eaDirect™ Installation and Configuration Guide

edocs®

**Hewlett Packard HP-UX™ Operating System
and the BEA WebLogic® Server**

Table of Contents

About Customer Self-Service and eaSuite™

eaSuite

edocs has developed the industry's most comprehensive software and services for deploying Customer Self-Service solutions. eaSuite™ combines electronic presentment and payment (EPP), order management, knowledge management, personalization and application integration technologies to create an integrated, natural starting point for all customer service issues. eaSuite's unique architecture leverages and preserves existing infrastructure and data, and offers unparalleled scalability for the most demanding applications. With deployments across the healthcare, financial services, energy, retail, and communications industries, and the public sector, eaSuite powers some of the world's largest and most demanding customer self-service applications. eaSuite is a standards-based, feature rich, and highly scalable platform, that delivers the lowest total cost of ownership of any self-service solution available.

eaSuite is designed to support how organizations approach designing and deploying Customer Self-Service applications:

Customer-Facing Solutions present customers with the sophisticated functionality to meet customers' self-service needs. eaSuite offers a full set of capabilities to enable the range of business and consumer customer service activities, along with the flexibility to completely customize the solution to meet vertical industry and specific company requirements.

Enterprise-Facing Solutions empower employees within an organization and external partners to leverage the edocs platform to facilitate self-service and to support assisted service. Customer service representatives (CSRs), sales agents, account managers, marketing managers, broker-dealers and channel partners all play a role in delivering customer service, creating content, accessing information and performing activities for the benefit of customers.

Platform and Development Tools are designed to meet the rigorous infrastructure demands of the most technologically advanced organizations. These components of the eaSuite power edocs solutions with the functionality and development tools necessary to make account data available, and to create the customer- and enterprise-facing applications that enable customer self-service.
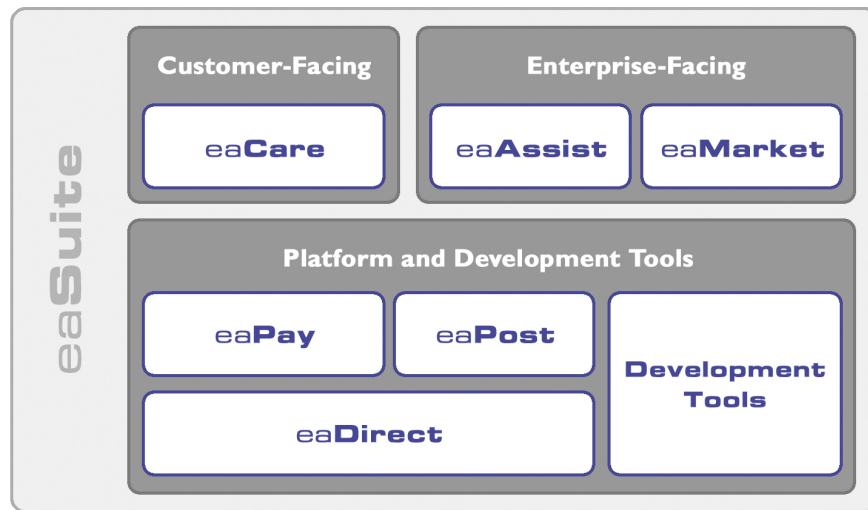
eaAssist

eaAssist™ reduces interaction costs and increases customer satisfaction by enabling enterprise agents – customer service representatives (CSRs), sales agents, broker-dealers and others – to efficiently access critical account data and service-related information to effectively service customers. Through its browser interface designed especially for the enterprise agent, eaAssist enables agents to take advantage of customer-facing online capabilities to provide better service by more efficiently resolving customer account inquiries at the point of customer contact.

eaMarket

eaMarket™ is the personalization, campaign and content management solution that enables organizations to increase revenue and improve customer satisfaction by weaving personalized marketing and customer service messages throughout the Customer Self-Service experience. The transactional account data that provides the foundation for a Customer Self-Service solution – such as transaction activity, service or usage charges, current task and prior service history – bring valuable insight into customers and can help optimize personalized marketing and customer service campaigns. eaMarket leverages that data to present relevant marketing and customer service messages to customers.

eaDirect

eaDirect™ is the core infrastructure of enterprise Customer Self-Service solutions for organizations large and small with special emphasis on meeting the needs of organizations with large numbers of customers, high data volumes and extensive integration with systems and business processes across the enterprise. Organizations use eaDirect with its data access layer, composition engine, and security, enrollment and logging framework to power complex Customer Self-Service applications.

eaPay

eaPay™ is the electronic payment solution that decreases payment processing costs, accelerates receivables and improves operational efficiency. eaPay is a complete payment scheduling and warehousing system with real-time and batch connections to payment gateways for Automated Clearing House (ACH) and credit card payments, and payments via various payment processing service providers.

eaPost

eaPost® is the account content distribution system that handles all the complexities of enrollment, authentication and secure distribution of summary account information to any endpoint, while also bringing customers back the organization's Website to manage and control their self-service experience.

Development Tools

eaSuite Development Tools™ are visual development applications that provide intuitive graphical user interface (GUI) environments for designing and developing Customer Self-Service solutions. The Development Tools encompass data management, workflow authoring, rules management and accounts receivable integration, as well as a full Software Developers Kit for custom application development.

About This Guide

This guide describes how to install eaDirect and configure the third-party applications that make up the eaDirect production environment. This guide is intended for system administrators and other technical personnel responsible for installing, configuring, and maintaining eaDirect. It contains the following chapters:

Preparing to Install eaDirect describes the hardware and software requirements for supporting products, walks you through the **InstallAnywhere** installation process, and discusses the recommended user and group accounts you need to create for your environment.

Setting Up a Database Server for eaDirect provides instructions for installing eaDirect on your database server and configuring your database server environment.

Setting Up an Application Server for eaDirect provides instructions for installing eaDirect on your application server and configuring your application server environment.

Migrating To a New Version of eaDirect describes how to migrate previous versions of an eaDirect database, check for errors, reset directory permissions, and migrate existing eaDirect applications.

Uninstalling eaDirect Components describes how to uninstall eaDirect on your database and application servers.

Appendix A: Using eaSample describes how to deploy and view the sample application and data provided with eaDirect.

Related Documentation

Online Help (for Composition Tools) and a PDF of this guide are also available.

Online	How to Access
Help	Select Help > Help Topics in DefTool or Composer.
A PDF of this guide	A PDF of this guide is available on the eaDirect product CD-ROM.

This guide is part of the eaDirect documentation set. For more information about implementing your eaDirect application, see one of the following guides:

Print Document	Description
eaDirect Installation and Configuration Guide	How to install eaDirect and configure it in a distributed environment.
eaDirect Production Guide	How to set up and run a live eaDirect application in a J2EE environment.
eaDirect Developer's Guide	Provided with the eaDirect Software Developer's Kit (SDK), describes eaDirect application server components and related applications; defines the public interfaces for customizing and extending the functionality of an eaDirect application.

If You Need Help

Technical support is available to customers who have valid maintenance and support contracts with edocs. Technical support engineers can help you install, configure, and maintain your edocs application.

To reach the U.S. Service Center, located in Natick, MA (Monday through Friday 8:00am to 8:00pm EST):

- Telephone: 508.652.8400

- Toll Free: 877.336.3362

- E-support: support.edocs.com (This requires a one-time online registration)

- E-mail: support@edocs.com

When you report a problem, please be prepared to provide us the following information:

- What is your name and role in your organization?

- What is your company's name?

- What is your phone number and best times to call you?

- What is your e-mail address?

- In which edocs product did a problem occur?

- What is your Operating System version?

- What were you doing when the problem occurred?

- How did the system respond to the error?

- If the system generated a screen message, please send us that screen message.

- If the system wrote information to a log file, please send us that log file.

If the system crashed or hung, please tell us.

Preparing to Install eaDirect

Before installing eaDirect, you must confirm that your system meets or exceeds recommended hardware and software requirements. During installation, you will ensure that all supporting software is correctly configured and functioning smoothly and that your environment is set up properly for eaDirect.

Follow the steps in this guide carefully and in sequence to ensure a successful installation of eaDirect.

Hardware and Software Requirements

Confirm that your system meets or exceeds the minimum recommended hardware and software requirements for installing eaDirect. Check the release notes for any updates to these requirements.

Type	Vendor	Product	Version	Notes
OS	HP	HP-UX	11i	
	Microsoft	Windows	2000 or NT	supported for Windows composition tools only
HARDWARE	HP	PA-RISC platform		
HARDWARE		CD-ROM		
HARDWARE		disk space (database)	2.2 GB	
HARDWARE		disk space (software)	60 MB	
HARDWARE		RAM	512 MB	per CPU (1 GB recommended)
HARDWARE		Swap space	512 MB	per CPU (1 GB recommended)
C++	HP	C++ runtime packages		

Type	Vendor	Product	Version	Notes
		Java 2 SDK Standard Edition	1.3.1	shipped with your application server
DATABASE SERVER	Oracle	client software	8i 8.1.7	
		JDBC driver	8i 8.1.7.1	
		Oracle	8i 8.1.7	
APPLICATION SERVER	BEA	WebLogic Server	6.1	SP4 with patch CR093416
BROWSER (either)	Microsoft	Internet Explorer	5.5 SP2 or 6	(on client machines)
	Netscape	Navigator	6.2	
XWINDOWS		Xserver OR Xvfb		to support charting and reporting

HP-UX Operating System

You should check that the US locale is installed on your HP system by running the following:

```
$ locale –a | grep en_US
```

If this gives you a resulting listing then you have the US locale installed on your system. If not then please refer to your HP documentation in order to install this on your system.

In order to run WebLogic on HP-UX, you must check that its kernel system parameters have values higher than the following recommended minimum values:

Parameter	Minimum Value	Description
`max_thread_proc`	1024	Maximum threads per process
`maxfiles`	256	Soft file limit per process
`maxusers`	256	Influences other parameters
`nkthread`	3635	Number of threads total on the system

nproc	2068	Maximum number of processes
ncallout	2084	Number of pending timeouts

WebLogic

WebLogic version 6.1 Service Pack 4 is recommended for this release of eaDirect. This release of WebLogic comes packaged with JDK 1.31_06. For convenience, it is recommended that you change the *.profile* of the WebLogic user to add the following parameters:

```
BEA_HOME=<enter you installed bea home directory>
export BEA_HOME

JAVA_HOME=$BEA_HOME/wlserver6.1/jdk131
export JAVA_HOME

PATH=.:$PATH:$JAVA_HOME/bin
export PATH
```

WebLogic 6.1 SP4 requires the following patch in order to run correctly:

*   CR093416 patch for HP-UX 11i for PA-RISC system

To install it, you must put the file (requested from BEA Support) in the *lib* directory of WebLogic and then refer to it in the server startup scripts. For example:

```
$ BEA_HOME=<enter your bea home directory here>
$ export BEA_HOME
$ cp CR093416_610sp4.jar $BEA_HOME/wlserver6.1/lib

$ WL_DOMAIN_DIR=$BEA_HOME/wlserver6.1/config/<enter your domain dir>
$ vi $WL_DOMAIN_DIR/startWebLogic.sh
```

Right at the end of the file just before the JAVACMD line enter the following 2 lines indicated below, then save and close the file.

```
WL_HOME=<enter your Weblogic home directory eg. /apps/bea/wlserver6.1>
export WL_HOME

CLASSPATH=$WL_HOME/lib/CR093416_610sp4.jar:$CLASSPATH
```

Now you can perform the same changes to *startManagedWebLogic.sh*.
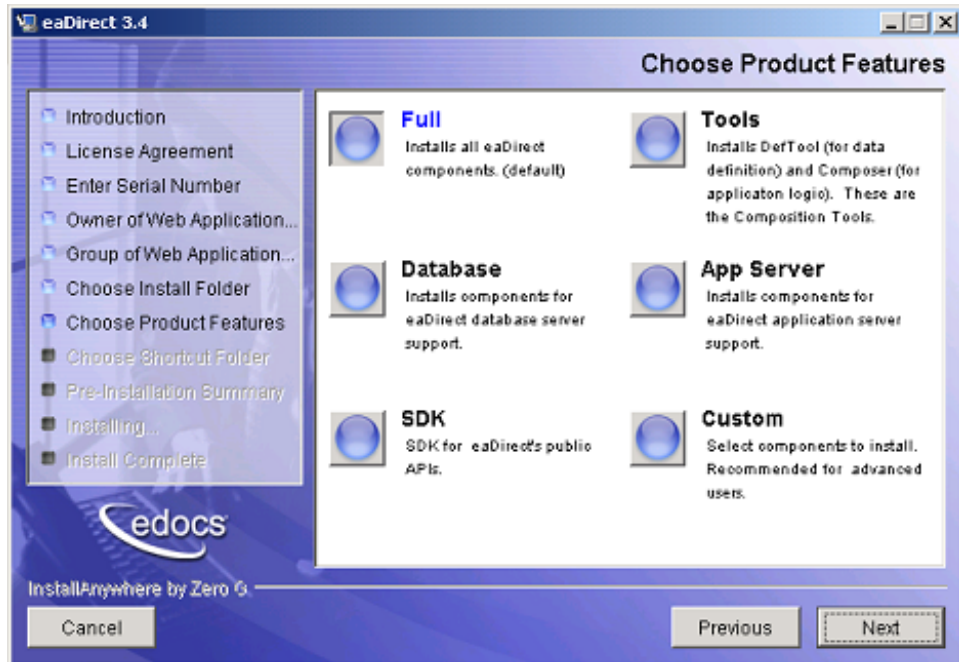
Installing eaDirect Product Components

The installation of eaDirect product components is done through the InstallAnywhere installer. The tool is provided with eaDirect on its distribution CD-ROM.

Tip   To use the InstallAnywhere GUI on a UNIX machine, you will need Xwindows software installed. You will also need to set the DISPLAY environment variable for your machine.

The following screen shows where you select the eaDirect components to install. Note that the features you will see depends on which features you purchased.

eaDirect 3.4 — Choose Product Features

Introduction
License Agreement
Enter Serial Number
Owner of Web Application...
Group of Web Application...
Choose Install Folder
Choose Product Features
Choose Shortcut Folder
Pre-Installation Summary
Installing...
Install Complete

Full Installs all eaDirect components. (default)

Tools Installs DefTool (for data definition) and Composer (for applicaton logic). These are the Composition Tools.

Database Installs components for eaDirect database server support.

App Server Installs components for eaDirect application server support.

SDK SDK for eaDirect's public APIs.

Custom Select components to install. Recommended for advanced users.

edocs

InstallAnywhere by Zero G

Cancel   Previous   Next

With the InstallAnywhere easy-to-follow graphical user interface, you can choose to do a full or custom install of eaDirect components on a single server or on multiple servers in a distributed environment. The following tables describe the various eaDirect installation options:

Installation Option	Components Installed
Full	Installs eaDirect application server components, eaDirect database server components, application server J2EE files for eaDirect, eaDirect composition tools, and online product Help. This is the default installation option for eaDirect. **Note**: Use this installation option to install eaDirect on a single machine. See *Installing eaDirect on a Single Machine.*
Database	Installs the eaDirect database server components and online product Help.
App Server	Installs eaDirect application server components, application server J2EE files for eaDirect, sample applications (as licensed), and online product Help.
Custom	Gives users the option to install eaDirect application server components, eaDirect database server components, eaDirect J2EE applications, eaDirect composition tools, and sample eaDirect applications.
SDK	Provides Javadoc, documentation and samples for the eaDirect API. This component will only appear if you have purchased a license for the SDK.

