Adeptia Suite 5.3 Developer Guide

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DOCUMENT INFORMATION

Adeptia Suite

Developer Guide

Adeptia Suite Version 5.3

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Adeptia Support Information

For support queries, please contact us at *support@adeptia.com*.
Access the Adeptia Web site at the following URL:

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PREFACE

This document covers a detailed description of all activities and services of Adeptia Suite that are available to a developer. It acts as a guideline to use these services seamlessly and use them in a design environment using Adeptia Suite.

A developer also has access to the other features of the Adeptia Suite. For details, refer to the Business User Guide, Process Modeling and Simulation Guide and Administrator Guide.

Target Audience

Even though all these features are available to all users, they are primarily performed by a developer. Thus, this document is intended for developers. They can use these details to seamlessly perform all design features of Adeptia Suite.

Pre-requisites

It is important to read the Getting Started guide before reading this guide.

Other resource materials

The following other resource materials are available.

Title	Description
Installation Guide	This guide is intended for developers. They can use these details to perform all the design features of Adeptia Suite.
Getting Started Guide	This guide is intended as a reference for those working with Adeptia Suite for the first time.
Business User Guide	This guide is intended for business users. They can use this guide to perform all the functions of Adeptia Suite.

HOW IS THIS GUIDE ORGANIZED?

This guide is organized into the following sections:

Section	Description
Preface	Introduction to this document
Designing Web Forms	Creating and activating Web Forms
Designing Workflow Task	Designing HTML page, using Task Manager
Working With Process Flow	Understanding Process Designer and graphical elements
Error! Not a valid result for table.	Creating Positional Data Dictionary, creating EDI Data Dictionary
Creating Source Activity	Identifying specific source data to be read, its location and the transport protocol that is used to retrieve data and creating various types of source activities
Creating Target Activity	Identifying specific data set to be created and the means to deliver it and creating various types of target activities.
Creating Web Services	Creating Security Policy activity for Web Services, Consumer Web Services using UDDI , and Consumer Web Services using URI
Transforming Data	Using Data Mapper, Record to Record Service
Creating Extensions	Creating a Custom Plugin Activity, Creating a Native Call Activity
Creating Polling Service Activity	Performing the 'listen' action at a frequency specified while creating various types of Polling Services
Creating Database Connectors	Creating Database Driver, Creating Database Info, Creating JMS Provider
Creating Miscellaneous Activities	Creating Context Download, Context Upload, Stored Procedure, Mail Notification

Section	Description
Using Reports and Dashboards	Creating Dashboard Component, Designing Dashboard, Executing Dashboard, Creating Custom Report
Managing Activities	Searching an Activity, Viewing Properties of an Activity, Editing and deleting an Activity, Viewing Revision History, dependent Activities, and Changing Advanced Properties of an Activity
Creating Events and Triggers	Scheduling and triggering a process flow by creating various types of Trigger Events
Using Data Interface	Create Source and Target activities, Creating Event, Creating Data Interface, Activating the Event
Recovery	Enabling Implicit Recovery, Using Checkpoints, Using Human Workflow activity

CONVENTIONS

The following tables list the various conventions used in Adeptia documentation. We follow these conventions to help you quickly and easily identify particular elements, processes, and names that occur frequently in documents.

Abbreviations Used

This guide uses the following abbreviations:

Convention	Description
EBIM Suite	Enterprise Business Integration Management Suite
BPM Suite	Business Process Management Suite
ESB Suite	Enterprise Service Bus Suite
ETL Suite	Extract, Transform and Load Suite
WebDAV	Web-based Distributed Authoring and Versioning

Typographical conventions

This guide uses the following typographical conventions:

Convention	Description
Bold text	Indicates one of the following: ▪ Screen element ▪ New terminology ▪ A file or folder name ▪ A control in an application's user interface ▪ A registry key ▪ Important information
Italic text	Indicates a reference or the title of a publication.
`Monospaced text`	Indicates code examples or system messages.
`Monospaced bold text`	Indicates system commands that you enter.
Hyperlink	Indicates an Internet link to target material.

Graphical conventions

This guide uses the following graphical conventions:

Convention	Description
	Indicates additional information that may be of interest to the reader.
	Indicates cautions that, if ignored, can result in damage to software or hardware.

CONTACTS/REPORTING PROBLEMS

These sections present contact information for a variety of situations.

Sales

In case of any sales queries, please contact us at *sales@adeptia.com*.

Support

For support queries, please contact us at *support@adeptia.com*.

Latest updates and information

For the latest updates and information, please visit us at *www.adeptia.com*.

Adeptia Web site

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www.adeptia.com

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DESIGNING WEB FORMS

Workflow task or as a form, which is added as a link in the Workspace menu.

You can create Web Forms and trigger process flows or customize using the Web Forms. Adeptia Suite also allows you to integrate a custom application into the Adeptia Suite 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 Suite.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

This chapter describes the following tasks:

- Creating a Web Form
- Activating a Web Form

CREATING A WEB FORM

A Web Form can be created in three ways:

- Using Template
- Entering HTML Code manually
- Using Rich Form

However, Adeptia suite enables you to upload the customize form. There is no limit to the no. of forms that can be added to the Adeptia Suite.

Steps to create a Web Form

1. On the Adeptia Suite homepage, click **[+]Configure** to expand the hierarchy. All items in the **[+]Configure** category are displayed.
2. Click **[+] Forms** to expand the hierarchy. All items in the **[+]Forms** category are displayed.
3. Click **Web Forms**. The *Manage Web Forms* screen is displayed (see Figure 1).

This feature is visible to only those users who have **Write** and **Execute** permissions.

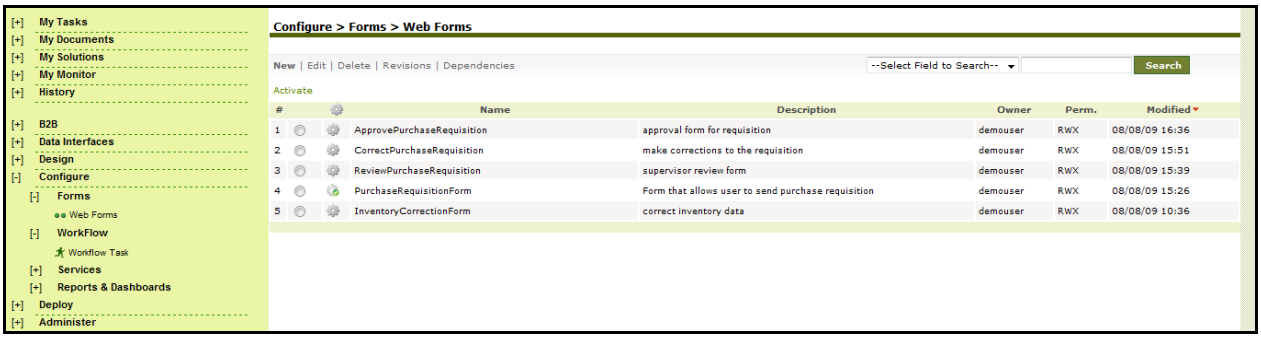


Figure 1: Introduction Screen

4. Click the **New** link. The **Create Web Forms** screen is displayed (see Figure 2).

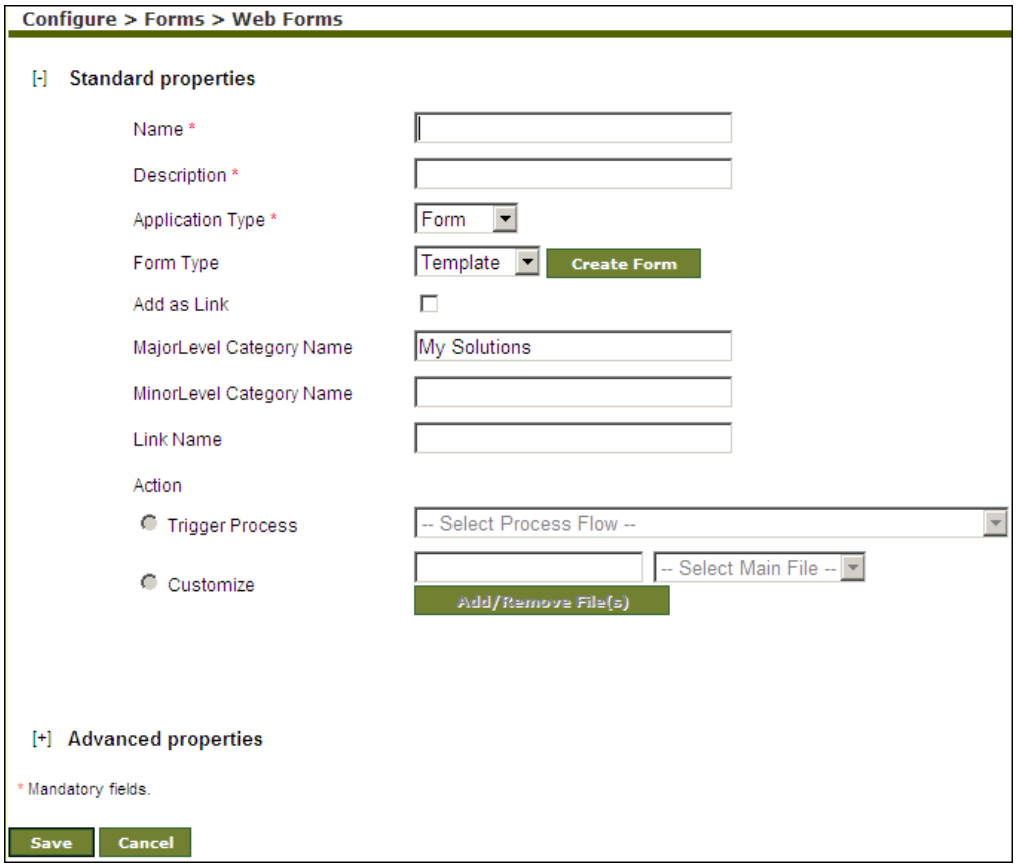


Figure 2: Create Web Form

5. Enter the name and description of the Web Form in the textboxes **Name** and **Description** respectively.
6. Select the application type from the dropdown list **Application Type**. The dropdown list **Application Type** has the following two options:
   - Form
   - Custom

By default, the option **Form** is selected.

If you select the application type **Form** then the radio button **Trigger Process** is enabled. If you select the application type **Custom** then the dropdown list **Form Type** is disabled and the radio button **Customize** is enabled.

7. If you select to create the **Form** type application, perform the following steps:
    i. Select the method to create the form from the dropdown list **Form** *Type*. The methods used to create forms are described in the table below.

Table 1: Form Types

Form Type	Description
Template	When Template is selected, a *Form template* opens, where you can define the form.
Manual	When *Manual* is selected, you need to write complete HTML code for the form manually.
Rich Form	When *Rich Form* is selected, you can create and design a rich Web Form using the *Frevvo* tool.

    ii. To design the form using a template, select **Template** from the dropdown list. **Form Type** For details, refer to the Creating Web Form Using Template section.
    iii. To design the form manually, select **Manual** from the dropdown list. **Form Type** . For details, refer to the *Creating Web Form Manually* section.
    iv. To design the form using a rich form, select **Rich Form** from the dropdown list **Form Type**. For details, refer to the *Creating Web Form Using Rich Form* section.
    v. Click the **Create Form** button. This displays the selected design form screen. Create the form as desired.
8. If you select to create the **Custom** type application, perform the following steps:
    i. Select the main file from the dropdown list **Select Main File**.
    ii. Click the **Add/Remove Files** button to add the customized file.

There is no limit to the number of files that you can upload into the Adeptia Suite.

9. Select the **Add as Link** checkbox, if you want the custom form to appear as a link in the Workspace menu.
10. Enter the major category name under which the link would appear in the Workspace menu, in the **MajorLevel Category Name** field. By default, the link appears in **My Solutions** menu in the Workspace menu. Thus, the major category name is already entered as My Solutions. You can edit it if required. However, if you edit this and enter another MajorLevel category Name (for example, *Customer*), then **Customer** appears as a link at the

bottom of the Workspace menu. 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 Web Form is uploaded under this link.

11. Enter the minor category name to in the **MinorLevel Category Name** field. For example, if you enter Insurance Policy in this field, it will be considered as a **MinorLevel Category Name**.

12. Enter the name of the link in the **Link Name** field. For example, you can enter the link name as *Claim Insurance Policy Form*. Under this link, you can upload the claim insurance form. Thus, the hierarchy for the above example will appear as**:**

    My Solutions -> Insurance Policy ->Claim Insurance Policy Form, or Customer ->Insurance Policy ->Claim Insurance Policy Form

    Once you select the **Add as Link** option, the **Action** fields get activated. You can set an action once this Web Form is executed. You can either trigger a process flow or by uploading custom jsp files.

13. To trigger a process flow, select the **Trigger Process** radio button and select the process flow that you want to trigger, from the dropdown list. Alternately, to upload custom jsp files, select the **Customize** radio button.

14. Click **Add/Remove File(s)** button to upload the custom JSPs, HTMLs and support files. This displays the **Add/Remove Files** screen (see Figure 3).

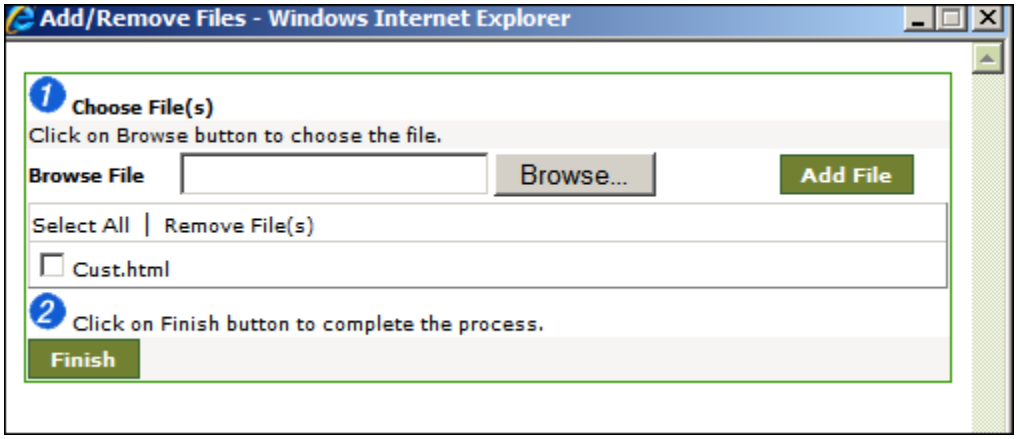


Figure 3: Add/Remove Files

15. Click the **Browse** button to select the file to be uploaded. Once it is selected, it appears in the **Browse File** field.

16. Click the **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 4).

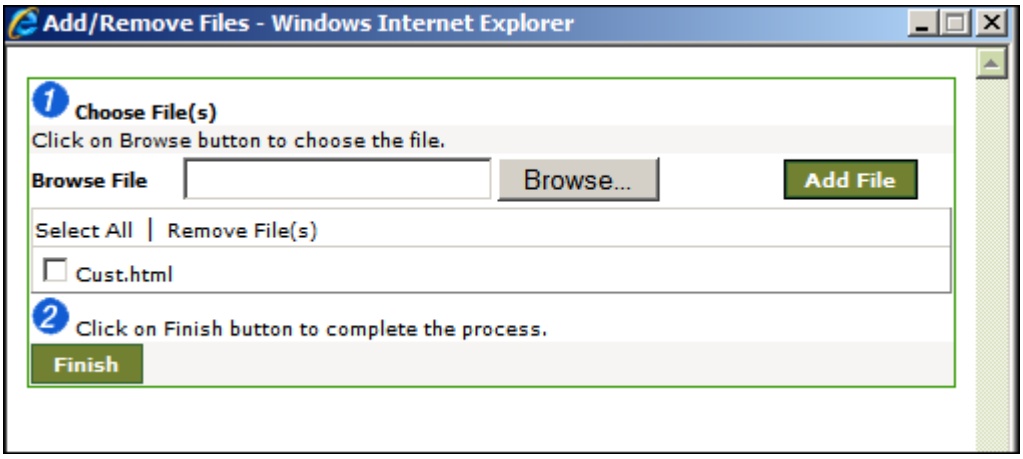


Figure 4: Added File(s)

There is no limit to the number of files that you can upload into the Adeptia Suite.

17. 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**.

18. Click **Finish** button. This closes the **Add/Remove Files** screen and displays the selected files in the **Customize** field (see Figure 5).

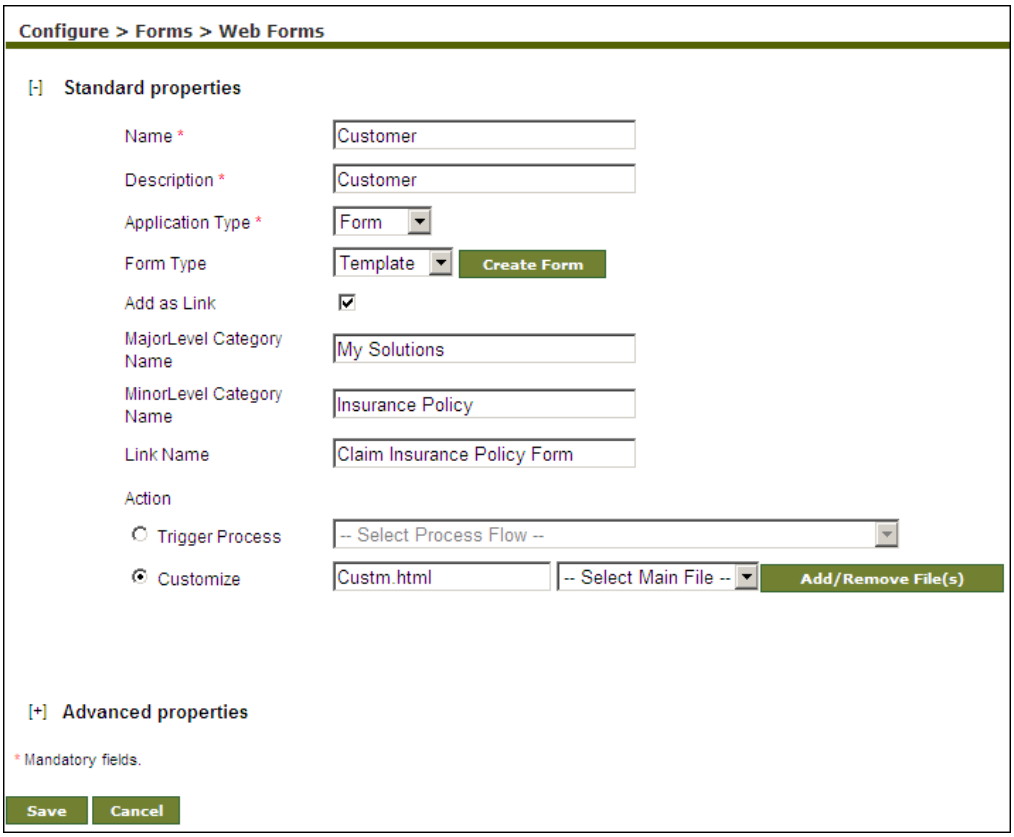


Figure 5: Uploaded File(s)

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 `../../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.

19. All the uploaded files are displayed in the **Main File** dropdown list. Select the file that you want to select as the main file from this list.
20. Click the **Save** button. A screen is displayed confirming that the Web Form 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 Form (see Figure 6).

Figure 6: Enter Comments

21. Enter 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 Web Form has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

You can create a Custom Application too from the **Create Web Form** screen. Select **Custom** from the **Application Type** dropdown list in the **Create Web Form** screen. This deactivates the **Form Type** field and the **Trigger Process** option. Enter the details as required and upload the custom jsp files.

Creating Web Form Using Template

Steps to create Web Form using Template

1. Select Template from the dropdown list Form Type on the Create Web Form screen.

2. Click the **Create Form** button. This displays the **Design Form using Template** screen (see Figure 7).

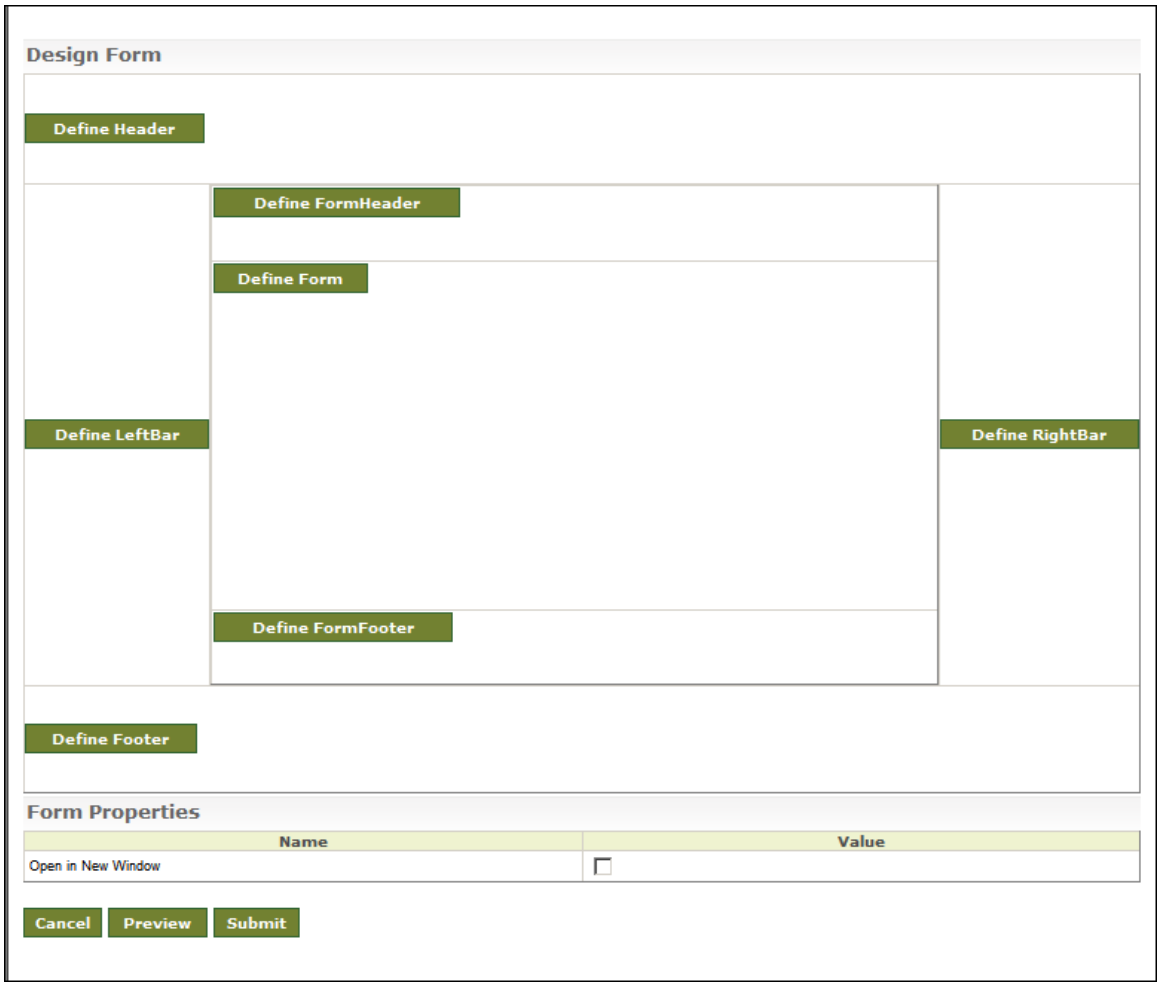


Figure 7: Design Form using Template

3. To define header, click the **Define Header** button. The following screen is displayed (see Figure 8).

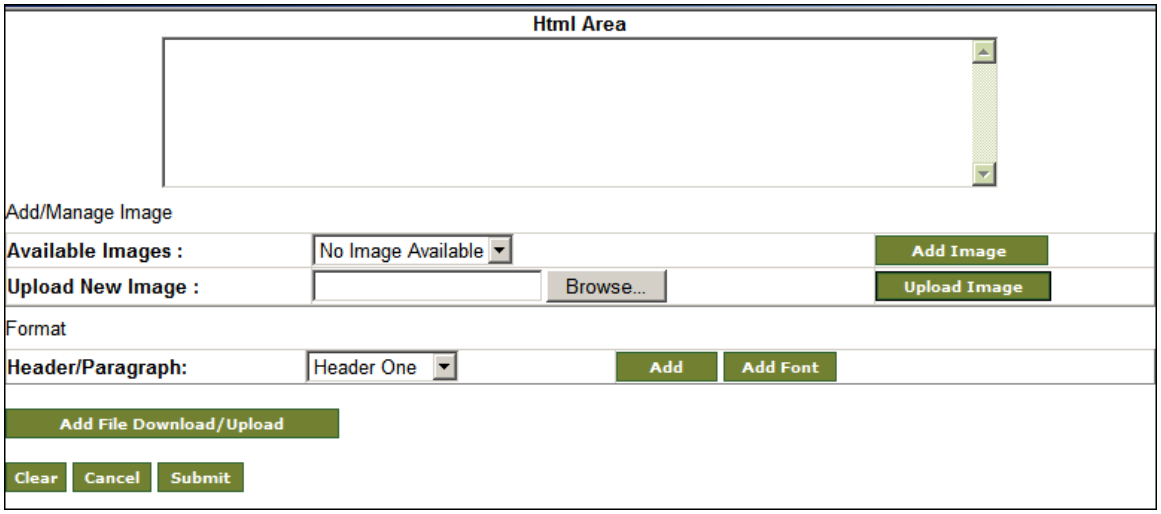


Figure 8: Define Header

4. To add an image into header, select the image from **Available Images** dropdown list and click **Add Image** button.
5. 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.
6. Select header type from **Header/Paragraph** dropdown list and click **Add** button. Tags for selected header are added into HTML area. Enter the required text between the header tags.
7. To change the fonts of the text, click **Add Font** button and select the required font and color.
8. To add link for File Download/Upload option, click Add File Download/Upload button.
9. Click the **Submit** button to return to Design Form using Template screen.
10. Repeat step 3 to 8 to design other portion (except Form) of the Web Form.
11. To define the form, click **Define Form** button. The **Define Form** screen is displayed (see Figure 9).

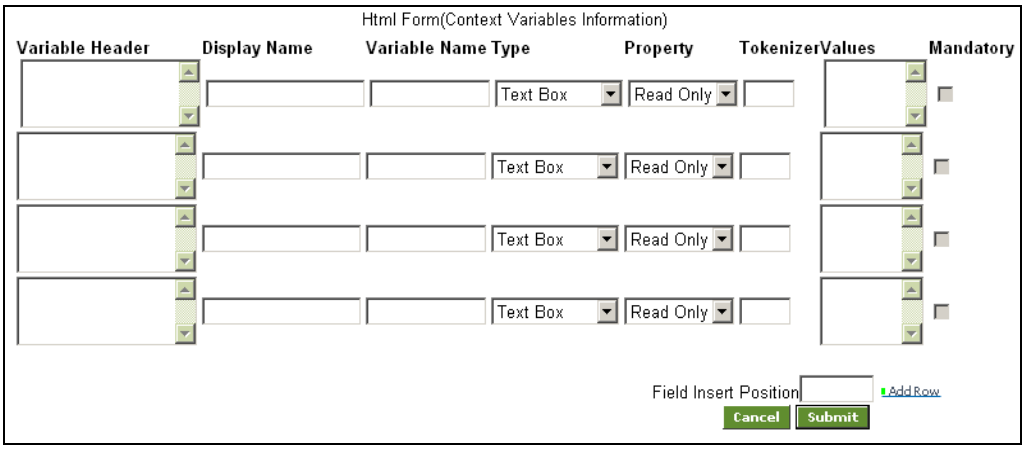


Figure 9: Define Form

12. Enter the name of the variable header in the textbox **Variable Header**.
13. Enter the name of the variable, which will be displayed in the HTML page, in the textbox **Display Name**.
14. Enter the name of the variable, corresponding to Display Name in the *textbox* **Variable Name**.
15. Select the type of the field from the dropdown list **Type**.
16. Select the property of the field whether Read Only or Editable from the dropdown list **Property**.
17. Enter the tokenizer (e.g. comma) in the textbox **Tokenizer**.
18. Enter the possible values of the field separated by the tokenizer character in the textbox **Values**.
19. Select 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 is of the variable is selected as **Read Only**; you have to create the variable with same name in Process Designer. Otherwise Workflow task will give an error.

20. After defining variables for all required field, click **Submi**t button to return to the **Design Form using Template** screen.

Click **Preview** button to view a preview of the new HTML template, before submitting it.

By default, the new Web Form opens in the workspace area. To open it in a new screen, select the **Open in New Window** checkbox in the *Form Properties* section of the **Design Form using Template** screen.

21. Once you have created the template, click the **Submit** button. This returns control to the **Create Web Form** screen.

Creating Web Form Manually

Steps to create a Web Form manually

1. Select **Manual** from the dropdown list **Form Type** on the *Create Web Form* screen.
2. Click the **Create Form** button. This displays the *Design Form* screen which can be manually designed (see Figure 10).

Figure 10: Design Form Manually

3. Enter the HTML code in *HTML Code* field to design the form. Sample HTML code which is used to design a form is displayed below (see Figure 11).

```
<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></TBODY></TABLE></FORM></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 11: Sample HTML Code

While creating a form, 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.

4. Once you have entered the HTML code, click **Submi**t button. This returns control to the Create Web Form screen.

When writing the HTML code, 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 Suite allows you to integrate the custom web application that you have created using JSP or AJAX.

Integrating Custom Web Application in Human WorkFlow

To integrate the custom web application, you need to take care of the following points:

- While writing HTML code for a 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.

- Create a hyperlink to call your custom web application and the corresponding Java script. The sample code (see Figure 12) creates a “Review” link in the Workflow page. Clicking the “Review” link calls the “review” function.

