Installation Guide for Oracle Siebel eStatement Manager

Version 4.7

For Sun Solaris Operating Environment,
IBM WebSphere Server, and Oracle® Database

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ORACLE

Contents

1 Preface

About This Guide

This installation guide describes how to install eStatement Manager and configure the third-party platforms that support the eStatement Manager production environment.

This guide is intended for system administrators and other technical personnel responsible for installing, configuring, and maintaining eStatement Manager. It assumes in-depth understanding of and practical experience with system administrator responsibilities, including:

Operating System Administration Requirements

- Start up and shut down the system
- Log in and out of the system
- Determine software patch/pack levels
- Install software & patches/packs
- Navigate the file system
- Manipulate text files
- Create files and directories
- Change permissions of files and directories
- Use basic network commands
- Transfer files with FTP
- Monitor processes & system resource usage
- Perform system backups and recovery
- Implement system security

Database Administration Requirements

- Install and configure your database server
- Start and stop your database server and database instances
- Use administrative tools
- Manage users, privileges, and resources
- Create an operational database
- Manage database files
- Manage tables and indexes
- Back up and restore databases

- Monitor database performance
- If you are unfamiliar with any of these tasks, please consult the related documentation for your system requirements.

Application Server Administration Requirements

- Install and configure your application server
- Start and stop your application server
- Use administrative tools
- Manage users, privileges, and resources
- Configure Java resources
- Package and deploy web applications
- Monitor application server performance

This guide does not describe general UNIX or Windows system administration. See the appropriate UNIX or Windows user documentation.

If you are unfamiliar with any of these tasks, please consult the related documentation for your system requirements.

Related Documentation

This guide is part of the eStatement Manager documentation set. For more information about using eStatement Manager, see the following guides:

Print Document	Description
Installation Guide for Oracle Siebel eStatement Manager	How to install and configure eStatement Manager in a distributed environment.
Deploying and Customizing J2EE Applications Guide for Oracle Siebel eStatement Manager	How to deploy and customize the J2EE applications provided by eStatement Manager. This guide also describes how to deploy the Sample application provided by eStatement Manager and how to validate that it is set up correctly by running a job through your installed eStatement Manager environment.
Data Definition (DefTool) Guide for Oracle Siebel eStatement Manager	How to create Data Definition Files (DDFs) for use in indexing your application and extracting data for live presentment.
Presentation Design (Composer Guide) for Oracle Siebel eStatement Manager	How to create Application Logic Files (ALFs) to present statement data for dynamic online display.
Administration Guide for Oracle Siebel eStatement Manager	How to set up and run a live eStatement Manager application in a J2EE environment.

Print Document	Description
SDK Guide for Oracle Siebel eStatement Manager	How to work with auditing datastreams, user management frameworks, line item disputes and annotations, custom jobs, content access, and charting.
Reporting Guide for Oracle Siebel eStatement Manager	How to use the Reporting and Analytics Module to create preconfigured telecommunication reports from live and indexed data for various criteria.
Troubleshooting Guide for Oracle Siebel eaSuite	How to initiate the troubleshooting process, identify critical information about what is happening in your system and applications when a problem occurs, and resolve the problem.
Migration Guide for Oracle Siebel eaSuite	How to migrate an existing eStatement Manager database to a newer version.
Oracle eStatement Manager 4.7 Release Notes	This discusses any open issues at the time of release of the application.

2 Getting Started

Preparing Your Platform

Before installing eStatement Manager, verify that your platform is ready:

- Install and test required hardware and software for your platform.
- Define required user and group permissions for your database server and application server.
- Start and test your database server. See your database server documentation.
- Start and test your application server. See your application server documentation.
- For distributed environments, make sure you have any required database client software installed on your application server and any other client machines of your database server.

Overview of the Installation Process

The process of installing and setting up Oracle eStatement Manager includes the following steps:

1. Installing Oracle Platform Services and eStatement Manager on your database and application servers. You can install these individually or together using the Custom install feature.

   NOTE: If you are installing Platform Services and eStatement Manager on different servers, you should install Platform Services and get it running before installing eStatement Manager.

2. Installing Oracle Tools on a Windows XP machine, install it there and exclusively install Tools.
3. Configuring the database server.
4. Configuring the application server.

Follow the chapters in this guide in sequence, consulting your third-party documentation as needed.

After you successfully install eStatement Manager and configure your database and application servers, you can customize and deploy your J2EE application.

Configuring your database server requires you to

1. Define database server environment variables.
2. Create and configure the eStatement Manager database.
3. Connect to your eStatement Manager database before configuring your application server.

Configuring your application server requires you to

1. Define application server environment variables.
2. Configure JDBC resources for eStatement Manager on your application server.
3. Configure JMS resources for eStatement Manager on your application server.

Customizing and Deploying J2EE Applications

After installing eStatement Manager and configuring your database and application servers, you can:

1. Customize your J2EE web application(s) for eStatement Manager.
2. Deploy J2EE web applications for eStatement Manager.
3. Deploy your custom J2EE web application.

eStatement Manager System Requirements

Operating System

- Sun Solaris 10
- For Windows-based DefTool and Composer Tools only, either one of these:
  - Windows XP Professional
  - Windows Server 2003 SP1

Hardware

- CD-ROM
- Disk space (database) 2.6 GB
- Disk space (software) 60 MB
- Sun SPARC platform
- Swap space 512 MB per CPU (1 GB recommended)
- RAM 512 MB per CPU (1 GB recommended)

JAVA/C++

- Sun Studio 11 for SPARC

Supported Database Servers

- Oracle 10g Release 2 Enterprise Edition
  - Native Oracle Partition Support for Index Tables (Purging)
- Oracle 10g client software (for application server)
- Oracle 10g JDBC driver

Supported Application Servers

- IBM WebSphere 6.1

Supported Browsers

- Internet Explorer 6.0, 7.0
- Firefox 2.0
- Netscape 8.1.2

Open Source Items

The following required open source library binaries are not distributed with the product:

- Ant 1.6.5 is required to run the supplied Ant database scripts.
- Hibernate 3.1.3 is required for high performance object/relational persistence and query services.
- c3p0 0.9.0 is required for JDBC3 connection and statement pooling.

3 Installing Oracle Siebel eStatement Manager

This chapter assumes in-depth understanding of and practical experience with system administration responsibilities. Consult your system documentation as necessary.

UNIX Permissions for Installation

You do not require root privilege on each server to install and uninstall eStatement Manager components. Consult your system administrator for details of user setup.

O/S	DEFAULT	EXAMPLE
Solaris	`root:other`	`edxadmin:edxadmin`

Installing eStatement Manager from Its Distribution Medium

For your application and database servers, you will also need the owner (user) and group permissions specified during installation. For details on user and group permissions, see Unix Permissions.

CAUTION: Oracle does not recommend administering eStatement Manager with the user and group **nobody:nobody**.

NOTE: Client browsers connecting to any eaSuite product must be enabled to run JavaScript. To check whether JavaScript is enabled for:

> **NOTE:** **Netscape** - Under Edit, then Preferences, click on **Advanced**, and make sure "Enable JavaScript" is checked.

For the latest software and hardware requirements, see the release notes that came with your distribution.

Installing Design Tools

Install the Windows-based tools DefTool and Composer on a Windows XP machine on your network. Follow the instruction provided in the README file that comes with the distribution.

Distributed Environments

If you are installing in a **distributed environment**, be sure that you have installed all eStatement Manager components as follows before proceeding to the database configuration chapter for using ANT.

- **Database** components on database server(s)
- **App Server** components on application server(s)
- **Tools** components on a Windows machine (accessible to UNIX servers)
- Database **client software** on application server(s)

Configure Your Database

If you have installed eStatement Manager **on a single machine** using the **Full** installation option, you can proceed directly to the database configuration section for using ANT.

The eStatement Manager Directory Structure

The eStatement Manager home directory contains all the files needed to create and configure the eStatement Manager production database. When you install eStatement Manager components, you are prompted to specify a destination directory. By default, this directory is **`/eStatement`**, which has a predefined hierarchical directory structure.

To designate a different destination directory, enter the pathname when prompted during installation.

TIP: Oracle recommends that you install eStatement Manager in the same top-level directory on both the database server and the application server.

Where to Find Required Library Files

The following library files must be present in <EDX_HOME> /lib/SunOS_5.10:

- libdb_cxx-4.1.so
- libFormatter.so
- libIndexer.so
- libxerces-c2_1.so

Where to Find Database Components

EDCSbd/db contains platform-specific subdirectories for database creation and configuration. Each **/db** subdirectory also contains the directory **migration**, which contains migration scripts. Be sure to use the correct version for your platform.

Where to Find Application Server Components

eStatement/J2EEApps contains platform-specific subdirectories for eaSuite J2EE and web applications to be deployed to your application server. Be sure to deploy the correct version for your platform.

Where to Find Sample Applications

eStatement/samples contains sample J2EE, Web, and eStatement Manager applications for use with the eaSuite. For more information on sample applications, see *Deploying and Customizing J2EE Applications*.

Where to Find Input and Output Data

eStatement/AppProfiles stores information on each new eStatement Manager application created in the Command Center. **eStatement/Input** is the default input directory used by each Command Center job. **eStatement/Data** stores data processed by the Command Center. **eStatement/Output** stores the output of jobs.

An additional directory, **eStatement/Store,** appears when the first Command Center job runs. The Store directory holds temporary files created during job run time. When the job completes, eStatement Manager automatically cleans up these temporary files.

Where to Find Documentation

Online help may be accessed through the eStatement Manager Command Center, DefTool, or Composer.

4 Configuring Your Database Server

Overview

This chapter assumes in-depth understanding of and practical experience with database administration. Consult your database documentation as necessary. For distributed environments, make sure you have any required database client software installed on your application server and any other client machines of your database server.

Oracle recommends that you install and configure eStatement Manager in the same top-level directory structure, first on the database server, then the application server.

This chapter provides instructions for configuring your database server to support a **new** eStatement Manager database. It includes:

- UNIX permissions for your database server
- Starting and stopping your database server
- Using database partitioning with eStatement Manager

CAUTION: The installation and configuration examples shown in this guide use default eStatement Manager pathnames, privileges, and permissions. If you choose not to accept the default values, make sure your values are consistent on all servers across your installation of eStatement Manager.

UNIX Permissions for Your Database Server

Before creating the eStatement Manager database using ANT build scripts, verify that the owner and group permissions (userid:groupid) of the EStatement Manager database directory, including all subfolders, are set to the DB Admin user defined during database installation.

This guide uses the example username and password edx_dba:edx as the owner and group for the Oracle database user. This is the user for your database instance. This guide also uses the example database instance name edx0.

Oracle recommends that you install eStatement Manager database components with the default owner and group for your platform. After installation, change the user and group ownership of eStatement Manager database server components to that of the DB Admin user.

DATABASE	DB ADMIN USER	DB USER
Oracle	`Oracle:dba`	`edx_dba:edx`

NOTE: The **DB Admin** user has special privileges on Oracle. For details on owner and group permissions for your database server, please consult the database documentation for your platform.

If your database administrator uses custom user and group permissions, then you can reset these permissions with the **chown** command.

To reset user and group permissions for Oracle:

1. Switch user to **root.**

   ```
   su - root
   ```

2. Recursively change the user and group permissions of your EDX_HOME directory and all subdirectories to the eStatement Manager instance owner.

   ```
   chown -R edxadmin:edxadmin /opt/eaSuite/eStatement
   ```

3. Recursively change the user and group permissions of your EDX_HOME database directory and all subdirectories to the database instance owner.

   ```
   chown -R oracle:dba /opt/eaSuite/eStatement/db
   ```

TIP: Verify the owner information in any profile files used by the database server owner and application server owner. See your server documentation for details.

Developers and system administrators need to be familiar with how to stop and start a database server and an active eStatement Manager database instance for your platform.

For details on starting and stopping your database server and instances, please consult the database documentation for your platform.

