



ADEPTIA

Adeptia Developers Best Practices Guide

Release Date July 18, 2014

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

DOCUMENT INFORMATION

Adeptia Suite

Adeptia Developer's Best Practices Guide

Adeptia Suite

Printed March 2013

Printed in USA

Adeptia Support Information

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

Access the Adeptia Web site at the following URL:

www.adeptia.com

Copyright

Copyright © 2000-2013 Adeptia, Inc. All rights reserved.

Trademarks

Adeptia™ is a trademark of Adeptia, Inc. All other trademarks and registered trademarks are the property of their respective owners.

Confidentiality

CONFIDENTIAL AND PROPRIETARY INFORMATION OF ADEPTIA. The information set forth herein represents the confidential and proprietary information of Adeptia. Such information shall only be used for the express purpose authorized by Adeptia and shall not be published, communicated, disclosed or divulged to any person, firm, corporation or legal entity, directly or indirectly, or to any third person without the prior written consent of Adeptia.

Disclaimer

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

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

This publication is subject to replacement by a later edition. To determine if a later edition exists, contact www.adeptia.com

Table of Contents

Document information	2
<i>Table of Contents</i>	3
<i>Preface</i>	4
Target Audience.....	4
Pre-requisites.....	4
Other resource materials.....	4
<i>How is this guide organized?</i>	5
<i>Conventions</i>	5
Typographical conventions.....	5
Graphical conventions	6
<i>Contacts/Reporting problems</i>	6
Sales.....	6
Support	6
Latest updates and information	6
Adeptia Web site	6
<i>ACTIVITY NAMING CONVENTION</i>	7
<i>Naming SYNTAX and prefixes for Adeptia activities</i>	7
Project/Organization Prefix:	8
Group Prefix:.....	8
Activity Type Prefix:	8
<i>PROCESS DESIGN CONVENTIONS</i>	10
<i>Process Designer</i>	10
<i>Activity Naming Convention</i>	10
<i>Design Conventions</i>	11
<i>Adeptia Server Configuration</i>	13
<i>Adeptia Server Hardware configuration</i>	13
<i>Adeptia Server Software configuration</i>	13
<i>Miscellaneous</i>	15
<i>Events</i>	15
<i>Process Flow</i>	15
<i>Versioning and Revision Control</i>	16
<i>Data Mapping</i>	16
<i>Data Cleanup</i>	16
<i>Placing jar files</i>	16
<i>Table of Figures</i>	17

PREFACE

The document describes the best practices and recommended steps for the developers and administrators while working, and managing Adeptia. Consider this document as an extension to the Developer User Guide and describes possible naming conventions and configuration that will help you to manage your Activities and performance of Adeptia.

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

- You should have Pre-installed Adeptia Suite Product.
If you are new to Adeptia and want to purchase Adeptia Suite refer follow below link:-
<http://www.adeptia.com/products/downloads.html>
- You should have basic knowledge of using Adeptia Suite.
If you are new to Adeptia please refer Adeptia documentation link: -
<http://www.adeptia.com/products/documentation.html>
- You must have developer or administrator permissions.

Other resource materials

The following other resource materials are available:

Title	Description
<i>Installation Guide</i>	This document provides guidelines for installing Adeptia Suite on Microsoft Windows and Linux/Solaris operating systems.
<i>Developer Guide</i>	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.
<i>Business User Guide</i>	This document covers a detailed description of all features of Adeptia Suite that are available to a business user. It acts as a guideline to use these features seamlessly and perform them in a business environment using Adeptia Suite.

Admin Guide

This document provides a detailed description of the Administrative features of Adeptia Suite. It guides you to seamlessly manage the functioning, design and integration of business processes using these administrative features.

HOW IS THIS GUIDE ORGANIZED?

This guide is organized into the following sections:

Section	Description
<i>Preface</i>	Introduction to this document
ACTIVITY NAMING CONVENTION	Steps required for Adeptia SAP-R3 Adapter installation
<i>How to use Adeptia SAP-R3 Adapter</i>	Creating your own Process Flows to transfer data to and from SAP.

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.

Typographical conventions

This guide uses the following typographical conventions:

Convention	Description
Bold text	Indicates one of the following: <ul style="list-style-type: none"> • Screen element • New terminology • A file or folder name • A control in an application's user interface • A registry key • Important information
<i>Italic text</i>	Indicates a reference or the title of a publication.
Monospaced text	Indicates code examples or system messages.

