Installation and Configuration Guide

eaDirect

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Preface

About This Guide

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

Unless otherwise specified, this Install Guide describes procedures and concepts that apply to **all** supported operating systems, application servers, and database servers for eaDirect. For variables and settings specific to your platform, see the *Quick Reference Appendix*.

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

Operating System Administration

- Start up and shut down the system
- Log in and out of the system
- Determine software patch/pack levels
- Install software & patches/packs
- Navigate the file system
- Manipulate text files
- Create files and directories
- Change permissions of files and directories
- Use basic network commands

- Transfer files with FTP
- Monitor processes & system resource usage
- Perform system backups and recovery
- Implement system security

Application Server Administration

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

Database Administration

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

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

Before You Install eaDirect describes the hardware and software requirements for supporting products and discusses the recommended user and group accounts you need to create for your environment.

Installing eaDirect shows how to use **`InstallAnywhere`**, the graphical user interface for installing eaDirect components.

Configuring Your Database Server provides instructions for installing eaDirect on your database server and configuring your database server environment.

Configuring Your Application Server 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 describes how to uninstall eaDirect on your database and application servers.

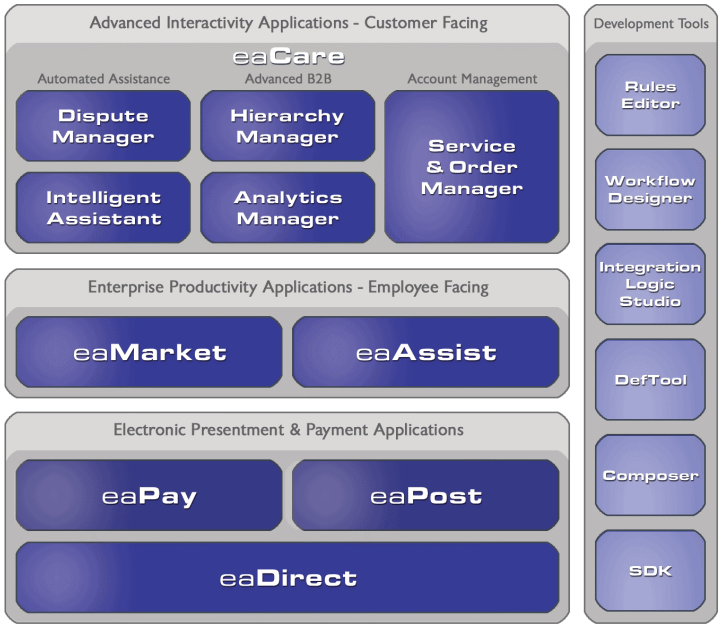
Quick Reference Appendix contains platform-specific variables and settings for eaDirect.

About Customer Self-Service and 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 comprised of four product families:

- Electronic Presentment and Payment (EPP) Applications
- Advanced Interactivity Applications
- Enterprise Productivity Applications
- Development Tools



Electronic Presentment and Payment (EPP) Applications are the foundation of edocs' Customer Self-Service solution. They provide the core integration infrastructure between organizations' backend transactional systems and end users, as well as rich e-billing, e-invoicing, and e-statement functionality. Designed to meet the rigorous demands of the most technologically advanced organizations, these applications power Customer Self-Service by managing transactional data and by enabling payments and account distribution.

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™ 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® 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.

Advanced Interactivity Applications are a comprehensive set of advanced customer-facing self-service capabilities that enable the full range of business and consumer customer service activities. These sophisticated modules have the flexibility to completely customize the Customer Self-Service solution to meet vertical industry and specific company requirements.

eaCare™ consists of a rich set of sophisticated self-service modules – Dispute Manager, Intelligent Assistant, Hierarchy Manager, Analytics Manager, and Service and Order Manager - for automated assistance, advanced business-to-business applications and account management. These capabilities come together to create a web self-service dashboard for customers to access all service offerings from a single, easy-to-use interface. eaCare's modularity accelerates time to market with components that can be deployed incrementally in a phased approach.

Enterprise Productivity Applications are employee-facing solutions that empower customer service representatives, sales agents, account managers, marketing managers, broker-dealers and channel partners within an organization and external partner organizations to facilitate self-service and to support assisted service. Employees leverage edocs' Customer Self-Service solution to deliver customer service, access information, create and deploy marketing and customer service content, and perform activities for the benefit of customers.

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™ 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.

edocs' **Development Tools** are visual development environments for designing and configuring edocs' Customer Self-Service solutions. The Configuration Tools encompass data and rules management, workflow authoring, systems integration, and a software development kit that makes it easy to create customer and employee-facing self-service applications leveraging eaSuite.

Related Documentation

Online Help for DefTool and Composer and for the Command Center, and PDF guides for the eaSuite are also available.

Online	How to Access
Help	Select Help > Help Topics in DefTool or Composer, or click Help in the Command Center.
PDF	PDF guides are available on your eaSuite CD-ROM.

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

Print Document	Description
eaDirect Installation and Configuration Guide	How to install and configure eaDirect in a distributed environment.
Deploying and Customizing J2EE Applications	How to customize J2EE web applications for deployment with the eaSuite.
Data Definition Guide	How to create data extraction and definition rules for an eaDirect application with the DefTool.
Presentation Design Guide	How to design data presentment for an eaDirect application with the Composer.
Data Presentation Production Guide	How to set up and run a live eaDirect application in a J2EE environment.

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.

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

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

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

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

Customer Central
https://support.edocs.com

Email Support
mailto:support@edocs.com

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.

1 Before You Install eaDirect

Overview

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

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

Before You Install

1. Install and test required hardware and software for your supported platform for eaDirect 4.0.
2. (UNIX) Define required user and group permissions for your database server and application server.
3. Start and test your database server.
4. Start and test your application server.

Installing eaDirect

1. Install eaDirect with InstallAnywhere on your database and application servers.
2. (UNIX) Install eaDirect composition tools on a Windows machine on your system.

Configuring Your Database Server

1. Define database server environment variables.
2. Create and configure the eaDirect database with `edx_admin.sh` (UNIX) or `DBConfigTool.jar` (Windows).

Configuring Your Application Server

For distributed environments, ensure that you have any required database client software installed on your application server and any other client machines of your database server. See the *Quick Reference Appendix* for software requirements for your platform.

1. Define application server environment variables.
2. (WebSphere) Create an application server instance for eaDirect.
3. (WebSphere) Configure JVM resources for eaDirect on your application server.
4. Configure JDBC resources for eaDirect on your application server.
5. Configure JMS resources for eaDirect on your application server.
6. (Windows) Install Windows Services for your application server and the eaDirect Scheduler.

Where to Go From Here

1. Customize and deploy J2EE web applications for the eaSuite. For details, see *Deploying and Customizing J2EE Applications*.

Supported Platforms for eaDirect 4.0

Use the *Quick Reference Appendix* to confirm that your system meets or exceeds the minimum recommended hardware and software requirements for eaDirect. **Be sure to check the Release Notes for any updates to these requirements.**

The following table lists the platform combinations supported for eaDirect 4.0. **Required JDK versions, system patches, fix packs and other updates are not listed in this section.** See the *Quick Reference Appendix* for a detailed list of system requirements for each platform.

Server O/S	Database	App Server
Solaris 2.6 **OR** Solaris 8	Oracle 8i [migration] **OR** Oracle 9i [new install]	WebLogic 6.1 SP4 **OR** WebLogic 7.0 SP2
Solaris 2.6 **OR** Solaris 8	Oracle 8i [migration] **OR** Oracle 9i [new install]	WebSphere 4.0.6
Windows 2000 Server SP3	SQL 2000 SP3	WebLogic 6.1 SP4 **OR** WebLogic 7.0 SP2
Windows 2000 Server SP3	SQL 2000 SP3	WebSphere 4.0.6
AIX 4.3.3 **OR** 5.2	DB2 7.2	WebSphere 4.0.6
HP-UX 11i	Oracle 8i [migration] **OR** Oracle 9i [new install]	WebLogic 6.1 SP4 **OR** WebLogic 7.0 SP2

Installing eaDirect

2

This chapter assumes in-depth understanding of and practical experience with Operating System Administration. Consult your system documentation as necessary.

This chapter provides a step-by-step guide to installing eaDirect with the InstallAnywhere installer, included on the eaDirect distribution CD-ROM. Use the *Quick Reference Appendix* to spot check pathnames and variables for your platform.

UNIX Permissions for Installation

This section applies to all UNIX platforms.

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

O/S	DEFAULT	EXAMPLE	CUSTOM
Solaris	`root:other`	`edxadmin:edxadmin`	
AIX	`root:other`	`edxadmin:edxadmin`	
HP-UX	`root:other`	`edxadmin:edxadmin`	

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

edocs does not recommend administering eaDirect with the user and group **`nobody:nobody`**.

Installing eaDirect with InstallAnywhere

The InstallAnywhere installer is a graphical cross-platform wizard that will install eaDirect components for any supported platform of eaDirect.