Using Database Partitioning with eStatement Manager

Database partitioning (partition splitting) reduces the number of tables the system must scan when indexing your data. You specify the number of partitions when you create a DDN in the Command Center. At the first run of the Indexer job, eStatement Manager creates and populates a set of partitioned index tables to maintain your dynamic data.

Oracle does not support partitioned views. Native partitioning can be applied to a single index table depending on your Oracle software license. For an Oracle database, we recommend that you create one index table per DDN, and use Oracle's native table partitioning functionality for higher performance. Oracle recommends choosing the range partition on the **Z_DOC_DATE** column.

5 Configuring the Oracle Siebel eaSuite Database for Oracle

You can use ANT build scripts to create and configure the eaSuite (eStatement Manager) database. Before running ant, do the following:

1. Install/Upgrade your database server software as necessary.
2. Make a full backup of your current database.

Check the database product *Release Notes* for disk space requirements and confirm that you have sufficient disk space on your database server. Insufficient disk space can cause database configuration to fail.

Install Apache ant version 1.6.5 or higher. This software can be downloaded from http://ant.apache.org/. The installation directions can be found on that site as well

Set ANT_HOME and JAVA_HOME environment variable

Configure ANT *property files*, as described in following sections.

Configuring edxadmin.properties

This step in setting up the database server is to edit the properties file that controls the eaSuite production database ant installation.

CAUTION: When creating an Oracle database, limit its name to eight characters. Defining or entering an Oracle SID with more than eight characters causes Oracle database configuration to fail.

The following example for EDX_HOME/db/<db>/**edxadmin.properties** shows sample values that should be replaced with the appropriate paths, usernames, passwords, SID's settings:

```
ORACLE_HOME=/home/oracle/product/10.2.0/db_1
ORACLE_BASE=/home/oracle/product/10.2.0
DB_USER=edx_dba
DB_PASSWD=edx
DB_SID=EDX0
SYS_PASSWD=oracle
-- file location of data tablespace
L_DB_EDX_DATA_TB_FILE_LOC=/data/oradata
-- file location of index data tablespace
L_DB_EDX_INDX_TB_FILE_LOC=/data/oradata
-- file location of Application data tablespace
```

```
L_DB_APP_DATA_TB_FILE_LOC=/data/oradata
-- file location of Application index data tablespace
L_DB_APP_INDX_TB_FILE_LOC=/data/oradata
-- file location of Detail extractor data tablespace
L_DB_LOAD_DATA_TB_FILE_LOC=/data/oradata
-- file location of Detail extractor index tablespace
L_DB_LOAD_INDX_TB_FILE_LOC=/data/oradata
-- file location of FS data tablespace
L_DB_FS_DATA_TB_FILE_LOC=/data/oradata
-- file location of FS index tablespace
L_DB_FS_INDX_TB_FILE_LOC=/data/oradata
-- file location of Stage data tablespace
L_DB_STG_DATA_TB_FILE_LOC=/data/oradata
-- file location of Stage index tablespace
L_DB_STG_INDX_TB_FILE_LOC=/data/oradata
--- file location of the first control file
DB_CONTROL_FILE_LOCN1=/data/oradata
--- file location of the second control file
DB_CONTROL_FILE_LOCN2=/data/oradata
--- file location of the third control file
DB_CONTROL_FILE_LOCN3=/data/oradata
--- file location of Redo-Log file
REDO_LOG_FILE_LOCN=/data/oradata
-- file location of System tablespace
SYSTEM_FILE_LOCN=/data/oradata
-- file location of Temporary tablespace
TEMP_FILE_LOCN=/data/oradata
-- file location of UNDO tablespace
UNDO_FILE_LOCN=/data/oradata
TRACE_FILE_LOCN=/data/oradata
-- file location of backup file
L_BACKUP_FILE=/data/oradata/expedxtest.dmp
-- file location of backup log file
L_LOG_FILE=/data/oradata/expedxtest.log
```

Configuring a New eaSuite Database

To configure a new eaSuite database

1 Switch user to the DB admin user. Oracle requires the administrative user in order to create files. For example.

```
$ su – oracle
```

2 Change directory to your easuite database home directory. For example:

```
cd <EDX_HOME>/db/oracle
```

You can use multiple ant targets that automate the installation process. The install-new target will create new easuite instances with the SIDs specified in the properties file:

```
ant install-new
```

3 Check the following log files for any errors:

- create_db.log
- configure_ts.log
- setup_user.log
- create_tables.log
- create_views.log
- compile_sproc.log

NOTE: After setting up the database, configure required oracle services. Please refer to the "Configuring Oracle Services" section

The install-existing target creates new easuite schemas on an existing instance with the usernames/passwords specified in the properties file:

```
ant install-existing
```

4 Check the following log files for any errors

- configure_ts.log
- setup_user.log
- create_tables.log
- create_views.log
- compile_sproc.log

If you wish to manually run each install step, simply start the ant script with the command:

```
ant
```

The main menu appears:

```
main:
     [echo] [1]. Install eaSuite Database
     [echo] [2]. Initial Data Population
     [echo] [Q]. Quit
    [input] Enter your selection (1, 2, q, Q)
```

a. Select option 1, **Install eaSuite Database.** The Install eaSuite Database menu appears:

```
CreateInitDatabaseMenu:
   [echo] Install eaSuite Database
   [echo] [1]. Create Oracle Instance
   [echo] [2]. Shutdown Database
   [echo] [3]. Startup Database
   [echo] [4]. Install Application Database I - Create tablespace/user
   [echo] [5]. Install Application Database II - Create tables
   [echo] [6]. Install Application Database III - Install PL/SQL Code Base
   [echo] [Q]. Quit
  [input] Enter your selection (1, 2, 3, 4, 5, 6, q, Q)
```

Select option 1, Create Oracle Instance

This step creates a database instance for easuite, defines a data dictionary and stored procedure for the new database

If this step is successful, the following message appears:

```
init:
     [echo] Creating database instance...please wait
     [exec] SQL*Plus: Release 10.2.0.1.0 - Production on Wed Jul 5
15:59:24 2006
     [exec] Copyright (c) 1982, 2005, Oracle.  All rights reserved.
     [exec] Connected to an idle instance.
     [exec] ORACLE instance started.
     [exec] Total System Global Area 1258291200 bytes
     [exec] Fixed Size              1978336 bytes
     [exec] Variable Size                318771232 bytes
     [exec] Database Buffers      922746880 bytes
     [exec] Redo Buffers                  14794752 bytes
```

```
     [exec] SQL> Disconnected from Oracle Database 10g Enterprise
Edition Release

     [exec] With the Partitioning, OLAP and Data Mining options


     [echo] Initializing database instance...please wait
```

This option may take more than 30 minutes to complete. Please check the "create_db.log"log files for any errors

After creating the database instance, the command prompt reopens. The user needs to execute the ant build script again to come to the "*CreateInitDatabaseMenu*" menu.

b. Select option 2, **Shutdown Database**. If this step is successful, you see the following message

```
ShutdownDatabase:

     [echo] Shutdown database...please wait

     [exec] Database closed.

     [exec] Database dismounted.

     [exec] ORACLE instance shut down.
```

c. Select option 3, **Startup Database.** If this step is successful, you see the following message

```
StartupDatabase:

     [echo] Startup database...please wait

     [exec] ORACLE instance started.


     [exec] Total System Global Area 1258291200 bytes

     [exec] Fixed Size              1978336 bytes

     [exec] Variable Size                318771232 bytes

     [exec] Database Buffers      922746880 bytes

     [exec] Redo Buffers                  14794752 bytes

     [exec] Database mounted.

     [exec] Database opened.
```

d. Select option 4, Install Application Database I - Create tablespace/user. You see the following message

```
  [echo] Creating tablespace...please wait
```

This option creates new easuite database tablespaces, users. Check the "configure_ts.log" and "setup_user.log" files for any errors.

e. Select option 5, **Install Application Database II - Create tables.** You see the following message

```
CreateObjects:

     [echo] Creating tables/views...please wait
```

This option creates database tables, views and indexes. Check the "create_tables.log "and "create_views.log" for any errors. You can ignore the following error messages at the start of this log files.

```
ORA-00942: table or view does not exist - drop table statement

ORA-02289: sequence does not exist      - drop sequence statement

ORA-01418: specified index does not exist      - drop index statement
```

f. Select option 6, Install Application Database III - Install PL/SQL Code Base.

```
CompileProc:

     [echo] Compiling packages...please wait
```

This option compiles stored procedures to support database processing. Check the "compile_sproc.log" for any errors

i. Select option 2, **Initial Data Population,** to bring this menu:

```
   OtherOperationsMenu:

  [echo] [1]. Import initial data set

  [echo] [2]. Export eaSuite database data

  [echo] [Q]. Quit

 [input] Enter your selection (1, 2, q, Q)
```

g. Select option 1, **Import initial data set.** this option populates the initial data.

Select option 2, **Export eaSuite database data.** This option takes a backup of an easuite database schema into "L_BACKUP_FILE" location that is specified in the "edxadmin.properties" property file.

Migrating an Existing eaSuite Database

To migrate an existing eaSuite database to a new version, run the database setup with ANT build scripts. For details of migration, see *Migration Guide for Oracle Siebel eaSuite*.

6 Introducing the WebSphere Console to Configure JMS Resources

Overview

This chapter assumes in-depth understanding of and practical experience with application server administration. Consult WebSphere 6.1 documentation if necessary.

Accessing the WebSphere Console

Navigate to the WebSphere 6.1 administration console in the web browser by giving the proper URL in the following format:

```
http://[host]:[port]/ibm/console
```

Example: http://172.20.2.10:9060/ibm/console

TIP: The Administration port number is automatically assigned at installation time and may be different for your installation. If you enable security, it will prompt for user name and password that you entered at installation time.

Creating, Starting, and Stopping a WebSphere Application Server Account

To create a WebSphere account

1. Navigate to WAS_HOME/bin/ProfileManagement/ directory and run pmt.sh file and provide your account details.

   Example: /opt/IBM/WebSphere/AppServer/bin/ProfileManagement/pmt.sh

   NOTE: If you are working from a remote environment, then set the DISPLAY variable before running the pmt.sh script. Do this in a GUI mode such as xwindows.

   ```
   # DISPLAY=172.20.2.47.0.0
   #export DISPLAY
   ```

To start a WebSphere account

1 Navigate to WAS_HOME/profiles/YOUR_ACCOUNT/bin directory and run startServer.sh file with necessary arguments.

Example: /opt/IBM/WebSphere/AppServer/profiles/AppSrv02/bin

2 Run this command at the terminal:

```
./startServer.sh server1
```

To stop a WebSphere account

1 Navigate to WAS_HOME/profiles/YOUR_ACCOUNT/bin directory and run stopServer.sh file with necessary arguments.

Example: /opt/IBM/WebSphere/AppServer/profiles/AppSrv02/bin

2 Run this command at terminal.

```
./stopServer.sh server1 -username <Account User Name> -password <Account Password>
```

Where Account User Name and Account Password are values that you provide when creating the account.

Class Path and Environment Variable Settings for WebSphere

To set the total transaction lifetime timeout property

1 Navigate to Application Servers > Server1 > Runtime (tab) > Transaction Service.

2 Set the total transaction lifetime timeout property to 300.

To set the WebSphere variables

1 Navigate to Environment >Websphere Variables.

2 Set the variable values as indicated in the following table.

WebSphere Variable Name	Value
ORACLE_JDBC_DRIVER_PATH	<Path to the JDBC Driver Installed Directory>

JAVA_HOME	<Path to the Java Home Directory>

Example:

Property	Value
ORACLE_JDBC_DRIVER_PATH	/opt/oracle/OraHome_3/jdbc/lib
JAVA_HOME	/opt/IBM/WebSphere/AppServer/java

To set Java Virtual Machine (JVM) settings:

1. Navigate to Servers > Application servers > server1.
2. Select Process Definition > Java Virtual Machine under Server Infrastructure > Java and Process Management.
3. Add the required .jar files and directory to the class path. Under Custom Properties you can add a name-value pair, which can be set as internal system configurations.