InstallAnywhere copies eaDirect files from the distribution CD-ROM to the appropriate directories, and sets up the directory hierarchy for database server and application server components.

A Windows installation (for Composition Tools) also adds icons (including the tool to uninstall eaDirect) to the eaDirect program group in the Windows Start menu.

For details about installing eaDirect components using InstallAnywhere, see the topics: *Installing the eaDirect Composition Tools*, *Installing the eaDirect Database Components* and *Installing the eaDirect Application Server Components*.

Installing eaDirect in Console Mode

You can choose one of two InstallAnywhere installation modes to install eaDirect:

- GUI Mode (default)

- Console Mode

The installation procedures in this guide show eaDirect being installed using the InstallAnywhere GUI. Console Mode is an interactive character-based installation where you are prompted to respond to several installation questions.

To install eaDirect in Console Mode:

1. From the installation CD-ROM, navigate to the subdirectory for your platform (for example \Windows, /Solaris, /HPUX, or /AIX) and run the command to invoke InstallAnywhere, using the **-i console** flag. For example:

   ```
   # ./Dirins.bin -i console
   ```

   InstallAnywhere displays the banner:

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

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

3. A successful installation displays the message:

   ```
   Congratulations! eaDirect 3.4 has been successfully
   installed to:
    /opt/EDCSbd
   ```

Installing the eaDirect Composition Tools

The installation of the eaDirect Composition Tools (DefTool and Composer) is separate from a UNIX installation of eaDirect. To install these Windows-based composition tools, you must run InstallAnywhere for Windows (provided on the eaDirect distribution CD-ROM), and choose the **Tools** installation option.

The eaDirect composition tools can be installed on a Windows machine, or a remote or dial-up server.

To install the eaDirect composition tools (Windows):

1. From the *Windows* subdirectory on the eaDirect installation CD-ROM, double-click the command to invoke InstallAnywhere:

   `Dirins.exe`

   A start-up screen appears.

2. On the Introduction screen, read the eaDirect introductory information. Then click **Next**.

3. On the License Agreement screen, read and accept the terms of the agreement (use the scroll bars to move up and down on the screen) by clicking the appropriate radio button. Then click **Next**.

4. On the Enter Serial Number screen, enter your product serial number. It is stapled to the inside front cover of this guide (if your serial number has been misplaced, contact edocs Technical Support). Then click **Next**.

5. On the Choose Install Folder screen, accept the default installation folder or click **Choose** to specify another installation folder. Then click **Next**.

6. On the Choose Product Features screen, click **Tools**. Then click **Next**.

7. On the Choose Shortcut Folder screen, decide whether you want to create product icons and where. Then click **Next**.

8. On the Pre-Installation Summary screen, confirm that the information is accurate. Then click **Install**.

   At this point, the eaDirect composition tools are copied to the designated installation folder. A status bar on the bottom of the screen shows the composition tools being installed. No user intervention is required.

9. The Install Complete screen reports a successful installation and the directory that contains the composition tools.

10. Click **Done** to exit the installer.

Installing eaDirect on a Single Machine

This guide is organized to show how to install eaDirect in a distributed environment that has at least one dedicated database server and application server. However, using the InstallAnywhere 'Full' installation option, you can choose to install all the eaDirect product components on a single machine. The following procedure describes how to do this.

To install eaDirect on a single machine:

1. From the installation CD-ROM, navigate to the subdirectory for your platform (for example `\Windows`, `/Solaris`, `/HPUX`, or `/AIX`) and run the command to invoke InstallAnywhere. For example:

   `# ./Dirins.bin`

   Windows users may double-click the **Dirins.exe** icon.

   A start-up screen appears.

2. On the Introduction screen, read the eaDirect introductory information. Then click **Next**.

3. On the License Agreement screen, carefully read and accept the terms of the license agreement (use the scroll bars to move up and down on the screen) by clicking the appropriate radio button. Then click **Next**.

4. On the Enter Serial Number screen, enter your product serial number. It is stapled to the inside front cover of this guide (if your serial number has been misplaced, contact edocs Technical Support). Then click **Next**.

5. On the Choose Install Folder screen, accept the default installation folder (*opt/EDCSbd*), or click **Choose** to specify another installation folder. Then click **Next**.

6. On the Choose Product Features screen, click **Full**. Then click **Next.**

7. On the Pre-Installation Summary screen, confirm that the information is accurate. Then click **Install**.

At this point, the eaDirect database and application server components are copied to the designated installation folder. A status bar on the bottom of the screen shows each server component being installed. No user intervention is required.

8. The Install Complete screen reports a successful installation and the directory that contains the eaDirect database and application server components.

9. Click **Done** to exit the installer.

Recommended User and Group Permissions

eaDirect installs its components under the specified *EDCSbd* directory and by default gives all sub-folders ownership to *root:root* (user:group) even if you run the installation as another user.

Therefore, you need to follow these guidelines:

- As the *root* user, install the eaDirect software under an *EDCSbd* directory.

- Afterwards, change ownership of the *EDCSbd* directory to be that of the user that runs WebLogic. For example:

  ```
  $ chown -R weblogic:bea EDCSbd
  ```

- On the database server, change the ownership of the *EDCSbd/db* directory to be that of the Oracle user on the system. For example:

  ```
  $ chown -R oracle:dba EDCSbd/db
  ```

Where to Go From Here

If you have installed eaDirect using the 'Full' installation option, you can ignore the database server components installation procedure at the beginning of Chapter 2, and proceed directly to the topic *Configuring Your Database for eaDirect*. Similarly, you can ignore the application server components installation procedure in Chapter 3.

Setting Up a Database Server for eaDirect

2

Overview

This chapter provides instructions for installing eaDirect on a database server and configuring the third-party software that supports it. Setting up a database server to support eaDirect involves completing the following tasks:

- Confirm that the Oracle database is installed

- Install the eaDirect database server components

- Confirm that the required environment variables are defined

- Configure the Oracle database for eaDirect

- Enable access to the Oracle database

It is recommended that you configure the database server first, then the application server.

The installation and configuration examples shown in this chapter use default eaDirect pathnames. If you choose not to accept the default pathnames, make sure your pathnames are consistent throughout the installation of eaDirect on the database and application servers.

Required User Privileges

In order to install eaDirect and manipulate Oracle files and scripts (including eaDirect database server components), you will need *root* and *oracle* administrator privileges. Specifically, you will need *root* privilege to install the eaDirect database server components, and *oracle* administrator privilege to run the eaDirect database configuration script.

After installing eaDirect, change the ownership of the *EDCSbd/db* directory to be that of the Oracle user on the system . The examples in this guide use the default Oracle user and group account *oracle:dba*.

Throughout this installation guide, you will be prompted to switch to the appropriate user privilege when necessary.

Defining Environment Variables (Oracle)

Before you configure an Oracle database to support eaDirect, you must define several environment variables for the Oracle user account. You must also configure Oracle database access to enable eaDirect to communicate with it.

The table below lists the Oracle environment variables that must be defined for the Oracle account:

Variable	Description
ORACLE_BASE	Specifies the top-level directory for the Oracle product installation and administrative file structure. The OFA-recommended value is *software_mount_point/app/oracle*. For example, */u01/app/oracle*
ORACLE_HOME	Specifies the directory containing the Oracle software for a particular release. The OFA-recommended value is *<$ORACLE_BASE>/product/release*. For example, */u01/app/oracle/product/8.1.7*
LD_LIBRARY_PATH	Required for Oracle products that use shared libraries. This variable must include *$ORACLE_HOME/lib*. For example, LD_LIBRARY_PATH=*$ORACLE_HOME*/lib
ORACLE_SID	Specifies the Oracle instance name or system identifier (SID) of the Oracle database server. The SID must be unique for Oracle instances running on the same machine, and can be any combination of alphanumeric characters up to **eight** characters long. For example, edx0

The syntax for defining 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:

```
ORACLE_BASE=/u01/app/oracle
export ORACLE_BASE
ORACLE_HOME=$ORACLE_BASE/product/8.1.7
export ORACLE_HOME
LD_LIBRARY_PATH=$ORACLE_HOME/lib
export LD_LIBRARY_PATH
ORACLE_SID=<db_instance>
export ORACLE_SID
```

To define environment variables in the C shell:

```
setenv ORACLE_BASE=/u01/app/oracle
setenv ORACLE_HOME=$ORACLE_BASE/product/8.1.7
setenv LD_LIBRARY_PATH=$ORACLE_HOME/lib
setenv ORACLE_SID=<db_instance>
```

Installing eaDirect Database Server Components

If you have not completed the tasks in *What You Need to Know Before Installing eaDirect*, do so now. This will help to ensure a smooth and successful installation.

> **Tip** In order to use the InstallAnywhere GUI on a UNIX machine, you will need Xwindows software installed. You will also need to set the DISPLAY environment variable for your machine.

By default, eaDirect is installed in */opt/EDCSbd*. You can change the default installation directory when prompted during installation.

edocs recommends that you install eaDirect in the same top-level directory on both the database server and the application server.

To install the eaDirect database server components:

1. From the */HPUX* subdirectory on the eaDirect installation CD-ROM, run the command to invoke the InstallAnywhere GUI:

    ```
    # ./Dirins.bin
    ```

    A start-up screen appears.

2. On the Introduction screen, read the eaDirect introductory information. Then click **Next**.

3. On the License Agreement screen, carefully read and accept the terms of the license agreement (use the scroll bars to move up and down on the screen) by clicking the appropriate radio button. Then click **Next**.

4. On the Enter Serial Number screen, enter your product serial number. It is stapled to the inside front cover of this guide (if your serial number has been misplaced, contact edocs Technical Support). Then click **Next**.

5. On the Choose Install Folder screen, accept the default installation folder (*/opt/EDCSbd*) or click **Choose** to specify another installation folder. Then click **Next**.

6. On the Choose Product Features screen, click **Database**. Then click **Next**.

7. On the Pre-Installation Summary screen, confirm that the information is accurate. Then click **Install**.

    At this point, the eaDirect database server components are copied to the designated installation folder. A status bar on the bottom of the screen shows each database server component being installed. No user intervention is required.

8. The Install Complete screen reports a successful installation and the directory that contains the database server components.

9. Click **Done** to exit the installer.

Understanding the eaDirect Directory Structure on a Database Server

The eaDirect home directory on the database server contains all the files needed to create and configure the eaDirect production database. When you install the eaDirect database server components, you are prompted to specify a 'destination' directory. By default, this directory is *opt/EDCSbd*, which has a pre-defined hierarchical directory structure.

At the top of the directory hierarchy is *EDCSbd*. Below *EDCSbd* is the subdirectory */db/oracle*, which contains several levels of subdirectories and files used for database creation, configuration. */db/oracle* also contains a subdirectory named *migration*, which contains migration scripts.

```
<EDCSbd>
 /db/oracle
 /db/oracle/migration
```

To designate a different destination directory for the eaDirect database server components, enter the pathname to the directory when prompted during installation.

edocs recommends that you install eaDirect in the same top-level directory on both the database server and the application server.

Creating and Configuring Your eaDirect Database

Before you configure your database to support eaDirect, you must define several environment variables for your database user account. After running the configuration script, you will also need to configure database access to eaDirect.

Creating and Configuring the eaDirect Database with edx_admin.sh

You create and configure the eaDirect production database by running the *edx_admin.sh* database configuration script. This script issues a series of prompts; some require user input, while others execute automatically.

Before running *edx_admin.sh*, confirm that you have a minimum of 2.2 GB free disk space. Insufficient disk space can cause database configuration to fail.

If you have to abort the database setup procedure before it successfully completes, see *Recovering from an Aborted Database Configuration Procedure*.

Caution Make sure that you adhere to the strict character limit for the Oracle SID, which can be any combination of alphanumeric characters up to **eight** characters long.

Entering an Oracle SID with more than eight characters causes the database configuration procedure to fail.

To create and configure the eaDirect database:

1. Switch to *oracle* user and change directory to *$EDX_HOME/db/oracle*. For example:

    ```
    $ su – oracle
    $ cd /opt/EDCSbd/db/oracle
    ```

2. Enter the following command at the prompt:

    ```
    $./edx_admin.sh
    ```

3. The eaDirect Server Administration Main Menu appears. Select Option 1, **Sign in Menu**.

edocs eaDirect Server Administration Main Menu Version 1.0
 ----
[1] Sign in Menu
[2] Capture Database File Locations
[3] Install edocs eaDirect
[4] Initial Data Population
[5] Database Version Migration

[Q] Quit

Enter Your Selection: **1**

A second sign-in screen appears. You will be prompted to enter a username, password, and Oracle SID for the Oracle database.

The following example shows sample values for database username, database password, and database SID; however, you can specify other values if so desired.

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

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

4. Select option 2, **Capture Database File Locations**.

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

Enter Your Selection: **2**

This option specifies the absolute pathname for the various files that comprise the eaDirect production database. The location of these files depends on the type of file structure you are using. This installation process assumes the Oracle Optimal Flexible Architecture (OFA) for the database files.

During this option, you will be prompted to provide absolute pathnames for a variety of database files, including:

- Redo-Log file
- System tablespace file
- Temporary tablespace file
- Rollback tablespace file
- edocs data tablespace file

- edocs index data tablespace file

- Application data tablespace file

- Application index data tablespace file

- Detail extractor data tablespace file

- Detail extractor index tablespace file

- FS data tablespace file

- FS index tablespace file

- Order capture data tablespace file

- Order capture index tablespace file

- Database control file

For the database control file, you will be prompted to enter up to three locations. The control file is important because, among other functions, it allows access to the database. Therefore, by specifying additional locations for the control file, you are providing a means of 'backup' if a database control file is accidentally deleted or becomes corrupted.

Database files can reside wherever you want them to. If you plan to use only one disk location, specifying a pathname similar to the following for the database software and files is appropriate. Note that the environment variable, *$ORACLE_HOME*, represents the directory on your machine where the Oracle distribution is installed.

```
$ORACLE_HOME/oradata
```

The configuration process checks the validity of the specified locations and displays the following message if no problems are encountered:

Capture of Database file locations completed.

Upon completion of this step, press **Enter** to return to the edocs eaDirect Server Administration Main Menu.

5. Select Option 3, **Install edocs eaDirect**. The Install edocs eaDirect menu appears.

6. Select Option 1, **Initialize Oracle Database I**.

```
Install edocs eaDirect
-------------------------------------
[1] Initialize Oracle Database I
[2] Shutdown Database
[3] Startup Database
[4] Initialize Oracle Database II
[5] Install Application Database I
[6] Install Application Database II
[7] View Status Log Directory
---------------------------------------------------
[R] Return to previous menu

SELECT YOUR OPTION: 1
```

The options on this menu are used to initialize the eaDirect database by:

- Creating a new database initialization file from the installation template *init.ora* file. The name of the newly created initialization file combines the 'init' prefix followed by the Oracle SID.

- Creation of the script, *create_ora_db.sh*, which contains the Oracle command that is used to create a database.

- Execution of the two files above.

