path
Selection Criteria	NA
Comments	This property is not applicable if the value of abpm.transaction.repository.archive.server property is set to webdav.

## SERVICES

### PROXY SETTINGS

#### **abpm.transportProxy**

Description	Transport Proxy Enable and Disable Option
Default Value	false
Possible Value	true/false
Selection Criteria	true - If Adeptia Server is behind the proxy server. false- If Adeptia Server is not behind the proxy server

#### **abpm.transportProxyHost**

Description	Transport Proxy Host IP Address
Default Value	192.168.1.129
Possible Value	Depends on proxy server configuration.
Selection Criteria	IP Address of the proxy server.

#### **abpm.transportProxyHttpPort**

Description	HTTP port used by proxy server
Default Value	8082
Possible Value	Depends on proxy server configuration.
Selection Criteria	HTTP port of the proxy server.

#### **abpm.transportProxyFtpPort**

Description	FTP port used by proxy server
Default Value	21
Possible Value	Depends on proxy server configuration.
Selection Criteria	FTP Port of the proxy server

### WEB SERVICE CONFIGURATION

#### **abpm.webservice.uddisearch.maxrowsreturn**

Description	This property defines Maximum Rows returned, when doing UDDI search
Default Value	50
Possible Value	Any positive integer (maximum value depends on browser used).

Selection Criteria	Maximum number of rows a browser can display smoothly
Comments	Suppose if user has given 2000 then the number of rows returned will depend upon the browser.

### **abpm.webservice.host**

Description	The machine name where web service is running
Default Value	localhost
Possible Value	localhost/machine name
Selection Criteria	Always use machine name in production environment
Comments	localhost indicates the web service is running in local machine, machine name indicates that the web service is running in remote machine.

### **abpm.webservice.port**

Description	The Web service port number i.e. on which port web service is running
Default Value	8080
Possible Value	Any value, which can be used as port for web service
Selection Criteria	It should be same as web server port
Comments	First set the web server port then use same value as web service port

### **abpm.webservice.sPort**

Description	The Web service secure port number i.e. on which secure port web service is running
Default Value	8443
Possible Value	Any value, which can be used as secure port for web server
Selection Criteria	It should be same as web server secure port (Https port)
Comments	

### **abpm.webservice.wsdlDeployPath**

Description	Web service wsdlDeployPath
Default Value	wsdl
Possible Value	Any absolute path on the local system/ relative path from 'ServerKernel' directory location
Selection Criteria	Any directory where user want to save WSDL created for published process flow
Comments	

### **abpm.webservice.serverKeyStorePath**

Description	Key store path used by web server for web service SSL configuration
Default Value	../etc/truststore/cacerts

Possible Value	Any accessible location on local system
Selection Criteria	Depends which directory key store has been created into.
Comments	Use the default value. It has pre-created key store. In case you want to generate key store just copy that into default location. If you have pre created key store just use the absolute path of this key store as property value

## BUSINESS CALENDAR

### org.quartz.scheduler.bCalendar

Description	Specifies list of holidays of year
Default Value	NA
Possible Value	Any date in mm/dd/yyyy format
Selection Criteria	NA
Comments	These days are assumed as holidays in Adeptia Server calendar. If a process flow is scheduled to be fired on Business Days, the process will not be fired on days specified in this property.

## HUMAN WORKFLOW

### abpm.hi.polling.frequency

Description	Time interval (in seconds) a waiting process flow, checks the status of Human workflow activity listed in task manager
Default Value	30
Possible Value	Time in seconds
Selection Criteria	NA
Comments	NA

### abpm. hi.repository.type

Description	Repository type, where files, attached with Human Work Flow activity is saved during execution of Process Flow
Default Value	WebDav
Possible Value	WebDav/default
Selection Criteria	Select WebDav, if you want to save HumanWorkflow files into WebDav folder. Select default, if you want to save HumanWorkflow files into Process Flow Repository.
Comments	NA

## WEBDAV SERVER

### abpm.webdav.servername

Description	The machine name where WebDAV server is running
Default Value	localhost
Possible Value	localhost/machine name
Selection Criteria	Same as the value of abpm.node.name
Comments	If machine name is used in abpm.node.name property use machine name in this property also.

### abpm.webdav.port

Description	Port on which WebDAV server is running
Default Value	8080
Possible Value	Any value, which can be used as port for WebDAV server
Selection Criteria	It should be same as web server port
Comments	First set the web server port then use same value as web service port

### abpm.webdav.dirbaselocation

Description	Folder which is used a base location for WebDAV repository
Default Value	/slides/files
Possible Value	Any valid directory (absolute or relative)
Selection Criteria	NA
Comments	NA

## REPORTS LIBRARY

### abpm.reporting.repository

Description	Folder where jasper files are stored
Default Value	../etc/reportlibrary
Possible Value	Path of any valid folder
Selection Criteria	NA
Comments	Adeptia Server looks for jasper file in this folder to generate custom reports



## DATABASE TARGET

### abpm.database.errorcodes

Description	This property is used to configure error code returned by database server to abort the process flow.
Default Value	942,208
Possible Value	NA
Selection Criteria	NA
Comments	NA

## DATABASE CONNECTION

### abpm.database.connectionWaitTime

Description	This property is used to configure the time (in seconds) that the driver will wait to connect to the database.
Default Value	60
Possible Value	NA
Selection Criteria	NA
Comments	NA

## SCHEMA PROPERTY

### abpm.schemashowfieldcount

Description	This property is used to configure the maximum number of fields to be displayed in Advance Positional and EDI schemas
Default Value	200
Possible Value	NA
Selection Criteria	NA
Comments	If field count exceeds 200, then no records are displayed. In such a case, Definition File option is used.

## MAIL EVENT PROPERTY

### abpm.mailEvent.processNumber

Description	This is used to set the maximum number of emails that can be processed by a mail event at a time
Default Value	0
Possible Value	Any positive integer
Selection Criteria	Should be based on the mail server that you are using
Comments	Enter the maximum number of email that can be processed at a time by mail event. By default, this value is 0 which means there is no limit to the number of mails that can be processed by a mail

	event. This property is applicable for all mail events that you have in your Adeptia Server. If want to define this number specifically on one mail event, you can define it in Advanced properties of mail event.
--	--

### **abpm.mailEvent.retry**

Description	This is used to set the number of retries when a 'MailBox in Use' error occurs
Default Value	0
Possible Value	Any positive integer
Selection Criteria	Should be based on the mail server that you are using
Comments	This specifies the number of times a mail source, mail event and mail polling activity will retry on 'Mailbox in Use' error before it aborts. By default, this value is 0, which means there are no retries.

### **abpm.mailEvent.sleepTime**

Description	This is used to set the sleep time (in milliseconds) before a retry takes place, when a 'Mailbox in Use' error occurs
Default Value	0
Possible Value	Any positive integer
Selection Criteria	Should be based on the mail server that you are using
Comments	This specifies the time interval (in milliseconds) between two retries for 'Mailbox in Use' error. By default, this value is 0, which implies that the time interval is 2 seconds. This property is applicable if the abpm.mailEvent.retry property is greater than 0.

## **SYSTEMS**

### **LOGGING**

Adeptia Server uses Log4J for logging. Log4j has three main components: loggers, appenders and layouts. These three types of components work together to log messages according to message type and level, and to control at runtime how these messages are formatted and where they are reported.

The logging level controls the type of messages that are logged. Adeptia Server supports following logging levels:

- **DEBUG:** The DEBUG Level designates fine-grained informational events that are most useful to debug an application.
- **INFO:** The INFO level designates informational messages that highlight the progress of the application at coarse-grained level.
- **ERROR:** The ERROR level designates error events that might still allow the application to continue running.

The behavior of the logger is hierarchical. This is illustrated in the figure below.

Will Output the message of level			
Logging Level	DEBUG	INFO	ERROR
	DEBUG	INFO	ERROR
	INFO	INFO	ERROR
	ERROR	ERROR	ERROR

Figure 31.1: Logging Level Behavior

DEBUG is the highest logging level and it logs messages of DEBUG, INFO and ERROR level. ERROR is the lowest logging level and it only logs message of ERROR level.

Adeptia Server supports following appenders:

- **jdbc**: It appends log to a database.
- **console**: It appends log events to system.out or system.err using layout specified by the user. The default target is system.out.
- **file** : It appends log to a file.

All the appenders are case-sensitive and must be defined in lower case.

