edocs

Installation Guide

e-Billing Manager

**Sun Solaris Operating Environment™ Software
and the BEA WebLogic® Server**

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Preface

About This Guide

This guide is intended for system administrators and other IT professionals and describes how to install EBM, configure the third-party platforms that support the EBM production environment, and deploy EBM J2EE web applications.

It assumes in-depth understanding of and practical experience with system administration responsibilities, listed here.

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

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

A PDF version of this guide is also available on your product CD-ROM.

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

EBM SDK Guide	How to customize J2EE web applications for deployment with EBM.
e-Billing Manager Data Definition Guide	How to create Data Definition Files (DDFs) for use in indexing your application and extracting data for live presentment.
e-Billing Manager Presentation Design Guide	How to create Application Logic Files (ALFs) to present statement data for dynamic online display.
EBM Administration Guide	How to set up and run a live EBM application in a J2EE environment.

Obtaining edocs Software and Documentation

You can download edocs software and documentation directly from Customer Central at https://support.edocs.com. After you log in, click the Downloads button on the left. When the next page appears, a table displays all of the available downloads. To search for specific items, select the Version and/or Category and click the Search Downloads button. If you download software, edocs Technical Support automatically sends you (the registered owner) an email with your license key information.

If you received an edocs product installation CD, load it on your system and navigate from its root directory to the folder where the software installer resides for your operating system. You can run the installer from that location, or you can copy it to your file system and run it from there. The product documentation included with your CD is in the Documentation folder located in the root directory. The license key information for the products on the CD is included with the package materials shipped with the CD.

If You Need Help

Technical Support is available to customers who have an active maintenance and support contract with edocs. Technical Support engineers can help you install, configure, and maintain your edocs application.

Information to provide

Before contacting edocs Technical Support, try resolving the problem yourself using the information provided in this guide. If you cannot resolve the issue on your own, be sure to gather the following information and have it handy when you contact technical support. This enables your edocs support engineer to more quickly assess your problem and get you back up and running more quickly.

Please be prepared to provide Technical Support the following information:

Contact information:

- Your name and role in your organization.

- Your company's name

- Your phone number and best times to call you

- Your e-mail address

Product and platform:

- In which edocs product did the problem occur?

- What version of the product do you have?

- What is your operating system version? RDBMS? Other platform information?

Specific details about your problem:

- Did your system crash or hang?

- What system activity was taking place when the problem occurred?

- Did the system generate a screen error message? If so, please send us that message. (Type the error text or press the Print Screen button and paste the screen into your email.)

- Did the system write information to a log? If so, please send us that file. For more information, see the *EBM Troubleshooting Guide*.

- How did the system respond to the error?

- What steps have you taken to attempt to resolve the problem?

- What other information would we need to have (supporting data files, steps we'd need to take) to replicate the problem or error?

- **Problem severity:**

- Clearly communicate the impact of the case (Severity I, II, III, IV) as well as the Priority (Urgent, High, Medium, Low, No Rush).

- Specify whether the problem occurred in a production or test environment.

Contacting edocs Technical Support

You can contact Technical Support online, by email, or by telephone.

edocs provides global Technical Support services from the following Support Centers:

US Support Center
Natick, MA
Mon-Fri 8:30am – 8:00pm US EST
Telephone: 508-652-8400

Europe Support Center
London, United Kingdom
Mon-Fri 9:00am – 5:00 GMT
Telephone: +44 20 8956 2673

Asia Pac Rim Support Center
Melbourne, Australia
Mon-Fri 9:00am – 5:00pm AU
Telephone: +61 3 9909 7301

Customer Central
https://support.edocs.com

Email Support
mailto:support@edocs.com

Escalation process

edocs managerial escalation ensures that critical problems are properly managed through resolution including aligning proper resources and providing notification and frequent status reports to the client.

edocs escalation process has two tiers:

1. **Technical Escalation -** edocs technical escalation chain ensures access to the right technical resources to determine the best course of action.

2. **Managerial Escalation** - All severity 1 cases are immediately brought to the attention of the Technical Support Manager, who can align the necessary resources for resolution. Our escalation process ensures that critical problems are properly managed to resolution, and that clients as well as edocs executive management receive notification and frequent status reports.

By separating their tasks, the technical resources remain 100% focused on resolving the problem while the Support Manager handles communication and status.

To escalate your case, ask the Technical Support Engineer to:

1. Raise the severity level classification

2. Put you in contact with the Technical Support Escalation Manager

3. Request that the Director of Technical Support arrange a conference call with the Vice President of Services

4. Contact VP of Services directly if you are still in need of more immediate assistance.

1

Getting Started

Before You Install; Preparing Your Platform

Before installing EBM, 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 server documentation.

- Start and test your application server. See your 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.

- Install Xwindows software on your database, application servers, and Windows machine (for Tools) to support the InstallAnywhere GUI.

Overview of the Installation Process

The process of installing and setting up e-Billing Manager includes the following steps:

1. Installing edocs Platform Services and EBM Consumer on your database and application servers using InstallAnywhere. You can install these individually, running InstallAnywhere twice (once to install each feature), or together using the Custom install feature.

2. Installing edocs Tools on a Windows 2000 machine. Run InstallAnywhere here 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.

Once you successfully install EBM and configure your database and application servers, you can customize and deploy your J2EE application.

If you want to set up edocs Payment after installing EBM, see "Setting up Payment" on page 57.

Configuring Your Database Server

Configuring your database server requires you to:

1. Define database server environment variables.

2. Create and configure the EBM database with edx_admin.sh.

3. Connect to your EBM database before configuring your application server.

Configuring Your Application Server

Configuring your application server requires you to:

1. Define application server environment variables.

2. Configure JDBC resources for EBM on your application server.

3. Configure JMS resources for EBM on your application server.

Customizing and Deploying J2EE Applications

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

1. Customize your J2EE web application(s) for EBM.

2. Deploy J2EE web applications for EBM.

3. Deploy your custom J2EE web application.

EBM System Requirements

edocs' Platform Services and EBM Consumer (Solaris/Oracle/WebLogic)

This guide assumes you are installing EBM on a Solaris operating system, Oracle database, and WebLogic application server.

The following table lists the specific combinations supported for EBM. **Required JDK versions, system patches, fix packs and other updates are not listed in this section**.

Be sure to check the Release Notes for any updates to these requirements.

OPERATING SYSTEM

- Sun Solaris 8 with patches 108434-09 and 108435-09 **OR** Sun Solaris 9

HARDWARE

- CD-ROM
- Disk space (database) 5 GB
- Disk space (for EBM software) 500 MB (in addition to the space required for the application server)
- Sun SPARC platform
- Swap space 512 MB per CPU (1 GB recommended)
- RAM 512 MB per CPU (1 GB recommended)

JAVA/C++

- Sun Java 2 SDK Standard Edition 1.4.1 (version shipped with WebLogic 8.1)
- Sun C++ runtime packages `SUNWesu` and `SUNWlibC`

SUPPORTED DATABASE SERVERS

New installation of EBM

- Oracle 9i Release 2 (Oracle 9.2.0)
- Oracle 9i client software (for application server)
- Oracle 9i JDBC driver

SUPPORTED APPLICATION SERVERS

- BEA WebLogic Server 8.1 SP3

SUPPORTED BROWSERS

- Netscape Navigator 6.2 or higher
- Microsoft Internet Explorer 5.5 SP2, or 6.0 or higher (on networked PC)
- Firefox 1.0

edocs' Tools (Windows)

OPERATING SYSTEM

- Microsoft Windows 2000/Server SP4

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Installing EBM for UNIX with InstallAnywhere

This chapter provides a step-by-step guide to installing EBM with InstallAnywhere. It assumes that you have an in-depth understanding of and practical experience with administrating your operating system. Consult your system documentation as necessary.

UNIX Permissions for Installation

This section applies to all UNIX platforms. You must have **root** privilege on each server to install and uninstall EBM components.