During the execution of this step, you should see output similar to the following:

```
BASE=/uo1/app/oracle
INIT=initedx0.ora

Please wait, this may take a few moments
"--> Database Definition occurring..."

ORACLE instance started.
Total System Global Area 53047456 bytes
Fixed Size 73888 bytes
Variable Size 52064256 bytes
Database Buffers 819200 bytes
Redo Buffers 90112 bytes
Database created.
```

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

7. Select Option 2, **Shutdown Database.**

Oracle Server Manager Release 3.1.7.0.0 – Production

Copyright (c) 1997, 1999, Oracle Corporation. All Rights Reserved.

Oracle8i Enterprise Edition Release 8.1.7.0.0 – Production With the Partitioning option

JServer Release 8.1.7.0.0 - Production

SVRMGR> Connected.

Database closed.
Database dismounted.
ORACLE instance shut down.
SVRMGR> Server Manager complete.

Oracle Server Manager Release 3.1.7.0.0 - Production

---

8. Select Option 3, **Startup Database**.

Copyright (c) 1997, 1999, Oracle Corporation. All Rights Reserved.

Oracle8i Enterprise Edition Release 8.1.7.0.0 – Production With the Partitioning option

JServer Release 8.1.7.0.0 - Production

SVRMGR> Connected.
SVRMGR> ORACLE instance started.

Total System Global Area 53047456 bytes
Fixed Size 73888 bytes
Variable Size 52064256 bytes
Database Buffers 819200 bytes
Redo Buffers 90112 bytes
Database mounted.
Database opened.
SVRMGR> Server Manager complete.

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

9. Select Option 4, **Initialize Oracle Database II**.

```
Install edocs eaDirect
-------------------------------------
[1] Initialize Oracle Database I
[2] Shutdown Database
[3] Startup Database
[4] Initialize Oracle Database II
[5] Install Application Database I
[6] Install Application Database II
[7] View Status Log Directory
---------------------------------------------------
[R] Return to previous menu

SELECT YOUR OPTION: 4
```

This option executes several scripts that define the data dictionary for the new database and create a stored procedure. The stored procedure is modified to contain the absolute pathnames that were defined in Option 2, **Capture Database File Locations**.

The newly created stored procedure creates the various database tablespaces and rollback segment data files that the eaDirect database requires.

This option will take approximately 20 minutes to complete. Towards the end of this process informational messages are displayed, indicating that the utility scripts and the stored procedures are executing. A final message will indicate whether the processing was successful.

No user input is required for this option. Press **Enter** to return to the Install edocs eaDirect menu.

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

```
Install edocs eaDirect
-------------------------------------
[1] Initialize Oracle Database I
[2] Shutdown Database
[3] Startup Database
[4] Initialize Oracle Database II
[5] Install Application Database I
[6] Install Application Database II
[7] View Status Log Directory
---------------------------------------------------
[R] Return to previous menu

SELECT YOUR OPTION: 5
```

This option creates the eaDirect database tables and indexes using a SQL script named *create_tables.sql*. No user input is required for this option.

The error messages that are briefly displayed at the start of the step are an expected part of the process and can be ignored. Press **Enter** to return to the Install edocs eaDirect menu.

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

Install edocs eaDirect

----
[1] Initialize Oracle Database I
[2] Shutdown Database
[3] Startup Database
[4] Initialize Oracle Database II
[5] Install Application Database I
[6] Install Application Database II
[7] View Status Log Directory

[R] Return to previous menu

SELECT YOUR OPTION: **6**

This option compiles the application-defined stored procedures. These stored procedures constitute the database processing for eaDirect. During the processing, informational messages are displayed indicating the successful compilation of the individual program modules.

No user input is required for this step. Press **Enter** to return to the Install edocs eaDirect menu.

Tip Option 7, View Status Log Directory, allows you to view several log files that are created during the database configuration procedure. The files are copied to *$EDX_HOME/db/oracle*.

This step is not necessary for the database configuration procedure to complete successfully.

---

12. Select **Return to Previous Menu**. The eaDirect Server Administration Main Menu appears.

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

---

edocs eaDirect Server Administration Main Menu Version 1.0

----
[1] Sign in Menu
[2] Capture Database File Locations
[3] Install edocs eaDirect
[4] Initial Data Population
[5] Database Version Migration
[Q] Quit

Enter Your Selection: **4**

The Initial Data Population Menu appears.

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

Initial Data Population

---------- -----------------------
[1] Import initial data set
[2] Export edocs database data

[R] Return to previous menu

SELECT YOUR OPTION: **1**

This option populates the newly defined database with information from a data file that is loaded into the database. As data is imported into the tables, informational messages are displayed indicating whether the data is being imported correctly.

No user input is required for this option. Upon completion of this step, press **Enter** to return to the Initial Data Population menu.

Tip   Step 2, Export edocs database data, is not necessary at this time because the database is still empty.

---

15. Select Option **R** (Return to Previous Menu), and then press **Enter**.

Initial Data Population

----
[1] Import initial data set
[2] Export edocs database data

[R] Return to previous menu

SELECT YOUR OPTION: **R**

The eaDirect Server Administration Main Menu appears.

16. Select Option **Q** (Quit), and then press **Enter** to end the eaDirect database creation and configuration procedure.

edocs eaDirect Server Administration Main Menu Version 1.0

----
[1] Sign in Menu
[2] Capture Database File Locations
[3] Install edocs eaDirect
[4] Initial Data Population
[5] Database Version Migration
[Q] Quit

Enter Your Selection: **Q**

Tip You can ignore Option 5, Database Version Migration, at this time because you are setting up the database for the first time. You should select this option only if you want to migrate a previously installed database so that it can be used with a later version of eaDirect.

Ignoring this option will not negatively affect the database configuration procedure in any way. Chapter 5, *Migrating eaDirect Databases*, describes how to migrate a database from one version of eaDirect to another.

Recovering from a Failed Database Configuration

You should only do the steps below if you encountered errors during any part of the database creation and configuration procedure. Before configuring the database again using the *edx_admin.sh* setup script, you must first do a manual cleanup of the partially configured database on your machine.

To recover from a failed database configuration:

1. Confirm that the appropriate Oracle SID has been set. As *oracle* user, you can use the Unix echo command to find out the identity of the current Oracle SID. For example:

```
$ echo $ORACLE_SID
 edx0
```

If the Oracle SID is incorrect, set it as follows:

```
$ ORACLE_SID=edx0 (where 'edx0' is your Oracle SID)
$ export ORACLE_SID
```

2. Switch to *oracle* user, and shut down the Oracle database and Oracle listener using the following *sqlplus* commands:

```
$ su – oracle

$ sqlplus internal

SQL*Plus: Release 8.1.7.0.0 - Production on Wed Feb 13
14:22:43 2002

(c) Copyright 2000 Oracle Corporation. All rights
reserved.

Connected to:
Oracle8i Enterprise Edition Release 8.1.7.0.0 –
Production
With the Partitioning option
JServer Release 8.1.7.0.0 - Production

SQL> shutdown immediate

Database closed.
Database dismounted.
ORACLE instance shut down.

SQL> exit

Disconnected from Oracle8i Enterprise Edition Release
8.1.7.0.0 – Production With the Partitioning option

JServer Release 8.1.7.0.0 - Production
```

3. Stop the Oracle listener with the command:

```
$ lsnrctl stop
```

4. Locate all files associated with the Oracle SID you defined. For example:

```
$ find . -name '*edx*' -print
```

The search results should look something like this:

```
./product/8.1.7/dbs/initedx0.ora
./product/oradata/edx0
./product/oradata/edx0/redo/logedx0.log
./product/oradata/edx0/redo/logedx1.log
./product/oradata/edx0/data/sysedx0.dbf
./product/oradata/edx0/data/rbs1edx0.dbf
./product/oradata/edx0/data/usr1edx0.dbf
./product/oradata/edx0/data/tmp1edx0.dbf
./product/oradata/edx0/data/indx1edx0.dbf
./product/oradata/edx0/data/edx_data.dbf
./product/oradata/edx0/data/edx_data_idx.dbf
./product/oradata/edx0/data/edx_app_data.dbf
./product/oradata/edx0/data/edx_app_data_idx.dbf
./admin/edx0
./admin/edx0/bdump/alert_edx0.log
./admin/edx0/pfile/initedx0.ora
```

5. Change directory to the locations of the files containing the Oracle SID you defined, and manually remove them. For example:

```
$ rm -rf '*edx*'
```

Creating Database Tables for Order Capture

In order to use the Order Capture feature in eaSample, you must manually execute a script **on your database machine** that creates the appropriate database tables for the sample application. The command syntax is:

```
create_demo_oc_table.sh database_name database_username
database_password
```

This procedure must be done **before** you deploy the sample application. For more information about order capture, see *eaSDK: Order Capture and Management*.

To create database tables for Order Capture:

1. Switch user to your database owner, for example *oracle*.

2. Change directory to **$EDX_HOME/samples/eaSample/db/oracle**

3. Run the **Create_demo_oc_table.sh** file providing the database
    username, database SID, and database password. For example:

    ```
    # create_demo_oc_table.sh edx0 edx_dba edx
    ```

    This script connects to the database, drops any existing order capture schema
    objects, and creates a new order capture schema for your database.

4.   When the script has completed, you are returned to the command prompt.
    No additional user input is required.

Connecting to the eaDirect Database

The next step in setting up the database server is to edit two Oracle configuration
files to ensure proper access to the eaDirect production database. They are:

*   *listener.ora*
*   *tnsnames.ora*

Both Oracle configuration files are described in the following table:

Configuration File	Description
listener.ora	The configuration file for the Oracle listener. It resides on the database server and includes service names and address of all listeners on a computer, the SIDs of the databases for which they listen, and various control parameters that the listener uses. This file is installed with the Oracle installation. The default directory for this file is *$ORACLE_HOME/network/admin*.
tnsnames.ora	This file includes a list of service names of network databases that are mapped to connect descriptors. It is used by clients and distributed database servers to identify potential server destinations. The default directory for this file is *$ORACLE_HOME/network/admin*.

To connect to the eaDirect production database:

1. Switch user to o*racle* and change directory to *$ORACLE_HOME/network/admin*. For example:

    ```
    $ cd /export/home/oracle/product/8.1.7/network/admin
    ```

2. Open *listener.ora* and edit the SID_LIST_LISTENER section so that it correctly identifies your Oracle SID (as specified during the database configuration procedure) and your Oracle 'home' pathname. For example:

    ```
    (SID_DESC =
    (SID_NAME = edx0)
    (ORACLE_HOME = /export/home/oracle/product/8.1.7)
    )
    ```

3. Save and close *listener.ora*.

4. In the same directory, open *tnsnames.ora* and edit it so that eaDirect is able to communicate with the Oracle database. A sample section from *tnsnames.ora* is shown below for an installed Oracle database that uses the service name **edx.db** (your service name might be different), and is installed on a database server named audi.

```
edx.db =
  (DESCRIPTION =
  (ADDRESS_LIST =
  (ADDRESS = (PROTOCOL = TCP)(HOST = audi)(PORT = 1521))

  )
  (CONNECT_DATA =
  (SID = edx0)
  )
  )
```

5. Save and close *tnsnames.ora*.

6. Stop and restart the Oracle listener. For example:

```
$ lsnrctl stop

LSNRCTL for HP-UX: Version 8.1.7.0.0 - Production on 16-
JAN-2002 17:37:32

(c) Copyright 1998 Oracle Corporation. All rights
reserved.

Connecting to
(DESCRIPTION=(ADDRESS=(PROTOCOL=IPC)(KEY=EXTPROC)))

The command completed successfully

$ lsnrctl start

LSNRCTL for HP-UX: Version 8.1.7.0.0 - Production on 16-
JAN-2002 17:37:46

(c) Copyright 1998 Oracle Corporation. All rights
reserved.
```

```
Starting /export/home/oracle/product/8.1.7/bin/tnslsnr:
please wait...
.
.
.
Services Summary...
 PLSExtProc has 1 service handler(s)
 edx0 has 1 service handler(s)

 The command completed successfully
```

7. After the Oracle listener has been restarted,, you should see a service handler for the eaDirect instance. In the preceding example, the service handler is labeled edx0, but it should match the name you entered for the Oracle SID during the database configuration procedure. See *Configuring the Oracle Database for eaDirect* for more information.

> **Tip**   After the application server components have been installed, you will be able to connect to the Oracle database as described in Chapter 3.

Setting Up an Application Server for eaDirect

3

Overview

This chapter provides instructions for installing eaDirect on an application server and configuring supporting software. Configuring an application server for eaDirect involves the following tasks:

- Confirm that third-party software is correctly installed and configured

- Install the eaDirect application components using InstallAnywhere

- Define your eaDirect environment

- Configure Java resources for eaDirect

- Enable connectivity to the database

The installation and configuration examples shown in this chapter use default pathnames for eaDirect, for example */opt/EDCSbd*.

To designate a different destination directory for the eaDirect application server components, enter the pathname to the directory when prompted during installation.

edocs recommends that you install eaDirect in the same top-level directory on both the database server and the application server.

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

Required User Privileges

You will need *root* privilege on each server in the eaDirect environment in order to install eaDirect components, required software packages and patches, and the third-party software applications that work with eaDirect. You will be reminded to set *root* privilege if the installation or configuration procedure requires it.

Afterwards, change ownership of the *EDCSbd* directory to be that of the user that runs WebLogic. The examples in this guide use the user and group account *weblogic:bea*.

Defining Your eaDirect Environment

eaDirect provides several configuration files that you use to define your environment. The files, *edx_config* and *edx.config*, are included among the application components that you installed earlier, and are copied to *$EDX_HOME/bin and $EDX_HOME/config* respectively.

Defining the eaDirect environment for WebLogic Server involves performing the following tasks:

- Run *edx_config* to capture information about your eaDirect environment

- Pass your eaDirect environment to WebLogic Server at server startup

- Modify the JAVA_OPTIONS parameter in *startWebLogic.sh*

The following topics describe how to define your eaDirect environment and pass it to WebLogic Server.

Capturing Environment Data with *edx_config*

When you run *edx_config*, it prompts you to enter values for the Java and Oracle database installation. These values take the form of absolute directory pathnames or user identification information. You should run this command anytime you need to modify your eaDirect environment (note that this procedure is only required on the application server).

The values that are specified during this session are copied to the file *edx_env* in *$EDX_HOME/config*.

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

To capture information about your eaDirect environment:

1. Switch user to *weblogic*, and navigate to *$EDX_HOME/bin*. For example:

   ```
   # su - weblogic
   $ cd /opt/EDCSbd/bin
   ```

2. Run edx_config.

   ```
   $ ./edx_config
   ```

3. Provide values for the following parameters. You can accept default values, if appropriate.

   ```
   Enter Oracle home
   directory:[/export/home/oracle/product/8.1.7] [q]
   /export/home/oracle/product/8.1.7
   Oracle DB username:[edx_dba] [q]/edx_dba
   Oracle password:[edx] [q]edx
   Oracle DB alias (tnsname):[edx.db] [q]edx.db
   Enter the application server to use, weblogic (wl) or
   WebLogic (ws) : [q]wl
   Enter Java root directory:[/opt/WebLogic/AppServer/java]
   [q] /opt/WebLogic/AppServer/java
   Enter WebLogic Application Server root
   directory:[/opt/WebLogic/AppServer]
   [q]/opt/WebLogic/AppServer
   ```

4. Make sure that the database values are the same values that you specified during the database configuration procedure, as described in the topic *Configuring the Oracle Database for eaDirect*.