Convention	Description
Monospaced bold text	Indicates system commands that you enter.
<i>Hyperlink</i>	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

Access the Adeptia Web site at the following URL:

www.adeptia.com

ACTIVITY NAMING CONVENTION

Adeptia activities also known as objects are the basic entities in Adeptia Suite. These objects consist of source and targets, process flows, schemas, mapping, events and triggers and many more. Every object in Adeptia has a name and description. A disciplined name using some pre-defined naming convention will always help you to identify the type of object, project attached and reason and manage them for various reasons.

However, naming conventions vary organization to organizations our intention is to provide you a basic idea of following naming convention by using below template.

NAMING SYNTAX AND PREFIXES FOR ADEPTIA ACTIVITIES

Activity Naming Syntax

Adeptia recommends using below syntax while naming an Activity:-

For Example:

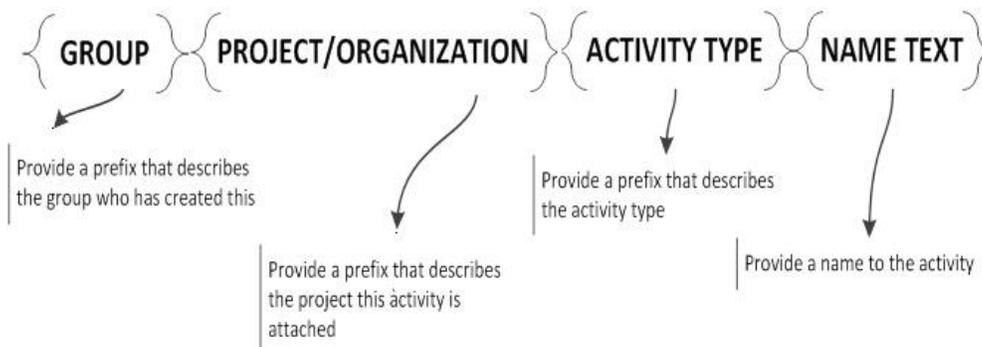


Figure 1: Activity Naming Syntax

Activity Prefixes

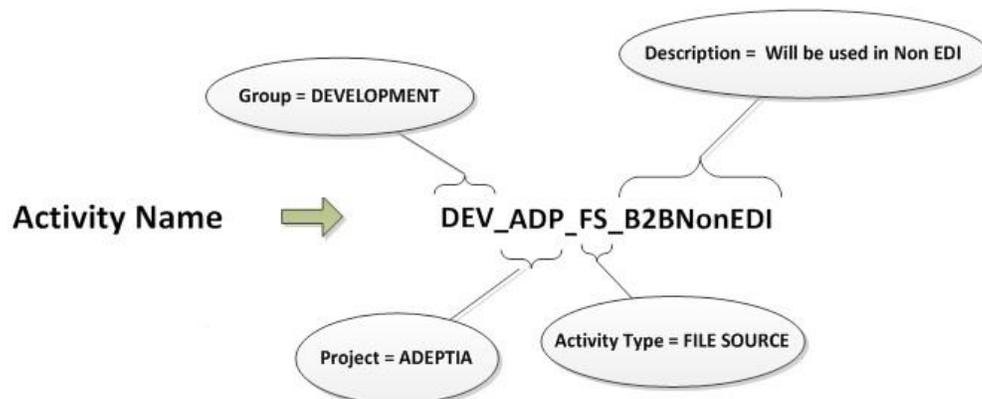


Figure 2: Activity Naming Syntax Example

Project/Organization Prefix:

Provide a prefix referring to the name of the project to which Activity is associated. The prefix should be not more than three characters.

For example if the project name is “**Adeptia**” try using a prefix “**ADP**”

Group Prefix:

Provide a prefix referring to the name of the Group whose user is creating this Activity. The prefix should not be more than three characters

For example if the project name is “**Development**” try using a prefix “**DEV**”

Activity Type Prefix:

Please refer below table for all possible Activity Type prefixes:-

Activity	Activity Type	Naming Convention
Source	File Source	FS
	LAN File Source	LFS
	Mail Source	MS
	HTTP Source	HS
	JMS Source	JS
	FTP Source	FTPS
	Database Source	DS
	Advance Database Source	ADS
Target	File Target	FT
	LAN File Target	LFT
	Mail Target	MT
	HTTP Target	HT
	JMS Target	JT
	FTP Target	FTPT
	Database Target	DT
	Advance Database Target	ADT
Schema	Advance Positional	APSC
	Advance Text	ATSC
	Advance Database	ADSC
	Database	DSC
	EDI	ESC
	Excel	XLSC
	Positional	PSC
	Text	TSC
Data Transformation	XML	XMSC
	Mapping	DM