 For more details on log4j refer to <http://logging.apache.org/log4j/docs/index.html>

## log4j.rootLogger

Description	System and Process Flow Logging Level and appenders
Default Value	INFO,console,jdbc
Possible Value	A combination of valid log level along with the Appenders
Selection Criteria	NA
Comments	For example INFO,console, jdbc: INFO indicates the logging level and console and jdbc indicate appender. The data can go to console, jdbc or file.

## Console appender

### log4j.appender.console

Description	This Log4j console Appender class
Default Value	org.apache.log4j.consoleAppender
Possible Value	Any implementation of console Appender

Selection Criteria	NA
Comments	ConsoleAppender appends log events to System.out or System.err using a layout specified by the user. The default target is System.out.

## Database appender

### log4j.appender.jdbc

<b>Description</b>	<b>This is Log4j jdbc Appender class.</b>
Default Value	org.apache.log4j.jdbcplus.jdbcAppender
Possible Value	Any implementation of jdbc Appender
Selection Criteria	NA
Comments	The JDBCAppender writes messages into a database via JDBC. Multiple configuration options and parameters are supported

### log4j.appender.jdbc.url

<b>Description</b>	<b>This is URL of the database where logs are appended</b>
Default Value	As specified during installation
Possible Value	Any valid jdbc url
Selection Criteria	NA
Comments	

### log4j.appender.jdbc.dbclass

<b>Description</b>	<b>Database driver to connect to the database specified in log4j.appender.jdbc.url</b>
Default Value	net.sourceforge.jtds.jdbc.Driver
Possible Value	This value is provided by the JDBC driver used and the default value depends on the database selected during installation
Selection Criteria	NA
Comments	

### log4j.appender.jdbc.username

<b>Description</b>	<b>Username to access the database specified in log4j.appender.jdbc.url</b>
Default Value	As specified during installation
Possible Value	NA
Selection Criteria	NA
Comments	Username specified here must have write permission to the specified database

### **log4j.appender.jdbc.password**

Description	Password of the username specified in log4j.appender.jdbc.username property
Default Value	As specified during installation
Possible Value	NA
Selection Criteria	NA
Comments	NA

## **File logging**

### **log4j.appender.file**

Description	This is Log4j Rolling File Appender class
Default Value	org.apache.log4j.RollingFileAppender
Possible Value	Any implementation of FileAppender
Selection Criteria	NA
Comments	RollingFileAppender is used to backup the log files when they reach a certain size

### **log4j.appender.file.Webrunner.file**

Description	Name and path of the file where Webrunner log is appended
Default Value	adeptia_webrunner.Log
Possible Value	Any absolute path on the local system and the file name or Relative path from 'ServerKernel' directory and the file name
Selection Criteria	Any location where you want to save the Webrunner log.
Comments	

### **log4j.appender.file.Kernel.file**

Description	Name and path of the file where Kernel log is appended
Default Value	adeptia_kernel.Log
Possible Value	Any absolute path on the local system and the file name or Relative path from 'ServerKernel' directory and the file name
Selection Criteria	Any location where you want to save the kernel log.
Comments	

### **log4j.appender.file. MaxBackupIndex**

Description	Number of backup log file
Default Value	10

Possible Value	Any positive integer
Selection Criteria	NA
Comments	

### **log4j.appender.file. MaxFileSize**

Description	Maximum size of the log file
Default Value	1 MB
Possible Value	Size of file in MB
Selection Criteria	NA
Comments	After the log file reaches this size another log file is created.

## **SECURITY**

### **abpm.security.secretkeystorename**

Description	Adeptia Server Secretkeystorename
Default Value	SecretKeys.Keystore
Possible Value	Any valid JCEKS Keystore
Selection Criteria	SecretKeys.Keystore is a protected database that holds keys which are generated when user creates Secret Key entity. These keys are used by Encryption, Decryption activity and Schema services. Access to a keystore is guarded by a password defined in the abpm.security.secretkeypassword.encrypt property. This password is not changeable. In addition, each private key in a keystore can be guarded by its own password.

### **abpm.security.repository**

Description	Folder where secret keys and keystore are stored
Default Value	etc/security
Possible Value	Any valid directory path
Selection Criteria	NA
Comments	This property represents the folder path where security related folders are stored viz. Keystore, secret keys etc.

### **Expiry days**

Description	Number of days after which the password expires
Default Value	0
Possible Value	
Selection Criteria	NA


Comments	This property represents the number of days after which the password expires. If it has a value of 0, then the password does not expire.
----------	--

### Expiry message flash

Description	Number of days before the password expiry for prompting expiry warning
Default Value	5
Possible Value	
Selection Criteria	NA
Comments	This property represents the number of days before the password expiry, the expiry warning is to be displayed. This warning is displayed at login.

### Comments

Description	Add comments before saving or editing an activity.
Default Value	No
Possible Value	Yes
Selection Criteria	NA
Comments	This property represents the comment that is added after an activity is saved or edited. You can enter the reason for the add or edit action.

	If you enable/disable comments property in the middle of a process flow or a mapping activity, you need to restart the respective applet.
---	---

## AUTHENTICATION AND AUTHORIZATION

### java.security.auth.login.config

Description	This is a file where the JVM looks for security JAAS configuration
Default Value	etc/jaas.config
Possible Value	Any file containing the login module configurations
Selection Criteria	Valid login modules
Comments	This Configuration specifies which Login Modules should be used for Adeptia Server application, and in what order the Login Modules should be invoked

## MAIL SERVER PARAMETER

These properties are used when any mail notification generated by Adeptia Server is send. Adeptia Server generates mail notifications when:

- You click on the Forgot Password link in the login page
- Any Mail Notification activity is executed

## MailProtocol

Description	Specifies the protocol used by outgoing mail server
Default Value	smtp
Possible Value	Smtp/mapi
Selection Criteria	Select smtp if the outgoing mail server is using SMTP protocol. Select mapi if outgoing mail is using MAPI protocol. For Example Exchange Server

## mailServer

Description	IP address or host name of Outgoing (SMTP) mail server
Default Value	Whatever value is given during Adeptia Server installation
Possible Value	NA
Selection Criteria	This property is applicable only when the mailProtocol is smtp

## Domian

Description	Specifies the domain name
Default Value	Adeptia
Possible Value	NA
Selection Criteria	Enter the domain name, on which the Exchange server is running. This property is applicable, only when mailProtocol is mapi.

## CDOHostName

Description	Name of the CDOHost machine
Default Value	CDOHOSTMachine
Possible Value	NA
Selection Criteria	CDOHOST allows Adeptia Server to communicate with Exchange server.

## systemAdminEmailId

Description	Email Address of the person who is responsible for the administration of the Adeptia Server
Default Value	Whatever value is given during Adeptia Server installation



Possible Value	NA
Selection Criteria	NA

### mailServerUserId

Description	User ID used to access the mailbox of the Adeptia Server administrator
Default Value	Whatever value is given during Adeptia Server installation
Possible Value	NA
Selection Criteria	NA

### mailServerPassword

Description	Adeptia Server administrator mail server password.
Default Value	Whatever value is given during Adeptia Server installation
Possible Value	NA
Selection Criteria	NA

### mailsubject

Description	Subject of the mail to be sent.
Default Value	
Possible Value	Subject string with which mail notification will be send
Selection Criteria	Any string which user can identify

### sslEnabled

Description	Specifies Whether mail server is ssl enabled or not
Default Value	no
Possible Value	yes/no
Selection Criteria	Select yes if the specified mail server requires a secure connection. Select no if the specified mail server doesn't require a secure connection.

### port

Description	Port of the outgoing mail server
Default Value	25
Possible Value	NA
Selection Criteria	NA

### New password to be Sent

Description	Specifies whether you want to send the new password, whenever user's password is changed
Default Value	Yes
Possible Value	Yes/no

Selection Criteria	<p>Select yes if you want the new password to be sent in the notification mail, whenever a user password is changed.</p> <p>Select no if you want the notification mail to be sent without new password.</p>
--------------------	--

## MAINTENANCE

### DATA CLEANUP PROPERTIES

#### abpm.appmanagement.cleanupCronExpression

Description	Cron Expression to schedule data cleanup time
Default Value	0 0 20 * * ?
Possible Value	Any valid Cron Expression
Selection Criteria	When and how often user wants intermediate data to be cleaned up. By default it is set to 8 P.M. daily.
Comments	To know more about Cron expression, refer to <a href="http://www.opensymphony.com/quartz">http://www.opensymphony.com/quartz</a> . Also look into quartz scheduler document

#### abpm.appmanagement.retainTime

Description	Intermediate file retain Time (in days)
Default Value	14
Possible Value	Any positive integer
Selection Criteria	Based on how old (days) data, user wants to retain in case Data Clean up is called. By default two days old data is retained.
Comments	Value given is in days. For example- default value 14 days

### LOG CLEANUP PROPERTIES

#### abpm.appmanagement.logCleanupCronExpression

Description	Cron Expression to schedule log cleanup time
Default Value	0 0 20 * * ?
Possible Value	Any valid Cron Expression
Selection Criteria	When and how often user wants log data to be cleaned up
Comments	To know more about Cron expression, refer to <a href="http://www.opensymphony.com/quartz">http://www.opensymphony.com/quartz</a> . Also look into quartz scheduler document

#### abpm.appmanagement.logRetainTime

Description	Log Cleanup Retain Time.
Default Value	14

Possible Value	Any positive integer
Selection Criteria	Based on how old (days) data user wants to retain in case clean up is called. By default two days old data is retained.
Comments	Value given is in days. For example- default value 14 days

## WEB SERVER

### abpm.webserver.address

Description	The machine name where web Server is running
Default Value	localhost
Possible Value	localhost/machine name
Selection Criteria	Always use machine name in production environment
Comments	localhost indicates the web server is running in local machine, machine name indicates that the web service is running in remote machine.