Configuring XMA

Notification

Change the notification-consumer-cfg.xma.xml file, which is located in %EDX_HOME%/xma/config/com/edocs/common/notification/ for proper mail server configuration.

Set property **smtpHost** corresponding to your mail server IP under the tag

```
<bean id="config"> </bean>
```

Example:

```
<property
name="smtpHost"><value>172.20.2.34</value></property>
```

Hibernate properties

Change the persistence.xma.xml file that is located in %EDX_HOME%/xma/config/modules/ to set the correct hibernate.dialect key in tag <bean id="defaultHibernateProps"></bean> According to Database type.

Example: Database – Oracle 10g:

```
<prop
key="hibernate.dialect">org.hibernate.dialect.Oracle9Dialect</
prop>
```

Configuring the Logger

The **log4j_cc.xml** file is located in **%EDX_HOME%/config** folder. The default appender for the logger will be **JMS**. This will log the logger data in the database. Additionally the **File appender** and the **Console appender** could be used. It is not recommended to use the **JMS** appender when it comes to enabling **DEBUG** priority, since it will lead to flood the database with lots of data.

The changes done to the **log4j_cc.xml** configuration will be dynamically picked up, and the application server or the scheduler does not need to be restarted.

File Appender

Three file appenders are specified in the log4j_cc.xml, namely FILE_ESTATEMENT, FILE_SCHEDULER, and FILE_Thirdparty.

Such as:

FILE_ESTATEMENT:

```
<appender name="FILE_ESTATEMENT"
class="org.apache.log4j.RollingFileAppender">
<param name="File" value="log4j_eStatement.log"/>
```

FILE_SCHEDULER (used for pwc scheduler code):

```
<appender name="FILE_SCHEDULER"
class="org.apache.log4j.RollingFileAppender">
<param name="File" value="log4j_Scheduler.log"/>
```

FILE_Thirdparty (used to redirect third party library logs):

```
<appender name="FILE_ Thirdparty"
class="org.apache.log4j.RollingFileAppender">
<param name="File" value="log4j_Thirdparty.log"/>
```

The above log files are created in the domain folder of the application server. Additionally, if these files do not need to be created under the domain folder, then you can specify the fully-qualified path.

JMS Appender

The JMS appender is used to log the data to the database. Oracle recommends that you set the Threshold value for the JMS appender as **INFO** so that it limits only INFO, ERROR, and WARN messages to be logged to the database. Enabling the Threshold for **DEBUG** floods the database and cause performance issues.

```
<appender name="JMS"
class="com.edocs.fs.logging.appenders.JMSQueueAppender">
<param name="QueueConnectionFactoryBindingName" value="edx/lcf"/>
<param name="QueueBindingName" value="edx/queue/logger"/>
<param name="Threshold" value="INFO"/>
<layout class="org.apache.log4j.PatternLayout">
<param name="ConversionPattern" value="%c %x - %m"/>
</layout>
</appender>
```

Log Category

You can get the logging information for specified different package levels and different appender types. Set parameters in tag **<category></ category>** according to your requirement.

```
<category name="Package_Name" additivity="false">
                <priority value="Priority_Level"/>
                <appender-ref ref="Appender_name"/>
</category>
```

Example:

```
<category name="com.edocs.pwc.scheduler" additivity="false">
                <priority value=" INFO "/>
                <appender-ref ref="FILE_SCHEDULER"/>
                <appender-ref ref="CONSOLE"/>
                <appender-ref ref="JMS"/>
</category>
```

Note: Set the property "**additivity**" to **false** to avoid replication of data.

Generally priority level is set to "**INFO**" to avoid the overhead consumed by the application server.

The logging information that is not related to the defined package level is placed at the **<root></root>** appender. The **FILE_Thirdparty** appender is specified under this, so that any errors in third party libraries will be routed to this file.

Configure Java Resources

Data Source:

This guide assumes in-depth understanding of and practical experience with application server administration. It is designed for experienced WebSphere administrators and primarily presents only the steps and settings specific to eaSuite.

See WebSphere documentation for detailed step-by-step instructions on Java resource configuration, performance, and tuning. Consult your application server administrator for settings that may be specific to your configuration.

Start your WebSphere Server instance and bring up the Administrative Console before you begin this chapter.

Data providers and Data Source Configuration procedure are described in Chapter 8 under "Configuring Java Resources."

Configuring the JMS Resources

Because this example uses WebSphere 6.1 default messaging, this configuration is significantly different from the configuration required for WebSphere application Server Version 6.0. This section describes how to create Bus, Bus member, Bus Destination, and Activation Specifications.

JMS Resources – Bus

1. Expand Service Integration in the left panel of the administrative console, and click Buses.
2. Under Buses, click New.
3. Enter the name for your new bus, and click Next.
4. In the Confirm Creation of New Bus window, Click Finish to complete bus creation.

JMS Resources – Bus Members

1. Click the Created Bus to cause the configuration window to appear.
2. Click Bus Members under Topology.

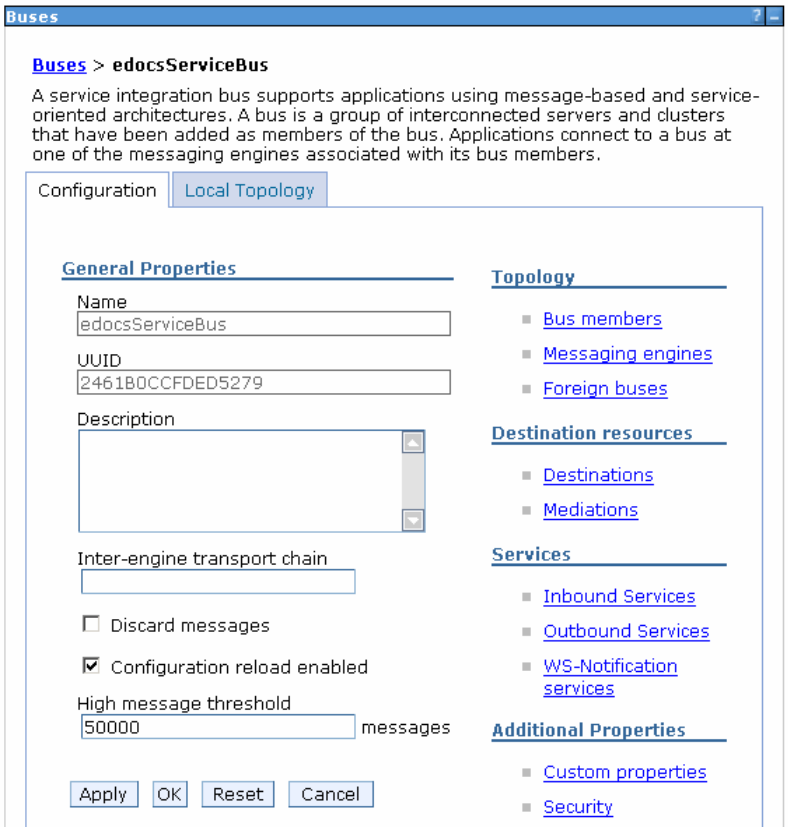


Figure: Specifying New Bus Members

3 On the **Add a new bus member** page, leave the default as Server and click Next.

4 Select the type of message store, for example, File Store, and click Next.

5 In the following window, leave default values for message store properties and click Next.

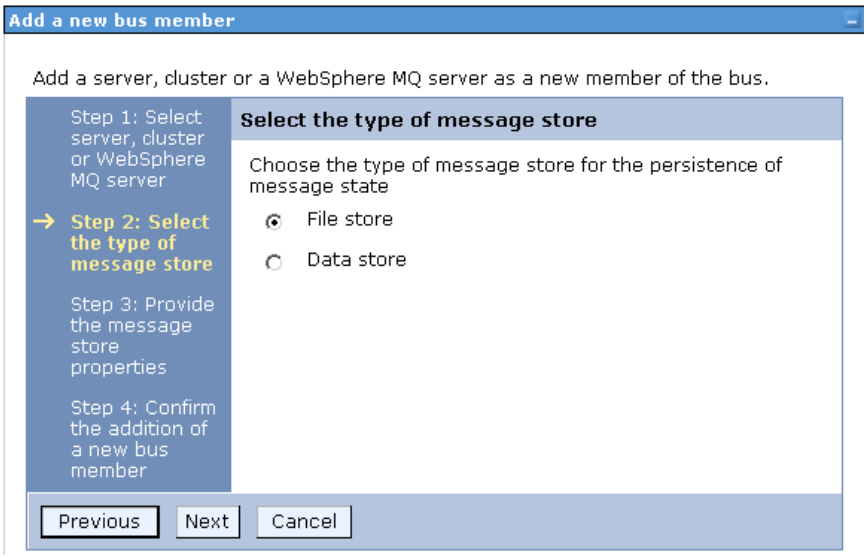


Figure: Selecting Type of Message Store

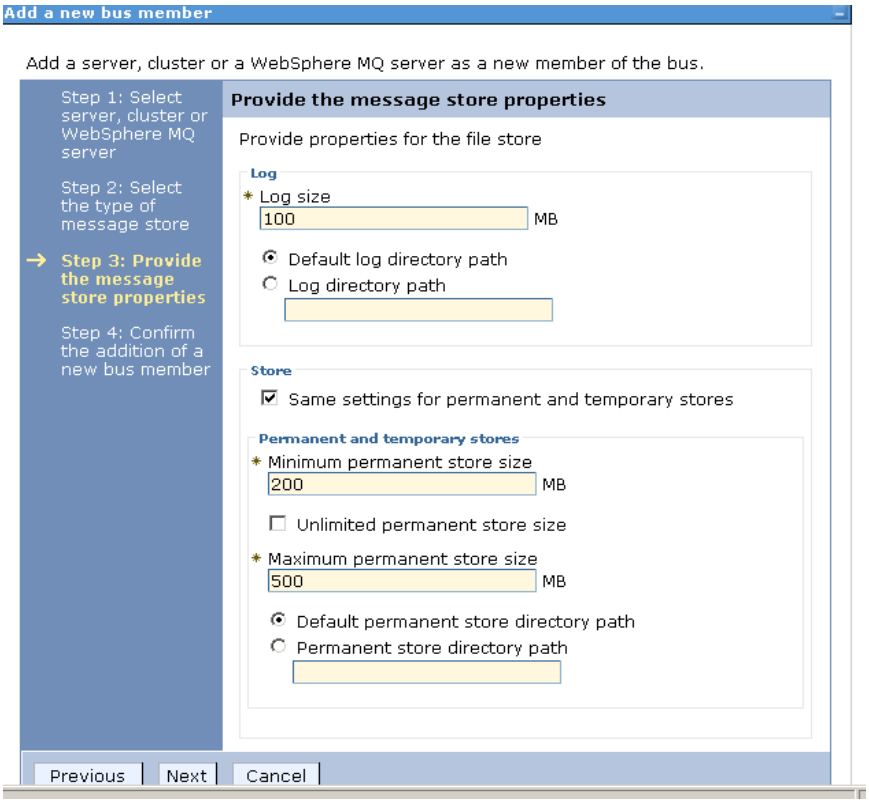


Figure: Selecting Message Stare Properties

6 On the confirmation page, click Finish.

JMS Resources – Bus Destinations

1. Click the created Bus then configuration window will appear. From there click Destinations under Destination resources.
2. There are some destinations already defined. Click New to create a new JMS destination.
3. Select the destination type and click Next.
4. Enter Identifier name for the Identifier and click Next.
5. On the confirmation page, click Finish.
6. Click the Save link at the top of the administrative console. You will see a window prompting you to save to the master configuration.
7. Click the Save button on this page to save the settings to disk.

JMS Resources - JMS Activation Specification

1. Create JMS Activation Specification with a suitable name and a JNDI name when necessary. Make sure to add the correct destination JNDI name at each time when you create an activation specification.
2. Click Default messaging provider to return to the provider page.

Figure: Selecting Activation Specification

3. Under Additional Properties, click Activation Specification.
4. Click New to create a new activation specification.
5. Enter Name and the JNDI name
6. Make sure that the Destination type is set to the correct type, and enter the correct Destination JNDI name.
7. For the Bus name, select created bus name.