In a distributed environment, you will need to install:

- eaDirect application server components on **each** application server
- eaDirect database server components on **each** database server
- database client software on **each** application server

To use InstallAnywhere on a **UNIX** system (Solaris/AIX/HP-UX), you will also need to:

- install Xwindows software to support the InstallAnywhere GUI
- set and export the DISPLAY environment variable for your machine, for example **`DISPLAY=localhost:0.0 export DISPLAY.`**
- create a user and group as application server owner, in this example **`edxadmin:edxadmin`**
- install the Windows-based tools **DefTool** and **Composer** on a Windows machine on your network

To install eaDirect with InstallAnywhere on Solaris:

1. Create a user and group as application server owner, in this example **`edxadmin:edxadmin`**.
2. Set and export the DISPLAY environment variable for your machine, for example **`DISPLAY=localhost:0.0 export DISPLAY.`**
3. From your CD-ROM, navigate to **`cd eaSuite/EDCSbd/Sol`**

4. Launch InstallAnywhere by typing **`Dirins.bin.`**
5. INTRODUCTION Be sure you have quit all programs.
6. LICENSE AGREEMENT Select **`Yes`** to accept the License Agreement.
7. ENTER SERIAL NUMBER stapled to your CD-ROM . If lost, contact edocs Technical Support at http://support.edocs.com/.
8. OWNER OF WEB APPLICATION SERVER for example **`edxadmin`**.
9. GROUP OF WEB APPLICATION SERVER for example **`edxadmin`**.
10. CHOOSE INSTALL FOLDER The default is **`/opt/EDCSbd`** or Choose another directory.
11. CHOOSE PRODUCT FEATURES Options depend on features purchased.

    All choices install J2EE web applications, documentation, and online Help.

    Full (default) will install all eaDirect components on a single machine.

    Database and **App Server** are for distributed environments.

    Custom installs individual components you specify.

    SDK requires a separate license.
12. PRE-INSTALLATION SUMMARY Review the screen to confirm your product and version, Install folder, Product Components, and Disk Space required and available.
13. InstallAnywhere then sets up the directory hierarchy on each server and copies files to the appropriate directories.
14. INSTALL COMPLETE If installation is successful, you will see a Congratulations message.
15. RELEASE NOTES Select **`Yes`** to read the Release Notes.
16. COPYRIGHT NOTICE Please review and click **`Done`**. Quit InstallAnywhere.
17. Repeat installation for other eaDirect servers on your network as necessary.

18. When you have finished installing eaDirect on all servers, proceed to Configuring Your Database Server.

To install eaDirect with InstallAnywhere on AIX:

1. Create a user and group as application server owner, in this example **`edxadmin:edxadmin`**.
2. Set and export the DISPLAY environment variable for your machine, for example **`DISPLAY=localhost:0.0 export DISPLAY.`**
3. From your CD-ROM, navigate to **`cd eaSuite/EDCSbd/AIX`**
4. Launch InstallAnywhere by typing **`Dirins.bin`**
5. INTRODUCTION Be sure you have quit all programs.
6. LICENSE AGREEMENT Select **`Yes`** to accept the License Agreement.
7. ENTER SERIAL NUMBER stapled to your CD-ROM . If lost, contact edocs Technical Support at http://support.edocs.com/.
8. OWNER OF WEB APPLICATION SERVER for example **`edxadmin`**.
9. GROUP OF WEB APPLICATION SERVER for example **`edxadmin`**.
10. CHOOSE INSTALL FOLDER default is **`/usr/EDCSbd`** or Choose another directory.
11. CHOOSE PRODUCT FEATURES Options depend on features purchased.

    All choices install J2EE web applications, documentation, and online Help.

    Full (default) will install all eaDirect components on a single machine.

    Database and **App Server** are for distributed environments.

    Custom installs individual components you specify.

    SDK requires a separate license.
12. PRE-INSTALLATION SUMMARY Review the screen to confirm your product and version, Install folder, Product Components, and Disk Space required and available.

13. InstallAnywhere then sets up the directory hierarchy on each server and copies files to the appropriate directories.
14. INSTALL COMPLETE If installation is successful, you will see a Congratulations message.
15. RELEASE NOTES Select **Yes** to read the Release Notes.
16. COPYRIGHT NOTICE Please review and click **Done**. Quit InstallAnywhere.
17. Repeat installation for other eaDirect servers on your network as necessary.
18. When you have finished installing eaDirect on all servers, proceed to Configuring Your Database Server.

To install eaDirect with InstallAnywhere on HP-UX:

1. Create a user and group as application server owner, in this example **edxadmin:edxadmin**.
2. Set and export the DISPLAY environment variable for your machine, for example **DISPLAY=localhost:0.0 export DISPLAY.**
3. From your CD-ROM, navigate to **/mnt/Direct_Self_Extract/HPUX** where **mnt** is the mount point for your CD.
4. Launch InstallAnywhere by typing **Dirins.bin**
5. INTRODUCTION Be sure you have quit all programs.
6. LICENSE AGREEMENT Select **Yes** to accept the License Agreement.
7. ENTER SERIAL NUMBER stapled to your CD-ROM . If lost, contact edocs Technical Support at http://support.edocs.com/.
8. OWNER OF WEB APPLICATION SERVER for example **edxadmin**.
9. GROUP OF WEB APPLICATION SERVER for example **edxadmin**.
10. CHOOSE INSTALL FOLDER default is **/opt/EDCSbd** or Choose another directory.

11. CHOOSE PRODUCT FEATURES Options depend on features purchased.

    All choices install J2EE web applications, documentation, and online Help.

    Full (default) will install all eaDirect components on a single machine.

    Database and **App Server** are for distributed environments.

    Custom installs individual components you specify.

    SDK requires a separate license.

12. PRE-INSTALLATION SUMMARY Review the screen to confirm your product and version, Install folder, Product Components, and Disk Space required and available.

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

14. INSTALL COMPLETE If installation is successful, you will see a Congratulations message.

15. RELEASE NOTES Select **`Yes`** to read the Release Notes.

16. COPYRIGHT NOTICE Please review and click **`Done`**. Quit InstallAnywhere.

17. Repeat installation for other eaDirect servers on your network as necessary.

18. When you have finished installing eaDirect on all servers, proceed to Configuring Your Database Server.

To install eaDirect with InstallAnywhere on Windows:

1. From your CD-ROM, navigate to **`C:\EDCSbd\Windows`**

2. Launch InstallAnywhere by double-clicking the **`Dirins.exe`** icon.

3. INTRODUCTION Be sure you have quit all programs.

4. LICENSE AGREEMENT Select **`Yes`** to accept the License Agreement.

5. ENTER SERIAL NUMBER stapled to your CD-ROM. If lost, contact edocs Technical Support at http://support.edocs.com/.

6. CHOOSE INSTALL FOLDER default is **`C:\EDCSbd`** or Choose another directory.
7. CHOOSE PRODUCT FEATURES Options depend on features purchased.

   All choices install J2EE web applications, documentation, and online Help.

   Full (default) will install all eaDirect components on a single machine.

   Database and **App Server** are for distributed environments.

   Tools installs the Windows-based tools **DefTool** and **Composer**.

   Custom installs individual components you specify.

   SDK requires a separate license.
8. CHOOSE SHORTCUT FOLDER Select locations to create product icons.
9. PRE-INSTALLATION SUMMARY Review the screen to confirm your product and version, Install folder, Product Components, and Disk Space required and available.
10. InstallAnywhere then sets up the directory hierarchy on each server and copies files to the appropriate directories. Windows installations also add program icons to the locations specified, for example to a program group or to the Windows Start menu.
11. INSTALL COMPLETE If installation is successful, you will see a Congratulations message.
12. RELEASE NOTES Select **`Yes`** to read the Release Notes.
13. COPYRIGHT NOTICE Please review and click **`Done`**. Quit InstallAnywhere.
14. Repeat installation for other eaDirect servers on your network as necessary.
15. When you have finished installing eaDirect on all servers, proceed to Configuring Your Database Server.

About the eaDirect Directory Structure

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

To designate a different destination directory, enter the pathname 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.

Where to Find Database Components

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

Where to Find Application Server Components

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

Where to Find Sample Applications

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

Where to Find Input and Output Data

`EDCSbd/AppProfiles` stores information on each new eaDirect application created in the Command Center. **`EDCSbd/Input`** is the default directory for data, used by each Command Center job. **`EDCSbd/Data`** stores the output of jobs.

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

Where to Find Documentation

`EDCSbd/pdf` contains PDF versions of eaSuite documentation. If your license includes the eaSuite SDK, you will find SDK documentation in **`EDCSbd/SDK/pdf`**.

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

Where to Go From Here

If you have installed eaDirect **on a single machine** using the **Full** installation option, you can proceed directly to Chapter 4, Configuring Your Database Server.

If you are installing in a **distributed environment**, be sure that you have installed all eaDirect components as follows before proceeding.

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

Configuring Your Database Server

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Overview

This chapter assumes in-depth understanding of and practical experience with Database Administration. Consult your database documentation as necessary.

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

For distributed environments, ensure that you have any required database client software installed on your application server and any other client machines of your database server. See the *Quick Reference Appendix* for software requirements for your platform.

If you are migrating an existing eaDirect installation, please use Chapter 6, Migrating To A New Version of eaDirect.

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

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

UNIX Permissions for Your Database Server

Tip This section applies to all UNIX platforms.

Before creating the eaDirect database with **`edx_admin.sh`**, you should verify that the owner and group permissions (**`userid:groupid`**) of the eaDirect database directory, including all subfolders, are set to the **DB Admin user** defined during database installation.

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

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

DATABASE	DB ADMIN USER	DB USER	CUSTOM
Oracle	`oracle:dba`	`edx_dba:edx`	
DB2	`db2inst1:db2adm1`	`edx_dba:edx`	

The **DB Admin** user has special privileges on Oracle and on DB2. For details on owner and group permissions for your database server, please consult the database documentation for your platform.

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

To reset user and group permissions:

1. Switch user to the owner of your eaDirect home directory, for example **edxadmin**.

   ```
   su - edxadmin
   ```

2. Change directory to your eaDirect home directory, for example **usr/EDCSbd.**

   ```
   cd usr/EDCSbd
   ```

3. Recursively change the user and group permissions of the **/db** directory and all subdirectories to the database instance owner.

   ```
   chown -R edx_dba:edx /usr/EDCSbd/db
   ```

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

You should also verify the owner information in any profile files used by the database server owner and application server owner. See your server documentation for details.