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

For your application and database servers, you also need the owner (user) and group permissions specified during installation. For details on user and group permissions, see "UNIX Permissions for Your Database Server" on page 23.

> **Caution**
> edocs does not recommend administering EBM with the user and group `nobody:nobody`.

Installing EBM

InstallAnywhere is a graphical cross-platform wizard that lets you install EBM in a distributed environment:

- **edocs Platform Services** – Install on all database and application servers.
- **EBM Consumer** – Install on all application servers.
- **edocs Tools** – Install on a Windows machine accessible to the UNIX servers on your network.

edocs recommends that you install and configure EBM in the same top-level directory structure, first on the **database server**, then on the **application servers**.

You have the option to install EBM on UNIX in either of two installation modes:

- GUI Mode (default)

- Console Mode

The instructions in this chapter assume you are using GUI mode. Console Mode is an interactive character-based installation that prompts you to respond to several installation questions. If you prefer to use Console mode, see "Installing EBM in Console Mode (UNIX)" on page 20 for details.

edocs Platform Services and EBM Consumer

You must install both edocs Platform Services and EBM Consumer using InstallAnywhere. You can install them individually or create a custom install to install both at once.

To install edocs Platform Services and/or EBM Consumer with InstallAnywhere:

1. Ask your system administrator for the user and group name of the application server owner, such as **edxadmin:edxadmin**.

2. Set and export the DISPLAY environment variable for your machine, for example **DISPLAY=localhost:0.0 export DISPLAY.**

3. Obtain and locate the InstallAnywhere installer as described in "Obtaining edocs Software and Documentation" on page 9.

4. Launch InstallAnywhere by typing **TBMins.bin.**

5. INTRODUCTION: InstallAnywhere recommends that you quit all programs before installing.

6. LICENSE AGREEMENT: Review the License Agreement and click "**I accept the terms of the License Agreement**" to accept the terms.

7. ENTER SERIAL NUMBER provided when you purchased EBM. If lost, contact edocs Technical Support at http://support.edocs.com/

8. CHOOSE INSTALL FOLDER: Click **Next** to accept the default or specify another directory. edocs recommends that you install and configure EBM in the same top-level directory structure, first on the database server, then on the application server.

9. CHOOSE PRODUCT FEATURES: Choose which feature you want to install first, or click **Custom** and choose to install EBM Consumer and edocs Platform services at the same time.

   EBM Consumer - Installs all components for e-Billing Manager Consumer Edition.

   Platform Services (default) - Installs the components for edocs Core Services only, including e-Billing, Hierarchy, Payment, and Reporting.

   edocs'Tools - Installs DefTool and Composer (on a Windows machine only)
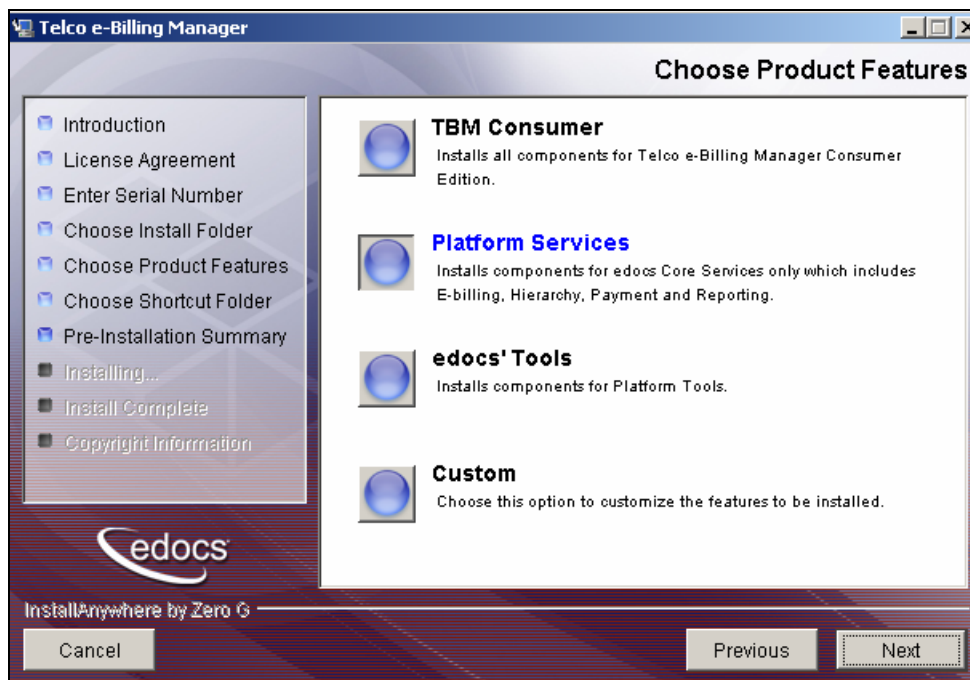
10. CHOOSE SHORTCUT FOLDER: Click **Next** to install EBM in the edocs program group.

11. PRE-INSTALLATION SUMMARY: Review the screen to confirm your product and version, install folder, product components, and disk space required and available, then click **Install.**

    Note that the EBM Consumer install folder is also referred to as EBM_HOME (default is edocs/TBM). EDX_HOME refers to the platform services directory, EBM_HOME/estatement.

    InstallAnywhere sets up a directory hierarchy on each server and copies files to the appropriate directories.

12. INSTALL COMPLETE: If installation is successful, you see a congratulatory message. Click **Done**.

13. Repeat the installation for other EBM servers on your network as necessary.

Tools (Windows)

To install edocs' Tools on a Windows 2000-based machine on your network:

1. Obtain and locate the InstallAnywhere installer as described in "Obtaining edocs Software and Documentation" on page 9.

2. Launch InstallAnywhere using TBMins.exe.

3.Follow the steps in the procedure above for installing EBM, selecting the edocs' Tools feature to install.

Installing EBM in Console Mode (UNIX)

The installation procedures in this guide show how to install EBM using the InstallAnywhere GUI (the default).

Console Mode is an interactive character-based installation where you are prompted to respond to several installation questions. Follow the procedures in this section if you prefer to install in Console Mode.

To install EBM in Console Mode for UNIX:

1. Navigate to the InstallAnywhere directory for your platform and run the command to invoke InstallAnywhere, using the **–i console** flag. For example:

   ```
   ./TBMins.bin –i console
   ```

   InstallAnywhere displays the banner:

   ```
   Preparing CONSOLE Mode Installation...
   ```

2. Respond to each prompt to proceed to the next step as directed. If you want to change something on a previous step, type **back**.

   A successful installation displays a congratulatory message indicating that the software has been installed to the directory you specified as the edocs home directory (**$EDX_HOME)** in response to the installation prompts.

The EBM Directory Structure

The EBM home directory contains all the files you need to create and configure the EBM production database. When you install EBM components, InstallAnywhere prompts you to specify a destination directory. You can use the default or specify another directory.

The default EBM installation directories are:

- EBM Consumer (EBM_HOME): edocs/TBM/
- Platform Services (EDX_HOME): edocs/TBM/estatement
- Edocs Tools: \edocs\TBM\ estatement\bin

| Tip | edocs recommends that you install EBM in the same top-level directory on both the database server and the application servers. |

Where to Find Database Components

edocs/TBM/estatement/db contains platform-specific subdirectories for database creation and configuration.

Where to Find Application Server Components

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

Where to Find Input and Output Data

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

An additional directory, **edocs/TBM/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, EBM automatically cleans up these temporary files.

3

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.

edocs recommends that you install and configure EBM 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** EBM database. It includes:

- UNIX permissions for your database server

- Starting and stopping your database server

- UNIX environment variables for your database server

- Using database partitioning with EBM

> **Caution**   The installation and configuration examples shown in this guide use default EBM 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 EBM.

UNIX Permissions for Your Database Server

Before creating the EBM database with `edx_admin.sh`, you should verify that the owner and group permissions (`userid:groupid`) of the EBM 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 edocs **database user**. This is the user for your database instance. This guide also uses the example database instance name `edx0`.