8 Click OK.

9 Click the Save link at the top of the administrative console. You will see a window prompting you to save to the master configuration.

10 Click the Save button on this page to save the settings to disk.

7 Configuring the WebSphere Application Server for UNIX

Overview

This chapter assumes in-depth understanding of and practical experience with WebSphere Enterprise Server. Consult your WebSphere documentation as necessary.

Oracle recommends that you install and configure eStatement Manager in the same top-level directory structure, first on the database server, then the application server.

If you have not already installed database server components and configured the database server for eStatement Manager, do so now.

TIP: For distributed environments, ensure that you have any required **database client software** installed on your application server and any other client machines of your database server.

CAUTION: The installation and configuration examples shown in this guide use default eStatement Manager pathnames, privileges, and permissions. If you choose not to accept the default values, make sure your values are consistent on all servers across your installation of eStatement Manager.

UNIX Permissions for WebSphere Server

Application servers running eStatement Manager will not function correctly without access to eStatement Manager config files, storage directories, and related resources. When installing eStatement Manager on WebSphere Server, you were asked to specify the owner and group permissions (**`userid:groupid`**) of the application server. If you made a mistake during installation, you must change the owner and group permissions for the directory, including all subfolders, to the application server owner.

This guide uses the example username and password **`edxadmin:edxadmin`** as the application server owner and group for the eaSuite.

DEFAULT	EXAMPLE	CUSTOM
Specified during installation.	**`edxadmin:edxadmin`**	

For details on owner and group permissions for WebSphere, please consult the documentation for your platform.

If your application server administrator uses custom user and group permissions, you can reset these permissions with the **`chown`** command.

To reset user and group permissions:

1 Switch user to the default owner of your application server home directory.

2 Recursively change the user and group permissions of the application server installation directory and all subdirectories to the application server owner.

```
chown -R edxadmin:edxadmin /opt/WebSphere
```

3 Switch user to your application server owner and configure your application server with your new owner.

TIP: Verify the owner information in any profile files that are used by the database server owner and application server owner. See your server documentation for details.

Starting and Stopping WebSphere

Developers and system administrators should be familiar with how to stop and start the WebSphere server and any active web applications for your platform.

For details on starting and stopping your WebSphere server and for verifying startup, consult the server documentation for your platform.

Starting and Stopping an Active Application Server

Improperly starting or stopping an application server in an active eStatement Manager production environment can produce unexpected and unintended results. You can create custom startup and shutdown scripts that include all your command parameters, as well as the command used to start or stop the Scheduler.

CAUTION: The default command-line startup shell scripts are fine for an inactive production environment where there are no running jobs.

UNIX Environment Variables for WebSphere

About UNIX Config Files for Your eStatement Manager Environment

eStatement Manager installs several configuration files that you use to define your eStatement Manager environment.

- edx_config: This shell script, $EDX_HOME/bin/edx_config, prompts you to specify environment variables for your application server.
- edx_env: This configuration file, $EDX_HOME/config/edx_env, stores the environment variables you specify in edx_config, to pass at application server startup.
- edx.config: This script file, $EDX_HOME/config/edx.config, passes the environment data in edx_env to your application server through your startup script.

Setting UNIX Environment Data with *edx_config*

edx_config prompts you to enter values for your Java and database installation, including absolute directory pathnames or user identification information**.** *Run this script any time that you need to modify your eStatement Manager environment. Do not modify edx_env directly.*

If you have not already done so, verify that the ownership of the $EDX_HOME directory is set to the user and group of the application server owner. If not, change it before running edx_config.

CAUTION: Be sure the time zone (TZ) for your server is set to your system time zone. eStatement Manager jobs can fail if Java system time does not match actual system time.

***To set environment data with* edx_config**

1. Switch user to the application server owner, in this example **edxadmin.**
   su - edxadmin
2. Navigate to the **bin** directory for eStatement Manager on your application server, for example

   ```
   cd $EDX_HOME/bin
   ```
3. Run the script **edx_config**.

   ```
   ./edx_config
   ```
4. Enter values as prompted by the script for your database home, database username and password, application server, Java home, and application server profile location.

CAUTION: Make sure that the database values you enter in this session are the same values specified during database configuration. Consult your DBA for any custom settings specific to your platform.

Passing eStatement Environment Data to WebSphere

To pass your **eStatement Manager** environment to your application server, you must edit your application server startup script to:

1. Set values for your eStatement Manager home, application server home, and Java home directories.
2. Call and process the configuration script **edx.config.** This procedure is called **sourcing** your configuration.

CAUTION: The code examples in the following section are for **WebSphere** on **Solaris**. Use these procedures with the environment variables for your application server and platform.

To pass your eStatement Manager environment to WebSphere

1. Switch user to your application server owner, for example **edxadmin**.

   ```
   su - edxadmin
   ```
2. Stop your application server. For example,

   ```
   cd $WAS_HOME/profiles/<profilename>/bin
   ./stopServer.sh server1
   ```
3. Keep a backup copy of the server startup script for your profile. For example,

   ```
   cd $WAS_HOME/profiles/<profilename>/bin
   ```

```
cp startServer.sh startServer.bak
```

4 Change directory to the location of your application server startup script and open the file for editing. For example,

```
cd $WAS_HOME/profiles/<profilename>/bin
```

```
vi startServer.sh
```

CAUTION: Do not modify the main startup script of the Websphere server located in $WAS_HOME/bin directory. Modify the file in your current profile where eStatement Manager is going to be installed.

5 Declare and initialize the variable $EDX_HOME near the beginning of the file with other variable declarations. For example:

```
#!/bin/sh

WAS_USER_SCRIPT=/opt/IBM/WebSphere/AppServer/profiles/AppSrv02/bin/setupCmdLine.sh

export WAS_USER_SCRIPT

EDX_HOME=/opt/eaSuite/eStatement

export EDX_HOME

WAS_HOME=/opt/IBM/WebSphere/AppServer

export WAS_HOME
```

6 In the same file, source **edx.config** just before the command to start the JVM. The dot and space preceding the pathname are a required part of the syntax. For example:

```
. $EDX_HOME/config/edx.config
```

7 Save and close the **startServer.sh** file.

To edit the mtmalloc library in startServer.sh script for better performance in a multithreaded environment (optional)

1 LD_PRELOAD_32=/usr/lib/libmtmalloc.so

2 LD_PRELOAD_64=/usr/lib/sparcv9/libmtmalloc.so

3 export LD_PRELOAD_32

4 export LD_PRELOAD_64

5 The value is usually 900 or higher.

6 Save and close the file.

Start the Server

When you have finished the steps to pass your eStatement Manager environment to WebSphere, re-start the server. For example:

```
./startServer.sh server1
```

Overview

This chapter assumes in-depth understanding of and practical experience with application server administration. It is designed for experienced WebSphere administrators and primarily presents only the steps and settings specific to eStatement Manager.

See WebSphere Server documentation for detailed step-by-step instructions on Java resource configuration, performance, and tuning. You must also consult your application server administrator for settings that may be specific to your configuration.

You must start WebSphere Server and bring up the Administrative Console before you begin this chapter.

NOTE: If you cannot bring up the WebSphere Console/Client, you cannot proceed with configuring the application server for eStatement Manager.

Setting Total Transaction Lifetime Timeout

Transaction lifetime timeout is a configurable parameter that you must set according to environmental conditions such as number of users, access method, and load. Customize the value accordingly. A good starting value for the JTA option is 60 seconds. Set total transaction lifetime timeout to 1200.

To set transaction lifetime timeout

1. Log in to the console.
2. Navigate to Application servers > server1 > Transaction Service.
3. Set **Total Transaction lifetime timeout** to 1200.

Configuring Java Database Connectivity (JDBC) for eStatement Manager

After you have successfully configured the eStatement Manager database, you must configure Java Database Connectivity (JDBC) resources on the eStatement Manager application server. JDBC Connections on the application server support data retrieval from relational databases and other data sources.

About JDBC Connections for eStatement Manager

JDBC connection pools contain named groups of JDBC Connections that are created when the connection pool is registered, usually when starting up your application server. Your application server opens JDBC Connections to the database during startup and adds these connections to the pool. A J2EE web application borrows a connection from the pool, uses it, and then returns it to the pool by closing it.

JDBC transaction data sources enable JDBC clients to obtain a connection to a Database Management System (DBMS). Each data source points to the value specified for the Name attribute when a JDBC connection pool was configured.

TIP: The edxAdmin connection pools support concurrency for scheduling multiple jobs. Tuning edxAdmin connection capacity and threads can improve eStatement Manager email performance.

This chapter provides steps to create and configure JDBC Connections. See your application server documentation for details and more information.

CAUTION: Make sure you are using the correct properties for your application server and database combination.

Configuring JDBC Connections for WebSphere

WebSphere Environment Variables

VARIABLE	DESCRIPTION	SOLARIS
WAS_HOME	Application Server home	**/opt/WebSphere/AppServer**
APP_OWNER	app server owner	**Edxadmin**
APP_GROUP	app server group	**Edxadmin**
APP_PORT	app server port	**9080**
ADMIN_PORT	app server admin port	**9060**
JAVA_HOME	Java home directory	**$WAS_HOME/java**
JMS_HOME	MQSeries java client directory	**/opt/mqm/java**

CAUTION: Make sure you set all paths to the appropriate point releases/patches for your application server and JDK, if necessary. Check the Release Notes and your system documentation for updated requirements.

Creating a JDBC Provider

To create a JDBC Provider

1. Navigate to Resources > JDBC > JDBC providers.
2. Select Scope and Click New.
3. Select Oracle for the database type, Oracle JDBC Driver for the provider type, and **Connection pool data source** for the implementation type.

4 Click next.

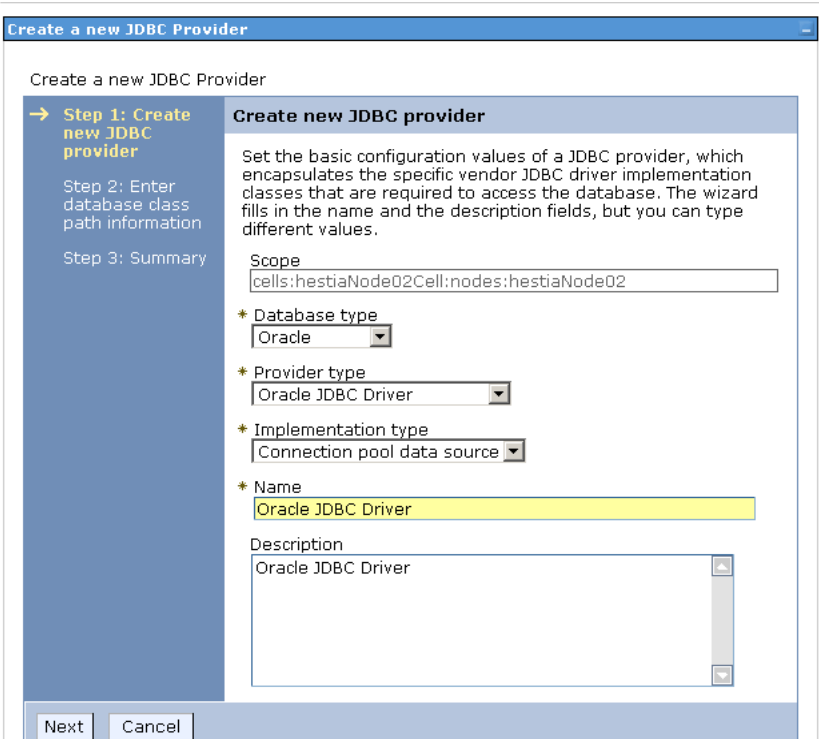


Figure: Creating the JDBC Provider

5 Enter a value for Directory Location for the ojdbc14.jar file and click Next.

Example: /opt/oracle/OraHome_3/jdbc/lib

6 In the Summary page click Finish to complete the JDBC provider configuration.

NOTE: While configuring JDBC and JMS resources, use the same scope that you selected above.