### abpm.webserver.public.address

Description	The public IP address used to access the BPM Server behind a firewall
Default Value	
Possible Value	
Selection Criteria	
Comments	Enter the public IP address that allows you to access the BPM Server behind a firewall.

### abpm.webserver.https.port

Description	The Web server secure port number i.e. on which secure port web server is running.
Default Value	8443
Possible Value	Any value, which can be used as secure port for web server
Selection Criteria	The port specified here must not be used any other application
Comments	

### **abpm.transactionmonitor.ActivityStatusRefreshTime**

Description	Time interval (in seconds) at which status of activity in monitoring applet refreshes
Default Value	10
Possible Value	Time in seconds
Selection Criteria	NA
Comments	NA

### **SessionTimeout**

Description	Maximum time (in minutes) for which user can remain logged in Adeptia Server in idle state
Default Value	1440
Possible Value	Time in minute
Selection Criteria	NA
Comments	For unlimited duration enter negative value.

### **abpm.webrunnerout.file.enable**

Description	Specifies whether the output of WebRunner is logged in a file or not
Default Value	false
Possible Value	true/false
Selection Criteria	If you want to log the output of WebRunner in a file, then select true, otherwise select false.
Comments	NA

### **abpm.webrunnerout.file.location**

Description	Specifies the location, where the log file is generated
Default Value	logs\applicationlogs
Possible Value	Any absolute path or relative path from server kernel folder.
Selection Criteria	This property specifies the path, where output log file of webrunner is created.
Comments	<p>This property is applicable, only when the abpm.webrunnerout.file.enable is set to true.</p> <p>Do not specify the file name in the value of this property. By default the file name is WebRunnerApplication.log.</p>

### **abpm.webrunnerout.file.maxSize**

Description	Specifies the maximum size of the log file
Default Value	5
Possible Value	Any positive integer
Selection Criteria	NA
Comments	<p>This property specifies the maximum size of the log file. Once the log file reaches the specified maximum size, it is renamed to WebrunnerApplication-[Date].log. Where Date specifies the current date in yyyy-MM-dd hh-mm-ss format.</p> <p>This property is applicable, only when the abpmwebrunnerout.file.enable is set to true.</p>

## **APPLET CONFIGURATION**

### **DATA MAPPER**

#### **abpm.dataMapper.minHeapsize**

Description	The minimum memory required for the data Mapper applet
Default Value	128M
Possible Value	
Selection Criteria	NA
Comments	This indicates the minimum amount of memory required to run the Data Mapper applet.

#### **abpm.dataMapper.maxHeapsize**

Description	The maximum memory possible for the data Mapper applet
Default Value	256M
Possible Value	
Selection Criteria	NA
Comments	This indicates the maximum amount of memory required to run the Data Mapper applet.

## **MONITORING**

#### **abpm.monitoring.minHeapsize**

Description	The minimum memory required for the Monitoring applet
Default Value	128M

Possible Value	
Selection Criteria	NA
Comments	This indicates the minimum amount of memory required to run the Monitoring applet.

### **abpm.Monitoring.maxHeapsize**

Description	The maximum memory possible for the Monitoring applet
Default Value	256M
Possible Value	
Selection Criteria	NA
Comments	This indicates the maximum amount of memory required to run the Monitoring applet.

## **PROCESS DESIGNER**

### **abpm.Process Designer.minHeapsize**

Description	The minimum memory required for the Process Designer applet
Default Value	128M
Possible Value	
Selection Criteria	NA
Comments	This indicates the minimum amount of memory required to run the Process Designer applet.

### **abpm.Process Designer.maxHeapsize**

Description	The maximum memory possible for the Process Designer applet
Default Value	256M
Possible Value	
Selection Criteria	NA
Comments	This indicates the maximum amount of memory required to run the Process Designer applet.

Comments	<p>This property specifies the maximum size of the log file. Once the log file reaches the specified maximum size, it is renamed to WebrunnerApplication-[Date].log. Where Date specifies the current date in yyyy-MM-dd hh-mm-ss format.</p> <p>This property is applicable, only when the abpmwebrunnerout.file.enable is set to true.</p>
----------	--

--	--

## SOLUTION PROPERTIES

### SALESFORCE PARAMETERS

### INTEGRATION

### ACCELERATOR

#### **abpm.Salesforce.UserId**

Description	The UserId to access the Salesforce Accelerator solution
Default Value	
Possible Value	
Selection Criteria	
Comments	Enter the UserId to login into the Salesforce Accelerator solution.

#### **abpm.Salesforce.Password**

Description	The password used to access the Salesforce Accelerator solution
Default Value	
Possible Value	
Selection Criteria	
Comments	Enter the password to login into the Salesforce Accelerator solution.

## 32 APPENDIX B: CRON EXPRESSION

A "Cron-Expression" is a string comprised of 6 or 7 fields separated by white space. The 6 mandatory and 1 optional fields are as follows:

Field Names	Allowed Values	Allowed special Character
Seconds	0-59	, - * /
Minutes	0-59	, - * /
Hours	0-23	, - * /
Day-of-month	1-31	, - * ? / L W C
Month	1-12 or JAN-DEC	, - * /
Day-of-Week	1-7 or SUN-SAT	, - * ? / L C #
Year (Optional)	empty, 1970-2099	, - * /

- The '\*' character is used to specify all values. For example, "\*" in the minute field means "every minute".
- The '?' character is allowed for the day-of-month and day-of-week fields. It is used to specify 'no specific value'. This is useful when you need to specify something in one of the two fields, but not the other. See the examples below for clarification.
- The '-' character is used to specify ranges. For example "10-12" in the hour field means "the hours 10, 11 and 12".
- The ',' character is used to specify additional values. For example "MON,WED,FRI" in the day-of-week field means "the days Monday, Wednesday, and Friday".
- The '/' character is used to specify increments. For example "0/15" in the seconds field means "the seconds 0, 15, 30, and 45". And "5/15" in the seconds field means "the seconds 5, 20, 35, and 50". You can also specify '/' after the '\*' character - in this case '\*' is equivalent to having '0' before the '/'.
- The 'L' character is allowed for the day-of-month and day-of-week fields. This character is shorthand for "last", but it has different meaning in each of the two fields. For example, the value "L" in the day-of-month field means "the last day of the month" - day 31 for January, day 28 for February on non-leap years. If used in the day-of-week field by itself, it simply means "7" or "SAT". But if used in the day-of-week field after another value, it means "the last xxx day of the



month" - for example "6L" means "the last Friday of the month". When using the 'L' option, it is important not to specify lists, or ranges of values, as you'll get confusing results.

- The 'W' character is allowed for the day-of-month field. This character is used to specify the weekday (Monday-Friday) nearest the given day. As an example, if you were to specify "15W" as the value for the day-of-month field, the meaning is: "the nearest weekday to the 15th of the month". So if the 15th is a Saturday, the trigger will fire on Friday the 14th. If the 15th is a Sunday, the trigger will fire on Monday the 16th. If the 15th is a Tuesday, then it will fire on Tuesday the 15th. However if you specify "1W" as the value for day-of-month, and the 1st is a Saturday, the trigger will fire on Monday the 3rd, as it will not 'jump' over the boundary of a month's days. The 'W' character can only be specified when the day-of-month is a single day, not a range or list of days.
- The 'L' and 'W' characters can also be combined for the day-of-month expression to yield 'LW', which translates to "last weekday of the month".
- The '#' character is allowed for the day-of-week field. This character is used to specify "the nth" XXX day of the month. For example, the value of "6#3" in the day-of-week field means the third Friday of the month (day 6 = Friday and "#3" = the 3rd one in the month). Other examples: "2#1" = the first Monday of the month and "4#5" = the fifth Wednesday of the month. Note that if you specify "#5" and there is not 5 of the given day-of-week in the month, then no firing will occur that month.
- The 'C' character is allowed for the day-of-month and day-of-week fields. This character is shorthand for "calendar". This means values are calculated against the associated calendar, if any. If no calendar is associated, then it is equivalent to having an all-inclusive calendar. A value of "5C" in the day-of-month field means "the first day included by the calendar on or after the 5th". A value of "1C" in the day-of-week field means "the first day included by the calendar on or after Sunday".
- The legal characters and the names of months and days of the week are not case sensitive.