5. The values you specify during this session are copied to the configuration file *edx_env* in *$EDX_HOME/config*.

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

Passing Environment Data to Your Application Server

You pass your eaDirect environment to WebLogic Server by 'sourcing' (that is, having WebLogic call and process a file) the configuration file, *edx.config*, in the WebLogic Server start up command.

To pass your eaDirect environment to WebLogic Server:

1. Switch user to WebLogic owner.

2. Change directory to *$WL_HOME/config/mydomain* and stop the WebLogic server.

3. Open *startWebLogic.sh* for editing. Note that upgrading WebLogic from SP2 to SP3 overwrites any edits you may have made to this file.

4. In the 'Set user-defined variables' section, define and export the *$EDX_HOME* environment variable. For example:

    ```
    Set user-defined variables.
    EDX_HOME=/opt/EDCSbd
    export EDX_HOME
    ```

5. In the 'Set user-defined variables' section, modify the *Java_Options* parameter to help improve performance by increasing the memory allocated to the JVM on the application server. For example:

    ```
    JAVA_OPTIONS="-ms128m -mx128m -Xss1m -noclassgc"
    ```

For example:

```
Set user-defined variables.
EDX_HOME=/opt/EDCSbd
export EDX_HOME
JAVA_HOME=/export/home/bea/jdk131
export JAVA_HOME
WL_HOME=/export/home/bea/wlserver6.1
export WL_HOME
JAVA_OPTIONS=-"ms128m -mx128m -Xss1m -noclassgc"
WLS_PW=documentation
```

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

When allocating memory to the JVM, be careful not to over allocate because it could lead to performance degradation, as some processes such as the 'garbage collector' will take longer to complete. During this time, WebLogic Server will not be able to respond to other requests.

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

```
. $EDX_HOME/config/edx.config
java $JAVA_OPTIONS -classpath $CLASSPATH
-Dweblogic.Domain=mydomain
-Dweblogic.Name=your_server_name
-Dbea.home=/export/home/weblogic
-Djava.security.policy==/export/home/weblogi
c/wlserver6.1/lib/weblogic.policy
-Dweblogic.management.password=$WLS_PW
weblogic.Server
```

7. Save and close *startWebLogic.sh*.

Tip	You can also set *WLS_PW* with the password that you specified during installation of WebLogic Server. This will stop the command line startup from prompting for a password to boot the application server each time you start it.

Starting and Stopping Your Application Server

The following topics provide recommendations for starting and shutting down WebLogic Server from a command line while running in an eaDirect production environment. Improperly starting and shutting down WebLogic Server in an active eaDirect production environment could result in unexpected and unintended results.

You can use the procedures below to create startup and shutdown scripts with your command parameters, and the command used to start or stop the Scheduler.

Caution	If you have shell scripts that start or stop the WebLogic server running eaDirect in conjunction with the eaDirect Scheduler process, you will need to make some changes to these files in order to make the Scheduler work. The reason is that in order to start an eaDirect server you must source the *edx.config* file which in turns sets a LANG parameter for the HP platform. Unfortunately, this parameter setting does not work with the Scheduler. Therefore you must set the LANG parameter back to being blank before trying to stop or start the Scheduler.

Starting WebLogic Server in an eaDirect Production Environment

WebLogic provides the *startWebLogic.sh* command for starting the server from a command line, in *$WL_HOME/config/mydomain/*.

This command works fine for starting your application server in an inactive production environment where there are no running jobs. However, the startup process will stop immediately if a `Ctrl+C` --which is often used to force a hard shutdown of the server-- is entered in the directory where the application server was started, or when the terminal session is closed.

It is therefore recommended that you use a startup command similar to the one below when starting your application server in an active eaDirect production environment. You should run the command as the application server owner.

```
$ nohup ./startWebLogic.sh &
```

This command will not stop the WebLogic process if **Ctrl+C** is entered, or stop the process when you close the terminal session. Using this startup command helps to ensure a more stable and trouble-free production environment.

Tip   In order for this command to work properly, you must edit the shell script to include your application server password.

```
# Set WLS_PW equal to your system password for no
password prompt server startup.
```

```
WLS_PW=<your_Weblogic_server_password>
```

Stopping WebLogic Server in an eaDirect Production Environment

When shutting down WebLogic Sever, you should be careful not to use a shutdown command that will interfere with the normal operation of the application server while jobs are being processed in the Command Center.

To stop WebLogic Server:

1. Switch user to the WebLogic owner (for example *weblogic*).

2. Change directory to $WL_HOME/config/mydomain/

3. Set your active environment by running the following command in the same directory where you start WebLogic Server:

   ```
   $ . ./setEnv.sh
   ```

4. Next, run the following command, using parameters from the table below:

   ```
   $ java weblogic.Admin -url host:port SHUTDOWN -username
   adminname -password password
   ```

Parameter	Description

Parameter	Description
host	The name or IP address of your application server.
port	Your WebLogic listener port. The default is port 7001.
adminname	Username with admin privileges to shut down the application server. Default administrator name is 'system'.
password	The Administrator password specified when WebLogic Server was installed.

For example:

```
$ java weblogic.Admin -url audi:7001 SHUTDOWN -username
system -password documentation

Shutdown initiated
The shutdown sequence has been initiated.
```

Installing eaDirect Application Server Components

If you have not completed the tasks in *What You Need to Know Before Installing eaDirect*, do so now. This will help to ensure a smooth and successful installation.

> **Tip** In order to use the InstallAnywhere GUI on a UNIX machine, you will need Xwindows software installed. You will also need to set the DISPLAY environment variable for your machine.

By default, eaDirect is installed in */opt/EDCSbd*. You can change the default installation directory when prompted during installation.

edocs recommends that you install eaDirect in the same top-level directory on both the database server and the application server.

To install the eaDirect application server components:

1. From the */HPUX* subdirectory on the eaDirect installation CD-ROM, run the command to invoke the InstallAnywhere GUI:

```
# ./Dirins.bin
```

A start-up screen appears.

2. On the Introduction screen, read the eaDirect introductory information. Then click **Next**.

3. On the License Agreement screen, read and accept the terms of the agreement (use the scroll bars to move up and down on the screen) by clicking the appropriate radio button. Then click **Next**.

4. On the Enter Serial Number screen, enter your product serial number. It is stapled to the inside front cover of this guide (if your serial number has been misplaced, contact edocs Technical Support). Then click **Next**.

5. On the Choose Install Folder screen, accept the default installation folder or click **Choose** to specify a different installation folder. Then click **Next**.

6. On the Choose Product Features screen, click **App Server**. Then click **Next**.

7. On the Pre-Installation Summary screen, confirm that the information is accurate. Then click **Install**.

    At this point, the eaDirect application server components are copied to the designated installation folder. A status bar on the bottom of the screen shows each server component being installed. No user intervention is required.

8. The Install Complete screen reports a successful installation and the directory that contains the application server components.

9. Click **Done** to exit the installer.

Understanding the eaDirect Directory Structure on an Application Server

The eaDirect home directory on the application server is where all the files needed and created by the eaDirect application are contained. When you install the eaDirect application server components, you are prompted to specify a 'destination' directory. By default, this directory is *opt/EDCSbd*, which has a pre-defined hierarchical structure.

At the top of the directory hierarchy is *EDCSbd*. Below *EDCSbd* are several subdirectories that are grouped by functionality and contain the eaDirect J2EE applications, libraries, executables, log files, configuration files, and samples (as licensed).

The following screen shows a sample directory hierarchy that is created on an application server in a distributed environment. Note that during the eaDirect installation several files (such as the product Release Notes and the eaDirect installation log file) are copied to *EDCSbd*. These files are not shown in the sample screen.

```
<EDCSbd>
 /AppProfiles
 /bin
 /config
 /Data
 /Input
 /J2EEApps
 /jre
 /lib
 /logs
 /Output
 /samples (only if J2EE sample apps are installed)
 /Uninstall
```

Tip	When installing eaDirect on a single machine with the InstallAnywhere 'Full' option, the database subdirectories (as mentioned in the topic *Understanding the Directory Structure on a Database Server* in Chapter 2) are included in the eaDirect directory hierarchy shown above.

EDCSbd Directory	Contents
AppProfiles	Contains Version Sets (configuration and HTML template files) that are published to the production environment.
bin	Contains scripts used to start the Scheduler (*wl_scheduler*).
config	Contains configuration files that are used to define the eaDirect environment.
Data	Contains the input data files that are copied to this directory after the Scanner finds them in the Input directory for an application and moves them here (other production tasks use these files to process the input data from a service provider). Also contains intermediate representation (*.ir*) and log files for an application.
Input	Contains the input data files from a service provider that are needed by the Scanner production task.
J2EEApps	Contains the eaDirect J2EE EAR file *ear-eadirect.ear*. This file also contains the WAR files for the eaPay, eaPost, and eaXchange add-on modules.
jre	Contains library and binary files that are used by the Java Runtime Environment.
lib	Contains JAR files used by the application sever.
logs	Contains application log files generated by activity in the production environment.
Output	Contains output files from Batch XML and HTML jobs running in the eaDirect Command Center.
samples	Contains sample web applications and data files.
ReleaseNotes.html	A HTML file that contains additional information about the current eaDirect release that is not in the product installation and configuration guide.
Uninstall	Contains the eaDirect uninstall command and other files pertaining to uninstalling eaDirect.

Configuring Java Resources for eaDirect

After you have successfully configured the Oracle database for eaDirect, you must now configure Java Database Connectivity (JDBC) and Java Messaging Service (JMS) resources on the application server for eaDirect. Among other functions, the Java resources enable the manipulation of existing data from relational databases and other data sources, and enables application components to asynchronously send and receive messages.

Specifically, you will be doing the following:

- Configure JDBC Connection Pools

- Configure JDBC Transaction (Tx) Data Sources

- Configure JMS Connection Factories

- Configure JMS Stores

- Configure JMS Servers

- Configure JMS Topics

Starting the WebLogic Server Console

You configure WebLogic Java resources through the web-based WebLogic Server Console. By default, WebLogic copies the Java configuration settings to *$WL_HOME/config/mydomain/config.xml*.

Caution	When entering required attribute values for Java resources, be particularly mindful of case sensitivity. Failure to heed case sensitivity can result in problems later on, including not being able to log into the eaDirect Command Center.

To connect to the WebLogic Server Console:

1. Start WebLogic Server, if it isn't already running (see the topic *Starting and Stopping WebLogic Server in an Active eaDirect Production Environment* for instructions)

2. Open a web browser and enter a URL with the syntax:

```
http://host:port/console
```

For example:

```
http://audi:7001/console
```

The Enter Network Password dialog appears. Note that the dialog might take a few seconds to display.

3. Enter your WebLogic Server user name and password. The default user name is 'system' and the password is the one you specified during installation of WebLogic Server.

4. Click **OK**. The WebLogic Server Console main menu appears.
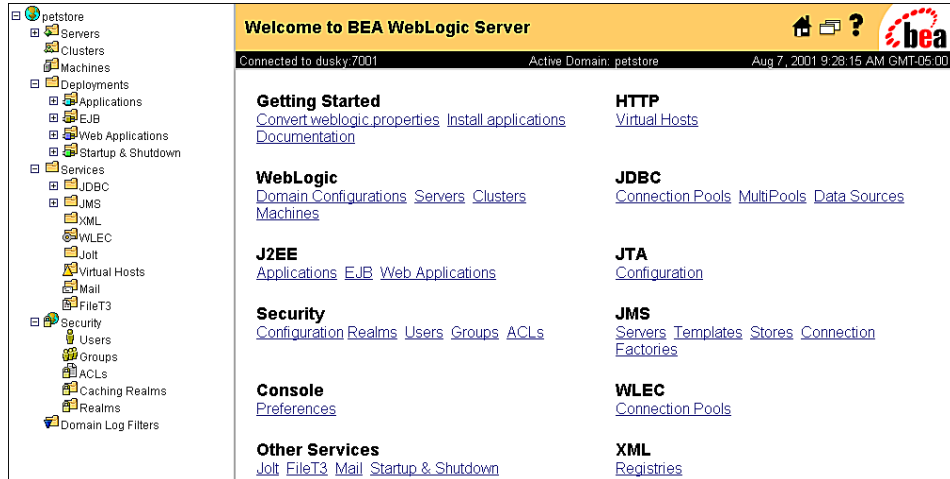
Configuring JDBC Connection Pools

A connection pool contains 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 the startup process and adds the connections to the pool.

Your application borrows a connection from the pool, uses it, and then returns it to the pool by closing it. For more information about how WebLogic Server uses JDBC connection pools, refer to the WebLogic programming and user documentation at http://www.bea.com.

You will create three JDBC Connection Pools. The next section describes how to create the first JDBC Connection Pool. After that procedure, the values for the remaining two connection pools are listed. Create those connection pools following the procedure shown for the first connection pool.

To configure the first JDBC connection pool:

1. From your domain in the left pane, select `Services` and `JDBC and Connection Pools`.

2. In the right pane, click the **Configure a New JDBC Connection Pool** link.
    A tabbed dialog for configuring a new connection pool appears.
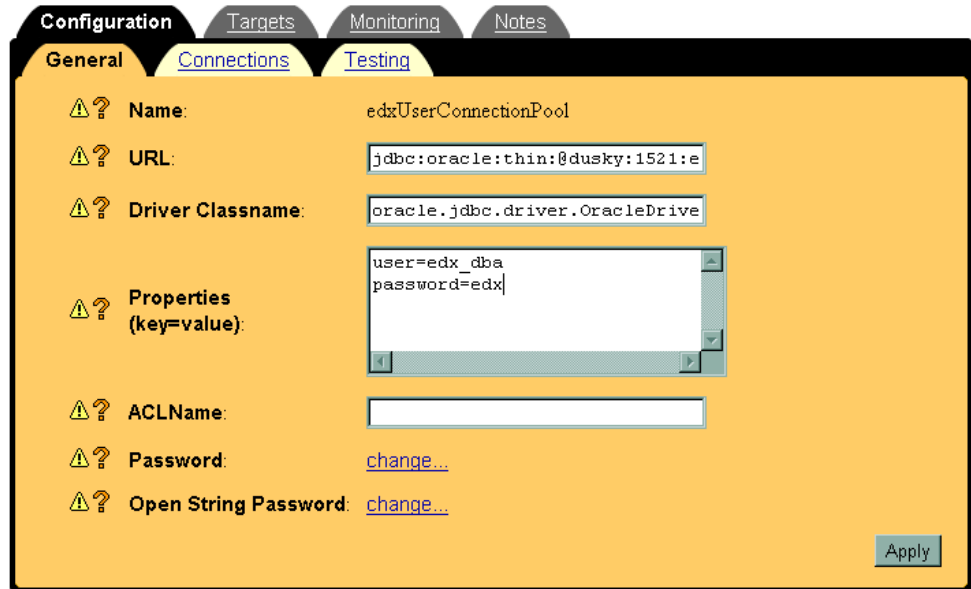
3. On the Configuration/General tab, enter values for the Name, URL, Driver
    Classname, and Properties attributes as shown in the following table:

Name	Value
Name	**edxUserConnectionPool**
URL	**jdbc:oracle:thin:@<servername>:1521:<db instance>** For example: **jdbc:oracle:thin:@audi:1521:edx0**
Driver Classname	**oracle.jdbc.driver.OracleDriver**

Name	Value
Properties	**user=\<db_username\>** **password=\<db_password\>** The user and password values correspond to the *username:password* combination specified during the eaDirect database configuration procedure.