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

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

Caution 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, 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 **EBM instance owner**.

   ```
   chown -R edxadmin:edxadmin /opt/edocs/TBM/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/edocs/TBM/estatement/db
   ```

4. Switch user to your database instance owner and run **edx_admin.sh** to create the EBM database with your new owner.

Tip You should also 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 EBM database instance for your platform.

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

UNIX Environment Variables for Your Database Server

Before you can configure the database to support EBM, you must define **environment variables for your database server**.

Example: Setting Oracle environment variables for UNIX:

```
ORACLE_BASE=/apps/oracle
ORACLE_HOME=$ORACLE_BASE/product/9.2.0
LD_LIBRARY_PATH=$ORACLE_HOME/lib:/usr/lib:/usr/ucblib
PATH=$ORACLE_HOME/bin:$PATH
export ORACLE_BASE ORACLE_HOME LD_LIBRARY_PATH
```

The syntax used to define environment variables depends on which UNIX shell you are using, as shown in the following examples.

To define environment variables in the Bourne or Korn shell:

```
PATH=$PATH:$HOME/bin
export PATH
```

To define environment variables in the C shell:

```
setenv PATH=$PATH:$HOME/bin
```

Oracle Database Server Environment Variables

VARIABLE	DEFINITION	SOLARIS
EDX_HOME	Platform services home path	`opt/edocs/TBM/estatement`
ORACLE_BASE	Mount point base path	`apps/oracle`
ORACLE_HOME	Data File Path	`$ORACLE_BASE/product/9.2.0`
LD_LIBRARY_PATH	Shared Library Path	`$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`

Using Database Partitioning with EBM

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, EBM creates and populates a set of partitioned index tables to maintain your dynamic data.

Oracle no longer supports partitioned views. Native partitioning can be applied to a single index table depending on your Oracle software license. For an Oracle database, we recommend you create one index table per DDN, and use Oracle's native table partitioning functionality for higher performance. edocs recommends choosing the range partition on the `Z_DOC_DATE` column.

For more information on using partitions with your DDNs, see the *EBM Administration Guide*.

4

Configuring EBM for Oracle

Configuring a New Oracle Database for UNIX

This section applies to all UNIX platforms. Before configuring Oracle, you must first complete the instructions in the previous chapter to define UNIX environment variables for your database server

To create and configure your EBM database, you run the database configuration shell script `edx_admin.sh.` This topic describes each step in detail.

| Tip | Database clustering is handled by your application server and not by EBM. Consult your edocs Technical or Professional Services representative for clustered installations. |

About edx_admin.sh for Oracle

To create and configure the EBM production database, you run the `edx_admin.sh` script for database configuration. If you have to abort database setup before it completes successfully, see "If the Database Configuration Fails" on page 31.

Before running `edx_admin.sh`, you should:

- Upgrade your database server software **as necessary**.

- Make a full backup of your current database.

- Start the database instance that accesses the database you are upgrading.

- Check the status of all user objects. If any of them indicate an INVALID status, contact the database administrator to correct this problem.

- Confirm that all login sessions using the EBM database user have logged out of the instance.

- Have any required database passwords available. Check with your database administrator for custom passwords.

- Check the *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.

To configure a new EBM database for Oracle on UNIX:

1. Switch user to the **DB Admin** user, in this example **oracle.** Oracle requires the administrative user in order to create files.

   ```
   su – oracle
   ```

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

   ```
   cd /opt/edocs/TBM/estatement/db/oracle
   ```

3. Start the **edx_admin** shell script with the command:

   ```
   ./edx_admin.sh
   ```

   The Server Administration Main Menu appears.

   ```
   edocs Server Administration Main Menu
   --------------------------------------------------------
   [1] Sign in Menu
   [2] Capture Database File Locations
   [3] Install edocs
   [4] Initial Data Population
   [5] Database Version Migration
   [Q] Quit
   --------------------------------------------------------
   Enter Your Selection: 1
   ```

4. Select Option 1, **Sign in Menu**. A second sign-in screen appears.

5. Enter the username, password, and database name for the EBM database.

> **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 shows sample values for **Oracle** on **Solaris**. See "Oracle Database Server Environment Variables" on page 25 and your database administrator to specify suitable values for your platform.

   ```
   SIGN IN MENU
   ------------------------------------------------
   [1] Enter Database USERNAME...> edx_dba
   [2] Enter Database PASSWORD...> edx
   [3] Enter ORACLE_SID ...> edx0
   [4] Enter the password for SYS user...> change_on_install
   ```

   Press **Enter** to return to the main menu.

6. Select option 2, **Capture Database File Locations**. This option allows you to specify the location of database files.

> **Tip** Oracle installations should adhere to the Optimal Flexible Architecture (OFA) for database file locations.

   The system prompts you to provide absolute pathnames for a variety of database files.

Database files can reside wherever you choose. For a single database server, you can use, for example:

```
$ORACLE_HOME/oradata
```

Depending on your platform, you may then be prompted to enter multiple locations for your **database control** file. This file allows access to the database, so you should specify backup locations in case a database control file is deleted or corrupted. Consult your database documentation for details.

You might also then be prompted to enter suggested **mount points** for your database. Consult your database documentation for details.

The script then validates the locations you specify. If all are valid, this message appears:

```
Capture of Database file locations completed.
```

Press **Enter** to return to the edocs Server Administration Main Menu.

7. Select Option 3, **Install edocs.** The Install menu appears.

```
Install edocs
  --------------------------------------
  [1] Create Oracle Instance
  [2] Shutdown Database
  [3] Startup Database
  [4] Install Application Database I
  [5] Install Application Database II
  [6] Install Application Database III
  [7] View Status Log Directory
  ----------------------------------------------------
  [R] Return to previous menu
  SELECT YOUR OPTION: 1
```

Select Option 1, **Create Oracle Instance**.

This step creates a database instance for EBM, defines a data dictionary and stored procedure for the new database, and modifies the stored procedure to contain the absolute pathnames you defined in **Capture Database File Locations**. No user input is required, although several progress messages appear.

If this step is successful, the following message appears:

```
Database created. Configuration in process…
```

> **Tip**   Now would be a good time to get a cup of coffee or take a brisk walk.

Press **Enter** to return to the Install menu.

8. Next, the script stops and starts your database server. No user input is required although you see several progress messages. If this step is successful you see a success message. Press **Enter** to return to the Install menu.

9. Select Option 4, **Install Application Database I**.

This option creates new EBM database tablespaces, users, and rollback segment data files. This option may take up to 20 minutes to complete.

Toward the end of this process, you should see messages that the utility scripts and stored procedures are executing. When you see the final success message, press **Enter** to return to the Install menu.

10. Select Option 5, **Install Application Database II**.

    This option creates the EBM database tables and indexes. No user input is required. The error messages at the start of this step are an expected part of the process and can be ignored.

    When this step completes, press **Enter** to return to the Install menu.

11. Select Option 6, **Install Application Database III**.

    This option compiles stored procedures to support database processing for EBM. No user input is required. When this step completes, press **Enter** to return to the main menu.

12. (Optional) If you want to view log files for your database configuration, select Option 7, **View Status Log Directory**. Log files are copied to the database subdirectory of your EBM home directory, for example

    ```
    $EDX_HOME/db/oracle
    ```

13. Select **Return to Previous Menu**. The Main menu appears.

14. Select Option 4, **Initial Data Population**.

    ```
    edocs Server Administration Main Menu Version 1.0
     -------------------------------------------------
     [1] Sign in Menu
     [2] Capture Database File Locations
     [3] Install edocs
     [4] Initial Data Population
     [5] Database Version Migration
     [Q] Quit
     -------------------------------------------------
     Enter Your Selection: 4
    ```

    The Initial Data Population Menu appears.

    (If this is your first installation of EBM, you can ignore Option 5, Database Version Migration. You select this option only if migrating an existing EBM database to a newer version.)

15. Select Option 1, **Import Initial Data Set**.

    This option populates the newly defined database with an administrative dataset that supports the EBM Command Center and related features. No user input is required, although you see several progress messages. If this step is successful, a success message appears.