Here are some full examples:

Expression	Meaning
0 0 12 * * ?	12pm (noon) every day
0 15 10 ? * *	10:15am every day
0 15 10 * * ?	10:15am every day
0 15 10 * * ? *	10:15am every day
0 15 10 * * ? 2005	10:15am every day during the year 2005
0 * 14 * * ?	Every minute starting at 2pm and ending at 2:59pm, every day
0 0/5 14 * * ?	Every 5 minutes starting at 2pm and ending at 2:55pm, every day
0 0/5 14,18 * * ?	Every 5 minutes starting at 2pm and ending at 2:55pm, AND fire every 5 minutes starting at 6pm and ending at 6:55pm, every day
0 0-5 14 * * ?	Every minute starting at 2pm and ending at 2:05pm, every day
0 10,44 14 ? 3 WED	2:10pm and at 2:44pm every Wednesday in the month of March.
0 15 10 ? * MON-FRI	10:15am every Monday, Tuesday, Wednesday, Thursday and Friday
0 15 10 15 * ?	10:15am on the 15th day of every month
0 15 10 L * ?	10:15am on the last day of every month
0 15 10 ? * 6L	10:15am on the last Friday of every month
0 15 10 ? * 6L 2002-2005	10:15am on every last friday of every month during the years 2002, 2003, 2004 and 2005
0 15 10 ? * 6#3	10:15am on the third Friday of every month

Pay attention to the effects of '?' and '\*' in the day-of-week and day-of-month fields!

## 33 ABOUT ADEPTIA INC.

Adeptia, an enterprise software company headquartered in Chicago, Illinois, provides business process integration technology to easily and quickly automate business processes using industry-specific standards. Adeptia's unique product combines business process management with business-to-business integration. Adeptia's reusable and highly scalable technology has been deployed by Fortune 1000 companies. For more information, visit <http://www.adeptia.com>.

### **Adeptia Headquarters**

443 North Clark St, Suite 350  
Chicago, IL 60610  
USA  
Phone: (312) 229-1727  
Email: [info@adeptia.com](mailto:info@adeptia.com)

### **Adeptia India R&D Centre**

D-74, Sector 63,  
Noida, U.P. - 201301  
India  
Phone: +91-120-4274022-28

## 34 TABLE OF FIGURES

Figure 1.1: N-Tier Application Architecture .....	17
Figure 1.2: Modular Design.....	18
Figure 1.3: Deployment Model .....	20
Figure 2.1: Starting Adeptia Server Kernel .....	28
Figure 2.2: Starting Adeptia Server WebRunner .....	29
Figure 2.3: Adeptia Server Login screen.....	30
Figure 2.4: Adeptia Server Select Group screen .....	31
Figure 2.5: Adeptia Server Home Page.....	33
Figure 2.6: Task Manager.....	35
Figure 2.7: Comments screen .....	36
Figure 2.8: Staffs Task Manager.....	37
Figure 2.9: Process Flows tab .....	38
Figure 2.10: Change Password.....	38
Figure 3.1: Process Designer Applet .....	43
Figure 3.2: Adeptia Simulation Tool.....	49
Figure 3.3: View Process Flow XML.....	50
Figure 3.4: Preferences .....	50
Figure 3.5: Manage Process Flow .....	53
Figure 3.6: Create Process Flow .....	53
Figure 3.7: Process Designer .....	55
Figure 3.8: Select BPMN Activities .....	55
Figure 3.9: Dragging BPMN Activity into Graph Canvas .....	56
Figure 3.10: Right-Clicking an Activity .....	56
Figure 3.11: Displaying Name of Activity .....	57
Figure 3.12: Selecting Gateway Element.....	57
Figure 3.13: Dragging BPMN Gateway into Graph Canvas.....	58
Figure 3.14: Selecting Control Flow .....	58
Figure 3.15: Connecting BPMN Elements.....	58
Figure 3.16: Connecting BPMN Elements.....	59
Figure 3.17: Selecting Adeptia Server Activity.....	59
Figure 3.18: Selecting Adeptia Server Activity.....	60
Figure 3.19: Attaching Adeptia Server activity .....	60
Figure 3.20: Adeptia Server activity name in BPMN element.....	61
Figure 3.21: Attaching Adeptia Server activity .....	61
Figure 3.22: Edit Activity Properties.....	61
Figure 3.23: Enter Comments (Process Flow).....	62
Figure 3.24: Save Process Flow.....	63
Figure 3.25: Changing Transformer Type .....	64
Figure 3.26: Edit Process Flow .....	65
Figure 3.27: Test Process Flow.....	66
Figure 3.28: Sample XML .....	66
Figure 3.29: Select XML File .....	67
Figure 3.30: View Process Flow Log .....	67
Figure 3.31: Validation.....	68
Figure 3.32: Changing Preferences.....	69

Figure 3.33: Disable Validation .....	70
Figure 3.34: Multiple Selections .....	71
Figure 3.35: List of Actions in Adeptia Server.....	77
Figure 3.36: Dragging Action to Graph Canvas.....	77
Figure 3.37: Action's Properties .....	77
Figure 3.38: Process Flow Variable Panel.....	78
Figure 3.39: Create Process Flow Variable .....	78
Figure 3.40: Drag Put-Context-Var action in Graph Canvas.....	79
Figure 3.41: Properties of Put-Context-Var action.....	79
Figure 3.42: Edit Context Variables .....	80
Figure 3.43: Context Variable Information.....	81
Figure 3.44: Context Variable Added .....	82
Figure 3.45: Drag Context Source .....	83
Figure 3.46: Properties of Context Source .....	84
Figure 3.47: Connect Put-Context-Var to activity.....	86
Figure 3.48: Properties of Put-Context-Var .....	86
Figure 3.49: Usage Scenario.....	87
Figure 3.50: Overriding an Activity using Custom Plugin.....	88
Figure 3.51: Sample Java Code used to Override a Schema Activity .....	88
Figure 3.52: Sample Java Code used to Override Activities.....	88
Figure 3.53: Connect Put-Context-Var to activity.....	89
Figure 3.54: Properties of Put-Context-Var .....	89
Figure 3.55: Context Variable Details for Overriding an Activity.....	90
Figure 3.56: Connect put-context-var to Human Workflow task.....	94
Figure 3.57: Context Variable Details for Overriding email subject.....	94
Figure 3.58: Context Variable Details for Overriding email subject.....	95
Figure 3.59: Using Record Queue Processor.....	96
Figure 3.60: Properties of RecordQueueProducer.....	98
Figure 3.61: Properties of RecordQueueReceiver .....	99
Figure 3.62: Drag Gateway Element to Graph Canvas Area .....	101
Figure 3.63: Connecting Elements .....	101
Figure 3.64: Change Gateway Element Properties .....	102
Figure 3.65: Condition Wizard.....	102
Figure 3.66: Select Process Flow Condition Type .....	102
Figure 3.67: Activity Attributes Condition .....	103
Figure 3.68: Other Condition Process Details .....	104
Figure 3.69: Enter Java Condition.....	106
Figure 3.70: Condition Wizard.....	108
Figure 3.71: Rule Wizard.....	109
Figure 3.72: New Rule Information.....	111
Figure 3.73: Added Rules .....	112
Figure 3.74: Define Sequence Flow Ordering .....	113
Figure 3.75: Sequence Flow Ordering .....	114
Figure 3.76: Multiple Stream Dialog Box .....	115
Figure 3.77: New Stream Added .....	116
Figure 3.78: Stream Created .....	117
Figure 3.79: Showing Multiple Streams in Process Flow.....	118
Figure 3.80: Creating Default Stream .....	120
Figure 3.81: Scenario .....	121
Figure 3.82: Stream Selector.....	121