Establishing Database Connectivity (JDBC) for eStatement Manager

Create five data sources for the eStatement Manager application using the following table and the procedure described below.

Data Source Name	JNDI Name
edxAdminDataSource	edx.databasePool
edxUserDataSource	edx.user.databasePool
edxLoggerDataSource	edx.logger.databasePool
edxXMADataSource	edx/xma/databasePool

edxMessageDataSource	edx.messaging.databasePool

To establish data sources

1 Navigate to Resources > JDBC > Data Sources.

CAUTION: Do not click Data Sources (Version 4). They do not support the new EJB specification 2.x.

2 Select the appropriate scope and click New.

3 Provide a data source name and the corresponding JNDI name and click Next.

4 Choose **Select an existing JDBC provider** to select the JDBC provider that you created earlier and click Next.

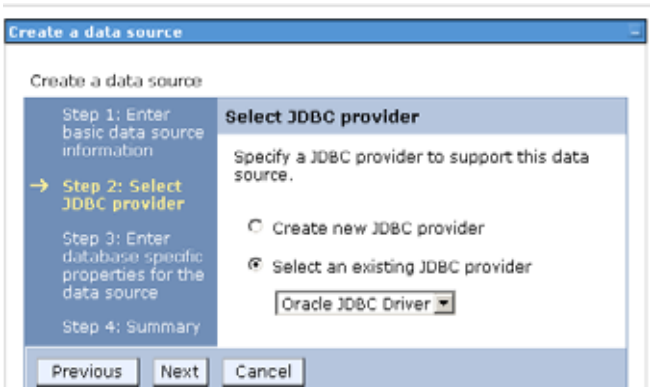


Figure: Selecting a JDBC Provider

5 Enter database-specific properties for the data source such as URL and data store helper class name and click Next.

Property	Value
URL	jdbc:oracle:thin:@<DB_Server>:<Port_Number>:<DB_Alias_Name>
Data store helper class name	Select Correct Helper Class Oracle10g data store helper

Example of Database-Specific Properties for a Data Source:

Property	Value
URL	jdbc:oracle:thin:@172.20.2.52:1521:EDX44
Data store helper class name	Oracle10g data store helper

6 In the summary page click Finish to complete data source configuration. You see the created Data sources.

7 Click each data source and select **Custom properties** Under Additional Properties. Add two custom properties as user and password, and delete the property userTransactionRedirect.

Property	Value
Name	user
Value	<Oracle DB User Name>
Name	Password
Value	<Oracle DB Password>

8 Click OK.

Testing Data Sources

After you have configured data Sources correctly, you can test them in the Administrative Console. Select the created Data Sources and click Test Connection as illustrated in the following figure.

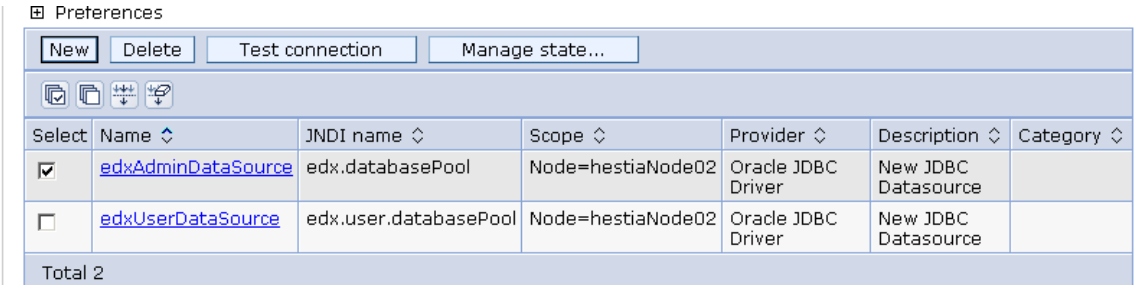


Figure: Testing a Data Source

Configuring JMS Resources for eStatement Manager

Configure JMS resources for event handles and loggers and described in this section.

JMS Resources – Event Handlers - Bus and Destination

To create JMS Resources for event handlers

1. Create new Bus without enabling security for the bus, for example **edocsServiceBus**.
2. Add **Bus member** and Create Bus **Destination** as **Queue**.
3. Give Name for **Identifier,** for example, **edocsQueue**, and click **Next**.
4. Select **Scope** and click **Next.**
5. In the **Confirm Queue Creation** window, click **Finish** and Save to save your changers to Master Configuration.

JMS Resources – Event Handlers – Connection Factory

Create the two connection factories shown in following table.

Connection Factory	JNDI Name
EventsConnectionFactory	edx.qcf
EventsforeignConnectionFactory	edx.foreign.qcf

To create a connection factory

1. Navigate to Resources > JMS > JMS providers > Default Messaging provider > Queue connection factories.
2. Click New.
3. Enter a connection factory name (EventsConnectionFactory) and its JNDI name (edx.qef) under the Administration region.
4. Select a bus name, such as edocsServiceBus.
5. Select correct Provider endpoints under the Connection region according to following format:

   <YOUR APPLICATION SEREVER IP>:< SIB_ENDPOINT_ADDRESS>

   Example: 172.20.2.10:7277

   TIP: You can find the SIB_ENDPOINT_ADDRESS number in Servers > Application servers > server1 > Ports.
6. Click Apply and Save to save your configurations.
7. Follow the same steps to create other connection factories and provide appropriate values.

JMS Resources – Event Handlers – Queue

Create the two queues shown in the following table.

Queue Name	JNDI Name
EventsQueue	edx.queue.outbound
EventsforeignQueue	edx.foreign.queue.outbound

To create an event handler queue

1. Navigate to Go to Resources > JMS >JMS providers > Default Messaging > Queues.
2. Click New.
3. Enter a queue name (EventsQueue) and a corresponding JNDI name (edx.queue.outbound).
4. In the Connection region, select your bus name and queue name that you added under Bus Destination.
5. Click Ok and Save to save your configurations.
6. Follow the same steps to create other queues and provide appropriate values.

JMS Resources – Event Handlers – Queue - Activation Specifications

You must create two activation specifications, shown in the table below, for the created two queues with suitable names and the JNDI names.

Queue Activation Name	JNDI Name	Destination JNDI Name
EventsQueueActivation	jms/MessageDispatcher	edx.queue.outbound
EventsforeignQueueActivation	jms/ForeignMessageDispatcher	edx.foreign.queue.outbound

To create queue activation specifications

1. Navigate to Resources > JMS > JMS providers > Default Messaging > Activation Specifications.
2. Click New
3. Enter the proper queue activation name (EventsQueueActivation) and corresponding JNDI name (jms/MessageDispatcher).
4. In the Destination region, select Queue as the destination type, and enter values for Destination JNDI name (edx.queue.outbound) and Bus name (edocsServiceBus).
5. Click Ok and Save to save your configurations.
6. Follow the same steps to create other queue activation specifications and provide appropriate values.

JMS Resources – Logger Modules

To create logger modules

1. Go to Service integration > Buses.
2. Create a new bus without enabling the security for the bus. An example name is edocsLogBus.
3. Click the created bus, and add a bus member.
4. Navigate to Buses > Your Created Bus > Destinations.
5. Create new queue. An example name is LogQueue.
6. Navigate to Resources > JMS > JMS providers > Default messaging provider > Connection factories > Queue connection factories.
7. Click New.
8. Create a connection factory with the values specified in the following table and save your configurations.

Property	Value
Name	LoggerConnectionFactory
JNDI name	edx/lcf
Bus name	<Created_Bus_Name>
Provider endpoints	<Your_Application_Serever_IP>:<SIB_ENDPOINT_ADDRESS>

9 Navigate to Resources > JMS > JMS providers > Default messaging providers > Queues.

10 Click New.

11 Create a queue with the values specified in the following table and save your configurations.

Property	Value
Name	LoggerQueue
JNDI name	edx/queue/logger
Bus name	<Created_Bus_Name>
Queue name	<Created_Queue_Name>

12 Navigate to Resources > JMS > JMS providers > Default messaging provider > Activation specifications.

13 Click New.

14 Create activation specifications with suitable values for **Name** and **JNDI name** with other values given in following table. In the table, <Created_Bus_Name> is a bus name created in step two, and <Created_Queue_Name> is queue name created in step five. Save your configurations.

Property	Value
Name	<Your_Logger_Activation_Name>
JNDI name	<Your_Logger_Activation_JNDI>
Destination type	Queue
Destination JNDI name	edx/queue/logger
Bus name	<Created_Bus_Name>

Example of Activation Specifications

Property	Value
Name	LoggerActivation
JNDI name	jms/Logger
Destination type	Queue
Destination JNDI name	edx/queue/logger
Bus name	edocsLogBus

Creating J2C Authentication Aliases

To create J2C authentication aliases for EJB modules Logger and Events

1. Navigate to Security > Secure administration, application, and infrastructure > Authentication > Java Authentication and Authorization Services > J2C authentication data > New.

2. Create two authentication aliases, Logger_ASAuthAlias and MessageDispatcher_ASAuthAlias, as given in the following table. Do so in the General Properties region within the Configuration tab by assigning values to the three indicated properties.

Property	Value
Alias	<Alias>
User ID	<Your Profile Login User ID>
Password	<Your Profile Login Password>

Deploying the eStatement Manager Application

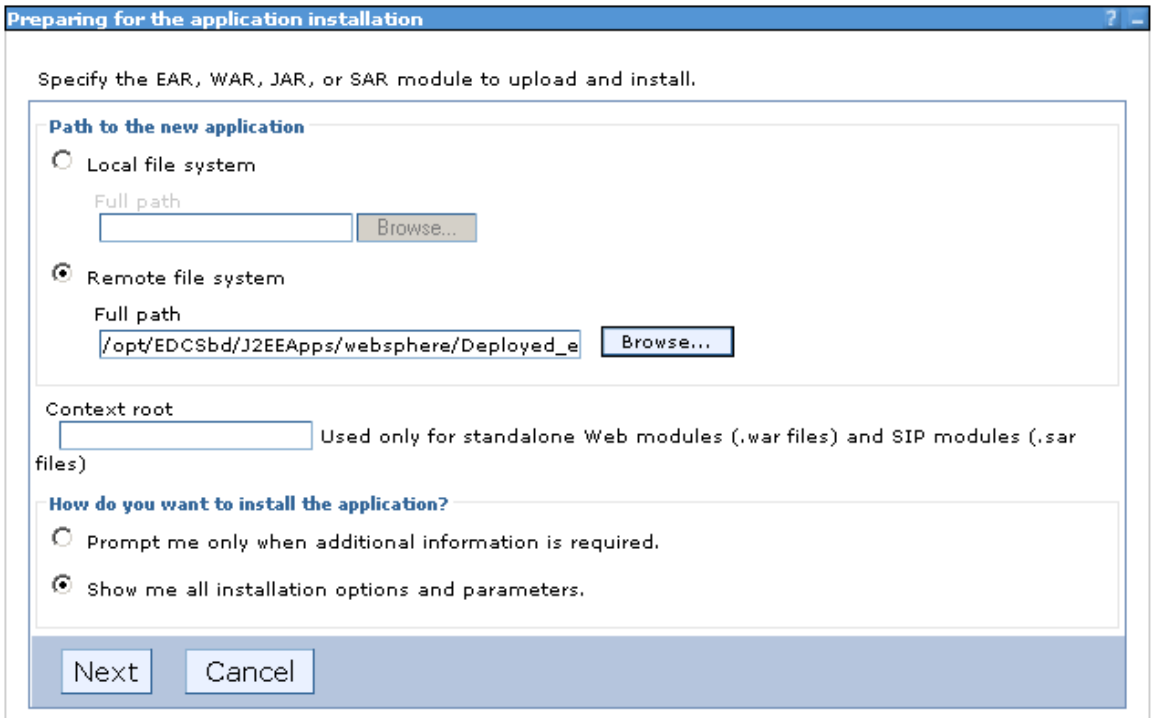
After your application server is configured successfully, you can proceed to deploy the eStatement Manager J2EE applications that power eaSuite.