Starting and Stopping Your Database Server

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

- eaDirect for **Oracle** is supported on Windows, Solaris, and HP-UX.
- eaDirect for **SQL Server** is supported only on Windows.
- eaDirect for **DB2** is supported only on AIX.

See the *Quick Reference Appendix* for a detailed list of system requirements and settings for each platform.

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

UNIX Environment Variables for Your Database Server

This section applies to all UNIX platforms.

Before UNIX administrators can configure the database to support eaDirect, you must define **environment variables for your database server**. Use the *Quick Reference Appendix* to define the appropriate variables for your platform.

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

To define environment variables in the Bourne or Korn shell:

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

To define environment variables in the C shell:

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

Using Database Partitioning with eaDirect

eaDirect 4.0 introduced the high-performance feature of database partitioning. Partition splitting reduces the number of tables to be scanned when indexing your data. You can now specify the number of partitions when you create a DDN in the Command Center. At the first run of the Indexer job, eaDirect creates and populates a set of partitioned index tables to maintain your dynamic data.

The number of tables you need depends on your database platform and the anticipated volume of data. For more information on using partitions with your DDNs, see the *eaDirect Production Guide*.

Oracle

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

DB2/SQL Server

Both DB2 and SQL Server support partitioned views. Index tables are created with a check-constraint, and the view is created on the underlying index tables. edocs recommends using 4 or 12 partitions for quarterly or monthly index tables.12 partitions are recommended for maximum performance.

Creating and Configuring a New eaDirect Database for UNIX

This section applies to all UNIX platforms.

UNIX administrators need to complete two steps to create and configure your eaDirect database:

- Define UNIX environment variables for your database server
- Run the database configuration shell script **`edx_admin.sh`**

This topic describes each step in detail.

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

Using *edx_admin.sh*

You create and configure the eaDirect production database by running the **`edx_admin.sh`** script for database configuration. If you have to abort database setup before it completes successfully, see What to Do If Database Configuration Fails.

Before you run **`edx_admin.sh`**, you should:

- Upgrade your database server software as necessary. Oracle 9i administrators should see the guide *Upgrading eaSuite 4.0 from Oracle8i to Oracle9i.*
- Make a full backup of your current database.
- Start the database instance that accesses the database you are upgrading.
- Check the status of all user objects. If any of them indicate an INVALID status, contact the database administrator to correct this problem.
- Confirm that all login sessions using the eaDirect database user have logged out of the instance.
- Have any required database passwords available. Check with your database administrator for custom passwords.
- Check the Release Notes for disk space requirements and confirm that you have sufficient disk space on your database server. Insufficient disk space can cause database configuration to fail.

The following procedure shows example variables for the **Oracle** database on **Solaris**. Database administrators on other platforms should consult the *Quick Reference Appendix* for appropriate variables.

To create and configure the eaDirect database:

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

   ```
   su - oracle
   ```

2. Change directory to the database home directory. For example:

   ```
   cd /opt/EDCSbd/db/oracle
   ```

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

   ```
   ./edx_admin.sh
   ```

   The Server Administration Main Menu appears.

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

   You will be prompted to enter a username, password, and database name for the eaDirect database.

When creating an Oracle database, limit its name to eight characters. Defining **or entering** an Oracle SID with more than eight characters will cause Oracle database configuration to fail.

   The following example shows sample values for Oracle on Solaris. Consult the *Quick Reference Appendix* and your database administrator to specify suitable values for your platform.

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

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

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

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

   You will be prompted to provide absolute pathnames for a variety of database files. Database files can reside wherever you choose. For a single database server, you can use, for example:

   ```
   $ORACLE_HOME/oradata
   ```

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

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

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

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

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

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

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

 SELECT YOUR OPTION: 1
```

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

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

   If this step is successful, you will see the message:

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

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

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

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

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

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

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

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

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

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

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

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

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

    `$EDX_HOME/db/oracle`

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

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

```
edocs 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.

If this is your first installation of eaDirect, you can ignore Option 5, Database Version Migration. You should select this option only if you want to migrate an existing eaDirect database to a newer version. For details, see Migrating an Existing eaDirect Database.

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

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

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

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

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

What to Do If Database Configuration Fails

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

To recover from a failed database configuration for Oracle:

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

   ```
   su – oracle
   ```

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

   ```
   echo $ORACLE_SID
    edx0
   ```

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

   ```
   ORACLE_SID=edx0
   export ORACLE_SID
   ```

4. Shut down the database server.

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

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

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

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

   ```
   rm –rf edx0
   ```

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

To recover from a failed database configuration for DB2:

1. Switch user to the **DB Admin** user, in this example **`db2inst1`**. DB2 requires an administrative user in order to remove files.

   ```
   su – db2inst1
   ```

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

   ```
   echo $DB2INSTANCE
    edx0
   ```

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

   ```
   DB2INSTANCE=edx0
   export DB2INSTANCE
   ```

4. Make sure there are no active connections to your database instance.

5. Change directory to the root directory for your database files and drop the database with the **`db2 drop`** command. For example:

   ```
   cd /usr/EDCSbd/db/db2
   db2 drop database edx0
   ```

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

Connecting to the eaDirect Database for UNIX

Configuring Oracle Services

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

- **`tnsnames.ora`** includes a list of service names of network databases that are mapped to connect descriptors. It is used by clients and distributed database servers to identify potential server destinations. The address of a given database server in **`tnsnames.ora`** matches the address of a listener for that server in **`listener.ora`**.
- **`listener.ora`** includes service names and address of all listeners on a computer, the instance names of the databases for which they listen, and listener control parameters. The address for a server in **`listener.ora`** requires the SID (SID_NAME) of a database server in **`tnsnames.ora`**.

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

Caution You must edit the **tnsnames.ora** entry for BOTH the database server and the database client on the application server. See Step 7.

To configure Oracle services for UNIX:

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

   ```
   su - oracle
   ```

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

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

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

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

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

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

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

6. Save and close **tnsnames.ora**.

7. Repeat Step 5 for the **`tnsnames.ora`** file on your **application server**. This file is installed with your database client software.

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

   ```
   lsnrctl stop
   ```

   ```
   lsnrctl start
   ```

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

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

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

Connecting to the eaDirect Database for Oracle

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

To connect to an Oracle database for UNIX:

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

   ```
   su – oracle
   ```

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

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

   If the database is connected successfully, you will see a connection message.

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

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

   ```
   SQL> show parameters db_name
   ```

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

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

Connecting to the eaDirect Database for DB2

This procedure applies only to DB2 for distributed environments.

If your database is installed in a distributed environment, you must connect to the remote database server. This step catalogs a node and a database as the database owner, for example, **edx_dba,** to include information about your eaDirect database.

If the eaDirect database is installed on the same machine as the eaDirect application server, you must manually edit the database directory to include a loopback configuration for the eaDirect database. Consult your database administrator and DB2 documentation for details.

To connect to the eaDirect database for DB2:

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

   ```
   su – dbinst1
   ```

2. Catalog the node and the database on the application server machine, for example:

   ```
   $ db2 "catalog tcpip node edx_node remote
   localhost.edocs.com server 50000"
   $ db2 "catalog database edx0 as edx0 at node edx_node"
   ```

You do not need to stop and start the database for this procedure to take effect, as it is done on the client side.

3. List the **node directory** to make sure that the node was created correctly.

   ```
   $ db2 "list node directory"
   ```

   One node entry should be:

   ```
   Node name = EDX_NODE
   Comment =
   Protocol = TCPIP
   Hostname = localhost
   Service name = 50000
   ```

4. List the **database directory** to make sure that the database was created correctly.

   ```
   $ db2 "list database directory"
   ```

   One database entry should be:

   ```
   Database alias = EDX0
   Database name = EDX0
   Node name = EDX_NODE
   Database release level = 9.00
   Comment =
   Directory entry type = Remote
   Catalog node number = 0
   ```

5. Connect to the database with your database name and username, for example:

   ```
   $ db2 "connect to edx0 user edx_dba using edx"
   ```

   ```
   Database Connection Information
   Database server = DB2/6000 7.2.4
   SQL authorization ID = edx_dba
   Local database alias = EDX0
   ```

Installing Database Support for WebSphere for Windows

This section applies to WebSphere deployments only. WebLogic administrators may skip this step.

Windows administrators for WebSphere need to complete three additional steps **before** creating your eaDirect database:

- Install the *Connect* JDBC Driver
- Enable the SQL Server Distributed Transaction Coordinator
- Install JTA Stored Procedures

This topic describes each step in detail.

Installing the *Connect* JDBC Driver for WebSphere

WebSphere for Windows on MSSQL requires a WebSphere branded version of a JDBC driver, **Connect 3.1**, downloadable from IBM WebSphere. For more information, see your application server documentation.

Installing this driver requires you to modify two configuration files, **`admin.config`** and **`setupCmdLine.bat`**. These files are located in the **`\bin`** directory of your database installation, **`%WAS_HOME%\bin`**.

To install the *Connect* JDBC Driver:

1. Download and unzip the file **`ConnectJDBC31.zip`**, included in the SQL Server JDBC driver download.
2. Copy the four JAR files **`base.jar, spy.jar, util.jar`** and **`sqlserver.jar`** to the **`\bin`** directory of your database installation, for example **`C:\Program Files\Microsoft SQL Server\MSSQL\bin`**.
3. Change directory to the **`\bin`** directory of your database installation, **`%WAS_HOME%\bin`**.
4. Open **`admin.config`** and add or modify the following entries:

```
com.ibm.ejs.sm.adminServer.dberrorMap=EC2627=com.ibm.ejs
.cm.portability.DuplicateKeyException

com.ibm.ejs.sm.adminServer.dbdataSourceClassName=com.ibm
.websphere.jdbcx.sqlserver.SQLServerDataSource

com.ibm.ejs.sm.adminServer.dbportNumber=1433
```

```
com.ibm.ejs.sm.adminServer.dbselectMethod=cursor
```

5. Open **`setupCmdLine.bat`** and modify the following entry:

```
SET DBDRIVER_JARS=%WAS_HOME%\lib\ext\base.jar;
%WAS_HOME%\lib\ext\spy.jar;
%WAS_HOME%\lib\ext\sqlserver.jar;
%WAS_HOME%\lib\ext\util.jar
```

This text has line breaks for readability. Enter the command on a single line without line breaks.