Figure 3.83: Adeptia Server Entities .....	122
Figure 3.84: Drag Stream Selector to Graph Canvas.....	122
Figure 3.85: Connect Activities with Stream Selector Node.....	122
Figure 3.86: Expand Repeater Node .....	123
Figure 3.87: Repeater Service Node .....	123
Figure 3.88: Connect Activities .....	124
Figure 3.89: Create Second Stream.....	125
Figure 3.90: Repeater Node with Multiple Stream.....	125
Figure 3.91: Scenario .....	126
Figure 3.92: Use Error Intermediate Event .....	126
Figure 3.93: BPMN Events Panel.....	126
Figure 3.94: Confirmation Dialog Box .....	127
Figure 3.95: Error Immediate Event Attached .....	127
Figure 3.96: Drag Another Activity .....	127
Figure 3.97: Connect Activities .....	127
Figure 3.98: Creating Exception Handler Script.....	128
Figure 3.99: Service Exception Dialog Box.....	129
Figure 3.100: Drag Compression Activity.....	130
Figure 3.101: Connect Activities.....	130
Figure 3.102: Compression Activity Properties .....	131
Figure 3.103: Scenario.....	131
Figure 3.104: Expand Miscellaneous .....	132
Figure 3.105: Custom Report Node.....	132
Figure 3.106: Connect Activities.....	132
Figure 3.107: Attaching End Process.....	133
Figure 3.108: Selecting Mail Notification.....	133
Figure 3.109: Select PDF Type .....	135
Figure 3.110: Save Box.....	136
Figure 3.111: Changing Mode .....	137
Figure 3.112: Process Designer Login .....	138
Figure 3.113: Select User Group .....	138
Figure 3.114: Manage Process Flow .....	139
Figure 3.115: Process Flow Executed .....	139
Figure 3.116: View Process Flow Log .....	139
Figure 4.1: Manage EDI Data Dictionary.....	141
Figure 4.2: Create EDI Data Dictionary .....	142
Figure 4.3: Select EDI Specification .....	142
Figure 4.4: EDI Specification File Uploaded.....	143
Figure 4.5: Create EDI Data Dictionary .....	143
Figure 4.6: Enter Comments.....	144
Figure 4.7: Manage Positional Data Dictionary .....	144
Figure 4.8: Create Positional Data Dictionary .....	145
Figure 4.9: Data Dictionary Record Builder .....	146
Figure 4.10: Records created for the Positional Data Dictionary.....	147
Figure 5.1: Manage Data Mapping .....	149
Figure 5.2: Create Data Mapping.....	149
The Data Mapper screen is displayed below (see Figure 5.3).....	150
Figure 5.3: Data Mapper Applet .....	151
Figure 5.4: Select Schema .....	157
Figure 5.5: Source and Target Schema Elements .....	158

Figure 5.6: Select Search Element from Actions Menu.....	160
Figure 5.7: Element Search Dialog Box .....	160
Figure 5.8: Enter Parameters in Element Search Dialog Box .....	161
Figure 5.9: Element Match Found .....	161
Figure 5.10: Multiple Matches Found.....	162
Figure 5.11: Warning Message.....	162
Figure 5.12: Map Source and Target Element using Drag and Drop Approach .....	163
Figure 5.13: Map Source and Target Elements .....	164
Figure 5.14: Map Multiple Source and Target Schema Elements .....	165
Figure 5.15: Same Hierarchy and Element Names .....	167
Figure 5.16: Auto Mapper Options .....	167
Figure 5.17: Mapped Elements using Auto Mapper.....	168
Figure 5.26: Remove Options .....	169
Figure 5.18: Same Hierarchy and Element Names .....	170
Figure 5.19: Select Add Custom Map Options.....	171
Figure 5.20: Custom Auto Map Options Dialog box .....	172
Figure 5.21: Add Data Dialog box.....	172
Figure 5.22: Added Entry for Custom Auto Map.....	173
Figure 5.23: Select Connect Matching Children .....	174
Figure 5.24: Connect Matching Children Options .....	174
Figure 5.26: Source and Target elements are mapped .....	176
Figure 5.27: Elements of Source and Target Schema .....	177
Figure 5.28: Select Add Value Map Option.....	178
Figure 5.29: Value Map Options Dialog box .....	179
Figure 5.30: Add Value Map.....	180
Figure 5.27: Paste Mapping Options .....	181
Figure 5.28: Select Target Element .....	182
Figure 5.29: Select Source Element.....	183
Figure 5.30: Select Second Source Element.....	184
Figure 5.31: Add Comments (Mapping).....	185
Figure 5.32: Exit from Data Mapper.....	186
Figure 5.33: Save Mapping Object.....	186
Figure 5.34: Mapping XSL .....	187
Figure 5.35: View Mapping XML .....	188
Figure 5.36: Debugger screen.....	189
Figure 5.37: Generate Mockup Data .....	190
Figure 5.38: Output XSL .....	192
Figure 5.39: Data Viewer .....	194
Figure 5.40: Attach Source.....	195
Figure 5.41: Source records in Grid View.....	196
Figure 5.42: Pop-up message .....	196
Figure 5.43: Tree View.....	197
Figure 5.44: Records in Tree View .....	197
Figure 5.45: Error Record.....	198
Figure 5.46: Target Records in Grid View .....	198
Figure 5.47: Target Panel in expanded mode .....	199
Figure 5.48: Mapping Information Document .....	200
Figure 5.49: Schema Information.....	201
Figure 5.50: Detailed Mapping Information.....	201

Figure 5.51: View Data Mapping.....	202
Figure 5.52: Data Mapper in Read-Only Mode .....	203
Figure 5.53: Advanced Properties.....	205
Figure 5.54: Splitter XPath Details.....	208
Figure 5.55: Splitter XPath in Mapping XML .....	209
Figure 5.56: Remove Splitter XPath Details .....	209
Figure 5.57: Merger XPath Details .....	210
Figure 5.58: Remove Merger XPath Details.....	211
Figure 5.59: Assign Streams.....	211
Figure 5.60: Remove Options (Particular Element) .....	213
Figure 5.61: Add a Constant Node.....	214
Figure 5.62: Enter Constant Value.....	214
Figure 5.63: Add Div Sub-Function Node.....	216
Figure 5.64: Create Links between Nodes for Mapping Elements using Div Function .....	217
Figure 5.65: Add Concat Sub-Function Node.....	220
Figure 5.66: Create Links between Nodes for Mapping Elements using Concat Function .....	221
Figure 5.67: Add Date-Difference Sub-Function Node .....	223
Figure 5.68: Create Links between Nodes for Mapping Elements using Date- Difference Function .....	224
Figure 5.69: Add Sum Sub-Function Node .....	226
Figure 5.70: Create Links between Nodes for Mapping Elements using Sum Function .....	227
Figure 5.71: Add Greater Than or Equal To Boolean Function Node.....	233
Figure 5.72: Create Links between Nodes for Mapping Elements using Greater Than Equal To Function.....	234
Figure 5.73: Add IF Conditional Function Node.....	235
Figure 5.74: Creating Links between Nodes for Mapping Elements using IF Conditional Function.....	236
Figure 5.75: Create Local Variable.....	243
Figure 5.76: Mapping Set-Context to Local Variable.....	244
Figure 5.77: Context Variables Pane .....	245
Figure 5.78: Enter Context Variable Value .....	246
Figure 5.79: Set-Context Node .....	248
Figure 5.80: Create Links between Nodes for Mapping Set-Context Function to Target Element.....	249
Figure 5.81: Add DBQuery Sub-Function Node.....	251
Figure 5.82: Connection Info Variable in Mapping Graph Area.....	252
Figure 5.83: Create Links between Nodes for Mapping DBQuery Function to Target Element.....	253
Figure 5.84: Syntax for Concat Sub-Function.....	254
Figure 5.85: Parameters of the Concat Syntax .....	255
Figure 5.86: Adding Namespace.....	256
Figure 5.87: Select Namespace.....	256
Figure 5.88: Manage XSL Template .....	258
Figure 5.89: Parameter Dialog Box.....	258
Figure 5.90: Parameters Added in XSL Template .....	259
Figure 5.91: Call XSL Template Node.....	261