    (Step 2, **Export edocs database data**, is used for migration; it is not necessary for new installations because the database is still empty.)

16. Select Option **R** (Return to Previous Menu), and then press **Enter**. The Main menu appears.

17. Select Option **Q** (Quit), and then press **Enter.**

If the Database Configuration Fails

If you encounter errors during database creation and configuration, you must first remove the partially configured database before configuring the database again.

To recover from a failed database configuration for Oracle:

1. Switch user to the database **admin** user, in this example **oracle.** Oracle requires the administrative user in order to remove files.

```
su – oracle
```

2. Check the database instance name with the **echo** command. For example:

```
echo $ORACLE_SID
 edx0
```

3. If the database instance name is incorrect, set it as follows:

```
ORACLE_SID=edx0
export ORACLE_SID
```

4. Shut down the database server.

5. Locate all files associated with the database instance you defined. For example:

```
find . –name '*edx*' –print
```

6. Change directory to the root directory for your database and recursively remove the folder and its containing files. For example:

```
cd ./product/oradata
```

```
rm –rf edx0
```

7. Repeat this step for other root directories containing database files for your database instance.

Configuring Oracle Services

The next step in setting up the database server is to edit two Oracle configuration files that control access to the EBM production database.

> **Tip** Always consult with your onsite DBA and your edocs Professional Services representative to configure database connectivity, to make sure you comply with client standards for the enterprise.

- **listener.ora** includes service names and address of all listeners on a computer, the instance names of the databases for which they listen, and listener control parameters. The address for a server in **listener.ora** requires the SID (SID_NAME) of a database server in **tnsnames.ora**.

You need to modify **listener.ora** on the **database server** machine.

- **tnsnames.ora** includes a list of service names of network databases that are mapped to connect descriptors. It is used by clients and distributed database servers to identify potential server destinations. The address of a given database server in **tnsnames.ora** matches the address of a listener for that server in **listener.ora**.

  You need to modify **tnsnames.ora** on the **database client** machine.

By default, these files are installed to the network administration directory of your database server, **$ORACLE_HOME/network/admin.**

To configure Oracle services for UNIX:

1. Switch user to the **DB admin** user.

   ```
   su - oracle
   ```

2. Change directory to the network administration directory of your **database server**. For example:

   ```
   cd /export/home/oracle/product/9.2.0/network/admin
   ```

3. Open **listener.ora** and edit the SID_LIST_LISTENER section to reflect your Oracle SID and database home directory. For example:

   ```
   (SID_DESC =
    (SID_NAME = edx0)
    (ORACLE_HOME = /export/home/oracle/product/9.2.0)
    )
   ```

4. Save and close **listener.ora**.

5. Change directory to the network administration directory of your **database client**. For example:

   ```
   cd /export/home/oracle/product/9.2.0/network/admin
   ```

6. Open **tnsnames.ora** and edit the database service that identifies your protocol, host, and port. This example uses the service name **edx.db** (your service name might be different), installed on the database server **localhost**.

   ```
   edx.db =
    (DESCRIPTION =
    (ADDRESS_LIST =
    (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1521))
    )
    (CONNECT_DATA =
    (SID = edx0)
    )
    )
   ```

7. Save and close **tnsnames.ora**.

8. *(single machine environments only)* Repeat Step 5 for the **tnsnames.ora** file on your **application server**. This file is installed with your database client software. Distributed environments may skip this step.

9. Stop and restart the Oracle listener with the listener control commands.

```
lsnrctl stop
lsnrctl start
```

10. After the Oracle listener has been restarted, you should see a service handler for the EBM instance.

```
Services Summary...
 PLSExtProc has 1 service handler(s)
 edx0 has 1 service handler(s)
```

This service handler should match the name you entered for the Oracle SID during database configuration, in this example **edx0**.

Connecting to Your Oracle Database

Once you have configured Oracle services, you should now be able to connect to your EBM database.

To connect to an Oracle database for UNIX:

1. Switch user to the **DB Admin** user.

```
su – oracle
```

2. Run the **sqlplus** command on your EBM database, with arguments for your database username, password, and connection string (database alias). For example:

```
sqlplus  edx_dba/edx@edx.db
```

If the database is connected successfully, a connection message appears.

```
Connected to: Oracle9i Enterprise Edition Release 9.2.0.0.0
```

3. At the SQL prompt, enter a database query command, for example:

```
SQL> show parameters db_name
```

If the database is connected successfully, you see output for your database instance.

```
NAME TYPE VALUE
--------- ------- -----
db_name string edx0
SQL>
```

Run Setup Scripts

On the database server, in EBM_HOME/db/Oracle, run the following scripts (in sequence):

1. Run Add_pwc_tasks.sql

2. Run Add_pwc_job_types.sql

3. Run create_pmtdue_notification_Tables.sql

4. Run AddressBook.sql

5. Run createMessengerQueueTables.sql

6. Run create_unbilled.sql (Sample unbilled data set)

Start and Test Your Database Server

Start and test your database server using the server documentation for your platform. If you encounter any errors, double-check the steps in these chapters before proceeding.

Once your database server starts successfully with the EBM database installed, you can proceed to configure your application server.

5

Configuring the WebLogic Application Server for UNIX

Overview

This chapter assumes in-depth understanding of and practical experience with application server administration. Consult WebLogic Server documentation at http://bea.com as necessary.

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

> **Caution**   If you cannot bring up the WebLogic Console, you will be unable to proceed with configuring your application server for EBM.

edocs recommends that you install and configure EBM 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 EBM, do so now.

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

This chapter provides instructions for configuring WebLogic Server to support EBM. It includes:

- UNIX permissions for WebLogic Server

- Starting and Stopping WebLogic Serve

- Capturing your Unix environment for EBM

> **Caution**   The installation and configuration examples shown in this guide use default EBM 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 EBM.

About the Sample UNIX Domain Used in this Guide

This guide uses the following example of a UNIX domain:
$WL_HOME/user_projects/domains/mydomain

WebLogic users can use the Domain Configuration Wizard to create the UNIX domain
$WL_HOME/user_projects/domains/mydomain, or replace these pathnames with a
custom domain created by your system administrator.

> **Caution** If you use a custom domain, be sure to substitute the pathnames
> accordingly throughout the procedures in this guide. edocs does not
> recommend that you accept the default path of **/user_projects.**

UNIX Permissions for WebLogic Server

Application servers running EBM do not function correctly without access to EBM
config files, storage directories, and related resources. When installing EBM on
WebLogic 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 EBM.

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

For details on owner and group permissions for WebLogic Server, please consult the
application server documentation for your platform.

To reset user and group permissions:

1. Switch user to the default owner of WebLogic Server home directory, for example
   root.

   su – root

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** /export/home/bea

3. Switch user to WebLogic Server owner and configure WebLogic Server with your new
   owner.

   su – edxadmin

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.

Starting and Stopping WebLogic Server

Developers and system administrators need to be familiar with how to stop and start WebLogic Server and any active web applications for your platform. Consult your BEA WebLogic documentation for instructions on how to do this.

About Sourcing Your Configuration

Before you start your server instance, you must edit its WebLogic Server startup script to **source** your customized version of the configuration file **edx.config**, which passes your EBM environment to WebLogic Server at startup. For details, see "Passing UNIX Environment Data to WebLogic" on page 40.

Starting and Stopping an Active Application Server

Improperly starting or stopping an application server in an active EBM 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, to schedule and run jobs in the EBM Command Center.

The default command-line startup shell scripts are fine for an inactive production environment where there are no running jobs. However, the startup process stops immediately if you enter a **Ctrl+C** (often used to force a hard shutdown of the server) in the startup directory, or if you close the terminal session. This can damage your configuration file. edocs recommends using the web console and/or the SHUTDOWN command to ensure a graceful shutdown.

To start WebLogic in an active EBM production environment, edocs recommends that you use the **nohup** command to ignore hang-ups. This leaves the server running in the background even if you end your terminal session or try to force a hard shutdown, providing a more stable production environment.