```
<a href='javascript:review();'>
<font color=blue>Review</font></a>
```

```
<scripPractice Form 1Practice Form 1Practice Form 1Practice Form 1Practice
Form 1Practice Form 1Practice Form 1Practice Form 1Practice Form 1>
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,scro
llbars=yes,resizable=yes,copyhistory=no");
}
</script>
```

Figure 12: 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 the 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.

- Create a subfolder “custom” in *<InstallFolder>/ServerKernel/web* and copy your custom JSP in the “custom” folder.

Creating Web Form Using Rich Form

You can create a rich internet form and use it as an HTML page in an activity. This form can be used for a Human Workflow activity or a custom application. Adeptia supports an external tool, the **Frevvo** tool for creating a rich form. For details on a rich form by Frevvo, refer to http://docs.frevvo.com/docs/index.php/V3.0_Main_Page .

Rich Form is supported in Internet Explorer 8 only. It is supported in Internet Explorer 9.

Steps to create a Web Form using a Rich Form

1. Select Rich Form from the dropdown list Form Type on the Create Web Form screen.

2. Click the **Create Form** button. This displays the **Adeptia Rich Form** screen (see Figure 13).

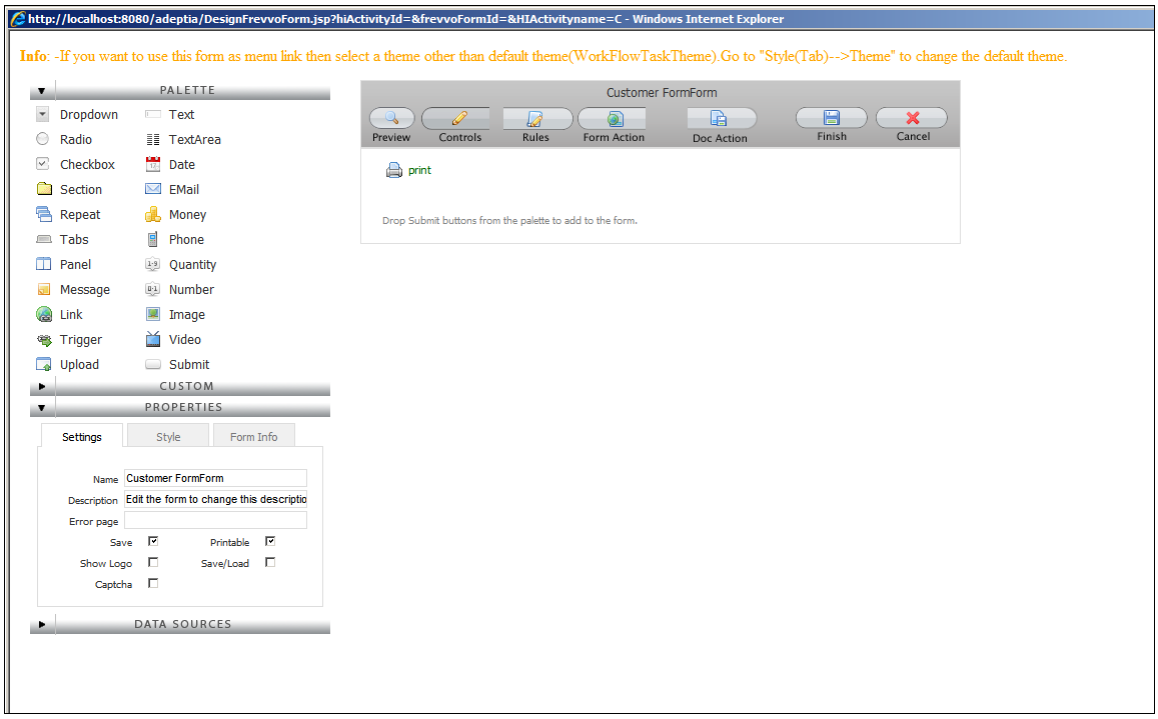


Figure 13: Adeptia Rich Form

This screen is divided into two parts. The left pane displays a palette of controls and their properties. The right pane displays a blank form. You can create a form by dragging the controls in the left pane and dropping them in the right pane. You can edit the control properties and also rearrange the controls.

When you drag and drop a control in the form canvas, it is displayed as a field with the control label. You can edit and customize the control by editing its properties that are displayed in the **Properties** section in the left pane. You can edit properties such as the control name or control type.

Additionally, you can add a name for the control in the **Name** property, which is created as a variable in the process flow context and used as a process flow variable. For example, if you add a text control and add var1 in the *Name* property, var1 is created as a process flow variable and used in the process flow, when required.

Furthermore, you can customize the control by defining its maximum length and hints, error or help messages. You can also manipulate its visibility and validations such as mandatory and password entries.

The properties can vary for each control. For details on each property, refer to http://docs.frevvo.com/docs/index.php/V3.0_Designing_Forms#Editing_Controls.

3. You can also customize the appearance and style of each control by editing the style properties displayed in the **Style** tab in the **Properties** section (see Figure 14).

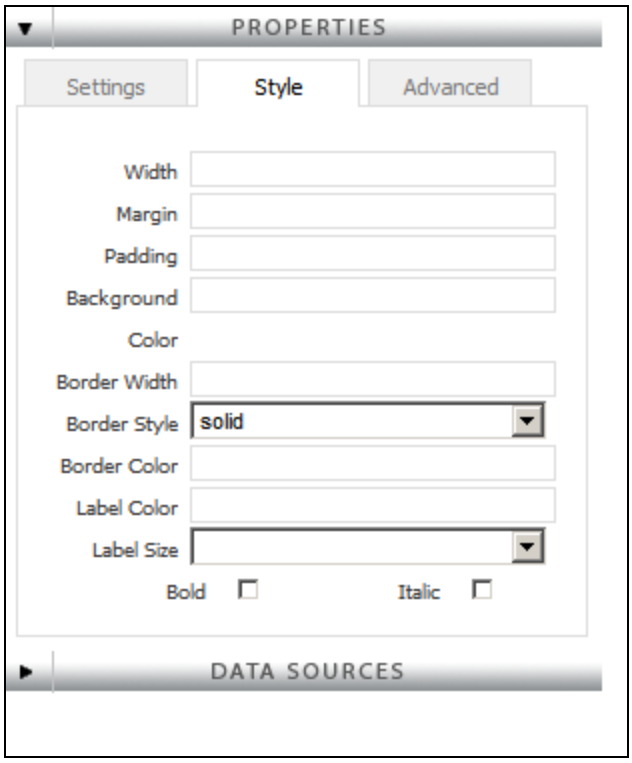


Figure 14: Style Properties

4. Additionally, you can also customize the style of the entire form by selecting the form and then clicking the **Style** tab.

5. A sample created rich form is displayed in Figure 15.

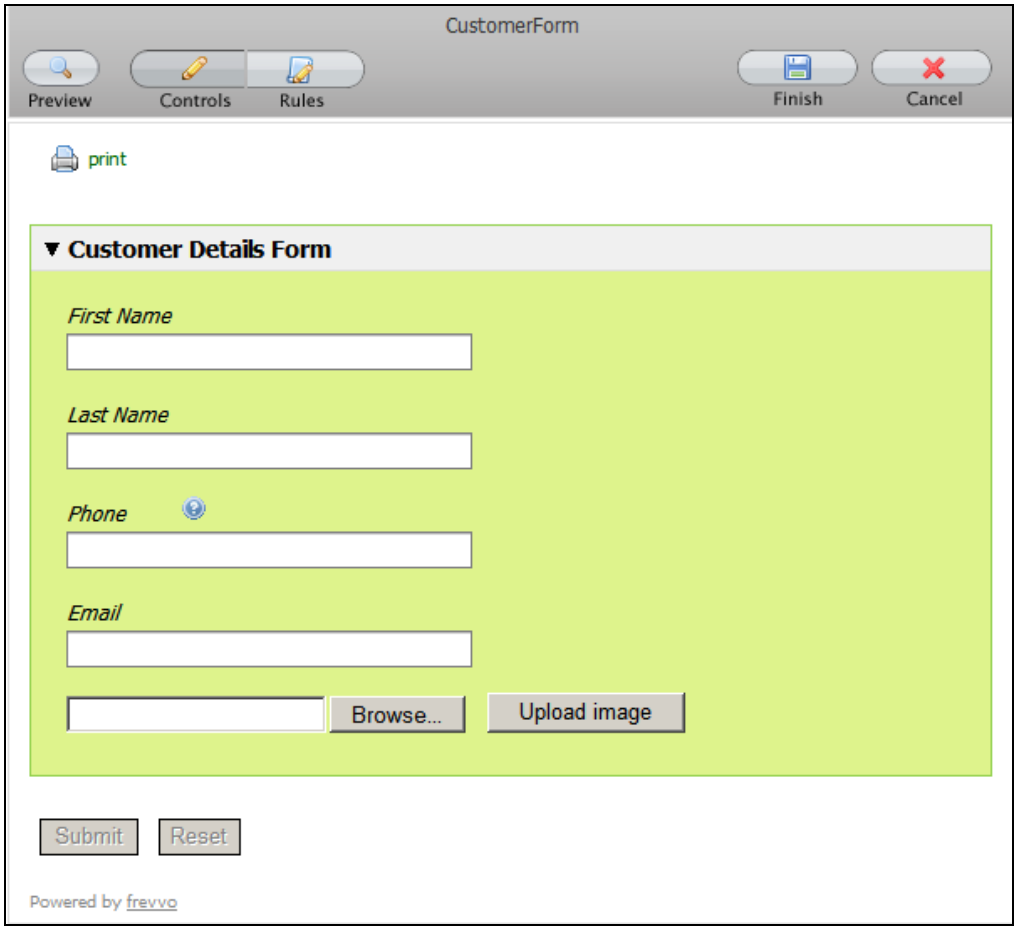


Figure 15: Sample Rich Form

6. The **Submit** and **Reset** buttons are displayed as disabled. You can remove these buttons from the form by changing its **theme** property. To do this, select the form and click the **Style** tab. Then, select *ClearThemeWithHiddenSubmitButtons* in the *adeptia's themes*, from the **Theme** dropdown list.

> If you want the form to trigger a process flow, then you need to select the **ClearThemeWithHiddenSubmitButtons** theme.

> You can also edit other form properties such as enable print settings for the form, display **Powered by frevvo** logo in the form, etc. by selecting the form and clicking Settings tab.

7. Before saving the form, you can preview it in HTML, by clicking the **Preview** button. You can also define rules to dynamically modify the behaviour of the form by clicking the Rules button. For more details on creating rules, refer to http://docs.frevvo.com/docs/index.php/Form_builder#Rules.

8. Once you have completed the form, save the form by clicking the **Finish** button. It is saved in **<InstallFolder>/ServerKernel/frevvo/WEB-INF/users/adeptia**.

9. Once you save the form, the control is taken back to the **Create Web Form** screen.

ACTIVATING A WEB FORM

By default, a Web Form is created in deactivate state. To access it, you need to activate it.

Steps to activate a Web form

1. Select the Web Form you want to activate on the **Manage Web Forms** screen, and click the **Activate** link. This activates the **Web Form** (see Figure 16).

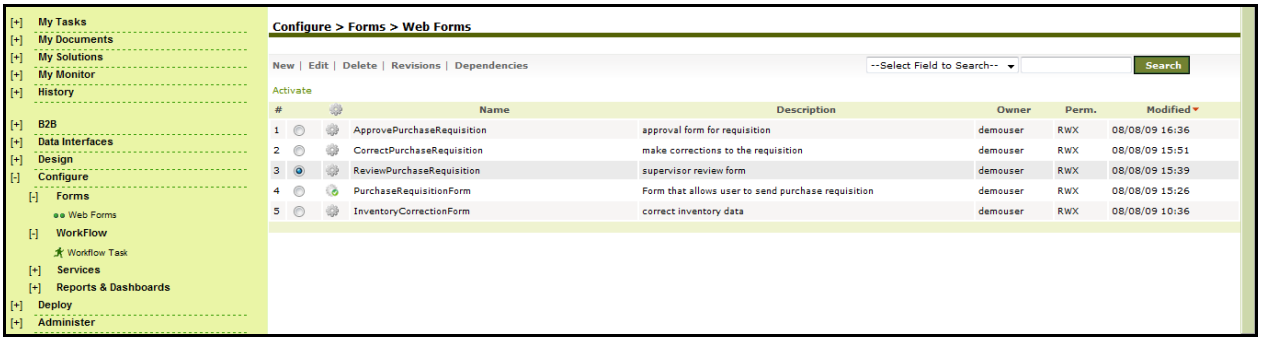


Figure 16: Activated Web Form

Clicking **Deactivate** will deactivate the application and remove the link from the Workspace menu.

3

DESIGNING WORKFLOW TASK

A Workflow activity allows user(s) to interact with running process flows. It can provide data and/or get data from the process flows 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 a WorkFlow activity in such a case. The 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 activity allows you to assign this task to required person such as the manager, in this case. Once the Workflow activity is created, you can use this activity in the required process flow. When the process flow is executed, this 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 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.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√			

This chapter describes the following tasks:

- Creating Workflow Task
- Executing Human Workflow Task

CREATING WORKFLOW TASK

Prerequisites

- Web Form to be used in the Workflow Task must be created.

Steps to create a Workflow Task

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Workflow** to expand the hierarchy and then click **Workflow Task**. The **Manage Workflow Task** screen is displayed (see Figure 17).

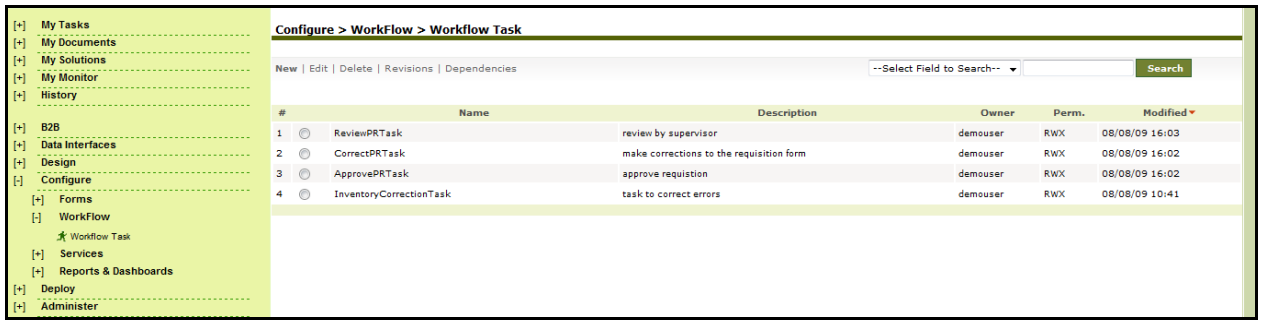


Figure 17: Manage Workflow Task

3. Click the **New** link. The **Create Workflow Task** screen is displayed (see Figure 18).

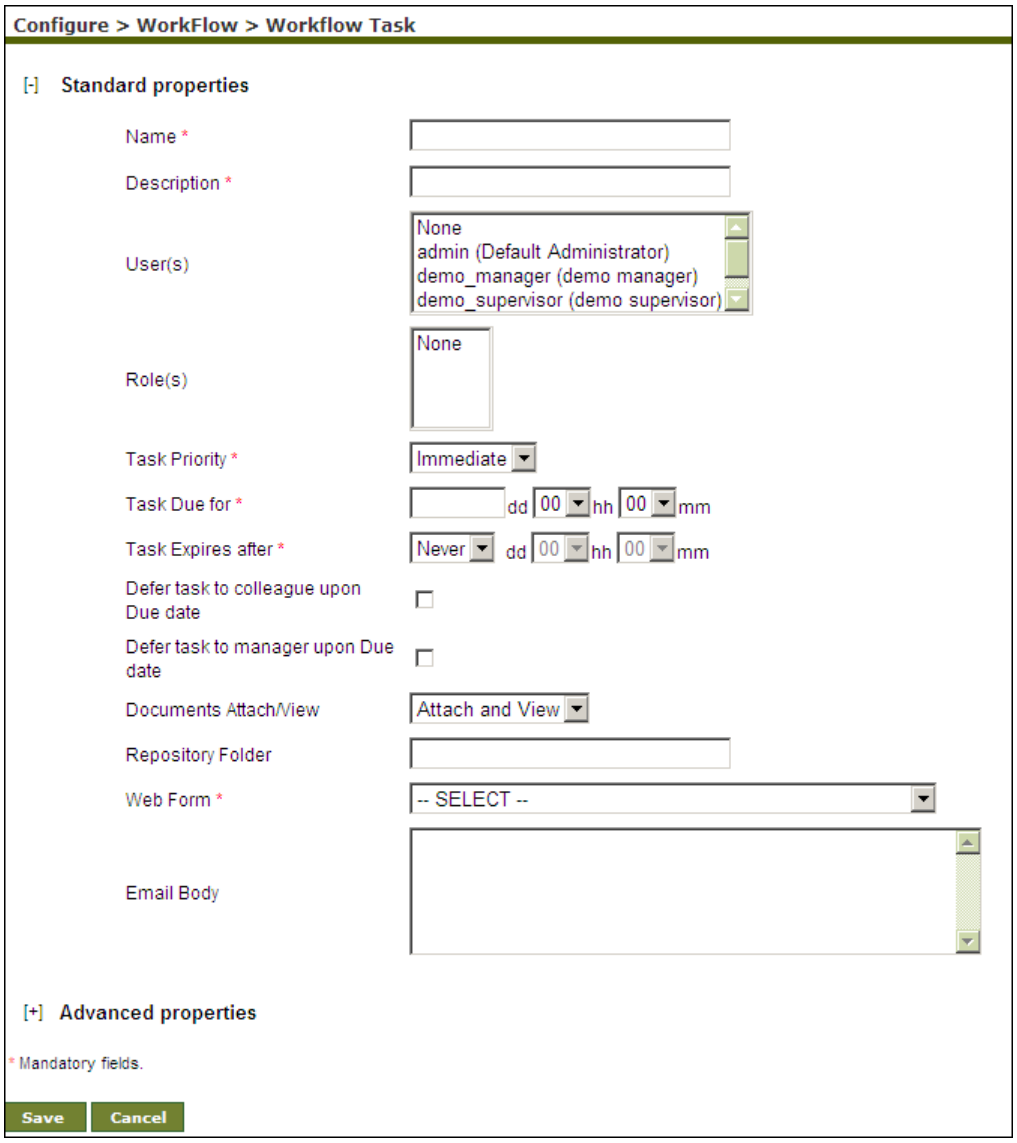


Figure 18: Create Workflow Task

4. Enter the name and description of the Workflow task in the textboxes **Name** and **Description** respectively.

5. Select the user to whom you want to assign this task, from the combo listbox **User ID**. 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 **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 *Creating Business Roles* section in the *Administrator Guide*.

7. Select the priority of this task from the dropdown list **Task Priority**. By default, **Immediate** is selected.

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** dropdown lists.
9. Select the expiry time for this task in days, hours and minutes, from the **Task Expires after** dropdown lists.

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. Select the **Defer task to colleague upon Due Date** checkbox to defer the task to a colleague, if it is not completed within its due date.
11. Select the **Defer task to manager upon Due Date** checkbox to defer the task to the Manager, if it is not completed within its due date.

Both the **Defer task to colleague** and **Defer task to manager** checkboxes can be checked at the same time.

12. Select **Attach and View** to attach or view files from the dropdown list **Documents Attach/View**, if you want enable the option for attaching/viewing documents in the task manager.
13. Enter the name of folder, where the file attached with Workflow task is stored, in the **Repository Folder** field. This could be a 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 the *abpm.hi.repository.type* property. Refer to the *Administrator Guide* for details.
- 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:

group name folder is the folder of the group, the executor belongs to. **Process Flow name** is the 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.

14. Select the Web Form that you want to attach to the task, from the **Web Form** dropdown list. All Web Forms that are created are listed in this dropdown field.

15. 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 section.

16. Click **[+] Advanced Properties** to expand Advanced Properties. The Advanced Properties of the WorkFlow task are shown (see Figure 19).

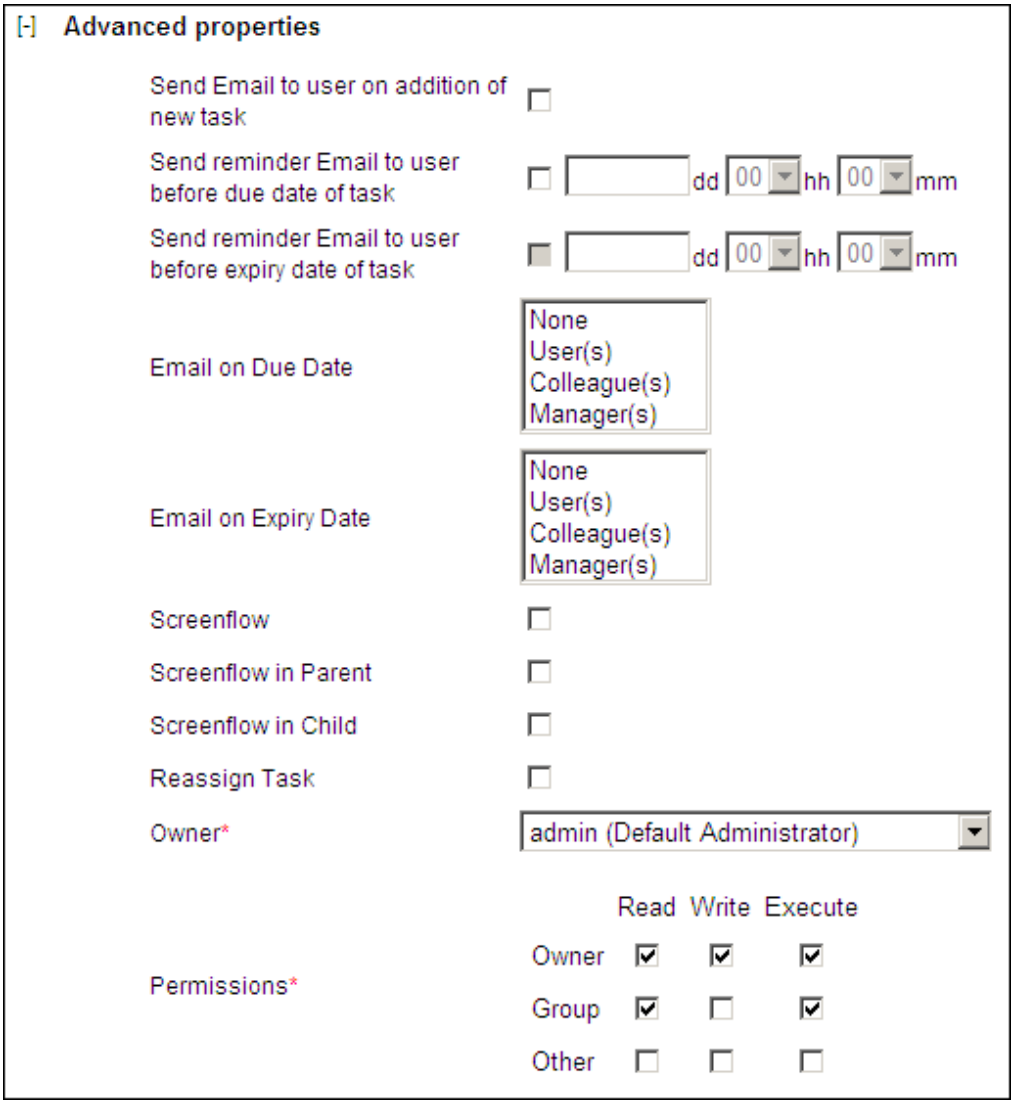


Figure 19: Advanced Properties of Workflow Task

17. If you want to notify the user by email when the task is listed in user's task list, select the **Send Email to User on addition of new task** checkbox.

18. If you want to send a reminder email to user, before the task's due date, select the **Send reminder email to user before due date of task** checkbox 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.
19. If you want to send a reminder email to user, before the task's expiry date, select the **Send reminder email to user before expiry date of task** checkbox and specify the time in days, hours and minutes.
20. 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.
21. 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 expired.

Email sent to user(s), Colleague(s) or Manager(s), on Due Date or Expiry Date, contains URL of the Adeptia Suite Login Page (e.g. http://localhost:8080/adeptia/control).

To login into Adeptia Suite and to access task manager, replace 'localhost' with name or IP address of the machine, where Adeptia Suite is running.

22. Select the **Screenflow** checkbox, to open the subsequent task in the same screen, once the previous task is executed, in case of multiple tasks being assigned to you.

If you are setting multiple tasks to be executed one after another in a process flow, and the *Screenflow* feature is enabled, then you need to attach the same type of Web Forms. For example, a process flow has 3 tasks to be executed one after another. If the first task has a Manual Web Form attached, then the remaining two tasks should also have Manual Web Forms attached. Adeptia does not support multiple Web Form types in a single process flow.

23. Select the **Screenflow in Parent** checkbox, to open the subsequent parent task in the same screen, once the previous parent task is executed, in case of multiple tasks being assigned to you.
24. Select the **Screenflow in Child** checkbox, to open the subsequent child task in the same screen, once the previous child task is executed, in case of multiple tasks being assigned to you.
25. If you want to allow the user (to whom this task is assigned), to re-assing the t ask to any of its colleague, then select the **Reassign Task** checkbox.
26. Select the owner of the task in the **Owner** dropdown list.
27. Set the permissions by selecting the appropriate checkbox(s) in the **Permissions** field.
28. Once you are done, click **Save** button. This displays a screen confirming that the workflow task 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 Workflow task (refer to Figure 6).
29. Enter 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 workflow task has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

EXECUTING HUMAN WORKFLOW TASK

You can view a WorkFlow task assigned to you in your Task Manager and execute it by entering inputs.

In the Adeptia Suite, the Task Manager is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√			

Steps to execute a task assigned to a user

1. On the Adeptia Suite homepage menu, click **[+] My Tasks** to expand the hierarchy. All items in the **My Tasks** category are displayed.
2. Click **Task Manager**. The **Task Manager** screen is displayed with a list of tasks assigned to you (see Figure 20).

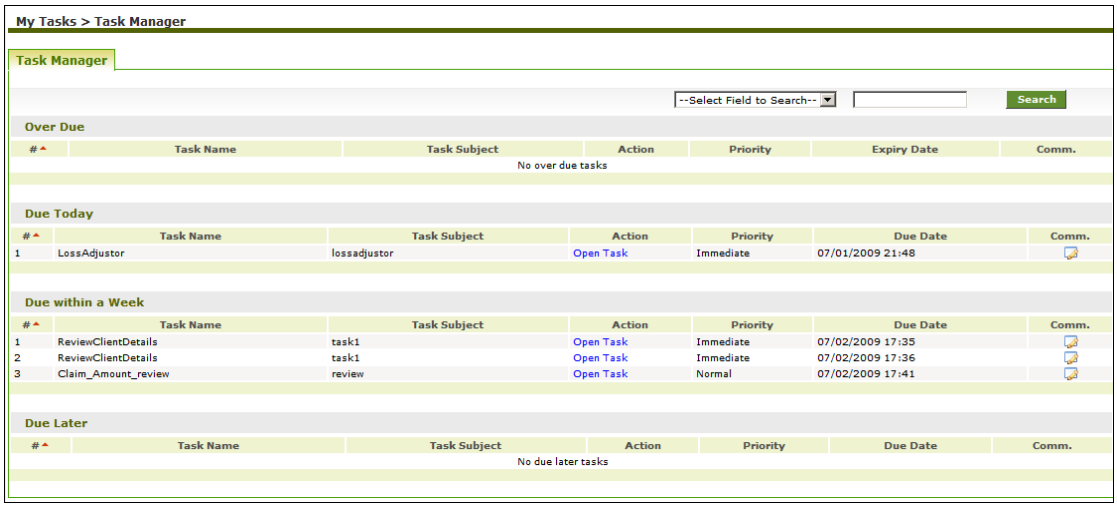


Figure 20: Task Manager

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 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 Workflow activity from the *Activity* dropdown list. The description is specified by selecting "taskDescription" from the **Key** dropdown 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. Click the **Comments** icon ( ) to add comments to your task. A dialog box is displayed to add the comments (see Figure 21).

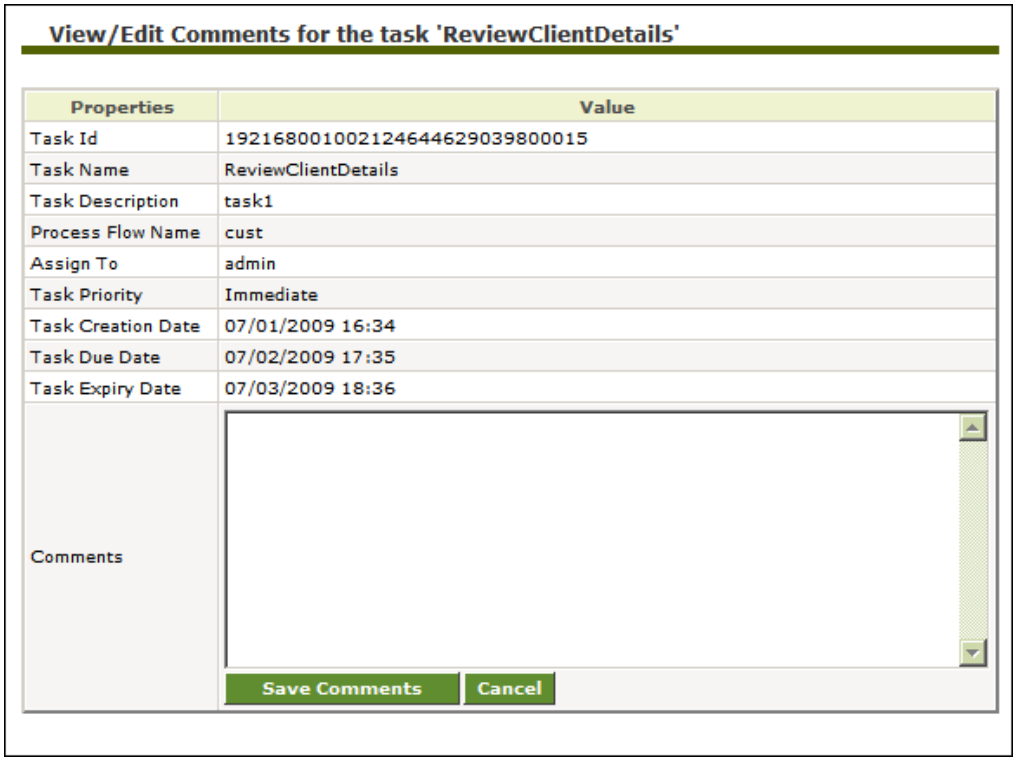


Figure 21: Comments

4. Enter your comments and click **Save Comments**.

5. You can also re-assign the task to any user of your group. To re-assign the task, click the **Reassign** link. The **Re-assign Task** page is displayed (see Figure 22).

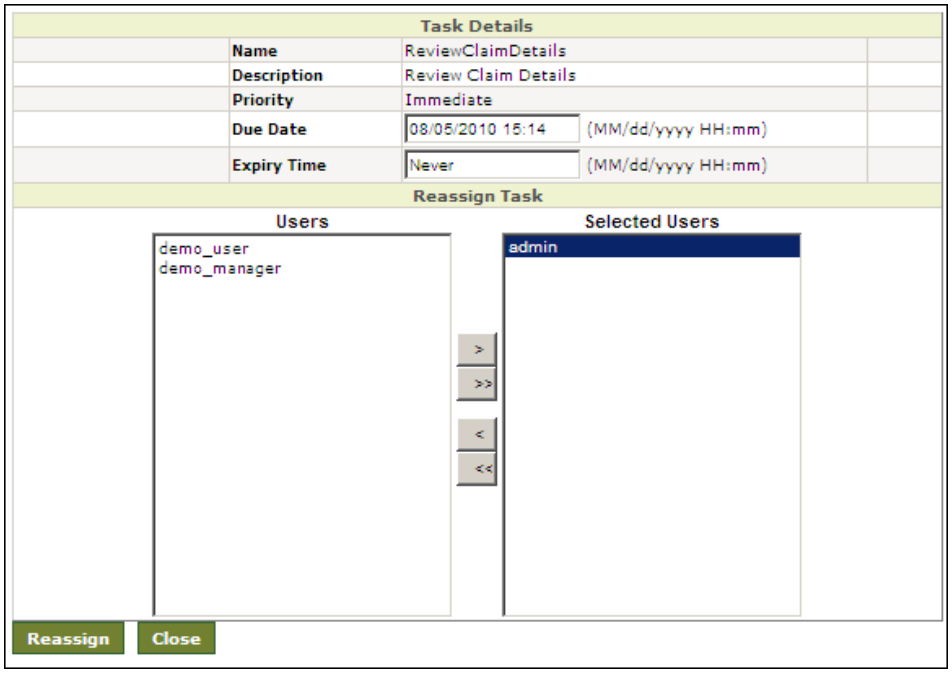


Figure 22: Re-assign Task

6. Select the user to whom you want to re-assign the task, and click arrow  to move it to selected user.
7. Click **Reassign**. The task is reassigned to selected user and removed from the current user.
8. Click **Open Task** link of the task you want to execute in the **Task Manager** screen. This opens the activity as displayed in the **WorkFlow Task** screen (see Figure 23).

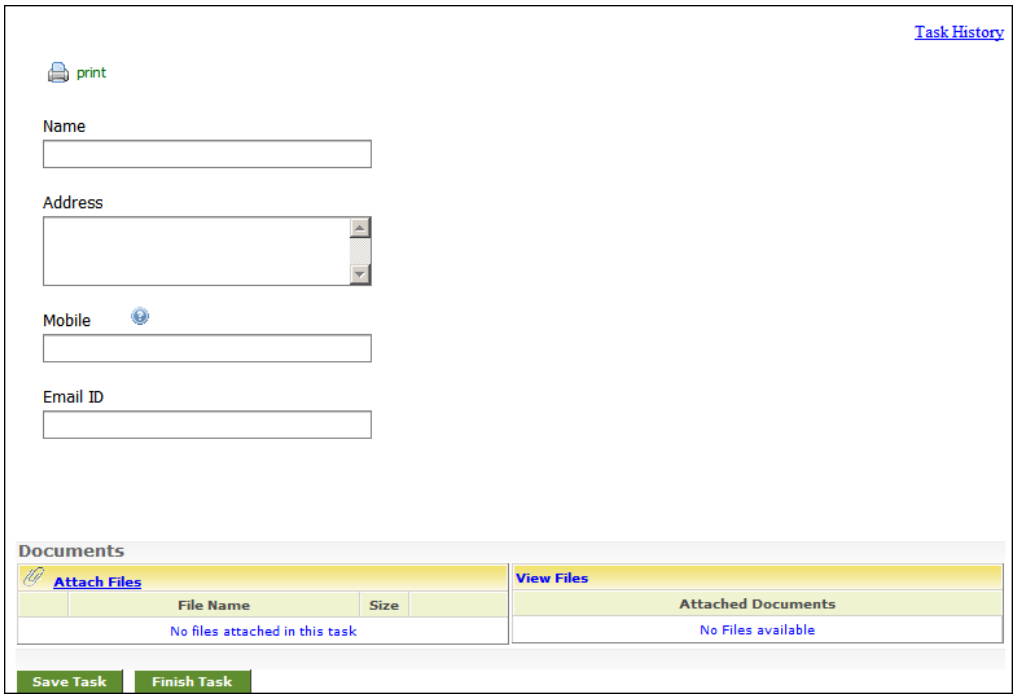


Figure 23: Workflow Task

9. Enter details as required.
10. Click the **Attach Files** link To attach the a file. This displays the **File Upload** screen (see Figure 24).

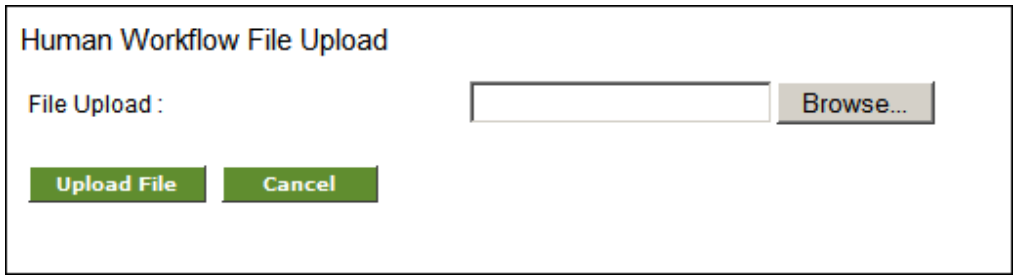


Figure 24: File Upload

11. Click **Browse** and select the file that you want to upload.

12. Click **Upload File**. This uploads the file and displays it in the **Attach Files** list in the ***Workflow Task*** screen (see Figure 25).

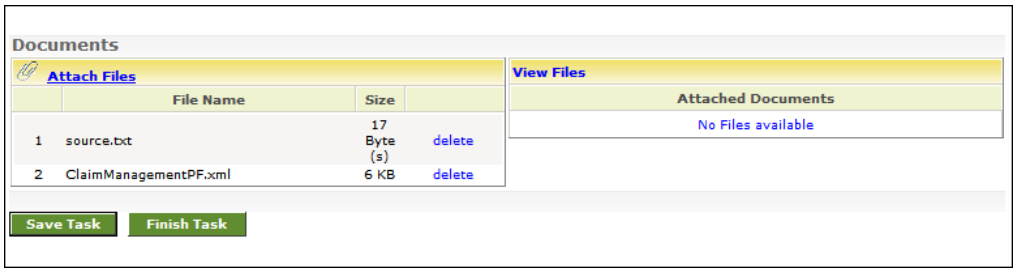


Figure 25: File Uploaded

13. Click the **Save Task** button. Reopen the task by clicking **Open Task** in the **Task Manager** screen. This displays the **Workflow Task** screen, with the attached file in the *View Files* list (see Figure 26). Click **View/Download** link to view or download the file.

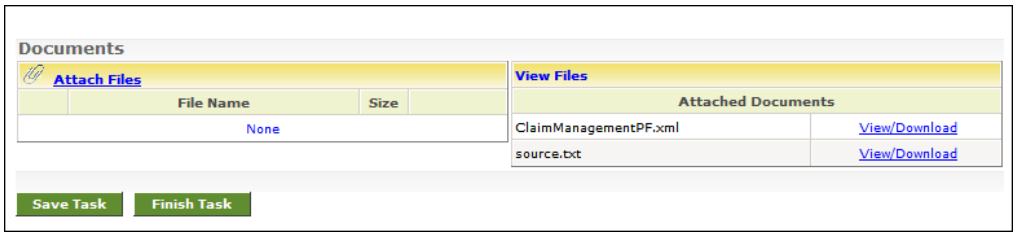


Figure 26: View Attached File

4

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

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-5.1/ServerKernel/web/repository*. Another folder is created representing the group which executed the process flow. All files that are created during the activity, design and running of the process flow, are stored in the group folder and this group folder is stored inside the repository folder. While creating a process flow, the user can specify whether to keep or delete the repository folder.

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 changes 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 27.

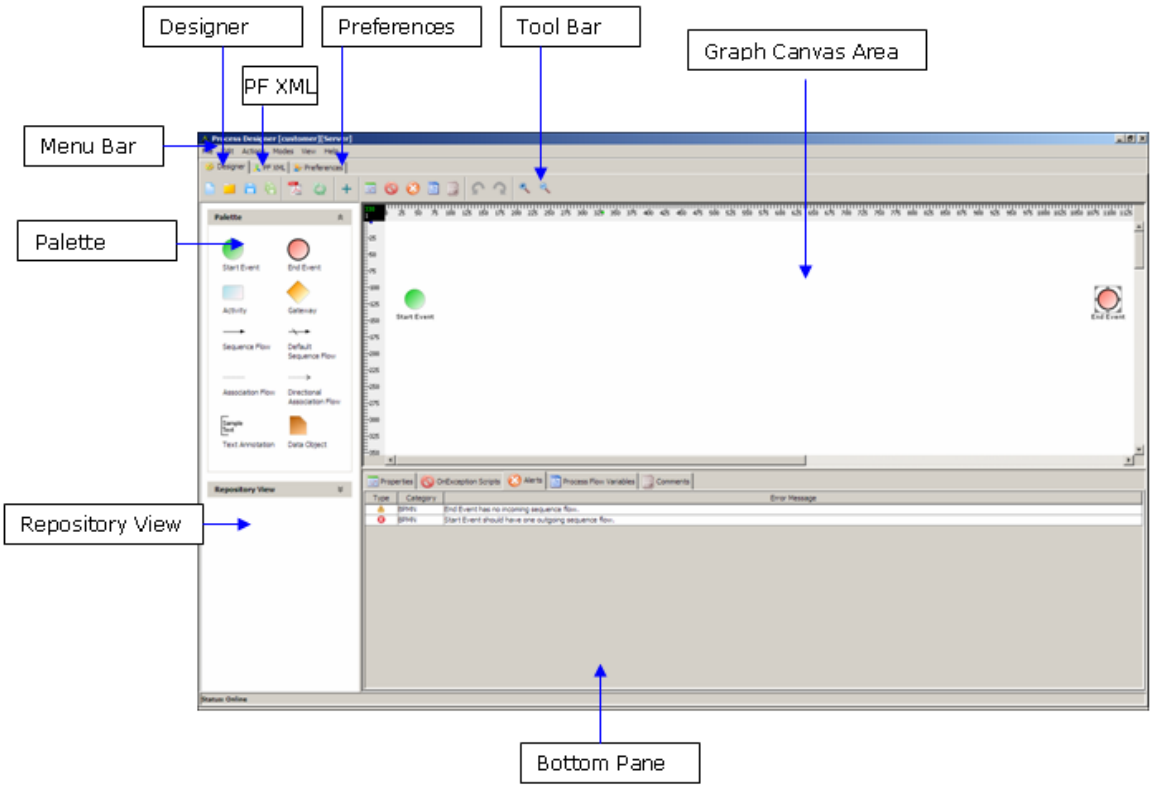


Figure 27: Process Designer Applet

The Process Flow Designer window is divided into eight sections:

- Menu Bar
- Tool Bar
- Palette
- Repository View
- Graph Canvas
- Bottom Pane
- PF XML (Process Flow XML)
- Preferences

Menu Bar

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

Table 2: 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.
	Import Process Model	Import a process model and create the process flow based on that model
	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.

Menu Option	Sub-Option	Function
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 Alerts Tab	Display and activate the Alerts 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.

Menu Option	Sub-Option	Function
	Grid	Display grid in Graph Canvas.
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: 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.
	Generate PDF	Generate PDF file of the process flow diagram. You can generate a *Graph PDF*, *Summary PDF* or *Entire Flow PDF*. A *Graph PDF* includes all the rules applied on all activities in the process flow. A *Summary PDF* includes only the activity details. The *Entire Flow PDF* 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.

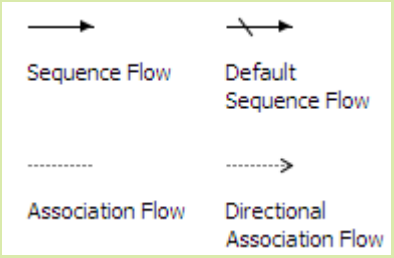
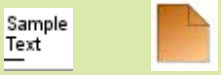
Button	Name	Function
	Maximize/Restore Flow Canvas	Maximize and restore graph canvas.
	Show Properties Panel	Show the Properties panel in the bottom pane.
	Show Exception Handler Panel	Show the Exception Handler Script in the bottom pane.
	Show Error Panel	Show the Error panel in the bottom pane.
	Show 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.

Palette

The Palette 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 4: 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	 Start  End

Element	Description	Notation
	(result).	 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: • Sequence flow • Default Sequence flow • Association flow • 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 view the information, you can resize the frame in all directions.	 Data Object

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_V1-0_May_3_2004.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

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 the **PF XML** tab (see Figure 28).

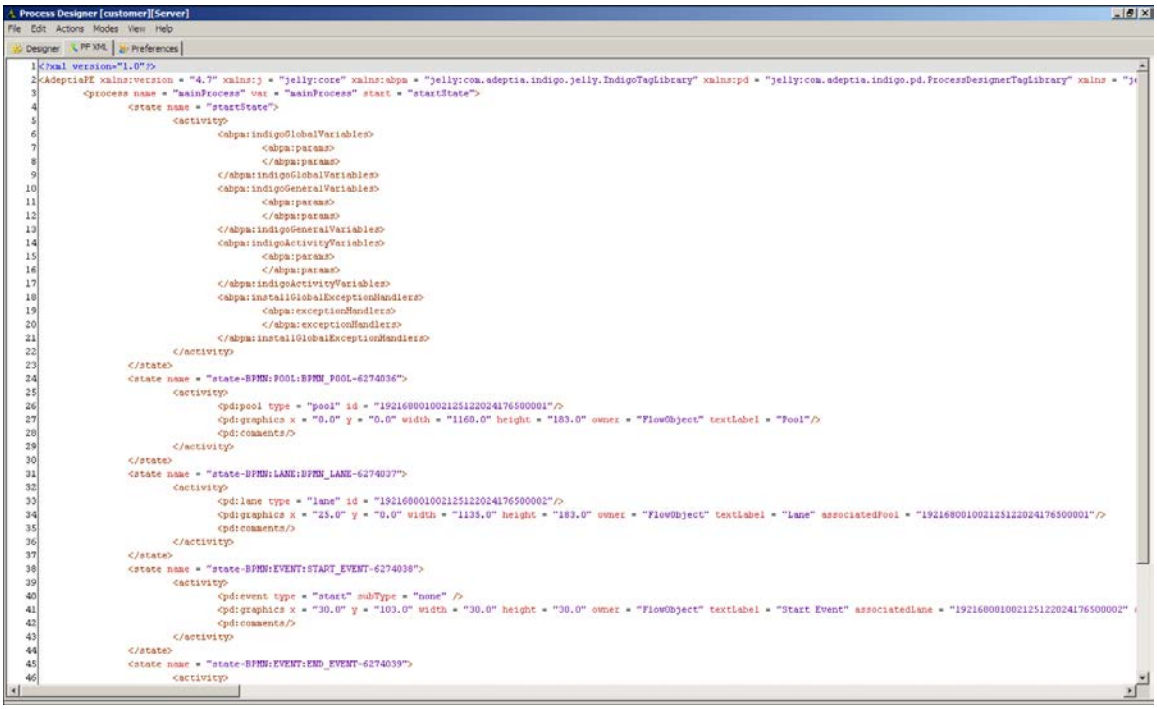


Figure 28: View Process Flow XML

Preferences

The Preferences window allows you to select the background color of graph canvas and labels etc. To view the Preferences window, click the **Preferences** tab (see Figure 29).

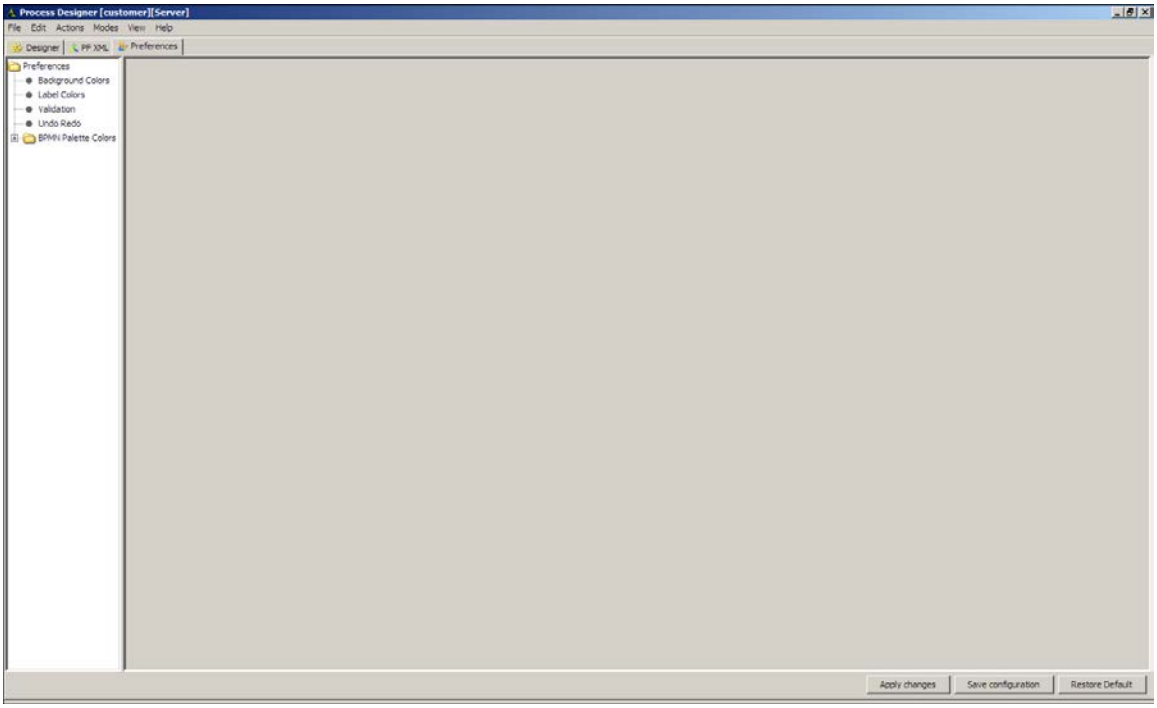


Figure 29: Preferences

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

Table 5: 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.
Undo Redo	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 Palette Colors	Change colors of Events, Activities, Gateway and Artifacts.

Keyboard Shortcuts

Table 6: 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>
Edit	Undo	<Ctrl> + <Z>
	Redo	<Ctrl> + <Y>
	Zoom In	<Ctrl> + <NumPad +>

Menu Option	Sub-Option	Keyboard Shortcut
	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 1.6 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. On the Adeptia Suite homepage menu, click **[+] Design** to expand the hierarchy. All items in the **Design** category are displayed.
2. Click **[+] Process Flow** to expand the hierarchy and then click **Process Flow**. The **Manage Process Flow** screen is displayed (see Figure 30).

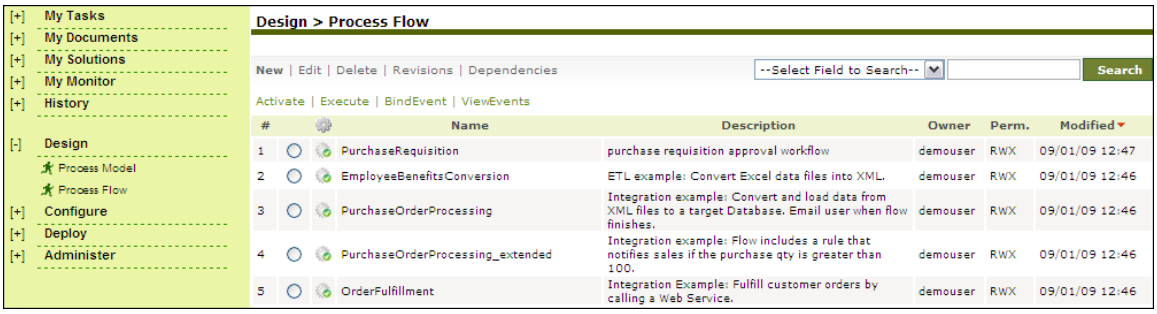


Figure 30: Manage Process Flow

3. Click the **New** link. The **Create Process Flow** screen is displayed (see Figure 31).

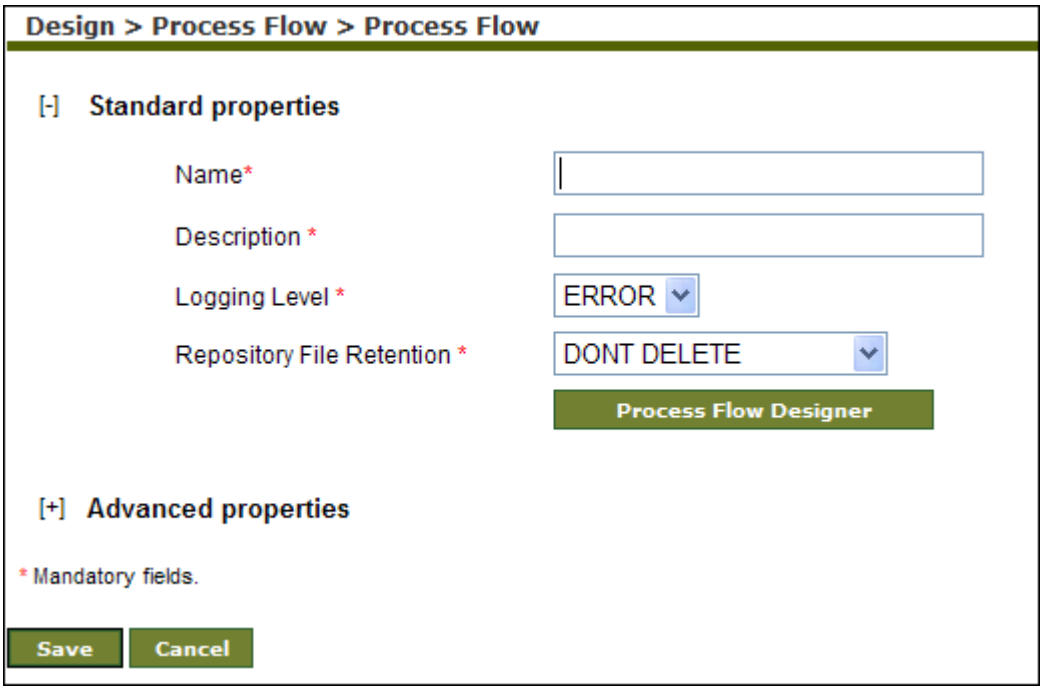


Figure 31: Create Process Flow

4. Enter the name and description of the new process flow in the textboxes **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 Overriding Process Flow Description at Runtime.

5. Select the logging level from the dropdown list **Logging Level**. The various logging levels are depicted in the table below.

Table 7: Types of Logging Levels

Preferences	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.

Preferences	Description
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. By default *Error* is selected in the *Logging Level.*

6. 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 8: 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 *abpm.transaction.repository.archive.server* property. Refer to the Administrator Guide for details.
DELETE ON SUCCESS	Repository files are deleted only when the process flow is executed successfully and there is no error record.

7. Click **[+]** to expand **Advanced Properties**. Advanced properties of process flow are displayed (see Figure 32).

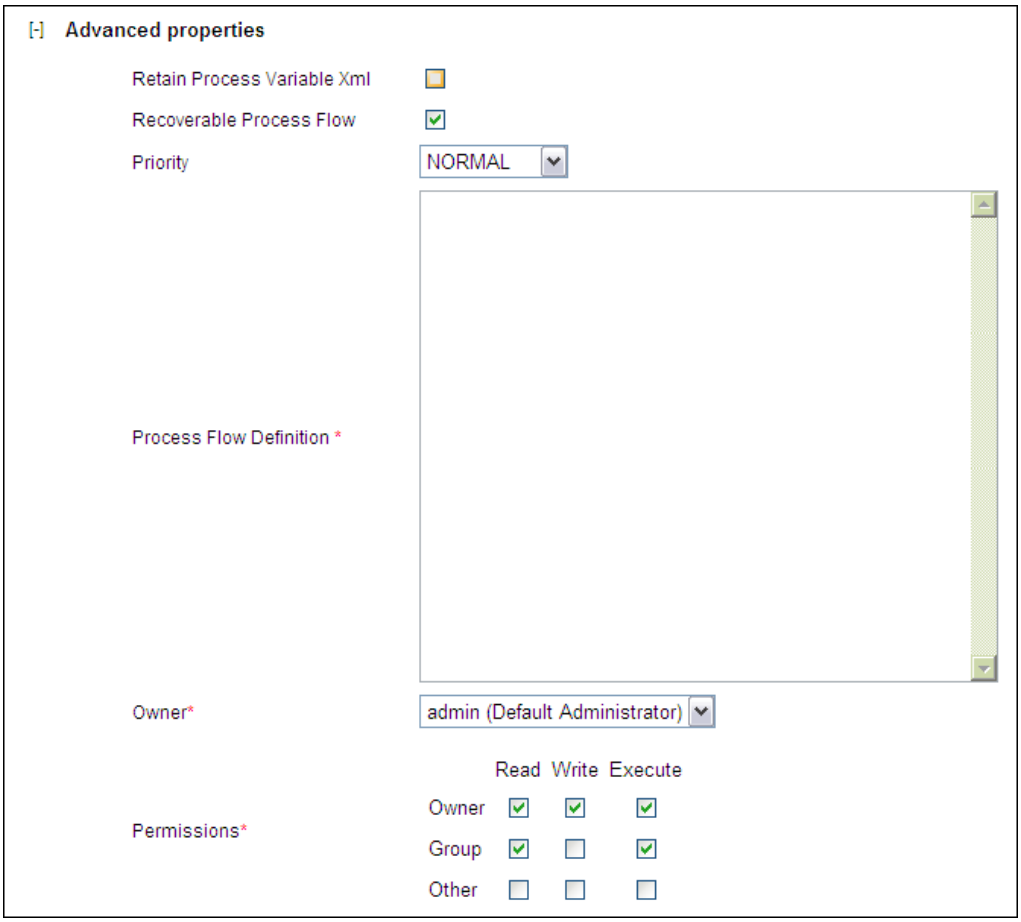


Figure 32: Process Flow's Advanced Properties

8. To make this process flow implicitly recoverable, select the **Recoverable Process Flow** checkbox.

Recoverable Process Flows are those Process flows, whose execution can be resumed in case the kernel is restarted due to some reason during Process Flow execution. For details of recoverable process flows refer to Recovery section.

9. Select the priority from the dropdown list **Priority**. This property is applicable when Queue Processor is enabled. Table 9 lists the priorities and their description.

Table 9: List of Priorities and their Description

Priority	Description
NORMAL	When a process flow with *Normal* priority is executed, it first get queued to the Queue Processor and then get executed based on the availability of the queue processor.
IMMEDIATE	When a process flow with *Immediate* priority is executed, it by passes the Queue Processor and gets executed immediately, even if the queue processor is busy.

For more details about Queue Processor, refer to *Load Management* section of *Admin Guide.*

10. Click the **Process Flow Designer** button. The **Process Designer** window is displayed (see Figure 33).

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.

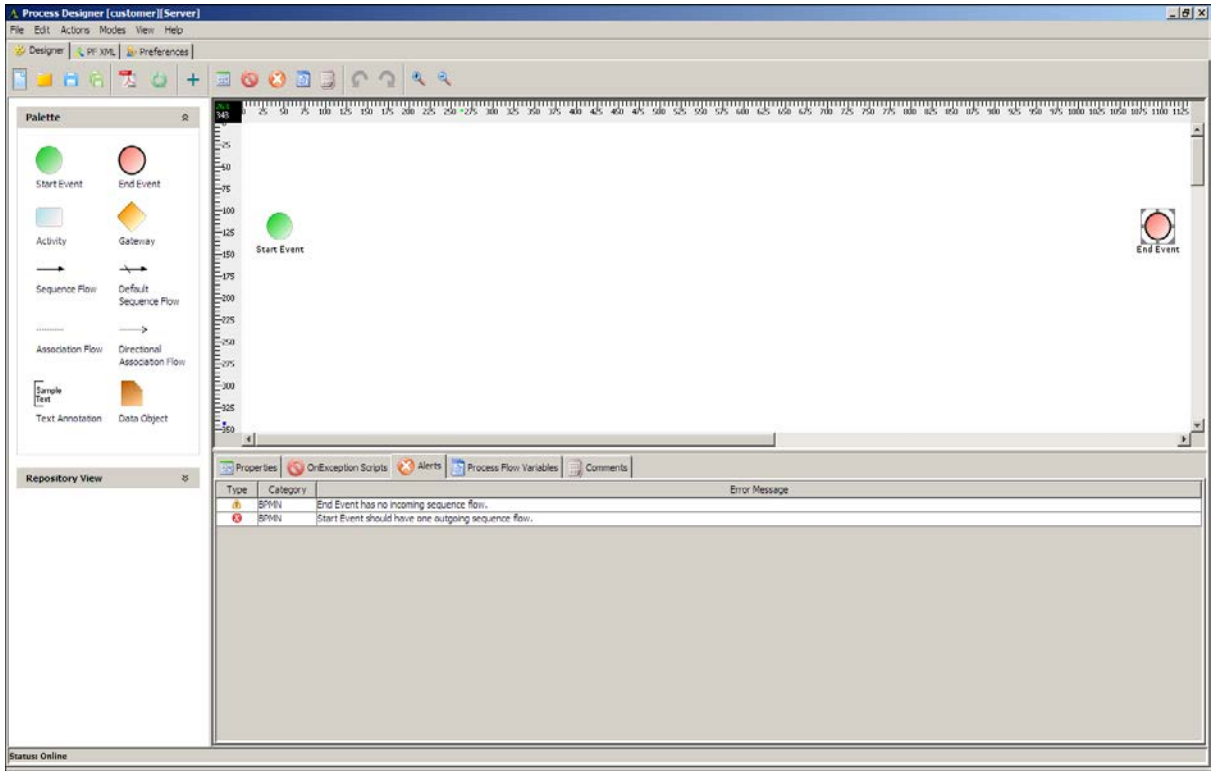


Figure 33: Process Designer

11. Click **Activity** element in the Palette and drag it to the Graph Canvas. The dragged activity element is displayed in the Graph Canvas (see Figure 34).

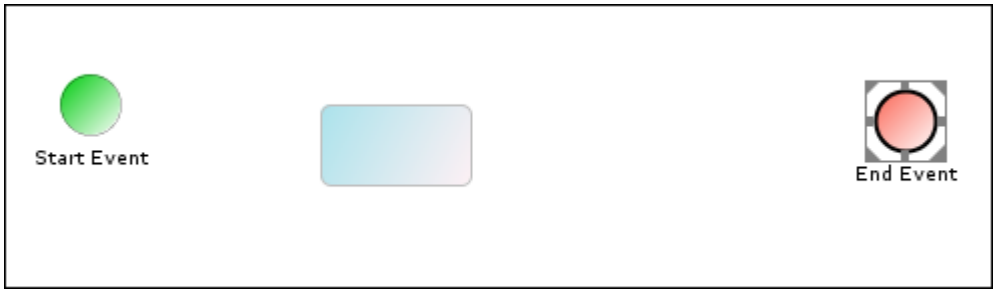


Figure 34: Dragging BPMN Activity into Graph Canvas

12. 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 35).

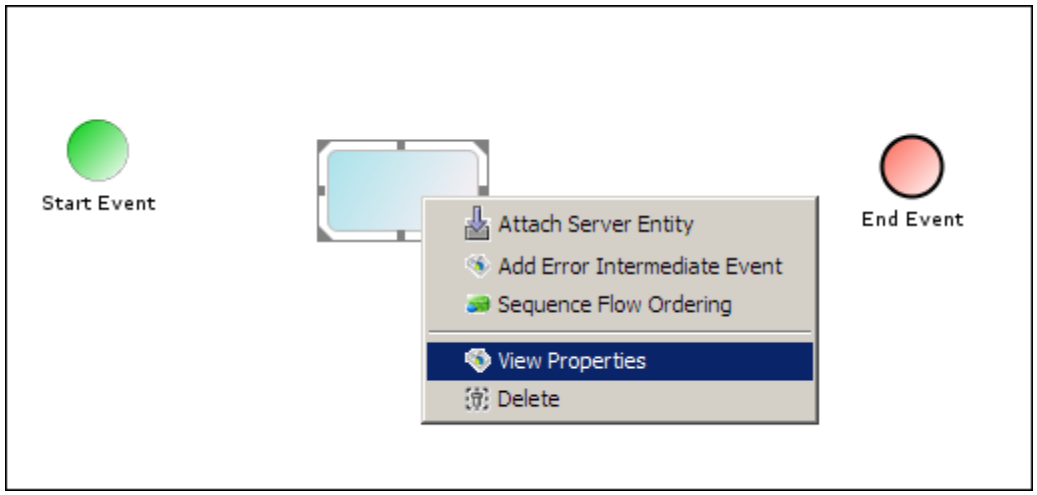


Figure 35: Right-Clicking an Activity

13. 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 36).

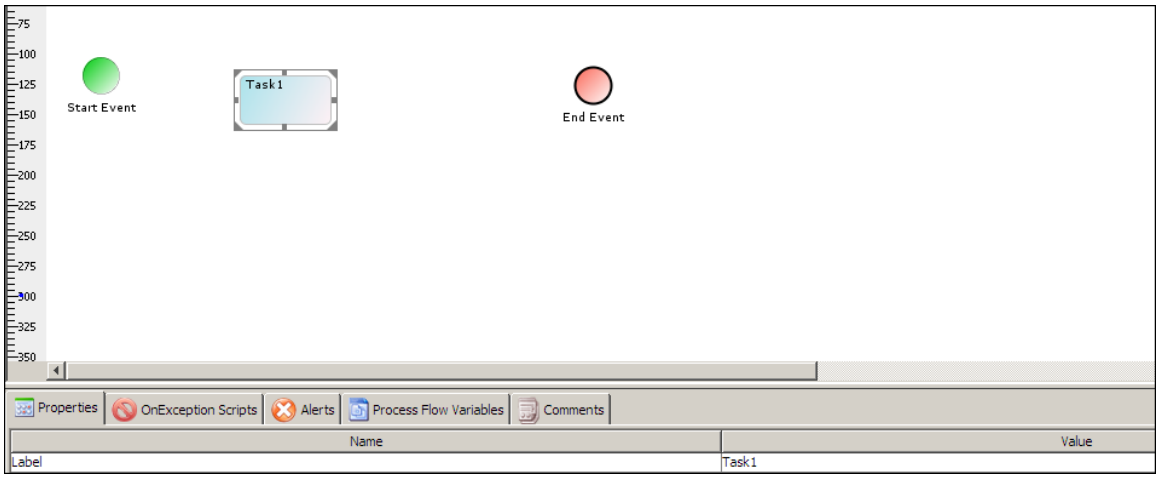


Figure 36: Displaying Name of Activity

All BPMN elements can be labeled in the same way.

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

15. 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 37).

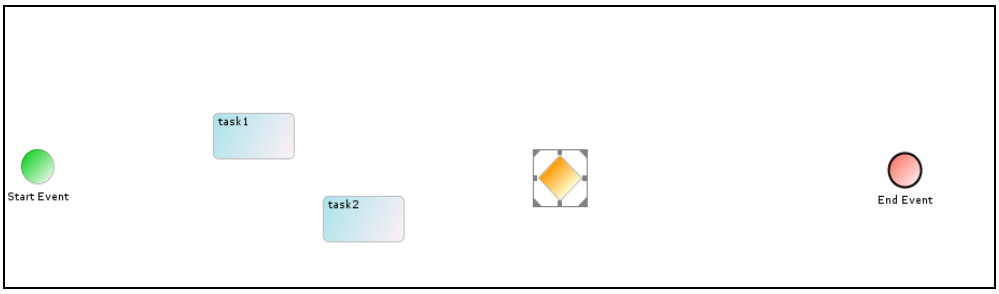


Figure 37: Dragging BPMN Gateway into Graph Canvas

All similar elements can be dragged and dropped in the same way.

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. Click required flow in the Palette. The control flow is selected.
17. Drag the cursor between two BPMN elements. Both BPMN elements are connected with the selected flows (see Figure 38).

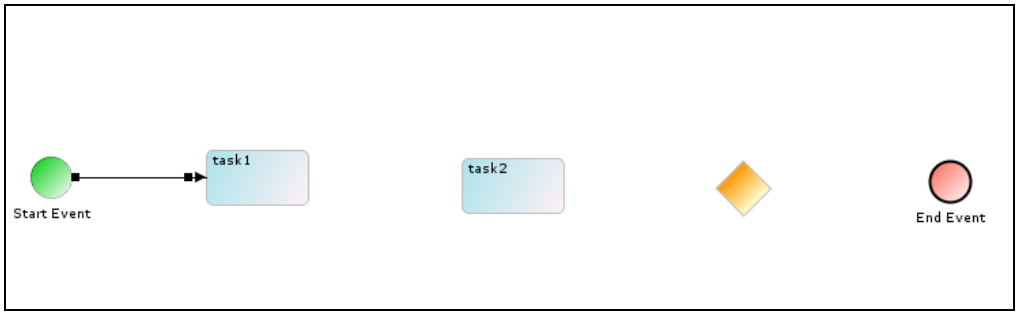


Figure 38: Connecting BPMN Elements

18. Connect all BPMN elements with appropriate control flow (see Figure 39).

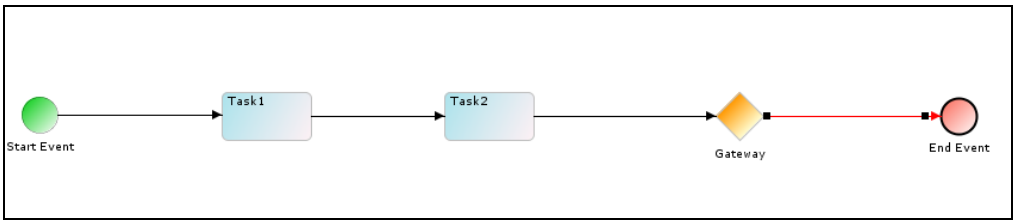


Figure 39: Connecting BPMN Elements

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

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.

Steps to attach Adeptia Server activities with BPMN elements

1. Expand the **Repository View** panel. All the items in the **Server Entities** category are displayed (see Figure 40).

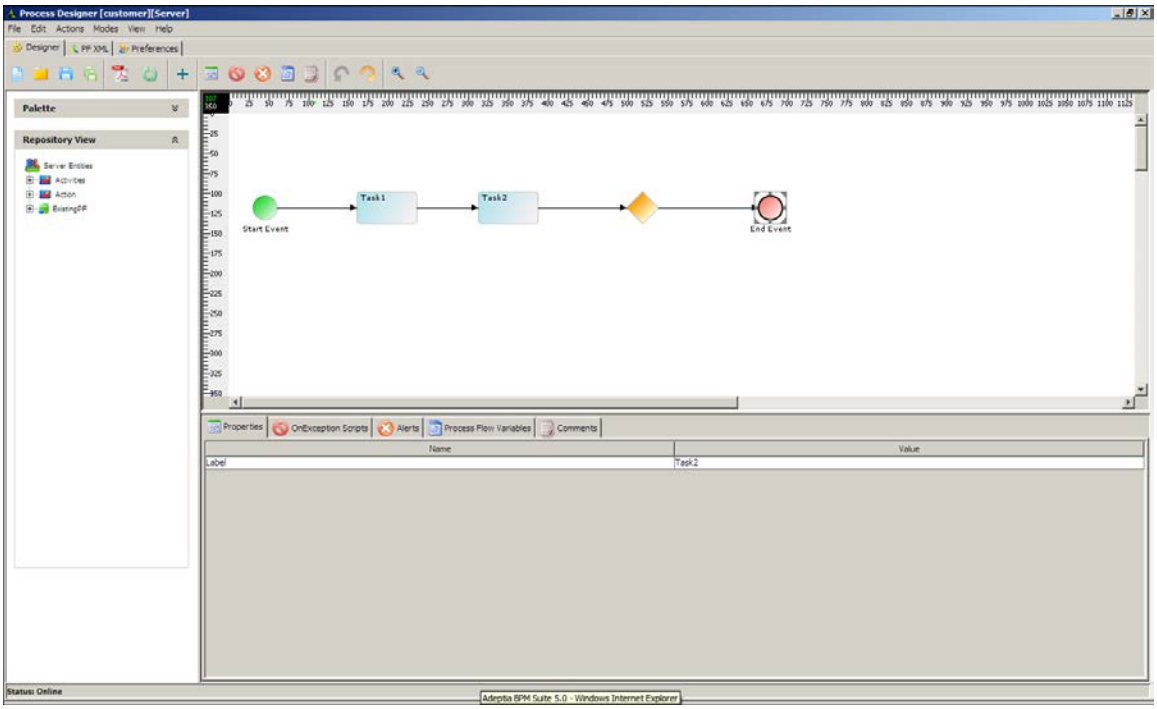


Figure 40: Selecting Adeptia Server Activity

2. Further expand the type of activities e.g. Human Workflow, Schema, Source, etc. until you find the required activity (see Figure 41).

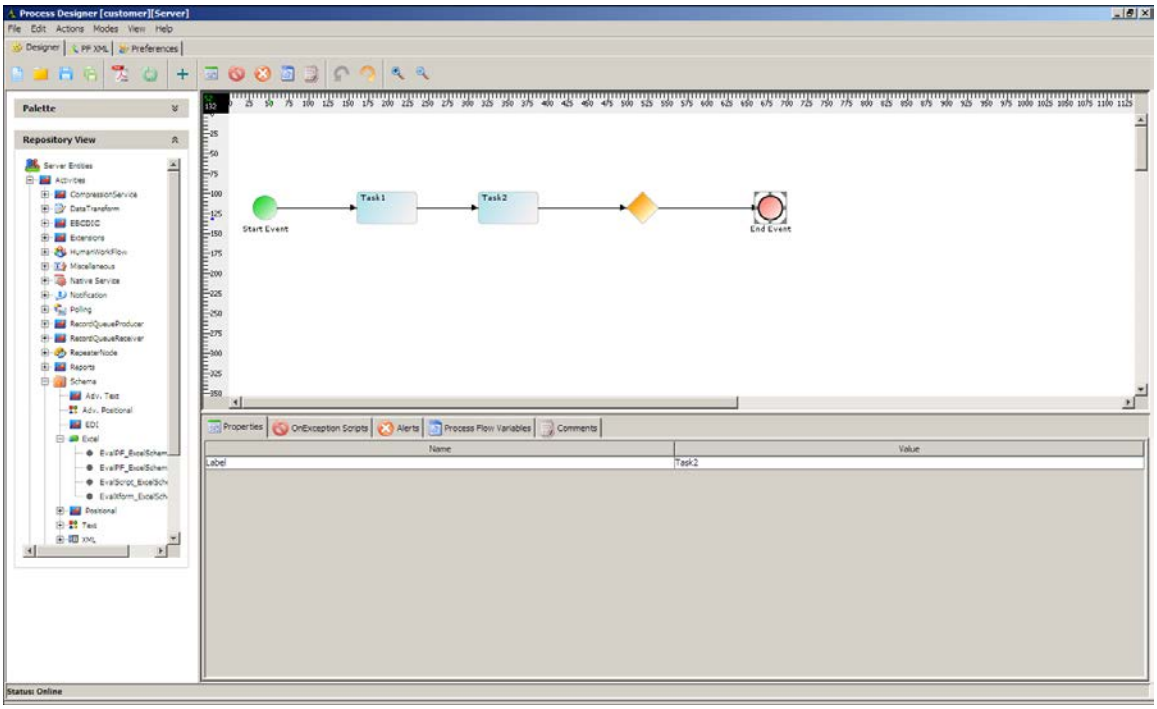


Figure 41: Selecting Adeptia Server Activity

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 42).

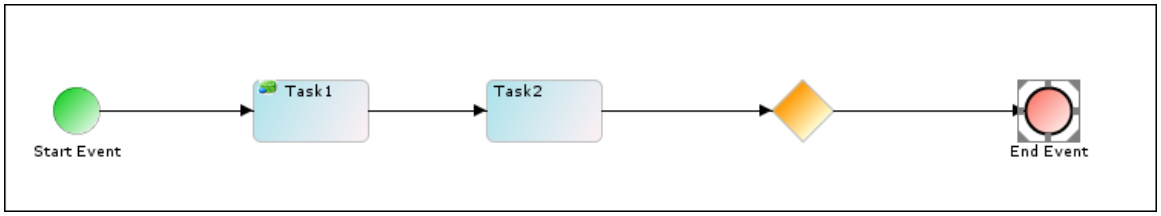


Figure 42: Attaching Adeptia Server activity

An activity can also be attached by right-clicking the BPMN element. Right-click BPMN element and select **Attach 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 43).

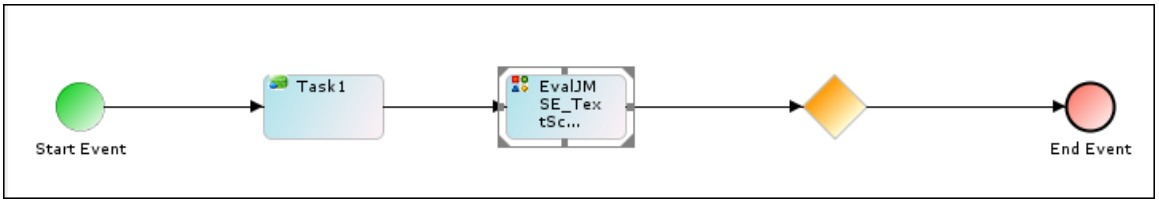


Figure 43: Adeptia Server activity name in BPMN element

4. Repeat step 1 to 3 to attach activities to other BPMN elements (see Figure 44).

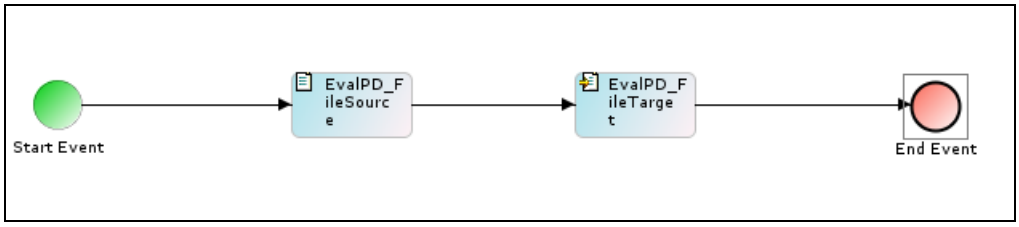


Figure 44: Attaching Adeptia Server activity

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 45).

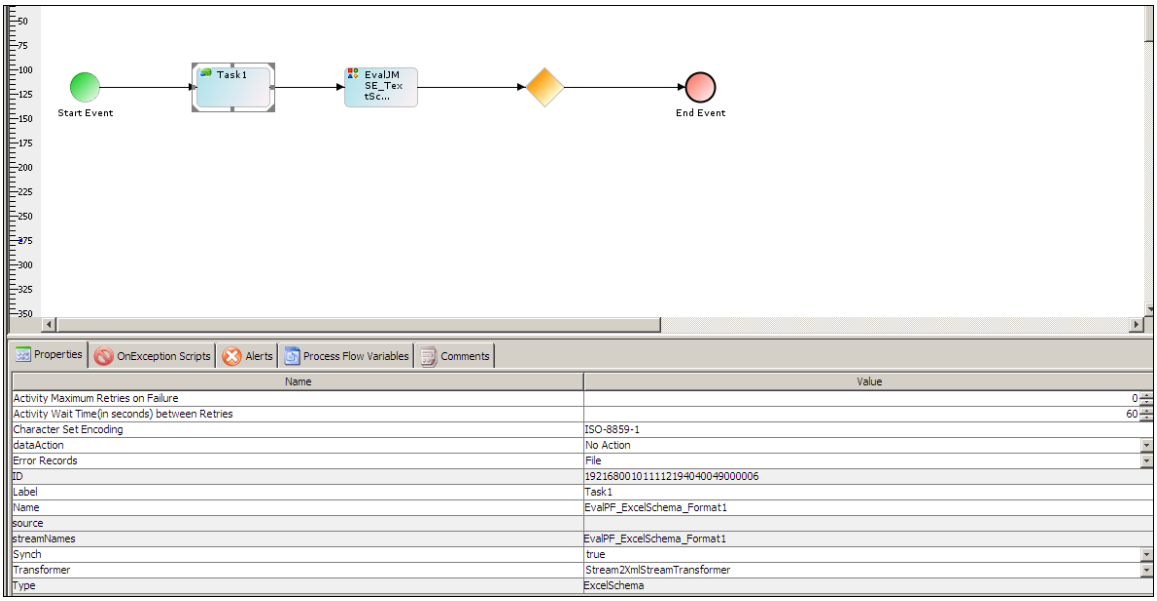


Figure 45: Edit Activity Properties

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 the **File** menu and then select the **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.

8. 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 46).

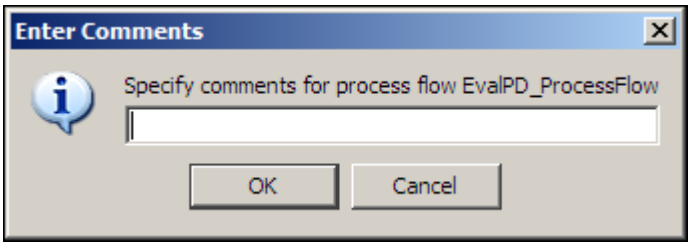


Figure 46: Enter Comments (Process Flow)

9. Enter comments in the **Specify Comments** *for* **Process Flow** field.

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

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

> By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

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 47).

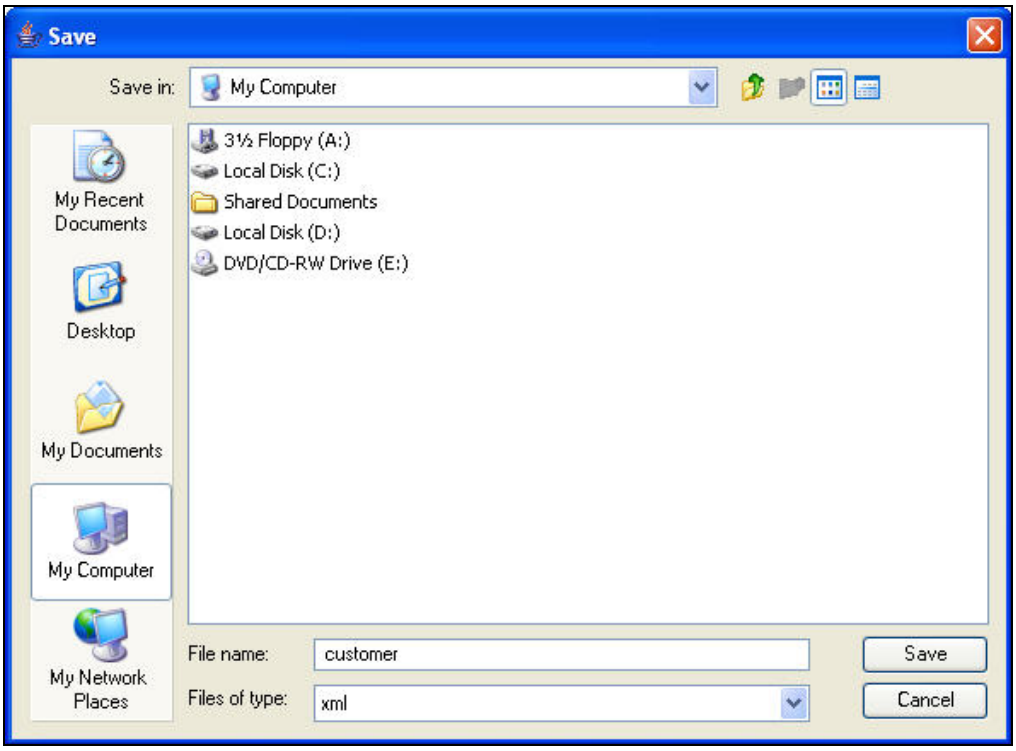


Figure 47: Save Process Flow

2. Enter the name of the file in the **File Name** field and click the **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 **Read-Only** 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 48).

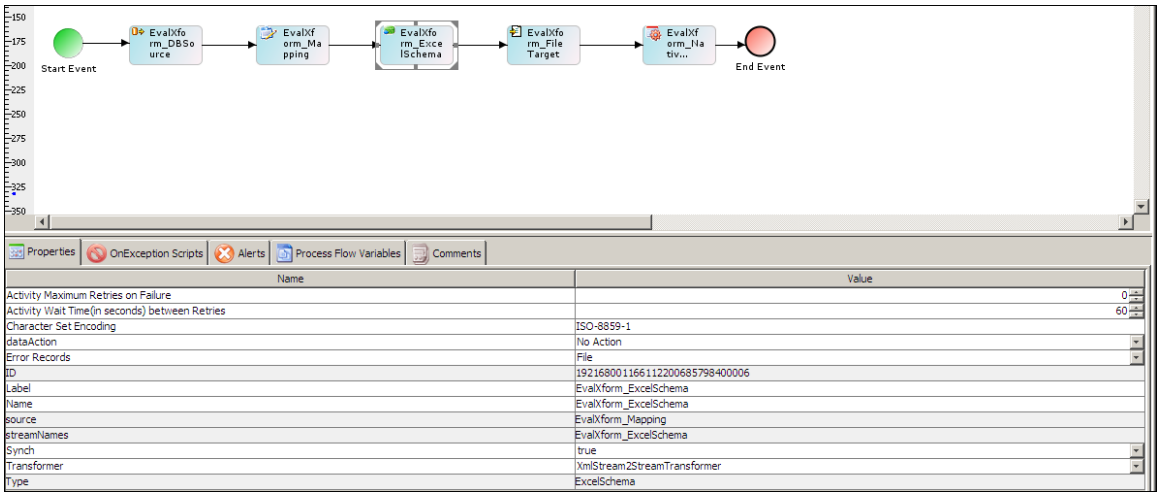


Figure 48: Changing Transformer Type

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

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. On the Adeptia Suite homepage menu, click **[+] Design** to expand the hierarchy. All items in the **Design** category are displayed.
2. Click **[+] Process Flow** to expand the hierarchy and then 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 **Manage Process Flow** screen, 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 49).

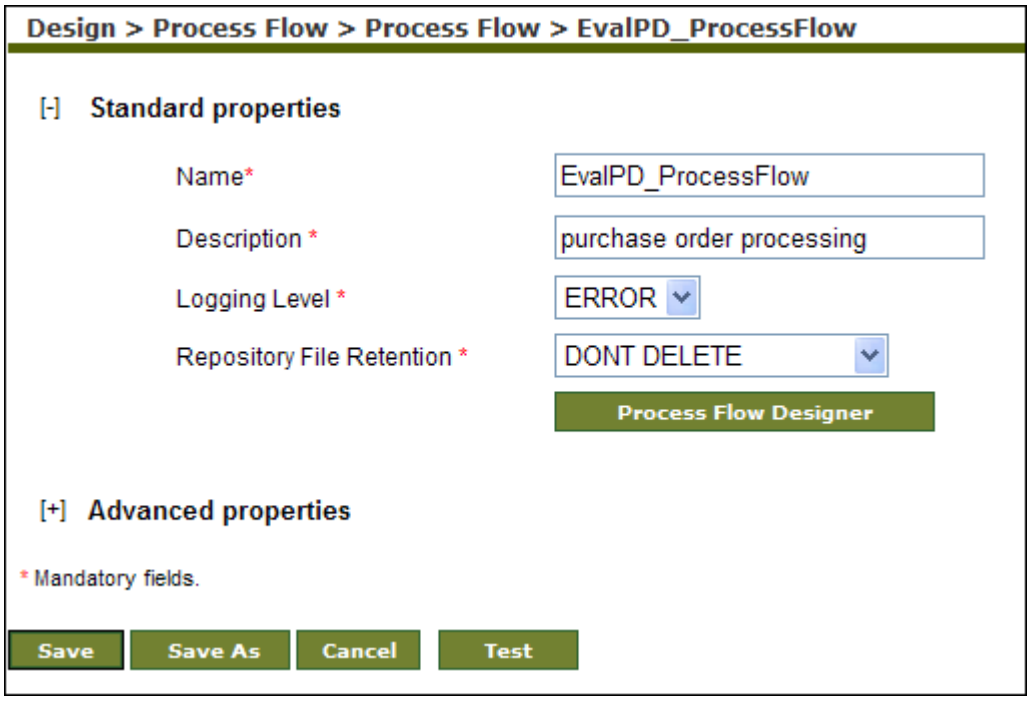


Figure 49: Edit Process Flow

2. Click the **Test** button. The **Test Process Flow** screen is displayed. (see Figure 50).

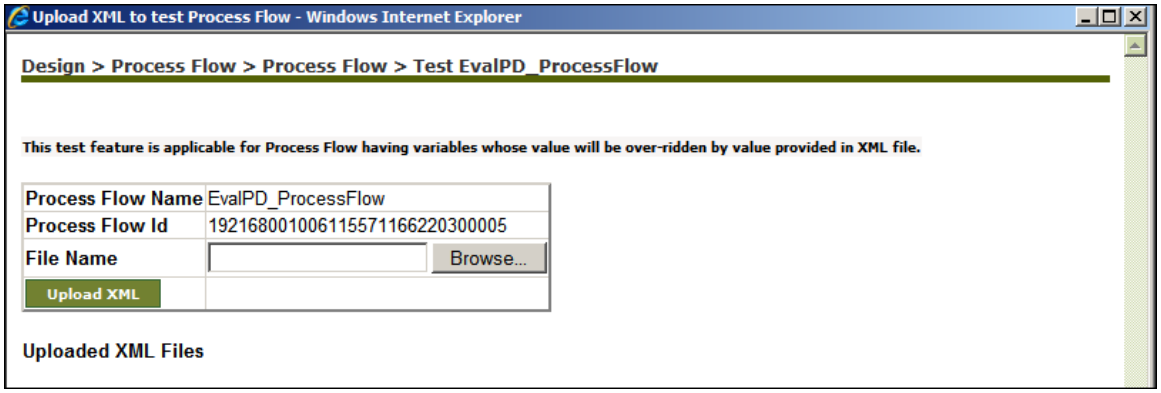


Figure 50: Test Process Flow

3. Click **Browse** and select the required XML files. Following is the sample of XML file used to test the process flow.(see Figure 51).

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

Figure 51: Sample XML

4. Once the required file is selected, click **Upload XML** button. The uploaded file is show in the **Test Process Flow** screen. (see Figure 52).

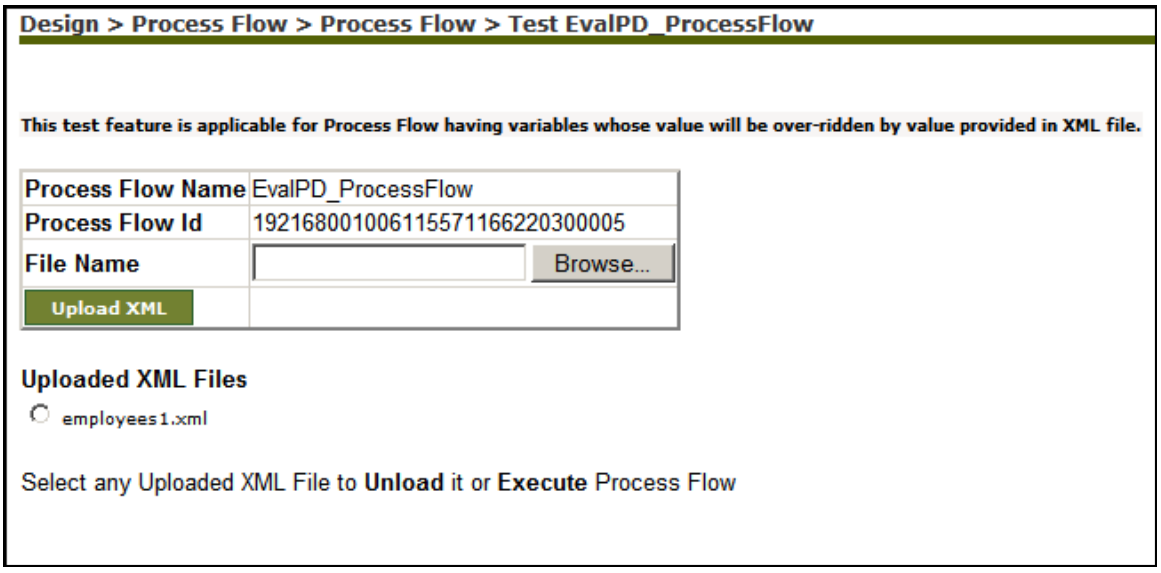


Figure 52: Select XML File

You can upload more than one file.

5. 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 53).

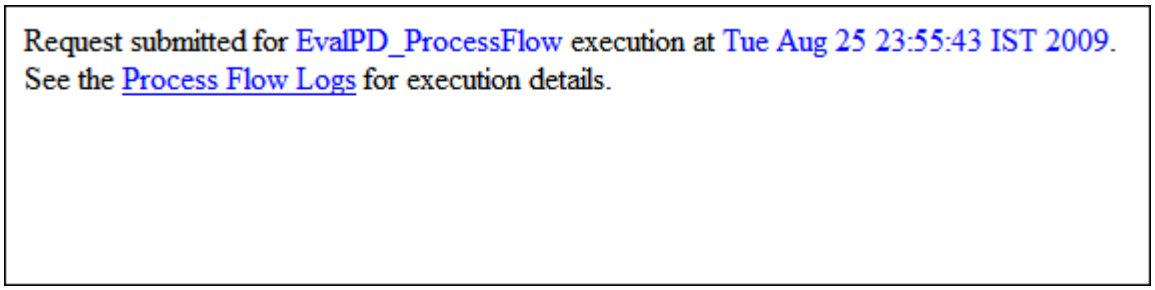


Figure 53: View Process Flow Log

6. Click the **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 54).

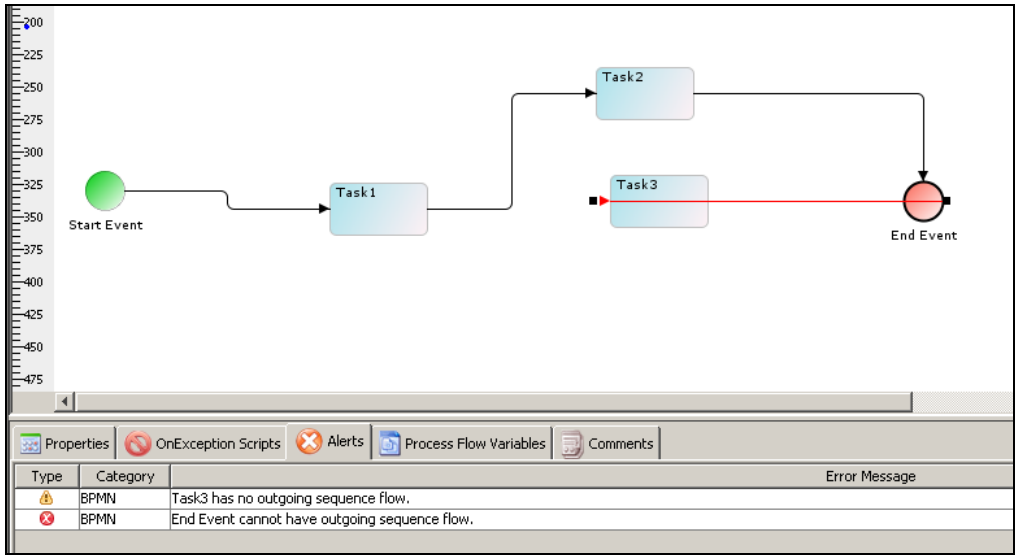


Figure 54: Validation

In Figure 54 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 55).

Figure 55: Changing Preferences

2. Click **Validation** under the **Preferences** menu. The **Validation Options** screen is displayed (see Figure 56).

Figure 56: Disable Validation

3. Select **Disable** from the dropdown list **Enable or Disable Validation**.
4. Click **Apply Changes** button and then click the **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 57.

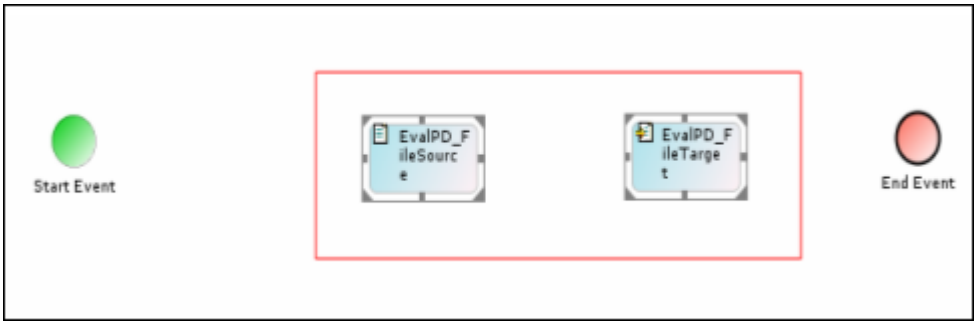


Figure 57: Multiple Selections

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 **<Delete>** on the keyboard.

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.

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.

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 10: 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: *flowId:* Name of the process flow (sub-flow). 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. Following is the code which is used in custom plugin activity to override the flow id: context.setActivityParameter("Call1","flowId", "192168001158117188341381200001"); where *Call1* is the name of the call activity and *192168001158117188341381200001* is ID of the child process flow. *Label:* The label displayed for the call action. *Name:* Name for the call action *resultCtxVarName:* Name of the context variable that contains the status of the sub-flow. Its value is Boolean.

Action	Description
	Using *Call* 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.
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. *Label:* The label displayed for the Checkpoint action. *Name:* Name for the Checkpoint action.
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: *Label:* The label displayed for the Delay action. *Name:* Name for the Delay action. *Time:* 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. *Label:* The label displayed for the JTA-Begin/End action. *Name:* Name for the JTA-Begin/End action.

Action	Description
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. *Label:* The label displayed for the JTA-Rollback action. *Name:* 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: *Edit Context:* Displays a condition screen which allows you to add a new context variable or edit or delete existing context variables. *Label:* The label displayed for the Put-Context-Var action. *Name:* Name for the Put-Context-Var action. *Type:* 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: *Activity:* 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. *ChildActivityName:* 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. *Childkey:* Name of Context Variable of the child process flow whose value will be set. *ChildName:* Name of the Call or Spawn action, which is used to call or

Action	Description
	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. *Key:* 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. *Label:* The label displayed for the Set-Child-Context action. *Name:* Name for the Set-Child-Context action.
Set-Parent-Context	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: *Activity:* 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. *Key:* 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. *Label:* The label displayed for the Set-Parent-Context action. *Name:* Name of Set-Parent-Context action *ParentActivityName:* 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. *ParentKey:* Name of Context Variable of parent process flow whose value will be set.
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: *flowId:* Name of the process flow (sub-flow). You can override its value dynamically during execution of the process

Action	Description
	flow. To override the flowId you can use custom plugin activity or put-context-var before spawn action. Following is the code which is used in custom plugin activity to override the flow id: context.setActivityParameter("Spawn1","flowId", "192168001158117188341381200001"); where *Spawn1* is the name of the spawn activity and *192168001158117188341381200001* is ID of the child process flow. *Label:* The label displayed for the Spawn action. *Name:* Name for the Spawn action. *resultCtxVarName:* Name of the context variable that contains the status of the sub-flow. Its value is Boolean. Signal: 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. *Wait for Child:* 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.
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: *Label:* The label displayed for the Synch action. *Name:* Name for the Synch action. *Signal:* Name of the signal that is specified in the signal properties of the Synch action.
Trace	This action is used to log a message, which can be used later for information,

Action	Description
	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: *Label:* The label displayed for the Trace action. *Log Level:* 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 *Logging* section in the *Administrator Guide*. *Message:* 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. Name: Name for the Trace action.
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: *Label:* The label displayed for the Wait action. *Name:* Name for the Wait action. pollinginterval: Time interval in seconds the wait action will poll for the above specified variable value. *resultCtxVarName*: Name of the context variable that contains the status of the Wait action. Its value is Boolean timeout: Timeout duration in seconds *value:* Value of the context variable. *var:* Name of the context variable for which the Wait action 'waits'.

Steps to add Actions to a Process Flow

1. Click hierarchy structure in the **Repository View** panel. Expand the **Action** list of the Adeptia Server. The list of Adeptia Server actions is displayed (see Figure 58).

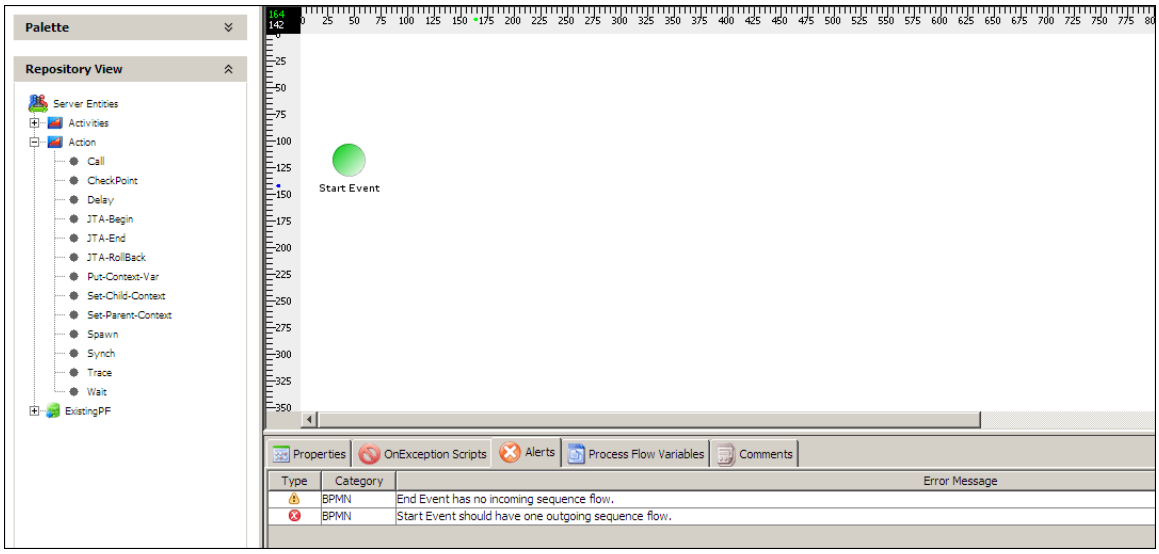


Figure 58: List of Actions in Adeptia Server

2. Select the required action and drag it to the Graph Canvas area. The dragged action is displayed in the Graph Canvas (see Figure 59).

Figure 59: 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 60).

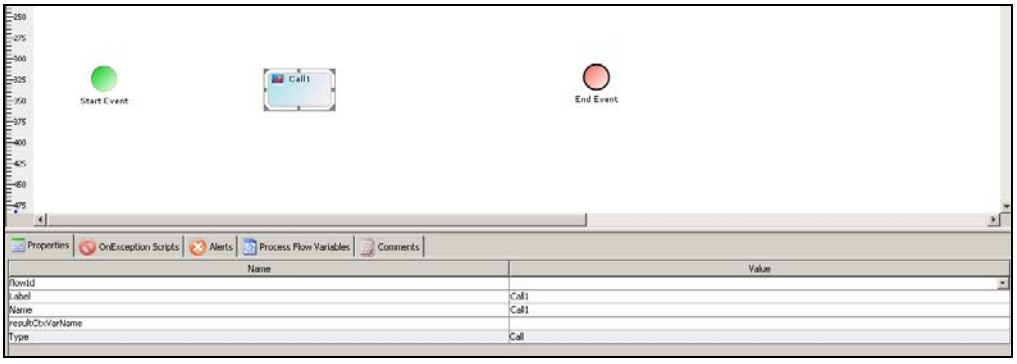


Figure 60: Action's Properties

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 the **Process Flow Variable** tab in the bottom pane. The **Process Flow Variables Panel** is displayed with the list of existing variables (see Figure 61).

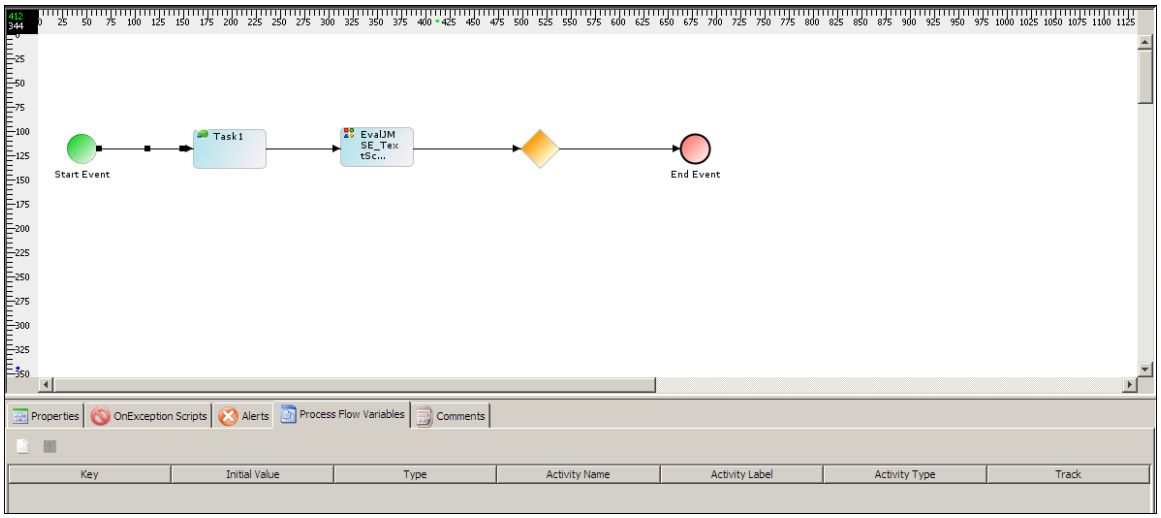


Figure 61: Process Flow Variable Panel

2. Click the **New Process Flow Variable** ( ) button in the Process Flow Variables Panel. The **Process Flow Variable Entry** screen is displayed (see Figure 62).

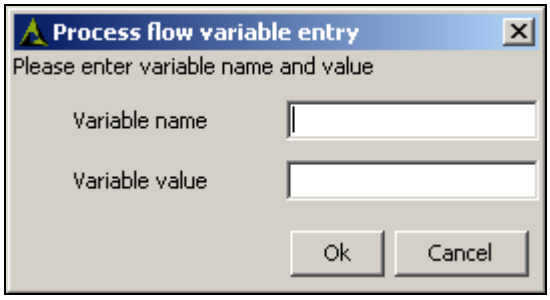


Figure 62: Create Process Flow Variable

3. Enter the name for the process flow variable in the textbox **Variable Name**.
4. Enter the value of process flow variable in the textbox **Variable Value**.
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 the list in the Process **Flow Variables** tab (see Figure 63).

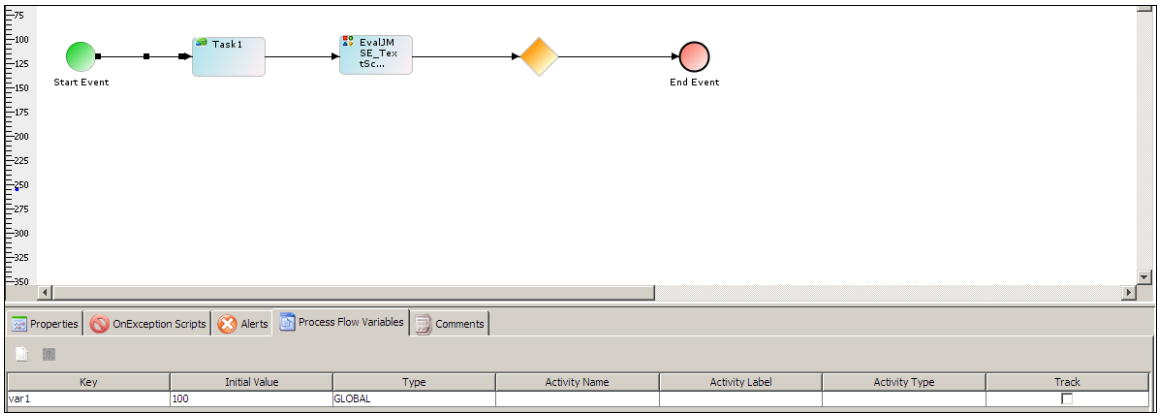


Figure 63: Process Flow Variable created

To track all changes made on the process flow variable, check the *Track* checkbox against the process flow variable.

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. Click hierarchy structure in the **Repository View** panel. Expand the **Action** list and select the **Put-Context-Var** action. Drag it to the Graph Canvas area. The Put-Context-Var action is displayed in the Graph Canvas (see Figure 64).

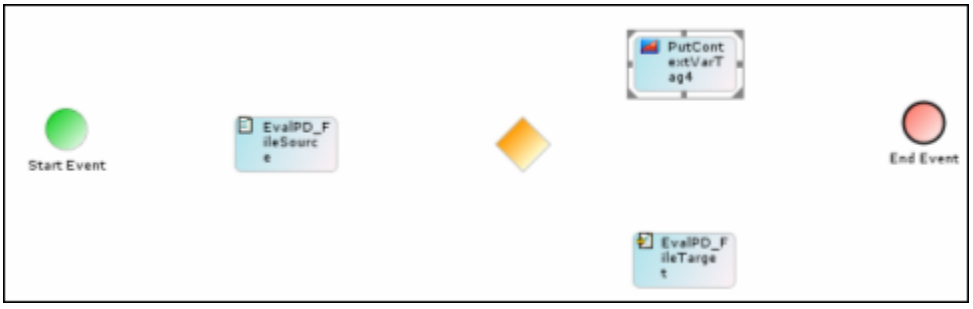


Figure 64: Drag Put-Context-Var action in Graph Canvas

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 64).

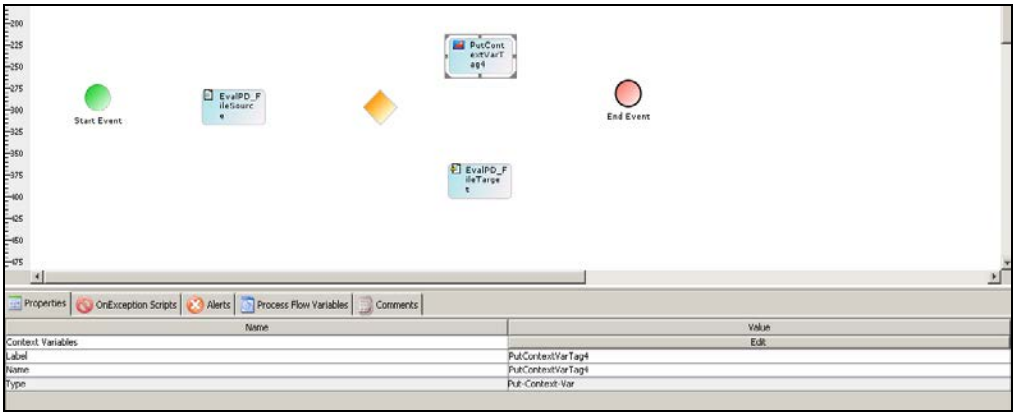


Figure 65: Properties of Put-Context-Var action

3. Click the **Edit** button. The **Edit Context Variables** screen is displayed (see Figure 66). This screen displays a list of existing context variables and the Add Variable ( ), Edit Variable ( ) and Delete Variable ( ) buttons.

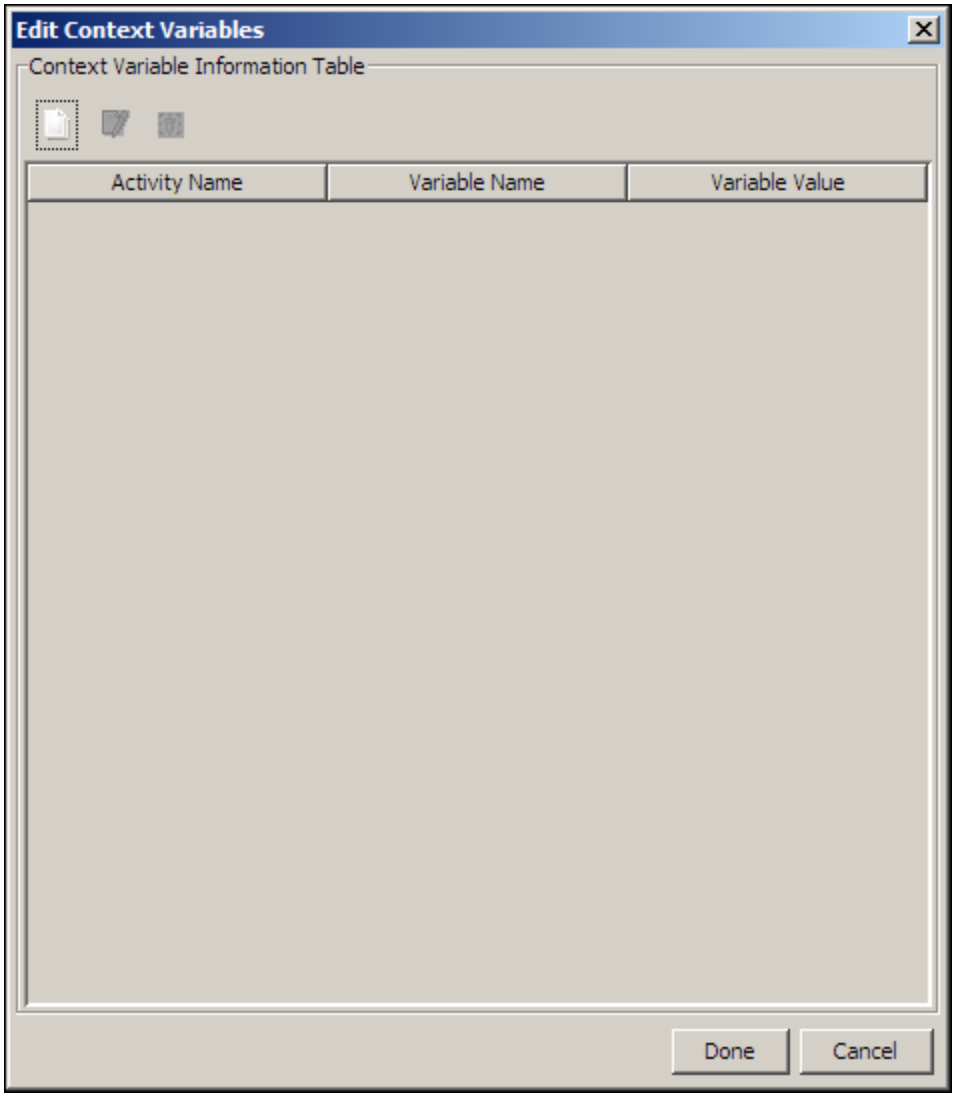


Figure 66: Edit Context Variables

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 67).

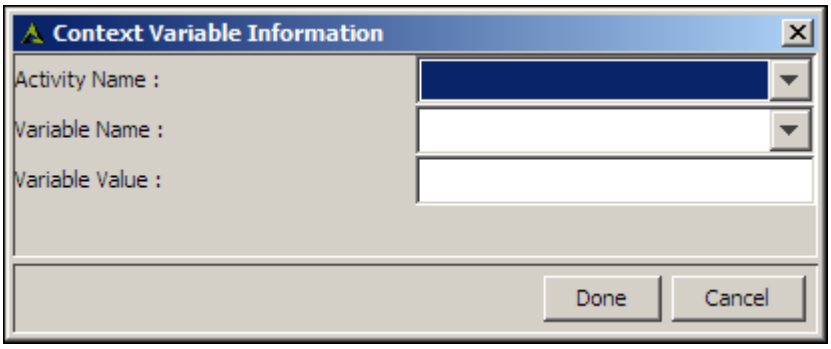


Figure 67: Context Variable Information

5. Select the name of the activity for which you want create the context variable, from the dropdown list **Activity Name**. This dropdown 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** dropdown 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 dropdown list **Variable Name**. 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** dropdown 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 68).

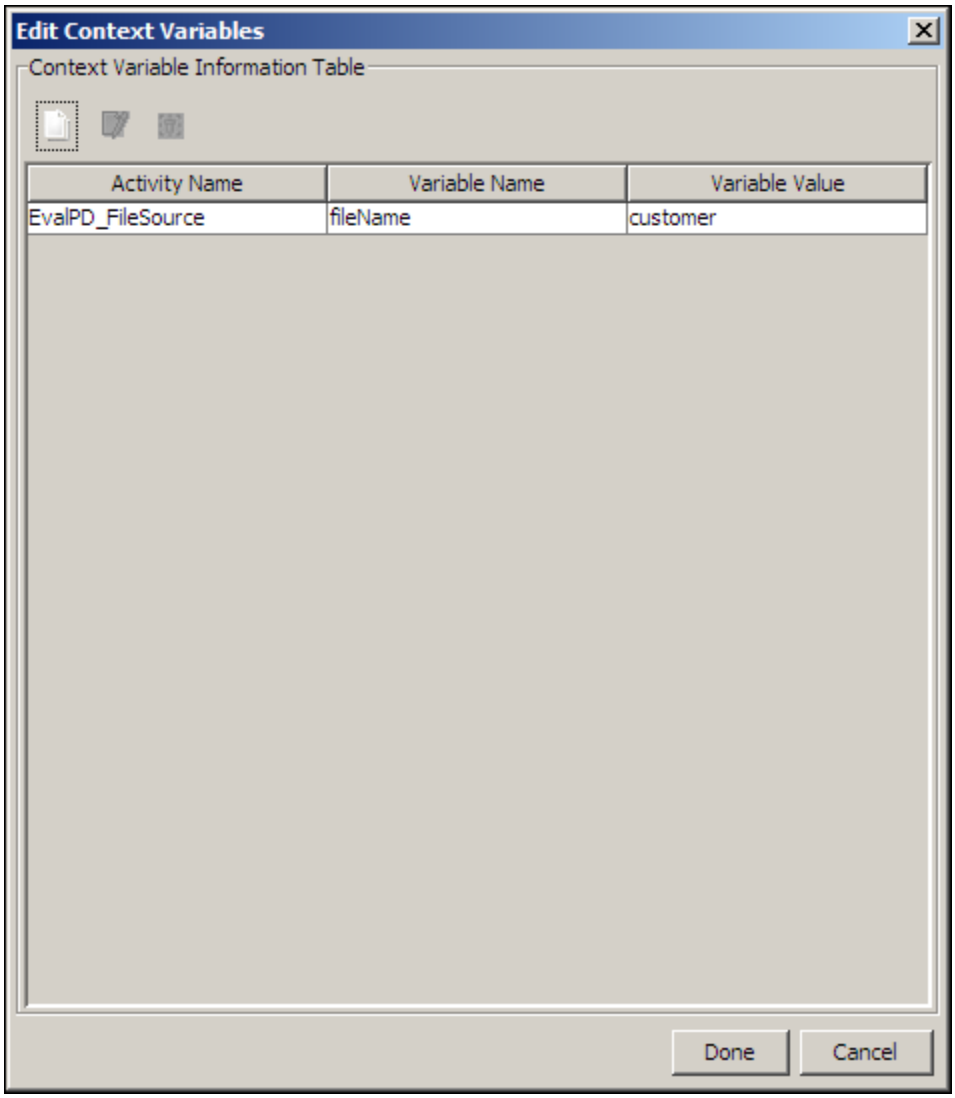


Figure 68: Context Variable Added

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 it 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. Click hierarchy structure in the **Repository View** panel. Expand the **Activities** list 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 69).

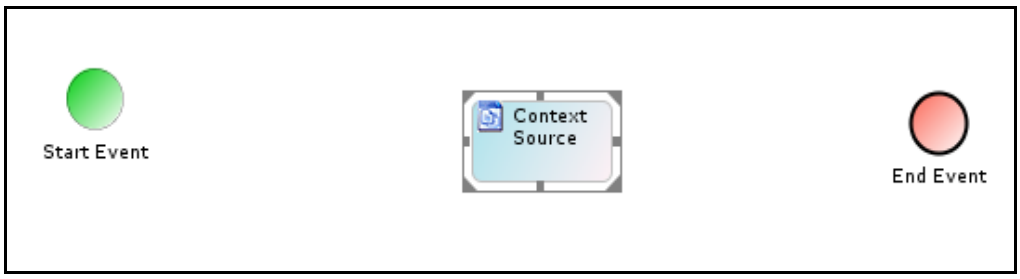


Figure 69: Drag Context Source

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 70).

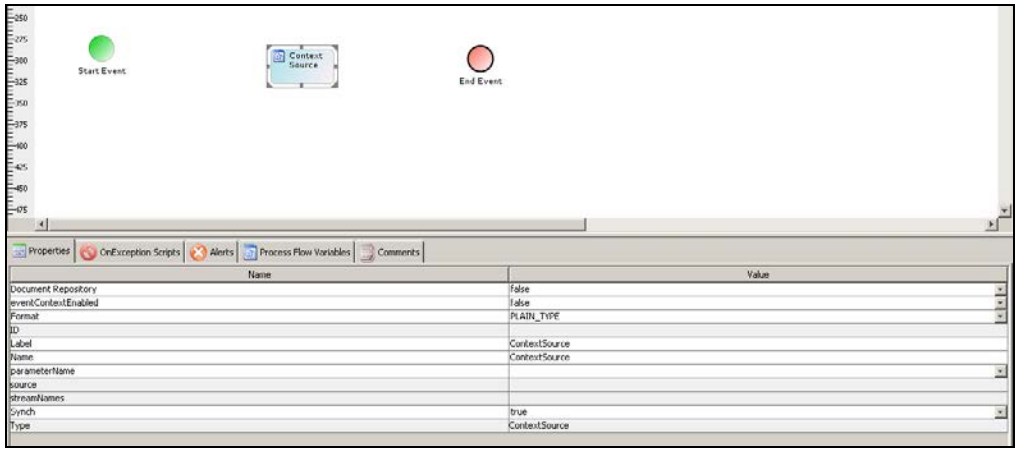


Figure 70: Properties of Context Source

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

Table 11: 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 *Administrator Guide*.
eventContextEnabled	By default it is set to **NO**. If you want to pass any data from event, select **Yes**. 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 **Creating Trigger and Events** section.
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 **Document Repository** property is set to *True*.
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 **Document Repository** Property is set to *False*.
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.
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 dropdown list.

Properties	Description
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 **Document Repository** property is set to *True*. 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 hierarchy structure in the **Repository View** panel. Expand the **Action** list and select the **put-context-var** action and drag it to the Graph Canvas area anywhere within the process flow.
2. Connect the put-context-var action as shown in Figure 71 .

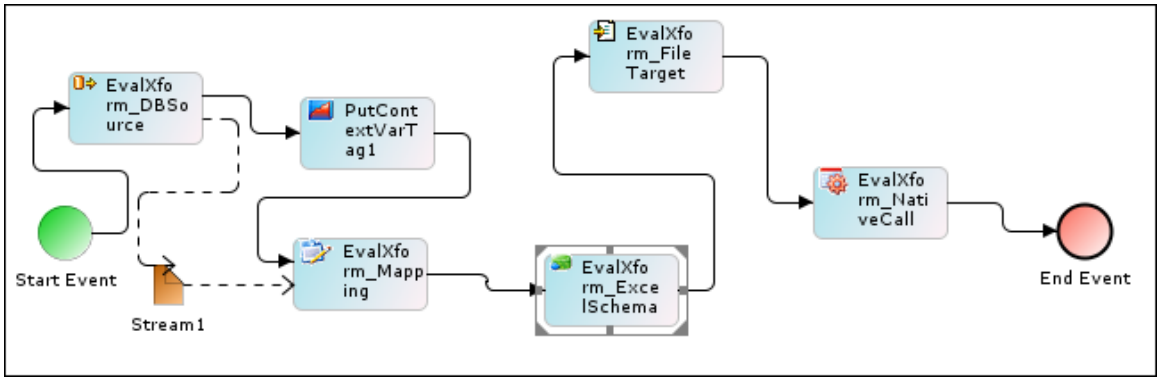


Figure 71: Connect Put-Context-Var to activity

3. Right-click **put-context-var** and select **View Properties**. Its properties are displayed in the **Properties Panel** in the Bottom Pane (see Figure 72).

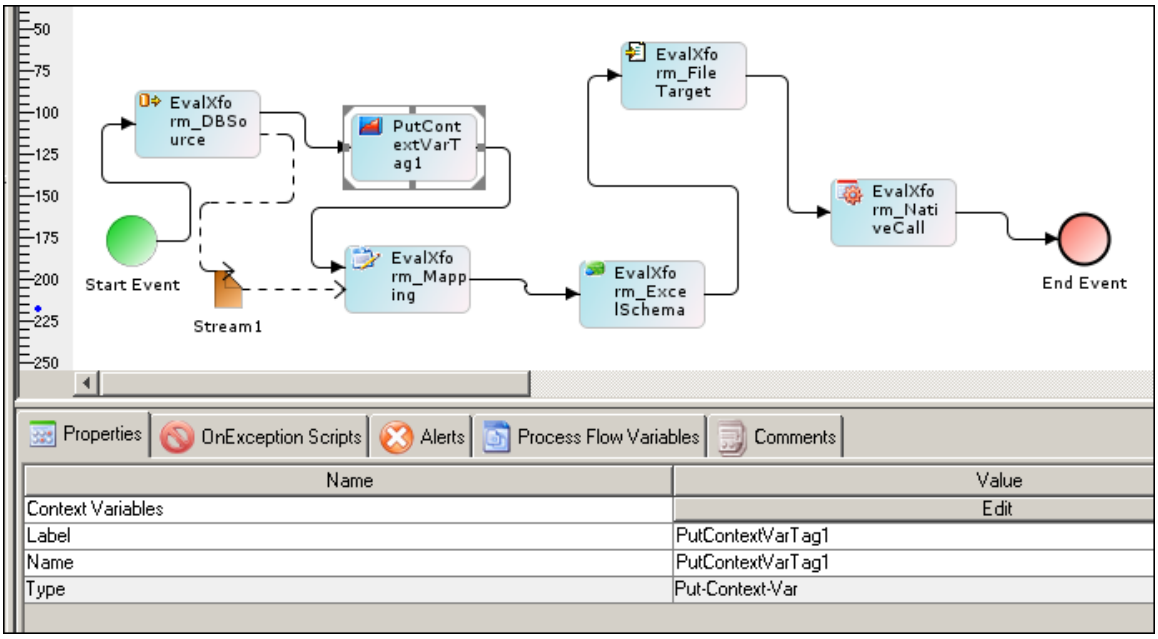


Figure 72: Properties of Put-Context-Var

4. Click the **Edit** button to edit the value of context variable. The **Edit Context Variables** dialog box is displayed.

5. Click **Add Variable** ( ) to add new context variable. The **Context Variable Information** screen is displayed.

6. Leave the **Activity Name** field blank.

7. Select **ProcessFlowDescription** from the dropdown list **Variable Name**.

8. Enter the new description of the process flow in the textbox **Variable Value**.

9. Click **Done** to close the **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.

10. Click **Done** to close **Edit Context Variables** screen and return to Process Designer.

11. 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:

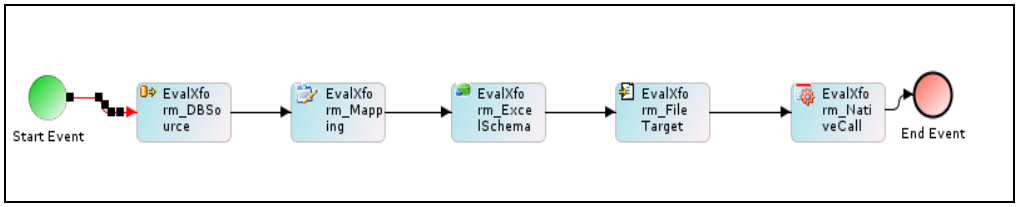


Figure 73: Usage Scenario

In Figure 73 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.

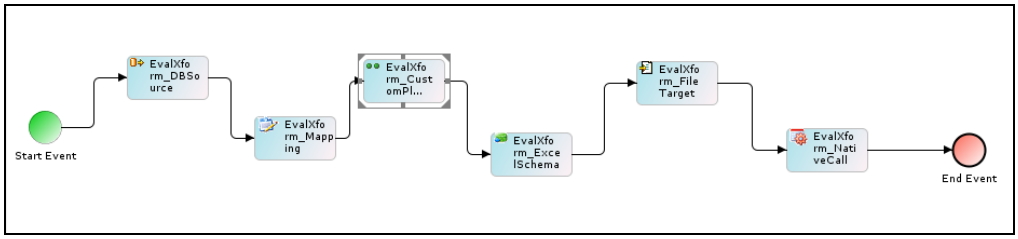


Figure 74: Overriding an Activity using Custom Plugin

As shown in Figure 74, 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 75.

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

Figure 75: Sample Java Code used to Override a Schema Activity

For all other activities the overriding is done using the Java code displayed in Figure 76.

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

Figure 76: Sample Java Code used to Override Activities

Table 12: Arguments used in Java Code

#	Name	Description	Example
1	activityName	Name of the activity, which is	EvalXfrom_ExcelSchema

#	Name	Description	Example
		to be overridden	
2	activityType	Activity Type of the activity, which will override the existing activity. To know the Activity Type of the activity refer to the Activities that can be overridden section.	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.	19216800100611553768421400004

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 hierarchy structure in the **Repository View** panel. Expand the **Action** list and select the **put-context-var** action and drag it to the Graph Canvas area just before the activity, which is to be overridden.

2. Connect the put-context-var action to the activity (see Figure 77).

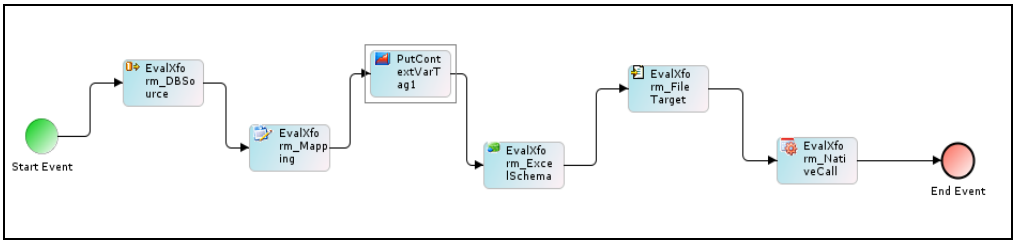


Figure 77: Connect Put-Context-Var to activity

3. Right-click **put-context-var** and select **View Properties.** Its properties are displayed in the **Properties Panel** in the Bottom Pane (see Figure 78).

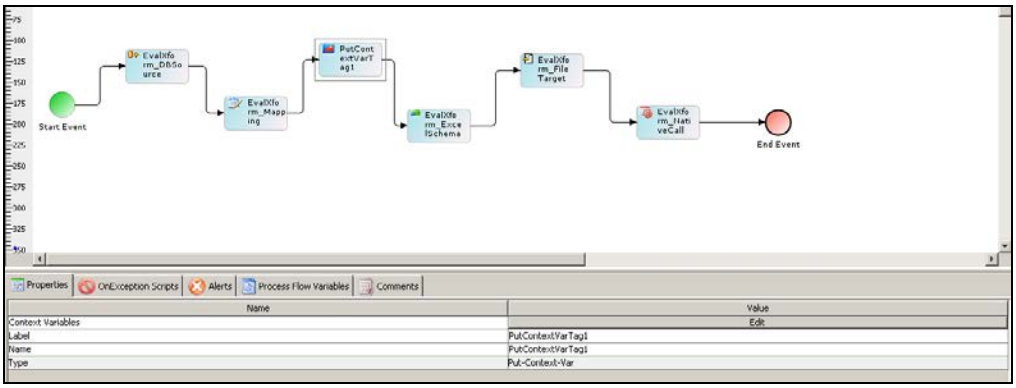


Figure 78: Properties of Put-Context-Var

4. Click the **Edit** button to edit the value of context variable. The **Edit Context Variables** dialog box is displayed.

5. Click **Add Variable** ( ) to add new context variable. The **Context Variable Information** screen is displayed.

6. Select the activity, which is to be overridden (for example, *EvalXform_ExcelSchema*) from **Activity Name** dropdown list.

7. Select SchemaTypedId (for Schema activity) or *TypedId* (for all other activities) from **Variable Name** dropdown list.

8. 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: EntitiyID
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 79.

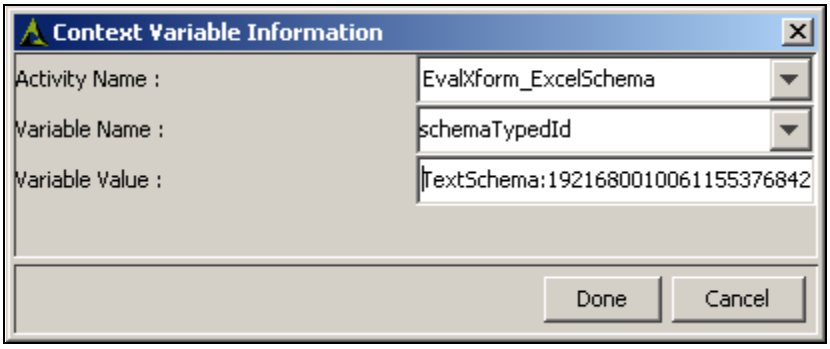


Figure 79: Context Variable Details for Overriding an Activity

9. Click **Done** to close the **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.
10. Click **Done** to close **Edit Context Variables** screen and return to Process Designer.
11. 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 13: 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

Source Type	Activity Type
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 14: 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 schemaTypedId are listed in the table below.

Table 15: Schema Types that can be Overridden

Schema Type	Activity Type
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 16: Polling Types that can be Overridden

Possible Polling Type	Activity Type
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 17: Other Activity Types that can be Overridden

Activity	Activity Type
Data Mapping	DataMapping

Activity	Activity Type
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 hierarchy structure in the **Repository View** panel. Expand the **Action** list and 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.
2. Connect the *put-context-var* action to the task (see Figure 80).

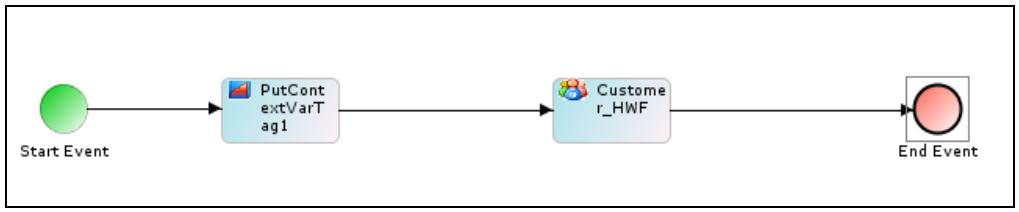


Figure 80: Connect put-context-var to Human Workflow task

3. Right-click the **put-context-var** and select **View Properties**. Its properties are displayed in the **Properties Panel** in the Bottom Pane.
4. Click the **Edit** button to edit the value of context variable. The **Edit Context Variables** dialog box is displayed.
5. Click the **Add Variable** ( ) to add new context variable. The **Context Variable Information** screen is displayed.
6. Select the task, which is to be overridden (for example, Customer_HWF) from the dropdown list **Activity Name**. All variables of this task are listed in the dropdown list **Variable Name**.
7. Select **emailSubject** from the dropdown list **Variable Name**.
8. 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 81.

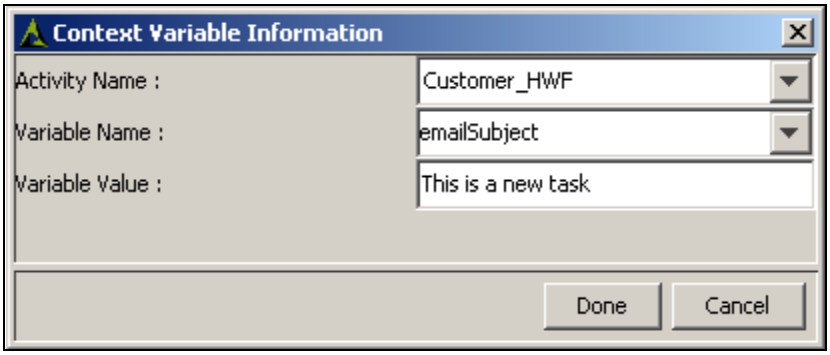


Figure 81: Context Variable Details for Overriding email subject

9. Click **Done** to close the **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.
10. Click **Done** to close **Edit Context Variables** screen and return to Process Designer.
11. 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 hierarchy structure in the **Repository View** panel. Expand the **Action** list and 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.
2. Connect the *put-context-var* action to the task (refer to Figure 80).
3. Right-click the **put-context-var** and select **View Properties**. Its properties are displayed in the Properties Panel in the Bottom Pane.
4. Click the **Edit** button to edit the value of context variable. The **Edit Context Variables** dialog box is displayed.
5. Click the **Add Variable** ( ) to add new context variable. The **Context Variable Information** screen is displayed.
6. Select the task, which is to be overridden (for example, *Customer_HWF*) from the dropdown list ***Activity Name***. All variables of this task are listed in the dropdown list **Variable Name**.
7. Select **hiReceiverUsers** from the dropdown list **Variable Name**.
8. Enter the User Id of the user to whom you want to assign the Human Workflow task, in the textbox **Variable Value**.

   The entered information is displayed as shown in Figure 82.

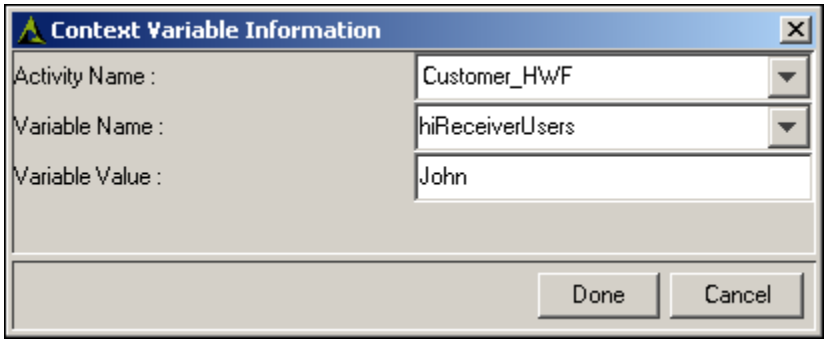


Figure 82: Context Variable Details for Overriding email subject

9. Click **Done** to close the **Context Variable Information** screen. This takes the control back to the screen **Edit Context Variables**. The newly created variable is added to the list of existing context variables.
10. Click **Done** to close the **Edit Context Variables** screen and return to Process Designer.
11. 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 *Administrator*) 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 83.

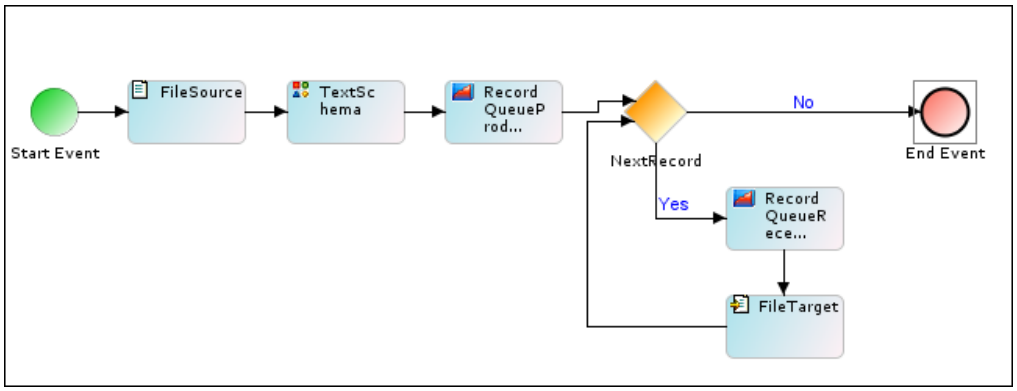


Figure 83: Using Record Queue Processor

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 hierarchy structure in the **Repository View** panel. Expand the **Activities** list of the Adeptia Server and select and drag the *File source* and *Text schema* activities to the Graph Canvas area.
2. Select the **RecordQueueProducer** activity and drag it to the Graph Canvas area.

3. Drag a gateway element to the Graph Canvas area.
4. Drag a *File target* to the Graph Canvas area.
5. Select the **RecordQueueReceiver** activity and drag it to the Graph Canvas area.
6. Connect all the activities as shown in Figure 83.
7. Right-click **RecordQueueProducer** and select **View Properties**. Its properties are displayed in the **Properties Panel** in the Bottom Pane (see Figure 84).

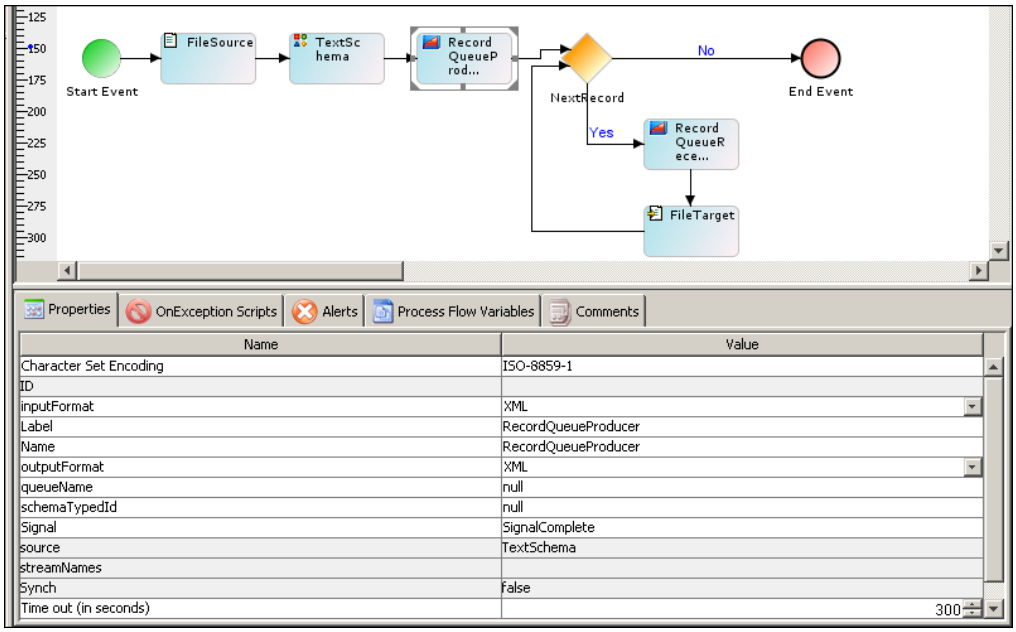


Figure 84: Properties of RecordQueueProducer

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

Table 18: 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.

Properties	Description
schemaTypedId	TypedId and the 30 digit activity ID of the source schema separated by colon (:). For example TextSchema:192168001158117196729809300003 To know the TypedID of Schema refer to Table 15. 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.
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.

9. Right-click **RecordQueueReceiver** and select **View Properties**. Its properties are displayed in the **Properties Panel** in the Bottom Pane (see Figure 85).

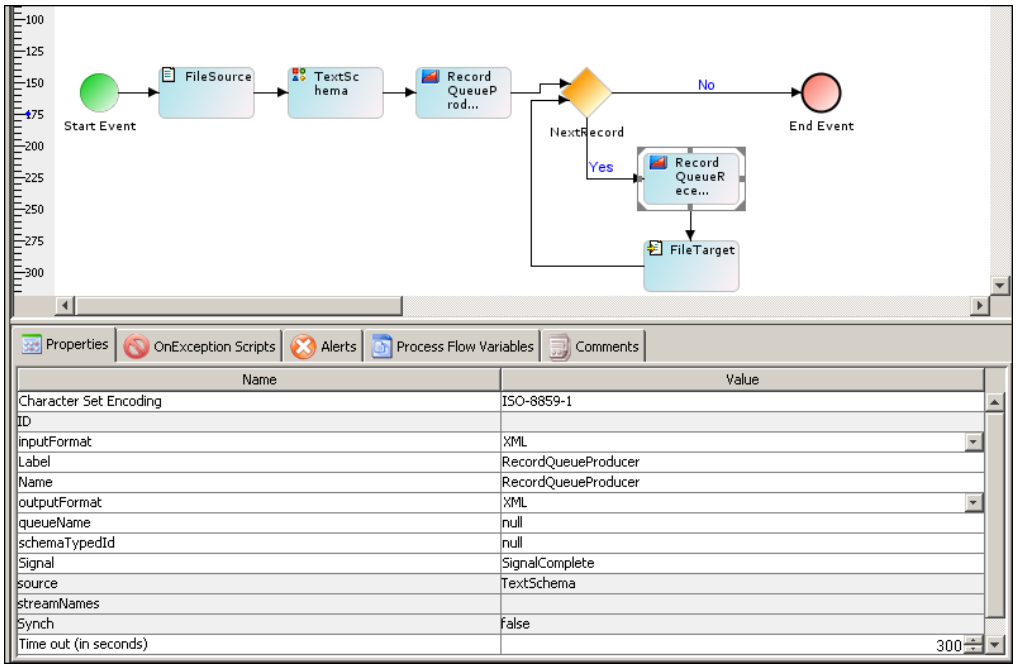


Figure 85: Properties of RecordQueueReceiver

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

Table 19: 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

Properties	Description
	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.

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. Select the **Gateway** () element in the Palette and drag it to required place in the Graph canvas area. The Gateway element is displayed in the Graph canvas area (see Figure 86).

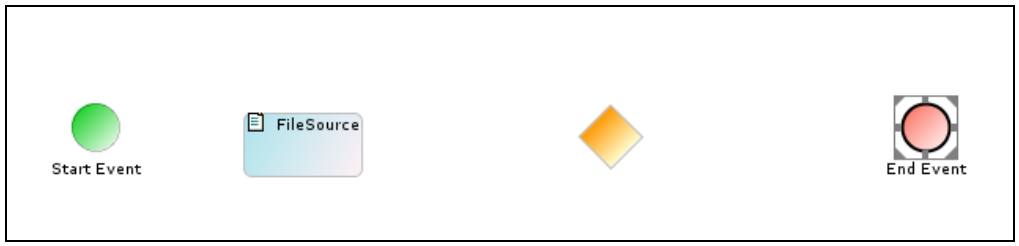


Figure 86: Drag Gateway Element to Graph Canvas Area

2. Connect the activities with the Gateway element using uncontrolled or default control flow (see Figure 87).

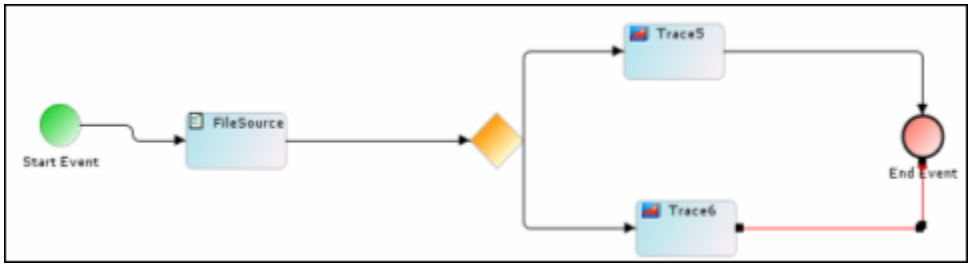


Figure 87: Connecting Elements

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

3. 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 88).

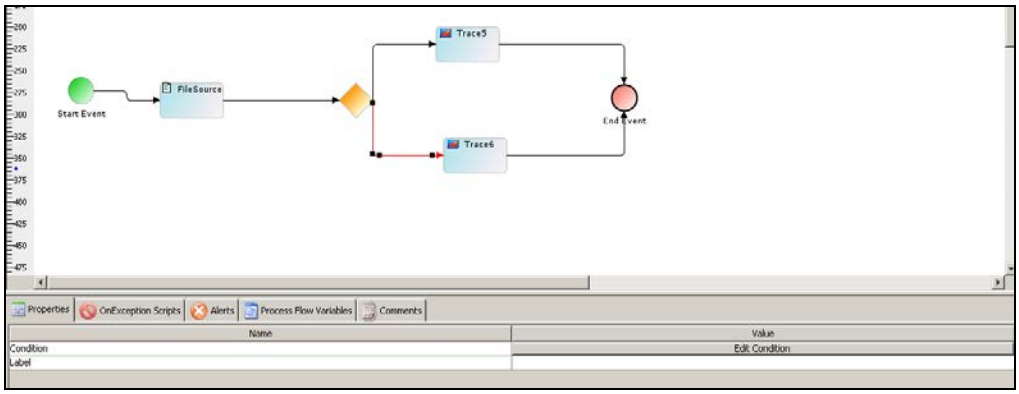


Figure 88: Change Gateway Element Properties

4. Click the **Edit Condition** button. The **Condition Wizard** screen is displayed (see Figure 89).

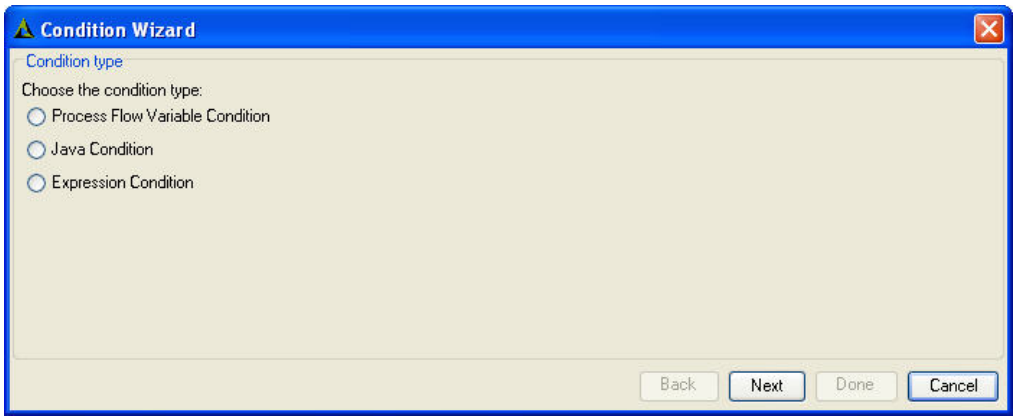


Figure 89: Condition Wizard

5. Select the **Process Flow Variable Condition** and click the **Next** button. The **Choose Process Flow Variable Condition Type** screen is displayed (see Figure 90).

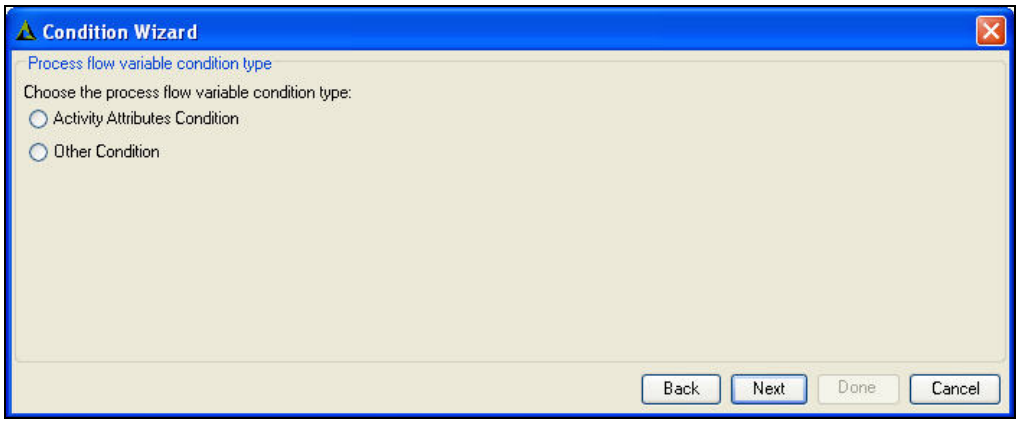


Figure 90: Select Process Flow Condition Type

6. Select the **Activity Attribute Condition** and then click the **Next** button. The **Activity Attributes Condition** screen is displayed (see Figure 91).

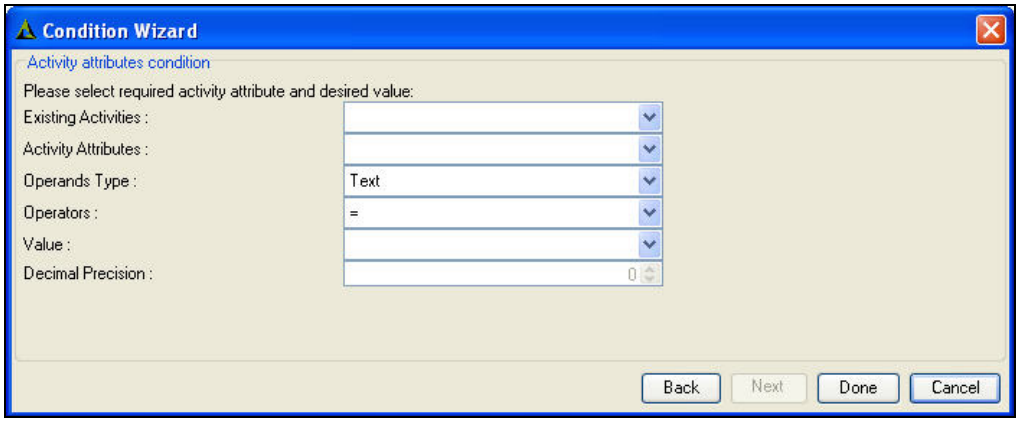


Figure 91: Activity Attributes Condition

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

Table 20: 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.

10. Select the operator's type from the *Operators* dropdown list. The operators supported are "=", "! =", ">", "<", ">=", "<=".
11. Enter or select the value of the above specified attribute from the **Value** dropdown list.
12. Specify the decimal precision (only if operand type is "Decimal") under the **Decimal Precision** text field.
13. Click **Done** button to close the Condition Wizard and return to the Graph Canvas.
14. 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.

Prerequisites

- 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. Select the **Gateway** ()element in the Palette and drag it to required place in the Graph canvas area. The Gateway element is displayed in the Graph Canvas area (refer to Figure 86).
2. Connect the activities with the Gateway element using uncontrolled or default control flow (refer to Figure 87).

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

3. 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 88).
4. Click the **Edit Condition** button. The **Condition Wizard** screen is displayed (refer to Figure 89).
5. 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.
6. Select Other Condition and then click Next button. The **Other Condition Process Details** screen is displayed (see Figure 92).

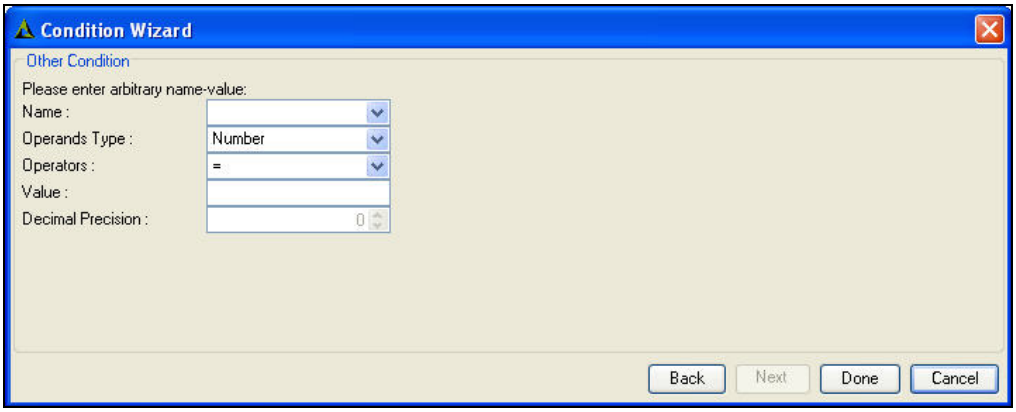


Figure 92: Other Condition Process Details

7. Select the Process Flow Variable from the **Name** dropdown list and enter the Value in the **Value** field.
8. Select the data types of the value contained by the above specified context variable from **Operand Type** dropdown list. For information regarding data types supported for the value refer to Table 20.
9. Select the operator's type from the **Operators** dropdown list. The operators supported are "=", "! =", ">", "<", ">=", "<=".
10. Enter the value of the above specified context variable in the **Value** field.
11. Specify the decimal precision (only if operand type is "Decimal") under the **Decimal Precision** field.
12. 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. Select the **Gateway** ()element in the Palette and drag it to required place in the Graph canvas area. The Gateway element is displayed in the Graph canvas area (refer to Figure 86).
2. Connect the activities with the Gateway element using uncontrolled or default control flow (refer to Figure 87).

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

3. 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 88).
4. Click **Edit Condition** under the Properties tab. The Condition Wizard screen is displayed.

5. To define Condition using Java Condition, select the **Java Condition** and click **Next** button. The Java **Condition Wizard** window is displayed (see Figure 93).

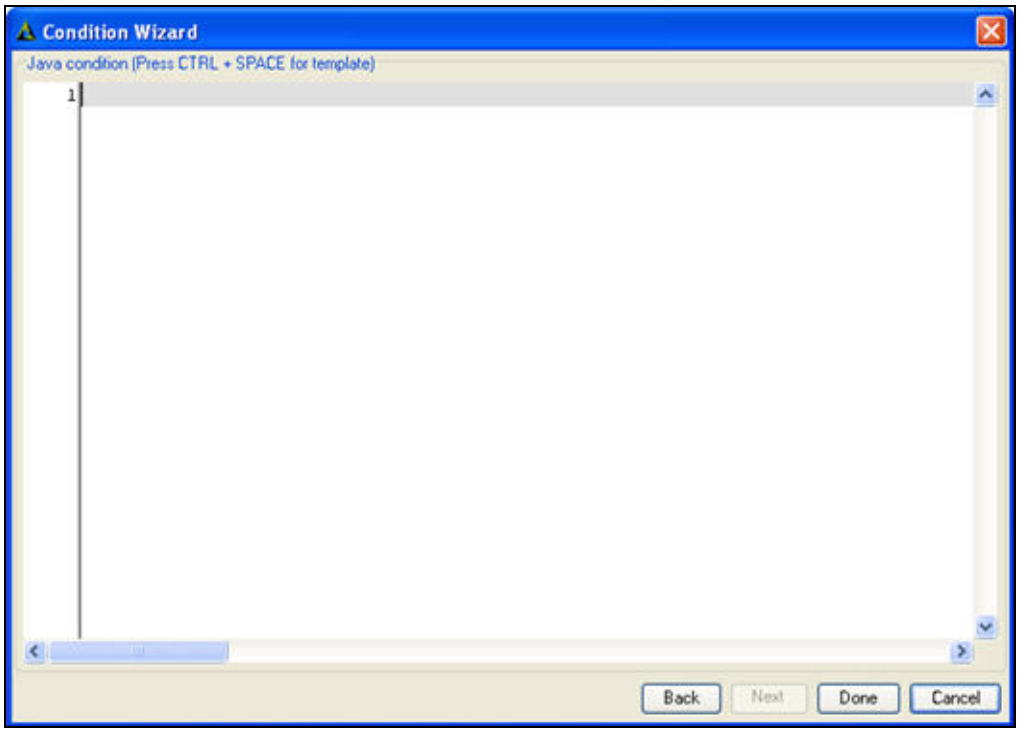


Figure 93: Enter Java Condition

6. 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.

7. 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. Select the **Gateway** ( ) element in the Palette and drag it to required place in the Graph canvas area. The Gateway element is displayed in the Graph Canvas area (refer to Figure 86).

2. Connect the activities with the Gateway element using uncontrolled or default control flow (refer to Figure 87).

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

3. 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 88).
4. Click the **Edit Condition** button. The Condition Wizard screen is displayed.
5. To use Condition using Expression Builder, select the **Expression Condition** and click **Next** button. The **Condition Wizard** screen is displayed (see Figure 94).

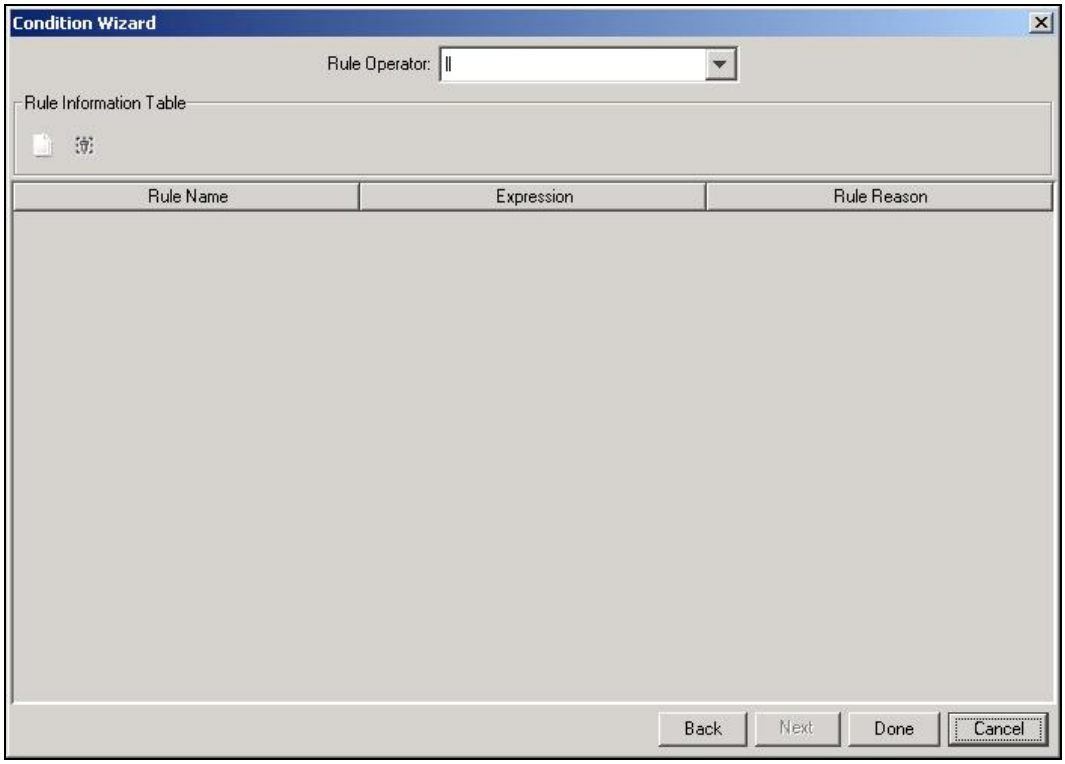


Figure 94: Condition Wizard

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

6. Click **Add Rule** ( ) to add a new rule. This displays the **Rule Information** screen (see Figure 95).

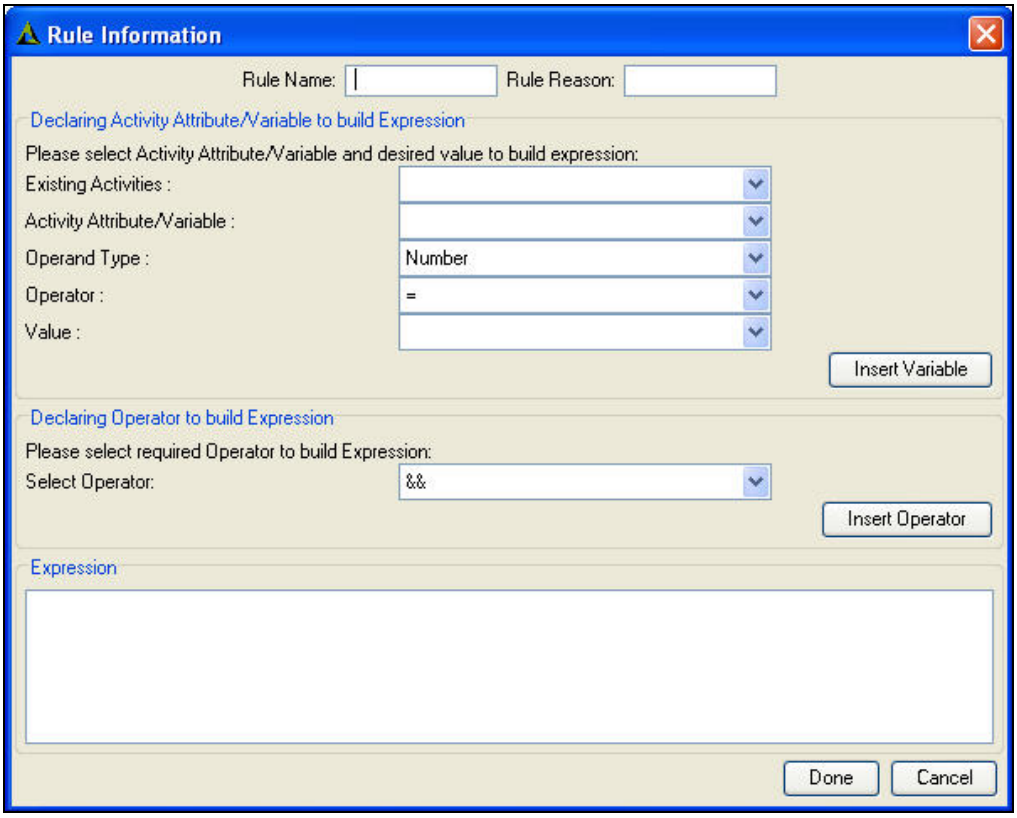


Figure 95: Rule Wizard

7. Enter the name of the Rule (for example, Rule 1) in the **Rule Name** field.
8. 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.
9. 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** dropdown menu. This dropdown is populated with the current activities. Alternately, if you select a blank value, then a process flow variable is selected.
10. Select the activity attribute or the process flow variable, from the **Activity Attribute/Variable** dropdown menu. This dropdown is populated with values based on the selection in the *Existing Activities* field. If an activity is selected, then this dropdown lists all attributes of the selected activity. If a process flow variable is selected, then this dropdown lists the currently available process flow variables.
11. Select the data type of the selected activity attribute or process flow variable, from the **Operand Type** dropdown menu. This dropdown is populated with values of *Number, Text (String)* and *Decimal*. These are description are outlined in the table below.

Table 21: 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,

Data Type	Description
	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.

12. Select the operator to be applied on the activity attribute or process flow variable, from the *Operator* dropdown menu. This dropdown 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 22: Possible Operators for Operands

Data Type	Description
Number	=, !=, <, >, <=, >=
Decimal	=, !=, <, >, <=, >=
Text	Equal, Not Equal, Equal Ignore Case and Not Equal Ignore Case

13. Select the value for the activity attribute or process flow variable that needs to be verified, from the **Value** dropdown menu. This dropdown is editable. The **Number Operand** type should be of data type *Long*. The **Decimal** Operand type should be of **Double** data type.
14. 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.
15. 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* dropdown menu. This dropdown is populated with values of *&& (AND)* and *|| (OR)*.
16. Click **Insert Operator** to insert the selected operator into the **Expression** text area.
17. 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 23: 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* $$
Operand Text	• All values are enclosed within double quotes. For example, (“text”). • Values having ‘\’ are replaced by ‘\\’. • Values having double quotes (“) are replaced by single quotes (‘).
Operator Equal	The condition is replaced as ($$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 96.

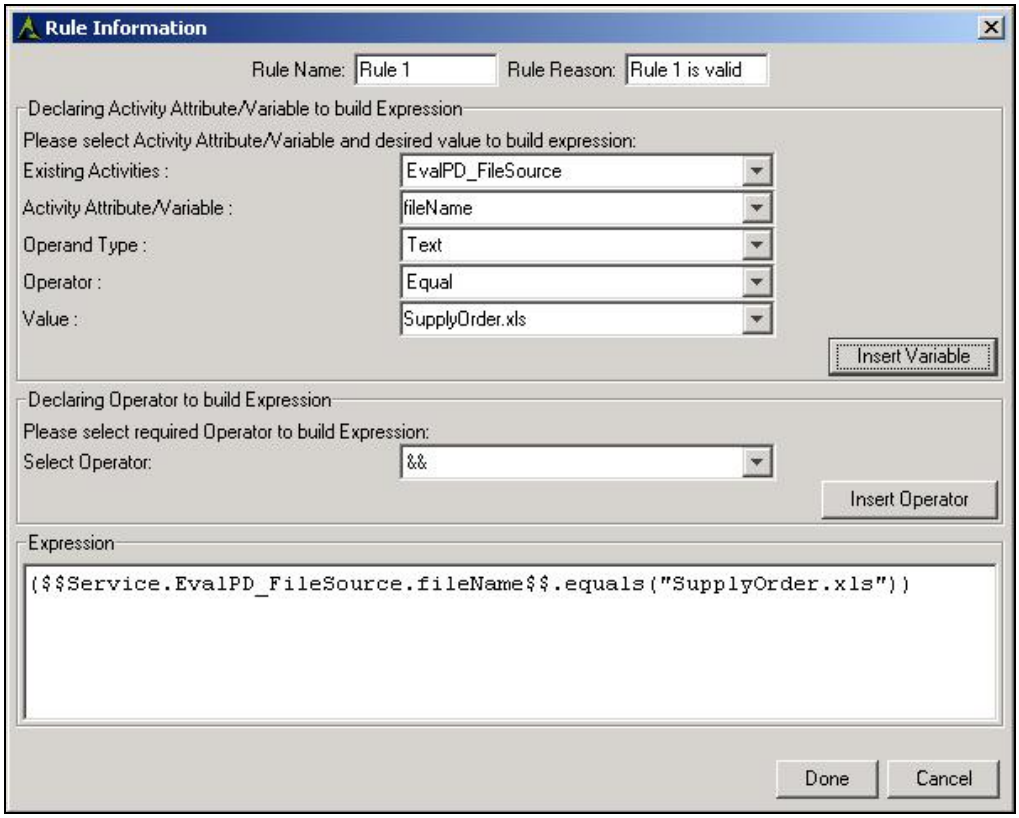


Figure 96: New Rule Information

18. Click **Done**. 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 97).

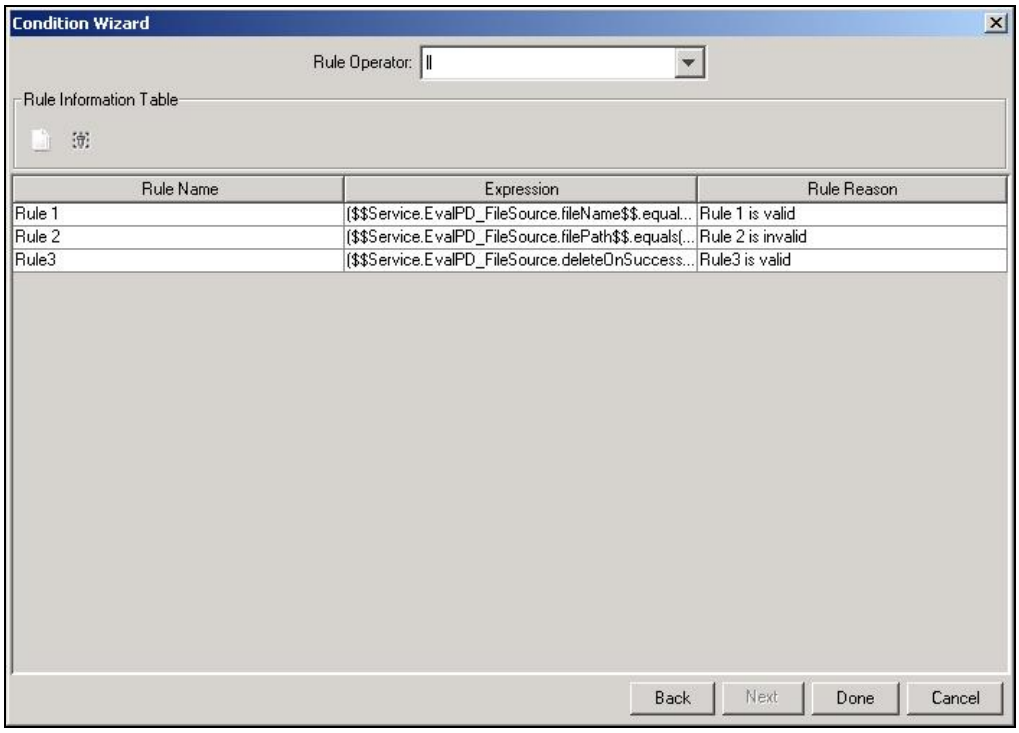


Figure 97: Added Rules

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

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

Table 24: 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.

20. 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.

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 that one sequence flow is attached and select Sequence Flow Ordering (see Figure 98).

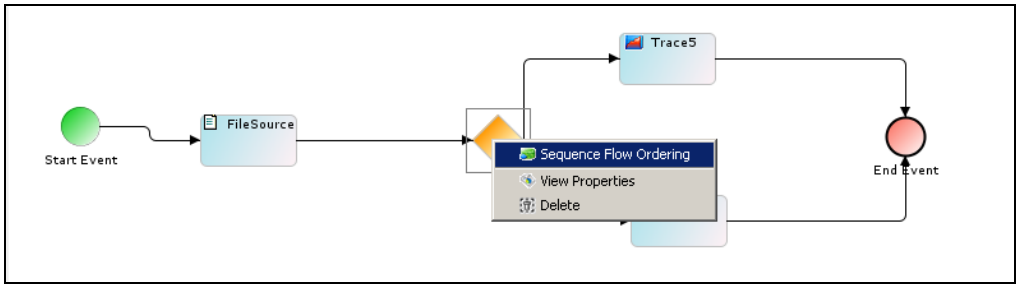


Figure 98: Define Sequence Flow Ordering

2. The **Sequence Flow Ordering** screen is displayed (see Figure 99).

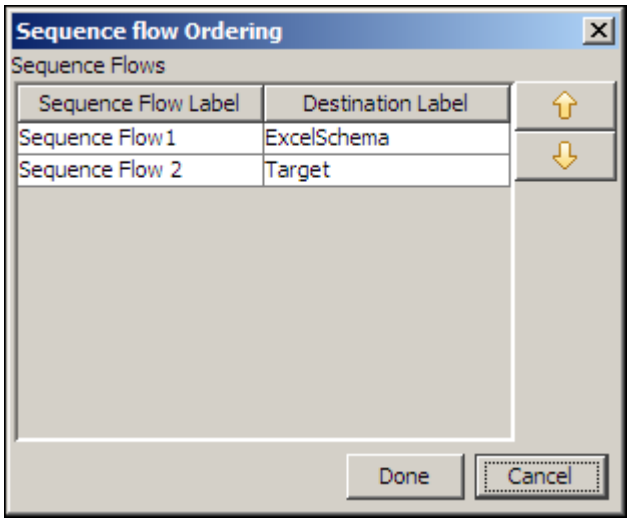


Figure 99: Sequence Flow Ordering

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 100).

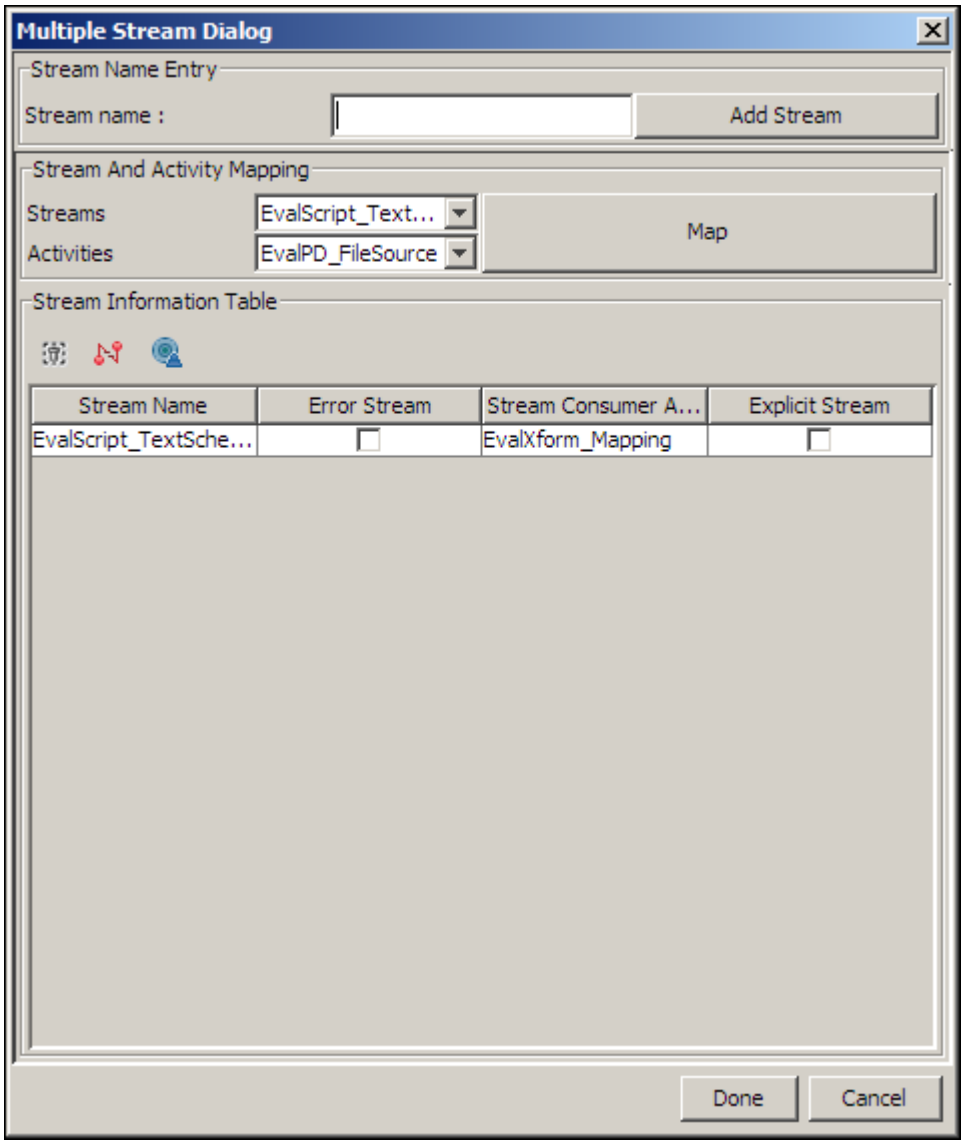


Figure 100: Multiple Stream Dialog Box

2. In the Stream Information Table, the existing stream is displayed. 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.

3. 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** dropdown list (see Figure 101).

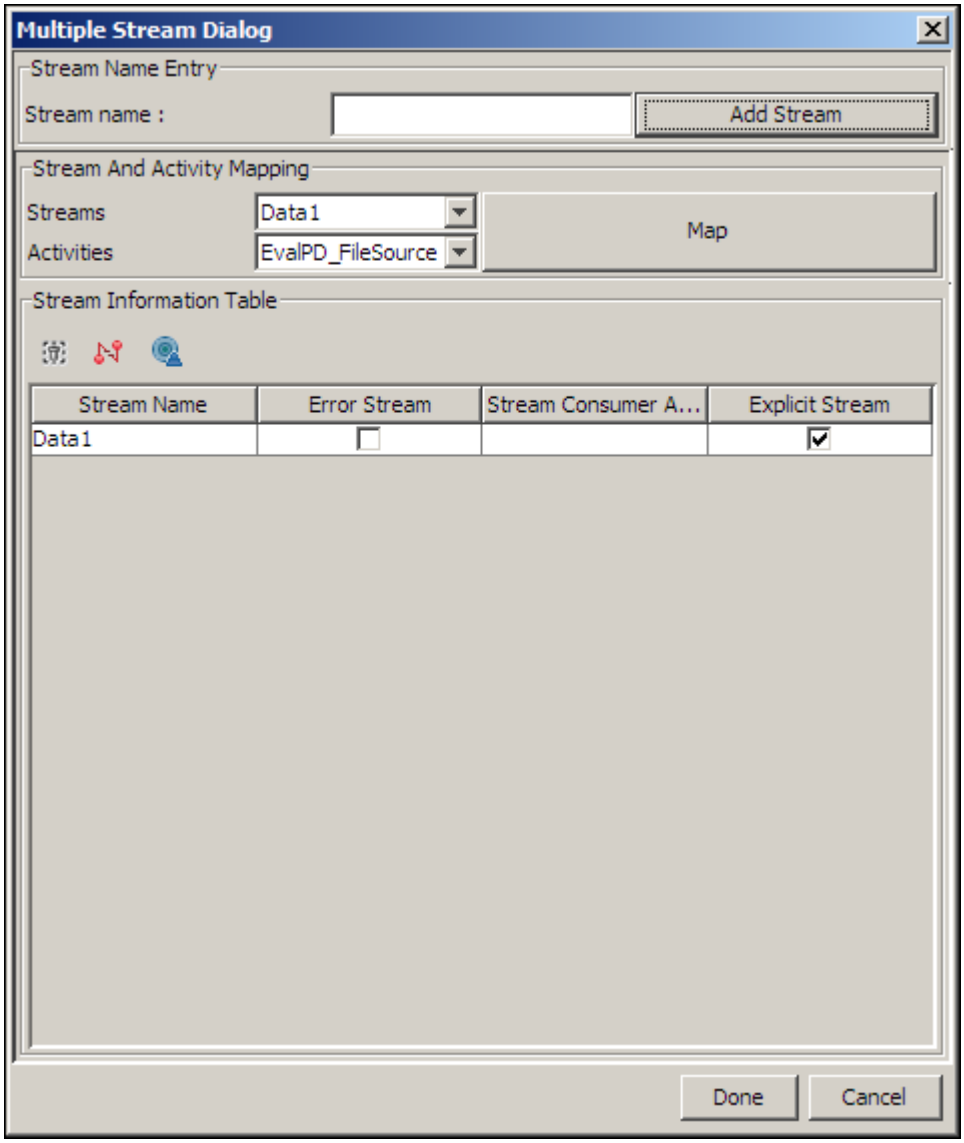


Figure 101: New Stream Added

4. The Activity which will consume the stream currently selected in the *Streams* dropdown list is already displayed, however to change it, select the activity from the **Activities** dropdown list, and then click **Map** button. The mapped stream and the activity are displayed in the **Stream Information** Table (see Figure 102).

5. Ensure that the *Explicit Stream* checkbox is selected.

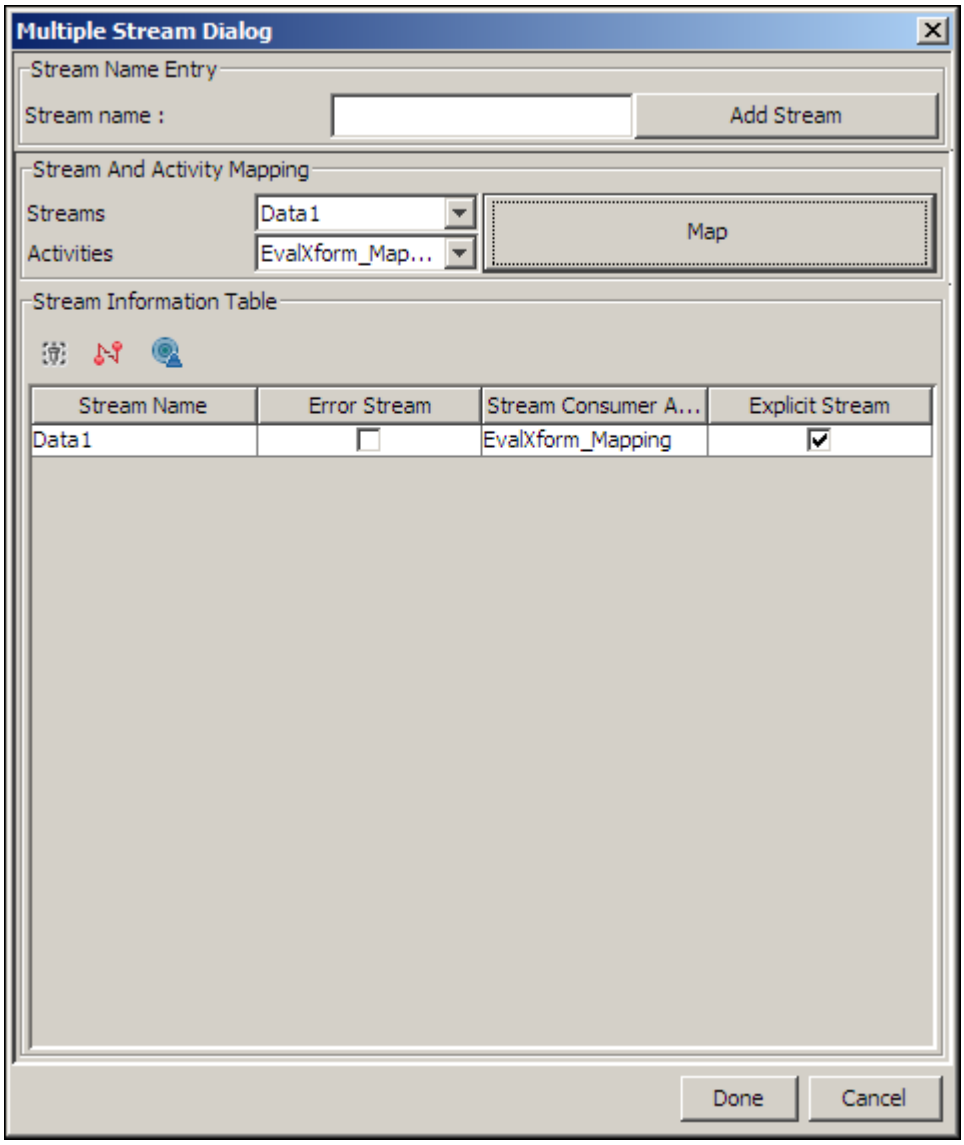


Figure 102: Stream Created

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

6. Repeat steps 4 to 6 to create another stream.

7. Click **Done** to return to the Graph Canvas. The created streams are displayed in the Graph canvas by data objects Artifact (see Figure 103).

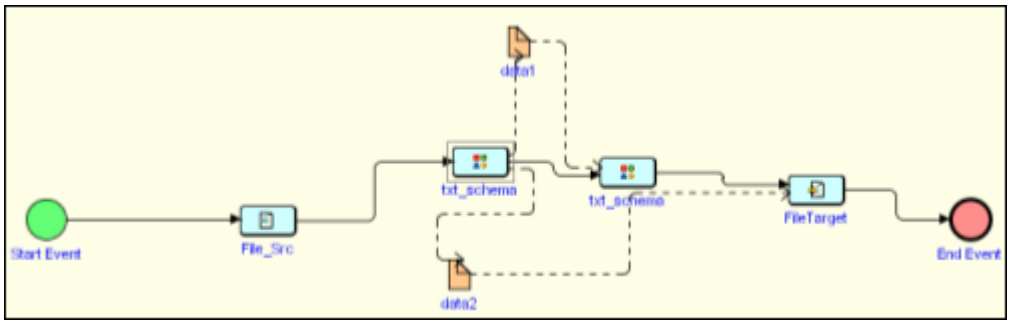


Figure 103: Showing Multiple Streams in Process Flow

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.

To hide the Artifacts, click **View** in the menu bar and deselect the *Show Artifacts and Associations* option.

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.

A Mapping activity does not always generate multiple streams. It is based on the schemas used in the mapping activity.

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 100).
2. Delete the existing stream.
3. Select another activity from the **Activities** dropdown list.
4. Click **Default Stream** ( ) button and then click **Map** button (see Figure 100).
5. Ensure that the **Explicit Stream** checkbox is checked.

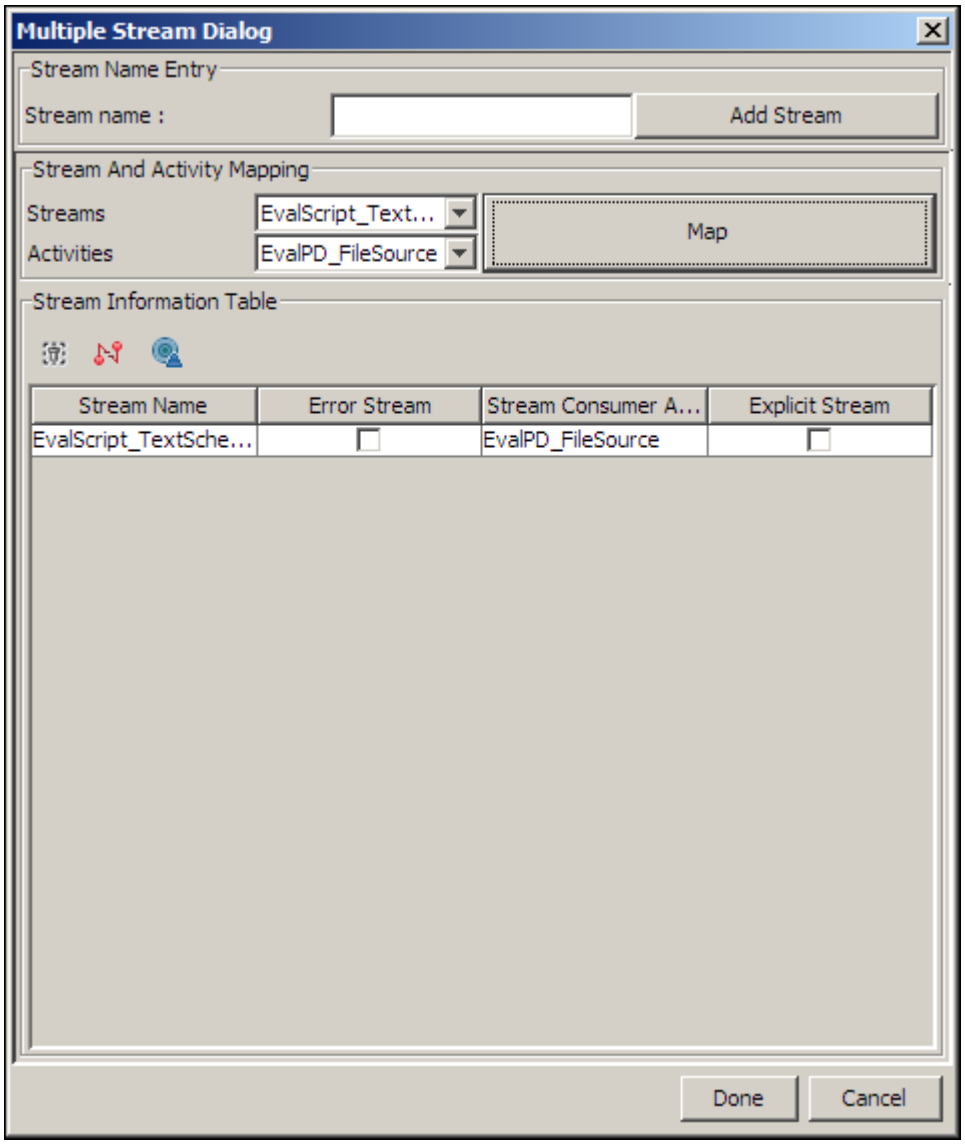


Figure 104: Creating Default Stream

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 105).

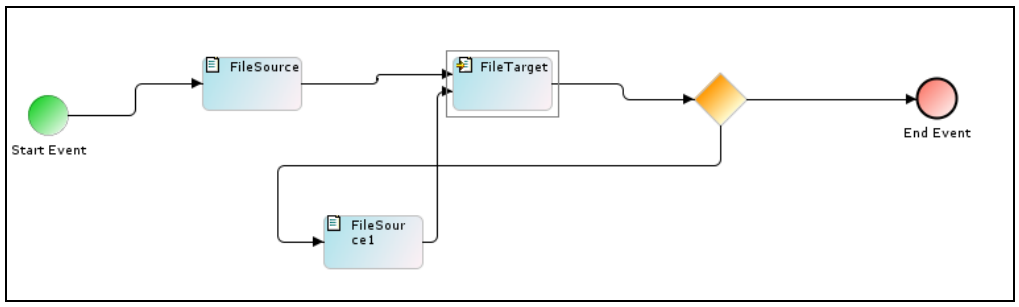


Figure 105: Scenario

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 106.

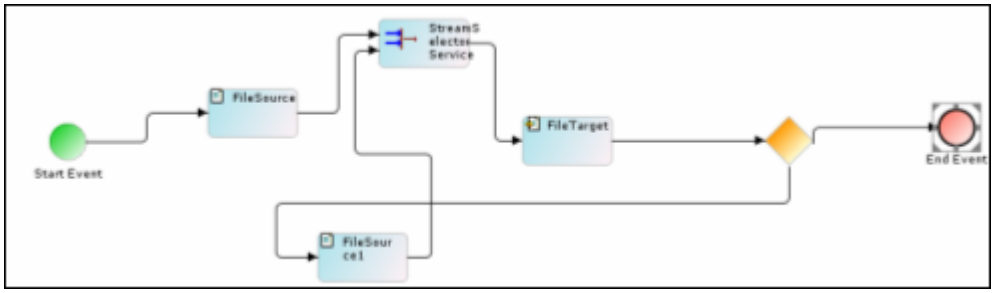


Figure 106: Stream Selector

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

1. Click hierarchy structure in the **Repository View** panel. Expand the **Activities** list of the Adeptia Server and select **Selector**. A list of selector activities is displayed.

2. Click **Stream Selector Service** and drag it to the Graph Canvas. The Stream Selector Service node is displayed in the Graph Canvas area (see Figure 107).

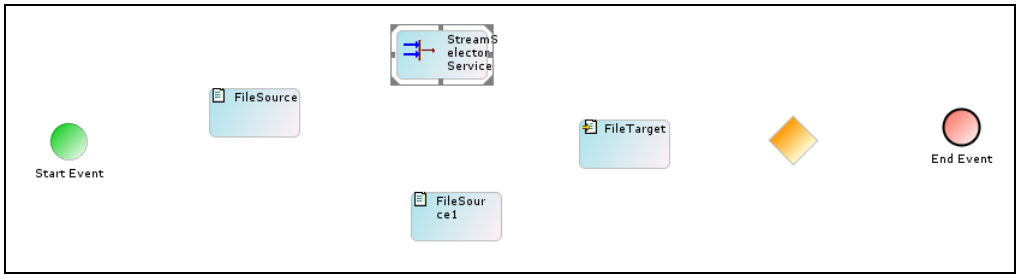


Figure 107: Drag Stream Selector to Graph Canvas

3. Connect the required activities with the Stream Selector Service node (see Figure 108).

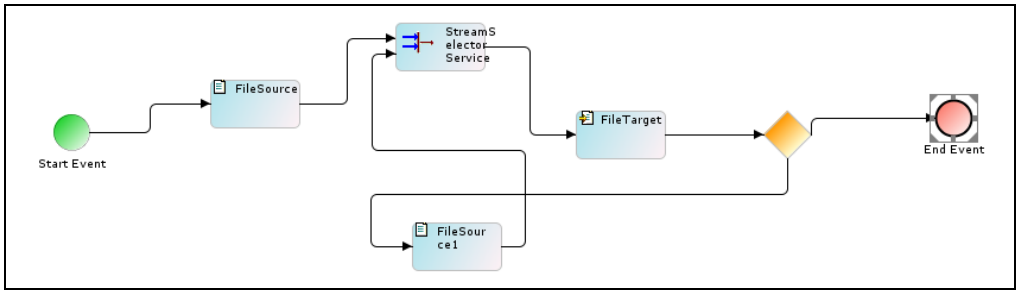


Figure 108: Connect Activities with Stream Selector Node

USING REPEATER NODE

Repeater node is used when output of one activity is sent to more than one activity. For example, data from a file source is sent to two file targets.

Steps to use a Repeater Node

1. Click hierarchy structure in the **Repository View** panel. Expand the **Activities** list of the Adeptia Server and select the **Repeater Node**. A list of repeater node activities is displayed.
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 109).

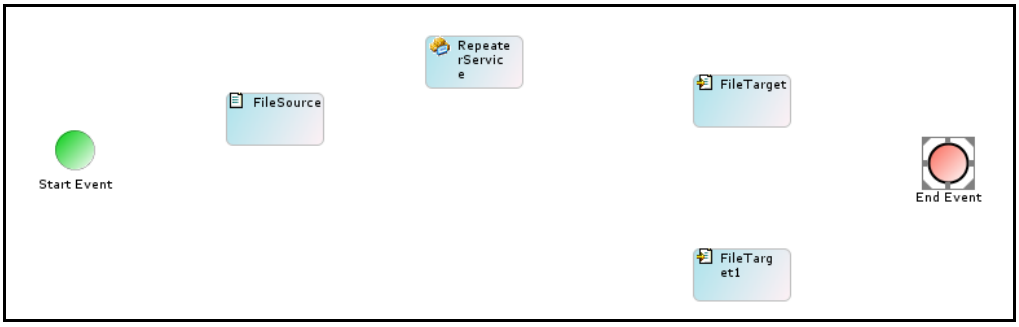


Figure 109: Repeater Service Node

3. Connect all activities with appropriate control flows in the Graph Canvas (see Figure 110).

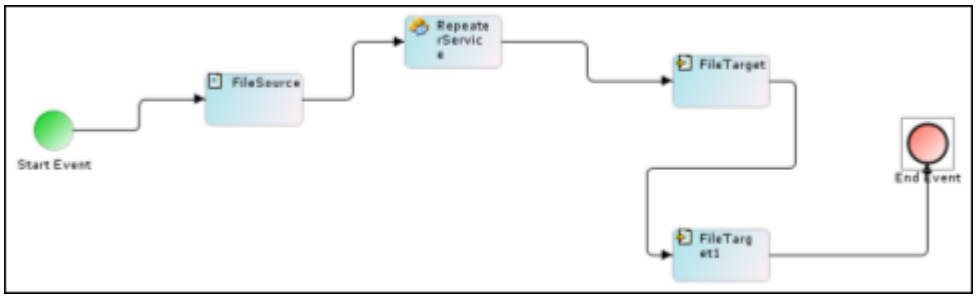


Figure 110: Connect Activities

The Figure 110 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.

Now to specify data flow, multiple streams must be created with Repeater Service.

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* dropdown list and select the first activity, which will consume the stream from the *Repeater Node*, from the **Activities** dropdown 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* dropdown list and select another activity, which will consume another stream from *Repeater Node* from **Activities** dropdown list.

9. Click the **Map** button. The second stream is displayed in the *Stream Information Table* (see Figure 111).

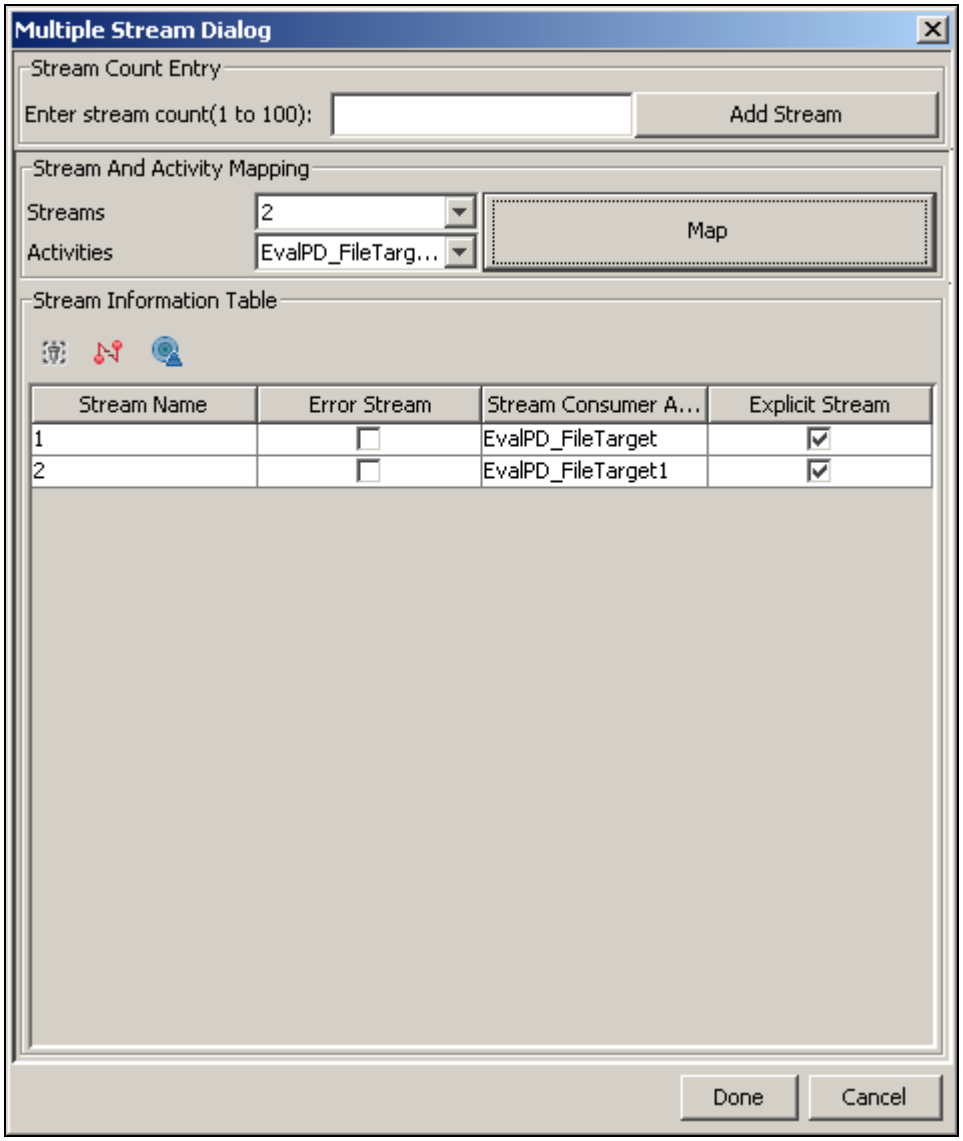


Figure 111: Create Second Stream

10. Click **Done** to save the streams created and return to the Graph Canvas. The created streams are displayed in the Graph Canvas by Artifact (see Figure 112).

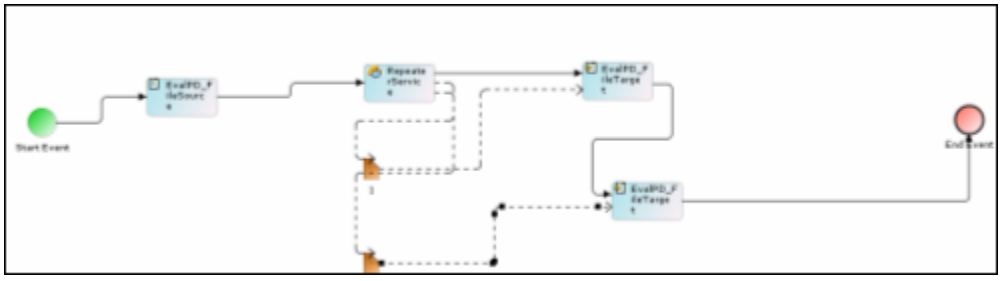


Figure 112: Repeater Node with Multiple Stream

USING STREAM CONSUMER

Stream consumer activity is used to consume the stream. Sometime there could be possibility that some streams are not being consumed by any other activity. In that case unconsumed stream can cause problem. So it is always recommended makes sure that all the streams are properly consumed. You can use Stream Consumer activity to consume stream which are not being consumed by any other activity.

Steps to use Stream Consumer activity

1. Click hierarchy structure in the **Repository View** panel. Expand the **Activities** list. List of activity types are displayed.
2. Expand the **Target** activities. List of target activities are displayed (Figure 113).

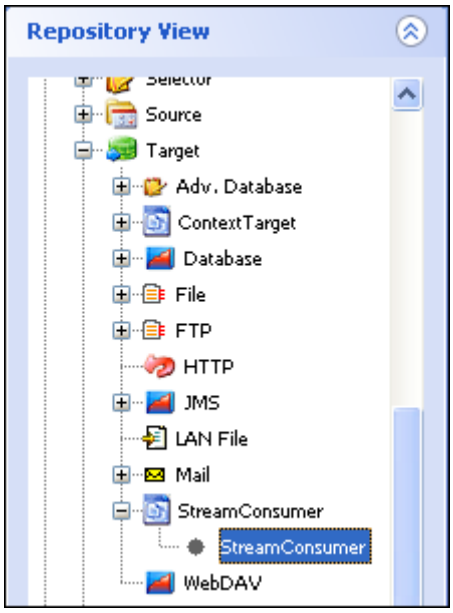


Figure 113: Stream Consumer activity

3. Select the Stream Consumer activity and drag it to the graph canvas area.
4. Connect the unconsumed stream to this activity.

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:

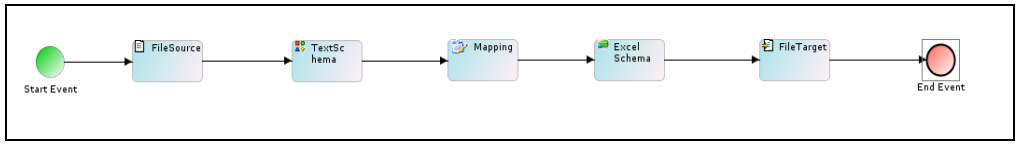


Figure 114: Scenario

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 115

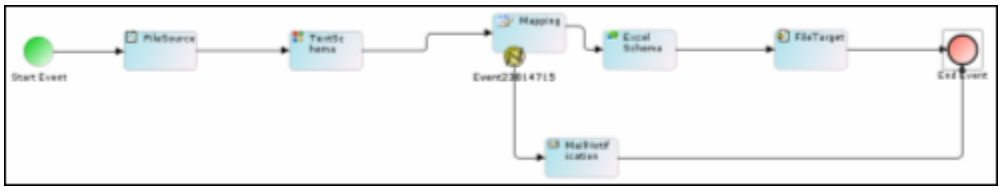


Figure 115: Use Error Intermediate Event

Steps to use Error Intermediate Event

1. Right-click the activity with which you want to attach the intermediate event and select **Add Intermediate Event** option (see Figure 116).

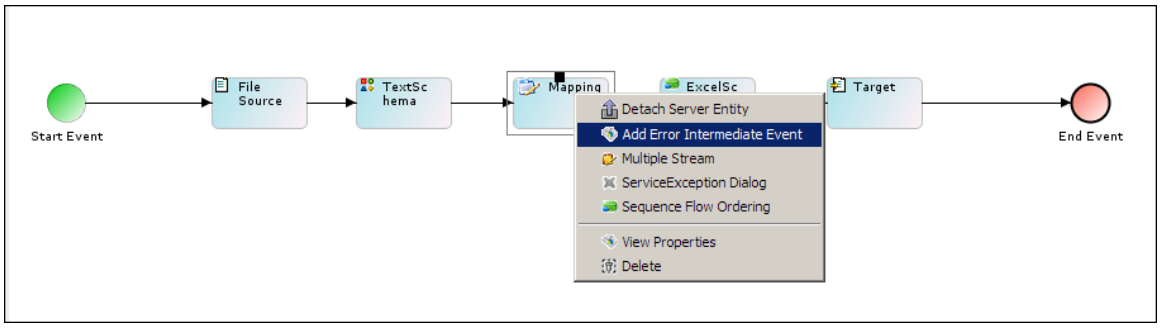


Figure 116: Select Add Intermediate Event

2. This attaches the Intermediate Event to the selected activity (see Figure 117).

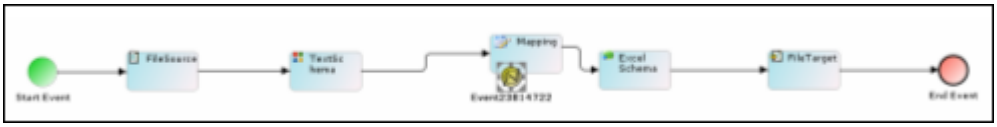


Figure 117: Error Immediate Event Attached

3. Drag another activity, which needs to be executed in case of failure of Mapping activity, to the Graph Canvas Area (see Figure 118).

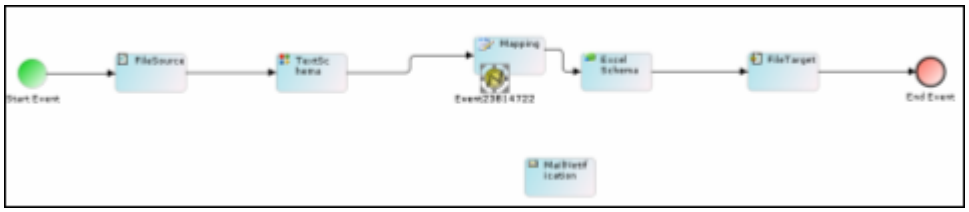


Figure 118: Drag Another Activity

4. Connect the Error Intermediate Event to Mail Notification activity and then Mail Notification activity to End Event (see Figure 119).

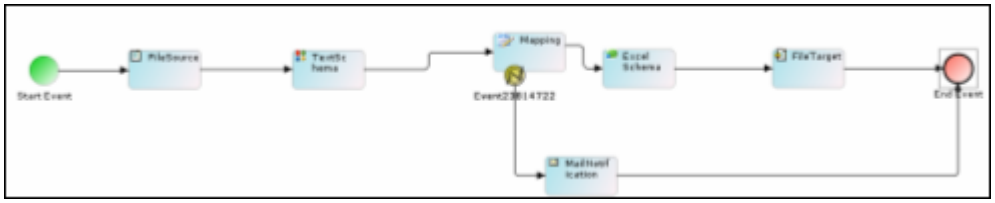


Figure 119: Connect Activities

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 25: 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 the **On Exception Scripts** tab ( ) in the Bottom Pane. The **Create Exception Handler** screen is displayed (see Figure 120).

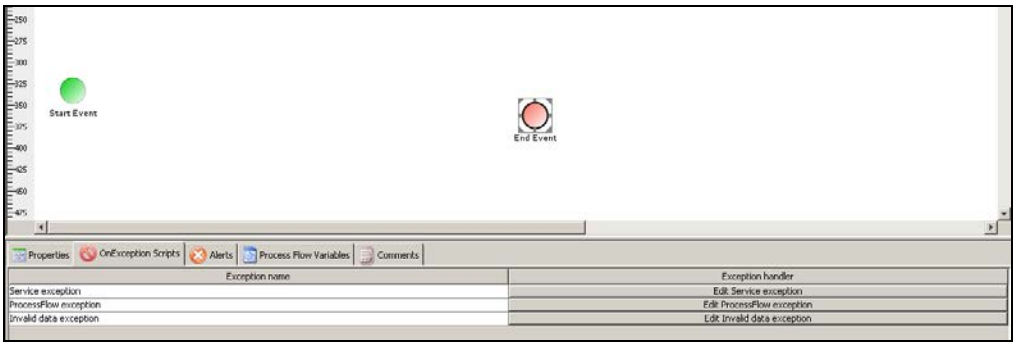


Figure 120: Creating Exception Handler Script

2. Click **Edit Service Exception**. The **Service Exception Dialog** window is displayed (see Figure 121).

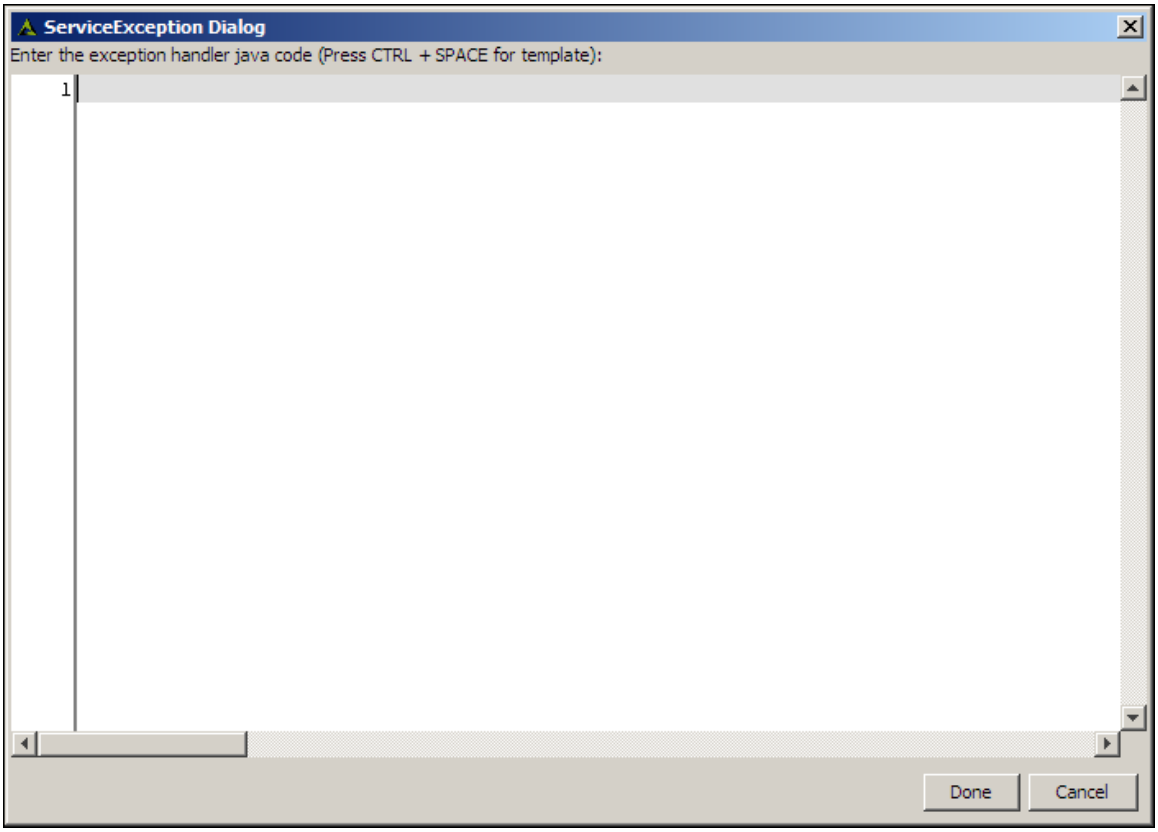


Figure 121: Service Exception Dialog Box

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.

If you want to create the process Flow Exception Handler or Invalid Data Handler script, click **Edit Process Flow Exception** or **Edit Invalid Data Exception** buttons respectively.

3. 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

1. Right-click the activity in the Graph Canvas and select **Service Exception Dialog**. The Service Exception Dialog Box is displayed (see Figure 121).
2. 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. Click hierarchy structure in the **Repository View** panel. Expand the **Activities** list of the Adeptia Server and select **Compression Service**. A list of compression service activities is displayed.
3. Select **Compression** and drag it to the Graph Canvas area (see Figure 122).

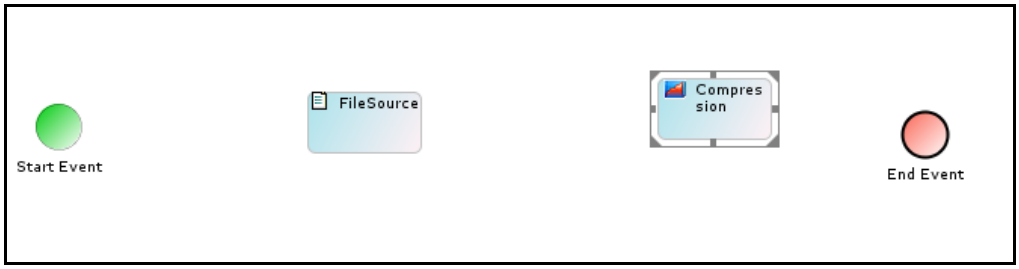


Figure 122: Drag Compression Activity

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 123.

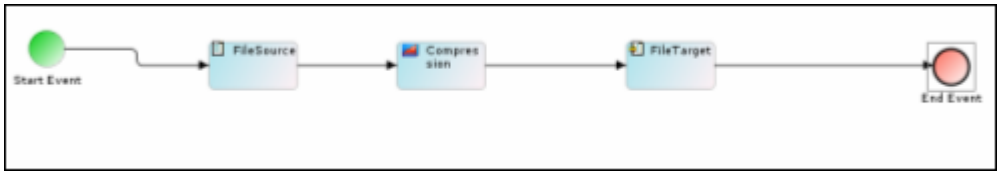


Figure 123: Connect Activities

6. Right-click the **Compression** activity and select **View Properties**. Properties of the Compression activity are displayed in the Properties Panel (see Figure 124).

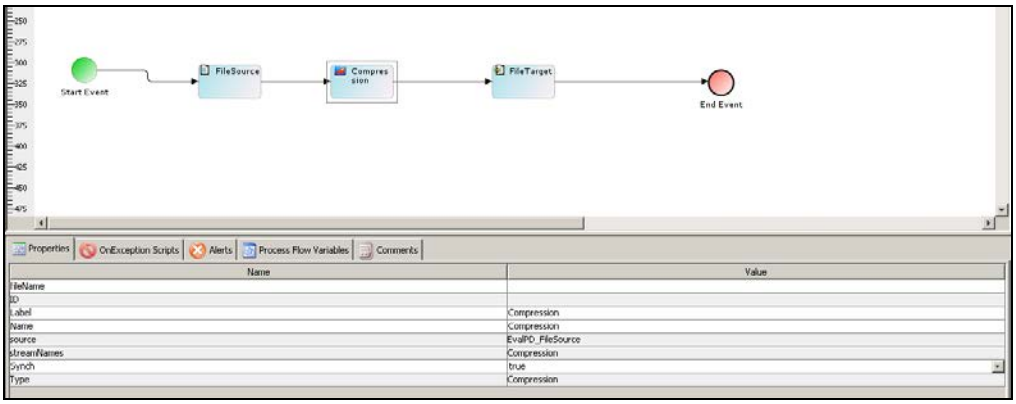


Figure 124: Compression Activity Properties

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.

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 125: 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. Click hierarchy structure in the **Repository View** panel. Expand the **Activities** list of the Adeptia Server and select **Reports**. A list of reports is displayed.
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 126).

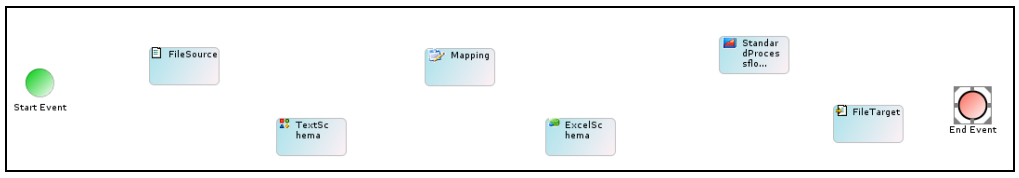


Figure 126: Custom Report Node

3. Connect all activities with appropriate control flows in the Graph Canvas as displayed below (see Figure 127).

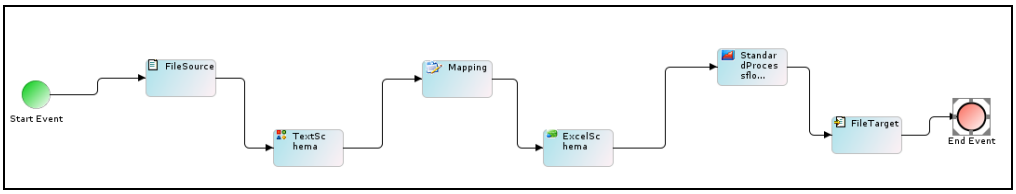


Figure 127: Connect Activities

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

ATTACHING MAIL NOTIFICATION TO A PROCESS FLOW

You can attach a mail notification activity with the end event of a process flow. Mail notification is used to send e-mail to appropriate users at the certain point in process flow.

Prerequisites

- Mail notification activity must be created before attaching it to a process flow. To know how to create the mail notification activity, refer to the Creating Mail Notification Activity section.

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

1. In the Graph Canvas, right-click at the **End Event** and then select the **View Properties**. The properties of the End Event are displayed in the Properties Panel (see Figure 128).

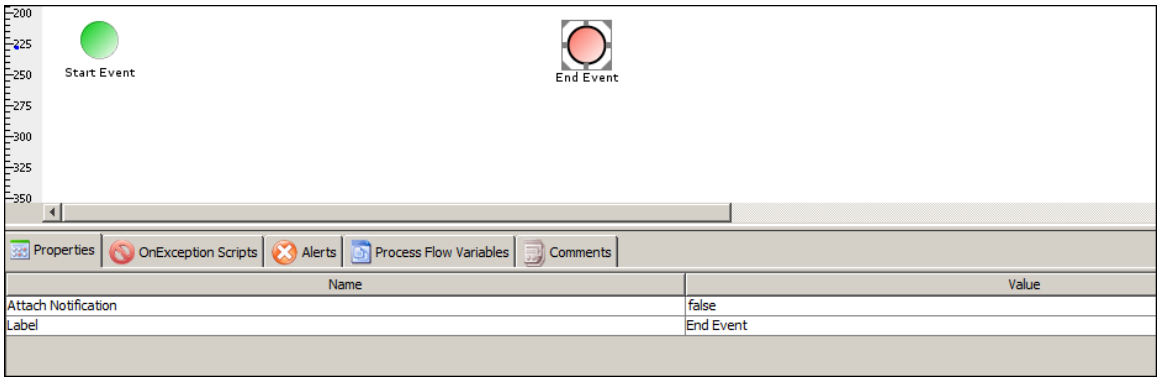


Figure 128: Attaching End Process

2. Click *in the Attach Notification Value* column and select **True** from the dropdown list. The **Select Notification** screen is displayed with list of mail notification activities (see Figure 129).

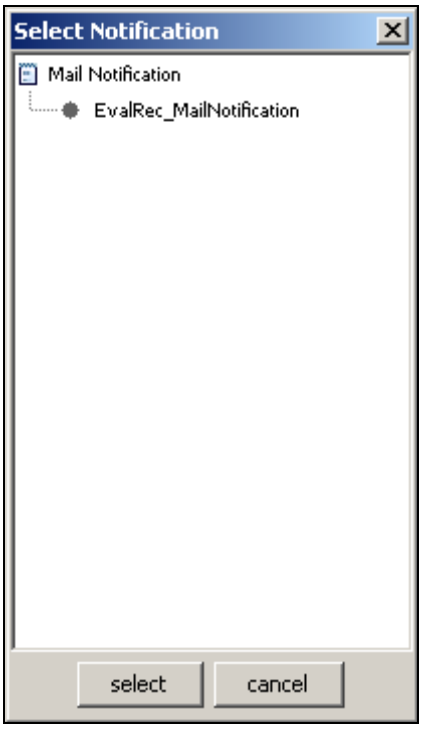


Figure 129: Selecting Mail Notification

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.

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 130).

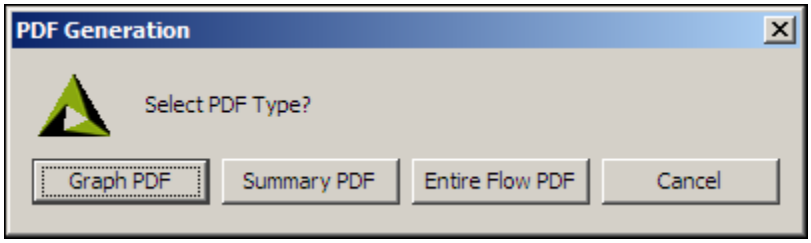


Figure 130: Select PDF Type

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 131).

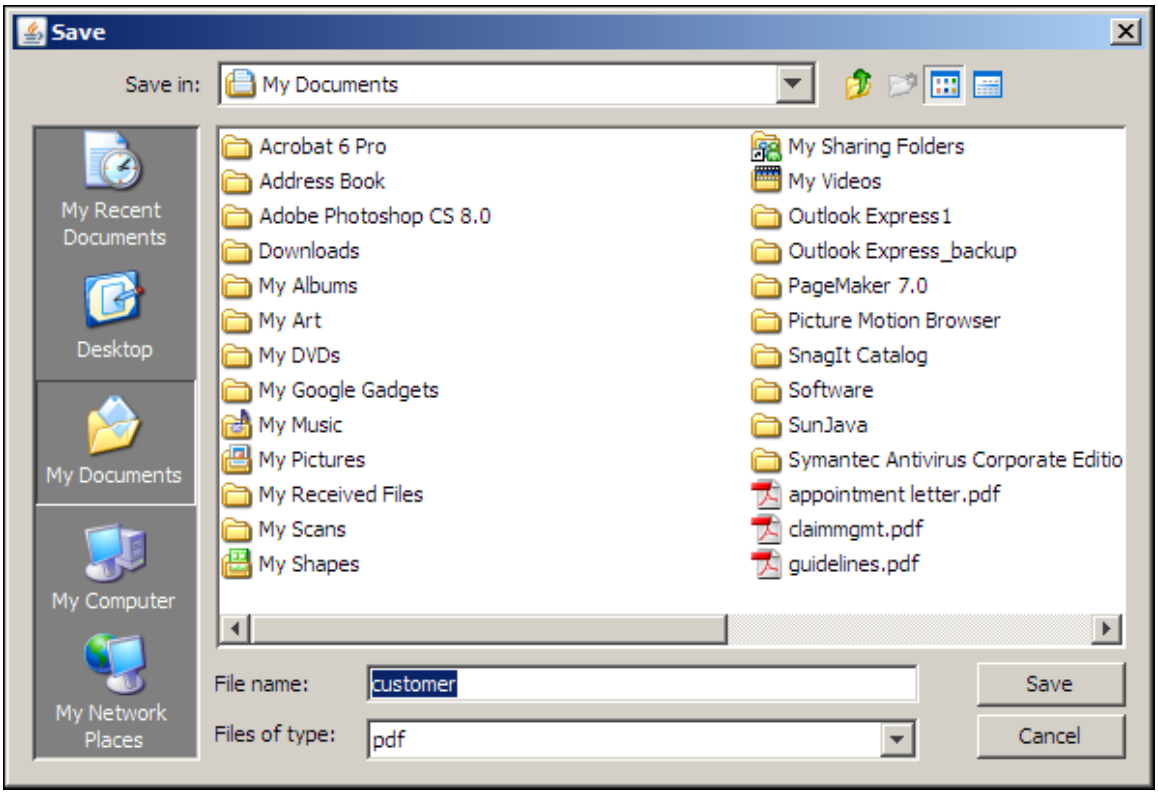


Figure 131: Save Box

3. Select the path and enter the name of the file in the **File Name** field.
4. Click the **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 132).

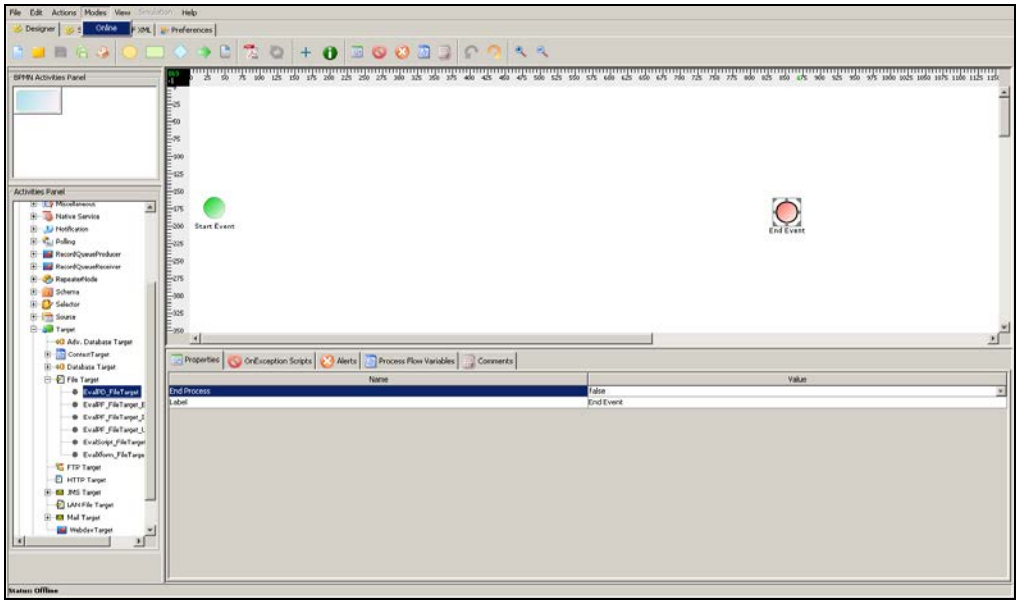


Figure 132: Changing Mode

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. The Process Designer Login screen is displayed (see Figure 133).

Figure 133: 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 134).

Figure 134: Select User Group

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

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

EXECUTING A PROCESS FLOW

Once you have created a process flow, you can execute it, in order to process the data. You can execute a process flow in two ways:

- Manually
- Automatically

Executing a Process Flow Manually

Steps to execute a Process Flow manually

1. On the Adeptia Suite homepage menu, click **[+] Design** to expand the hierarchy. All items in the **Design** category are displayed.
2. Click **[+] Process Flow** to expand the hierarchy and then click **Process Flow**. The **Manage Process Flow** screen is displayed (refer to Figure 30).
3. Select the radio button adjacent to the required process flow and click the **Execute** link. The **Process Flow Execution** screen is displayed (see Figure 135).

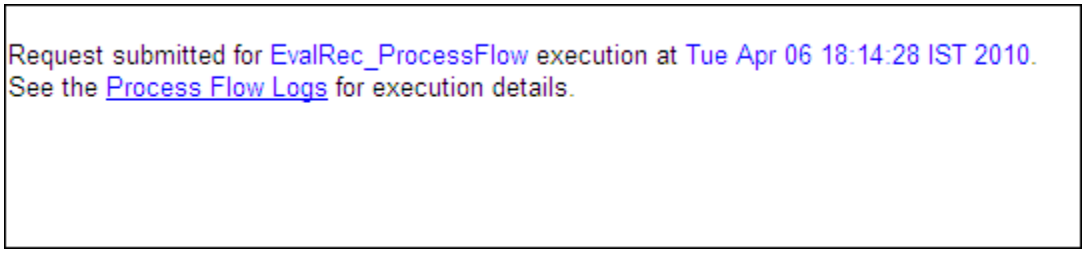


Figure 135: Process Flow Executed

4. To view the status of execution of the process flow, click the **Process Flow Logs** link. The **Process Flow Log** screen is displayed (see Figure 136).

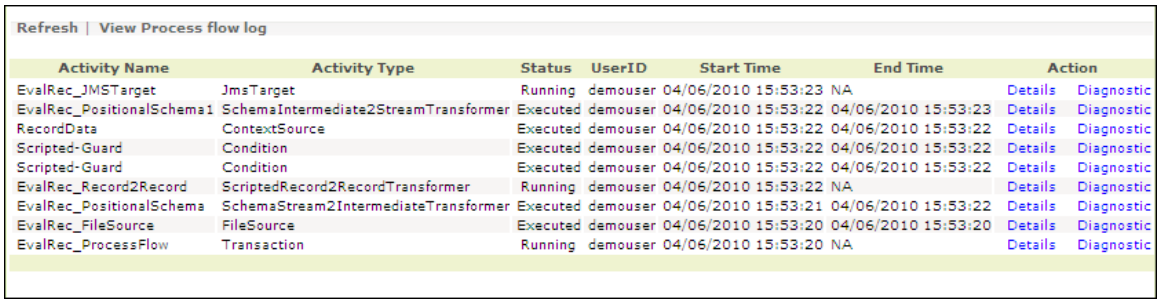


Figure 136: View Process Flow Log

- If the process flow is still running you can click *Refresh* to view the updated information of the process flow execution.
- To view the process flow log of other process flows, click *View Process Log* link. The process flow log page is displayed.

To learn more about Process Flow Log refer to the *Viewing Process Flow Logs* section in the *Business User Guide*.

Executing a Process Flow Automatically

You can execute a process flow automatically based on some events. For example, when you receive an email in your mailbox, the process flow can be executed. For this, you need to bind an event (for example, a mail event) with the process flow. You can either bind an existing event or create a new event and then bind it with a process flow.

Steps to execute a process flow automatically

1. On the Adeptia Suite homepage menu, click **[+] Design** to expand the hierarchy. All items in the **Design** category are displayed.
2. Click **[+] Process Flow** to expand the hierarchy and then click **Process Flow**. The **Manage Process Flow** screen is displayed (refer to Figure 30).

3. Select the radio button adjacent to the required process flow and click the **BindEvent** link. The **Create Event Registry** screen is displayed (see Figure 137).

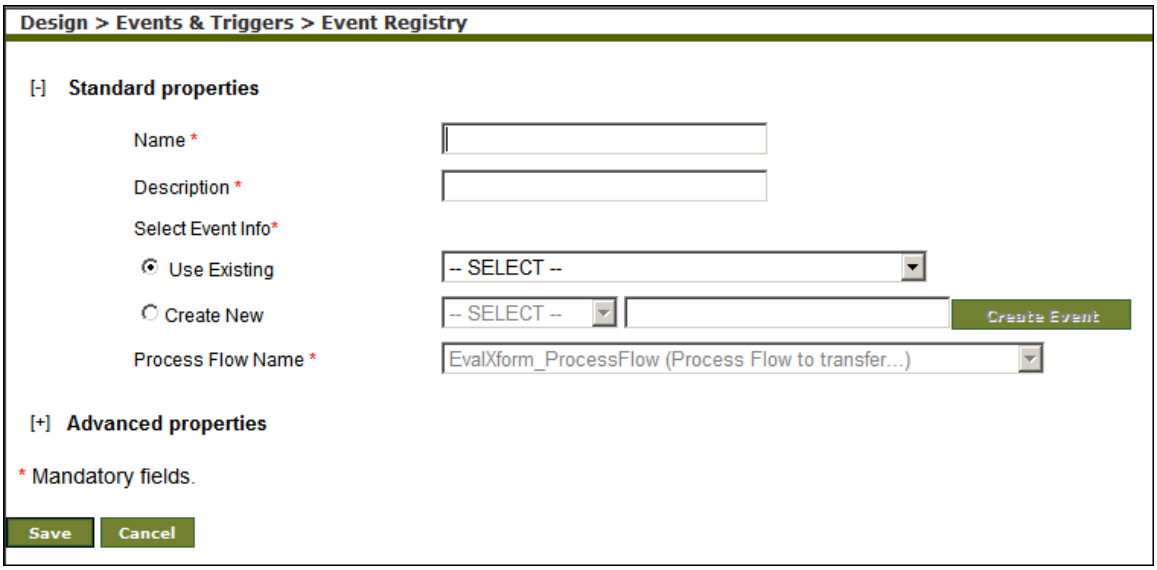


Figure 137: Create Event Registry

4. Enter the name and description of the event registry in their respective fields.
5. To bind an existing event to the process flow, select the **Use Existing** radio button, and select the event from the dropdown list. Else, to bind a new event to the process flow, select the **Create New** radio button. Select the event type from the dropdown list, and then click **Create Event** button. This displays the **Create Event** screen for the selected event type. For example, if you select Mail Event from the dropdown list, then clicking **Create Event** button, displays the **Create Mail Event** screen.
6. Enter the required parameters and click **Save** in the Create Event screen to save the event activity and bind it to the process flow and return the control to the **Manage Process Flow** screen.

For details, on creating an event, refer to Events and Triggers section.

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 details, on different user types, refer to the *User* section in the *Administrator Guide*.

- Process Designer allows multiple object deletion. More than one activity can be selected by dragging mouse pointer and deleted collectively.

5

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 Positional and EDI schemas only. This section explains:

- Creating Positional Data Dictionary
- Creating EDI Data Dictionary

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.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a Positional Data Dictionary

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Data Dictionary** to expand the hierarchy and then click **Positional**. The **Manage Positional Data Dictionary** screen is displayed (see Figure 138).

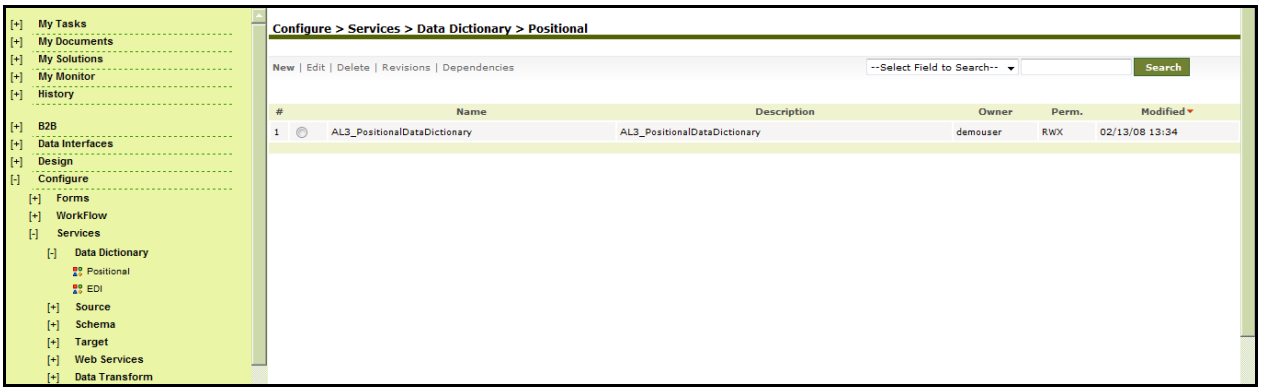


Figure 138: Manage Positional Data Dictionary

4. Click the **New** link. The **Create Positional Data Dictionary** screen is displayed (see Figure 139).

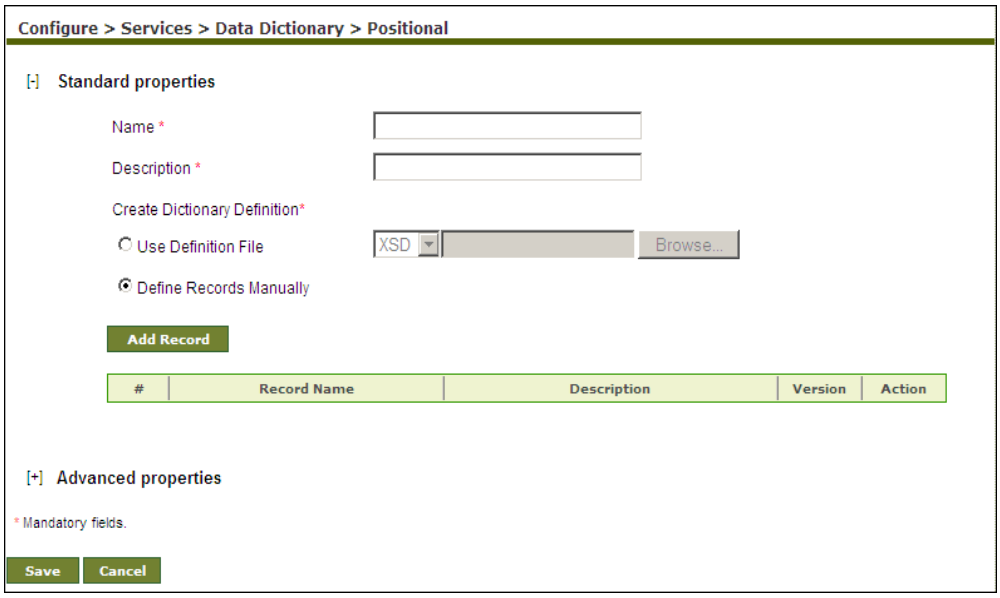


Figure 139: Create Positional Data Dictionary

5. Enter the name and description for Positional Data Dictionary in the textboxes **Name** and **Description** respectively.

   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, select the *Use Definition File* radio button, select the type of file from the dropdown list and click the **Browse** button to select the required file.

Alternately, 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 140).

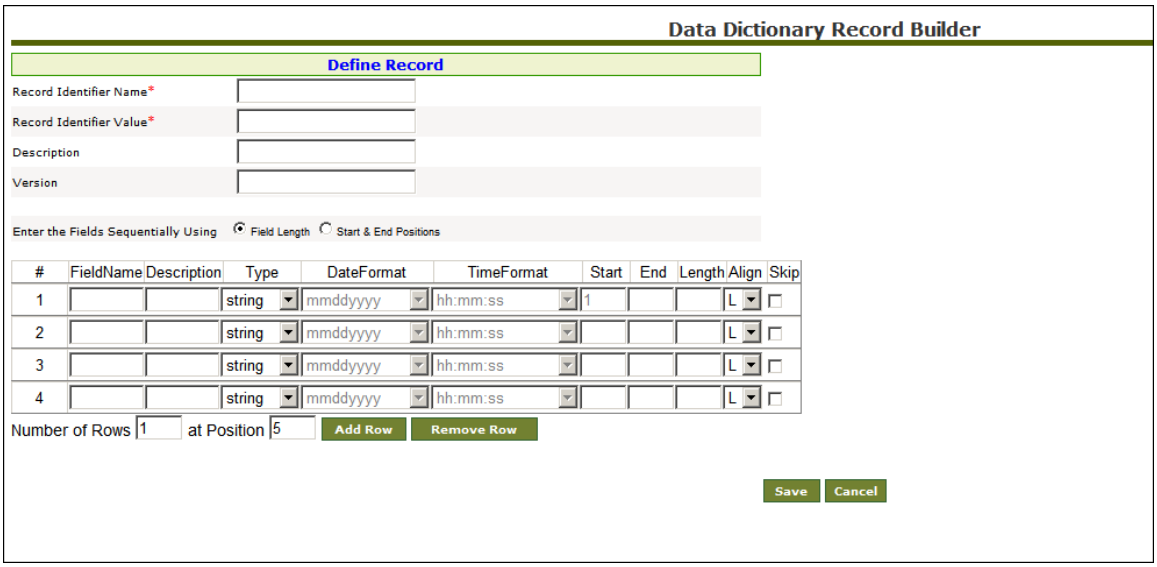


Figure 140: Data Dictionary Record Builder

While defining records manually, the record identifier name should be same as one of the field names. If the record identifier name is not same as the field name then record would not be saved.

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

15. Select the alignment of the field from the **Align** dropdown 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.

16. Select 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.

17. Click **Save** to save the records. The saved records are displayed on the **Create Positional Data Dictionary** screen (see Figure 141). You can view, edit or delete a record from this screen by clicking the appropriate button for that record.

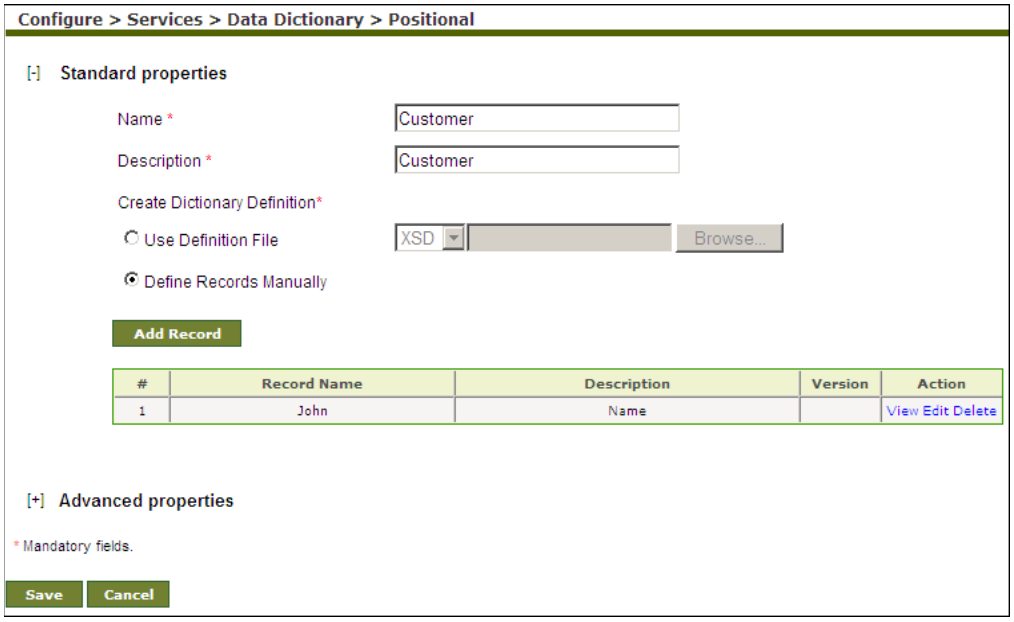


Figure 141: Records created for the Positional Data Dictionary

18. 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 6).

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

The comment should be at least 1 character in length.

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

21. Once you save the Data Dictionary, you can view, edit or delete the data dictionary definition by clicking **View**, **Edit** or **Delete** links respectively. Additionally, you can also *print* or *download* the definition.

22. Select the data dictionary in the **Manage Positional Data Dictionary** screen and click **Edit** link. This displays the data dictionary in edit mode (see Figure 142).

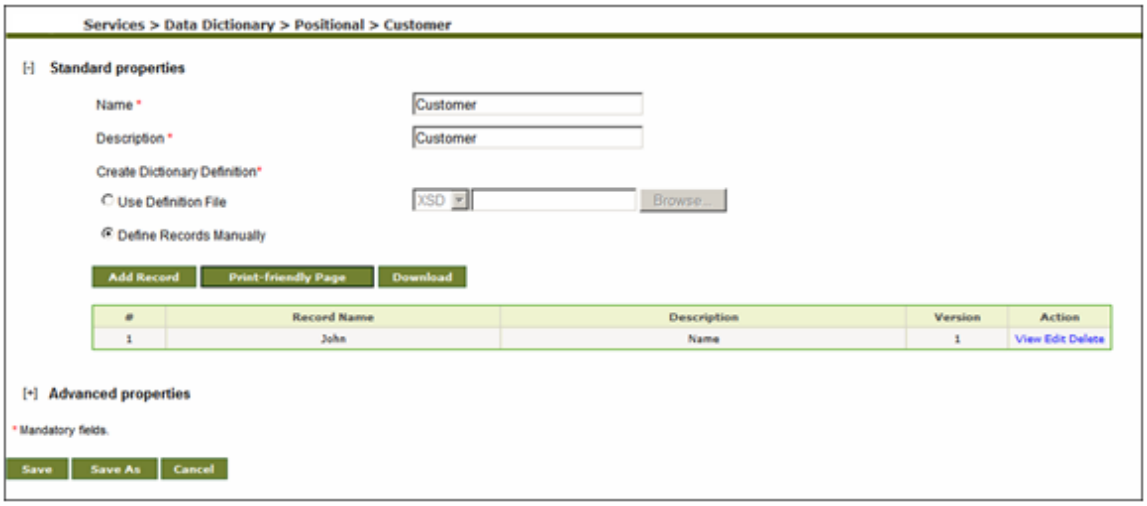


Figure 142: Edit Positional Data Dictionary

23. Click the **Print-Friendly Page** button to view the dictionary definition in print mode in the web browser (see Figure 143). Alternately, click **Download** to download the XSD file of the selected dictionary definition (see Figure 144).

Positional Data Dictionary Field Definition

Positional Data Dictionary Name: Customer

1) Record Identifier Name = Name, Record Identifier Value = John

FieldName	Description	Type	DateFormat	TimeFormat	StartPos	EndPos	Length	Alignment	Skip
Name	Name	string			1	25	25	L	F
Address	address	string			26	60	35	L	F
DateofBirth	dob	date	mmddyyyy	hh:mm:ss	61	70	10	L	F
Claim_Amt	claim	number			71	76	6	L	F

Figure 143: Print Positional Data Dictionary Definition

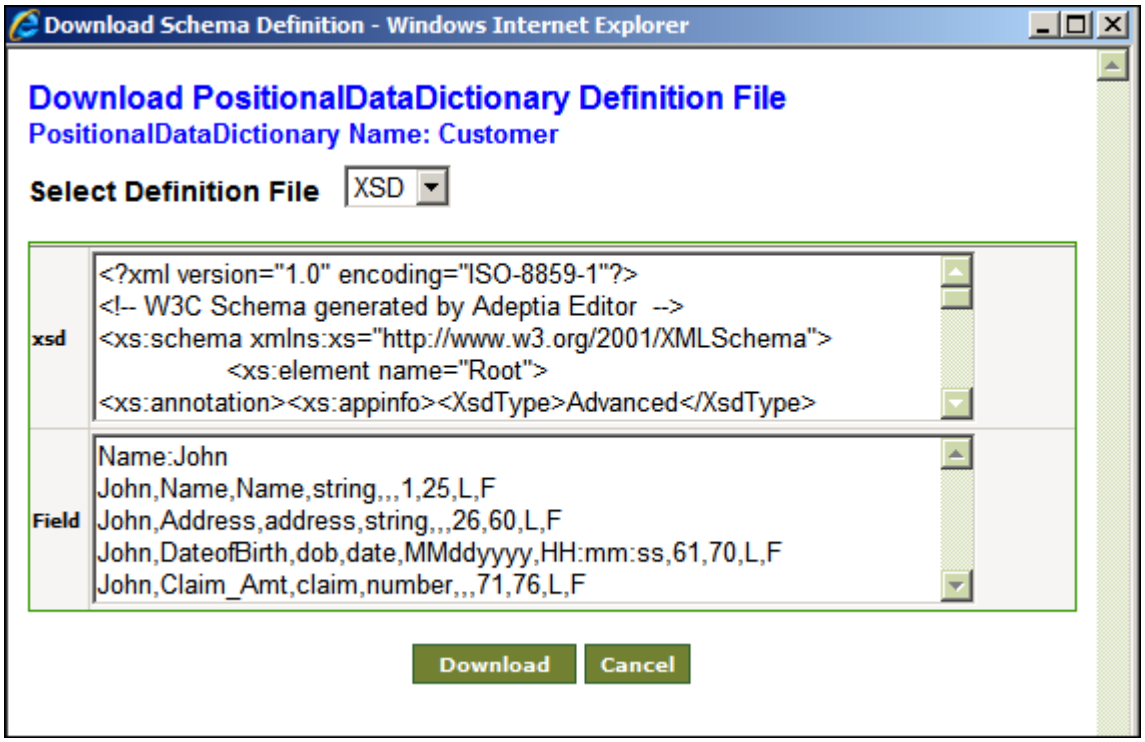


Figure 144:Download Positional Data Dictionary Definition

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.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√			

Steps to create EDI Data Dictionary

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Data Dictionary** to expand the hierarchy, and then click **EDI**. The **Manage EDI Data Dictionary** screen is displayed (see Figure 145).

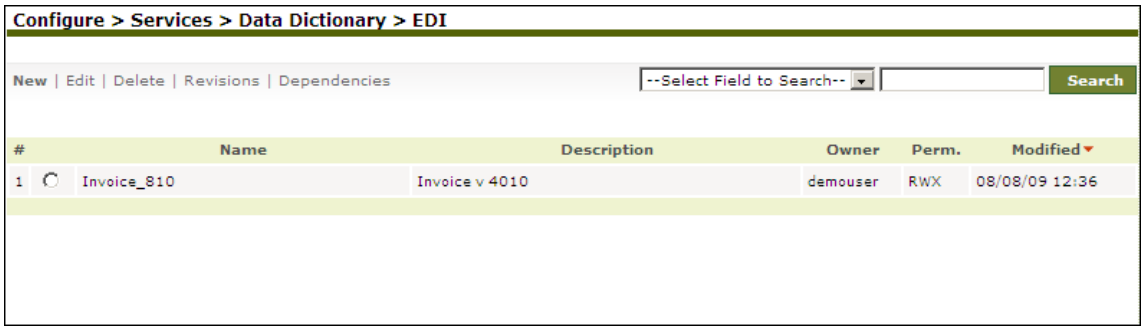


Figure 145: Manage EDI Data Dictionary

4. Click the **New** link. The **Create EDI Data Dictionary** screen is displayed (see Figure 146).

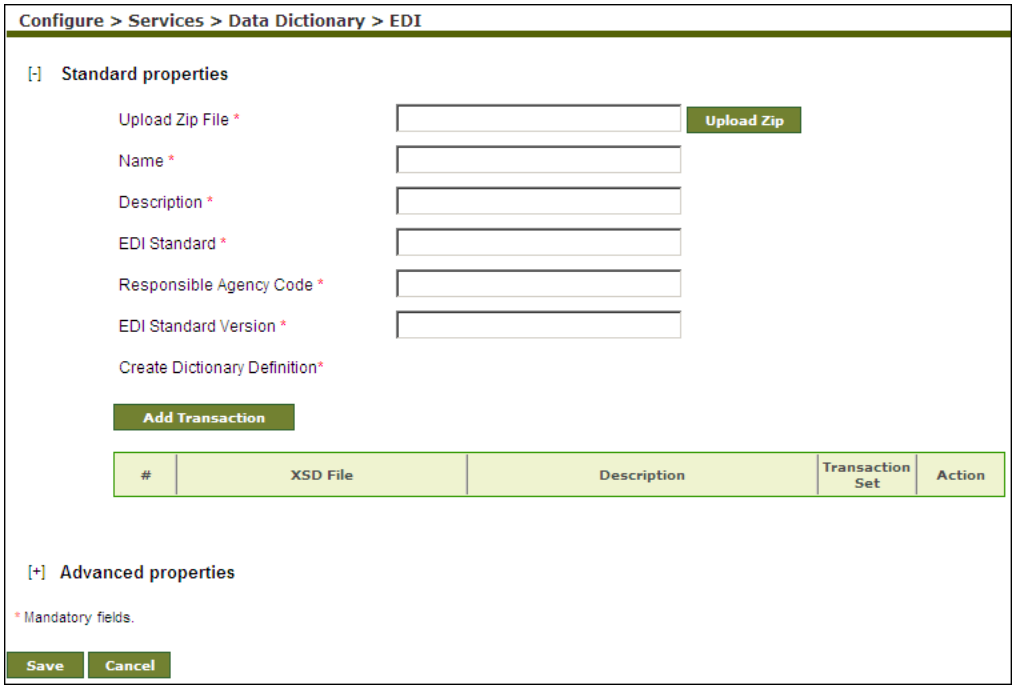


Figure 146: Create EDI Data Dictionary

5. Click **Upload Zip** button to select and upload the zip file. All XSD's and the values contained in the zip file are uploaded automatically. All the textboxes of the data dictionary are populated automatically. You need not enter or change any value in these fields.

- Currently one data dictionary is already created for X12 004010 Version.
- To create the EDI Data Dictionary of any other version, the ZIP will be provided by Adeptia. To get the XSD's of any other version contact support@adeptia.com.

6. Click the **Save** button. This displays a screen confirming that the 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 (refer to Figure 6).

7. Enter 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 EDI Data Dictionary has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

6

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 Suite allows to create 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.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Source** to expand the hierarchy, and then click **Adv**. **Database**. The **Manage Advanced Database Source** screen is displayed (see Figure 147).

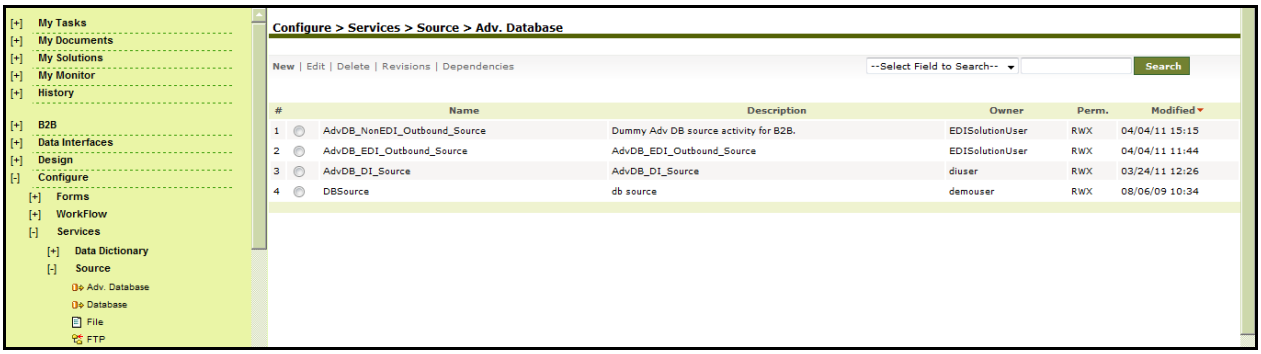


Figure 147: Manage Advanced Database Source

4. Click the **New** link. The **Create Advanced Database Source** screen is displayed (see Figure 148).

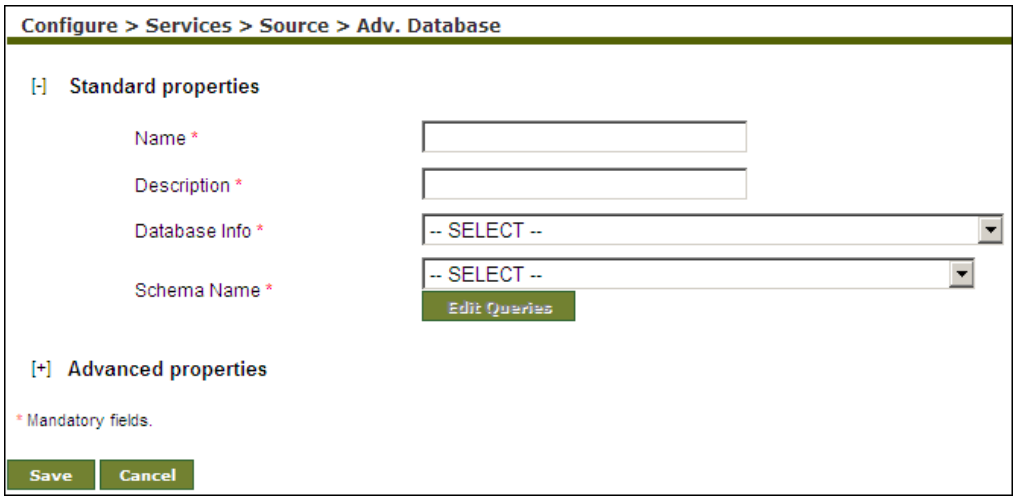


Figure 148: Create Advanced Database Source

5. Enter the name and the description of the new Advanced Database Source in the textboxes **Name** and **Description** respectively.

6. Select the database info activity and advanced database schema activity from the **Database Info** and the **Schema Name** dropdown lists respectively.

To learn how to create Database Info activity, refer to the Creating Database Info section. To learn how to create the Schema activity, refer to *Creating Advance Database Schema Activity* section.

7. To edit the database query of the selected schema, click the **Edit Queries** button. The **Edit Query(s)** screen is displayed (see Figure 149).

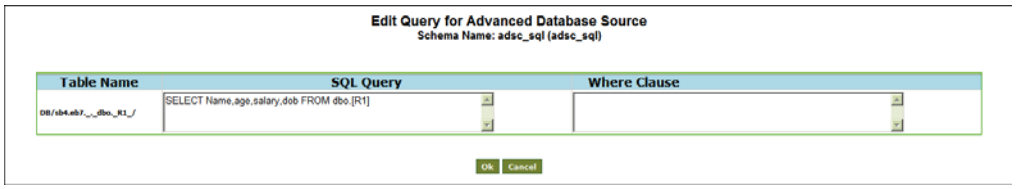


Figure 149: Edit Query

8. 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 Changing Advanced Properties section.

9. Click [+] to expand Advanced Properties.
10. 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.
11. You can select 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.
12. You can select 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 Changing Advanced Properties section.

13. Click the **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 6).
14. Enter 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 Advanced Database source activity has been created successfully.

> By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

CREATING DATABASE SOURCE ACTIVITY

The Database Source activity provides the ability to specify a database as source.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Prerequisites

- *Database Info* activity and *Database Schema* must be created before creating Database Source activity.

Steps to create a Database Source Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Source** to expand the hierarchy, and then click **Database**. The **Manage Database Source** screen is displayed (see Figure 150).

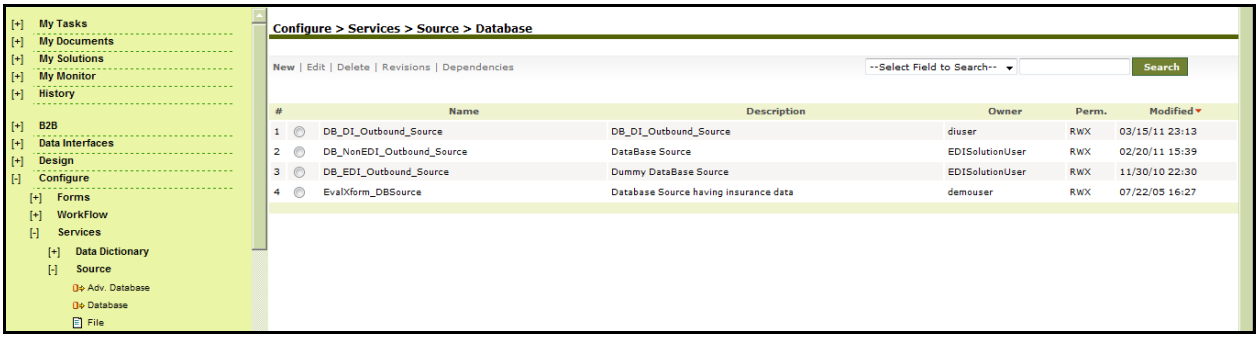


Figure 150: Manage Database Source

4. Click the **New** link. The **Create Database Source** screen is displayed (see Figure 151).

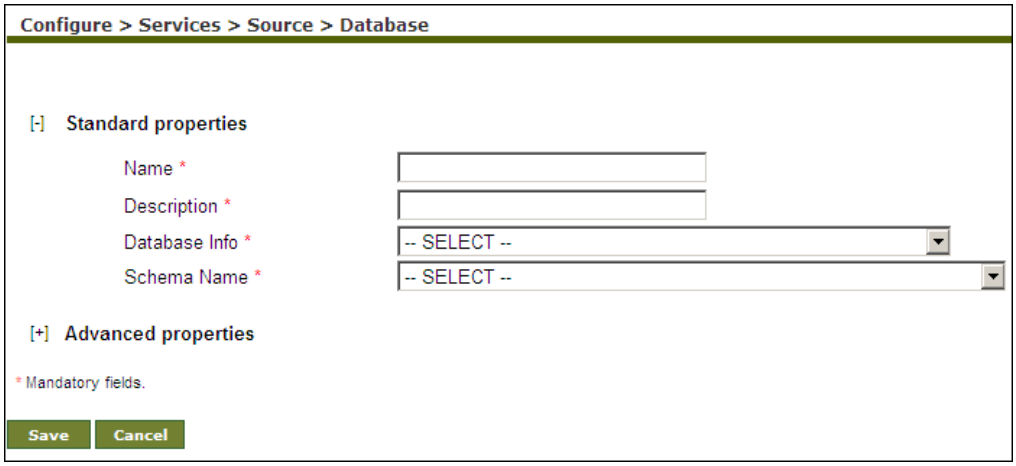


Figure 151: Create Database Source

5. Enter the name and the description of the new Database Source in the textboxes **Name** and **Description** respectively.
6. Select the database info activity and database schema activity from the dropdown lists **Database Info** and the **Schema Name** respectively.

> To learn how to create Database Info activity, refer to the Creating Database Info section. To learn how to create the Schema activity, refer to the Creating Database Schema section.

> To learn about Advanced Properties refer to Changing Advanced Properties section.

7. Click the **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 6).
8. Enter 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 database source activity has been created successfully.

> By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a File Source Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Source** to expand the hierarchy, and then click **File**. The **Manage File Source** screen is displayed (see Figure 152).

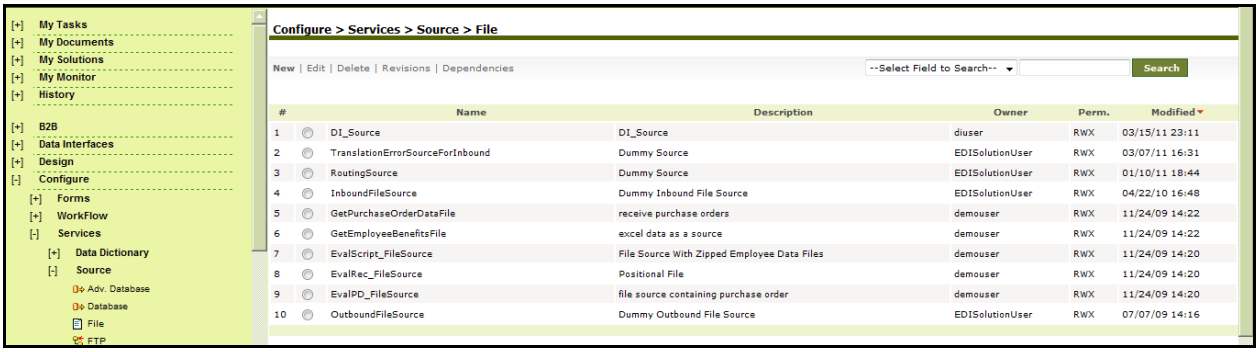


Figure 152: Manage File Source

4. Click the **New** link. The **Create File Source** screen is displayed (see Figure 153).

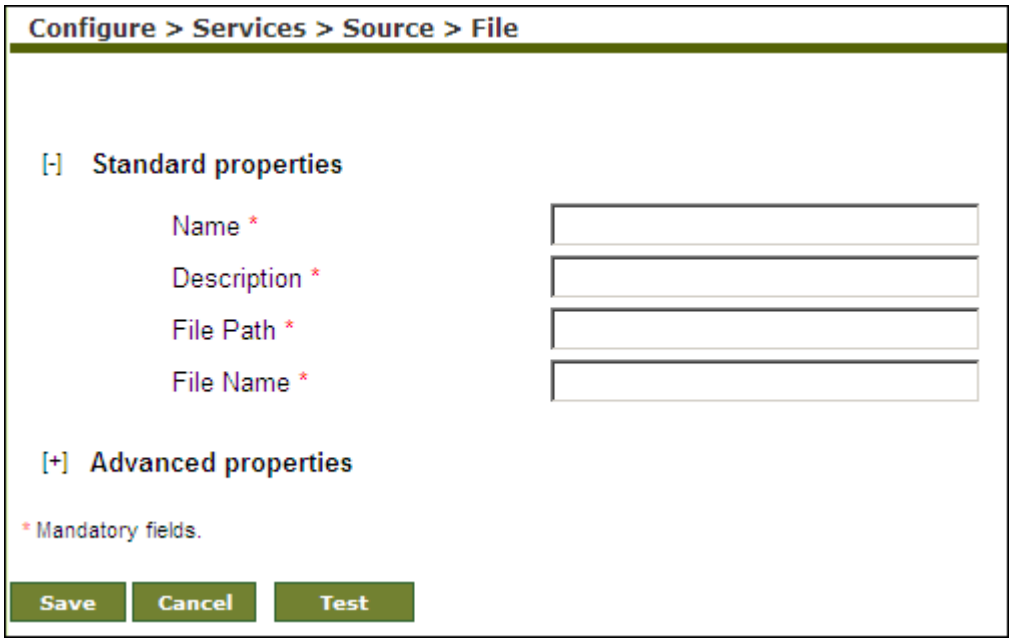


Figure 153: Create File Source

5. Enter the name and the description of the new File Source in the textboxes **Name** and **Description** respectively.
6. 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 Suite is running, the File Path will be c:/Employee.
7. 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 Changing Advanced Properties section.

If you want to delete the source file after it is used in the process flow execution, you can select the **Delete File on Success** checkbox, while defining the Advanced Properties. This selection will delete the source file once the process flow is executed successfully during the process flow execution.

8. Click the **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 6).
9. Enter 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 file source activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a FTP Source Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Source** to expand the hierarchy, and then click **FTP**. The **Manage FTP Source** screen is displayed (see Figure 154).

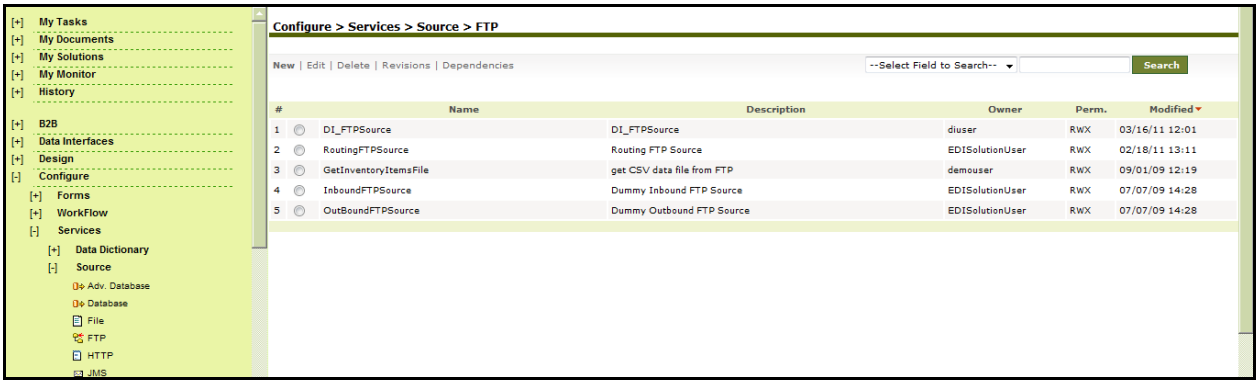


Figure 154: Manage FTP Source

4. Click the **New** link. The **Create FTP Source** screen is displayed (see Figure 155).

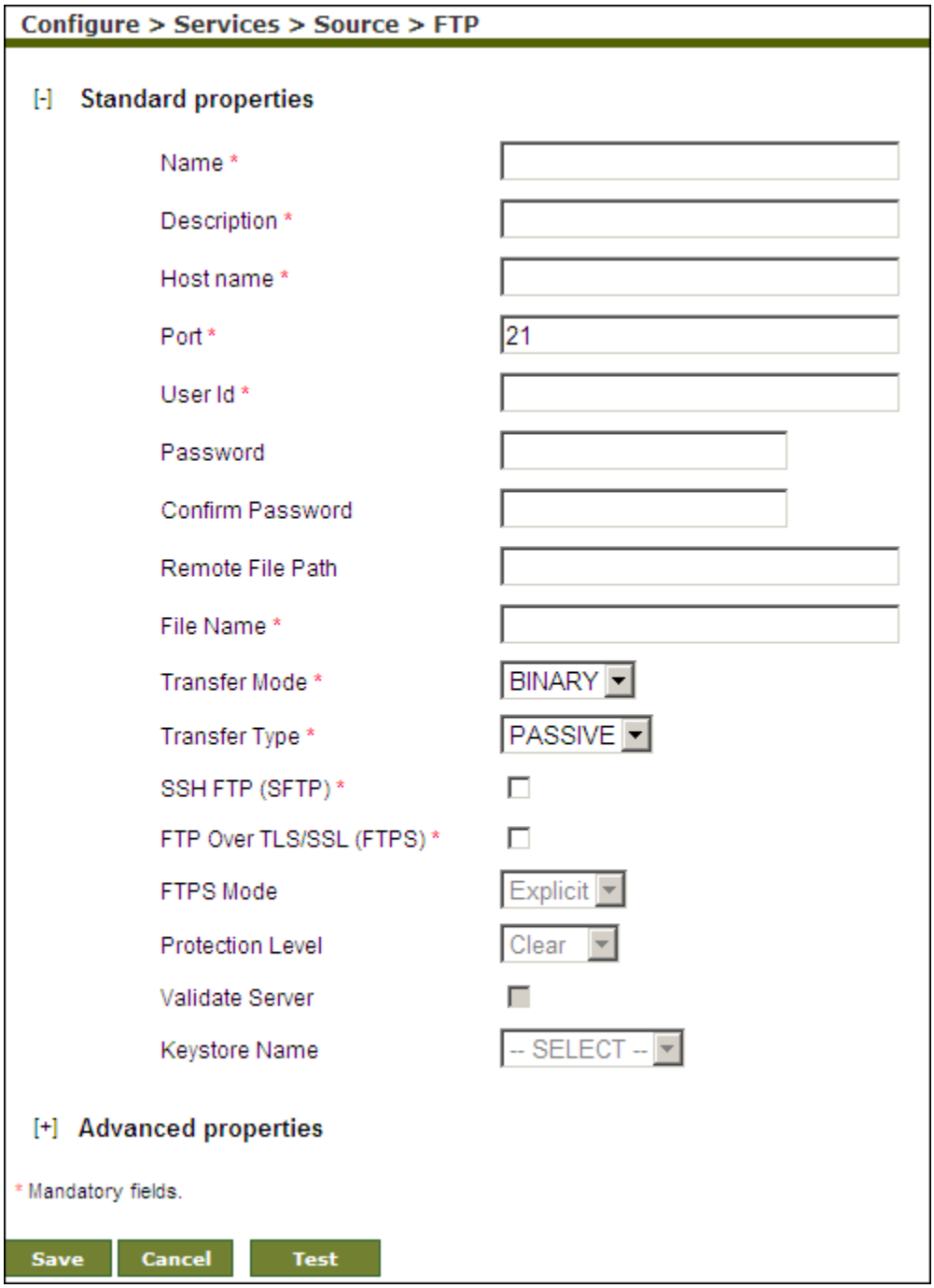


Figure 155: Create FTP Source

5. Enter the name and the description for FTP Source in the textboxes **Name** and **Description** respectively.
6. Enter the host name/IP address and port of the FTP Server in the textboxes **Host Name** and **Port** fields respectively.
7. Enter the username in the **User ID** field.
8. Enter the password, if required, in the textbox **Password**. Then re-enter the password in the textbox **Confirm Password**.

9. Enter the path of source file in the in the textbox **Remote File Path**.
10. Enter the name of the source file in the textbox **File Name**.
11. Select the transfer mode as either BINARY or ASCII from the dropdown list **Transfer Mode** 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.
12. Select the transfer type as either Active or Passive from the dropdown list **Transfer Type**. 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.
13. Select the **SSH FTP (SFTP)** checkbox if the FTP Server specified in the **Host Name** field is an FTP Server over SSH.
14. Select the **FTP Over TLS/SSL (FTPS)** checkbox, if the FTP Server, specified in the **Host Name** field is an FTP Server over TLS/SSL.
15. In case you have selected **FTP Over TLS/SSL (FTPS)**, checkbox, then select the FTPS mode from **FTPS Mode** dropdown list. It can be *Explicit* or *Implicit* depending on FTP Server that you are accessing.
16. Select the protection level supported by the FTP Server, from the dropdown list **Protection Level**. It can be *Clear* or *Private*.
17. If you want to validate the certificate sent by the FTPS Server, select the checkbox **Validate Server**.
18. Select keystore activity from the dropdown list **Keystore Name**. This option is applicable only when you have checked the **Validate Server** checkbox.

When the checkbox *Validate* Server is not selected it always accepts the certificate sent by FTPS Server.

However, when this checkbox is selected, it validates the certificate sent by FTPS server against the certificate imported in Keystore.

Keystore is repository of security certificates.

To know how to create Keystore and import certificates, refer to *Creating Keystore* secton of *Administrator Guide*.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.

- To learn about Advanced Properties refer to the Changing Advanced Properties section.
- If you want to delete the FTP source file after it is used in the process flow execution, you can select the *Delete File on Success* 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.
- At times, when the Adeptia Suite 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 *Data Timeout* 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.

19. Click **[+] Advanced Properties** to expand the hierarchy. All items in **Advance Properties** are displayed.

    A new dropdown list **Secured FTP Connector** has been added. This dropdown lists the API which is used to connect to the FTP Server. It has the following options:

- J2SCH (VFS)
- J2SSH

    By default, the option **J2SCH (VFS)** is selected in this dropdown list.

In case FTP Event is not able to connect to the FTP Server which you have specified in the **HostName** field, you can select the FTP Server **J2SSH**.

However, this option is available only if you are connecting to a SFTP Server and when the checkbox **SSH FTP (SFTP)** is selected.

20. Click the **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 6).
21. Enter 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 FTP source activity has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

You can verify the FTP source activity at design time. For this, click **Test**. This verifies the values in the *Host Name, Port, User ID, Password* and *Secured* 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a HTTP Source Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Source** to expand the hierarchy, and then click **HTTP**. The **Manage HTTP Source** screen is displayed (see Figure 156).

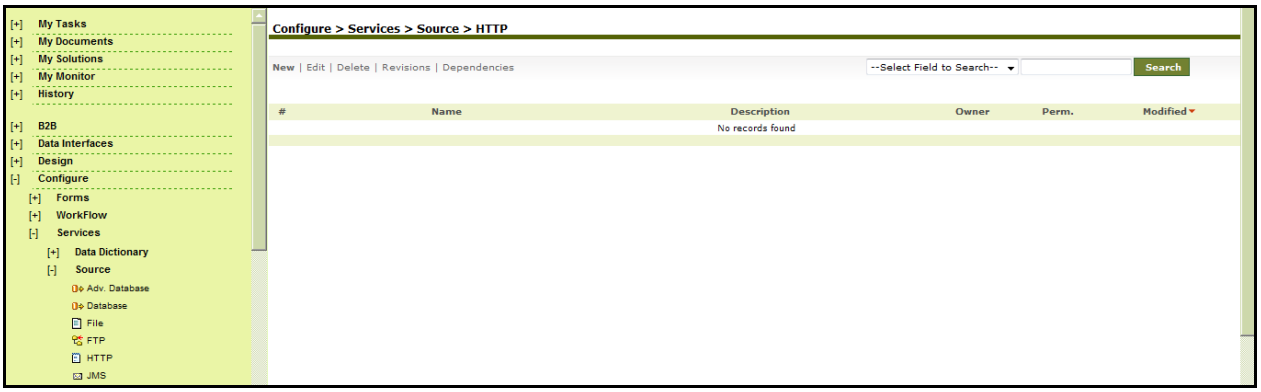


Figure 156: Manage HTTP Source

4. Click the **New** link. The **Create HTTP Source** screen is displayed (see Figure 157).

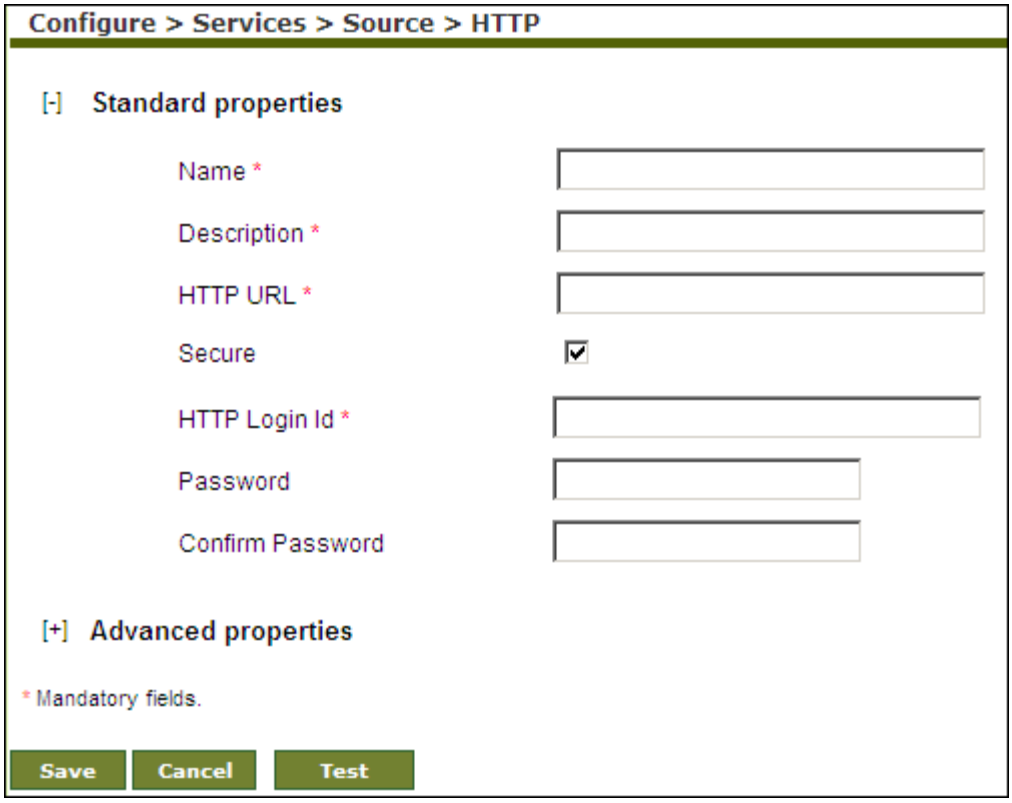


Figure 157: Create HTTP Source

5. Enter the name and description of the new HTTP Source in the textboxes **Name** and **Description** fields respectively.

6. Enter the URL of the HTTP Server in the **HTTP URL** field. For example, http://www.adeptia.com/Employee/sales.txt
7. If authentication is required to access the specified file then select the *Secure* checkbox.
8. Enter the username and password in the textboxes **HTTP Login Id** and **Password** respectively. Then, re-enter the password in the textbox **Confirm Password** field.

To learn about Advanced Properties refer to Changing Advanced Properties section.

9. Click the **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 6).
10. Enter 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 HTTP source activity has been created successfully.

By default, the **comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Prerequisites

- *JMS Provider* activity must be created before creating *JMS Source* Activity.

Steps to create a JMS Source Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Source** to expand the hierarchy, and then click **JMS**. The **Manage JMS Source** screen is displayed (see Figure 158).

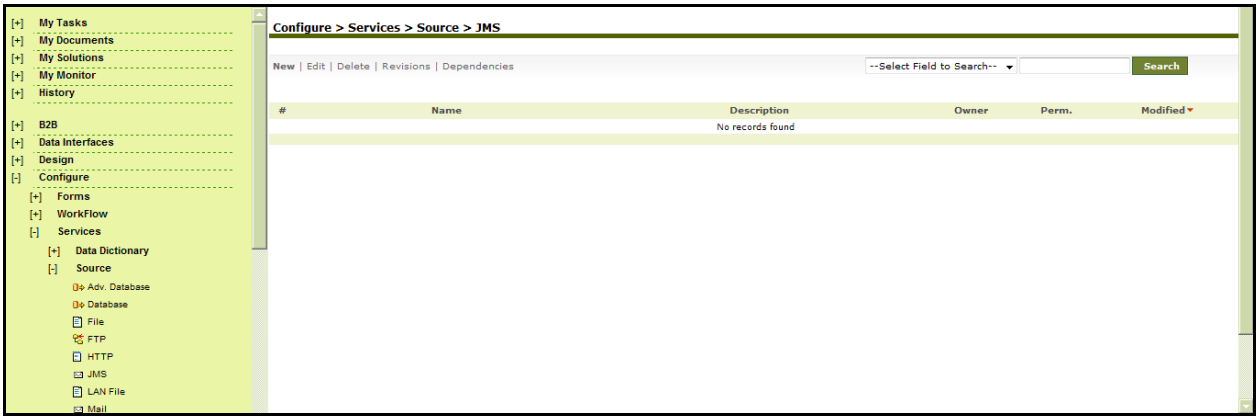


Figure 158: Manage JMS Source

4. Click the **New** link. The **Create JMS Source** screen is displayed (see Figure 159).

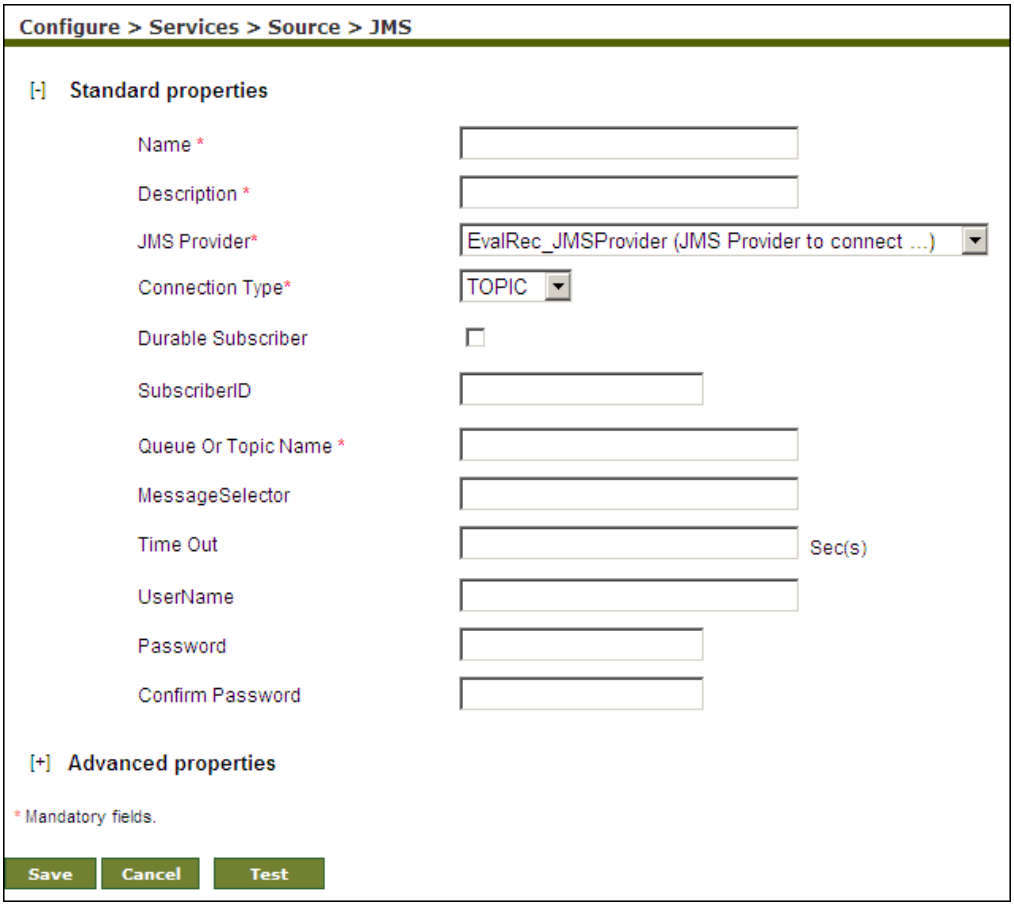


Figure 159: Create JMS Source

5. Enter the name and the description of the new JMS Source in the textbox **Name** and **Description** respectively.
6. Select the JMS Provider activity from the dropdown list **JMS Provider**.

To learn how to create JMS Provider activity, refer the Creating JMS Provider section.

7. Select the Connection Type as either Topic or Queue from the dropdown list **Connection Type**.
8. Select the **Durable Subscriber** checkbox 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.
9. Enter the subscriber ID in the textbox **Subscriber ID**.
10. Enter the name of queue or topic as configured in the JMS Server in the textbox **Queue Or Topic Name**.
11. If you want to select a specific message from the JMS Server, enter the message selector in the textbox **Message Selector**.

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')

12. Enter the time in seconds in the field **Time Out**. 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.
13. Enter the username and password (if required) to connect to JMS Server in the textboxes **UserName** and **Password** fields respectively. Then, re-enter the password in the *Confirm Password* field.

To learn about Advanced Properties refer to Changing Advanced Properties section.

14. Click the **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 6).

15. Enter 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 source activity has been created successfully.

By default, the **comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a LAN File Source Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Source** to expand the hierarchy, and then click **LAN File**. The **Manage LAN File Source** screen is displayed (see Figure 160).

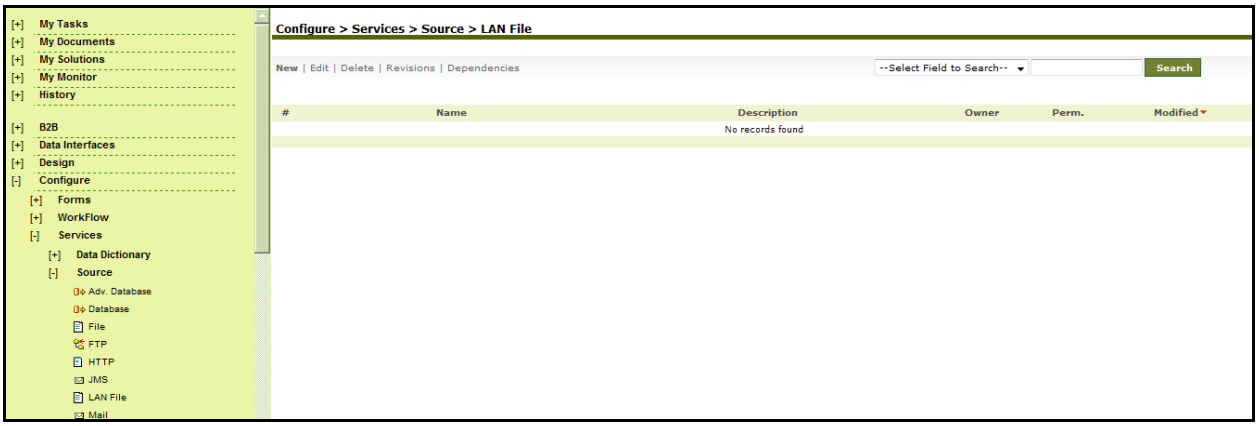


Figure 160: Manage LAN File Source

4. Click the **New** link. The **Create LAN File Source** screen is displayed (see Figure 161).

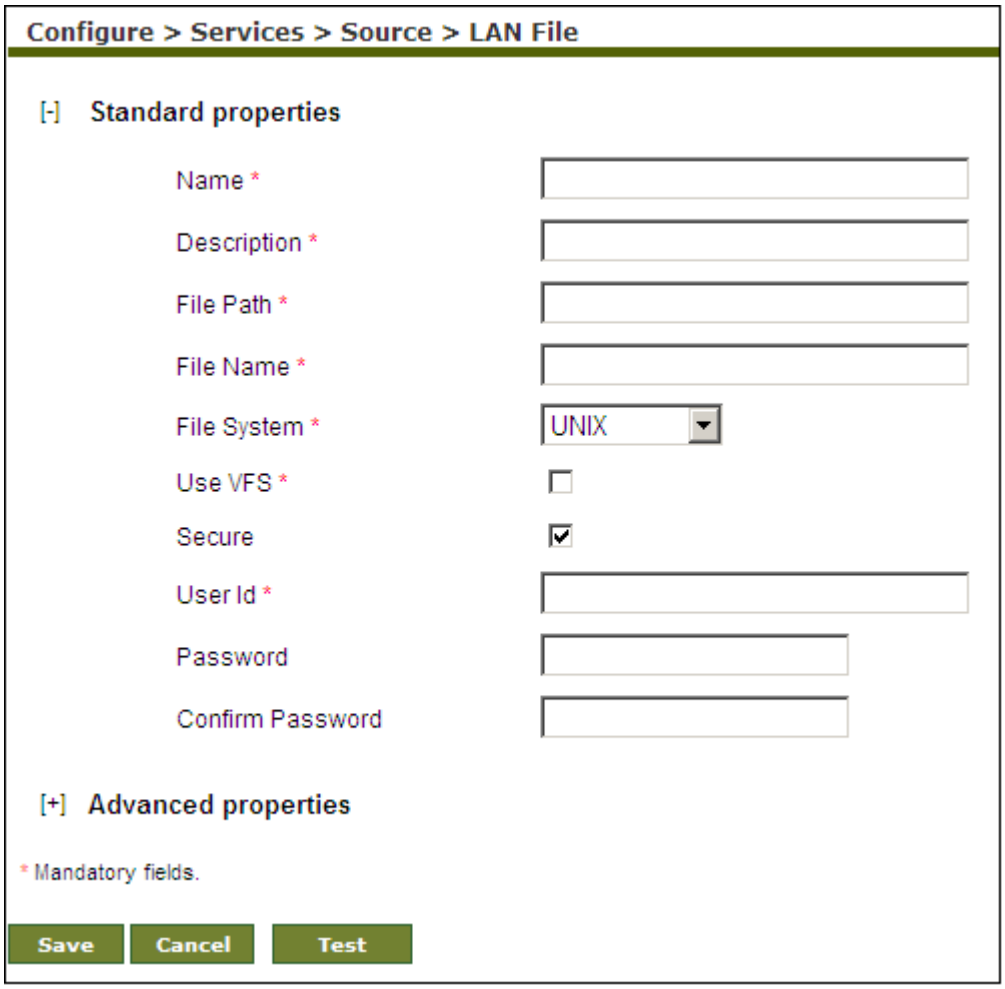


Figure 161: Create LAN File Source

5. Enter the name and the description of the new LAN File Source in the textbox **Name** and **Description** respectively.

6. Enter the network path of the source file in the textbox File Path 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*\

7. Enter the name of the source file in textbox **File Name**. For Example Sales.txt.

8. Select the file system whether Windows or Unix from the dropdown list **File System**.

9. When Adeptia Suite 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, select **Use VFS** checkbox.

10. If authentication is required to access the source file, select the **Secure** checkbox.

11. Enter the username in the textbox **User ID**.

12. Enter the password, if required, in the textbox **Password**. Then re-enter the password in the textbox **Confirm Password** field.

To learn about Advanced Properties refer to Changing Advanced Properties section.

If you want to delete the LAN source file after it is used in the process flow execution, you can select 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.

13. Click the **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 6).
14. Enter 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 LAN File Source activity has been created successfully.

By default, the **comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a Mail Source Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All the items in the **Services** category are displayed.

3. Click **[+] Source** to expand the hierarchy, and then click **Mail**. The **Manage Mail Source** screen is displayed (see Figure 162).

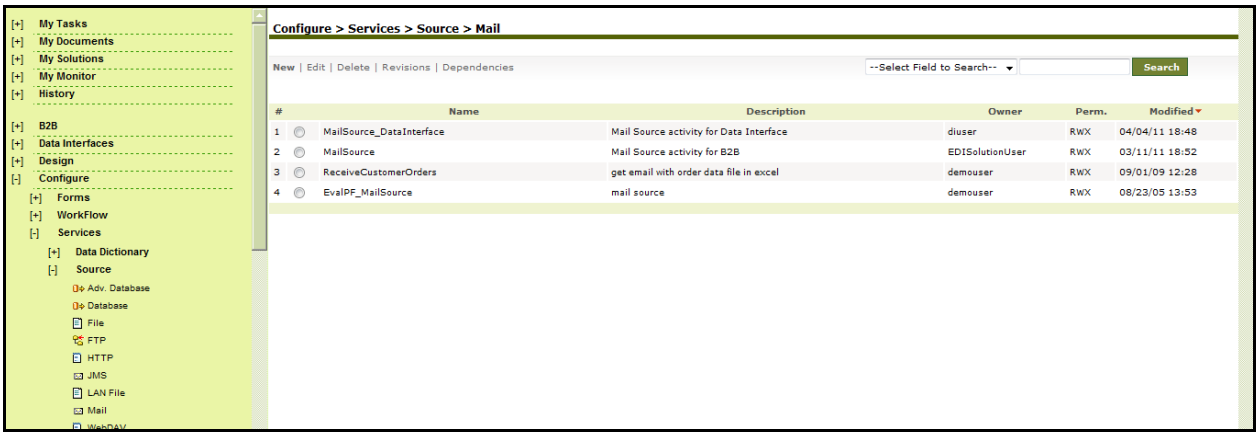


Figure 162: Manage Mail Source

4. Click the **New** link. The **Create Mail Source** screen is displayed (see Figure 163).

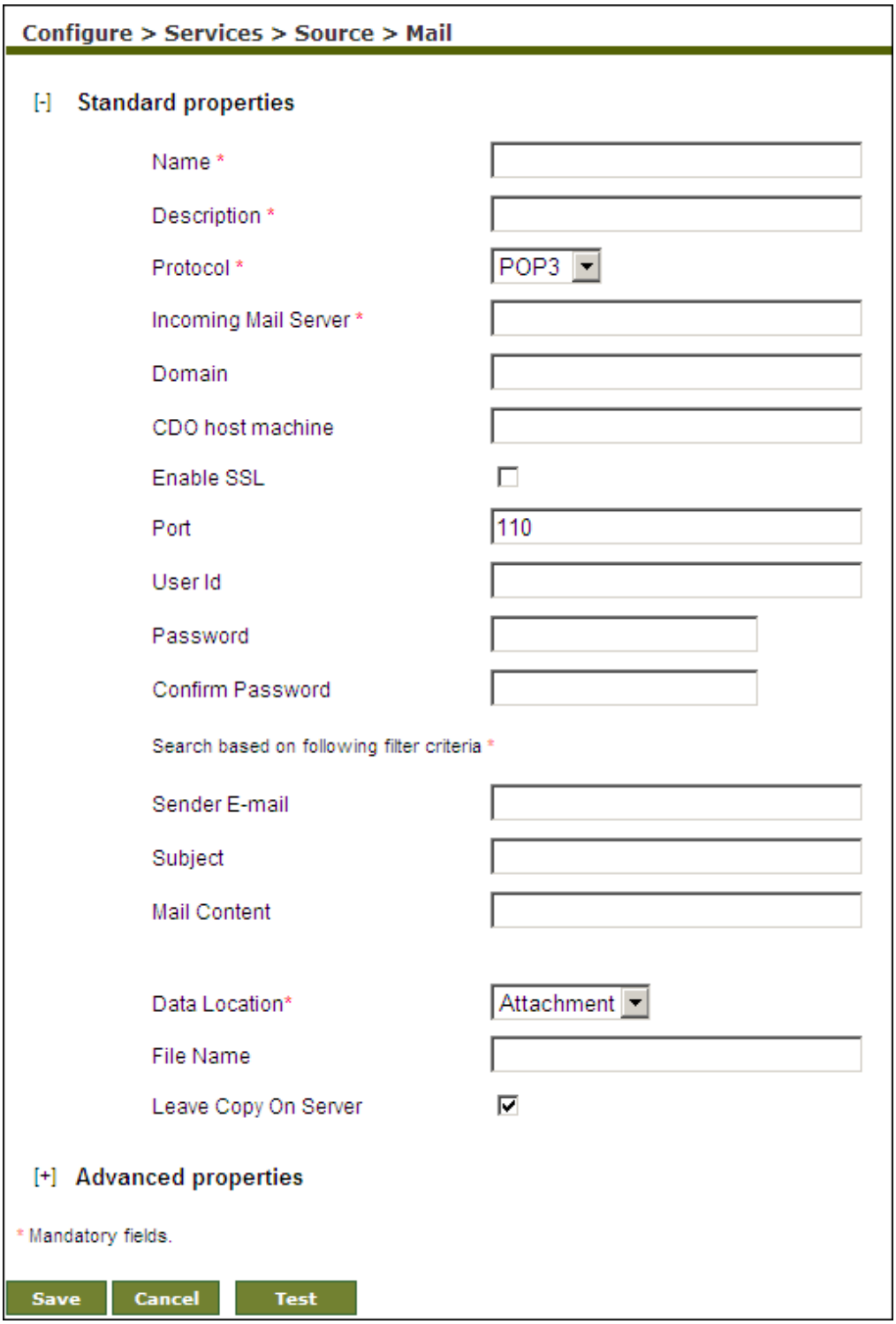


Figure 163: Create Mail Source

5. Enter the name and the description of the new Mail Source in the textboxes **Name** and **Description** respectively.

6. Select the Internet standard protocol to be used for retrieving incoming mails from the dropdown list **Protocol**. 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 textbox **Port**.
7. Enter the incoming mail server address in textbox **Incoming Mail Server**.

To access mails from Microsoft Exchange Server use MAPI in the **Protocol** dropdown list. To connect Adeptia Suite 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* dropdown list.

If *MAPI* is selected in the **Protocol** dropdown list:

- Enter name of the exchange server in the Incoming Mail Server field
- Enter the domain name in the Domain field
- Enter the name of the CDO host machine in the 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/.

8. Select the **Enable SSL** checkbox, if the specified incoming mail server requires a secure connection.
9. 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.
10. Enter the username and password of Mail Server in the *User ID* and *Password* fields respectively. Then, re-enter the password in the textbox **Confirm Password** field.
11. Select any of the following filter criteria:

- Sender E-mail
- Mail Subject
- Mail Content

You may select more than one filter criteria.

12. Enter the sender's email address and subject of email in the textboxes **Sender Email** and **Subject** respectively.
13. To define search based on mail content, enter the required content in the textbox **Mail Content** field.

You can also use asterisk and wild cards in **Mail Content** field.

14. Select the location of data in the mail whether it is in attachment or in email body from the dropdown list **Data Location**. This is mandatory.
15. If you select an Attachment in the Data Location field, enter the name of the file in the textbox **File *Name***.

Mail Source activity does not support more than one file attachment.

16. If you want to leave a copy of the mail on the Server, select the **Leave Copy On Server** checkbox.

To learn about Advanced Properties refer to Changing Advanced Properties section.

17. Click the **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 6).
18. Enter comments in the **Add Comments** field.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

19. 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 *Updating System Properties* section in *Administrator* Guide.

You can verify the mail source activity at design time. For this, click **Test**. This verifies the values in the In*coming 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 the *abpm.mailEvent.retry* property in the *Administrator Guide*.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create WebDAV Source Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All the items in the **Services** category are displayed.
3. Click **[+] Source** to expand the hierarchy, and then click **WebDAV**. The **Manage WebDAV Source** screen is displayed (see Figure 164).

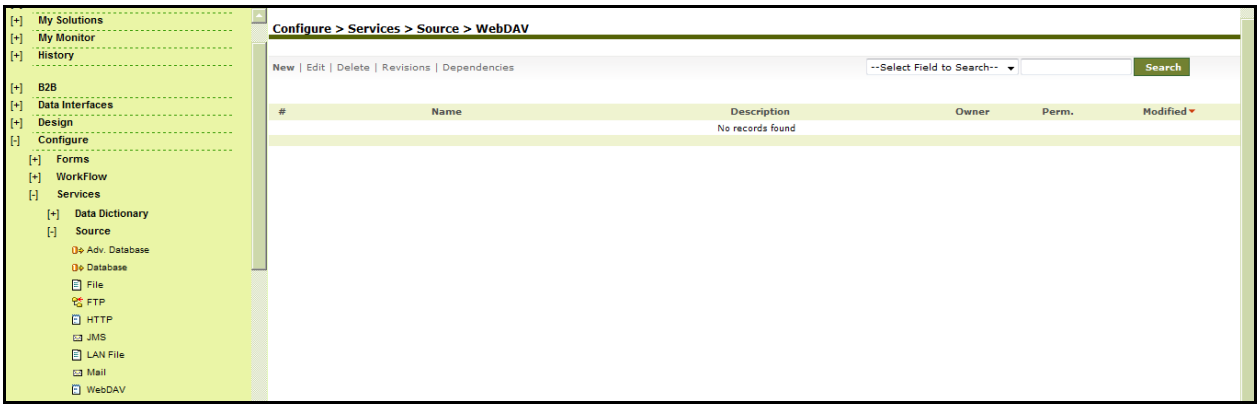


Figure 164: Manage WebDAV Source

4. Click the **New** link. The **Create WebDAV Source** screen is displayed (see Figure 165).

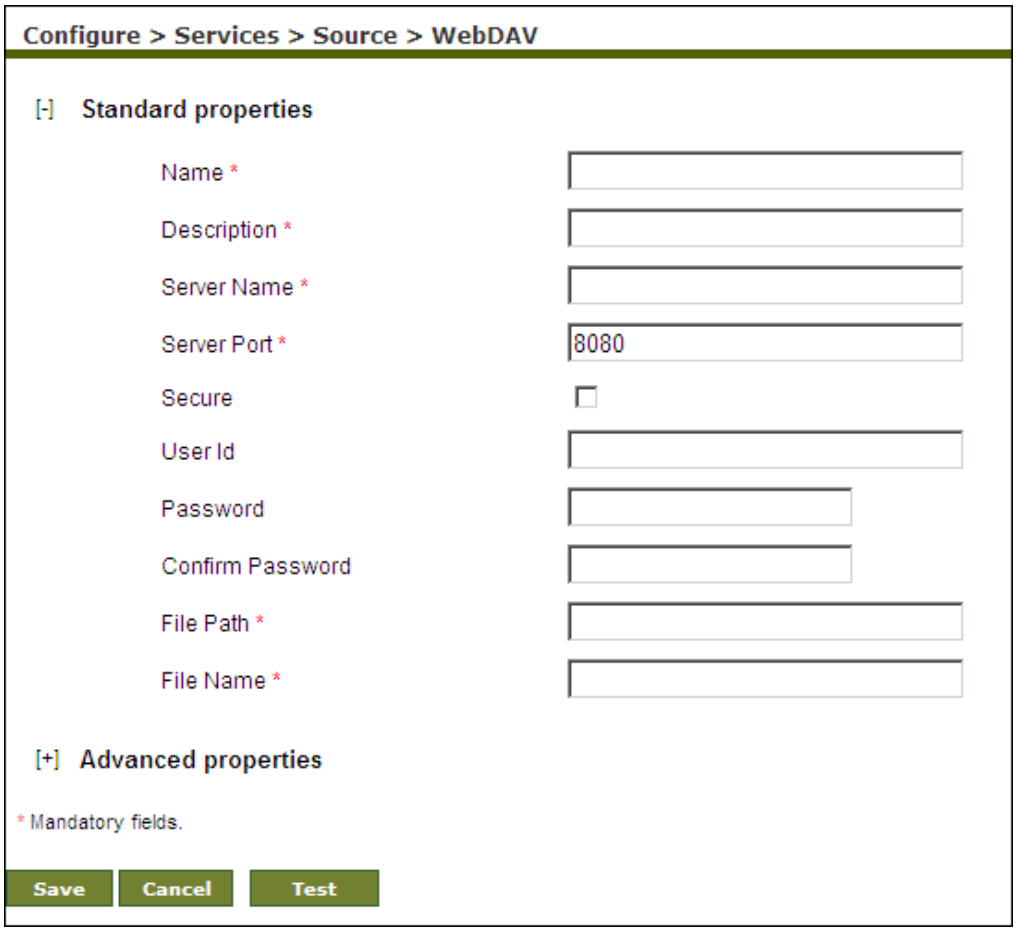


Figure 165: Create WebDAV Source

5. Enter the name and description of the new WebDAV Source in the textboxes **Name** and **Description** respectively.
6. Enter the name of the WebDAV Server and Server port on which WebDAV Server is running, in the textboxes **Server Name** and **Server Port** respectively.
7. If the WebDAV is secured i.e. username and password are required to access it, then select 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 textbox **Confirm Password**.

If you are using WebDAV Server, which is built in with Adeptia Suite, the default Username is "Administrator" and the password is "indigo".

8. 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 Changing Advanced Properties section.

9. Click the **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 6).
10. Enter 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 WebDAV source activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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.

9

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 Suite provides following types of Schema activities:

- Advance Database Schema
- Advance Positional Schema
- Advance Text Schema
- Database Schema
- Excel Schema
- Positional Schema
- Text Schema
- Word Schema
- XML Schema
- XML Validator
- EDI Schema

Adeptia Suite 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 26: Definition File Methods used for Creating Schemas

Schema	Data File	Field File	XSD File
Advance Database Schema	√		√

Schema	Data File	Field File	XSD File
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.

In case 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 of birth,date,yyyy/dd/MM,HH:mm:ss,12,24,L,F
second,Address,Address of 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 of birth,date,yyyy/dd/MM,HH:mm:ss,13,L,F
second,Address,Address of employee,string,,,20,L,T
```