4. Click **Create** to create a JDBC connection pool instance named edxUserConnectionPool. The new instance is added to your domain under the Connection Pools node in the left pane.

5. In the right pane, click **Connections**. A tabbed dialog for configuring connection attributes appears.
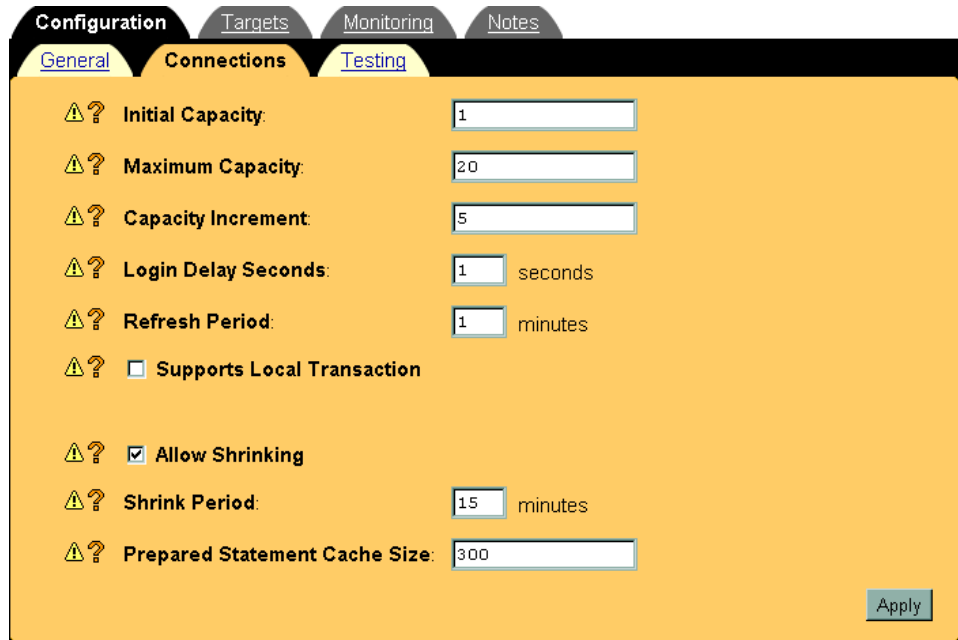
6. On the Connections tab, enter values for the attributes shown in the following table:

Name	Value
Initial Capacity	**1**
Maximum Capacity	**20**
Capacity Increment	**5**
Login Delay Seconds	**1**
Refresh Period	**1**
Supports Local Transaction	**False** (box unchecked)
Allow Shrinking	**True** (box checked)
Shrink Period	**15**
Prepared Statement Cache Size	**300**

7. Click **Apply** for the attribute values to take effect the next time you restart WebLogic Server.

8. In the right pane, click the **Testing** link. A tabbed dialog for configuring testing appears.
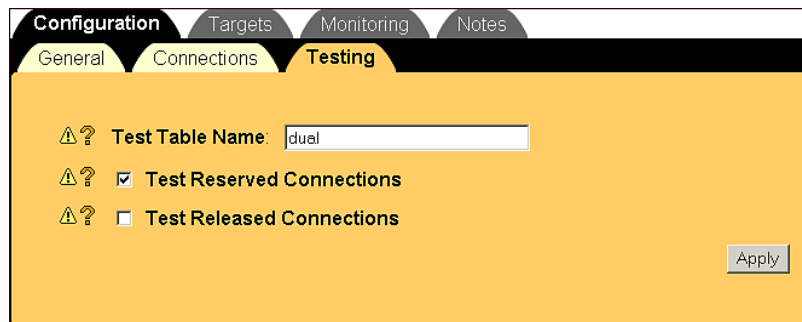
9. On the Configuration/Testing tab, enter values for the Test Table Name and Test Reserved Connections attributes as shown in the following table:

Name	Value
Test Table Name	**dual**
Test Reserved Connections	**True** (checked)

10. Click **Apply** for the attribute values to take effect the next time you restart WebLogic Server.

11. On the Targets/Servers tab, move the target server from **Available** to **Chosen**.
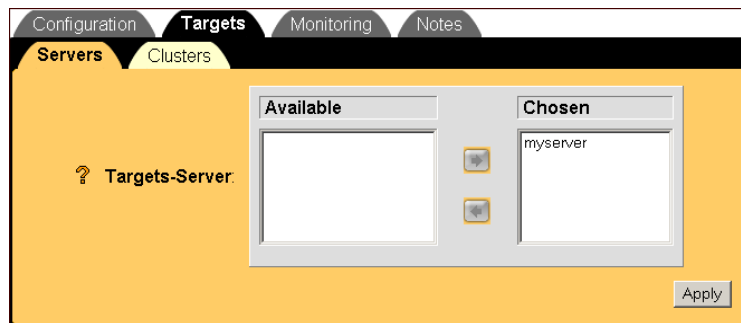
12. Click **Apply** for the new value to take effect the next time you restart WebLogic Server.

To configure additional pools:

Configure the next two pools, **edxLoggerConnectionPool** and **edxAdminConnectionPool**, with the following settings.

> **Tip**   Remember to move the Targets-Server from Available to Chosen for each pool as you configure it.

edxLoggerConnectionPool Configuration/General Tab

Name	Value
Name	**edxLoggerConnectionPool**

Name	Value
URL	`jdbc:oracle:thin:@<servername>:1521:<dbinstance>` For example: `jdbc:oracle:thin:@audi:1521:edx0`
Driver Classname	`oracle.jdbc.driver.OracleDriver`

Properties	`user=<db_username>`
	`password=<db_password>`
	
	The user and password values correspond to the *username:password* combination specified during the eaDirect database configuration procedure.

edxLoggerConnectionPool Configuration/Connections Tab

Name	Value
Initial Capacity	`1`
Maximum Capacity	`10`
Capacity Increment	`2`
Login Delay Seconds	`1`
Refresh Period	`1`
Allow Shrinking	`true` (checked)
Shrink Period	`15`
Prepared Statement Cache Size	`300`

edxLoggerConnectionPool Configuration/Testing Tab

Name	Value
Test Table Name	`dual`
Test Reserved Connections	`true` (checked)

edxAdminConnectionPool Configuration/General Tab

Name	Value
Name	`edxAdminConnectionPool`
URL	`jdbc:oracle:thin:@<servername>:1521:<dbinstance>` For example: `jdbc:oracle:thin:@audi:1521:edx0`
Driver Classname	`oracle.jdbc.driver.OracleDriver`

Properties	`user=<db_username>`
	`password=<db_password>`
	
	The user and password values correspond to the *username:password* combination specified during the eaDirect database configuration procedure.

edxAdminConnectionPool Configuration/**Connections Tab**

Name	Value
Initial Capacity	`1`
Maximum Capacity	`10`
Capacity Increment	`2`
Login Delay Seconds	`1`
Refresh Period	`1`
Allow Shrinking	`true` (checked)
Shrink Period	`15`
Prepared Statement Cache Size	`300`

edxAdminConnectionPool Configuration/Testing Tab

Name	Value
Test Table Name	`dual`
Test Reserved Connections	`true` (checked)

Configuring JDBC Transaction (Tx) Data Sources

A transaction data source enables 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. For more information about how WebLogic Server uses transaction data sources, see the WebLogic programming and user documentation at http://www.bea.com.

You will configure three TX Data Sources. After that procedure, the values for the remaining two TX Data Sources are listed. Create those TX Data Sources following the procedure shown for the first TX Data Sources.

To configure the first JDBC transaction data source:

1. From your domain in the left pane, select **Services** and **JDBC** and **Tx Data Sources**.

2. In the right pane, click **Configure a New JDBC Tx Data Source** link. A tabbed dialog for configuring a new transaction data source appears.

3. On the Configuration tab, enter values for the Name, Java Naming and Directory Interface (JNDI) Name, and Pool Name attributes as shown in the table below.

Name	Value
Name	`edxUserDataSource`
JNDI Name	`edx.user.databasePool`
Pool Name	`edxUserConnectionPool`

4. Click **Create** to create a JDBC transaction data source instance named edxUserDataSource. The new instance is added to your domain under the Tx Data Sources node in the left pane.
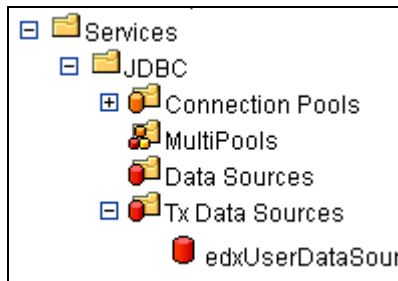
5. On the Targets/Servers tab, move the target server from Available to Chosen.
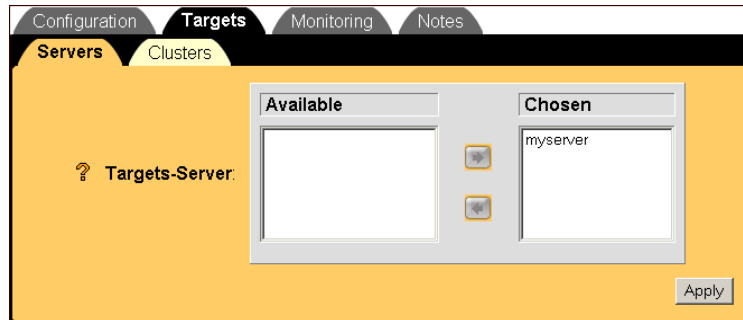
6. Click `Apply` for the new value to take effect the next time you restart WebLogic Server.

7. Configure two more data sources, using the procedures shown for edxUserDataSource.

| Tip | Remember to move the Targets-Server from Available to Chosen for each data source as you configure it. |

edxLoggerDataSource

Name	Value
Name	**edxLoggerDataSource**
JNDI Name	**edx.logger.databasePool**
Pool Name	**edxLoggerConnectionPool**

edxAdminDataSource

Name	Value
Name	**edxAdminDataSource**
JNDI Name	**edx.databasePool**
Pool Name	**edxAdminConnectionPool**

Configuring JMS Connection Factories

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 the application retrieves a connection factory using WebLogic JNDI.

For more information about how WebLogic Server uses JMS connection factories, see the WebLogic programming and user documentation at http://www.bea.com.

To configure a JMS connection factory:

1. From your domain in the left pane, select **Services** and **JMS** and **Connection Factories**.

2. In the right pane, click the `Configure a New JMS Connection Factory` link. A tabbed dialog for configuring a connection factory appears.

3. On the Configuration/General tab, enter values for the Name and JNDI Name attributes as shown in the following table:

Name	Value
Name	`edxLoggerTCF`
JNDI Name	`edx/tcf/log`

4. Click `Create` to create a JMS connection factory instance named edxLoggerTCF. The new instance is added to your domain under the Connection Factories node in the left pane.

5. On the Targets/Servers tab, move the target server from Available to Chosen.
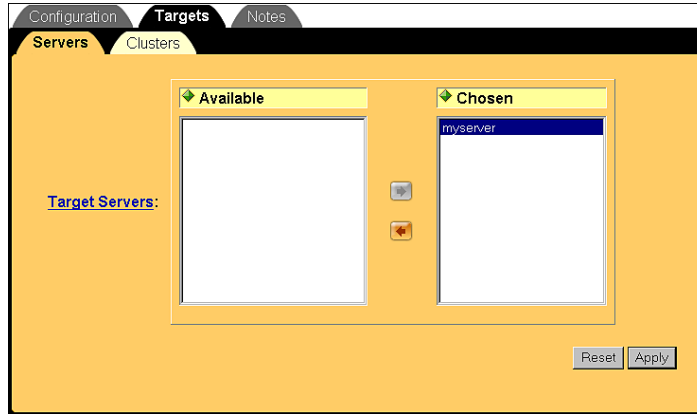
6. Click **Apply** for the new value to take effect the next time you restart WebLogic Server.

7. Configure two more connection factories, one for annotations and one for disputes, repeating Steps 1 to 6. In Step 3, replace the values for the Name and JNDI Name attributes with those in the following table:

Name	Value
Name JNDI Name	**edxAnnotationTCF** **edx/tcf/annotate**
Name JNDI Name	**edxDisputeTCF** **edx/tcf/dispute**

8. Click **Create** on the Configuration/General tab after configuring each additional JMS connection factory. Move the target server from Available to Chosen on the Targets/Servers tab, and then click **Apply**. The new instances are added to your domain under the Connection Factories node in the left pane.
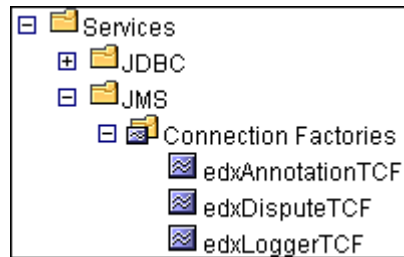
Configuring JMS Stores

With JDBC, JMS enables you to store persistent messages in a database, which is 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 following configuration attributes:

- Name of the backing store

- JDBC connection pool and database table name prefix for use with multiple instances

For detailed information about creating JMS Stores, see the WebLogic Server 6.1 programming and user documentation at http://www.bea.com.

To configure a JMS Store:

1. From your domain in the left pane, select **Services** and **JMS** and **Stores**.

2. In the right pane, click the **Configure a new JMSJDBCStore** link. A tabbed dialog for configuring a new JMS store appears.
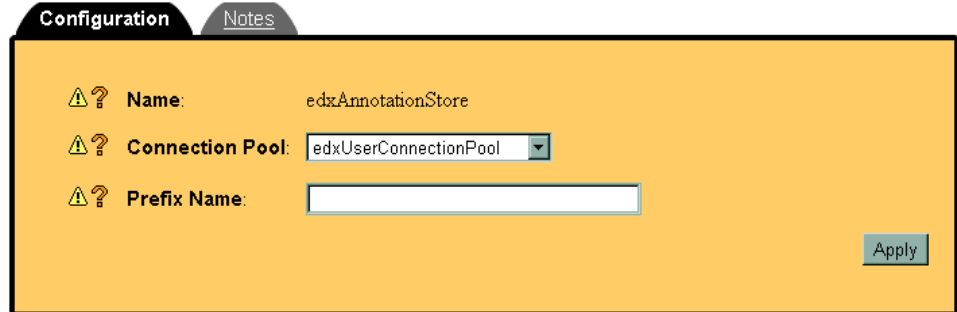
3. On the Configuration tab, enter values for the Name and Connection Pool attributes as shown in the following table:

Name	Value
Name	`edxAnnotationStore`
Connection Pool	`edxUserConnectionPool` (selected from Connection Pool drop-dowm menu)

4. Click **Create** to create a JMS store instance named edxAnnotationStore. The new instance is added to your domain under the Stores node in the left pane.