Enabling the SQL Server Distributed Transaction Coordinator

This SQL Server service for WebSphere tests phase connections to the database. When using the required **Connect** JDBC driver, WebSphere defaults to testing two-phase connections, as the datasource is unaware whether web applications will use one-phase or two-phase connections. If your system uses only one-phase connections, you can skip installing this service and test the connection by other means.

To test distributed transactions with SQL Server:

1. Open the SQL Server Enterprise Server Manager Console.
2. Expand the tree to show **Support Services>Distributed Transaction Coordinator**.
3. Right-click the Distributed Transaction Coordinator and select **Start**.

Installing JTA Stored Procedures

WebSphere for Windows requires the stored procedure patch for **JTA**, downloadable from IBM WebSphere. For more information, see your application server documentation.

To install JTA Stored Procedures:

1. Download and unzip the file **SQLServerJTA.zip**, included in the SQL Server JDBC driver download.
2. Copy the file **sqljdbc.dll** to the **\bin** directory of your database installation, for example **C:\Program Files\Microsoft SQL Server\MSSQL\bin**.
3. Open a DOS prompt window and change directory to the root folder of **SQLServerJTA.zip**.
4. Use the ISQL utility to run the **instjdbc.sql** script from **SQLServerJTA**, entering your system administrator user id (U), password (P), server name (S), and the location of the **instjdbc.sql** script. For example:

```
>ISQL -Usa -Pedocs -Slocalhost -i C:\instjdbc.sql
```

Tip The **instjdbc.sql** script generates many messages. These messages should be benign and can be ignored in most cases, but you should review the **out** output for any messages that indicate an installation/execution error. The last message should indicate that **instjdbc.sql** ran successfully.

Creating and Configuring a New eaDirect Database for Windows

Tip This section applies to all Windows platforms.

Windows administrators for **both WebLogic and WebSphere** need to complete two steps to create and configure your eaDirect database:

- Increase the default width for numeric columns
- Run the Java database configuration wizard **DBConfigTool**

This topic describes each step in detail.

Caution With Microsoft SQL Server 2000, eaDirect requires the default authentication mode **Mixed Mode (Windows Authentication and SQL Server Authentication)**. Selecting only Windows Authentication Mode might cause database creation and configuration to fail.

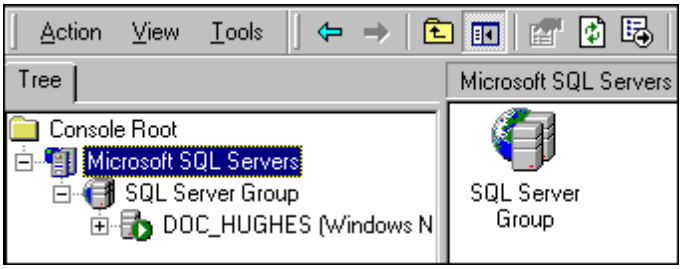
Increasing the Default Width for SQL Server Numeric Columns

The SQL Server default width for numeric columns is 28 characters. However, eaDirect requires a minimum width of **38 characters** for numeric columns. You must increase these defaults **before** creating the database.

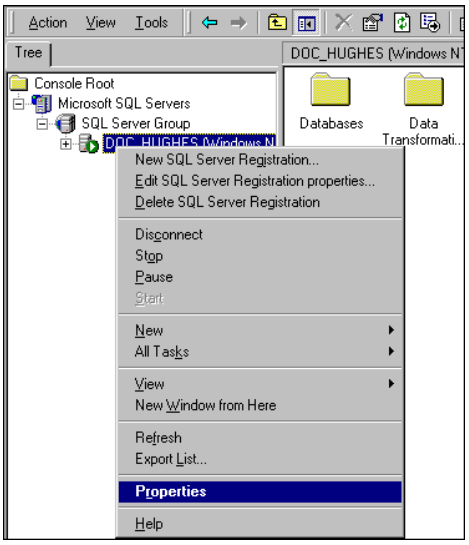
To increase the default width of numeric columns:

1. From the Start menu, select **`Programs`** and **`Microsoft SQL Server,`** and click **`Enterprise Manager`**. The SQL Enterprise Manager window appears.

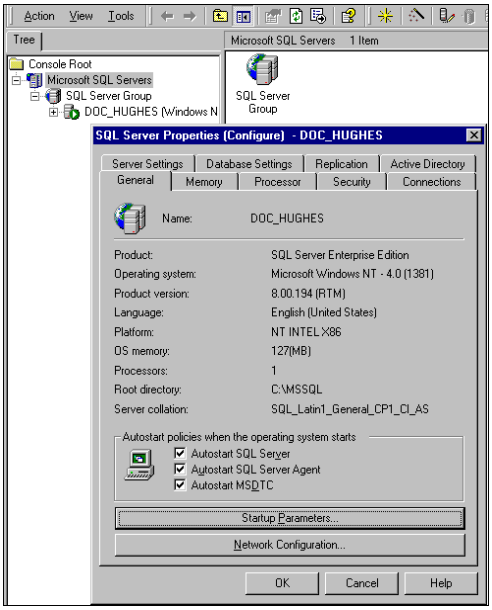
2. In the left pane, expand **`Microsoft SQL Servers`** and **`SQL Server Group`** to show your server. The sample screen shows a SQL server named DOC_HUGHES.



3. In the left pane, highlight your SQL server by right clicking on its name, and then click **`Properties`** from the menu.

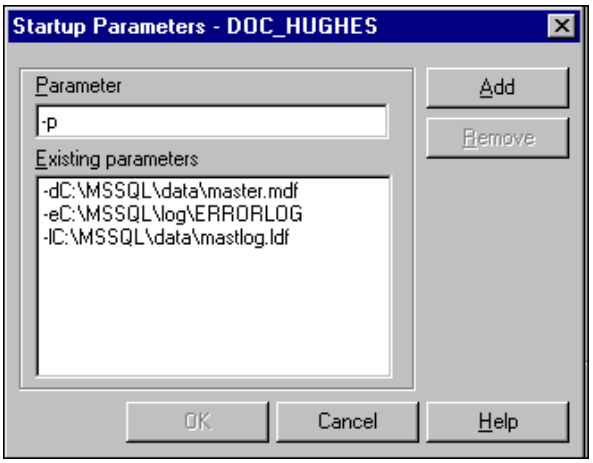


The SQL Server Properties dialog appears.

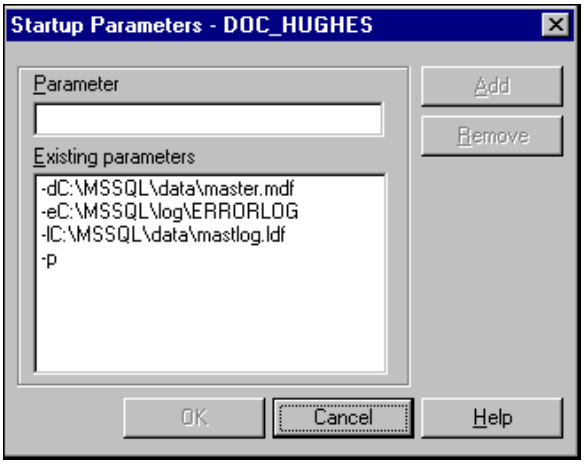


4. Click **`Startup Parameters`** at the bottom of the dialog. The Startup Parameters dialog appears showing the name of the server.

5. Enter the startup parameter **`-p`** in the Parameter text field.



6. Click **`Add.`** The new startup parameter is added to the list of existing parameters.



7. Click **`OK`** to close the dialog.

8. Stop and start your SQL server for the new startup parameter to take effect.

Using the DBConfigTool

Windows administrators use the Java database configuration tool, **`DBConfigTool.jar`**, to create and configure the production database. This wizard guides you to specify information about the database including the username and password needed to access it, the name of the database, the server on which it is installed, and the pathnames for the SQL Data and Log files

The DBConfigTool requires a Java SDK installed on the machine that runs it.

When installing Microsoft SQL Server 2000, select **Mixed Mode (Windows Authentication and SQL Server Authentication)** as your default authentication mode. Selecting only Windows Authentication Mode might cause database creation and configuration to fail.