where: **L** means left alignment

R means right alignment

T means True

F means False

Field File format for Excel and Text Schema

<Field Name>,<Data Type>,[Date Format],[Time Format]

```
NAME,string,,
PHONE_NO,number,,
```

```
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 Suite format. To get the Adeptia Suite 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 at1. 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Prerequisites

- *Database Info* activity must be created before creating A*dvance Database Schema* activity.

Steps to create the Advance Database Schema

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Schema** to expand the hierarchy, and then click **Adv. Database**. The **Manage Adv. Database Schema** screen is displayed (see Figure 166).

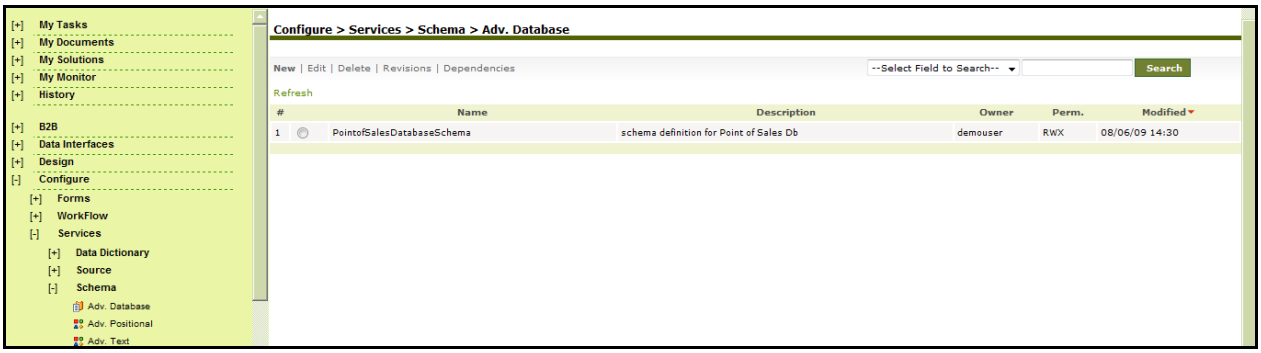


Figure 166: Manage Advance Database Schema

4. Click the **New** link. The **Create Advance Database Schema** screen is displayed (see Figure 167).

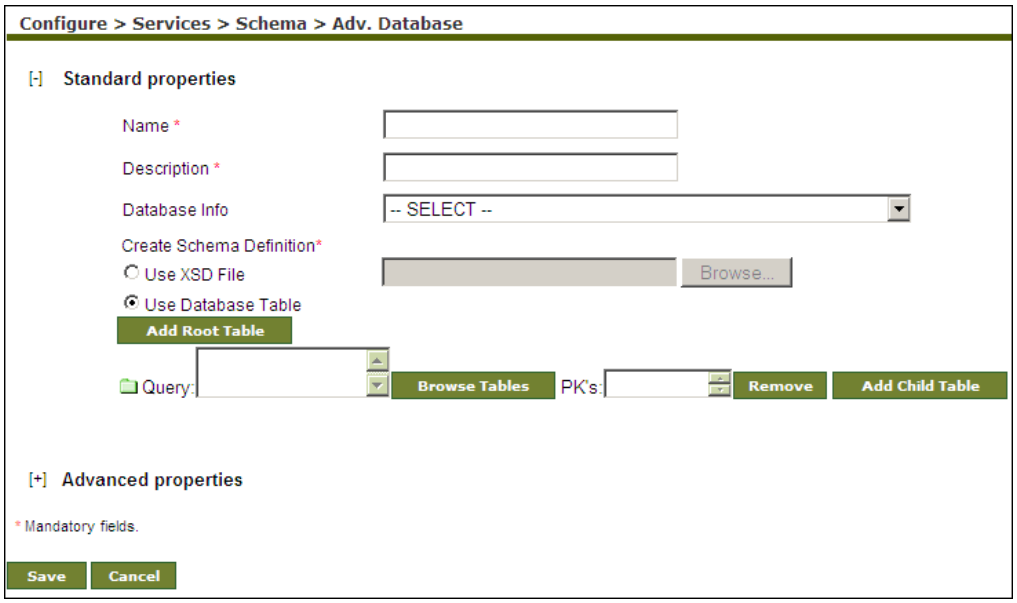


Figure 167: Create Advance Database Schema

5. Enter the name and description for new Advance Database Schema in the textboxes **Name** and **Description** respectively.

6. Select the database info activity from the dropdown list **Database Info**.

> To learn how to create Database Info activity, refer to the Creating Database Info section.

7. To define schema definition, select one of the following options:
   - Use XSD File
   - Use Database Table

8. To select the XSD file, which contains schema information, select the **Use XSD File** radio button and click **Browse**.

9. 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 168).

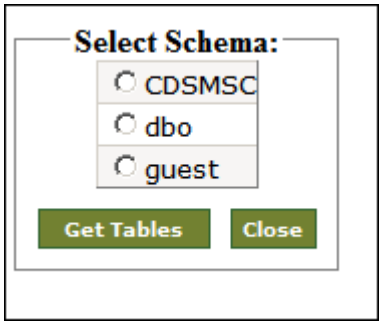


Figure 168: Select Schema

10. Select the required RDBMS schema and click **Get Tables**. The **Select Table** screen is displayed with the list of tables (see Figure 169).

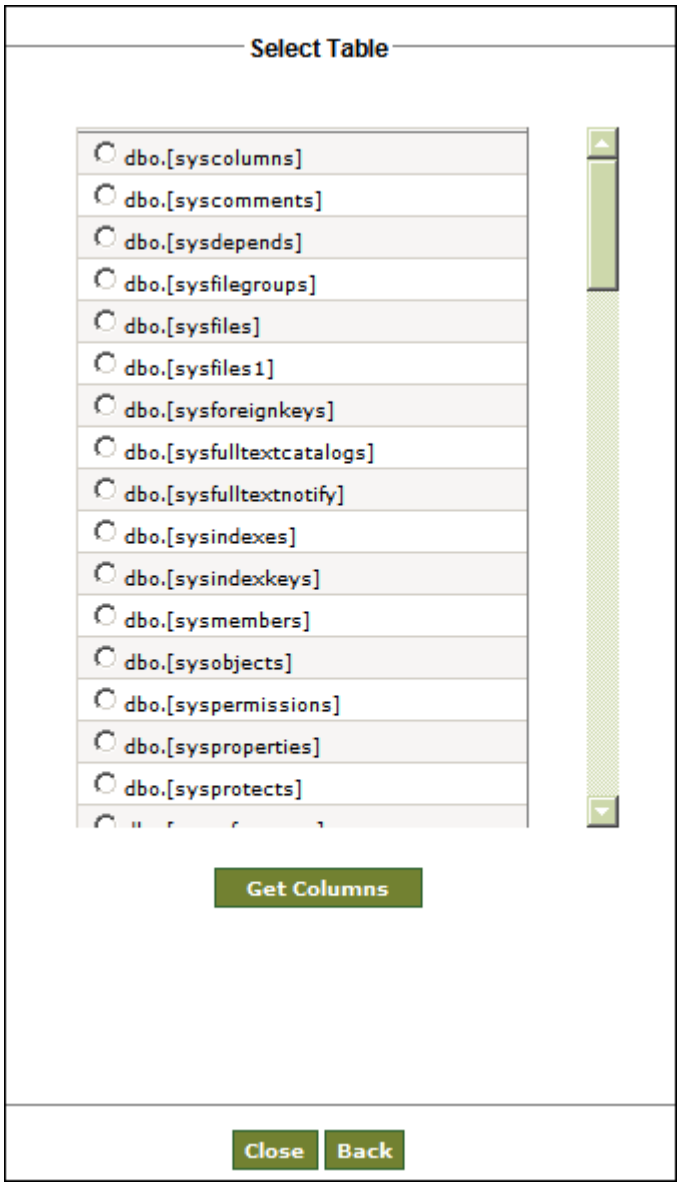


Figure 169: Select Tables

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.

11. 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 170).

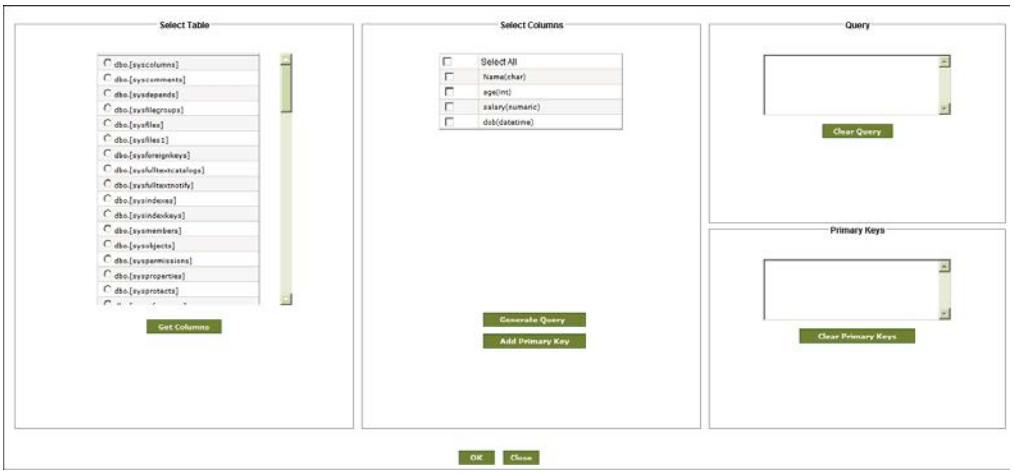


Figure 170: Select Columns and Primary Key

12. In **Select Columns** grid, select the required column(s) and click **Generate Query** button to generate the database query. The generated query is displayed in the **Query** listbox. You can also specify the where clause within the generated select query (see Figure 171).

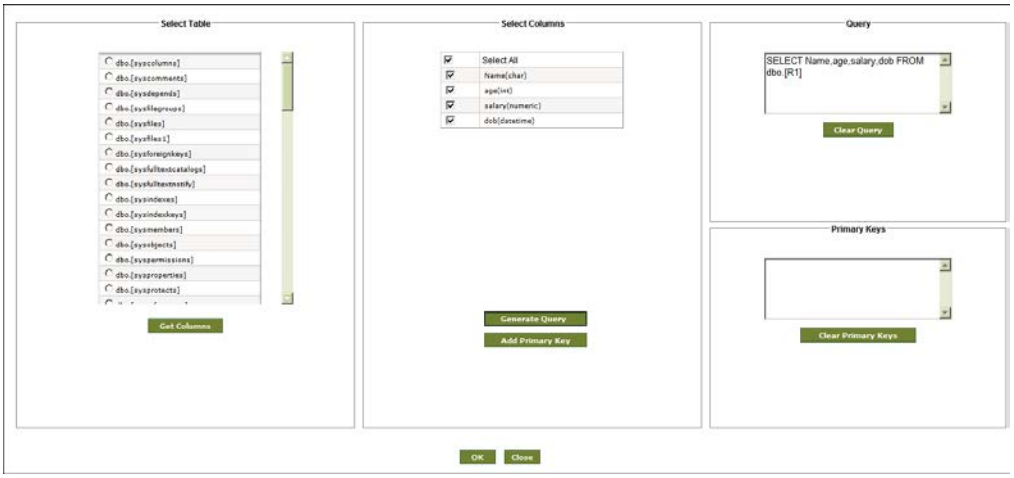


Figure 171: Generate Query

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 to assign the output of (Name+Dept) to some new field.

13. To designate a column as Primary Key, select the required column(s) and click **Add Primary Key**. The selected column is displayed in the textbox **Primary Key**.

> 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.

14. Click **OK** to return to the **Create Advance Database Schema** screen. The selected query and primary key are displayed in their respective fields.

15. 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 172).

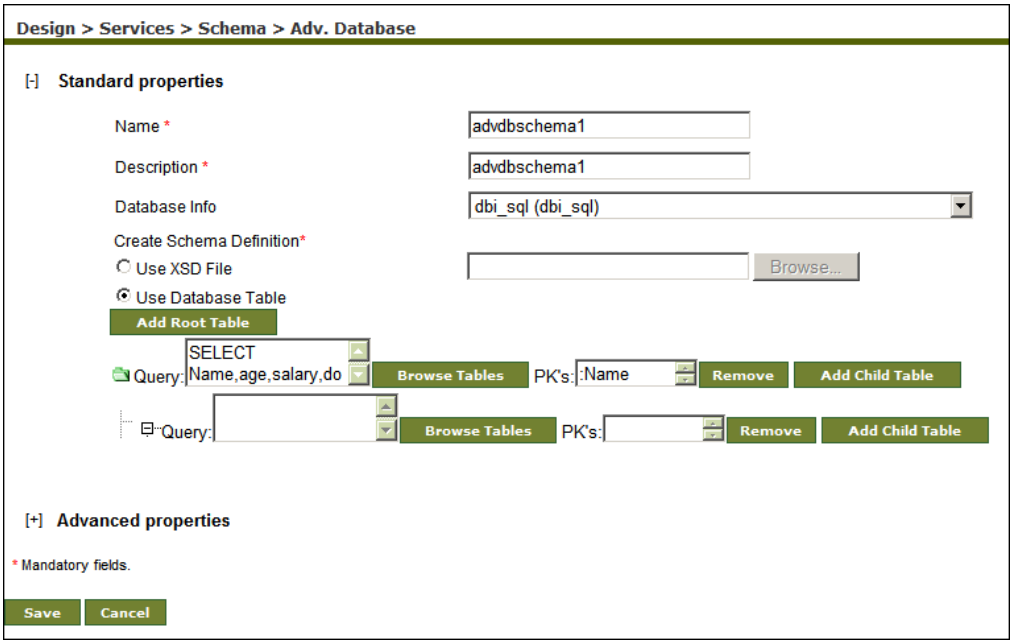


Figure 172: Create Child Table

16. 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 168). If HSQLDB Database Info is selected, then the Select Table screen is displayed (refer to Figure 169).

17. On 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 169).

> 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.

18. Select the required table and click **Get Columns**. The following screen is displayed (see Figure 173).

Figure 173: Select Column, Primary and Related Keys

19. In **Select Columns** grid, 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.

20. 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 Keys** list box (see Figure 174).

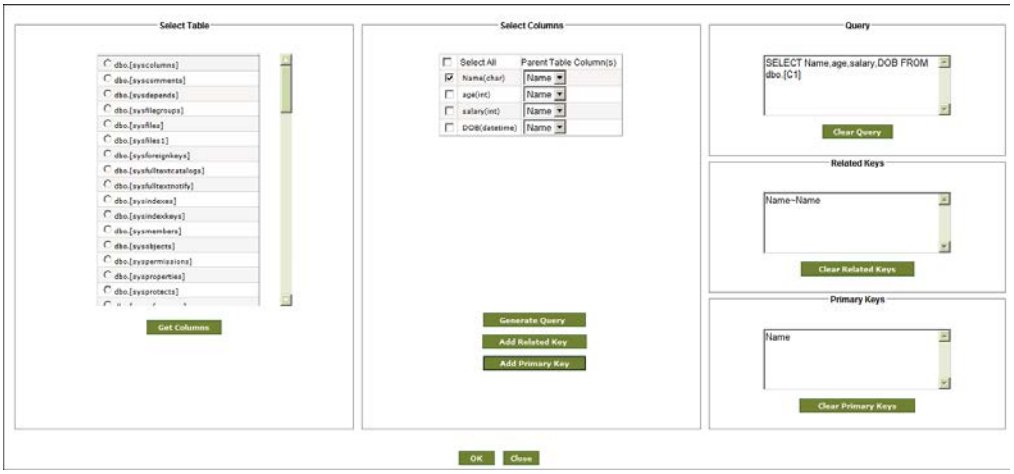


Figure 174: Add Related Key

21. To change the Primary Key, select the required column(s) and click **Add Primary Key**. The selected column is displayed in the **Primary Keys** list box.

22. Click **OK** to return to the **Advance Database Schema** screen.

23. 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.

24. Click **[+]** to expand **Advanced Properties**. Advanced properties of Advanced Database Schema are displayed (see Figure 175Figure 175).

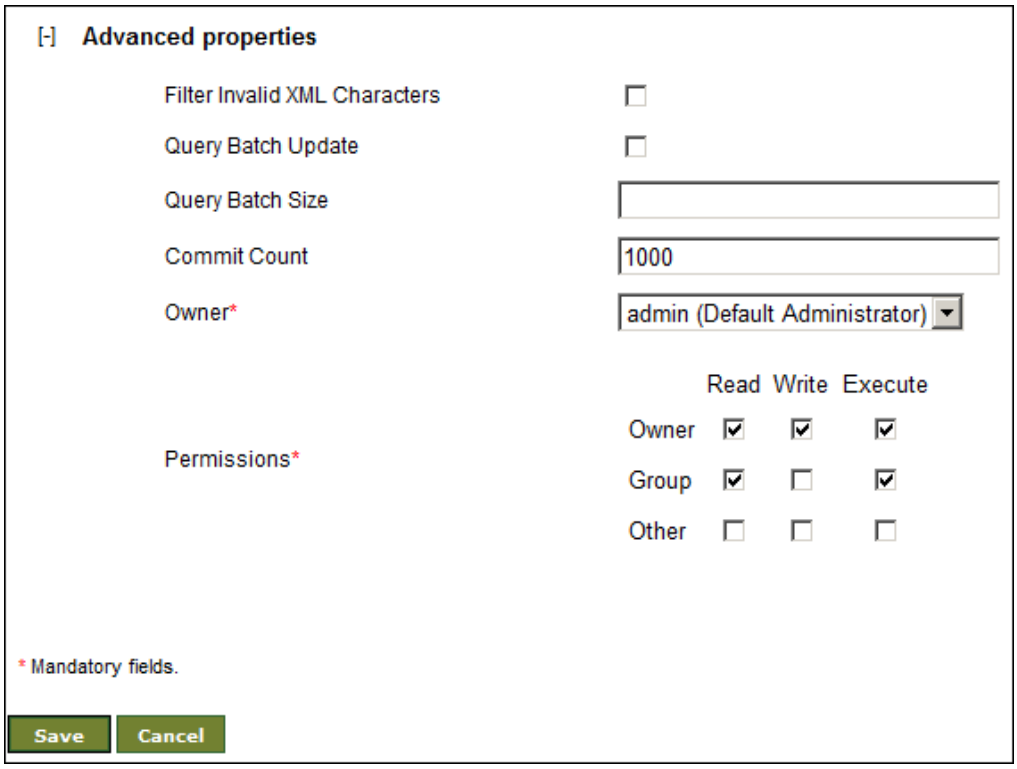


Figure 175: Advanced Properties

25. There are some Unicode Characters, which are reserved characters in XML. You can filter these characters by selecting the **Filter Inavalid XML Characters** option.

26. To enable the query batch update, select the **Query Bacth Update** checkbox and enter the batch size in the textbox **Query Batch Size**.

Enabling the *Query Batch Update* and setting the **Query Update Batch Size** to a positive integer value causes updates to the database to be sent as batches of the specified size.

For example, setting the **Query Update Batch Size** to 10 will group 10 separate statements and submit them as single batch.

Setting the **Query Update Batch Size** to 0 will cause the **Database Target** to disable batch execution and sent update to database for every execution of statement.

It is primarily used for performance optimization. The advantage of batch update is to reduce the network calls to database rather than executing single SQL statement. You can send multiple queries to the database at a time using batch update feature and this reduces the number of JDBC calls and improves performance.

Query Batch Update is supported for *Insert* and *Update* operation only.

27. Enter the number of statements to be committed to the database at a time, in the textbox **Commit Count**.

By default in JDBC, transaction starts and commits after each statement's execution on a connection. That is the behaviour when commit count is set to value 1. Obviously this mechanism gives good facility for users if they want to execute a single statement. But it gives poor performance when multiple statements on a connection are to be executed because commit is issued after each statement by default, that in turn reduces performance by issuing unnecessary commits. The remedy is to set commit count size to a value greater than 1 and it will cause Database Target to issue commit instruction to database after a set of statements execute. It is usually called as batch transaction.

To learn about other Advanced Properties refer to Changing Advanced Properties section.

28. Click the **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 6).
29. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length.

30. 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 *Updating System Properties* section in *Administrator* Guide.

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

Load required source and target schema in Data Mapper. In target schema, there will be an *Action* attribute.

1. 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. "*cance*l" keyword cannot be used for other RDBMS except Ms SQL server.

2. 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create Advance Positional schema

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Adv. Positional**. The **Manage Adv. Positional Schema** screen is displayed (see Figure 176).

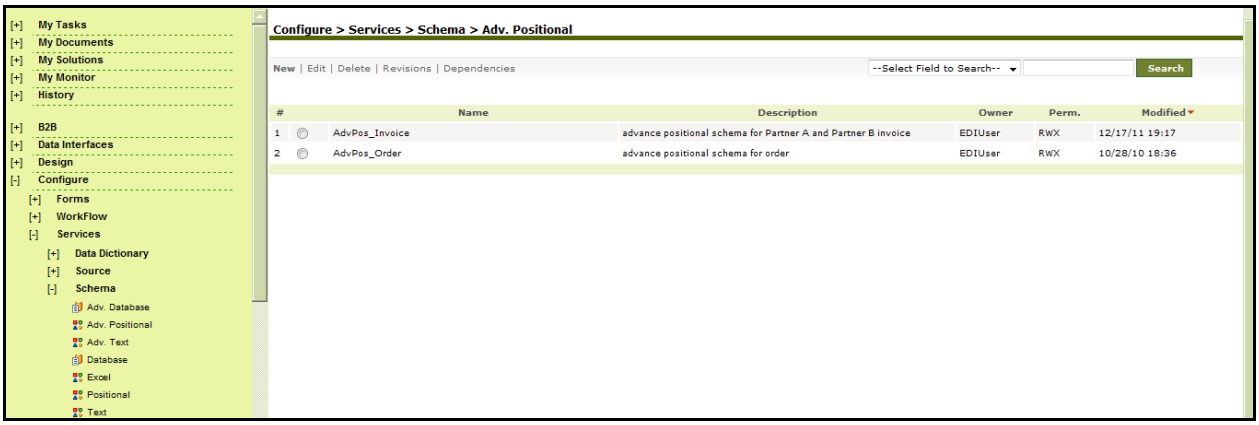


Figure 176: Manage Advance Positional Schema

4. Click the **New** link. The **Create Advance Positional Schema** screen is displayed (see Figure 177).

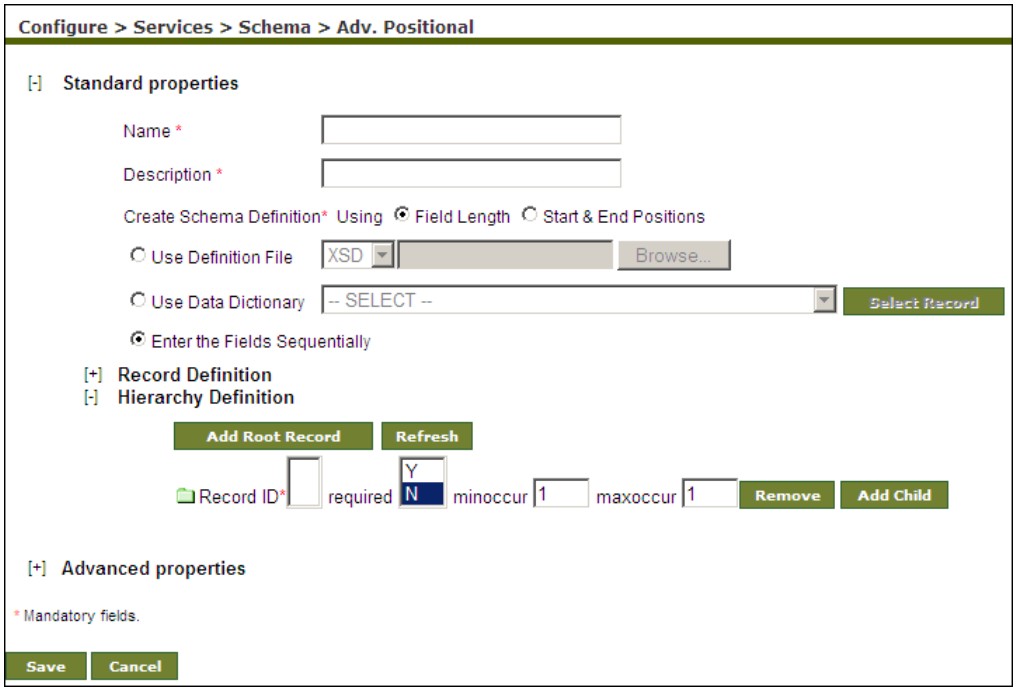


Figure 177: Create Advance Positional Schema

5. Enter the name and description for Advance Positional Schema in the textboxes **Name** and **Description** fields respectively.
6. 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

7. To define the schema using definition file, select the **Use Definition File** radio button, select the type of file from the dropdown list and click **Browse** button to select the required file.

8. To define the schema using a data dictionary, click the **Use Data Definition** radio button, select the name of the data dictionary from the dropdown list and click **Select Record** button. This displays the **Select Record** screen (see Figure 178).

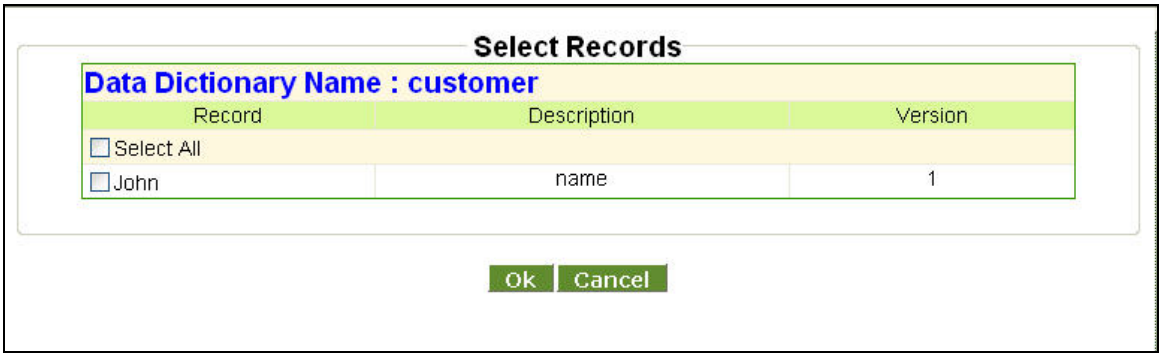


Figure 178: Select Data Dictionary

To know, how to create Data Dictionary, refer to the *Creating Data Dictionary* section.

9. This screen displays the name of the selected data dictionary and a list of all the records defined in the dictionary. Select the checkbox against the record that you want to display in the Advance Positional schema.

To display all records, select the **Select All** checkbox.

10. 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 179). You can view or delete a record from this screen by clicking the appropriate button for that record.

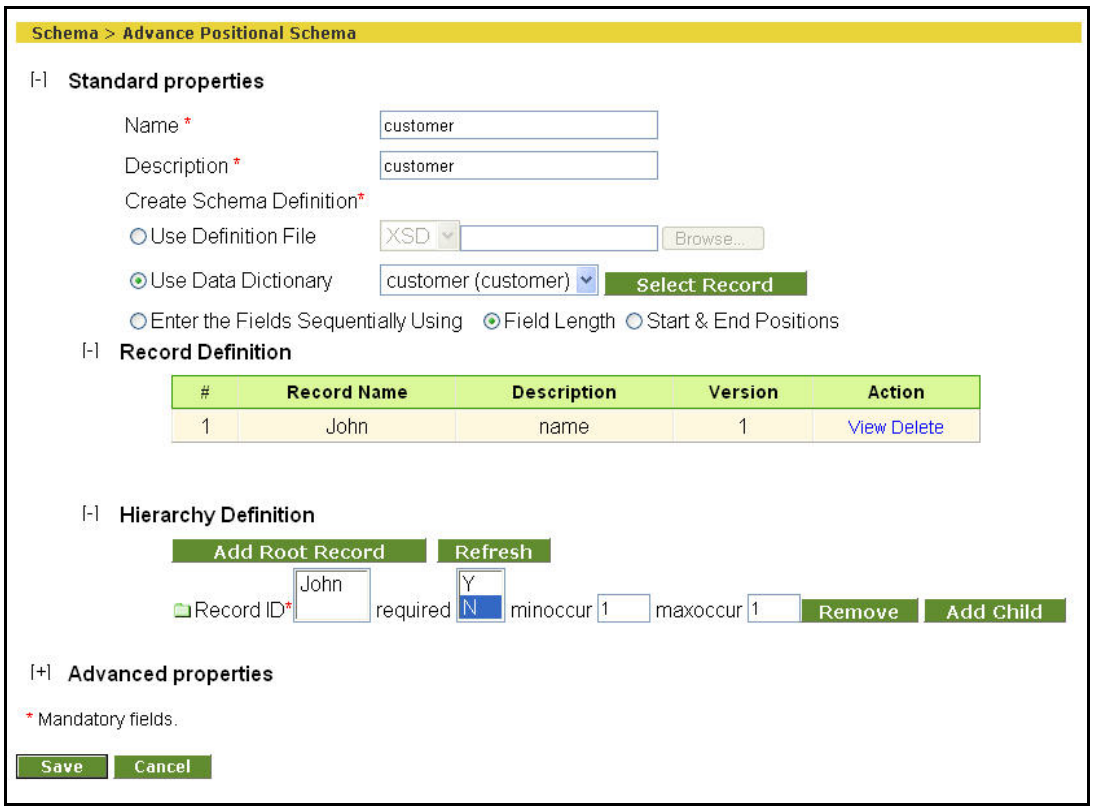


Figure 179: Create Record Definition using Data Dictionary

11. 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 180).

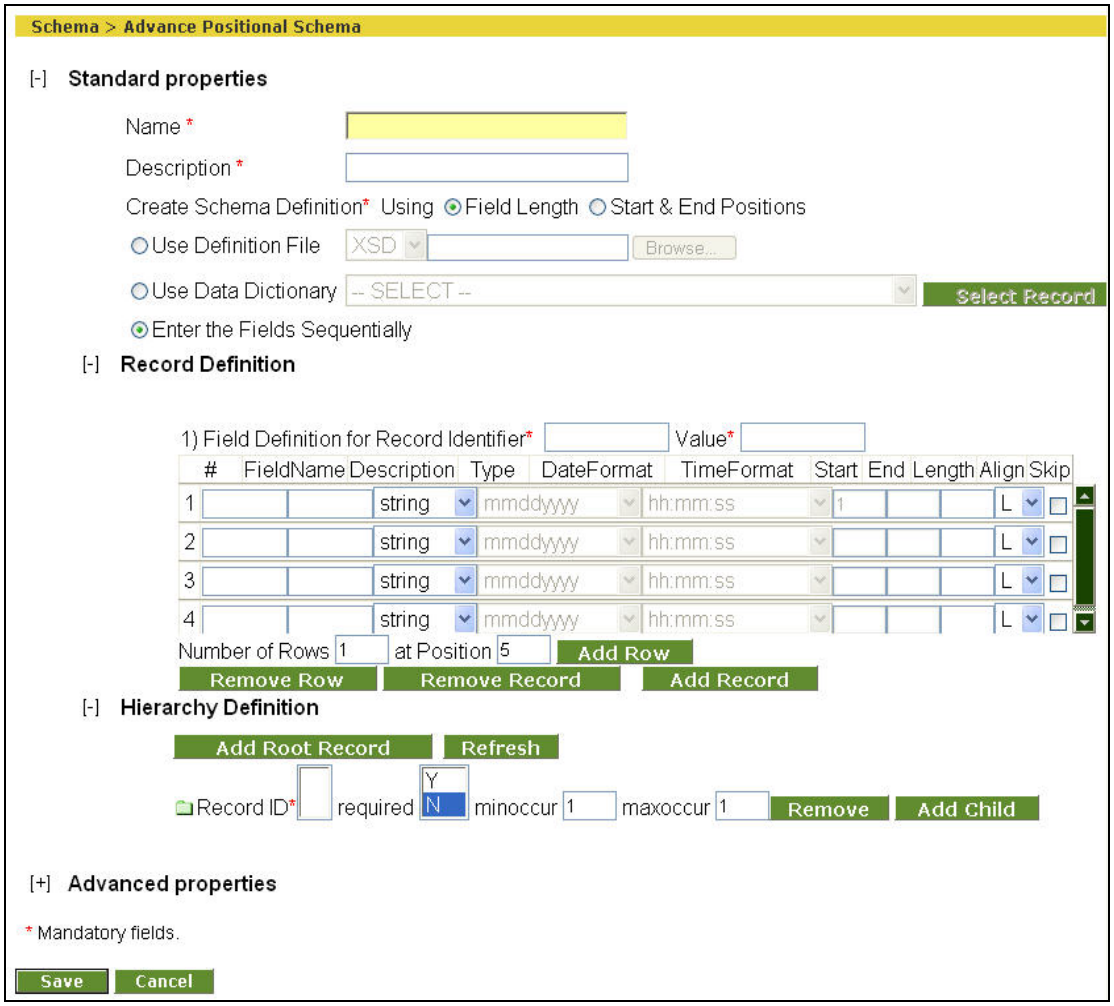


Figure 180: Create Record Definition

12. Enter name and description of the field in the textboxes **FieldName** and **Description** respectively.
13. Select the type of data from the dropdown list **Type**. For data type selection, refer to Table 27.
14. If data type is **Date**, select the format of date and time from the dropdown lists **DateFormat** and **TimeFormat** respectively.
15. To define field position select one of the following options:
    - Field Length
    - Start & End Positions
16. To define the field position using field length, select the **Field Length** radio button and enter the length of the field in the **Length** field.
17. To define the field position using start and end position, select the **Start & End Positions** radio button.
18. Enter the start position of the field in the textbox **Start**.
19. Enter the end position of the field in the textbox **End**.

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.

20. Select the alignment of the field from the dropdown list **Align**.

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.

21. Select 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' (see Figure 181). Similarly, while viewing the Print-Friendly Page, the skipped fields are represented by 'T' and the unskipped fields by 'F'.

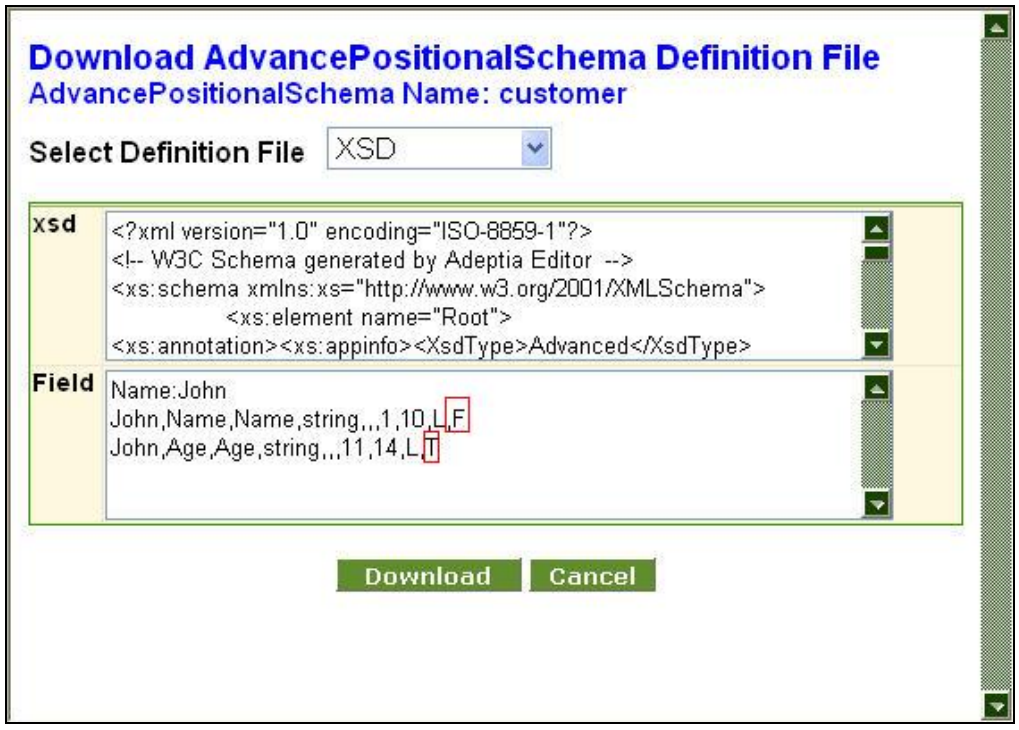


Figure 181: Skipped and Unskipped Fields in the Data File

22. Enter the name of any field in the textbox **Record Identifier** and the value of the field in the textbox **Value**.
23. Click **Add Record** to define another set of data and repeat the steps from 6 to 20.
24. After defining records you need to define their hierarchy. This is mandatory for creating an Advance Positional schema.
25. 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 182).

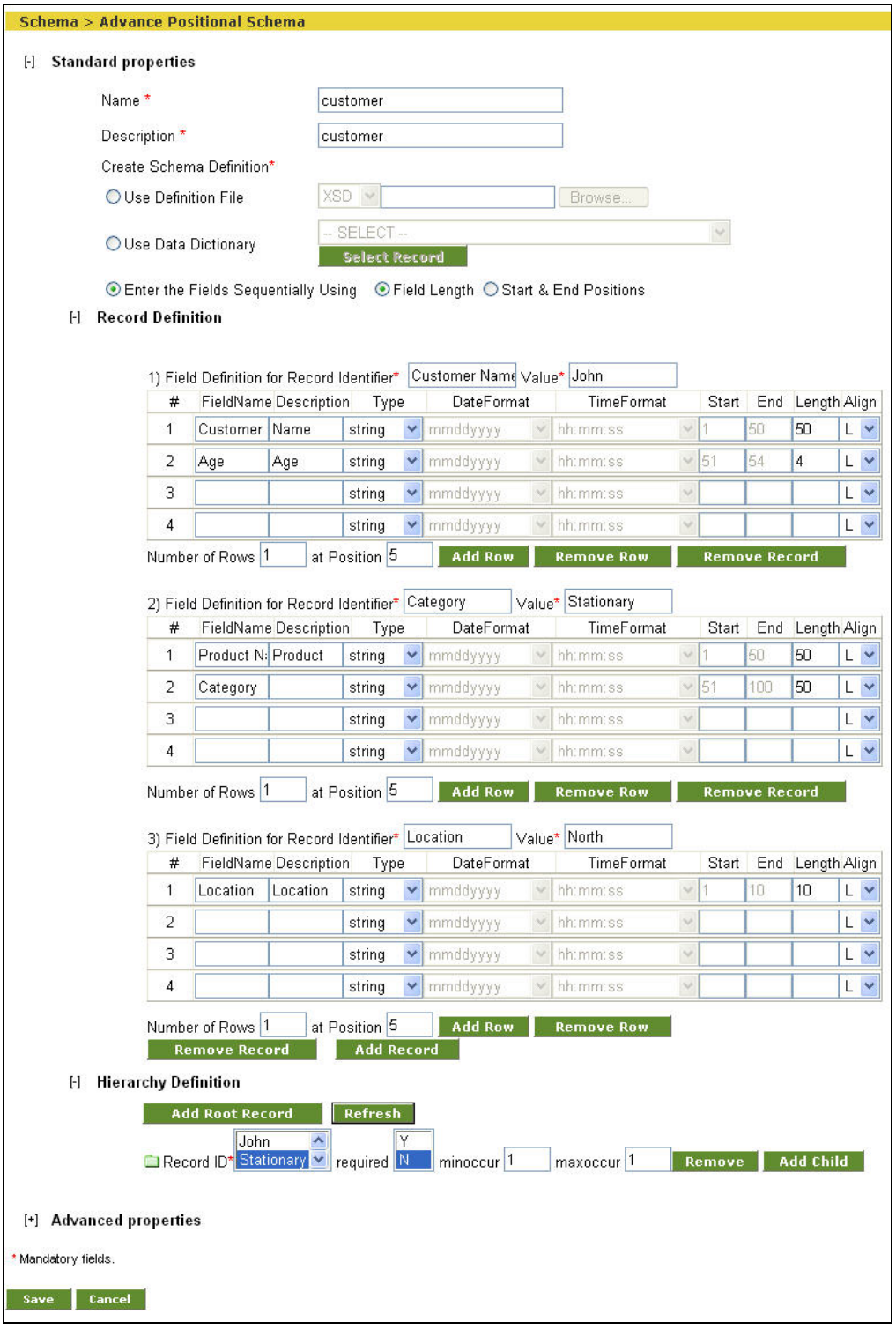


Figure 182: Create Record Hierarchy Definition

26. Select a record from the **Record ID** listbox.

27. Select *Y* or *N* from the required listbox, to indicate whether the selected record needs to present in the source file.
28. 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.
29. 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.
30. You can now create a hierarchy either at the root level or at the child level.

Using Hierarchy at Root Level

Steps to use a hierarchy at the Root Level

1. Click the **Add Root Record** button. This creates a record at the same level as that of the displayed record (see Figure 183).

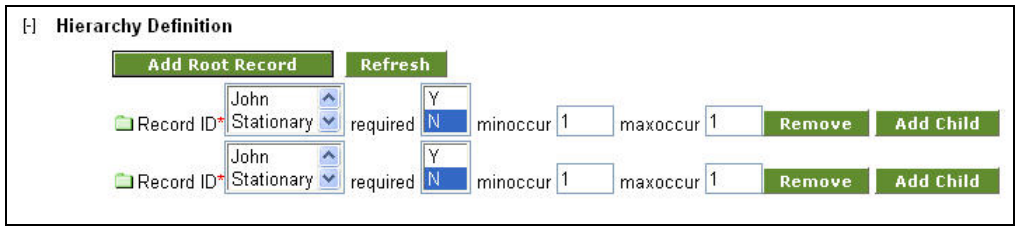


Figure 183: Create Root Record

2. Select a record from the **Record ID** field of the displayed record and enter all its related information.
3. 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

Steps to use a record at the Child Level

1. Click the **Add Child** button. This creates a record at a level below that of the displayed record (see Figure 184).

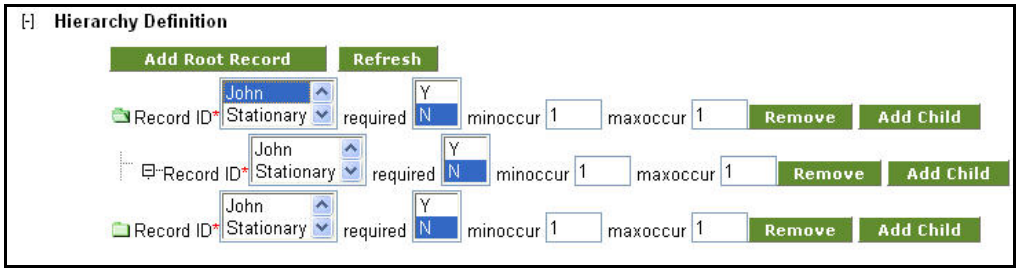


Figure 184: Create Child Record

2. Select a record in the *Record ID* field of the displayed record and enter all its related information.
3. 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 (see Figure 185).

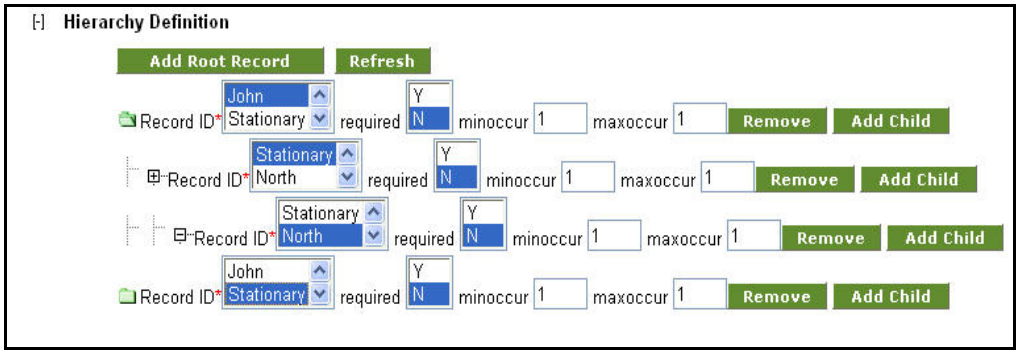


Figure 185: Create another Child Record

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.

4. Click **[+]** to expand **Advanced Properties**. Advanced properties of advance positional schema are displayed (see Figure 186).

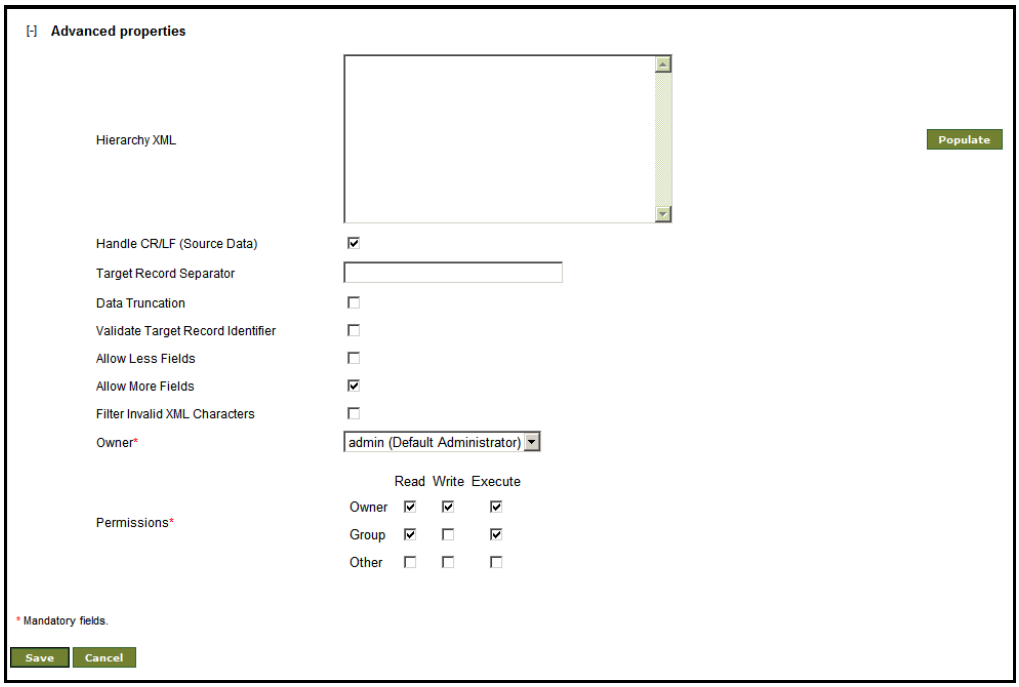


Figure 186: Change Advanced Properties

5. 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.

It is recommended that you edit this xml code in another editor by copying it to the editor and then making the changes. Once you are done with the changes, you can paste it into the *Hierarchy xml* field. Once you have pasted the xml code in this field, you should not click the **Populate** button again or make changes to the Hierarchy, as it will replace the edited xml with the original xml code.

6. Disable 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.
7. Enter the record separator for target records in the textbox **Target Record Separator**.
8. Select 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.
9. Select the **Validate Target Record Identifier** checkbox, if the value of the target record identifier in XML must match with the value specified in the schema. By default, this checkbox is deselected. It means that if the Record Identifier Value is not exactly same, then it does not generate error records.
10. Select 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.
11. 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, disable the **Allow More Fields** checkbox.
12. 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 selecting the **Filter Invalid XML Characters** checkbox.

To learn about other Advanced Properties refer to Changing Advanced Properties section.

13. Click the **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 6).
14. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length.

15. 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 *Updating System Properties* section in *Administrator* Guide.

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 187).

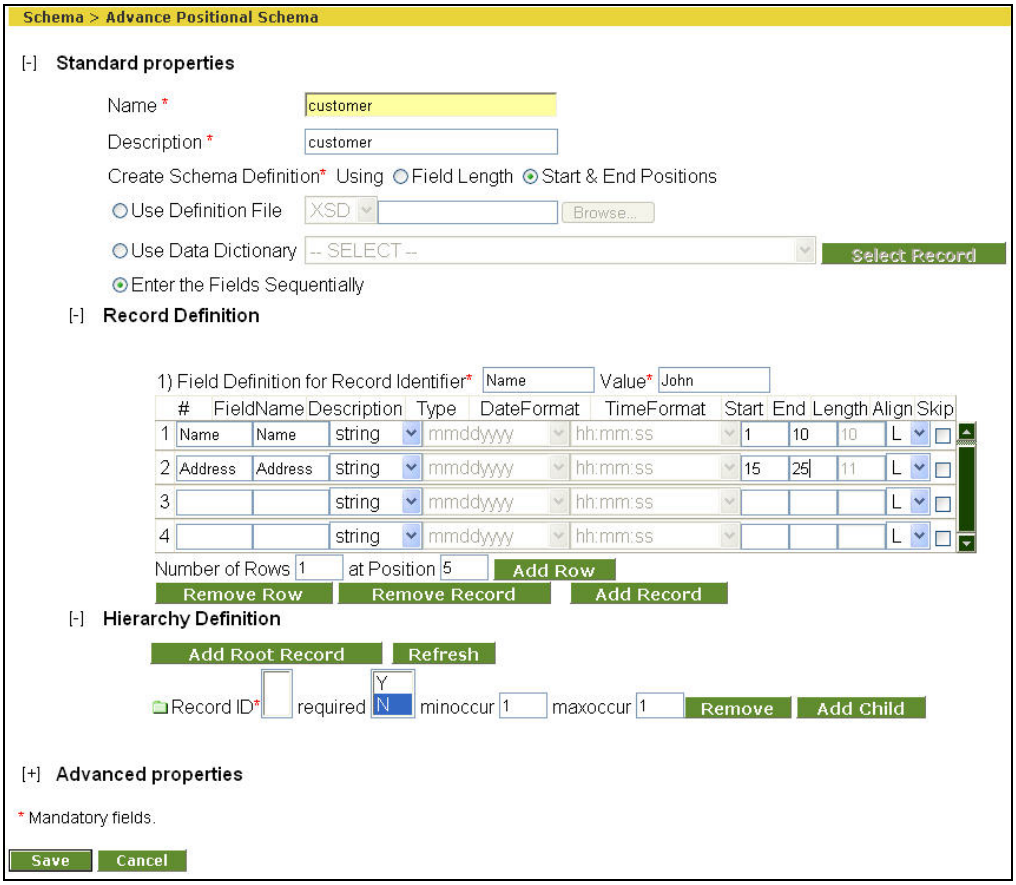


Figure 187: Defining Field Positions Non-Sequentially

4. 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

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Adv. Positional**. The **Manage Advance Positional Schema** screen is displayed (refer to Figure 176).
4. 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 188).

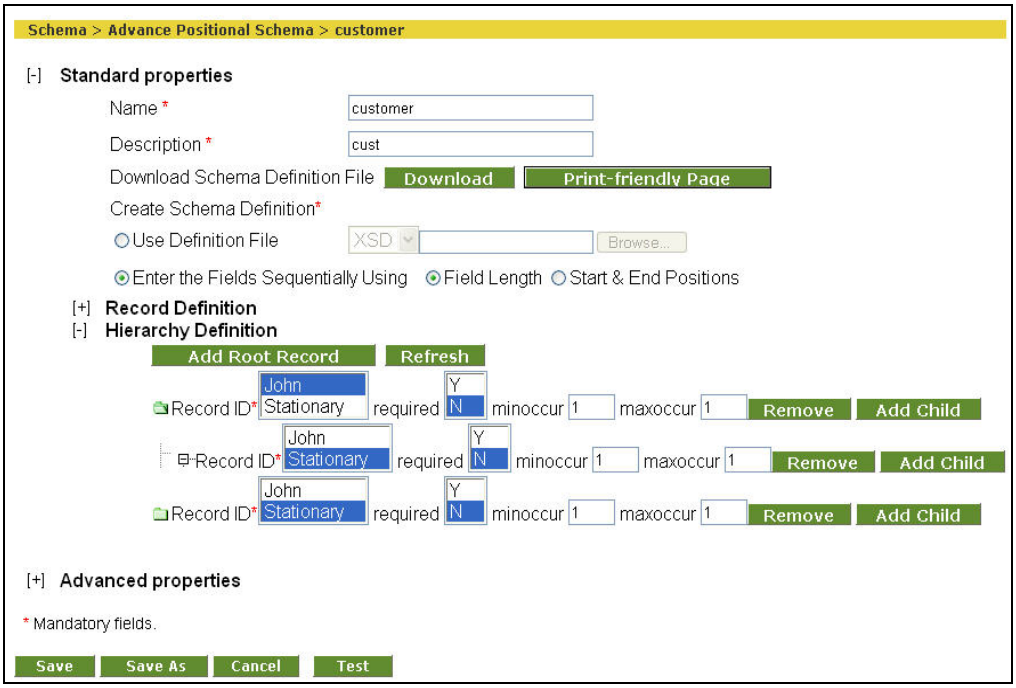
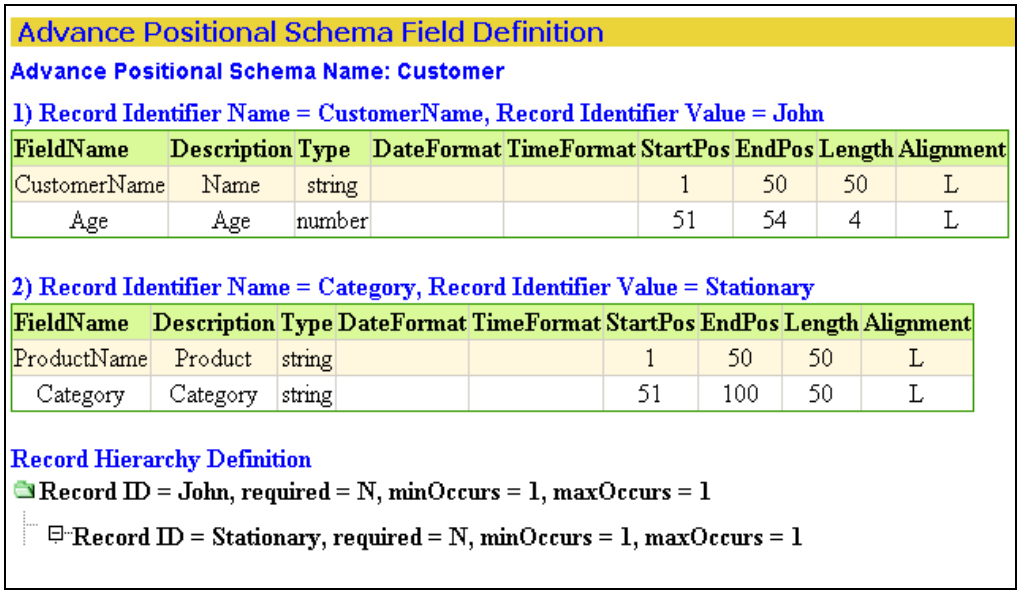


Figure 188: Edit Advance Positional Schema

5. Click **Print-friendly Page** button. The **Summary** screen is displayed (see Figure 189).



Advance Positional Schema Field Definition

Advance Positional Schema Name: Customer

1) Record Identifier Name = CustomerName, Record Identifier Value = John

FieldName	Description	Type	DateFormat	TimeFormat	StartPos	EndPos	Length	Alignment
CustomerName	Name	string			1	50	50	L
Age	Age	number			51	54	4	L

2) Record Identifier Name = Category, Record Identifier Value = Stationary

FieldName	Description	Type	DateFormat	TimeFormat	StartPos	EndPos	Length	Alignment
ProductName	Product	string			1	50	50	L
Category	Category	string			51	100	50	L

Record Hierarchy Definition

Record ID = John, required = N, minOccurs = 1, maxOccurs = 1

Record ID = Stationary, required = N, minOccurs = 1, maxOccurs = 1

Figure 189: 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

Load required source and target schema in Data Mapper. In target schema, there will be an *IsRemoveHeader* attribute.

1. Create a constant 'true' and map it to IsRemoveHeader attribute of the target schema.
2. 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Figure 190 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 190: Sample Advanced Text File

In the Text File shown in Figure 190 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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Schema** to expand the hierarchy, and then click **Adv. Text**. The **Manage Adv. Text Schema** screen is displayed (see Figure 191).

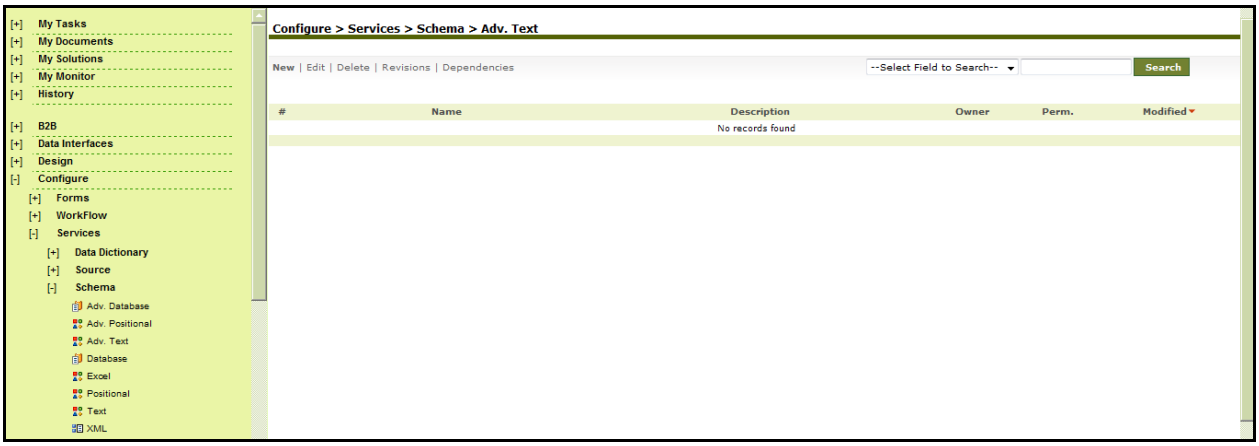


Figure 191: Manage Advance Text Schema

4. Click the **New** link. The **Create Advance Text Schema** screen is displayed (see Figure 192).

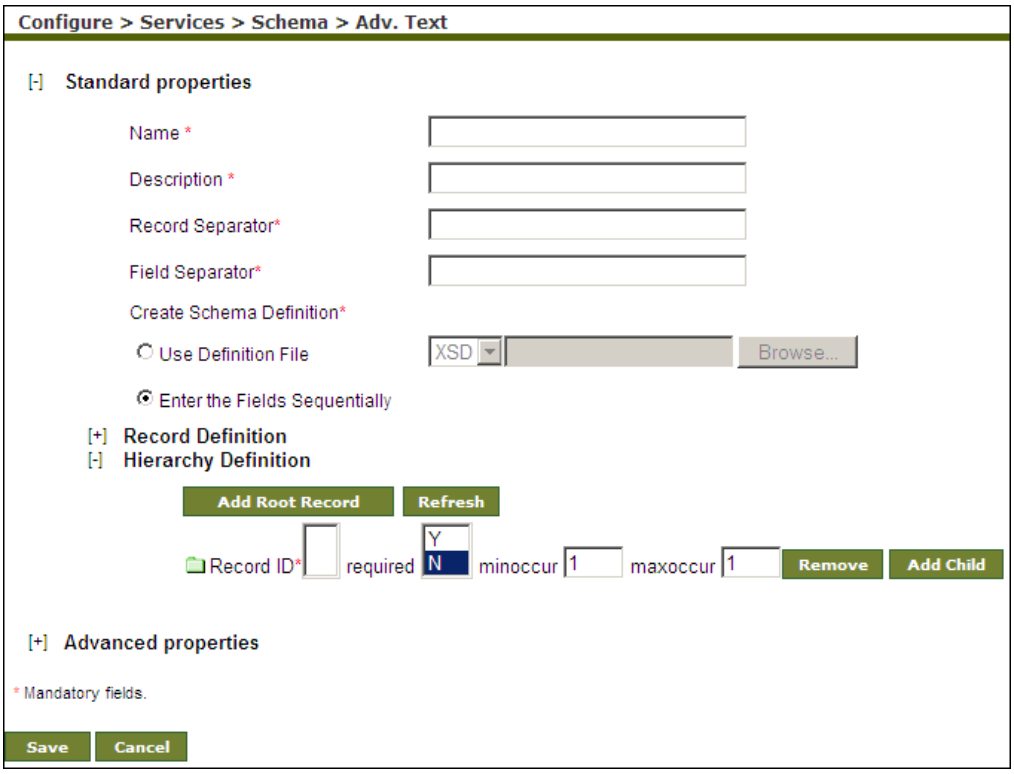


Figure 192: Create Advance Text Schema

5. Enter the name and description of new Advance Text schema activity in the textboxes **Name** and **Description** respectively.

6. 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.

7. 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 [I]. To avoid it enter '+', '*', or '|' etc.in the *Target Field Separator* in the *Advanced Properties*.

- You can also use hex values in record and field separator.
  - To define the hex values as field separator at target end, you need to use **0x** before the value. For example if you want to use **space** as field separator, you need to define **0x20**.
  - To use hex value in field separator at source end, you need to define the hex value as regular expression. For example for **space** as field separator at source end, you need to define **\x20 .**
  - In Record Separator, hex values are supported at both source and target end. To define hex value in record separator at source end you need not enter the value as regular expression. For example for **space** as record separator, you need to define **0x20** .

- You can also specify two hex values together in record and field separator. For example for two **spaces** you need to define **0x200x20**.

8. To define schema definition, select one of the following options:
   - Use Definition File
   - Enter the Fields Sequentially
9. To define the schema using definition file, select the **Use Definition File** radio button; select the type of file from the dropdown list and click the **Browse** button to select the required file.

10. To enter the fields sequentially, select the **Enter the Fields Sequentially** radio button and click **(+) Record Definition**. This expands to display the Record Definition fields (see Figure 193).

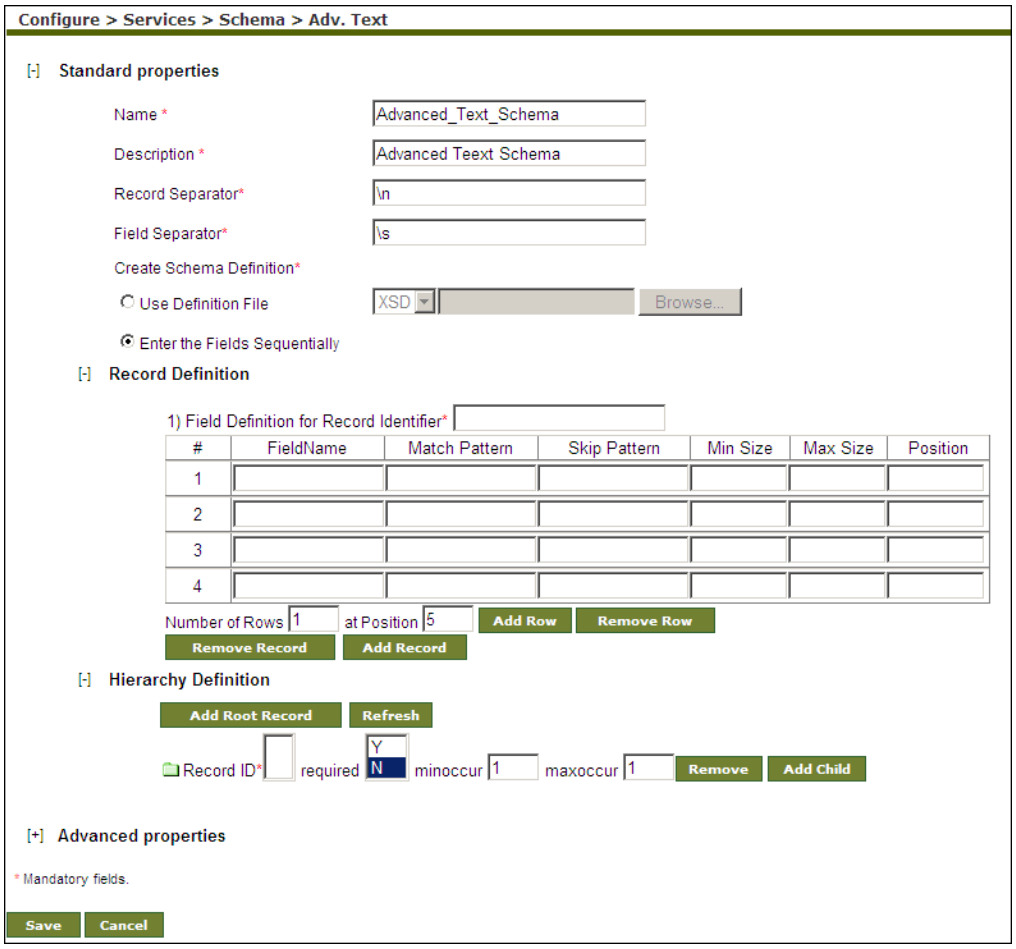


Figure 193: Create Record Definition

11. Enter the record identifier in the textbox **Record Identifier**. You can use regular expression in Record Identifier.
12. Enter name in the textbox **FieldName**.
13. Enter the match pattern, against which you want the record to be matched, in the textbox **Match Pattern**.

> 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.

14. Enter the Skip Pattern in the textbox **Skip Pattern**. Skip Pattern is used to skip a particular pattern. You can use regular expression in Skip Pattern.
15. Enter the minimum and maximum size of the field in the textboxes **Min Size** and **Max Size** respectively.
16. Enter the position in the textbox **Position**.

17. 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 Changing Advanced Properties section.

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 (Chocolate20perpack) 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 *Filter Invalid XML Characters* checkbox as checked, in Advanced Properties.

18. After defining records you need to define their hierarchy. This is mandatory for creating an Advance Text schema.

19. 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 194).

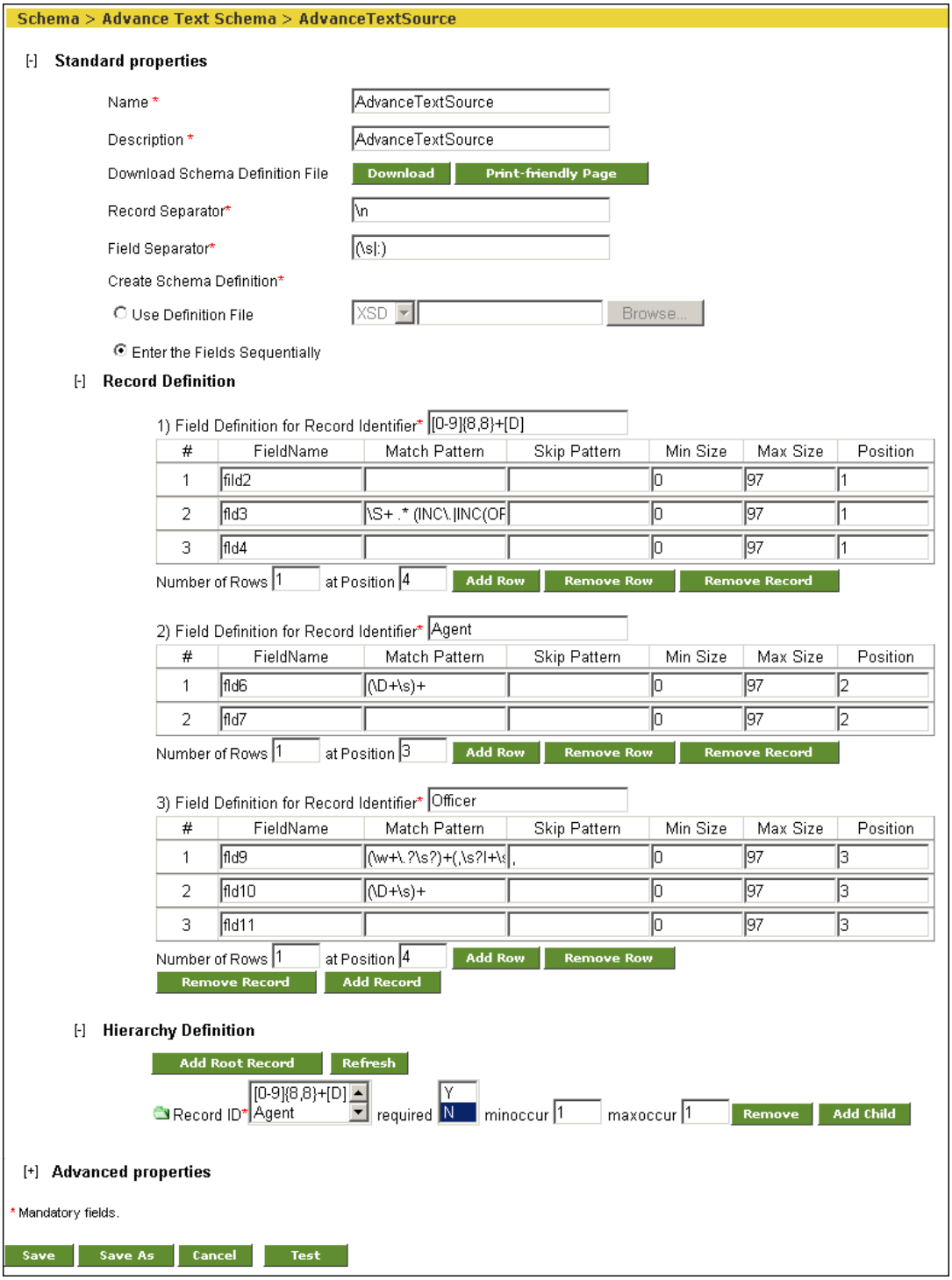


Figure 194: Create Record Hierarchy Definition

20. Select a record from the Record ID list box.

21. Select *Y* or *N* from the required list box, to indicate whether the selected record needs to present in the source file.

22. 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.
23. 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.
24. You can now create a record either at the root level or at the child level.

Using Record at Root Level

Steps to use a Record at the Root Level

1. Click **Add Root Record** button. This creates a record at the same level as that of the displayed record (see Figure 195).

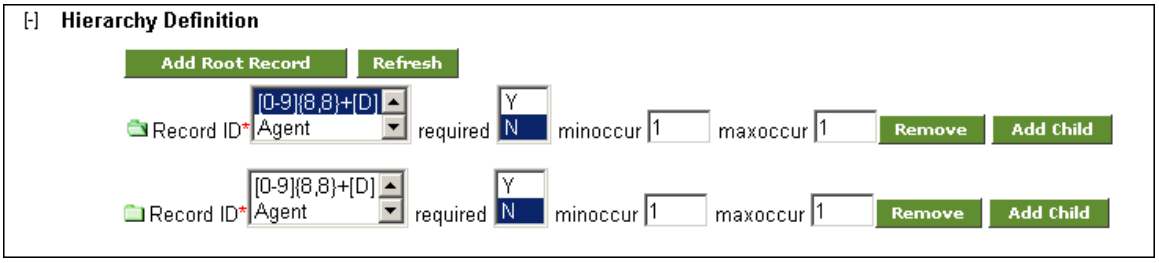


Figure 195: Create Root Record

2. Select a record in the *Record ID* field of the displayed record and enter all its related information.
3. 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

1. Click the **Add Child** button. This creates a record at a level below that of the displayed record (see Figure 196).

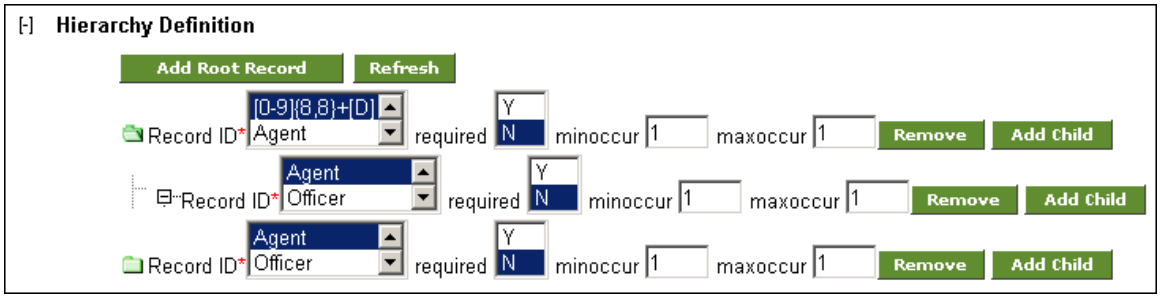


Figure 196: Create Child Record

2. Select a record in the *Record ID* field of the displayed record and enter all its related information.
3. 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 197).

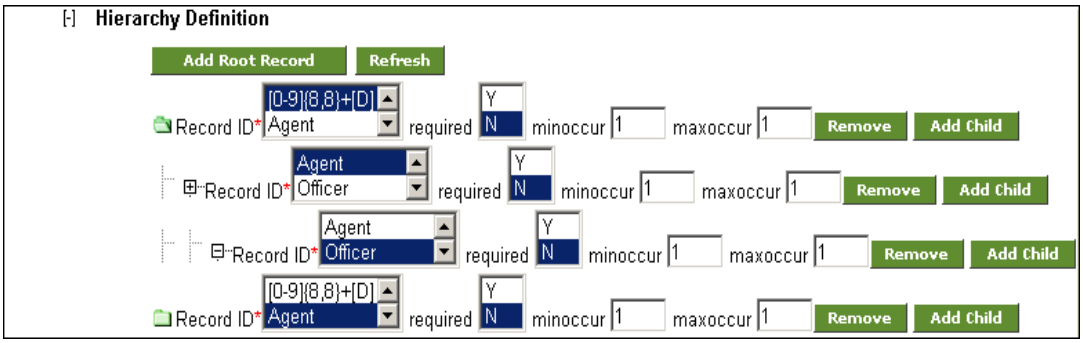


Figure 197: Create another Child Record

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.

4. Click the **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 6).
5. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length.

6. 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 *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Prerequisites

- *Database Info* activity must be created before creating *Database Schema* Activity.

Steps to create Database Schema

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Database**. The **Manage Adv. Database Schema** screen is displayed (see Figure 198).

Figure 198: Manage Database Schema

4. Click the **New** link. The **Create Database Schema** screen is displayed (see Figure 199).

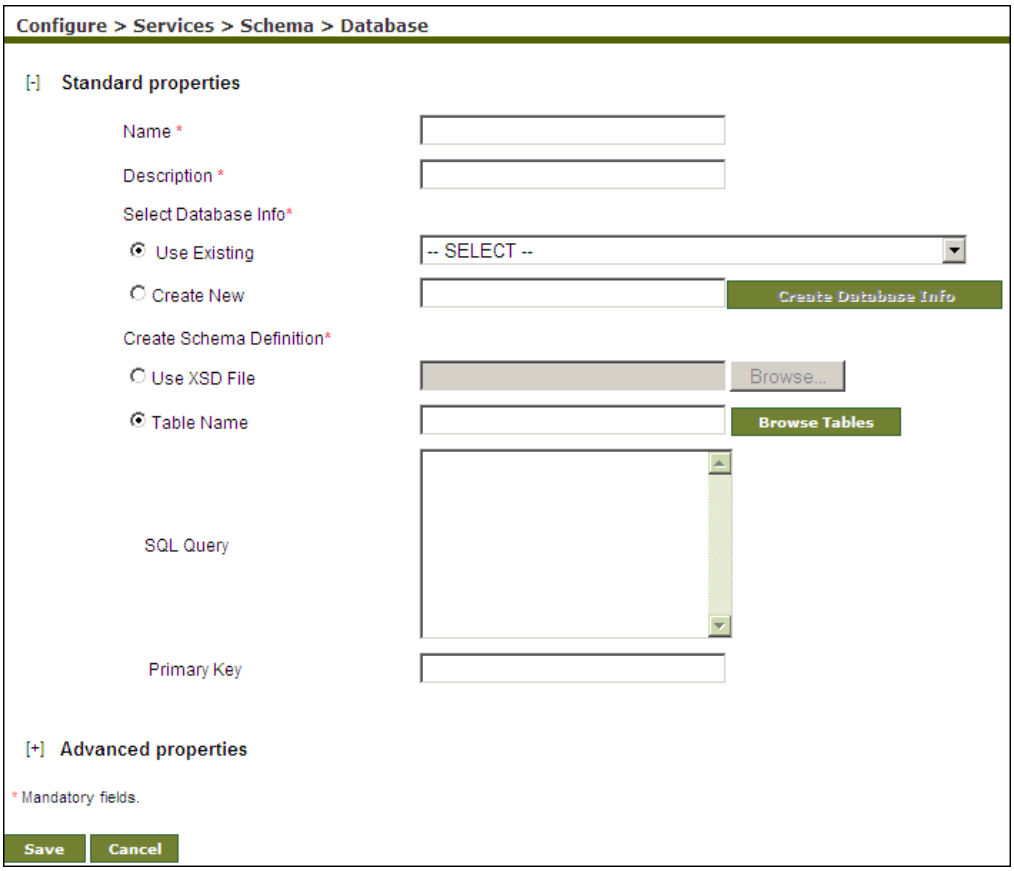


Figure 199: Create Database Schema

5. Enter the name and description for new database schema in the textboxes **Name** and **Description** fields respectively.

6. Select the database info activity.

> To learn how to create Database Info activity, refer to the section *Creating Database Info* in *Administrator Guide*.

7. To select an existing database info activity, select the **Use Existing** radio button and select the database info activity from the dropdown list.

8. To create a new database info activity, select the **Create New** radio button and then click **Create Database Info** button. This displays the **Create Database Info** screen (see Figure 200).

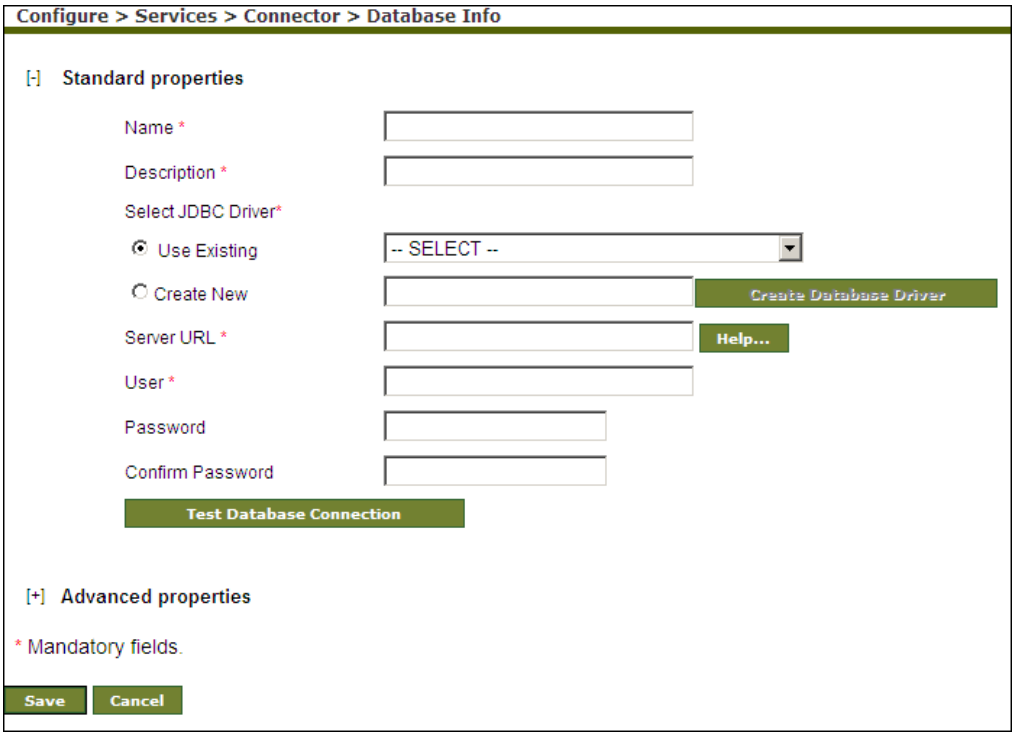


Figure 200: Create Database Info

9. Enter the required parameters and click **Save** to save the database info activity and return to ***Create Database Schema*** page.

10. To define schema definition, select one of the following options:

- Use XSD File
- Table Name

11. To select the XSD file, which contains schema information, select the **Use XSD File** radio button and click **Browse**.

12. To define schema using a database table, select the **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 201).

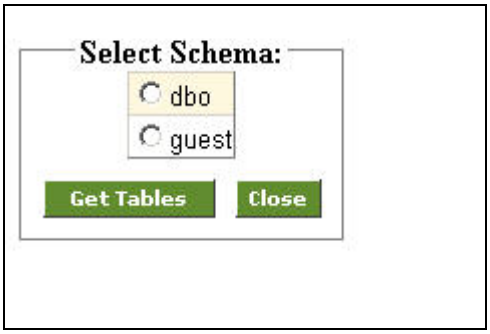


Figure 201: Select Schema

13. On 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 202).

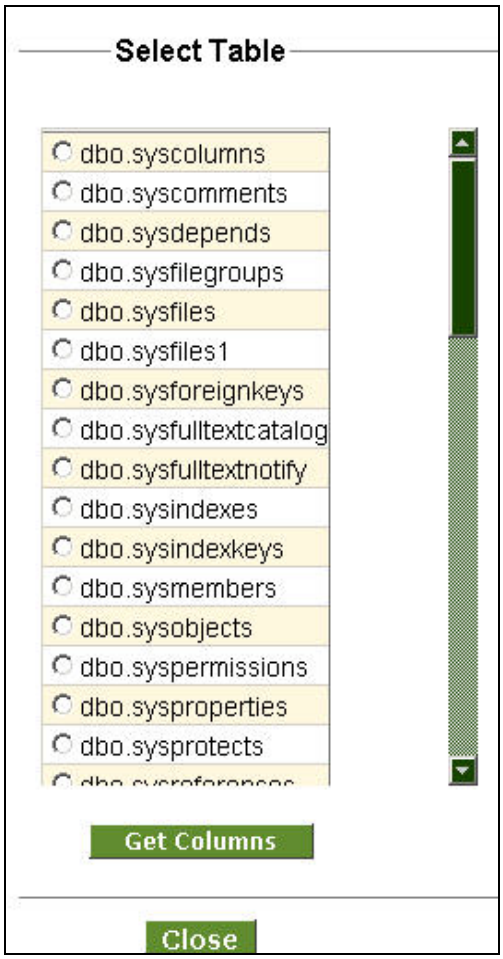


Figure 202: Select Tables

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.

14. 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 203).

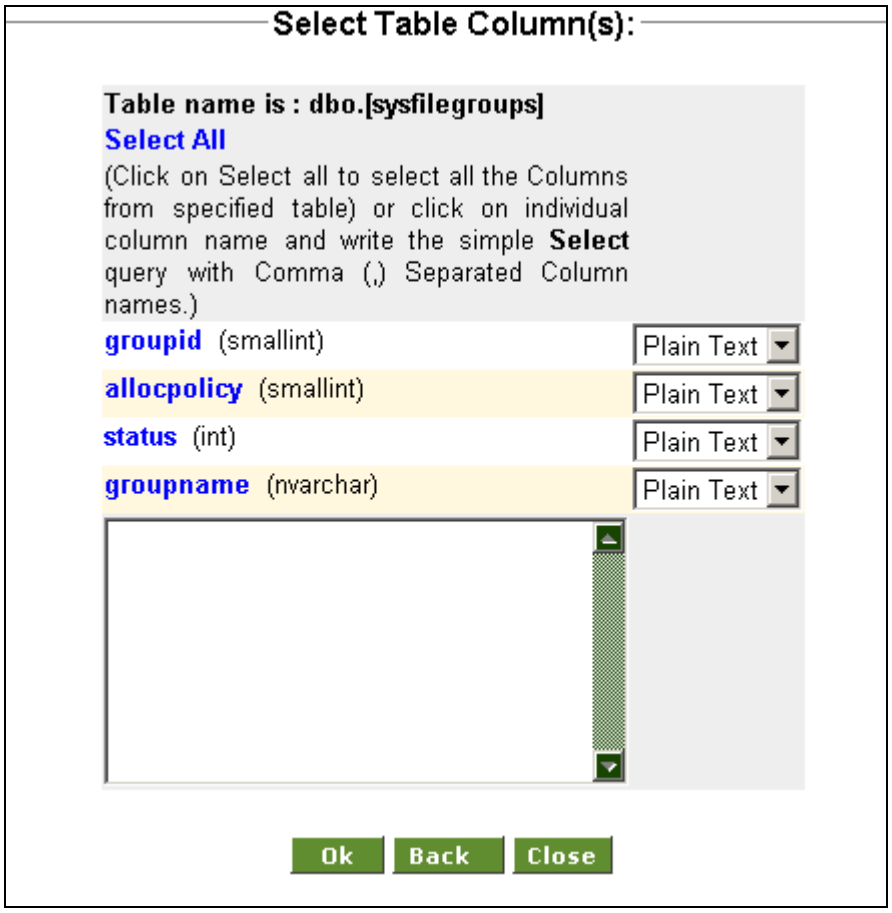


Figure 203: Select Table Column(s)

15. 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.

16. Select the mode of data in the column, whether *Encrypted* or *Plain Text* from the dropdown list. If the table column is used at source end and encrypted data is coming from the source, select *Encrypted* from the dropdown 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 dropdown 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 Working with Process Flow section.

17. 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 to assign the output of (Name+Dept) to some new field.

18. Enter the Primary Key in the textbox **Primary Key**. 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.

19. Click **[+]** to expand **Advanced Properties**. Advanced properties of the Database Schema are displayed (see Figure 204).

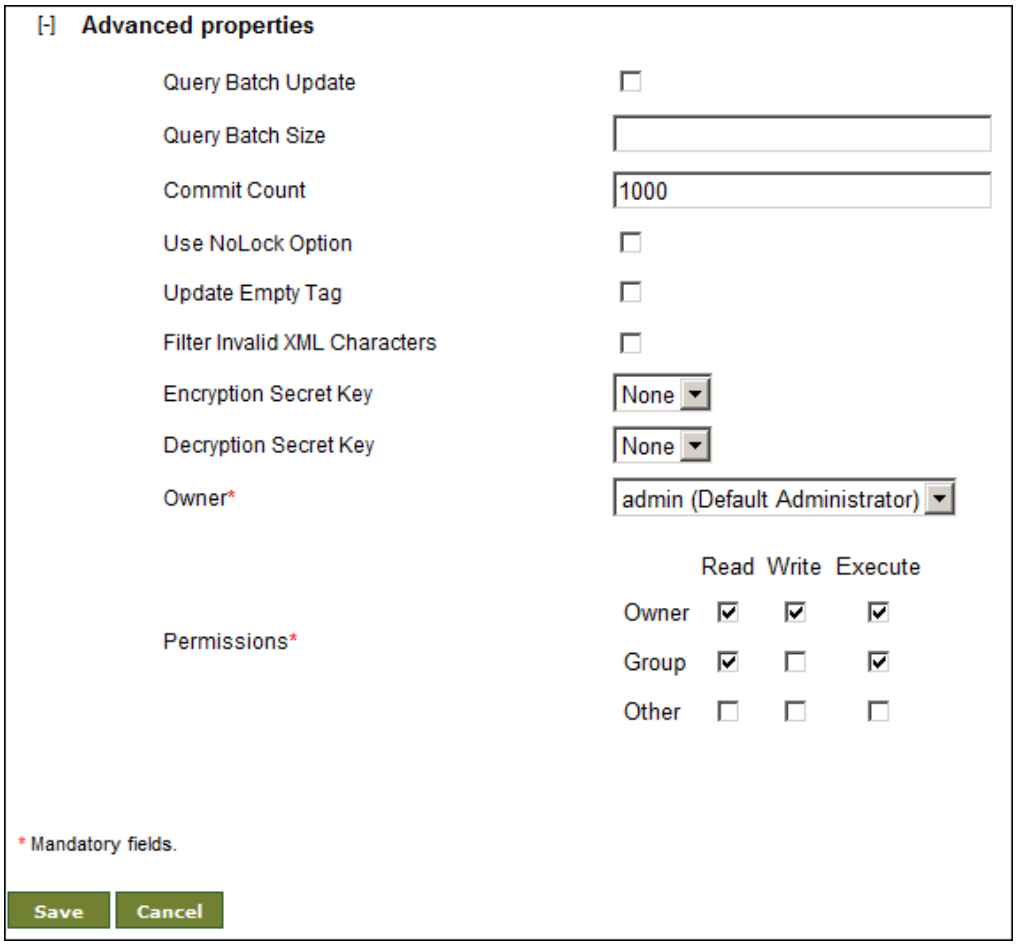


Figure 204: Advanced Properties of Database Schema

31. To enable the query batch update, select the *Query Batch Update* checkbox and enter the batch size in *Query Batch Size* field.

Enabling the *Query Batch Update* and setting the **Query Update Batch Size** to a positive integer value causes updates to the database to be sent as batches of the specified size.

For example, setting the **Query Update Batch Size** to 10 will group 10 separate statements and submit them as single batch.

Setting the **Query Update Batch Size** to 0 will cause the **Database Target** to disable batch execution and sent update to database for every execution of statement.

It is primarily used for performance optimization. The advantage of batch update is to reduce the network calls to database rather than executing single SQL statement. You can send multiple queries to the database at a time using batch update feature and this reduces the number of JDBC calls and improves performance.

Query Batch Update is supported for *Insert* and *Update* operation only.

32. Enter the number of statements to be committed to the database at a time, in the textbox **Commit Count**.

By default in JDBC, transaction starts and commits after each statement's execution on a connection. That is the behaviour when commit count is set to value 1.

Obviously this mechanism gives good facility for users if they want to execute a single statement. But it gives poor performance when multiple statements on a connection are to be executed because commit is issued after each statement by default that in turn reduces performance by issuing unnecessary commits.

The remedy is to set commit count size to a value greater than 1 and it will cause Database Target to issue commit instruction to database after a set of statements execute. It is usually called as batch transaction.

20. To enable the No Lock option, select 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 selected, 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 Changing Advanced Properties section.

22. In the Database Schema screen click the **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 6).
23. Enter comments in the textbox **Add Comments**.

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 *Updating System Properties* section in *Administrator* Guide.

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

Load required source and target schema in Data Mapper. In target schema, there will be an *Action* attribute.

1. 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.

2. Save the Mapping activity.

To learn how to use Data Mapper, refer to section Using Data Mapper.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create Excel Schema

1. In the homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Schema** to expand the hierarchy, and then click **Excel**. The Manage Excel Schema screen is displayed (see Figure 205).

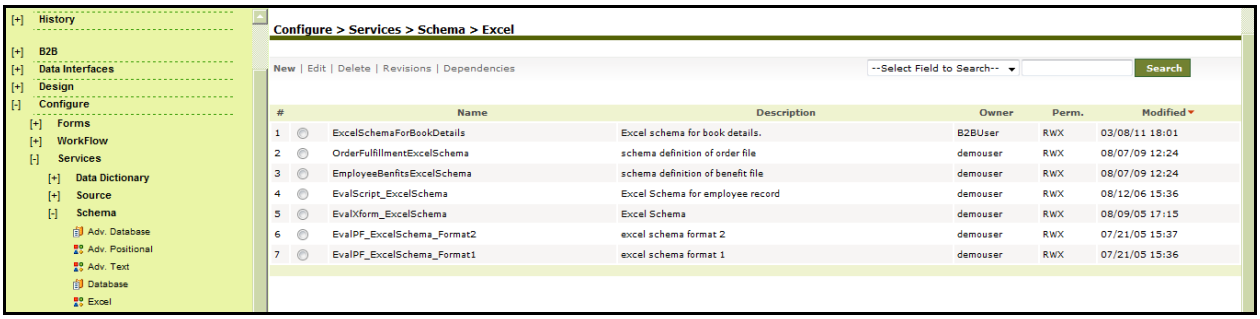


Figure 205: Manage Excel Schema

4. Click the **New** link. The **Create Excel Schema** screen is displayed (see Figure 206).

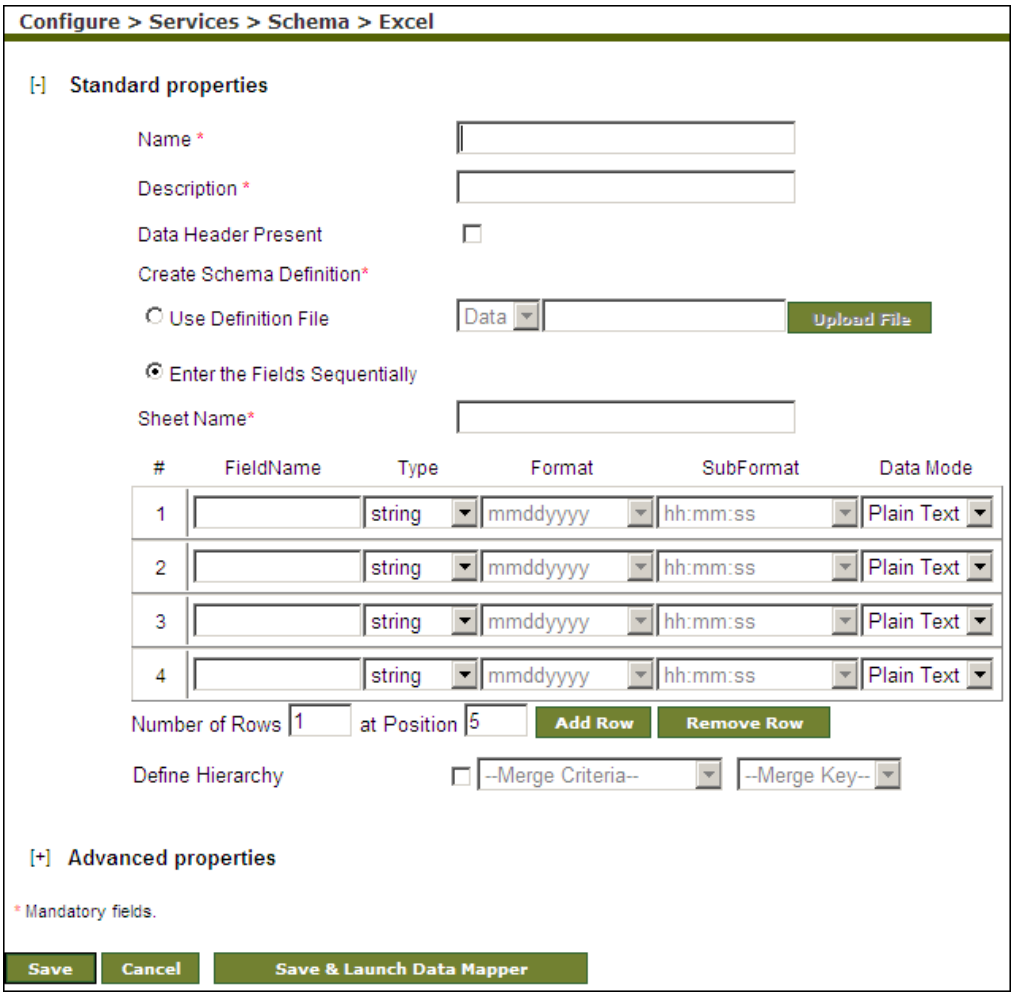


Figure 206: Create Excel Schema

5. Enter the name and description of new excel schema in the textboxes **Name** and **Description** fields respectively.

6. 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, select 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 Field Names 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 Using Dynamic Header Support section.

7. To define the schema using definition file, select the **Use Definition File** radio button; select the type of file from the dropdown list and click the **Upload File** button to select the required file. The **Schema File Upload** screen is shown (see Figure 207).

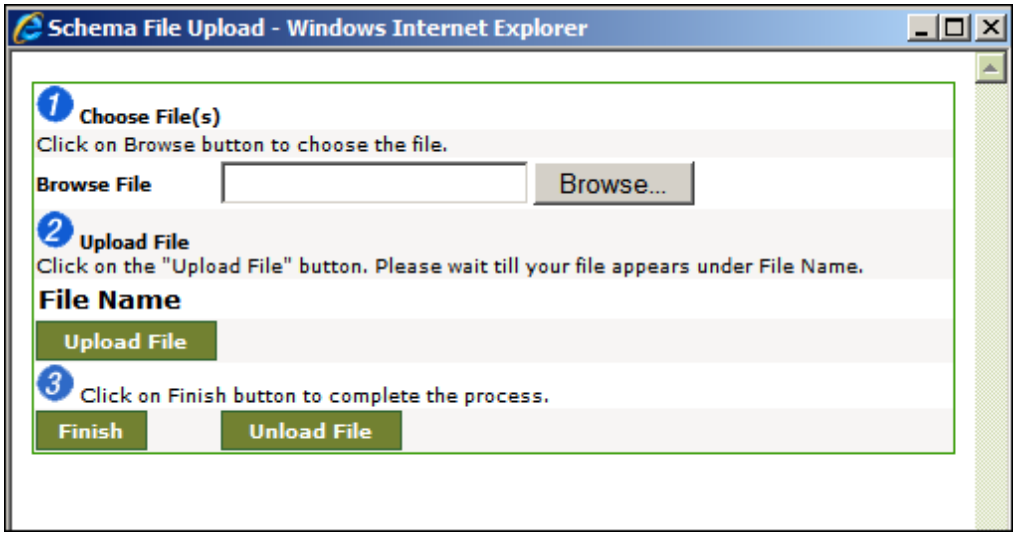


Figure 207: Upload file

8. Click **Browse** and select the file, you want to upload. Path of the selected file is shown in the **Browse File** field.

9. 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 208).

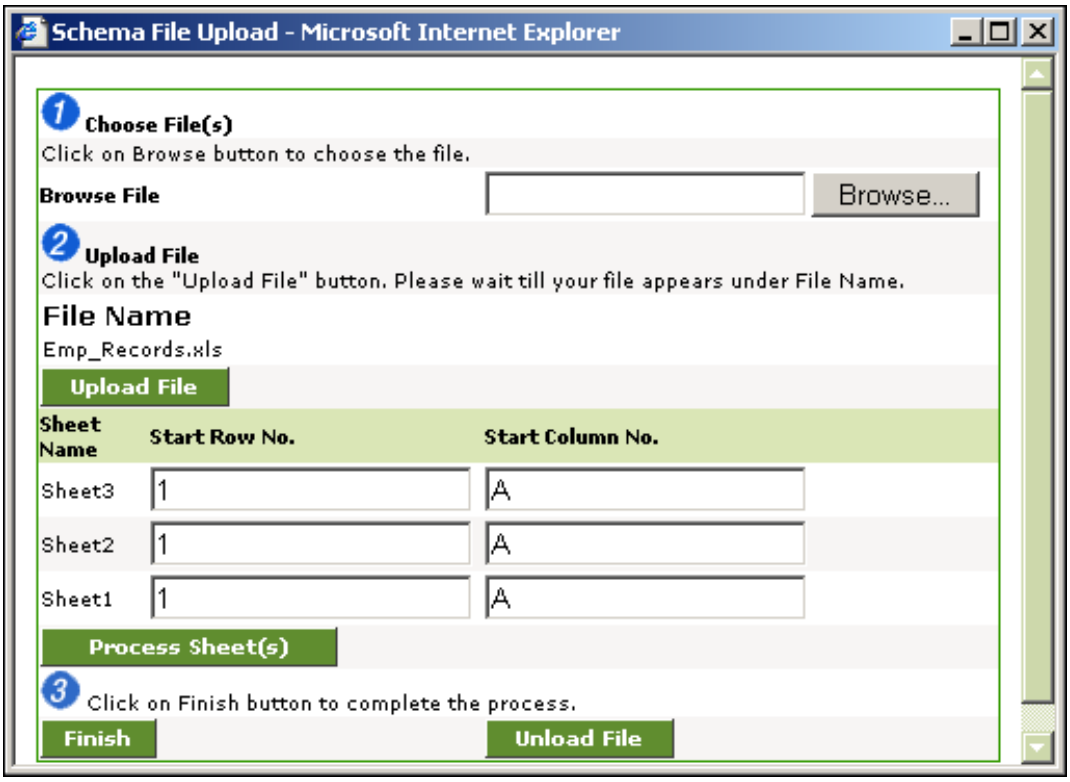


Figure 208: Specify Start Row and Start Column No.

10. 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. specify 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. Therefore, 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 rows, but you do not want to fetch those records.

11. Once the processing is done, click **Finish** to close the **Schema File Upload** screen and return to create schema page.

12. Select the sheet name of the excel file for which you are creating this schema activity, from the dropdown list **Sheet Name**. Fields of the selected sheet are populated.

13. If you want to create schema by entering the fields manually, select **Enter the Fields Sequentially** radio button and follow the steps given below:

    1. Enter the sheet name of the excel file in the textbox **Sheet Name**.
    2. Enter the name of each field in the textbox **Field Name**.
    3. Select the type of data from the dropdown list **Type**. The datatypes supported by Excel schema are listed in the table below.

Table 27: 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.

4. If data type is *Date*, select the format of date and time from the dropdown lists **Format** and **SubFormat** 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*.

5. If the datatype is selected as *Currency*, select the required currency from *Format* dropdown list. The currencies supported by excel schema are listed in the table below.

Table 28: Currencies Supported by Excel Schema

Currency	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

Currency	Description
	a Date or Date and Time value.
Currency	This data type is selected if the field will accept a currency value.

6. Select the mode of data, whether *Encrypted* or *Plain Text* from the dropdown list **Data Mode**. If the schema is used at source end and encrypted data is coming from the source, select *Encrypted* from the dropdown list **Data Mode**. 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* dropdown list.

- If Encrypted is selected in Data Mode, you must select *Encryption/Decryption secret key* from Advanced Properties.
- If Encrypted is selected in Data Mode, you must set the *Data Action* property in Process Designer, while creating the process flow. To know more about Process Designer, refer to the Working with Process Flow section.
- 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 is deleted. For example, a record has three fields – *Name, Description* and *Age.* If you delete *Age*, the entire field will be deleted.

7. Click **[+]** to expand the **Advanced Properties**. The following screen is displayed (see Figure 209).

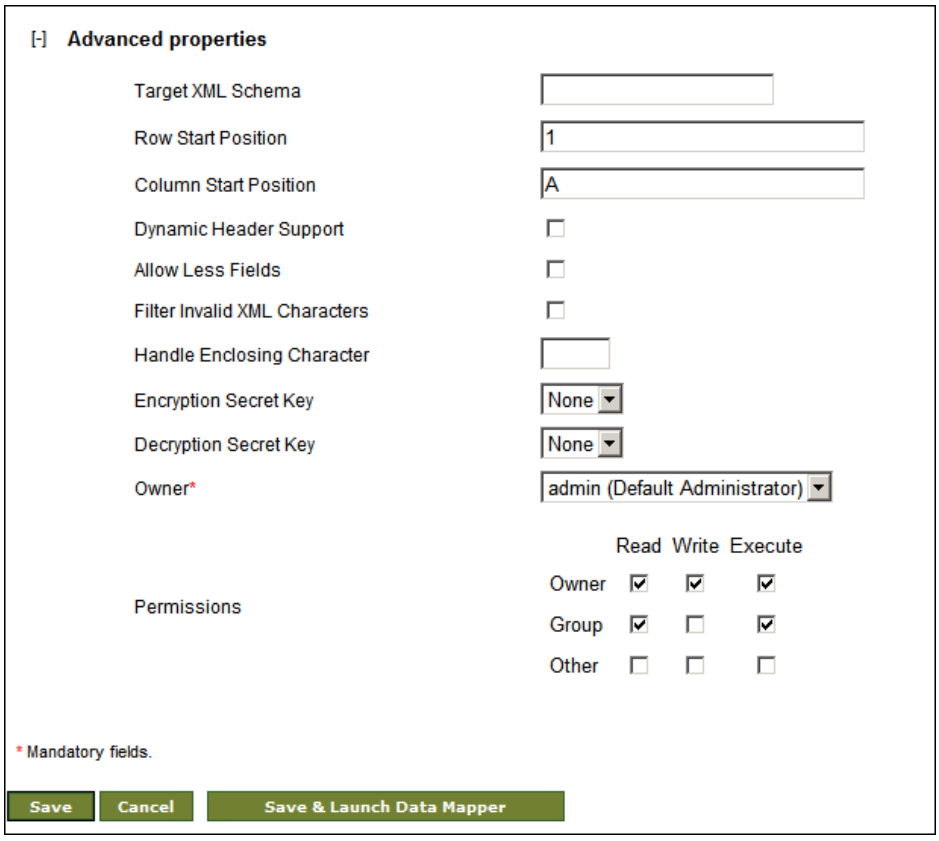


Figure 209: View Advanced Properties of Excel Schema

8. 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 form 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.
9. Similarly, enter the Column Start Position in the **Column Start Position** field.
10. If you want to enable Dynamic Header Support, select the **Dynamic Header Support** checkbox. For detailed information about Dynamic Header Support refer to the section **Using Dynamic Header Support**.
11. In case the number of fields in the data file is less than the number of fields defined in schema, you need to enable the **Allow Less Fields** checkbox to process the data.

- When number of fields in the data file is less than the number of fields defined in the schema, then data is not processed and gives error during execution.
- If you still want to process the data, then you need to enable *Allow Less Field* checkbox.
- When *Allow Less Field* option is enabled, empty tag is generated for fields that are not present in the data file. .
- This option is applicable only when schema is used at source end.

12. 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.
13. 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 En*closing Character* field. Currently following enclosing characters are supported:
    i. Single Quote (‘)
    ii. Double Quote (“)
    iii. Less than symbol (<)
    iv. Greater than symbol (>)
14. 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* dropdown list. The selected secret key activity is used to encrypt the data.
15. 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* dropdown list. The selected secret activity is used to decrypt the data.

To know, how to create secret key activity, refer to the *Creating Secret Key Activity* section in the *Administrator Guide*.

To learn more about Advanced Properties refer to Changing Advanced Properties section.

16. Click the **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 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.

17. Enter comments in the textbox **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 excel schema activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

Using Excel Schema to parse XLSX file

When you use excel schema to parse XLSX file, then you need to do some additional setting while creating process using this schema.

While creating the process flow, in Process Designer, double click the Excel schema that you are using in the process flow. Properties of the Excel Schema is displayed in the properties panel (see Figure 210)

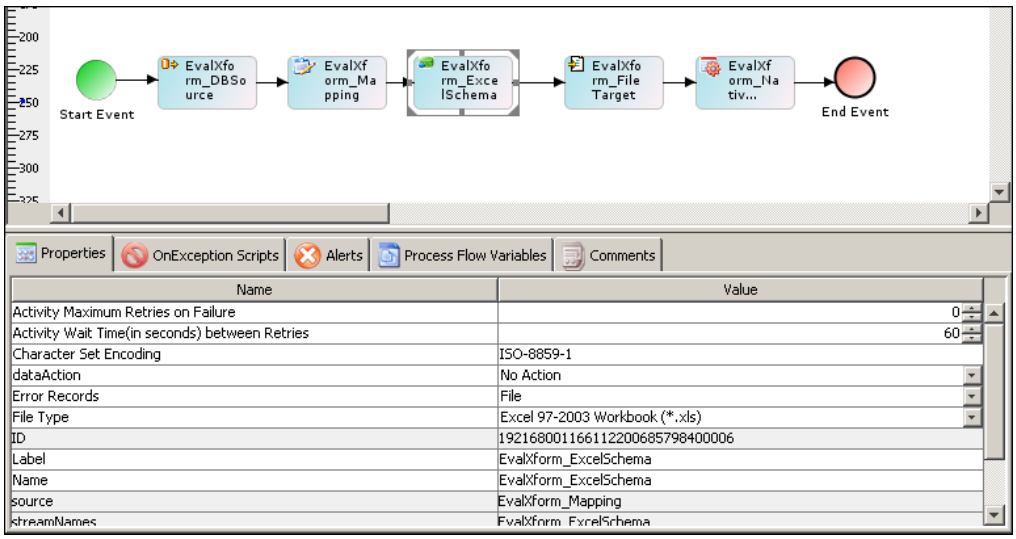


Figure 210: View Advanced Properties of Excel Schema

In value of File Type property, select Excel Workbook (*.xlsx).

When the value *File Type* property is set as *Excel Workbook (*.xlsx)*, this schema can parse both types of excel file: XLS as well as XLSX file.

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 let's assume that you have an excel file which contains records of insurance policies of families (see Figure 211).

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 211: Policy Details

As you can see in the above table for ID 7812 there are there 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 the **Use Definition File** radio button and then select Data from the dropdown list.
2. Click the **Upload File** button. The **Schema File Upload** screen is displayed (refer to Figure 207).
3. Click **Browse** and select the file, you want to upload. Path of the selected file is shown in the textbox **Browse File**.
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 (refer to Figure 208).
5. 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. specify 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. Therefore, 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 rows, but you don't want to fetch those records.

6. Once the processing is done, click **Finish** to close the **Schema File Upload** screen and return to create schema page.
7. Once the file is uploaded the **Sheet Name** field is converted into the dropdown list and all the sheet names of the selected excel file are populated in this dropdown list.
8. Select the sheet name from the dropdown list **Sheet Name**. All the fields of the selected sheet are populated.
9. To define the hierarchy, select the *Define Hierarchy* checkbox and select the merge criteria from the dropdown list **Merge Criteria**.

> 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* dropdown 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.

Prerequisites

- 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 212).

```
<?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 212: 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. Therefore, you have to pass this XML file to the process flow context. The following figure shows a sample process flow to depict this scenario:

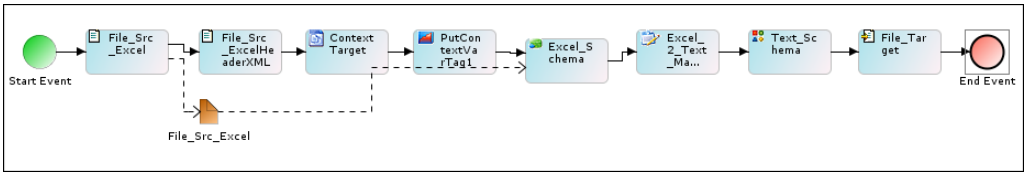


Figure 213: Sample Process Flow

In the process flow shown in Figure 213, 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 214:

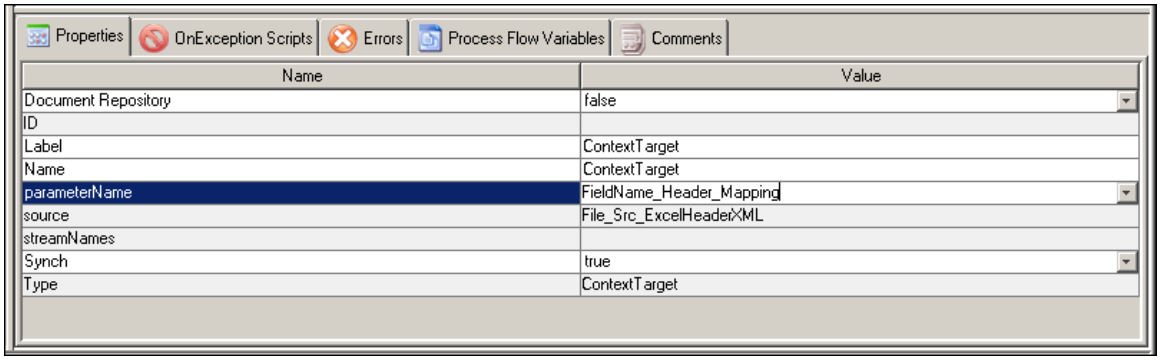


Figure 214: Context Target Properties

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 215:

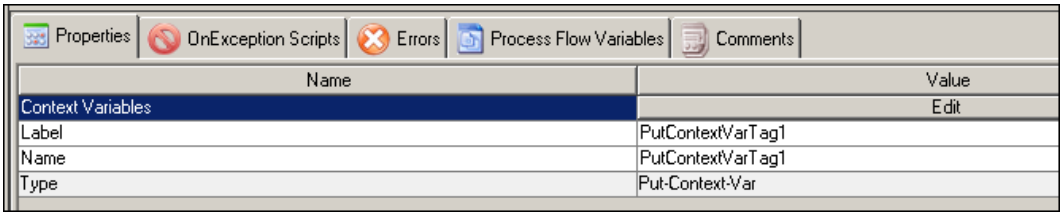


Figure 215: PutContextVar Properties

1. Click **Edit** to define the variable name and the value to be set. The **Edit Context Variables** screen is displayed (see Figure 216).

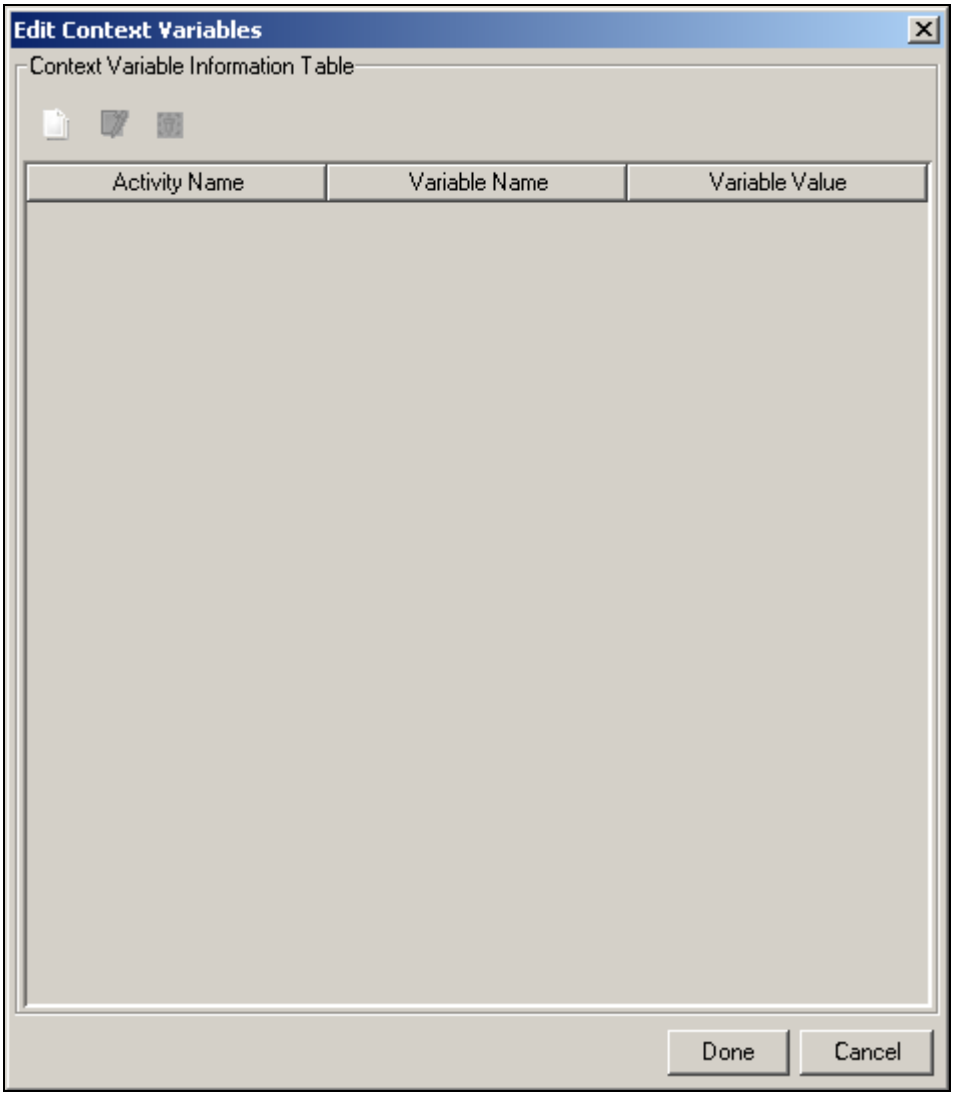


Figure 216: Edit Context Variables

2. Click the **New** ( ) icon. The **Context Variable Information** dialog box is displayed (see Figure 217).

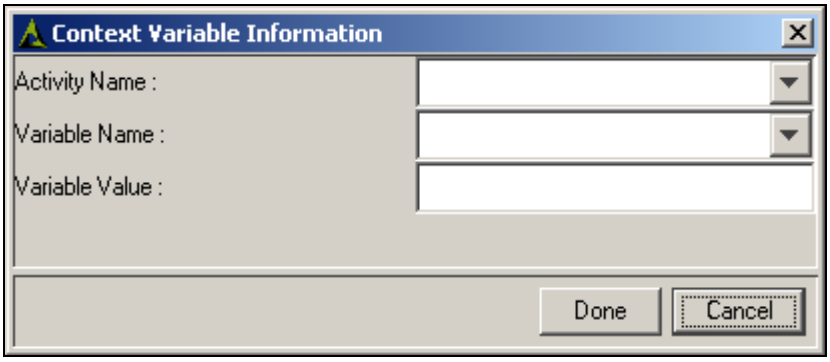


Figure 217: Context Variable Information

3. 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*.

4. In the Variable Value field enter the value, which you defined in the parameterName in the ContextTarget activity.
5. Click **Done** twice to return to graph canvas area.
6. Make sure to create a stream from file source to Excel Schema activity.

> To Know how to create a process flow, refer to the Creating Process Flow section.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create Positional schema

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Positional**. The **Manage Positional Schema** screen is displayed (see Figure 218).

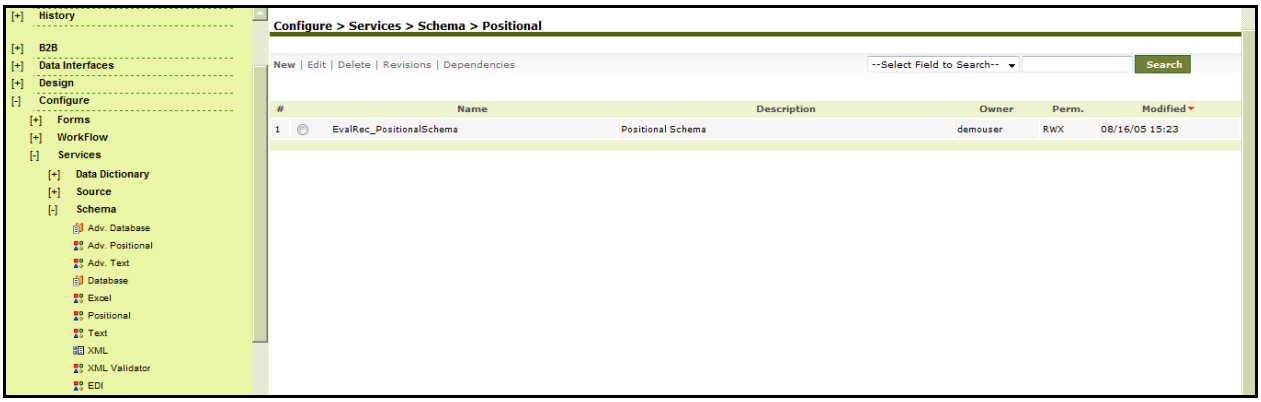


Figure 218: Manage Positional Schema

4. Click the **New** link. The **Create Positional Schema** screen is displayed (see Figure 219).

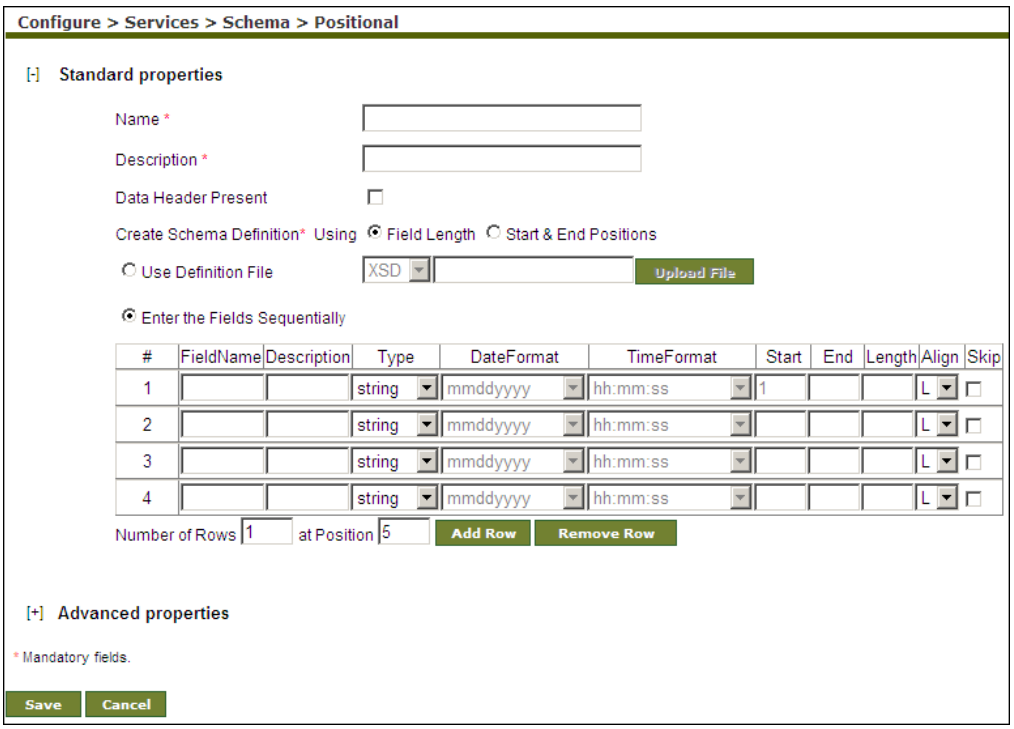


Figure 219: Create Positional Schema

5. Enter the name and description for new Positional Schema in the textboxes **Name** and **Description** respectively.
6. Data Header usually contains the titles of the fields in a text file. If data header is present in the text file, select the *Data Header Present* checkbox.
7. To define the schema using definition file, select the **Use Definition File** radio button; select the type of file from the dropdown list and click the **Upload File** button to select the required file. The *Schema File* upload screen is shown (refer to Figure 207).
8. Click **Browse** and select the file, you want to upload. Path of the selected file is shown in the textbox **Browse File**.

9. Now click the **Upload File** button. Name of the uploaded file is shown in the **File Name** list (see Figure 220).

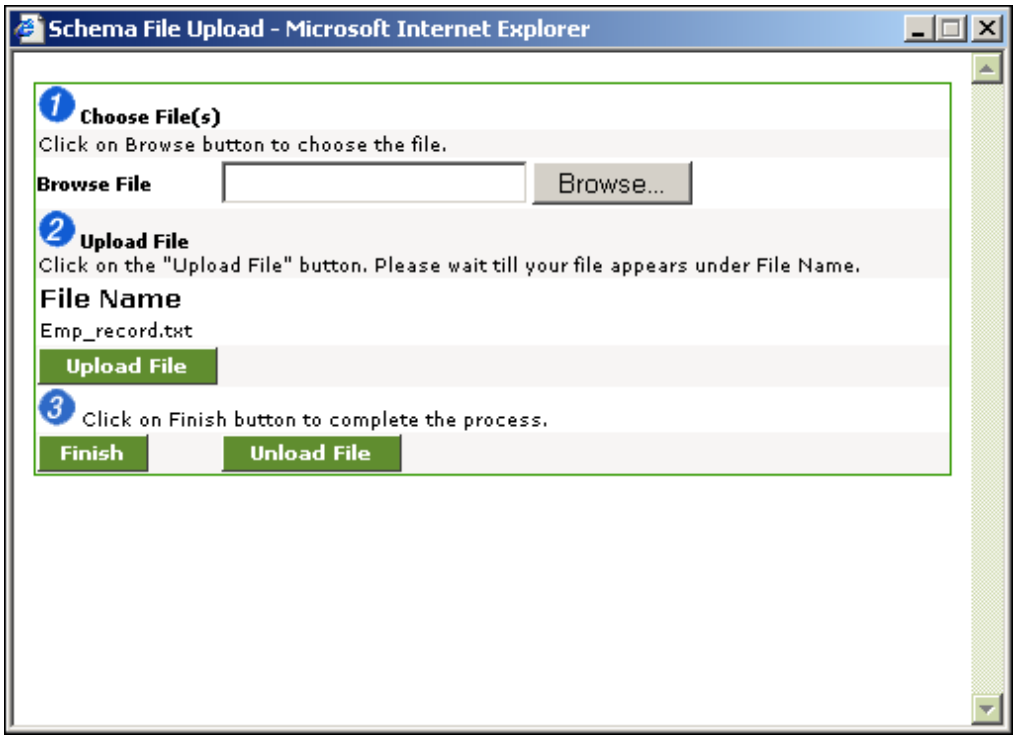


Figure 220:Uploaded File

10. Click **Finish** to close the Schema File Upload screen and return to create schema page.
11. If you want to create schema by entering the fields manually, select the **Enter the Fields Sequentially** radio button and follow the steps given below:
12. Enter name and description of the field in the textboxes **Name** and **Description** respectively.
13. Select the type of data from the dropdown list **Type**. For data type selection, refer to Table 27.
14. If data type is **Date**, select the format of date and time from the dropdown lists **DateFormat** and **TimeFormat** respectively.
15. To define field position select one of the following option:
    - Field Length
    - Start & End Positions
16. To define the field position using field length, select the *Field Length* radio button and enter the length of the field in the *Length* field.
17. To define the field position using start and end position, select the *Start and End Position* radio button.
18. Enter the start position of the field in the **StartPos** field.
19. 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.

20. Select the alignment of the field from the dropdown list **Align**.

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.

21. Select 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.

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 181). Similarly, while viewing the *Print-Friendly Page*, the skipped fields are represented by 'T' and the unskipped fields by 'F'.

22.

23. Click **[+]** to expand **Advanced Properties**. Advanced properties of positional schema are displayed (see Figure 221).

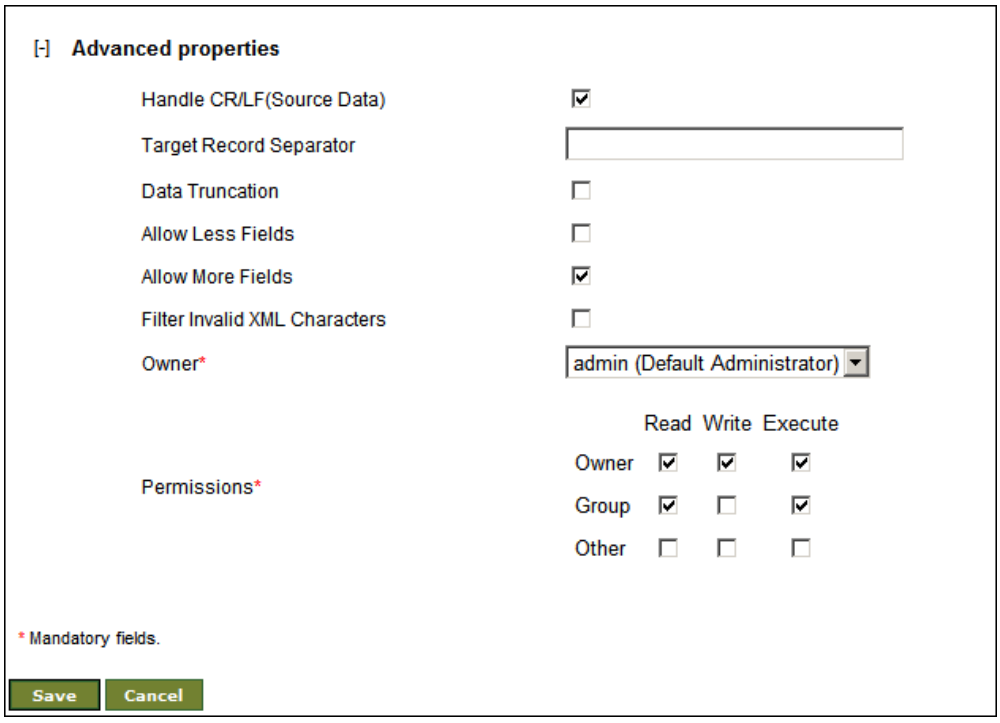


Figure 221: Advanced Properties of Positional Schema

24. Disable 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.

25. Enter the target record separator in the textbox **Target Record Separator**, 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.

26. Select 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.

> *Data Truncation* option is applicable for the schema, which is used at target end.

27. Select 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 selected 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.

28. 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, disable the **Allow More Fields** checkbox.

29. 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 selecting the **Filter Invalid XML Characters** checkbox.

30. Click the **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 6).

31. Enter 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 positional schema activity has been created successfully.

> By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a text schema activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.

2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Schema** to expand the hierarchy, and then click **Text**. The **Manage Text Schema** screen is displayed (see Figure 222).

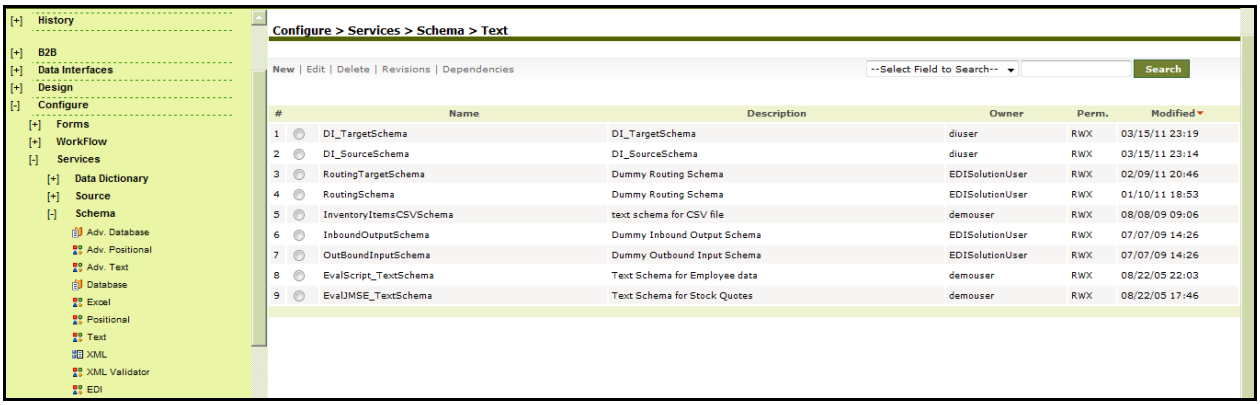


Figure 222: Manage Text Schema

4. Click the **New** link. The *Create Text Schema* screen is displayed (see Figure 223).

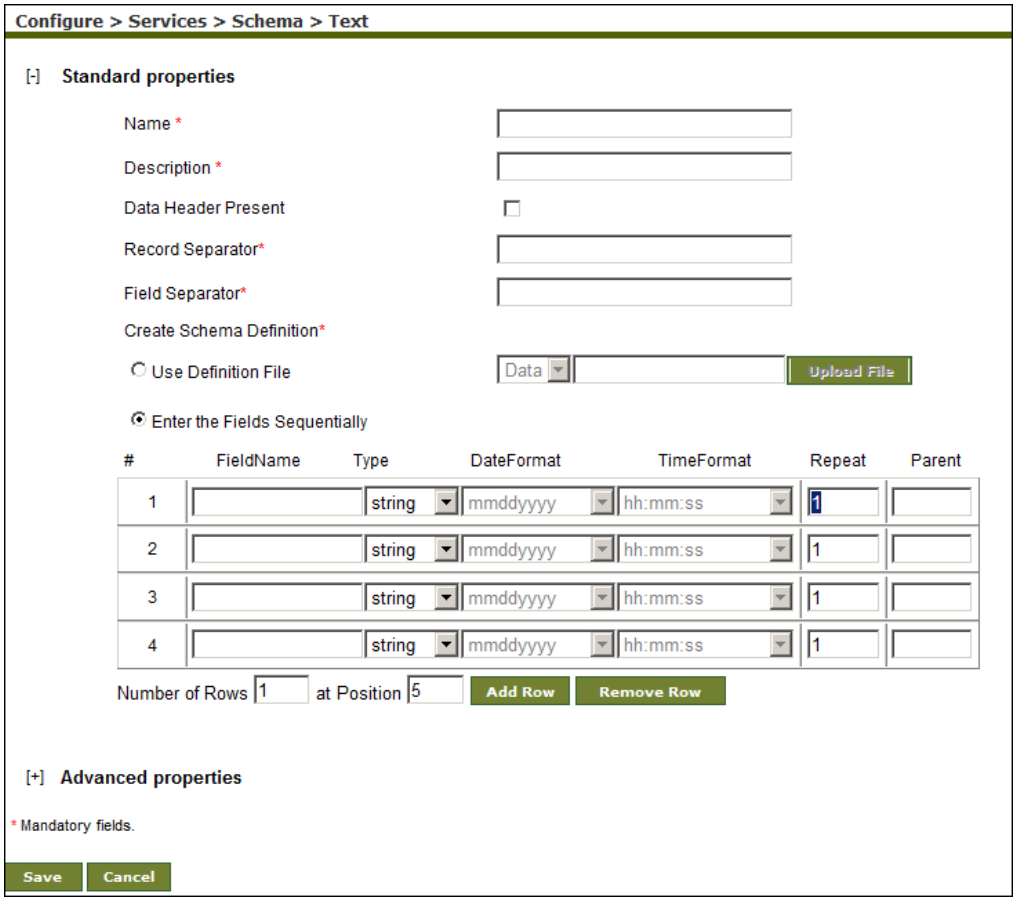


Figure 223: Create Text Schema

5. Enter the name and description of the new text schema in the textboxes **Name** and **Description** respectively.
6. Data Header usually contains the titles of the fields in a text file. If data header is present in the text file, select the **Data Header Present** checkbox.
7. 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.
8. Enter the Field Separator, for example \t for Tab or " " for space. In the **Field Separator** field. Field Separator is used to separate fields.

You can also specify record separator and field separator in Hex format. To specify record separator and field separator you need to use 0x before the hex value. For example to specify new line in hex format, you need to use 0x0A.

9. To define the schema using definition file, select the *Use Definition File* radio button; select the type of file from the dropdown list and click the **Upload File** button to select the required file. The **Schema File** upload screen is shown (refer to Figure 207).
10. Click **Browse** and select the file, you want to upload. Path of the selected file is shown in the *Browse* **File** field.

11. Now click the **Upload File** button. Name of the uploaded file is shown in the **File Name** list (see Figure 224).

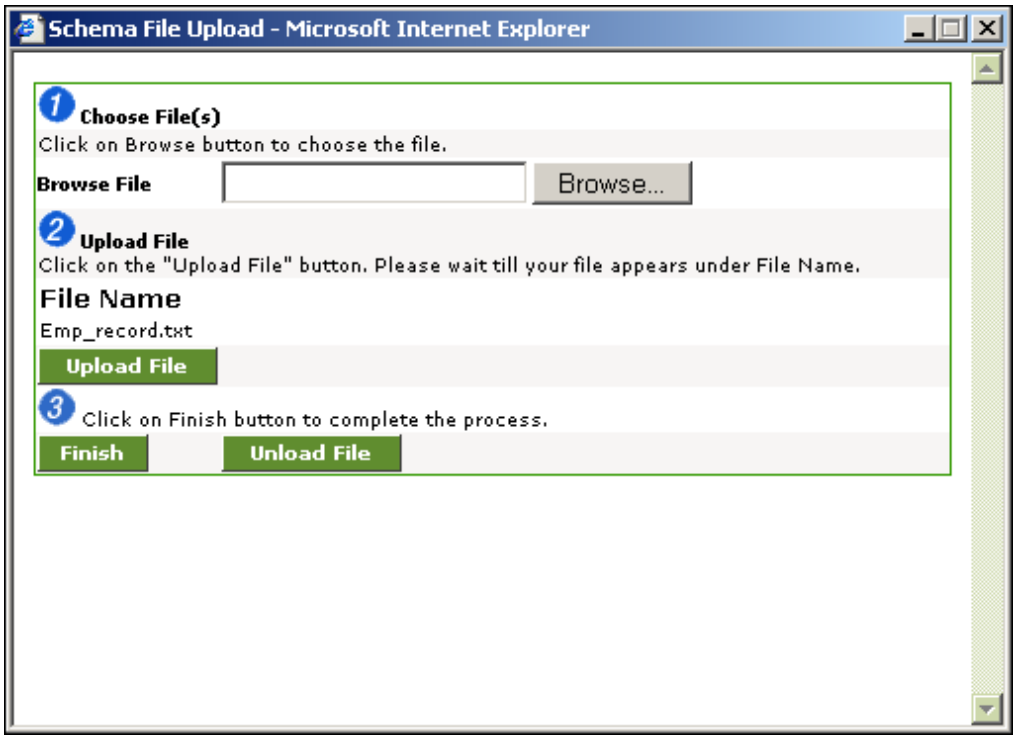


Figure 224:Uploaded File

12. Click **Finish** to close the Schema File Upload screen and return to create schema page.
13. If you want to create schema by entering the fields manually, select the **Enter the Fields Sequentially** radio button and follow the steps given below:
14. Enter the name of each field in the **Field Name** field.
15. Select the type of data from the **Type** dropdown list. For data type selection, refer to Table 27.

> The Currency data type is supported by Excel Schema only.

16. If data type is *Date*, select the format of date and time from the *DateFormat* and *TimeFormat* dropdown 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 is deleted. For example, a record has three fields – *Name, Description* and *Age*. If you delete *Age*, the entire field will be deleted.

17. 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 (Chocolate20perpack) 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").

18. In case the number of fields in the data file is less than the number of fields defined in schema, you need to enable **Allow Less Fields** checkbox to process the data.

- When number of fields in the data file is less than the number of fields defined in the schema, then data is not processed and gives error during execution.
- If you still want to process the data, then you need to enable *Allow Less Field* checkbox.
- When *Allow Less Field* option is enabled, empty tag is generated for fields that are not present in the data file. .
- This option is applicable only when schema is used at source end.

19. 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 (")
- Less than symbol (<)
- Greater than symbol (>)

20. 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 Changing Advanced Properties section.

21. Click the **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 6).

22. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length.

23. Click **OK** to save the comments. This displays a screen confirming that the text schema activity has been created successfully.

> By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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.

> This feature is a paid service and is thus not available in any of the Adeptia products by default.

Steps to create Word Schema

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All the items in the **Services** category are displayed.
3. Click **[+] Schema** to **expand** the hierarchy, and then click **Word**. The **Manage Word Schema** screen is displayed (see Figure 225).

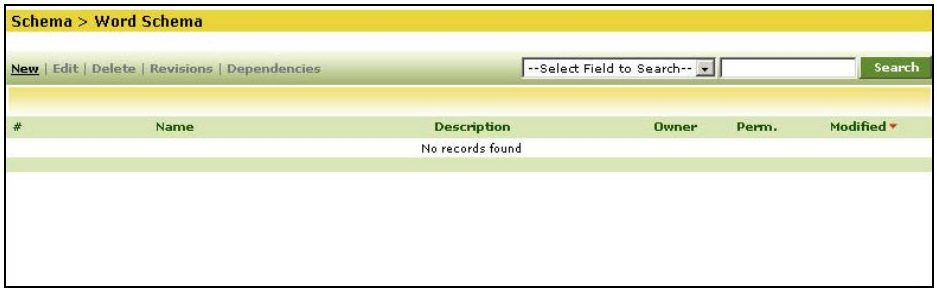


Figure 225: Manage Word Schema

4. Click the **New** link. The Create **Word** Schema screen is displayed (see Figure 226).

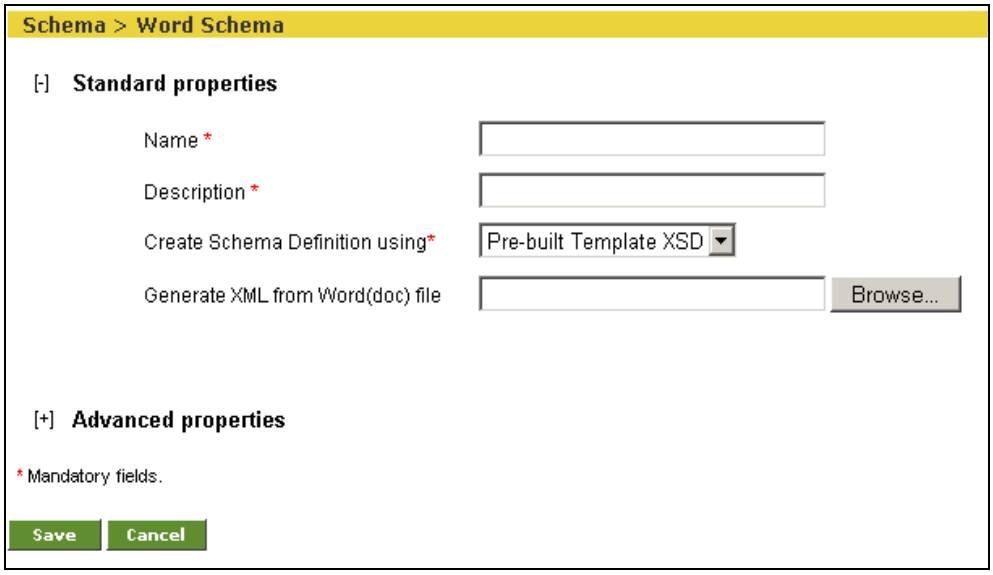


Figure 226: Create Word Schema

5. Enter the name and description for Word Schema in the **Name** and **Description** fields respectively.
6. Leave the Create Schema Definition Using field as default.
7. 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 227).

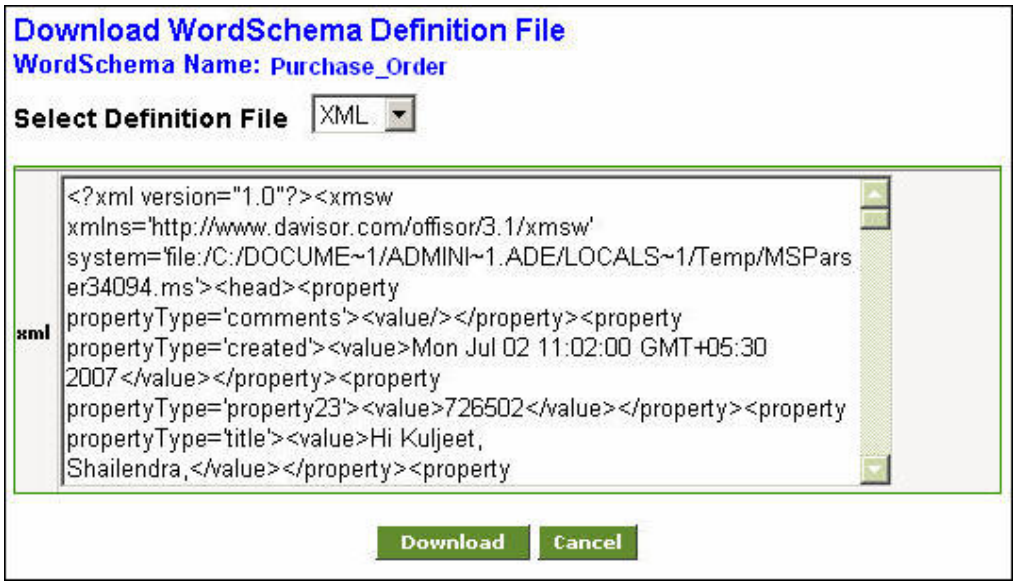


Figure 227: Download Word Schema Definition File

To download the XML, select XML from the *Select Definition File* dropdown list and click **Download**.

To download the word file select Word from the select *Definition File* dropdown list and click **Download**.

Click **Cancel** to close the Download Word Schema Definition File dialog box.

To learn more about Advanced Properties refer to Changing Advanced Properties section.

8. Click the **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 6).
9. Enter 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 Word schema activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create XML Schema

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **XML**. The *Manage XML Schema* screen is displayed (see Figure 228).

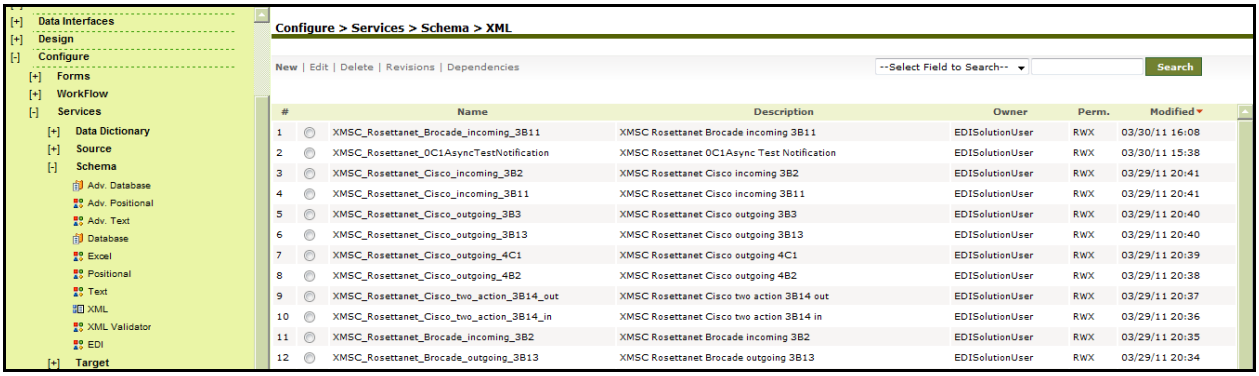


Figure 228: Manage XML Schema

4. Click the **New** link. The **Create XML Schema** screen is displayed (see Figure 229).

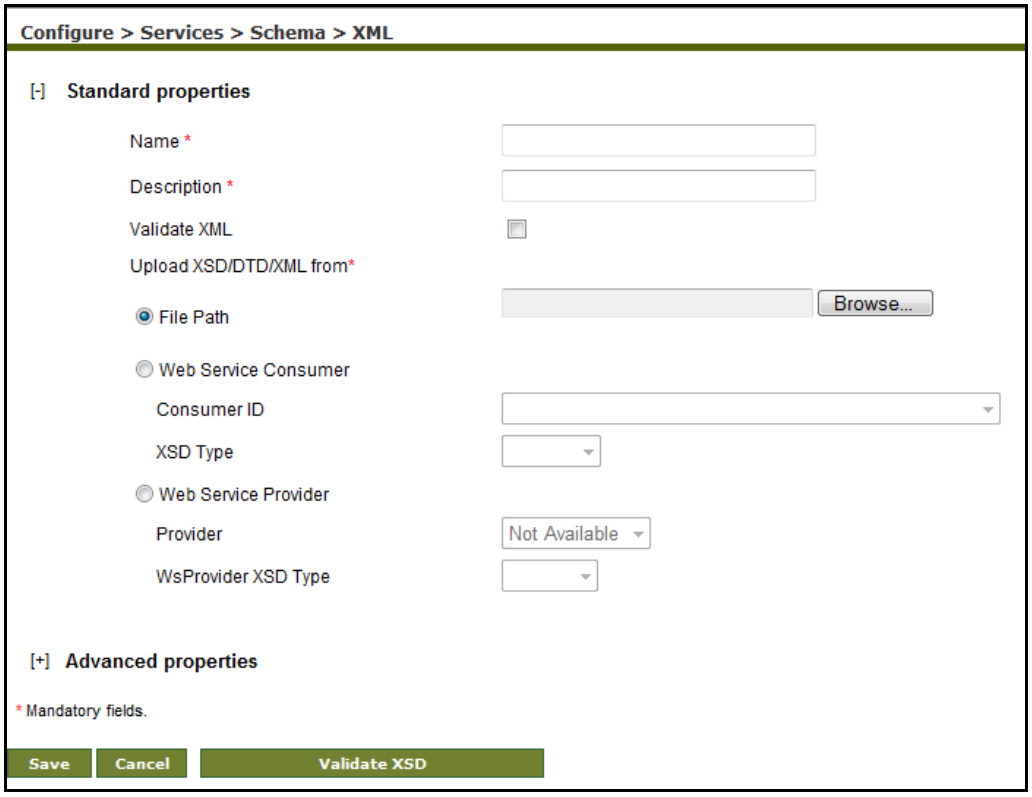


Figure 229: Create XML Schema

5. Enter the name and description for XML Schema in the textboxes **Name** and **Description** respectively.
6. Select one of the following Schema Definition Location:
   - File Path
   - Web Service Consumer
   - Web Service Provider
7. Select the desired option in the **Upload XSD/DTD/XML from** field. The selection process of options is explained in the table below.

Table 29: Selection Process of Value for Upload XSD/DTD/XML from Field

Option	Process
File Path	Click the **Browse** 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 *HTTP URL* field.
Web Service Consumer	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). Select the Web Service Consumer activity from

Option	Process
	the **Consumer ID** dropdown list. Select the type of XSD as either Input or Output from the *XSD Type* dropdown list. • Input: XSD for input data format. • Output: XSD for output data format.
Web Service Provider	In this case, XSD is picked up from pre-defined Web Service Provider activity(Created by uploading a WSDL). Each WS Provider activity has two XSD's associated with it (i.e. Input Data XSD and Output Data XSD). Select the Web Service Provider activity from the *Provider* dropdown list. Select the type of XSD as either Input or Output from the *XSD Type* dropdown list. • Input: XSD for input data format. • Output: XSD for output data format.

Select the **Validate XML** checkbox if you want to validate the XML during execution. It validates the input XML file at runtime.

8. Click the **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.

9. Click **[+]** to expand **Advanced Properties**. The Advanced Properties of XML Schema activity is displayed (see Figure 230).

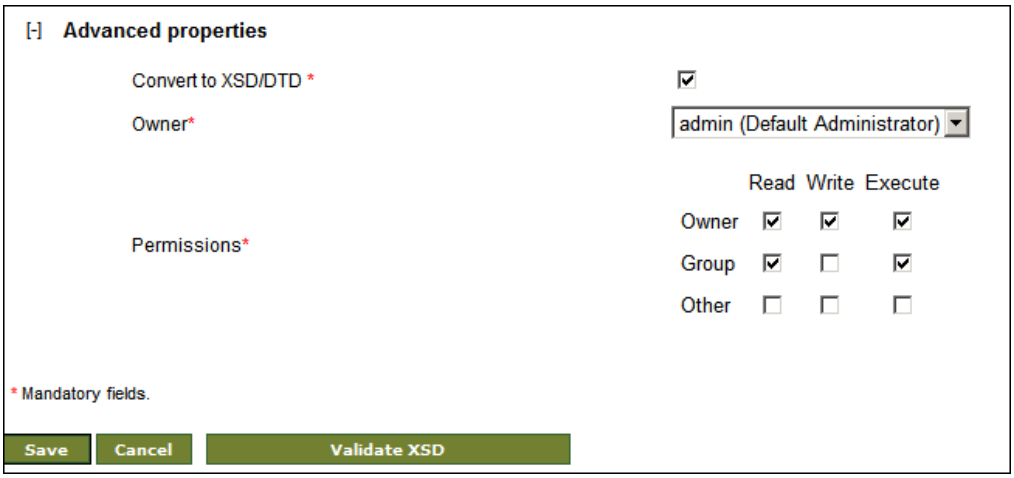


Figure 230: Advanced Properties of XML Schema

The **Convert to XSD/DTD** checkbox is marked as selected. 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, deselect 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 deselect 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 Changing Advanced Properties section.

10. Click the **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 6).
11. Enter comments in the textbox **Add Comments**.

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 *Updating System Properties* section in *Administrator* Guide.

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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All the items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Text**. The ***Manage Text Schema*** screen is displayed (refer to Figure 222).
4. 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 (see Figure 231).