To deploy the eStatement Manager web application with WebSphere

1. Navigate to Applications > Install New Application.

2. If the application is on your local machine, select **Local file system.** Otherwise select **Remote file system.**

3 To apply during deployment the properties for message driven bean listener bindings, select **Show me all installation options and parameters.**



4 Click Next.

5 Accept default settings up to the **Bind listeners for message-driven beans** window.

6 At the **Bind listeners for message-driven beans** window, provide correct Activation Specifications for Logger and MessageDispatcher EJB's as Binders, as follows:

Activation Specifications for the Logger

Property	Value
Activation Specification JNDI Name	<Your_Logger_Activation_JNDI>
Destination JNDI name	edx/queue/logger
Activation Specification alias	<Node Name>/ <Logger_Alias>

Example of Logger Activation Specifications

Property	Value
Activation Specification JNDI Name	jms/Logger
Destination JNDI name	edx/queue/logger
Activation Specification alias	hesitaNode05/Logger_ASAuthAlias

Activation Specifications for MessageDispatcher

Property	Value
Activation Specification JNDI Name	<Your_MessageDispatcher_Activation_JNDI>
Destination JNDI name	edx.queue.outbound
Activation Specification alias	<Node Name>/ <Events_Alias>

Example of Activation Specifications for MessageDispatcher

Property	Value
Activation Specification JNDI Name	jms/MessageDispatcher
Destination JNDI name	edx.queue.outbound
Activation Specification alias	hesitaNode05/MessageDispatcher_ASAuthAlias

NOTE: To set Message Driven Bean Listener Bindings Properties after deployment, select **Prompt me only when additional information is required.** When you finish the deployment, click on the deployed application and select **Message Driven Bean listener bindings** under Enterprise Java Bean Properties.

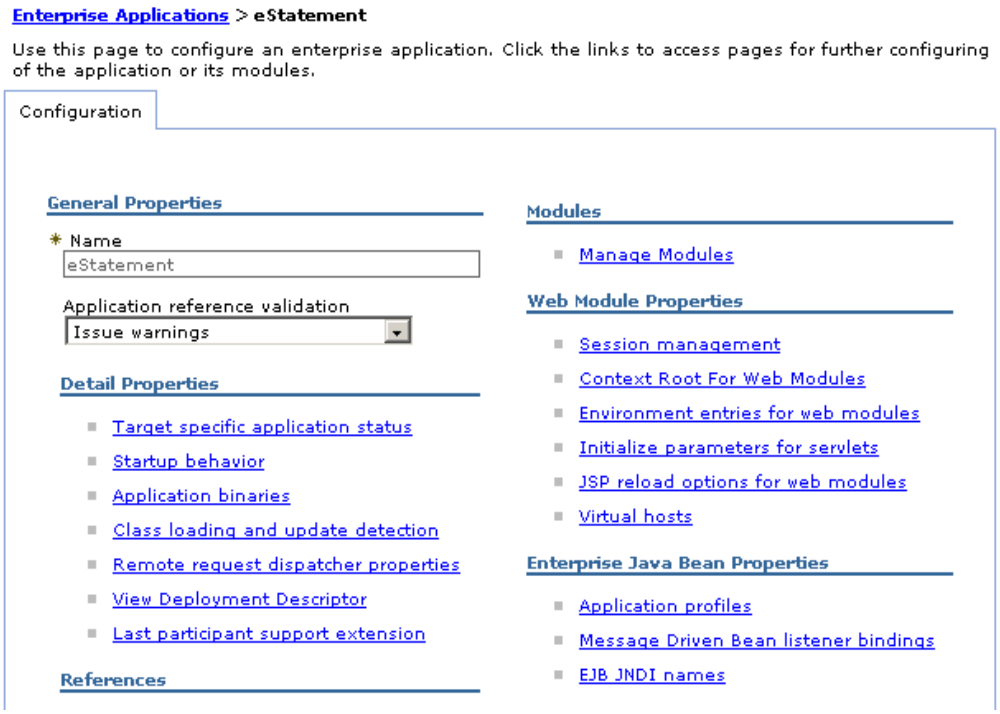


Figure: Enterprise Application Configurations

7 Accept default setting for other windows, and at the end save your deployment setting to the master configuration.

The Enterprise Applications window appears.

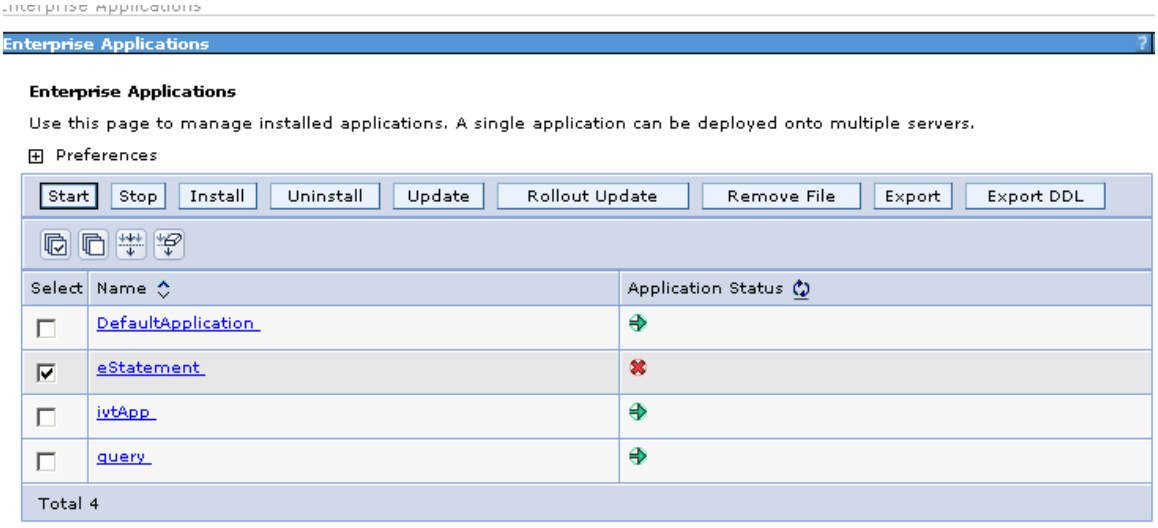


Figure: Changing Application Status

8 Select the application to be deployed, in this case eStatement, and click Start.

9 Click on the deployed application, click **Last participant support extension** under Detail Properties**,** and check **Accept heuristic hazard** to accept a two-phase transaction that contains a one-phase resource.

Dealing with Deployment Problems

While deploying an application, you may encounter an error such as the following:

- [EJBDeploy] The compiler has run out of memory. Consider using the "-J-mx<number>" command line option to increase the maximum heap size.
- An error occurred from the EJBDeploy program: An unexpected exception was thrown. Halting execution. [severity 2]
- [EJBDeploy] Error executing deployment: java.lang.OutOfMemoryError. Error is PermGen space.

In such cases, do the following:

1 Navigate to WAS_HOME/deploytool/itp/.

2 Edit PermSize in the Platform region.

3 Increase the maximum heap size under the $JAVA_CMD region in the ejbdeploye.sh file.

The following figure is a listing that shows settings for PermSize and the maximum heap size.

Figure: Changing PermSize and the Maximum Heap Size

```
        EJBDEPLOY_JVM_OPTIONS="-Xj9 -Xquickstart -Xverify:none";;
    SunOS)
        JAVA_CMD="$JAVA_HOME/jre/bin/java"
        EJBDEPLOY_JVM_OPTIONS="-XX:PermSize=128m -Xverify:none";;
    HP-UX)
        JAVA_CMD="$JAVA_HOME/jre/bin/java"
        EJBDEPLOY_JVM_OPTIONS="-XX:PermSize=40m -Xverify:none";;
    OS/390)
        # For z/OS, use ascii file-encoding and ebcdic output-encoding
        JAVA_CMD="$JAVA_HOME/bin/java"
          EJBDEPLOY_JVM_OPTIONS="-Dfile.encoding=ISO8859-1 -Xnoargsconversion "$EJBDEPLOY_JVM_OP
        if [ "$EJBCALLER" = "WEBSPHERE" ] ; then
           ejbd_cp=$ejbd_cp':'$WAS_CLASSPATH
           EJBDEPLOY_JVM_OPTIONS=$EJBDEPLOY_JVM_OPTIONS" -Dws.output.encoding=ISO8859-1 "
        fi;;
esac

# set options for ejb deploy....
ejbdopts="$@"
export itp_cp ejbd_cp ejbd_bootpath ejbdopts

$JAVA_CMD \
        -Xbootclasspath/a:$ejbd_bootpath \
    -Xms256m -Xmx1024m \
    -Dws.ext.dirs=$WAS_HOME/eclipse/plugins/j2ee.javax_1.4.0:$WAS_HOME/eclipse/plugins/com.ibm
    -Dwebsphere.lib.dir=$WAS_HOME/lib \
```

Running eStatement Manager

To run eStatement Manager:

In a browser type the URL in following format:

http://<hostname>:<port>/eBilling

Where WS_APP_SVR_IP is your WebSphere Application Server IP address, and PORT_NUMBER is the WC_defaulthost port number in your server.

Example:

`http://172.20.2.58:9082/eBilling/`

Running the Scheduler

Start the eStatement Manager Scheduler to schedule and run jobs in the eStatement Manager Command Center. If you attempt to run a new job with the Scheduler not running, then the job does not run and you see 'Not yet started' as its status.

The eStatement Manager scheduler does not need to be started until after you have deployed the EAR file.

To start the eStatement Manager Scheduler from the UNIX command line

1 Switch user to the application server owner.

```
su - edxadmin
```

2 Change to the bin directory of your eStatement Manager installation, $EDX_HOME/bin.

3 Run the Scheduler command for your application server, host, and port:

```
./ws_scheduler -start -url iiop://<Computer Name>:<Port Number >
```

where Port Number refers to the bootstrap port.

For example:

```
./ws_scheduler –start -url iiop://localhost:2811
```

You can find the JNDI port for your server by opening the WebSphere Administrative Console and navigating though the pages Application Servers > server_name > Configuration tab > Communications > port > BOOTSTRAP_ADDRESS.

TIP: You typically use the default port for the administration server. You can specify another port number if necessary, but it must match the port for the administration server.

4 You can stop the Scheduler by replacing the **`-start`** parameter with the **`-stop`** parameter.

The com.edocs.pwc.cli.CLIScheduler application is a command line interface for use with Scheduler. For details about this application, see *SDK Guide for Oracle Siebel eStatement Manager.*

8 Running eStatement Manager in an Administrative Security Enabled Environment

Overview

This chapter explains the configuration steps that are required to run the application client for eStatement Manager with default security settings. To proceed, you must have already created a WebSphere account with security enabled.

NOTE: If you want to use the default WebSphere profile or enable security, then you must configure a user repository. See Appendix A for more information.

Security Level

To set the security level

1. Navigate to Security > Secure administration, application, and infrastructure.
2. Select only **Enable administrative security**.
3. Under **User account repository**, select **Federated repositories** as **Available realm definition**.
4. Under **custom properties**, add the following value-pair properties:
   - Name: com.ibm.websphere.security.registry.propagateExceptionsToClient
   - Value: true
5. Accept default SSL certification and key management settings.
6. The Bus Security is used in disabled mode. For each bus the option, **Allow the use of all defined transport channel chain** is enabled under the **Permitted transports** region. This comes under the security section of each bus.