ACTIVITY NAMING CONVENTION

Extensions	Custom Plugin	CP
	Native Call	NC
Events and Triggers	File Event	FE
	Calendar Event	CE
	Mail Event	ME
	HTTP Event	HE
	JMS Event	JE
	FTP Event	FTPE
	Database Event	DE
	Timer Event	TE
	Event Registry	ER
	Connectors	Database Driver
Database Info		DI
JMS Provider		JMSP
MLLP Configuration		MLLPC
Miscellaneous	Context Upload	CU
	Context Download	CD
	Stored Procedure	SP
	Mail Notification	MN
Polling	File Polling	FP
	FTP Polling	FTPP
	Database Polling	DP
	Mail Polling	MP
Web Services	Security Policy	SCP
	Consumer	WC
	Provider	WP
Data Dictionary	EDI	EDD
	Positional	PDD
Workflow	Workflow Tasks	HWF
Forms	Web Forms	WF
Process	Process Flow	PF
	Process Model	PM

PROCESS DESIGN CONVENTIONS

A process flow is a set of activities arranged in a sequence to perform a specific task(s). You must be well aware of designing Adeptia Processes using Process Designer. If you need details on how to design process flows in Adeptia please refer to [Developer Guide](#).

A process flow design looks better and manageable when it is well documented and easy to understand. Adeptia recommends few easy steps to achieve this.

PROCESS DESIGNER

Activity Naming Convention

When an activity is selected from the Repository View and dropped into the Graph Canvas area, user can change the default text displayed in the activity icon by double clicking on it and going to its Properties panel and editing the label. A more descriptive label of activities helps in understanding the overall context of the process flow.



Do not change the name of any BPMN Activity. It will help you to refer the activity attached with the activity.



There are pre-defined activities and actions in the Process Designer's Repository and Actions category that can be used in the process flow design. The labels of these entities can be edited by going to its properties panel.

List of Pre-Defined activities with name/label automatically set.

1. Compression
2. Decompression
3. RecordQueueProducer
4. RecordQueueReceiver
5. RepeaterService
6. StreamSelectorService

List of Pre-Defined actions with name/label automatically set.

1. Call
2. CheckPoint
3. Delay
4. JTA-Begin
5. JTA-End
6. JTA-Rollback
7. Put-Context-Var
8. Set-Child-Context
9. Set-Parent-Context

10. Spawn
11. Synch
12. Trace
13. Wait

Design Conventions

1. Design of the process flow requires a logical sequence of activities from Start to End node. For example, by placing a Schema activity prior to Source is not logically correct since we need the data first before parsing it through the related schema activity.
2. When designing a process flow try using Text Annotation from Palette tool bar describing the purpose and functionality of activities you are using. Text Annotation will be helpful for users to understand the functioning of Process Flow very easily.