Capturing Your UNIX Environment for EBM

EBM installs several configuration files that you use to define your EBM environment. These configuration scripts are required **only on the application server**:

$EDX_HOME/bin/edx_config	Executable shell script prompts you to define environment variables required by your application server

`$EDX_HOME/bin/edx_config`	Executable shell script prompts you to define environment variables required by your application server
`$EDX_HOME/config/edx_env`	**non-editable** configuration file stores the environment variables you specify in edx_config
`$EDX_HOME/config/edx.config`	Shell script passes the environment data in **edx_env** to your application server when sourced in your startup script

This section describes how to run **edx_config** to capture your environment variables and store them in **edx_env**. For more information on **edx.config**, see "Passing UNIX Environment Data to WebLogic" on page 40.

Using *edx_config* to Capture Environment Data

edx_config prompts you to enter values for your Java and database installation, including absolute directory pathnames or user identification information. It stores these values in the configuration file **edx_env.**

You should run edx_config any time you need to modify your EBM environment. Do not modify **edx_env** directly.

Caution	Do not confuse **edx_config** (underscore) with **edx.config** (dot), which sources your configuration at server startup. For details, see "Using *edx_config* to Capture Environment Data" on page 38.

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

You can accept the default values, if appropriate, or enter your own. See "WebLogic Environment Variables" below.

To capture environment data with *edx_config* for WebLogic:

1. Switch user to the $EDX_HOME owner, in this example **edxadmin**.

   ```
   su - edxadmin
   ```

2. Navigate to the **bin** directory for EBM 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 home. The WebLogic home directory pathname is where its application server files were installed, usually someplace like */opt/bea/weblogicXX* where XX is your WebLogic version number.

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

WebLogic Environment Variables

Caution	Make sure you set all paths to the appropriate point releases/patches for WebLogic Server and JDK, if necessary. Check the Release Notes and your system documentation for updated requirements to these environment variables.

VARIABLE	DESCRIPTION	SOLARIS
APP_OWNER	app server owner	`edxadmin`
APP_GROUP	app server group	`edxadmin`
APP_PORT	app server port	`7001`
ADMIN_PORT	app server admin port	`7002`
JAVA_HOME	Java home directory	`$WL_HOME/jdk131_08` `$WLHOMED/jdk141_05`

WebLogic Domain Start Scripts

When you use the Configuration Wizard to create a domain, the wizard also creates a script that you can use to start an Application Server for the domain. To use the script, enter the following command at a command prompt:

```
mydomain/startWebLogic.sh
```

Where **mydomain** is the directory in which you located your domain.

The script sets values for some domain-specific variables and then calls the master startup script, **$WL_HOME/weblogic##/server/bin/startWLS.sh**, where **$WL_HOME** is the location where you installed WebLogic Server and **##** is the WebLogic version installed. The master startup script sets environment variables, such as the location of the JVM, and then starts the JVM with WebLogic Server arguments.

This guide uses the example domain **$WL_HOME/user_projects/domains/mydomain**. WebLogic users may use the Domain Configuration Wizard to create this domain or replace these pathnames with a custom domain created by your system administrator.

Caution	If you use a custom domain, substitute the name accordingly in examples in this guide or they will not work.

Passing UNIX Environment Data to WebLogic

This section describes how to use **edx.config** to pass your environment data to WebLogic at server startup. For information on **edx_config**, see "Capturing Your UNIX Environment for EBM" on page 37.

Using *edx.config* to source your configuration

edx.config is a shell script that you call and process in your application server startup script to pass your EBM environment (stored in **edx_env**) to WebLogic. This procedure is also called **sourcing your configuration**.

Caution	Do not confuse **edx.config** (dot) with **edx_config** (underscore), which prompts you to enter the environment data stored in **edx_env**. For details, see "Using *edx_config* to Capture Environment Data" on page 38.

To source your configuration for WebLogic (overview):

Edit **$WL_HOME/user_projects/domains/mydomain/startWebLogic.sh** to set the server name to be started, set the home directory for EBM, set Java options for your JVM, and call and process (source) the configuration script **edx.config**.

Sourcing Your Configuration

The **startWebLogic.sh** script for your domain sets values for some domain-specific variables and then calls the master startup script, **startWLS.sh.** The master startup script sets environment variables, such as the location of the JVM, and then starts the JVM with WebLogic Server arguments.

edocs recommends that WebLogic users source your EBM configuration directly in **startWebLogic.sh** for your domain, for consistency with this feature of WebLogic.

Users with clustered installations or with custom domain names need to study the new features of domain configuration in your WebLogic Server documentation at http://e-docs.bea.com/wls/docs70/adminguide/startstop.html.

To edit *startWebLogic.sh* for WebLogic:

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

```
su - edxadmin
```

2. Stop WebLogic Server and all application server instances. For details, see "Starting and Stopping WebLogic Server" on page 37.

3. Navigate to the application server startup script **for your domain** and open the file for editing. For example:

```
cd $WL_HOME/user_projects/domains/mydomain/startWebLogic.sh
vi startWebLogic.sh
```

4. Set the server name variable for the server instance you wish to start. For example:

```
SERVER_NAME=myserver
```

5. Define and export the environment variable for your EBM home directory. For example:

```
EDX_HOME=/opt/edocs/TBM/estatement
export EDX_HOME
```

6. **Optimize JVM Memory** by increasing the memory arguments allocated to the Java Virtual Machine (JVM) on the application server. For example (quotes are optional):

```
set MEM_ARGS="-ms128m -mx128m -Xss1m -noclassgc"
```

Parameter	Description	Example
-ms	Sets the initial Java heap size	**-ms128m**
-mx	Sets the maximum Java heap size	**-mx128m**
-Xss	Sets the maximum native stack size for any thread	**-Xss1m**
-noclassgc	Disables the Java class garbage collection	**-noclassgc**

You may set this variable either here or in **startWLS.sh**, which **startWebLogic.sh** calls. Values in the master **startWLS.sh** overwrite those in **startWebLogic.sh**. See your WebLogic documentation for more information.

> **Tip** Be careful not to overallocate memory to the JVM. System processes like the garbage collector consume available memory, and performance can degrade when the application server is not able to respond to other requests.

7. Update the CLASSPATH for EBM by adding the following lines before the existing CLASSPATH statement. Substitute the correct install paths; the defaults are EBM_HOME = opt/edocs/TBM, EDX_HOME = opt/edocs/TBM/estatement, and PAYMENT_HOME = opt/edocs/TBM/payment.

CLASSPATH="${CLASSPATH}${CLASSPATH}${EDX_HOME}/lib/edx_client.jar"

CLASSPATH="${CLASSPATH}${CLASSPATH}${EBM_HOME}/lib/commons-logging.jar"

CLASSPATH="${CLASSPATH}${CLASSPATH}${EBM_HOME}/lib/log4j.jar"

CLASSPATH="${CLASSPATH}${CLASSPATH}${EBM_HOME}/lib/Configuration.jar"

CLASSPATH="${CLASSPATH}${CLASSPATH}${EBM_HOME}/lib/ldeprotocol.jar"

CLASSPATH="${CLASSPATH}${CLASSPATH}${EBM_HOME}/lib/javachart.jar"

CLASSPATH="${CLASSPATH}${CLASSPATH}${PAYMENT_HOME}/lib/jsee.jar"

CLASSPATH="${CLASSPATH}${CLASSPATH}${PAYMENT_HOME}/lib/jcert.jar"

CLASSPATH="${CLASSPATH}${CLASSPATH}${PAYMENT_HOME}/lib/jnet.jar"

8. Add the directory EBM_HOME/config to the server startup classpath:

CLASSPATH="${CLASSPATH}${CLASSPATH}${EBM_HOME}/config"

9. Also add these lines:

JAVA_OPTIONS="$JAVA_OPTIONS -
Djava.protocol.handler.pkgs=com.edocs.protocol|com.edocs.domain.telco.lde.protoc
ol"

10. **Password**: (optional) Set **WLS_USER** equal to your system username and **WLS_PW** equal to your system password for no username and password prompt during server startup. Both are required to bypass the startup prompt.