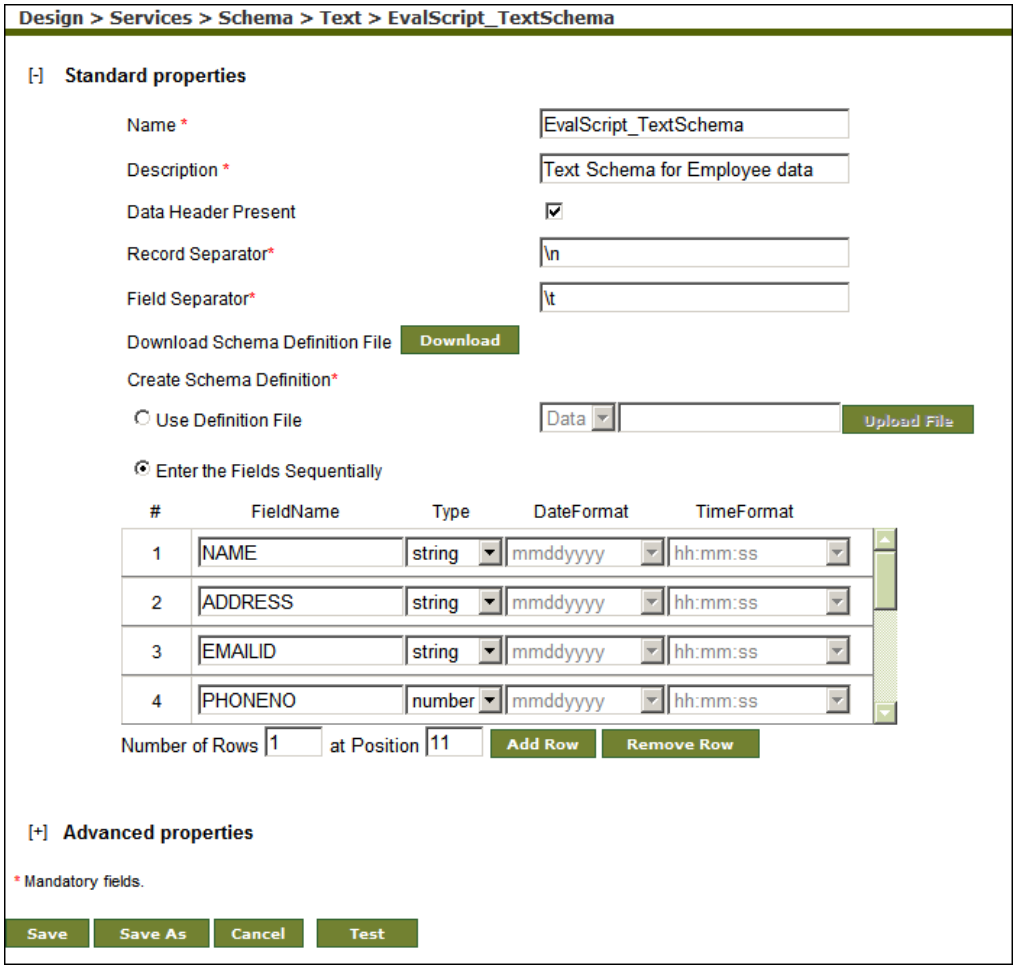


Figure 231: Edit Text Schema

5. Click the **Test** button. The *Test Schema* screen is displayed (see Figure 232).

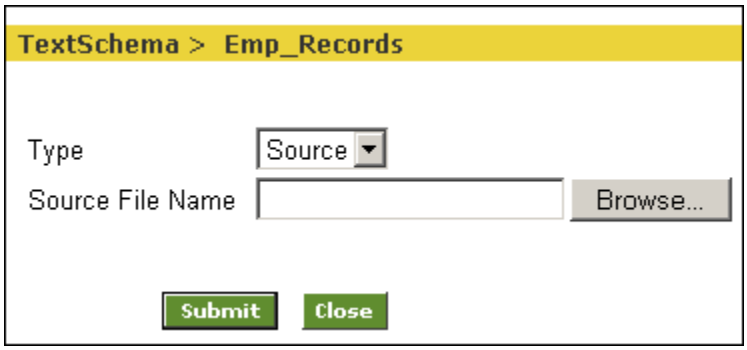


Figure 232: Test Schema

6. Select the type of schema to test, from the dropdown list **Type**. By default, Source is selected.
7. Click the **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* dropdown 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 you are testing Text Schema which will be used at target end, the target file will be a .txt file.

8. Click the **Submit** button. This tests the specified source file according to the defined schema and gives you the link of out files generated (see Figure 233).

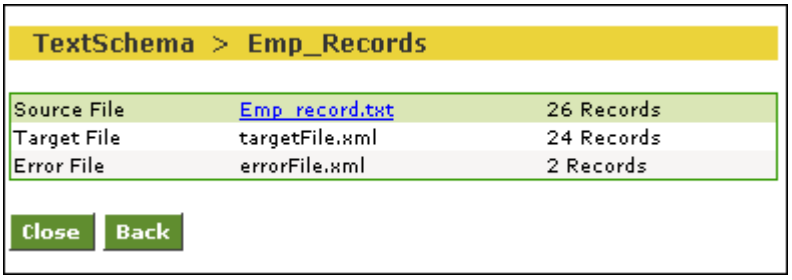


Figure 233: Test Schema

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.

9. 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a XML Validator activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **XML Validator**. The *XML Validator* screen is displayed (see Figure 234).

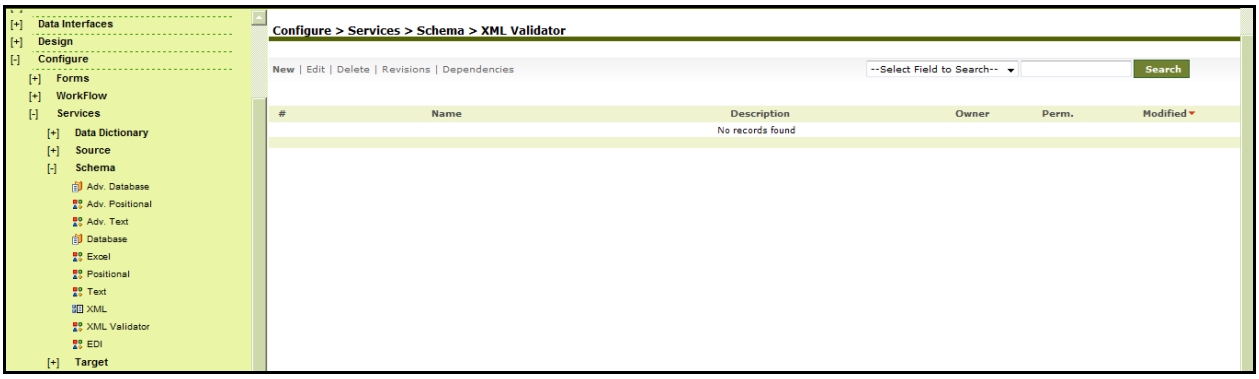


Figure 234: Manage XML Validator

4. Click the **New** link. The **Create XML Validator** screen is displayed (see Figure 235).

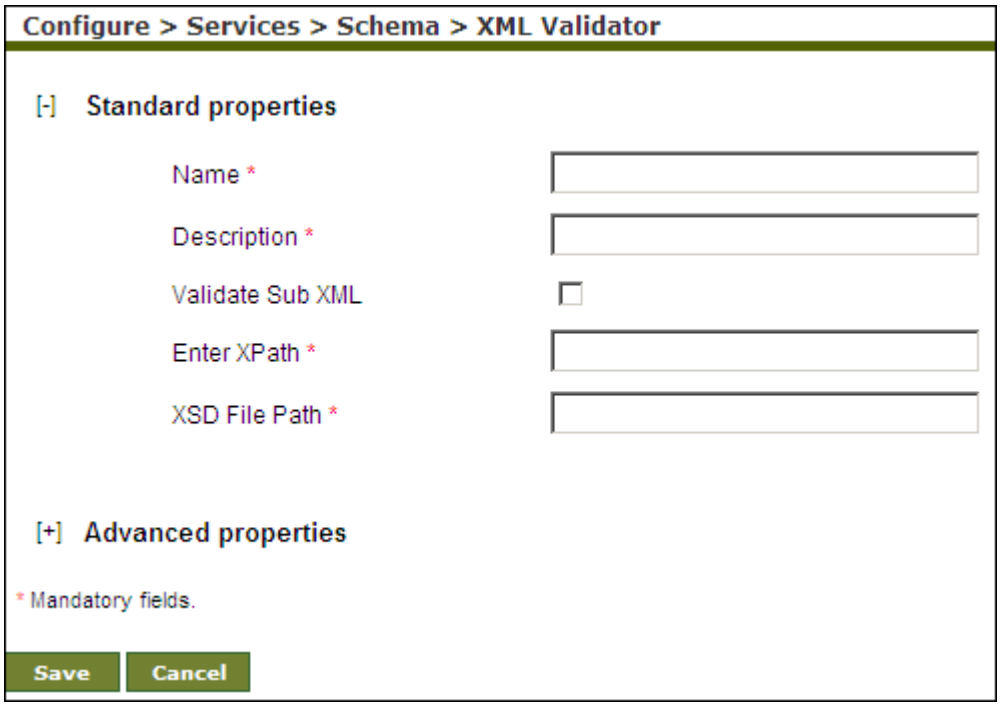


Figure 235: Create XML Validator

5. Enter the name and description of new XML Validator activity in the textboxes **Name** and **Description** respectively.
6. If you want to validate the Sub XML, select the **Validate Sub XML** checkbox.
7. Enter the XPath of the XML, which needs to be validated in the textbox **Enter XPath**.
8. Enter the path of the XSD file, against which the above defined XML is validated, in the textbox **XSD File Path**.

> To learn about Advanced Properties refer to Changing Advanced Properties section.

9. Click the **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 6).
10. Enter comments in the textbox **Add Comments**.

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

11. 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 *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√			

Steps to create EDI Schema

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **EDI**. The **Manage EDI Schema** screen is displayed (see Figure 236).

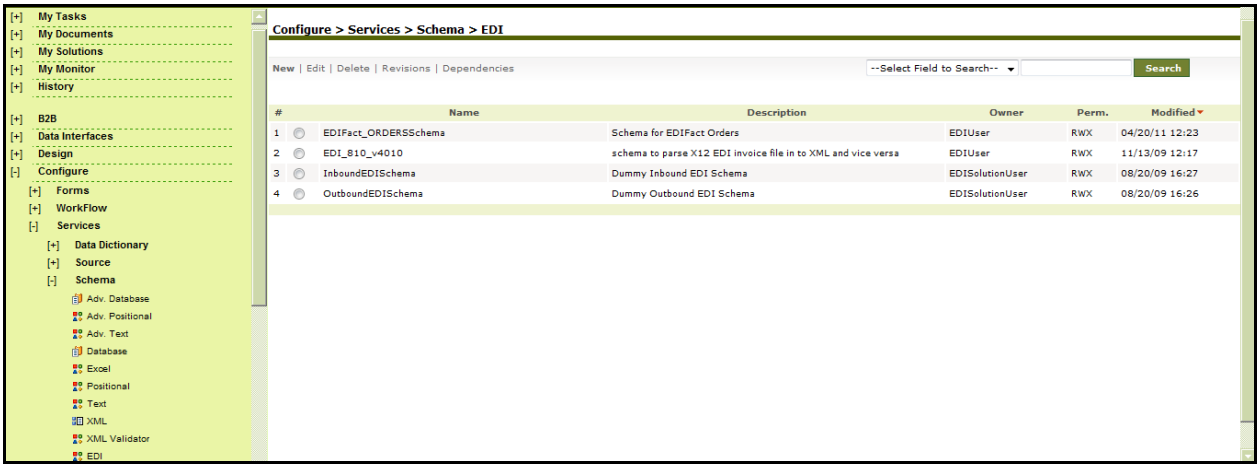


Figure 236: Manage EDI Schema

4. Click the **New** link. The **Create EDI Schema** screen is displayed (see Figure 237).

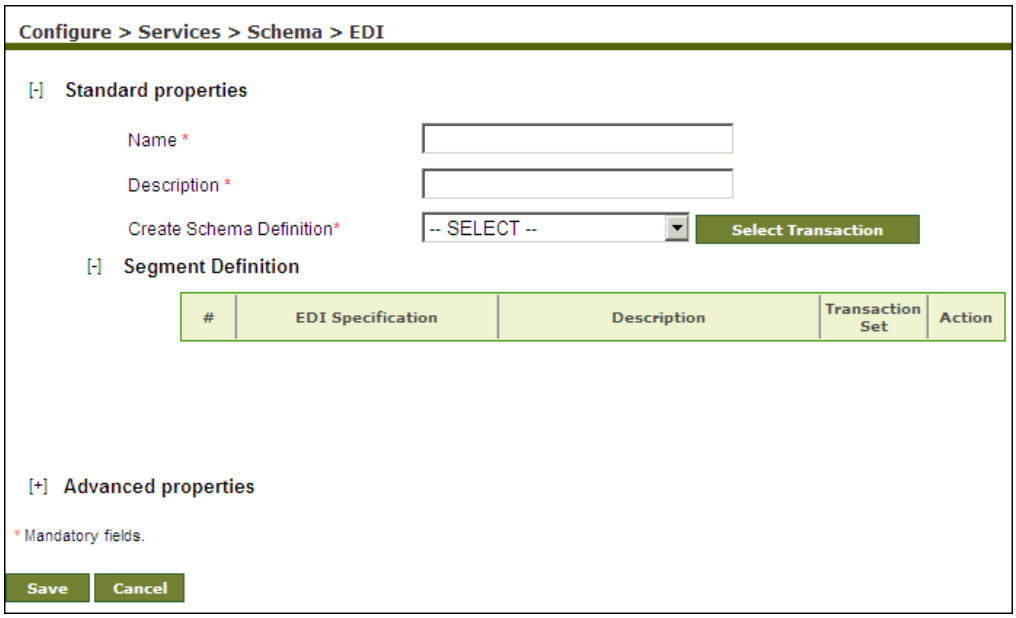


Figure 237: Create EDI Schema

5. Enter the name and description of new EDI schema activity in the textboxes **Name** and **Description** respectively.
6. Enter the Segment Separator, e.g. '~' in the textbox **Segment Separator**.
7. Enter the Field Separator, e.g. '*' in the textbox **Field Separator**.
8. 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.
9. Select the **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.
10. 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 238).

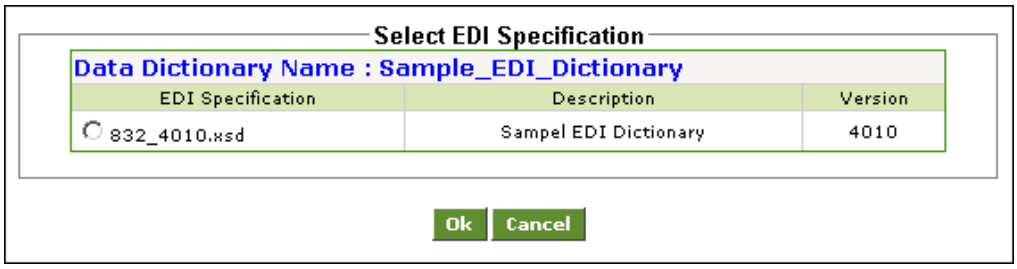


Figure 238: Select EDI Specification

To know how to create EDI Data Dictionary, refer to the Creating EDI Data Dictionary section.

11. Select the required EDI Specification and click **OK**. This closes the Select EDI Specification screen. The selected EDI specification is populated under Segment Definition in the **Create EDI Schema** screen (see Figure 239).

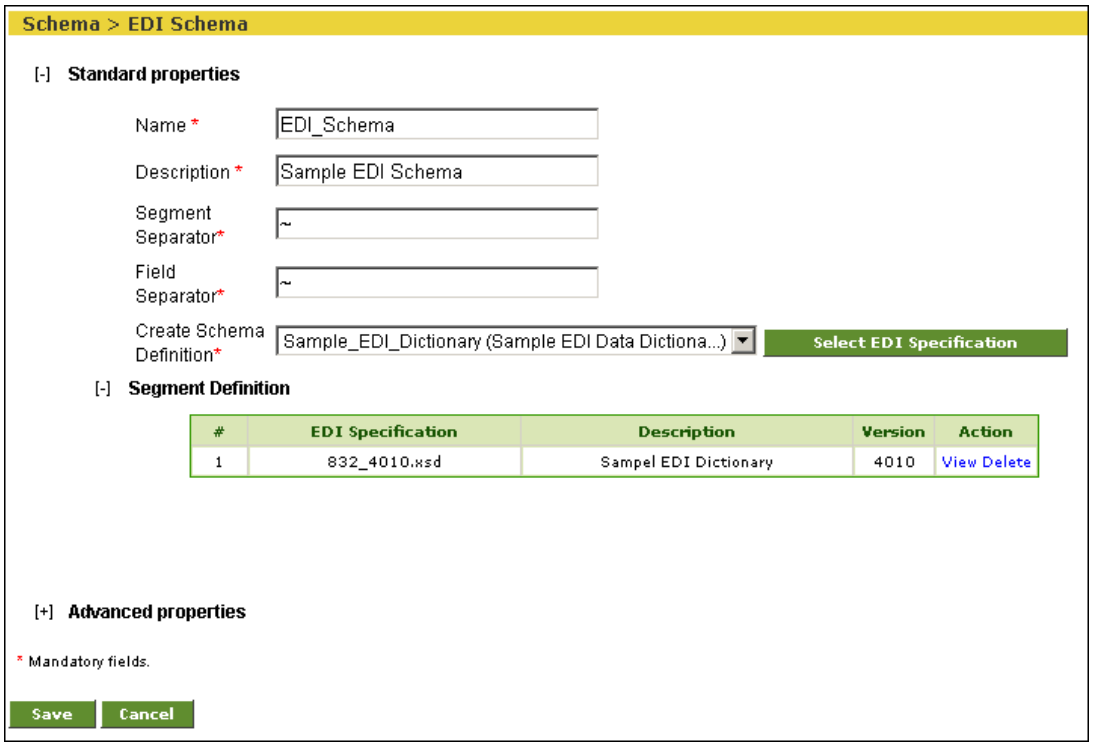


Figure 239: Populated Create EDI Schema screen

To learn about Advanced Properties refer to Changing Advanced Properties section.

12. Click **Save**. 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 6).
13. Enter 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 EDI schema activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All the items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **EDI**. The Manage EDI Schema screen is displayed (refer to Figure 236).
4. 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 240).

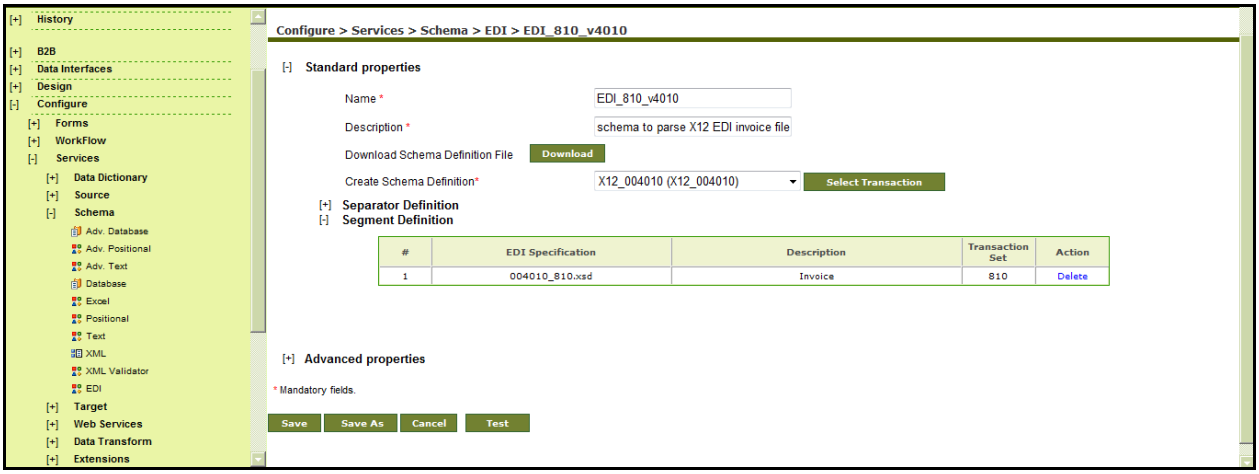


Figure 240: Edit EDI Schema

5. 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 241).

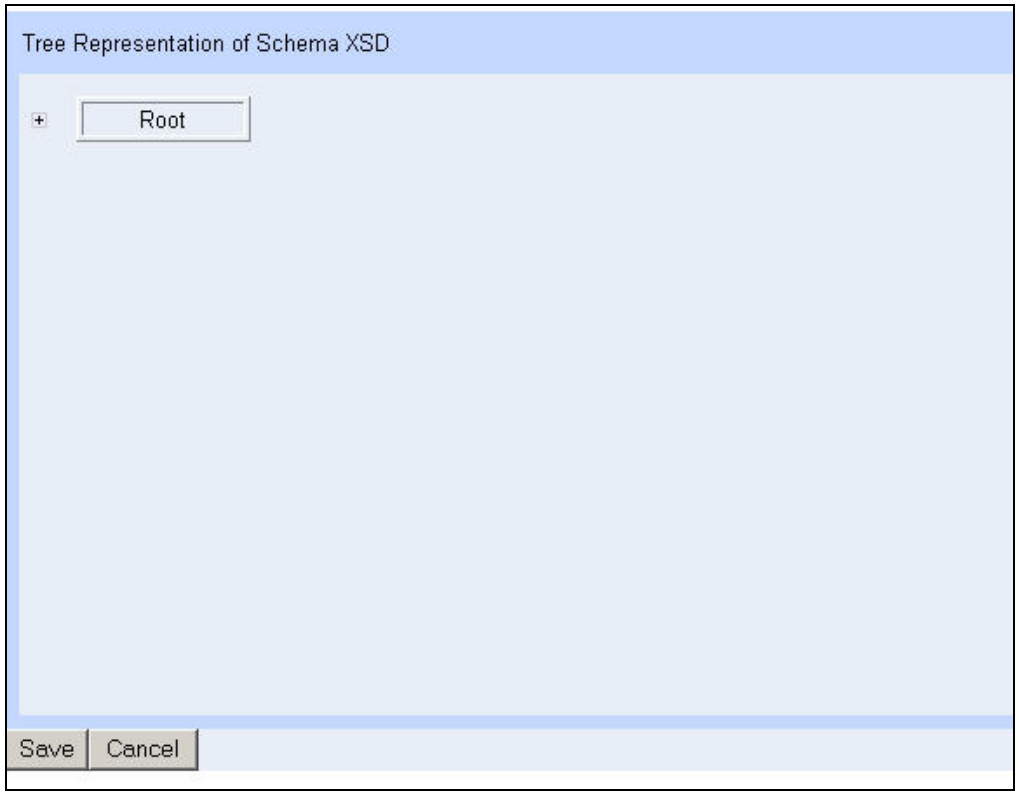


Figure 241: Tree Representation of Schema XSD

6. Expand the **Root** node to view the segment hierarchy (see Figure 242).

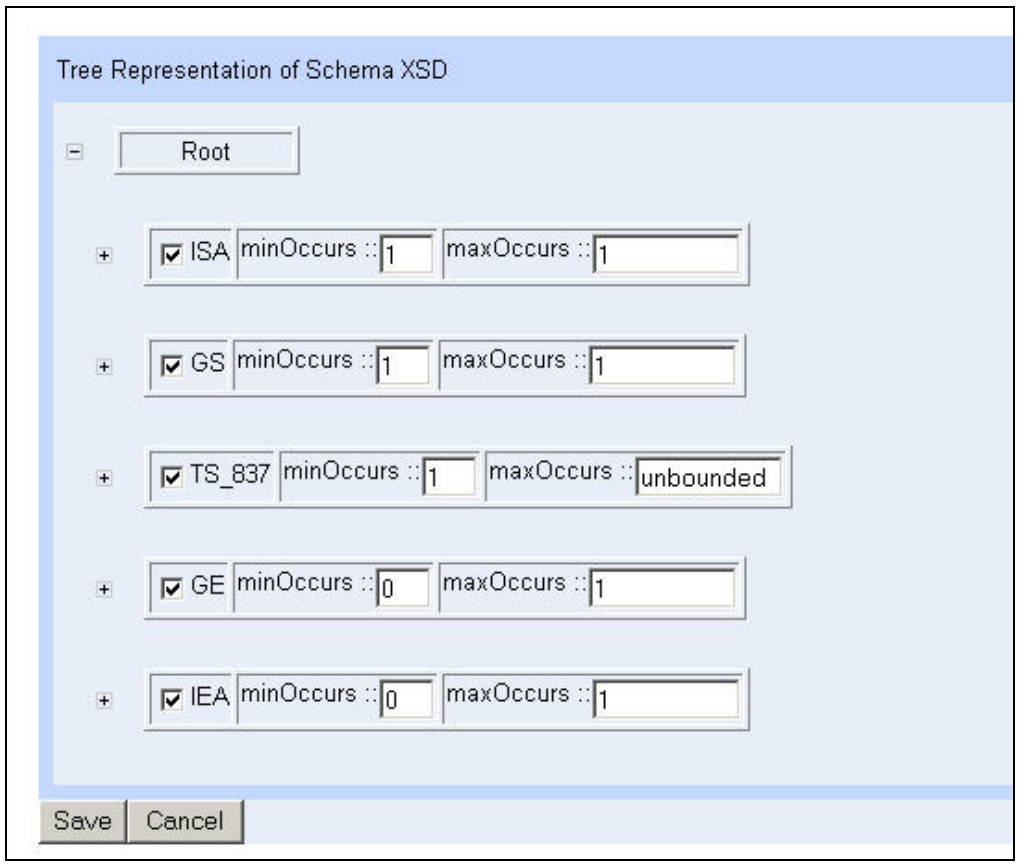


Figure 242: Expand Root Node

7. Expand a parent node to view its child nodes (see Figure 243).

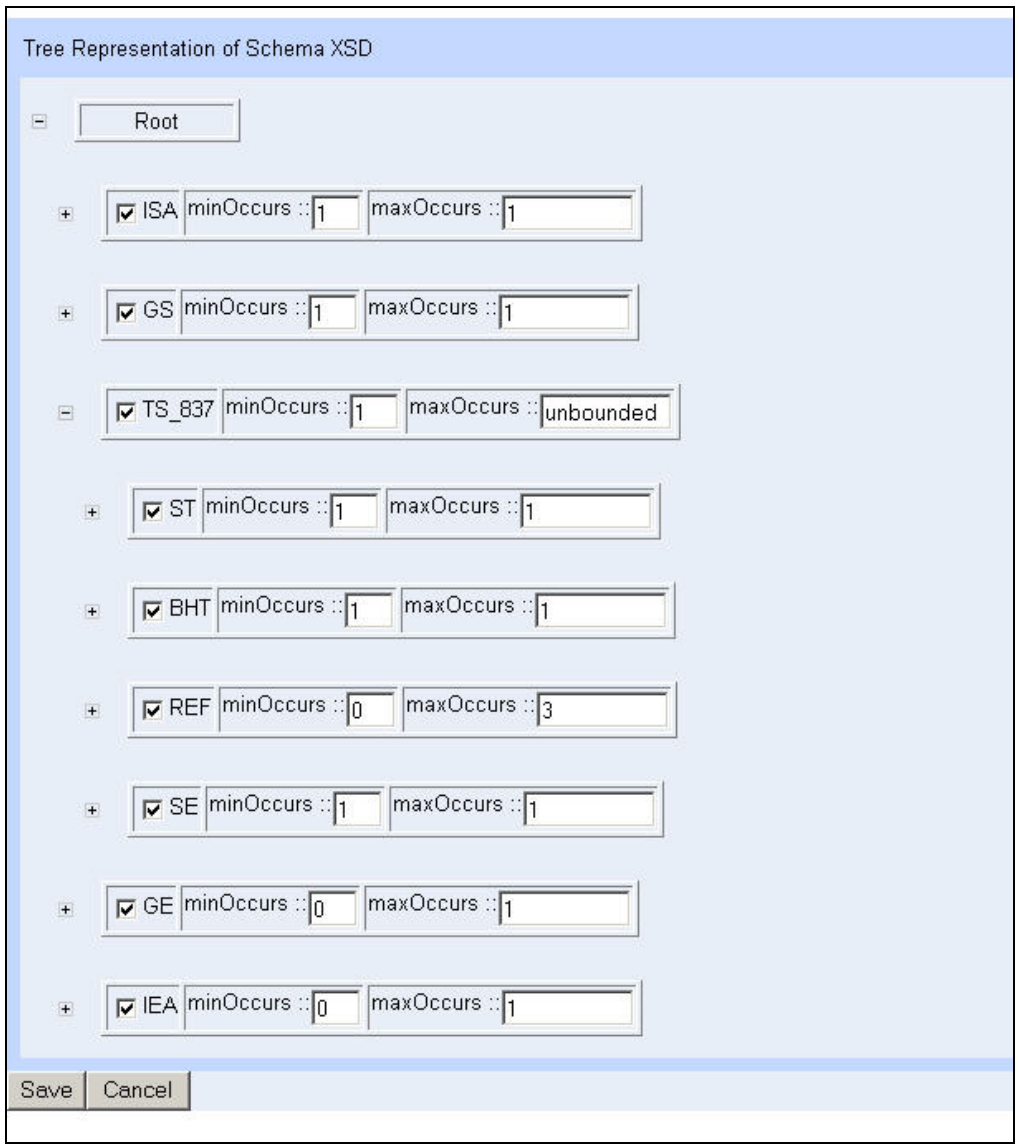


Figure 243: Expand Parent Node

8. You can remove a child node by deselecting the checkbox (see Figure 244). If you deselect a parent node, then all its child nodes will also be removed.

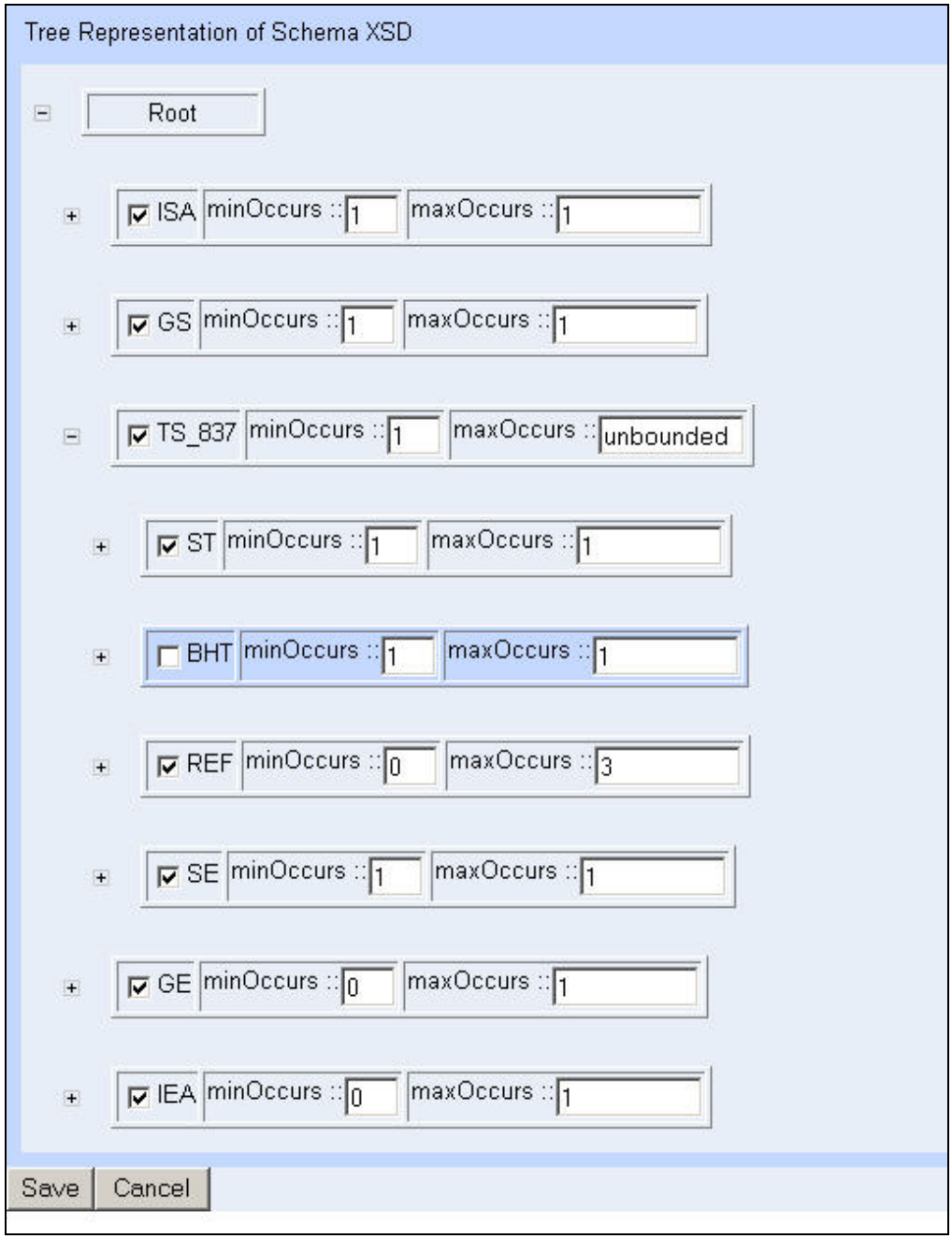


Figure 244: Remove Child Node

9. You can also change the occurrence of the elements in the hierarchy by changing the values in the **minOccurs** and **maxOccurs** fields.

10. Once all the changes are done, click **Save**. This saves the changes and displays the manipulated hierarchy (see Figure 245).

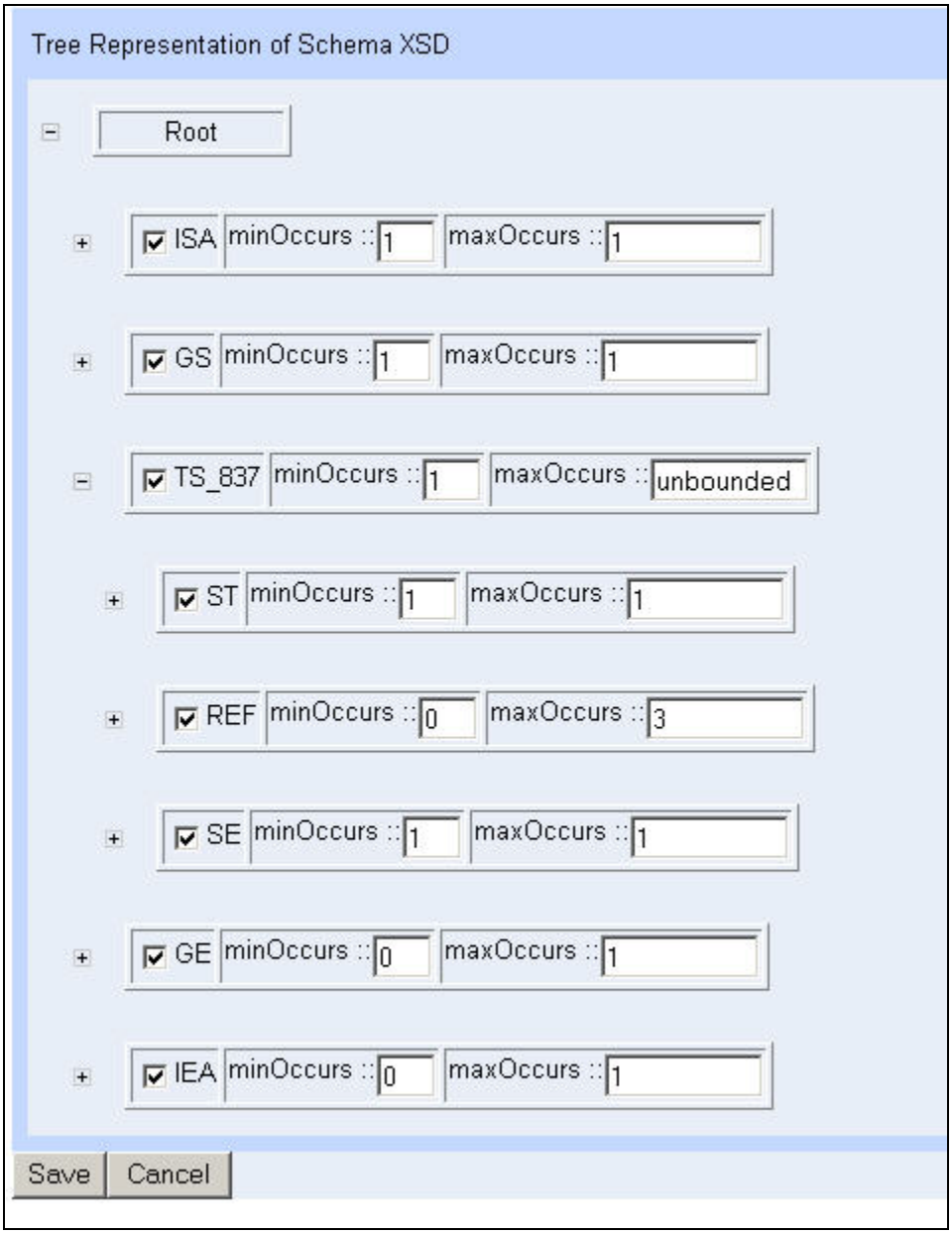


Figure 245: Saved Manipulation

7

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 Suite 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Target** to expand the hierarchy, and then click **Adv.Database**. The **Manage Advanced Database Target** screen is displayed (see Figure 246).

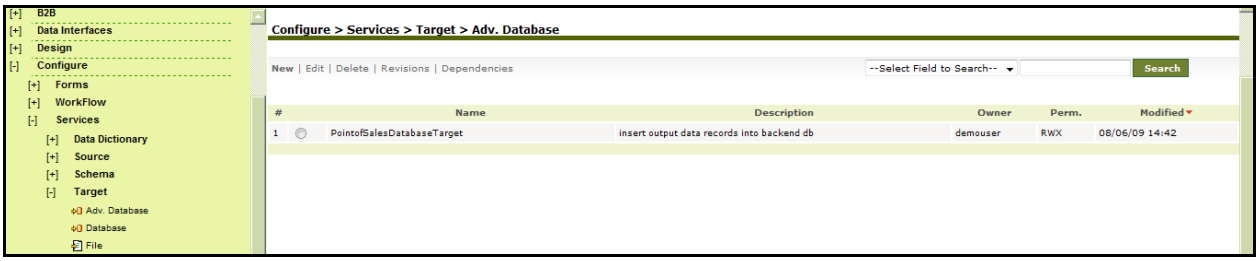


Figure 246: Manage Advanced Database Target

4. Click the **New** link. The **Create Advanced Database Target** screen is displayed (see Figure 247).

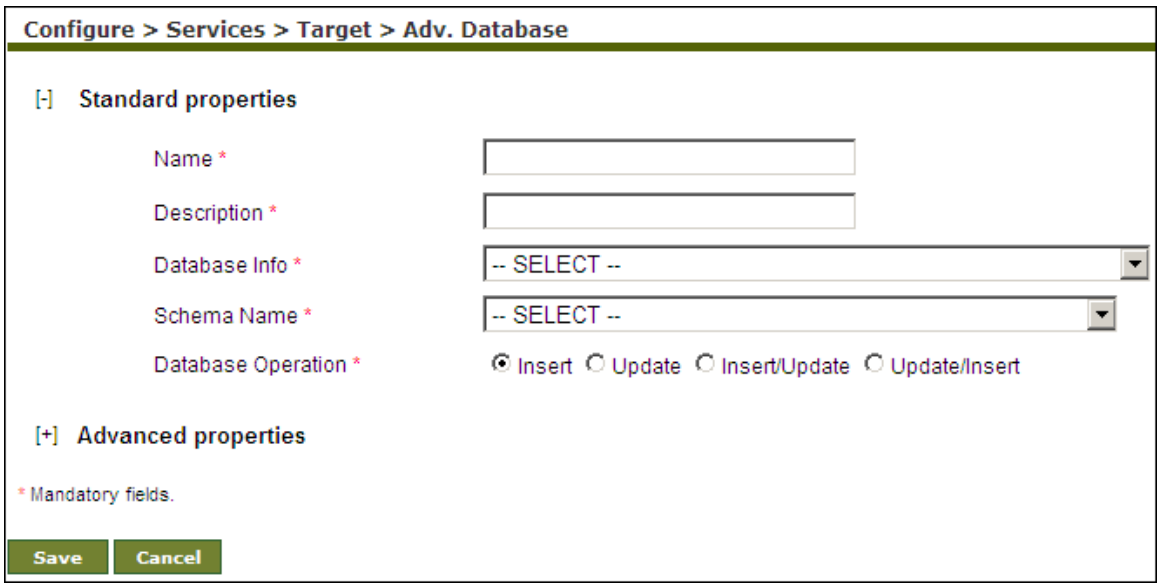


Figure 247: Create Advanced Database Target

5. Enter the name of the new Advanced Database Target in the textbox **Name**. Then, enter the description for the Advanced Database Target in the textbox **Description**.
6. Select the database info activity and database schema activity from the dropdown lists **Database Info** and **Schema Name** respectively.
7. 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, refer to the *Creating Database Info* section in the *Administrator Guide*. To learn how to create the Advance Database Schema activity, refer to the *Creating Advance Database Schema Activity* section.

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 31.

To learn about Advanced Properties refer to Changing Advanced Properties section.

8. Click the **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 6).
9. Enter 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 Advanced Database target activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 are 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 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 30: 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Prerequisites

- Database *Info* activity and *Database Schema* must be created before creating Database Target activity.

Steps to create a Database Target Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Target** to expand the hierarchy, and then click **Database**. The **Manage Database Target** screen is displayed (see Figure 248).

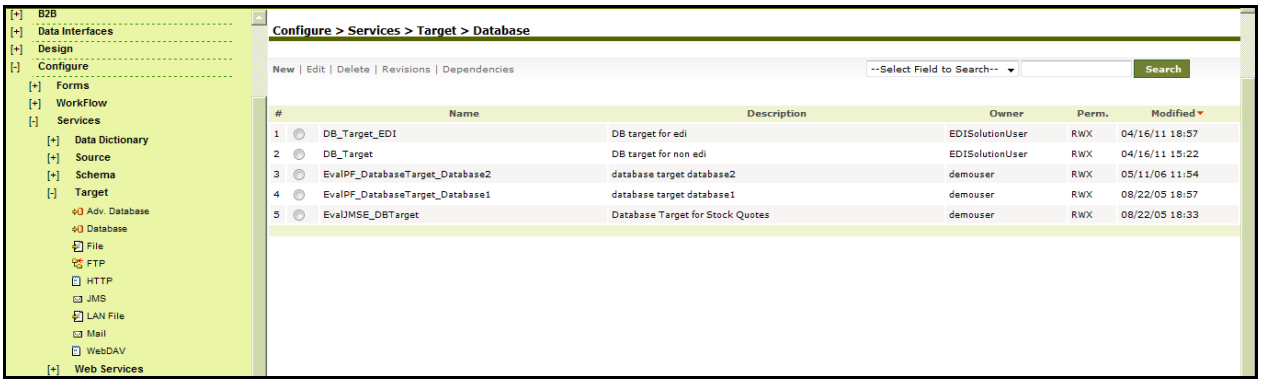


Figure 248: Manage Database Target

4. Click the **New** link. The **Create Database Target** screen is displayed (see Figure 249).

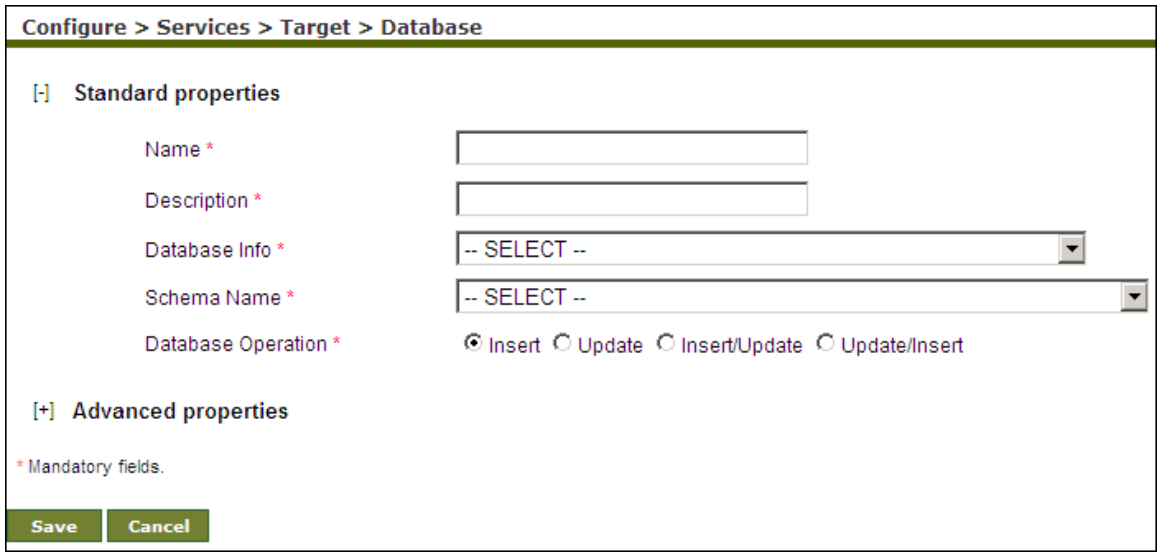


Figure 249: Create Database Target

5. Enter the name and description of the new Database Target in the textboxes **Name** and **Description** respectively.

6. Select the database info activity and database schema activity from the dropdown lists **Database Info** and **Schema Name** respectively.

To learn how to create Database Info activity, refer to *Creating Database Info* section in *Administrator Guide*. To learn how to create Database Schema activity, refer to the Creating Database Schema Activity section.

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.

7. 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 31: 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.

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.

8. Click the **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 6).
9. Enter 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 database target activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a File Target Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Target** to expand the hierarchy, and then click **File**. The **Manage File Target** screen is displayed (see Figure 250).

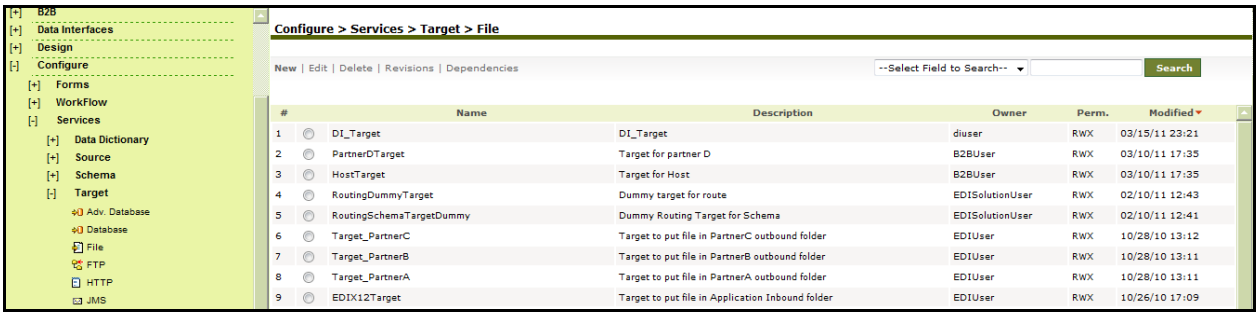


Figure 250: Manage File Target

4. Click the **New** link. The **Create File Target** screen is displayed (see Figure 251).

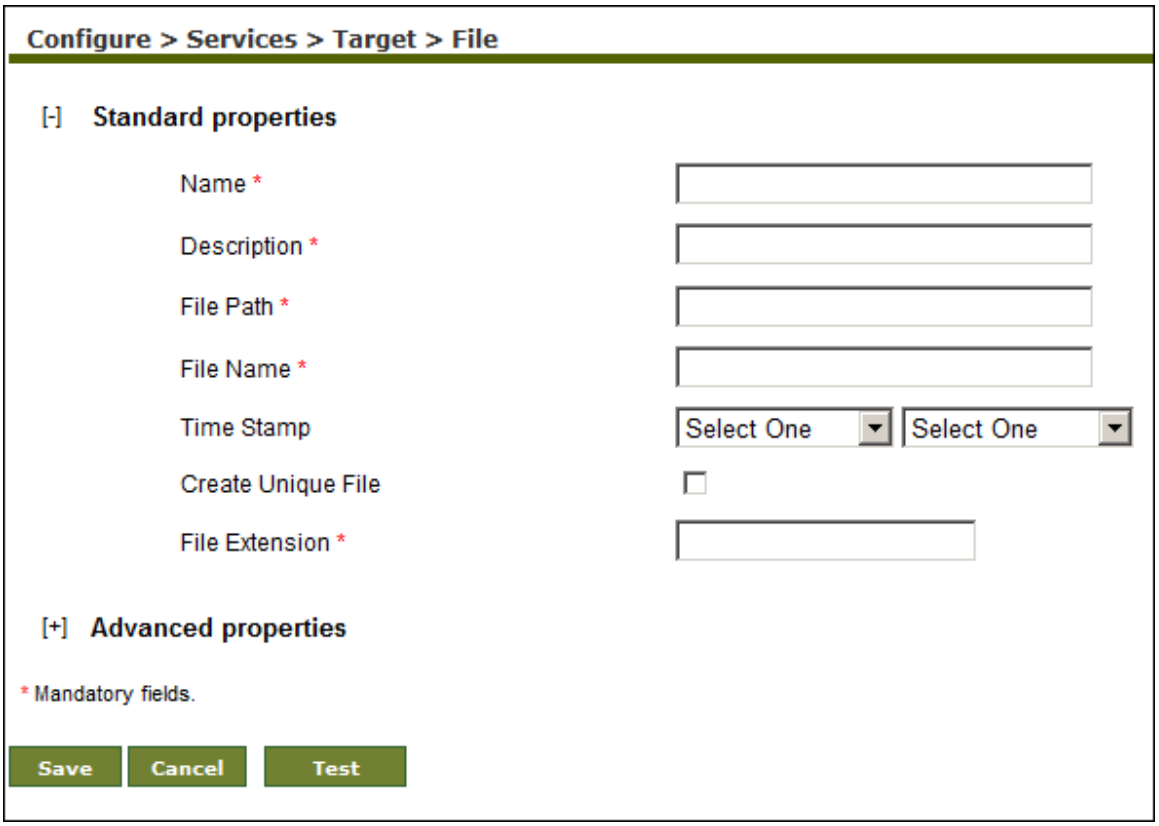


Figure 251: Create File Target

5. Enter the name and description of the new File Target in the textboxes **Name** and **Description** respectively.
6. To specify the target location, enter the full path of the target file in the textbox **File Path**.
7. Enter the name of the target file in the textbox **File Name**.
8. If you want to append date and time stamp in the target file name, then select the date and time stamp from the dropdown list **Time Stamp**.
9. If you want that each target file created by this activity should have unique name, then select the *Create Unique File* checkbox. When this option is enabled, a 30 digit random number is appended in the file name.

To learn about Advanced Properties refer to Changing Advanced Properties section.

10. Click the **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 is displayed where you need to enter comments related to creating file target (refer to Figure 6).
11. Enter comments in the textbox **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 file target activity has been created successfully.

> By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

> 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a FTP Target Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All the items in the **Services** category are displayed.

3. Click **[+] Target** to expand the hierarchy, and then click **FTP**. The Manage FTP Target screen is displayed (see Figure 252).

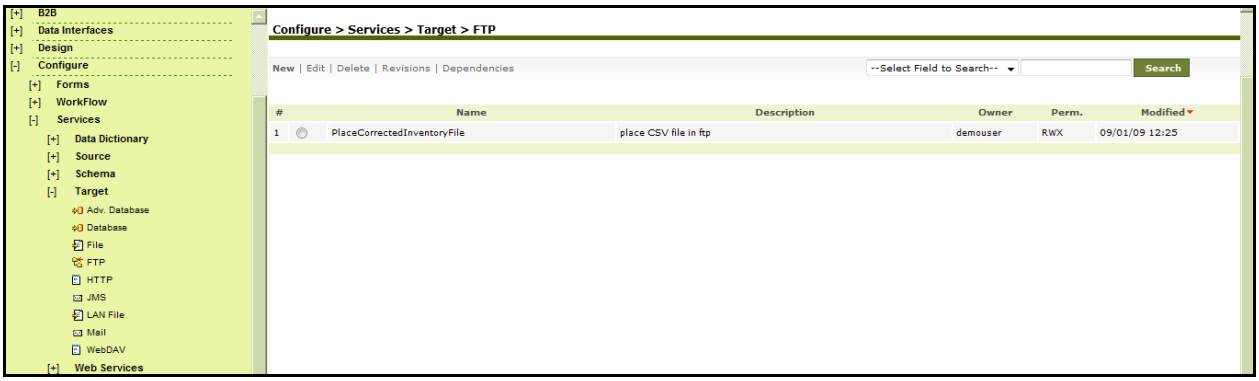


Figure 252: Manage FTP Target

4. Click the **New** link. The **Create FTP Target** screen is displayed (see Figure 253).

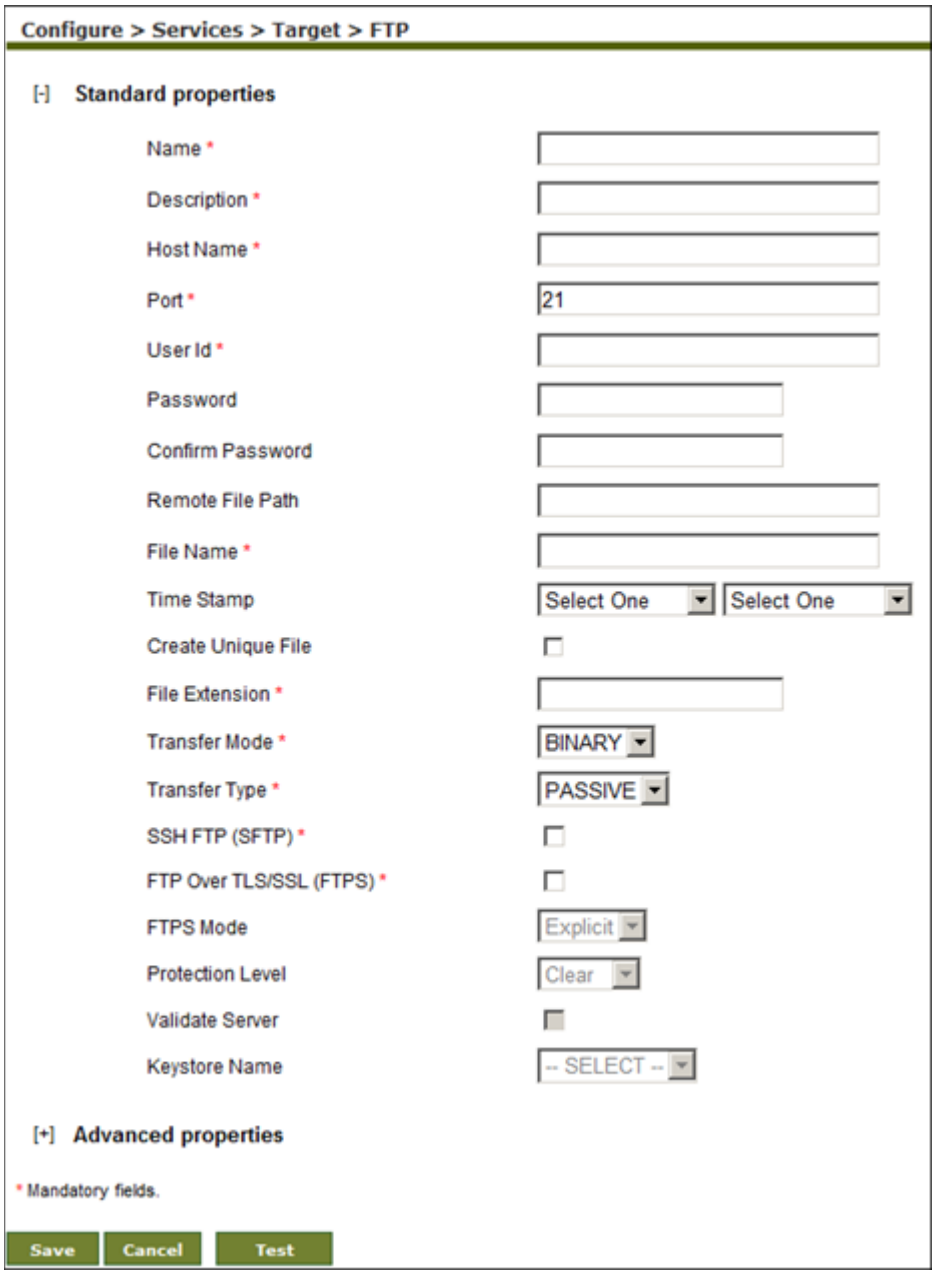


Figure 253: Create FTP Target

5. Enter the name and description of the new FTP Target in the textboxes **Name** and **Description** respectively.
6. Enter the host name/IP address and port number of the FTP Server in the textboxes **Host Name** and **Port** respectively.
7. Enter the username and password of FTP Server in the textboxes **User ID** and **Password** respectively. Then, re-enter the password in the textbox **Confirm Password** field.
8. Enter the full path of the target file in the textbox **Remote File Path**.
9. Enter the name of the target file in the textbox **File Name**.

10. If you want to append date and time stamp in the target file name, then select the date and time stamp from the dropdown lists **Time Stamp**.
11. If you want that each target file created by this activity should have unique name, then select the **Create Unique File** checkbox. When this option is enabled, a 30 digit random number is appended in the file name.
12. Select the transfer mode as either BINARY or ASCII from **Transfer Mode** dropdown 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.
13. Select the transfer type as either Active or Passive from the dropdown list **Transfer Type**. 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.
14. Select the **SSH FTP (SFTP)** checkbox if the FTP Server specified in the **Host Name** field is an FTP Server over SSH.
15. Select the **FTP Over TLS/SSL (FTPS)** checkbox, if the FTP Server, specified in the **Host Name** field is an FTP Server over TLS/SSL.
16. In case you have selected **FTP Over TLS/SSL (FTPS)**, checkbox, then select the FTPS mode from **FTPS Mode** dropdown list. It can be *Explicit* or *Implicit* depending on FTP Server that you are accessing.
17. Select the protection level supported by the FTP Server, from the **Protection Level** dropdown list. It can be *Clear* or *Private.*
18. If you want to validate the certificate sent by the FTPS Server, select the **Validate Server** checkbox.
19. Select keystore activity from the dropdown list **Keystore Name**. This option is applicable only when you have selected the **Validate Server** checkbox.

When *Validate* option is not selected, it always accepts the certificate sent by FTPS Server.

When this option is selected, it validates the certificate sent by FTPS server against the certificate imported in Keystore.

Keystore is repository of security certificates.

To know how to create Keystore and import certificates, refer to *Creating Keystore* section of *Administrator Guide*.

To learn about Advanced Properties refer to Changing Advanced Properties section.

20. Click **[+] Advanced Properties** to expand the hierarchy. All items in **Advance Properties** are displayed.

    A new dropdown list **Secured FTP Connector** has been added. This dropdown lists the API which is used to connect to the FTP Server. It has the following options:

    - J2SCH (VFS)
    - J2SSH

By default, the option **J2SCH (VFS)** is selected in this dropdown list.

In case FTP Event is not able to connect to the FTP Server which you have specified in the **HostName** field, you can select the FTP Server **J2SSH**.

However, this option is available only if you are connecting to a SFTP Server and when the checkbox **SSH FTP (SFTP)** is selected.

21. Click the **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 6).
22. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length.

23. 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 *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a HTTP Target Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Target** to expand the hierarchy, and then click **HTTP**. The *Manage HTTP Target* screen is displayed (see Figure 254).

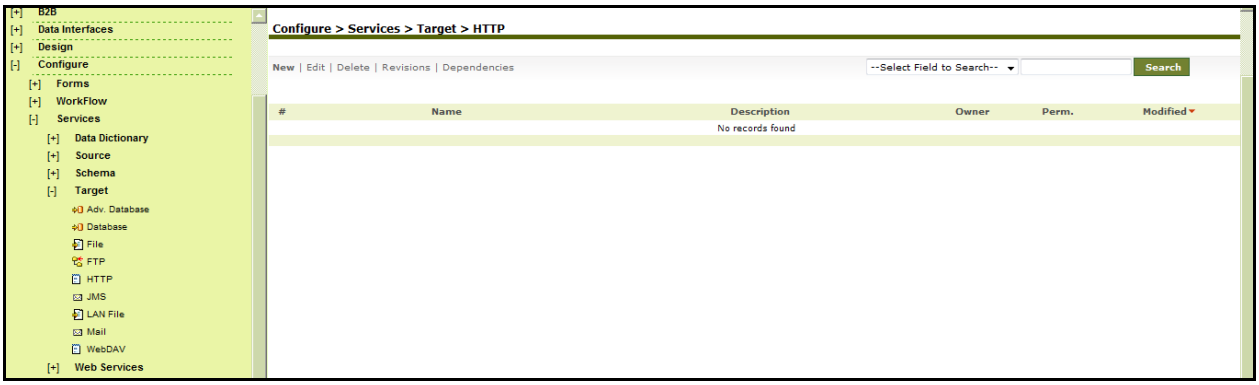


Figure 254: Manage HTTP Target

4. Click the **New** link. The **Create HTTP Target** screen is displayed (see Figure 255).

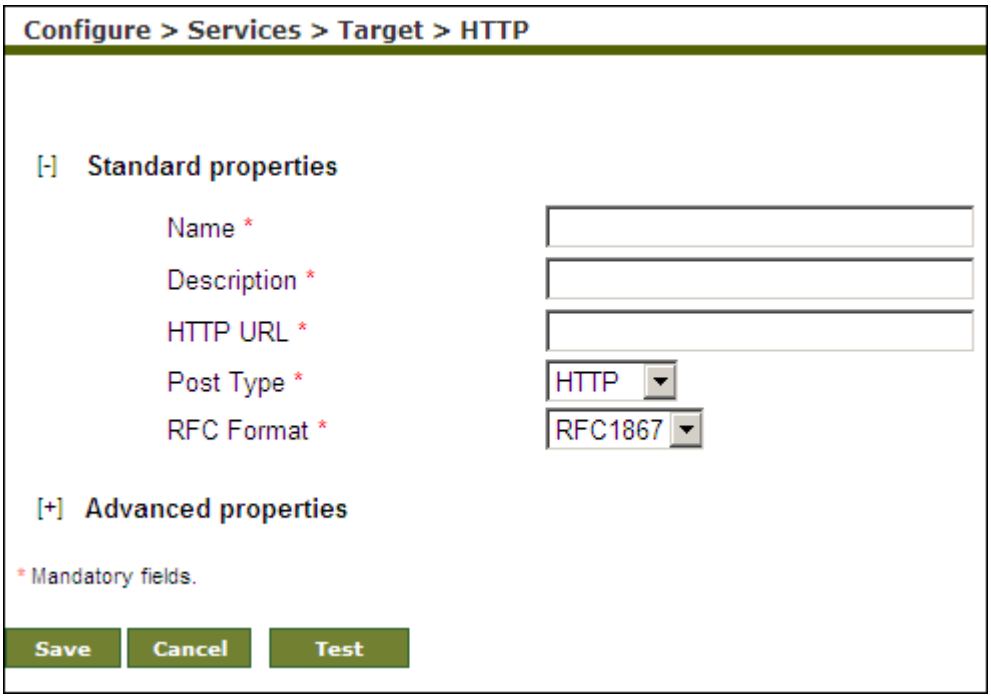


Figure 255: Create HTTP Target

5. Enter the name and description of the new HTTP Target in the textboxes **Name** and **Description** respectively.
6. Enter the URL of the target application to which you want to post the data, in the textbox **HTTP URL**. 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.

7. Select the post type whether HTTP or HTTPS from the dropdown list **Post Type**.
8. Select RFC format from the dropdown list **RFC Format**.

To learn about Advanced Properties refer to Changing Advanced Properties section.

9. Click the **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 6).
10. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length.

11. 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 *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Prerequisites

- JMS Provider activity must be created before creating JMS Target activity.

Steps to create a JMS Target Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Target** to expand the hierarchy, and then click **JMS**. The **Manage JMS Target** screen is displayed (see Figure 256).

Figure 256: Manage JMS Target

4. Click the **New** link. The **Create JMS Target** screen is displayed (see Figure 257).

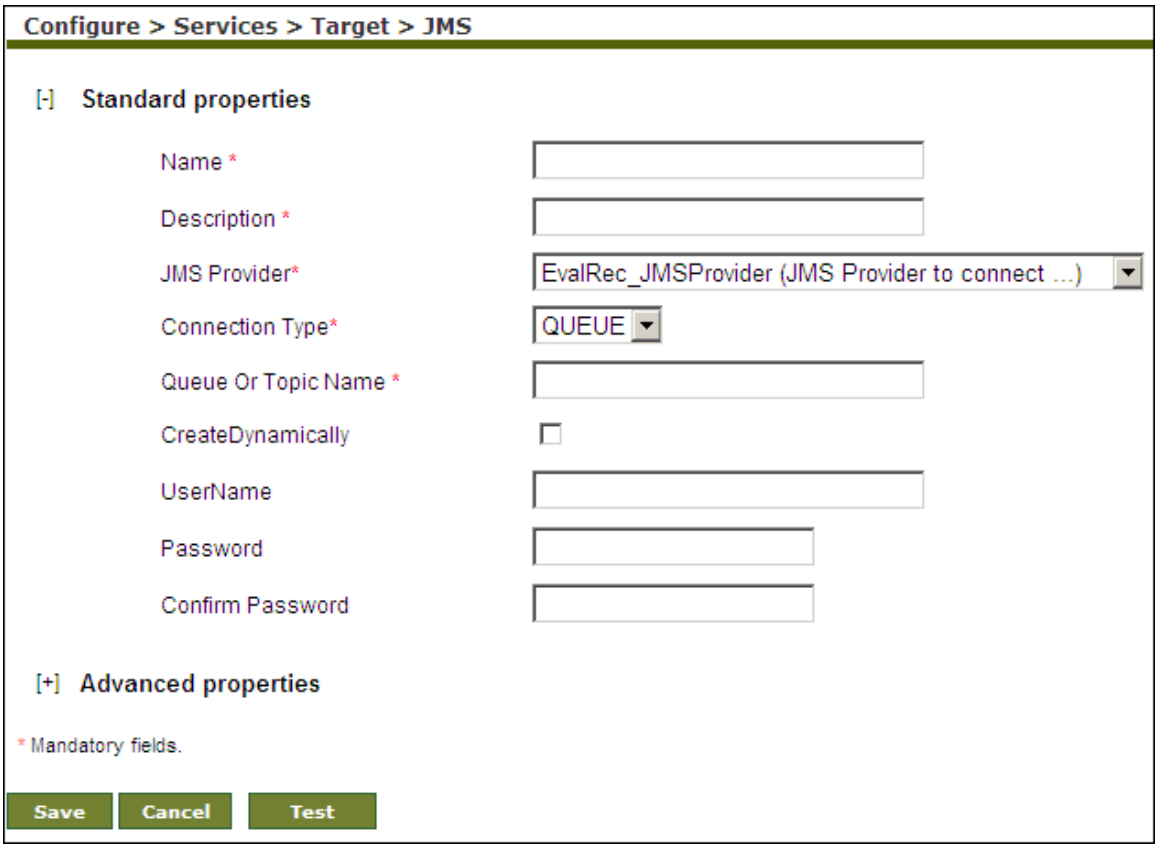


Figure 257: Create JMS Target

5. Enter the name and description of the new JMS Target in the textboxes **Name** and **Description** respectively.

6. Select the JMS Provider activity from the dropdown list **JMS Provider**.

To learn how to create JMS Provider activity, refer to the *Creating JMS Provider Activity* section in *Administrator Guide*.

7. Select the connection type as either queue or topic from the dropdown list **Connection Type**.
8. Enter the name of queue or topic as configured in the JMS Server in the textbox **Queue Or Topic Name**.
9. Select the **Create Dynamically** checkbox, if queue or topic specified above, doesn't already exist on the JMS Server. If you enable create dynamically checkbox, it will create the queue or topic specified above on the JMS Server.
10. Enter the username and password required to connect to JMS Server in the textboxes **UserName** and **Password** respectively. Then, re-enter the password in the textbox **Confirm Password**.

> To learn about Advanced Properties refer to Changing Advanced Properties section.

11. Click the **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 6).
12. Enter comments in the textbox **Add Comments**.

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

13. 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 *Updating System Properties* section in *Administrator* Guide.

> 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a LAN File Target Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Target** to expand the hierarchy, and then click **LAN File**. The **Manage LAN File Target** screen is displayed (see Figure 258).

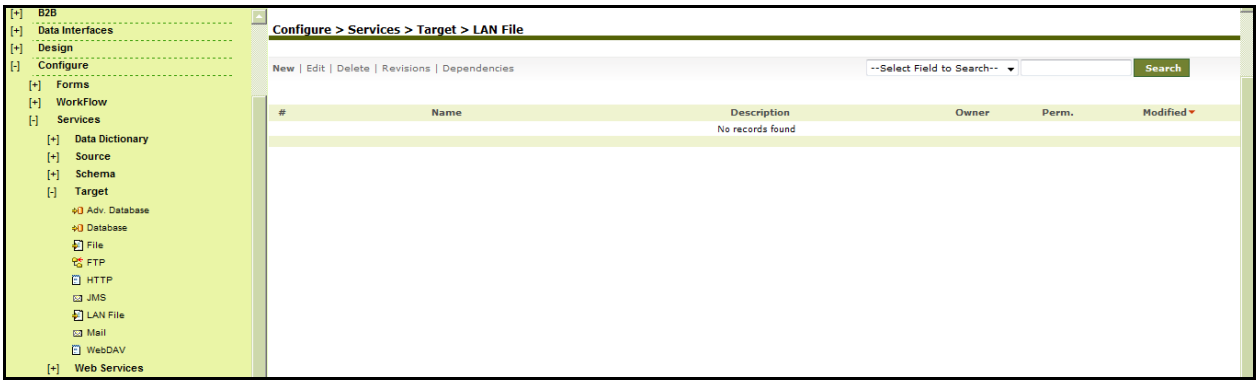


Figure 258: Manage LAN File Target

4. Click the **New** link. The **Create LAN File Target** screen is displayed (see Figure 259).

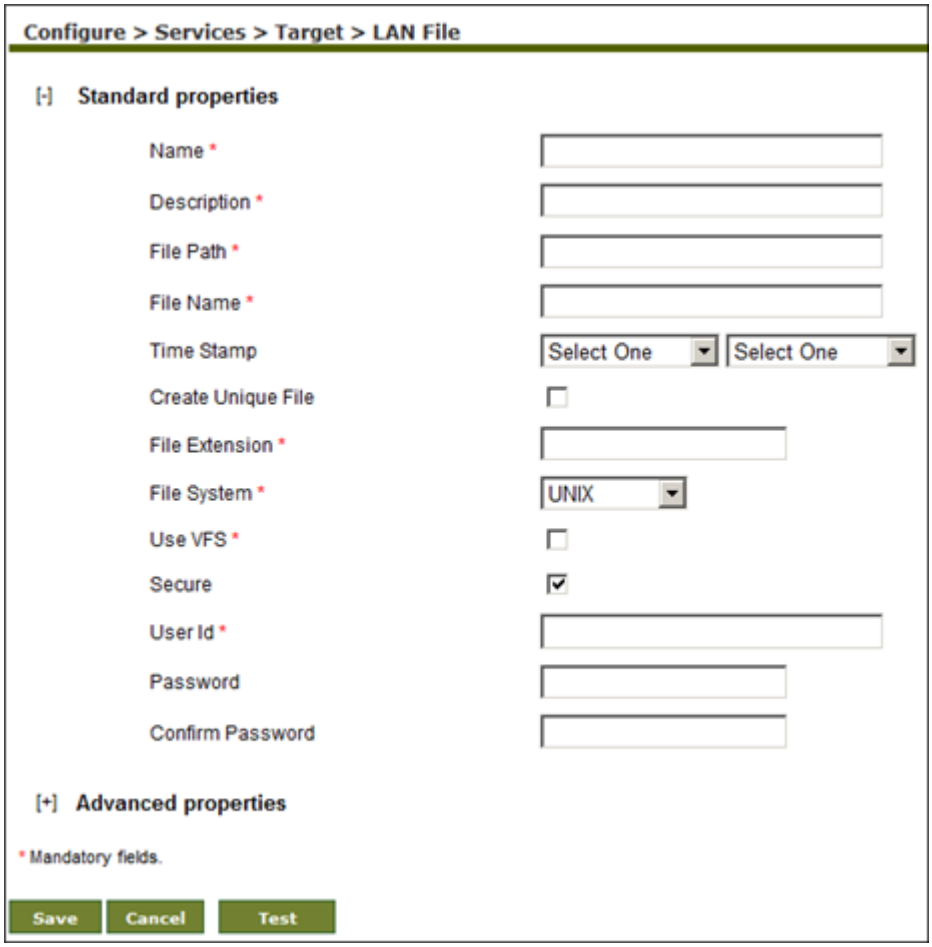


Figure 259: Create LAN File Target

5. Enter the name and description for the new LAN File Target in the textboxes **Name** and **Description** fields respectively.

6. Enter the network path of the folder where you want the target file to be created in the textbox **File Path** field in the following format:

\\hostname\folder name

7. Enter the name of target file in the textbox **File Name**.
8. If you want to append date and time stamp in the target file name, then select the date and time stamp from the dropdown lists **Time Stamp**.
9. If you want that each target file created by this activity should have unique name, then select the **Create Unique File** checkbox. When this option is enabled, a 30 digit random number is appended in the file name.
10. Select the target file system, whether Windows or Unix from the dropdown list **File System**.
11. When Adeptia Suite 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, select the **Use VFS** checkbox.
12. If username and password is required to access the target location, select the **Secure** checkbox.
13. Enter the username and password in the textboxes **User ID** and **Password** fields respectively. Then re-enter the password in the textbox **Confirm Password**.

To learn about Advanced Properties refer to Changing Advanced Properties section.

14. Click the **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 6).
15. Enter 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 LAN file target activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a Mail Target Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Target** to expand the hierarchy, and then click **Mail**. The **Manage Mail Target** screen is displayed (see Figure 260).

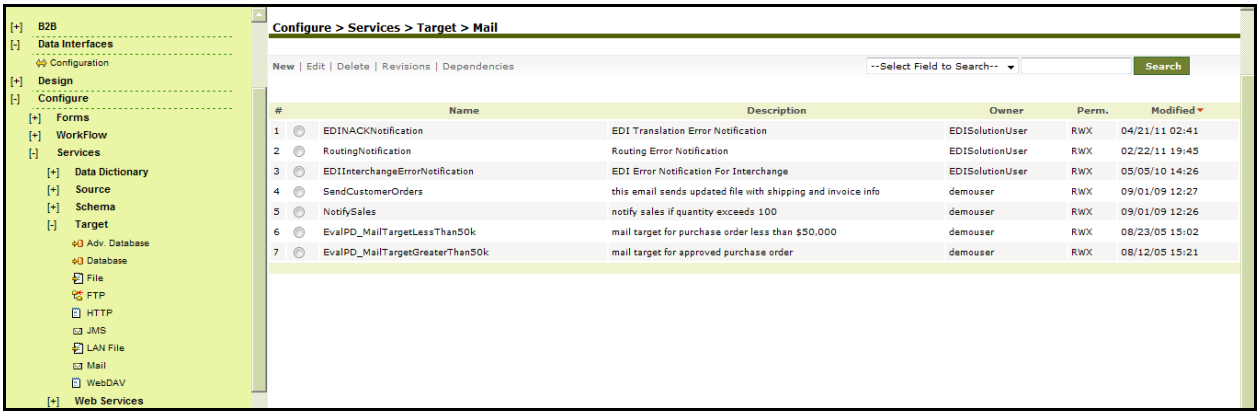


Figure 260: Manage Mail Target

4. Click the **New** link. The **Create Mail Target** screen is displayed (see Figure 261).

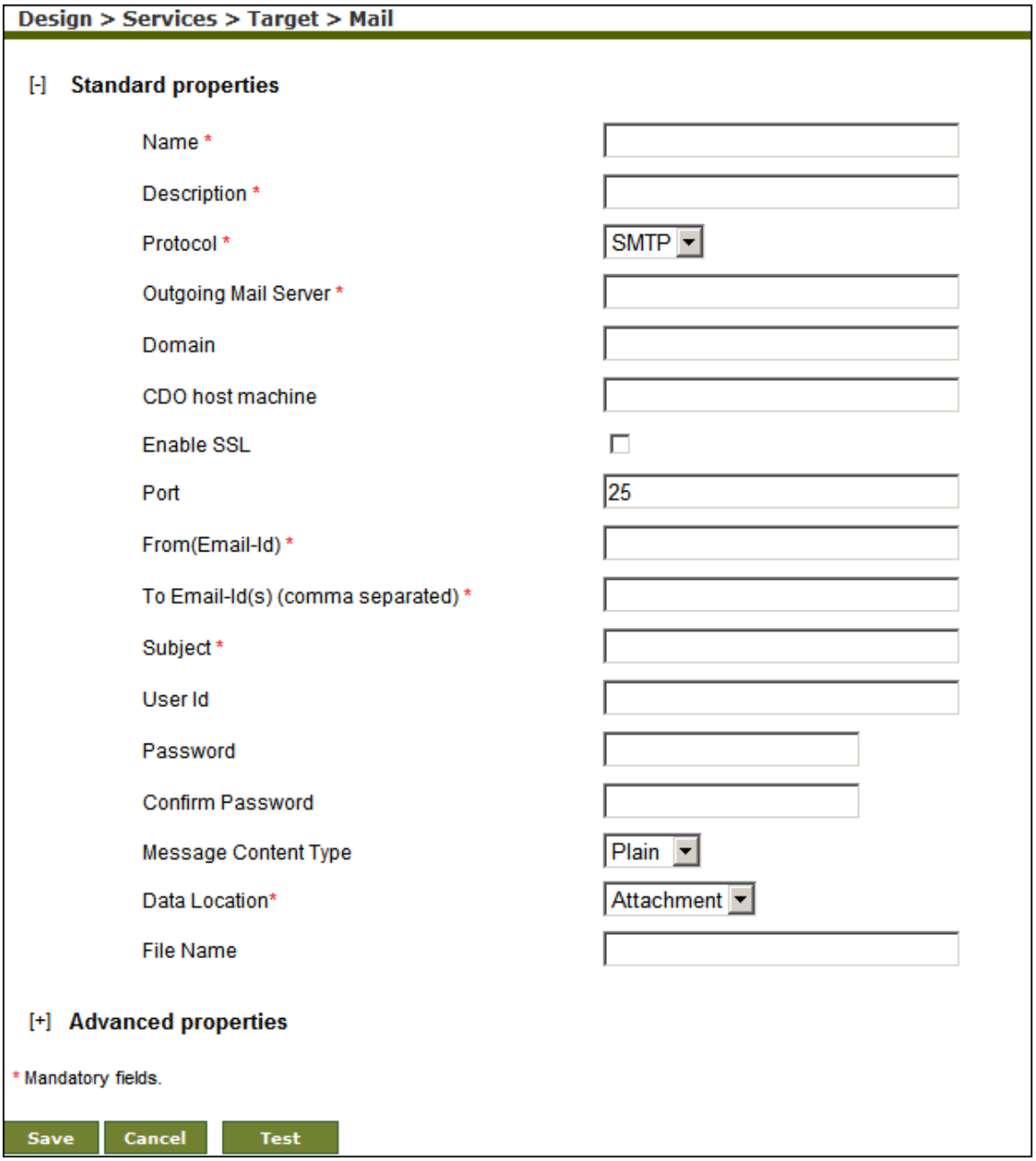


Figure 261: Create Mail Target

5. Enter the name and description of the new Mail Target in the textboxes **Name** and **Description** respectively.
6. Select the Internet standard protocol to be used for sending outgoing mails, from the dropdown list **Protocol**. 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.
7. Enter the outgoing mail (SMTP) Server address in the textbox **Outgoing Mail (SMTP) Server**.

To access mails from Microsoft Exchange Server use *MAPI* in *Protocol* dropdown list. To connect Adeptia Suite 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* dropdown list.

If *MAPI* is selected in *Protocol* dropdown 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/.

8. Select the **Enable SSL** checkbox, if the specified outgoing mail server requires a secure connection.
9. Enter the port of Outgoing Mail Server in the *textbox* **Port**.
10. Enter the sender's Email-Id in the textbox **From (Email-Id)**.
11. Enter the Email-Id(s) of the email recipients separated by commas in the textbox **To Email-Id(s) (comma separated)**.
12. Enter the subject of Target email in the textbox **Subject**.
13. Enter the username and password of Mail Server in the textboxes **User ID** and **Password** respectively. Then, re-enter the password in the textbox **Confirm Password**.
14. Select the content type of the outgoing message (as Plain or HTML) from the dropdown list **Message Content Type**.

The 'Successful' count can be greater than the 'Submitted' count in case of "Update" or "Delete" operation.

15. Select the location of data in the mail whether it is to be sent as an attachment or in email body from the dropdown list **Data Location**.
16. If the data is to be sent as attachment, enter the name of the file in the textbox **File Name**.

To learn about Advanced Properties refer to Changing Advanced Properties section.

17. Click the **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 6).
18. Enter 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 mail target activity has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create WebDAV Target Activity:

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Target** to expand the hierarchy, and then click **WebDAV**. The **Manage WebDAV Target** screen is displayed (see Figure 262).

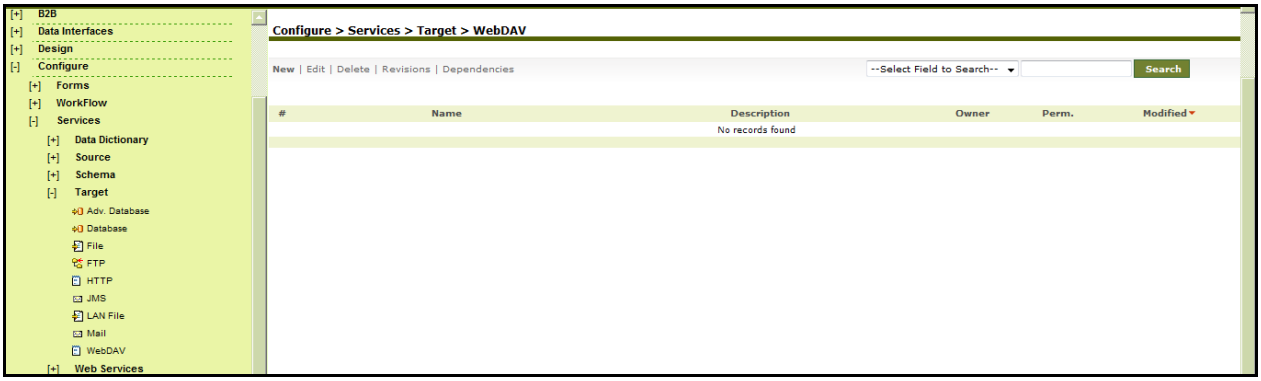


Figure 262: Manage WebDAV Target

4. Click the **New** link. The **Create WebDAV Target** screen is displayed (see Figure 263).

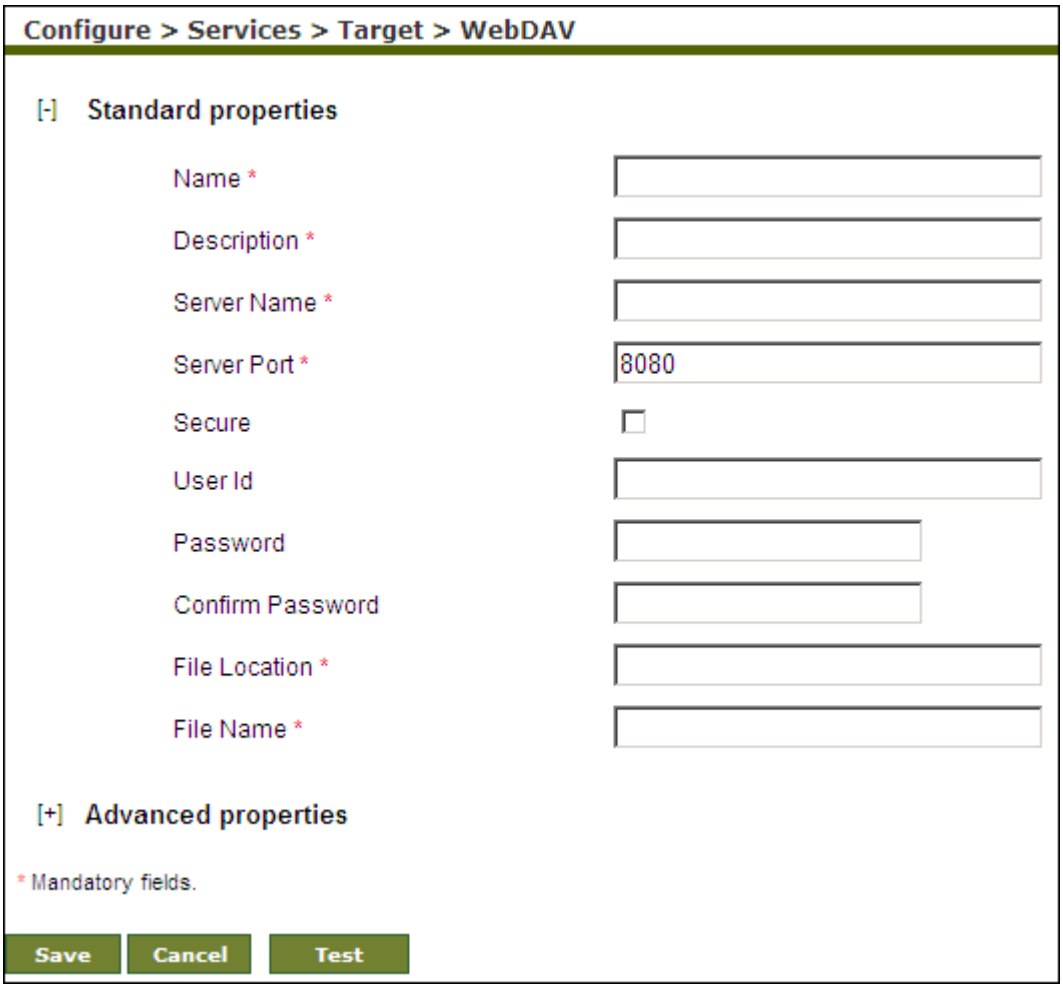


Figure 263: Create WebDAV Target Activity

5. Enter the name and description of the new WebDAV target in the textboxes **Name** and **Description** fields.
6. Enter the name of WebDAV Server and port on which WebDAV Server is running in the textboxes **Server Name** and **Server Port** respectively.
7. If the WebDAV is secured i.e. username and password is required to access it, then select the **Secure** checkbox and enter the username and password of the WebDAV Server in the textboxes **User ID** and **Password** respectively.

> If you are using WebDAV Server, which is built in with Adeptia Suite, the default Username is "Administrator" and the password is "indigo".

8. Re-enter the password in the textbox **Confirm Password**.
9. Enter the path of the target file in the textbox **File location**.
10. Enter the name of the target file in the textbox **File Name**.

Directory specified in the File location field, must be available in the WebDAV repository.

To learn about Advanced Properties refer to Changing Advanced Properties section.

11. Click the **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 6).
12. Enter 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 WebDAV target activity has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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.

8

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a Security Policy Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Web Services** to expand the hierarchy, and then click **Security Policy**. The **Manage Security Policy** screen is displayed (see Figure 264).

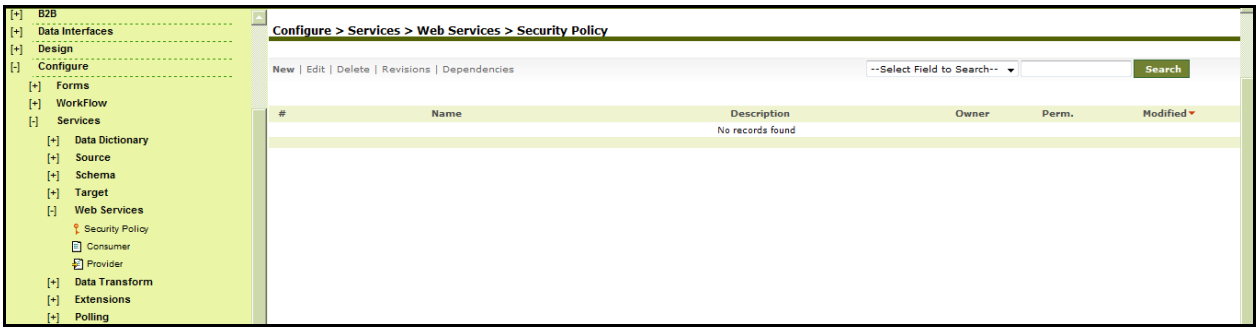


Figure 264: Manage Security Policy

4. Click the **New** link. The **Create Security Policy** screen is displayed (see Figure 265).

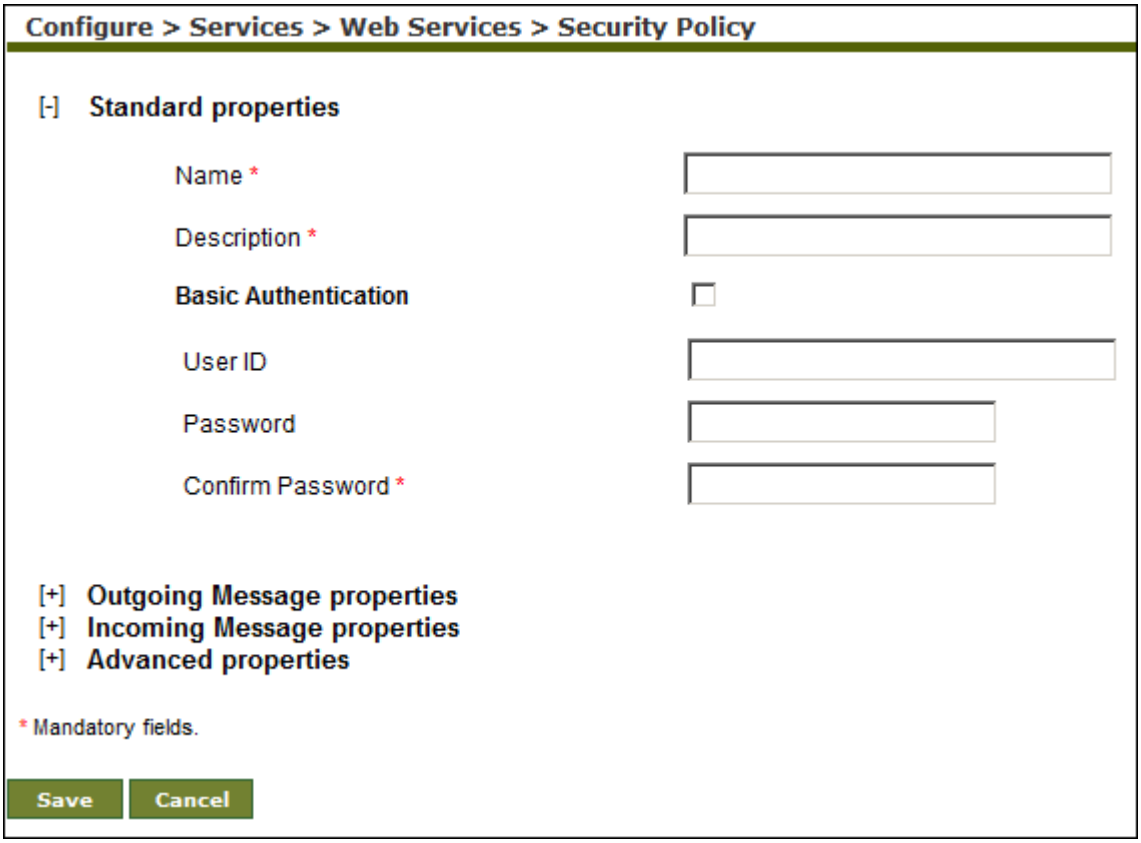


Figure 265: Create Security Policy

5. Enter the name and description of the new Security Policy in the textboxes **Name** and **Description** respectively.

6. To use basic authentication, select the **Basic Authentication** checkbox and enter the user ID and password in the textboxes **User ID** and **Password** respectively. Enter the password in the textbox **Confirm Password**.

7. To define message level security (WS-Security) for outgoing message, expand **Outgoing Message Properties** (see Figure 268).

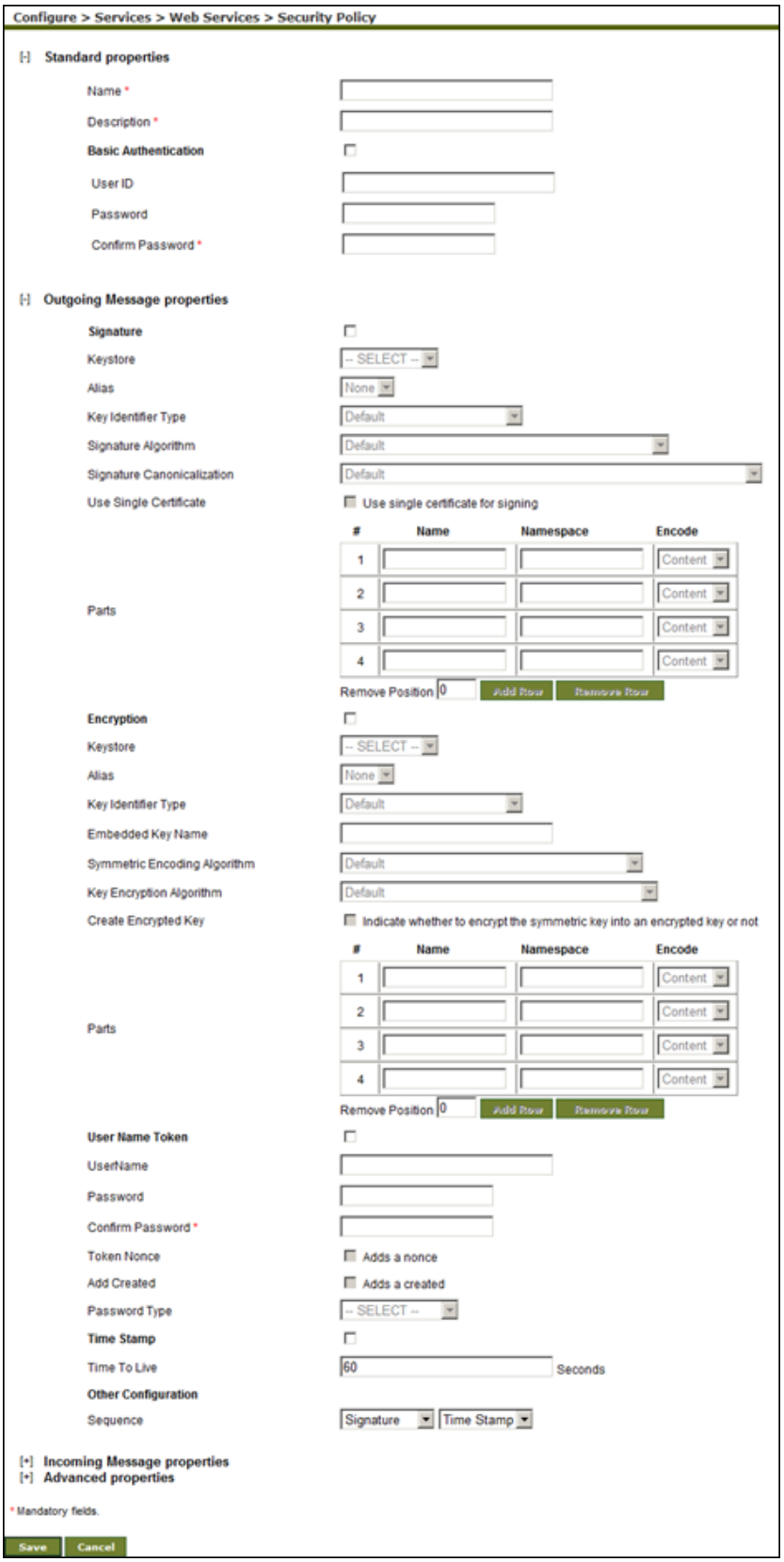


Figure 266: Define Message Level Security for Outgoing Message

8. You can use one or more following options:

Signature:

Signs outgoing message content. Specify which Keystore to use and the desired alias/password. The parts table allows you to selectively sign only subsets of the message content (if left empty the entire message will be encrypted). To sign the parts of the message you need to specify the name or namespace of the element to be signed.

Encryption:

Encrypts outgoing message content. Specify which Keystore to use and the desired alias/password. The parts table allows you to selectively sign only subsets of the message content (if left empty the entire message will be encrypted). To encrypt the parts of the message you need to specify the name or namespace of the element to be encrypted

User Name Token:

Adds a Username Password token to the outgoing message, specify the username and password to use and if nonce/created should be added. The Password Type dropdown selects how the password should be serialized in the message.

Time Stamp:

Adds a Timestamp token to the outgoing message with the specified Time To Live value.

Configure Signature:

a. To configure signature, select the **Signature** checkbox.
b. Select the Key store from the Key Store dropdown list and define the following property in the respective fields.
   - **Alias** (This should be same as defined in *Alias* field in the Keystore)
   - **Key Identifier Type** (You can use *Binary Security Token* or X509 Certificate).
   - **Signature Algorithm** (This should be same as defined in the *Key Algorithm* field in the Keystore)
   - **Signature Canonicalization**
   - **Use Single Certificate** (Adeptia Suite always uses Single Certificate.)
c. To define the parts to be signed, enter the name and its namespace in the *Name* and *Namespace* field respectively.
d. Select whether you want to sign the *Content* or *Element* from the *Encode* dropdown list.

In case you do not define any part, whole message is signed.

Configure Encryption:

a. To encrypt the message, select the **Encryption** checkbox.
b. Select the Keystore from the **Key Store** dropdown list.

While using encryption, select the keystore with ***RSA*** key algorithm only.

c. Enter the following property in the respective fields.
   - **Alias** (This should be same as defined in *Alias* field in the Keystore)
   - **Key Identifier Type** (You can use *Binary Security Token* or X509 Certificate).

- Embedded Key Name (Keep it empty.)
- **Symmetric Encoding Algorithm**
- **Key Encryption Algorithm**
- **Create Encrypted Key**
- **Encryption Canonicalization**

d. To define the parts to be encrypted, enter the name and its name space in the **Name** and **Namespace** field.
e. Select whether you want to encrypt the Content or Element from the **Encode** dropdown list.

Configure Username Token

a. To add user name token, select the **User Name Token** checkbox and define the following properties in the respective fields.
   - **User Name**
   - **Password**
   - **Confirm Password**
   - **Token Nonce**
   - **Add Created**
   - **Password Type**

Configure Time Stamp

a. To add Time Stamp with the message select the **Time Stamp** checkbox and enter the time (in seconds) in Time To Live field.

b. To define message level security (WS-Security) for incoming message expand **Incoming Message Properties** and select the **Incoming Message** checkbox (see Figure 267).

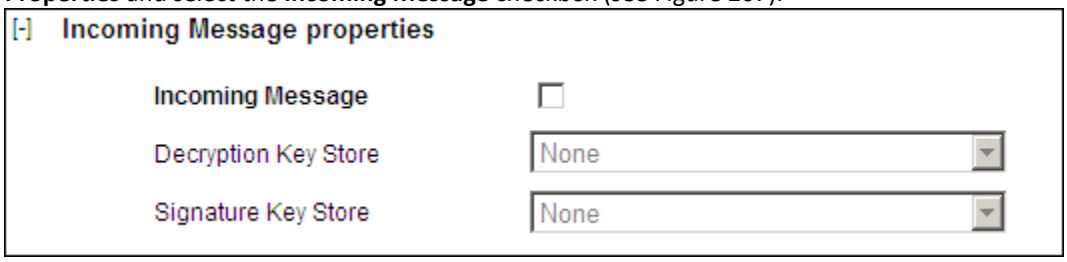


Figure 267: Define Message Level Security for Incoming Message

c. Select the keystore to decrypt the incoming message from the **Decryption Key store**.
d. To receive the singed message, select the keystore from the **Signature Keystore** field.

To learn about Advanced Properties refer to Changing Advanced Properties section.

9. 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 6).
10. Enter 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 security policy has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

A Web Service can be located in two ways, explained in the table below.

Table 32: 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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Web Services** to expand the hierarchy, and then click **Consumer**. The **Manage Consumer** screen is displayed (see Figure 268).

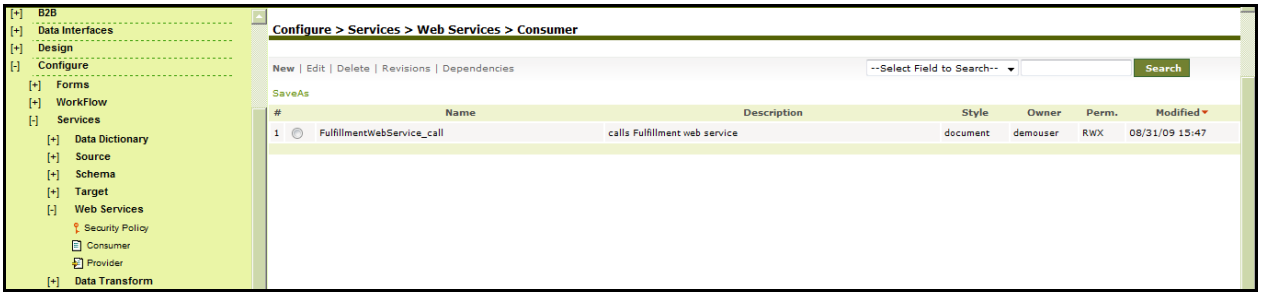


Figure 268: Manage Web Service Consumer Activity

4. Click the **New** link. The **Create Web Service Consumer** screen is displayed (see Figure 269).

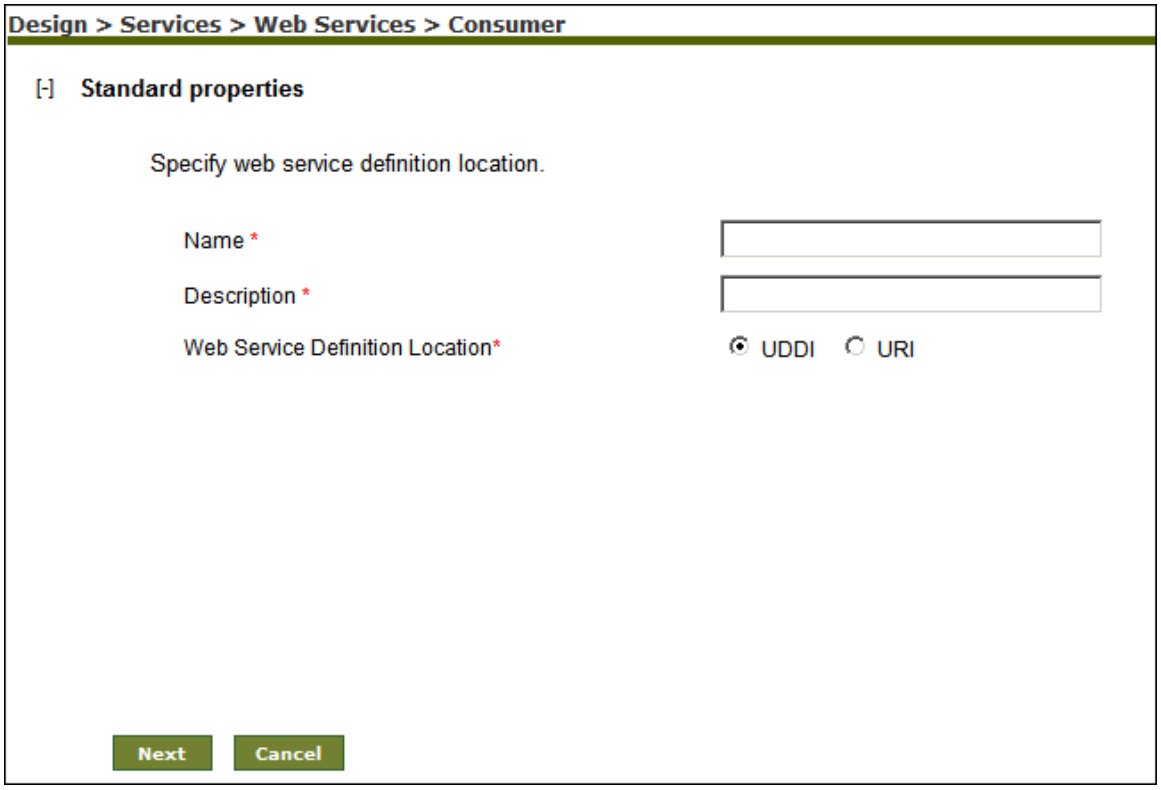


Figure 269: Create Web Service Consumer Activity

5. Enter the name and description of the new Web Service Consumer activity in the textboxes **Name** and **Description** respectively.
6. Select the radio button **UDDI** as the 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.

7. Click the **Next** button. The **Web Service Consumer** screen is displayed (see Figure 270).

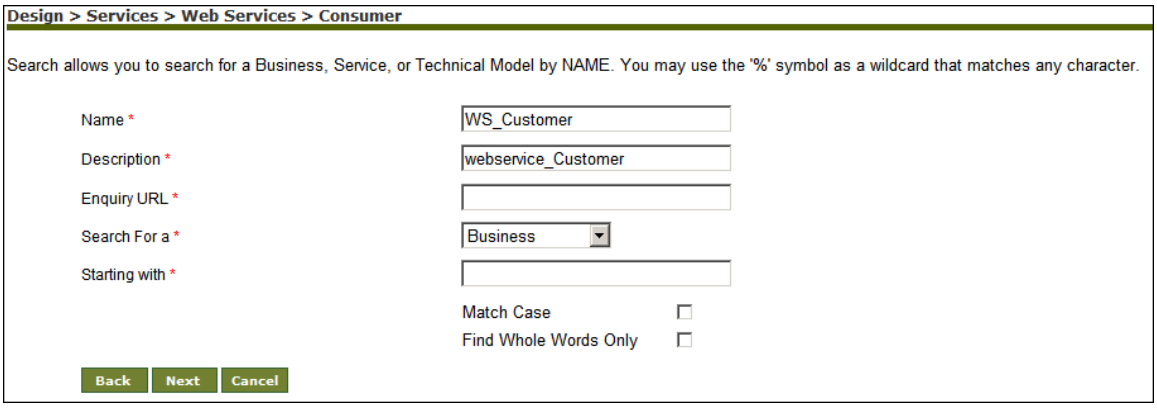


Figure 270: Search a Web Service

8. Enter the URL of UDDI search site in the textbox **Enquiry URL** field.

   For example, http://uddi.microsoft.com/inquire

9. Select the required category from the dropdown list **Search For a**.
10. Enter the relevant letter or word in the textbox **Starting with**.
11. You can select the **Match Case** and the **Find Whole Words only** checkbox to filter the search result.
12. Click the **Next** button. A screen is displayed with the search result (see Figure 271).

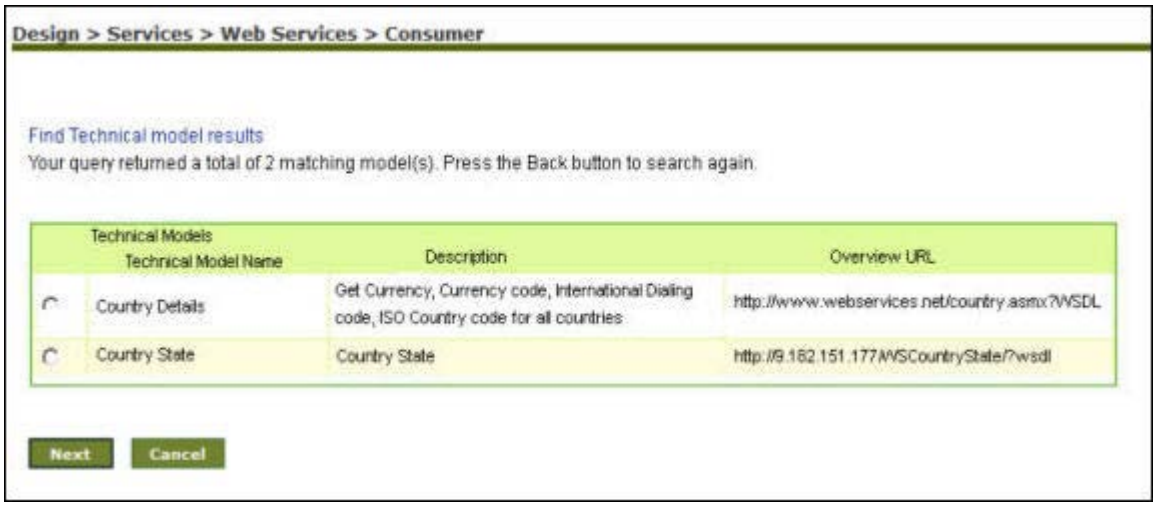


Figure 271: Web Service search result

13. Select the required search result and click the **Next** button. The **Web Service** screen is displayed with list of operations (see Figure 272).

Figure 272: Select Web Service Operation

14. Select the name of Service from the dropdown list **Service Name**.
15. Select the port type from the dropdown list **Port Type**. A port type can support multiple ports. This selection populates the options in the dropdown list **Ports**.
16. Select the port for the selected port type from the dropdown list **Ports**.

> Currently, the Soap12 port is not supported by Adeptia.

17. Select the required operation from the textbox **Operation(s)**. This selection automatically displays the style name in the textbox **Style Name**.

> 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.

18. Click the **Next** button. The **Web Service Consumer** screen is displayed (see Figure 273).

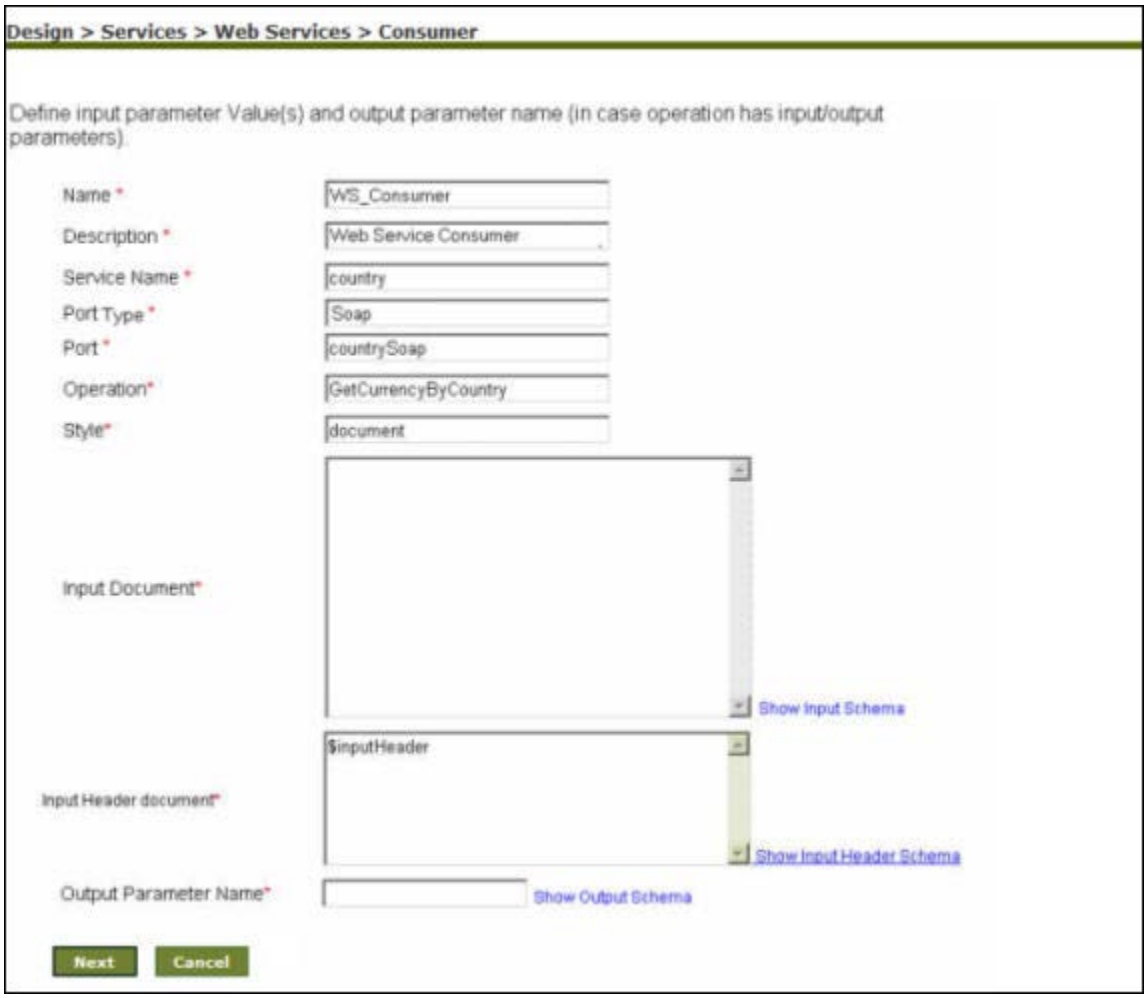


Figure 273: Enter Input XML

19. Enter the Input XML in the textbox **Input Document**. 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 33: 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 *Input Document* field. To view sample XSD, click **Show Input Schema** link. The sample input schema is displayed. Do not paste this schema in the *Input Document* field.
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 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.

20. 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.

21. 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.

- The WS Header element supports multiple headers.
- Header is optional it may be there in some operations or may not be there in other.
- If there is any fault as an output of web service call, it sets as “Output Parameter Name” + “Fault” in the process context.
- Web service response may also have header. The header is set into context with variable “output Parameter Name” +“Header”.

22. Enter relevant context variable in the **Output Parameter Name** field. Web Service stores the output in this context variable.

23. Click the **Next** button. The **Select Security Policy** screen is displayed (see Figure 274).

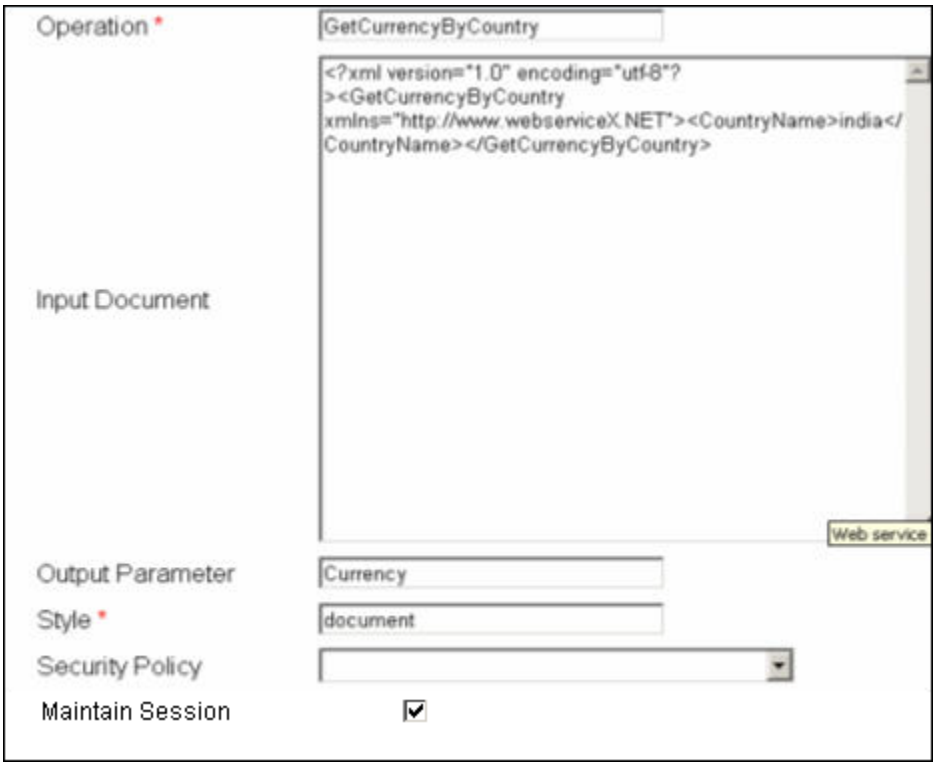


Figure 274: Select Security Policy

24. Select the Security Policy activity from the dropdown list **Security Policy**.

25. Select the **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 Changing Advanced Properties section.

26. Click the **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 6).

27. Enter comments in the textbox **Add Comments**.

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

28. 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 *Updating System Properties* section in *Administrator* Guide.

Creating Web Services Consumer Activity using URI

Steps to create a Web Service Consumer Activity using URI

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Web Services** to expand the hierarchy, and then click **Consumer**. The **Manage Consumer** screen is displayed (refer to Figure 268).
4. Click the **New** link. The **Create Web Service Consumer** screen is displayed (refer to Figure 269).
5. 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 textbox **Description**.
6. Select URI in *Web Service Definition Location*. The **Web Service Consumer** screen is displayed (see Figure 275).

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.

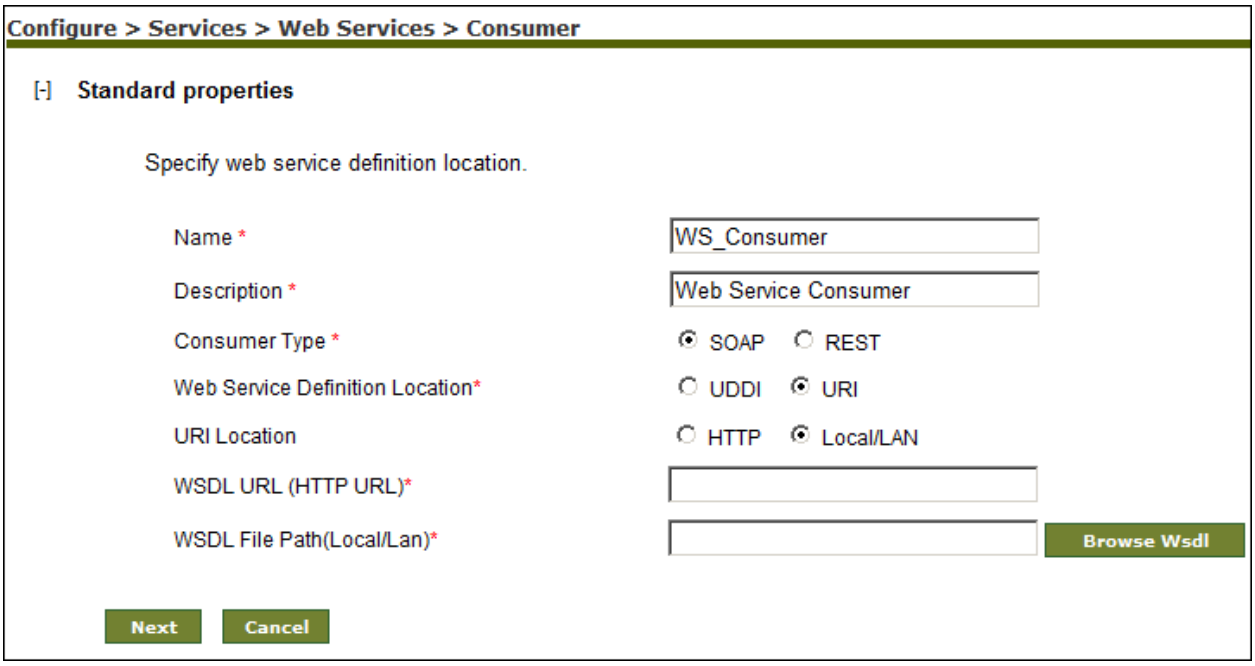


Figure 275: Locate WSDL

7. Select the consumer type from *Consumer Type* radio button.

- Consumer Type can be either *SOAP* or *REST.*
- Select *SOAP,* when you want to access any SOAP based Web Service.

- Select *REST*, when you want to access any RESTful Web Service.

To know how to create a Web Service Consumer activity to access any RESTful Web Service, refer to section Creating Web Service Consumer activity for RESTful Web Service.

8. Select the location of URI.

In the URI Location, select:

- HTTP, if the WSDL file is located on an HTTP Site.
- LocalLAN, if the WSDL file is located Local LAN.

9. Click the **Browse Wsdl** button. This displays the **Upload Wsdl file** screen (see Figure 276).

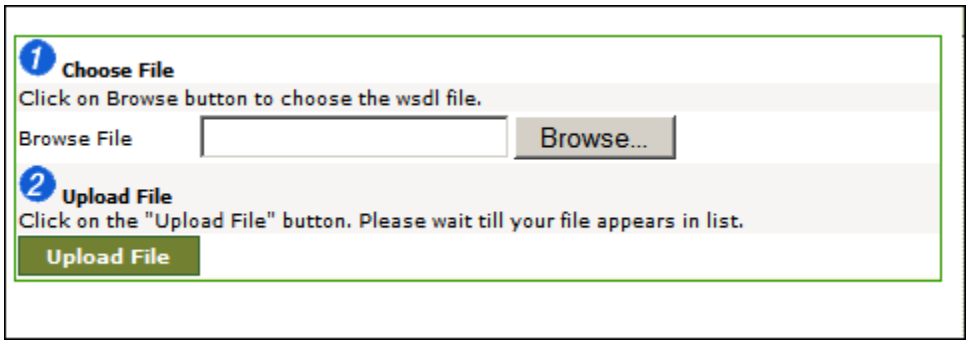


Figure 276: Upload WSDL File

10. Click **Browse** to select the wsdl file. Then click **Upload File** button. This uploads the file and displays it in the textbox **WSDL File Path** in the **Web Consumer** screen (see Figure 277).

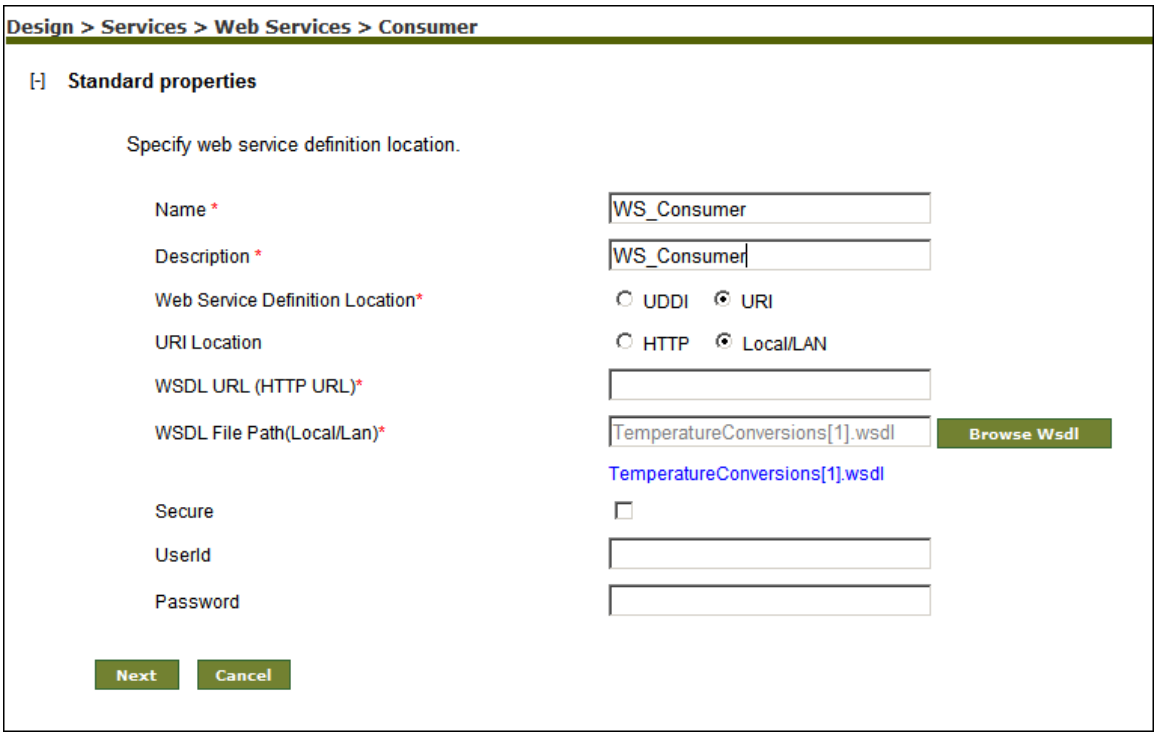


Figure 277: Uploaded WSDL File

11. Select 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.

12. Click the **Next** button. The **Web Consumer** screen is displayed (see Figure 278).

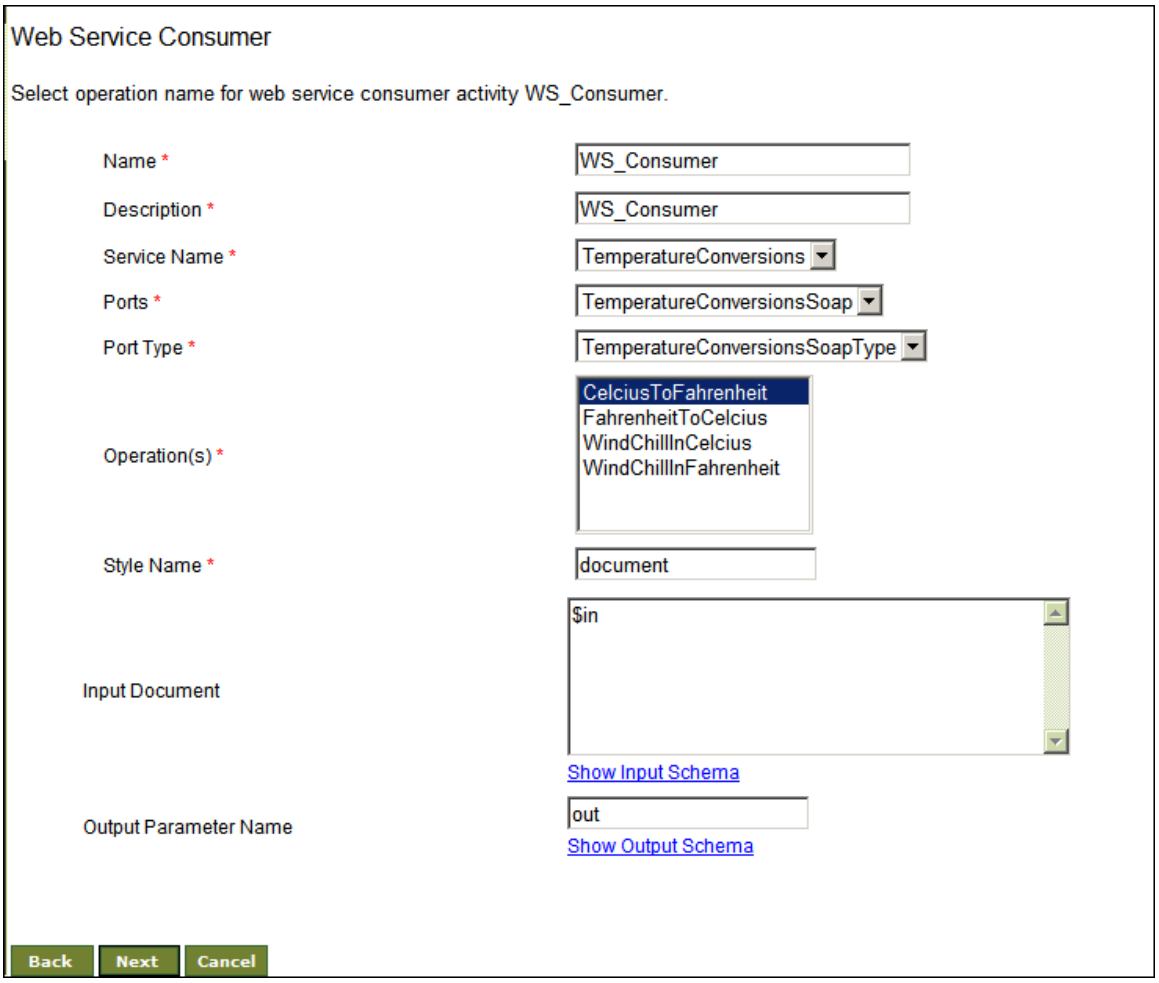


Figure 278: Select Web Service Operation

13. Select the name of Service from the dropdown list **Service Name**.
14. Select the port type from the dropdown list **Port Type**. A port type can support multiple ports. This selection populates the options in the **Ports** dropdown list.
15. Select the port for the selected port type from the **Ports** dropdown list.
16. Select the required operation from the dropdown list **Operation(s)**. This selection automatically displays the style name in the dropdown list **Style Name**.

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.

17. Select required operation in the dropdown list **Operation**.
18. Click the **Next** button. The **Web Service Consumer** screen is displayed (see Figure 279).

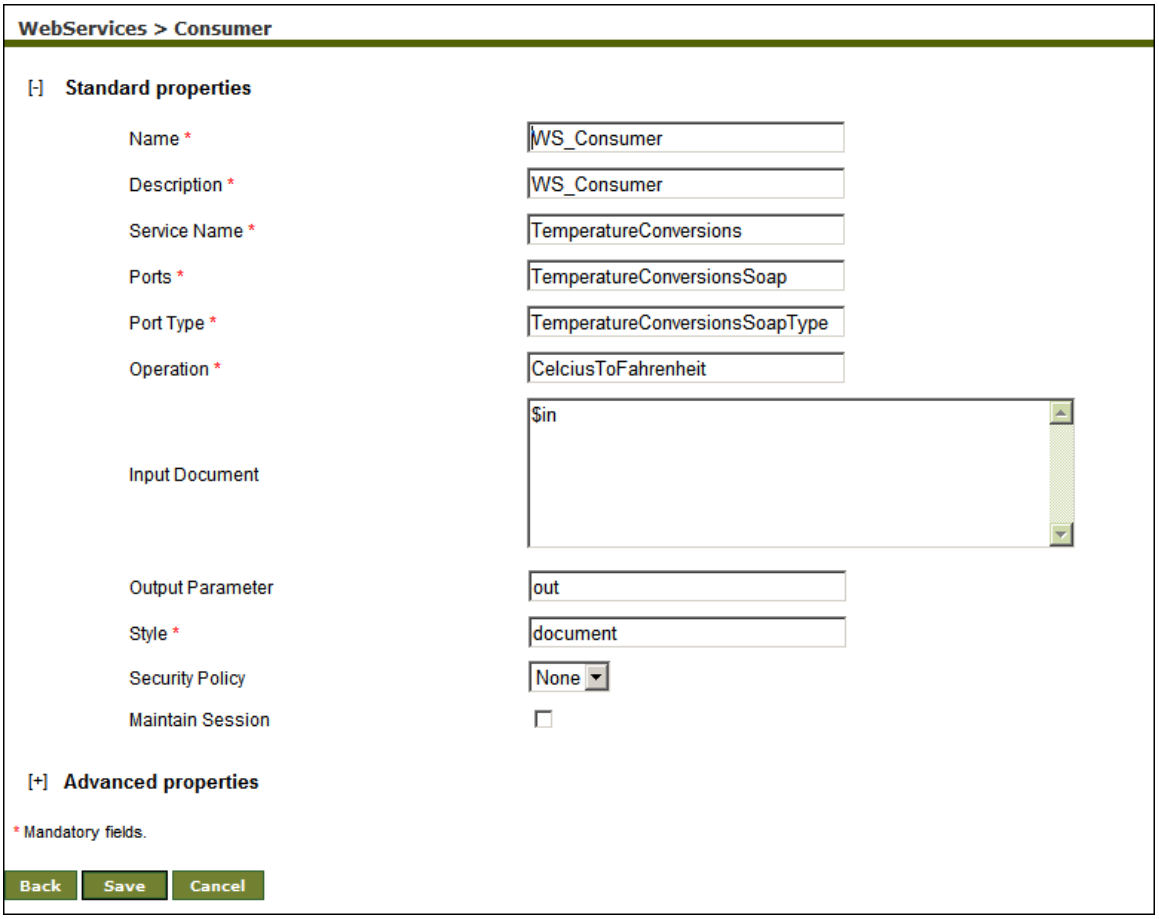


Figure 279: Enter Input and Output Parameters

19. Enter the input value in the textbox **Input Parameter Value**. 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 34: 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.

20. 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.

21. Enter relevant variable in the **Output Parameter Name** field.

Do not prefix $ with the variable name defined in *Output Parameter Name* field.

22. Select the required Security Policy activity from the **Security Policy** dropdown list.

To learn about Advanced Properties refer to Changing Advanced Properties section.

23. Click the **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 6).
24. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length.

25. 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 *Updating System Properties* section in *Administrator* Guide.

Creating Web Service Consumer Activity to Access RESTful Web Service

Steps to create Web Service Consumer activity for RESTful Web Service

1. In create Web Service Consumer page, select REST radio button (see figure).

Figure 280 Create REST Web Service Consumer

2. Click **Next.**
3. Enter URL of the Web Service you want invoke, in the **URL** textbox.

> You need to pass the request in the URL.
> You can also, define the values of parameters in the *Parameter table.*

4. To populate the parameter automatically from URL, click the **Extract Param from URL** button. Query Parameters given in the URL, are populated in the Parameter table along with their default values (**see**).

> You can also manually define parameters in the **Parameter** table**.**

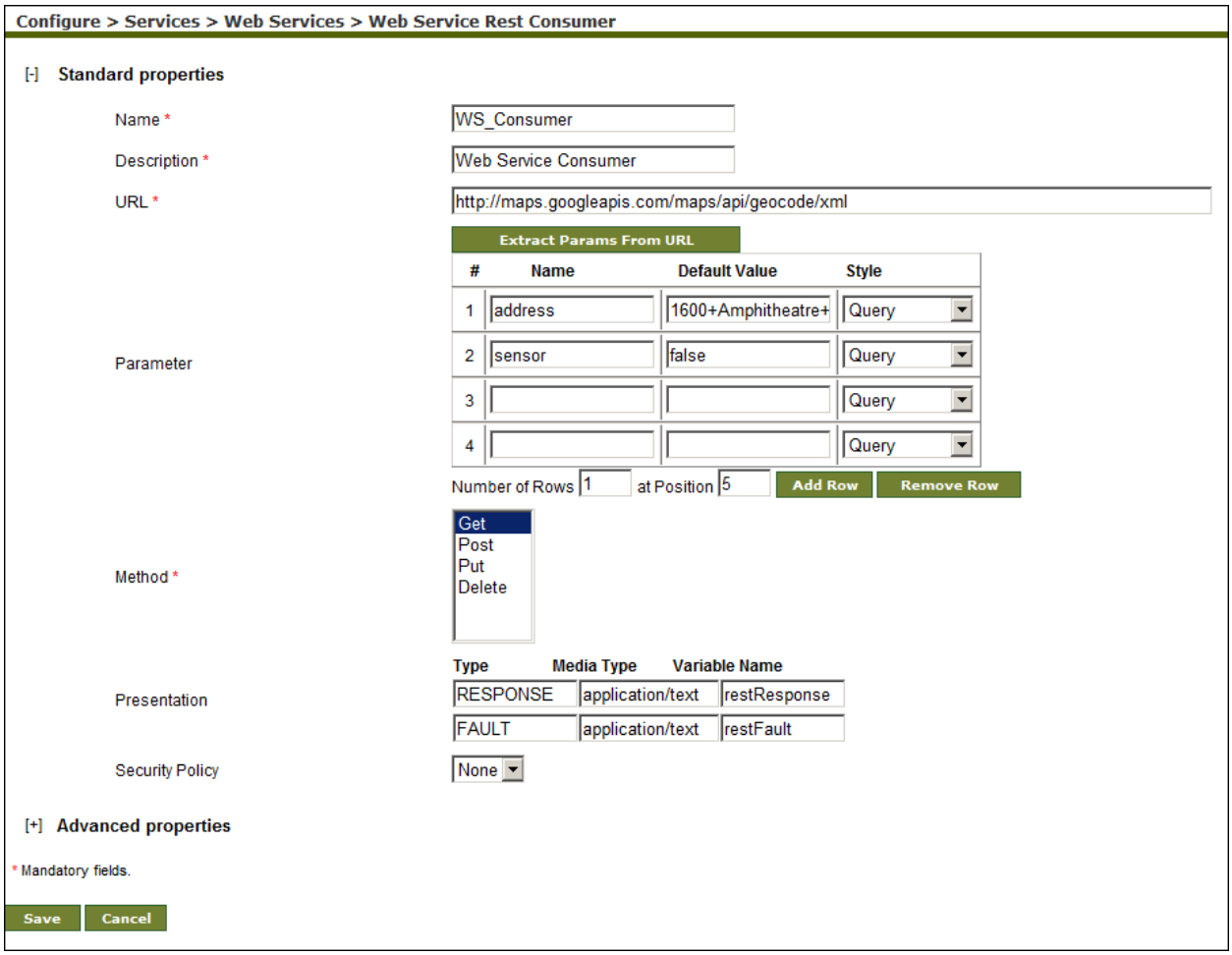


Figure 281: Define Parameters

5. Select the style of the parameters from the **Style** drop-down list. It could be *Query* or *Header.*

> For the parameters, which are supposed the be passed as part of HTTP header, you need to select *Header* in the style drop-down list.

6. Select the method from the method from the **Method** field.
7. Define the presentation type in the **Presentation table** along with its Media Type as per you requirement.
8. Select the security policy from the *Security Policy* drop-down list.

> To know how to create Security policy, refer to *Creating Security Policy for Web Service* section.
>
> In REST Web Service Consumer, only basic authentication is supported.

9. Click the **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.
10. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length.

11. 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 *Updating System Properties* section in *Administrator* Guide.

Using Web Service Addressing

Steps to Use Web Service Addressing (WS-Addressing)

1. To use WS Addressing, while creating Web Service Consumer activity, expand **WS-A addressing properties** (see Figure 280).

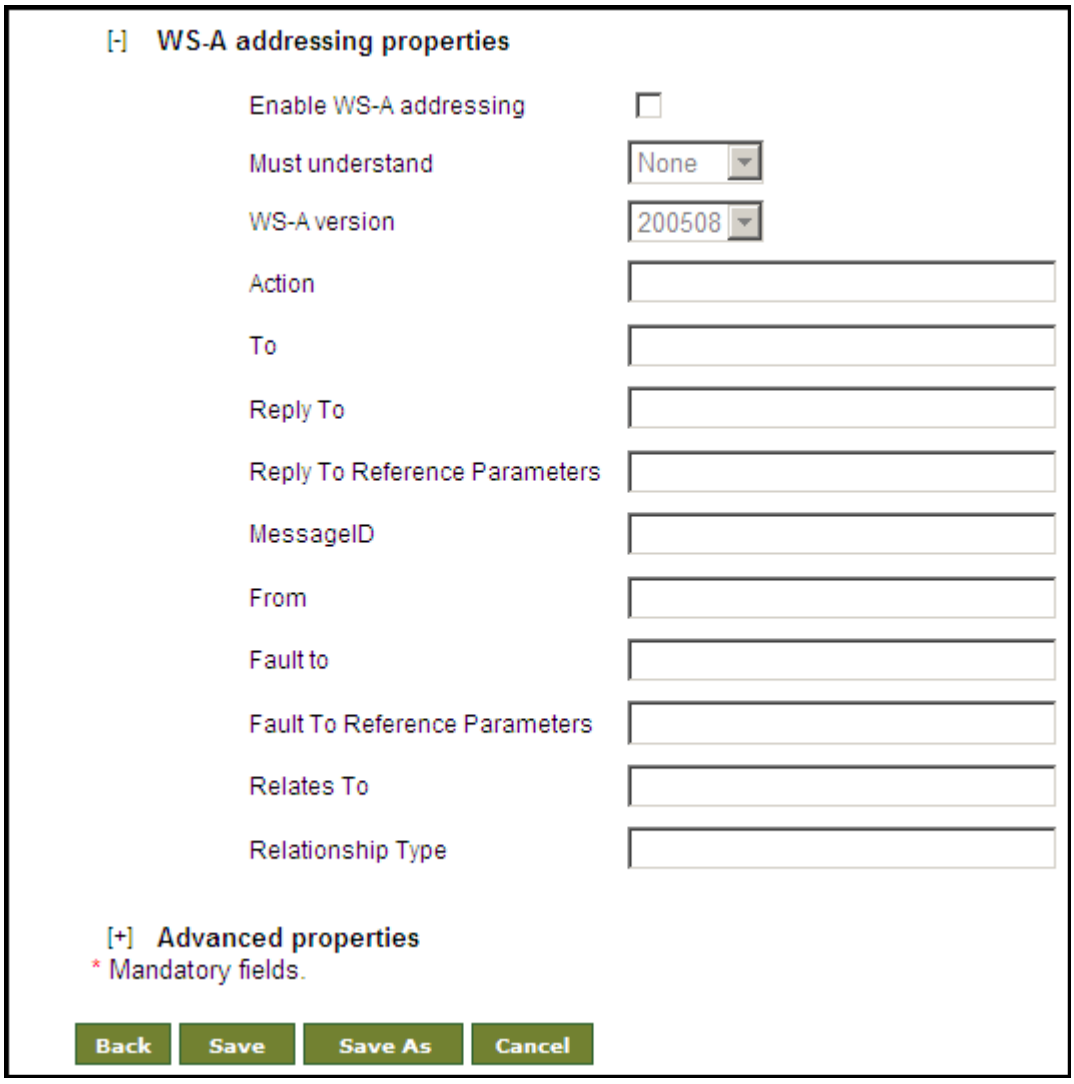


Figure 282: Define WS-Addressing Parameter

2. Select the **Enable WS-A addressing** check box and define all the parameters

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 Suite users. The user can use this WSDL to invoke the Web Service.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√		√	

Steps to create a Web Service Provider Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Web Services** to expand the hierarchy, and then click **Provider**. The **Manage Provider** screen is displayed (see Figure 281).

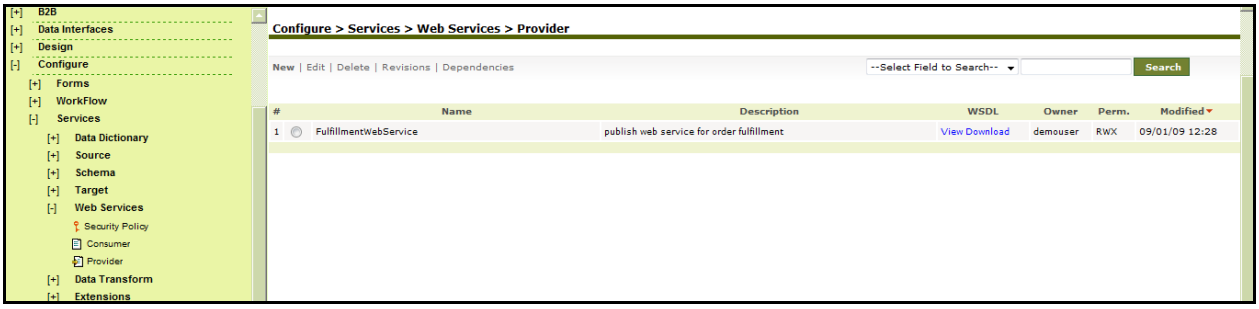


Figure 283: Manage Web Service Provider Activity

4. Click the **New** link. The **Create Web Service Provider** screen is displayed (see Figure 282).

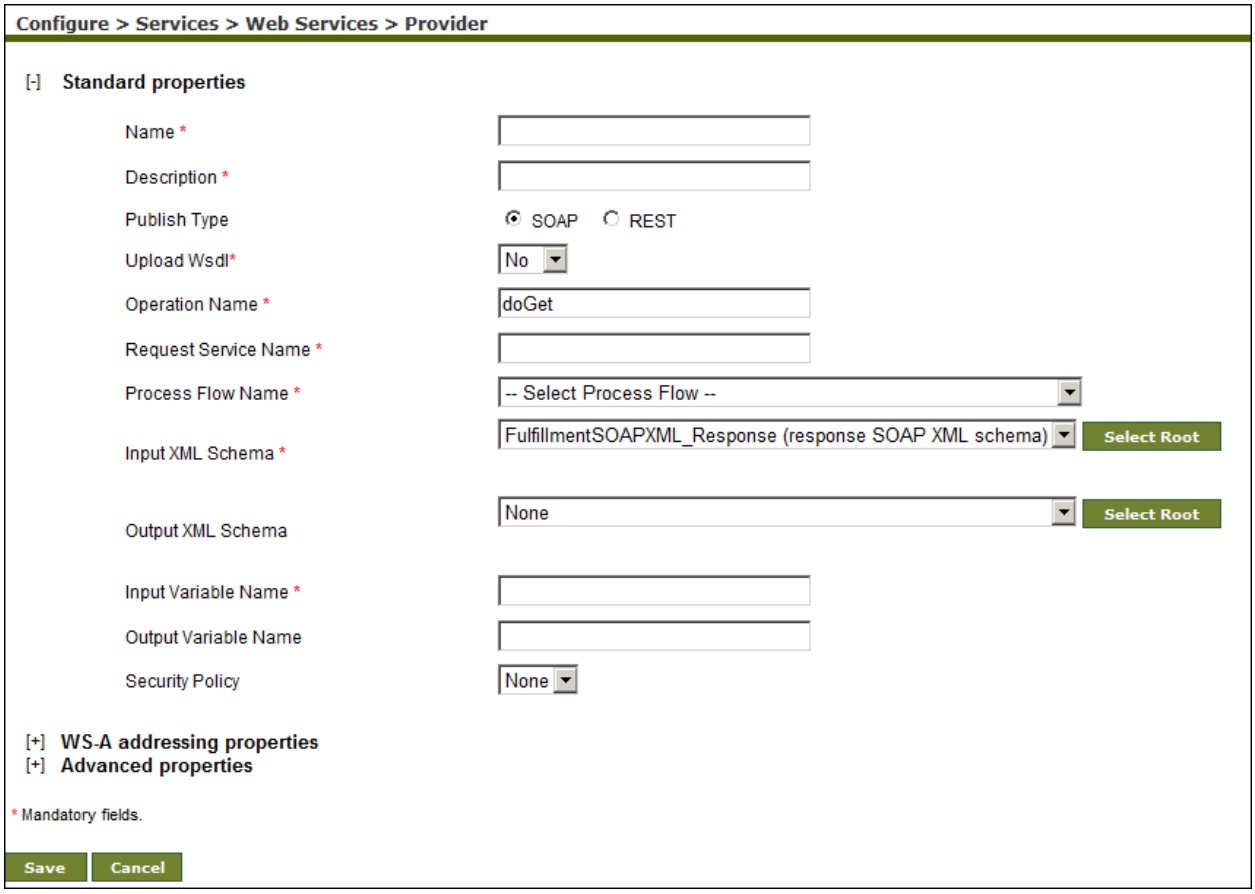


Figure 284: Create Web Service Provider Activity

5. Enter the name and description of the new Web Service Provider activity in the textboxes **Name** and **Description** respectively.

6. Select the type of web service that you want to publish, from the *Publish Type* radio button.

- Publish Type can be either *SOAP* or *REST.*
- Select *SOAP,* when you want to publish a SOAP based Web Service.
- Select *REST*, when you want to publish a RESTful Web Service.

To know how to create a Web Service provider activity to access a RESTful Web Service, refer to section Creating RESTful Web Service Provider Activity.

7. In case you want to create this activity, by uploading a WSDL, select **yes** in **Upload WSDL** drop-down list.

8. If you select *yes* in the **Upload WSDL** drop-down list, the following screen is displayed where you can upload the WSDL.

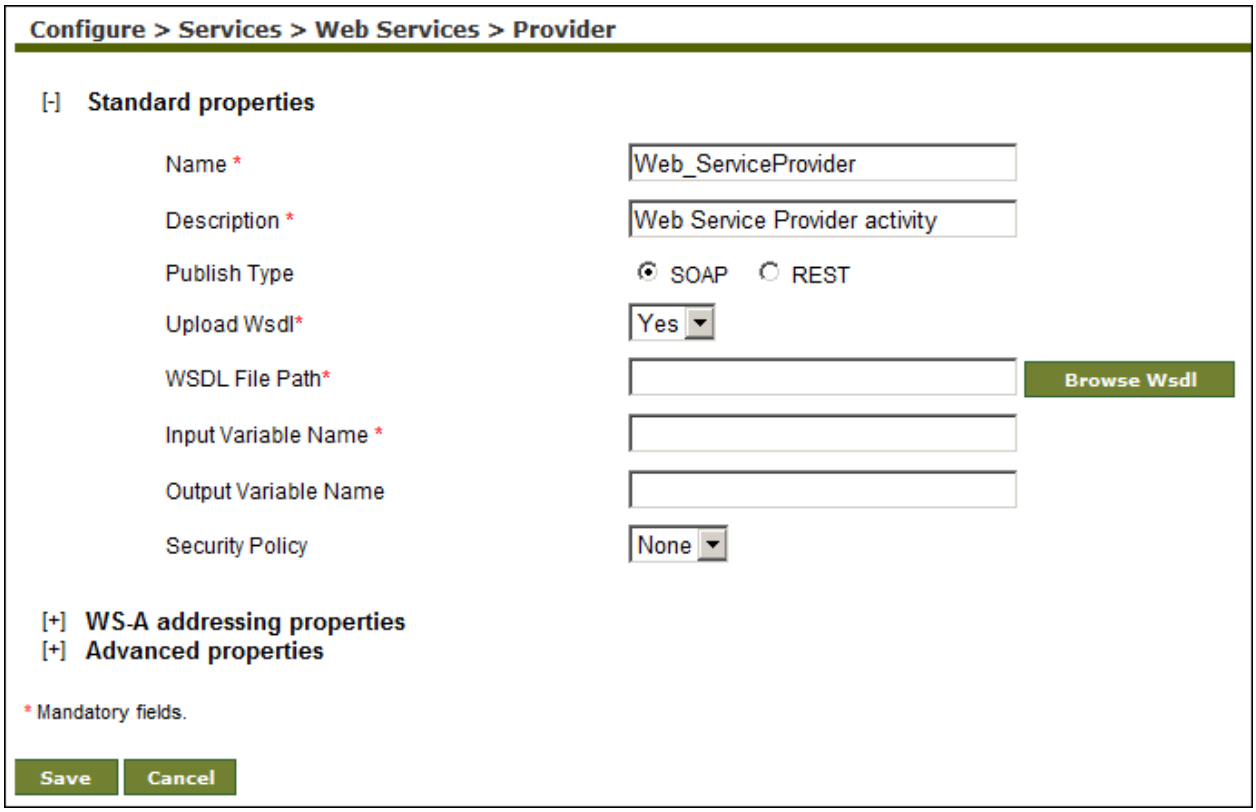


Figure 285: Create Web Service Provider Activity

9. Click **Browse WSDL** button and upload the WSDL, which you want to use to create the Web Service Provider activity. The *Upload WSDL File* screen is displayed (see figure below).

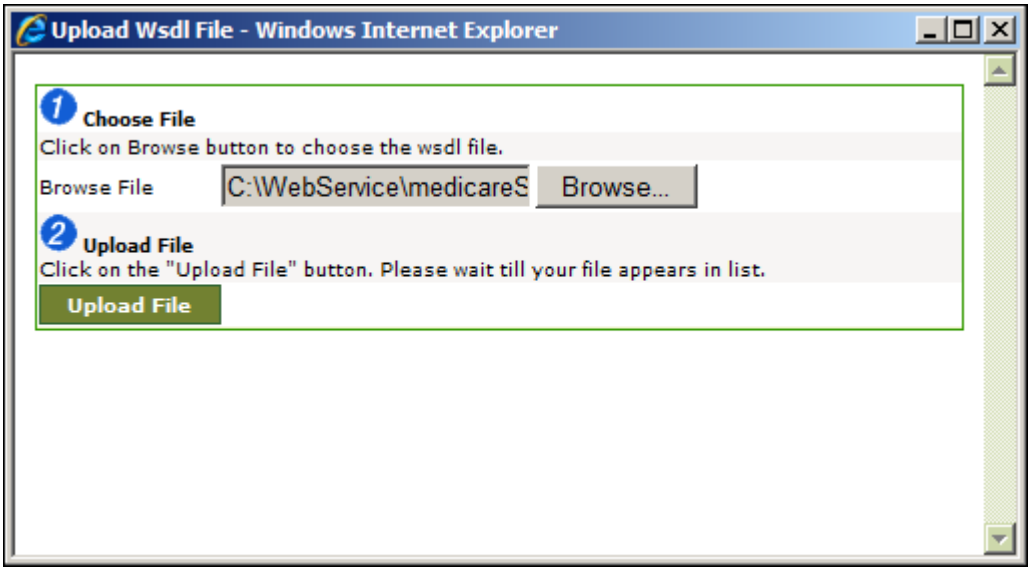


Figure 286: Upload WSDL

10. Click **Browse** button, select the WSDL and click **Upload File** button. The selected WSDL file get uploaded.

11. Select the service name, port and port type from the respective drop-down list. The screen will be displayed with list of operations and to select the process flow for those operations(see figure below).

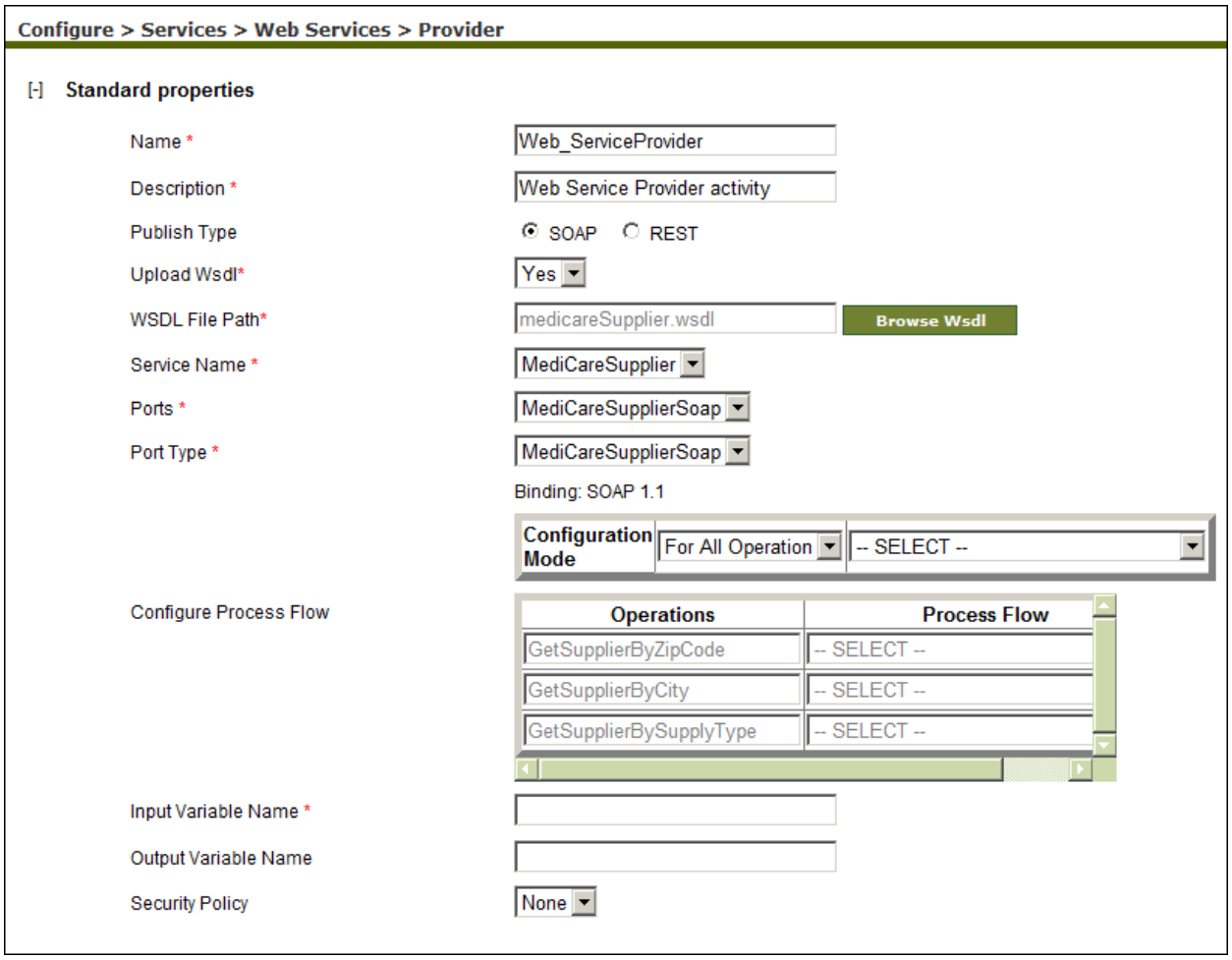


Figure 287:Configure Process Flow

12. Select the configuration mode from the *Configuration Mode* drop-down list.

- Configuration Mode can be either *For All Operation* or *Per Operation.*
- Select *For All Operation,* if you want to trigger the same process flow when any operation is invoked. In this case, you will have to select just one process flow. This process flow will be executed when any of the operation is invoked.
- Select *Per Operation*, if you want to trigger different process flow, when different operations are invoked. In this case you have to select the process flow for each operation. In case of *Per Operation,* you can also leave any operation unbound. In this case, if this unbound operation is invoked, the fault message "Requested Operation is not implemented" will be displayed.

13. In case you have selected *no* in **Upload WSDL** drop-down list, Enter the request service name name in the textboxes **Request Service Name**. The Web Service will be published with the respective service name given in the textbox **Request Service Name**.
14. Select the process flow, which you want to publish as Web Service from the dropdown list **Process Flow Name**.
15. Select Input XML Schema from the dropdown list **Input XML Schema**. This XML Schema corresponds to the XML Input provided by Web Service consumer activity.

16. Select the Output XML Schema from the **Output XML Schema** dropdown list.

> If case, selected XML Schema is having multiple roots, click the **Select Root** button and select the required root.

17. Enter the Input and Output Variables in the textboxes **Input Variable** and **Output Variable** textbox respectively.
18. Select the Security Policy activity from the dropdown list **Security Policy**.

> If any security policy is not selected, then the web service is published in anonymous mode.
> To learn about Advanced Properties refer to Changing Advanced Properties section.

19. Click the **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 6).
20. Enter comments in the textbox **Add Comments**.

> 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 Provider activity has been created successfully.

> By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

> In case the process flow is published as *asynchronous* web service, the Manage Web Services Provider screen looks like as displayed in Figure 283.

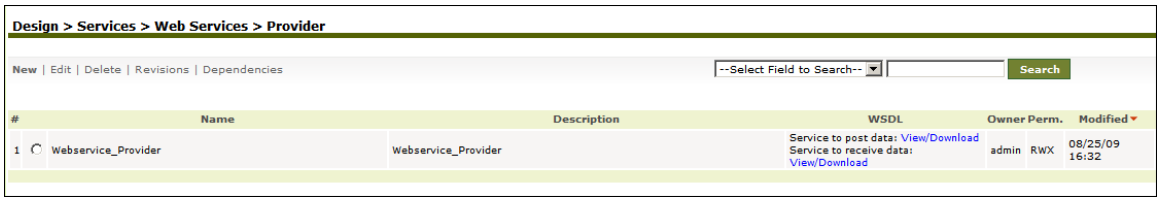


Figure 288: Manage Web Service Provider (asynchronous web service)

Create Web Service Provider Activity to publish RESTful Web Service

Steps to Use Web Service Provider Activity to publish RESTful Web Service

13. In **Create Web Service Provider Screen,** select **REST** radio button (see figure below).

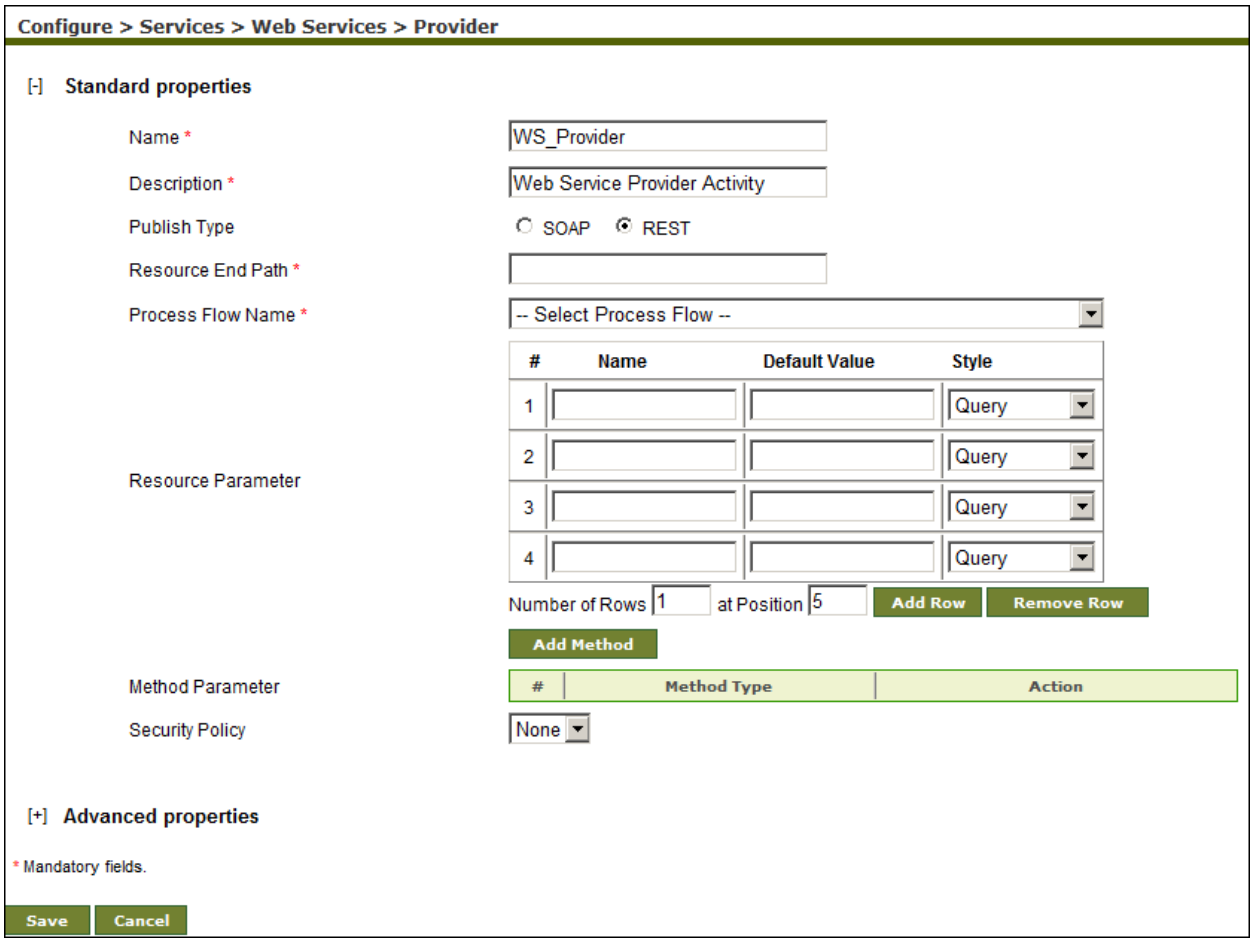


Figure 289:Create REST Web Service Provider

14. Enter the resource end path URL in the *Resource End Path* textbox. For example: */rest/WeatherForecast*
15. Select the process flow name, which you to want trigger when this Web Service is invoked, in the *Process Flow Name* drop-down list.