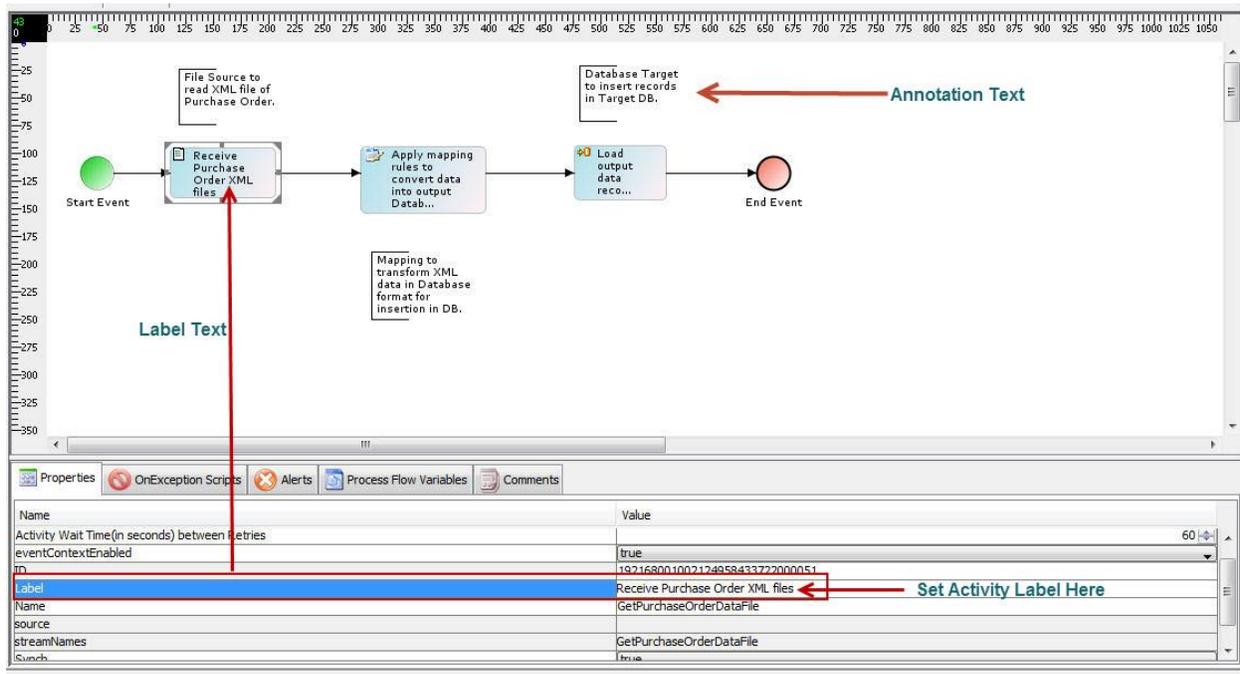


Figure 2: Process Flow Activity Labels and Name

3. If your process flow execution time is comparatively slow, you can try combining multiple activities using Custom Plugin Activity.
4. Use Database loader programs for faster loading of bulk data into databases rather than using Adeptia JDBC connectors.
5. Use "Delete on Success" option in process flow for the processes you do not want repositories. This could save lot of your disk space. Please refer below screen and steps for details:-

New Process Flow

Standard Properties

Name *	<input type="text" value="HR_GetEmployeeList"/>
Description *	<input type="text" value="get employee data from SAP HR module"/>
Logging Level *	<input type="text" value="ERROR"/> ▼
Repository File Retention *	<input type="text" value="DONT DELETE"/> ▼

Figure 3: New Process Flow

- To reduce the amount of log generated, keep the Logging level for the process flow as “Error”.
- If you are creating parent child flows and want to use JTA blocks in both the flows please call Sub-Process Flow using Spawn action instead of Call action in Parent Process Flow. If it is mandatory to use Call action in Parent Process Flow (in order to execute Sub-Process Flow in main thread), then you need to replace Call action with combination of “Spawn - Synch” action (of course with same signal name). Latter combination shall provide you the same functionality of Call action with minimal overhead.



Q: Why it doesn't work with Call action?

A: It is so because whenever JTA Begin action is executed, it creates a new user transaction boundary and associate it with current Process Flow thread. In our case, JTA Begin is executed in Parent Process Flow and a new user transaction boundary is associated with Parent Process Flow thread. Now, if you call Sub-Process Flow (having its own JTA Begin – JTA End) using Call action in Parent Process Flow, then it will try to associate a new user transaction boundary (for Sub-Process Flow) with Parent Process Flow thread (as Call action executes Sub-Process Flow in same thread where Parent Process Flow executes). This operation of associating two user transactions to a single thread (a.k.a. nested transactions) is not supported by JOTM (Transaction Manager implementation used by Adeptia). To resolve this, you need to call Sub-Process Flow using Spawn action in Parent Process Flow as they both work in separate thread and it works like a charm

ADEPTIA SERVER CONFIGURATION

ADEPTIA SERVER HARDWARE CONFIGURATION

To get the better performance, we recommended using servers with the configuration given below:

- Internet Explorer version 9 (for end users only)
- 4 CPU cores minimum, 2 quad-core CPUs (8 cores) recommended
- Min 8GB, 16GB recommended
- OS: 64-bit
- Hard Drive: 200GB minimum, 500GB recommended



Depending on the size of the data and performance needed, servers with higher configuration can be used.

ADEPTIA SERVER SOFTWARE CONFIGURATION

To get the better performance, we recommend you to configure your Adeptia with below given parameters:

Optimize/Configure Adeptia Services

You can configure Adeptia databases on separate servers to distribute server load. Below are the areas you can configure in Adeptia to manage server load for better performance:-

- Configure your Adeptia Log database on separate server:-

<http://support.adeptia.com/entries/21925722-Moving-Log-Database-on-SQL-Server-MYSQL-Oracle>

- Configure your Adeptia Kernel and Webrunner services on separate servers. You can refer below forum link for further details

<http://support.adeptia.com/entries/22011196-Setup-Kernel-and-Webrunner-on-distributed-systems>

Optimize your Adeptia JVMs to avoid memory issues

- Adeptia Kernel and Webrunner use different JVMs. You can configure your Kernel and webrunner JVMs separately in Adeptia launcher.properties file. You can refer below forum link to configure java memory settings:-

<http://support.adeptia.com/entries/21238802-Setting-Java-Heap-Size>



Any change in launcher.properties file requires system restart.