Caution Instead of using a cleartext password variable, BEA recommends that you use a boot identity file. See WebLogic Server documentation at http://bea.com.

11. Source **edx.config** just after the **STARTMODE** command to set production mode (and immediately before the $**JAVACMD** to start the JVM). The dot and space preceding the pathname are a required part of the syntax. For example:

STARTMODE=false

. /opt/edocs/TBM/estatement/config/edx.config

12. Save and close **startweblogic.sh**.

Editing Properties

On the application server, you must edit both hibernate.properties and hierarchy.hibernate.properties in opt/edocs/TBM/Config (or EBM_HOME/Config) for the new database:

1. Edit the following statement to replace *XXXX* with the name of your database host server, *port* with the server port number, and *YYYYYY* with the database name:

hibernate.connection.url=jdbc:oracle:thin:@*XXXX:port:YYYYYY*

2. Edit this statement to replace *edx_dba* with the name of your database user:

hibernate.connection.username *edx_dba*

3. Edit this statement to replace *edx* with the name of your database user's password:

hibernate.connection.password=*edx*

Also, if you installed EBM in a directory other than the default EBM_HOME (opt/edocs/TBM), you must edit log4j.xml in EBM_HOME/Config:

1.Edit the following line and change the installation path as necessary:

<param name="File" value="opt/edocs/TBM/estatement/logs/log4j.log"/>

6

Configuring Java Resources for WebLogic for UNIX

Overview

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

See WebLogic Server documentation at http://bea.com 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 your WebLogic Server instance and bring up the Administrative Console before you begin this chapter.

| Caution | If you cannot bring up the WebLogic Console, you will be unable to proceed with configuring your application server for EBM. |

Configuring Java Database Connectivity (JDBC) for EBM

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

About JDBC Connections for EBM

JDBC connection pools contain named groups of JDBC Connections that are created when the connection pool is registered, usually when starting up WebLogic Server. WebLogic 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 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.

EBM requires three sets of **JDBC Connection Pools** and related **JDBC Data Sources**:

- **edxAdmin** supports the Command Center through the EBM web application

- **edxLogger** supports EBM logging through the EBM web application

- **edxUser** supports user data retrieval through custom web applications

For more details on configuring JDBC Connections, please see the JDBC documentation for your application and database servers.

Tip	**edxAdmin** connection pools support concurrency for scheduling multiple jobs. Tuning **edxAdmin** connection capacity and threads can improve EBM email performance.

Configuring JDBC Connections for WebLogic

You must create three sets of JDBC connection pools and three sets of transaction datasources.

To configure JDBC Connections for WebLogic:

1. Create a JDBC Connection Pool each for **edxAdmin**, **edxLogger**, and **edxUser**. Use the appropriate JDBC values for your database server.

2. Create a JDBC Data Source each for **edxAdmin**, **edxLogger**, and **edxUser**. Use the appropriate JDBC values for your database server.

3. Review your connections. Each data source should target the connection pool of the same name (**Admin**, **User**, or **Logger**).

4. When you are finished, proceed to the next chapter to configure Java Messaging Services (JMS) for EBM.

JDBC Connection Pools for WebLogic 8

Create three JDBC Connection Pools, using WebLogic Server documentation at http://bea.com. Use the same **Properties** for all three connection pools. Make sure to deploy them to the server you are configuring for EBM (in the examples of this guide, the default **myserver**).

WebLogic 8 creates a new JDBC Connection Pool using a wizard. Follow the prompts, and enter:

- **Database type** = Oracle

- **Database Drive**r = Oracle's Driver (Thin)

For each of three connection pools, using the following names and properties:

Pool 1: Admin	Pool 2: User	Pool 3: Logger
`edxAdminConnectionPool`	`edxUserConnectionPool`	`edxLoggerConnectionPool`

General Tab	
URL	`jdbc:oracle:thin:@DB_host:DB_port:Database SID`. For example, `jdbc:oracle:thin:@localhost:1521:edx0`
Driver Classname	`oracle.jdbc.driver.OracleDriver`
Database User	Enter the database user name. This document uses `edx_dba`.
Password	Enter the password for the database user. This document uses `edx`.

After the wizard completes, go to the Configuration page to make adjustments using the values shown in the following table (on the Connections tab, click `Show` for Advanced Options):

Connections Tab	
Initial Capacity	`1`
Maximum Capacity	`20`
Capacity Increment	`5`
Login Delay	`1`
Statement Cache Size	`300`
Test Frequency	`60`
Allow Shrinking	`True` (box checked)
Shrink Frequency	`15`
Test Reserved Connections	`TRUE (checked)`
Test Released Connections	`FALSE (unchecked)`
Test Table Name	`dual`

Click `Apply` to save these values for each connection pool.

JDBC Data Sources for WebLogic 8

Create three transaction data sources, using WebLogic Server documentation at http://bea.com.

	Datasource 1: Admin	Datasource 2: User	Datasource 3: Logger
Name	`edxAdminDataSource`	`edxUserDataSource`	`edxLoggerDataSource`
JNDI Name	`edx.databasePool`	`edx.user.databasePool`	`edx.logger.databasePool`
Pool Name	`edxAdminConnectionPool`	`edxUserConnectionPool`	`edxLoggerConnectionPool`

Configuration Tab - Advanced Options (use defaults)	
Emulate Two-Phase Commit for non-XA Driver	`FALSE (unchecked)`
Row Prefetch Enabled	`FALSE (unchecked)`
Stream Chunk Size: bytes	`256`

On the `Targets` tab, select the server that will use this Data Source.

Configuring Java Messaging Services (JMS) for EBM

After you have successfully configured JDBC Connections, you must configure Java Messaging Services (JMS) on the application server for EBM. EBM requires three sets of JMS resources:

- **edxAnnotation** supports Line Item Dispute and Annotation features

- **edxDispute** supports Line Item Dispute and Annotation features

- **edxLogger** supports EBM logging through the EBM web application. It requires **five** JMS consumers and session pools.

 If your web application does not implement Line Item Dispute and Annotation, you need only configure JMS resources for `edxLogger`

About JMS Resources for EBM

JMS enable web application components to asynchronously send and receive messages.

- **JMS Connection Factories** are data objects that enable Java Messaging Service (JMS) clients to create JMS connections. You define and configure one or more connection factories to create connections with predefined attributes. WebLogic Server adds the connection factories to the JNDI space during startup, and each J2EE web application retrieves a connection factory using the JNDI on the application server.

- **JMS Stores** store persistent messages in a database accessed through a designated JDBC connection pool. The JMS database can be any database that is accessible through a WebLogic-supported JDBC driver. When creating a JMS Store, you must define the name of the **backing store**, and the **JDBC connection pool** and **database table name prefix** for use with multiple instances

- **JMS Servers** manage connections and message requests on behalf of clients.

- **JMS Topics** can be one of two destinations that you can configure for a JMS server. The other destination is a JMS queue. WebLogic Server allows you to configure one or more destinations for the JMS server. You can configure destinations explicitly or with a **destination template** (useful for multiple destinations with similar attribute values).

- **JMS Session Pools** allow a JMS listener (called a **Consumer** in WebLogic) to have multiple threads that improve performance under heavy load. Each JMS consumer requires its own session pool.

Configuring JMS Resources for WebLogic

Use the JMS settings in this chapter to configure JMS settings for WebLogic Server. For general information about configuring Java resources for WebLogic, see WebLogic Server documentation at http://bea.com.

If your web application does not use Line Item Dispute and Annotation, you need only configure JMS for edxLogger.