Configuring the sas.client.props File

To configure the sas.client.props file

1 Configure the sas.client.props file, which is located in <Your Profile>/properties/, with the following information:

```
com.ibm.CORBA.securityServerHost=<Application SVR IP>

com.ibm.CORBA.securityServerPort=<bootstrap port>

com.ibm.CORBA.loginSource=properties

com.ibm.CORBA.loginUserid=<Your Profile User ID>

com.ibm.CORBA.loginPassword=<Your Profile Password>
```

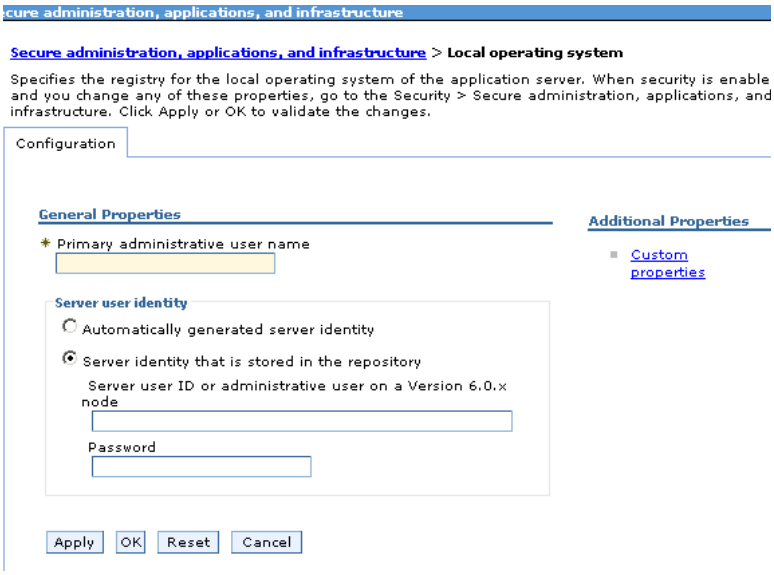
2 Because this configuration uses defaults that the application server provides for keyStore and trustStore, change the default passwords for keyStore and trustStore.

3 The above configuration settings are also the same for Local operating system, User account registry. In this case, select Local operating system instead of Federated repositories as the Available Realm definition.

4 Click Configure to add Primary administrative user name, User ID, and Password.

5 Change the sas.client.props file accordingly so that it has the correct user ID and password.

Figure: Configuring User Properties for a Local Operating System



6 Click Apply and **Set as** current.

9 Packaging the Hibernate and C3PO Libraries

This chapter covers the packaging of the Hibernate and C3PO third-party libraries.

Prerequisites to Packaging

You must have installed:

- At least one of the following eaSuite 4.7 components:
  - eStatement Manager
  - ePayment Manager
  - eaAssist
- JDK 1.5
- Ant 1.6.5 or later

Configuring the Environment for Packaging

Assure that Ant and Java paths are properly set. Configure the environment for them as follows:

```
ANT_HOME=/opt/apache-ant-1.6.5
JAVA_HOME=/opt/jdk1.5.0_04
export ANT_HOME
export JAVA_HOME
PATH=$JAVA_HOME/bin:$ANT_HOME/bin:$PATH
Export PATH
```

Downloading and Installing the Third-Party Libraries

Download the following required third-party libraries:

- Hibernate 3.1.3
- C3PO 0.9.0

The following table shows the library names and installation instructions for the Solaris platform:

JAR File Name (Linked to the download site)	OS	File Name after downloading	Tool/Commands to install
hibernate-3.1.3.jar	UNIX (Solaris)	hibernate-3.1.3.tar.gz	gzip -d hibernate-3.1.3.tar.gz tar –xvf hibernate-3.1.3.tar
c3p0-0.9.0.jar	UNIX (Solaris)	c3p0-0.9.0.bin.gz	gzip -d c3p0-0.9.0.bin.gz tar -xvf c3p0-0.9.0.bin

Install these libraries on a server that eaSuite 4.7 application server components can access. Set proper permissions to these libraries in order to package them with the eaSuite product. The next section describes packaging.

Packaging eStatement Manager

To package eStatement Manager

1 Edit the EDX_HOME/pkgUtil/package.properties property file located in EDX_HOME/ pkgUtil as shown in the following table:

Property Name	Value
EDX_HOME	C:/eStatement
HIBERNATE_JARFILE_LOC	C:/eStatement/hibernate-3.1
C3P_JARFILE_LOC	C:/eStatement/c3p0-0.9.0/lib

a Set EDX_HOME to the eStatement Manager home.

b Set the property value HIBERNATE_JARFILE_LOC to the Hibernate installation location. If you downloaded the hibernate jar file some other way, then provide up to the folder location where hibernate3.jar resides. . For example, to set the location of the hibernate3.jar file, do the following:

```
HIBERNATE_JARFILE_LOC=C:/hibernate-3.1
```

c Set the property value C3P_JARFILE_LOC to the location where the c3p0-0.9.0.jar file resides. For example, to set the c3p0-0.9.0.jar file location, do the following:

```
C3P_JARFILE_LOC=C:/c3p0-0.9.0/lib
```

2 Navigate to EDX_HOME/pkgUtil and invoke Ant without arguments. For example,

```
cd /opt/eStatement/pkgUtil

ant
```

The Ant script completes the repackaging task and displays a message of success.

Failure Recovery

Several reasons exist for getting a BUILD FAILED message during Ant execution:

- Incorrect package.properties file:
  - PRODUCT_HOME is incorrect.

    For example, for ePayment Manager a valid path entry like the following must exist:

    ```
    PAYMENT_HOME=/opt/ePayment
    ```

    Setting an invalid path or property name causes an error, as in the following assignment:

    ```
    EDX_HOME=/opt/ePayment
    ```

  - Either HIBERNATE_JARFILE_LOC or C3P_JARFILE_LOC is incorrect.
  - Either the property HIBERNATE_JARFILE_LOC or the property C3P_JARFILE_LOC is not defined at all.
- Unavailability of JAR files in the specified locations.
- Incorrect JAR file names. The expected jar files are hibernate3.jar and c3p0-0.9.0.jar.

  NOTE: You may get a BUILD SUCCESSFUL message without causing any repackaging if you remove the PRODUCT_HOME property from the package.prioperties file.
- System crash during the Ant execution
- Lack of free disk space

To recover from any of these issues, correct them and re-invoke the Ant target. No manual removal of partially built components or temporary directories is required.

10 Uninstalling eStatement Manager

Overview

This chapter describes how to uninstall and remove eStatement Manager components, deployed J2EE applications, and Windows services. This chapter applies to all platforms. UNIX users do not need to uninstall Windows services unless your system uses both platforms.

Repeat the sequence used to install components: uninstall eStatement Manager from the **database server** first, then the **application server**.

The uninstaller does **not** delete any directories that contain files modified since installation. Instead, it lists these items, which must then be manually removed.

Uninstalling eStatement Manager

Before uninstalling eStatement Manager components, you must:

- Stop your application server.
- Stop your database instance.
- Stop your database server.
- UNIX users should also switch user to **root**, which is the default owner of the Uninstall directory.

The Uninstaller is located in the **Uninstall** folder of your eStatement Manager home directory. See Installing eStatement Manager.

To uninstall eStatement Manager

1. Navigate to the **Uninstall** folder of your eStatement Manager home directory, **$EDX_HOME.**
2. UNIX users may launch the eStatement Manager Uninstaller with the command **./Uninstall_eStatement**. The dot and slash are required, and there is no space after the slash.

   ```
   ./Uninstall_eStatement
   ```

3. The Uninstall screen appears.
4. Click Uninstall. A second uninstall screen appears showing eStatement Manager components being removed from your machine.

When the uninstaller is finished, a screen appears listing any items that could not be removed.

5. Change directory to your eStatement Manager home directory and manually remove any remaining files and directories as necessary.

6 Click Done to close the uninstaller.

7 Repeat this procedure on your application server and any other installations.

11 Appendix A: Configuring a User Repository

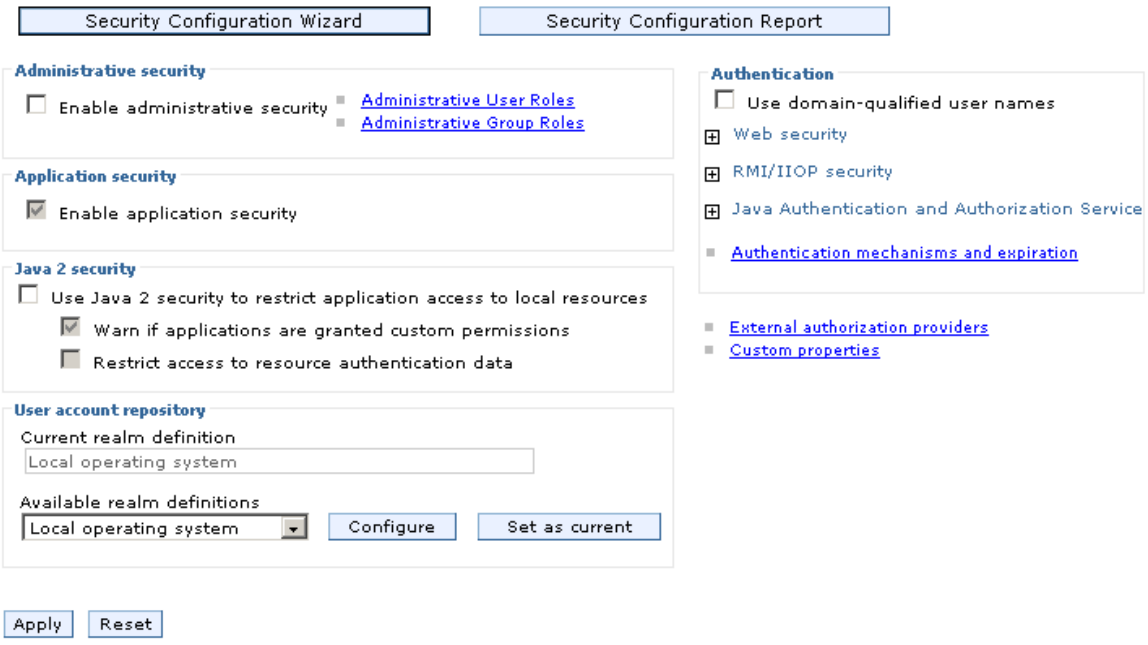
Undeploying eStatement Manager J2EE Applications

When migrating to a new version of eStatement Manager, you must first undeploy J2EE applications running on your application server. After you have migrated your database, then redeploy the new versions of each eaSuite web applications, including eStatement Manager and samples.

For more information on deployment, see *Deploying and Customizing J2EE Applications Guide for Oracle Siebel eStatement Manager.*

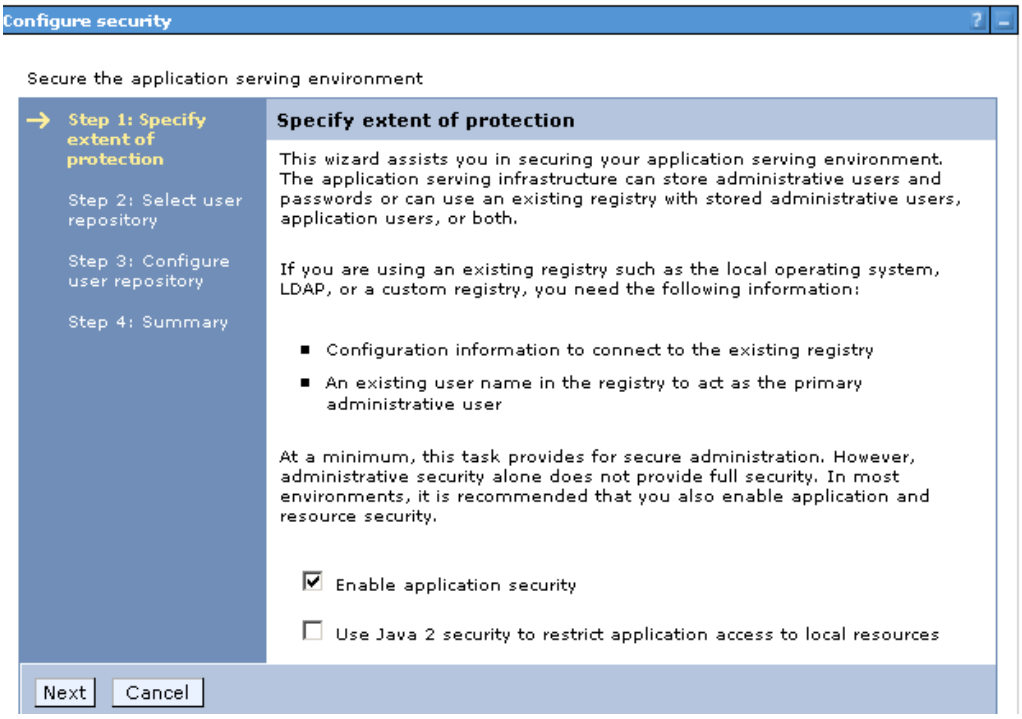
To configure a user repository:

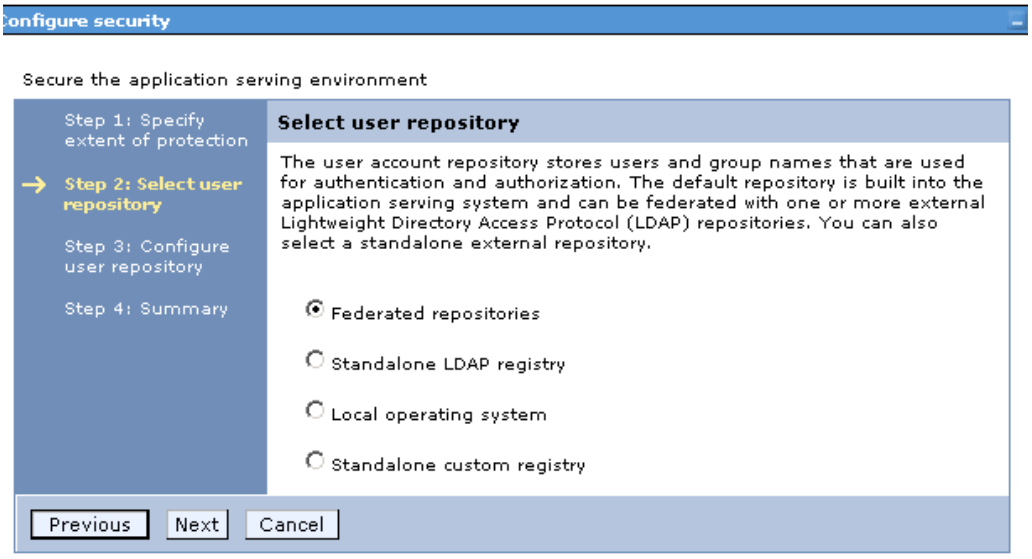
1 Navigate to Go to Security > Secure administration, application, and infrastructure.



2 Click Security Configuration Wizard to bring up the wizard.

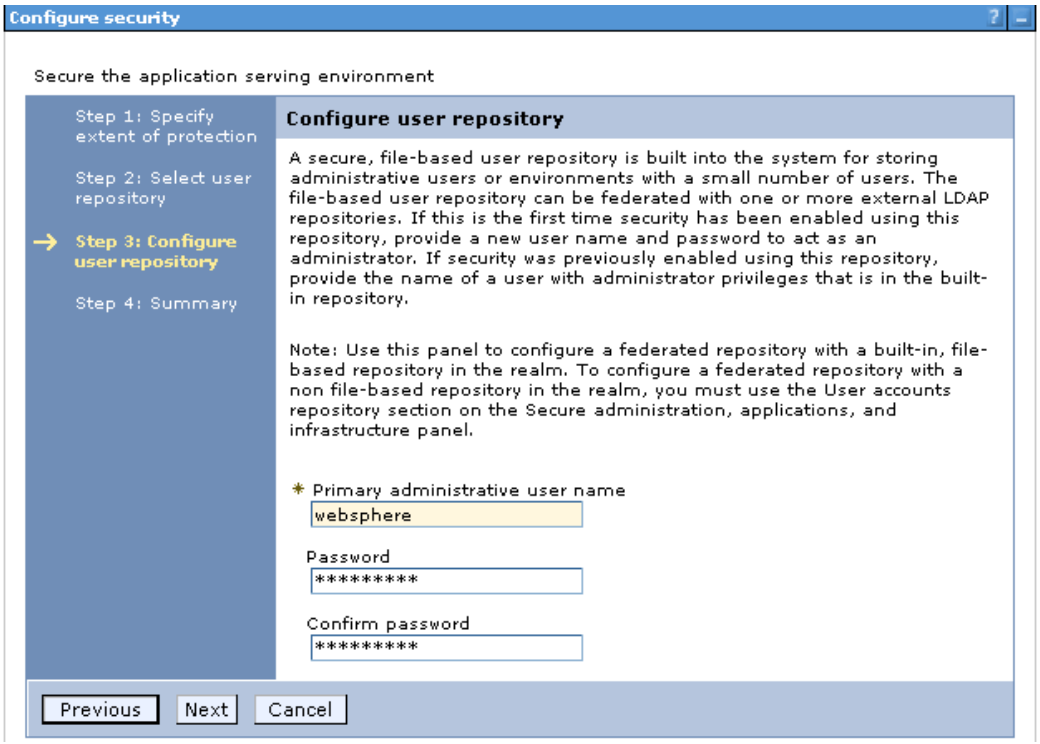
3 Specify the extent of protection by selecting, for example, **Enable application security**, and click Next.



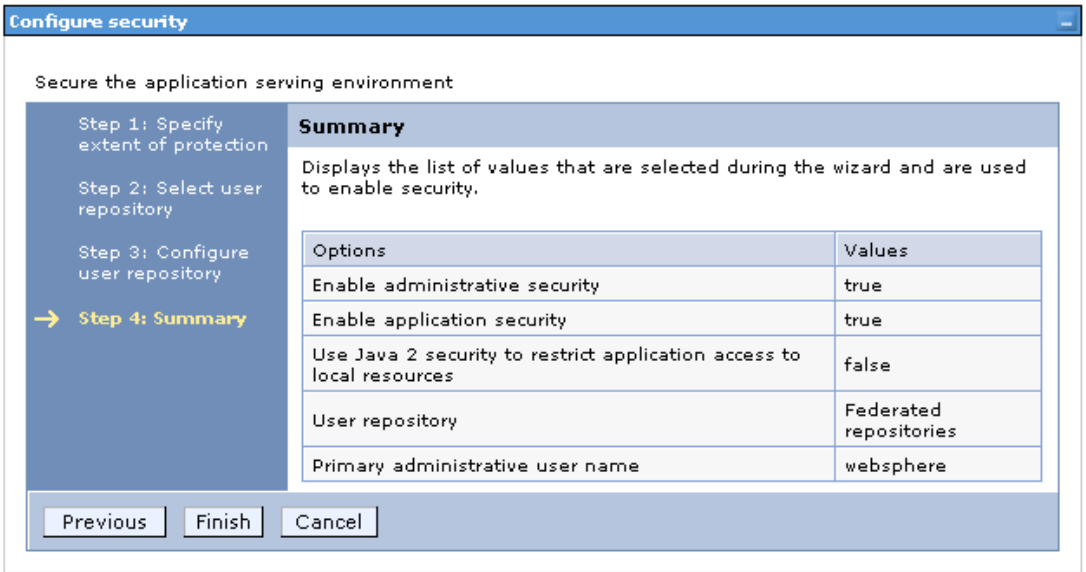


4 Select a user repository, such as **Federated** repositories, and click Next

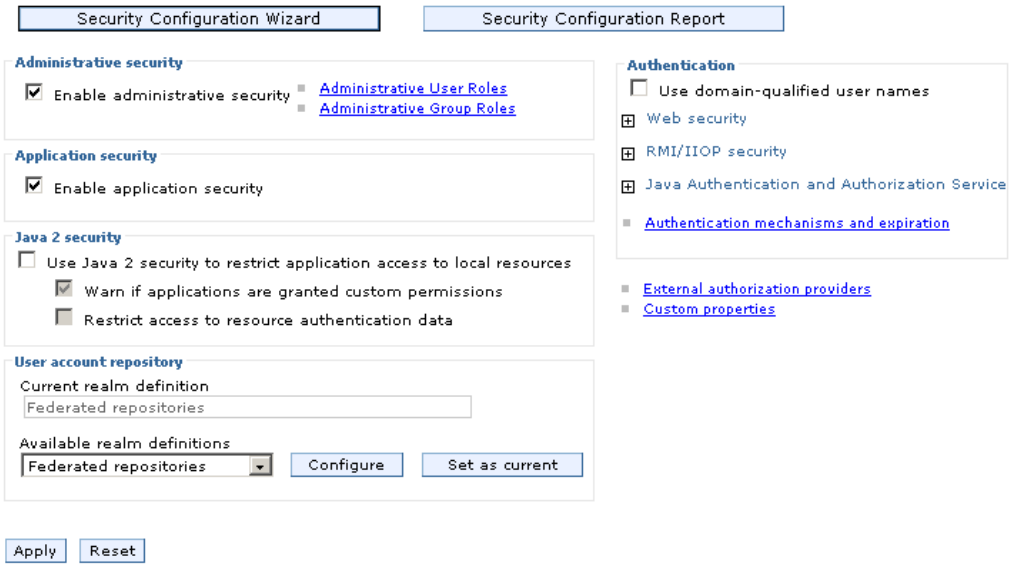
5 Configure the user repository by providing Primary a**dministrative user name** and Password, and click Next.



6 In the Summary step, click Finish, and save your user repository configuration.



Now your have defined enabling of both administrative security and application security for your application server.



7 Restart the application server to apply the security configuration.

12 Appendix B: Operating System Quick Reference

Overview

This section contains platform-specific variables and settings for eStatement Manager. In the front of this guide, you will find an outline of the workflow for installing and configuring eStatement Manager. Experienced system administrators may find this outline and appendix useful as a quick reference for configuration and troubleshooting, but they are **not intended as a standalone guide to configuration.**

Whenever you install or upgrade eStatement Manager, please follow the steps in each chapter of this *Installation Guide* in sequence, consulting your third-party documentation as necessary.

Owner and Group Privileges for eStatement Manager

Installation

You must have **root** privilege on each server to install and uninstall eStatement Manager components.

O/S	DEFAULT	EXAMPLE	CUSTOM
Solaris	`root:other`	`edxadmin:edxadmin`	

Database Server

After installation, change the user and group ownership of eStatement Manager database server components to that of the **`database user`**.

DATABASE	DEFAULT	EXAMPLE	CUSTOM
Oracle	`oracle:dba`	`edx_dba:edx`	

Application Server

After installation, change the user and group ownership of eStatement Manager application server components to that of the **`application server owner`**.

APP SERVER	DEFAULT	EXAMPLE	CUSTOM
WebSphere	<none>	`edxadmin:edxadmin`	

13 Appendix C: Database Quick Reference

Overview

This section contains platform-specific variables and settings for eStatement Manager. In the front of this guide, you will find an outline of the workflow for installing and configuring eStatement Manager. Experienced system administrators may find this outline and appendix useful as a quick reference for configuration and troubleshooting, but they are *not intended as a standalone guide to configuration***.**

Whenever you install or upgrade eStatement Manager, please follow the steps in each chapter of this Guide in sequence, consulting your third-party documentation as necessary.

Database Server Environment Variables

Oracle

VARIABLE	DEFINITION	SOLARIS	CUSTOM
EDX_HOME	eStatement Manager home path	**opt/eaSuite/eStatement**	
ORACLE_BASE	Mount point base path	**apps/oracle**	
ORACLE_HOME	Oracle product directory	**$ORACLE_BASE/product/10.2.0.2**	
LD_LIBRARY_PATH	Shared Library Path	**$ORACLE_HOME/lib:/usr/lib:/usr/ucblib**	
PATH	Database Path	**$ORACLE_HOME/bin:$PATH**	
ORACLE_DATA	Data File Path	**$ORACLE_HOME/oradata**	
ORACLE_PASSWD	Database password	**edx**	
ORACLE_SID	Database instance name	**edx0**	
ORACLE_USER	Database user name	**edx_dba**	
ORACLE_DBALIAS	Database alias	**edx.db**	

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