- As best practice we recommend below settings for JVM:-

Operating System and Java JRE : 64 bit

Java heap size for Kernel : 60% of the total memory

Java heap size for WebRunner : 20 % of the total memory

For Example:

For 8GB RAM - Kernel = 4.8GB;

For 16GB RAM – Kernel = 10GB; WebRunner = 3.2GB

Optimize your Adeptia to handle large data volume

Adeptia recommends you to analyze your data load and configure your Adeptia server accordingly. We recommend you to refer to Adeptia Performance Tuning Guide to Manage your Adeptia Server:-

http://support.adeptia.com/attachments/token/xogbjawqddaebcm/?name=AdeptiaSuite_Performance_Tuning_Guide_Ver1.0.pdf

MISCELLANEOUS

EVENTS

The polling frequency of events should not be less than 2 minutes. If there are hundreds of events, then the ideal value would be 4 to 5 minutes for the Polling Frequency. As the low value of Polling Frequency will lead to Trigger misfires and other misfire issues if the number of events fired at same time are large.

PROCESS FLOW

- If a large number of concurrent process flows are executing in the Adeptia Server, then make sure that number of concurrent connections to the backend and log databases are set to appropriate values. You can configure this in etc/server-configure.properties file.
Here are the properties that needs to be modified: abpm.jdo.maxActive (for backend database)
abpm.logdb.pool.maxActive (for log database) you need to re-start Adeptia Services after changing these properties.
- Running a large number of concurrent process flows requires more memory to be assigned to Adeptia Kernel. You need to assign sufficient memory to Adeptia Kernel so that it can execute the process flows.. To configure memory assigned to Adeptia Kernel, you need to change following in etc/launcher.properties file:

#Kernel JVM parameters KN:JVM: -Xms512M -Xmx1024M -Xrs -XX:PermSize=64M -XX:MaxPermSize=128M



Any change in launcher.properties file requires system restart.



-Xms represents initial memory assigned to Adeptia Kernel at start up.

-Xmx represents the maximum memory that can be assigned to Adeptia Kernel (if available)

- There may be a need to increase the Operating System configuration for maximum allowed open file handles. Please check the help for your OS to see how to increase this parameter

VERSIONING AND REVISION CONTROL

Versioning should be disabled in the PROD environment and final objects shall be imported to PROD environment. There are no issues in moving the objects from the environment where versioning is enabled (PRE-PROD or DEV) to PROD where versioning is disabled.

Note: Please check-in and check-out all the activities in your Pre-Prod or DEV server and import only the final objects into your Prod Server where versioning is disabled.

DATA MAPPING

- If the Data Mapper needs to process a large file (more than 50 MB), then always use splitting inside the Data Mapper activity. You can enable splitting in Advanced Properties of the Data Mapper activity and set the Splitter/Merger x-path inside the Data Mapper Applet. For more details on how to apply splitting in Data Mapper, please refer to the Adeptia User manual.
- Always try to implement database caching inside the Data Mapper. This can be achieved by making a DBQuery at the Root node, storing the results in global variable and then for each record in input, use the global variable value to get the results from database. It would reduce the number of database interactions, probably one for whole the Data Mapping and hence optimizing the performance of the Data Mapper

DATA CLEANUP

- Inside the Adeptia Server, data and log clean up should be enabled and properly configured. The retain time (number of days for which data and logs would be retained) shall be properly configured according to the requirement. Please note that data clean up means cleaning of repository files only.
- For data clean up, the retain time (in days) can be configured through the Adeptia GUI at Administer > Setup > Application Settings > Update System Properties. The path to the property is: Maintenance/ Data Cleanup Properties. The name of the property is “abpm.appmanagement.retainTime”.
- For log clean up, retain time (in days) for different tables can be configured through etc/ log-cleanup.properties file. Default value for retain time (in days) is 5.



For further details regarding cleanup please refer to our documentations:-

<http://support.adeptia.com/entries/23286567-Log-Cleanup-and-Archival-Guide>

PLACING JAR FILES

- As a best practice place the jar/driver files inside “./AdeptiaSuite-6.0/AdeptiaServer/ServerKernel/ext” folder that you want to use in Adeptia externally apart from default standard Adeptia jars. There is no need to make an entry of that jar file in launcher.properties file as any jar placed in the ext folder is automatically loaded to the class path on restart of Adeptia Server.

TABLE OF FIGURES

Figure 1: Activity Naming Syntax	7
Figure 2: Activity Naming Syntax Example	7
Figure 3: Process Flow Activity Labels and Name.....	11
Figure 4: New Process Flow	12