To configure JMS for WebLogic:

1. Create one JMS Connection Factory each for **edxAnnotation**, **edxDispute**, and **edxLogger**

2. Create one JMS Store each for each for **edxAnnotation**, **edxDispute**, and **edxLogger**.

3. Create one JMS Server each for each for **edxAnnotation**, **edxDispute**, and **edxLogger**.

4. Create one JMS Topic each for the JMS servers of each for **edxAnnotation**, **edxDispute**, and **edxLogger**.

5. Create one JMS Session Pool each for **edxAnnotation** and **edxDispute**.

6. Create one JMS Consumer each for **edxAnnotation** and **edxDispute**.

7. Create FIVE session pools and consumers for **edxLogger** as listed.

You must enter very similar information many times: one set of JMS resources each for annotation and dispute, and FIVE sets for logging. Make sure you have chosen the correct properties for the resource you are creating, and that each resource maps to others of the **same name**.

Tip	You can **clone** additional Java resources. Right-click a resource and select **Clone <name>**, then change the resource name and properties as required.

JMS Connection Factories

Create three JMS connection factories, using WebLogic Server documentation at http://bea.com. You can accept the default **Properties** for all three connection factories, or consult your application server administrator to tune these values.

	1: Annotation	**2: Dispute**	**3: Logger**
Name	`edxAnnotationTCF`	`edxDisputeTCF`	`edxLoggerTCF`
JNDI Name	`edx/tcf/annotate`	`edx/tcf/dispute`	`edx/tcf/log`

On the Targets tab, select the Servers that will use each JMS Connection Factory.

JMS (JDBC) Stores

Create three JMS JDBC Stores, using WebLogic Server documentation at http://bea.com. You can accept the default **Prefix Name=<NULL>** for all three stores, or consult your application server administrator to tune these values.

Name (of JMS Store)	**Connection Pool**
`edxAnnotationStore`	`edxUserConnectionPool`
`edxDisputeStore`	`edxUserConnectionPool`
`edxLoggerStore`	`edxLoggerConnectionPool`

JMS Servers

Create three JMS Servers, using WebLogic Server documentation at http://bea.com. You may accept the default **Properties** for all three servers, or consult your application server administrator to tune these values.

	1: Annotation	2: Dispute	3: Logger
Name	**edxAnnotationServer**	**edxDisputeServer**	**edxLoggerServer**
(Persistent) Store	**edxAnnotationStore**	**edxDisputeStore**	**edxLoggerStore**

Targets Tab	
Targets-Server	[select **myserver** from drop-down menu]

JMS Topics

Create three JMS Topics, using WebLogic Server documentation at http://bea.com. Make sure to create the matching topic for each server.

	1: Annotation	2: Dispute	C3: Logger
Name	**edxAnnotationTopic**	**edxDisputeTopic**	**edxLoggerTopic**
JNDI Name	**edx/jms/annotate**	**edx/jms/dispute**	**edx/jms/log**
Enable Store	**True**		

JMS Session Pools and Consumers for Annotation and Dispute

> **Tip** — If your deployment does not use annotation and dispute, you can skip to configuring session pools and consumers for Logger.

Create one pair of JMS Session Pools and Consumers each for Annotation and Dispute, using WebLogic Server documentation at http://bea.com. Set **Acknowledge Mode** to **auto** and **Sessions Maximum** to **-1** for all three Session Pools.

Session Pool	1: Annotation	2: Dispute
Name	**edxAnnotationPool**	**edxDisputePool**
Connection Factory	**edx/tcf/annotate**	**edx/tcf/dispute**
Listener Class	**com.edocs.services.annotation.Listener**	**com.edocs.services.dispute.Listener**

> **Tip** — For each session pool, -1 specifies no session maximum. Tune each Session Maximum to the maximum number of threads for each pool.

Consumer	1: Annotation	2: Dispute
Name	**edxAnnotationConsumer**	**edxDisputeConsumer**
Messages Maximum	**10**	**10**
Selector	**JMSType='USER'**	**JMSType='USER'**
Destination	**edx/jms/annotate**	**edx/jms/dispute**

JMS Session Pools and Consumers for Logging

Create FIVE pairs of **JMS Session Pools and Consumers** for **Logger,** using WebLogic Server documentation at http://bea.com. **Set Acknowledge Mode** to **auto** and **Sessions Maximum** to **-1** for all five Session Pools.

Tip   For each session pool, -1 specifies no session maximum. Tune each Session Maximum to the maximum number of threads for each pool.

---

1) **Admin Activity**

JMS session pool - Configuration Tab

Property	Value
Name	**edxLoggerAdminActivityPool**
Connection Factory	**edx/tcf/log**
Listener Class	**com.edocs.fs.logging.sub.AdminActivityListener**
Acknowledge Mode	**auto**
Sessions Maximum	**-1**

JMS Consumer- Configuration Tab

Property	Value
Name	**edxLoggerAdminActivityConsumer**
Messages Maximum	**10**
Selector	**JMSType='ADM'**
Destination	**edx/jms/log**

2) CSR Activity

JMS session pool- Configuration Tab

Property	Value
Name	`edxLoggerCSRActivityPool`
Connection Factory	`edx/tcf/log`
Listener Class	`com.edocs.fs.logging.sub.CSRActivityListener`
Acknowledge Mode	`auto`
Sessions Maximum	`-1`

JMS consumer- Configuration Tab

Property	Value
Name	`edxLoggerCSRActivityConsumer`
Messages Maximum	`10`
Selector	`JMSType='CSR'`
Destination	`edx/jms/log`

3) Message Log

JMS session pool- Configuration Tab

Property	Value
Name	`edxLoggerMessageLogPool`
Connection Factory	`edx/tcf/log`
Listener Class	`com.edocs.fs.logging.sub.MessageLogListener`
Acknowledge Mode	`auto`
Sessions Maximum	`-1`

JMS consumer- Configuration Tab

Property	Value
Name	`edxLoggerMessageLogConsumer`
Messages Maximum	`10`
Selector	`JMSType='MSG'`
Destination	`edx/jms/log`

4) System Activity

JMS session pool- Configuration Tab

Property	Value
Name	`edxLoggerSystemActivityPool`
Connection Factory	`edx/tcf/log`
Listener Class	`com.edocs.fs.logging.sub.SystemActivityListener`
Acknowledge Mode	`auto`
Sessions Maximum	`-1`

JMS consumer

Property	Value
Name	`edxLoggerSystemActivityConsumer`
Messages Maximum	`10`
Selector	`JMSType='SYS'`
Destination	`edx/jms/log`

5) UserActivity

JMS session pool

Property	Value
Name	`edxLoggerUserActivityPool`
Connection Factory	`edx/tcf/log`
Listener Class	`com.edocs.fs.logging.sub.UserActivityListener`
Acknowledge Mode	`auto`
Sessions Maximum	`-1`

JMS consumer

Property	Value
Name	`edxLoggerUserActivityConsumer`
Messages Maximum	`10`
Selector	`JMSType='USER'`
Destination	`edx/jms/log`

Deploying EBM

After configuring your WebLogic domain server, you can deploy the EAR files to the appropriate servers:

- **Application servers**: Deploy the edocs Platform Services (ear-eStatement.ear) and the EBM ears.

- **Database servers**: Deploy edocs Platform Services (ear-eStatement.ear).

The ear files are located at:

Feature	Location	File Name
Edocs Platform Services	%EBM_HOME%/J2EEApps/weblogic	ear-eStatement.ear
EBM	%EBM_HOME%/J2EEApps/weblogic	EBM Consumer: ear-tbm.ear EBM Business: ear-tbm-b2b.ear
EBM CSR	%EBM_HOME%/J2EEApps/weblogic	ear-tbm-csr.ear

Consult your BEA WebLogic documentation on how to deploy applications.

After successfully deploying the application, you can log into the EBM Command Center:

1. In your browser, point to http://localhost:7001/edocs (where localhost:7001 is your server name if you are on a different machine). The initial default Administrator ID is **admin** and the Password is **edocs**.

2. Once in the Command Center, change your password. Click the Help button in the Command Center for information changing passwords.