Figure 5.92: Create Links between Nodes for Mapping Elements using XSL Template .....	262
Figure 5.93: Global Variable Pane.....	263
Figure 5.94: Enter Name, Value and Comments of Global Variable .....	264
Figure 5.95: Alert Message .....	265
Figure 5.96: Comment in Mapping XSL .....	265
Figure 5.97: Right-Click Menu of Elements in Parameter Panel .....	266
Figure 5.98: Confirm Delete of Global Variable.....	266
Figure 5.99: Add Global Variable Node.....	267
Figure 5.100: Local Variable Pane .....	269
Figure 5.101: Enter Name, Value and Comment for Local Variable .....	270
Figure 5.102: Add Local Variable Node.....	272
Figure 5.103: Custom Methods Pane.....	274
Figure 5.104: Add Custom Method .....	275
Figure 5.105: Warning for Adding more than 4 Parameters .....	275
Figure 5.106: Custom Method added to Parameters Panel .....	276
Figure 5.107: Add Custom Method Node .....	277
Figure 5.108: Create Links between Nodes.....	278
Figure 5.109: Global Methods Node .....	279
Figure 5.110: List of Class Files in Custom Classes Folder.....	280
Figure 5.111: Custom Methods in a Custom Class .....	281
Figure 5.112: Key Functions Tab .....	282
Figure 5.113: Key Added to Parameters Panel .....	283
Figure 5.114: Map Source and Target Elements .....	284
Figure 5.115: Key Function.....	285
Figure 5.116: Map Key Function Node to Target Element.....	286
Figure 5.117: Connection Info Variable Pane .....	287
Figure 5.118: Enter Connection Variable Value.....	288
Figure 5.119: Properties Pane.....	289
Figure 5.120: Source Element in For Each Property .....	291
Figure 5.121: Enter Comment.....	292
Figure 5.122: Sample Input XML .....	294
Figure 5.123: Output XML .....	295
Figure 5.124: Apply Template .....	296
Figure 5.125: Sorting Rules Dialog Box .....	296
Figure 5.126: Checking Apply Filter Checkbox.....	298
Figure 5.127: Confirm Remove Clone.....	299
Figure 5.128: Confirm Remove Schema .....	300
Figure 5.129: Select Custom XSL Before Option .....	301
Figure 5.130: Enter Custom XSL Code .....	302
Figure 5.131: Select Global Custom XSL Before Option .....	303
Figure 5.132: Enter Global Custom XSL Code .....	304
Figure 5.133: Custom XSL Code in Mapping XSL .....	305
Figure 5.134: Select Root Element .....	306
Figure 5.135: Confirm Change of Root Element.....	306
Figure 5.136: Select Extension Element .....	307
Figure 5.137: Confirm Change of Extension Element.....	307
Figure 5.138: Manage Record to Record Service.....	308
Figure 5.139: Create Record to Record Service .....	309
Figure 5.140: Sample Java Script.....	310

Figure 6.1: Manage Custom Application .....	312
Figure 6.2: Create Custom Application .....	313
Figure 6.3: Add/Remove Files .....	314
Figure 6.4: Added File(s).....	315
Figure 6.5: Uploaded File(s) .....	316
Figure 6.6: Activated Custom Application .....	317
Figure 6.7: Custom Jsp with Adeptia Look and Feel .....	318
Figure 6.8: Manage Custom Plugin .....	319
Figure 6.9: Create Custom Plugin.....	320
Figure 6.10: Sample JAVA Script.....	321
Figure 7.1: WebDAV Document Repository Structure.....	323
Figure 7.2: Manage WebDAV Folder.....	324
Figure 7.3: Create WebDAV Folder .....	324
Figure 7.4: Select Add Folder Option .....	325
Figure 7.5: Add Folder Dialog Box .....	326
Figure 7.6: Select Upload Option.....	327
Figure 7.7: WebDAV File Upload Screen .....	327
Figure 7.8: Choose File Screen.....	328
Figure 7.9: WebDAV File Added.....	328
Figure 7.10: File Names Added .....	329
Figure 7.11: Refresh WebDAV Folder .....	329
Figure 7.12: Files stored in a WebDAV Folder.....	330
Figure 7.13: Select Download Option .....	330
Figure 7.14: File Download Screen .....	331
Figure 7.15: Select View Option .....	331
Figure 7.16: Select Delete Option.....	332
Figure 7.17: Select Add to Version Control Option .....	333
Figure 7.18: Version 1.0 of File .....	333
Figure 7.19: Select Get Version Option .....	334
Figure 7.20: Select Version Dialog Box.....	334
Figure 7.21: File Download Option.....	334
Figure 7.22: Manage Human Workflow.....	336
Figure 7.23: Create Human Workflow Activity.....	337
Figure 7.24: Sample HTML Code .....	341
Figure 7.25: Create HTML Template.....	341
Figure 7.26: Define Header .....	342
Figure 7.27: Define Form .....	343
Figure 7.28: HTML Code.....	344
Figure 7.29: Advanced Properties of Human Workflow Task.....	345
Figure 7.30: Sample Code for "review" Function.....	347
Figure 7.31: Manage Task Manager .....	348
Figure 7.32: Human Workflow Task.....	349
Figure 7.33: Upload File.....	349
Figure 8.1: Manage Context Download.....	351
Figure 8.2: Create Context Download .....	352
Figure 8.3: Define Context Variable .....	352
Figure 8.4: Expand Schema.....	353
Figure 8.5: Enter Variable Name .....	353
Figure 8.6: Map Schema Element with Variable.....	354
Figure 8.7: Apply Map.....	355

Figure 8.8: Manage Context Upload .....	356
Figure 8.9: Create Context Upload .....	357
Figure 8.10: Map Context Variable .....	357
Figure 8.11: Expand Schema .....	358
Figure 8.12: Enter Variable Name.....	358
Figure 8.13: Map Schema Element with Variable .....	359
Figure 8.14: Apply Map.....	360
Figure 8.15: Manage Custom Report.....	361
Figure 8.16: Create Custom Report Activity .....	362
Figure 8.17: Select Jasper File .....	362
Figure 8.18: Select Jasper File .....	363
Figure 8.19: Jasper File Uploaded.....	363
Figure 8.20: Uploaded Jasper Files in Create Custom Report.....	364
Figure 8.21: Define Jasper Report Parameters .....	364
Figure 8.22: Manage Stored Procedure .....	366
Figure 8.23: Create Stored Procedure .....	367
Figure 8.24: Select Stored Procedure.....	368
Figure 8.25: View Parameters .....	368
Figure 8.26: Manage Stored Procedure .....	369
Figure 9.1: Manage Native Call .....	370
Figure 9.2: Create Native Call .....	371
Figure 10.1: Manage Mail Notification .....	374
Figure 10.2: Create Mail Notification.....	375
Figure 11.1: Manage Database Polling Service .....	380
Figure 11.2: Create Database Polling Service.....	381
Figure 11.3: Manage File Polling Service .....	383
Figure 11.4: Create File Polling Service .....	384
Figure 11.5: Manage FTP Polling Service .....	387
Figure 11.6: Create FTP Polling Service.....	388
Figure 11.7: Manage Mail Polling Service.....	390
Figure 11.8: Create Mail Polling Service .....	391
Figure 12.1: Manage Advance Database Schema.....	399
Figure 12.2: Create Advance Database Schema .....	399
Figure 12.3: Select Schema.....	400
Figure 12.4: Select Tables.....	401
Figure 12.5: Select Columns and Primary Key.....	402
Figure 12.6: Generate Query .....	402
Figure 12.7: Create Child Table.....	403
Figure 12.8: Select Column, Primary and Related Keys .....	404
Figure 12.9: Add Related Key .....	405
Figure 12.10: Manage Advance Positional Schema.....	407
Figure 12.11: Create Advance Positional Schema .....	408
Figure 12.12: Select Data Dictionary .....	409
Figure 12.13: Create Record Definition using Data Dictionary .....	410
Figure 12.14: Create Record Definition .....	411
Figure 12.15: Skipped and Unskipped Fields in the Data File.....	413
Figure 12.16: Create Record Hierarchy Definition .....	414
Figure 12.17: Create Root Record .....	415
Figure 12.18: Create Child Record.....	416
Figure 12.19: Create another Child Record .....	416