- The process flow which is selected here, should have Context Source and Context Target activity.
- The parameterName attribute of the context source should be *restRequest.*
- The parameterName attribute of the context target should be *restResponse.*

16. To define the resource parameter, enter the name and default value of the parameter in the **Name** and **Default Value** textboxes respectively.
17. Select the style of the parameter from the **Style** drop-down list. It could be *Query* or *Header.*

For the parameters, which are supposed to be passed as part of HTTP header, you need to select *Header* in the style drop-down list.

18. To add the method click **Add Method** button. The **Method Description** screen is displayed (see figure below).

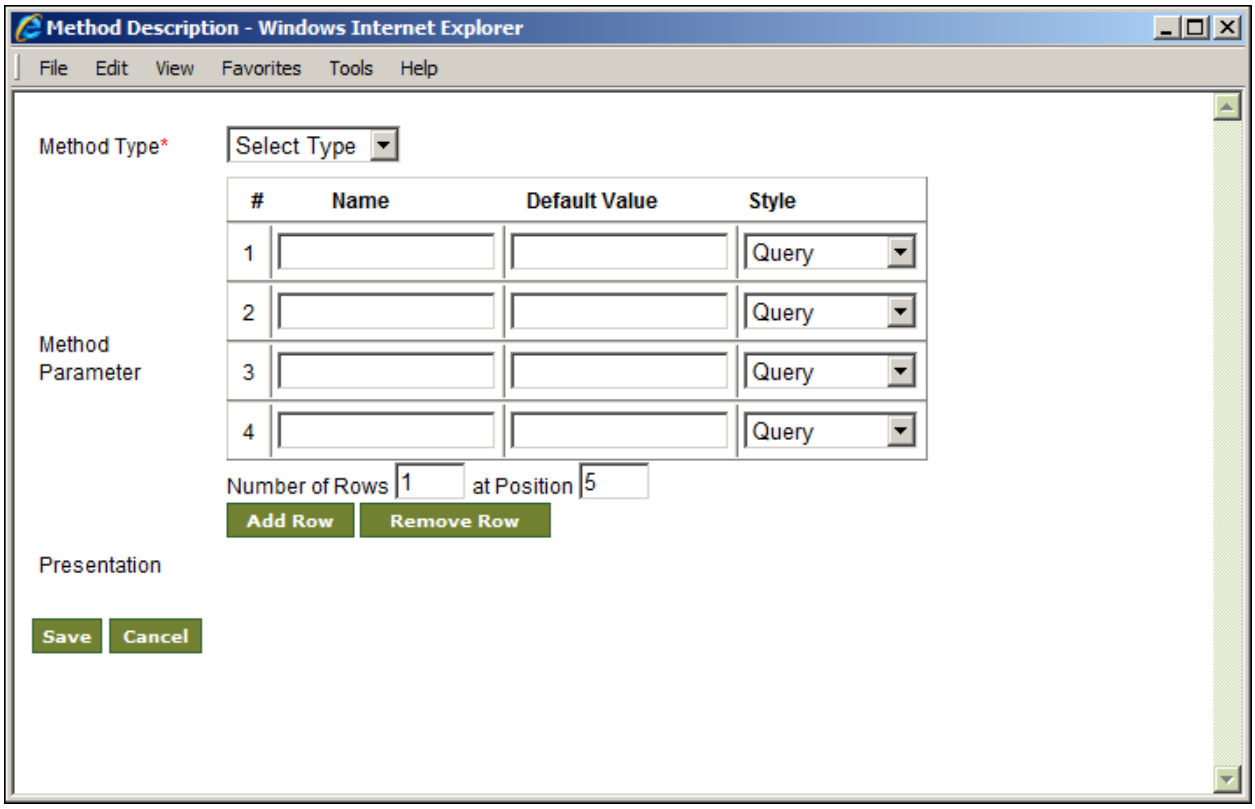


Figure 290: Define Method

19. Select the method type from the **Method Type drop-down** list. The method type can be PUT, GET, POST or DELETE. The **Presentation Table** is displayed as per the method selected (see figure below).

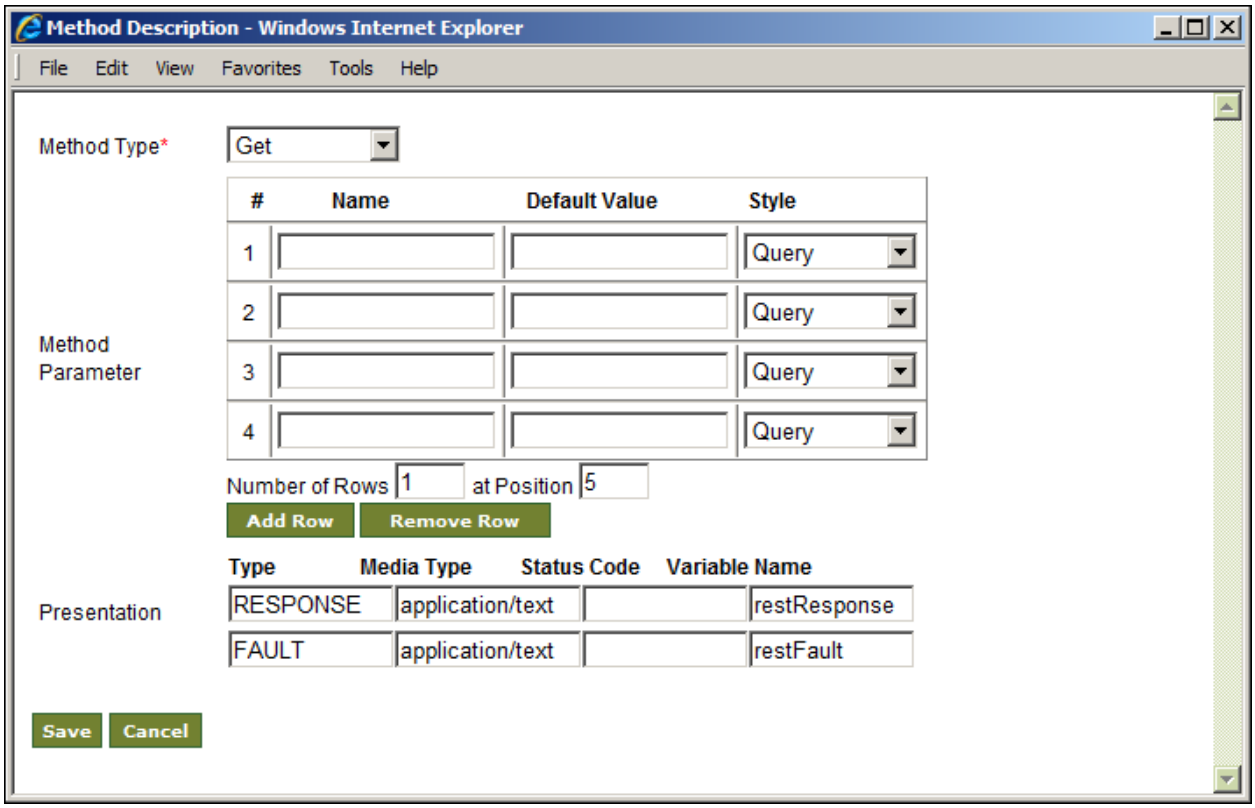


Figure 291:Add Method

20. To define the method parameter, enter the name and default value of the parameter in the **Name** and **Default Value** textboxes respectively.
21. Select the style of the parameter from the **Style** drop-down list. It could be *Query* or *Header.*

> For the parameters, which are supposed to be passed as part of HTTP header, you need to select *Header* in the style drop-down list.

22. Define the Status Code in the **Presentation table** along with its Media Type as per you requirement.
23. Select the security policy from the *Security Policy* drop-down list.

> To know how to create Security policy, refer to *Creating Security Policy for Web Service* section.
>
> In REST Web Service Provider, only basic authentication is supported.

24. Click the **Save** button. This displays a screen confirming that the web service provider 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 provider.
25. Enter comments in the textbox **Add Comments**.

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 *Updating System Properties* section in *Administrator* Guide.

9

TRANSFORMING DATA

Adeptia Suite can transform any type of data into another type i.e. it facilitates any-to-any transformation. For example, the Adeptia Suite 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Accessing Data Mapper

Pre- Requisites

- JRE 1.6 needs to be installed on your system to open the Data Mapper applet.
- 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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Data Transform** to expand the hierarchy, and then click **Data Mapping**. The **Manage Data Mapping** screen is displayed (see Figure 284).

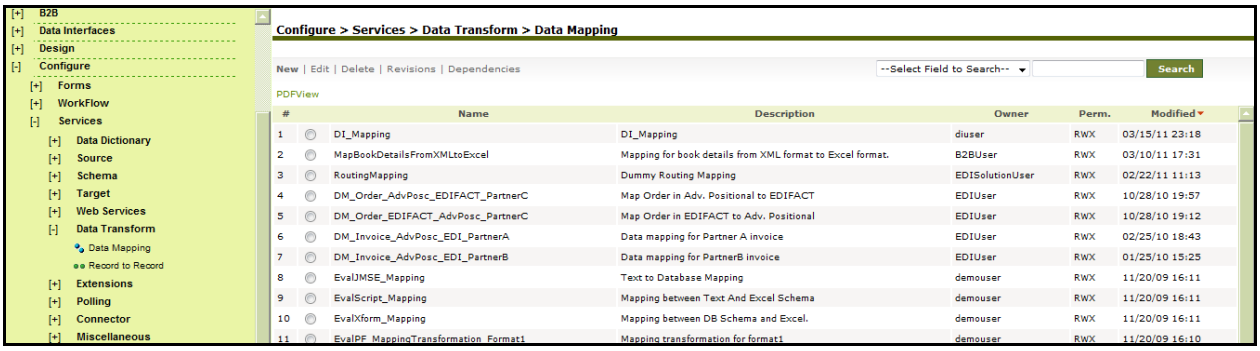


Figure 292: Manage Data Mapping

4. Click the **New** link. The **Create Data Mapping** screen is displayed (see Figure 285).

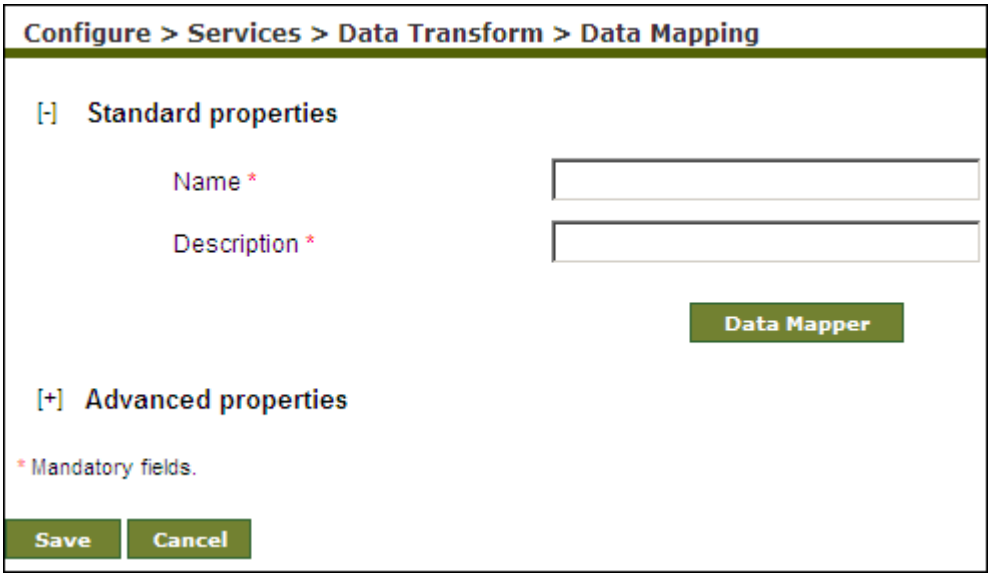


Figure 293: Create Data Mapping

5. Enter the name and description of the new mapping activity in the textboxes **Name** and **Description** respectively.
6. Click the **Data Mapper** button. This displays the **Data Mapper** screen (refer to Figure 286).

> 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.

7. 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.

8. 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 322).
9. Enter comments in the **Add Comments** field.

The comment should be at least 1 character in length.

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

By default, the **Comments** property is disabled. To enable it, refer to the **Updating System Properties** section in *Administrator* Guide.

Understanding Data Mapper Applet

The **Data Mapper** screen is displayed below:

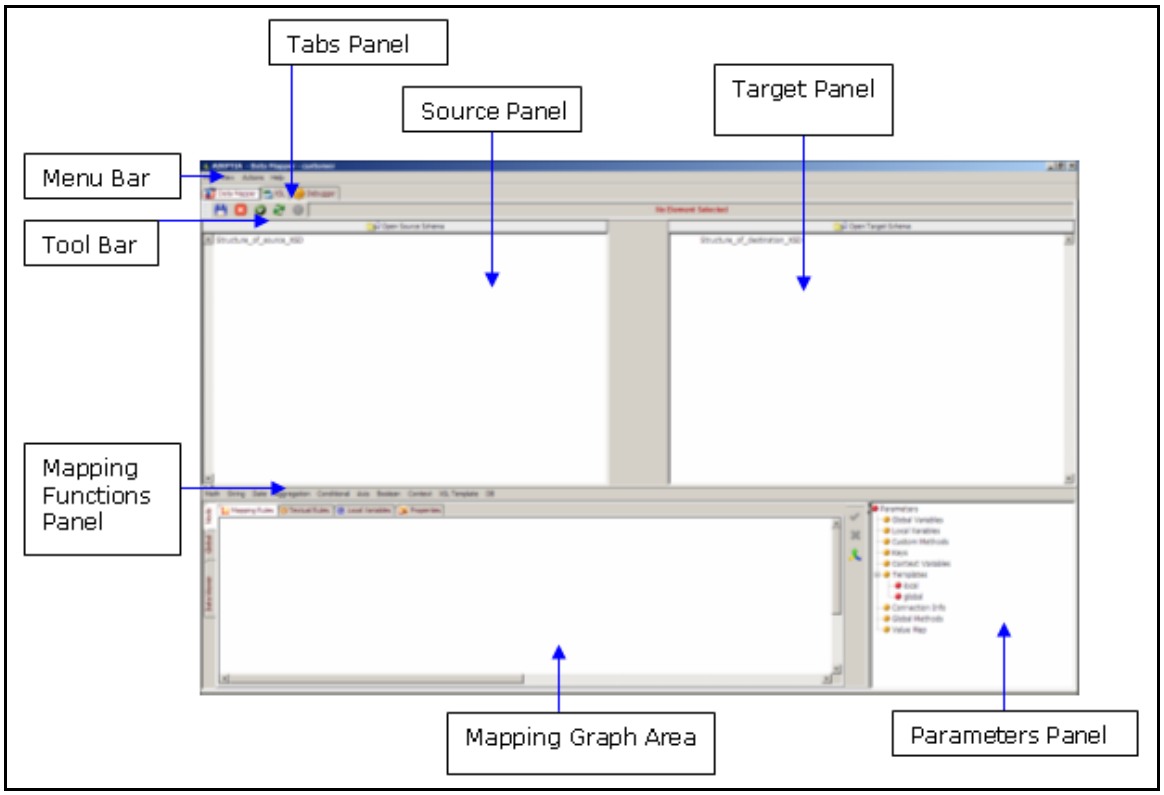


Figure 294: Data Mapper Applet

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 35: Options of Menu Bar

Menu Option	Sub-Option	Function
File	Save	Save mapping activity

Menu Option	Sub-Option	Function
	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 hierarchy	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 hierarchy elements, it processes the child elements and loads them into the memory. The hierarchy 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

Menu Option	Sub-Option	Function
		elements only up to 2 levels in the source and target panels. You need to click a hierarchy 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 hierarchy.
	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
	Enable Quick Splitting	Splits data at source end and merges at target end automatically
Help	Data Mapper Help	Display online help for the Data Mapper section.
	Mapping Functions Help	Display online help for mapping functions.

Menu Option	Sub-Option	Function
	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 36: 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 37: 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

Button	Name	Function
	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
	Toggle Element Property	Displays the property of the source or target element, if it is defined in the schema. To view the property, click this button and then click the element whose property you want to view.
	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 38: 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 *Disable-Output-Escaping* 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.

Tab	Sub-Tabs	Function
	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 39: 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.

Button	Name	Function
	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 **Maximize** () button displayed on the Split Bar below the Source and Target Panels. Similarly, by clicking **Minimize** () 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 40: 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

Parameters	Description
	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.
Connection Info	Display a list of all connection info variables.
Global Methods	Display a list of all class files present in the Custom Classes folder.
Value Map	Display a list of value maps created for the elements

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 **Maximize** () button displayed on the Split Bar left to the Parameters Panel. Similarly, by clicking **Minimize** () 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:

- Load Source and Target Schemas
- Map Source and Target Elements
- Save Mapping and Exit Data Mapper

Load Source and Target Schemas

Steps to load Source and Target Schemas

1. Click the **Open Source Schema** ( ) button displayed on the Tool Bar. The **Select Schema** screen with a list of existing source schemas is displayed (see Figure 287).

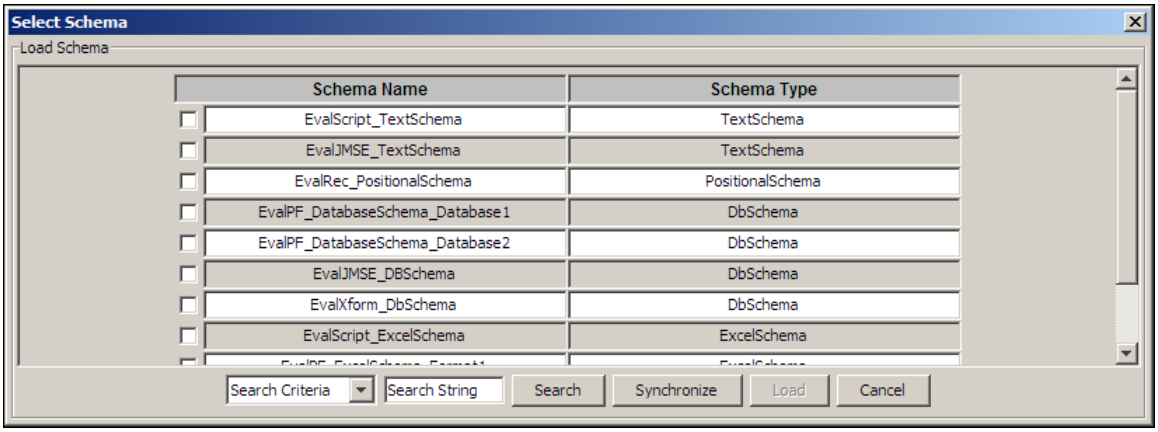


Figure 295: Select Schema

> 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, based on the *schema name* or *type* by selecting the appropriate search criteria from the dropdown 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 Wild Card 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 the **Load** button. This loads the selected source schemas with all their elements in the Source Panel.
4. Click the **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 287).
5. Select the checkbox(s) of the target schema(s) that you want to load.
6. Click the **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 hierarchies. 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 288).

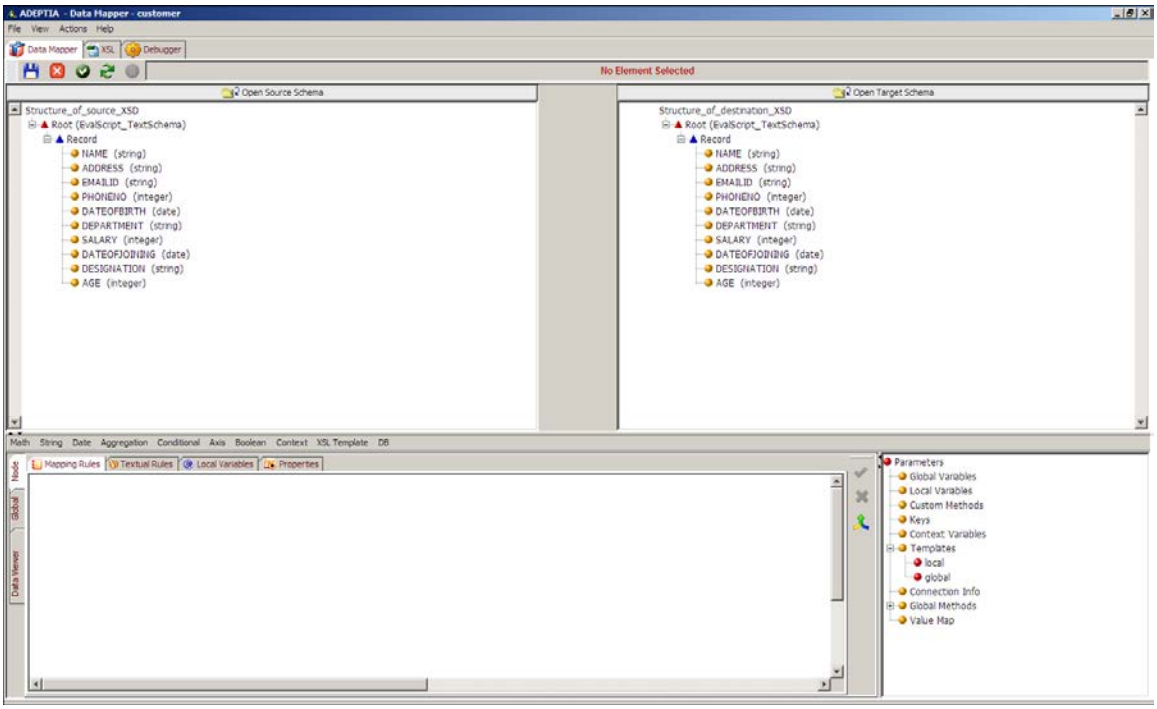


Figure 296: Source and Target Schema Elements

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 41: 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 hierarchy

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 289). Alternately you can press **<Ctrl> + <F>** on the keyboard.

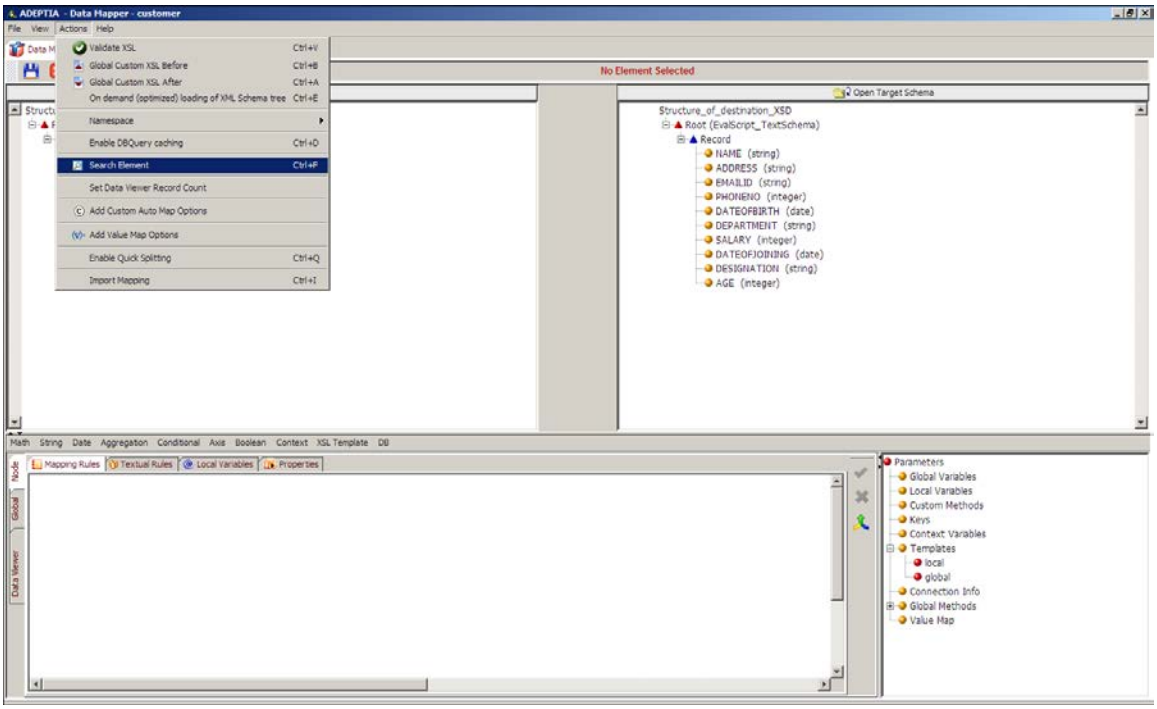


Figure 297: Select Search Element from Actions menu

3. The **Element Search Dialog** window is displayed (see Figure 290).

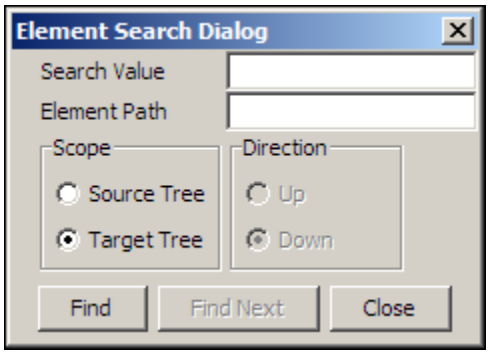


Figure 298: Element Search Dialog Box

4. Enter the name of the element that you want to search for, in the *Search Value* field. You can also use Wild Card 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 Pane*l, to search the element in the Source or Target schema hierarchy. For example, if you want to search in the Source schema hierarchy, then select *Source Tree* option. Only one option can be selected at a time. By default, *Target Tree* is selected (see Figure 291).

Figure 299: Enter Parameters in Element Search Dialog Box

6. Click **Find**. This searches for the first occurrence of the element in the selected hierarchy. 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 292).

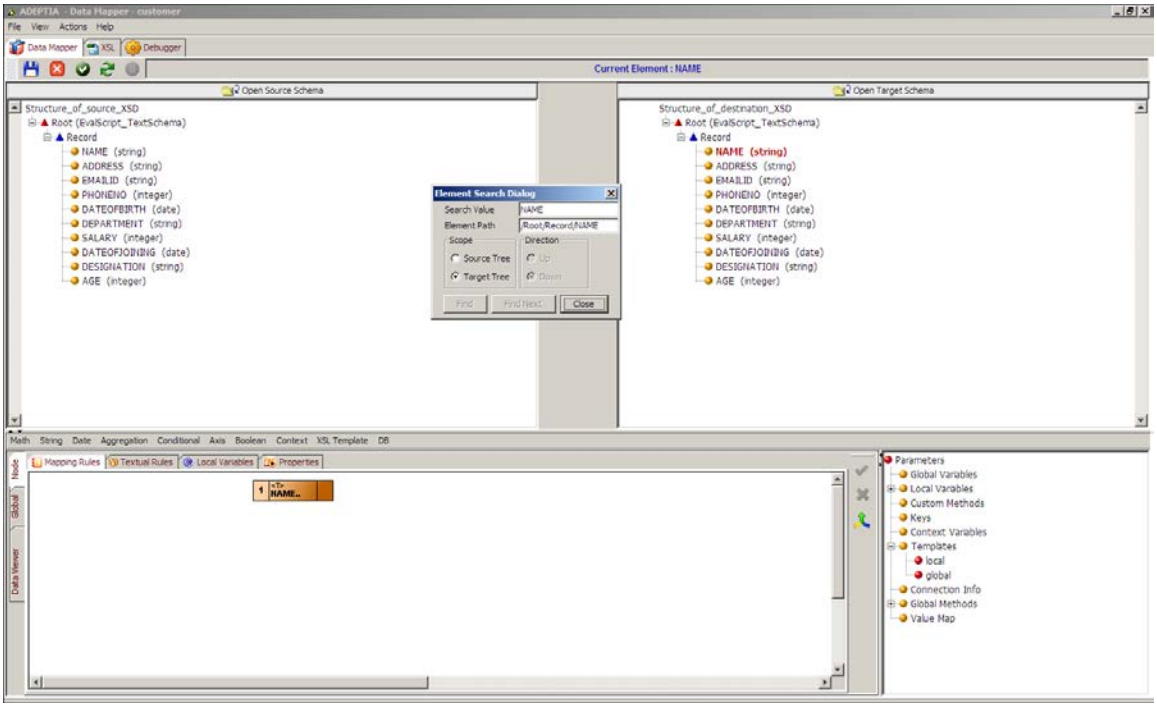


Figure 300: Element Match Found

7. If multiple matches are found for the search criteria, then the *Direction Panel* and the **Find Next** button is activated (see Figure 293). You can select the direction in which you want to search in the selected hierarchy. For example, if you want to search upwards in the hierarchy, select *Up* option. Only one option can be selected at a time. By default, *Down* is selected.

Figure 301: Multiple Matches Found

8. Click **Find Next** to search for the next element in the hierarchy, 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 294).

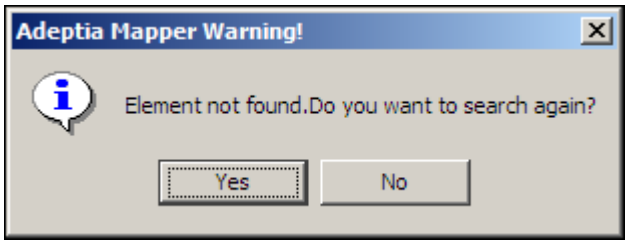


Figure 302: Adeptia Mapper Warning

9. Click **Yes** to search again, else click **No** to close this screen.

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 295).

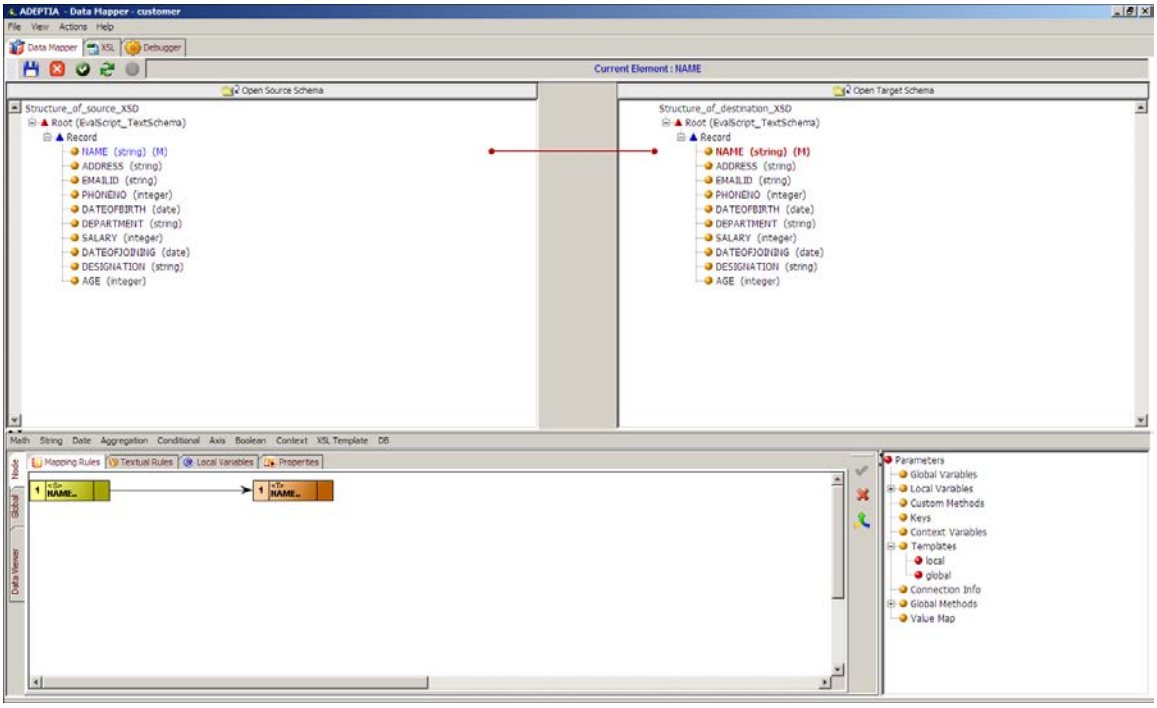


Figure 303: Map Source and Target Element using Drag and Drop Approach

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 296).

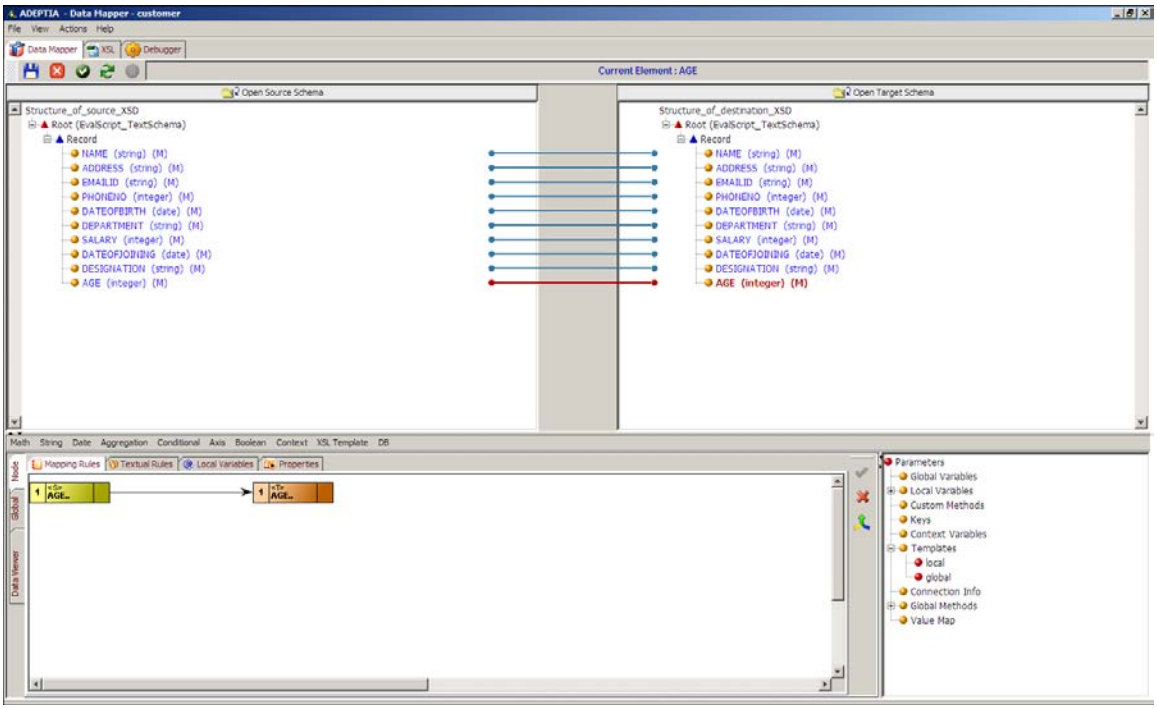


Figure 304: Map Source and Target Elements

4. 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 297).

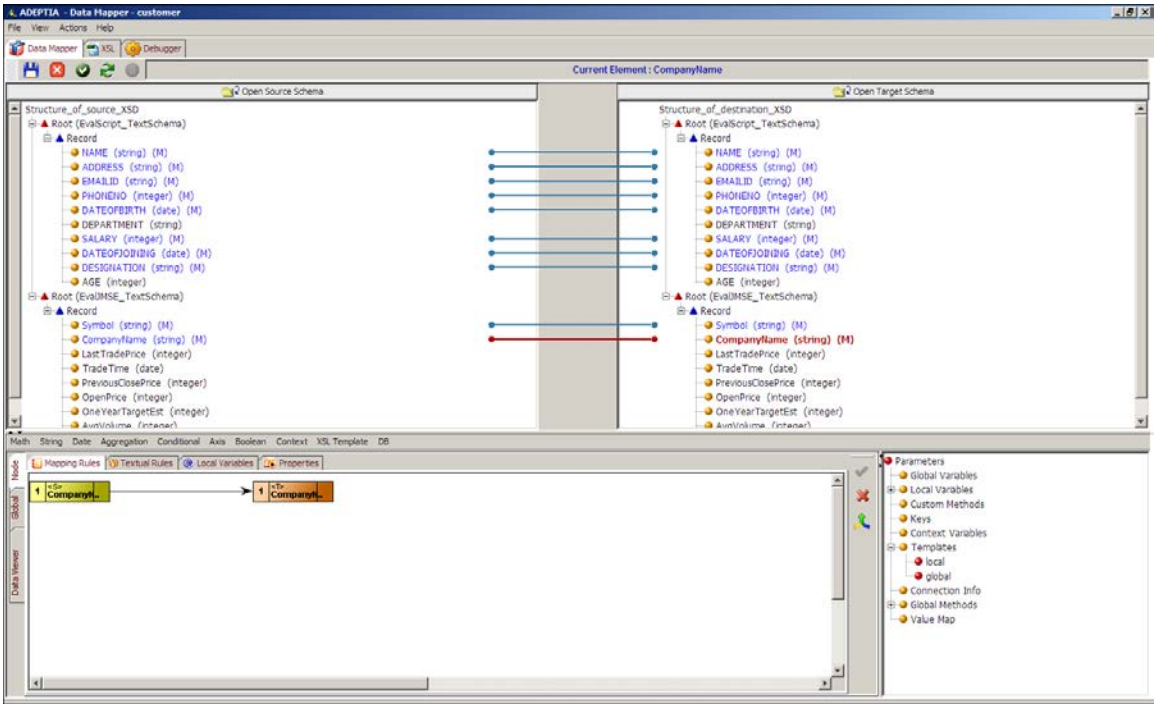


Figure 305: Map Multiple Source and Target Schema Elements

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 298).

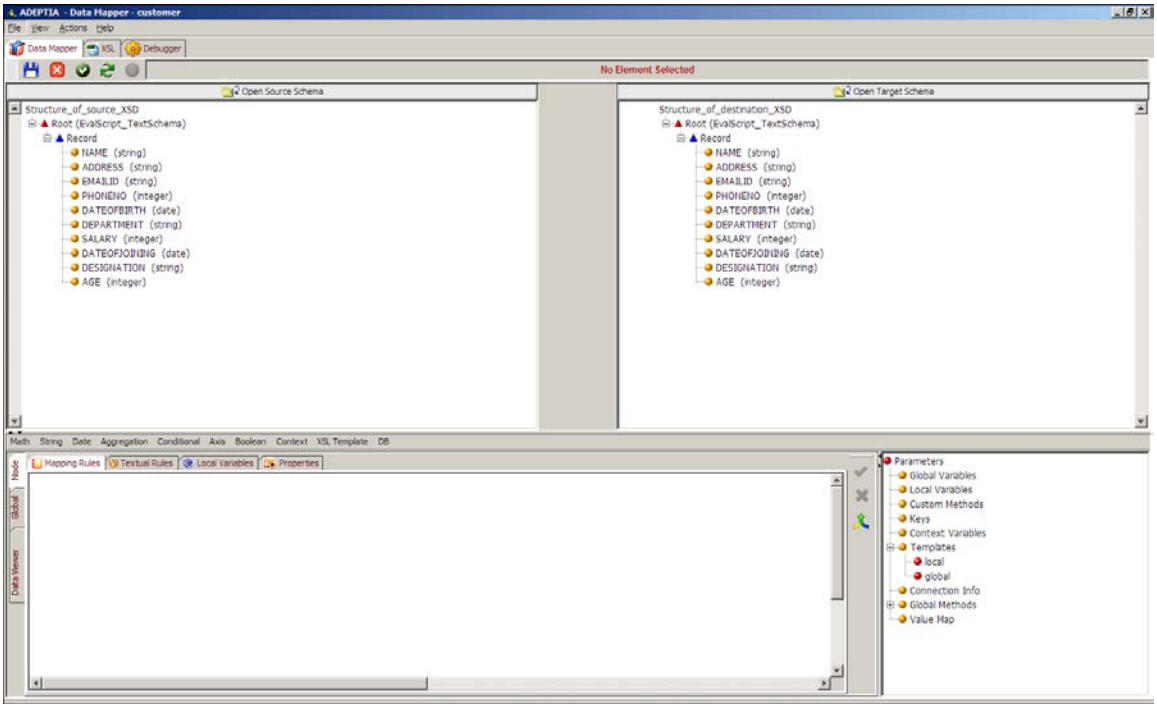


Figure 306: Same Hierarchy and Element Names

2. Click **Auto Mapper** () button. The **Auto Mapper Options** dialog box is displayed (see Figure 299).

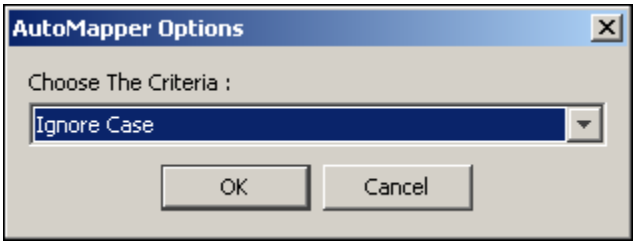


Figure 307: Auto Mapper Options

3. Select the mapping criteria from the **Choose the Criteria** dropdown 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 300).

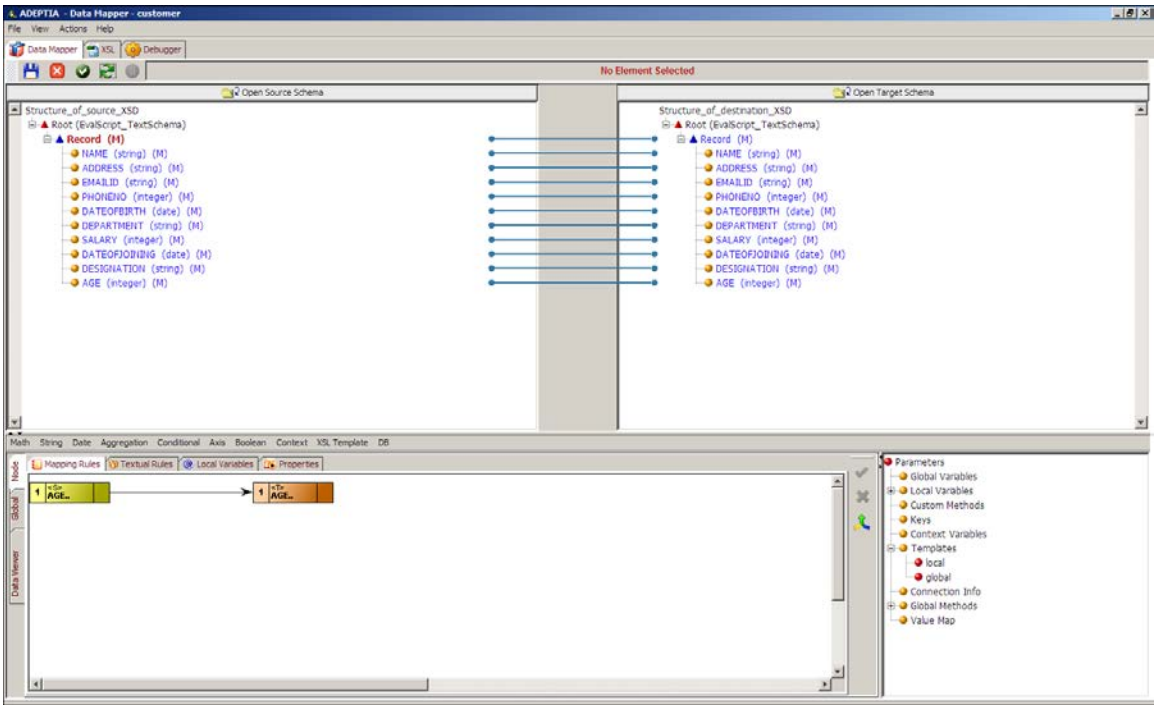


Figure 308: Mapped Elements using Auto Mapper

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. The **Remove Options** screen is displayed (see Figure 301).

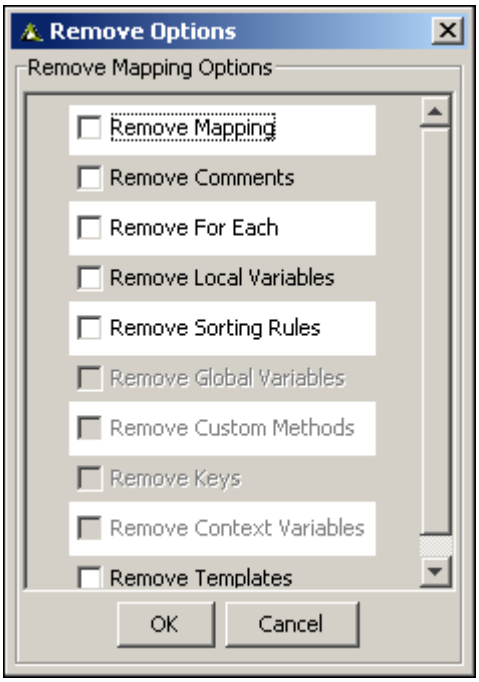


Figure 309: Remove Options

2. 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.

3. 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 the same names. Now, if you want to automatically map elements of source and target schemas where hierarchy and elements are different, 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 302).

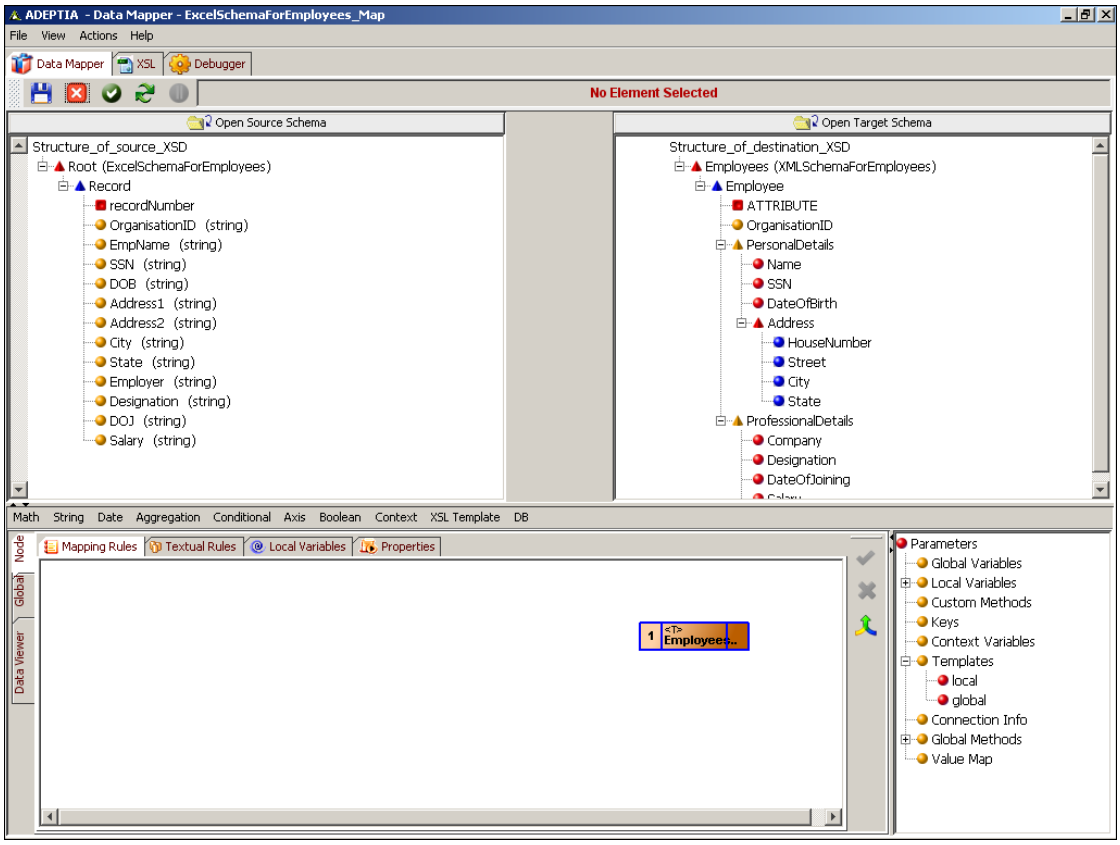


Figure 310: Same Hierarchy and Element Names

2. Click **Actions** menu and select **Add Custom Map Options** (see Figure 303).

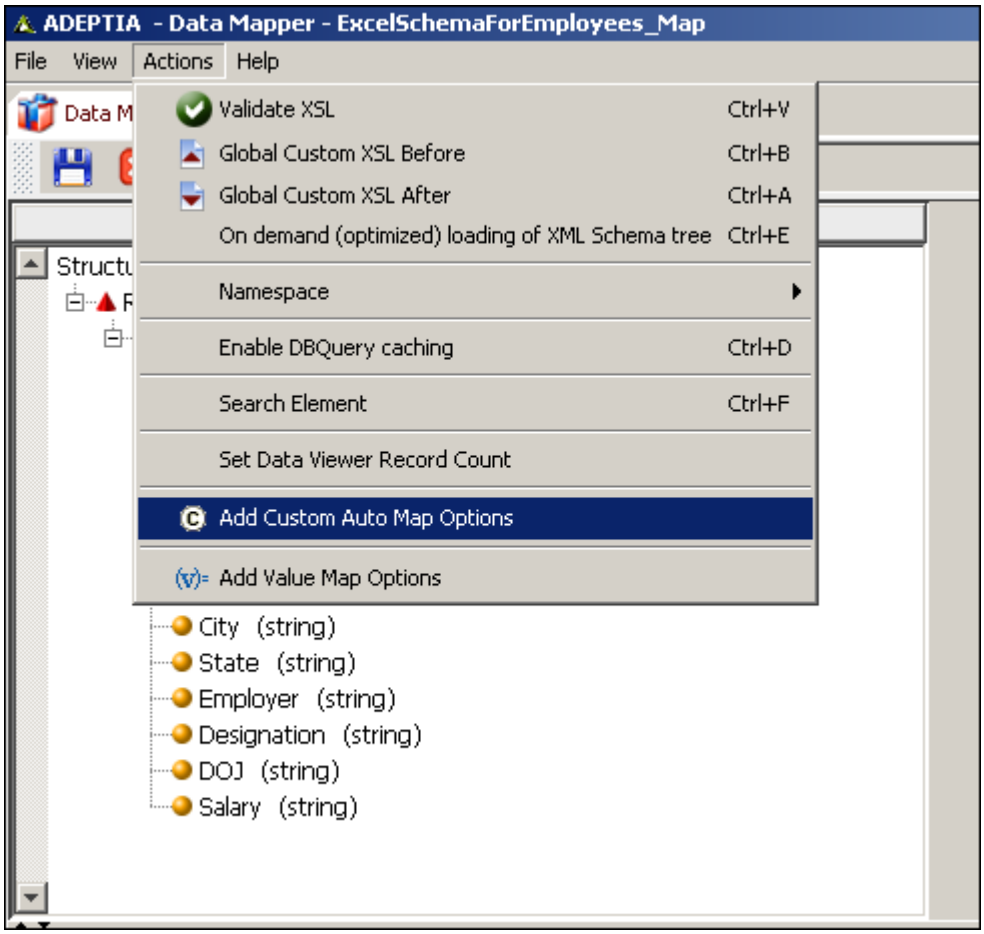


Figure 311: Select Add Custom Map Options

3. The **Custom Auto Map Options** dialog box is displayed (see Figure 304).

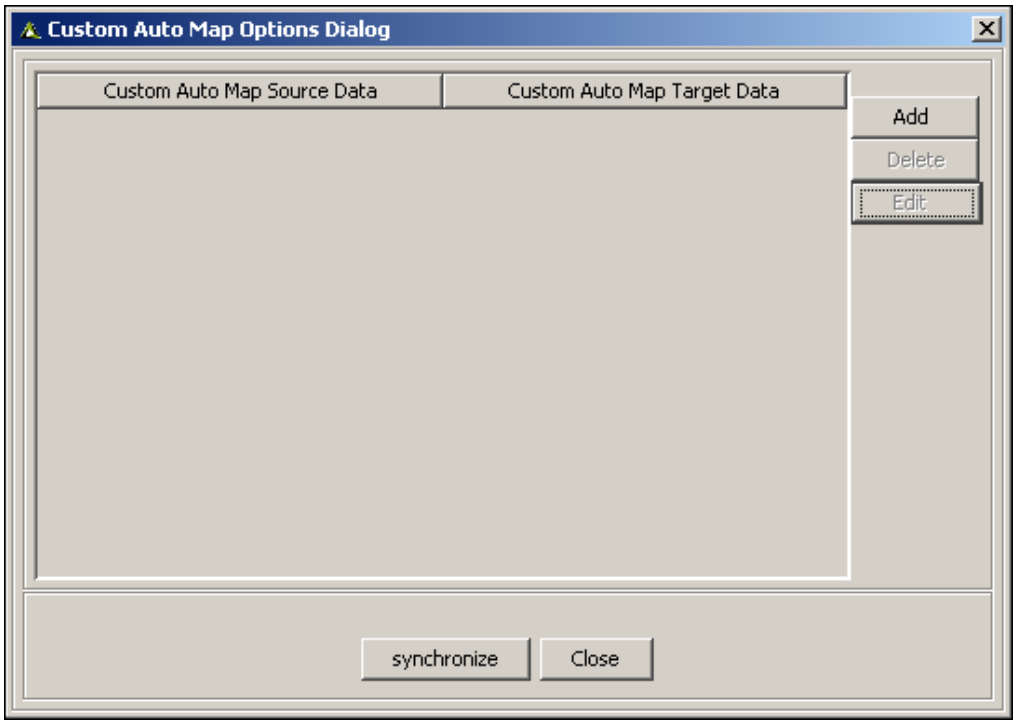


Figure 312: Custom Auto Map Options Dialog box

4. Click the **Add** button. The **Add Data Dialog** window is displayed (see Figure 305).

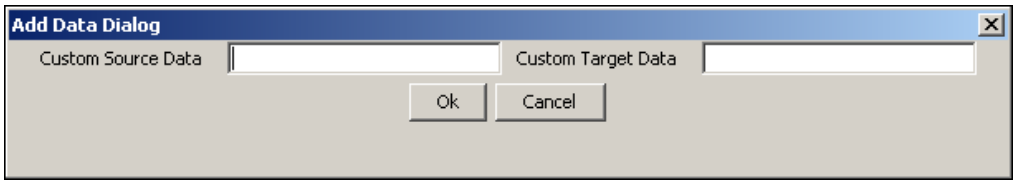


Figure 313: Add Data Dialog box

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 306).

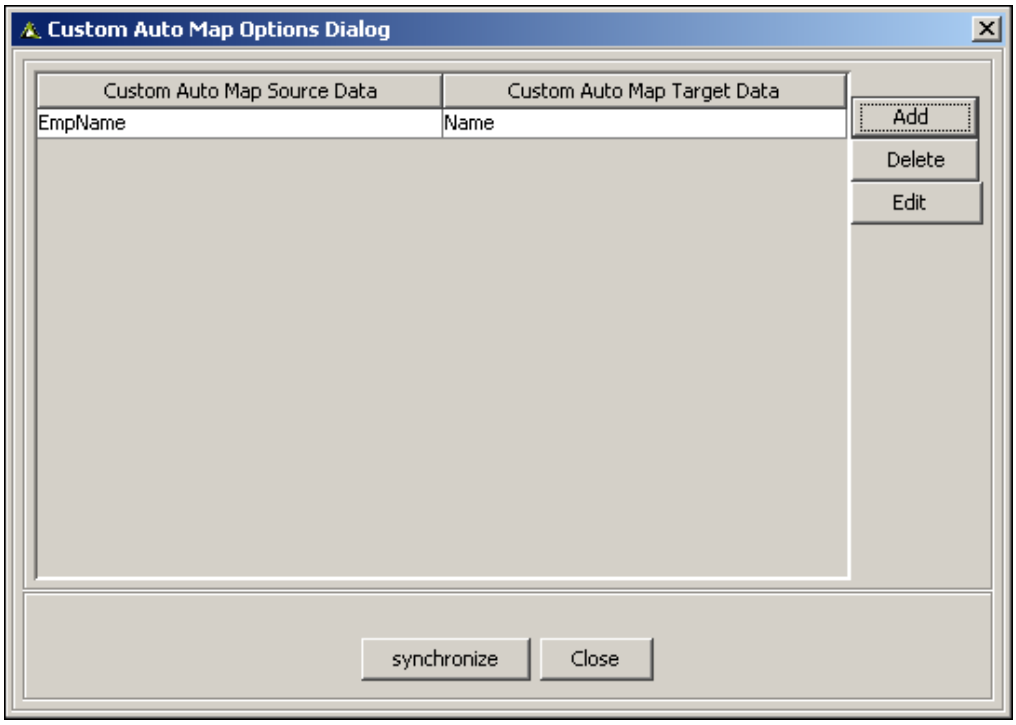


Figure 314: Added Entry for Custom Auto Map

8. Similarly you can add other entries.
9. Click **Close** to close this dialog box.
10. Map the parent record of Source and Target Schema.

11. Right-click the parent record of the target schema and select **Connect Matching Record** options (see Figure 307).

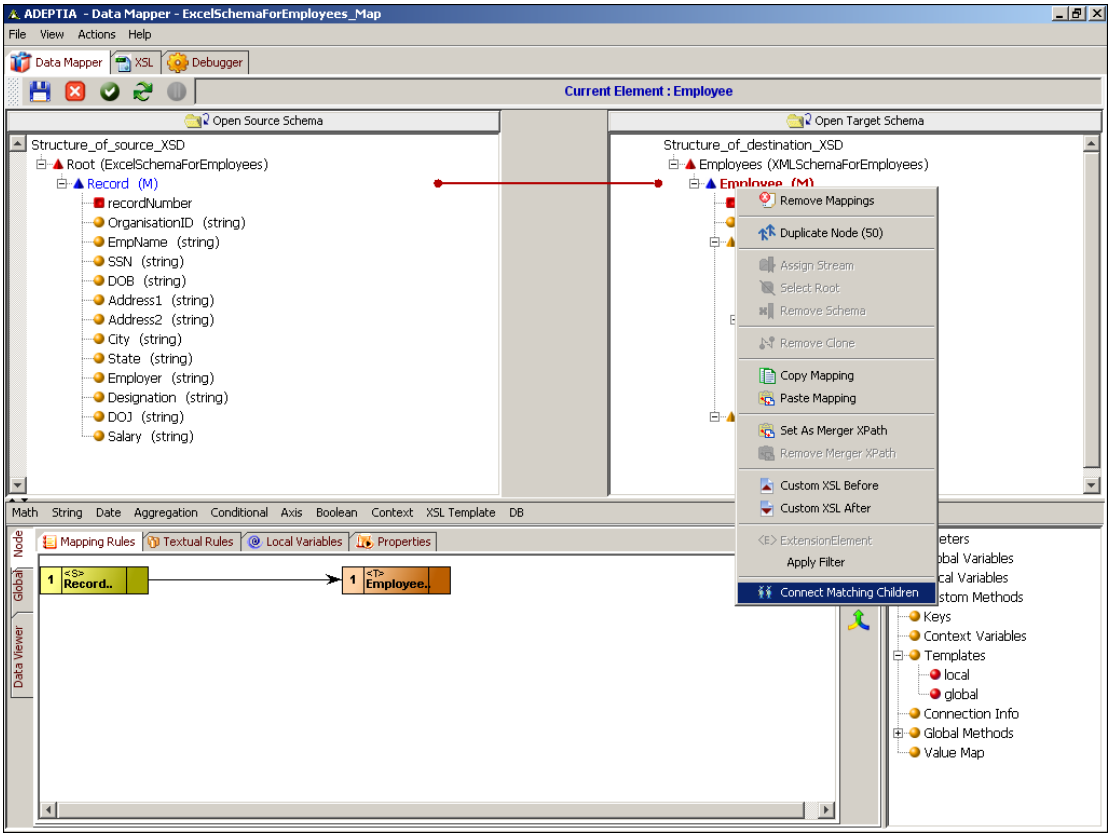


Figure 315: Select Connect Matching Children

12. The **Connect Matching Children Dialog** window is displayed (see Figure 308).

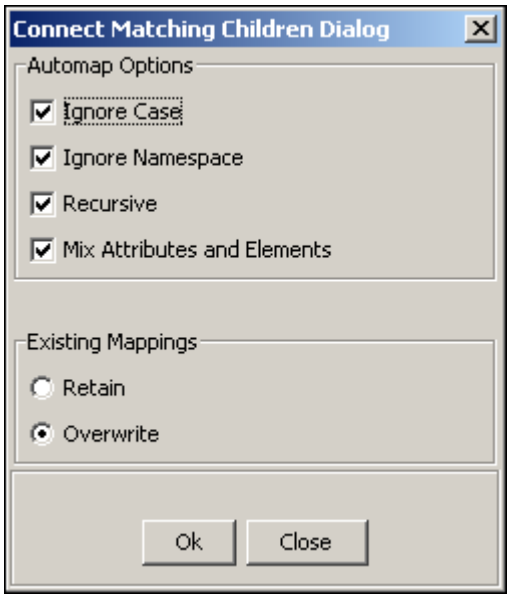


Figure 316: Connect Matching Children Options

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. 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.
- **Overrite:** Overrites all the existing mappings.

15. Click **OK**. This will map source and target schema as per the criteria selected (see Figure 309).

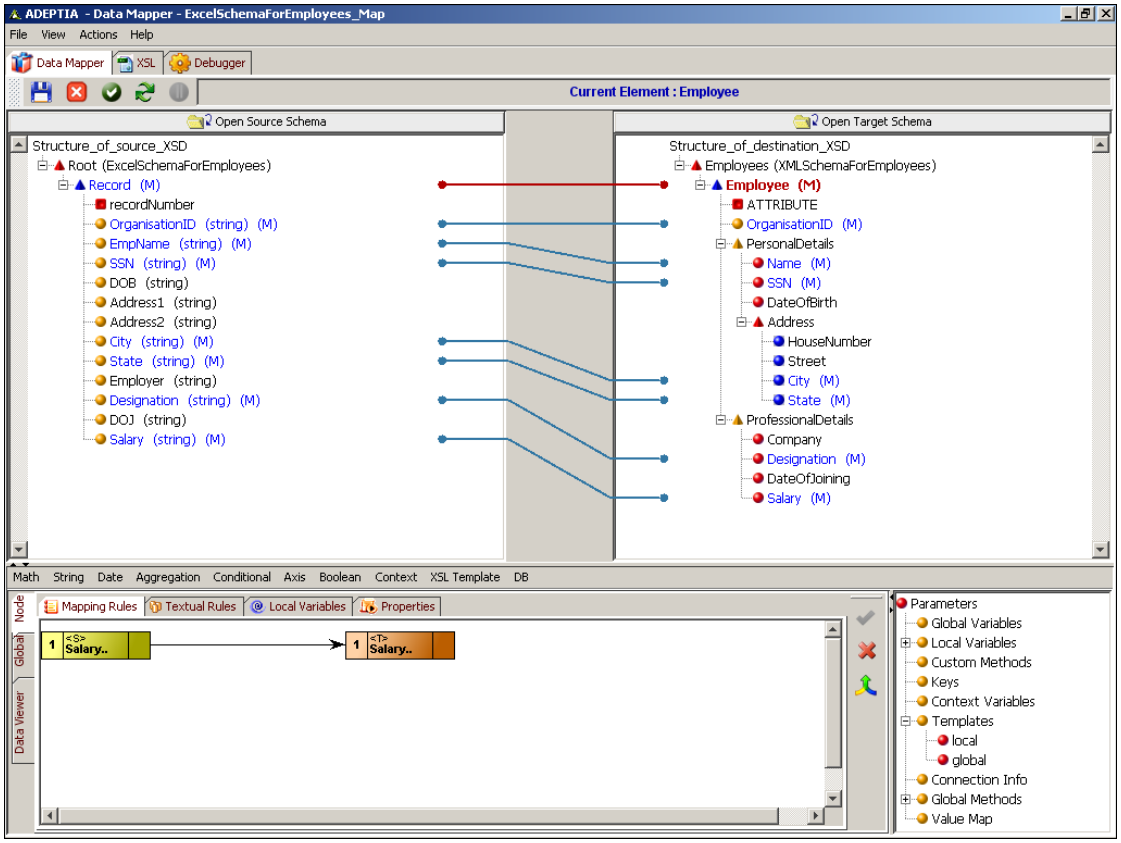


Figure 317: Source and Target elements are mapped

Using Add Value Map Options

You can set the Map for a particular value of an element using the Add Value Map feature. For example, if the value of an element, (for example, *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 310).

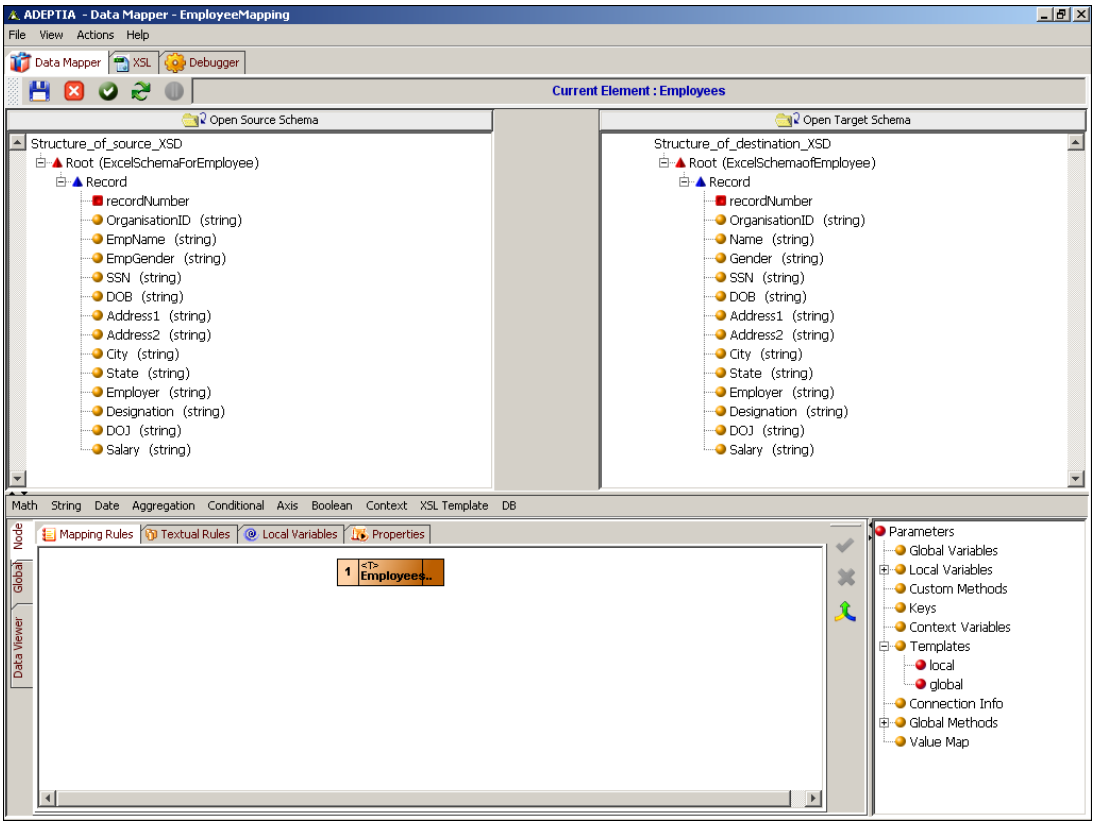


Figure 318: Elements of Source and Target Schema

2. Click **Actions** menu and select **Add Value Map Options** (see Figure 311).

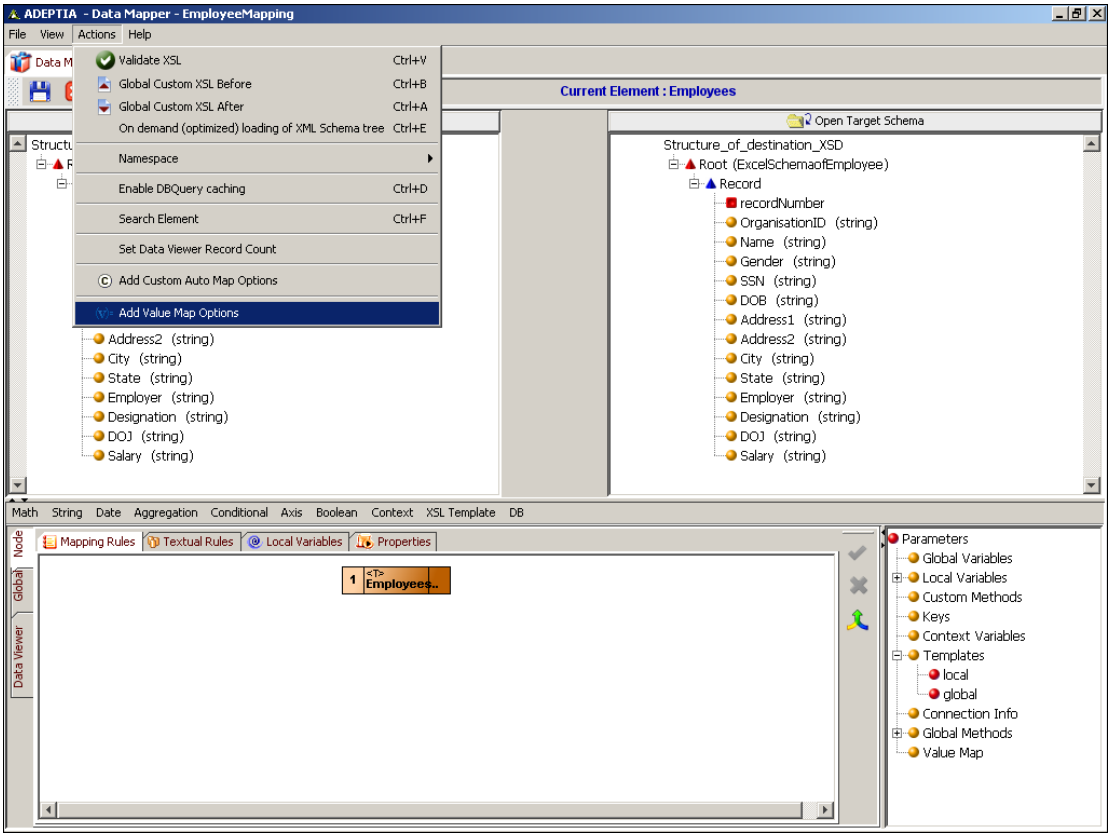


Figure 319: Select Add Value Map Option

3. The **Value Map Options Dialog** window is displayed (see Figure 312).

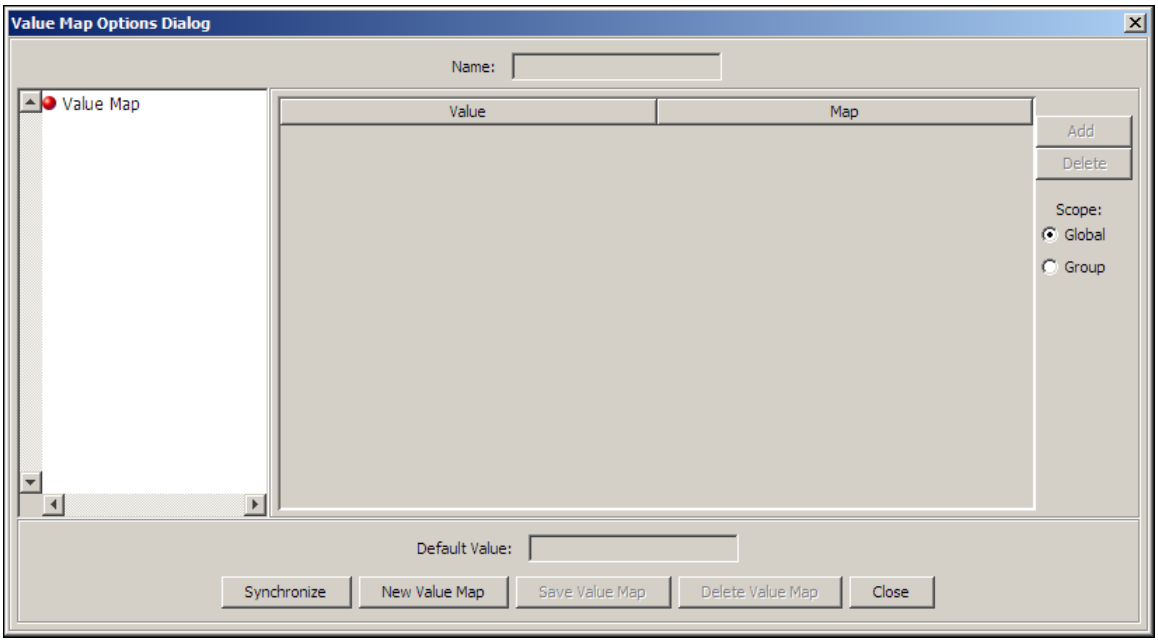


Figure 320: Value Map Options Dialog box

4. Click the **New Value Map** button and enter the name of value map (for example, *GenderMap*) in the *Name* field.

5. Click the **Add** button and enter the value (for example, *F*) in *Value* field and enter its map value(for example, *Female*) in **Map** field.
6. Similarly you can add more textboxes **Value** and **Map**.
7. You can provide the default Map value in the **Default Value** field (for example, *Not Provided*). In case at source side the value is neither *F* nor *M* then **Not Provided** value is mapped set to the target element (see Figure 313).

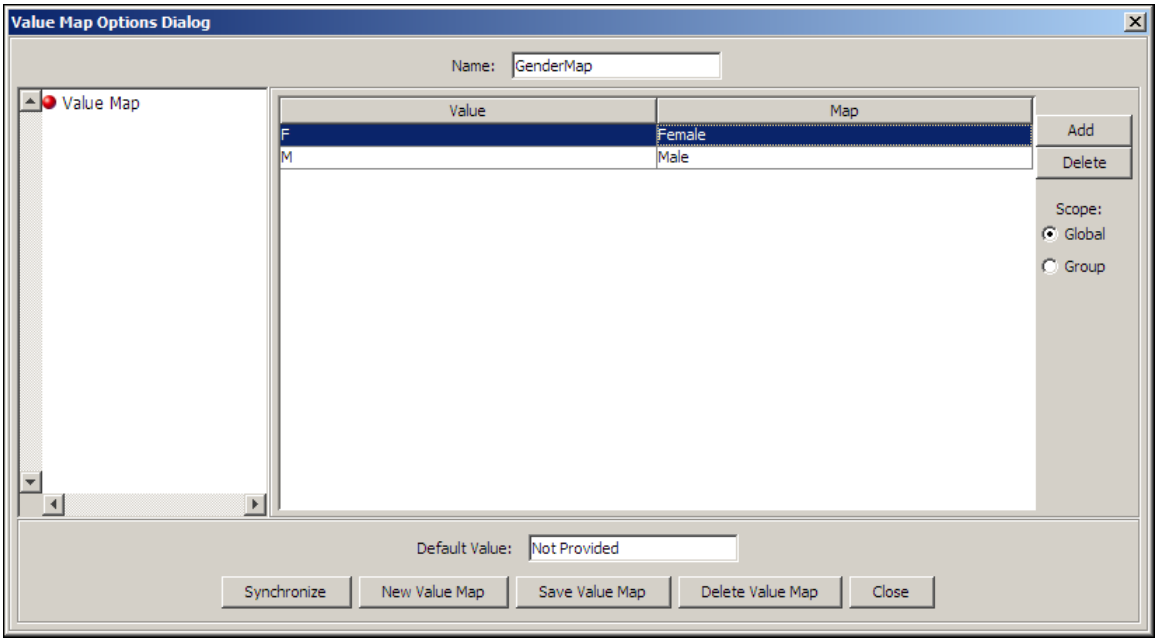


Figure 321: Add Value Map

8. Click the **Save Value Map** button to save the value map. This will add the newly saved value map in **Value Map** hierarchy 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** hierarchy 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

1. 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.
2. 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 314).

Figure 322: Paste Mapping Options

3. 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.

4. Select the checkbox(s) of options you want to paste with the mapping, and click **OK**. 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.

Import Mapping

If you want to map elements in a pattern that is similar to an existing mapping, you can import the existing mapping.

Steps to import an existing mapping to a new mapping

1. Ensure that the source and target schemas are loadedand all their elements are listed under their respective nodes. (see Figure 315).

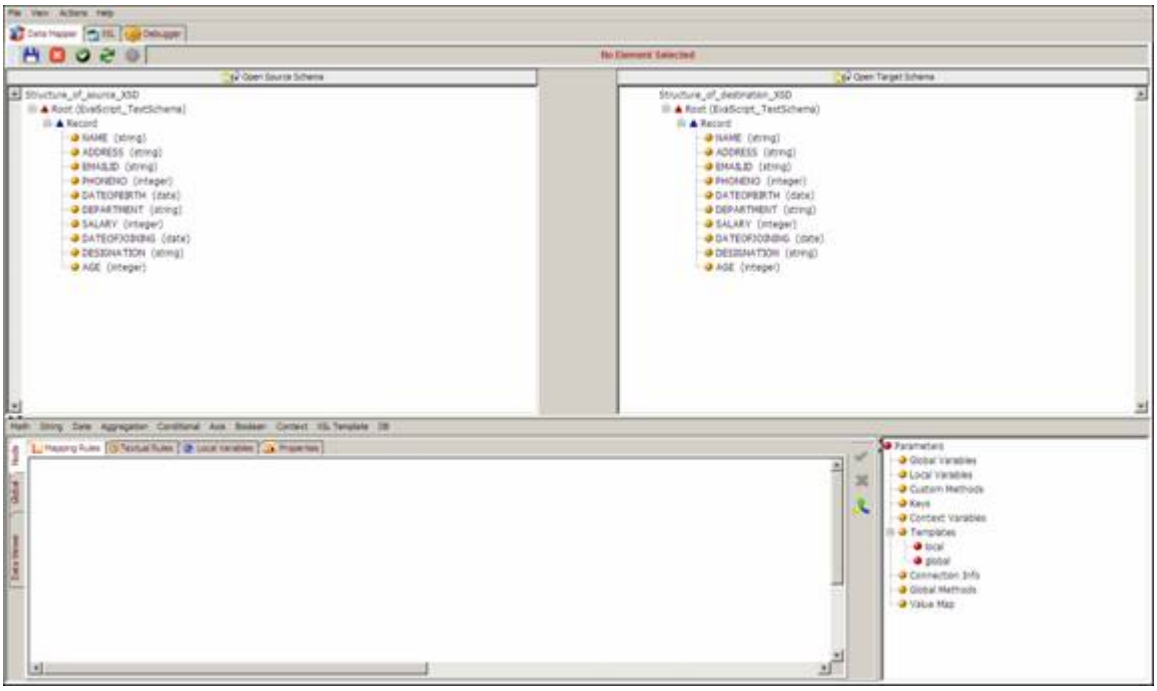


Figure 323: Elements of Source and Target Schema

2. Click **Actions** menu and select **Import Mapping** (see Figure 316).

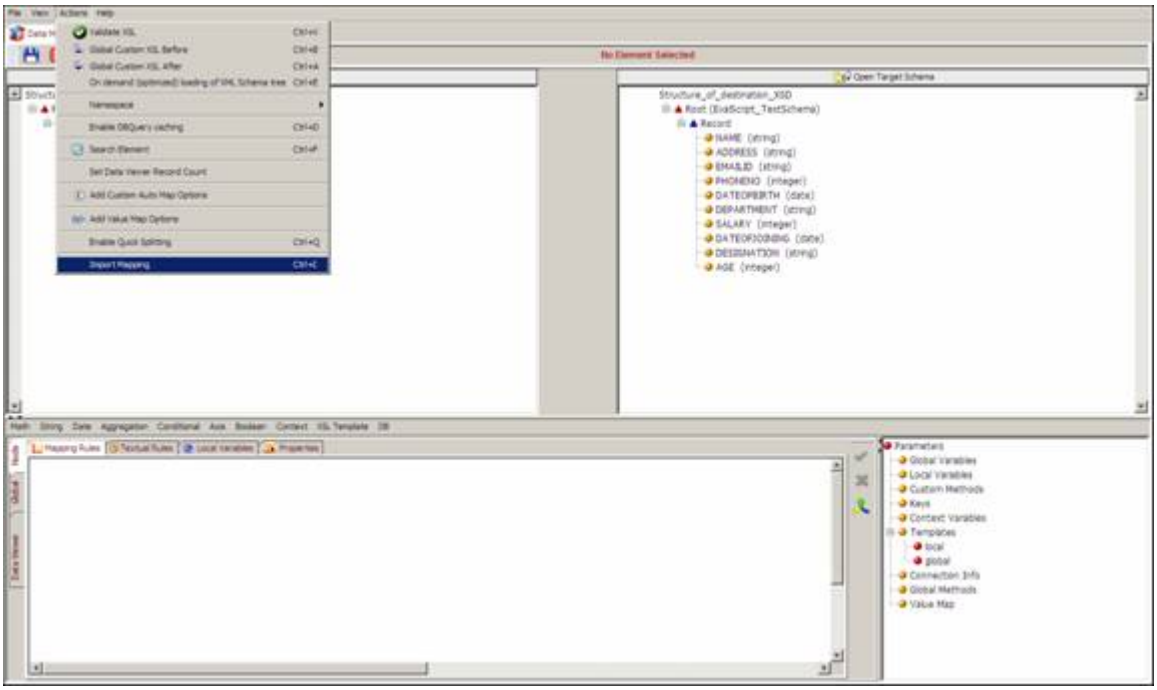


Figure 324: Select Import Mapping Option

3. The **Import Mapping Dialog** screen is displayed (see Figure 317).

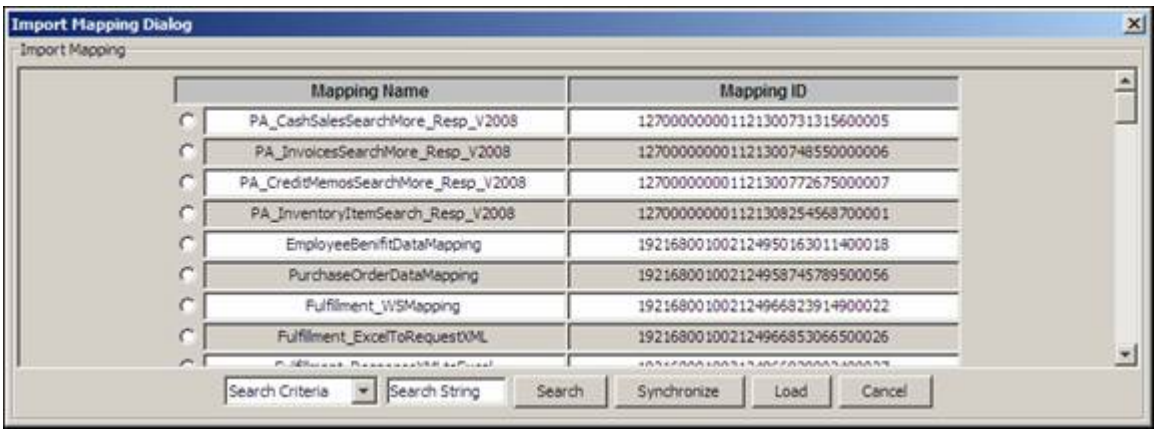


Figure 325: Import Mapping Dialog

4. Select the mapping you want to import and click **Load**. This imports the mapping of the selected schemas to the new schemas (see Figure 318).

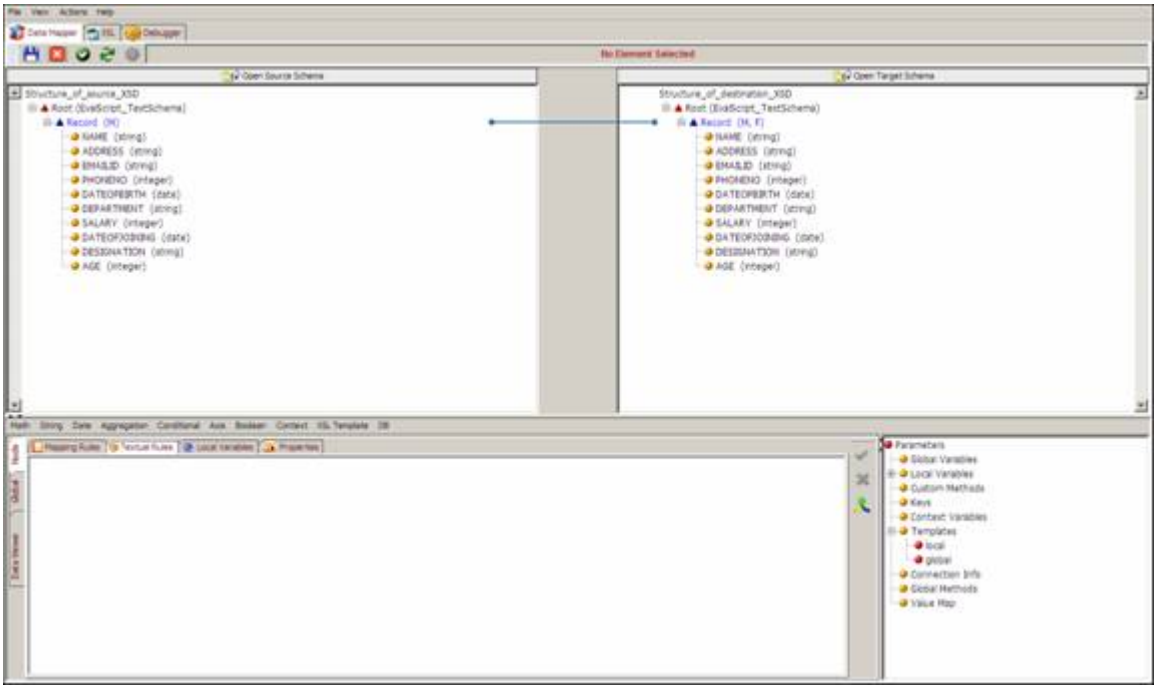


Figure 326: Mapping Imported

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 319).

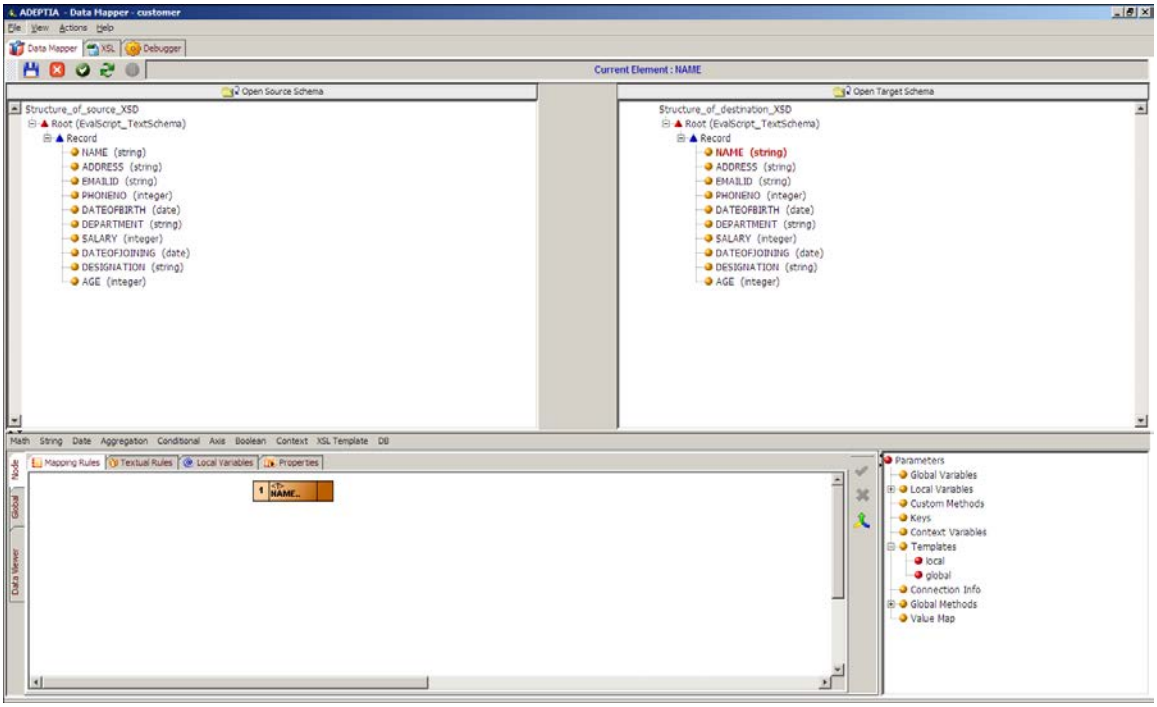


Figure 327: Select Target Element

3. Double-click a source element. The source element is displayed in the **Mapping Graph Area** (see Figure 320).

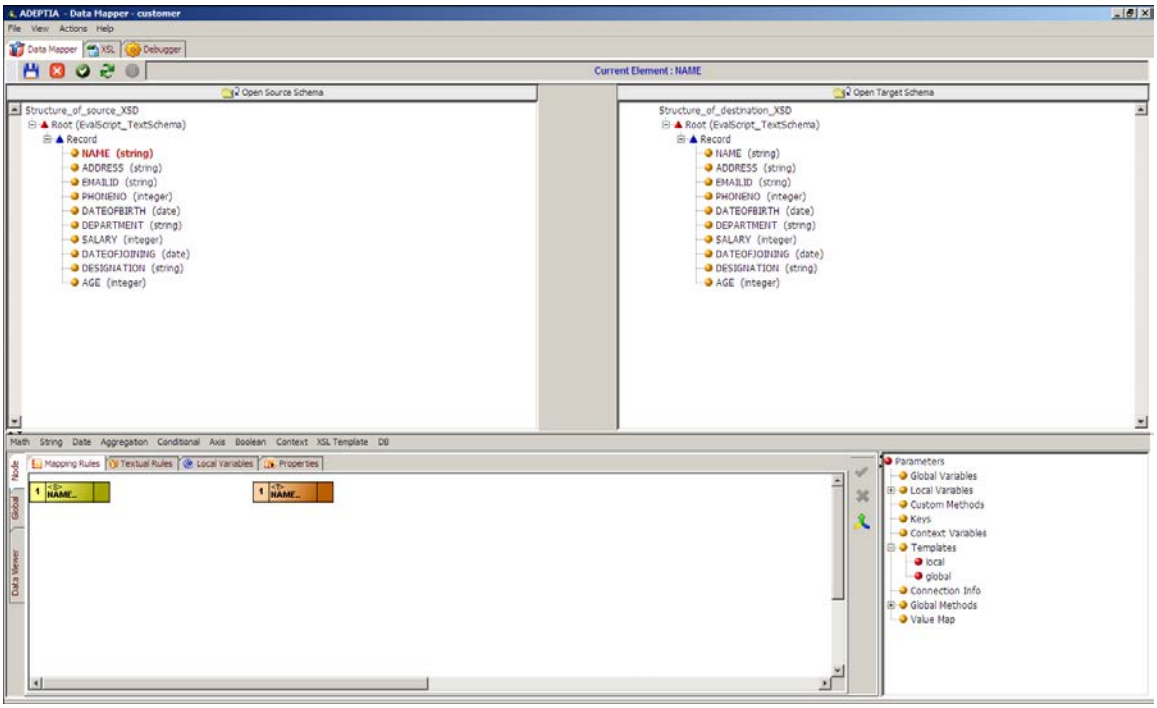


Figure 328: Select Source Element

You can double-click more source elements if required. This will display the selected source elements in the Mapping Graph Area (see Figure 321).

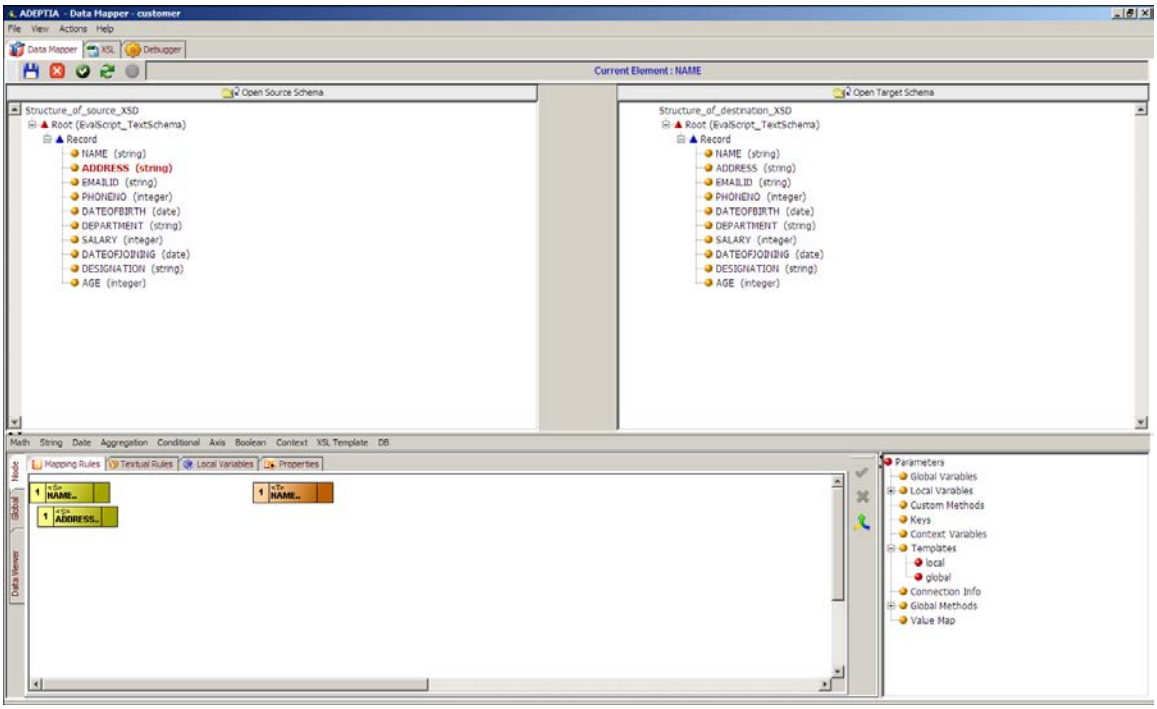


Figure 329: Select Second Source Element

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 42: Suffixes of Source and Target Elements

Suffix	Description
(C)	Target element can be cloned to create another target element.
(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.

> 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 the **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 322).

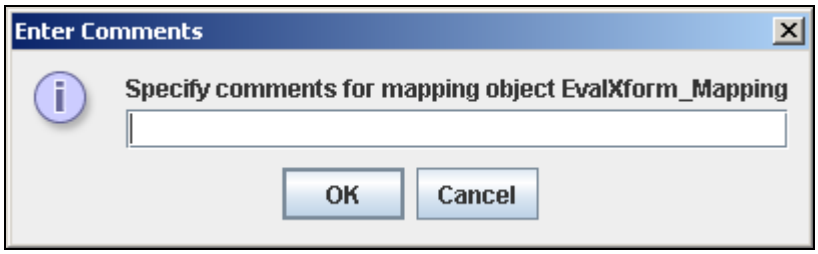


Figure 330: Add Comments (Mapping)

2. Enter comments in the textbox **Specify comments for mapping object<object name>**.

> 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 *Updating System Properties* section in *Administrator* Guide.

4. Click **File** menu and select **Exit** to close the Data Mapper applet. A confirmation dialog box is displayed (see Figure 323).

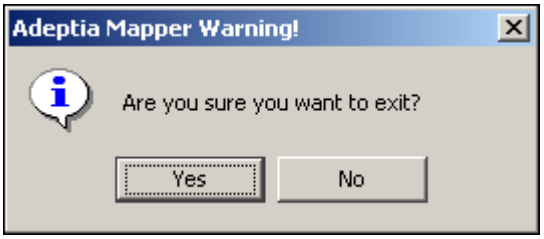


Figure 331: Exit from Data Mapper

5. Click the **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 324).

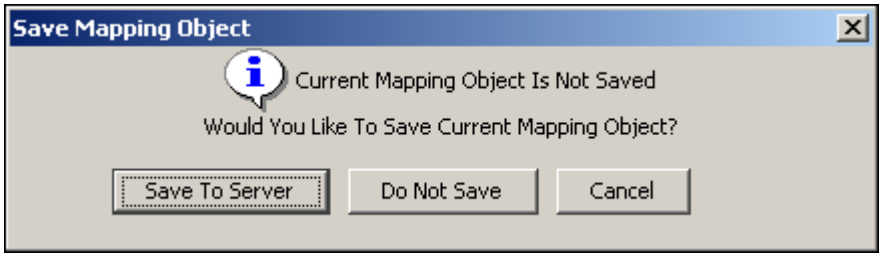


Figure 332: Save Mapping Object

6. Click the **Save To Server** button to save the mapping object to the Adeptia Suite. A screen is displayed where you need to enter comments related to the mapping. (refer to Figure 322).
7. Enter comments in the **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 the **XSL** tab on the Tabs Panel to view the generated mapping XSL. The generated XSL code with line numbers is displayed (see Figure 325).

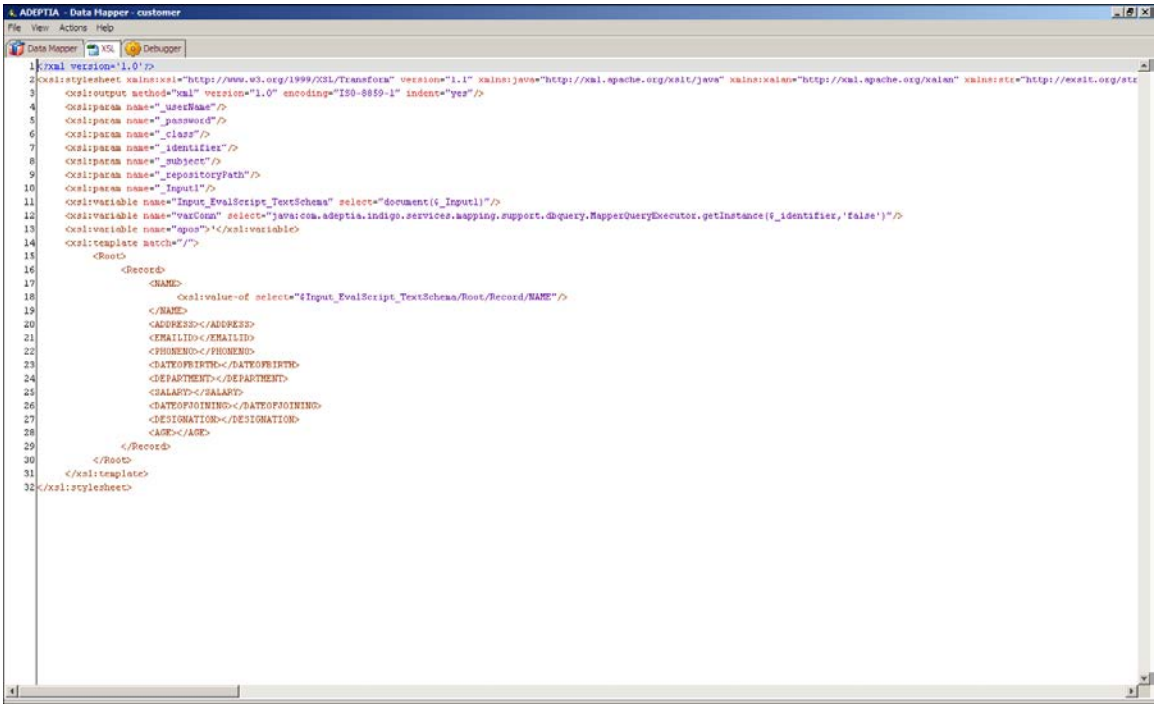


Figure 333: Mapping XSL

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** 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 326).

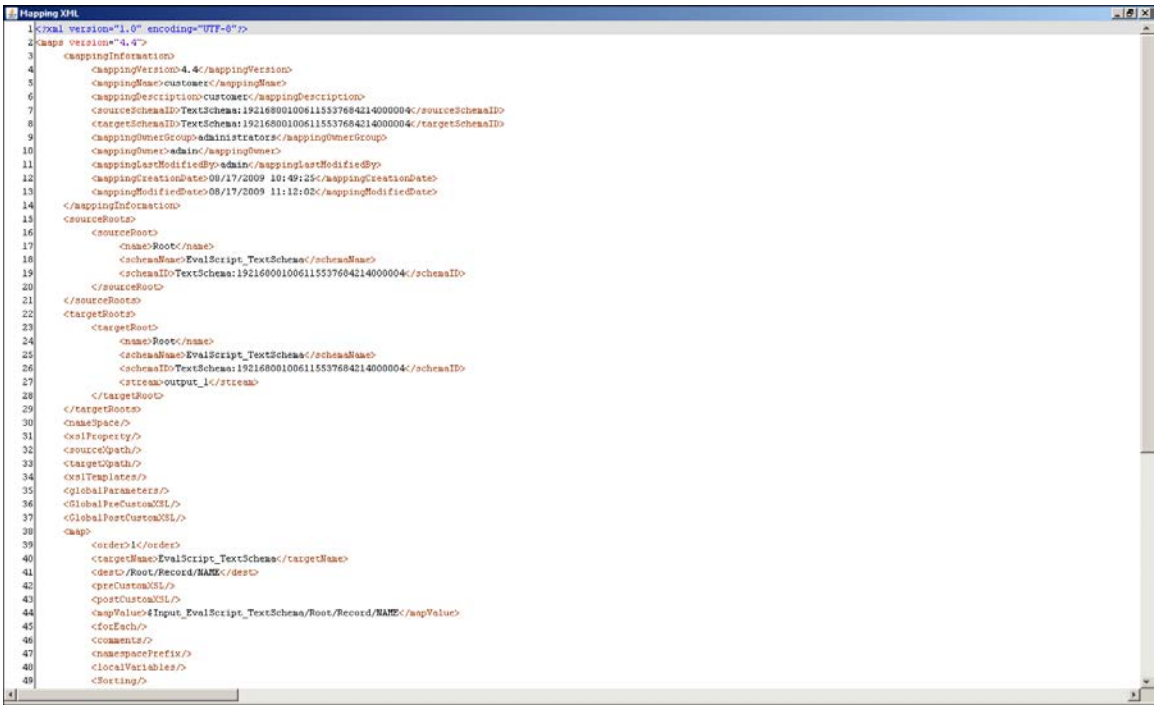


Figure 334: View Mapping XML

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 the **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 327).

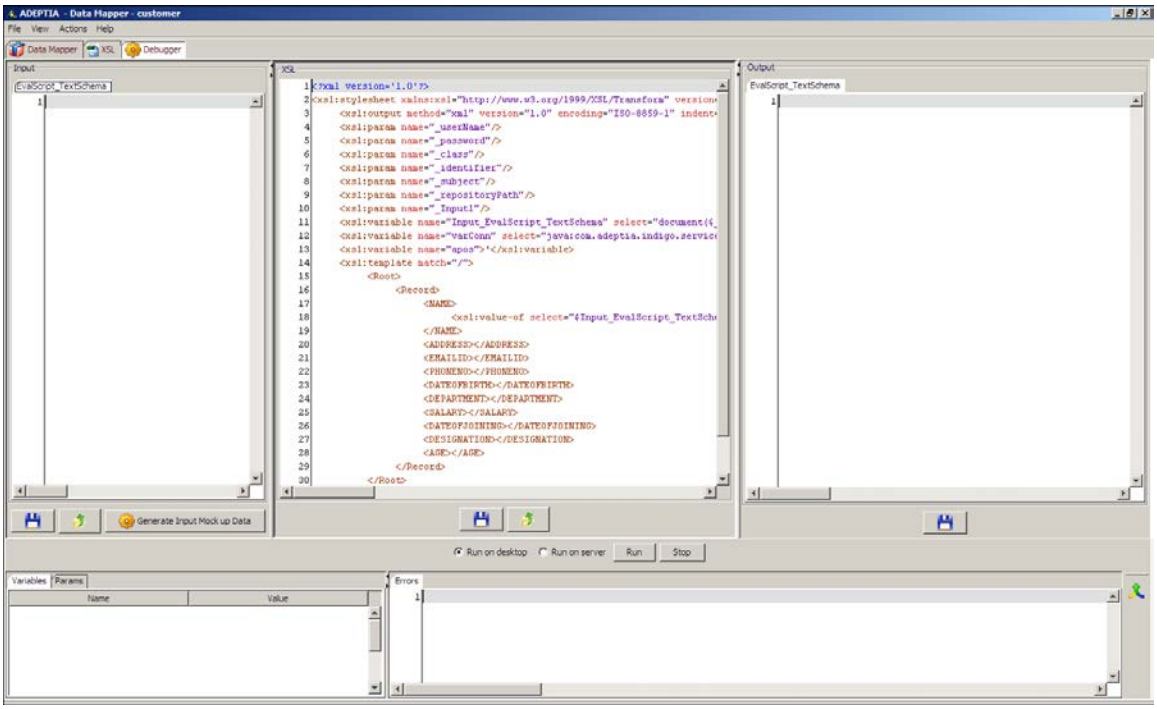


Figure 335: Debugger screen

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

Table 43 : Options of the Debugger Screen

Suffix	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 The Variables tab displays the local variables that are encountered in the generated XSL. The Params tab displays all parameters that are defined for a XSL template. These parameters are

Suffix	Description
	displayed only if that XSL template is used in the mapping activity.
Errors	Displays all errors encountered during debugging.

2. Click the **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 328).

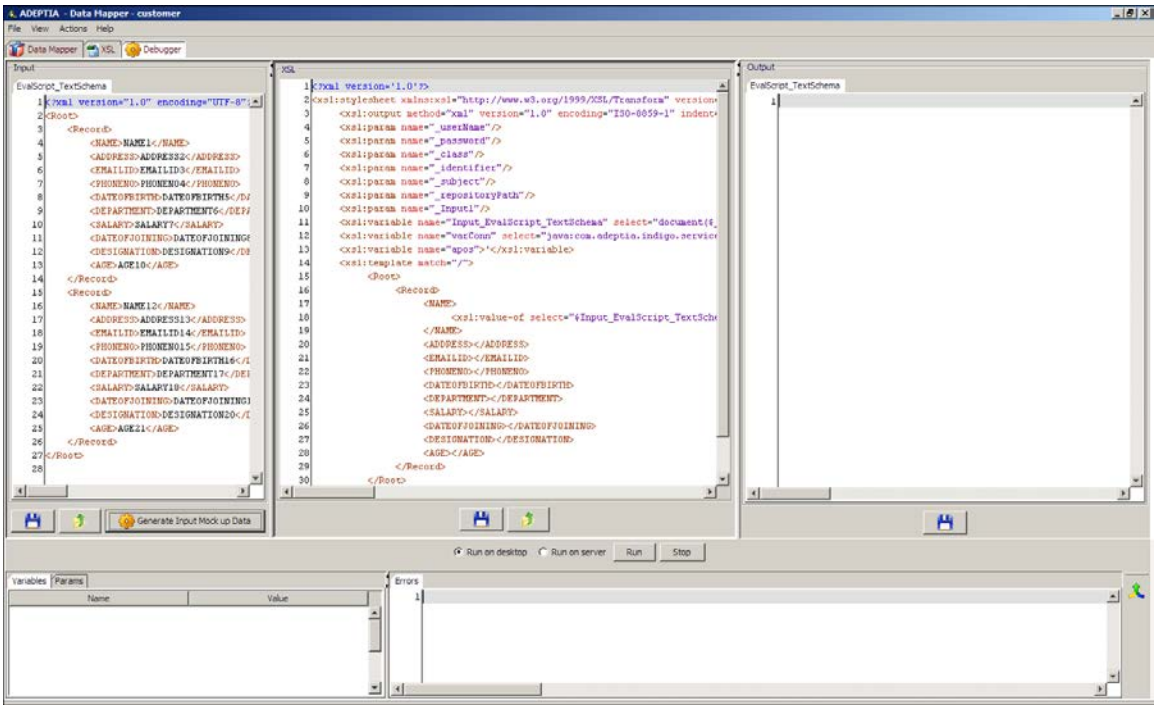


Figure 336: Generate Mockup Data

Data will be generated for all input schemas.

3. Alternately, you can attach a source file to the root element of the source schema. Right-click the root element of the source schema and select **Attach Source** from the dropdown list. Select the source file to attach it. This automatically converts the actual data of the source file into XML input data, which can be validated.

4. 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.

5. Click the **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.

6. Select the radio button **Run on Server** if you want to simulate the mapping activity on the server.
7. Click the **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 329).

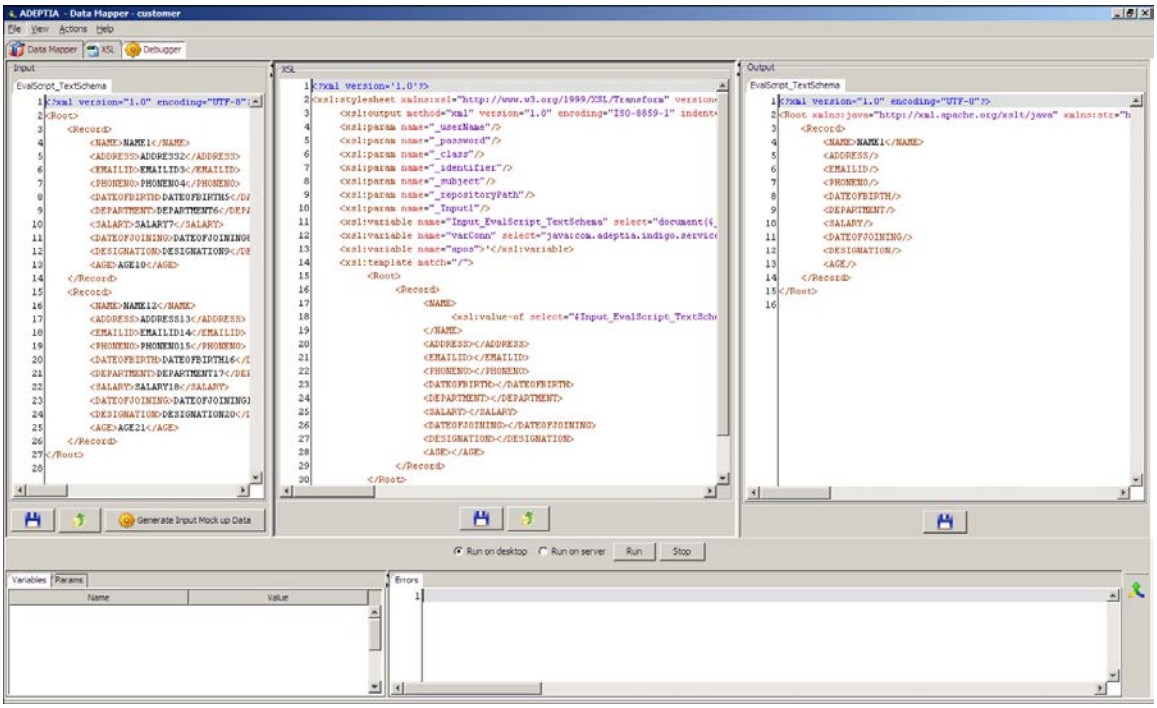


Figure 337: Output XSL

> 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.

8. Click the **Save** button () displayed in the Output section to save the generated mapping output.
9. 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. It also displays error records (if any). Additionally, it also validates the enumerated values and displays the list of enumerated literals for the target element in case XML Schema is used at target.

Data Viewer is helpful if you want to know what will be 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 44 lists the schemas, whose records can be displayed in data viewer.

Table 44: 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 330).

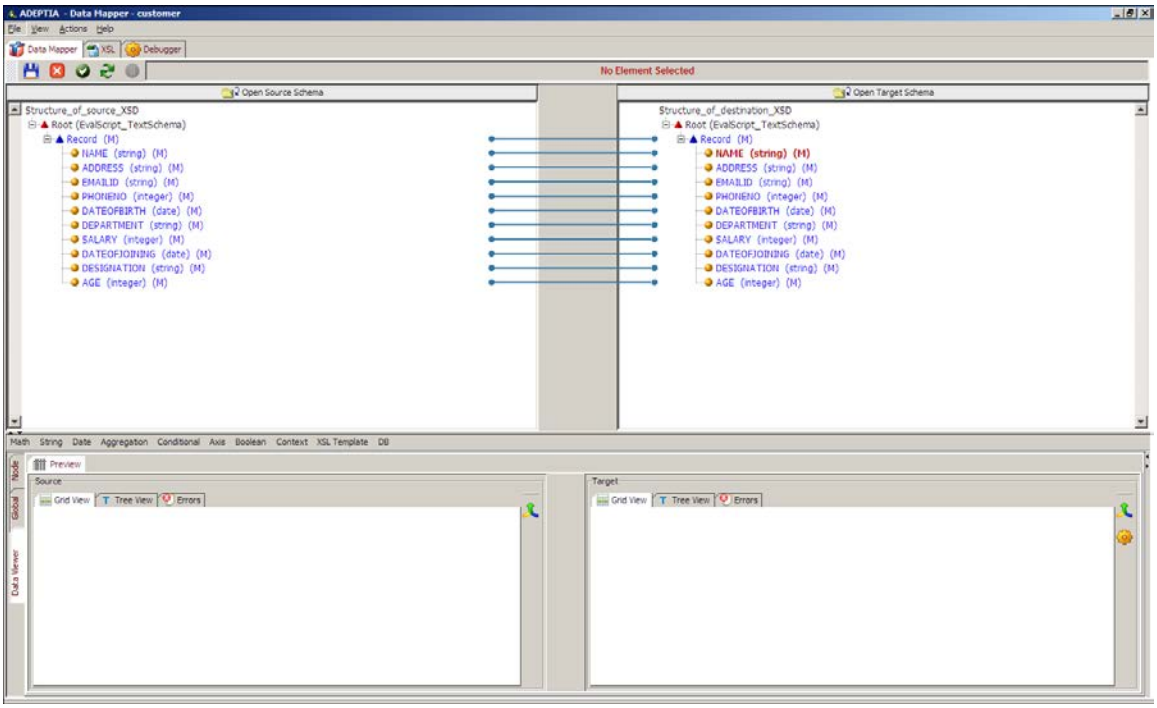


Figure 338: Data Viewer

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 331).

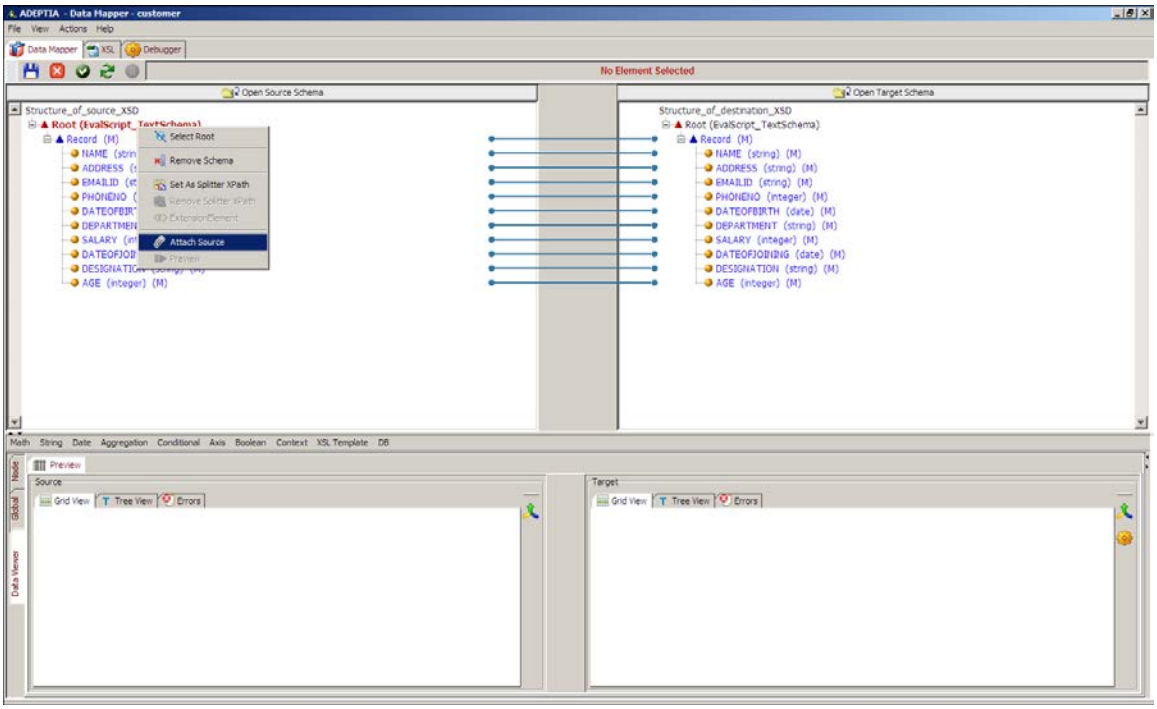


Figure 339: Attach Source

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 332).

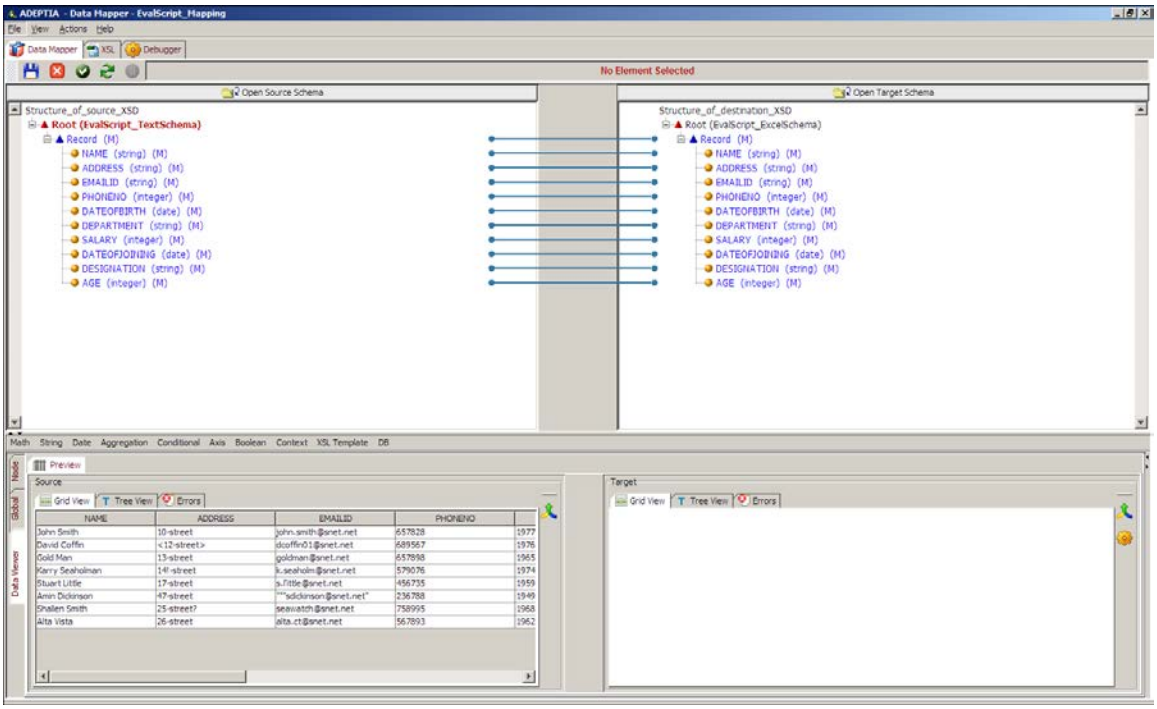


Figure 340: Source records in Grid View

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.

6. 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 333).

Figure 341: Pop-up message

7. Click **OK** to close this pop-up message.

8. To view the source data in *Tree View,* click the **Tree View** tab. The source data is selected in the hierarchy view (see Figure 334).

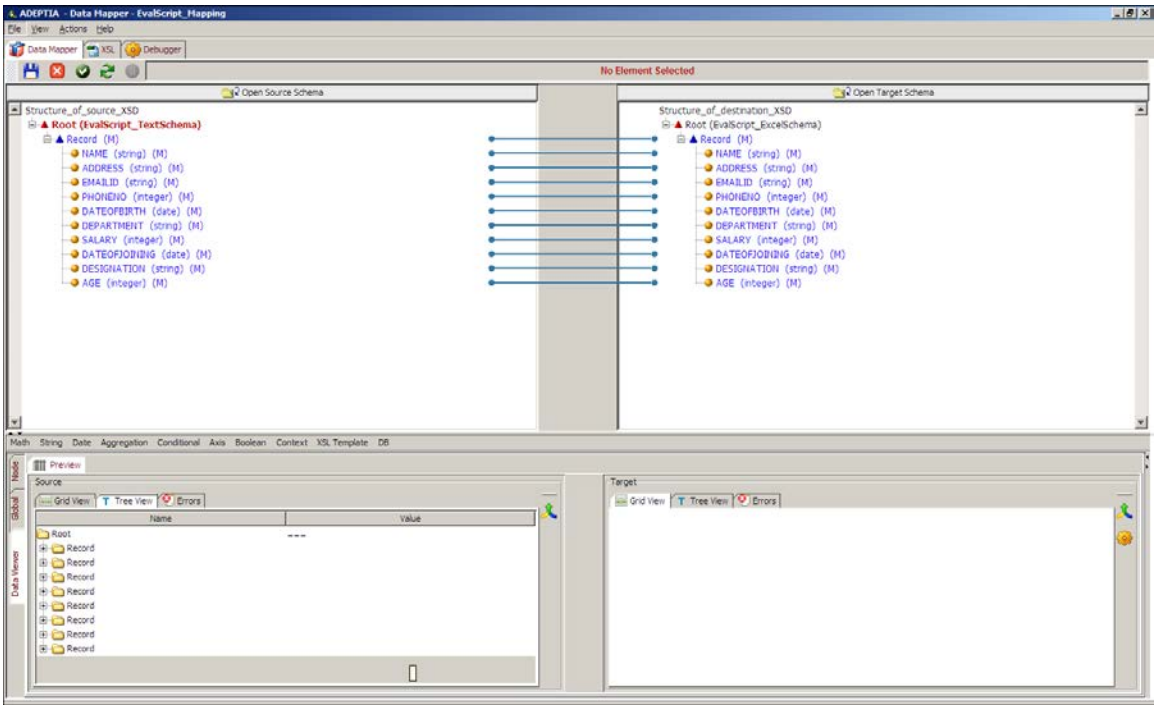


Figure 342: Tree View

9. To view the values of the record, click **[+]** to expand the **Record**. Values of the expanded record are shown (see Figure 335).

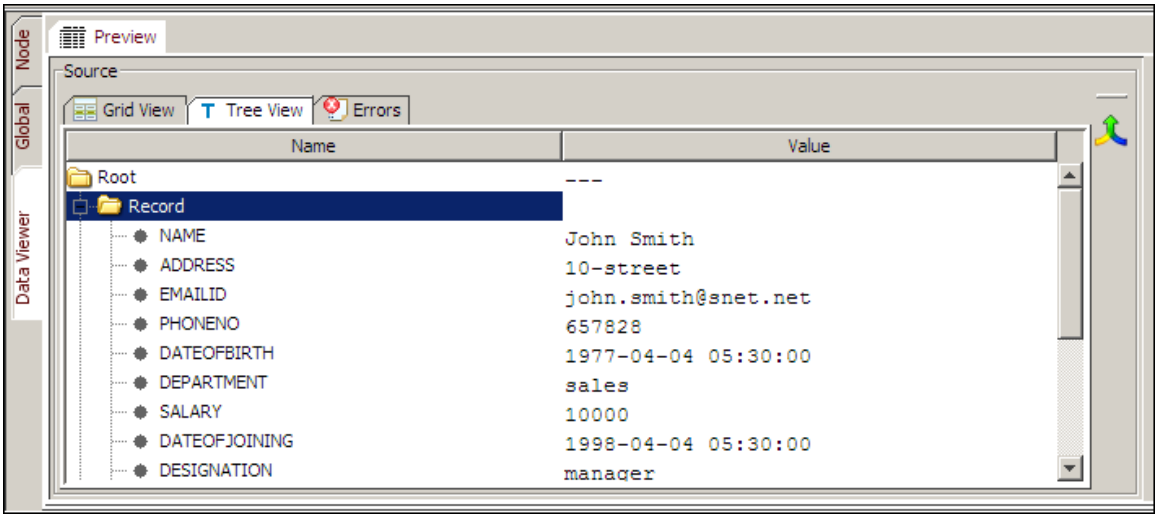


Figure 343: Records in Tree View

10. Similarly to view values of other records, 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 336).

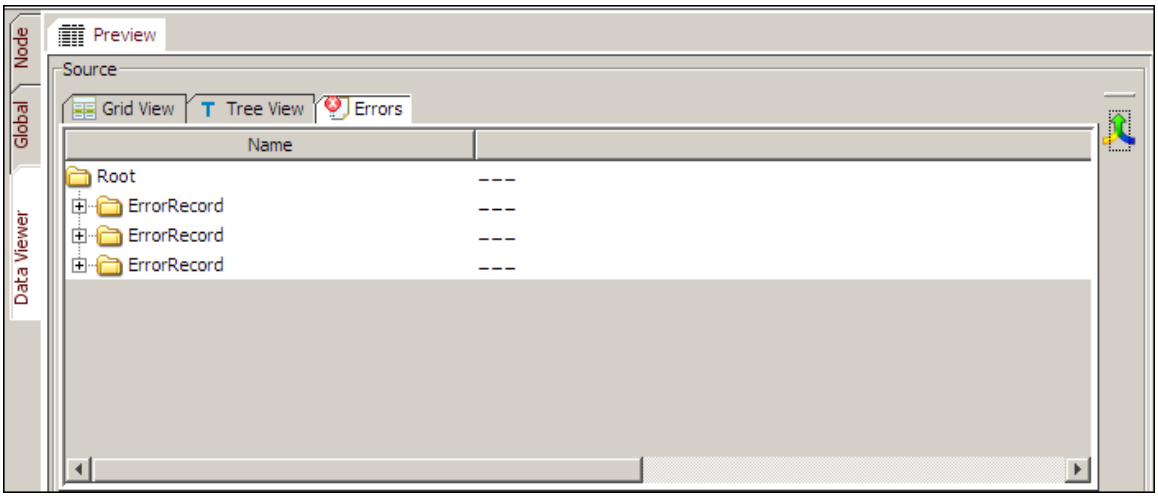


Figure 344: Error Record

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 337).

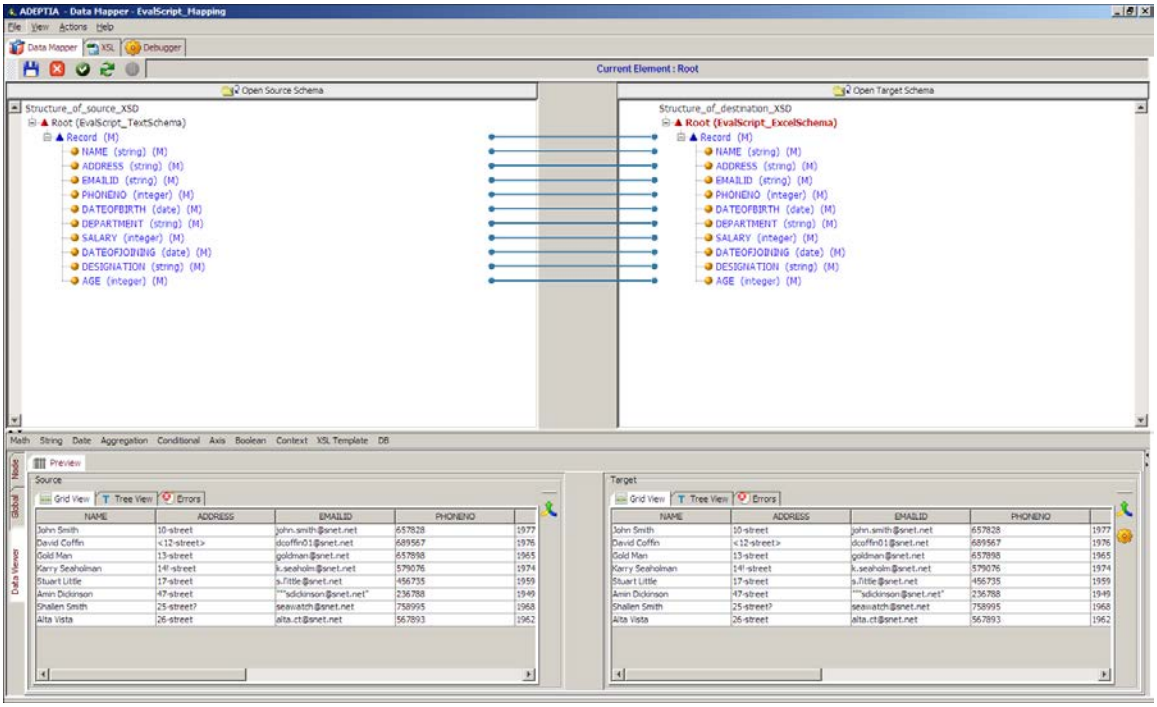
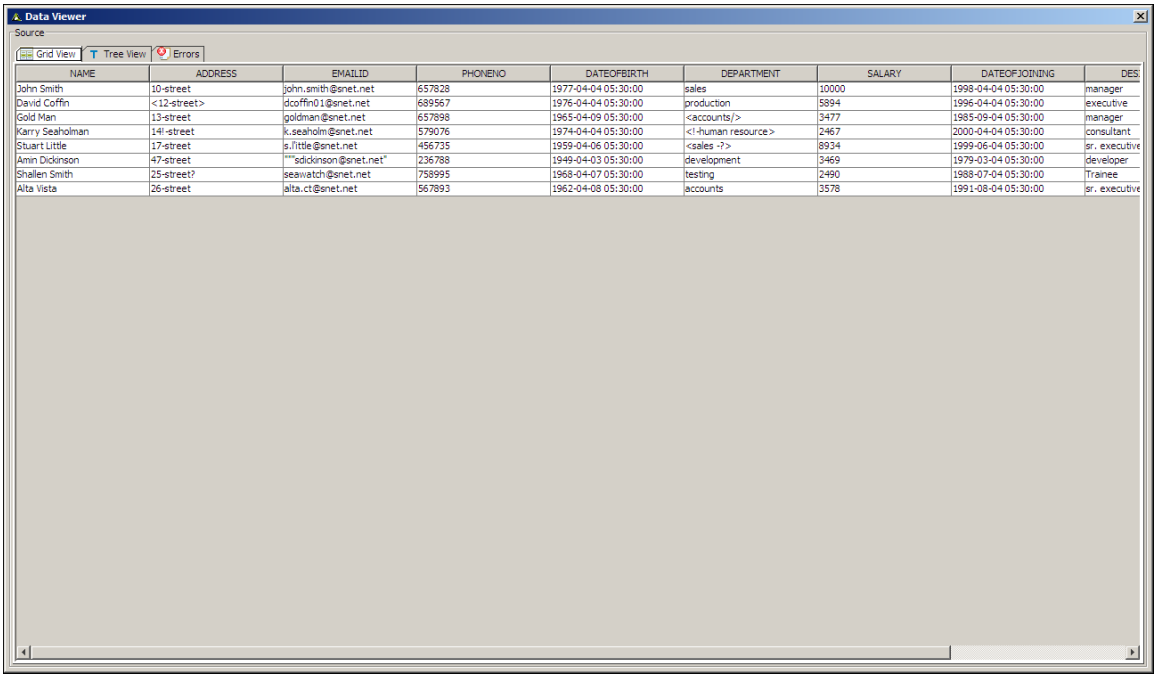


Figure 345: Target Records in Grid View

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 perform 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 hierarchy 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 338).



NAME	ADDRESS	EMAILID	PHONENO	DATEOFBIRTH	DEPARTMENT	SALARY	DATEOFJOINING	DES
John Smith	10-street	john.smith@snet.net	657828	1977-04-04 05:30:00	sales	10000	1998-04-04 05:30:00	manager
David Coffin	<12-street>	dcoffin01@snet.net	689567	1976-04-04 05:30:00	production	5894	1996-04-04 05:30:00	executive
Gold Man	13-street	goldman@snet.net	657898	1965-04-09 05:30:00	<accounts/>	3477	1985-09-04 05:30:00	manager
Karry Seaholman	14!-street	k.seaholm@snet.net	579076	1974-04-04 05:30:00	<!-human resource>	2467	2000-04-04 05:30:00	consultant
Stuart Little	17-street	s.little@snet.net	456735	1959-04-06 05:30:00	<sales -?>	8934	1999-06-04 05:30:00	sr. executive
Amin Dickinson	47-street	"""sdickinson@snet.net"	236788	1949-04-03 05:30:00	development	3469	1979-03-04 05:30:00	developer
Shallen Smith	25-street?	seawatch@snet.net	758995	1968-04-07 05:30:00	testing	2490	1988-07-04 05:30:00	Trainee
Alta Vista	26-street	alta.ct@snet.net	567893	1962-04-08 05:30:00	accounts	3578	1991-08-04 05:30:00	sr. executive

Figure 346: Target Panel in expanded mode

17. To close the expanded **Source** or **Target** panel, click  .

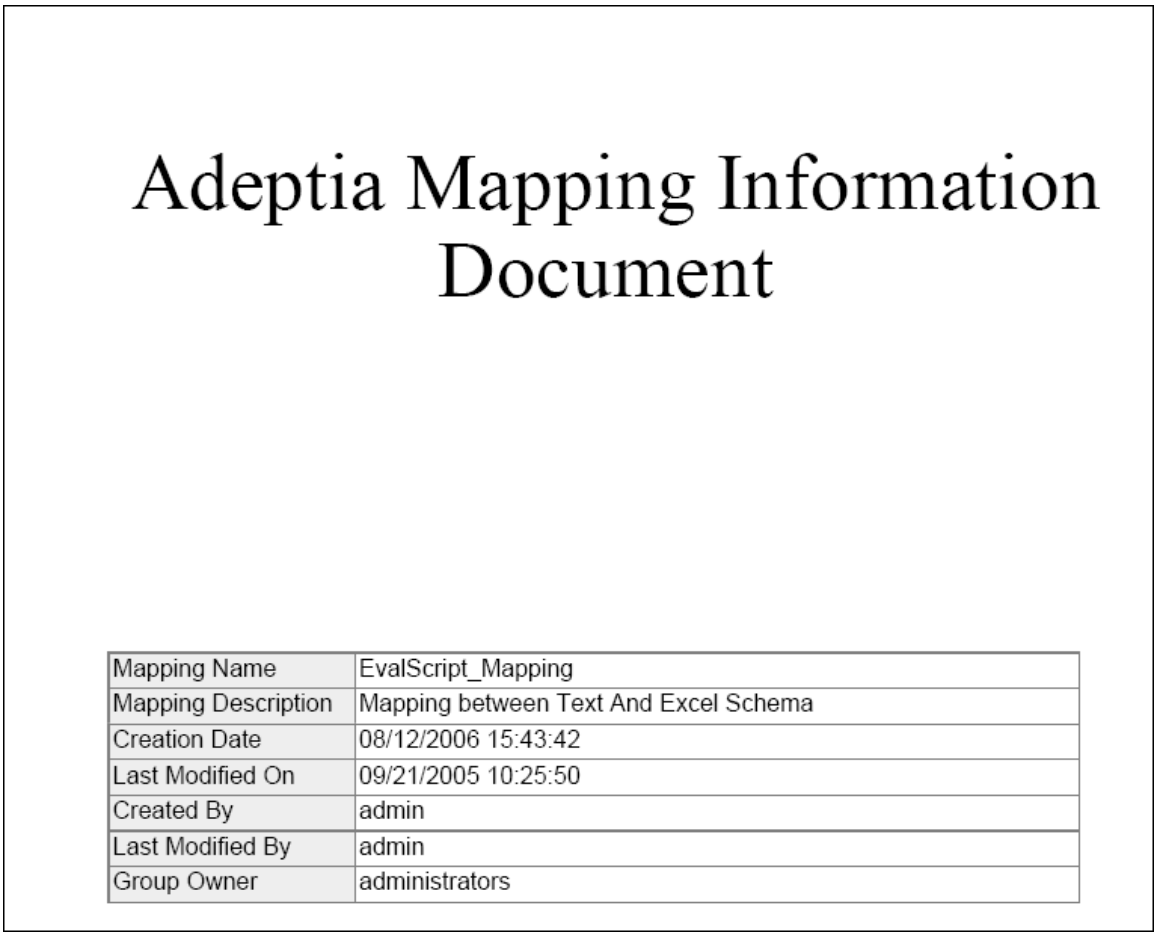
Viewing Mapping in PDF format

Steps to view mapping activity in PDF format

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Data Transform** to expand the hierarchy, and then click **Data Mapping**. The **Manage Data Mapping** screen is displayed (refer to Figure 284).

4. 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.

5. 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 339).

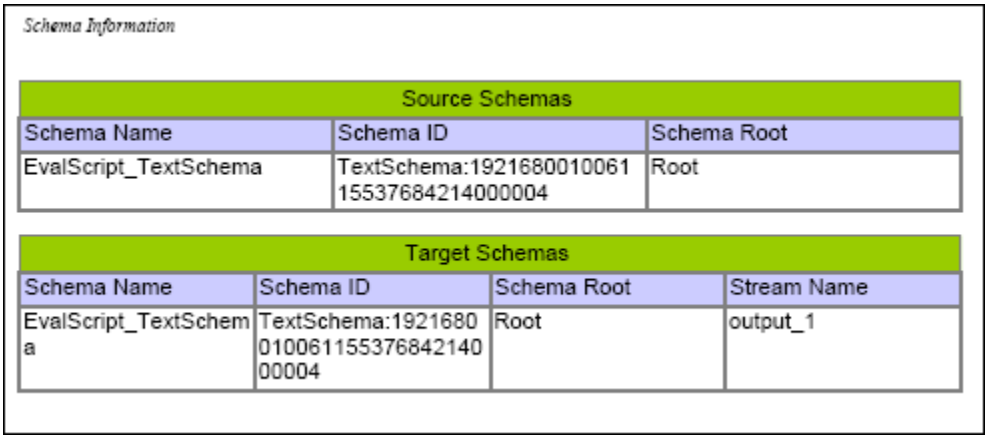


Adeptia Mapping Information Document

Mapping Name	EvalScript_Mapping
Mapping Description	Mapping between Text And Excel Schema
Creation Date	08/12/2006 15:43:42
Last Modified On	09/21/2005 10:25:50
Created By	admin
Last Modified By	admin
Group Owner	administrators

Figure 347: Mapping Information Document

6. The next page displays all source and target schema information (see Figure 340).



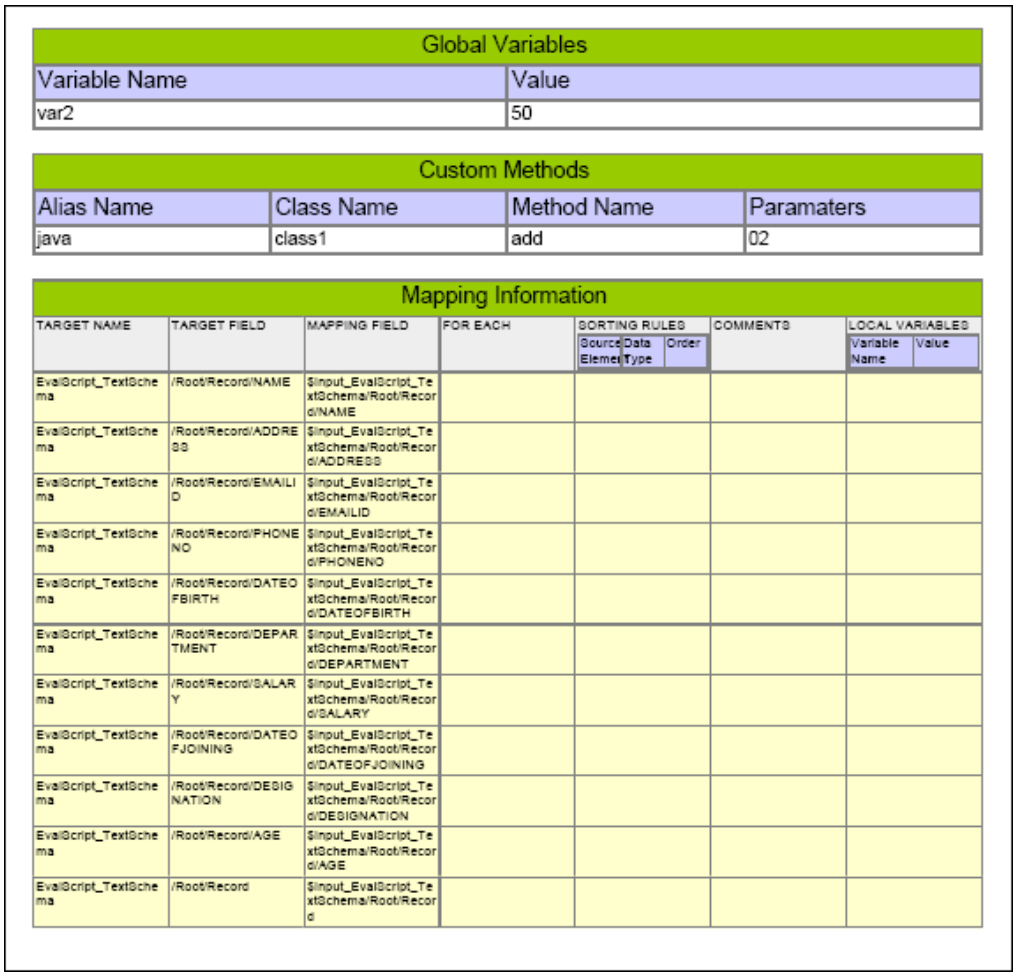
Schema Information

Source Schemas		
Schema Name	Schema ID	Schema Root
EvalScript_TextSchema	TextSchema:1921680010061 15537684214000004	Root

Target Schemas			
Schema Name	Schema ID	Schema Root	Stream Name
EvalScript_TextSchema	TextSchema:1921680 010061155376842140 00004	Root	output_1

Figure 348: Schema Information

7. The next page displays all other mapping information such as XSL templates used, variables defined, properties, keys, and sorting rules (see Figure 341).



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	
				Source Elemet	Data Type	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/PHONENO	$Input_EvalScript_TextSchema/Root/Record/PHONENO							
EvalScript_TextSchema	/Root/Record/DATEOFBIRTH	$Input_EvalScript_TextSchema/Root/Record/DATEOFBIRTH							
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/DATEOFJOINING	$Input_EvalScript_TextSchema/Root/Record/DATEOFJOINING							
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 349: 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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Data Transform** to expand the hierarchy, and then click **Data Mapping**. The *Manage Data Mapping* screen is displayed (refer to Figure 284).

4. Click the mapping activity that you want to view in read-only mode. The *View Data Mapping* screen is displayed (see Figure 342).

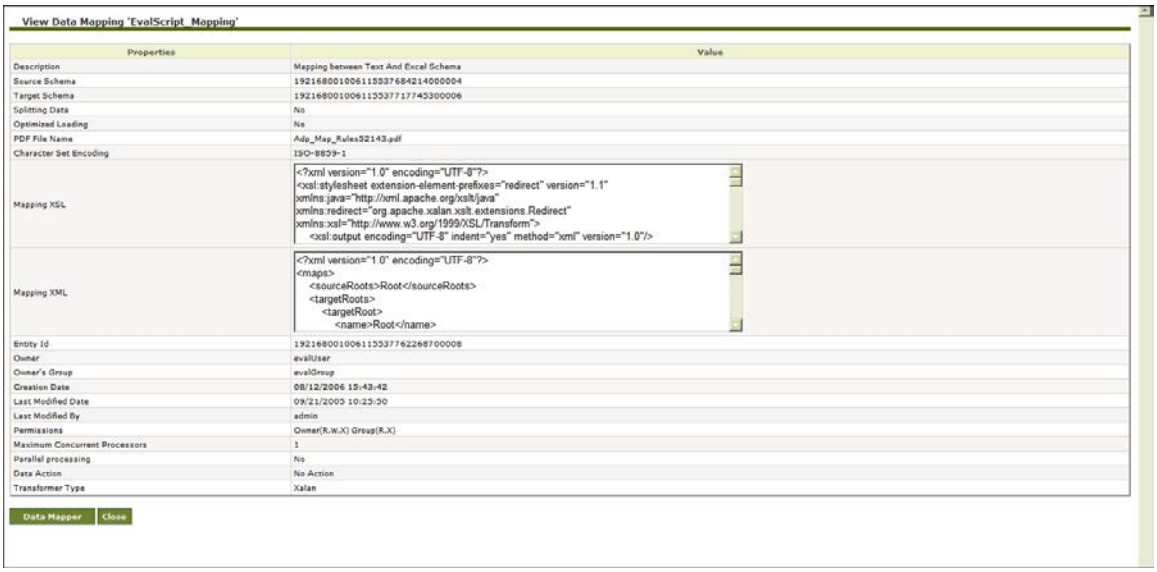


Figure 350: View Data Mapping

5. Click the **Data Mapper** button. This displays the selected mapping activity in the Data Mapper applet in read-only mode (see Figure 343).

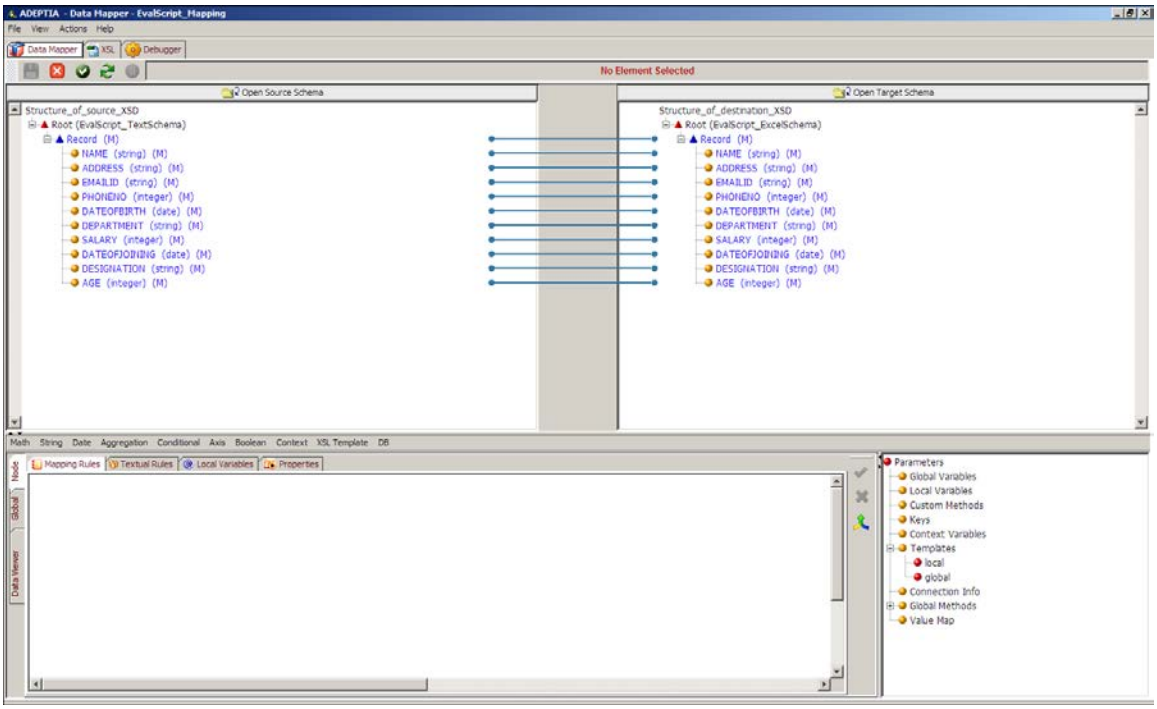


Figure 351: Data Mapper in Read-Only Mode

In the read-only mode all save options in the Data Mapper are disabled.

6. You can edit this mapping activity, by adding new mapping rules, or modifying existing ones. Additionally, you can also run simulation on this mapping.
7. 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 344).

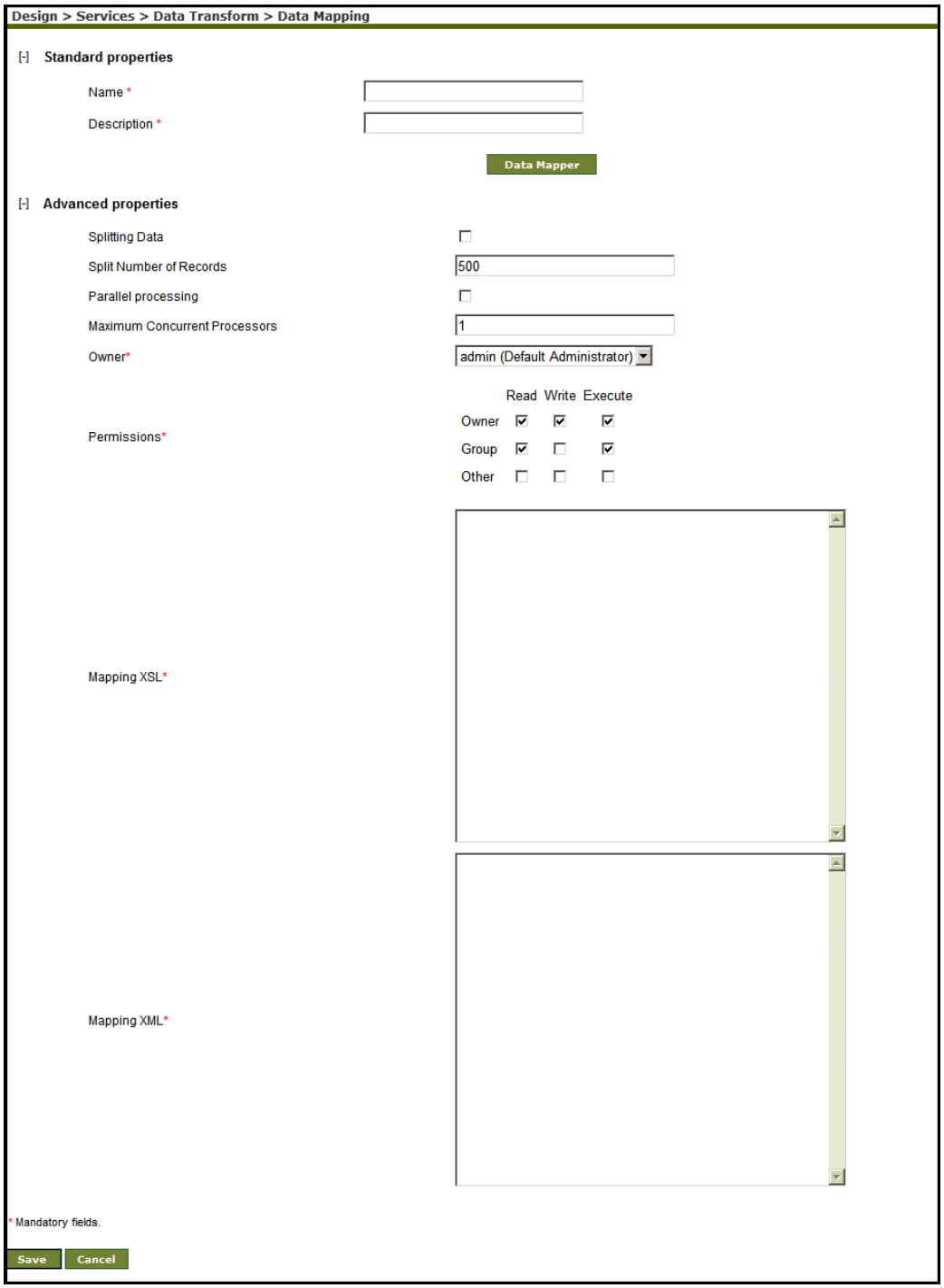


Figure 352: Advanced Properties

2. Select the **Splitting Data** checkbox to enable the splitting of data.

If you select this checkbox, then you have to split the data. You can do this by setting the Splitter XPath in the Data Mapper applet. Alternately, you can split the data by ***Enabling Quick Splitting*** feature.

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 chunks 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, only one chunk is processed at a time and hence sequentially.

6. Select the owner from the **Owner** dropdown 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 322).
11. Enter 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 hierarchy. 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 hierarchy 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 30 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 345).

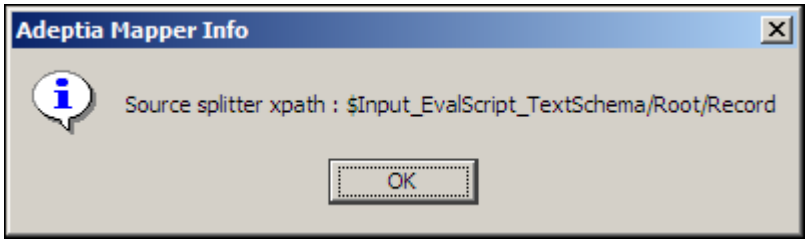


Figure 353: Splitter XPath Details

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 **(S)** 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 Table of Suffixes for details on suffixes displayed next to an element.

Once you have set a Splitter XPath, you can view it in the Output XML.

Enabling Quick Splitting

Another way of splitting source data is to enable the quick splitting feature. This splits the source and sets the Splitter Xpath.

Steps to split data by enabling quick splitting

1. Ensure that all the source and target schemas are loaded and all their elements are listed under their respective nodes.
2. Select **Actions** menu and select *Enable Quick Splitting* option. Alternately, you can press **<Ctrl> + <Q>**. This splits the data and displays the splitter Xpath details (see Figure 346).

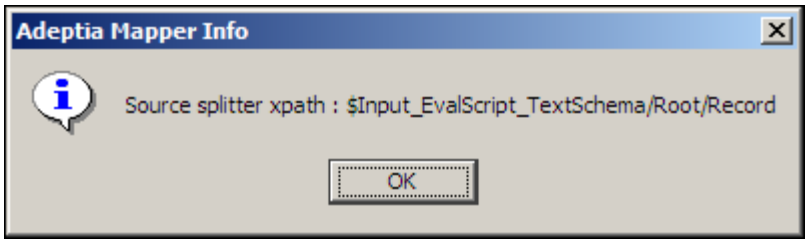


Figure 354: Splitter Xpath Details(Enable Quick Splitting)

3. Click **OK**. This splits and sets the Splitter XPath on the selected source element.

   However, quick splitting splits the records in default numbers. To split into a specific number, you need to set the Splitter Xpath explicitly.

Once a Splitter XPath is set for a source element, the letter **(S)** 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 Table of Suffixes for details on suffixes displayed next to an element.

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 347).

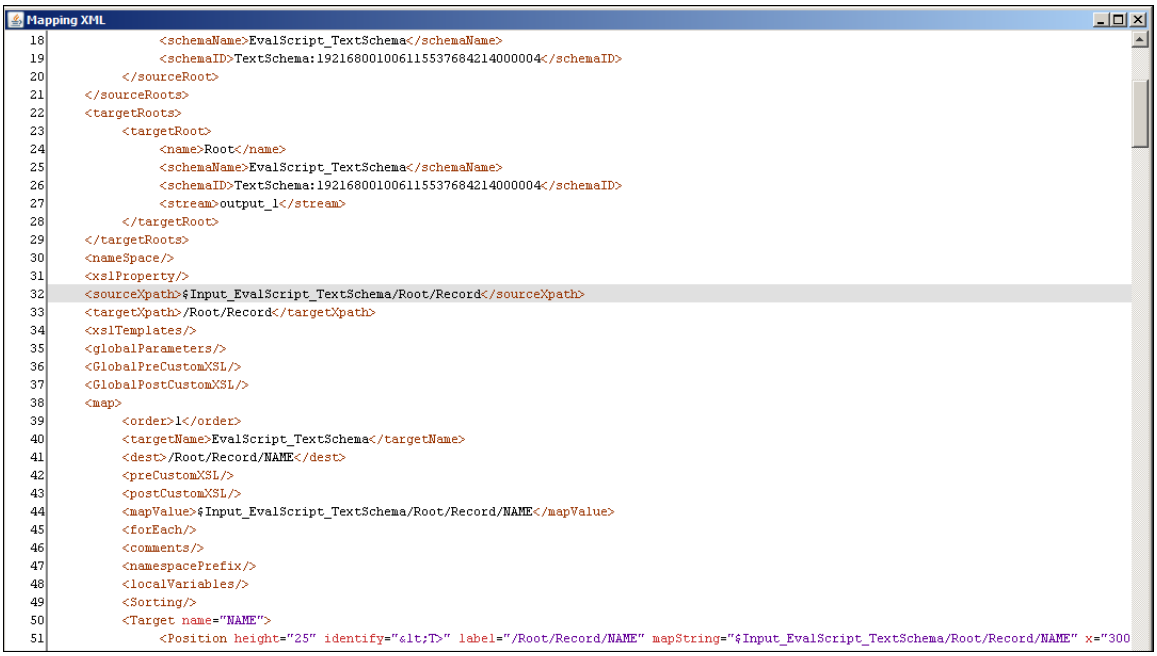


Figure 355: Splitter XPath in Mapping XML

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 348).

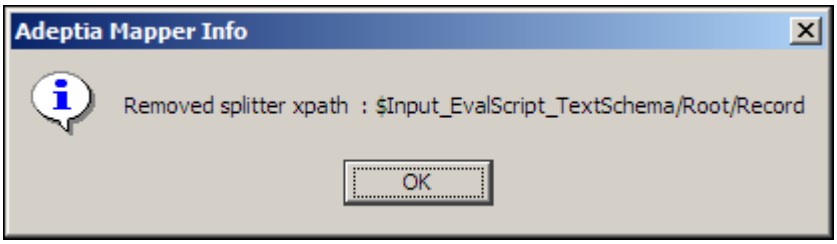


Figure 356: Remove Splitter XPath Details

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 349).

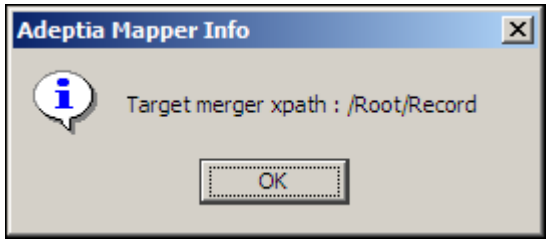


Figure 357: Merger XPath Details

> 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.

> When using Enable Quick Splitting feature, the Merger Xpath is also automatically set when this feature is selected.

5. 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 347).

   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 350).

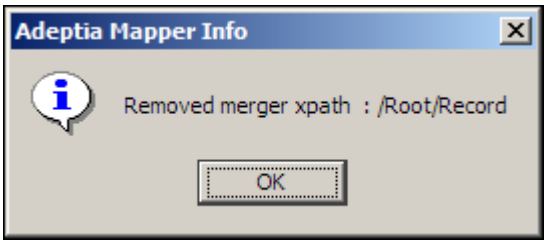


Figure 358: Remove Merger XPath Details

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 351).

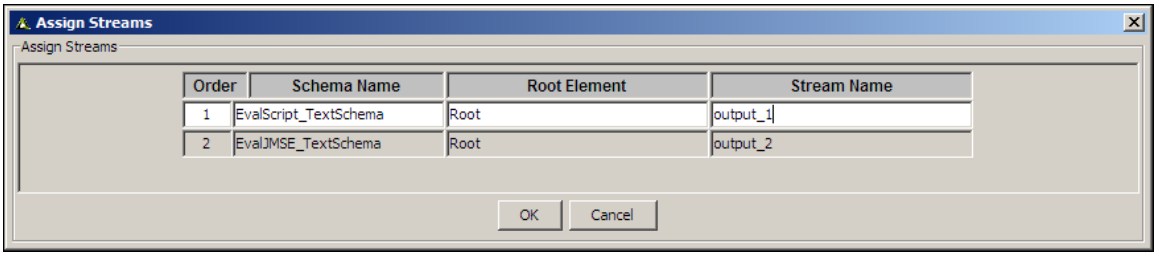


Figure 359: Assign Streams

3. This dialog box contains the fields listed in the table below. All fields are populated with values.

Table 45: 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.

Field	Description
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.

4. Enter the name of the data stream(s) that you want to edit, for the target element(s), in the textbox **Stream Name**.

The name of the data stream does not accept special characters and white spaces.

5. 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** window is displayed (see Figure 352).