To create and configure the eaDirect production database:

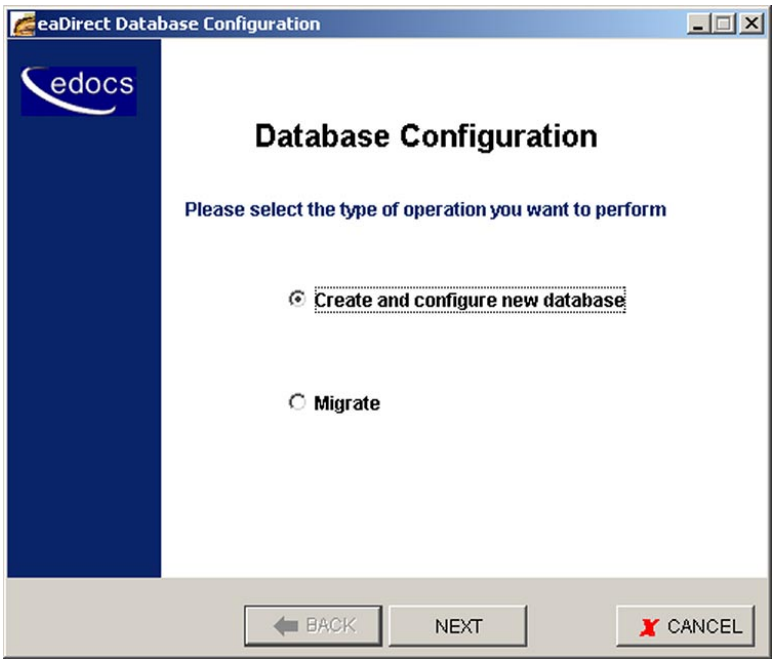
1. Open a Command Prompt window and change directory to the eaDirect home directory, for example:

   ```
   C:\> cd EDCSbd\db\mssql
   ```

2. Run the Java database creation and configuration tool **`DBConfigTool.jar`**:

   ```
   java –jar DBConfigTool.jar
   ```

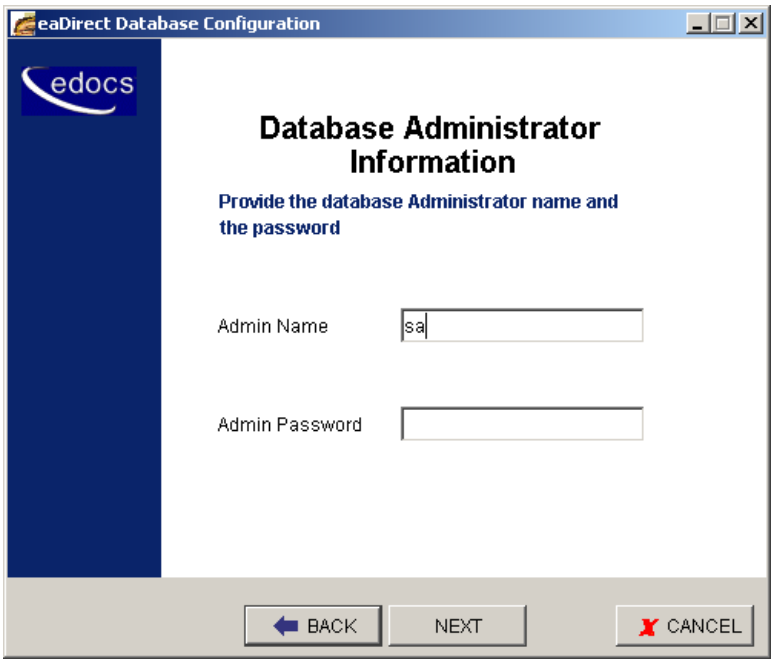
   The Database Configuration screen appears.



3. Select **`Create and configure new database`** (default), and then click **`Next`**. A second database configuration screen appears.

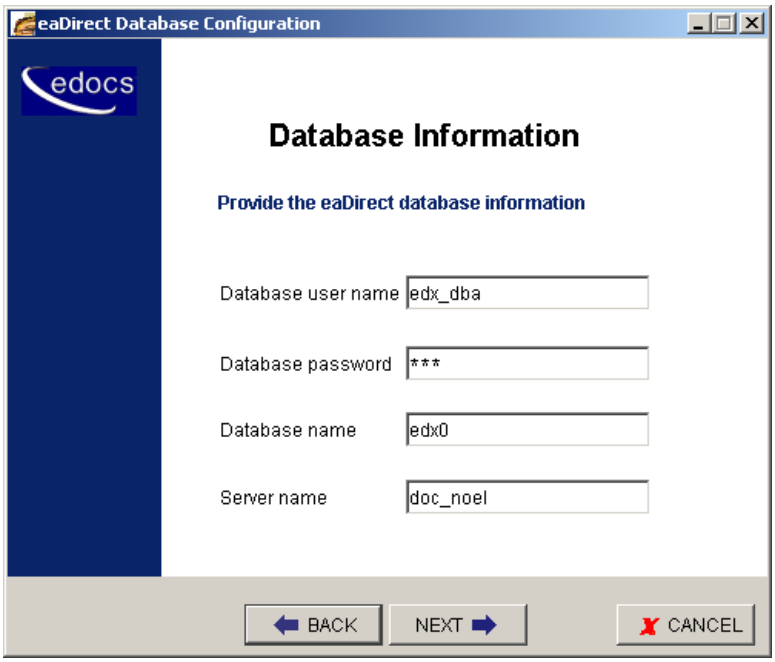
4. Click **`Next`**. The Database Administrator Information screen appears.

5. Enter the Admin Name and Admin Password (if your database has one) for the SQL database. The default Admin Name is **`sa`** and the default password is **`<none>`** (no password).



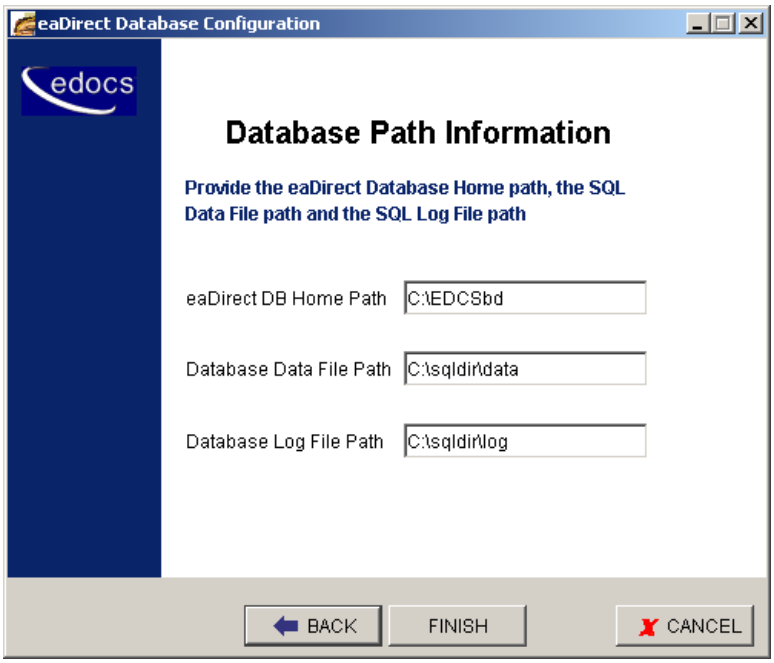
6. Click **`Next`**. The Database Information screen appears.

7. Specify a new database user name, database password, and database name for the new database. Also, enter the name of the server on which the database will be created. For example:



8. Click **`Next`**. The Database Path Information screen appears.

9. Specify the pathname to the database installation directory, location of the SQL data file, and the location of the SQL log file. For example:



10. Click **`Finish`**. A status screen appears showing the progress of each task performed by the database creation and configuration tool.
11. A confirmation screen appears if the database is configured successfully.
12. Click **`Close`** to exit from the database creation and configuration tool.

What to Do If Database Configuration Fails

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

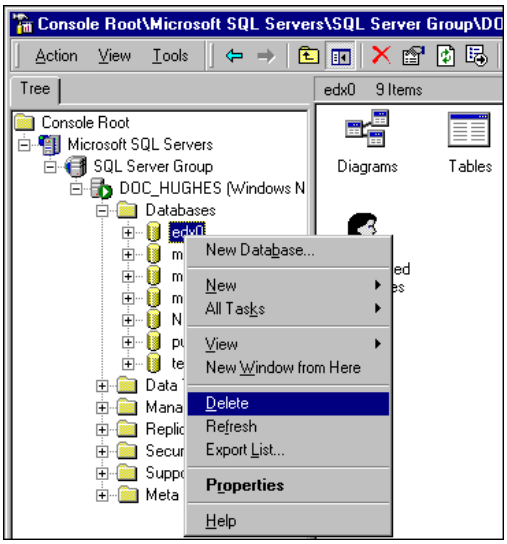
To recover from a failed database configuration for SQL Server:

1. Stop your database server.

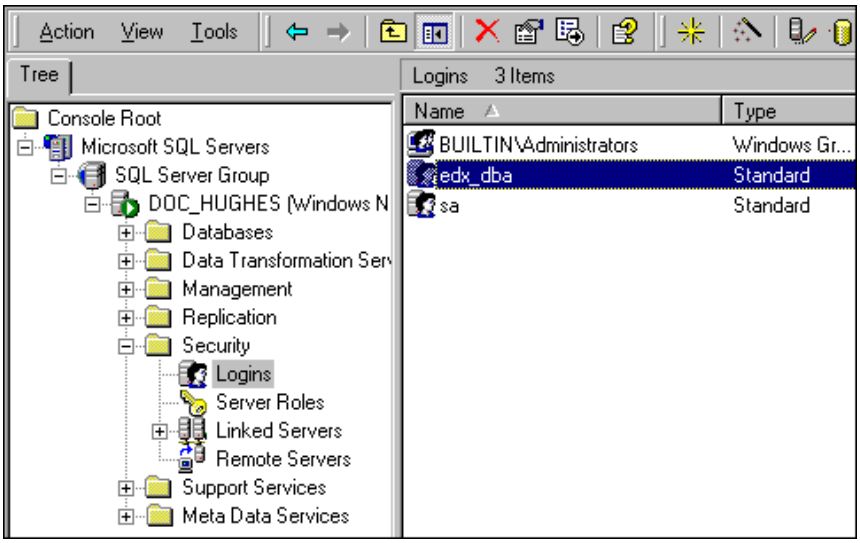
2. From the Start menu, select **Programs** and **Microsoft SQL Server**, and click **Enterprise Manager**. The Enterprise Manager screen opens.

3. Expand the SQL Server Group and click the **Database** folder.

4. Right-click the name of the newly created database and delete it from the list of installed databases.



5. Scroll down to the **Security** folder and expand it to show **Logins**. Delete the user for the database that you just deleted.