5. Configure two more JMS stores, **edxDisputeStore** and **edxLoggerStore**, repeating Steps 1 to 4. In Step 3, replace the values for the Name and Connection Pool attributes with those in the following table:

Name	Value
Name Connection Pool	`edxDisputeStore` `edxUserConnectionPool`
Name Connection Pool	`edxLoggerStore` `edxLoggerConnectionPool`

6. Click **Create** on the Configuration tab after configuring each additional JMS store. The new instances are added to your domain under the Stores node in the left pane.
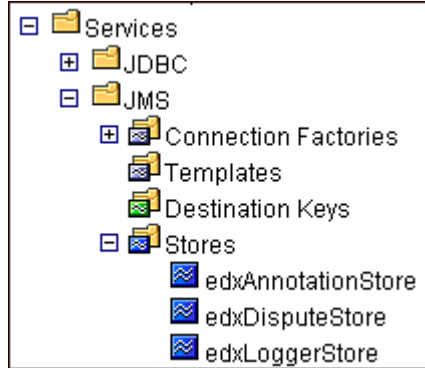
Configuring JMS Servers

A JMS server manages connections and message requests on behalf of clients. For more information about how WebLogic Server uses JMS Servers, see the WebLogic programming and user documentation at http://www.bea.com.

To configure a JMS server:

1. From your domain in the left pane, select **Services** and **JMS** and **Servers**.

2. In the right pane, click **Configure a new JMSServer**. A tabbed dialog for configuring a new JMS server appears.
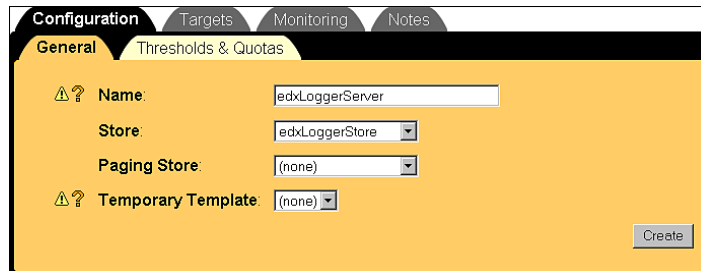
3. On the Configuration/General tab, enter a value for the Name and Store attributes, as shown in the table below.

Name	Value
Name	**edxLoggerServer**
Store	**edxLoggerStore** (selected from the Store drop-down menu)

4. Click **Create** to create a JMS server instance named edxLoggerServer. The new instance is added to your domain under the JMS Servers node in the left pane. By default, a JMS Destinations node and a Session Pools node are automatically added under the new server instance.

5. On the Targets/Servers tab, select the target server from the Target drop-down menu.

6. Click **Apply** for the new value to take effect the next time you restart WebLogic Server.

7. Configure two more JMS servers, **edxAnnotationServer** and **edxDisputeServer**, repeating Steps 1 to 6. In Step 3, replace the values for the Name and Store attributes with those in the following table.

Name	Value
Name Store	`edxAnnotationServer` `edxAnnotationStore`
Name Store	`edxDisputeServer` `edxDisputeStore`

8. Click `Create` on the Configuration/General tab after configuring each additional JMS server. Move the target server from Available to Chosen on the Targets/Servers tab, and then click `Apply`. The new instances are added to your domain under the `Servers` node in the left pane.
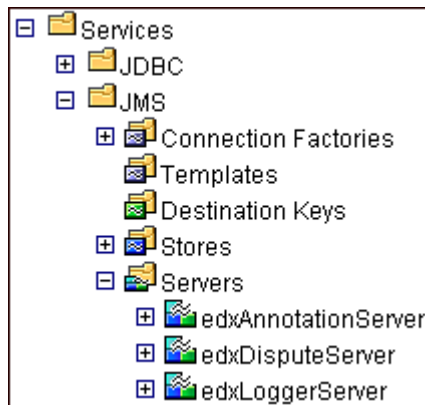
Configuring JMS Topics

Before you can configure a JMS Topic, you must have first created a JMS server as described in *Configuring a JMS Server*.

A JMS topic 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 (as is done in this topic), or by way of configuring a destination template that can be used to define multiple destinations with similar attribute values. For more information about how WebLogic Server 6.1 uses JMS destinations, see the WebLogic programming and user documentation at http://bea.com.

To configure a JMS Topic:

1. From your domain in the left pane, select **Services** and **JMS** and **Servers**.

2. Select the server for which you want to configure a JMS Topic, in this example **edxLoggerServer**, and select **Destinations**.

> **Caution** When configuring additional JMS Topics, make sure that you select the matching JMS Server. For example, select **edxAnnotationServer** to configure **edxAnnotationTopic**, and **edxDisputeServer** to configure **edxDisputeTopic.**

3. In the right pane, click the **Configure a new JMSTopic** link. A tabbed dialog for configuring a new JMS topic appears.
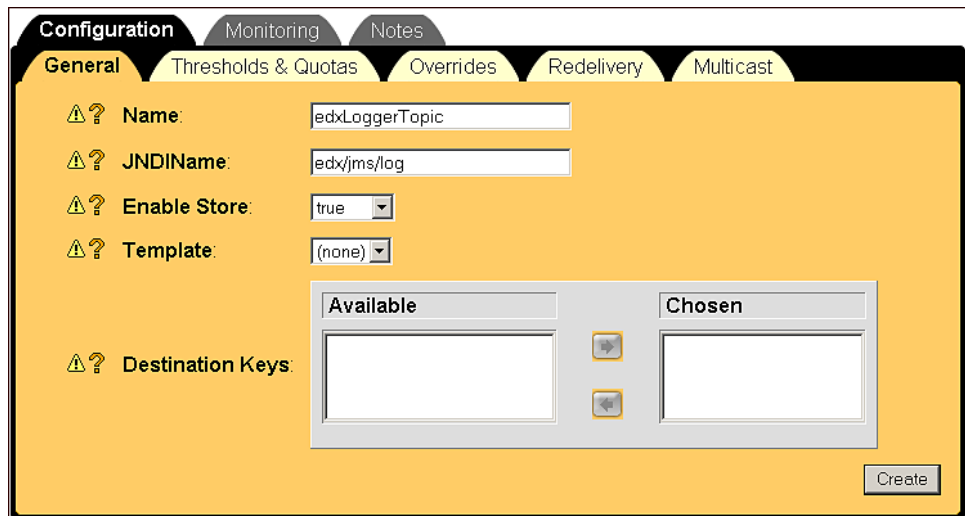
4. On the Configuration/General tab, enter values for the Name, JNDI Name, and Enable Store attributes, as shown in the table below.

Name	Value
Name	**edxLoggerTopic**
JNDI Name	**edx/jms/log**
Enable Store	**True** (selected from the drop-dowm menu)

5. Click **Create**. The new instance is added to your domain under the Destinations node in the left pane.
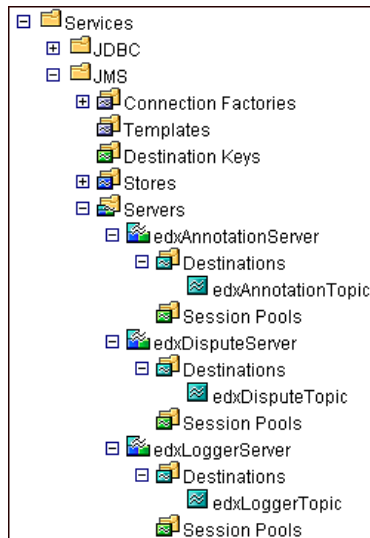
6. Repeat Steps 2 to 5 to configure two more JMS Topics, **edxAnnotationTopic** and **edxDisputeTopic**. In Step 2, be sure to select **edxAnnotationServer** to configure **edxAnnotationTopic**, and **edxDisputeServer** to configure **edxDisputeTopic.**

In Step 4, use the values in the following table:

Name	Value

Name
JNDI Name
Enable Store
	`edxAnnotationTopic`
	`edx/jms/annotate`
	`true`

Name
JNDI Name
Enable Store
	`edxDisputeTopic`
	`edx/jms/dispute`
	`true`

Configuring Session Pools and Consumers

A session pool will allow a listener (called a Consumer in WebLogic) to have multiple threads that will improve performance under heavy load. A session pool must be created for each Consumer.

There are currently seven Consumers in eaDirect. There are five for logging, one for disputes, and one for annotations. The following provides an example of how to configure a session pool and connection consumer for annotations:

To configure a session pool:

1. From your domain in the left pane, select **Services** and **JMS** and **Servers**, and expand the **edxAnnotationServer** node. Then click **Session Pools**.

2. Click the **Configure a new JMS Session Pool** link. A tabbed dialog for configuring a new JMS session pool appears.

3. On the Configuration tab, enter values for the Name, JNDI Name, Listener Class, Acknowledge Mode, and Sessions Maximum attributes as shown in the following table:

Name	Value
Name	**edxAnnotationPool**
Connection Factory	**edx/tcf/annotate**
Listener Class	**com.edocs.services.annotation.Listener**
Acknowledge Mode	**Auto**
Sessions Maximum	**-1** **Note:** Session Maximum is set to the number of sessions. -1 indicates there is no session maximum. This attribute should be adjusted to accommodate the maximum number of threads for this pool.

4. Click **Create** to create a JMS session pool instance named edxAnnotationPool. The new instance is added under the Session Pools node in the left pane.

To create a JMS Connection Consumer:

1. From your domain in the left pane, select **Services** and **JMS** and **Servers** and **edxAnnotationServer** and **Session Pools** and **edxAnnotationPool**, and then click the **Consumers** node.

2. Click the **Configure a new JMS Connection Consumer** link. A tabbed dialog for configuring a new JMS connection consumer appears.
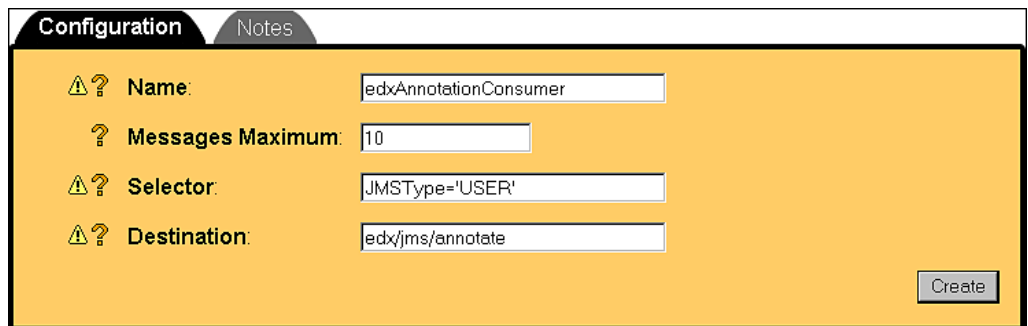
3. Enter values for the Name, Messages Maximum, Selector, and Destination attributes as shown in the following table:

Name	Value
Name	**edxAnnotationConsumer**
Messages Maximum	**10**
Selector	**JMSType='USER'**
Destination	**edx/jms/annotate**

4. Click **Create** to create a JMS connection consumer instance named edxAnnotationConsumer. The new instance is added under the Consumers node in the left pane.

5. Repeat the procedures above to configure JMS session pools and connection consumers for edxDisputeServer and edxLoggerServer, using the values in the tables below. After configuring each additional session pool and connection consumer, remember to click **Create** on the Configuration tab.

edxDisputeServer

Session Pool Configuration	
Name	`edxDisputePool`
Connection Factory	`edx/tcf/dispute`
Listener Class	`com.edocs.services.dispute.Listener`
Acknowledge Mode	`Auto`
Sessions Maximum	`-1`

Consumer Configuration	
Name	`edxDisputeConsumer`
Messages Maximum	`10`
Selector	`JMSType='USER'`
Destination	`edx/jms/dispute`

edxLoggerServer

Five session pools must be created, each with its own Consumer.

edxLoggerAdminActivityPool

Session Pool Configuration	
Name	`edxLoggerAdminActivityPool`
Connection Factory	`edx/tcf/log`
Listener Class	`com.edocs.fs.logging.sub.AdminActivityListener`
Acknowledge Mode	`Auto`
Sessions Maximum	`-1`

Consumer Configuration	
Name	`edxLoggerAdminActivityConsumer`
Messages Maximum	`10`
Selector	`JMSType='ADM'`
Destination	`edx/jms/log`

edxLoggerCSRActivityPool

Session Pool Configuration	
Name	`edxLoggerCSRActivityPool`
Connection Factory	`edx/tcf/log`
Listener Class	`com.edocs.fs.logging.sub.CSRActivityListener`
Acknowledge Mode	`Auto`
Sessions Maximum	`-1`

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

edxLoggerMessageLogPool

Session Pool Configuration	
Name	`edxLoggerMessageLogPool`
Connection Factory	`edx/tcf/log`
Listener Class	`com.edocs.fs.logging.sub.MessageLogListener`
Acknowledge Mode	`Auto`
Sessions Maximum	`-1`

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

edxLoggerSystemActivityPool

Session Pool Configuration	
Name	`edxLoggerSystemActivityPool`
Connection Factory	`edx/tcf/log`
Listener Class	`com.edocs.fs.logging.sub.SystemActivityListener`
Acknowledge Mode	`Auto`
Sessions Maximum	`-1`

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

edxLoggerUserActivityPool

Session Pool Configuration	
Name	`edxLoggerUserActivityPool`
Connection Factory	`edx/tcf/log`
Listener Class	`com.edocs.fs.logging.sub.UserActivityListener`
Acknowledge Mode	`Auto`
Sessions Maximum	`-1`

Consumer Configuration:	
Name	`edxLoggerUserActivityConsumer`
Messages Maximum	`10`
Selector	`JMSType='USER'`
Destination	`edx/jms/log`

This completes the configuration of WebLogic Server Java resources for eaDirect. You must now stop and restart WebLogic Server in order for the new Java configuration settings to take effect.

To stop WebLogic Server, expand your domain and right click **myserver**. Then select **Stop this server** from the menu.
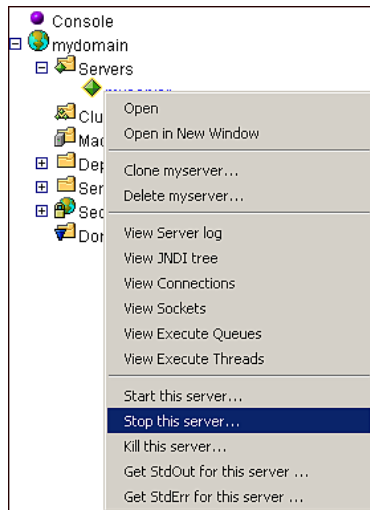
You can also stop WebLogic Server from a command line window, as described in the topic *Shutting Down WebLogic Server in an eaDirect Production Environment*.

Connecting to the eaDirect Database

To enable connectivity by eaDirect to the Oracle database, you might have to edit *tnsnames.ora* to reflect the SID for the database and the address of the database server that it resides on. The file *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 the database server in *tnsnames.ora* is the same as the address of the listener for a server in *listener.ora*. Similarly, the address in *tnsnames.ora* includes the SID (SID_NAME), which is required in *listener.ora*.

The file *tnsnames.ora* is created during the Oracle installation and, by default, is copied to *$ORACLE_HOME/network/admin*.

Tip   If you are using a single machine as your database and application server, and have already modified *tnsnames.ora* as described in the topic *Configuring Connectivity to the eaDirect Production Database* in Chapter 2, you can ignore this procedure.

To enable connectivity to the Oracle database:

1. Switch to *oracle* user with **$ su - oracle**, and change directory to *$ORACLE_HOME/network/admin*.

2. Open *tnsnames.ora* and edit the following variables for your Oracle database, for example:

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

    Note that the Oracle SID should be the same as the one you entered when you 'signed in' to the database configuration procedure. You can also provide an IP Address in place of the host name.