Figure 12.20: Change Advanced Properties.....	417
Figure 12.21: Defining Field Positions Non-Sequentially .....	419
Figure 12.22: Edit Advance Positional Schema .....	420
Figure 12.23: Print-Friendly Page .....	420
Figure 12.24: Sample Advanced Text File .....	422
Figure 12.25: Manage Advance Text Schema .....	422
Figure 12.26: Create Advance Text Schema .....	423
Figure 12.27: Create Record Definition .....	424
Figure 12.28: Create Record Hierarchy Definition .....	427
Figure 12.29: Create Root Record .....	428
Figure 12.30: Create Child Record .....	428
Figure 12.31: Create another Child Record .....	429
Figure 12.32: Manage Database Schema.....	430
Figure 12.33: Create Database Schema .....	431
Figure 12.34: Select Schema .....	432
Figure 12.35: Select Tables .....	433
Figure 12.36: Select Table Column(s) .....	434
Figure 12.37: Advanced Properties of Database Schema .....	436
Figure 12.38: Manage EDI Schema.....	438
Figure 12.39: Create EDI Schema .....	438
Figure 12.40: Select EDI Specification .....	439
Figure 12.41: Populated Create EDI Schema screen .....	440
Figure 12.42: Edit EDI Schema .....	441
Figure 12.43: Tree Representation of Schema XSD.....	442
Figure 12.44: Expand Root Node.....	443
Figure 12.45: Expand Parent Node .....	444
Figure 12.46: Remove Child Node .....	445
Figure 12.47: Saved Manipulation .....	446
Figure 12.48: Manage Excel Schema .....	447
Figure 12.49: Create Excel Schema .....	448
Figure 12.50: Upload file.....	449
Figure 12.51: Specify Start Row and Start Column No. ....	450
Table 12.3: Currencies Supported by Excel Schema.....	451
Figure 12.52: View Advanced Properties of Excel Schema .....	453
Figure 12.53: Policy Details .....	455
Figure 12.54: Select Data File.....	455
Figure 12.55: Specify Start Row and Start Column No. ....	456
Figure 12.56: XML to map Field Name with Data Header .....	458
Figure 12.57: Sample Process Flow .....	458
Figure 12.58: Context Target Properties.....	459
Figure 12.59: PutContextVar Properties .....	459
Figure 12.60: Edit Context Variables.....	460
Figure 12.61: Context Variable Information.....	461
Figure 12.62: Manage Positional Schema .....	462
Figure 12.63: Create Positional Schema .....	462
Figure 12.64: Upload file.....	463
Figure 12.65: Uploaded File.....	464
Figure 12.66: Advanced Properties of Positional Schema .....	466
Figure 12.67: Manage Text Schema.....	468
Figure 12.68: Create Text Schema .....	468

Figure 12.69: Upload file.....	469
Figure 12.70:Uploaded File.....	470
Figure 12.71: Manage Word Schema .....	472
Figure 12.72: Create Word Schema .....	473
Figure 12.73: Download Word Schema Definition File .....	474
Figure 12.74: Manage XML Schema.....	475
Figure 12.75: Create XML Schema.....	476
Figure 12.76: Advanced Properties of XML Schema .....	477
Figure 12.77: Test Schema.....	479
Figure 12.79: Manage XML Validator.....	480
Figure 12.80: Create XML Validator .....	481
Figure 13.1: Manage Advanced Database Source .....	483
Figure 13.2: Create Advanced Database Source .....	483
Figure 13.3: Edit Query.....	484
Figure 13.4: Manage Database Source.....	486
Figure 13.5: Create Database Source .....	486
Figure 13.6: Manage File Source .....	487
Figure 13.7: Create File Source.....	488
Figure 13.8: Manage FTP Source.....	489
Figure 13.9: Create FTP Source.....	490
Figure 13.10: Manage HTTP Source .....	492
Figure 13.11: Create HTTP Source.....	493
Figure 13.12: Manage JMS Source.....	494
Figure 13.13: Create JMS Source .....	495
Figure 13.14: Manage LAN File Source .....	497
Figure 13.15: Create LAN File Source.....	498
Figure 13.16: Manage Mail Source.....	500
Figure 13.17: Create Mail Source .....	501
Figure 13.18: Manage WebDAV Source Activity.....	504
Figure 13.19: Create WebDAV Source.....	504
Figure 14.1: Manage Advanced Database Target .....	507
Figure 14.2: Create Advanced Database Target.....	507
Figure 14.3: Manage Database Target .....	511
Figure 14.4: Create Database Target .....	512
Figure 14.5: Manage File Target.....	514
Figure 14.6: Create File Target .....	515
Figure 14.7: Manage FTP Target.....	516
Figure 14.8: Create FTP Target .....	517
Figure 14.9: Manage HTTP Target .....	519
Figure 14.10: Create HTTP Target .....	519
Figure 14.11: Manage JMS Target .....	521
Figure 14.12: Create JMS Target.....	521
Figure 14.13: Manage LAN File Target .....	523
Figure 14.14: Create LAN File Target .....	523
Figure 14.15: Manage Mail Target .....	525
Figure 14.16: Create Mail Target.....	526
Figure 14.17: Manage WebDAV Target.....	529
Figure 14.18: Create WebDAV Target Activity .....	529
Figure 15.1: Manage Calendar Event .....	532
Figure 15.2: Create Calendar Event.....	532

Figure 15.3: Manage Database Event.....	534
Figure 15.4: Create Database Event .....	535
Figure 15.5: Manage Event Registry .....	538
Figure 15.6: Create Event Registry .....	538
Figure 15.7: Manage File Event.....	540
Figure 15.8: Create File Event.....	541
Figure 15.9: Manage FTP Event.....	544
Figure 15.10: Create FTP Event.....	545
Figure 15.11: Add Include Criteria List.....	546
Figure 15.12: File Include Criteria List .....	547
Figure 15.13: Manage Http Trigger.....	549
Figure 15.14: Create Http Trigger .....	549
Figure 15.15: Manage JMS Event .....	551
Figure 15.16: Create JMS Event .....	552
Figure 15.17: Manage Mail Event .....	554
Figure 15.18: Create Mail Event.....	555
Figure 15.19: Manage Timer Event.....	558
Figure 15.20: Create Timer Event.....	559
Figure 15.21: Web Service Trigger .....	561
Figure 15.22: Sample Input Document used to Trigger Process Flow ...	561
Figure 15.23: Manage File Event .....	562
Figure 16.1: Manage Security Policy .....	564
Figure 16.2: Create Security Policy.....	564
Figure 16.3: Manage Web Service Consumer Activity.....	566
Figure 16.4: Create Web Service Consumer Activity .....	567
Figure 16.5: Search a Web Service.....	568
Figure 16.6: Web Service search result.....	568
Figure 16.7: Select Web Service Operation.....	569
Figure 16.8: Enter Input XML.....	570
Figure 16.9: Select Security Policy .....	572
Figure 16.10: Locate WSDL .....	573
Figure 16.11: Select Web Service Operation .....	574
Figure 16.12: Enter Input and Output Parameters .....	576
Figure 16.13: Select Security Policy.....	577
Figure 16.14: Manage Web Service Provider Activity .....	579
Figure 16.15: Create Web Service Provider Activity .....	579
Figure 16.16: Manage Web Service Provider (asynchronous web service).....	581
Figure 17.1: Manage Decoder Activity .....	582
Figure 17.2: Create Decoder Activity .....	583
Figure 17.3: Create Decoder Activity .....	584
Figure 17.4: Manage Encoder Activity .....	585
Figure 17.5: Create Encoder Activity.....	586
Figure 17.6: Create Encoder Activity.....	587
Figure 18.1: Manage B2B Trading Partner Activity .....	588
Figure 18.2: Create B2B Trading Partner.....	589
Figure 19.1: Manage Activity .....	591
Figure 19.2: Enter Search Criteria .....	592
Figure 19.3: View Activity Properties .....	593
Figure 19.4: Edit Activity.....	594
Figure 19.5: Delete an Activity.....	595

Figure 19.6: View Revision History .....	596
Figure 19.7: View Dependant Activities .....	597
Figure 19.8: View Related Activities.....	598
Figure 19.9: View Advanced Properties .....	599
Figure 20.1: Manage Dashboard Component.....	603
Figure 20.2: Create Dashboard Component .....	604
Figure 20.3: Select Table .....	604
Figure 20.4: Select Columns for Bar Chart.....	605
Figure 20.5: Select Fields.....	607
Figure 20.6: Manage Dashboard Design .....	610
Figure 20.7: Creating Dashboard Design .....	610
Figure 20.8: View Dashboard.....	612
Figure 21.1: Select Search Criteria .....	614
Figure 21.2: View Audit Trail Log.....	615
Figure 21.3: Search Text.....	616
Figure 21.4: Select Search Criteria .....	616
Figure 21.5: View Event Log .....	617
Figure 21.6: Select Search Criteria .....	618
Figure 21.7: View Process Flow Log (Running) .....	619
Figure 21.8: Process Flow Context Information .....	619
Figure 21.9: View Process Flow Detail Log .....	621
Figure 21.10: Repository screen.....	622
Figure 21.11: Process Flow Status .....	622
Figure 21.12: Summary for all Process Flows .....	623
Figure 21.13: Select Search Criteria .....	624
Figure 21.14: View System Log.....	625
Figure 21.15: Select Search Criteria .....	626
Figure 21.16: Process Instance Search Results .....	626
Figure 21.17: Task Search Results .....	627
Figure 21.18: Process Instance Details.....	628
Figure 21.19: Process Flow Log screen.....	629
Figure 21.20: View Process Flow .....	629
Figure 21.21: Task History .....	630
Figure 21.22: Business Data Detail.....	631
Figure 21.23: Tasks search based on Process Instance .....	632
Figure 21.24: Tasks search based on Task Instance .....	632
Figure 21.25: Custom Report.....	633
Figure 21.26: Standard Process Flow .....	633
Figure 21.27: Standard Process Flow Report in Jasper Viewer .....	634
Figure 22.1: Manage Group .....	637
Figure 22.2: Create Group.....	637
Figure 22.3: View Group Properties .....	638
Figure 22.4: Edit Group.....	639
Figure 22.5: Confirm Deleting a Group.....	640
Figure 22.6: Manage User .....	641
Figure 22.7: Create a User .....	642
Figure 22.8: Calendar.....	645
Figure 22.9: Certificate Status .....	646
Figure 22.10: View User Properties.....	647
Figure 22.11: Edit User .....	648