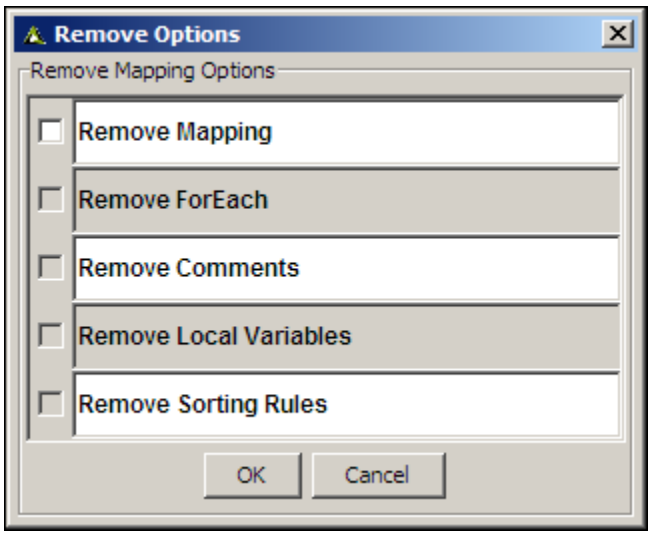


Figure 360: Remove Options (Particular Element)

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 Context Schema

Context schema allows you to map Context Variable with any element of schema.

This section explains you how to use context schema to map context variable.

High level steps to use context schema are as follows:

- Create Context Schema Definition
- Load Context variables
- Map schema elements
- Modify streaming properties of Mapping Activity

Create Context Schema Definition

First of all you need to create context schema definition. Context schema definition contains name of the context variable that you want to map to other element. While creating context schema definition, you can create context variables or you can import it from the process flow within which you want to use this mapping activity.

Steps to create Context Schema Definition

1. In Data Mapper applet, click *Action* menu and select **Create Context Schema Definition**. The **Create Context Schema Definition Dialog** window is displayed (see Figure 353).

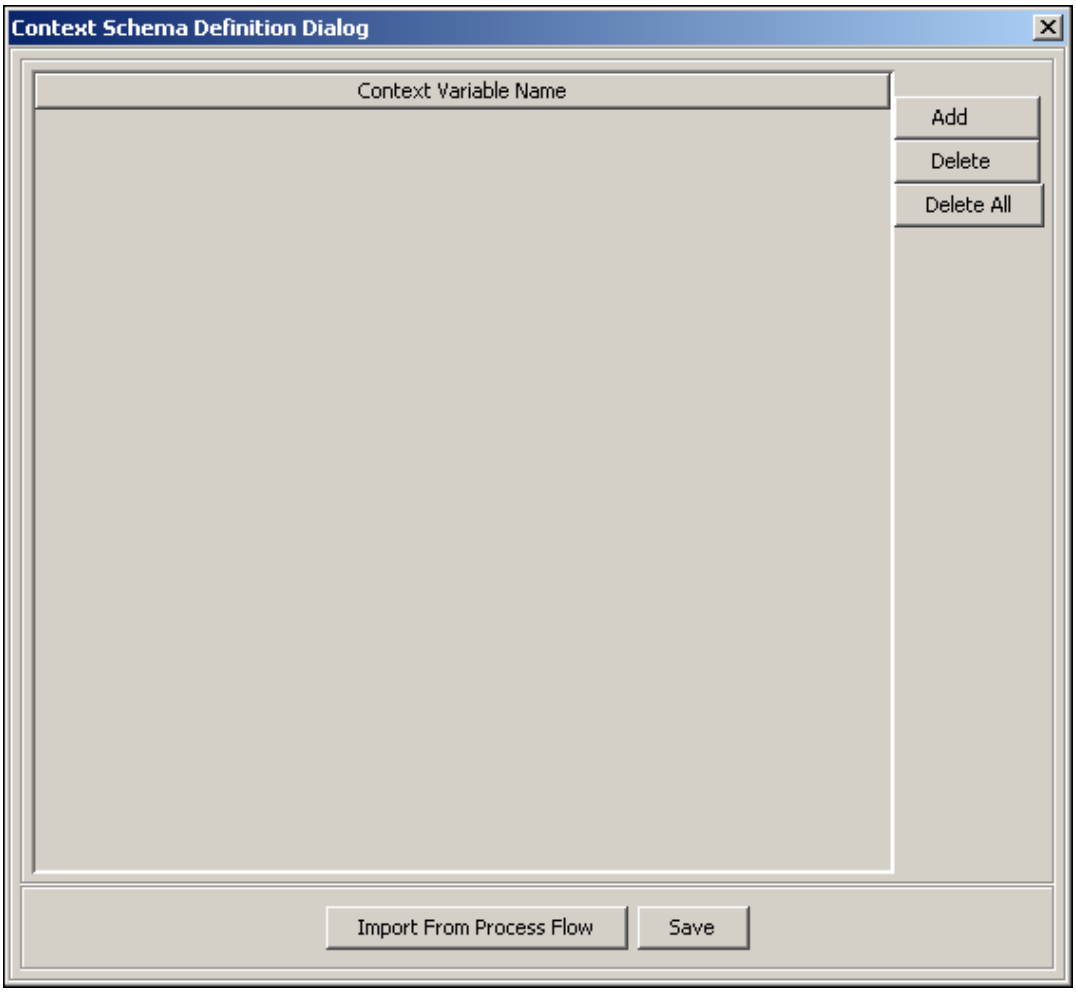


Figure 361: Create Context Schema

2. To add a context variable click **Add** button and enter the name of the variable.

3. Repeat the same steps to create other variables (see Figure 354).

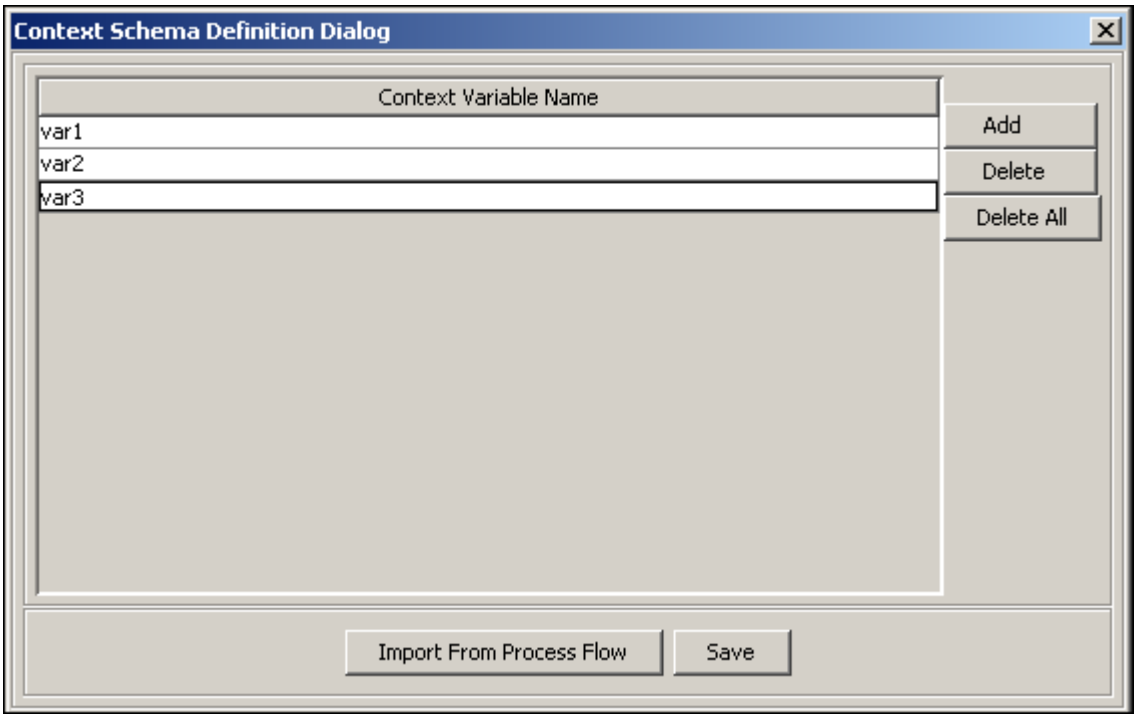


Figure 362: Add Variables

4. You can also import the context variables of the process flow in which you want to use this mapping activity. To import context variables from process flow, click **Import From Process Flow** button. **Import Context Variable** dialog box is displayed (see Figure 355)

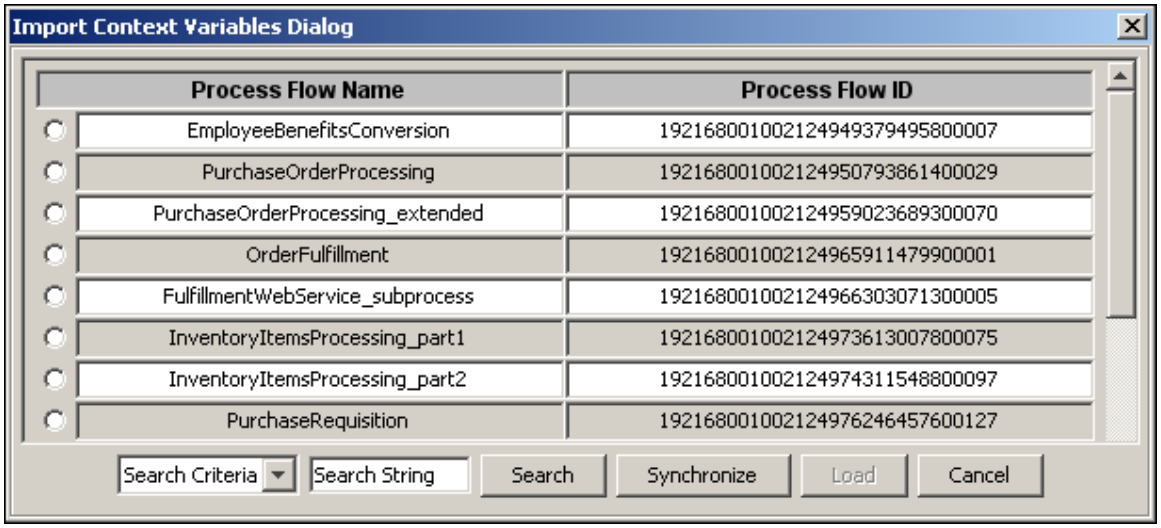


Figure 363: Import Context Variables

5. Select the process flow, from which you want to import context variables and click **Load**.

6. Click **Save**.

Load Context Variable

Once you have created the context schema, you need to load it at source or target end depending on your need.

Steps to Load Context Schema Definition

1. To load the Context Schema at source end, click the **Open Source Schema** button in the source panel. *Select Schema* dialog box is displayed (see Figure 356).

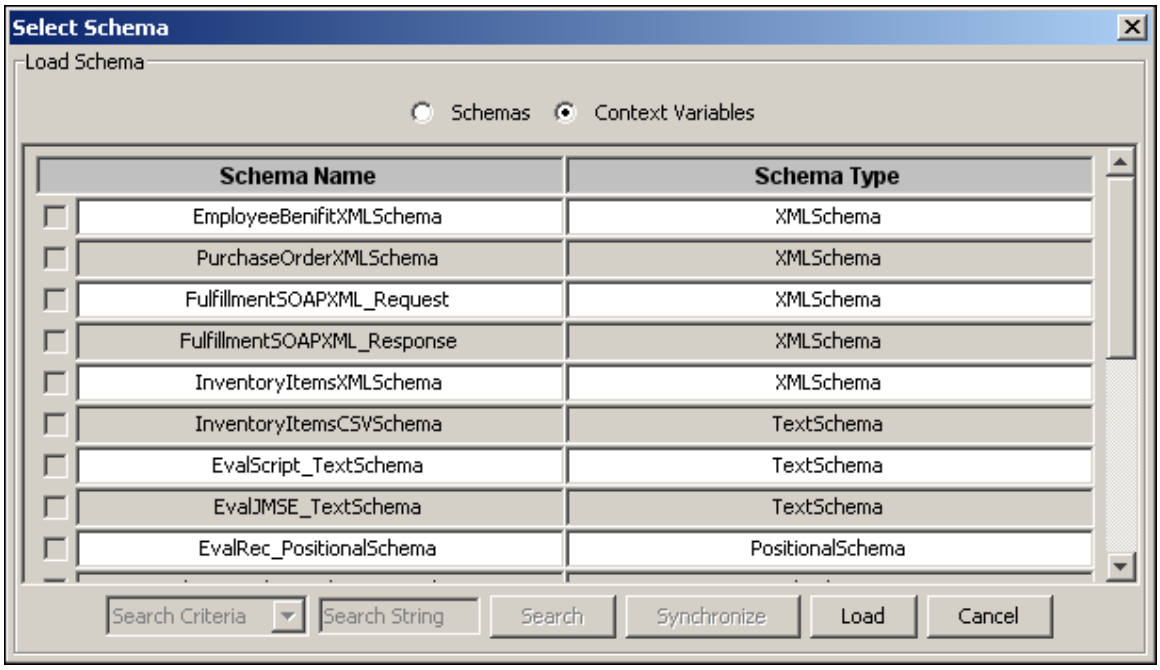


Figure 364:Load Context Variable

2. Select the **Context Variable** radio button and click the **Load** button. The variables on Context schema are loaded in source panel.

3. Similarly you can load context schema in the target panel.

Map Schema Elements

Once you load the context schema, you can map its variables to elements of other schema (see Figure 357).

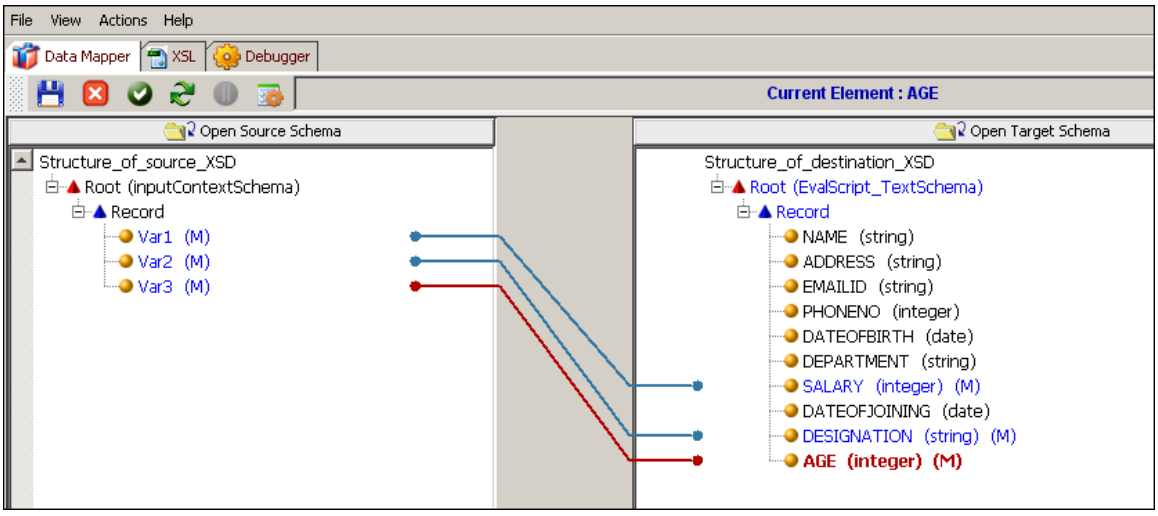


Figure 365:Map elements

Modify Streaming Properties of Mapping Activity

Once you created the mapping activity using context schema you need to changes its streaming properties while creating process flow using this mapping activity.

If Context Schema is loaded at source side then there is no need to provide the source (dummy source) stream to the Mapping activity. Similarly if Context schema is loaded at target side then Mapping activity will not generate any output stream, so there is no need to attach dummy target. To achieve this **Generate Stream** and **Consume Stream** property has been added to Data Mapper activity in the Process Designer. User can disable these properties based on whether Context schema is loaded at source or target side.

Steps to disable input and output stream of mapping activity

1. While designing the process flow, double click the mapping activity that you have created using context schema definition. Properties of the mapping activity are displayed (see Figure 358)

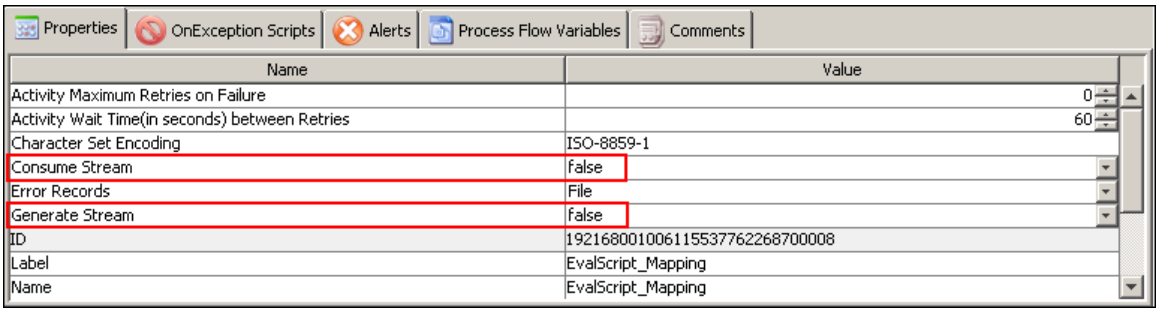


Figure 366:Change streaming

2. Change the value of **Consume Stream** or **Generate Stream** property to *false.*

> If Context Schema is used at source side, then at run time the actual value of these context variables will be used in the Data mapping. Similarly if Context Schema is used at target side then the output of the data mapping will be parsed and corresponding new value of these context variables will be set.

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 359).

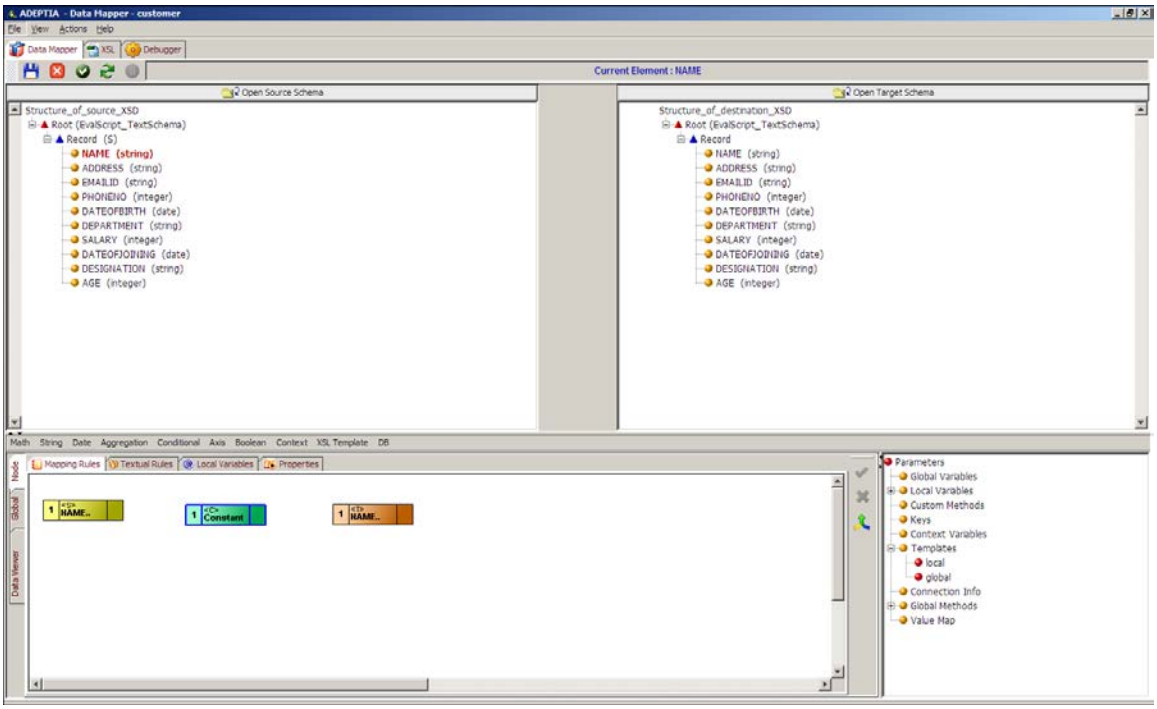


Figure 367: Add a Constant Node

4. Double-click the **Constant** node. The **Input** dialog box is displayed (see Figure 360).

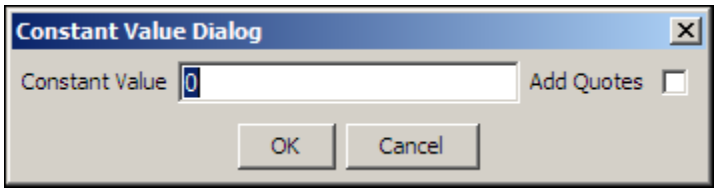


Figure 368: Enter Constant Value

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**. 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 46: 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 (up to 2	format-number *(12.5, '$#.00")* returns $12.50

Mapping Function	Sub-Functions	Description	Example
		places) and %. This function can be used only if the target node is of string data type.	

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 361).

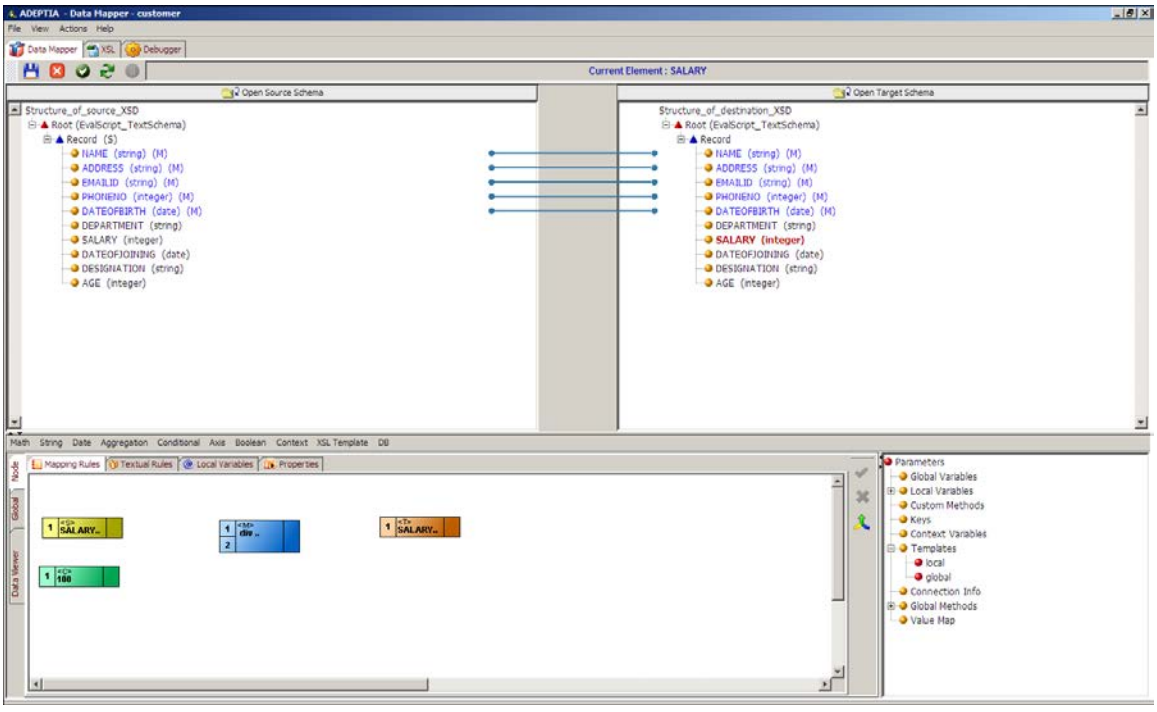


Figure 369: Add Div Sub-Function Node

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 362).

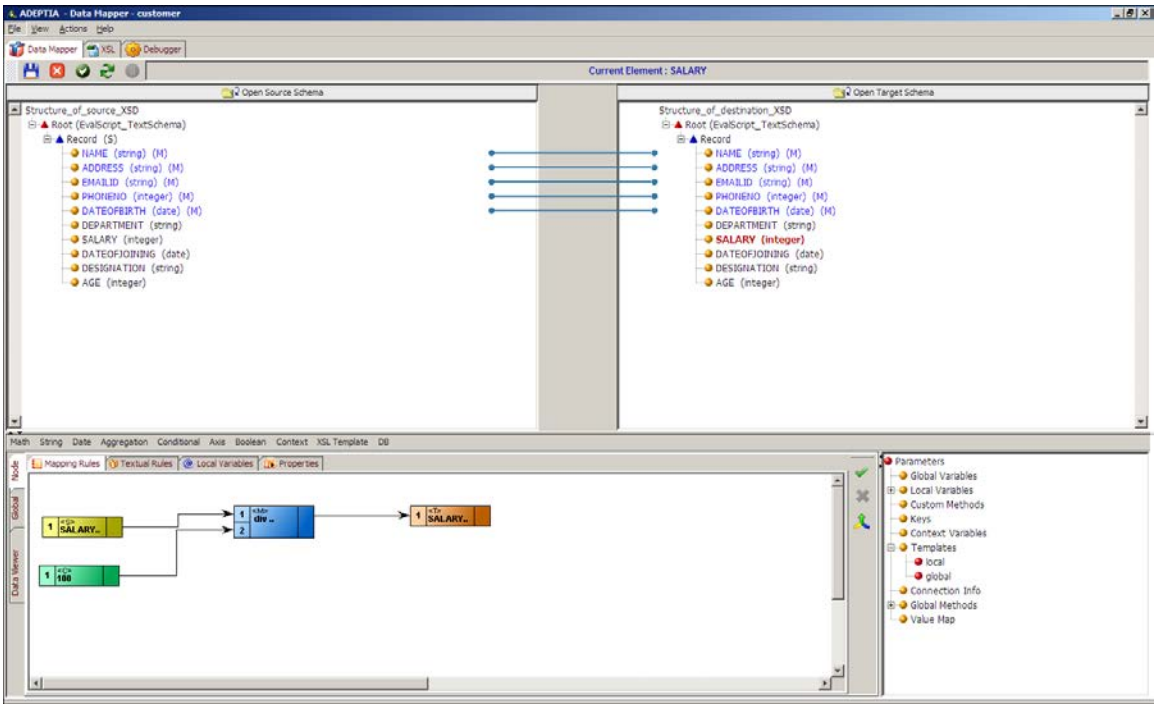


Figure 370: Create Links between Nodes for Mapping Elements using Div Function

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 47 : 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	substring *('abcdef'*

Mapping Function	Sub-Functions	Description	Example
		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.	*,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 tlphtbet
	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

Mapping Function	Sub-Functions	Description	Example
	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 *<ms:schema>,* then name () will return ms:schema
	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 *<ms:schema>,* then local-name () will return schema

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

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.

You need to load two source elements for using this mapping function.

3. Click **String** mapping function and select **Concat** sub-function. A **Concat** node is displayed in the **Mapping Graph Area** (see Figure 363).

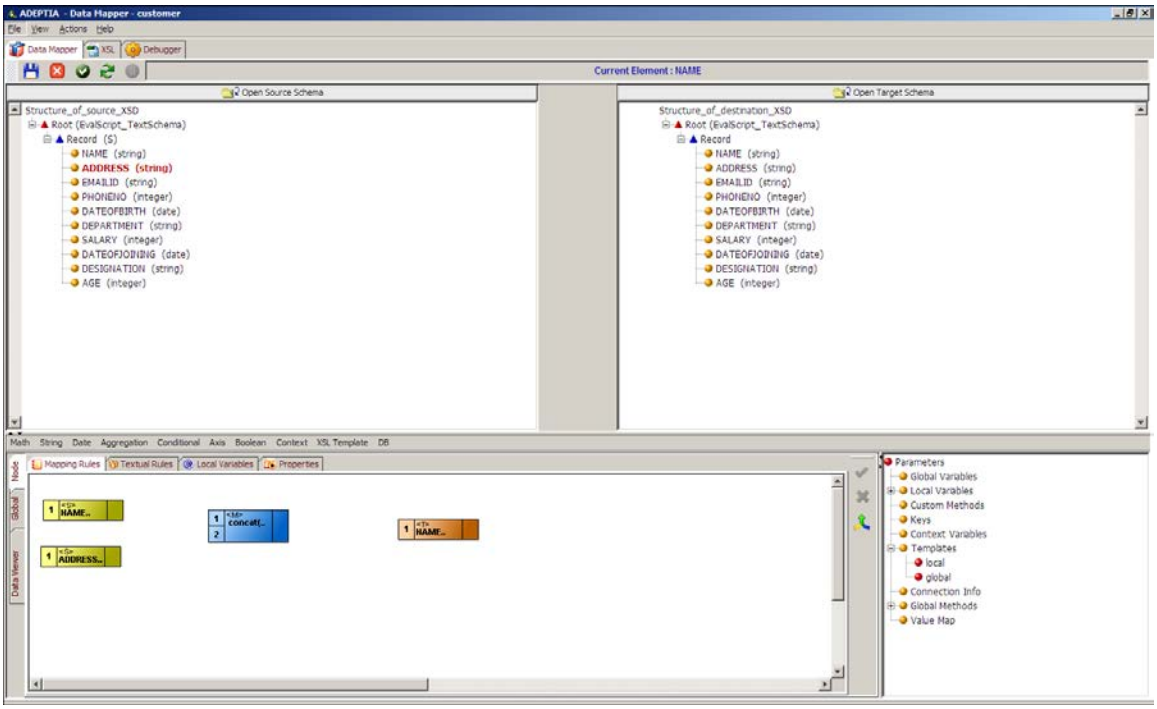


Figure 371: Add Concat Sub-Function Node

4. Create a link from the output of the first *Source* element to the first input of the *concat* node.
5. Create a link from the output of the second *Source* element to the second input of the *concat* node.

6. Create a link from the output of the *concat* node to input of the *target* element node (see Figure 364).

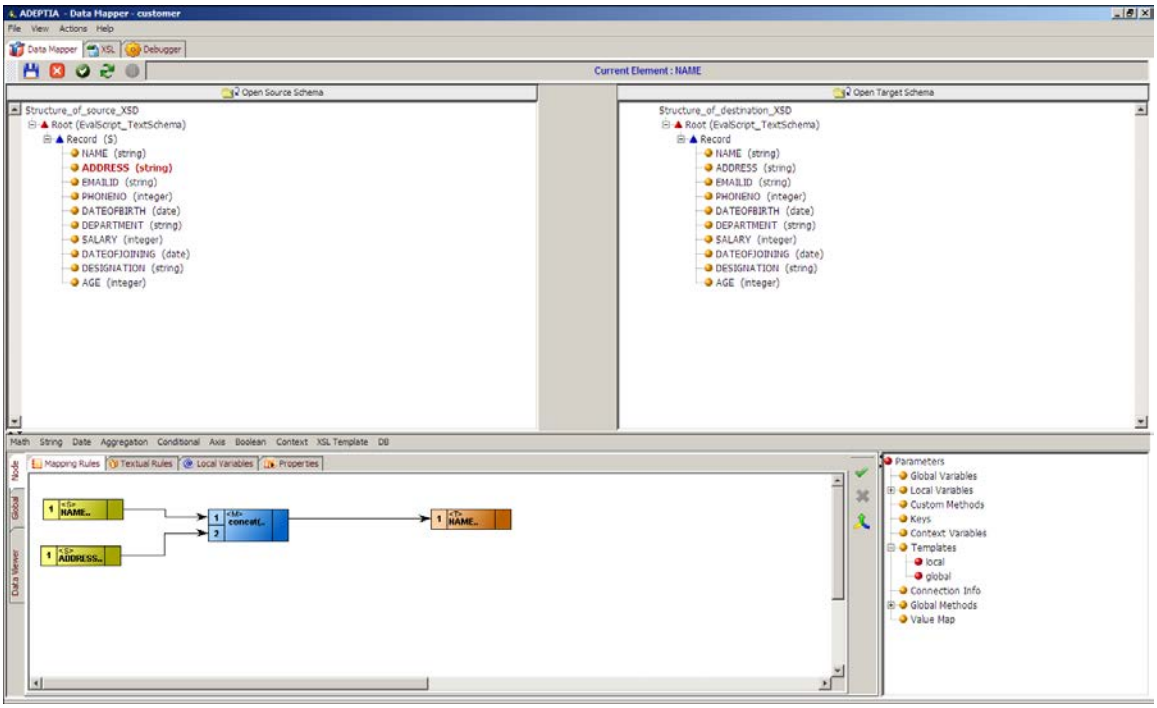


Figure 372: Create Links between Nodes for Mapping Elements using Concat Function

7. Click the **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 48: 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 *(employee/ 1998-03-31, 'yyyy-mm-dd', 'dd-mm-yyyy')* returns 31-03-1998
	Date -Difference	Generates the	date-difference(*'12-08-*

Mapping Function	Sub-Functions	Description	Example
		difference between two dates in milliseconds. Supports all java date formats.	*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 365).

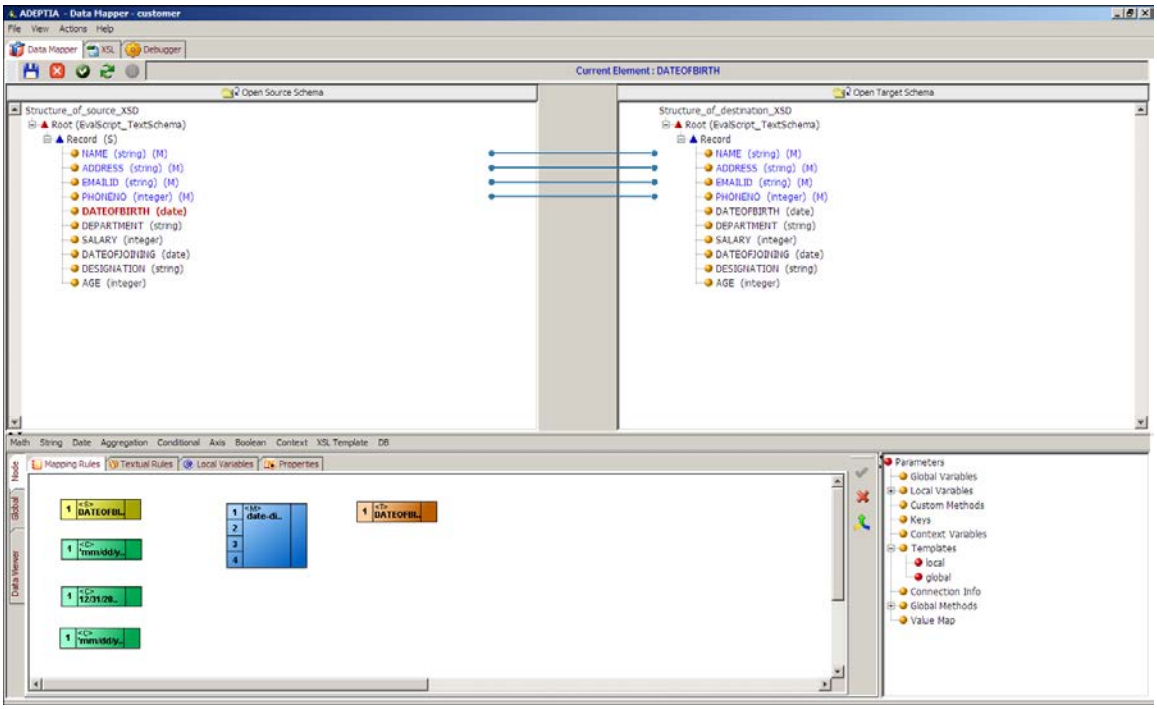


Figure 373: Add Date-Difference Sub-Function Node

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 366).

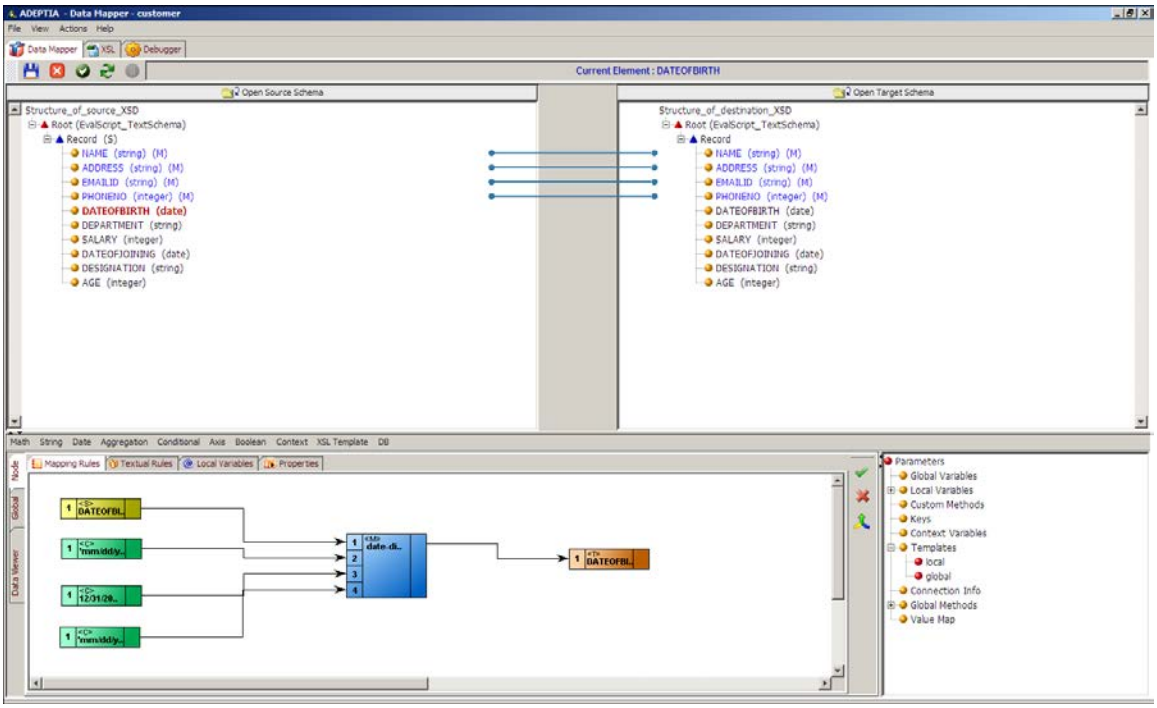


Figure 374: Create Links between Nodes for Mapping Elements using Date-Difference Function

10. Click the **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 49: 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	*position()* returns 1 for the first

Mapping Function	Sub-Functions	Description	Example
		current context node in the specified element.	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 Using Key Function.

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 367).

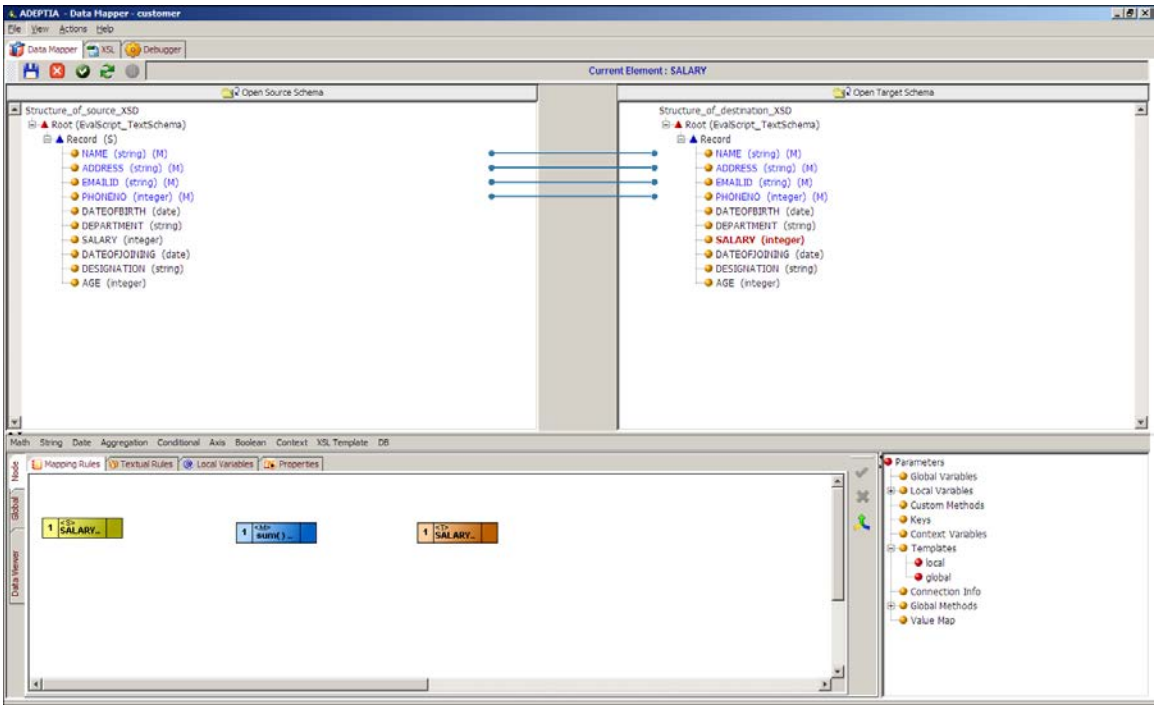


Figure 375: Add Sum Sub-Function Node

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 368).

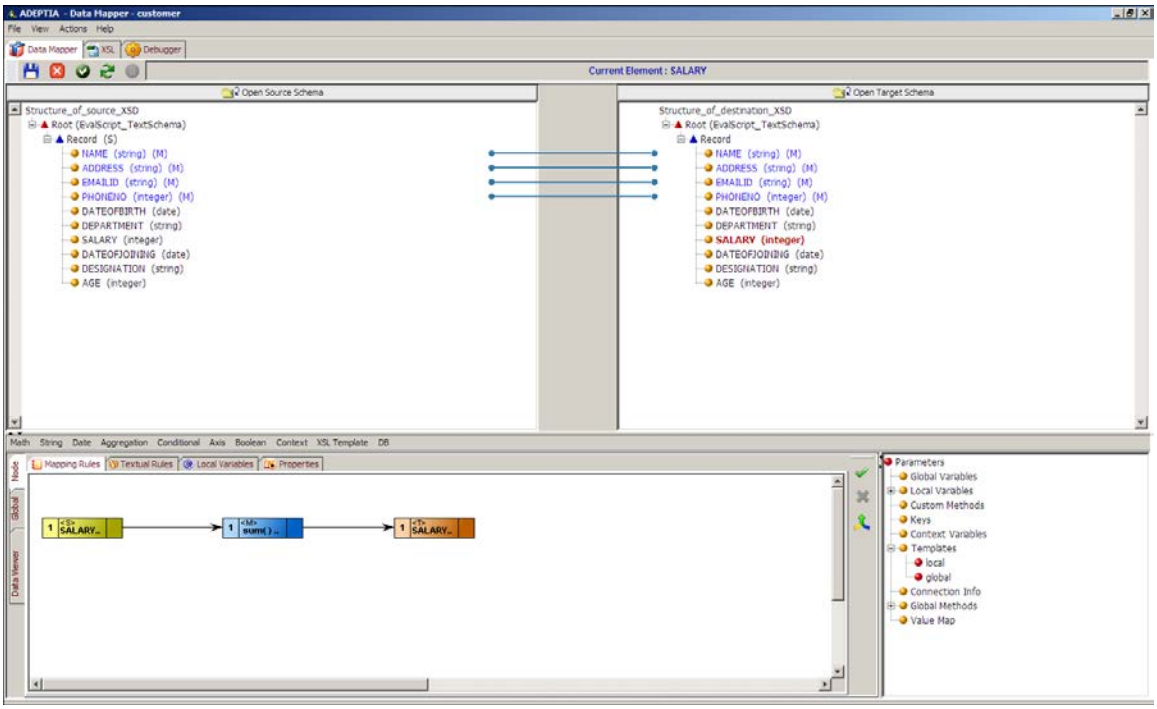


Figure 376: Create Links between Nodes for Mapping Elements using Sum Function

6. Click the **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 50: 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.	*IF CONDITION {#Age=25} Value= [100]* Returns the filtered target node-set/node if the Age is 25 in the source record.
	For Mapping To Elements	Returns a value if the specified condition is true.	*IF CONDITION {#Age=25} Value= [100]* Returns 100 if the Age has the value of 25 in the source record.
	When Condition	Returns a particular value if the specified condition is true, else it returns another value.	*WHEN Condition {contains (Email_ID, '@')} Value= [100] Otherwise Value= [200]* Returns 100 if the Email_ID contains @, else it returns 200.
	Select Query	This is a customized mapping function. Returns the output based on the applied select query on a table in the any of the three databases (Oracle, Sql, IBM	*SELECT FIELD = [Value1] FROM DB.TAB = [Value2].[Value3] WHERE {Condition}* Here: Value1 = Field name in the table, whose value is to be retrieved Value 2 = Name of the Database Info object where

Mapping Function	Sub-Functions	Description	Example
		DB2). Select Query supports single field selection and returns first matching record.	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: *SELECT FIELD = [EMPNO] FROM DB.TAB = [oracle_databaseserver].[EMP] WHERE {ENAME= 'Smith'}* Returns Employee number of employee from the table EMP with the name Smith.
	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.	*Sequence {10, 20}* Returns 10, 30, 50….and so on. You can also use multiple where condition. In case of multiple where condition each condition must be within square braces as shown in the example below: *SELECT FIELD = [EMPNO] FROM DB.TAB = [oracle_databaseserver].[EMP] WHERE {[ENAME= 'Smith'] AND [AGE = 28]}*
	Append	This is a customized mapping function. Appends the second string after the first string. Used to append	*Append ('IF CONDITION {condition} Value [Value1]', ('IF CONDITION {condition} Value [Value2]'* Returns IF CONDITION {condition} Value [Value1]

Mapping Function	Sub-Functions	Description	Example
		only IF Condition.	Value [Value2]

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 51: Conditional Functions ('If' and 'When')

Mapping Function	Sub-Functions	Description	Example
IF Condition	Nested IF	Contains IF condition inside the value of previous IF condition. Returns output when all IF conditions are satisfied. For example: IF CONDITION {condition1} VALUE=[IF CONDITION {condition2} VALUE=[IF CONDITION {condition3} VALUE=[Value1]]] Returns Value1 when all IF conditions are satisfied.	*IF CONDITION {#Age=25} Value= [IF CONDITION {#Designation= 'Manager'} Value = IF CONDITION {#Salary= 20000} Value = [100]]]* Returns 100 if all conditions are satisfied such that a manager of age 25 has a salary of 20000.
When Condition	Nested When	Contains When condition inside the value of previous When condition. Returns varied output based on the When conditions being satisfied. For example: WHEN CONDITION {condition1} VALUE=[WHEN CONDITION {condition2} {VALUE=['value1'] OTHERWISE VALUE=['value2']] OTHERWISE VALUE=['value3'] Returns Value1 when both When conditions are satisfied. Returns Value3 when the	*WHEN CONDITION {/employees/employee/Age=25} Value= [WHEN CONDITION {/employees/employee/Designation= 'Manager'} Value = ['100'] OTHERWISE Value = ['200'] OTHERWISE Value = ['300']]* 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.

Mapping Function	Sub-Functions	Description	Example
		first When condition fails. Returns Value2 when the first When condition is satisfied, but the second one fails.	
IF and When Condition	IF and When conditions return Boolean	Returns value based on the function used as whether the condition returns True or False. 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. For example: WHEN CONDITION {contains (var1, str)} VALUE=[var2] OTHERWISE VALUE=[var3] If var1 contains str, then True is returned, else False is returned. If the condition returns True, then var2 is generated as output, else var1 is the output value.	*WHEN CONDITION {contains (var1, str)} Value= ['100'] OTHERWISE Value = ['200']* Returns true if Var1 contains Str, else it returns False. If the condition returns true, then this function returns 100, else it returns 200.
IF and When Condition	Mixed condition	Contains IF condition inside the value part of When condition or vice versa. Returns varied output based on the conditions being satisfied. For example: WHEN CONDITION {condition1} VALUE=[IF CONDITION {condition2} VALUE=['value1']] OTHERWISE	*WHEN CONDITION {/employees/employee/Salary=50000} Value= IF CONDITION {/employees/employee/Designation= Project Manager} Value = ['100'] OTHERWISE Value = ['200']* 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.

Mapping Function	Sub-Functions	Description	Example
		VALUE=['value2'] Returns Value1 when both conditions are satisfied. Returns Value2 when the first condition fails. Returns no output when the first condition is satisfied but second condition fails or when both conditions fail.	
IF Condition	Multiple IF	Contains IF conditions placed sequentially, with each IF having its value part. Two IF conditions are appended using Append sub-function of the String Function. Returns varied output based on the condition being satisfied. For Example: IFCONDITION {condition1} VALUE=['value1'] IF CONDITION {condition2} VALUE=['value2'] Returns Value1 if condition1 is satisfied. Returns Value2 if condition2 is satisfied.	*IF CONDITION {#Age=25} Value= ['500'] IF CONDITION {#Designation= 'Manager'} Value = [1000]* Returns 500 if employee is of age 25. It returns 1000 if employee is a Manager.
When Condition	When condition with more than one conditions in it.	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. Example 1: WHEN CONDITION (cond1 and cond2) Value =	*WHEN CONDITION {/employees/employee/Age=25 and /employees/employee/Designation=Manager} Value= ['100'] OTHERWISE Value = ['200']* Returns 100 if both conditions are satisfied such that the employee is a manager of age 25. Else it returns 200.

Mapping Function	Sub-Functions	Description	Example
		['value1'] otherwise value = ['value2'] Returns Value1 if both conditions are satisfied, else returns Value2. Example 2: WHEN CONDITION (cond1 or cond2) Value = ['value1'] otherwise value = ['value2'] Returns Value1 when either one or both conditions are satisfied, else returns Value2.	
IF Condition	IF condition with more than one conditions in it.	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. Example 1: IF CONDITION (cond1 and cond2) Value = [] Returns Value1 when both conditions are satisfied, else no output is returned. Example 2: IF CONDITION (cond1 or cond2) Value = [] Returns Value1 when either one or both conditions are satisfied, else no output is returned.	*IF CONDITION {/employees/employee/Age=25 and /employees/employee/Designation=Manager} Value= ['100']* Returns 100 if both conditions are satisfied such that the employee is a manager of age 25. Else it returns 200.

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 369).

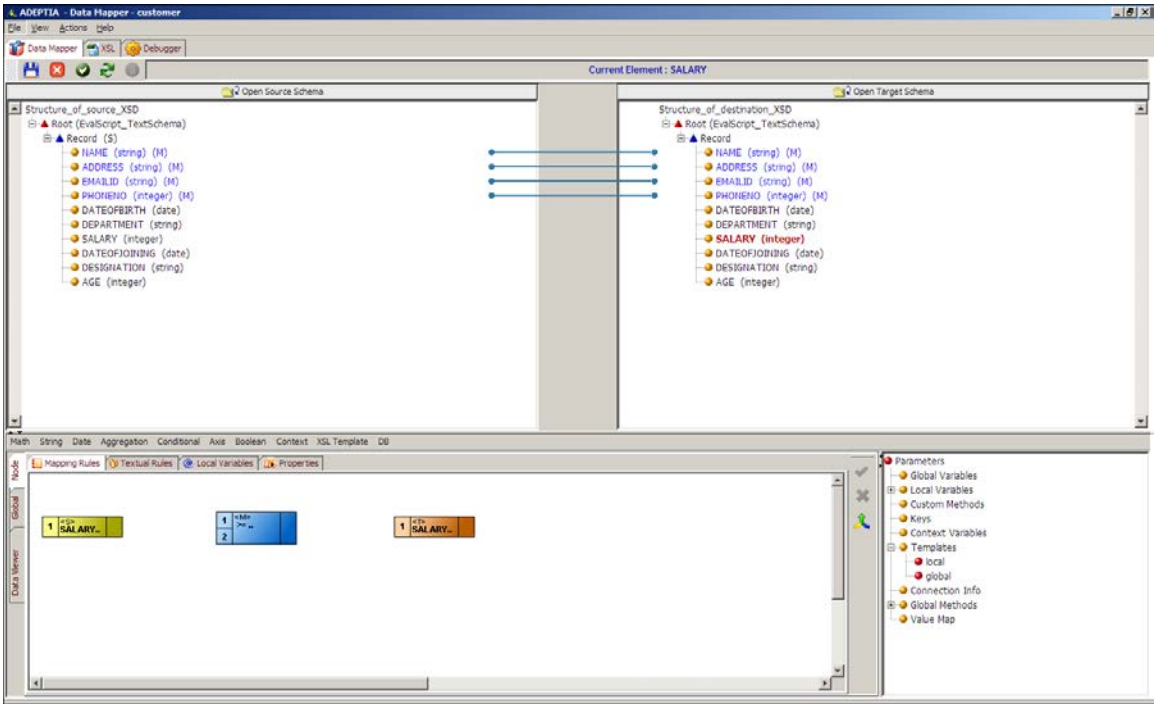


Figure 377: Add Greater Than or Equal To Boolean Function Node

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 >= operator node.

6. Create a link from the output of the *Constant* node to the second input of the >= operator node (see Figure 370).

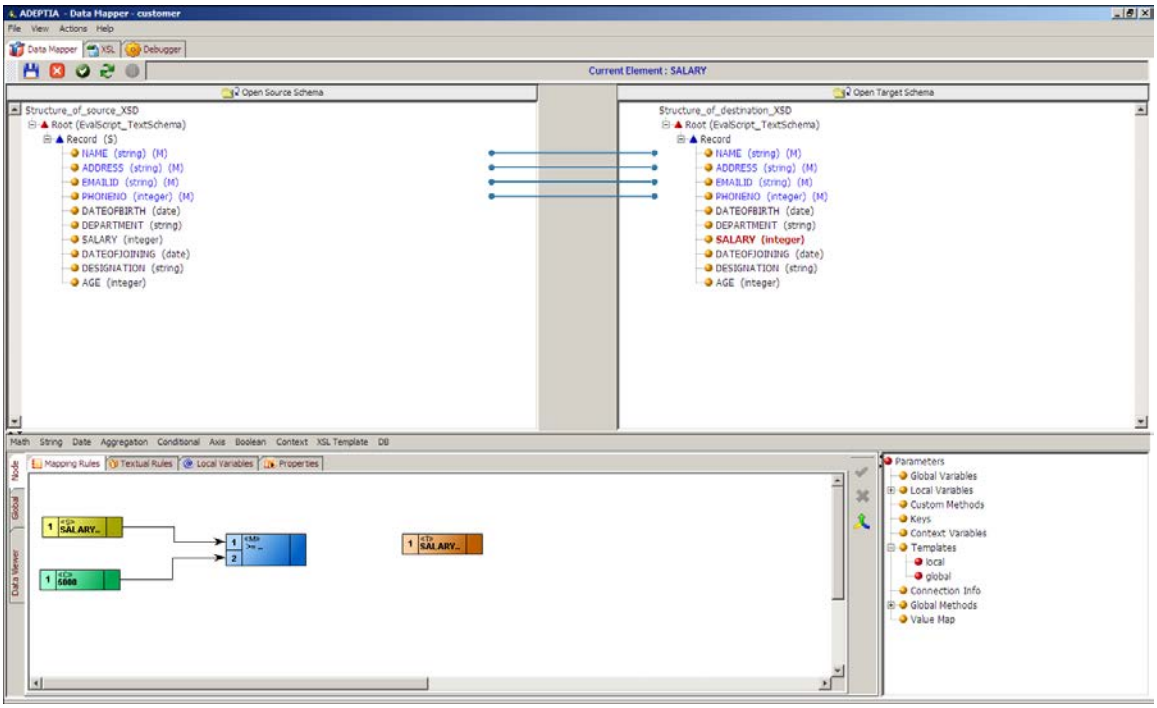


Figure 378: Create Links between Nodes for Mapping Elements using Greater Than Equal To Function

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 371).

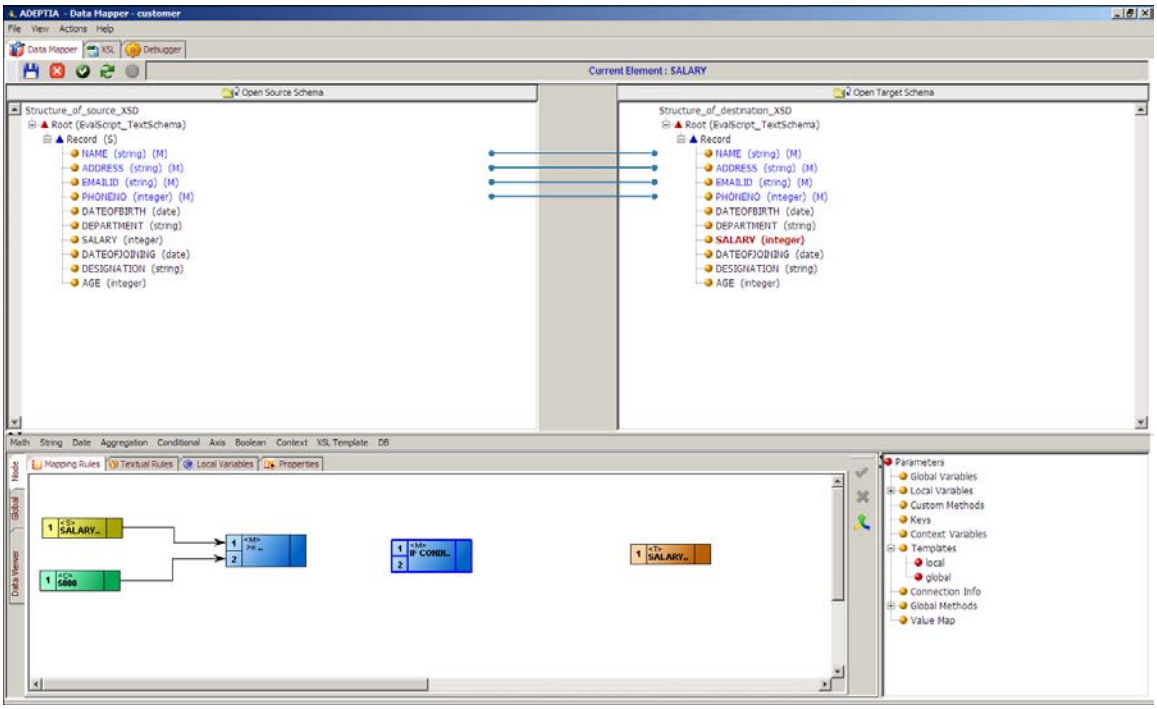


Figure 379: Add IF Conditional Function Node

8. Create a link from the output of the >= 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 372).

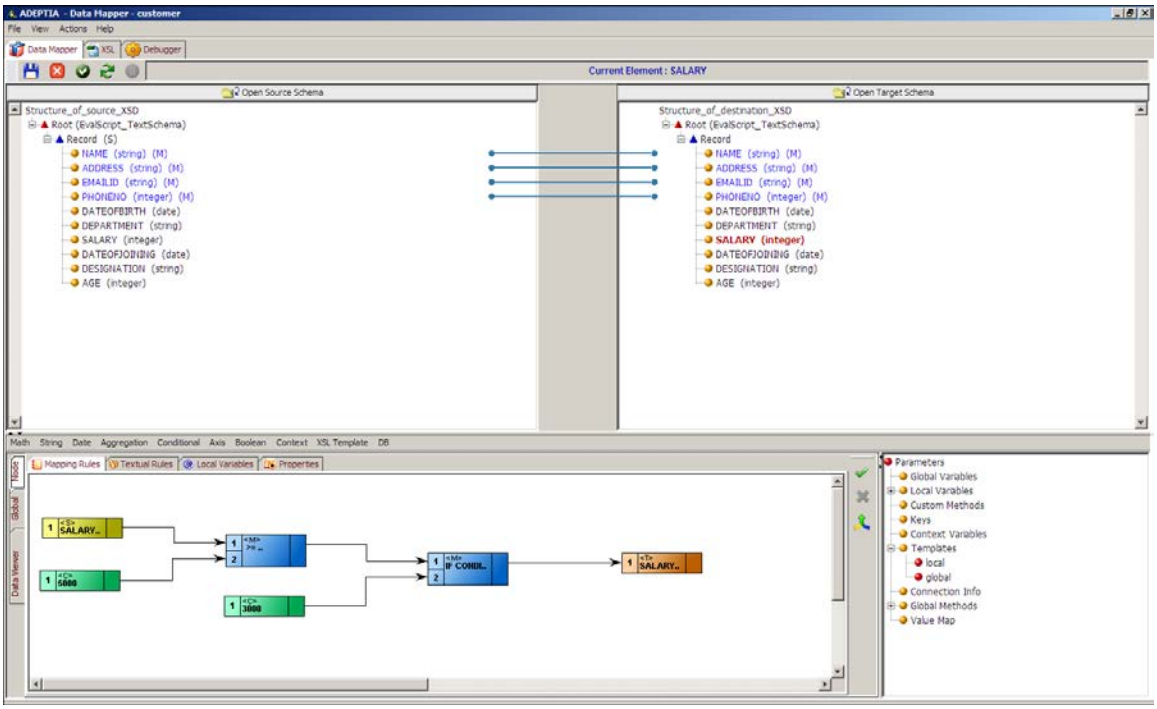


Figure 380: Creating Links between Nodes for Mapping Elements using IF Conditional Function

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 52: 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.	FilePath *['C:/correct_file.xml']* *XPath {'/employees/employee/Name'}* Returns value of Name element from the file correct_file.xml.
	Self	Returns the element which is the context node itself.	*Self::Employee* Returns Employee which is the context node itself.
	Child	Returns the element which is the child of the context node.	*Self::Name* Returns Name which is a child of the context node.
	Parent	Returns the element, which is the parent (if any) of the context node.	*Parent::Name* Returns Name which is a parent of the context node.
	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	*following-sibling: employee/Name* Returns the first occurrence of Name in the next employee node.

Mapping Function	Sub-Functions	Description	Example
		context node is an attribute node or namespace node, then this axis is empty.	
	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.	*Parent::Name* Returns Name which is an ancestor of the context node.
	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.	*ancestor-or-self::employees/@val* 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.	*preceding-sibling: employee/Name* Returns the first occurrence of Name in the previous employee node.
	Descendant	Returns the element which is	*descendant::Name*

Mapping Function	Sub-Functions	Description	Example
		the descendant of the context node. This axis does not contain attribute nodes.	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.	*descendant-or-self::employees/salary* Returns context node or descendants of context node.
	Generate-id	Generates a unique id for the element/attribute specified by the XPath argument.	*generate-id (employees/employee/Name)* Returns unique ID for Name element
	Current	Removes all tags from the specified xml file and returns the data.	*current()* 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 53: Sub-Functions of Boolean Mapping Function

Mapping Function	Sub-Functions	Description	Example
Boolean	Equal	Returns TRUE the first variable argument is equal	*(5) = (5)* returns true

Mapping Function	Sub-Functions	Description	Example
		to the second variable argument.	
	Not Equal	Returns TRUE the first variable argument is not equal to the second variable argument.	*(5) != (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)>= (5)* returns true *(5)>= (3)* returns true
	Less than Equal	Returns TRUE the first variable argument is less than or equal to the second variable argument.	*(5) <= (8)* returns true *(5) <= (5)* returns true
	Or	Returns TRUE if either of the two variable arguments evaluate to TRUE otherwise FALSE. These variable	*(True) Or (True)* returns true *(True) Or (False)* returns true

Mapping Function	Sub-Functions	Description	Example
		arguments can only be of Boolean data type. Hence, their value can either be TRUE or FALSE only.	
	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 54: 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	*set-context ('index', '123')* sets the value of index variable as 123 in the process flow.

Mapping Function	Sub-Functions	Description	Example
		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.	
	Get-Context	This is a customized mapping function. 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.	*get-context ('index', '100')* Returns the value of index variable from the process flow. If no value has been set for index, then 100 is returned. 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.

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 "*BolSalary8K*". To set the value of "BolSalary8K" 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 "*BolSalary8K*", 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 the **Local Variables** tab. The Local Variable pane is displayed. (refer to Figure 398).
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 373.

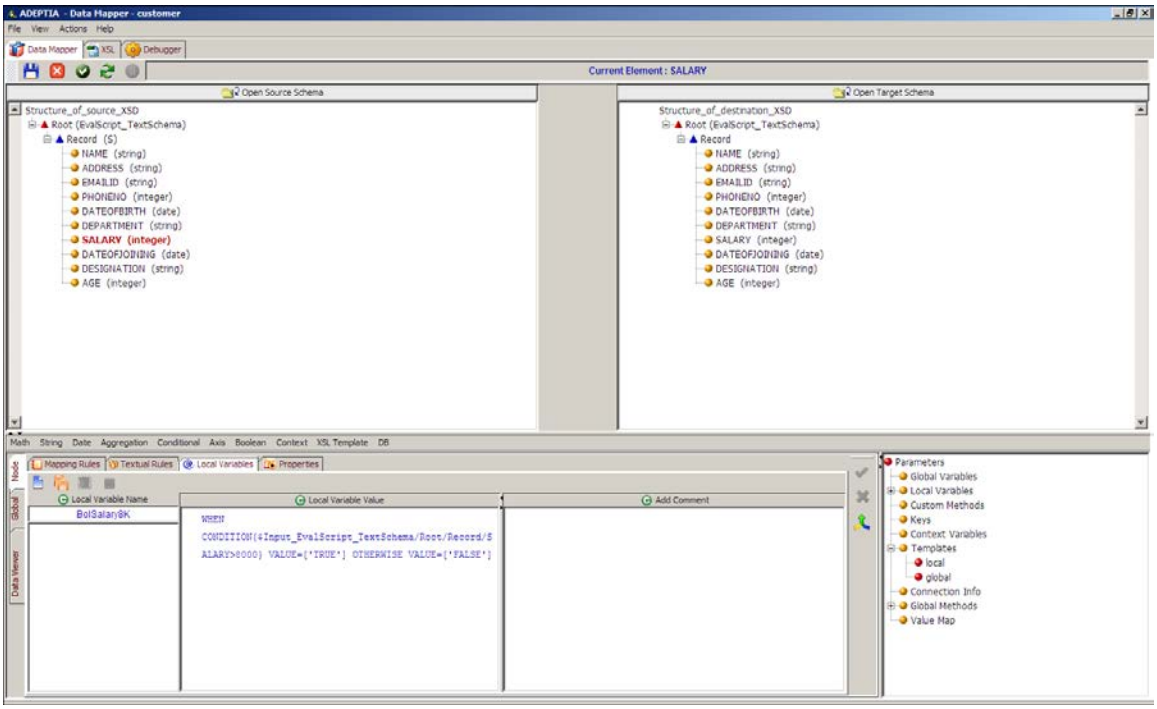


Figure 381: Create Local Variable

7. Click the **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 the **Node** tab displayed in the Mapping Graph Area. All tabs of the **Node** tab are displayed.
3. Click the **Local Variables** tab. The Local Variable pane is displayed. (refer to Figure 398).
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 Valu***e* field.
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 (see Figure 374).

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.

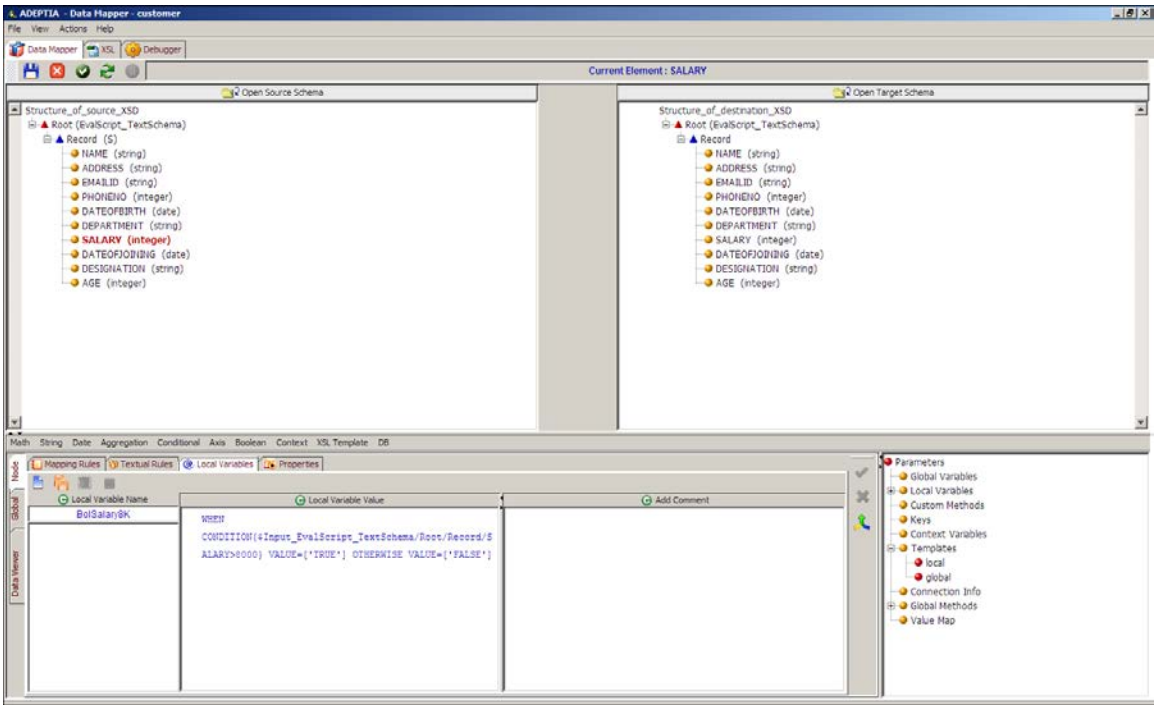


Figure 382: Mapping Set-Context to Local Variable

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 the **Global** tab displayed in the Mapping Graph Area. All tabs of the **Global** tab are displayed.
3. Click the **Context Variables** tab. The Context Variables pane is displayed (see Figure 375).

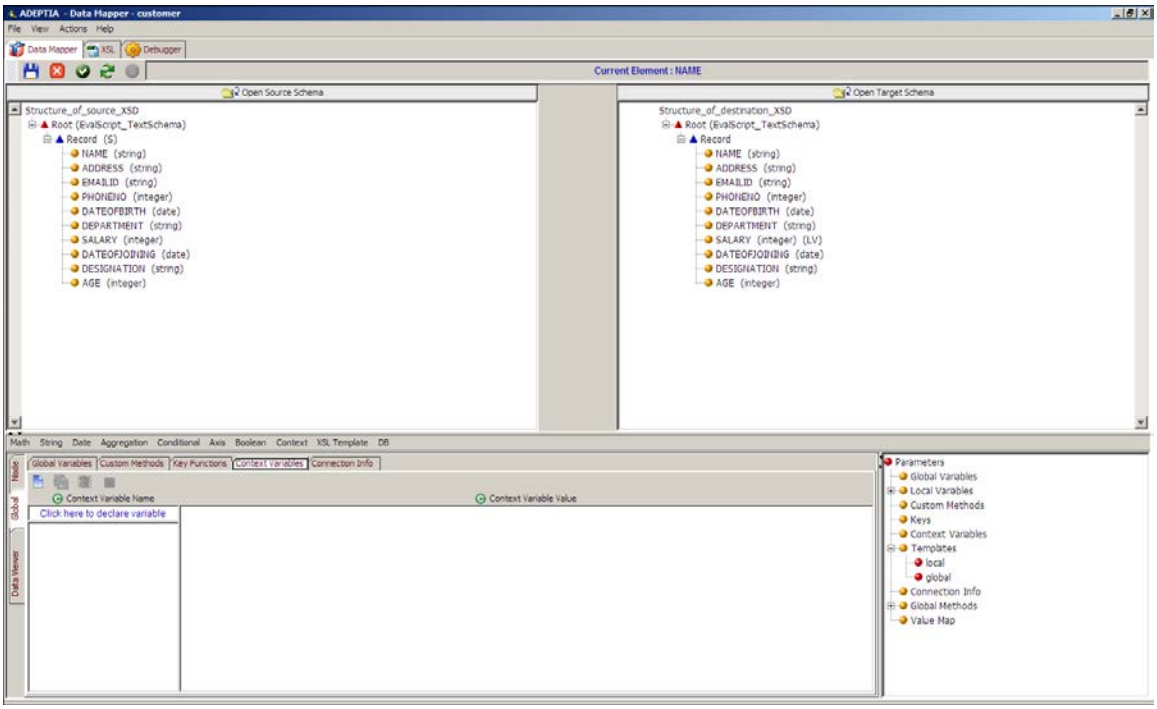


Figure 383: Context Variables Pane

4. Click the **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 the **Context Variable Value** field (see Figure 376).

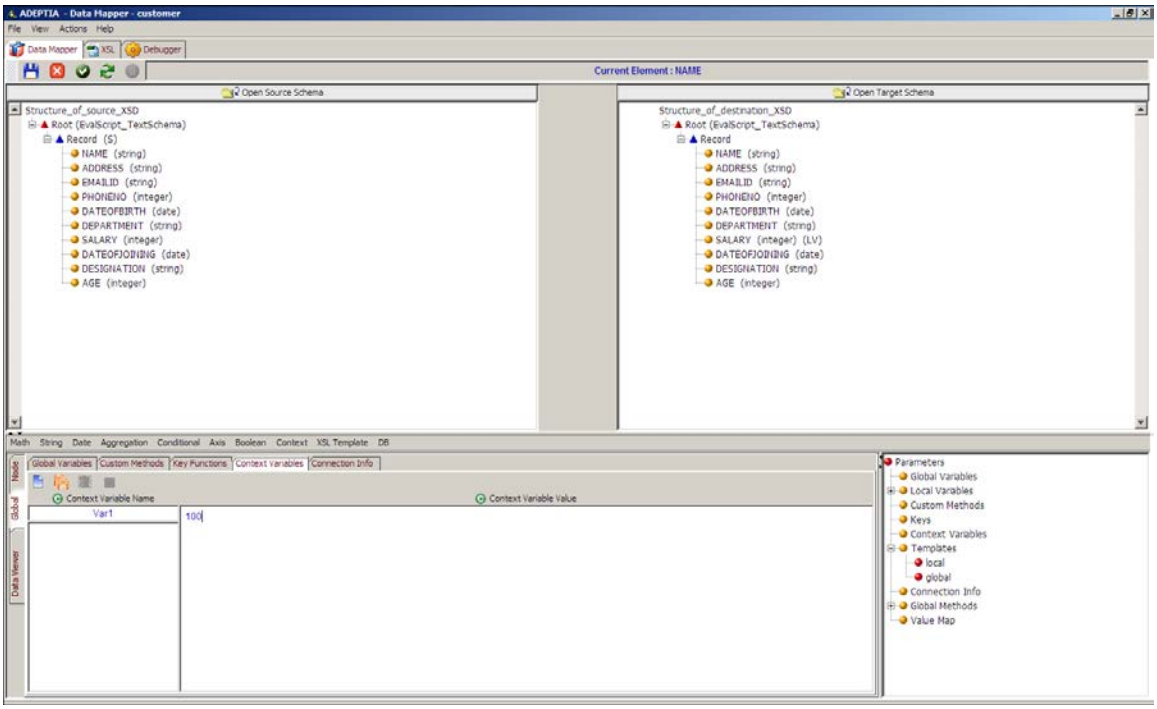


Figure 384: Enter Context Variable Value

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 393).

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 377).

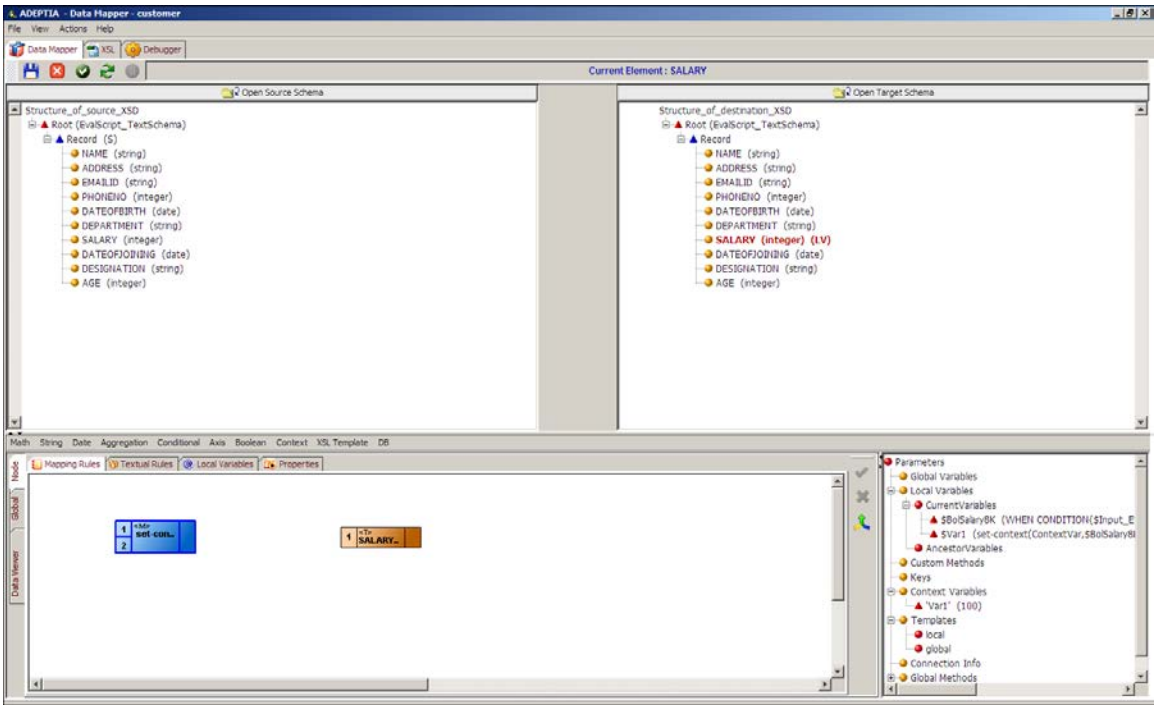


Figure 385: Set-Context Node

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 378).

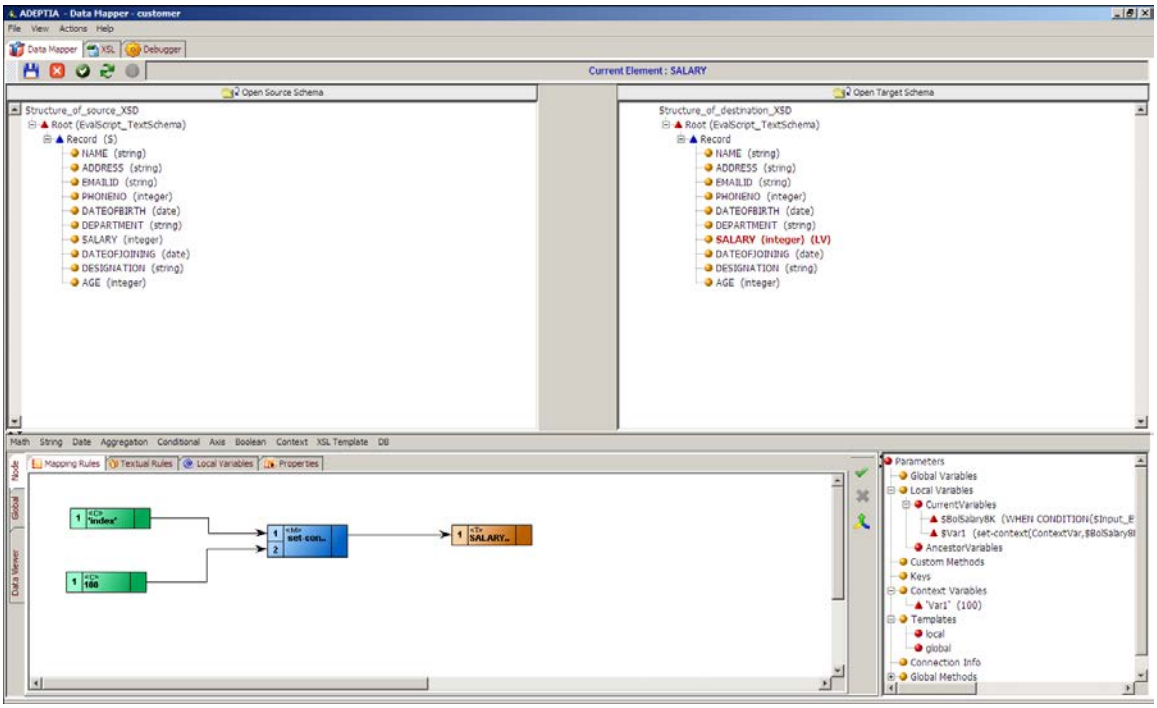


Figure 386: Create Links between Nodes for Mapping Set-Context Function to Target Element

9. Click the **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 393).

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. For details, refer to *Appendix A* in the *Administrator Guide*.

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 55: Sub-Function of DB Mapping Function

Mapping Function	Sub-Functions	Description	Example
DB	DBQuery	Returns data from the database, based on a query.	*DBQuery('select EmpID from EMP where EMPID=1035', var1, 'true')* returns all the records

Mapping Function	Sub-Functions	Description	Example
			from the EMP table, where EMPID is 1035. Here, 'var1' is the Connection Info variable. If you change the last boolean argument from *true* to *false*, 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 379).

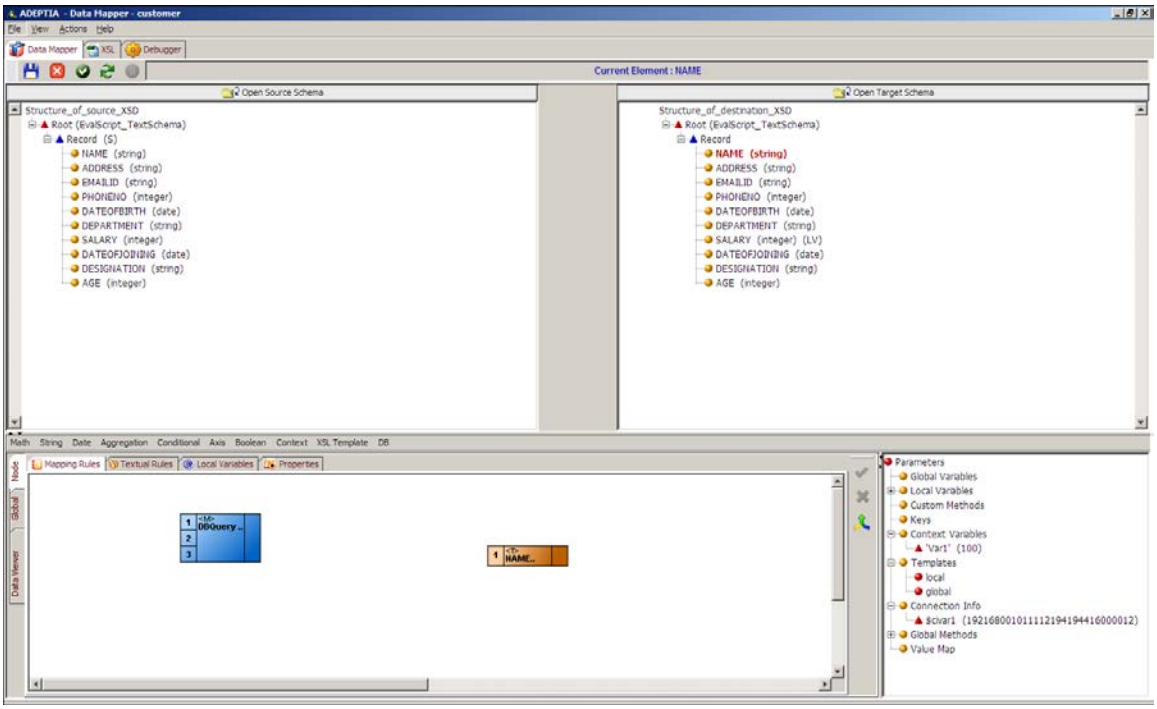


Figure 387: Add DBQuery Sub-Function Node

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 380).

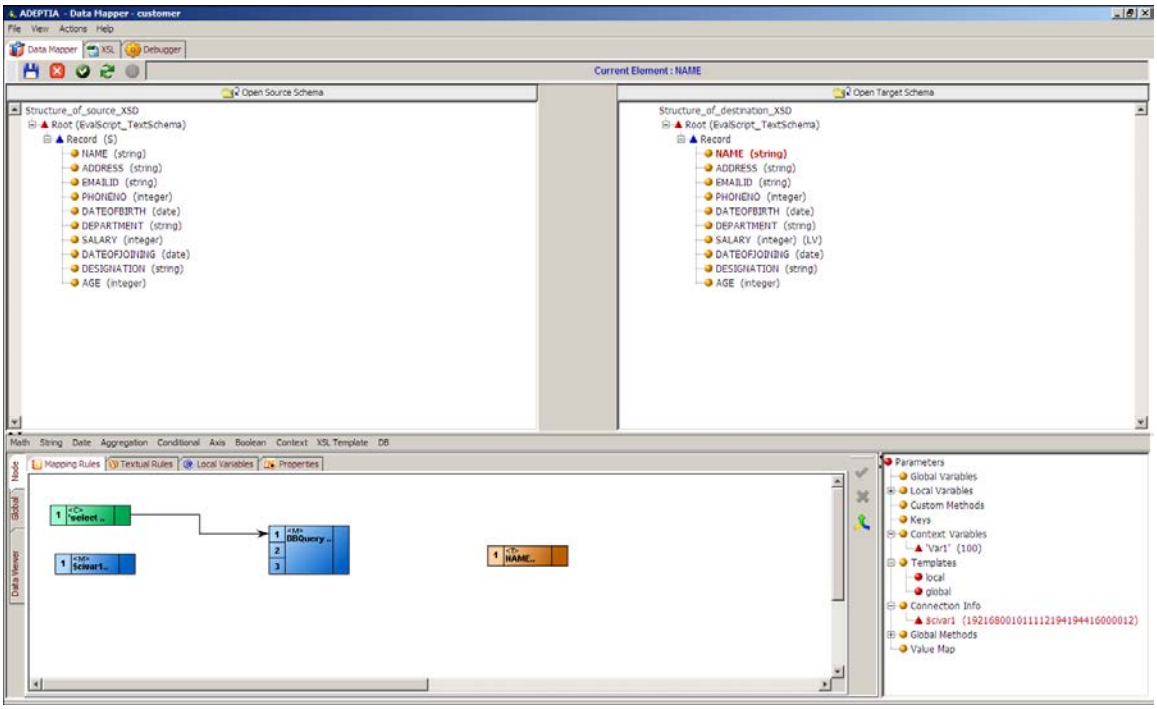


Figure 388: Connection Info Variable in Mapping Graph Area

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 381).

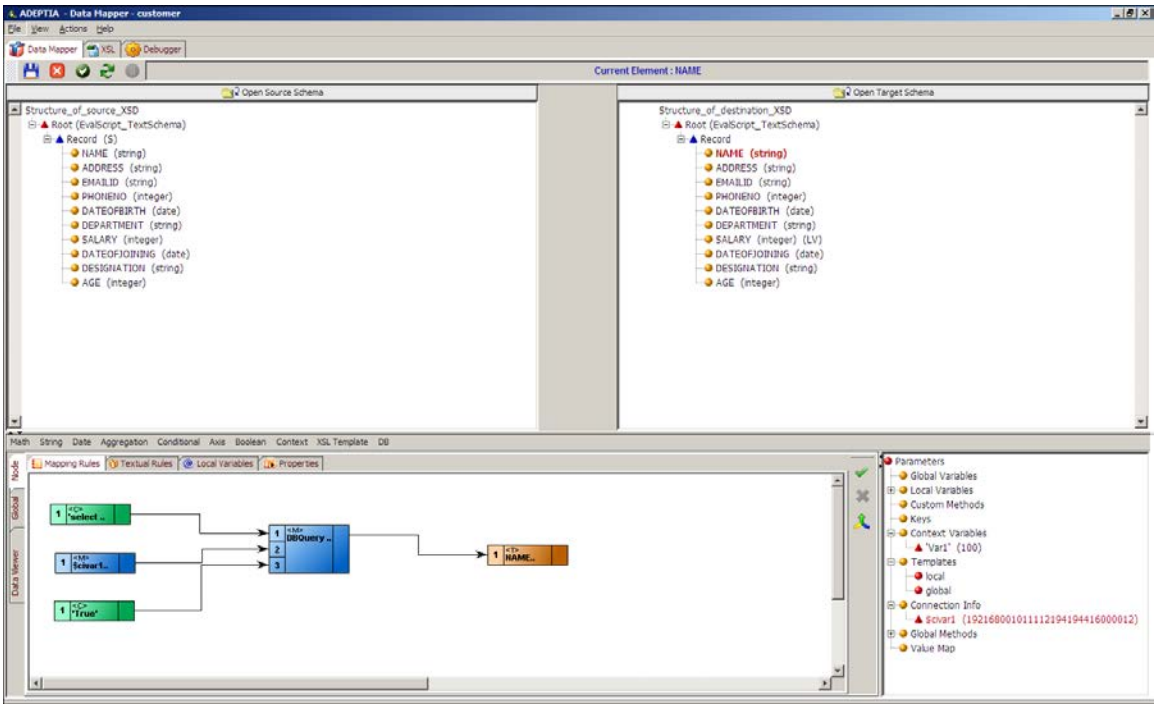


Figure 389: Create Links between Nodes for Mapping DBQuery Function to Target Element

12. Click the **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 393).

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. For details, refer to *Appendix A* in *Administrator Guide*.

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 the **Textual Rules** tab in the Mapping Graph Area.

4. Click S**tring** mapping function and select **Concat** sub-function. The syntax for the Concat sub-function is displayed in the Mapping Graph Area (see Figure 382).

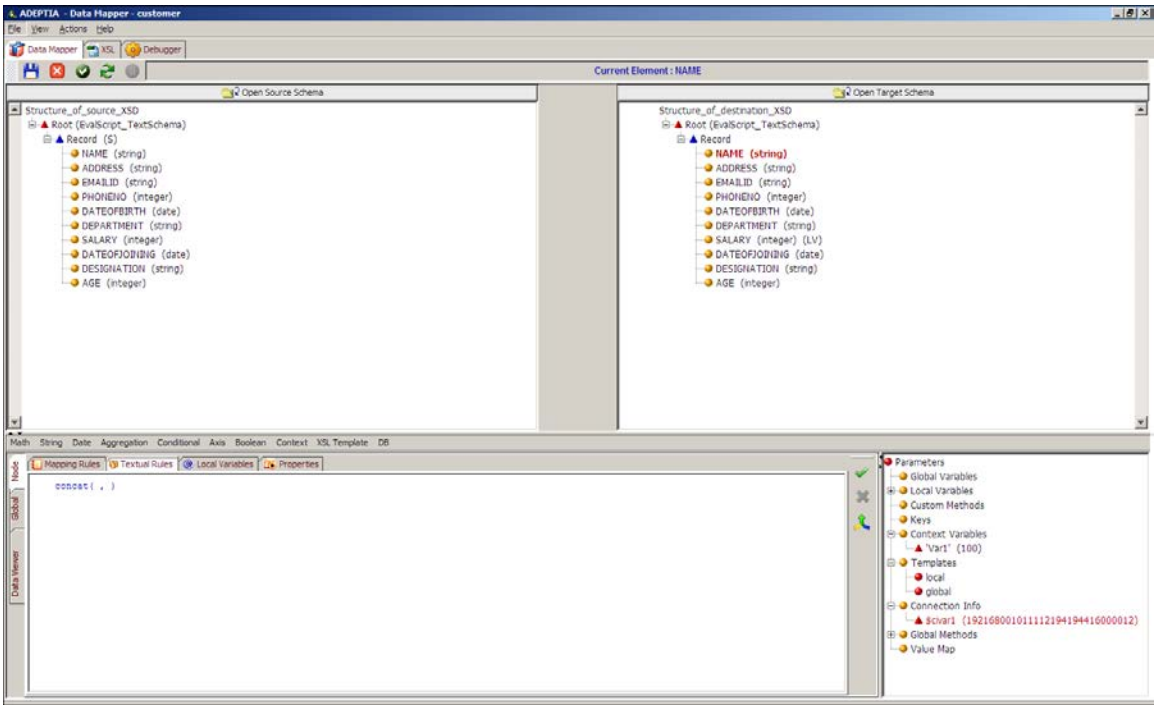


Figure 390: Syntax for Concat Sub-Function

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 383).

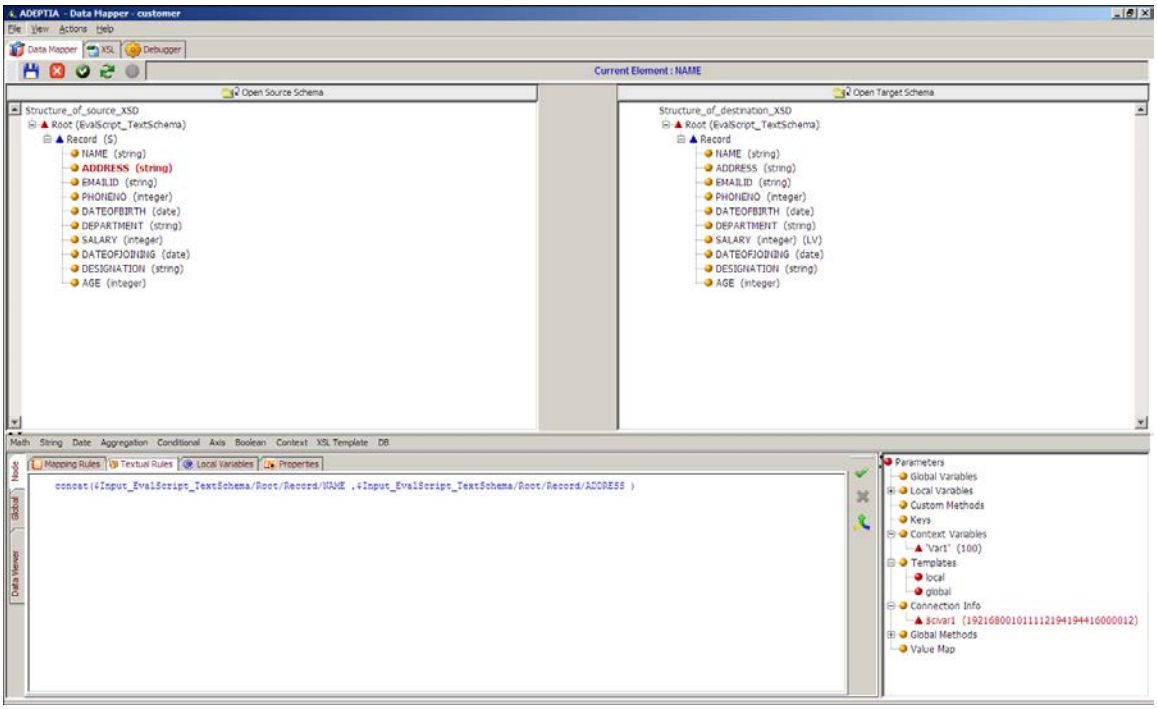


Figure 391: Parameters of the Concat Syntax

You can indent the textual rule content as per your requirement.

7. Click the **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

1. Click the **Actions** menu and select **Namespace**.

2. Click the **Namespace** submenu and select **Add Namespace**. The Namespace dialog box is displayed (see Figure 384).

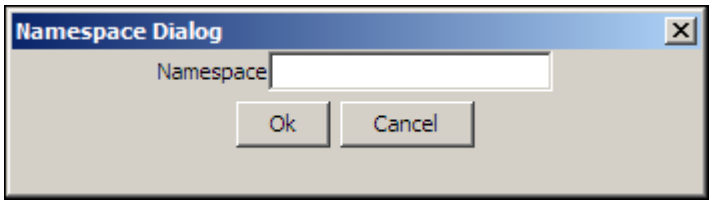


Figure 392: Adding Namespace

3. Enter the Namespace and click **OK**. 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

1. Click the **Actions** menu and select **Namespace**.
2. Click the **Namespace** submenu and select **Edit Namespace**. The **Select Namespace** screen is displayed (see Figure 385).

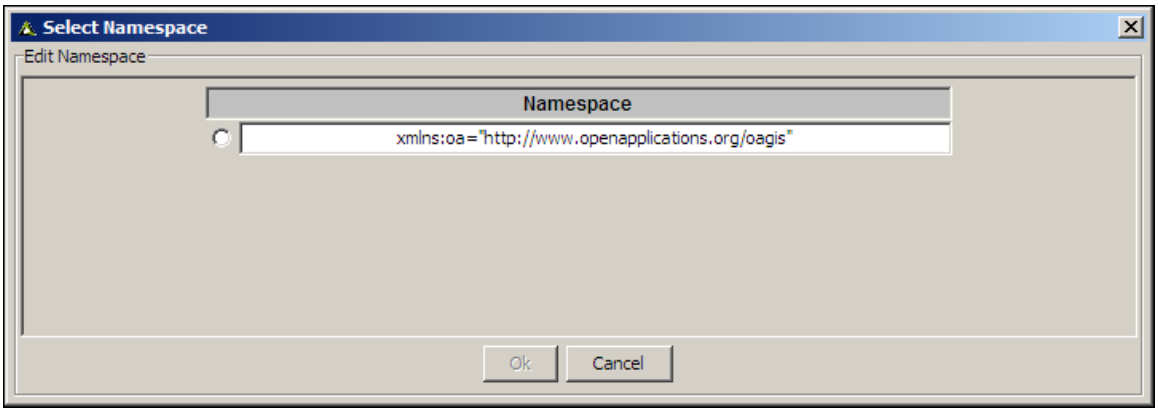


Figure 393: Select Namespace

3. Select the namespace you want to edit. This activates the **OK** button. This displays the **Namespace** dialog box in edit mode.
4. Make the necessary changes.
5. 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 386).

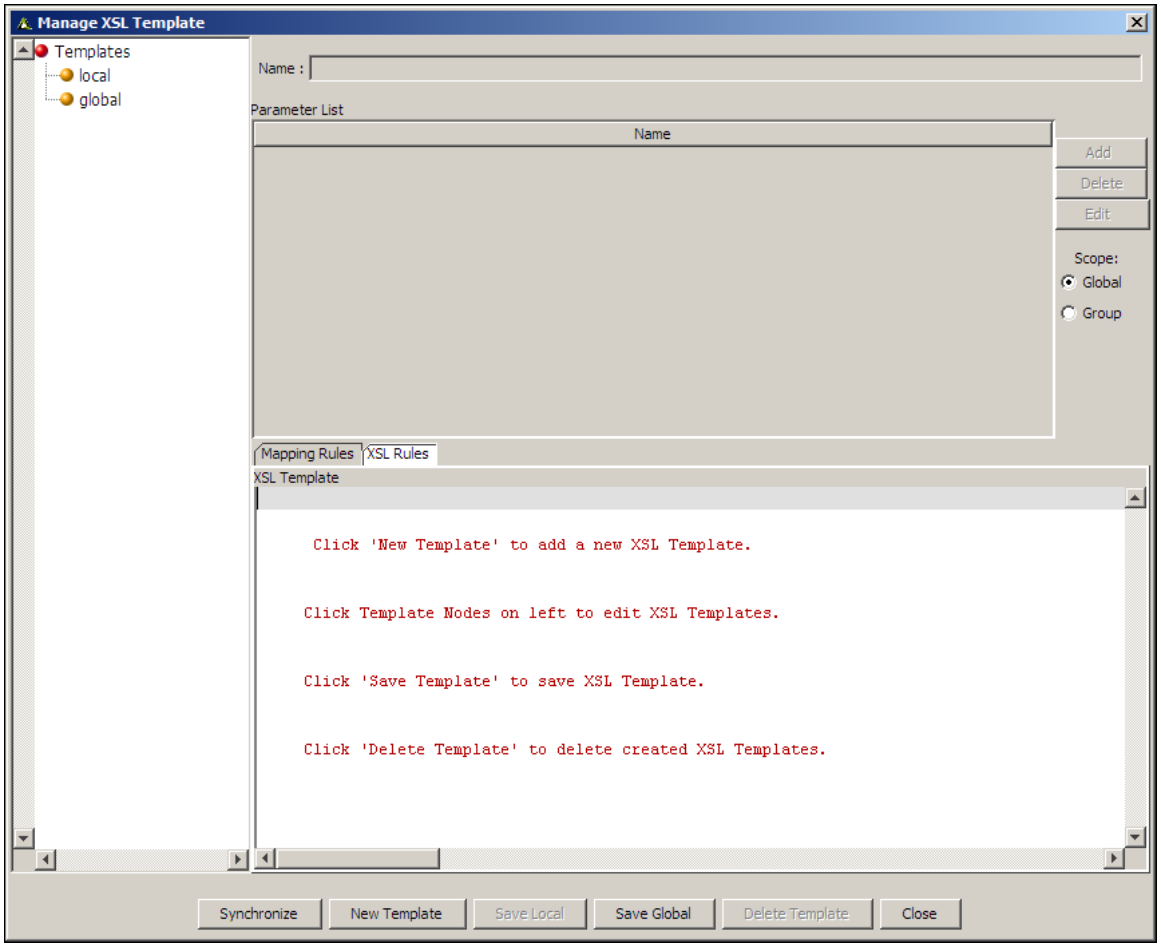


Figure 394: Manage XSL Template

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 387).

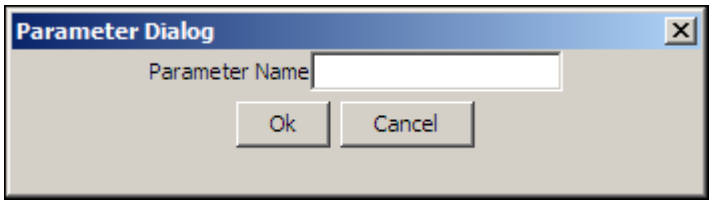


Figure 395: Parameter Dialog Box

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 388).

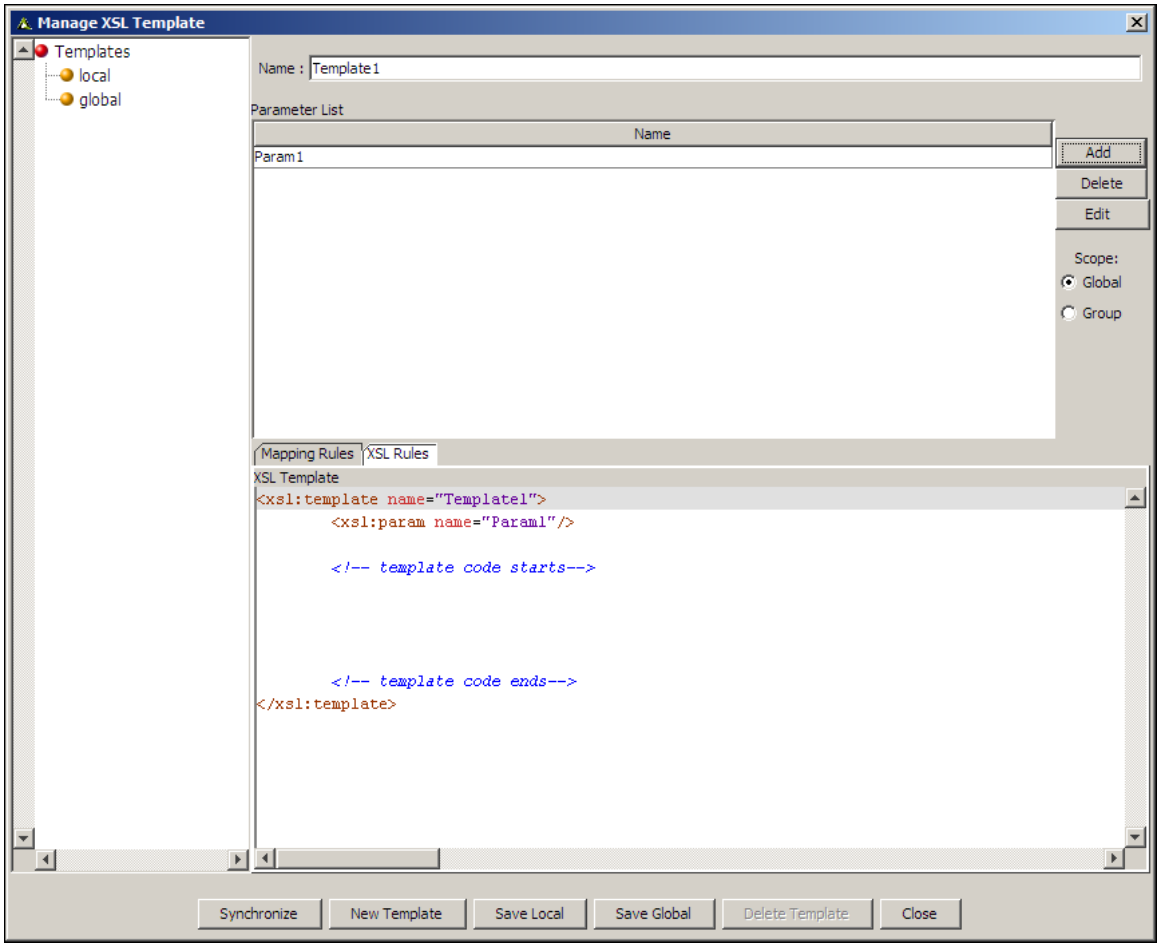


Figure 396: Parameters Added in XSL Template

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 are also 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 389).

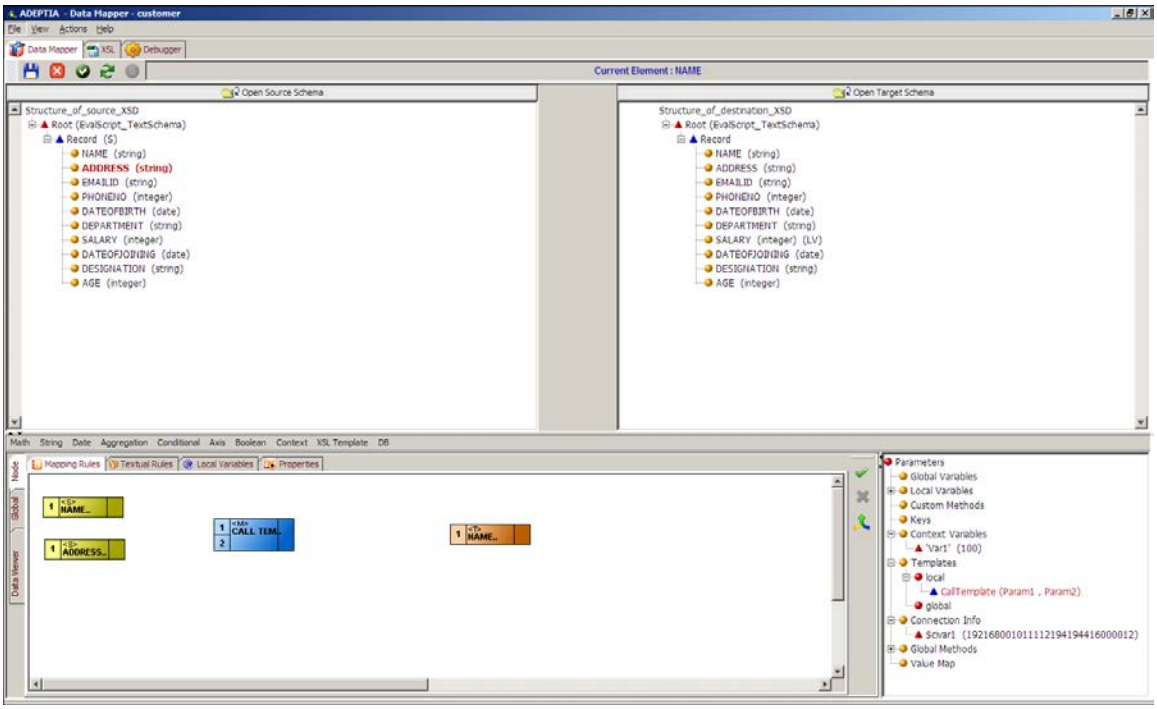


Figure 397: Call XSL Template Node

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 390).

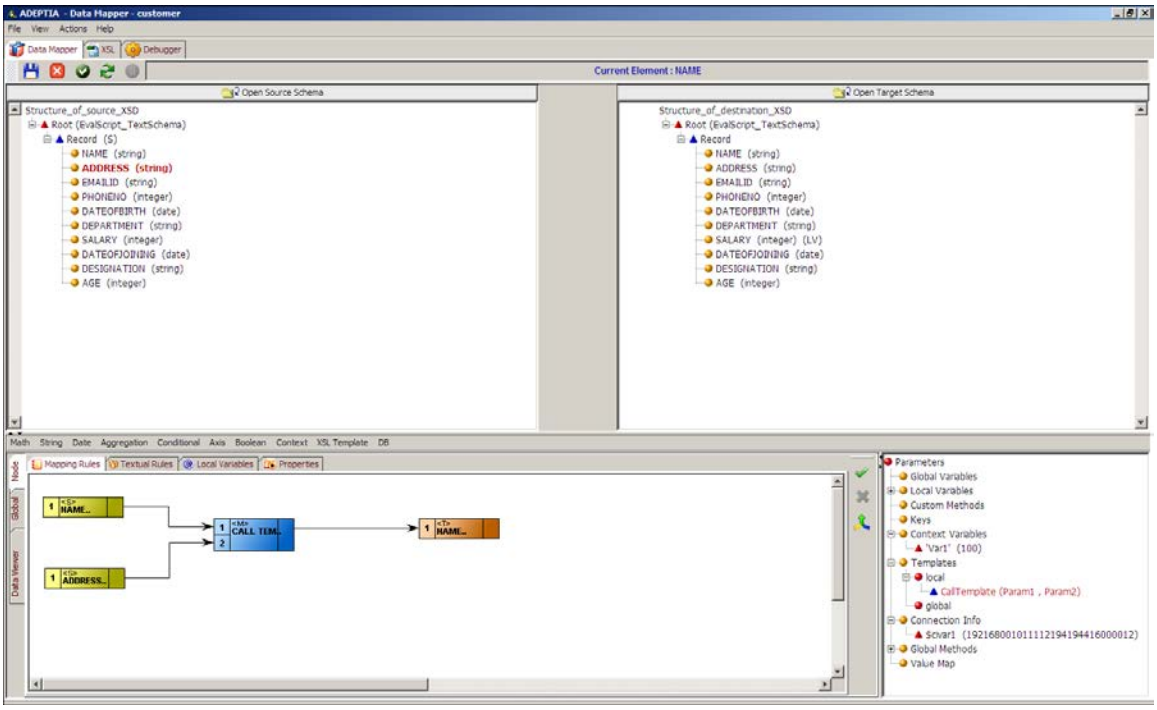


Figure 398: Create Links between Nodes for Mapping Elements using XSL Template

7. 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 the **Global** tab in the Mapping Graph Area. All tabs of the Global tab are displayed.

3. Click the **Global Variables** tab. The Global Variable pane is displayed in the Mapping Graph Area (see Figure 391).

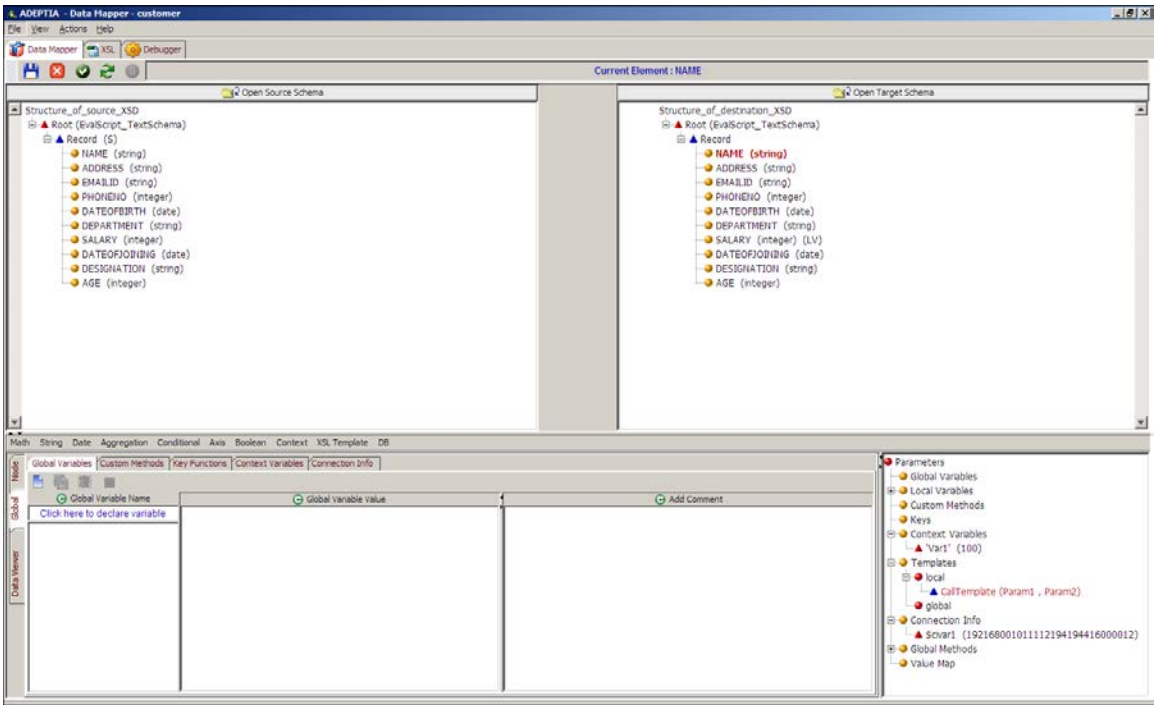


Figure 399: Global Variable Pane

4. Click the **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.

6. Enter comments for the global variable in the **Add Comment** field (see Figure 392). For example, if the global variable value contains complex XSLT logic, you can enter its description in this field.

> The **Comments** field is resizable.

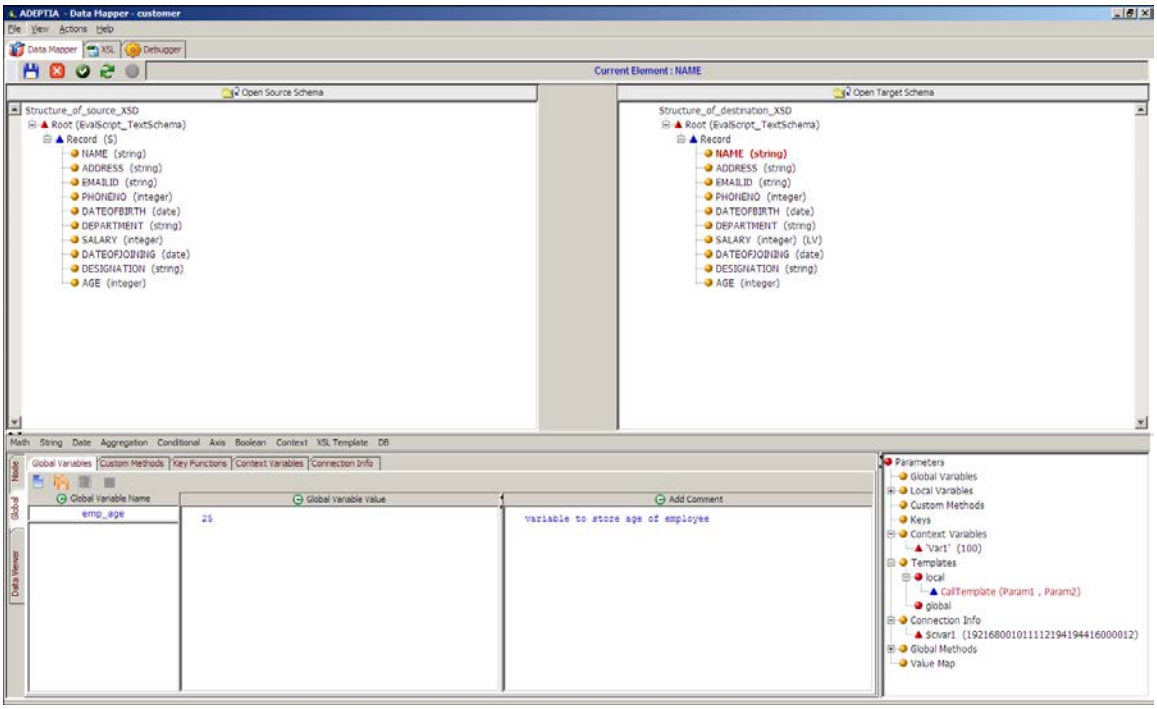


Figure 400: Enter Name, Value and Comments of Global Variable

7. 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 393). The comments added for the global variable are saved and displayed above the global variable declaration in the Mapping XSL (refer to Figure 394).

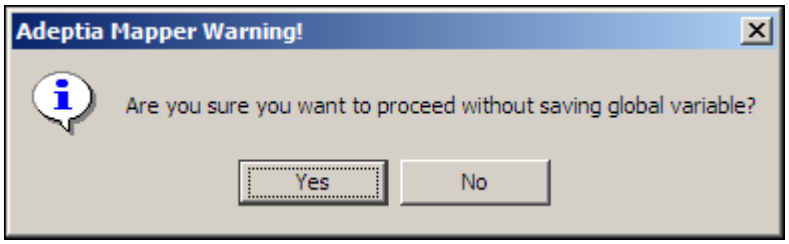


Figure 401: Alert Message

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.

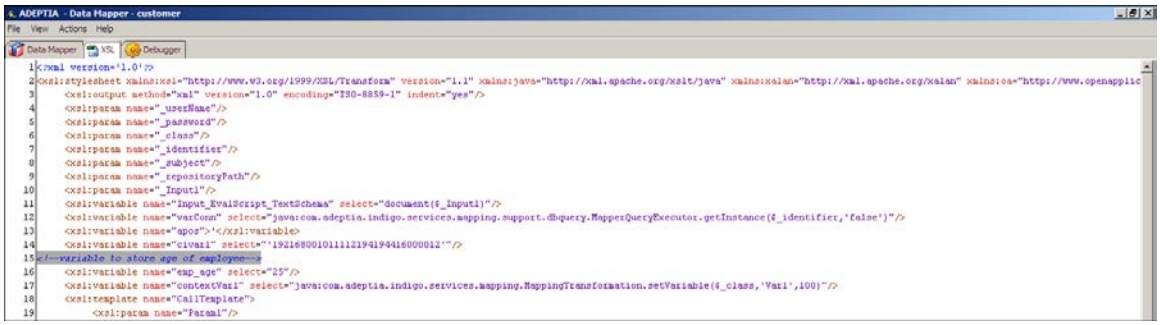


Figure 402: Comment in Mapping XSL

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 dropdown menu (see Figure 395).

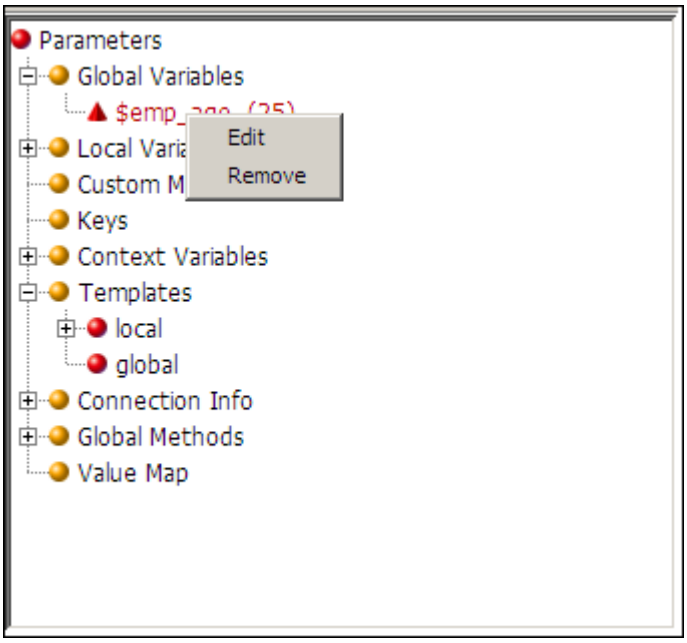


Figure 403: Right-Click menu of Elements in Parameter Panel

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 396).

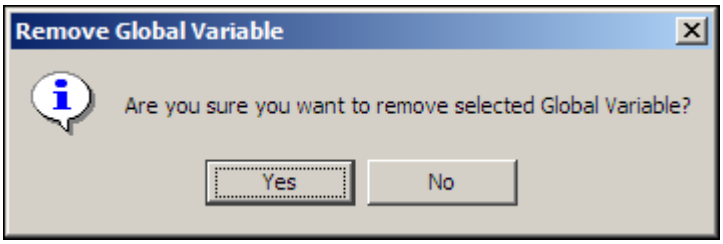


Figure 404: Confirm Delete of Global Variable

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 the **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 397).

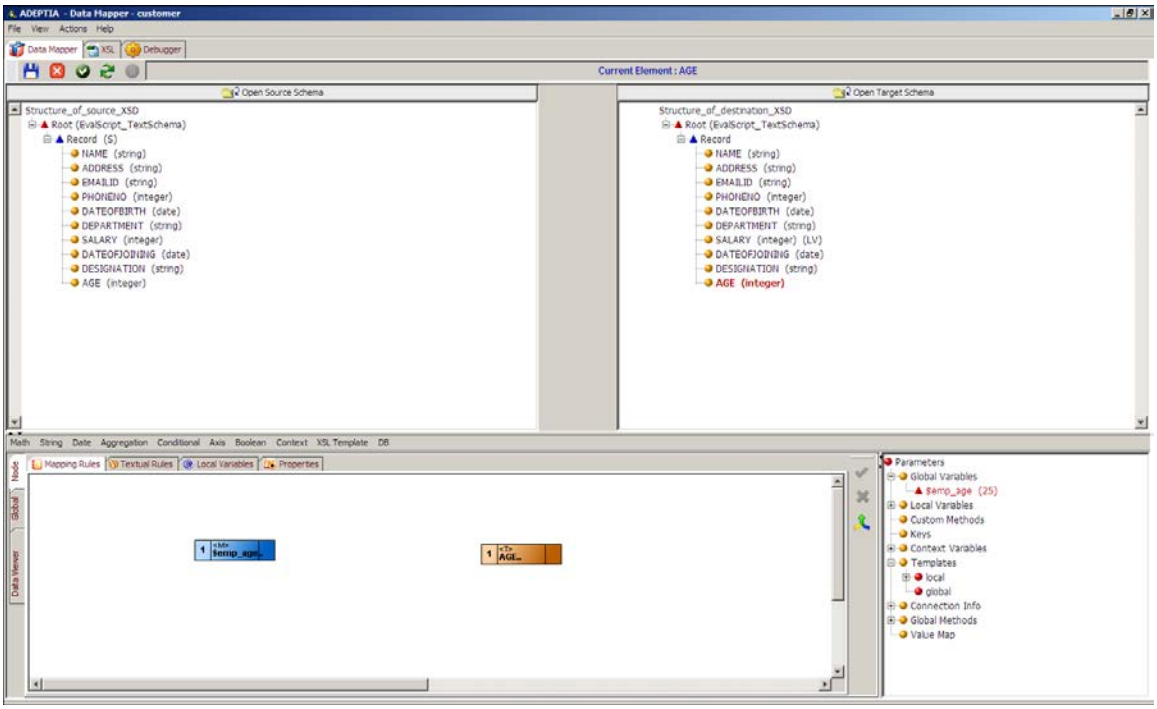


Figure 405: Add Global Variable Node

5. Create a link from the output of the global variable to the input of the target element.

6. Click the **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 393).

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 the **Local Variables** tab. The Local Variable pane is displayed in the Mapping Graph Area (see Figure 398).

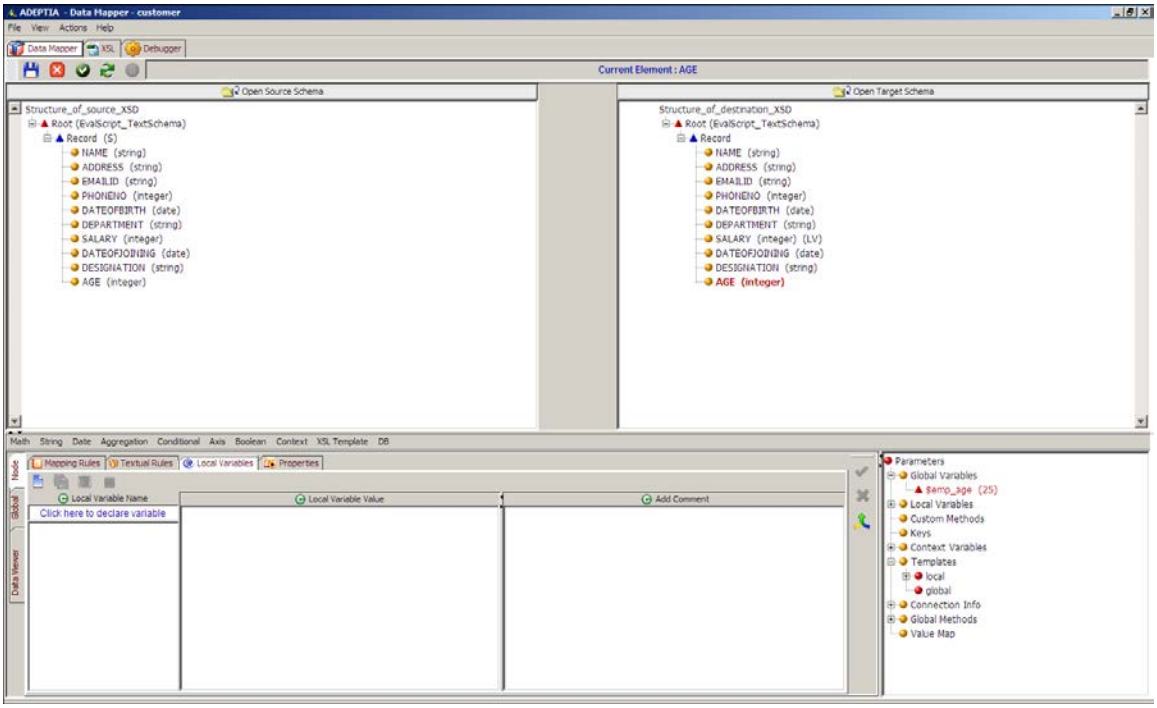


Figure 406: Local Variable Pane

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 399). For example, if the local variable value contains complex XSLT logic, you can enter its description in this field.

The **Comments** field is resizable.

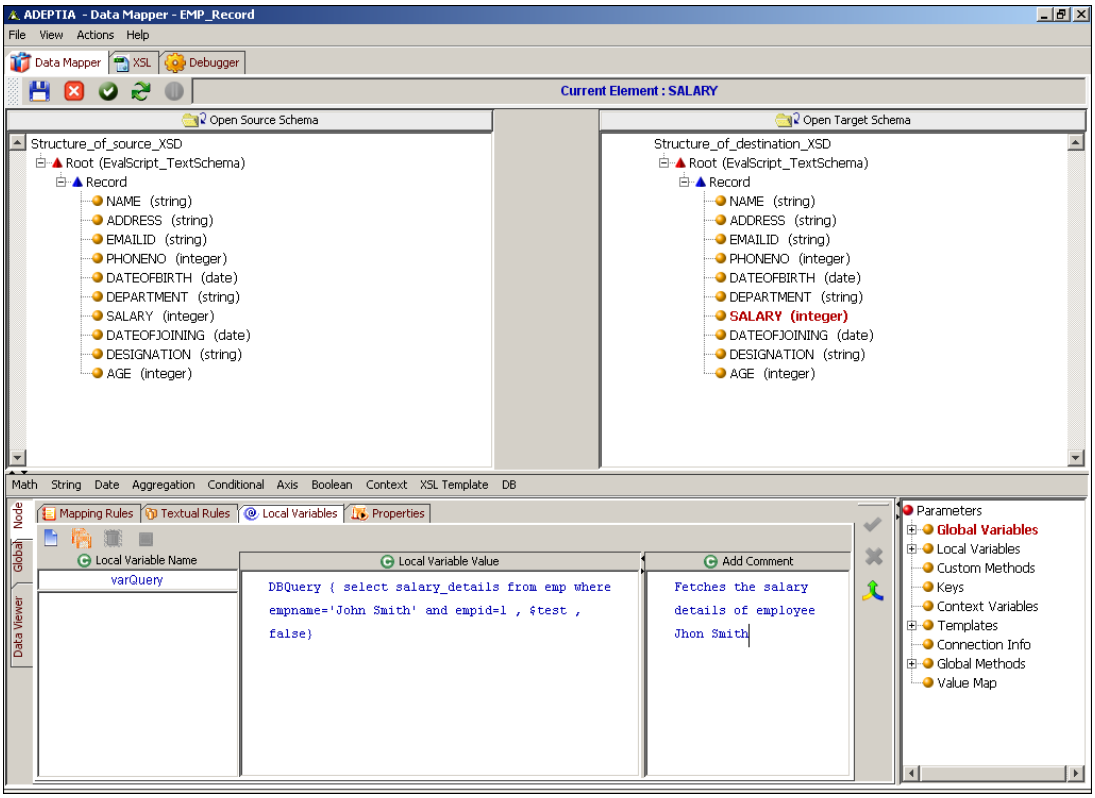


Figure 407: Enter Name, Value and Comment for Local Variable

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.

7. Click the **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 393). The comments added for the local variable are saved and displayed above the local variable declaration in the Mapping XSL (refer to Figure 394).

The alert message is also displayed when shifting focus between Global and Node tabs.

8. 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 *Current Variable* or *Ancestor Variable* in the Parameters Panel. If it is created for a child node, then it is saved as a *Current Variable*. If it is created for a parent's parent node, then it is saved as an *Ancestor Variable*.

You can rearrange the local variables by dragging it up or down in the list.

To remove a local variable, select the local variable and click **Remove selected local variable** ( ) button.

To remove all local variables, click **Remove all local variables** ( ) button.

Alternately, you can edit or delete a local variable from the Parameters Panel itself. For details, refer to the Managing a Global Variable from Parameter Panel section.

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 the **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 400).

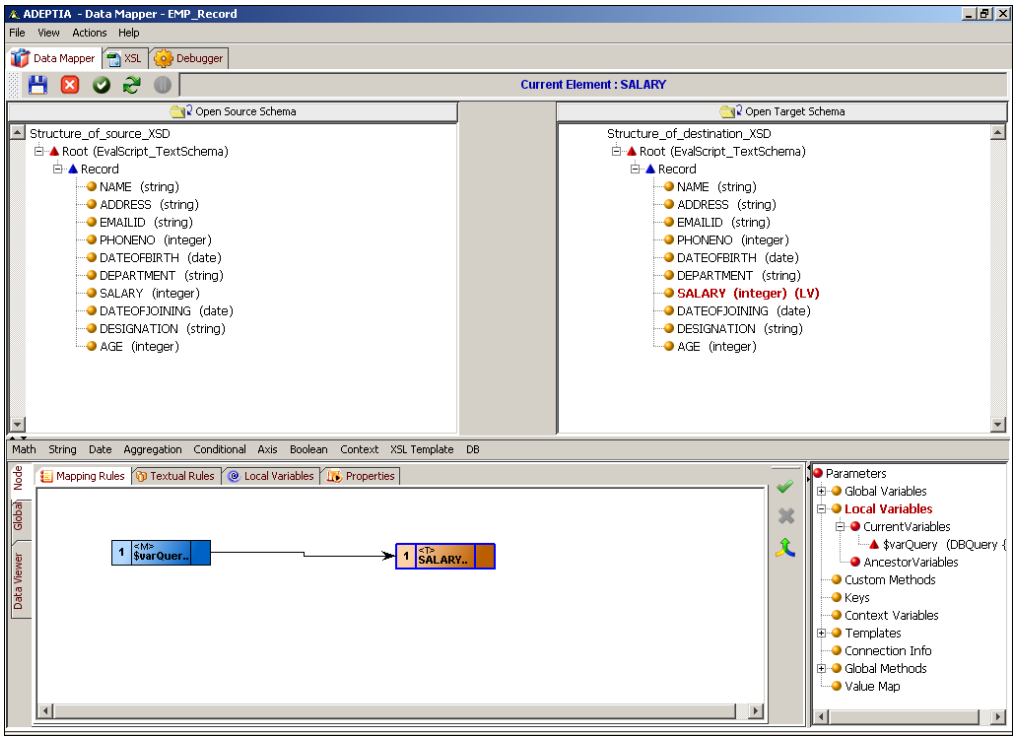


Figure 408: Add Local Variable Node

5. Create a link from the output of the *local variable* to the input of the *target* element.

6. Click the **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 393).

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 *<InstallFolder>/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 the **Global** tab displayed in the Mapping Graph Area. All tabs of the **Global** tab are displayed.
3. Click the **Custom Methods** tab. The **Custom Methods** pane is displayed (see Figure 401).

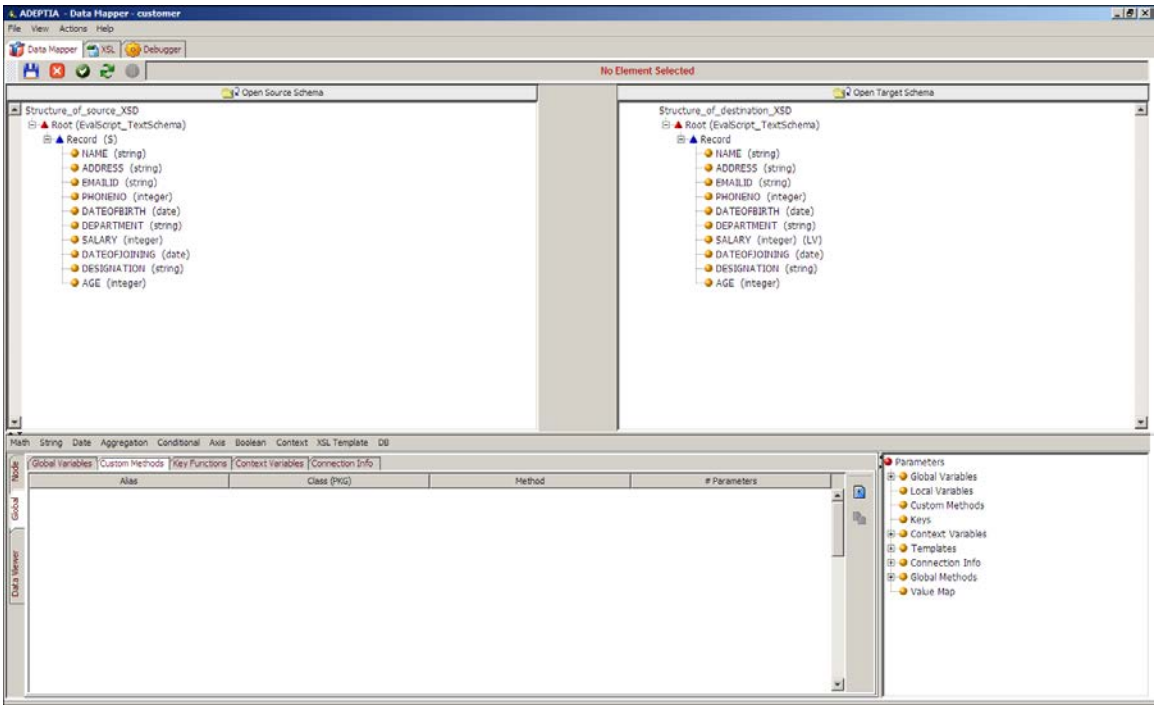


Figure 409: Custom Methods Pane

4. Click the **Add New Method** ( ) button to add a Custom Method. A row is inserted with the listed columns as displayed in Figure 402:
   - Alias
   - Class (PKG)
   - Method

- # Parameters

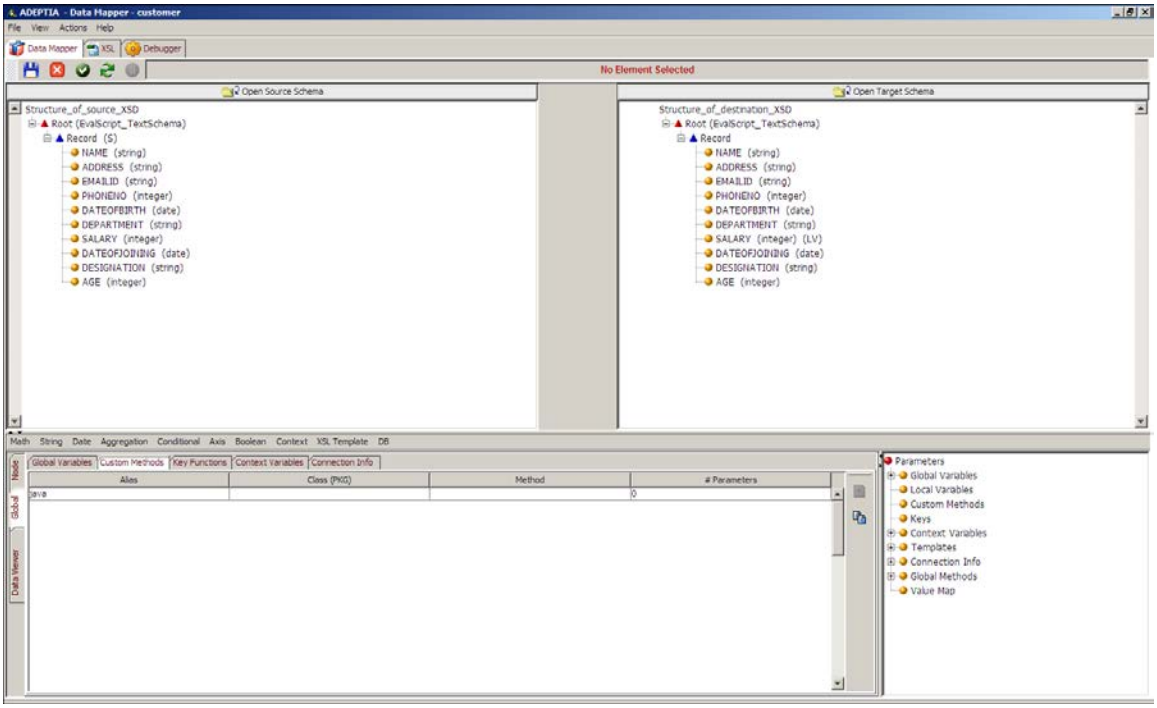


Figure 410: Add Custom Method

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 403).

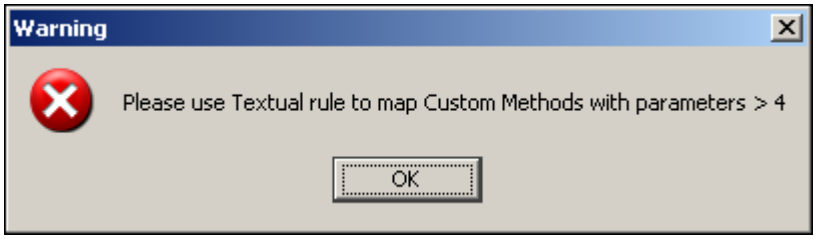


Figure 411: Warning for Adding more than 4 Parameters

10. Click **OK** to close the message. This saves the custom method and displays it under **Custom Methods** in the Parameters Panel (see Figure 404).

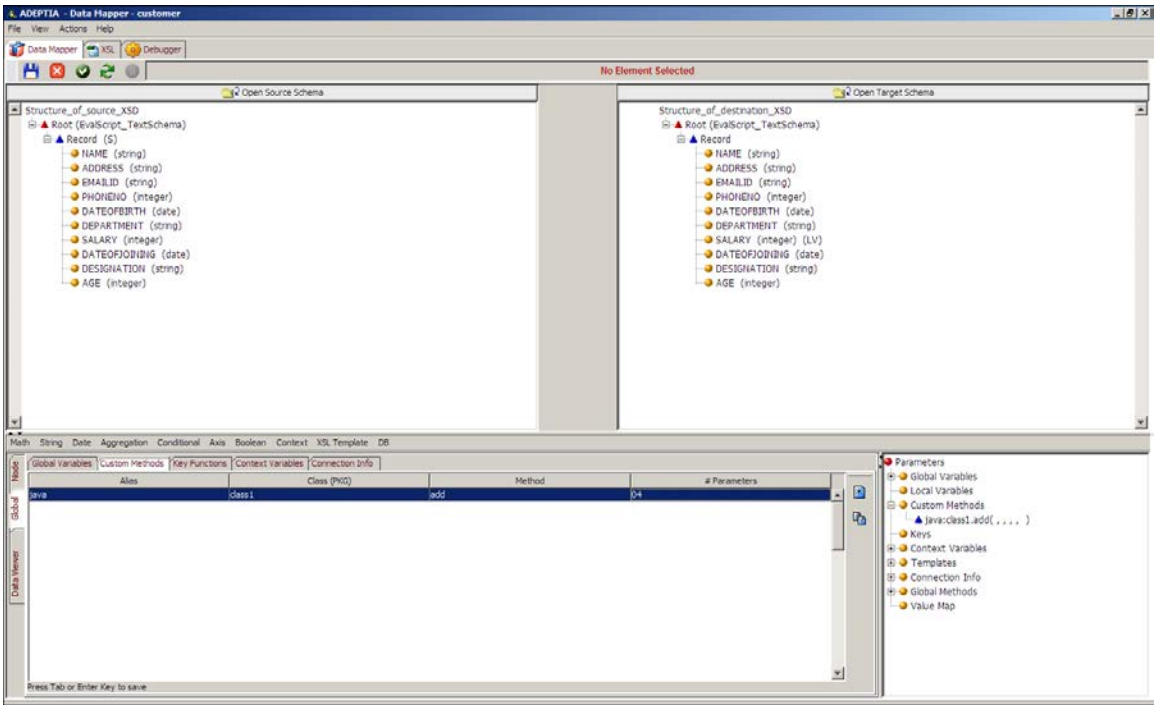


Figure 412: Custom Method added to Parameters Panel

To remove a custom method, select the custom method and click the **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 the **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 405).

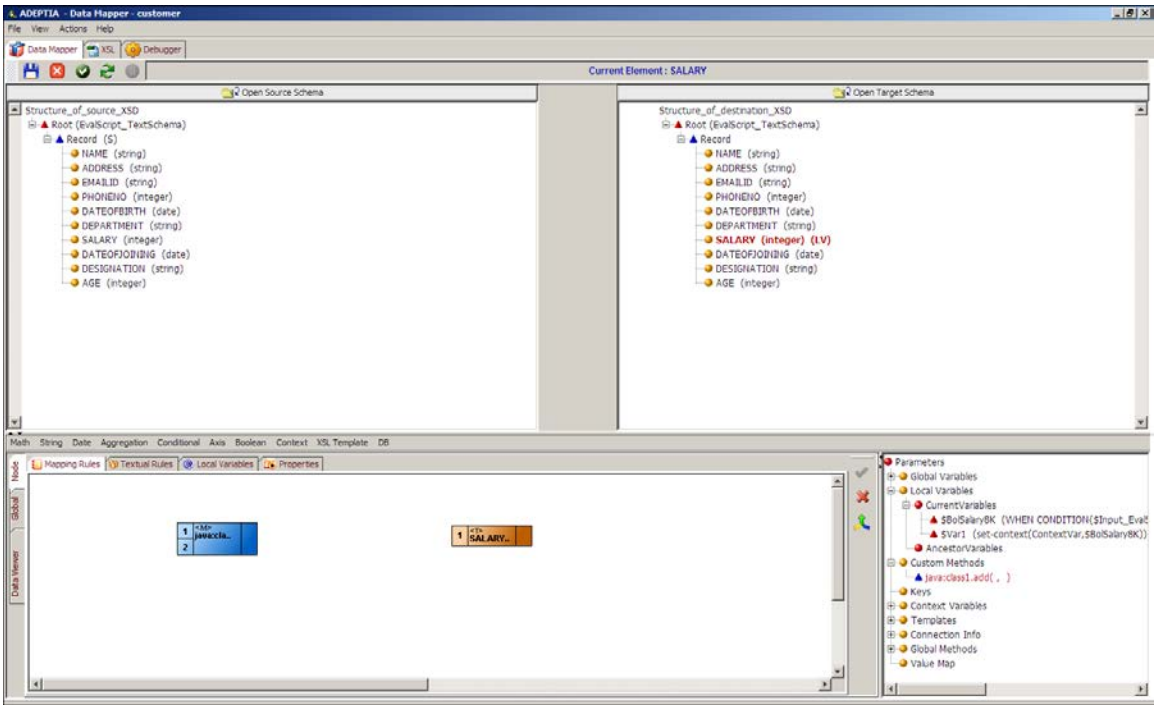


Figure 413: Add Custom Method Node

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 403). 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 406).

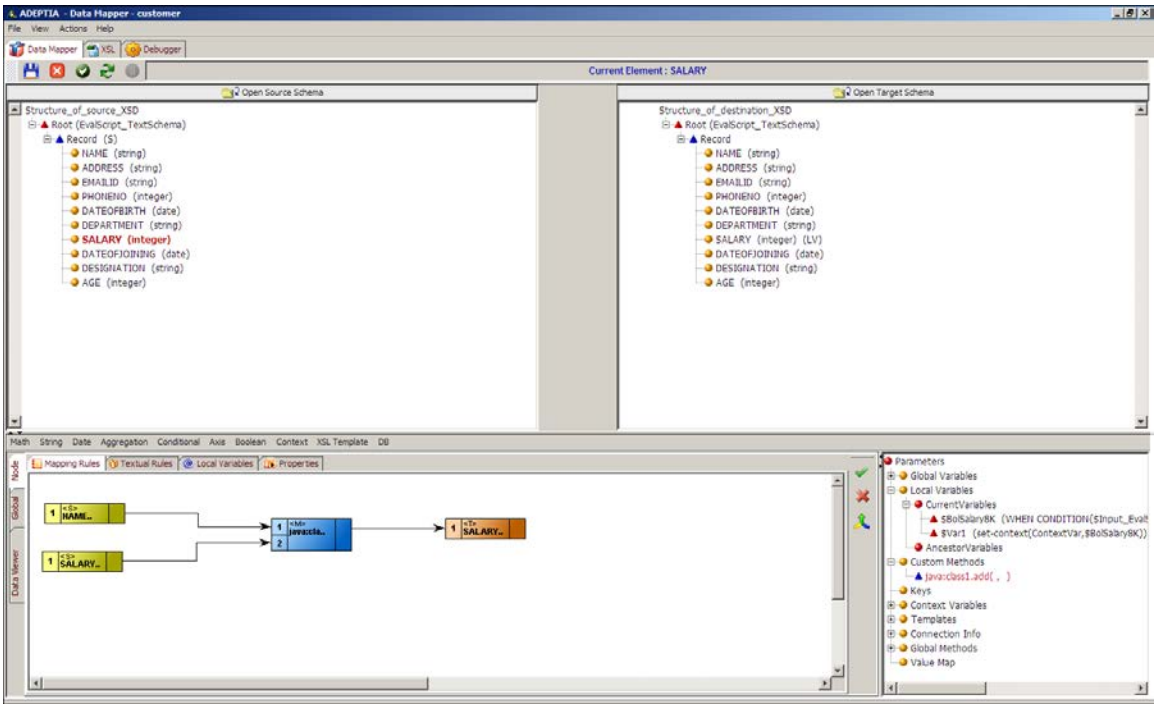


Figure 414: Create Links between Nodes

9. Click the **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 407)

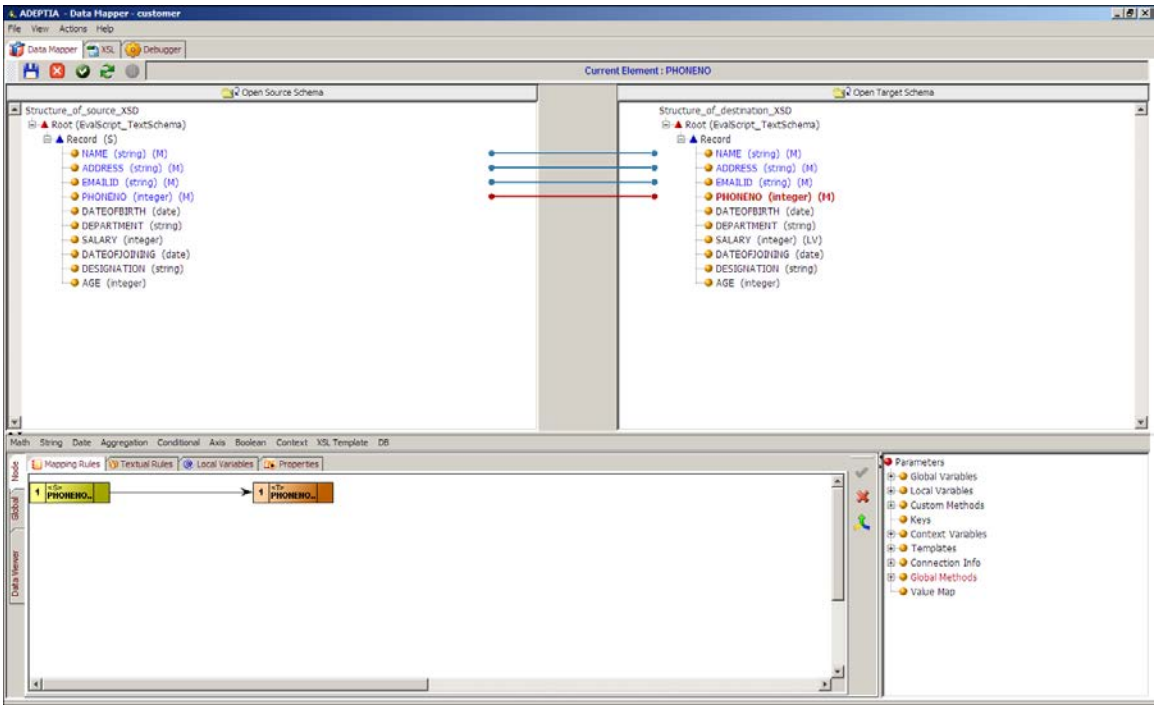


Figure 415: Global Methods Node

3. Expand the **Global Methods** node to display all the class files present in the **Custom Classes** folder (see Figure 408).

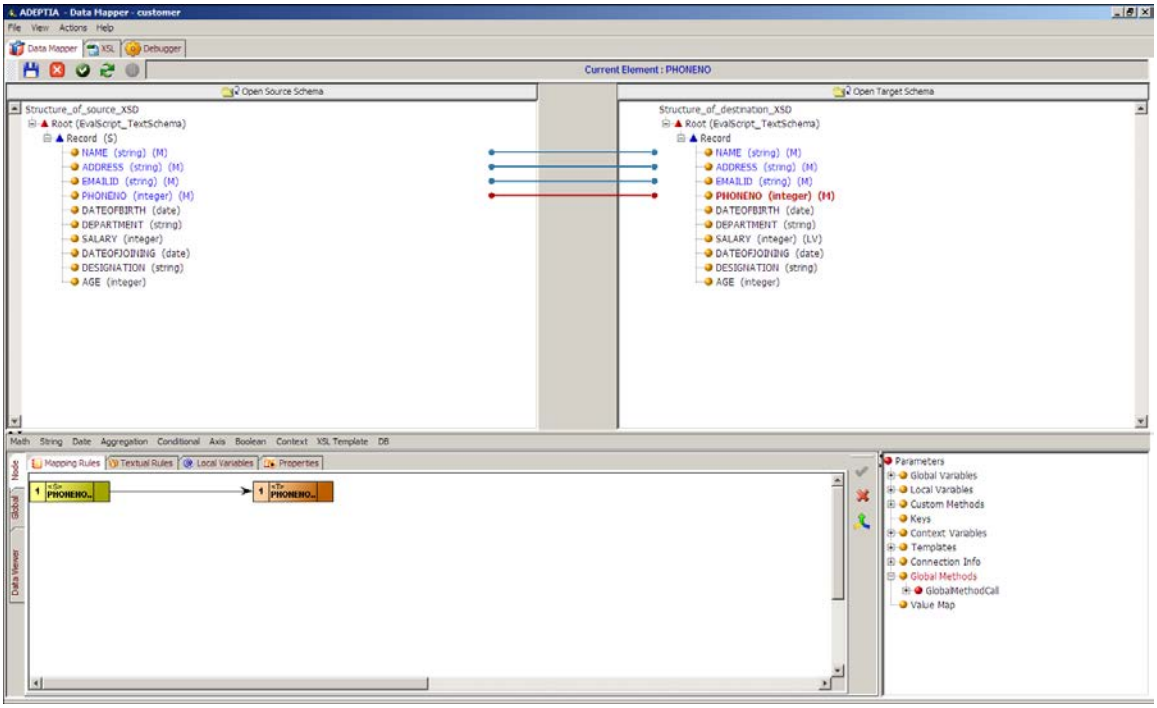


Figure 416: List of Class Files in Custom Classes Folder

4. Expand a class node to display all custom methods available for that class (see Figure 409).

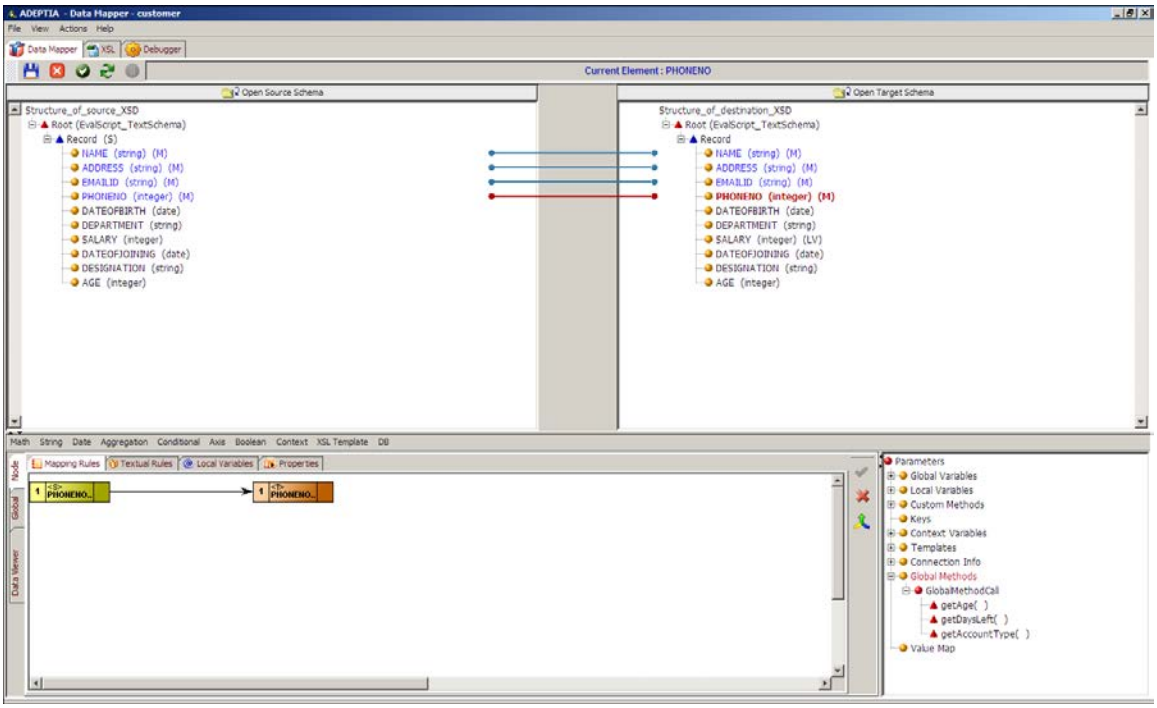


Figure 417: Custom Methods in a Custom Class

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 is used to extract information from two or more related input data sources. For example, if there are two input data sources: *source1* and *source2*, then the *Key* function will extract information from *source2* based on the matching field from *source1*.

Key function is always created in context of *source2* (the data source from where data needs to be fetched based on matching field). All the parameters of the *Key* function correspond to *source2* only. It has the following 3 parameters:

- **Key Name** : It is a name that you want to give to the Key function (for example, Key1))
- **Key Match** : It is the XPath of source2 that will be returned as output by the Key function . This XPath is assumed to be present in the source2 . A valid Xpath needs to be specified as this path will be returned as output. A schema name cannot be used here in the Xpath.
- **Key Use**: It is the name of the field from source2 which will be used to find the matching record from source2 based on the value passed to *Key* function. For example, if the *Key Match* is */Root/Record* and *Key Use* is *EmpID,* and if we pass value 25 to the *Key* function , then it will start scanning *EmpID* of the *source2* inside each record of *source2*. Whenever EmpID=25, the *Key* function will pass that record (*Root/Record*) as output.

Once the *Key* function is created, you need to pass the value to the *Key* function that will be used to match the *Key Use* defined for *source2* and map the output to the target element. For this, you need to use the *Key* mapping function. The syntax of the Key Mapping is :

key(,)

This function accepts 2 parameters. The first parameter is the name of the *Key* function (*Key1*) to be used and the second parameter is the actual value that will be passed to the *Key* function to perform the match on *source2*. The parameters will be:

key('key1', 25)

Once XSLT transformer finds a mapping it will call the *Key* function *Key1* and pass the value *25* to that function. The *Key* function *Key1* on receiving the mapping will pick this value *25* and start scanning *EmpID* of the *source2* inside each record of *source2*. Whenever EmpID= 25, the *Key* function will pass that record (*Root/Record*) as output.

The *Key* function always executes inside current context or nearest *For Each* that is applied to the target element where *Key* function is mapped. So if the *For Each* is applied is for *source2* on the target element, then the *Key* function will use *source2* as the data source on which EmpID scanning will be performed . So the *For Each* applied, helps the *Key* function to decide which data source to use, to perform the scanning and fetch the output.

Usage Scenario

For example, there are two source schemas: Schema_EmpDetails and Schema_Emp_incrementalDetails. There is one target schema: Schema_EmpCompleteDetails. The objective is to map the fields EmpName, EmpID ,Age, Salary, City and Email from Schema_EmpDetails and map the field Address from Schema_Emp_incrementalDetails to the target schema. The Address from the Schema_Emp_incrementalDetails is fetched using Key function and using EmpID as Key Use.

The parameters are defined as:

- Key Name : Key1
- Key Match : /Root/Record
- Key Use : EmpID

The first *For Each* is applied from record of first Schema on target Record node. This will insure that target data will contain as many records as there are in *Schema_EmpDetails*. Now *Key* mapping is used on the target *Address* element. So the deciding *For Each* (*$Input_Schema_Emp_incrementalDetails/Root*) for *Key* function is applied on this element. The *For Each* applied here is up to *Root* element only not *Record* so that only single *Address* target element is created per record . The Key mapping is defined as:

key('key1',$_varEmpID)/Address

Local variable *_varEmpID* is used as second parameter which is dynamically picking value from the EmpID of the first schema (due to *For Each* applied on target *Record* node). Once the *Key* function finds the match, it will return the matching record *Root/Record* from the second schema. Since the *Address* element is inside the *Record* element, */Address* is appended to the *Key* mapping, which becomes *Root/Record/Address*.

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 the **Global** tab displayed in the Mapping Graph Area. All tabs of the Global tab are displayed.
3. Click the **Key Functions** tab. A list of existing keys is displayed in the Key Functions pane (see Figure 410).

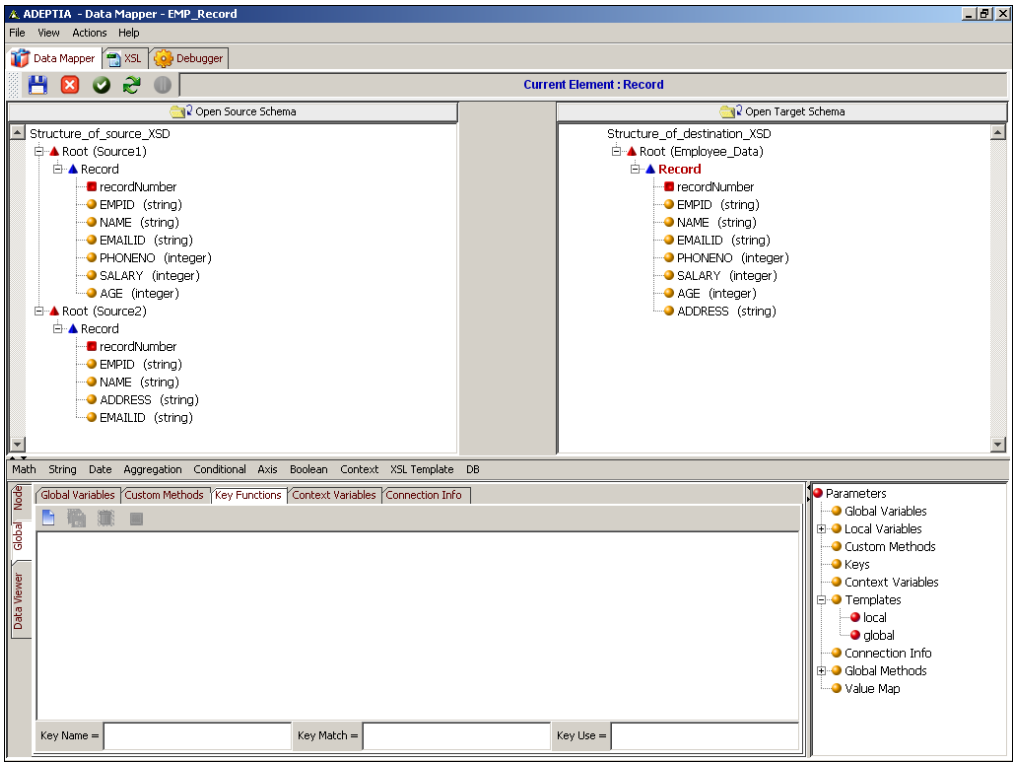


Figure 418: Key Functions Tab

4. Click the **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 411).

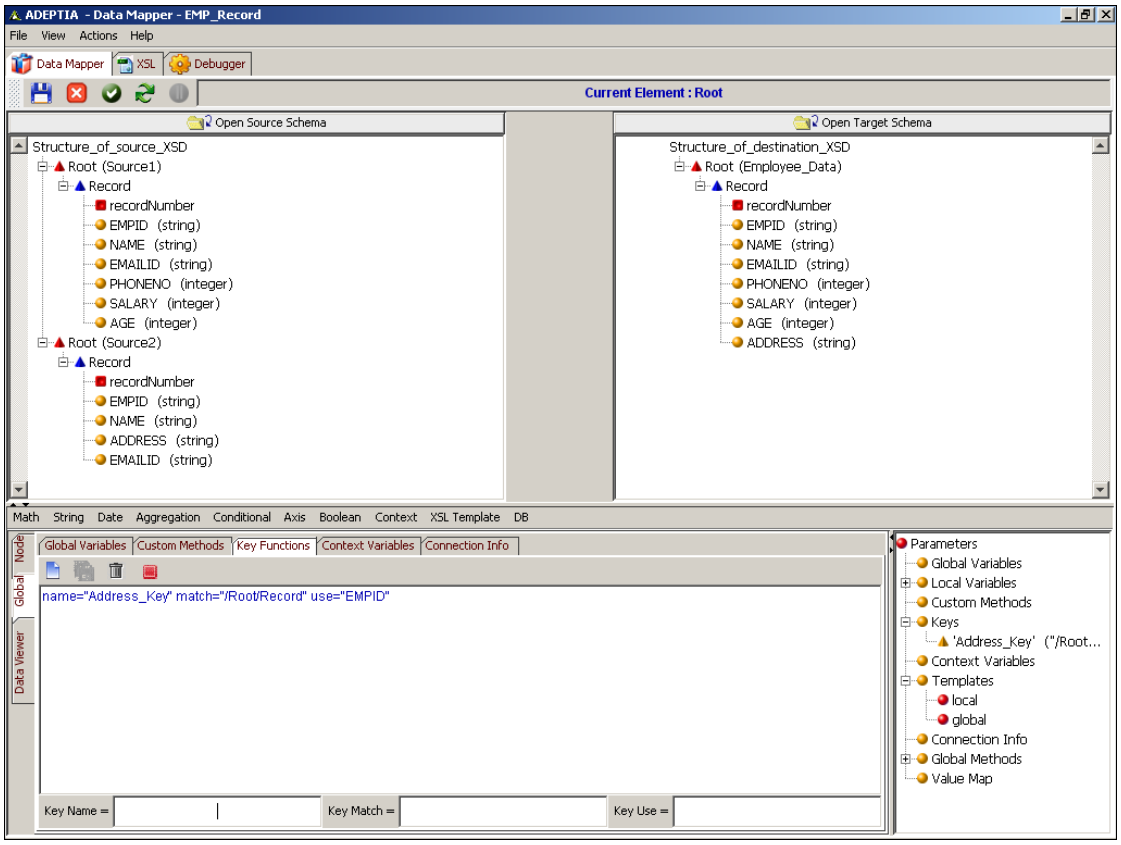


Figure 419: Key Added to Parameters Panel

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 393).