6. Open a command line window and run the database configuration tool again, making sure that the values on each screen are correct before proceeding to the next screen.

Where to Go From Here

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

Once your database server starts successfully with the eaDirect database installed, you can proceed to Chapter 4, Configuring Your Application Server.

Configuring Your Application Server

4

Overview

This chapter assumes in-depth understanding of and practical experience with Application Server Administration. Consult your application server documentation as necessary.

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

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

For distributed environments, ensure that you have any required **database client software** installed on your application server and any other client machines of your database server. See the *Quick Reference Appendix* for software requirements for your platform.

This chapter provides instructions for configuring your application server to support eaDirect. It includes:

- UNIX Permissions for Your Application Server
- Starting and Stopping Your Application Server
- Preparing WebSphere Server
- UNIX Environment Variables for Your Application Server
- Windows Environment Variables for your Application Server
- Configuring Java Database Connectivity (JDBC) for eaDirect
- Configuring Java Messaging Services (JMS) for eaDirect
- Windows Services for eaDirect

- Starting the Scheduler and Logger
- Where to Go From Here

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

UNIX Permissions for Your Application Server

This section applies to all UNIX platforms.

Before configuring your application server for eaDirect, you should verify that the owner and group permissions (**`userid:groupid`**) of the eaDirect application server directory, including all subfolders, are set to the application server owner defined during installation.

This guide uses the example username and password **`edxadmin:edxadmin`** as the application server owner and group for the eaSuite. edocs recommends that you install eaDirect application server components with the default owner and group for your platform.

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

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

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

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

To reset user and group permissions:

1. Switch user to the default owner of your application server home directory.
2. Change directory to your application server home directory. This example shows **`$WL_HOME`** for WebLogic 6.1.

   ```
   cd /export/home/bea/wlserver
   ```

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

   ```
   chown -R edxadmin:edxadmin /export/home/bea/wlserver
   ```

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

You should also verify the owner information in any profile files used by the database server owner and application server owner. See your server documentation for details.

Starting and Stopping Your Application Server

Developers and system administrators will need to be familiar with how to stop and start your application server and any active web applications for your platform.

- eaDirect for **WebLogic** is supported on Windows, Solaris, and HP-UX.
- eaDirect for **WebSphere** is supported on Windows, Solaris, and AIX.

Your application server startup script must be edited to **source** your customized version of the configuration file **`edx.config`**, thus passing your eaDirect environment to your application server at startup. For details, see Passing Environment Data to Your Application Server for your platform.

See the *Quick Reference Appendix* for a detailed list of system requirements and settings for each platform.

You can start or stop the administrative server:

- from the web console

- from the command line
- as a Windows Service (Windows)

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

Starting and Stopping an Active Application Server

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

The default command-line startup shell scripts are fine for an inactive production environment where there are no running jobs. However, the startup process will stop immediately if you enter a **`Ctrl+C`** (often used to force a hard shutdown of the server) in the startup directory, or if you close the terminal session.

WebSphere users must first create an application server instance for eaDirect. See your server documentation for details.

Starting and Stopping WebLogic Server

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

To start WebLogic Server from the web console:

1. In your browser, enter the console URL **`http://localhost:7001/console.`**
2. Expand your domain until **`myserver`** appears.
3. Right-click **`myserver`** and select **Start this server**.

To stop WebLogic Server from the web console:

1. In your browser, enter the console URL **`http://localhost:7001/console.`**
2. Expand your domain until **`myserver`** appears.
3. Right-click **`myserver`** and select **Stop this server**.

To start WebLogic Server from the command line:

1. su - edxadmin
2. cd $WL_HOME/config/mydomain
3. nohup./startWebLogic.sh &
4. WLS_PW=edxadmin

To stop WebLogic Server from the command line:

1. su - edxadmin
2. cd $WL_HOME/config/mydomain
3. ./setEnv.sh
4. java weblogic.Admin -url localhost:7001 SHUTDOWN -username system -password edocs

To start WebLogic Server as a Windows Service:

1. Install the Windows Service for your application server.
2. Select **Start Menu>Settings>Control Panel.**
3. Select **Administrative Tools>Services**.
4. Right-click **`myserver`** and select **Start**.
5. Allow a few minutes for the service to start your application server.

To stop WebLogic Server as a Windows Service:

1. Select **Start Menu>Settings>Control Panel**.
2. Select **Administrative Tools>Services**.
3. Right-click **`myserver`** and select **Stop**.
4. Allow a few minutes for the service to stop your application server.

Starting and Stopping WebSphere Server

To start WebSphere Server from the web console:

1. Open the WebSphere Administrative Console.
2. Navigate to your application server instance, for example **`myserver`**.
3. Right-click **`myserver`** and select **Start this server**.

To stop WebSphere Server from the web console:

1. Open the WebSphere Administrative Console.
2. Navigate to your application server instance, for example **`myserver`**.
3. Right-click **`myserver`** and select **Stop this server**.

To start WebSphere Server from the command line:

1. su - edxadmin
2. cd $WAS_HOME/bin
3. ./startupServer.sh &
4. WAS_PW=edxadmin

edocs recommends stopping WebSphere server instances from the web console, to avoid killing the process.

Preparing WebSphere Server

Java Virtual Machine (JVM) Settings for WebSphere

This section applies only to WebSphere. WebLogic users configure JVM settings directly in the WebLogic Server startup script.

WebSphere administrators will need to configure the Java Virtual Machine (JVM) to define your server node, name, and port. Use the shell script **`XMLConfig.sh`** to configure these settings. This script writes to your configuration file **`ws_config.xml`** so you need not edit it directly. Your application server **must be running** when you run **`XMLConfig.sh`**.

SQL Loader system properties are defined in the file **`$EDX_HOME/config/edx_sqlldr.config.`** If you customize these system properties, you will have to manually specify the parameters for the JVM of the eaDirect application server.

When you run **`edx_config`**, the script asks you to enter your database user name, password, and alias. If you are using values other than the defaults, you must also set these values through JVM settings in the System Properties table.

To configure JVM settings for WebSphere:

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

   ```
   su - edxadmin
   ```

2. Start your application server.

3. Change directory to the location of your application server startup script, for example:

```
cd $WAS_HOME/bin
```

4. Run the configuration script **`XMLConfig.sh`**. Use the *Quick Reference Appendix* to enter the values for your environment, using the syntax shown in the following example:

   ```
   ./XMLConfig.sh –import /opt/EDCSbd/config/ws_config.xml
   -adminNodeName localhost -nameServiceHost localhost
   -nameServicePort 1025 -substitute
   "NodeName=localhost;ServerName=Default
   Server;EDX_HOME=/opt/EDCSbd;JMS_HOME=/opt/mqm/java"
   ```

   Upon completion, you are returned to the command prompt.

To configure JVM settings for custom users or properties:

1. Open the System Properties table of the WebSphere Administrative Console.
2. Use the values in the following table to define System Properties settings.

Name	Value
`com.edocs.tasks.loader.user`	`edx_dba`
`com.edocs.tasks.loader.password`	`edx`
`com.edocs.tasks.loader.alias`	`edx.db`
`edx.home`	`$EDX_HOME`
`java.protocol.handler.pkgs`	`com.edocs.protocol`

3. Click **`Apply`**.

WebSphere administrators also need to complete three more steps:

- Prepare an admin repository for WebSphere
- Create an application server instance for WebSphere
- Configure a virtual host alias for WebSphere

Creating An Application Server Instance For WebSphere

As a convenience, WebSphere provides a default application server instance that you can use immediately to deploy and install a J2EE application.

You may choose to create a separate application server instance for a new J2EE application.(`.ear`). For example, you may choose to deploy eaDirect on the default instance, and the eaSample web application on a new instance. See your application server documentation for more information on deployment.

To create a new application server instance:

1. Expand the WebSphere Administrative Domain view.
2. Expand the **Nodes** folder and the application server name, and right-click **Application Servers**.
3. Select **New**. The Create Application Server dialog appears.
4. On the **General** tab, enter a name for the new application server instance, for example `myserver`.
5. Enter a working directory for the application server instance, for example `$WAS_HOME/bin` for UNIX.
6. Click the **File** tab and enter filenames for standard output and standard error logs.
7. Click **OK** to close the Create Application Server dialog.
8. Click **OK** to close the Information dialog reporting that the action completed successfully.

Configuring a Virtual Host Alias for WebSphere

To configure a virtual host alias for a new application server:

1. Expand the WebSphere Administrative Domain view.

2. Click the **Virtual Hosts** folder.
3. On the General tab, click **Add** to open a new line.
4. Enter the HTTP transport port on which the new application server is listening, for example *:`9081` (transport port 9080 is for the default application server).

Make sure you include the asterisk and colon when you enter the transport number.

Preparing an Admin Repository for WebSphere on Windows

This topic applies only to WebSphere deployments on Windows.

After you create your database, WebSphere administrators must take the additional step of preparing an administrative repository. For more information, see your application server documentation.

To prepare an admin repository:

1. Open the SQL Server 2000 Enterprise Manager.
2. Expand the tree to **Security Section>Login**. Right-click on **Login** and select **New Login**.
3. To configure your new login, select the **General** tab. Select **SQL Server authentication.** Enter your username and password in the User Name and Password fields.
4. Select your database, for example `edx0`, and select the **Database Access** tab.
5. Check the **permit** check box for your database. Select the `db_owner` database role and click **OK**.

UNIX Environment Variables for Your Application Server

This section applies to all UNIX platforms.

The following configuration scripts are required only on the application server.