Figure 22.12: Confirm Deletion .....	649
Figure 22.13: Select User.....	649
Figure 22.14: Select Group.....	650
Figure 22.15: Permanent Delete .....	650
Figure 22.16: Select Objects.....	651
Figure 22.17: Keystore Management .....	652
Figure 22.18: Import Certificate.....	653
Figure 22.19: Delete Certificate .....	654
Figure 22.20: Confirm Deletion .....	654
Figure 22.21: Manage Business Role.....	655
Figure 22.22: Create Business Role .....	655
Figure 22.23: Application Settings .....	656
Figure 22.24: View System Configuration .....	657
Figure 22.25: Update System Properties .....	658
Figure 22.26: Expand Properties .....	659
Figure 22.27: Change Kernel State.....	661
Figure 22.28: Change Scheduler State.....	664
Figure 23.1: Application Settings.....	667
Figure 23.2: Update System Properties .....	668
Figure 23.3: Expand Load Management Properties .....	669
Figure 23.4: Edit Load Management Properties .....	670
Figure 23.5: Edit Kernel Settings Properties.....	670
Figure 23.6: Enable Clustering .....	671
Figure 23.7: XML File in Text Editor .....	672
Figure 23.8: Edited XML File .....	672
Figure 23.9: Node(s) Statistics.....	673
Figure 24.1: Manage Database Driver .....	675
Figure 24.2: Create Database Driver.....	675
Figure 24.3: Browse Database Jar .....	676
Figure 24.4: Select Jar File .....	677
Figure 24.5: Jar Files Uploaded .....	677
Figure 24.6: Uploaded Driver Jar Files.....	678
Figure 24.7: Select Database Driver Main Class Name .....	678
Figure 24.8: Manage Database Info .....	680
Figure 24.9: Create Database Info.....	680
Figure 24.10: Define Server URL.....	681
Figure 24.11: Defined Database Server URL .....	681
Figure 24.12: Manage JMS Provider.....	683
Figure 24.13: Create JMS Provider .....	684
Figure 24.14: Uploaded Provider Jar Files .....	685
Figure 25.1: Manage Secret Key .....	686
Figure 25.2: Create Secret Key Activity.....	687
Figure 25.3: Import Secret Key.....	688
Figure 25.4: Select Secret Key File .....	689
Figure 26.1: Adeptia Server Cluster Status.....	691
Figure 26.2: Process Flow Execution History .....	692
Figure 26.3: Process Flow Execution History .....	693
Figure 26.4: View System Status .....	694
Figure 26.5: Process Flow Status.....	695
Figure 26.6: Process Flow Status.....	696



Figure 26.7: Current Activity Status.....	697
Figure 26.8: Node Load Analysis .....	698
Figure 26.9: Process Flow Execution History .....	699
Figure 26.10: Configure Monitoring Properties .....	700
Figure 31.1: Logging Level Behavior.....	718

## 35 TABLE OF TABLES

Table 1.1: Key Terms used in Adeptia Server.....	21
Table 2.1 : JRE Dependency of Adeptia Server Components .....	27
Table 3.1: Menu Bar Options .....	44
Table 3.2: Tool Bar Options .....	45
Table 3.3: BPMN Graphical Elements .....	47
Table 3.4: Edit Preferences.....	51
Table 3.5: Keyboard Shortcuts.....	51
Table 3.6: Types of Logging Levels.....	54
Table 3.7: Options for Repository File Retention .....	54
Table 3.8: Actions for a Process Flow .....	72
Table 3.9: Context Source/Target Activity Properties .....	84
Table 3.10: Arguments used in Java Code .....	88
Table 3.11: Source Types that can be Overridden .....	91
Table 3.12: Target Types that can be Overridden .....	91
Table 3.13: Schema Types that can be Overridden .....	92
Table 3.14: Polling Types that can be Overridden .....	92
Table 3.15: Other Activity Types that can be Overridden .....	93
Table 3.16: Record Queue Producer Properties.....	98
Table 3.17: Record Queue Receiver Properties .....	99
Table 3.18: Data Types Supported for Operand Type Value .....	103
Table 3.19: Data Types Supported for Operand Type Value .....	109
Table 3.20: Possible Operators for Operands .....	110
Table 3.21: Rules for Evaluation.....	110
Table 3.22: Rule Operators.....	112
Table 3.23: Exception Handlers in a Process Flow .....	128
Table 5.1: Options of Menu Bar.....	152
Table 5.2: Options of Tabs Panel .....	153
Table 5.3: Options of Tool Bar .....	153
Table 5.4: Tabs of Mapping Graph Area.....	154
Table 5.5: Buttons of Mapping Graph Area .....	155
Table 5.6: Parameters Listed in the Parameters Panel .....	156
Table 5.7: Legends of Elements .....	159
Table 5.8: Suffixes of Source and Target Elements .....	184
Table 5.9 : Options of the Debugger Screen .....	189
Table 5.10: List of schema whose records can be shown in Data Viewer.....	193
Table 5.11: Fields of Assign Streams Screen.....	211
Table 5.12: Sub-Functions of Math Mapping Function.....	215
Table 5.13 : Sub-Functions of String Mapping Function .....	217
Table 5.14: Sub-Functions of Date Mapping Function .....	221
Table 5.15: Sub-Functions of Aggregation Mapping Function.....	224
Table 5.16: Sub-Functions of Conditional Mapping Function .....	227
Table 5.17: Conditional Functions ('If' and 'When') .....	229
Table 5.18: Sub-Functions of Axis Mapping Function.....	237
Table 5.19: Sub-Functions of Boolean Mapping Function .....	239
Table 5.20: Sub-Functions of Context Mapping Function.....	240

Table 5.21: Sub-Function of DB Mapping Function.....	250
Table 5.22: Properties of a Target Element.....	289
Table 6.1: Files for Creating Adeptia Look and Feel.....	318
Table 7.1: HTML Types .....	339
Table 10.1: Notification Criteria.....	377
Table 11.1: Trigger Type Selection Values.....	384
Table 11.2: Expressions used in File Include Criteria and File Exclude Criteria .....	385
Table 12.1: Definition File Methods used for Creating Schemas .....	394
Table 12.2: Supported Datatypes.....	450
Table 12.4: Selection Process of Value for Upload XSD/DTD/XML from Field .....	476
Table 14.1: Record Count Type Values.....	510
Table 14.2: Effect on Database based on the selected Database Operation .....	512
Table 15.1: Types of Firing Days .....	533
Table 15.2: Trigger Type Selection Values .....	541
Table 15.3: Expressions used in File Include Criteria and File Exclude Criteria .....	542
Table 15.4: Expiry Criteria.....	559
Table 16.1: Security Types .....	565
Table 16.2: Web Services.....	566
Table 16.3: Value for WS Consumer Activity .....	570
Table 16.4: Input Parameter Value for WS Consumer Activity .....	576
Table 19.1: Wildcard characters supported by Adeptia .....	592
Table 19.2: Owner Permissions .....	599
Table 19.3: Group Permissions .....	599
Table 19.4: Other Permissions .....	600
Table 22.1: User Permissions.....	643
Table 22.2: User Types .....	643
Table 22.3: Business User View Levels.....	643
Table 22.4: Repeat Count Value of Timer Event and Misfire Policy .....	662
Table 24.1: Jar Files for Database Servers.....	676
Table 24.2: Driver Main Class Names for Database Servers .....	678
Table 24.3: Server URL for Database Servers .....	682
Table 26.1: Node Statistics.....	691