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 412).

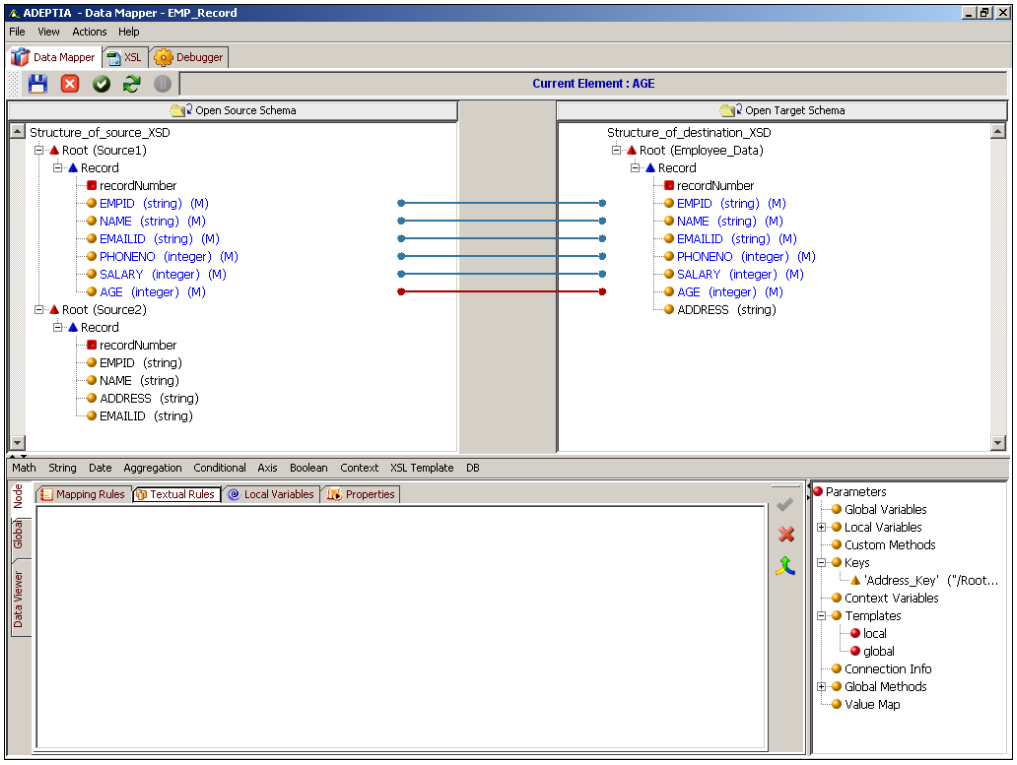


Figure 420: Map Source and Target Elements

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 the **Node** tab displayed in the Mapping Graph Area. All tabs of **the** Node tab are displayed.
7. Click the **Textual Rules** tab. The Textual Rules pane is displayed in the Mapping Graph Area.

8. Click the **Aggregation** mapping function and select the **Key** sub-function. The Key function is displayed in the Textual Rules pane (see Figure 413).

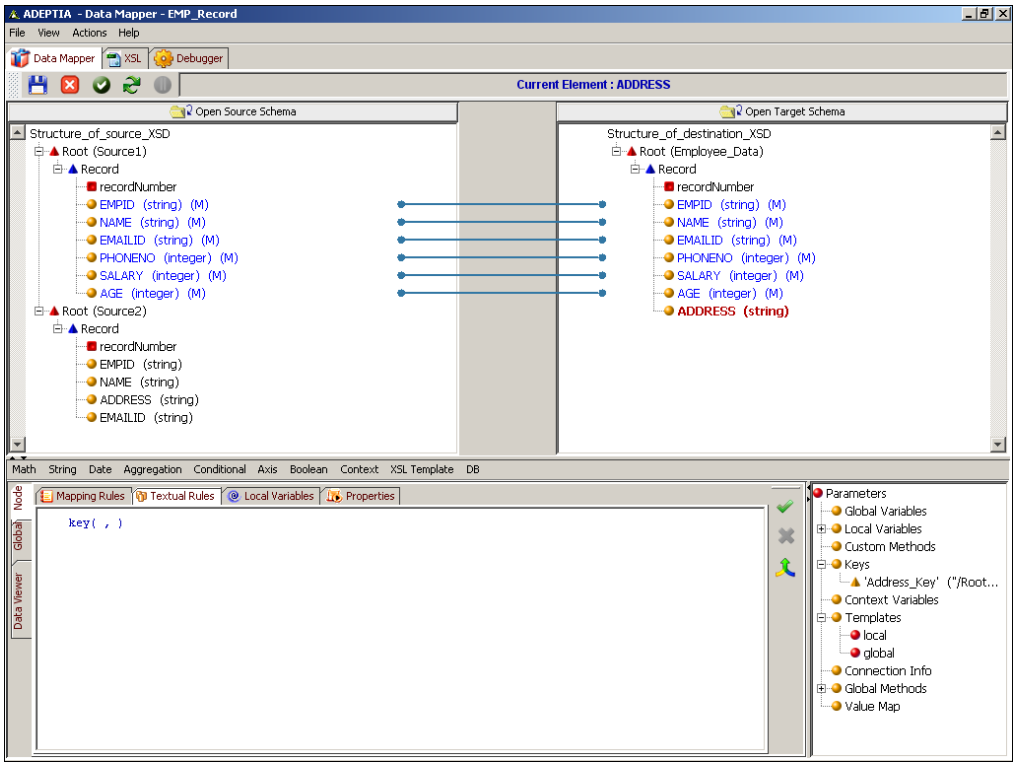


Figure 421: Key Function

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 414)

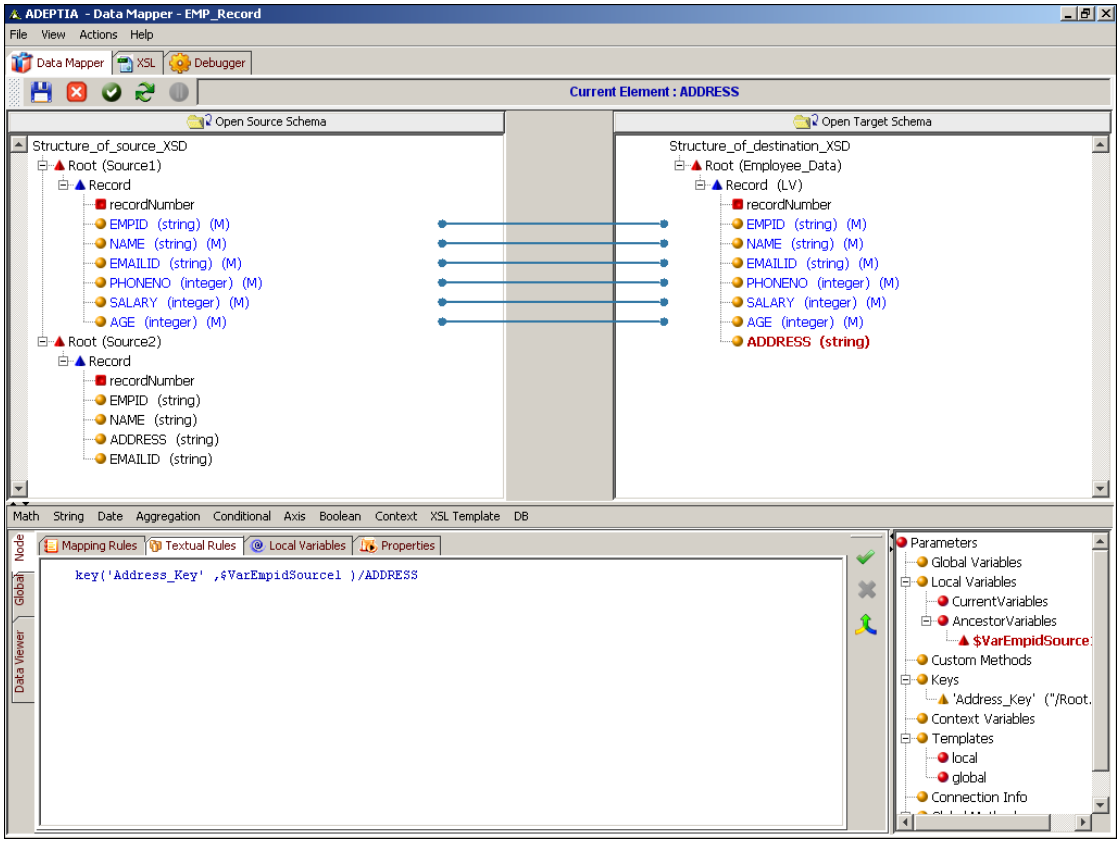


Figure 422: Map Key Function Node to Target Element

13. Click the **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 393).
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 the **Global** tab in the Mapping Graph Area. All tabs of the Global tab are displayed.
3. Click the **Connection Info** tab. The Connection Info Variable pane is displayed in the Mapping Graph Area (see Figure 415).

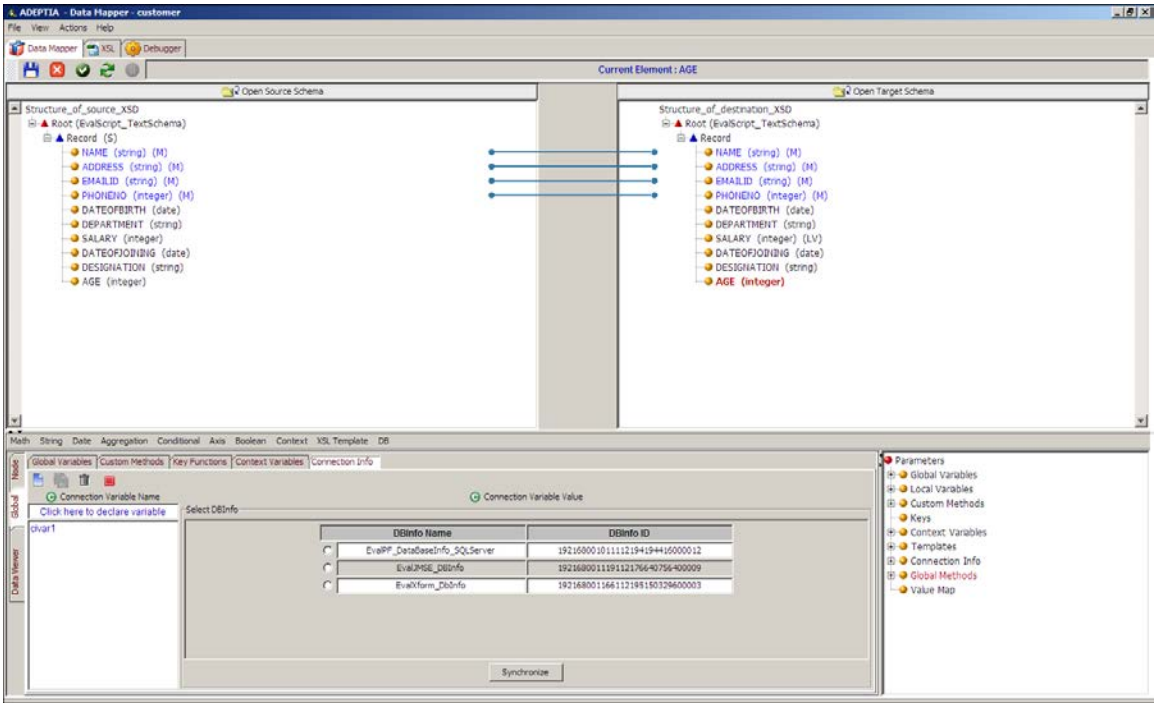


Figure 423: Connection Info Variable Pane

4. Click the **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**.

6. Select the **DBInfo** name that you want to assign for the *Connection Info* variable (see Figure 416).

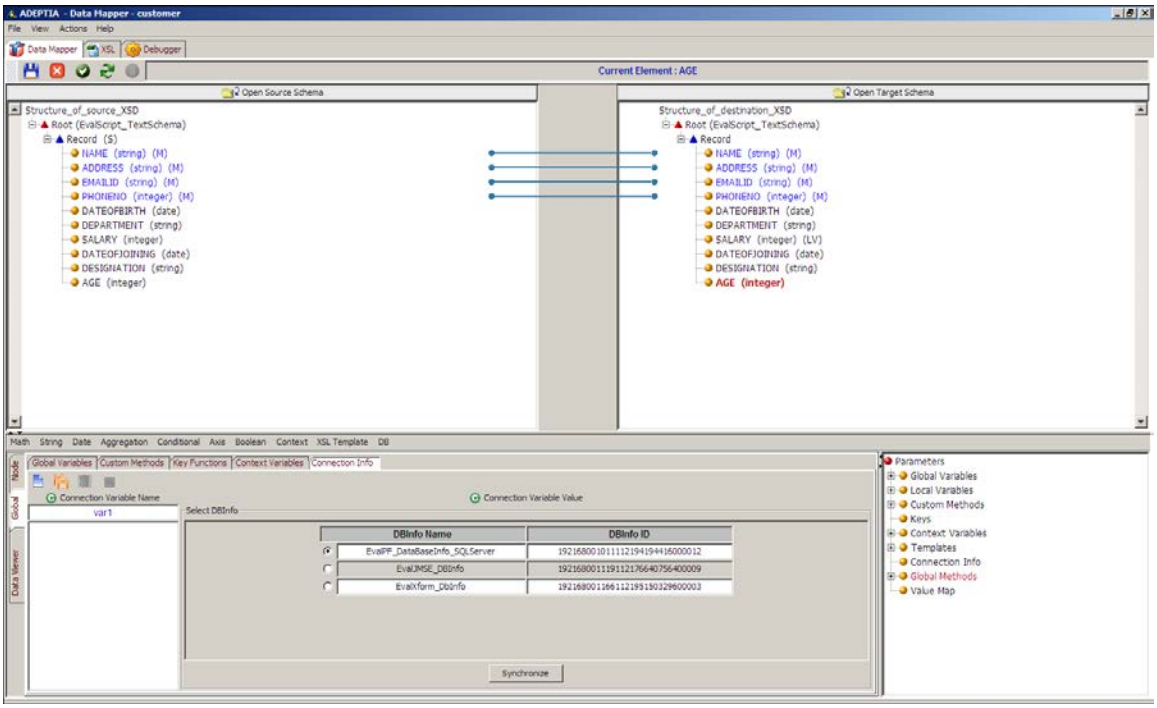


Figure 424: Enter Connection Variable Value

You can click **Synchronize** to reload the **DBInfo** list.

7. Click the **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 393).

8. 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 the **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
4. Click the **Properties** tab. The **Properties** pane is displayed (see Figure 417)

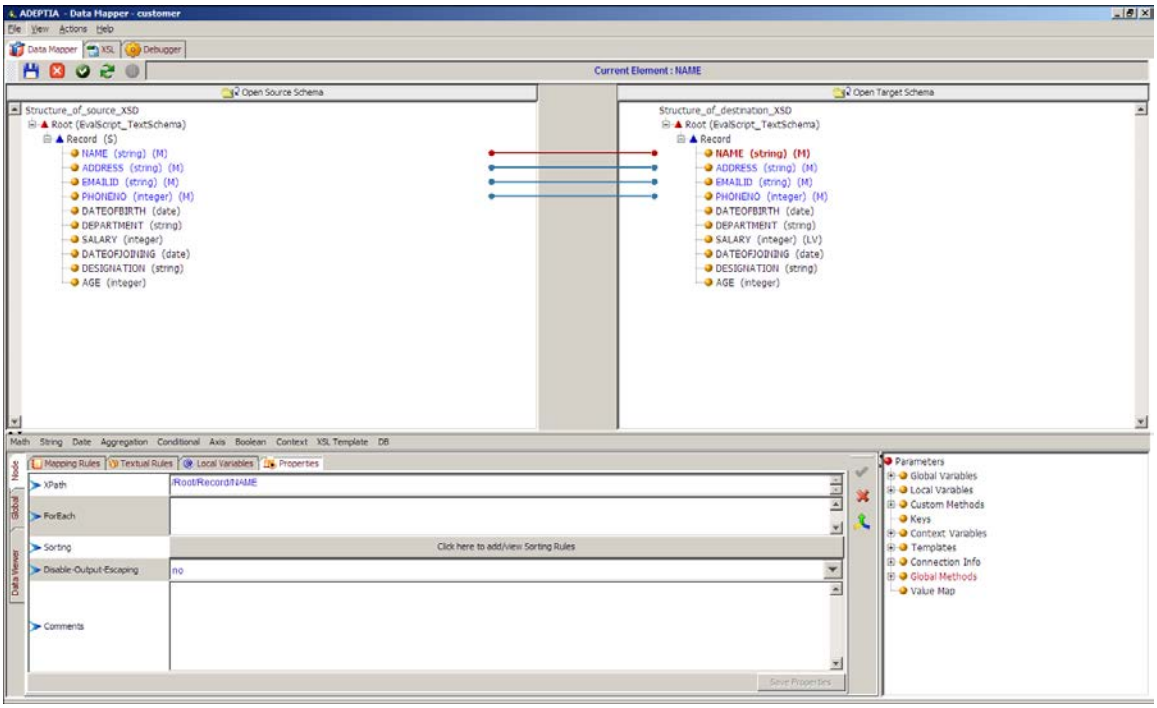


Figure 425: Properties Pane

5. The Properties pane comprises of various properties, which are outlined in the table below.

Table 56: 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

Property	Description
	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.

6. Enter the properties required for the selected target element.
7. 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 393).
8. 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 cannot be used simultaneously on one node.

Steps to set the For Each property

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 the For Each property.
3. Click the **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 417).

5. 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 418).

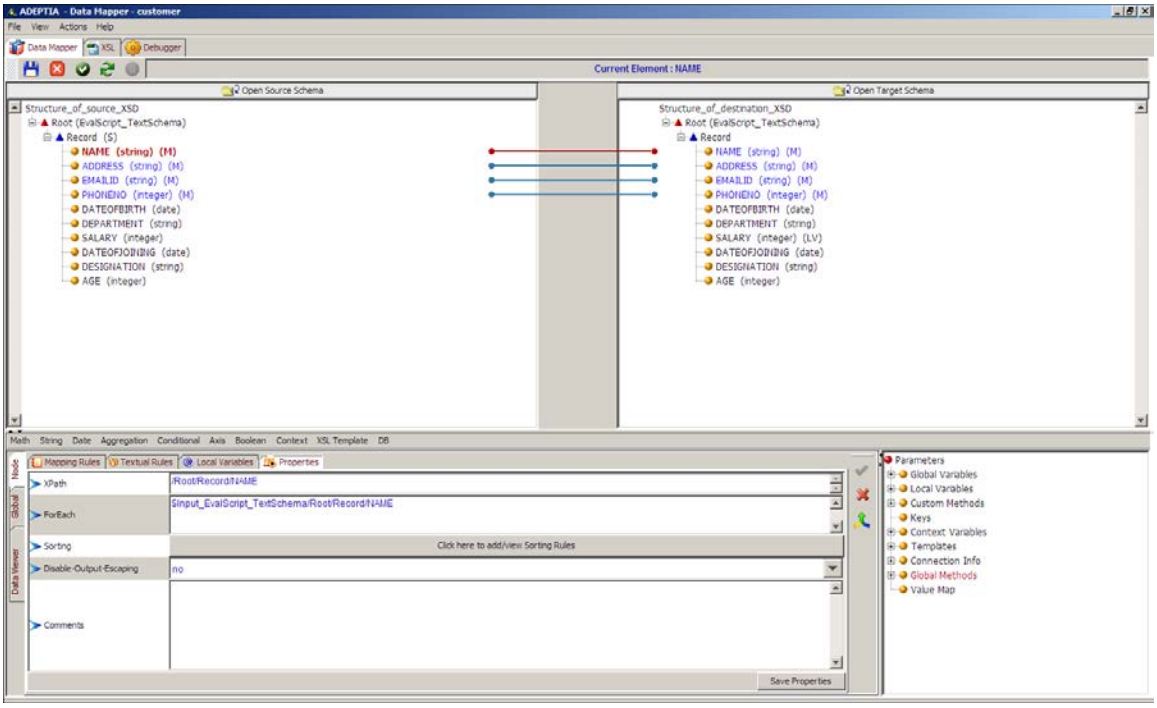


Figure 426: Source Element in For Each Property

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.

6. 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 393).

7. 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 the **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
4. Click the **Properties** tab. The Properties pane is displayed (refer to Figure 417).
5. Click the *Comments* property field and enter the comment for the selected target element (see Figure 419)

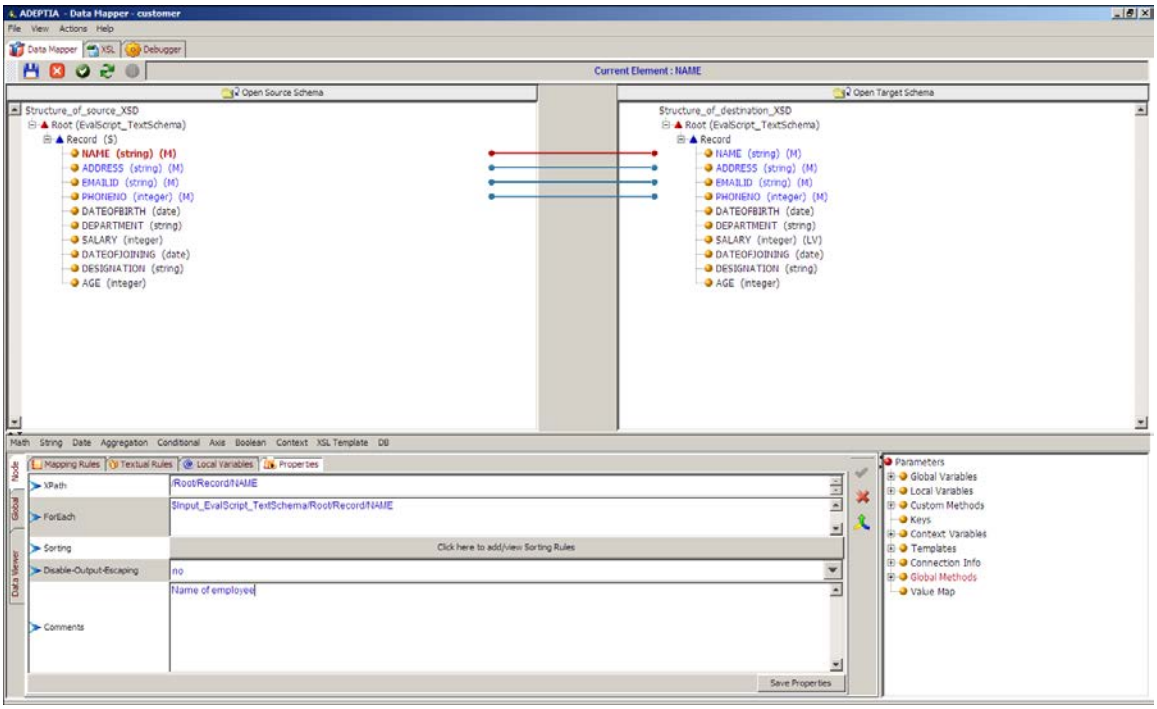


Figure 427: Enter Comment

6. Click **Save Properties**. This adds the comment and displays it next to 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 393).
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 based on their salaries. Figure 420 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>
```

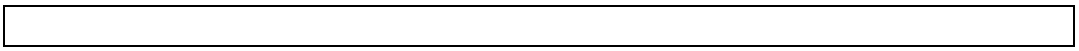


Figure 428: Sample Input XML

Figure 421 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 429: Output XML

The Sorting rules can be set only for record where *For Each Mapping* or *Apply Template* is used. The *<xsl:apply-templates>* 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.

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 422).

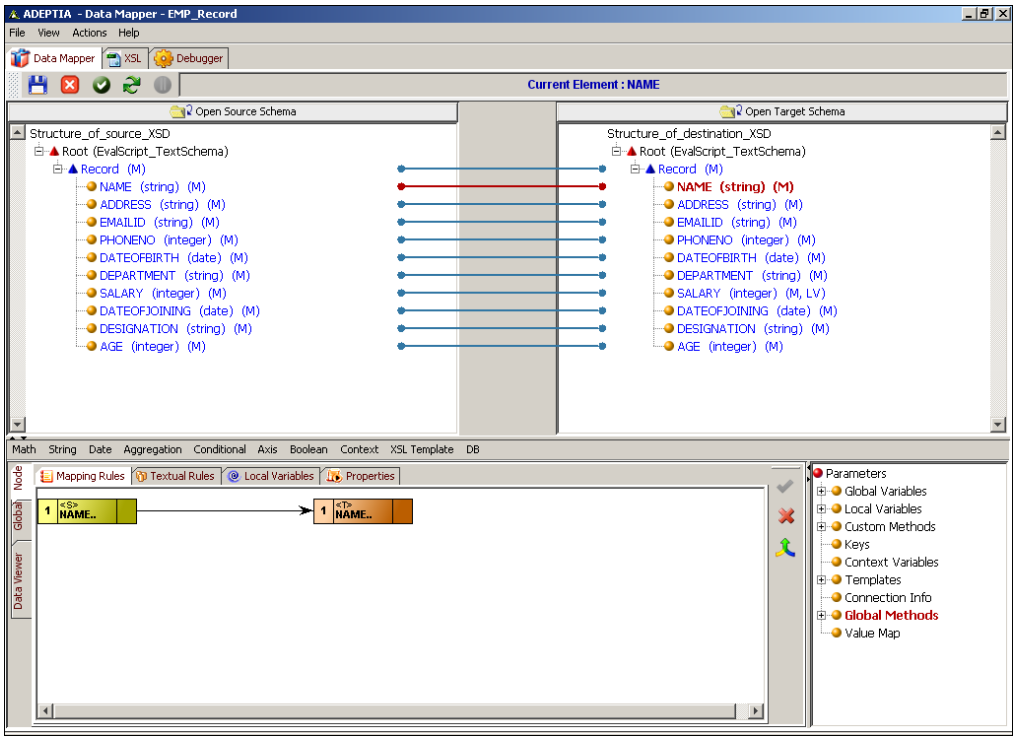


Figure 430: Apply Template

To learn how to set For Each property on employee element refer to the section Setting For Each Property.

4. Click the **Node** tab displayed in the Mapping Graph Area. All tabs of the Node tab are displayed.
5. Click the **Properties** tab. The **Properties** pane is displayed (refer to Figure 417).
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 423)

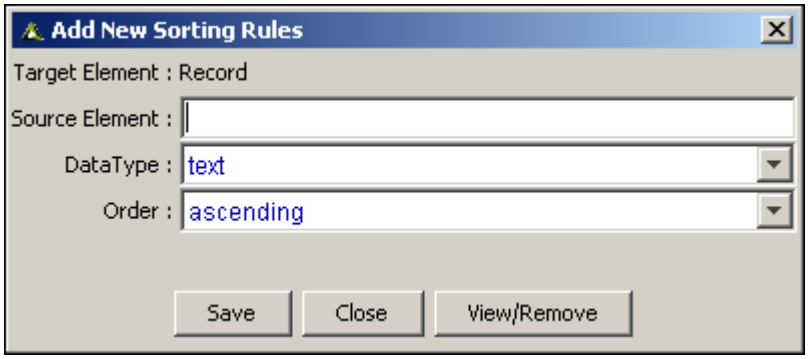


Figure 431: Sorting Rules Dialog Box

This screen displays the name of the selected target record to be sorted.

7. 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** dropdown 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** dropdown list. By default, ascending is selected.
10. Click **Save** to save the sorting rule.
11. Click C**lose** 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 421.

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 424). By default, this checkbox is disabled.

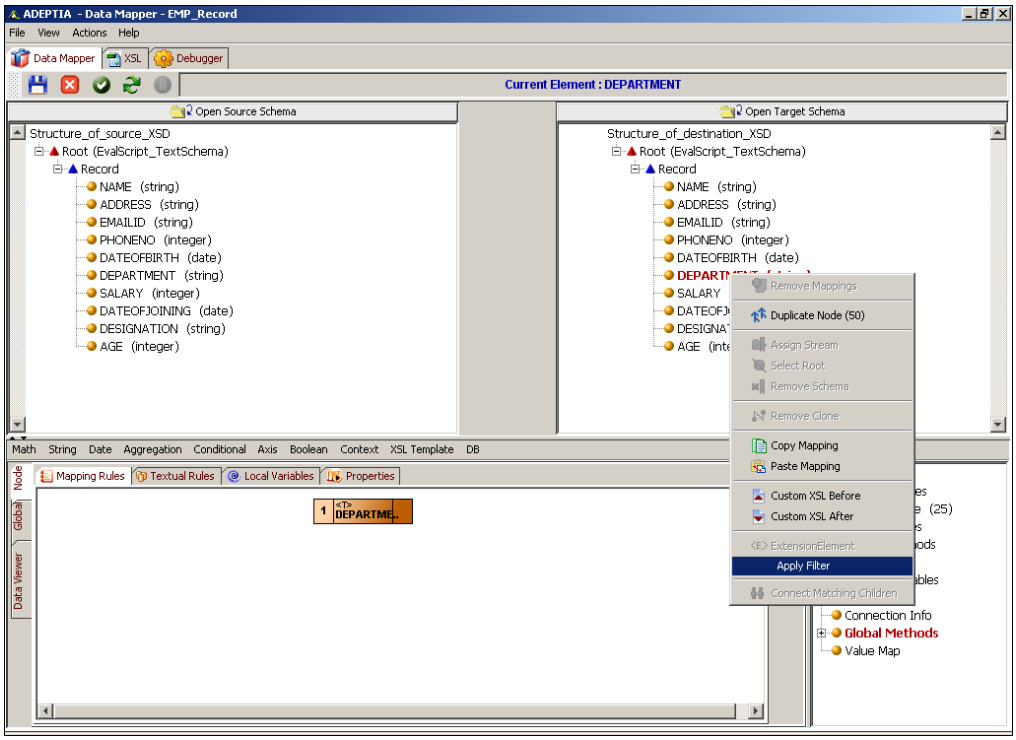


Figure 432: Checking Apply Filter Checkbox

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 Table of Suffixes 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 50 occurrences of an element, with one main element and 49 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. A screen is displayed confirming the removal of the selected clone (see Figure 425).

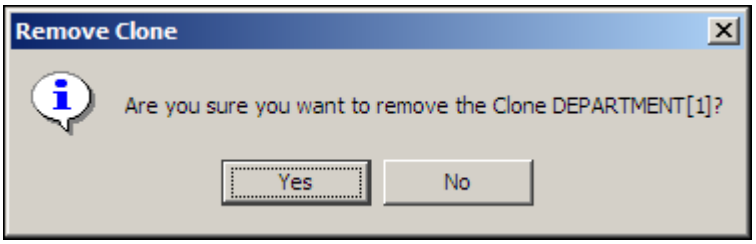


Figure 433: Confirm Remove Clone

3. 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. A screen is displayed confirming the removal of the selected schema (see Figure 426).

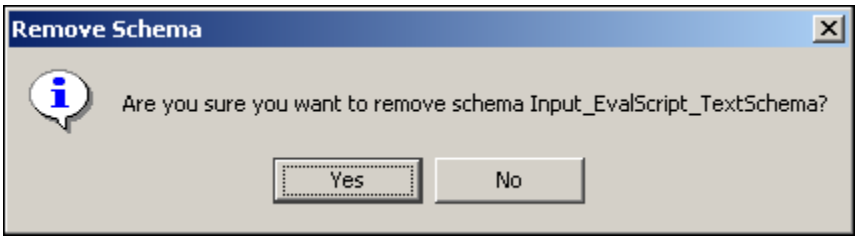


Figure 434: Confirm Remove Schema

3. 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 427).

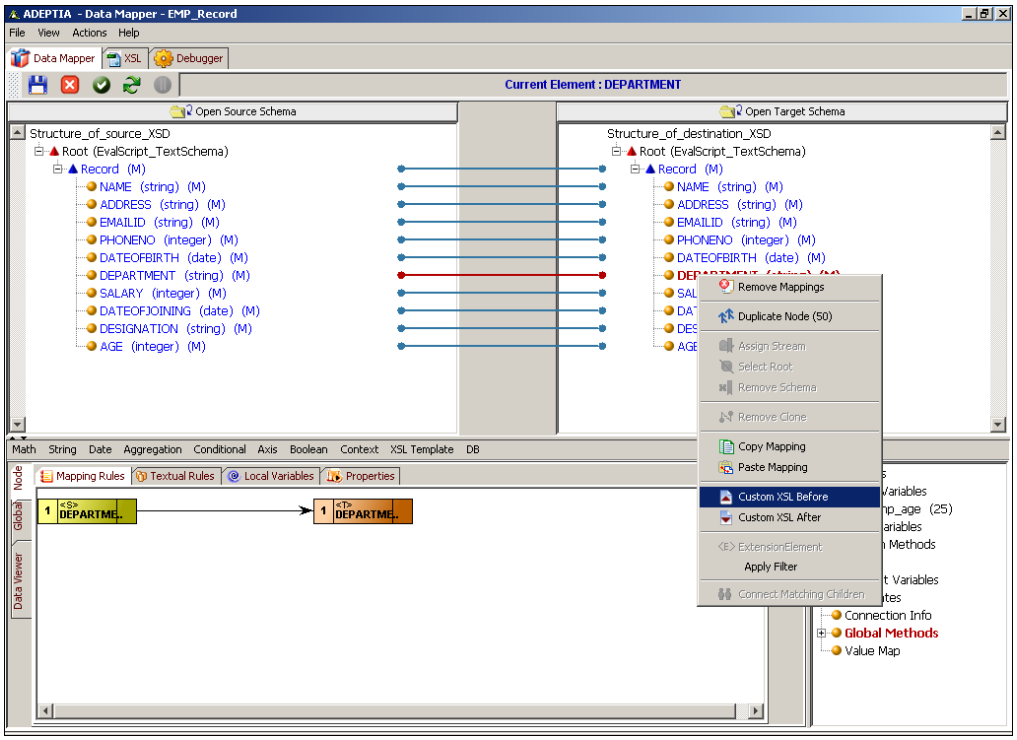


Figure 435: Select Custom XSL Before Option

3. The *Add Custom XSL Before* screen is displayed for the target element. Enter the custom XSL code for the target element (see Figure 428).

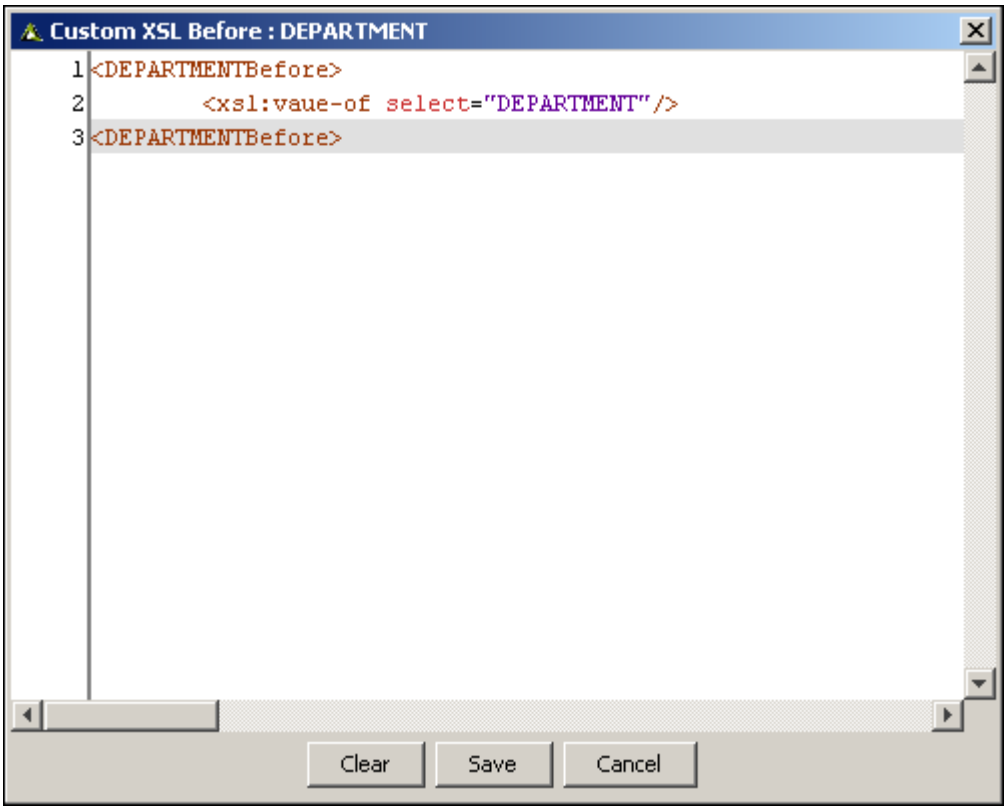


Figure 436: Enter Custom XSL Code

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 427).

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 429).

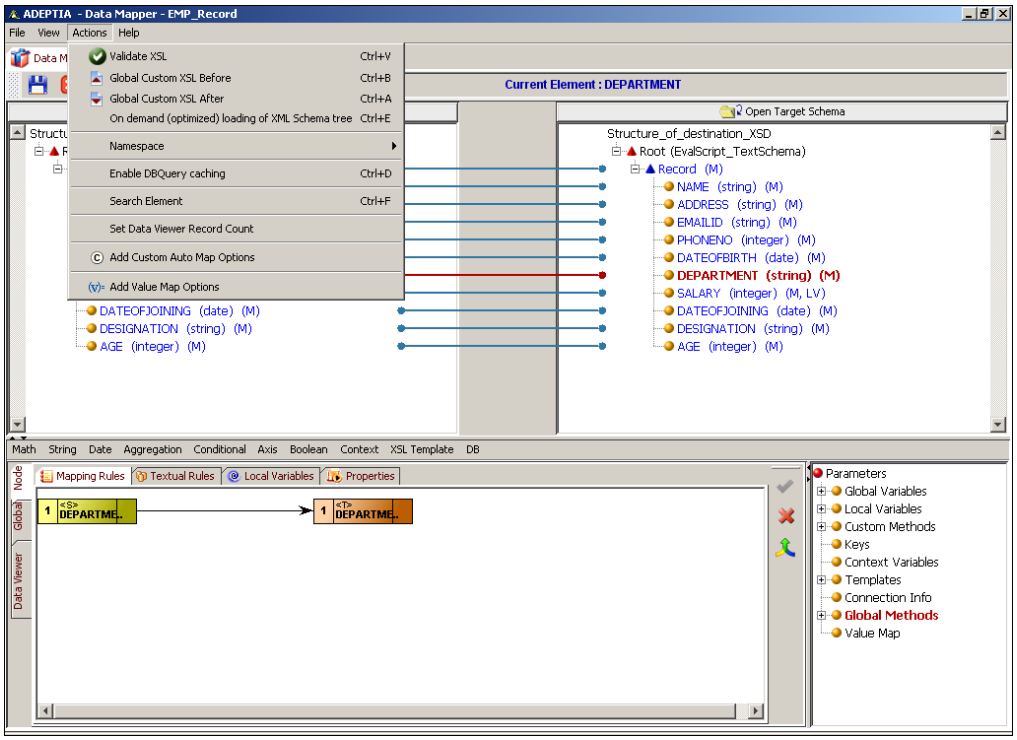


Figure 437: Select Global Custom XSL Before Option

3. The **Add Global Custom XSL Before** screen is displayed. Enter the global custom XSL code (see Figure 430).

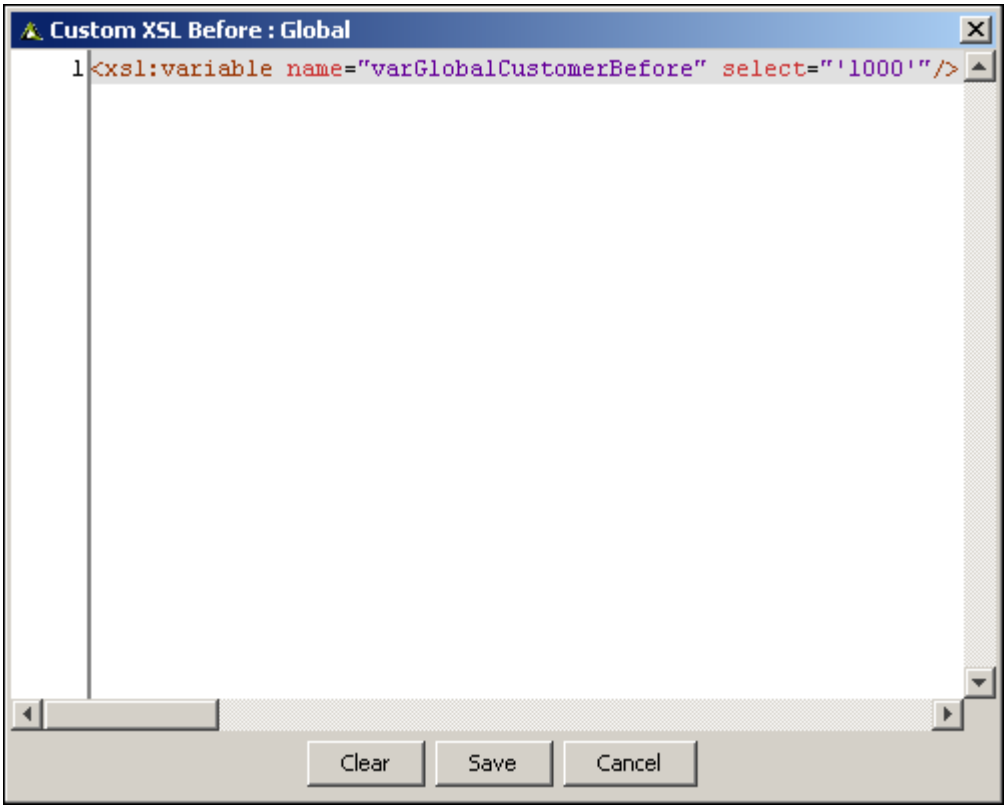


Figure 438: Enter Global Custom XSL Code

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 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).

5. Once you have entered the custom XSL code, it is saved in the Mapping XSL screen (see Figure 431).

```
<?xml version='1.0'?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="1.1" xmlns:java="http://xml.apache.org/xslt/java" xmlns:xalan="
    <xsl:output method="xml" version="1.0" encoding="ISO-8859-1" indent="yes"/>
    <xsl:param name="_userName"/>
    <xsl:param name="_password"/>
    <xsl:param name="_class"/>
    <xsl:param name="_identifier"/>
    <xsl:param name="_subject"/>
    <xsl:param name="_repositoryPath"/>
    <xsl:param name="_Input1"/>
    <xsl:variable name="Input_Demo_EmployeeSchema" select="document($_Input1)"/>
    <xsl:variable name="apos">'</xsl:variable>
<!--Global PreCustom XSL starting-->
    <xsl:variable name="varGlobalCustomBefore" select="'1000'"/>
<!--Global PreCustom XSL ending-->
    <xsl:template match="/">
        <employees>
            <employee>
<!--PreCustom XSL starting for element EMPID-->
                <EMPIDBefore>
                    <xsl:value-of select="EMPID"/>
                </EMPIDBefore>
<!--PreCustom XSL ending for element EMPID-->
                <EMPID>
                    <xsl:value-of select="$Input_Demo_EmployeeSchema/employees/employee/EMPID"/>
                </EMPID>
<!--PostCustom XSL starting for element EMPID-->
                <EMPIDAfter>
                    <xsl:value-of select="EMPID"/>
                </EMPIDAfter>
<!--PostCustom XSL ending for element EMPID-->
                <FIRSTNAME>
                    <xsl:value-of select="$Input_Demo_EmployeeSchema/employees/employee/FIRSTNAME"/>
                </FIRSTNAME>
                <LASTNAME>
                    <xsl:value-of select="$Input_Demo_EmployeeSchema/employees/employee/LASTNAME"/>
                </LASTNAME>