About UNIX Config Files for Your eaDirect Environment

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

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

Setting UNIX Environment Data with *edx_config*

`edx_config` prompts you to enter values for your Java and database installation, including absolute directory pathnames or user identification information. **You should run this script any time you need to modify your eaDirect environment.**

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

Use the *Quick Reference Appendix* to enter values for your platform for each of the specified parameters. You may want to print the *Environment Variables* sections for easy reference. You can accept the default values, if appropriate, or enter your own.

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 set environment data with *edx_config*:

1. Switch user to the application server owner, in this example **edxadmin**.

   ```
   su - edxadmin
   ```

2. Navigate to the **bin** directory for eaDirect on your application server, for example

   ```
   cd $EDX_HOME/bin
   ```

3. Run the script **edx_config**.

   ```
   ./edx_config
   ```

4. Enter values as prompted by the script, using the *Quick Reference Appendix*.

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

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

Passing UNIX Environment Data to WebLogic

Tip This section applies to all UNIX platforms supported by WebLogic.

To pass your eaDirect environment to your application server, you must edit your application server startup script to:

- set values for your eaDirect home, application server home, and Java home directories
- call and process the configuration script **`edx.config.`** This procedure is called **sourcing** your configuration.

Creation of application server domains changed from WebLogic 6.1 to WebLogic 7. WebLogic 6.1 creates a default domain during install, **`$WL_HOME/config/mydomain`**. WebLogic 7 creates only a default domain directory, the parent directory of **`$WL_HOME/user_projects`**, and each user must run the Domain Configuration Wizard to create a domain.

This guide uses default domain examples for WebLogic 6.1. WebLogic 7 users may use the Domain Configuration Wizard to create the domain **`$WL_HOME/config/mydomain`**, or replace these pathnames with a custom domain created by your system administrator.

Caution The code examples in this next procedure are for WebLogic 6.1 on Solaris. Domain configuration varies for WebLogic 7. Use these procedures with the environment variables for your application server and platform from the *Quick Reference Appendix*.

To pass your eaDirect environment to WebLogic:

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

   ```
   su - edxadmin
   ```

2. Stop your application server.

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

```
cd $WL_HOME/config/mydomain/startWebLogic.sh
vi startWebLogic.sh
```

4. In the **Set user-defined variables** section, define and export the environment variables for your edocs, Java, and application server home directories. For example:

```
WL_HOME= /export/home/bea/wlserver
export WL_HOME

JAVA_HOME=/export/home/bea/wlserver/jdk131
export JAVA_HOME

EDX_HOME=/opt/EDCSbd
export EDX_HOME
```

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

5. In the **Set user-defined variables** section, optimize Java Options by increasing the memory allocated to the Java Virtual Machine (JVM) on the application server. For example:

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

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

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

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

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

You can also set the password variable (**`WLS_PW`** or **`WAS_PW`**) with the password specified during installation of your application server. This will stop the application server from prompting for a password at startup.

7. Save and close your application server startup script.

Passing UNIX Environment Data to WebSphere

This section applies to all UNIX platforms supported by WebSphere.

To pass your eaDirect environment to your application server, you must edit your application server startup script to:

- set values for your eaDirect home, application server home, and Java home directories
- call and process the configuration script **`edx.config.`** This procedure is called **sourcing** your configuration.

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

To pass your eaDirect environment to WebSphere:

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

   ```
   su - edxadmin
   ```

2. Stop your application server.

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

   ```
   cd $WAS_HOME/bin
   vi startupServer.sh
   ```

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

```
# !/bin/ksh
binDir=`dirname $0`
. $binDir/setupCmdLine.sh

WAS_HOME=/opt/WebSphere/AppServer/
export WAS_HOME
EDX_HOME=/export/home/EDCSbd/
export EDX_HOME
```

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

```
. $EDX_HOME/config/edx.config
 ${JAVA_EXE?}\
 -classpath $WAS_HOME/lib/bootstrap.jar:$CLASSPATH\
 -Dws.ext.dirs=$WAS_EXT_DIRS\
 -Djavax.rmi.CORBA.UtilClass=com.ibm.CORBA.iiop.Util\
 -Dcom.ibm.CORBA.iiop.noLocalCopies=true\
 -DDER_DRIVER_PATH=$DER_DRIVER_PATH\
 -Dserver.root=$WAS_HOME\
 -Xbootclasspath/a:$JAVA_HOME/jre/lib/ext/ibmorb.jar\
 com.ibm.ws.bootstrap.WSLauncher\
 com.ibm.ejs.sm.util.process.Nanny
$WAS_HOME/bin/admin.config
```

The block of code in the sample above is similar to another block of code that appears in **startupServer.sh**. Modify the block that begins below the line: **if ["${DB_TYPE}" != "ORACLE"]**.

6. Save and close **startupServer.sh**.

7. Open the **admin.config** file and add the following line:

```
com.ibm.ejs.sm.adminServer.bootstrapPort=1025
```

   The **port** value is usually 1025 or higher.

8. Save and close the file.

Windows Environment Variables for your Application Server

This section applies to all Windows platforms.

About Windows Config Files for Your eaDirect Environment

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

- **`edx_env.bat:`** This configuration file, **`%EDX_HOME%\config\edx_env.bat`**, stores environment variables to pass at application server startup.
- **`edx_bcp.config.bat:`** This configuration file, **`%EDX_HOME%\config\edx_bcp.config.bat`**, stores database Java options to pass at application server startup.
- **`edx.config.bat:`** This shell script, **`%EDX_HOME%\bin\edx.config.bat`**, passes the environment data in **`edx_env.bat`** and **`edx_bcp.config.bat`** to your application server through your startup script.

Setting Windows Environment Data with *edx_env.bat* and *edx_bcp.config.bat*

You must edit the configuration file **`edx_env.bat`** to set values for your eaDirect home, application server home, and Java home directories.

You must also edit the configuration file **`edx_ bcp.config.bat`** to set values for your database user, password, and server name. This file is called in turn by **`edx_env.bat`**.

Use the *Quick Reference Appendix* to enter application server environment variables for your platform for each of the specified parameters. You may want to print the *Environment Variables* sections for easy reference. You can accept the default values, if appropriate, or enter your own.

The following procedure shows example variables for **WebLogic** on **Windows**. Application server administrators on other platforms should consult the *Quick Reference Appendix* for appropriate variables. For example, WebSphere requires **$WAS_HOME** instead of **$WL_HOME,** and requires **$JMS_HOME** for MQSeries.

To edit Windows environment data with *edx_env.bat*:

1. Navigate to **%EDX_HOME%\config** and open **edx_env.bat**.
2. Modify the default settings to reflect your eaDirect environment. For example:

```
@rem define EDX_HOME
@set EDX_HOME=C:\EDCSbd
@rem define EDX_HOME

@rem define WL_HOME
@set WL_HOME=C:\bea\wlserver\
@rem define WL_HOME

@rem define JAVA_HOME
@set JAVA_HOME=C:\ bea\wlserver\JDK1.3.1
@rem define JAVA_HOME
```

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

3. Save and close the file.

The following procedure shows example variables for **WebLogic** on **Windows**. Application server administrators on other platforms should consult the *Quick Reference Appendix* for appropriate variables. For example, WebSphere requires **$WAS_HOME** instead of **$WL_HOME,** and requires **$JMS_HOME** for MQSeries.

To edit Windows Java Options with *edx_bcp.config.bat:*

1. Navigate to **%EDX_HOME%\config** and open **edx_bcp.config.bat.**
2. Modify the default settings for **com.edocs.tasks.loader** to reflect your database user, password, and server name. Use the settings for your database from the *Quick Reference Appendix*. For example (WebLogic on Windows):

```
@set JAVA_OPTIONS=%JAVA_OPTIONS%
-Dcom.edocs.tasks.loader.user=edx_dba
@set JAVA_OPTIONS=%JAVA_OPTIONS%
-Dcom.edocs.tasks.loader.password=edx
@set JAVA_OPTIONS=%JAVA_OPTIONS%
-Dcom.edocs.tasks.loader.alias=localhost
```

3. Save and close the file.

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

Passing Windows Environment Data to Your Application Server

Tip This section applies to all Windows platforms.

To pass your eaDirect environment to your application server, you must edit your application server startup script to:

- set values for your eaDirect home, application server home, and Java home directories
- call and process the configuration scripts **edx_env.bat** and **edx.config.bat.** This procedure is called **sourcing** your configuration.

Tip **edx_env.bat** calls **edx_ bcp.config.bat**, so you need not source this database config file directly in your startup script.

edocs recommends installing your application server as a Windows Service, and modifying the script that calls that service. The **`InstallNtService.cmd`** file is located in the **`\mydomain`** subdirectory of your application server home directory. Before editing **`InstallNtService.cmd`**, be sure to save a backup copy **in a different directory**.

The following procedure shows example variables for **WebLogic** on **Windows**. Application server administrators on other platforms should consult the *Quick Reference Appendix* for appropriate variables.