3. Save and close *tnsnames.ora*.

Testing Connectivity to the eaDirect Production Database

Now that you have set up both servers to support eaDirect, you can validate connectivity to the production database by running the following commands. Note that in order for this test to work, WebLogic Server must be aware of your environment, as described in the topic *Defining the eaDirect Environment for WebLogic Server*.

1. Switch to *oracle* user with **$ su – oracle**.

2. Run the **sqlplus** command on the database that was configured in Chapter 2. The command takes as arguments the database's username, password, and connection string (database alias).

```
sqlplus dbuser/dbpassword@connection_string
```

For example, the following command connects to an eaDirect database on a remote database server (as is typical in an eaDirect distributed environment):

```
$ su – oracle

$ sqlplus edx_dba/edx@edx.db
SQL*Plus: Release 8.1.7.0.0 - Production on Thu Aug 23
18:16:36 2001

(c) Copyright 2000 Oracle Corporation. All rights
reserved.

Connected to: Oracle8i Enterprise Edition Release
8.1.7.0.0 – Production With the Partitioning option

JServer Release 8.1.7.0.0 - Production

SQL>
```

3. At the SQL prompt, enter a command that performs a database query, such as the following:

```
SQL> show parameters db_name

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

```
SQL> exit

Disconnected from Oracle8i Enterprise Edition Release
8.1.7.0.0 - Production With the Partitioning option

JServer Release 8.1.7.0.0 - Production
```

Deploying J2EE Web Applications for eaDirect

When you install eaDirect, you will find Enterprise Application aRchives (EAR
files) for sample web applications in the /**EDCSbd/samples/j2eeapps**
directory of your eaDirect installation. You deploy these applications using your
application server's administrative console.

In general, deploying a web application involves three distinct phases:

1. Component creation, typically done by application developers

2. Application assembly, typically done by application developers (although
   they may not have participated in the 'component creation' phase)

3. Application deployment, typically done by both application developers and
   system administrators

During development and testing, it is common for web developers to deploy their
own applications. However, when the application has been assembled and is
ready for production, a system administrator most likely will deploy it.

Web Applications Included with eaDirect

J2EE Application	Description
ear-eadirect.ear	Core functionality of eaDirect, including the Command Center and the eaDirect engine. Also contains placeholder files for other components of the eaSuite. By default, installed to: *$EDX_HOME/J2EEApps/weblogic*
ear-easample.ear	Demonstrates the core features of eaDirect, including non-hierarchical enrollment model using edocs Common Directory Access (CDA); content access to statement summary and detail data; line item dispute and annotation; order capture and management. **Note:** In order to use the eaSample application, you must first run the file *create_demo_oc_table.sh*, which creates the database tables for Order Capture. See *Appendix A: Using eaSample* for more information.
ear-eatraining.ear	Demonstrates more advanced features of eaDirect, including hierarchical user enrollment using edocs Common Directory Access (CDA).
ear-hierarchysample.ear	Contains the Hierarchy Console, an intuitive user interface for enterprise profile management. Administrators can use the Hierarchy Console to organize and edit accounts and subaccounts into account groups that can control access privileges, statement viewing, editing user profiles, and other online account management. **Requires a separate license.**
ear-reportSample.ear	Supports customized reports on account data for phone call usage. *WebLogic only*.
ear-umfsample.ear	Implements a non-directory enrollment model that customizes the edocs user management framework as an interface to enrollment information already stored in a separate repository. **Requires a separate license.**

To deploy a web application to your application server:

1. Start WebLogic Server, if it isn't already running (see the topic *Starting and Stopping WebLogic Server in an Active eaDirect Production Environment* for instructions)

2. Open a web browser and enter a URL with the syntax:

    `http://host:port/console`

    For example:

    `http://audi:7001/console`

    The Enter Network Password dialog appears. (Note that the dialog might take a few seconds to display.)

3. Enter your WebLogic Server user name and password. The default user name is 'system' and the password is the one you specified during installation of WebLogic Server.

4. Click **OK**. The WebLogic Server Console main menu appears.
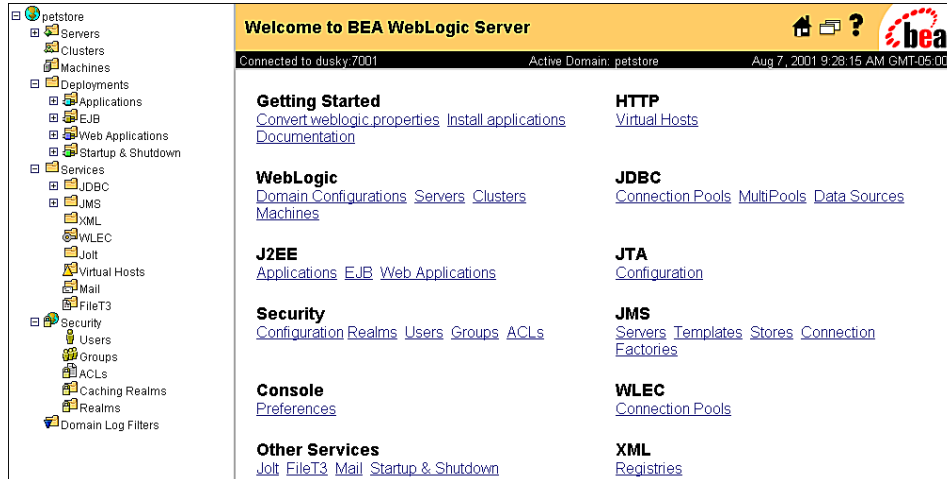
5. From your domain in the left pane, select **Deployment** and **Applications**.

6. Click the **Install a New Application link**.

7. On the Install or Update an Application screen, use the Browse button to locate the eaDirect J2EE application *ear-eadirect.ear*. By default, this file is located in *$EDX_HOME/J2EEApps/weblogic*.

8. Upload *ear-eadirect.ear*. It is added to the list of 'Application files currently installed' at the bottom of the screen.

Caution	If you are using a Windows machine for browser access, you will have to FTP the data files to the local Windows machine in order to access them.

9. After *ear-eadirect.ear* has been uploaded and installed, the Deployments folder in the left pane should look like:

Caution	If you choose to deploy eaSample at this time, you must first run *create_demo_oc_table.sh*, which creates the database tables needed for the Order Capture feature. Failure to do so will result in errors when you start WebLogic Server. See *Appendix A: Using eaSample* for more information.

10. Exit the WebLogic Server Console.

Before leaving the WebLogic Server Console, you might want to take time to make sure that all required EJBs and WAR files have been deployed to the target server. Doing this can possibly prevent database configuration problems from arising later that can interfere with the normal operation of eaDirect.

Expand each J2EE application in the left pane to show its EJBs and WAR file. Click on either an EJB or the WAR file, and then click the **Targets/Servers** tab in the dialog that appears in the right pane. If necessary, move the target server from Available to Chosen. Click **Apply** for the change to take effect the next time the server is started.

Starting the eaDirect Scheduler

After all the eaDirect EAR files have been deployed to the application server, you must start the eaDirect Scheduler in order to schedule and run jobs in the eaDirect Command Center. If you attempt to run a new job with the Scheduler not running, the job will not run and you will see 'Not yet started' as its status.

To start the Scheduler:

1. Switch user to the application server owner, for example *weblogic*.

2. Change directory to *$EDX_HOME/bin.*

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

```
$ ./wl_scheduler -start -url t3://audi: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.

Logging In to the Command Center

You can test the installation and configuration of eaDirect by logging in to the eaDirect web-based Command Center. The Command Center serves as the administrative 'hub' of the eaDirect production environment. From the Command Center, you create applications and the jobs they contain, publish the design and data files that a job needs to run, schedule a time for the job to run, and monitor the status of the job as it is being processed.

To log in to the Command Center:

1. Confirm that the application and database servers are running.

2. Confirm that the Scheduler is running.

3. Open a web browser and enter the URL to invoke the Command Center, for example:

```
http://audi:7001/eaDirect
```

4. A successful connection displays the Command Center Login Administrator page.

5. Log into the Command Center using the default administrator ID and password:

    ```
    Administrator ID: admin
    Password: edocs
    ```

6. A successful login displays an empty Main Console page until you have created an application and scheduled a job. For detailed information about creating eaDirect applications and jobs, see the *eaDirect Production Guide*.

Tip   In order to run jobs in the Command Center, the eaDirect Scheduler **must** be running.
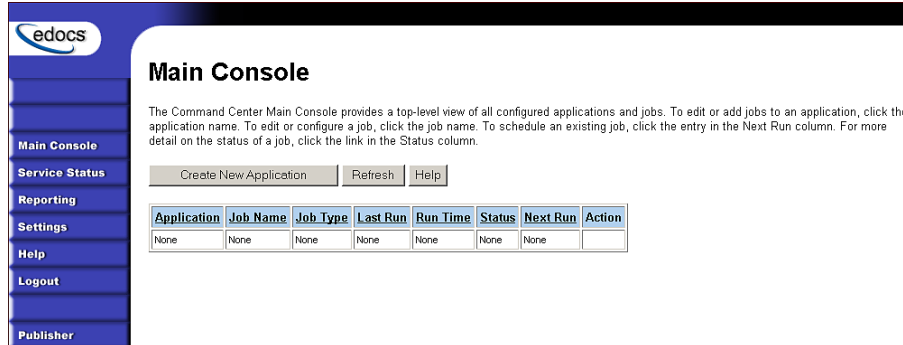
Troubleshooting Tips

If you are unable to log into the Command Center, click `Service Status` on the menu to determine what the problem is. One of the more common problems that might prevent you from being able to log into the Command Center is an improperly configured database.

Troubleshoot the problem by carefully reviewing the steps you have taken up to this point. In particular, for database configuration problems, you will want to:

- Verify that the Oracle database and the Oracle listener are running. You can test database connectivity by using the Oracle database commands described in the topic, *Testing Connectivity to the Oracle Database*.

- Verify that the database has been configured properly. Sometimes this means re-running the eaDirect database configuration script *edx_admin.sh*.

- In the WebLogic Administration Console, verify that the Java JDBC and JMS resource settings are correct.

- In the WebLogic Server Console, verify that the eaDirect EAR file (*ear-eadirect.ear*) has been properly deployed and, where appropriate, the target server has been moved or selected.

- In the WebLogic Server Console, verify that all required EAR files, EJBs, and WAR files have been deployed correctly and that a target server has been chosen

  After this is done, stop and restart the application server, then log into the Command Center again.

If the scheduler is running before starting WebLogic:

When starting WebLogic, if you get the error:

```
<Error> <ConnectionManager>
<Closing: 'weblogic.rjvm.t3.T3JVMConnection@7387aa'
because of: 'Server received a message over an
uninitialized connection: 'JVMMessage from: 'null'
```

Shut down the eaDirect scheduler and restart WebLogic.

Uninstalling eaDirect Components

This chapter describes several tasks that can be performed anytime after eaDirect has been installed.

Uninstalling the eaDirectDatabase Server Components

When uninstalling the eaDirect database server components, it is recommended that you repeat the sequence used to install the application. That is, uninstall the database components first, and then uninstall the application server components.

To uninstall the eaDirect database server components:

1. Confirm that the appropriate Oracle SID has been set. As *oracle* user, you can use the UNIX **echo** command to find out the identity of the current Oracle SID. For example:

    ```
    $ echo $ORACLE_SID
     edx0
    ```

    If the Oracle SID is incorrect, set it as follows:

    ```
    $ ORACLE_SID=edx0 (where edx0 is your Oracle SID)
    $ export ORACLE_SID
    ```

2. Switch to o*racle* user, and shut down the Oracle database using the following *sqlplus* commands:

    ```
    $ su – oracle
    $ sqlplus internal
    ```

```
SQL*Plus: Release 8.1.7.0.0 - Production on Wed Feb 13
14:22:43 2002

(c) Copyright 2000 Oracle Corporation. All rights
reserved.

Connected to:
Oracle8i Enterprise Edition Release 8.1.7.0.0 –
Production
With the Partitioning option
JServer Release 8.1.7.0.0 - Production

SQL> shutdown immediate

Database closed.
Database dismounted.
ORACLE instance shut down.

SQL> exit

Disconnected from Oracle8i Enterprise Edition Release
8.1.7.0.0 – Production With the Partitioning option

JServer Release 8.1.7.0.0 – Production
```

3. Shut down the Oracle listener with this command:

```
$ lsnrctl stop
```

4. Locate all files associated with the Oracle SID you defined. For example:

```
$ find . –name '*edx*' –print
```

The search results should look something like this:

```
./product/8.1.7/dbs/initedx0.ora
./product/oradata/edx0
./product/oradata/edx0/redo/logedx0.log
./product/oradata/edx0/redo/logedx1.log
./product/oradata/edx0/data/sysedx0.dbf
./product/oradata/edx0/data/rbs1edx0.dbf
./product/oradata/edx0/data/usr1edx0.dbf
./product/oradata/edx0/data/tmp1edx0.dbf
./product/oradata/edx0/data/indx1edx0.dbf
./product/oradata/edx0/data/edx_data.dbf
./product/oradata/edx0/data/edx_data_idx.dbf
./product/oradata/edx0/data/edx_app_data.dbf
./product/oradata/edx0/data/edx_app_data_idx.dbf
./admin/edx0
./admin/edx0/bdump/alert_edx0.log
./admin/edx0/pfile/initedx0.ora
```

Tip There may be additional log files than those that are found. Their locations depend on the pathnames specified when eaDirect was installed.

5. Remove the files and directories using the **rm** command or another appropriate HP-UX command.

6. Switch to *root* user, and change directory to *$EDX_HOME/Uninstall*.

7. Run the eaDirect uninstall tool. For example:

    ```
    # ./Uninstall_eaDirect
    ```

8. Change directory to *$EDX_HOME* and manually remove any files that were not removed by the uninstall tool, if necessary.

Uninstalling the eaDirect Application Server Components

When uninstalling the eaDirect application server components, it is recommended that you repeat the sequence used to install the application. That is, remove eaDirect from the database server first, then the application server.

To uninstall the eaDirect application server components:

1. Switch to *root* user.

2. Stop WebLogic Server. See the topic Starting and Stopping WebLogic Server in an Active eaDirect Production Environment for instructions.

3. Change directory to *$EDX_HOME/Uninstall* and run the eaDirect uninstall tool. For example:

    ```
    # cd /opt/EDCSbd/Uninstall
    # ./Uninstall_eaDirect
    ```

4. Change directory to *$EDX_HOME* and manually remove any files that were not removed by the Uninstall tool, if necessary.

Appendix A: Using eaSample

About eaSample

eaSample is a sample J2EE application that eaDirect provides as part of its software distribution. You can use it as a framework for developing a custom EJB application, as it contains all the Java Server Pages (JSPs), HTML, image files, scripts, and templates you need to get started. eaSample deploys as *ear-easample.ear*.

You can use eaSample to view the sample NatlWireless, Training, and NW_LDDetail applications provided with eaDirect. You can use the data and design files in these sample applications to become familiar with eaDirect by creating sample billing applications and jobs, publishing data and design files in the form of *version sets*, and scheduling the jobs to run in the Command Center, the administrative 'hub' for the eaDirect production environment.

eaSample demonstrates the following types of data presentment:

- Dynamic HTML views

- Detail data extraction (DetailExtractor job)

- Annotations

- Disputes

- Order capture

The following steps describe how to use **eaSample** to view the sample eaDirect application called **NatlWireless**. NatlWireless is a set of example design and data files that demonstrate the features of an eaDirect presentment application.