        </employees>
    </xsl:template>
<!--Global PostCustom XSL starting-->
    <xsl:variable name="varGlobalCustomBefore" select="'1000'"/>
<!--Global PostCustom XSL ending-->
```

Figure 439: 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.

4. This screen displays a list of existing root elements for the selected schema in a dropdown list (see Figure 432).

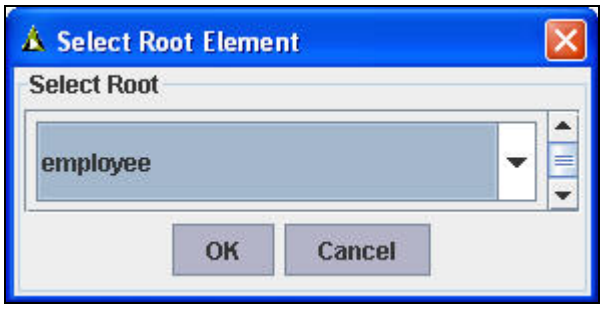


Figure 440: Select Root Element

All elements that are declared as global in the XSD are listed in this dropdown list.

5. Select the *root element* that you want to change from the *Select Root* dropdown list and click **OK**. A screen is displayed confirming the change of the root element (see Figure 433).

Figure 441: 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.

Adding Namespace Prefix

You can add a namespace prefix to a target element. This prefix is displayed next to the target element in the target schema, and is automatically displayed in the Output section on the *Debugger* screen.

Steps to add a namespace prefix 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. Right-click the element of the target schema for which you want to add a namespace prefix and select the **Add Namespace Prefix** option. The *Add Namespace Prefix* screen is displayed (see Figure 434).

Figure 442: Add Namespace Prefix

3. Enter the namepace prefix and click **OK**. This adds the prefix and displays it next to the selected target element in the target schema.

> Once you add a namespace prefix for a target element, you need to add a namespace for it. To do this, refer to Adding Namespace section.

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 435). This screen displays a list of extension element type.

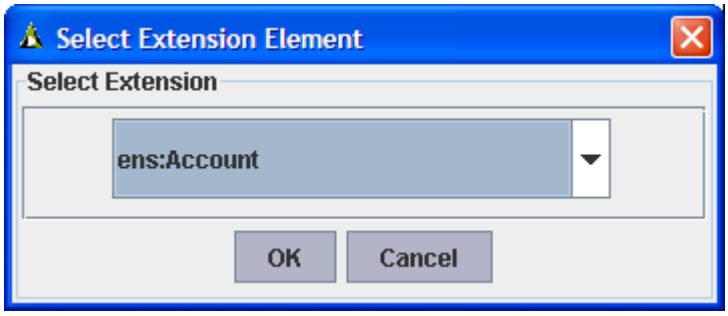


Figure 443: Select Extension Element

4. Select the required extension type that you want to load from the **Select Extension Element** dropdown list and click **OK**. A screen is displayed confirming the change of extension element (see Figure 436).

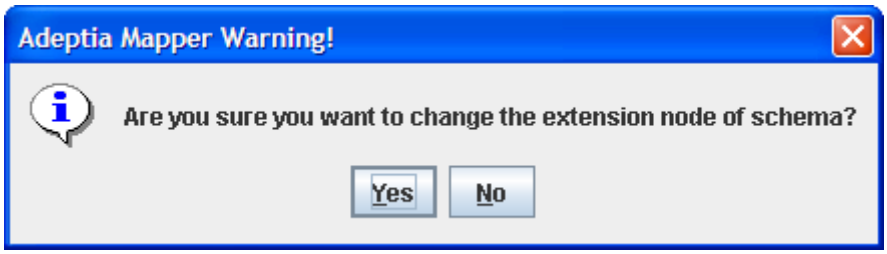


Figure 444: Confirm Change of Extension Element

5. Click **Yes** to change the extension element. The selected hierarchy will be loaded.

USING RECORD TO RECORD SERVICES

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Prerequisites

- *Schema* activity must be created before creating *Record to Record Service*.

Steps to create Record to Record activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Data Transform** to expand the hierarchy, and then click **Record to Record**. The *Manage Record to Record* screen is displayed (see Figure 437).

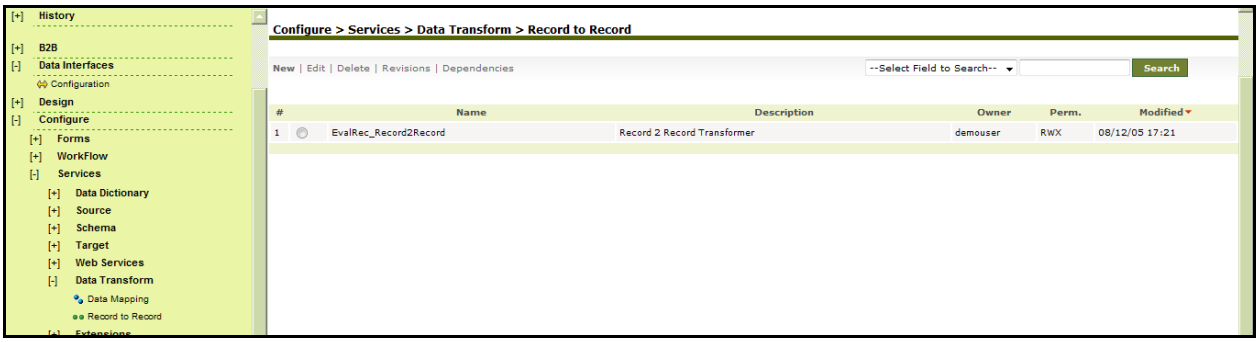


Figure 445: Manage Record to Record Service

4. Click the **New** link. The **Create Record to Record** screen is displayed (see Figure 438).

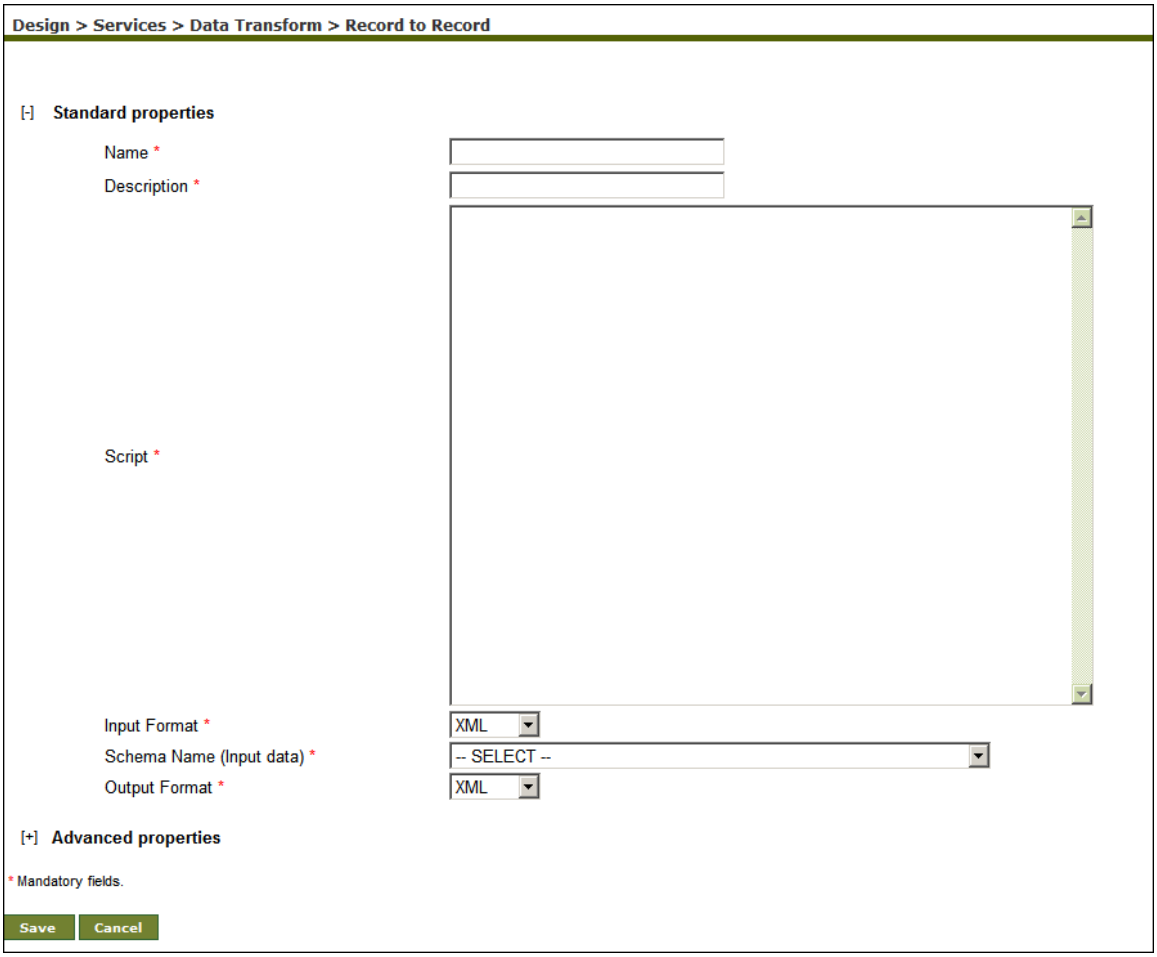


Figure 446:Create Record to Record Service

5. Enter the name and description of the new Record to Record service in the **Name** and **Description** fields respectively.

6. Enter the sample Java script displayed in Figure 439 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 447: Sample Java Script

7. Select input and output format as either XML or Native (non XML) from the **Input Format** and **Output Format** dropdown lists respectively.

8. Select the source schema activity from the **Schema Name** dropdown list.

If any XML Schema is selected in the **Schema Name** dropdown list, then the **Input Format** must be selected as XML.

To learn how to create Schema activity, refer to *Creating Schema Activity* section.

To learn about Advanced Properties refer to Changing Advanced Properties section.

9. 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 6).
10. Enter 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 Record-to-Record service has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

10

CREATING EXTENSIONS

This section describes

- Creating a custom plugin activity
- Creating a Native Call activity

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create custom plugin activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All the items in the **Services** category are displayed.
3. Click **[+] Extensions** to expand the hierarchy, and then click **Custom Plugin**. The **Manage Custom Plugin** screen is displayed (see Figure 440).

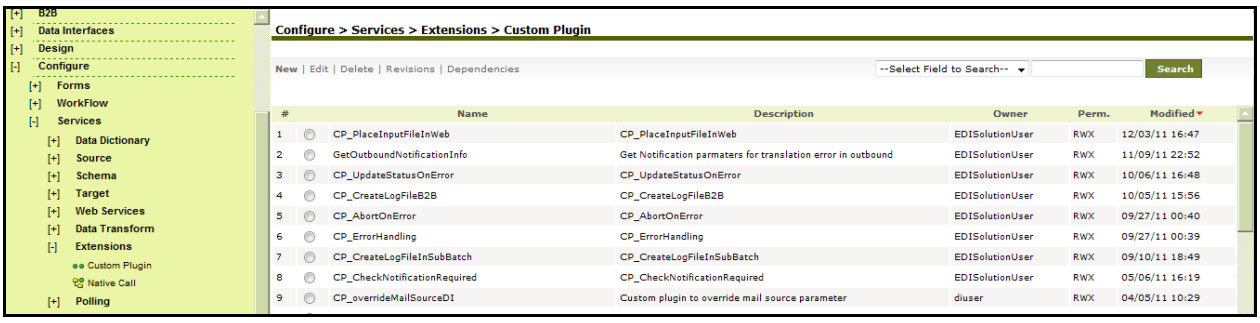


Figure 448: Manage Custom Plugin

4. Click the **New** link. The **Create Custom Plugin** screen is displayed (see Figure 441).

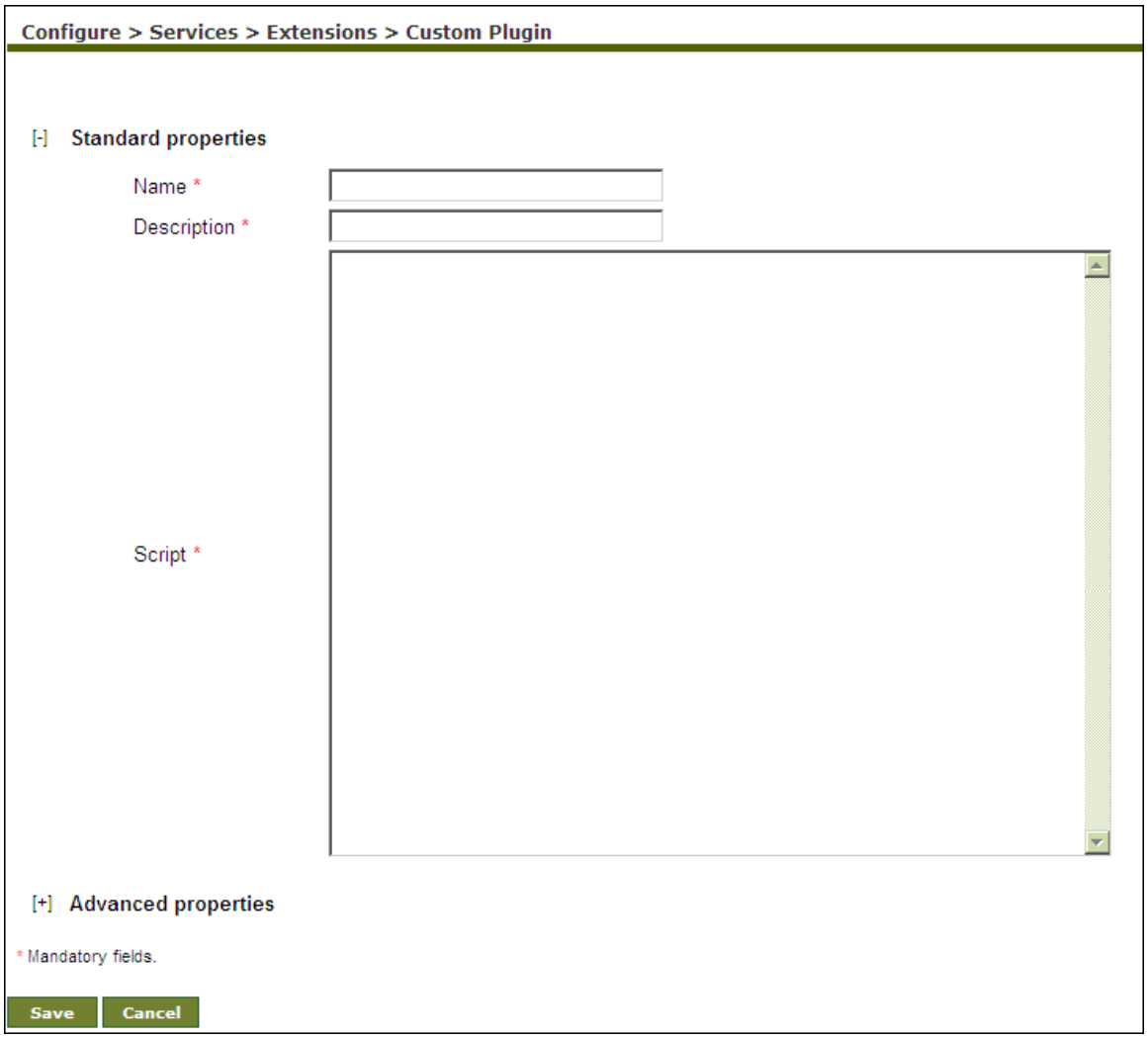


Figure 449: Create Custom Plugin

5. Enter the name and description of the new custom plugin in the textboxes **Name** and **Description** respectively.

6. Enter the sample Java script displayed in Figure 442 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 450: Sample JAVA Script

To learn about Advanced Properties refer to Changing Advanced Properties section.

7. Click the **Save** button. A screen is displayed confirming that the custom plugin 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 plugin (refer to Figure 6).
8. Enter 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 custom plugin has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create Native Call activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Extensions** to expand the hierarchy, and then click **Native Call**. The **Manage Native Call** screen is displayed (see Figure 443).

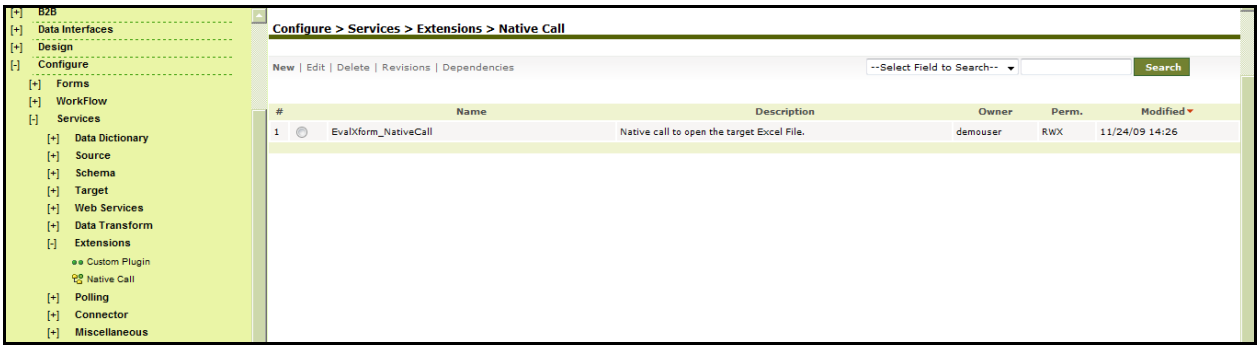


Figure 451: Manage Native Call

4. Click the **New** link. The **Create Native Call** screen is displayed (see Figure 444).

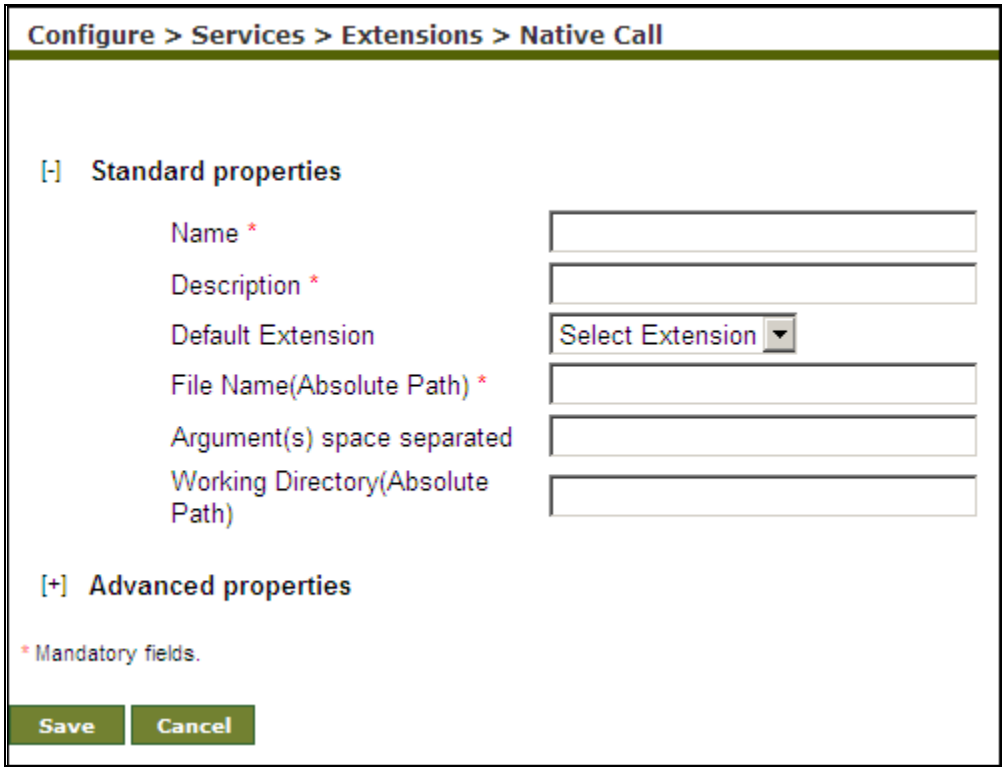


Figure 452: Create Native Call

5. Enter the name and description of the new Native Call activity in the textboxes **Name** and **Description** fields respectively.
6. Select the extension of the file i.e. .exe, .bat or .sh from the dropdown list **Default Extension**.
7. Enter the filename with full path in the textbox **File Name(Absolute Path)**.
8. To specify any arguments for selected batch or executable file enter the arguments in the **Argument(s) space separated** field.
9. Enter the path of directory, where you want the run the specified batch or executable file, in the **Working Directory (Absolute Path)** field.

All 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/AdeptiaeServer-5.1*) 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-5.1* 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.

10. Click the **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 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 native call activity has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

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*.

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 Activity
- File Polling Activity
- FTP Polling Activity
- Mail Polling Activity

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 ACTIVITY

The Database Polling Service activity is used to check any changes in the data stored in a database table.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Prerequisites

- *Database Info* activity must be created before creating *Database Polling Service* activity.

n create a Database Polling activity"

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Polling** to expand the hierarchy, and then click **Database**. The **Manage Database Polling Service** screen is displayed (see Figure 445).

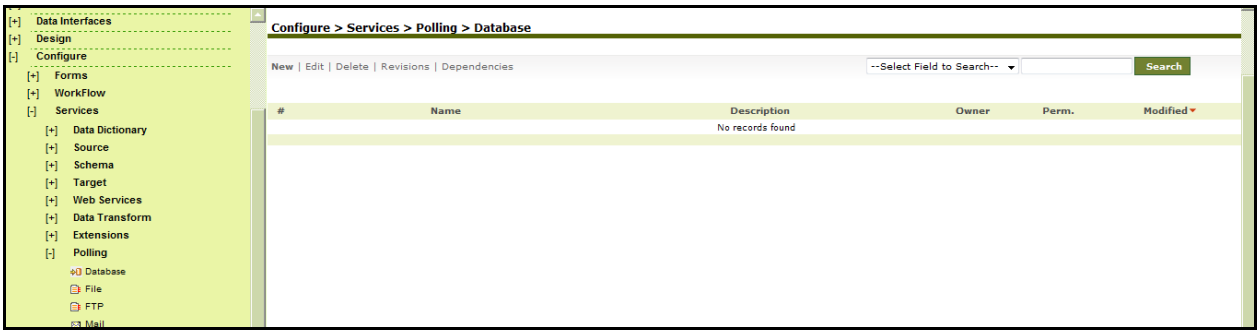


Figure 453: Manage Database Polling Service

4. Click the **New** link. The **Create Database Polling Service** screen is displayed (see Figure 446).

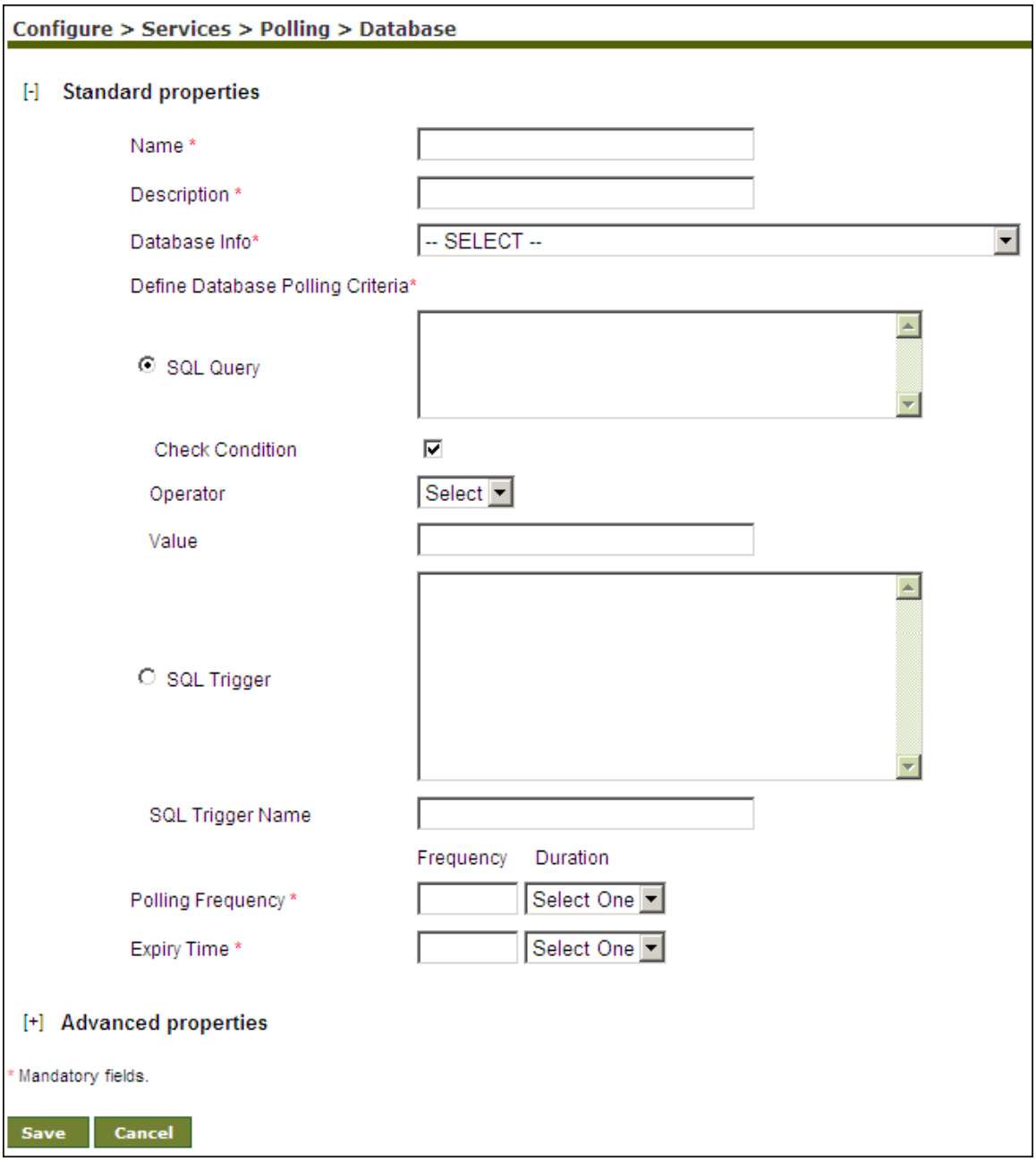


Figure 454: Create Database Polling Service

5. Enter the name and description of the new Database Polling Service in the textboxes **Name** and **Description** fields respectively.

6. Select the Database Info Id activity from the dropdown list **Database Info Id**.

> To learn how to create Database Info activity, refer to the section *Creating Database Info* in *Administrator Guide*.

7. 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 dropdown list **Operator**. 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.
8. 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.

9. Enter the name of Trigger in the **SQL Trigger Name** field.
10. 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** dropdown list.
11. 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 Changing Advanced Properties section.

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.

12. Click the **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 6).
13. Enter 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 database polling service has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

CREATING FILE POLLING ACTIVITY

The Polling Service activity is used to check the arrival or modification of file(s) on the Local LAN location.
In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a File Polling Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Polling** to expand the hierarchy, and then click **File**. The *Manage File Polling Service* screen is displayed (see Figure 447).

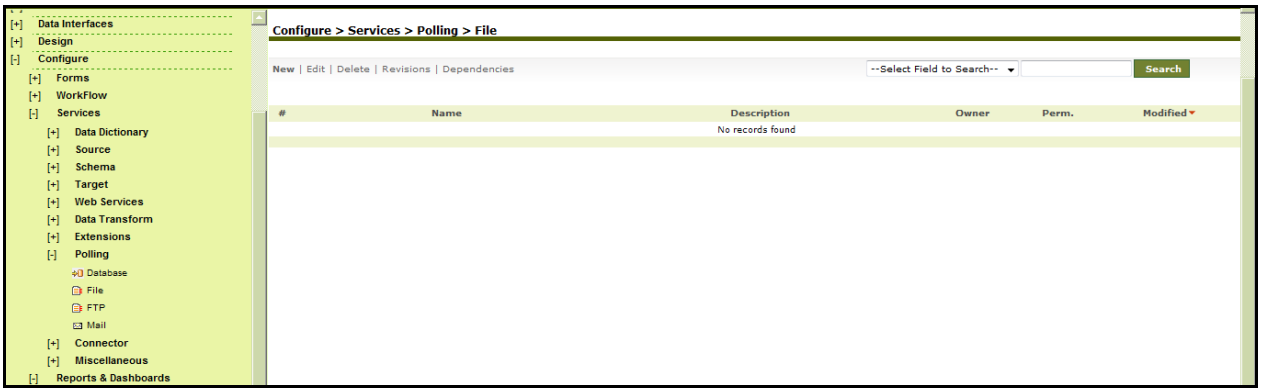


Figure 455: Manage File Polling Service

4. Click the **New** link. The **Create File Polling Service** screen is displayed (see Figure 448).

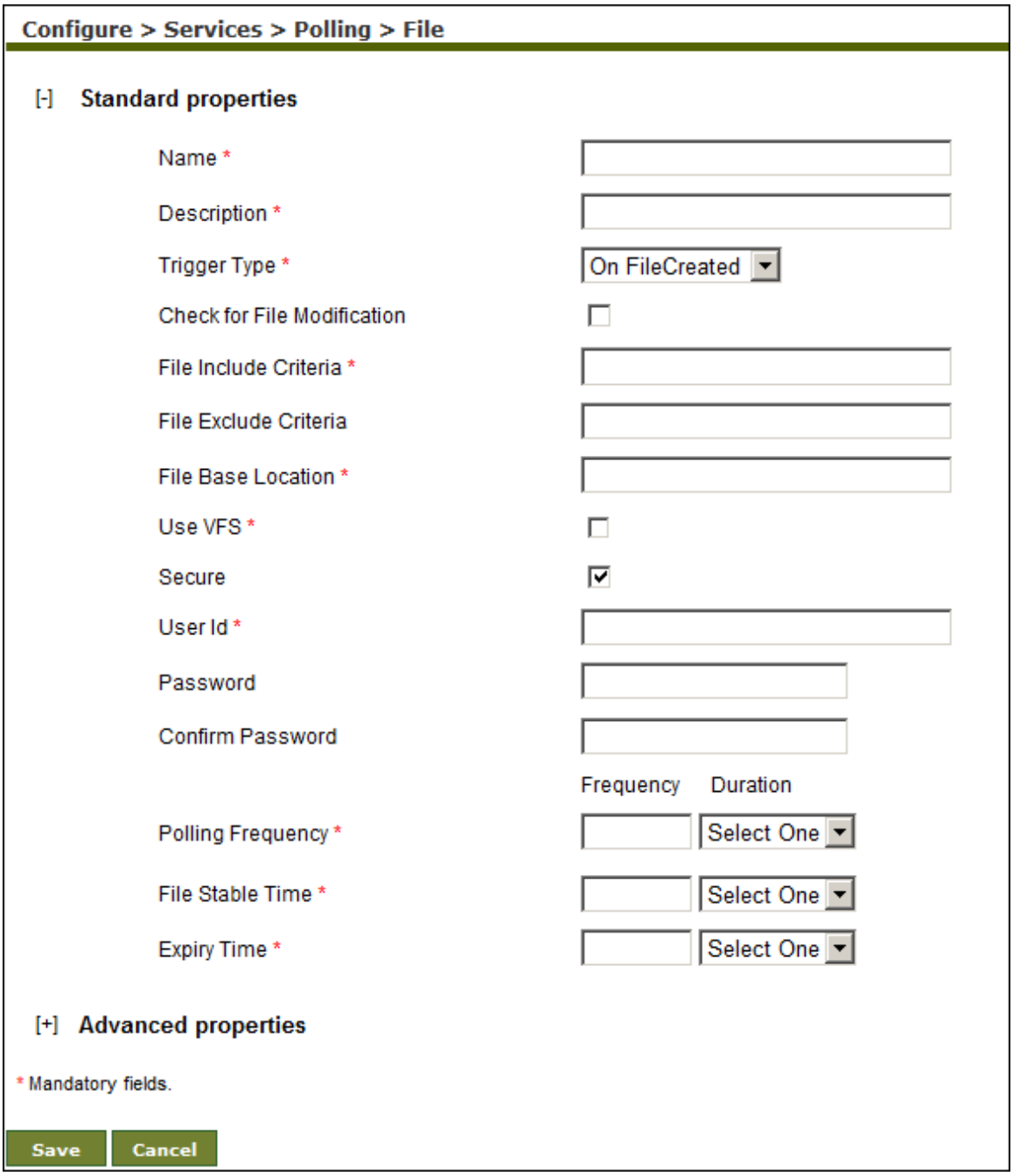


Figure 456: Create File Polling Service

5. Enter the name and description of the new File Polling Service in the textboxes **Name** and **Description** respectively.

6. Select the trigger type from the dropdown list **Trigger Type**. The effect on the selection is listed in the table below.

Table 57: 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).
In case a file is being created and after that it is being modified, then you need to enable the *Check for File Modification* option. This option is only used with *On File Created* option.	
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)

7. Enter the name of file that File Polling service needs to verify, in *File Include Criteria* field.
8. 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 58: 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

9. 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.

10. 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, select the **Use VFS** checkbox.
11. Enter username and password in the textboxes **User ID** and **Password** respectively. Then, re-enter the password in the textbox **Confirm Password**.
12. Enter the time interval, the file polling service will check for the arrival of any file or modification of existing file in the textbox **Polling Frequency**. Enter the digit in the *Frequency* field and select the unit of time i.e. seconds, minutes or hours etc. from the **Duration** dropdown list.

Recommended minimum Polling Frequency is 30 seconds.

13. Enter the file stable time in the textbox **File Stable Time**. 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.
14. Enter the expiry time in the textbox **Expiry Time**. After expiry time process flow does not poll for the file.

To learn about Advanced Properties refer to Changing Advanced Properties section.

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.

15. Click the **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 6).
16. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length.

17. 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 *Updating System Properties* section in *Administrator Guide*.

CREATING FTP POLLING 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a FTP Polling Activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Polling** to expand the hierarchy, and then click **FTP**. The **Manage FTP Polling** screen is displayed (see Figure 449).

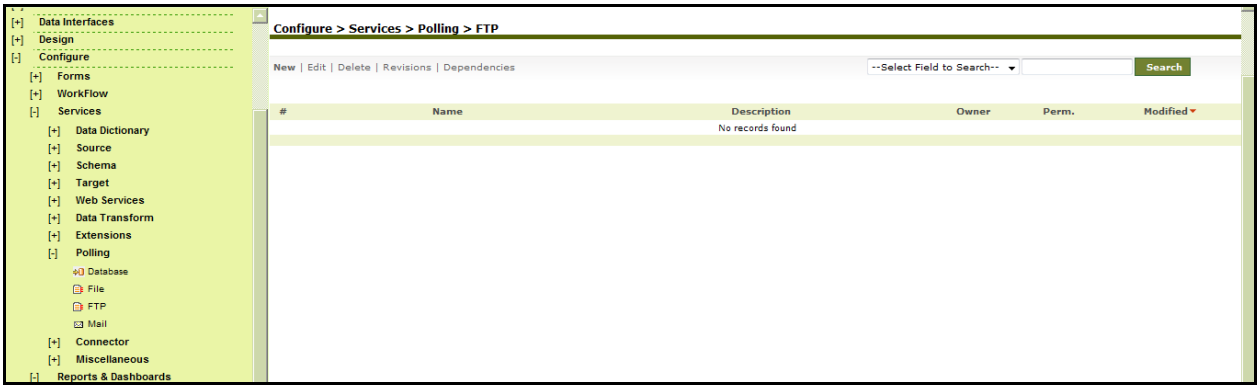


Figure 457: Manage FTP Polling Service

4. Click the **New** link. The **Create FTP Polling Service** screen is displayed (see Figure.450).

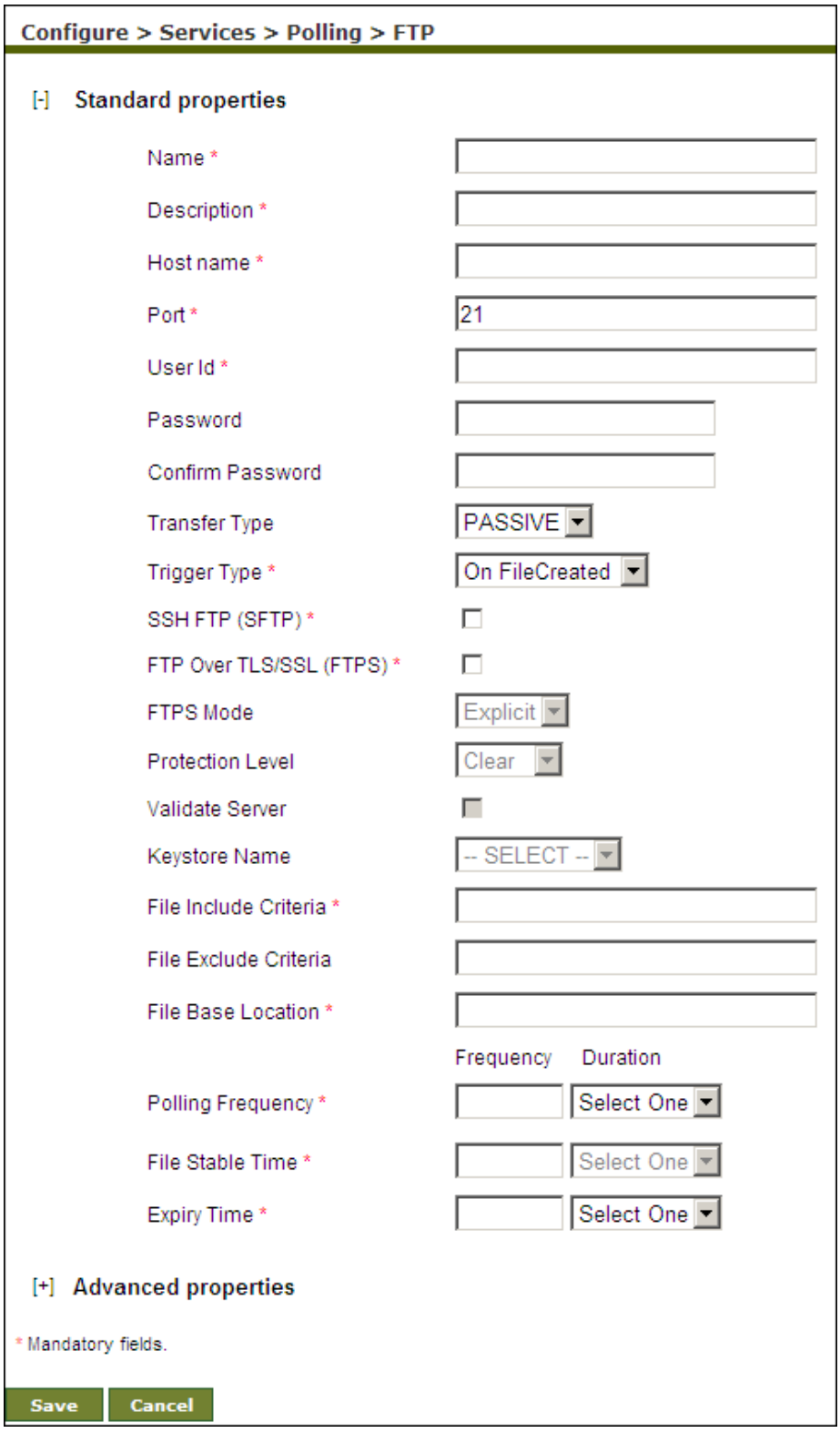


Figure.458: Create FTP Polling Service

5. Enter the name and description of the new FTP Polling Service in the textboxes **Name** and **Description** respectively.

6. Enter the name and port number of the FTP Server in the textboxes **Host Name** and **Port** respectively.
7. Enter username and password required to access FTP Server in the textboxes **User ID** and **Password** fields respectively. Then, re-enter the password in the textbox **Confirm Password**.
8. Select the transfer type as either **Active** or **Passive** from the dropdown list **Transfer Type**. *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.
9. Select the trigger type from the dropdown list **Trigger Type**. For selection of values, refer to Table 58.
10. Select the **SSH FTP (SFTP)** checkbox if the FTP Server specified in the **Host Name** field is an FTP Server over SSH.
11. Check the **FTP Over TLS/SSL (FTPS)** checkbox, if the FTP Server, specified in the **Host Name** field is an FTP Server over TLS/SSL.
12. In case you have selected **FTP Over TLS/SSL (FTPS)** checkbox, then select the FTPS mode from the **FTPS Mode** dropdown list. It can be *Explicit* or *Implicit* depending on FTP Server that you are accessing.
13. Select the protection level supported by the FTP Server, from the dropdown list **Protection Level**. It can be **Clear** or **Private**.
14. If you want to validate the certificate sent by the FTPS Server select the **Validate Server** check box.
15. Select keystore activity from the **Keystore Name** dropdown list. This option is applicable only when you have checked the **Validate Server** checkbox.

When **Validate** option is unchecked, it always accepts the certificate sent by FTPS Server. When this option is checked, it validates the certificate sent by FTPS server against the certificate imported in Keystore.

Keystore is repository of security certificates. To know how to create Keystore and import certificates, refer to *Creating Keystore* section of *Administrator Guide*.

16. Enter the name of file that FTP event needs to verify in the **File Include Criteria** field.
17. 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 58.
18. Enter the path of file in *the* **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.

19. 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 digit in the **Frequency** field and select the unit of time i.e. seconds, minutes or hours etc. from the dropdown list **Duration**.

Recommended minimum Polling Frequency is 30 seconds.

20. 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.
21. 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 Changing Advanced Properties section.

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.

22. Click the **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 Figure 6).
23. Enter 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 polling service has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

CREATING MAIL POLLING ACTIVITY

The Mail Polling activity is used to 'listen' for the arrival of any mails on the mail Server.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a Mail Polling activity

1. In the homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Polling** to expand the hierarchy, and then click **Mail**. The **Manage Mail Polling** screen is displayed (see Figure 451).

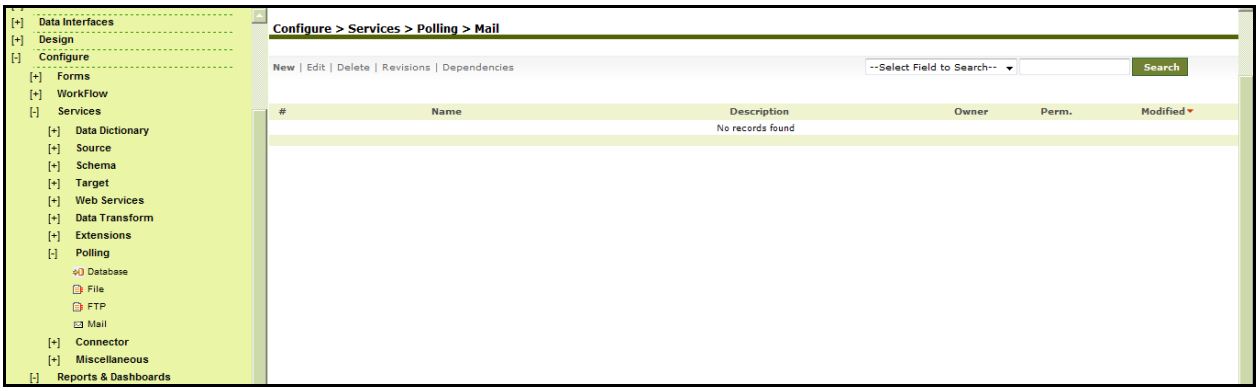


Figure 459: Manage Mail Polling Service

4. Click the **New** link. The **Create Mail Polling** screen is displayed (see Figure 452).

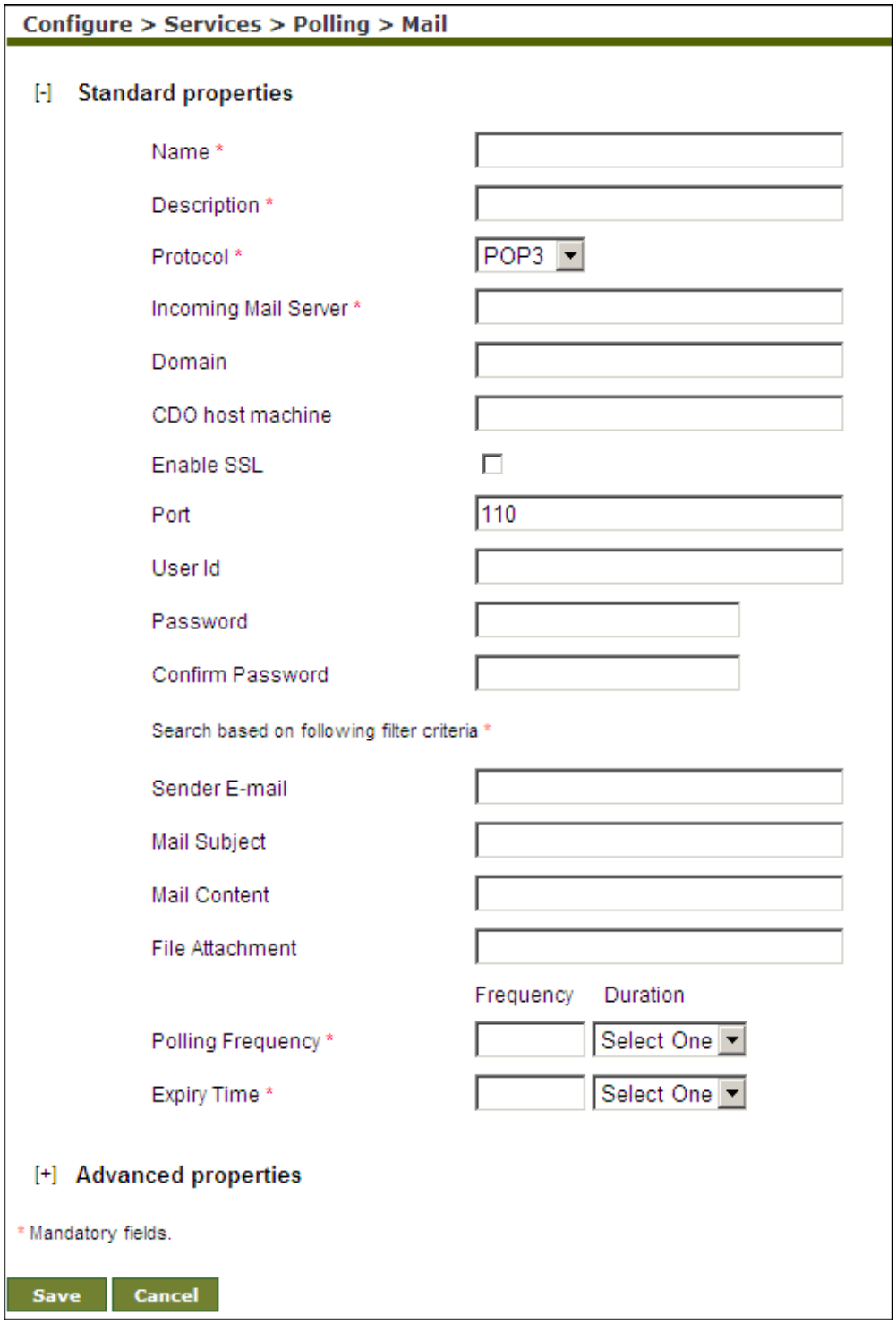


Figure 460: Create Mail Polling Service

5. Enter the name and description of the new Mail Polling activity in the textboxes **Name** and **Description** respectively.

6. Select the Internet standard protocol to be used for retrieving incoming mails, from the dropdown list **Protocol**. 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.
7. Enter the address of the incoming mail server in the textbox **Incoming Mail Server**.

To access mails from Microsoft Exchange Server use *MAPI* in the *Protocol* dropdown 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* dropdown list.

If MAPI is selected in the **Protocol** dropdown 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/.

8. Select the **Secure** checkbox, if the specified incoming mail server is SSL enabled.
9. 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.
10. 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.
11. Select any of the following filter criteria:
    - Sender E-mail
    - Mail Subject
    - Mail Content
    - File Attachment

    You may select more than one filter criteria.
12. Enter the sender's email address and subject of email in the textboxes **Sender Email** and **Mail Subject** respectively.
13. To define search based on mail content, enter the required content in the textbox **Mail Content**.

You can also use asterisk and Wild Cards in the **Mail Content** field.

14. Enter the name of the file attached with mail in the *textbox* **File Attachment**.
15. Enter the time interval for Polling in the textbox **Polling Frequency**. Enter the digit in the **Frequency** field and select the unit of time i.e. seconds, minutes or hours etc. from the dropdown list **Duration**.

Recommended minimum Polling Frequency is 30 seconds.

16. 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 Changing Advanced Properties section.

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.

17. Click the **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 6).
18. Enter 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 mail polling service has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

12

CREATING DATABASE CONNECTORS

Database Connector is used to make a connection between a particular database server (e.g. SQL, Oracle and DB2 etc.) and Adeptia Suite. There are several services of Adeptia Suite, 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 and Database Info.

This chapter describes the following tasks:

- Creating Database Driver
- Creating Database Info
- Creating JMS Provider

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 Suite. 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.

SQL Server

http://www.microsoft.com/downloads/details.aspx?FamilyID=07287B11-0502-461A-B138-2AA54BFDC03A&displaylang=en

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a database driver

1. Click **[+] Administer** to expand the hierarchy and then click **[+] Connector**. All items in the Connector category are displayed.

2. Click **Database Driver**. The **Manage Database Driver** screen is displayed (see Figure 453).

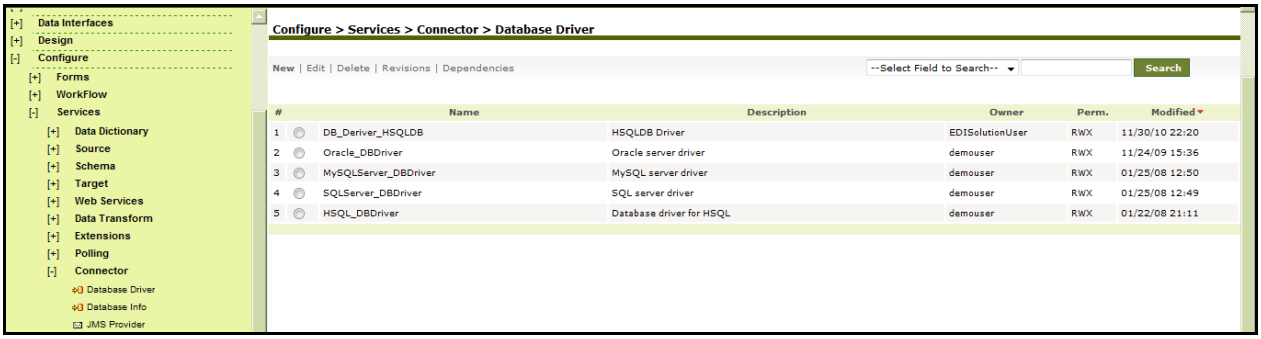


Figure 461: Manage Database Driver

3. Click the **New** link. The **Create Database Driver** screen is displayed (see Figure 454).

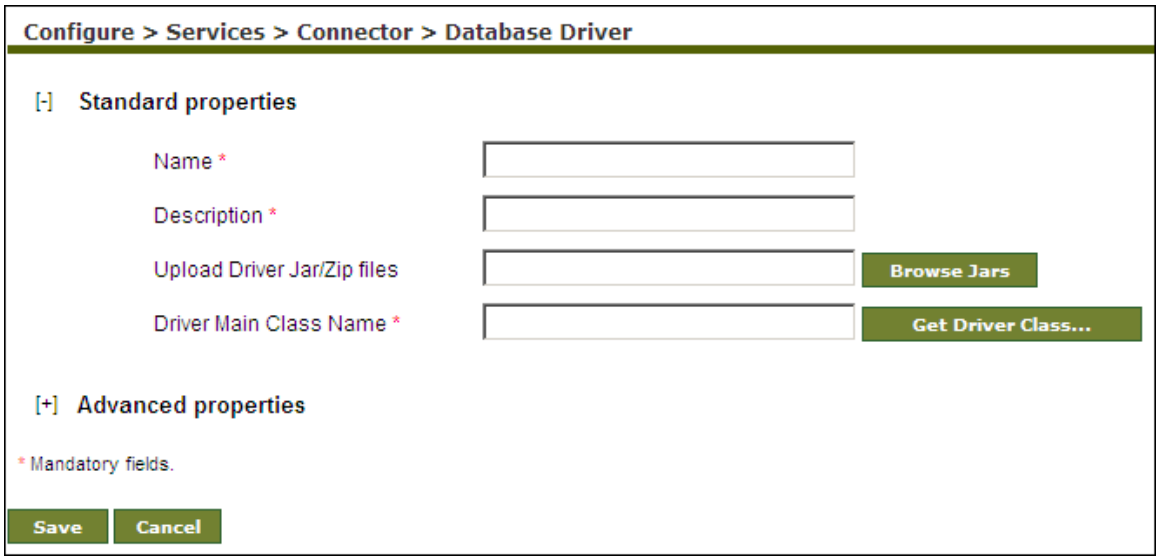


Figure 462: Create Database Driver

4. Enter the name and description of the new database driver in the textboxes **Name** and **Description** respectively.

5. Click the **Browse Jars** button to upload the driver jar files for the database. The **Browse Database Jar** screen is displayed (see Figure 455).

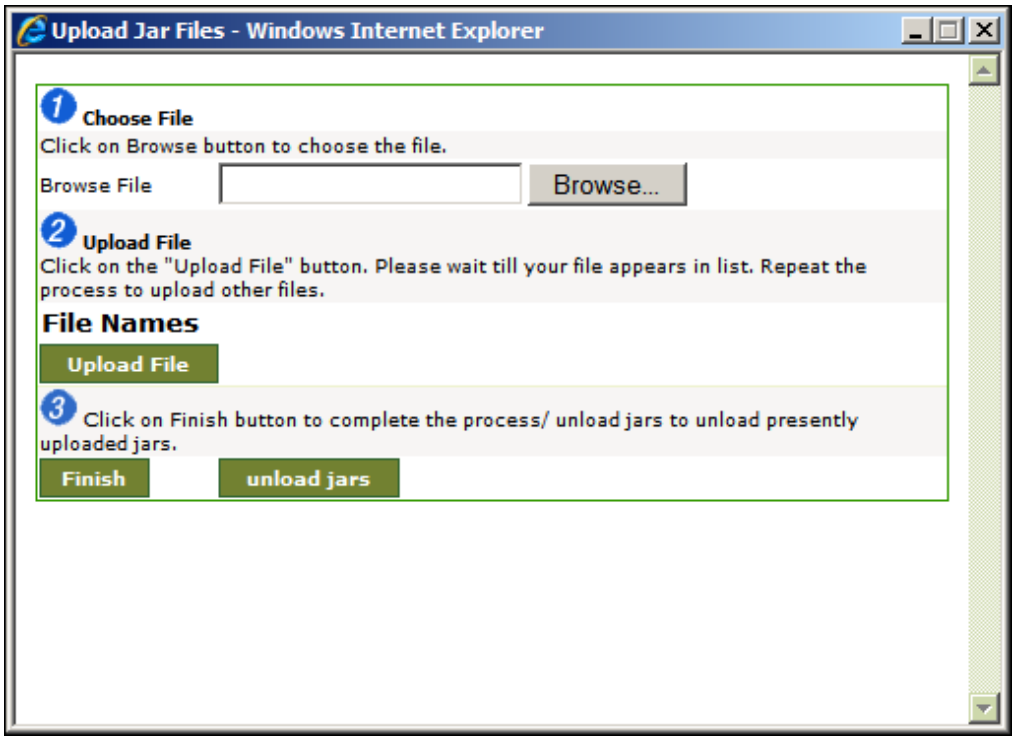


Figure 463: Browse Database Jar

6. Click the **Browse** button and select the required jar file. The path of the selected jar file is displayed in the textbox **Browse File** (see Figure 456). A list of required Jar files for different databases is displayed in the table below.

Table 59: Jar Files for Database Servers

Database Servers	Driver Jar Files
Oracle	Classes12.jar For Oracle BLOB Datatype: base.jar, oracle.jar and util.jar These Jars can be downloaded from http://www.datadirect.com/download/index.ssp
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

Database Servers	Driver Jar Files
HSQL DB	hsqldb-1.7.2.jar

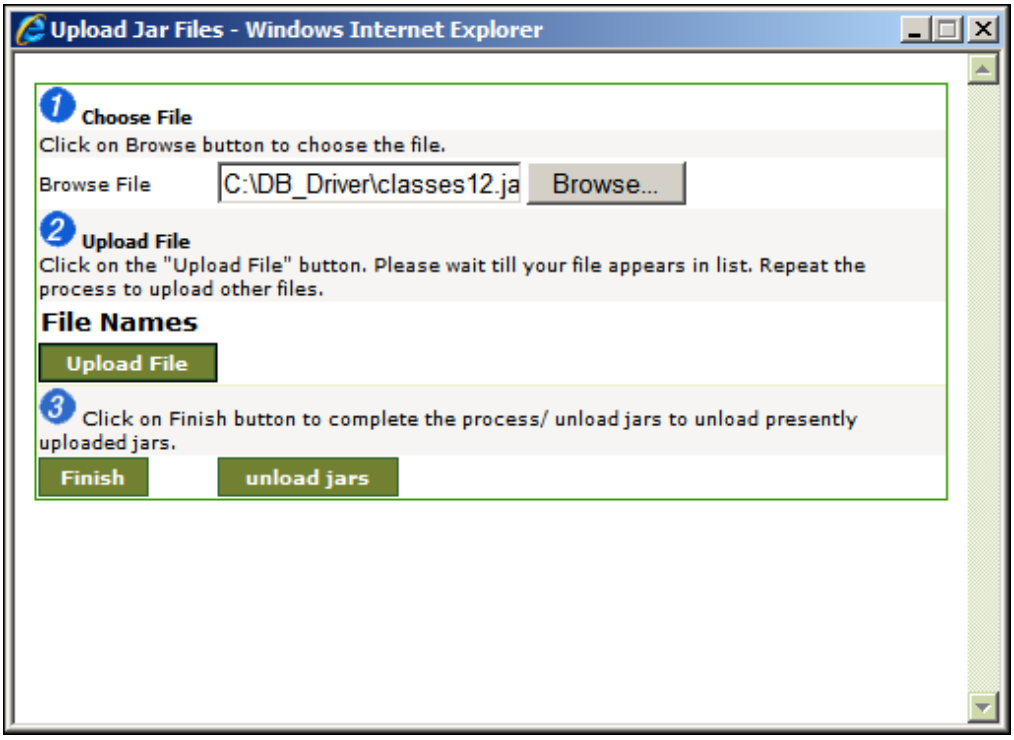


Figure 464: Select Jar File

7. Click the **Upload File** button. The file name is displayed in the **File Names** list (see Figure 457).

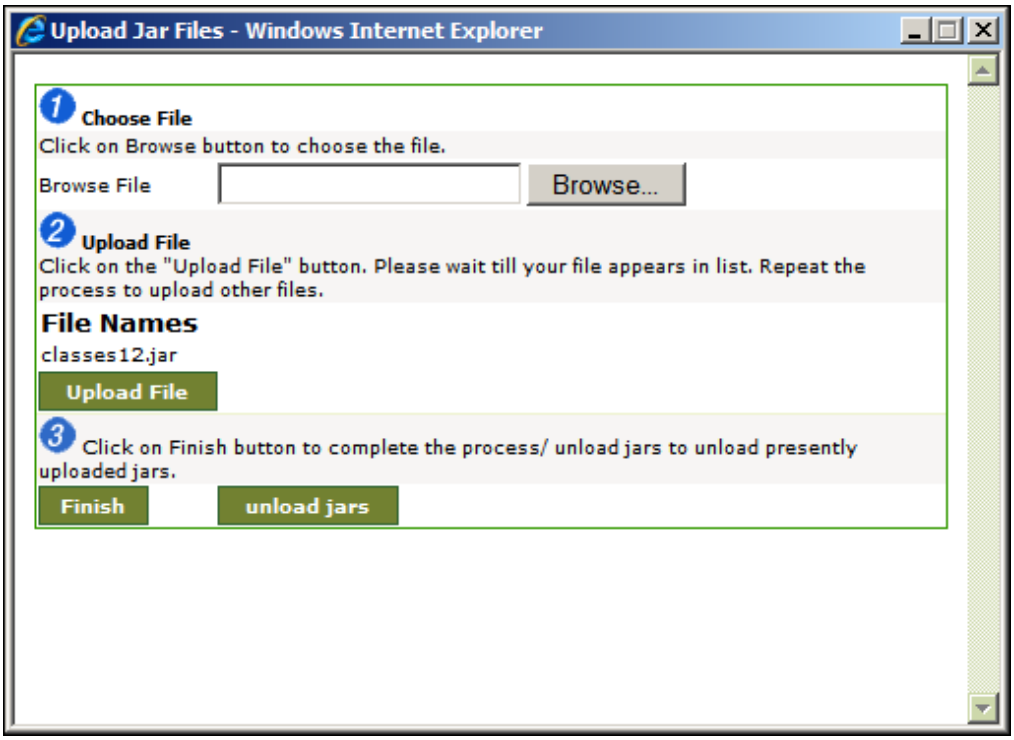


Figure 465: Jar Files Uploaded

8. Repeat steps 6 and 7 to upload additional jar files.

9. To unload jars files, click the **Unload jars** button.

10. Click the **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 458).

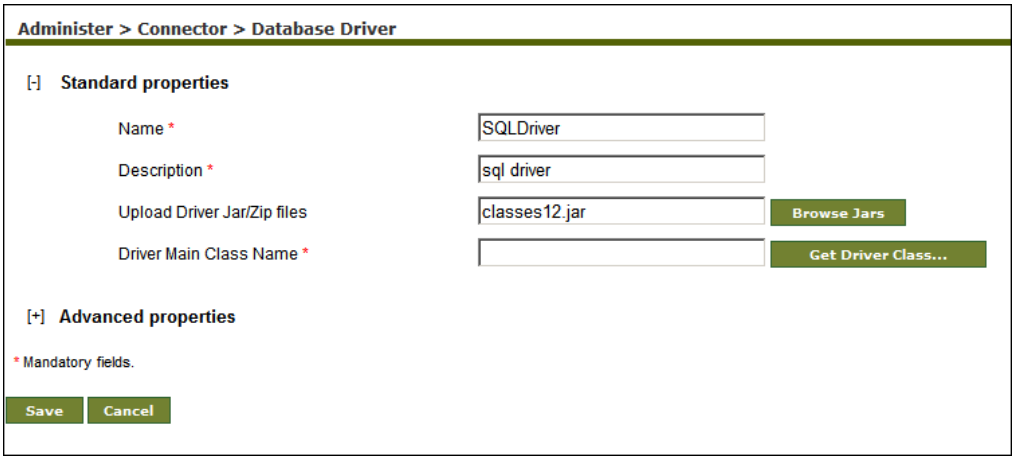


Figure 466: Uploaded Driver Jar Files

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 dropdown list (see Figure 459).

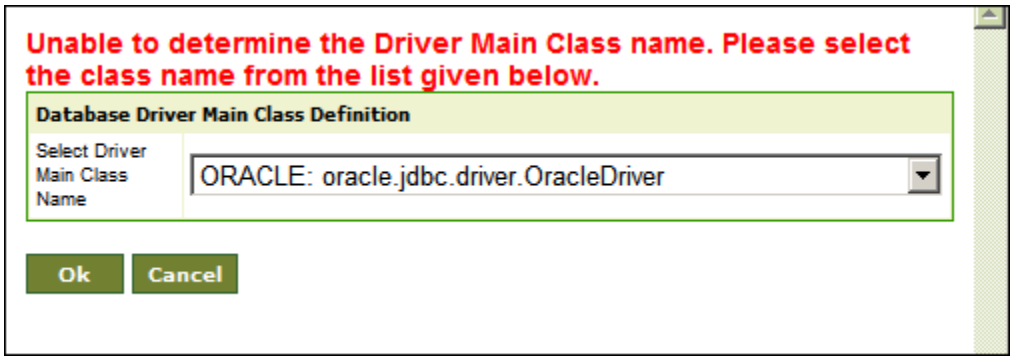


Figure 467: Select Database Driver Main Class Name

12. Select the **Driver Main Class Name** from the dropdown list and click **OK** button. A list of Driver Main Class Name of different databases is displayed in the table below.

Table 60: Driver Main Class Names for Database Servers

Database Servers	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 the **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 6).

14. Enter 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 *Comments* property is disabled. To enable it, refer to the section Updating System Properties.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Prerequisites

- Database Driver activity must be created before creating Database Info Activity.

Steps to create Database Info

1. Click **[+] Administer** to expand the hierarchy and then click **[+] Connector**. All items in the Connector category are displayed.
2. Click **Database Info**. The **Database Info** screen is displayed (see Figure 460).

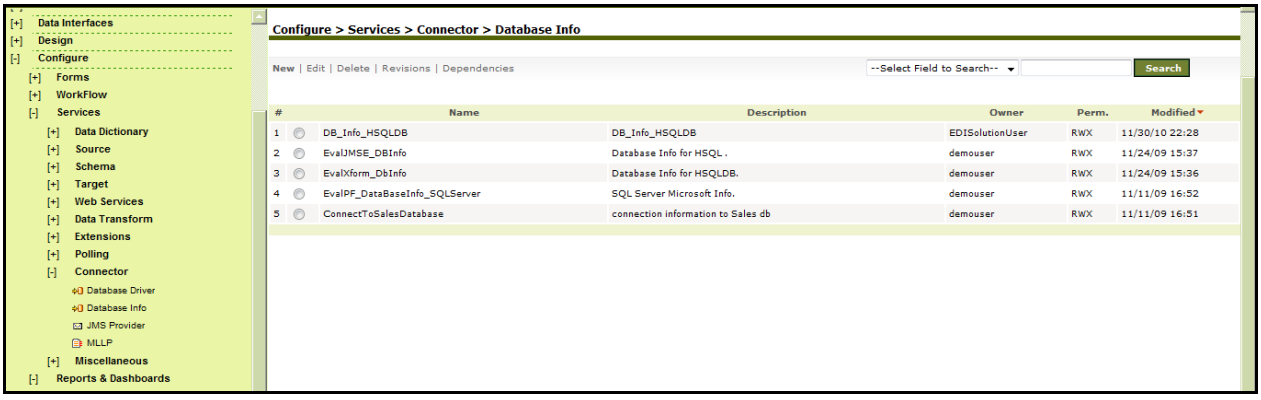


Figure 468: Manage Database Info

3. Click the **New** link. The *Create Database Info* screen is displayed (see Figure 461).

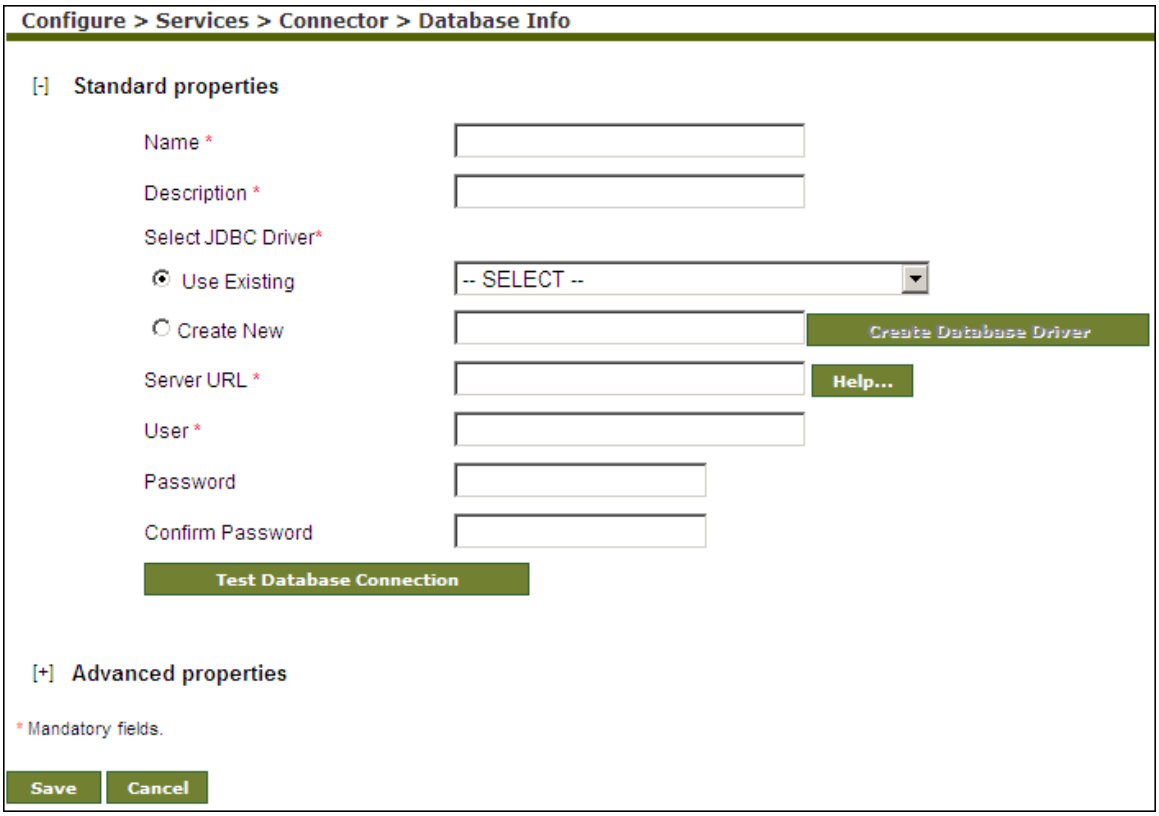


Figure 469: Create Database Info

4. Enter the name and description of the Database Info in the textboxes **Name** and **Description** respectively.
5. Select the database driver activity.

> To learn how to create database driver activity, refer to section Creating Database Driver.

6. To select an existing database driver activity, select the **Use Existing** radio button and select the database driver activity from the dropdown list.
7. To use a new database driver activity, select the **Create New** radio button and then click **Create Database Driver** button. This displays the **Create Database Driver** screen.
8. Enter the required parameters and click **Save** in the **Create Database Driver** screen to save the database driver activity and return to **Create Database Info** screen.
9. Click **Help** button next to the **Server URL** field to define Server URL. The **Database URL Definition** screen is displayed (see Figure 462).

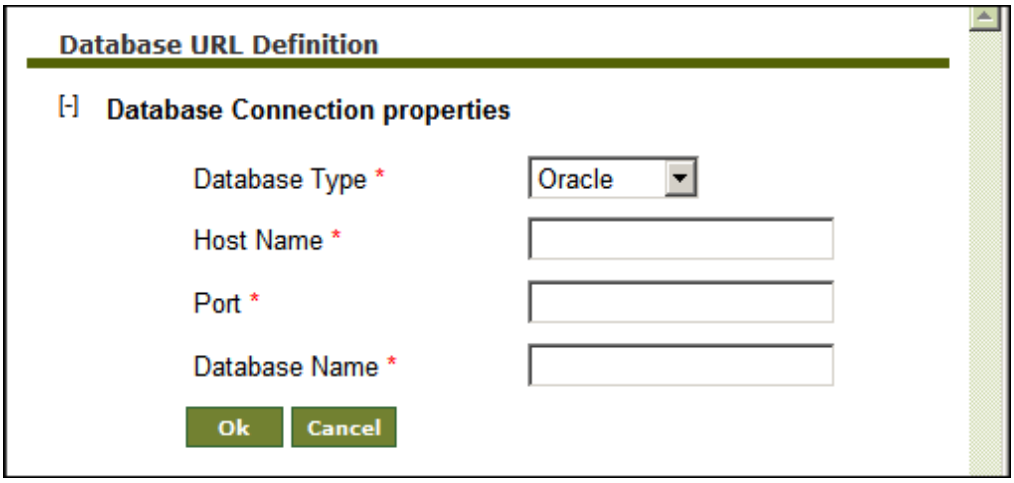


Figure 470: Define Server URL

10. Select the type of database from the dropdown list **Database Type**.
11. Enter the name of database Server, port number and name of the database in the textboxes **Host Name**, **Port** and **Database Name** respectively.
12. Click **OK** button to return to the **Manage Database Info** screen. The defined database URL is displayed in the textbox **Server URL** (see Figure 463).

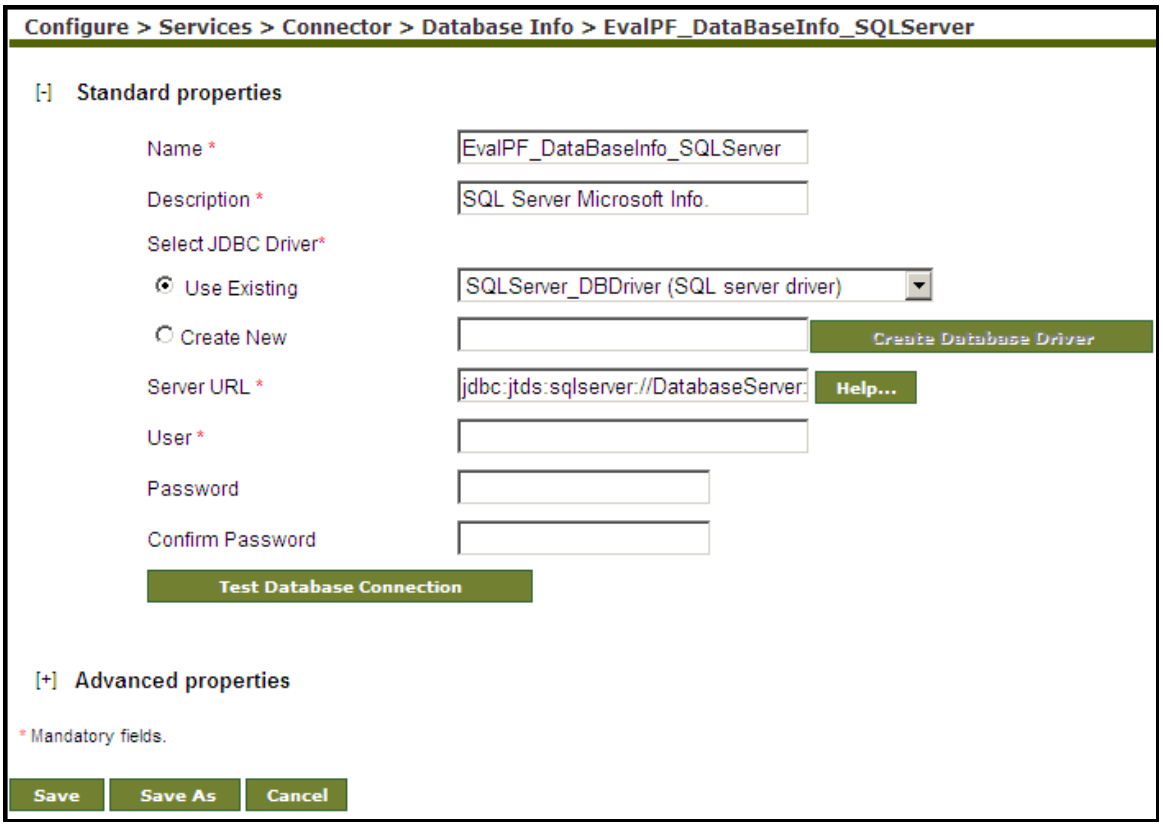


Figure 471: Defined Database Server URL

A list of Server URL's of different databases is displayed in the table below.

Table 61: Server URL for Database Servers

Database Servers	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:hsql://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 textbox **User**.
14. Click the **Test Database Connection** button to verify the connection between the Adeptia Suite and the database.
15. Enter the password in the textboxes **Password** and **Confirm Password** respectively, if required.
16. Click the **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 6).
17. Enter 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 Suite, which require JMS Provider to connect to JMS Server.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create JMS Provider

1. Click **[+] Administer** to expand the hierarchy and then click **[+] Connector**. All items in the **Connector** category are displayed.
2. Click **JMS Provider**. The **Manage JMS Provider** screen is displayed (see Figure 464).

Figure 472: Manage JMS Provider

3. Click the **New** link. The **Create JMS Provider** screen is displayed (see Figure 465).

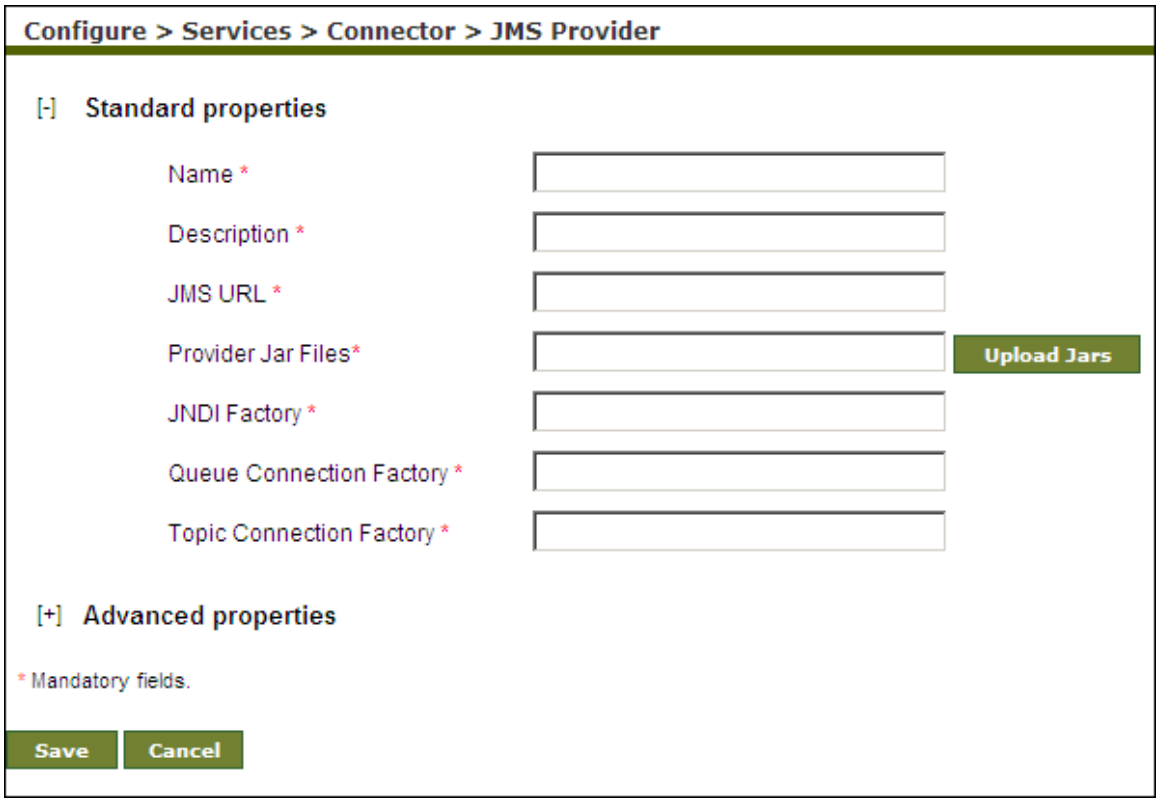


Figure 473: Create JMS Provider

4. Enter the name and description for the new JMS Provider in the textboxes **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 455).

> 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 Suite. Users should use the jar files that are available with the JMS Servers.

7. Click the **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 456).
8. Click the **Upload File** button. The file name is displayed in the **File Names** list (refer to Figure 457).
9. Repeat steps 7 and 8 to upload additional jar files.

10. Click the **Finish** button to return to the **Manage JMS Provider** screen. The uploaded jar file(s) is displayed in the textbox **Provider Jar Files** (see Figure 466).

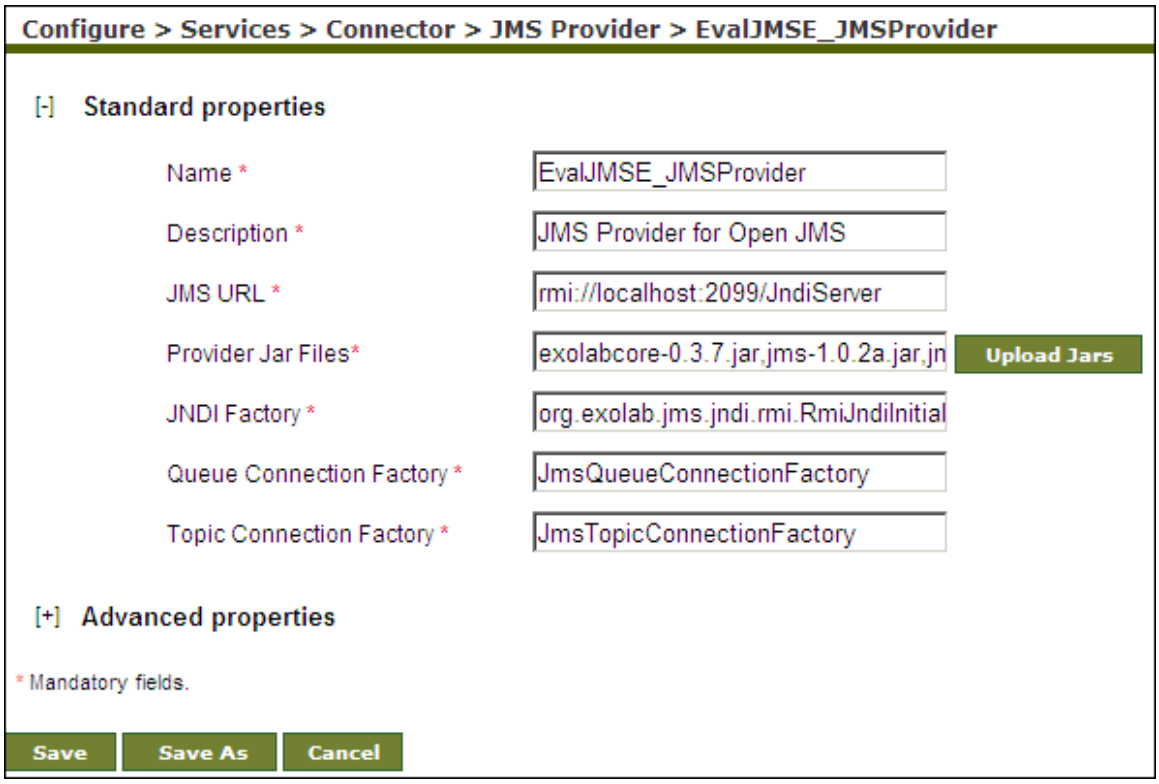


Figure 474: Uploaded Provider Jar Files

11. Enter the JNDI Factory class name as specified by the JMS Provider in the textbox **JNDI Factory**. 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 the **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 6).

15. Enter comments in the textbox **Add Comments**.

> 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.

USING MLLP

The Minimal Lower Layer Protocol (MLLP) is the most common mechanism for exchanging the HL7 data. MLLP uses the TCP/IP protocol to transfer the data in continuous stream of bytes. MLLP delimiters is used to recognize the start and the end of message.

Adeptia Suite support the transfer of data using MLLP. You can configure Adeptia Suite as MLLP Server or MLLP client.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√		√	

Configuring MLLP Server

MLLP Server is used to receive the data. When an MLLP activity is configured in server mode, it opens the specified port and waits from the specified client to send the data.

Steps to configure MLLP Server

1. Click **[+] Administer** to expand the hierarchy and then click **[+] Connector**. All the items in the Connector category are displayed.
2. Click **MLLP**. The **Manage MLLP** screen is displayed (see Figure 467Figure 464).

Figure 475: Manage MLLP Activity

3. Click the **New** link. The **Create MLLP** screen is displayed (see Figure 468).

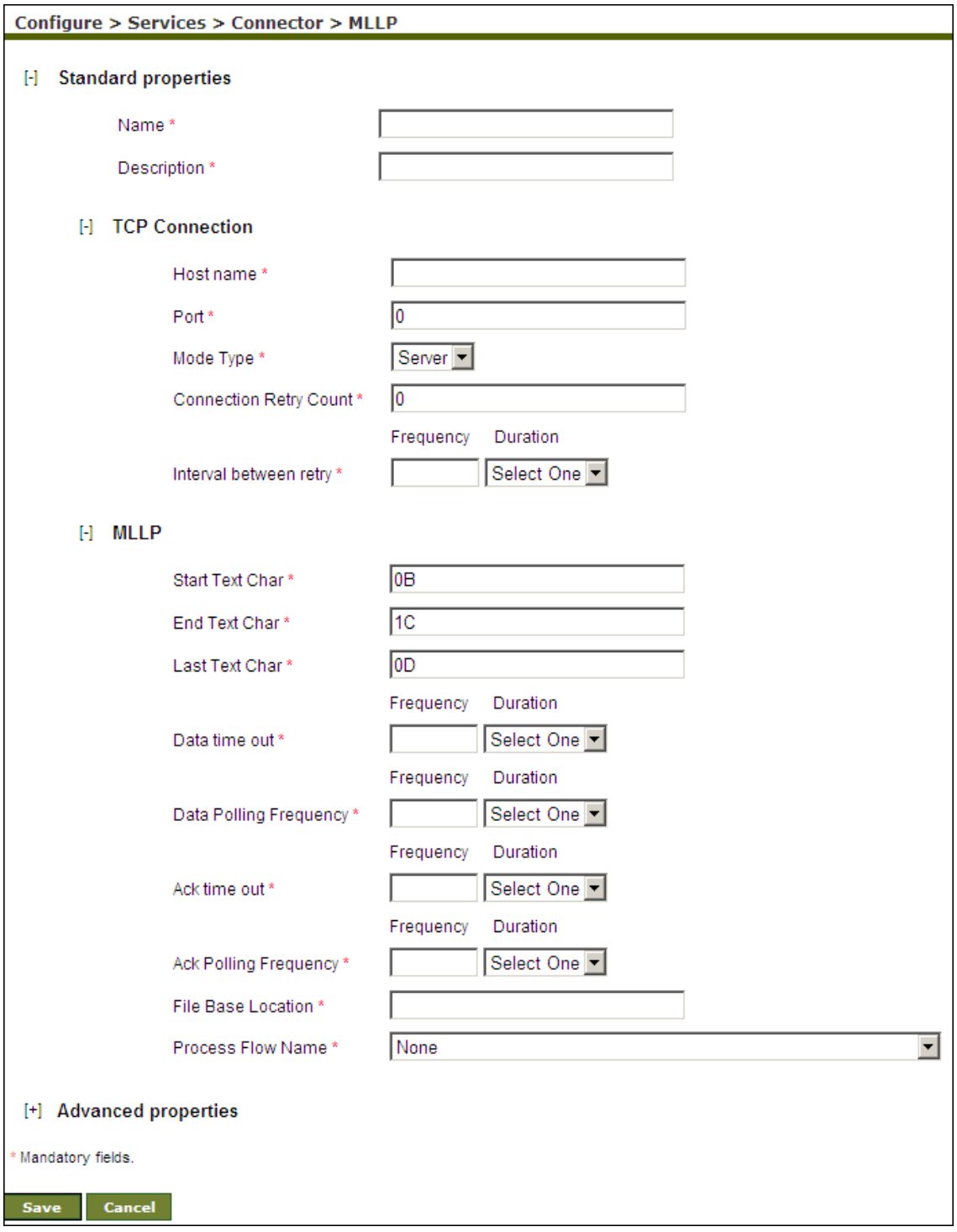


Figure 476: Create MLLP Activity

4. Enter the name and description for the new MLLP activity in the textboxes **Name** and **Description** respectively.
5. Expand the *TCP Connection* properties. TCP connection properties are displayed.
6. Enter the IP address of the host in the textbox **Host Name**. This value is the name of the host from where the MLLP server is supposed to receive the data.

7. Enter the port at which the MLLP Server will allow the MLLP client to be connected in the textbox **Port field**.
8. Select *Server* from the dropdown list **Mode Type**.
9. Enter the maximum number of retries which the adapter attempts to connect to a specific TCP/IP connection before giving up in the textbox **Connection Retry Count**.
10. Enter the duration between the retries in the textbox **Interval between retry**.
11. Expand the **MLLP Properties**. The MLLP properties are displayed.
12. Enter start, end and last text character in the textboxes **Start Text Character**, **End Text Character** and **Last Text Character** respectively.
13. Enter the data time out duration in the textbox **Data Time Out**.
14. Enter the data polling frequency in the textbox **Data Polling Frequency**. This is the time interval between successive polls for data.
15. Enter the acknowledgment timeout duration in the **Ack Time Out** field.
16. Enter acknowledgment polling frequency in the textbox **Ack Polling Frequency**. This is the time interval between successive polls for acknowledgment.
17. Enter location where you want to store the received data, in the textbox **File Base Location**. The received data is stored in the file named as Message_<yyyy-MM-dd-hh-mm-ss-SSS>. This file doesn't have any extension.
18. If you want to trigger a process flow, when any data is received, you can select the process flow, from the dropdown list **Process Flow Name**.
19. Click the **Save** button. This displays a screen confirming that the MLLP 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 MLLP Activity (refer to Figure 6).
20. Enter 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 JMS Provider activity has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the section Updating System Properties.

Configuring MLLP Client

MLLP Client is used to send the data to the specified MLLP server. While creating the MLLP Client, you need to define the data location. As soon as any data is stored, it starts sending the data to the specified MLLP Server.

Steps to configure MLLP Client

1. Click **[+] Administer** to expand the hierarchy and then click **[+] Connector**. All items in the Connector category are displayed.
2. Click **MLLP**. The **Manage MLLP** screen is displayed (see Figure 469).

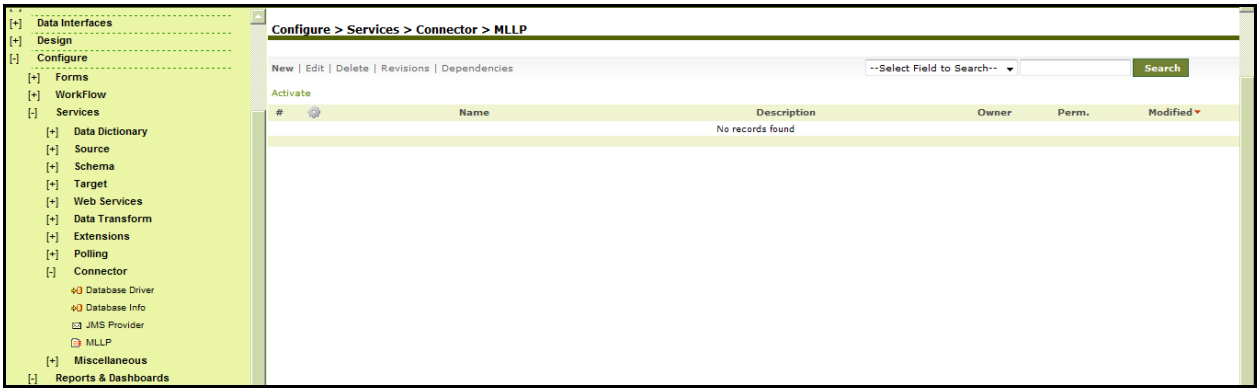


Figure 477: Manage MLLP Activity

3. Click the **New** link. The **Create MLLP** screen is displayed (see Figure 470).

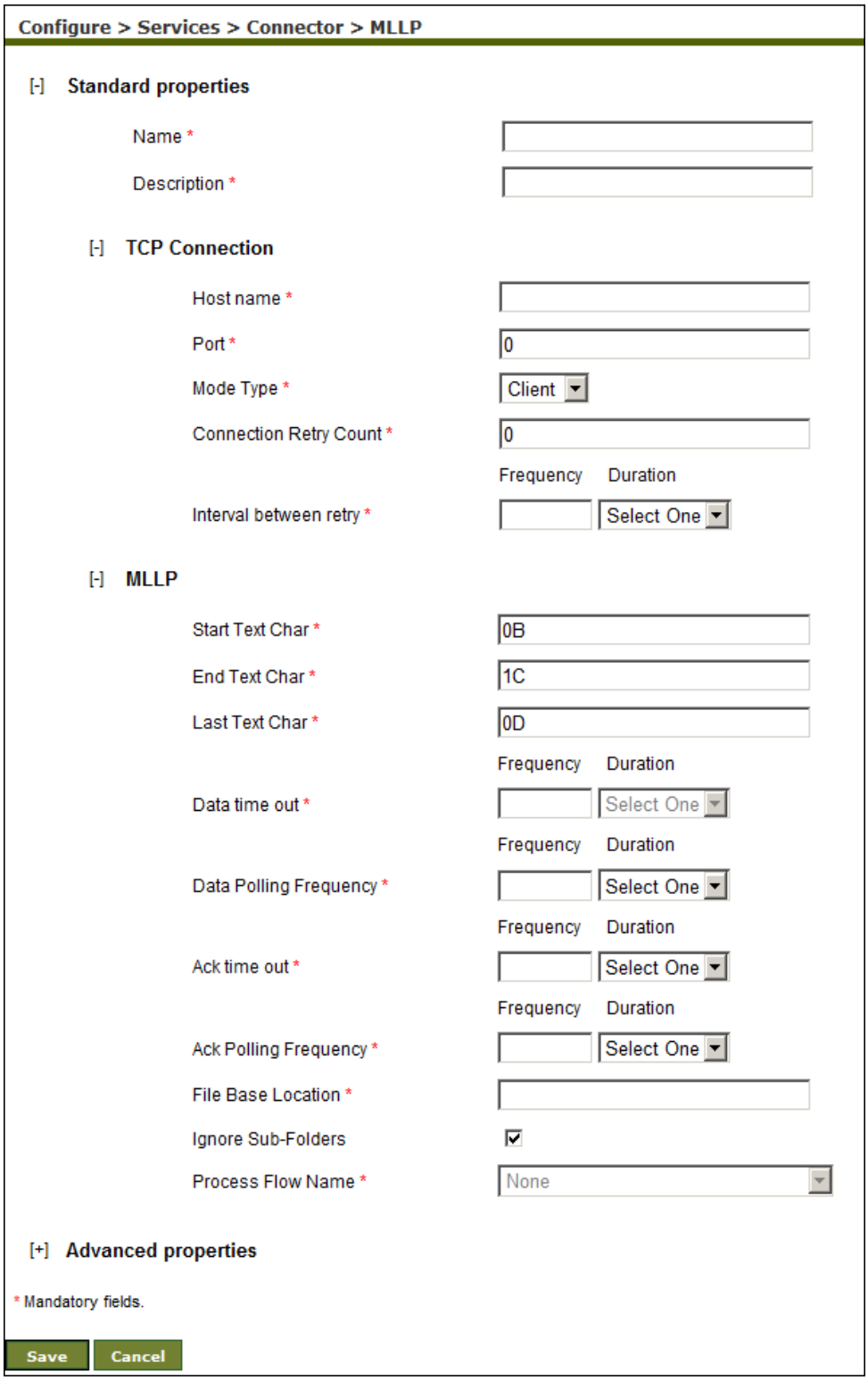


Figure 478: Create MLLP Activity

4. Enter the name and description for the new MLLP activity in the textboxes **Name** and **Description** respectively.
5. Expand **TCP Connection** properties. The TCP connection properties are displayed.

6. Enter the IP address of the host to which the MLLP Client will send the data in the textbox **Host Name**.
7. In the textbox **Port** field, enter the port at which the MLLP client will connect the MLLP Server.
8. Select **Client** from the dropdown list **Mode Type**.
9. Enter the maximum number of retries, the adapter attempts to connect to a specific TCP/IP connection before giving up in the **Connection Retry Count.**
10. Enter the duration between the retries in the textbox **Interval between retry**.
11. Expand **MLLP Properties**. The MLLP properties are displayed.
12. Enter start, end and last text character in the textboxes **Start Text Character**, **End Text Character** and **Last Text Character** respectively.
13. Enter the data time out duration in the textbox **Data Time Out**.
14. Enter the data polling frequency in the textbox **Data Polling Frequency**. This is the time interval between successive polls for data.
15. Enter the acknowledgment timeout duration in the textbox **Ack Time Out**.
16. Enter the acknowledgment polling frequency in the textbox **Ack Polling Frequency**. This is the time interval between successive polls for acknowledgment.
17. Enter the location where from where data is picked and sent to the MLLP server in the textbox **File Base Location**. The data which you want to send to the MLLP server should be kept in this location.
18. By default file from only the folder, which is specified in the *File Base Location* is sent to the MLLP Server. In case you want to send the file from it sub folder also, you need to unselect the *Ignore Sub-Folders* option.
19. Click the **Save** button. This displays a screen confirming that the MLLP 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 MLLP activity (refer to Figure 6).
20. Enter 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 JMS Provider activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the section Updating System Properties.

Activating MLLP Activity

Once you create the MLLP server or client, you need to activate it in order to receive or send the data.

Steps to activate MLLP Activity

1. Click **[+] Administer** to expand the hierarchy and then click **[+] Connector**. All the items in the Connector category are displayed.
2. Click **MLLP**. The **Manage MLLP** screen is displayed (see Figure 471).

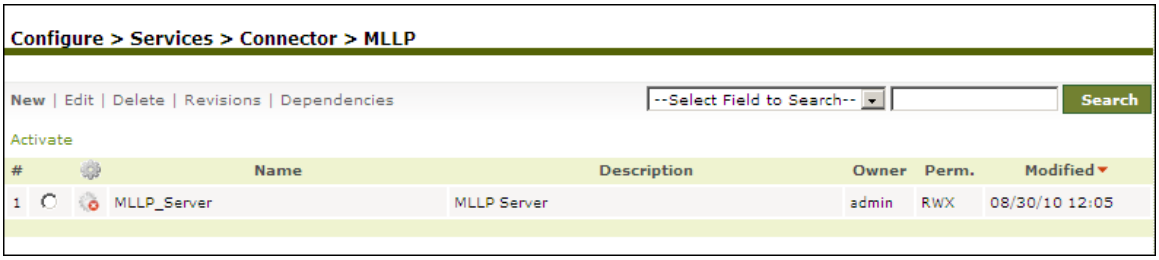


Figure 479: Manage MLLP Activity

3. Select the MLLP activity that you want to activate and click the *Activate* link. The selected MLLP activity is activated and a confirmation is screen is displayed. (see Figure 472).

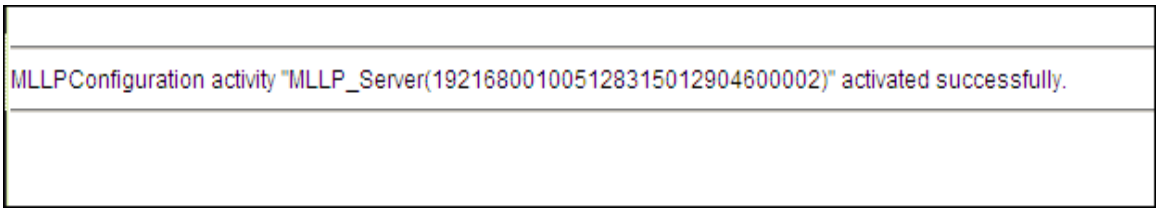


Figure 480: Manage MLLP Activity

13

CREATING MISCELLANEOUS ACTIVITIES

This section allows you to create the following activities:

- Context Download
- Context Upload
- Stored Procedure
- Mail Notification

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to Create Context Download activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.

3. Click **[+] Miscellaneous** to expand the hierarchy, and then click the **Context Download**. The **Manage Context Download** screen is displayed (see Figure 473)

Figure 481: Manage Context Download

4. Click the **New** link. The **Create Context Download** screen is displayed (see Figure 474).

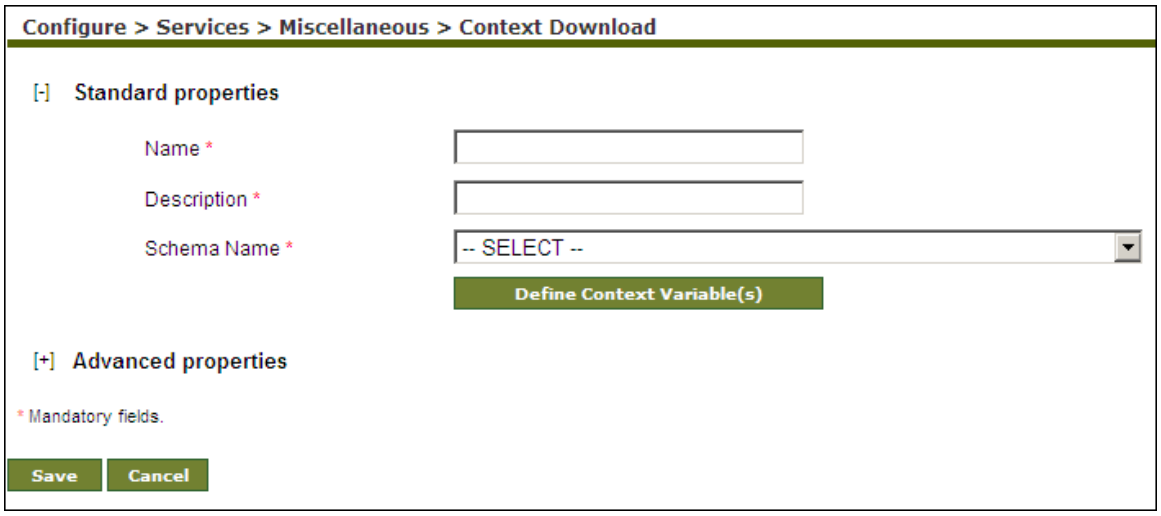


Figure 482: Create Context Download

5. Enter the name and description for Context Download in the textboxes **Name** and **Description** fields respectively.

6. Select the schema activity from the dropdown list **Schema Name**.

7. To define the context variable, click the **Define context variable(s)** button. The *Map Context Variable* screen is displayed (see Figure 475).

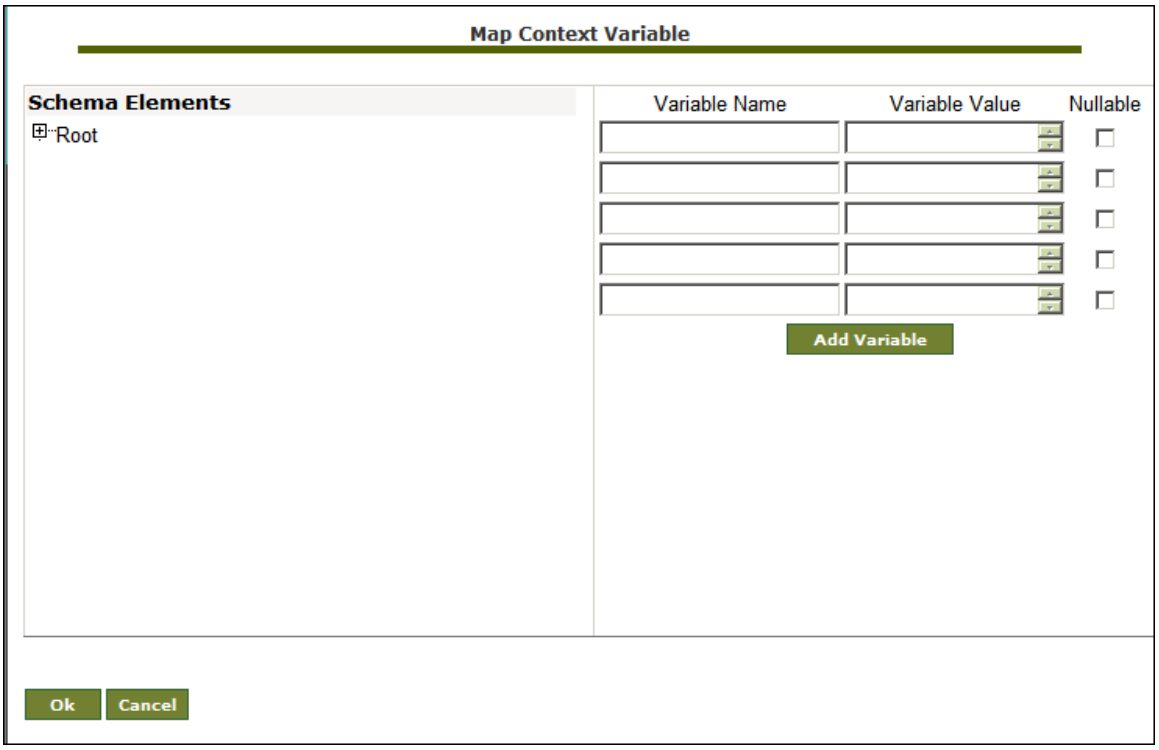


Figure 483: Map Context Variable

8. Expand the selected schema by clicking **[+]**. All fields of selected schemas are displayed (see Figure 476).

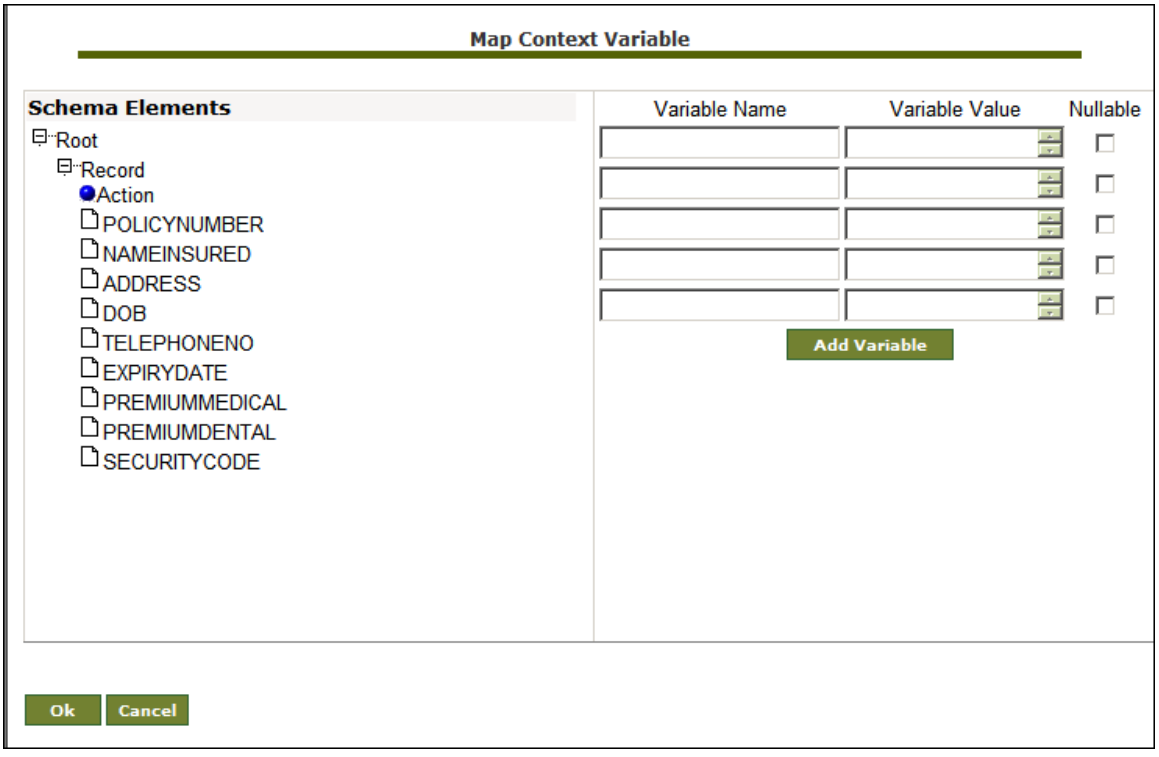


Figure 484: Expand Schema

9. Enter a name for the context variable in the textbox **Variable Name** (see Figure 477).

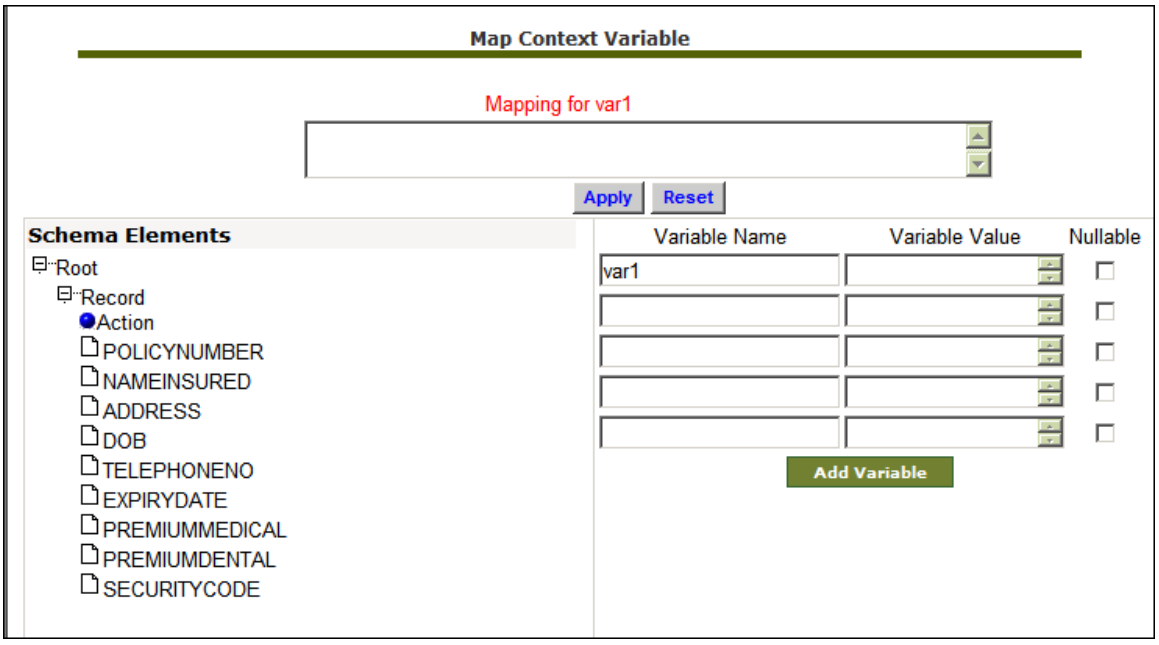


Figure 485: Enter Variable Name

10. Select the schema element, which you want to map with the above defined variable. The XPath of the selected element is displayed in the textbox **Mapping** (see Figure 478).

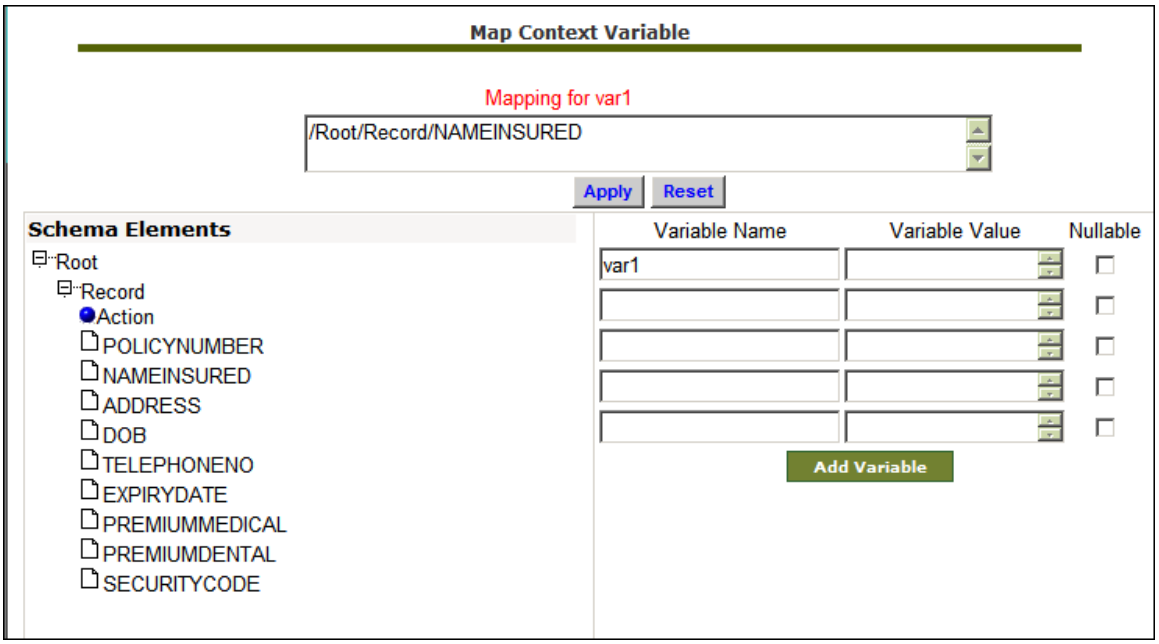


Figure 486: Map Schema Element with Variable

11. Click the **Apply** button. Value of the selected schema element is displayed in the **Variable Value** field (see Figure 479).

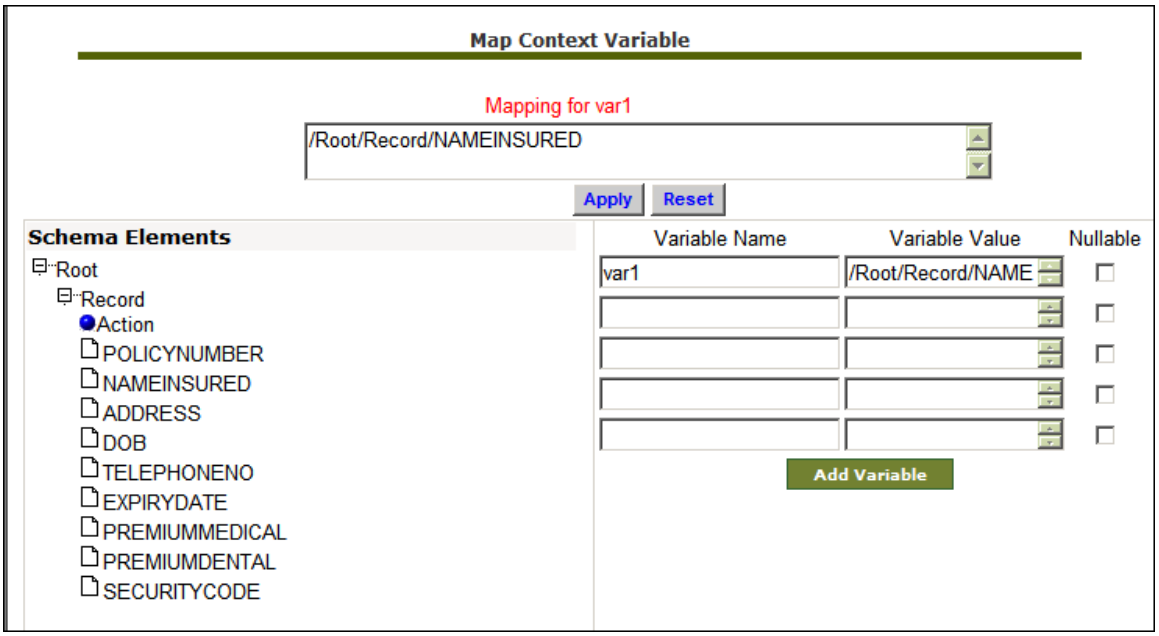


Figure 487: Apply Map

12. Repeat steps from 8 to10 to map the context variable with other elements.
13. Select the **Nullable** checkbox in case you want this variable to allow blank value.
14. Click **OK** button to return to the **Create Context Download** screen.

> To learn about Advanced Properties refer to Changing Advanced Properties section.

15. Click the **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 6).
16. Enter 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 Context download activity has been created successfully.

> By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

teps to Create Context Upload activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Miscellaneous** to expand the hierarchy, and then click **Context Upload**. The **Manage Context Upload** screen is displayed (see Figure 480)

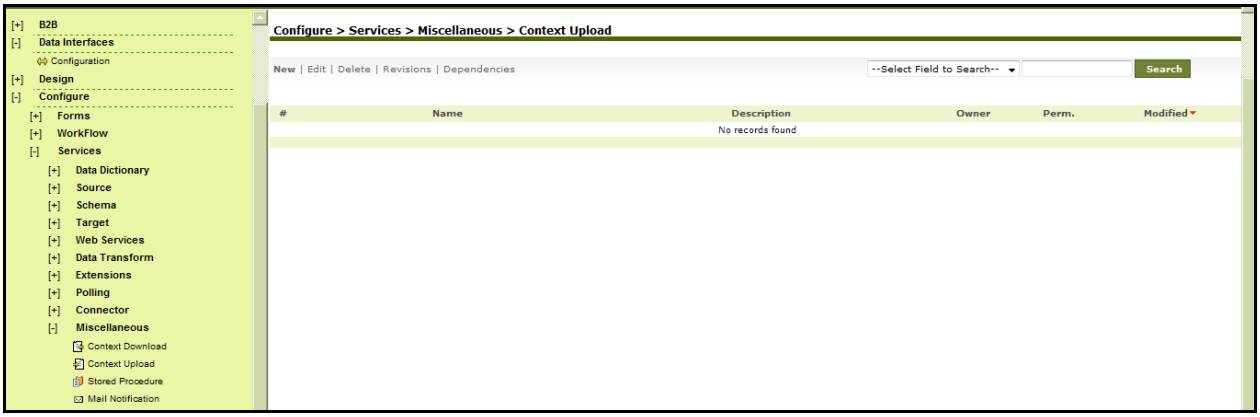


Figure 488: Manage Context Upload

4. Click the **New** link. The **Create Context Upload** screen is displayed (see Figure 481).

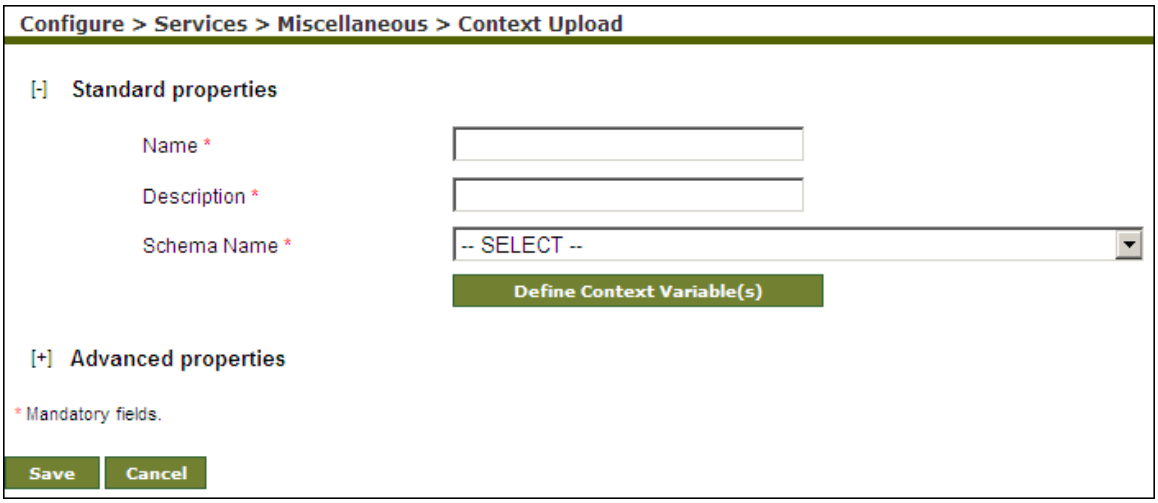


Figure 489: Create Context Upload

5. Enter the name and description for Context Upload in the textboxes **Name** and **Description** respectively.
6. Select the schema activity from the dropdown list **Schema Name**.
7. To define the context variable, click the **Define context variable(s)** button. The **Map Context Variable** screen is displayed (refer to Figure 475).
8. Expand the selected schema by clicking **[+]**. All fields of selected schemas are displayed (refer to Figure 476).
9. Enter a name for the context variable in the textbox **Variable Name** (refer to Figure 477).
10. Select the schema element, which you want to map with the above defined variable. The XPath of the selected element is displayed in the textbox **Mapping** (refer to Figure 478).

> 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.

11. Click the **Apply** button. Value of the selected schema element is displayed in the textbox **Variable Value** (refer to Figure 479).
12. Repeat step 8 to11 to map the context variable with other elements.
13. Click **OK** button to return to the **Create Context Upload** screen.

> To learn about Advanced Properties refer to Changing Advanced Properties section.

14. Click the **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 6).
15. Enter 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 Context Upload activity has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

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. Therefore, 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. Therefore, 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Prerequisites

- *Database Info* activity must be created before creating *Stored Procedure* activity.

Steps to create Stored Procedure activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Miscellaneous** to expand the hierarchy, and then click **Stored Procedure**. The **Manage Stored Procedure** screen is displayed (see Figure 482).

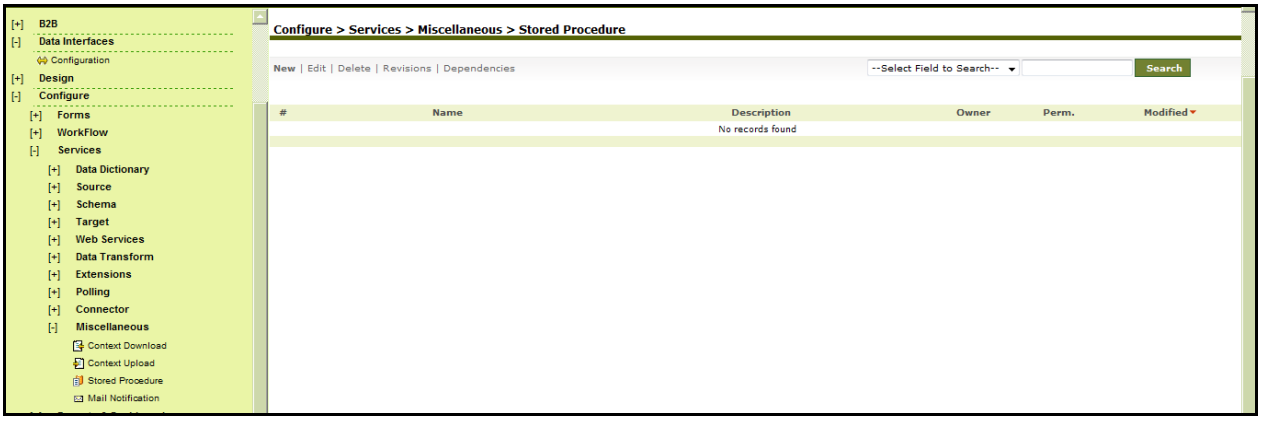


Figure 490: Manage Stored Procedure

4. Click the **New** link. The **Create Stored Procedure** screen is displayed (see Figure 483).

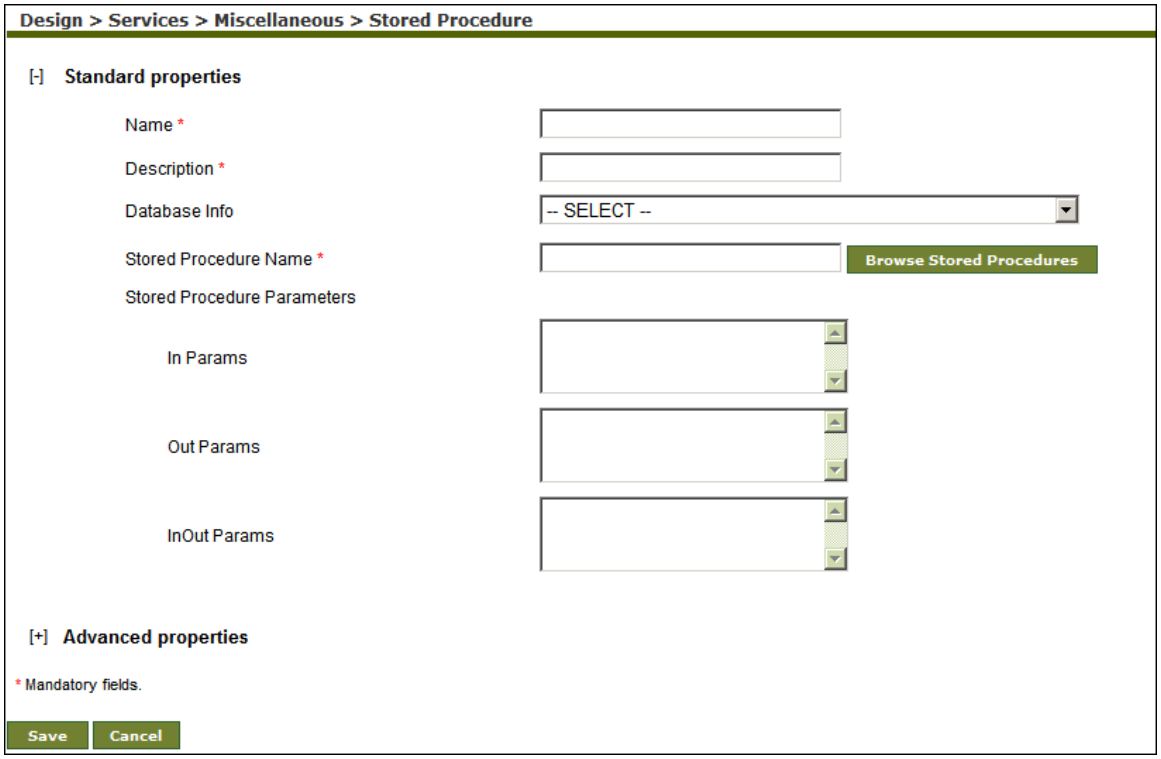


Figure 491: Create Stored Procedure

5. Enter the name and description for new stored procedure activity in the textbox **Name** and ***Description*** respectively.

6. Select the *database* info activity from the dropdown list **Database Info Id**.

> To learn how to create Database Info activity, refer to the section *Creating Database Info* in *Administrator Guide*.

7. To select the database stored procedure, click the **Browse Stored Procedure** button. The **Select Stored Procedure** screen with list of stored procedure is displayed (see Figure 484)

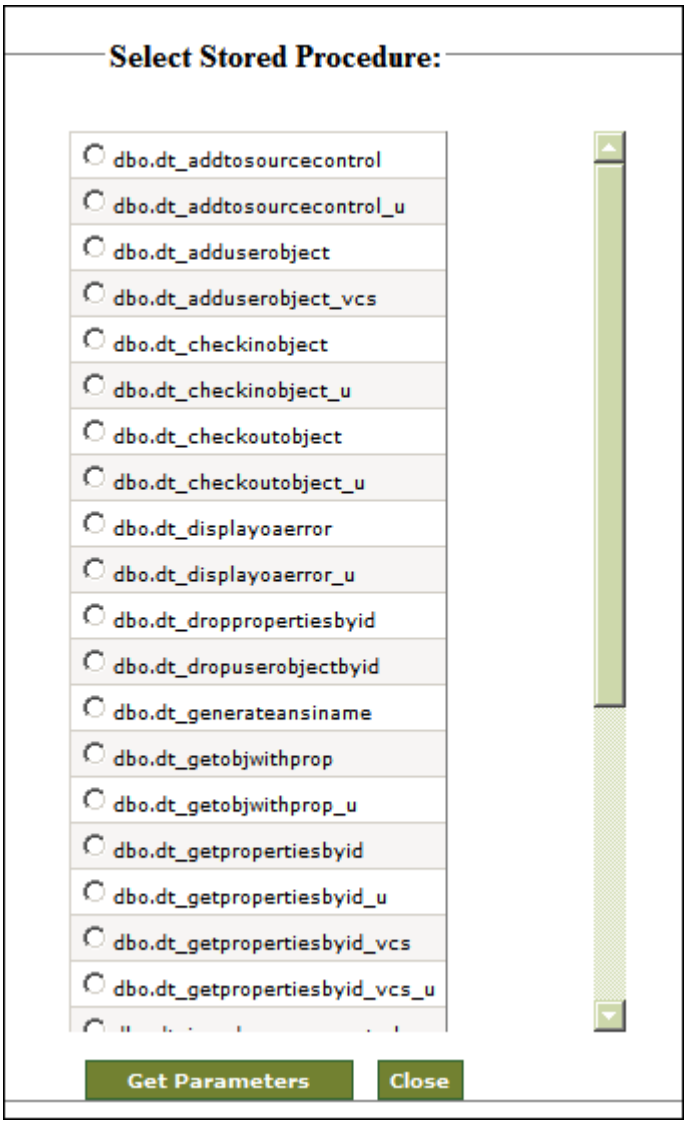


Figure 492: Select Stored Procedure

8. Select the required stored procedure and click the **Get Parameters** button. The **Stored Procedure Parameter** screen is displayed with list of parameters (see Figure 485).

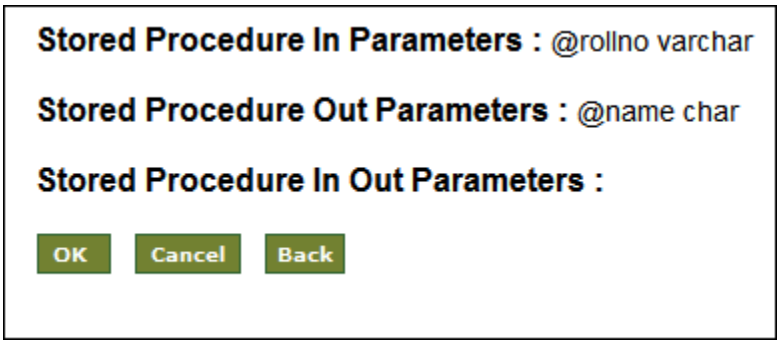


Figure 493: View Parameters

9. Click **OK** to return to the Stored Procedure activity screen. Parameters of the selected procedure are populated in **Stored Procedure Parameters** field (see Figure 486).

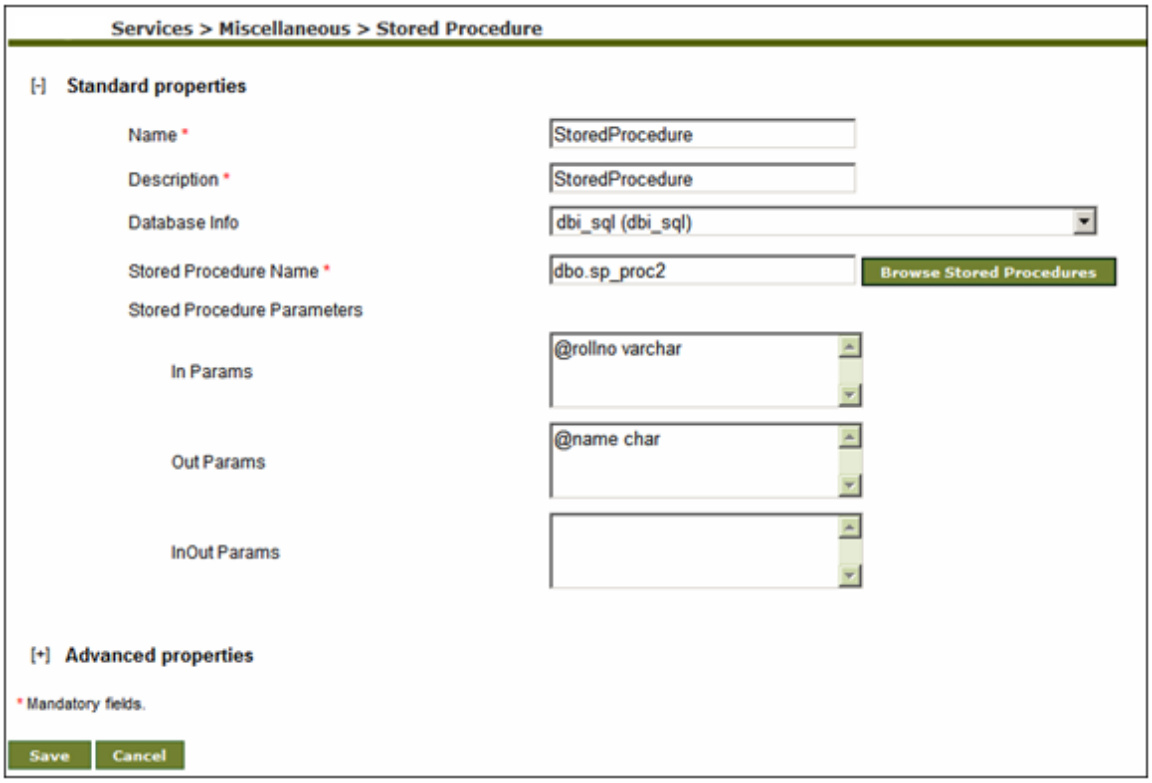


Figure 494: Manage Stored Procedure

10. In the Stored Procedure activity screen click the **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 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 Stored Procedure activity has been created successfully.

> By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

CREATING MAIL 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 Suite, 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.

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Creating Notification to Send User Defined Message

Steps to create User Defined Message Notification

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Notification** to expand the hierarchy, and then click **Mail Notification**. The **Manage Mail Notification** screen is displayed (see Figure 487).

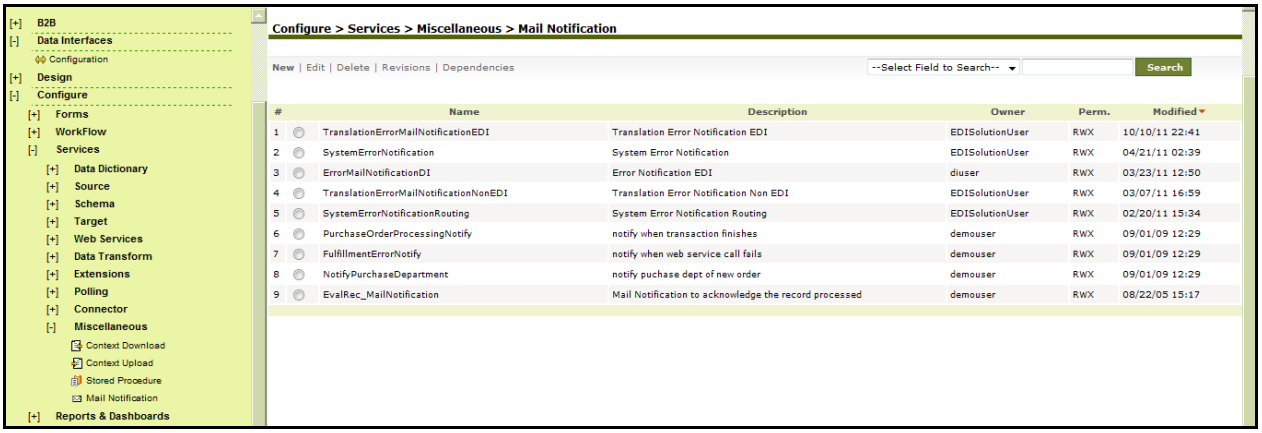


Figure 495: Manage Mail Notification

4. Click the **New** link. The **Create Mail Notification** screen is displayed (see Figure 488).

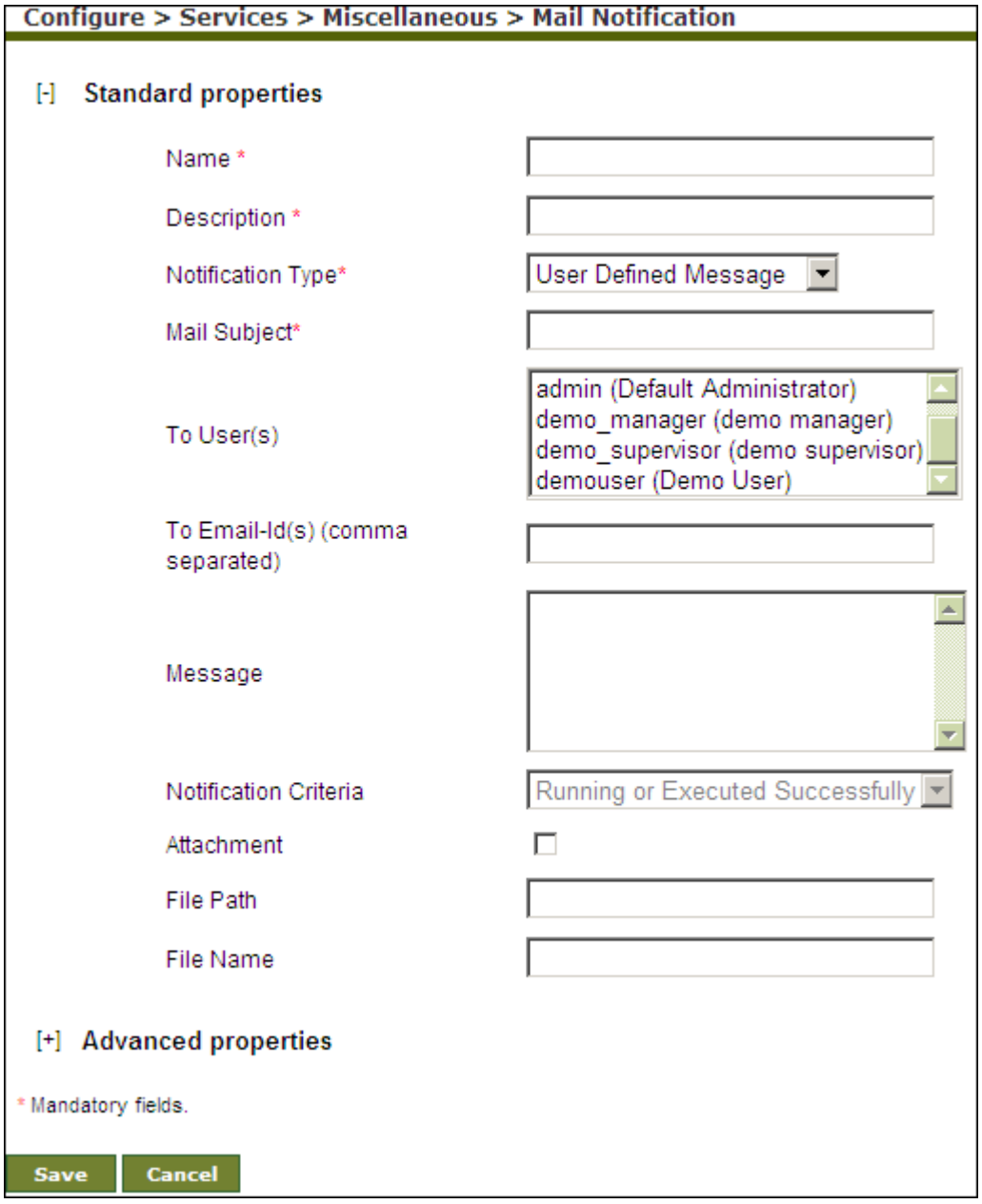


Figure 496: Create Mail Notification

5. Enter the name of the new Mail Notification in the textbox **Name**. Then, enter the description for the Mail Notification in the textbox **Description**.
6. Select User Defined Message from the dropdown list **Notification Type**.
7. Enter subject for the email message in the textbox **Mail Subject**.
8. Select the user(s) to whom you want to send the notification email from the textbox **To Adeptia user(s)**.
9. Enter the recipient(s) email address in the textbox **To Email Id(s) (comma separated)**.

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.

10. Enter the email message in the textbox **Message**.
11. To send a file as attachment, select the *Attachment* checkbox and enter the file path and file name in the textboxes **File Path** and **File Name** respectively.

To learn about Advanced Properties refer to section Changing Advanced Properties section.

12. Click the **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 6).
13. Enter 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 mail notification activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

Creating Notification to Send Process Flow Summary

Steps to create Process Flow Summary Notification

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Notification** to expand the hierarchy, and then click **Mail Notification**. The *Manage Mail Notification* screen is displayed (refer to Figure 487).
4. Click the **New** link. The **Create Mail Notification** screen is displayed (refer to Figure 488).
5. Enter the name of the new mail notification in the textbox **Name**. Then, enter the description for the mail notification in the textbox **Description**.
6. Select Process Flow Summary from the dropdown list **Notification Type**.
7. Enter subject for the email message in the textbox **Mail Subject**.
8. Select the user(s) to whom you want to send the notification email from textbox **To Adeptia user(s)**.
9. Enter the recipient(s) email address in the textbox **To Email Id(s) (comma separated)**.

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.

10. Select one of the criteria from the dropdown list **Notification Criteria**. All criteria are explained in the table below.

Table 62: 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 Attaching End Process (Mail Notification) to Process Flow section.
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 Attaching End Process (Mail Notification) to Process Flow section.

To learn about Advanced Properties refer to Changing Advanced Properties section.

11. Click the **Save** button. A screen is displayed where you need to enter comments related to creating the mail notification (refer to Figure 6).
12. Enter 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 mail notification activity has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator Guide*.

14

USING REPORTS AND DASHBOARDS

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 Administrator 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 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 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/

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a custom report activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Reports & Dashboards** to expand the hierarchy and then click **Custom Report**. The **Manage Custom Report** screen is displayed (see Figure 489).

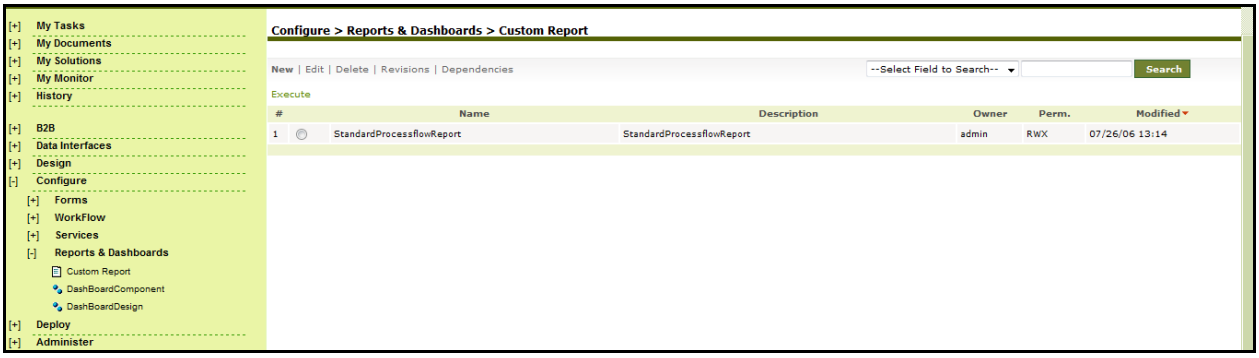


Figure 497: Manage Custom Report

3. Click the **New** link. The **Create Custom Report** screen is displayed (see Figure 490).

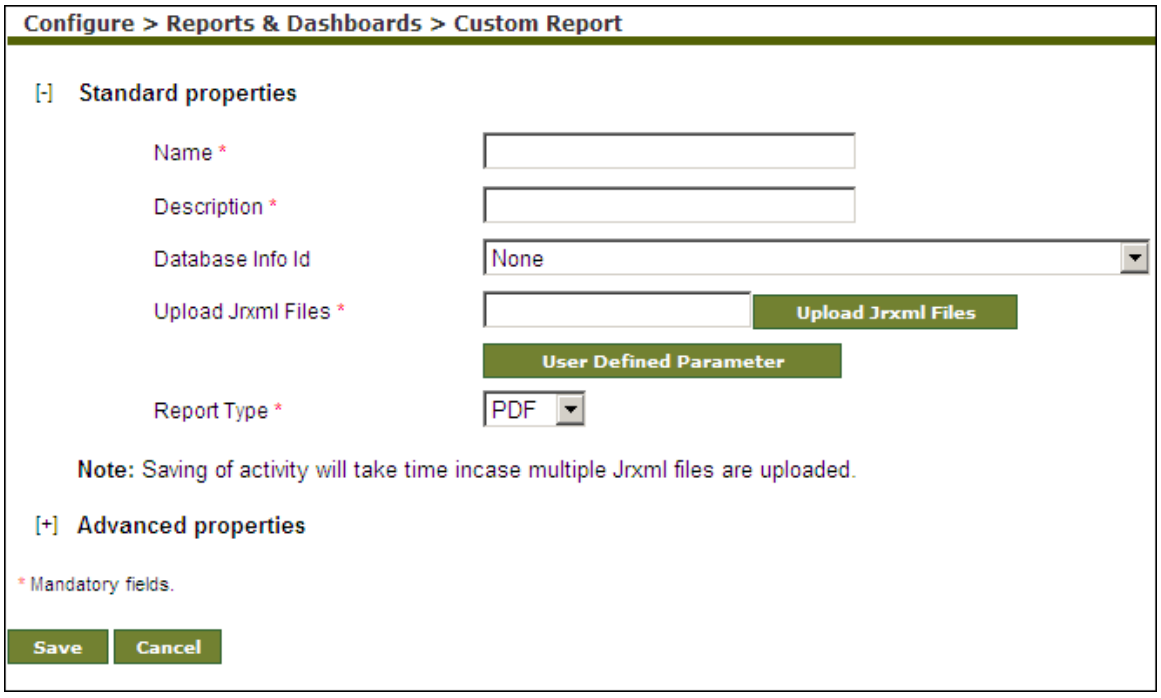


Figure 498: Create Custom Report Activity

4. Enter the name of Custom Report in the textbox **Name**. Then, enter the description for the Custom Report in the textbox **Description**.

5. Select the Database Info activity which points to the database Server to fetch the data, from the dropdown list **Database Info ID**.

> To learn how to create Database Info activity, refer to *Creating Database Info* section in the *Administrator Guide*.

6. To upload the Jrxml file (custom report template) generated using *iReport* software, click the **Upload Jrxml File** button. The **Upload Jrxml File** screen is displayed (see Figure 491).

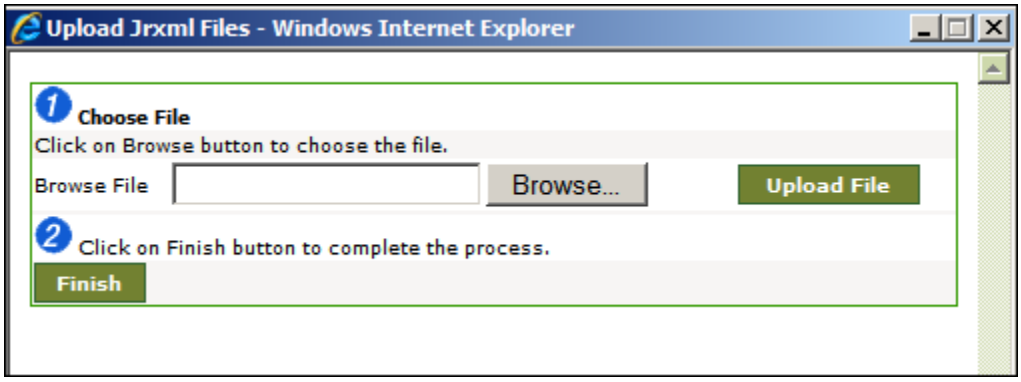


Figure 499: Select Jasper File

7. Click the **Browse** button and select the Jrxml file. The path of the Jrxml file is displayed in the textbox **Browse File** (see Figure 492).

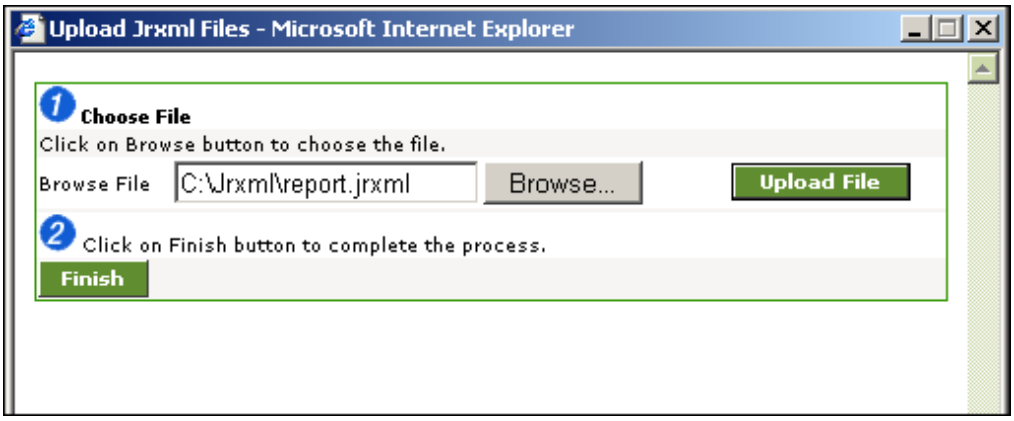


Figure 500: Select Jasper File

8. Click the **Upload File** button. The file name is displayed in the **File Names** list (see Figure 493).

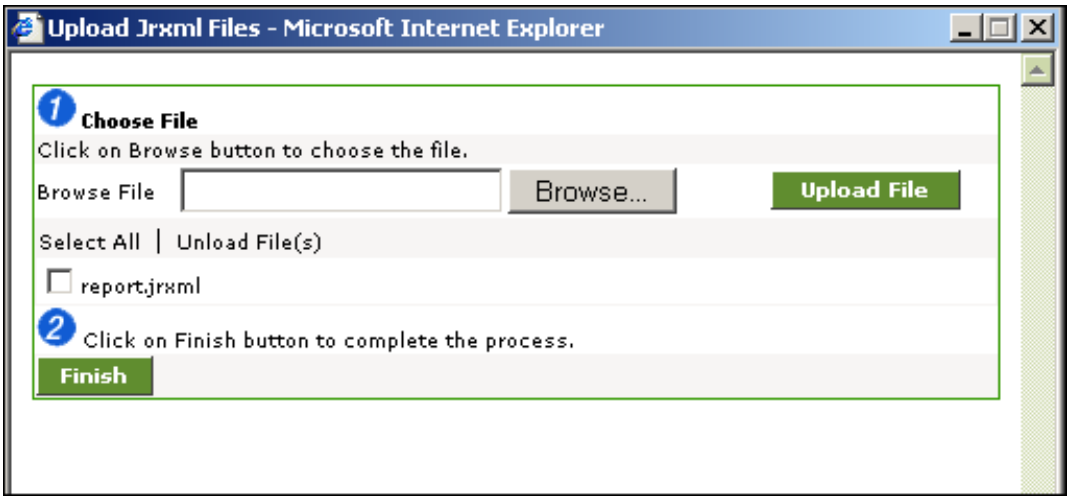


Figure 501: Jasper File Uploaded

9. Click the **Finish** button. The uploaded *iReport* file is displayed in the textbox **Upload Jrxml files**(see Figure 494).

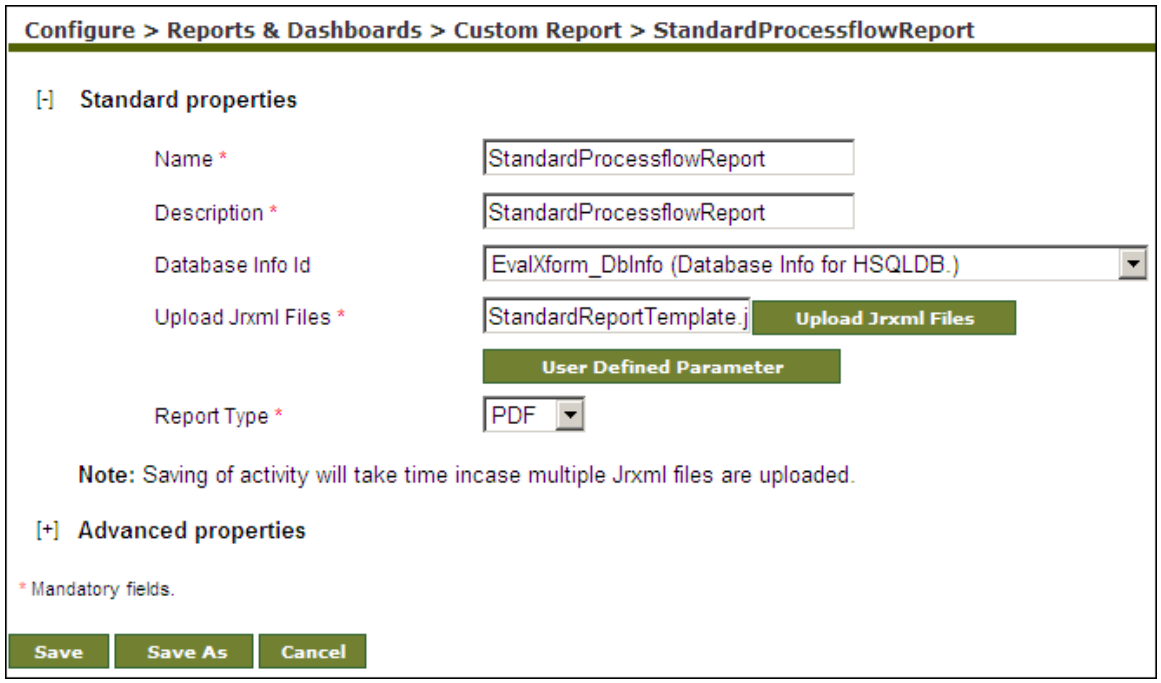


Figure 502: Uploaded Jasper Files in Create Custom Report

10. To change value of user defined Parameter defined in the Jrxml file, click the **User Defined Parameter** button. The **Jasper Report Parameter** screen is displayed with list of parameters defined in the Jrxml file (see Figure 495).

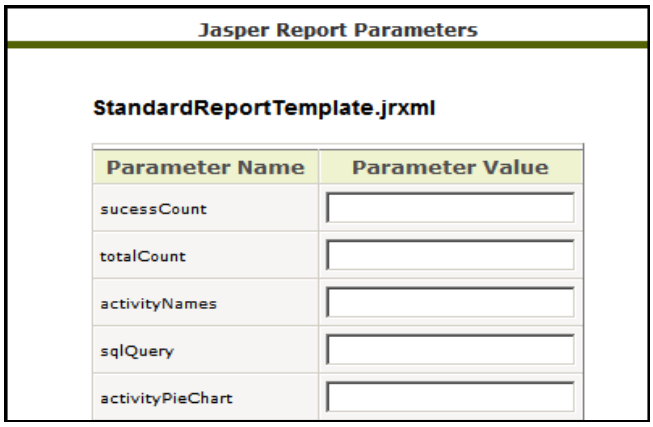


Figure 503: Define Jasper Report Parameters

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 dropdown list **Report Type**.

14. Click the **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 6).
15. Enter 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 in *Administrator* Guide.

> 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 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite

Creating Bar Chart Activity

Steps to create Bar Chart

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.

2. Click **[+] Reports & Dashboards** to expand the hierarchy and then click **Dashboard Component**. The **Manage Dashboard Component** screen is displayed (see Figure 496).

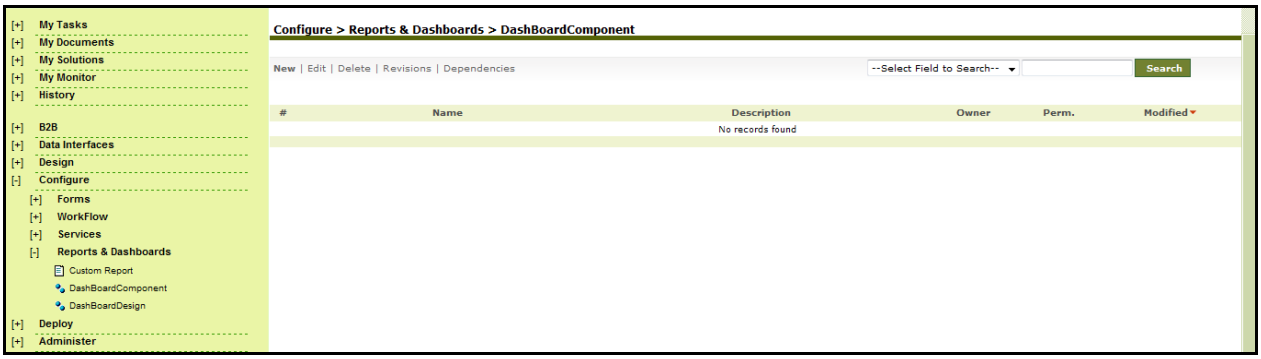


Figure 504: Manage Dashboard Component

3. Click the **New** link. The **Create Dashboard Component** screen is displayed (see Figure 497).

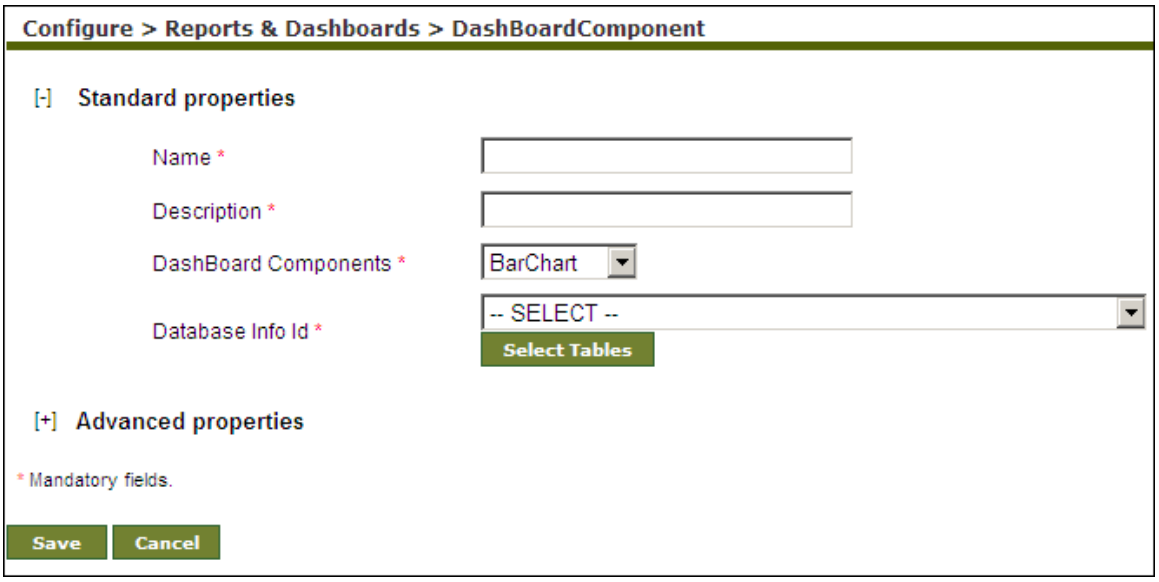


Figure 505: Create Dashboard Component

4. Enter the name and description of the new Dashboard Component in the textboxes **Name** and **Description** respectively.

5. Select Bar Chart from the **Dashboard Component** dropdown list.

6. Select the appropriate Database Info, depending on the database you want to use, from the **Database Info Id** dropdown list.

7. Click the **Select Tables** button. The **Select Table** screen is displayed (see Figure 498).

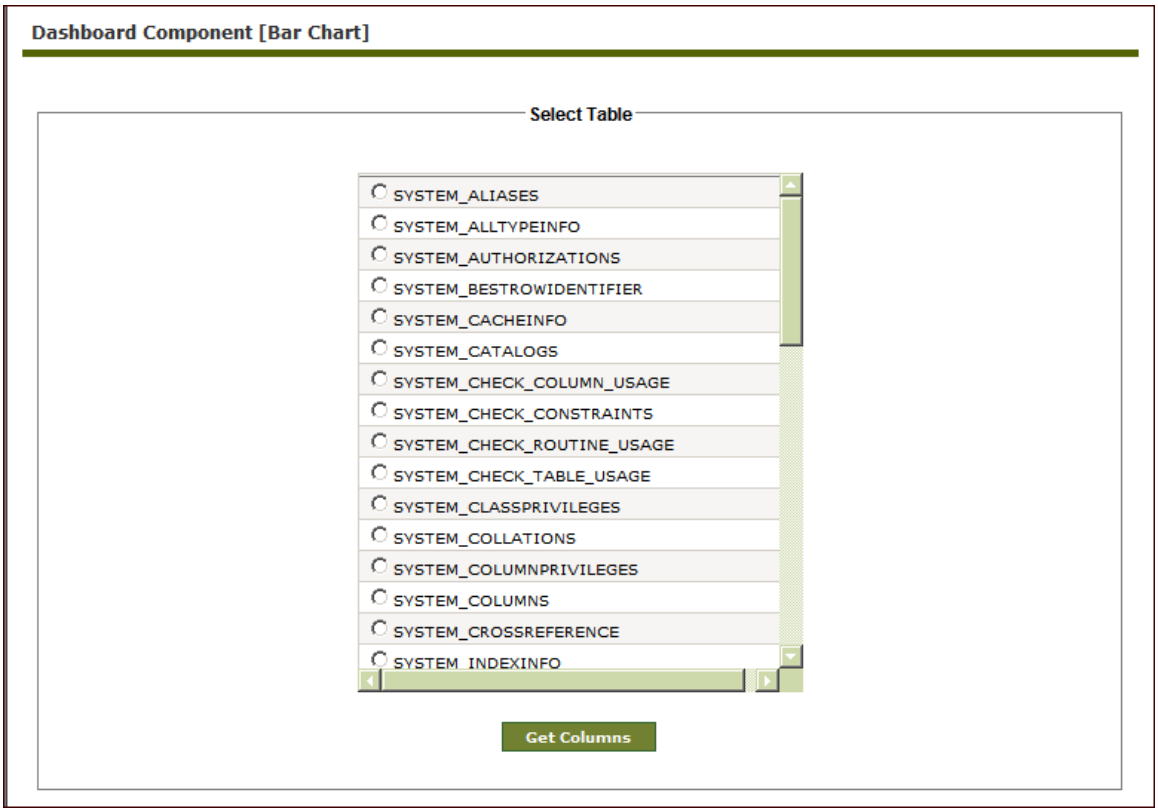


Figure 506: Select Table

8. Select the required table and click the **Get Columns** button. The **Columns in Bar Chart** screen is displayed (see Figure 499).

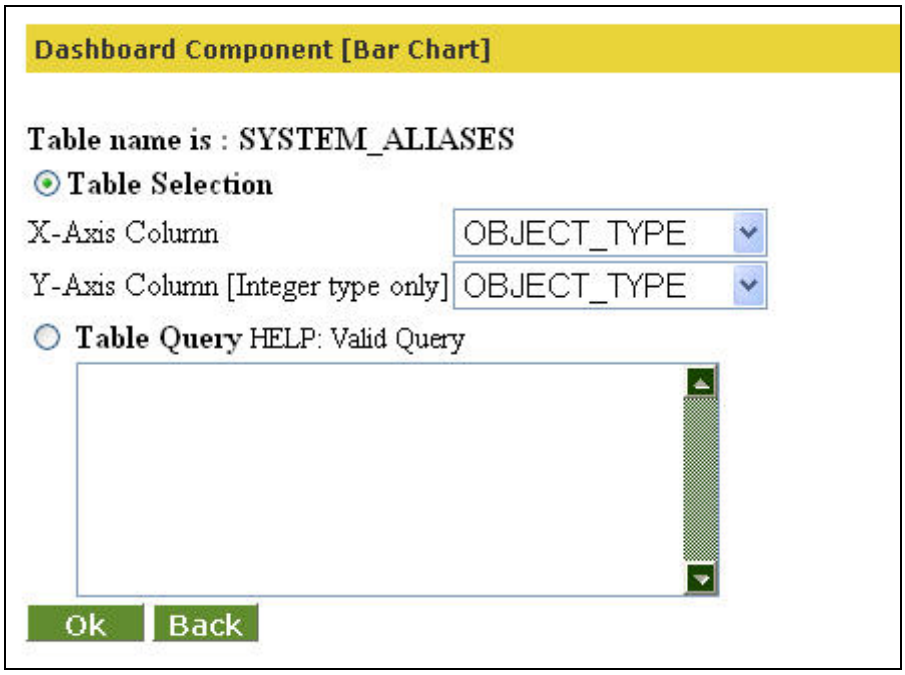


Figure 507: Select Columns for Bar Chart

9. Select the X-Axis and Y-Axis components for the Bar Chart from the dropdown lists **X-Axis Column** and **Y-Axis Column [Integer type only]** respectively.

> 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.
>
> 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.

10. Click the **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 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 and return to the Create Dashboard Component screen.
13. Click the **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 *Updating System Properties* section in *Administrator* Guide.

Creating String Chart Activity

Steps to create String Chart

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Reports & Dashboards** to expand the hierarchy and then click **Dashboard Component**. The Manage Dashboard component screen is displayed (refer to Figure 496).
3. Click the **New** link. The **Create Dashboard Component** screen is displayed (refer to Figure 497).
4. Enter the name and description for the new Dashboard Component in the textboxes **Name** and **Description** respectively.
5. Select String Chart from the dropdown list **Dashboard Components**.
6. Select the appropriate Database Info, depending on the database user wants to use, from the dropdown list **Database Info Id**.
7. Click **Select Tables** button. The **Select Tables** screen is displayed (refer to Figure 498).

8. Click **Get Columns** button. The **Select Fields** screen is displayed (see Figure 500).

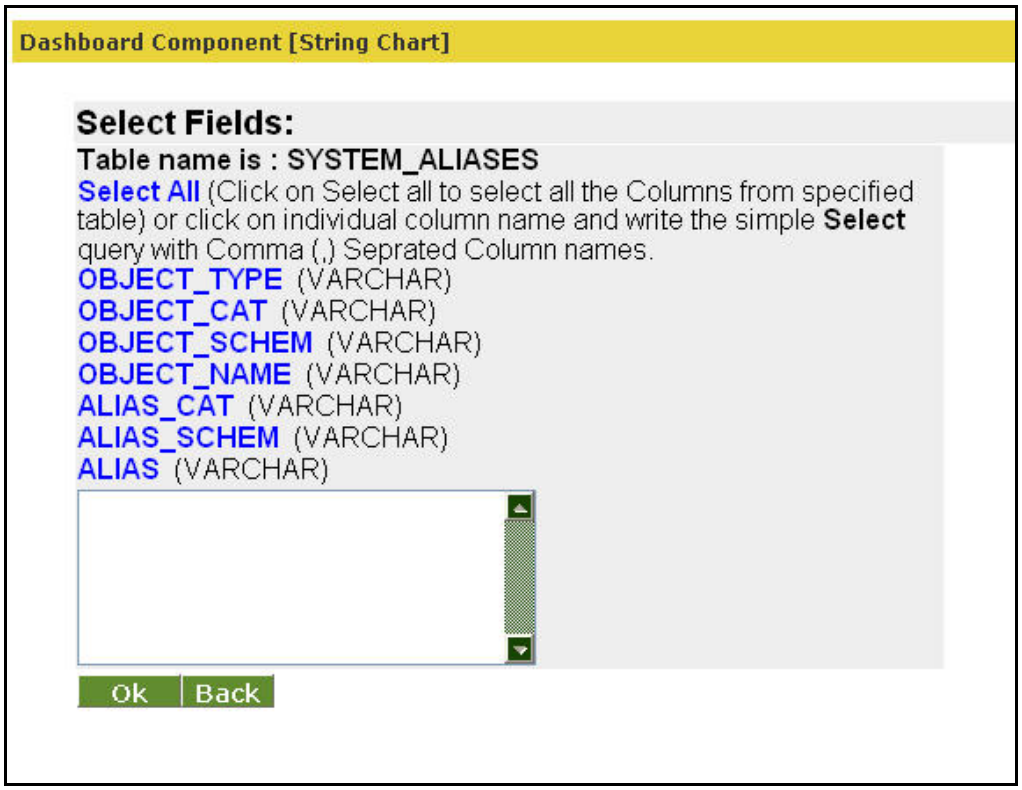


Figure 508: Select Fields

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 the **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 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 Dashboard Component activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

Creating Table Chart Activity

Steps to create a Table Chart

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Reports & Dashboards** to expand the hierarchy and then click **Dashboard Component**. The **Manage Dashboard Component** screen is displayed (refer to Figure 496).
3. Click the **New** link. The **Create Dashboard Component** screen is displayed (refer to Figure 497).
4. Enter the name and description for the new Dashboard Component in the textboxes **Name** and **Description** respectively.
5. Select Table Chart from the dropdown list **Dashboard Components**.
6. Select the appropriate Database Info, depending on the database user wants to use, from the dropdown list **Database Info Id**.
7. Click the **Select Tables** button. The **Select Table** screen is displayed (refer to Figure 498).
8. Click the **Get Columns** button. The **Select Fields** screen is displayed (refer to Figure 500)
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 the **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 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 Dashboard Component activity has been created successfully.

By default, the *Comments* property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

Creating PIE Chart Activity

Steps to create a PIE Chart

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Reports & Dashboards** to expand the hierarchy and then click **Dashboard Component**. The **Manage Dashboard Component** screen is displayed (refer to Figure 496).
3. Click the **New** link. The **Create Dashboard Component** screen is displayed (refer to Figure 497).
4. Enter the name and description for the new Dashboard Component in the textboxes **Name** and **Description** respectively.
5. Select PIE Chart from the dropdown list **Dashboard Components**.

6. Select the appropriate Database Info, depending on the database user wants to use, from the dropdown list **Database Info Id**.
7. Click the **Select Tables** button. The **Select Table** screen is displayed (refer to Figure 498).
8. Click the **Get Columns** button. The **Select Columns** screen is displayed (refer to Figure 499).
9. Select the X-Axis and Y-Axis for the PIE Chart from the *X-Axis Column* and *y-Axis Column [Integer type only]* dropdown 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 the **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 6).
11. Enter comments in the textbox **Add Comments**.

> 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 the **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 *Updating System Properties* section in *Administrator* Guide.

CREATING DASHBOARD DESIGN ACTIVITY

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a Dashboard Design activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Reports & Dashboards** to expand the hierarchy and then click **Dashboard Design**. The **Manage Dashboard Design** screen is displayed (see Figure 501).

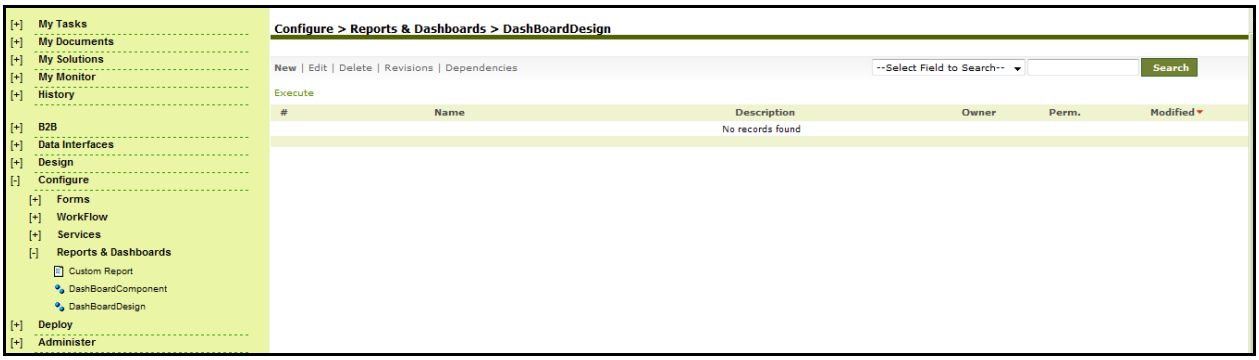


Figure 509: Manage Dashboard Design

3. Click the **New** link. The **Create Dashboard Design** screen is displayed (see Figure 502).

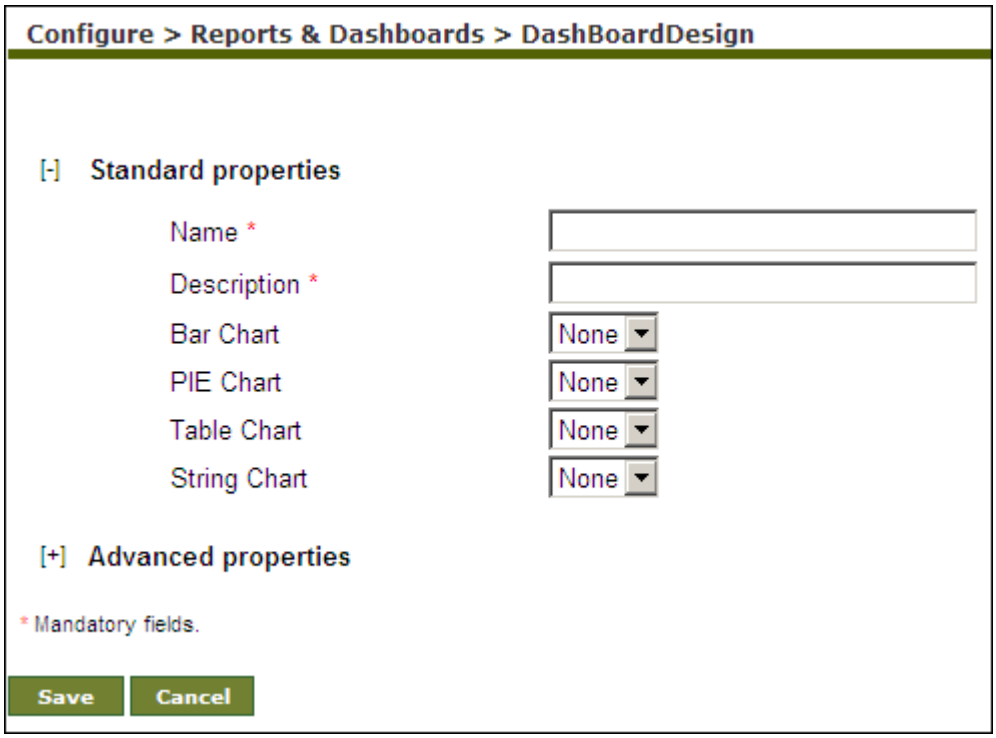


Figure 510: Creating Dashboard Design

4. Enter name and description of the new Dashboard Design in the textboxes **Name** and **Description** fields respectively.

5. Then select any of the components from the dropdown lists **Bar Chart**, **PIE Chart**, **Table Chart** and **String Chart**. You may select one component from each chart and any number of charts.

6. Click the **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 6).

7. Enter 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 **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

EXECUTING DASHBOARD DESIGN

Steps to execute a Dashboard Design activity

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Reports & Dashboards** to expand the hierarchy and then click **Dashboard Configure**. The **Manage Dashboard Design** screen is displayed (refer to Figure 501).
3. Select the radio button adjacent to required dashboard design activity that you want to execute and then click the **Execute** link.
4. A Dashboard applet appears displaying the component that was chosen while creating the Dashboard Design activity (see Figure 503).

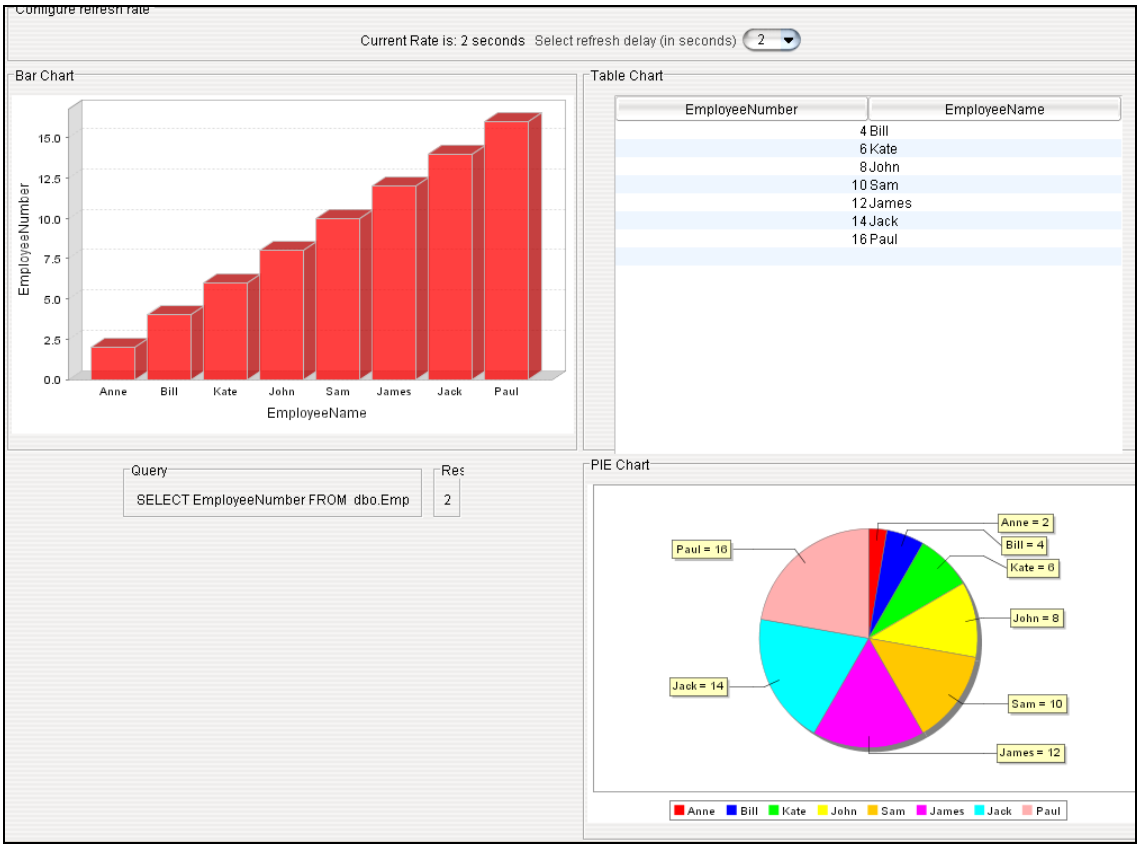


Figure 511: View Dashboard

To configure the refresh time, select the refresh time from the dropdown list **Select refresh delay (in seconds)**.

15

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:

- Searching an Activity
- Viewing Properties of an Activity
- Editing an Activity
- Deleting an Activity
- Viewing Revision History of an Activity
- Viewing Dependent Activities of an Activity
- Changing 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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Text**. The **Manage Text Schema** screen is displayed (see Figure 504).

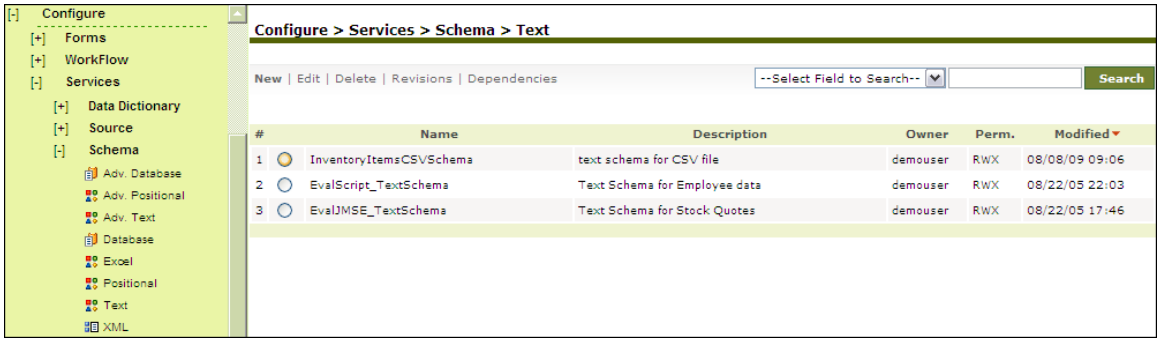


Figure 512: Manage Activity

4. Select the field to search from the dropdown list **Select Field**.

5. Enter the search criteria in the textbox **Search**. For example, if Name is selected in the dropdown list **Select Field** then enter the name of the *Search* field.

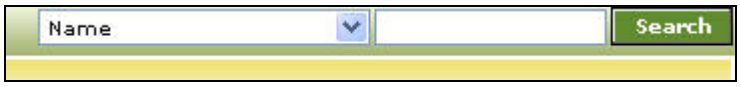


Figure 513: Enter Search Criteria

6. Click the **Search** button. The searched activity is displayed.

Using Wild Cards in Search

If you do not remember the entire name or description of the activity, you can use Wild Card characters to search the activity. Once you select the option from the *Select Search Option* dropdown list, you can use a Wild Card character in the *Criteria* field. The Wild Card characters supported by Adeptia are described in the table below.

Table 63: Wild Card characters supported by Adeptia

Wild Card Character	Description	Example
?	Signifies one character in the string	• Eval?MSE_TextSchema Searches for a string which has a character between Eval and MSE_TextSchema. Thus it displays EvalJMSE_TextSchema. • Eval???E?TextSchema Searches for a string which has three characters after Eval and one character after E. Thus it displays EvalJMSE_TextSchema.
*	Signifies multiple characters in a string	• 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. • 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 *EvalJMSE_TextSchema, EvalScript_TextSchema EvalXForm_ExcelSchema*, etc. You can select the string that you want from this list.

VIEWING PROPERTIES OF AN ACTIVITY

Steps to view properties of an Activity(for example Text Schema activity)

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Text**. The **Manage Text Schema** screen is displayed (refer to Figure 504).
4. Click the activity name. A screen is displayed displaying the properties of the selected activity (see Figure 506).

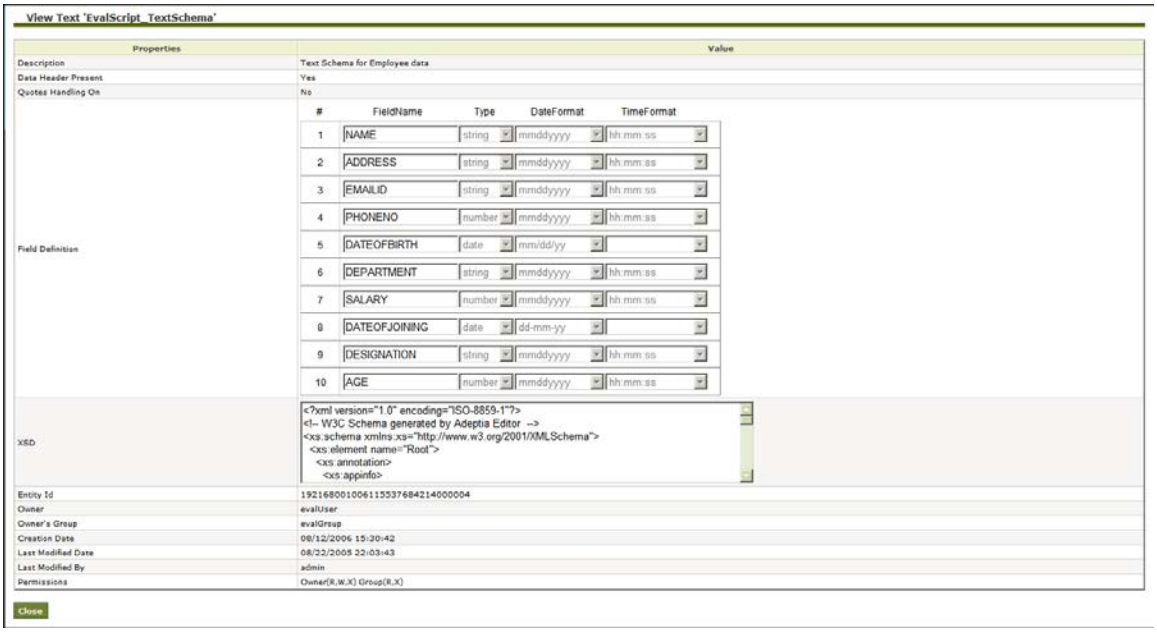


Figure 514: View Activity Properties

5. Click **Close** button to return to the **Manage Activity** screen.

EDITING AN ACTIVITY

Steps to edit an activity (for example Text Schema Activity)

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All the items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Text**. The **Manage Text Schema** screen is displayed (refer to Figure 504).
4. 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 507).

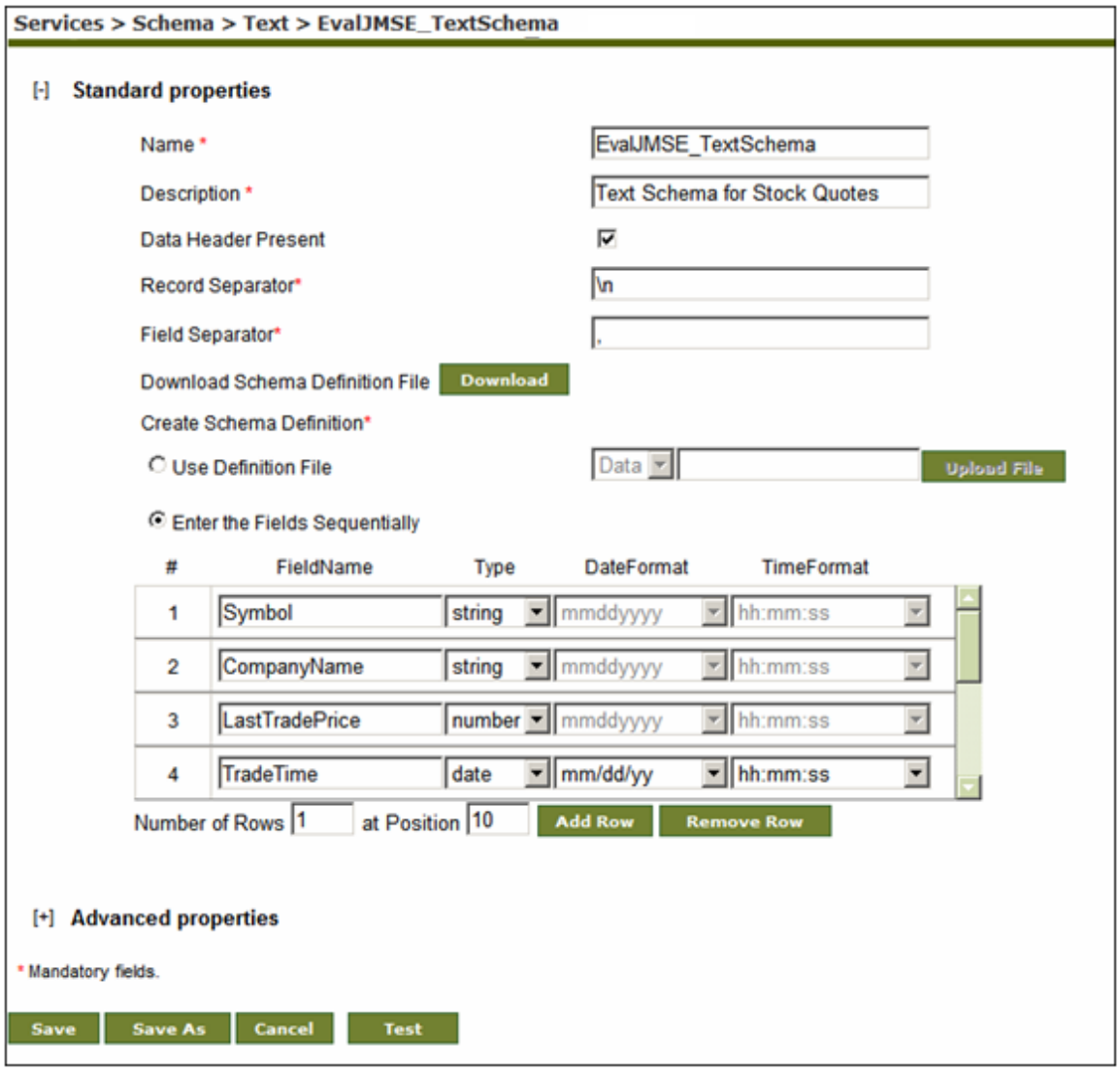


Figure 515: Edit Activity

You can edit only those activities, in which you have write permission.

5. After changing the properties, click the **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 6).
6. Enter 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 activity has been updated successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

To save another instance of the edited activity with different name, change the activity name in the *Name* field and then click **Save As** 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 **Test**. 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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Text**. The **Manage Text Schema** screen is displayed (refer to Figure 504).
4. 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 508).

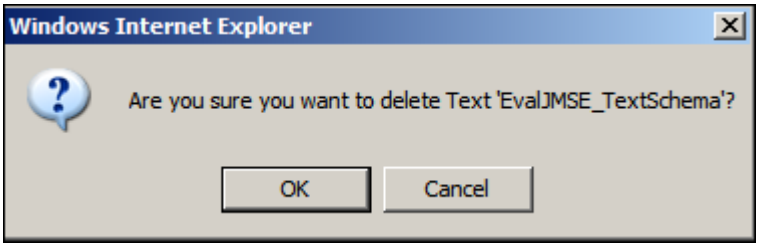


Figure 516: Delete an Activity

5. 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 6).
6. Enter 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 activity has been deleted successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

VIEWING REVISION HISTORY OF AN ACTIVITY

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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Text**. The **Manage Text Schema** screen is displayed (refer to Figure 504).
4. 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 509).

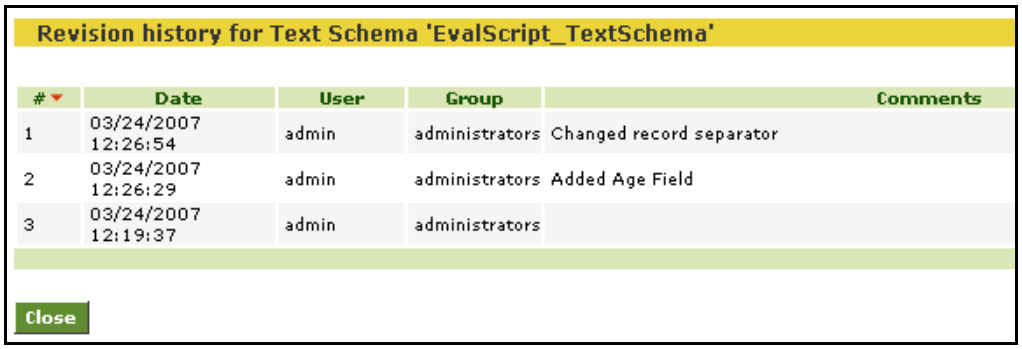


Figure 517: View Revision History

5. 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.
6. 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 OF AN ACTIVITY

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. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All the items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Text**. The **Manage Text Schema** screen is displayed (refer to Figure 504).
4. Select the radio button adjacent to the activity, whose list of dependent 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 510).

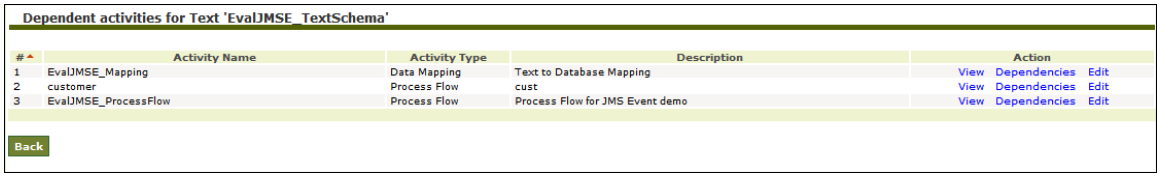


Figure 518: View Dependent Activities

5. 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 511).

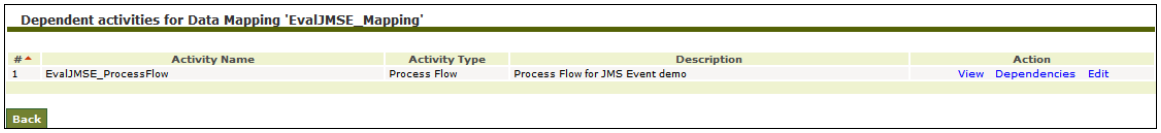


Figure 519: View Related Activities

6. 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 OF AN ACTIVITY

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:

1. On the Adeptia Suite homepage menu, click **[+] Configure** to expand the hierarchy. All items in the **Configure** category are displayed.
2. Click **[+] Services** to expand the hierarchy. All items in the **Services** category are displayed.
3. Click **[+] Schema** to expand the hierarchy, and then click **Text**. The **Manage Text Schema** screen is displayed (refer to Figure 504).
4. 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 507).
5. To change the advance properties, click **[+] Advanced Properties**. All the fields of advance properties are displayed (see Figure 512).

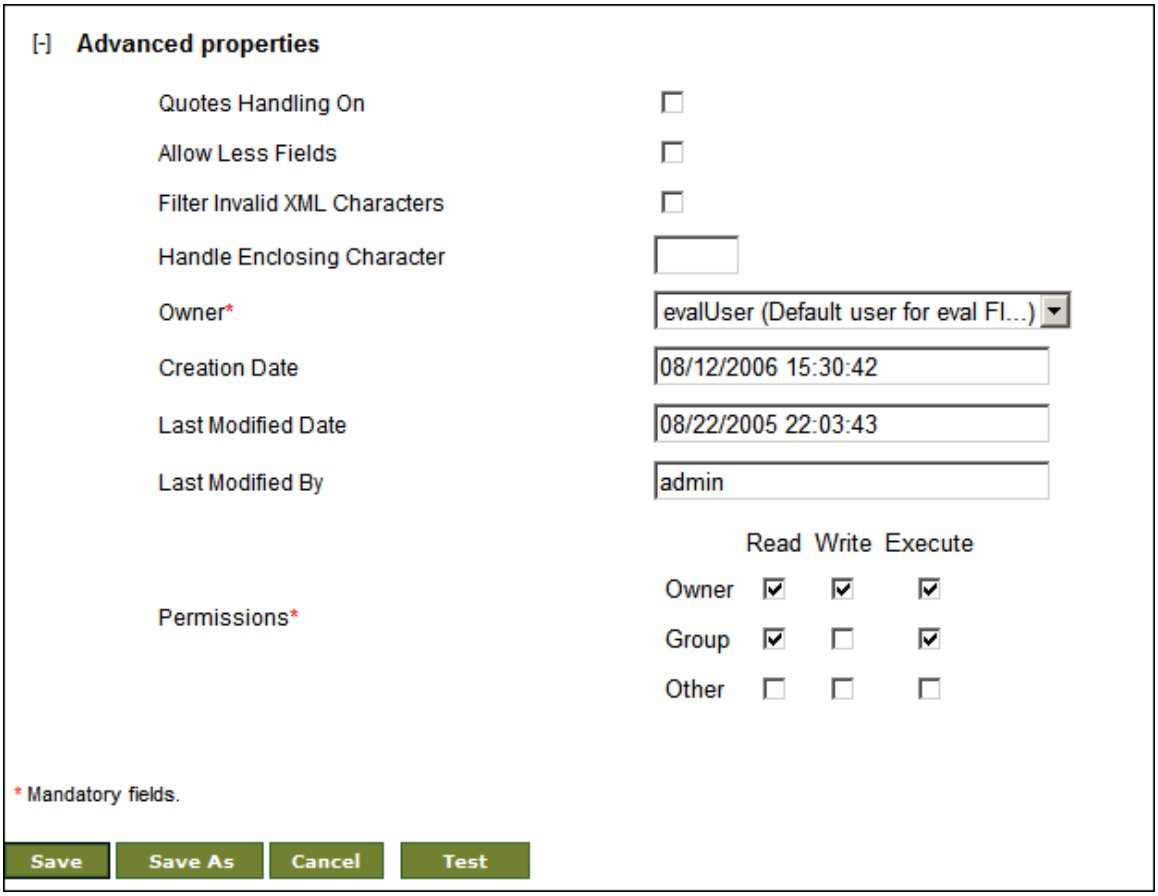


Figure 520: View Advanced Properties

6. To change the ownership of the activity, select the owner from the **Owner** dropdown list.

> A user can select another user within its group only as the owner of the activity.

7. The Creation Date, Last Modified Date and Last Modified By fields are non-editable. A user cannot change the values of these fields.
8. To change the permissions, check the required checkboxes beside Permissions according to the following tables.

Table 64: Owner Permissions

Owner	
Read	Read permission allows the owner user to view the activity. The Read checkbox is pre-selected and cannot be deselected.
Write	Write permission allows the owner user to Edit the activity.
Execute	Execute permission allows the owner user to Execute the activity.

Table 65: 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 66: 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.

9. After changing the properties, click the **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 6).
10. Enter comments in the textbox **Add Comments**.

The comment should be at least 1 character in length

11. Click **OK** to save the comments. This displays a screen confirming that the activity has been updated successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

16

CREATING EVENTS AND TRIGGERS

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
- Complex 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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√		√	√

Steps to create a Calendar Event

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.

2. Click **[+] Events & Triggers** to expand the hierarchy and then click **Calendar**. The **Manage Calendar Event** screen is displayed (see Figure 513).

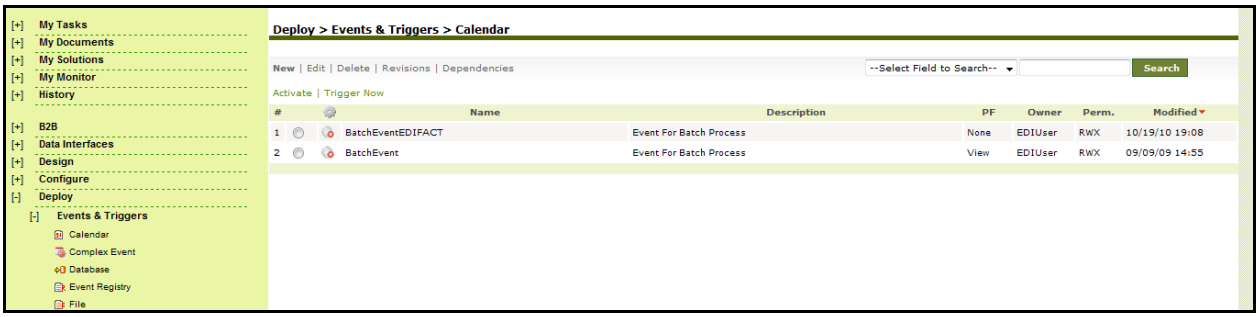


Figure 521: Manage Calendar Event

3. Click the **New** link. The **Create Calendar Event** screen is displayed (see Figure 514).

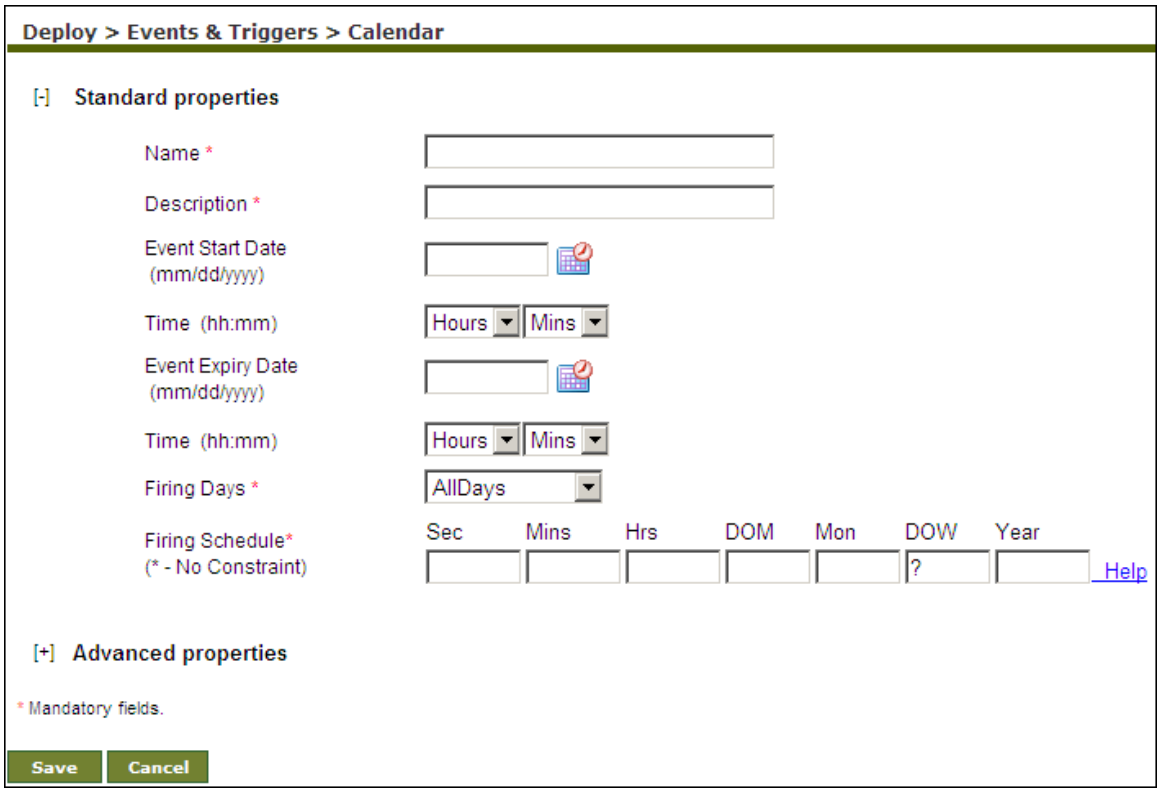


Figure 522: Create Calendar Event

4. Enter the name and description of the new Calendar Event activity in the textboxes **Name** and **Description** respectively.

5. Enter the date from which Calendar event will start triggering; in the textbox **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 dropdown list **Time** dropdown list.

7. 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.

8. Enter the expiry time from the **Time** dropdown list.

9. Select the days of week on which the event should fire from the dropdown list **Firing Days**.

Types of firing days are described in the table below.

Table 67: 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 *Business Calendar* section of *Appendix A* in *Administrator Guide*.
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* in *Administrator Guide.*
>
> To learn about Advanced Properties refer to Changing Advanced Properties section.

11. Click the **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 6).
12. Enter 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 *Updating System Properties* section in *Administrator* Guide.

> 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 COMPLEX EVENT

The Complex Event enables you to write java code to trigger the process flow. Using complex event, you can:

- Write you Java Logic to trigger a process flow

- Specify a process flow to be triggered
- Set context Variable of the process flow

In the Adeptia Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a Complex Event

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.
2. Click **[+] Events & Triggers** to expand the hierarchy and then click **Complex Event**. The **Manage Complex Event** screen is displayed (see Figure 517).

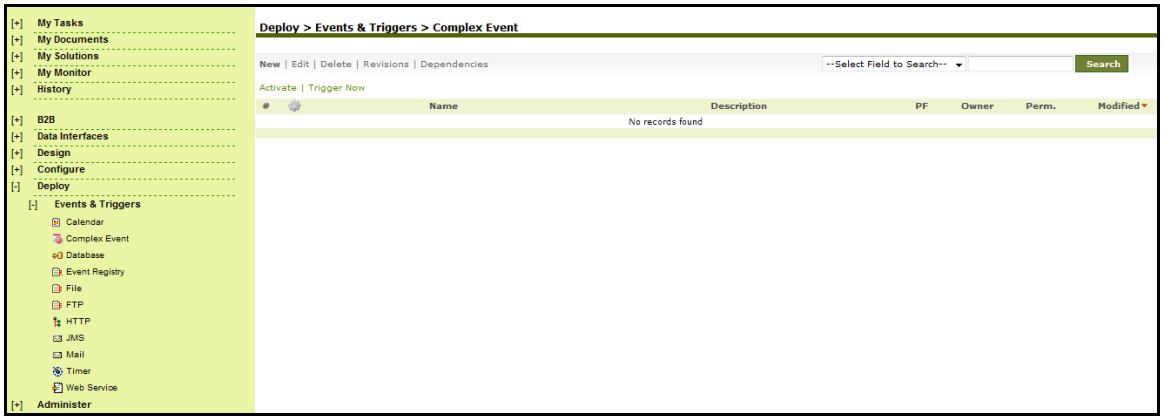


Figure 523: Manage Complex Event

3. Click the **New** link. The **Create Complex Event** screen is displayed (see Figure 518).

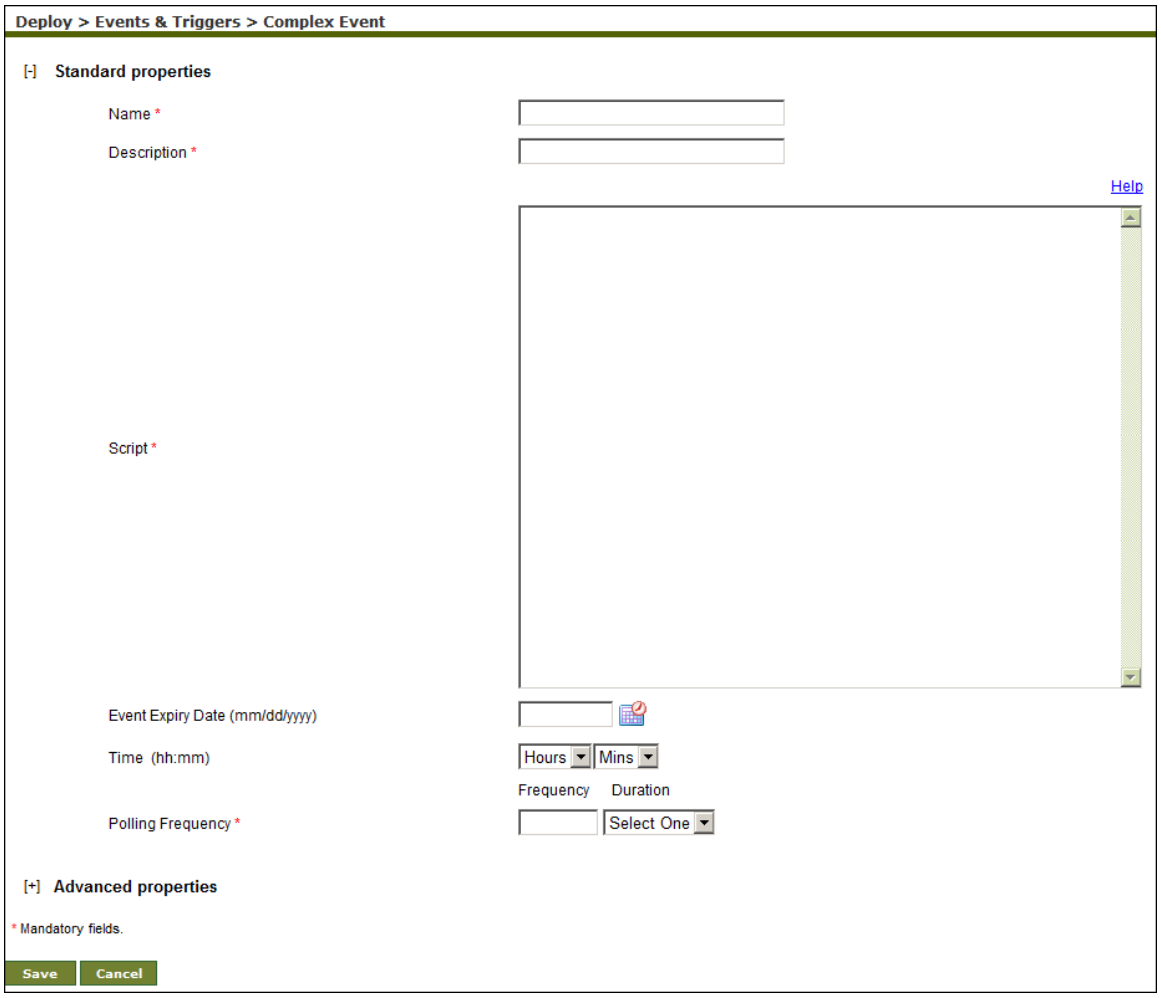


Figure 524: Create Complex Event

4. Enter the name and description of the new Complex Event activity in the textboxes **Name** and **Description** fields respectively.

5. Write the java code in the textbox **Script**.

> To view the sample code, click *Help* link displayed in the above figure.

6. Enter the date on which Complex 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.

7. Enter the expiry time from the **Time** dropdown lists.

8. Enter the time interval, the Complex 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** dropdown list.

> Recommended minimum Polling Frequency is 30 seconds.
>
> To learn about Advanced Properties refer to Changing Advanced Properties section.

9. Click the **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 Complex event (refer to Figure 6).
10. Enter 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 complex event has been created successfully.

> By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Prerequisites

- Database *Info* activity must be created before creating *Database Event* activity.

Steps to create a Database Event

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.

2. Click **[+] Events & Triggers** to expand the hierarchy and then click **Database**. The **Manage Database Event** screen is displayed (see Figure 517).

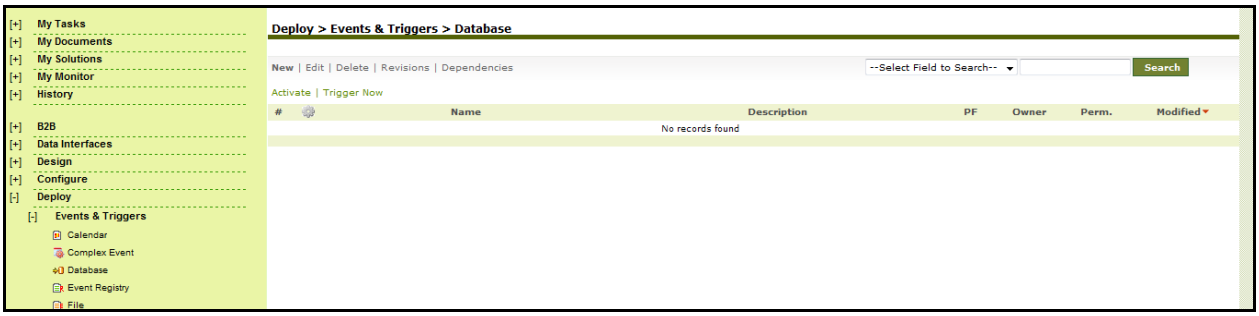


Figure 525: Manage Database Event

3. Click the **New** link. The **Create Database Event** screen is displayed (see Figure 518).

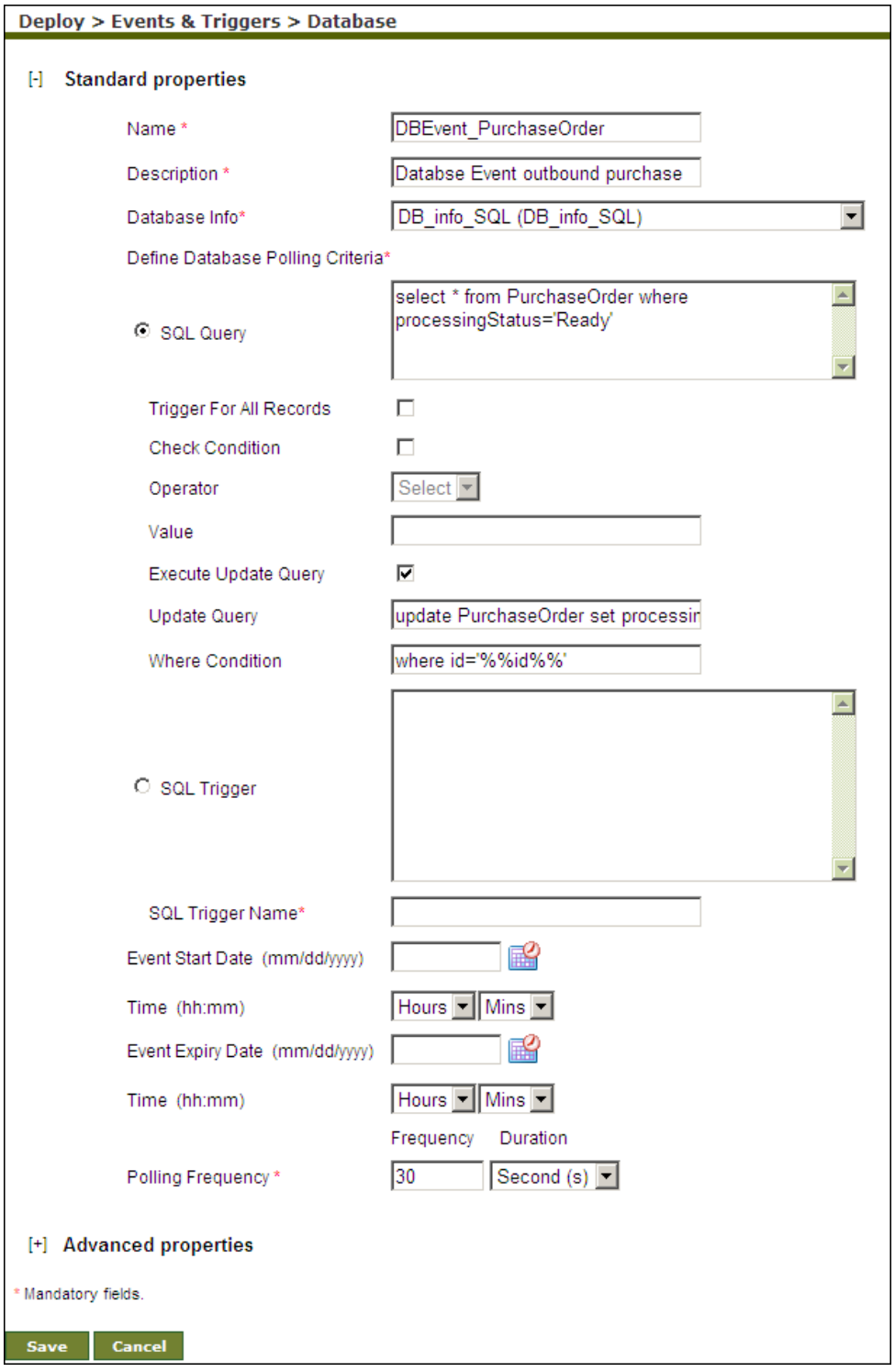


Figure 526: Create Database Event

4. Enter the name and description of the new Database Event activity in the textboxes **Name** and **Description** fields respectively.

5. Select the Database Info Id activity from the dropdown list **Database Info**.

To learn how to create Database Info activity, refer to the Creating Database Info section.

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. For example:

select * from PurchaseOrder where processingStatus='Ready'

Here:

processingStatus is a field in the source database table, which stores the status of the records. For example: If any record is already processed or not. This is important to make sure that same record should not be processed again and again.

You can use any existing field for this purpose or you can add an additional field.

In the above example, only those records, whose *processingStatus* is *Ready*, are picked for processing.

7. Select the **Check Condition** checkbox, 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** dropdown 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 not selected then the process flow is triggered each time a row is returned.

In case **Trigger for All Record** checkbox is selected, then for all the records, only one process flow is triggered and it processes all the records.

8. In case you want to update the records, which are picked by event for processing, enable the **Execute Update Query** option and enter the update query in the **Update Query** field. For example:

update PurchaseOrder set processingStatus='%%Pass%%'

The update query is executed for each record picked up based on select query in previous step. Database Event execute update immediately after picking up the record to update the column storing the status of the record. This ensures the records are not picked up again.

For example in the query given above, the *processingStatus* will be updated to **Pass**.

9. Enter the where condition. For example :

where id='%%id%%'

Where condition is used with Update Query in previous step to update only those records that satisfies this where condition.

It can be any column or set of columns that make the record unique.

In the above example ***id*** is a column in the database which uniquely identifies the records and ***%%id%%*** is value of this column in the selected record.

10. 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 ONEmp 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.

11. Enter the name of Trigger in the **SQL Trigger Name** field.
12. 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.
13. Enter the start time from the **Time** dropdown list.
14. 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.
15. Enter the expiry time from the **Time** dropdown list.
16. 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** dropdown list.

Recommended minimum Polling Frequency is 30 seconds.

To learn about Advanced Properties refer to Changing Advanced Properties section.

17. 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 6).
18. Enter 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 database event has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to Register a Process Flow with a Trigger Event

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.

2. Click **[+] Events & Triggers** to expand the hierarchy and then click **Event Registry**. The **Manage Event Registry** screen is displayed (see Figure 519).

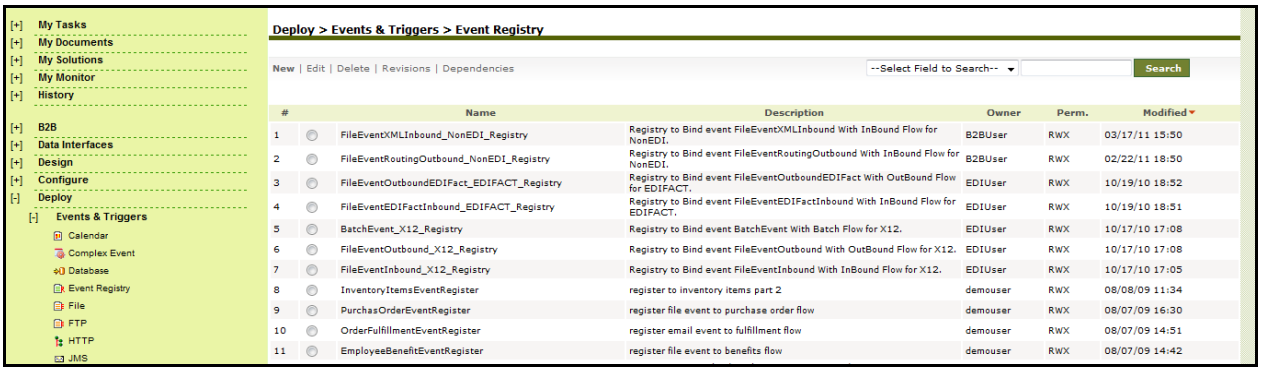


Figure 527: Manage Event Registry

3. Click the **New** link. The **Create Event Registry** screen is displayed (see Figure 520).

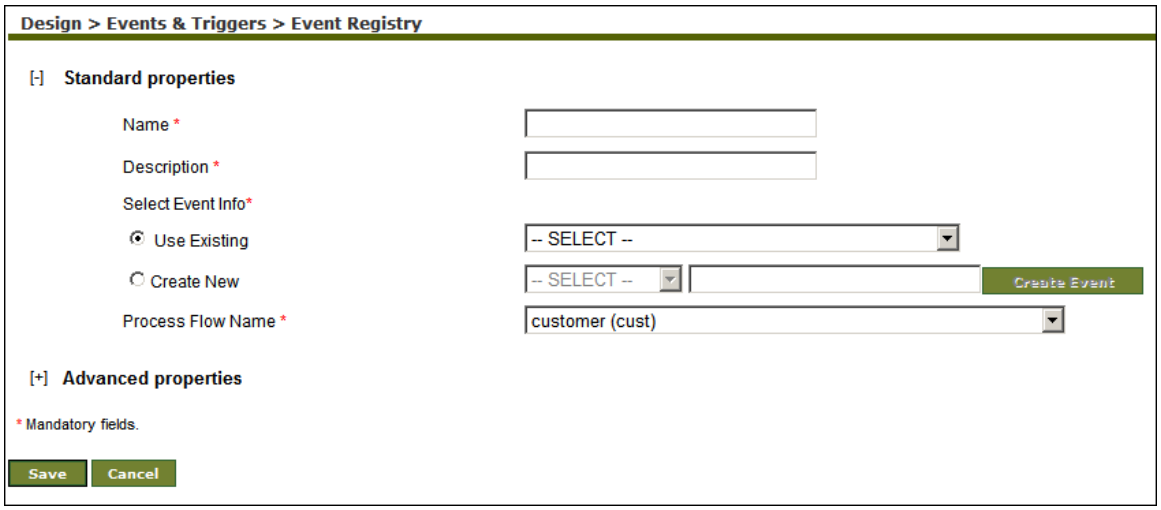


Figure 528: Create Event Registry

4. Enter the name and description of the new Event Registry activity in the textboxes **Name** and **Description** respectively.

5. Select the required Events activity.

> To learn how to create event activity, refer to Creating Trigger and Events section.

6. To select an existing event activity, select the **Use Existing** radio button and select the event activity from the dropdown 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. This displays the selected **Create Event** screen.

8. Enter the required parameters and click **Save** in the ***Create Event*** screen to save the event activity and return to **Create Event Registry** screen.

9. Select the required Trigger Event from the dropdown list **Event Name**.

10. Select the required process flow from the dropdown list **Process Flow Name**.

To learn about Advanced Properties refer to section Changing Advanced Properties section.

11. Click the **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 6).
12. Enter 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 *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a File Event

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All the items in the **Deploy** category are displayed.

2. Click **[+] Events & Triggers** to expand the hierarchy and then click **File**. The **Manage File Event** screen is displayed (see Figure 521).

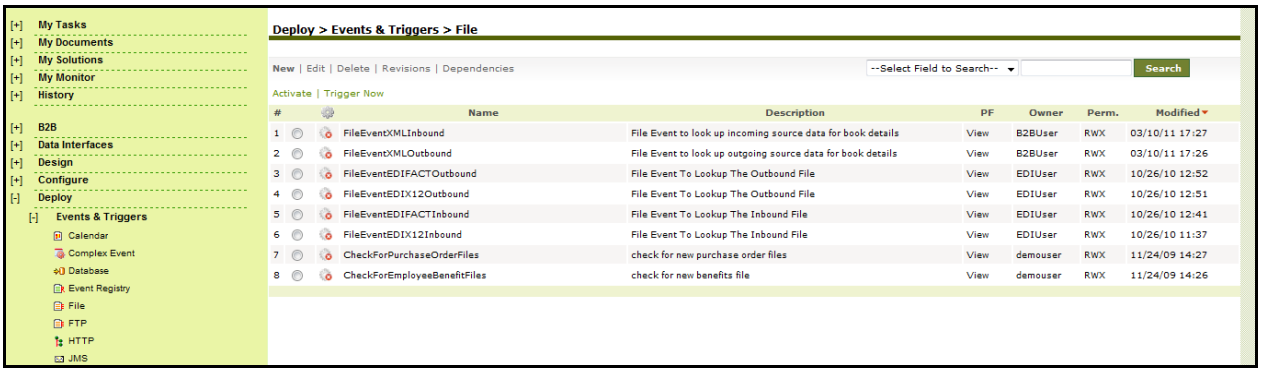


Figure 529: Manage File Event

3. Click the **New** link. The **Create File Event** screen is displayed (see Figure 522).

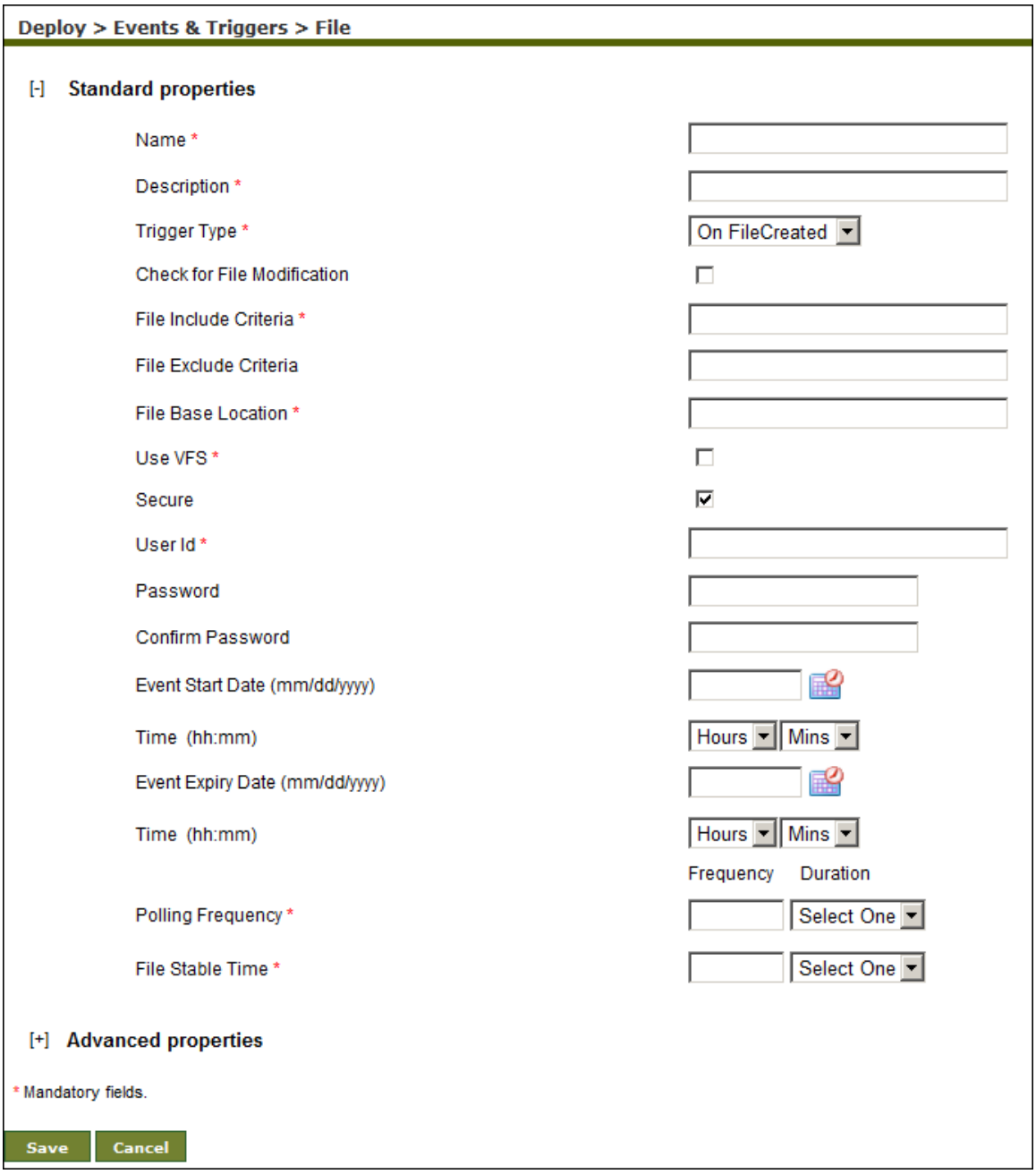


Figure 530: Create File Event

4. Enter the name and the description of the new File Event activity in the textboxes **Name** and **Description** respectively.

5. Select the trigger type from the dropdown list **Trigger Type**. The effect on the selection is listed in the table below.

Table 68: 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).
In case a file is being created and after that it is being modified, then you need to enable the *Check for File Modification* option. This option is only used with *On File Created* option.	
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)

6. Enter the file name that the file event needs to verify in the textbox **File Include Criteria**.

7. Enter the name of file that file event does not need to verify, in the textbox **File Exclude Criteria**. 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 the textbox **File Exclude Criteria**. 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 69: 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.

8. Enter the path of file in the textbox **File Base Location**. 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.

9. 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, select the **Use VFS** checkbox.
10. If the File Event is secured i.e. username and password are required to access it, then select the **Secure** checkbox and enter the username and password required to access the file in the textboxes **User ID** and **Password** 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 the **Calendar** icon and select the required date from the calendar.
12. Enter the start time from the dropdown list **Time**.
13. Enter the date on which file event will stop triggering in the textbox ***Event Expiry Date***. The date must be in *mm/dd/yyyy* format. Click the **Calendar** icon and select the required date from the calendar.
14. Enter the expiry time from the dropdown list **Time**.
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** dropdown list.

Recommended minimum Polling Frequency is 30 seconds.

16. Enter the file stable time in the dropdown list **File Stable Time**. 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 Changing Advanced Properties section.

17. Click the **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 6).
18. Enter comments in the textbox **Add Comments**.

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 *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a FTP Event

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.
2. Click **[+] Events & Triggers** to expand the hierarchy and then click **FTP**. The **Mange FTP Event** screen is displayed (see Figure 523).

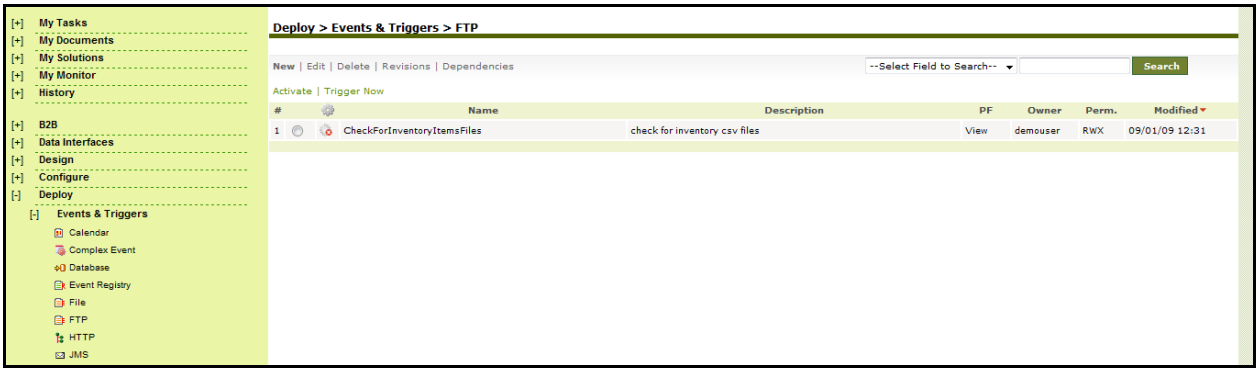


Figure 531: Manage FTP Event

3. Click the **New** link. The **Create FTP Event** screen is displayed (see Figure 524).

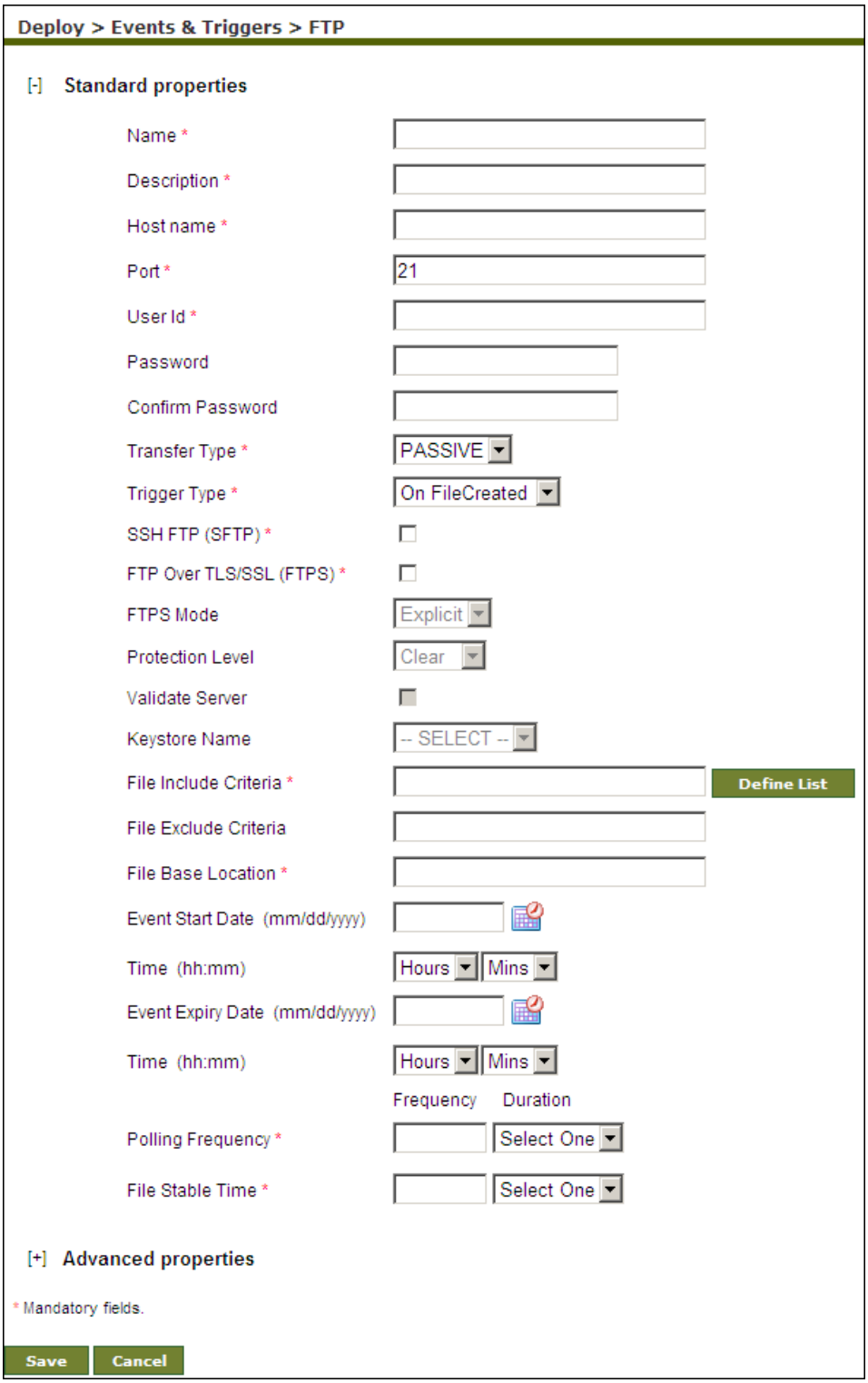


Figure 532: Create FTP Event

4. Enter the name and description of the new FTP Event in the textboxes **Name** and **Description** fields respectively.

5. Enter the name and port number of the FTP Server in the textboxes **Host Name** and **Port** field respectively.

6. Enter username and password required to access FTP Server in the textboxes **User ID** and **Password** fields respectively. Then, re-enter the password in the textbox **Confirm Password** field.
7. Select the transfer type as either **Active** or **Passive** from the dropdown list **Transfer Type**. 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 dropdown list **Trigger Type**. For details of the selection, refer to Table 68.
9. Select the **SSH FTP (SFTP)** checkbox if the FTP Server specified in the dropdown list **Host Name** field is an FTP Server over SSH.
10. Select the **FTP Over TLS/SSL (FTPS)** checkbox, if the FTP Server, specified in the *Host Name* field is an FTP Server over TLS/SSL.
11. In case you have selected **FTP Over TLS/SSL (FTPS)** checkbox, then select the FTPS mode from the dropdown list **FTPS Mode**. It can be *Explicit* or *Implicit* depending on FTP Server that you are accessing.
12. Select the protection level supported by the FTP Server, from the dropdown list **Protection Level**. It can be *Clear* or *Private.*
13. If you want to validate the certificate sent by the FTPS Server, select the **Validate Server** checkbox.
14. Select keystore activity from the dropdown list **Keystore Name**. This option is applicable only when you have selected the **Validate Server** checkbox.

When **Validate** option is deselected, it always accepts the certificate sent by FTPS Server.

When this option is checked, it validates the certificate sent by FTPS server against the certificate imported in Keystore.

Keystore is repository of security certificates.

To know how to create Keystore and import certificates, refer to *Creating Keystore* section of *Administrator Guide*.

15. 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 Purchase1in 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.

16. To define path in **File Include Criteria**, click **Define List** button. The **File Include Criteria List** screen is displayed (see Figure 525).

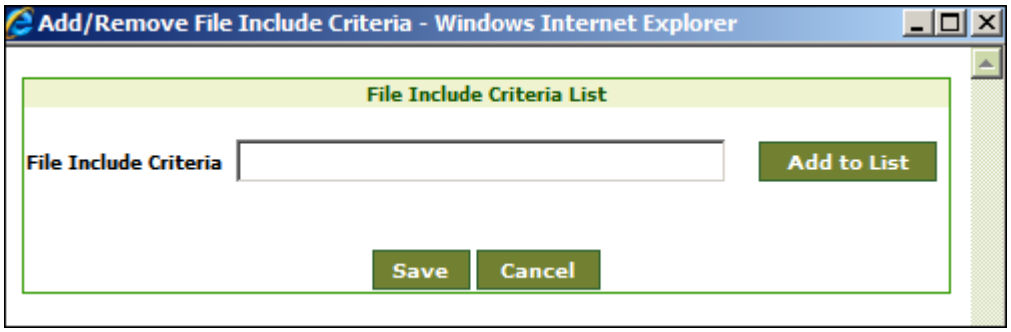


Figure 533: Add Include Criteria List

17. To add path enter the path in the textbox **File Include Criteria** and click the **Add to List** button. The added path are shown in **File Include Criteria** *List* (see Figure 526).

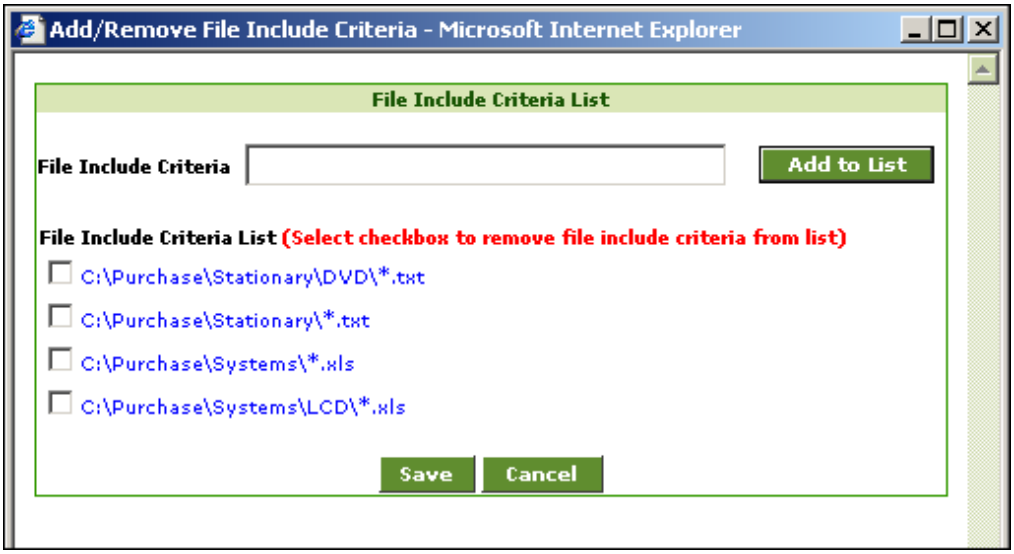


Figure 534: File Include Criteria List

18. Click the **Save** button to save the added path in the textbox **File Include Criteria**. The added paths are populated in the textbox **File Include Criteria** in the **Create FTP Event** page.

> If you want to remove some path form the *File Include Criteria,* select the checkbox adjacent to the required path and then click **Save**. The selected path is not populated in the *File Include Criteria* field of the *Create FTP Event* page.

19. 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 69.

> If more than one file is specified in the *File Include Criteria* field, process flow will triggered for each file.

20. Enter the path of file in the textbox **File Base Location**. Example c:/Gmdata.
21. Enter the date from which FTP event will start triggering in the textbox **Event Start Date** field. The date must be in *mm/dd/yyyy* format. Click the **Calendar** icon and select the required date from the calendar.
22. Enter the start time from the dropdown lists **Time**.
23. 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.
24. Enter the expiry time from the dropdown list **Time**.
25. 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** dropdown list.

    Recommended minimum Polling Frequency is 30 seconds.

26. Enter the file stable time in the textbox **File Stable Time**. 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 Changing Advanced Properties section.

27. Click **[+] Advanced Properties** to expand the hierarchy. All items in **Advance Properties** are displayed.

    A new dropdown list **Secured FTP Connector** has been added. This dropdown lists the API which is used to connect to the FTP Server. It has the following options:

    - J2SCH (VFS)
    - J2SSH

    By default, the option **J2SCH (VFS)** is selected in this dropdown list.

    In case FTP Event is not able to connect to the FTP Server which you have specified in the **HostName** field, you can select the FTP Server **J2SSH**.

    However, this option is available only if you are connecting to a SFTP Server and when the checkbox **SSH FTP (SFTP)** is selected.

28. Click the **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 6).
29. Enter comments in the textbox **Add Comments**.

    The comment should be at least 1 character in length.

30. 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 *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create a HTTP Trigger

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.
2. Click **[+] Events & Triggers** to expand the hierarchy and then click **HTTP**. The **Manage HTTP Trigger** screen is displayed (see Figure 527).

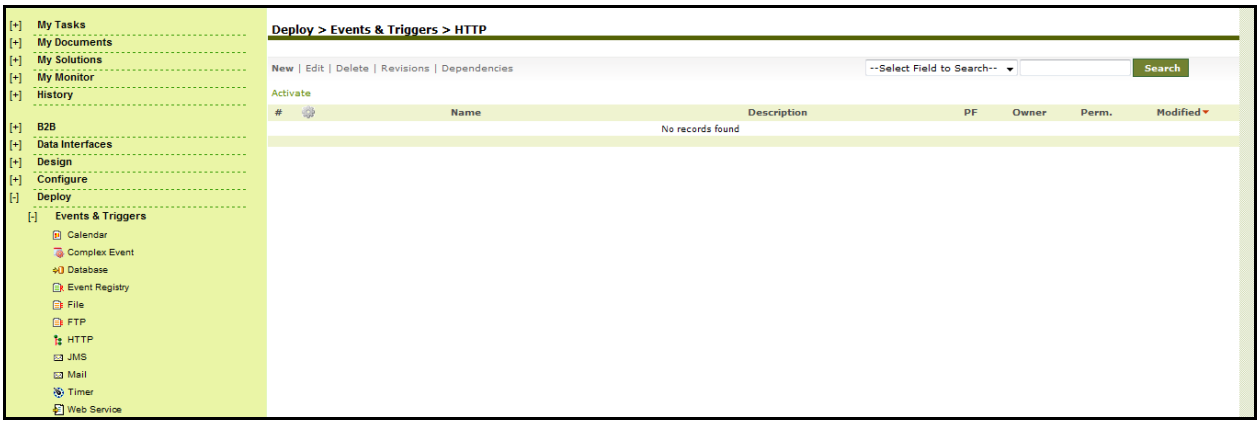


Figure 535: Manage HTTP Trigger

3. Click the **New** link. The **Create HTTP Trigger** screen is displayed (see Figure 528).

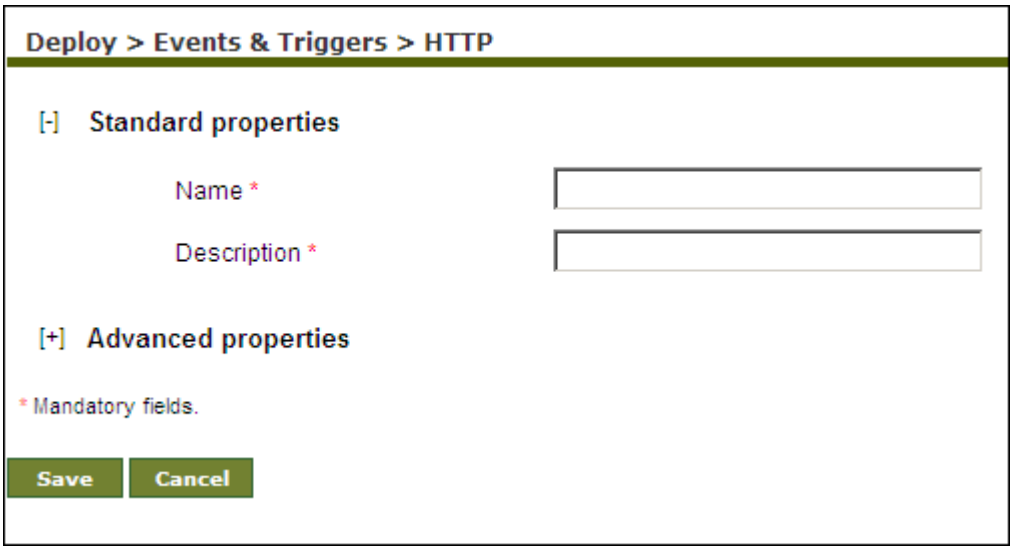


Figure 536: Create Http Trigger

4. Enter the name and description of the new HTTP Trigger activity in the textboxes **Name** and **Description** respectively.

> To learn about Advanced Properties refer to Changing Advanced Properties section.

5. Click the **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 6).
6. Enter comments in the textbox **Add Comments**.

> 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 **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

> You can view details of a process flow associated with a HTTP event, by clicking the process flow displayed under *Associated Process Flows* 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

ServerName : *Name of the server where Adeptia Server is running*

ServerPort : *Port at which Adeptia Server is running. By default, it is 8080.*

EntityID :*30 digit ID of the HTTP Trigger activity. To view Entity ID of the HTTP Trigger, click View in the HTTP Trigger Page.*

LoginName : *User ID of the Adeptia Server*

LoginPassword : *Password of the Adeptia Server*

Group ID : *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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Prerequisites

- *JMS Provider* activity must be created before creating *JMS Event* activity.

Steps to create a JMS Event

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.

2. Click **[+] Events & Triggers** to expand the hierarchy and then click **JMS**. The **Manage JMS Event** screen is displayed (see Figure 529).

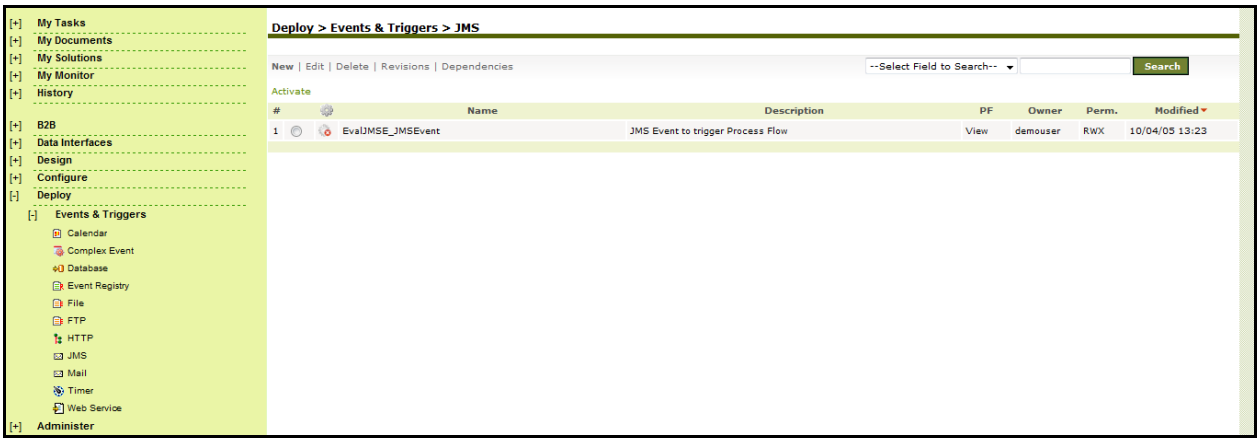


Figure 537: Manage JMS Event

3. Click the **New** link. The **Create JMS Event** screen is displayed (see Figure 530).

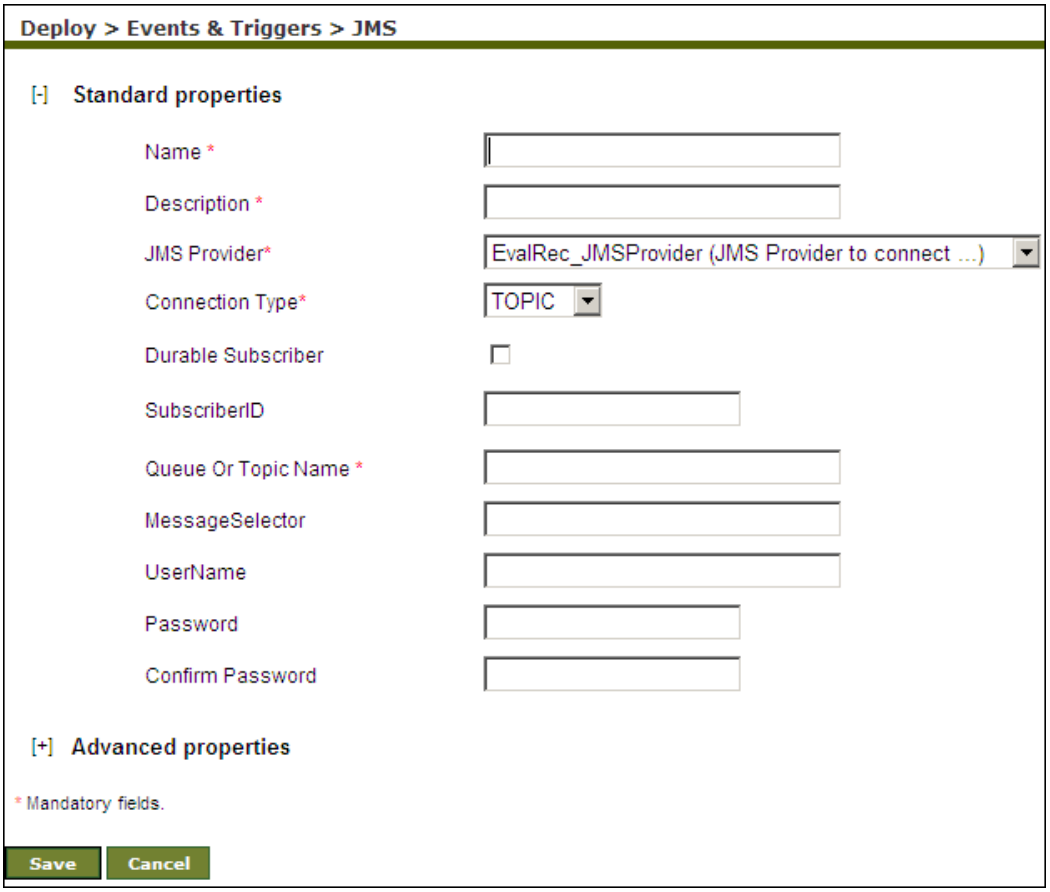


Figure 538: Create JMS Event

4. Enter the name for the new JMS Event in the textbox **Name**. Then, enter the description for the JMS Event in the textbox **Description**.

5. Select the JMS Provider activity from the dropdown list **JMS Provider**.

To learn how to create JMS Provider activity, refer to the section *Creating JMS Provider* in *Administrator Guide*.

6. Select the Connection Type as either **Topic** or **Queue** from the dropdown list **Connection Type**.
7. Select the **Durable Subscriber** checkbox 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 textbox **Subscriber ID**.
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.

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 username and password required to connect to JMS Server in the textboxes **UserName** and **Password** respectively. Then, re-enter the password in the textbox **Confirm Password**.

To learn about Advanced Properties refer to Changing Advanced Properties section.

12. Click the **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 6).
13. Enter 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 JMS event has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

You can view details of a process flow associated with a JMS event, by clicking the process flow displayed under *Associated Process Flows* on the Manage JMS Event screen.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	

Steps to create a Mail Event

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.
2. Click **[+] Events & Triggers** to expand the hierarchy and then click **Mail**. The **Manage Mail Event** screen is displayed (see Figure 531).

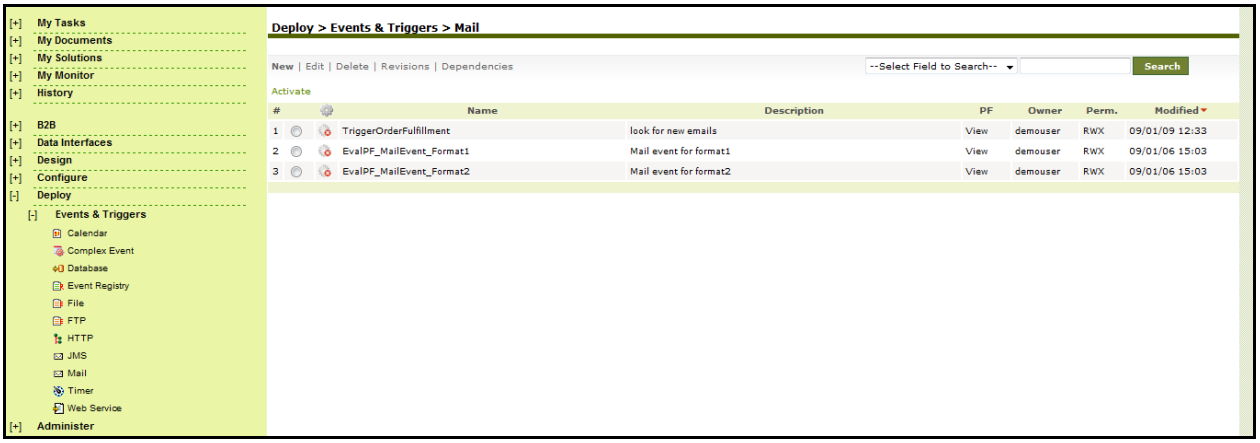


Figure 539: Manage Mail Event

3. Click the **New** link. The **Create Mail Event** screen is displayed (see Figure 532).

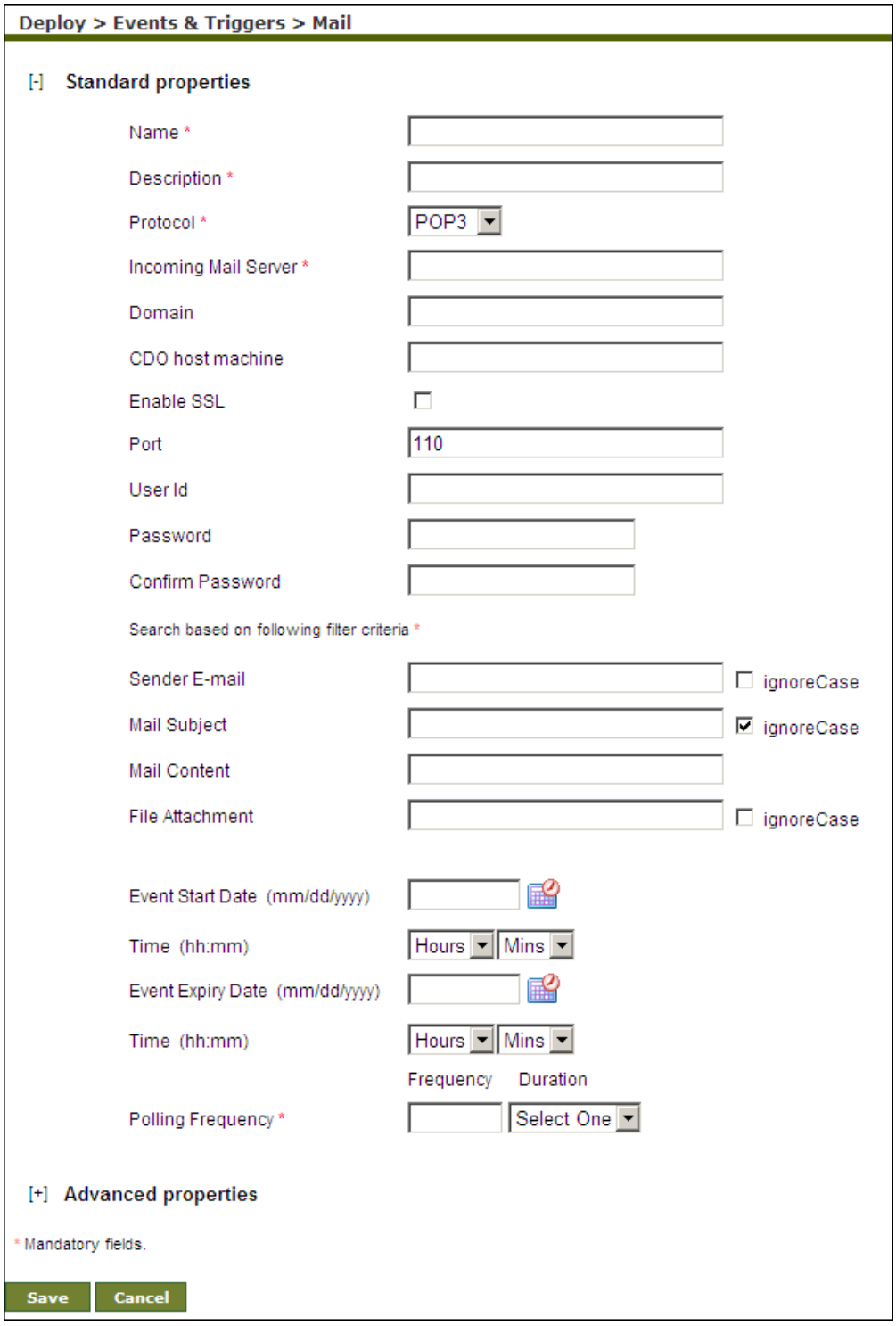


Figure 540: Create Mail Event

4. Enter the name and description of the new Mail Event activity in the textboxes **Name** and **Description** respectively.

5. Select the Internet standard protocol to be used for retrieving incoming mails, from the dropdown list **Protocol**. 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 textbox **IncomingMail Server**.
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** dropdown 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 dropdown list **Protocol**. 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. Select 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 textboxes **User ID** and **Password** respectively. Then, re-enter the password in the textbox **Confirm Password**.
12. Select any of the following filter criteria:
    - Sender E-mail
    - Mail Subject
    - Mail Content
    - File Attachment

You may select more than one filter criteria.

13. Enter the sender's email address and subject of email in the textboxes **Sender Email** and **Mail Subject** respectively.

In **Sender E-Mail** field, you can define more than one email ids separated by comma (,).

14. To define search based on mail content, enter the required content in the textbox **Mail Content**.

You can also use asterisk and Wild Cards in **Mail Content** field.

15. Enter the name of the file attached with mail in the textbox **File Attachment**.

You can define the *Sender E-Mail, Mail Subject* and *File Attachment* as case sensitive or insensitive by selecting/disabling the **Ignore Case** checkbox displayed next to the **Mail Subject** field.

16. 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 the **Calendar** icon and select the required date from the calendar.
17. Enter the start time from the dropdown list **Time**.

18. 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.
19. Enter the expiry time from the dropdown list **Time**.
20. 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** dropdown list.

> Recommended minimum Polling Frequency is 30 seconds.

21. To specify maximum number of emails to be processed at a time, click **[+]** to expand Advanced Properties and enter the required value in the textbox **Mail Process Concurrency**.

> 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 textbox **Mail Process Concurrency**. 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 Changing Advanced Properties section.

22. Click the **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 6).
23. Enter comments in the textbox **Add Comments**.

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

24. 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 *Updating System Properties* section in *Administrator* Guide.

> 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* in *Administrator Guide*.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√		√	√

Steps to create a Timer Event

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.
2. Click **[+] Events & Triggers** to expand the hierarchy and then click **Timer**. The **Manage Timer Event** screen is displayed (see Figure 533).

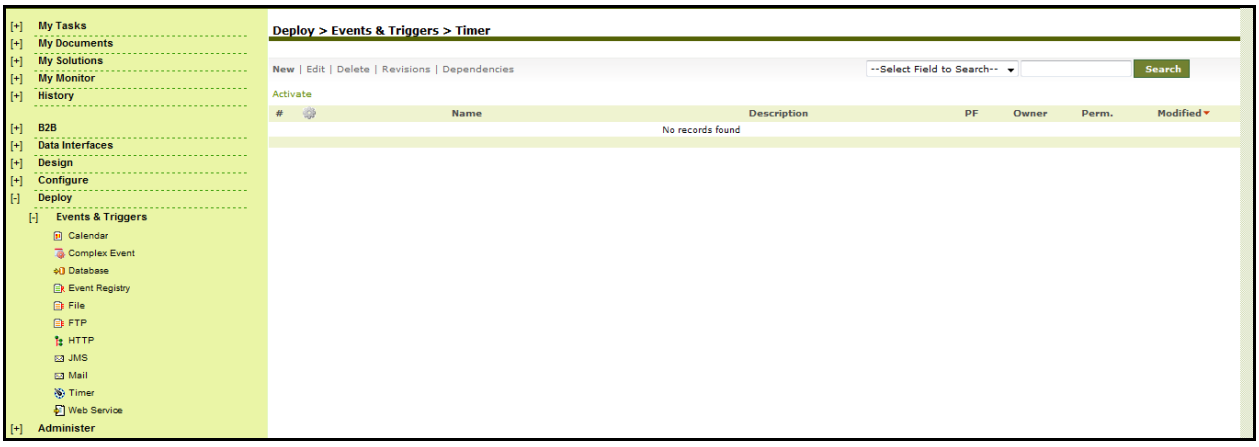


Figure 541: Manage Timer Event

3. Click the **New** link. The **Create Timer Event** screen is displayed (see Figure 534).

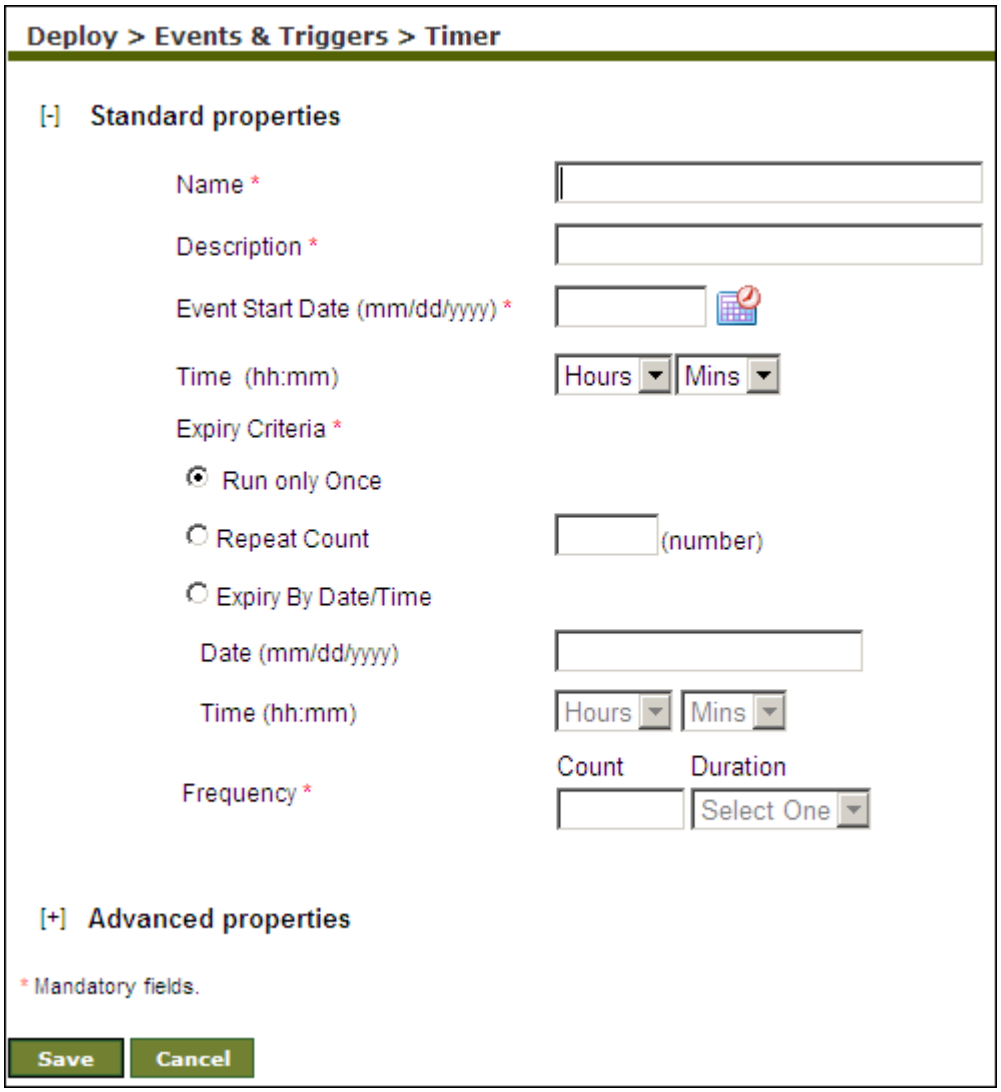


Figure 542: Create Timer Event

4. Enter the name and description of the new Timer Event activity in the textboxes **Name** and **Description** 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 dropdown list **Time**.

7. Select one of the **Expiry Criteria** displayed in the table below.

Table 70: Expiry Criteria

Expriry Criteria	Description
.	For all files with some extension

Expriry 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 dropdown list.

8. If **Repeat Count or Expiry By Date/Time** option is selected as expiry criteria, enter the time interval in the textbox **Frequency**.

Recommended minimum Polling Frequency is 30 seconds.
To learn about Advanced Properties refer to Changing Advanced Properties section.

9. Click the **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 6).
10. Enter 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 *Updating System Properties* section in *Administrator* Guide.

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 Suite this feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√		√	

Steps to get the information required by Web Service Client to trigger a Process Flow

1. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.
2. Click **[+] Events & Triggers** to expand the hierarchy and then click **Web Service**. The **Web Service Trigger** screen is displayed (see Figure 535).

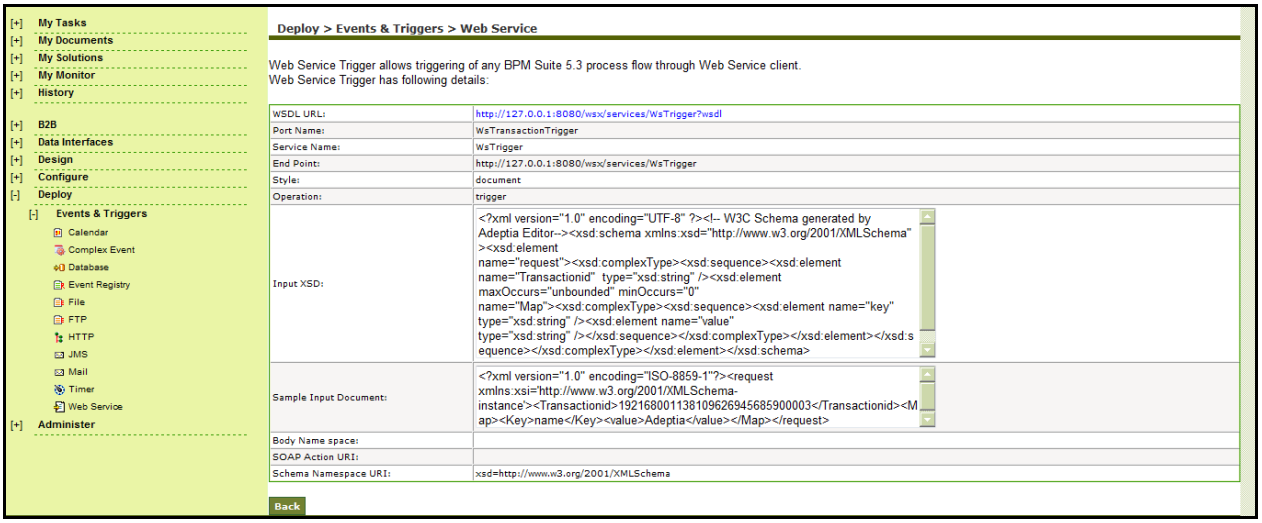


Figure 543: Web Service Trigger

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 535 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 536).

```
<?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 544: 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. On the Adeptia Suite homepage menu, click **[+] Deploy** to expand the hierarchy. All items in the **Deploy** category are displayed.
2. Click **[+] Events & Triggers** to expand the hierarchy and then click **File**. The **Manage File Event** screen is displayed with the list of existing events (see Figure 537).

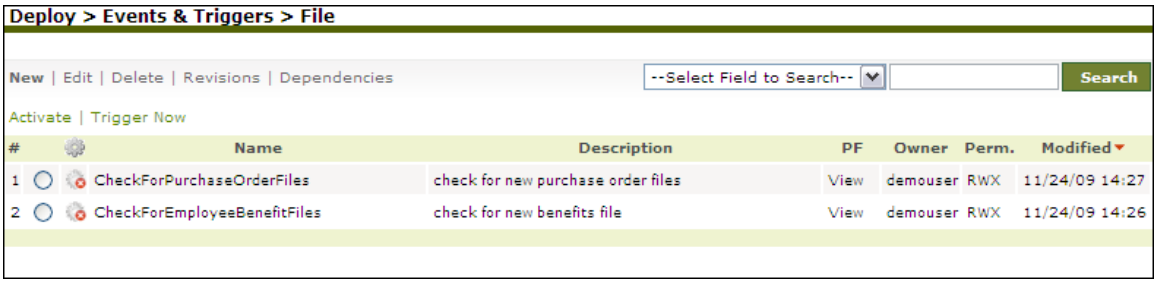


Figure 545: Manage File Event

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.

TRIGGERING PROCESS FLOWS IN SEQUENCE

Process Flows, which are binded with any event, are executed at every polling frequency irrespective of the fact that the process flow(s) triggered at the previous polling frequency still may be running.

In addition, there could be possibility that at each polling frequency, multiple process flows are executed. For Example a Process flow may be binded with a File Event, and at each polling frequency multiple files fulfill the trigger criteria. In this case for each file the binded process flow will be executed concurrently.

An advanced property **Trigger Process Flows in Sequence** is provided in all events to execute the process flows in sequence. You can check this checkbox, to allow process flows to be triggered in sequence. For Example if a Process Flow is binded with a File Event, and at each polling frequency, suppose five files are fulfilling the trigger criteria. In this case the process flow is executed five times or you can say five instance of this process flow are executed in parallel.

When **Trigger Process Flows in Sequence** is checked, then the process flow is executed five times, but in sequence. Means, when the execution of first instance will be completed, then only the execution of second instance will start. Now in case the next polling frequency comes before the completion of all the instances of the process flow triggered at the previous polling, then the event is not fired and treated as misfired event. Once the execution of all the instances of the process flow is completed, then the misfired event is fired. This should be noted that even if an event goes misfired multiple times, only one misfired event is fired at the completion of the previous execution.

Steps to enable "Trigger Process Flow in Sequence" property

1. Click **[+]** to expand the Advanced Properties of the Event. Advanced Properties of Event are displayed (See Figure 538).

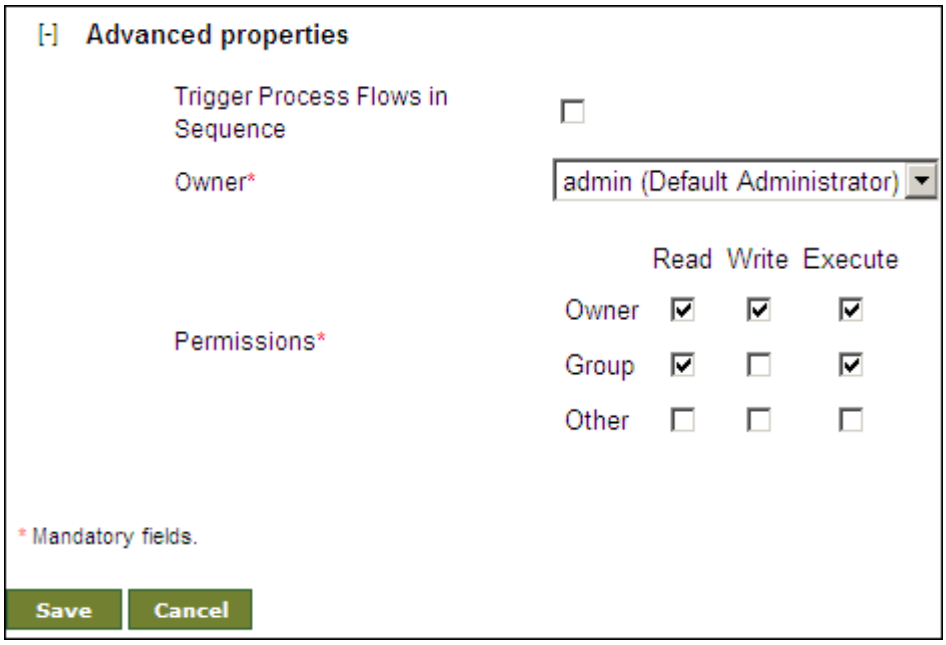


Figure 546: Event's Advanced Properties

2. Select the **Trigger Process Flow in Sequence** checkbox.
3. Click **Save** to save the event.

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USING DATA INTERFACE

Data Interface is used to configure activities which can be overridden at execution time of the process flows. Using this interface, you can attach an event with the process flow and the activities that will be overridden at execution time of the process flows.

Data interface is useful when you want to process data of different formats using different schema and mapping. In this case you don't have to create different process flow for data of each format. You can use only one process flow and create data interfaces for each format of data. In data interface you can choose the event, which will trigger the process flow, and the activities which will be overridden during the execution of the process flow when it is triggered by particular event.

Following are the high level steps to use Data Interface:

25. Create activities (e.g. source and target schema, mapping and target) which will be overridden at execution time.
26. Create Event.
27. Create Data Interface.
28. Activate the Event.

This feature is available in:

EBIM Suite	BPM Suite	ESB Suite	ETL Suite
√	√	√	√

Steps to create Data Interface

1. In the home page menu, click **[+] Data Interfaces** to expand the hierarchy and then click **Configuration.** The **Manage Data Interfaces** screen is displayed (see Figure 539).

Figure 547: Manage Data Interfaces

2. Click the **New** link. The **Create Data Interface Configuration** screen is displayed (see Figure 540).

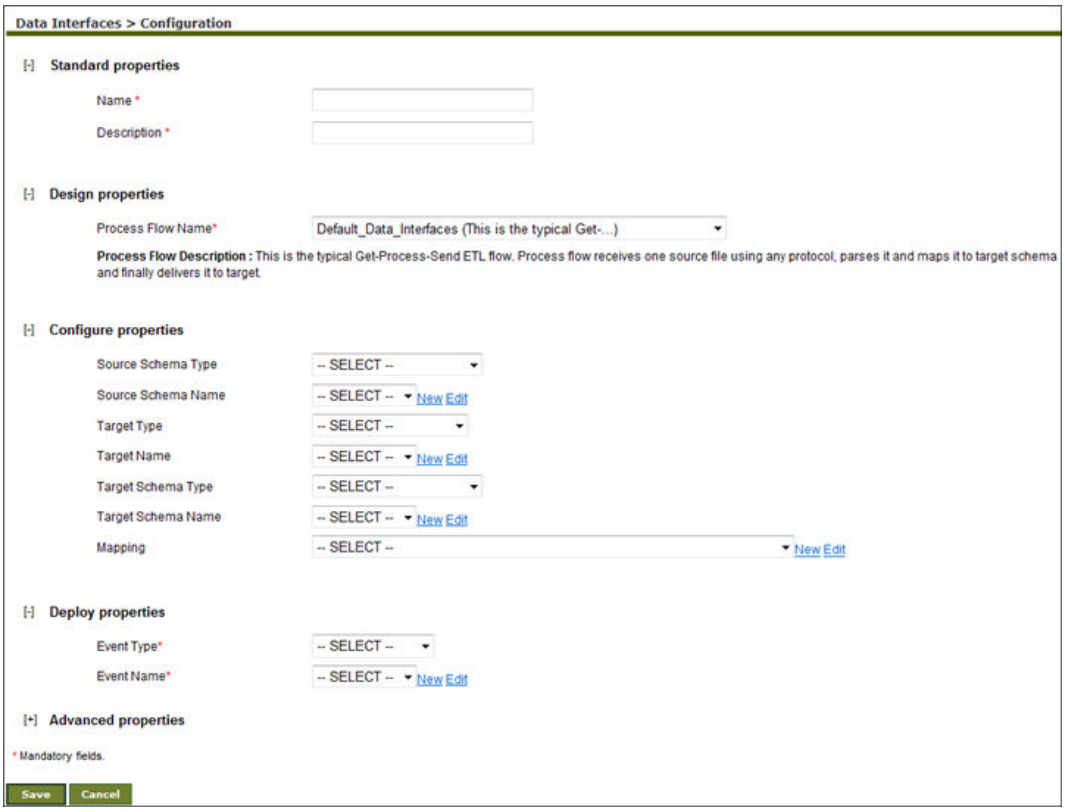

Figure 548: Create Data Interface

3. Enter the name and description of for the new Data Interface Configuration in the textboxes **Name** and **Description** respectively.
4. Click [+] to expand the **Design Properties**. Design properties of the data interface activity are displayed.
5. Select the process flow from dropdown list **Processs Flow**. This is the process flow which is used to process the data. At the time of execution, activities of this process flow are overridden, with the activities, that are select in the **Configure** section.

A process flow *Default_Data_Interfaces* is pre-bundled and selected by default.

You can make a copy of this process flow, and further extend it to serve additional purposes.

6. Click **[+]** to expand the **Configure Properties**. Configure Properties of the data interface are displayed.
7. Select the type of the schema, which you use to parse source data, from the dropdown list **Source Schema Type**. This schema should be according to the source data. For example if the source data is an xls file, you need to select Excel Schema from this dropdown list.
8. Select the name of the source schema from the dropdown list **Source Schema Name**.

There is no need to select Source Activity Type and Source Activity name except the following situations:

- If Advanced Database Schema is used.
- If Timer Or Calendar Event is used to trigger the Process Flow.

9. Select the type and name of the target activity from the dropdown list **Target Type** and **Target Name** respectively.
10. Select the type and name of the schema, which defines the format of target data, in the **Target Schema Type** and **Target Schema Name** dropdown lists respectively. The target schema should be according the format of target data. For example you want the target data in text format, you need to select Text Schema in this dropdown lists.
11. Select the mapping activity, which is used to map fields of selected source and target schemas, in the **Mapping** dropdown list.
12. Click **[+]** to expand the **Deploy Properties**. Deploy properties of the data interface are displayed.
13. Select the type and name of the event from the dropdown list **Event Type** and **Event Name**.
14. Click the **Save** button. This displays a screen confirming that the data interface 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 6).
15. Enter 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 data interface activity has been created successfully.

By default, the **Comments** property is disabled. To enable it, refer to the *Updating System Properties* section in *Administrator* Guide.

Once you have created the data interface activity, you need to activate the event activity, which you have used in the data interface activity. When the data is received by selected event, the process flow selected in the data interface activity is executed. All the activities that you have selected are executed at run time.

To view data interface log, refer to the *Business User Guide*.

18

RECOVERY

Adeptia Suite has a recovery feature to automatically recover process flows, which are not executed completely due to Kernel shutdown. Kernel shutdown can occur due to following reasons:

- System is shutdown
- Kernel is stopped

When kernel restarts, all incomplete process flows **which are recoverable** are recovered.

RECOVERABLE PROCESS FLOWS

You can make a process flow as **recoverable process flow** using one of the following options:

- Enabling Implicit Recovery
- Using Checkpoints
- Using Human Workflow activity

Enabling Implicit Recovery

Implicit Recovery is a unique feature which means that the execution state of the process flow is recovered automatically in case the process flow is not executed completely due to some reasons. Now, when the kernel restarts, the process flow resumes execution from the point where it leaves.

- Only, Synchronous activities are implicitly recoverable in the process flow. If asynchronous activities are used in process flow, they are made recoverable explicitly using check points. To know how to add checkpoint refer to the section **Using Actions in Process Flow**

- Actions such as Delay, Put Context Var do not have Implicit Recovery Implementation.

Implicit recovery is supported for any level of parent-child relationship in the process flow. For a recoverable parent process flow, all its child process flows are implicitly made recoverable irrespective of whether the child process flow is configured as recoverable or not.

Using Checkpoints

Process flows, which have checkpoints, are recoverable. Checkpoint is an action which can be used in a process flow during it creation. There can be any number of checkpoints in a process flow. Checkpoints should not be used after an asynchronous activity which is generating a source stream. Otherwise after recovery the source stream generated by asynchronous activity will not available for the target activity which will be consuming this stream. To know how to add checkpoint refer to the section Using Actions in Process Flow .

Using Human Workflow Activity

Process flows which use Human Work Flow activities, are recoverable. Human work flow activity itself acts as a checkpoint. To know how to add Human Workflow Activity in the process flow, refer to the section Creating Workflow Task.

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 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. 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.

TABLE OF FIGURES

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