Starting the Scheduler

To start the EBM Scheduler from the UNIX command line:

1. Switch user to the application server owner.

   ```
   su - edxadmin
   ```

2. Change directory to the **bin** directory of your EBM installation, **$EDX_HOME/bin.**

3. Run the Scheduler command for WebLogic Server (**wl_scheduler**), host, and port. This example shows the Scheduler command for WebLogic:

   ```
   ./wl_scheduler –start –url t3://localhost:7001
   ```

Tip	This example uses the default port for the administration server. You can specify another port number if necessary, but it must match the port for the admin server.

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

Where to Go From Here

Once you have successfully configured the WebLogic Server and deployed the EBM application, you can proceed to deploying any custom J2EE applications. This requires customizing each web application's deployment code for your environment and platform. For details, see WebLogic Server documentation at http://bea.com and *Deploying and Customizing J2EE Applications.*

7

Setting up Payment

Payment Installation

The EBM installation procedure automatically installs and configures Payment with Platform Services.

By default, Payment is installed in:

Platform	Default Path
Solaris or HP-UX	*/opt/edocs/TBM/Payment*

This guide refers to the default installation path for Payment as *PAYMENT_HOME* or *EBM_HOME/Payment*.

Implementing Payment

To implement online bill payment:

1. Create a new Payment database using the instructions in this chapter (or migrate an existing Payment database).

2. Configure a Payment gateway for online check and/or credit card processing. See "Post-Payment Installation Configuration" on page 61.

3. Enroll customers for online bill viewing and payment. See the *EBM Administration Guide* for details.

4. Set up Payment jobs to process payments and optionally send reminders. See the *EBM Administration Guide* for details.

Creating a New Payment Database

Configuring the Payment database consists of running a script that creates tables and indexes in the EBM database that Payment uses.

Running the database creation script for Oracle in Unix:

1. Log on as the Oracle user. For example:

   ```
   su - oracle
   ```

2. You may have to set the environment variable for the Oracle SID to the EBM Oracle database instance before starting *sqlplus*. For example:

   ```
   export ORACLE_SID=edx0
   ```

3. Change your working directory to the *db/oracle* directory under *$PAYMENT_HOME*. For example:

   ```
   cd /opt/edocs/TBM/Payment/db/oracle
   ```

4. Run the Payment database configuration script *payment_admin.sh*.

5. The Payment database installation menu displays:

   ```
   edocs Payment Server Administration Main Menu Version 1.0
   --------------------------------------------------------
     [1] Sign in Menu
     [2] Install Application Database I
     [3] Install Application Database II
     [4] Initial Data Population
     [Q] Quit
     Enter Your Option :
   ```

6. Enter 1 Sign in Menu. A second sign-in screen appears, where you enter the following database sign-in information:

   ```
              SIGN IN MENU
   ----------------------------------------
    [1] Enter Database USERNAME        ...>edx_dba
    [2] Enter Database PASSWORD        ...>edx
    [3] Enter the EBM ORACLE_SID ...>edx0
   ```

7. After you enter the ORACLE_SID value, the main menu reappears. Select **[2] Install Application Database**.

8. When the script finishes, enter **[3] Install Application Database II**.

9. When the script finishes, enter **[4] Initial Data Population**. This step populates the Payment database with data required to run Payment.

10. When the script finishes, enter **[Q] Quit** to end the script. The Payment database installation is completed. Make sure the Oracle listener is running, and the Payment database is ready to use.

Migrating an existing database

Running the database migration script for Oracle in Unix:

1. Log on as the Oracle user. For example:

   ```
   su - oracle
   ```

2. You may have to set the environment variable for the Oracle SID to the EBM Oracle database instance before starting *sqlplus*. For example:

   ```
   export ORACLE_SID=edx0
   ```

3. Change your working directory to the *db/oracle/migration/to42* directory under *$PAYMENT_HOME*. For example:

   ```
   cd /opt/edocs/TBM/Payment/db/oracle
   ```

4. Switch to Oracle and connect to the EBM/Payment database with SQLPLUS and run the Payment database creation script *create_payment_db.sql*. For example:

   ```
   su - oracle
   sqlplus edx_dba/edx@edx.db
   @create_payment_db.sql
   ```

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Post-Payment Installation Configuration

Configuring Support for Payment Processors

WebLogic

If you are going to use a payment processor credit card gateway, then you must edit the classpath in your application server startup script, and configure your java security file.

To edit the classpath in the application server startup script

Edit the startup script for your application server to add *jsse.jar*, *jnet.jar* and *jcert.jar*. These files are located in the JSEE subdirectory of your JDK 1.4 installation. If you are using JDK 1.3, then you must download the files from http://java.sun.com/products/jsse/index-102.html.

These JSEE JAR files must be added to the classpath **before** the WebLogic JAR files. For example,

For Unix:

```
$CLASSPATH=<JSSE_PATH>\jsse.jar:<JSSE_PATH>\jcert.jar:<JSSE_PA
TH>/jnet.jar:$CLASSPATH
```

Where <JSSE_PATH> is the path to the JSEE JAR files.

Configuring java security

Modify the java.security file to configure Java to use the JSSE, which is located in *JAVAHOME/jre/lib/security/java.security* to add the following entries:

```
security.provider.1=sun.security.provider.Sun
security.provider.2=com.sun.net.ssl.internal.ssl.Provider
```

If the file already uses the numbers shown above, then use the next available numbers that maintain a contiguous sequence.

> **Caution** Be sure that you edit the correct java security file. Many installations have more than one JDK installed. Edit the one that the application server uses.

Preparing for a System Failure

The database for Payment should be backed-up regularly, for example nightly, to maximize the recovery effort in the event of a system failure. For example, if the Payment Database Server failed for some reason, the database administrator could restore from the latest backed-up version. A failure to the Payment Database Server also requires that the database administrator restart the Payment services in order to reestablish the database connection pool.

Payment will automatically handle single transaction failures by rolling back to the transaction's original state. This happens because each Payment operation is handled within its own transaction context.

Appendix A: Uninstalling EBM

Uninstalling EBM

You can uninstall and remove EBM components, and deployed J2EE applications using the EBM Uninstaller.

Uninstall EBM 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 you must then remove manually.

Before uninstalling EBM 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.

To uninstall EBM:

1. Navigate to the **Uninstall** folder of your EBM home directory, **$EBM_HOME.**

2. Launch the EBM Uninstaller with the command `./Uninstall_TBM`**.** The dot and slash are required, and there is no space after the slash.

   ./Uninstall_TBM

   The Uninstall screen appears.

3. Click **Uninstall**. A second uninstall screen appears showing EBM components being removed from your machine.

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

4. Change the directory to your EBM home directory and manually remove any remaining files and directories as necessary.

5. Click **Done** to close the uninstaller.

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

Uninstalling Payment

If you want to remove the Payment database tables and indexes, you must do that before removing the Payment database package.

Removing the Payment Database

Follow the steps below to remove the Payment database tables and indexes. The process involves running an SQL script as the as the owner of the database.

Caution   If you want to remove the Payment database tables and indexes, you must do that before removing the Payment database package. Be aware that this procedure **completely** removes the payment database elements.

To remove the Payment database for Oracle in Unix:

1. Log in as the Oracle user.

2. Change your working directory to **$PAYMENT_HOME/db/oracle**.

3. Start a sqlplus session on the Payment database server.

4. Remove payment tables and stored procedures by running:

    ```
    @drop_payment_db.sql
    ```

5. You should see the following message after running each stored procedure:

    ```
    PL/SQL procedure successfully completed.
    ```

Uninstalling Payment

When uninstalling Payment, you must remove it from each server where it is installed; run this procedure on both the database and application servers.

Caution   If you want to remove the Payment database tables and indexes, you must do that before removing the Payment database package.

To remove the Payment application in Unix:

1. Be sure to save any files that you modified that you may want later.

2. Run $PAYMENT_HOME/Uninstall/Uninstall_Payment. For example:

    ```
    cd /opt/edocs/TBM/payment/Uninstall
    ./Uninstall_Payment
    ```

3. Remove any directories not removed by the uninstall procedure.

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