You must set up NatlWireless in the eaDirect Command Center (production environment), then enroll and log in to eaSample to view sample bills.

Setting Up NatlWireless

1. Create a new **application** for NatlWireless in the eaDirect Command Center.

2. Create a new **Indexer job**, publishing the application DDF for the job to use, configure the four tasks that run sequentially as part of the Indexer job, and run the job. Then publish the NatlWireless application (dynamic HTML view) files designed to display the statement summary.

3. Create and configure a **DetailExtractor job**, publishing the DDF, database table XML file, and statement XSLT stylesheet view files designed for the DetailExtractor job, and run the job. Then publish the three dynamic XML Query files (views) designed to display the extracted NatlWireless data and demonstrate the disputes and annotations features.

To create a new eaDirect application for NatlWireless:

1. Start your application server and the Scheduler, if not already running.

2. Open a web browser and enter the URL to the eaDirect Command Center, for example:

   ```
   http://audi:7001/eaDirect
   ```

3. Create a new application for NatlWireless. Click **Create New Application** at the Main Console. The Create New Application screen appears.

4. Enter **NatlWireless** as the application name. Click **Create Application and Continue**. eaDirect displays the Create New Job screen.

To create and configure an Indexer job:

1. The Create New Job screen appears after you create a new application:
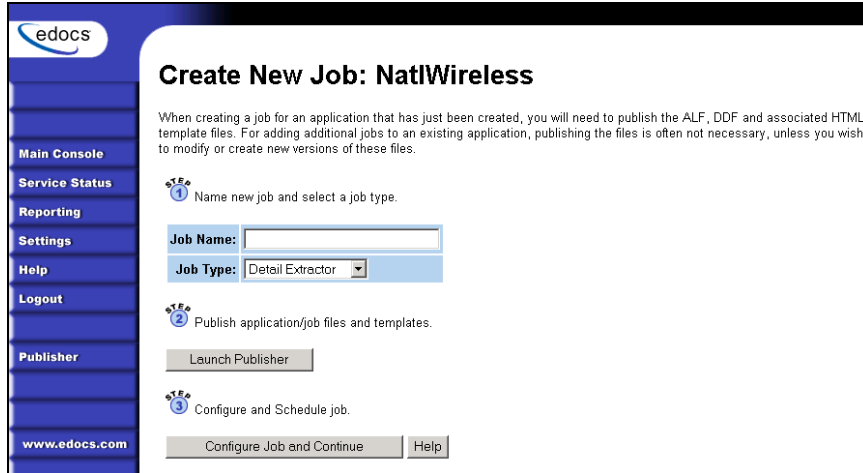
2.   Enter **Indexer** for the Indexer job name, select the **Indexer** job type from the drop-down menu. Click **Launch Publisher** to publish the design files for NatlWireless. Click **Create**. The Publisher displays the Select a Version Set Type screen:

3. Under Batch Jobs, next to Indexer, click **0** (Number of Auxiliary files). The Publisher displays the Create a Version Set For Indexer screen:

4. Select **NatlWireless** from the list of application names, and browse to the *$EDX_HOME/samples/NatlWireless* directory and select **NatlWireless.DDF** file for the Indexer job.

5. Click **Submit**. The Publisher displays the Submission screen with details about the DDF file. Close the Publisher window.

6. At the Create New Job screen in Command Center, click **Configure Job and Continue**. eaDirect displays the job configuration screen. For each task, specify the configuration parameters listed below:

Task 1: Scanner Task Configuration	
Input File Path	Use the default (**EDX_HOME/Input/NatlWireless**).
Input File Name	Specify **NatlWireless.txt**.
Output File Path	Use the default (**EDX_HOME/Data/NatlWireless**).
Task 2: Indexer Task Configuration	
DDF Path	(Not editable.)

Doc Date	(Not editable.)
Index Field List	Select the **CustName** field for indexing.
	To select a field, highlight the field name and click the right arrow button. Use the scroll bar to view more fields. To unselect a field, highlight the field name and click the left arrow button.
Task 3: IXLoader Task Configuration	
Skip Rows	Use the default (**0**).
Split Size	Use the default (**0**).
Optional Field Count	Use the default (**0**)
Load Method	Use the default (**Direct Load**)
Task 4: AutoIndexVolAccept Task Configuration	
Action on Index Volume	Use the default (**AutoAccept**).

7. When finished entering the configuration parameters, click **Submit Changes and Schedule**. eaDirect asks "OK to submit this configuration?" Click **OK**. eaDirect submits the job configuration parameters and displays the Schedule screen.

8. In the left pane, click **Main Console**. On the Main Console's left pane, click **Publisher**, and then click **Create**. The Publisher displays the Select a Version Set Type screen:

9. Next to HTML under Dynamic Web Views, click **0**. The Publisher displays the Create a Version Set for HTML screen:

10. Select **NatlWireless** from the drop-down list of application names. Enter **HtmlDetail** for the view name. Browse to *$EDX_HOME/samples/NatlWireless* and select the **NatlWireless.DDF, NatlWireless.ALF,** and **NatlWireless.HTM** design files. Then click **Submit**. The Publisher displays the Submission screen showing the files you published:

11. Close the Publisher.

12. Move the NatlWireless data file (*NatlWireless.txt)*, which is located in *$EDX_HOME/samples/NatlWireless/datafile*, to *$EDX_HOME/Input/NatlWireless*. This is the same data file that you specified when you configured the job.

13. On the Main Console, click the **Run Now** button next to the NatlWireless Indexer job. Monitor the job's progress by clicking **Refresh** on the Main Console window. The Indexer job completes successfully when the job status on the Main Console changes to "Done."

To create and configure a DetailExtractor job:

1. On the Main Console, click the application name, **NatlWireless**, listed under Applications in the table.

2. Click **Add New Job**. eaDirect displays the Create New Job screen.

3. Enter a job name (the job name can be whatever you want it to be), and then select job type **Detail Extractor**.

4. Click **Launch Publisher**. eaDirect displays the Publisher screen. Click **Create**. The Publisher displays the Select a Version Set Type screen.

5. Under Batch Jobs, next to Detail Extractor, click **0** (Number of Auxiliary files). The Publisher displays the Create a Version Set For Detail Extractor screen.

6. Select the **NatlWireless** application from the drop-down list. Enter the view name **dtlextr** (this name is hard coded in several JSPs for detail, disputes, and annotations).

7. Browse to select **NatlWireless.DDF**. (The default location for this file is *$EDX_HOME/samples/NatlWireless/NatlWireless.DDF*.)

8. Browse to select **summary_info.XML**, the database table XML view file created for this job. (The default location for this file is *$EDX_HOME/samples/NatlWireless/DetailExtractor*.)

9. Browse to select **summary_info.XSL**, the statement XSLT stylesheet. The default location for this file is *$EDX_HOME/samples/NatlWireless/DetailExtractor*.

10. Click **Submit** and close the Publisher.

11. On the Create New Job screen in the Command Center, click **Configure Job and Continue**. eaDirect displays the Detail Extractor job configuration screen.
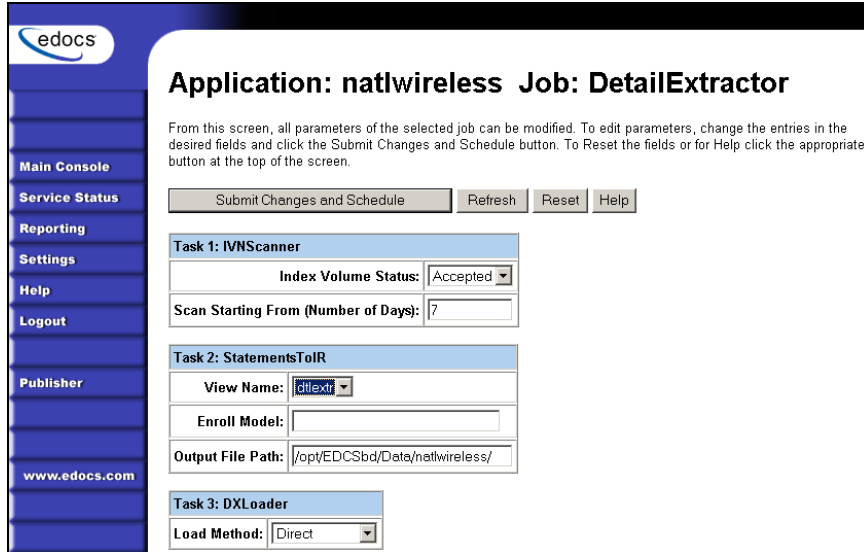
12. Specify the configuration parameters (listed below) for each of the three tasks that run as part of the Detail Extractor job:

Task 1: IVNScanner Task Configuration	
Field	**What to enter/select**
Index Volume Status	Choose the default, **Accepted**.
Scan Starting From (Number of Days)	Use the default (**7**).

Task 2: StatementsToIR Task Configuration	
Field	**What to enter/select**
View Name	**dtlextr**
Enroll Model	Leave blank.
Output File Path	Use the default (your data output directory, which you specified in the Scanner task for the Indexer job).

Task 3: DXLoader Configuration	
Field	**What to enter/select**
Load Method	Use the default (**Direct**).

13. Click **Submit Changes and Schedule**. eaDirect asks "OK to submit this configuration?" Click **OK**. eaDirect submits the job configuration parameters and displays the Schedule screen.

14. On the Schedule screen, click **Run Now**.

15. On the left pane, click **Main Console**.

16. Publish the XMLQuery dynamic web views that use the data extracted by the DetailExtractor; click **Publisher**.

17. Click **Create**. The Publisher displays the Select a Version Set Type screen. Under Dynamic Web Views, click the **O** next to the XML Query job type. The Publisher displays the Create a Version Set for XML Query screen.

18. Select the **NatlWireless** application. Enter **DetailQuery** as the view name, and browse *%EDX_HOME%\samples\NatlWireless\XMLQuery* to select the **detail_sql.xml** XML query file. (The DetailQuery view name is hard coded in your JSP HTML pages as the specific name the Web browser looks for in the code.) Click **Submit**. The Publisher displays the Submission screen

19. Click **Create** and repeat the previous two steps twice to publish two additional XML Query views (both view names are hard coded in your JSP HTML pages as the specific names the Web browser looks for in the code):

View Name	File
DisputeQuery	*dispute_sql.xml*
AnnotationQuery	*annot_sql.xml*

20. Close the Publisher. You can proceed to use eaSample to display the data.

21. On the Main Console, monitor the job's progress by clicking **Refresh** on the Main Console window. The DetailExtractor job completes successfully when the job status on the Main Console changes to **Done**.

Viewing NatlWireless Statements in eaSample

When the Indexer job completes successfully (status changes to "Done"), you are ready to view your online statements in eaSample.

To use eaSample to view NatlWireless statements:

1. Open a Web browser and access eaSample, substituting your own server name (host) and port number:

   ```
   http://audi:7001/eaSample/User?app=UserMain&jsp=
   /user/jsp/HistoryList.jsp&ddn=NatlWireless
   ```

   The eaSample User Login page appears.

2. Click the **Enroll Now** link. The sample enrollment page appears.

3. You can enter any user name and any password. However, you must enter a valid email address and a valid NatlWireless customer account number, such as one of the following: 0331734, 4191463, or 8611250. (Use **Reset** to clear the text fields, if necessary.) Click **Submit** to save the subscription information. eaDirect displays a message to let you know you have subscribed successfully. Click **OK** to display the User Login page.

4. Enter the username (Subscriber ID) and password (the same combination you entered during enrollment).

5. Click **Submit**. The sample statement summary page for the account appears. (**Note:** You must have eaPay, the eaDirect payment module, installed to view the payment screens and functionality.)
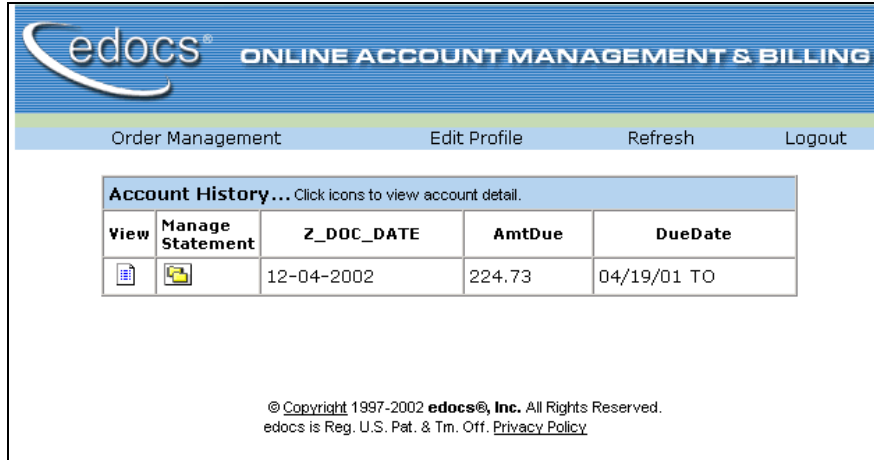
6. To view the statement summary, click the View icon [icon].
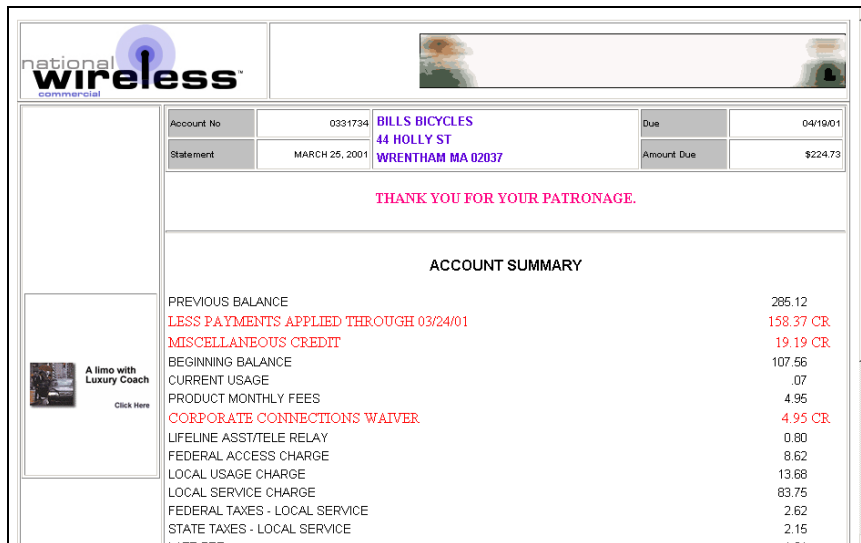
7. To view the Manage Statement page, click [icon] from the History page.

- Click ✎ next to an item to display the Add Note page where you can add comments (annotations) regarding that item.

• Click ● to display the Dispute Your Statement page where you can dispute the item:

Dispute your statement:	
Disputed Item:	Summary Info Amount
Current Amount:	4.95
Adjusted Amount:	
Comments:	

Submit   Reset

Where to Go From Here

For more information about creating design files for publishing data with eaDirect, see the *eaDirect User's Guide.*

For more information about creating and configuring applications and jobs in the Command Center, see the *eaDirect Production Guide*.

For more information about developing a custom web application to work with eaDirect, see the *eaDirect Software Developers Kit (SDK)*.

Index