Example InstallNtService.cmd for WebLogic Server 6.1

Bold indicates text that you should add or change from the default.

```
@echo off
SETLOCAL

cd C:\bea\wlserver\config\mydomain

@set EDX_HOME=C:\EDCSbd
@call %EDX_HOME%\config\edx_env.bat

rem *** Set Classpath to load Weblogic Classes

set
CLASSPATH=.;C:\bea\wlserver\lib\weblogic_sp.jar;C:\bea\w
lserver\lib\weblogic.jar

@call %EDX_HOME%\config\edx.config.bat

rem *** Set Command Line for service to execute

rem *** %JAVA_HOME%\java will automatically be
prepended.

set CMDLINE="%JAVA_OPTIONS% -classpath \"%CLASSPATH%\"
-Dweblogic.Domain=mydomain -Dweblogic.Name=myserver
-Djava.security.policy==\"C:\bea\wlserver/lib/weblogic.p
olicy\" -Dbea.home=\"C:\bea\" weblogic.Server"

rem *** Install the service

"C:\bea\wlserver\bin\beasvc" -install -svcname:myserver
-javahome:"%JAVA_HOME%" -execdir:"C:\bea\wlserver"
-extrapath:"C:\bea\wlserver\bin;C:\EDCSbd\lib"
-cmdline:%CMDLINE% -password:change_on_install

ENDLOCAL
```

To pass your environment data to WebLogic as a Windows Service:

1. Navigate to the **\config\mydomain** subdirectory of your application server home directory.
2. Open **InstallNtService.cmd** by right clicking on its name, and selecting **Edit**.
3. **SETLOCAL:** set your eaDirect home directory and call your eaDirect environment script, **edx_env.bat**. See the example above.
4. **Set Classpath to load WebLogic Classes:** after the CLASSPATH settings, call your eaDirect configuration script, **edx_config.bat**. See the example above. This file in turn calls **edx_bcp.config.bat**, which includes your database settings.
5. **Set Command Line:** replace the original settings **-ms64m –mx64m** with the variable **%JAVA_OPTIONS%.** See the example above.
6. **Install the service:** in the **-svcname:** setting, change the name of your server if necessary. The default service name is **myserver**.
7. **Install the service:** change the default JDK home directory to the variable **%JAVA_HOME%.** See the example above.

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

8. **Install the service:** add your eaDirect **\lib** directory to the **-extrapath** setting. See the example above.
9. **Install the service:** after the **%CMDLINE%** setting, set your application server password with the **-password** command. See the example above.
10. Save and close the file.

Troubleshooting Tips for WebLogic on Windows

If the WebLogic service is unable to find *edx_bcp.config.bat* at startup:

Add the path **`-extrapath:C:\bea\wlserver\bin;%PATH%`** to **`installNtService.cmd`** (substituting your drive where necessary):

```
"C:\bea\wlserver\bin\beasvc" -install -svcname:myserver
-javahome:"%JAVA_HOME%" -execdir:"C:\bea\wlserver"
-extrapath:"C:\bea\wlserver\bin;%PATH%" -cmdline:%CMDLINE%
-password:lovelyday
```

If you encounter problems when running customized Web pages:

1. From your domain in the WebLogic Server Console, select **`Servers`** and **`myserver`** A tabbed dialog with the name of your server appears in the right pane.
2. On the Configuration/Compilers tab, change the Java Compiler value from the default **`javac`** to the location of **`javac`** in the JDK installed **with your application server**. See the Quick Reference Appendix for JDK requirements on your platform.
3. Restart WebLogic Server.

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

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 process and restart WebLogic.

Configuring Java Database Connectivity (JDBC) for eaDirect

This section applies to all platforms.

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

JDBC properties vary by both application and database server. Use the *Quick Reference Appendix* to select the properties for your combination:

- WebLogic for SQL Server (Windows)
- WebLogic for Oracle (Solaris and HP-UX)
- WebSphere for Oracle (Solaris)
- WebSphere for DB2 (AIX)
- WebSphere for SQL Server (Windows)

About JDBC Connections for eaDirect

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

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

eaDirect requires three sets of **JDBC Connection Pools** and related **JDBC Transaction (Tx) Data Sources**:

- **edxAdmin** supports the Command Center through the eaDirect web application
- **edxLogger** supports eaDirect logging through the eaDirect web application
- **edxUser** supports user data retrieval through custom web applications

Use the *Quick Reference Appendix* **JDBC Connections** settings for your application server to configure each connection pool.

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

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

The basic steps are the same for either application server. Use the appropriate JDBC values for your application and database server. For details on how to create and configure JDBC Connections, please see your application server documentation.

You will create three sets of JDBC connection pools and three sets of transaction datasources. Their names are specific to edocs across all platforms, but **JDBC properties vary by both application and database server**. Use the *Quick Reference Appendix* to select the application server properties for your combination of application server properties (WebLogic or WebSphere) and database server properties (Oracle, DB2 or SQL Server).

You will be entering the same information six times: one connection pool and one Tx data source each for **`Admin`**, **`User`**, and **`Logger`**. Make sure you have chosen the correct properties for your application server and database server, and that each datasource and its properties maps to the connection pool of the same name.

WebLogic and WebSphere properties look similar, with minor differences in property names (Driver Classname for WebLogic, Implementation Class for WebSphere, &c). Make sure you are using the correct properties for your application server and database combination.

Configuring JDBC Connections for WebLogic

To configure JDBC Connections for WebLogic:

1. Create a JDBC Connection Pool each for **edxAdmin**, **edxLogger**, and **edxUser**. Use the appropriate JDBC values for your database server.
2. Create a JDBC Transaction (Tx) Data Source each for **edxAdmin**, **edxLogger**, and **edxUser**. Use the appropriate JDBC values for your database server.
3. Review your connections. Each data source should target the connection pool of the same name (**Admin**, **User**, or **Logger**).
4. Remember to move the Targets-Server from **Available** to **Chosen** for each data source as you configure it.
5. When you are finished, proceed to Configuring Java Messaging Services (JMS) for eaDirect.

Configuring JDBC Connections for WebSphere

To configure JDBC Connections for WebSphere:

1. Create a JDBC Connection Pool each for **edxAdmin**, **edxLogger**, and **edxUser**. Use the appropriate JDBC values for your database server.
2. Create a JDBC Transaction (Tx) Data Source each for **edxAdmin**, **edxLogger**, and **edxUser**. Use the appropriate JDBC values for your database server.

1. Review your connections. Each data source should target the connection pool of the same name (**Admin**, **User**, or **Logger**).
2. When you are finished, proceed to Configuring Java Messaging Services (JMS) for eaDirect.

Configuring Java Messaging Services (JMS) for eaDirect

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

- **edxAnnotation** supports Line Item Dispute and Annotation features
- **edxDispute** supports Line Item Dispute and Annotation features
- **edxLogger** supports eaDirect logging through the eaDirect web application

  edxLogger requires **five** JMS consumers and session pools.

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

Use the *Quick Reference Appendix* **JMS Resources** settings for your application server to configure each set of JMS resources.

About JMS Resources for eaDirect

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

- **JMS Connection Factories** are data objects that enable Java Messaging Service (JMS) clients to create JMS connections. You define and configure one or more connection factories to create connections with predefined attributes. Your application server adds the connection factories to the JNDI space during startup, and each J2EE web application retrieves a connection factory using the JNDI on the application server.
- **JMS Stores** store persistent messages in a database accessed through a designated JDBC connection pool. The JMS database can be any database that is accessible through a WebLogic-supported JDBC driver. When creating a JMS Store, you must define the name of the **backing store**, and the **JDBC connection pool** and **database table name prefix** for use with multiple instances

- **JMS Servers** manage connections and message requests on behalf of clients.
- **JMS Topics** can be one of two destinations that you can configure for a JMS server. The other destination is a JMS queue. WebLogic Server allows you to configure one or more destinations for the JMS server. You can configure destinations explicitly or with a **destination template** (useful for multiple destinations with similar attribute values).
- **JMS Session Pools** allow a JMS listener (called a **Consumer** in WebLogic) to have multiple threads that will improve performance under heavy load. Each JMS consumer requires its own session pool.

Configuring JMS Resources for WebLogic

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

Use the JMS settings in the *Quick Reference Appendix* to configure JMS settings for your application server. For general information about configuring Java resources for WebLogic, see WebLogic Server documentation at http://bea.com.

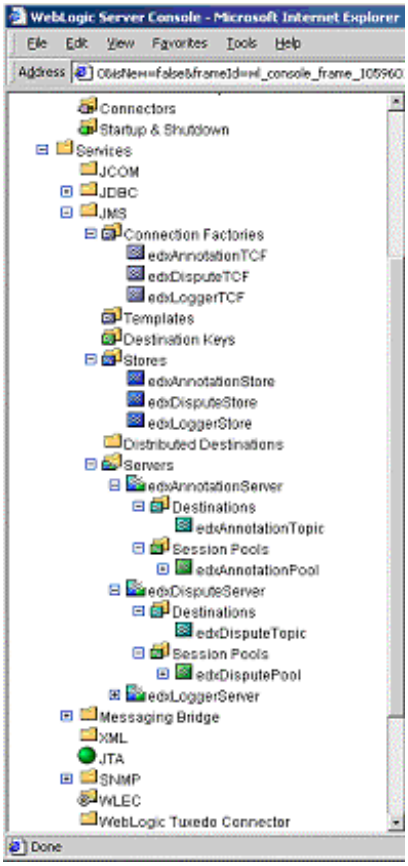
If your web application does not use Line Item Dispute and Annotation, you need only configure JMS for edxLogger.

To configure JMS for WebLogic:

1. Create one JMS Connection Factory each for **`edxAnnotation`**, **`edxDispute`**, and **`edxLogger`**.
2. Create one JMS Store each for each for **`edxAnnotation`**, **`edxDispute`**, and **`edxLogger`**.
3. Create one JMS Server each for each for **`edxAnnotation`**, **`edxDispute`**, and **`edxLogger`**.
4. Create one JMS Topic each for the JMS servers of each for **`edxAnnotation`**, **`edxDispute`**, and **`edxLogger`**.

5. Create one JMS Session Pool each for **`edxAnnotation`** and **`edxDispute`**.
6. Create one JMS Consumer each for **`edxAnnotation`** and **`edxDispute`**.
7. Create FIVE session pools and consumers for **`edxLogger`** as listed.

When you have finished, your administrative console should look like this.



Configuring JMS for WebSphere with MQSeries

WebSphere uses the third-party tools **JMSAdmin** and **MQSeries** to configure and administer JMS. edocs JMS settings for **`adxAdmin`**, **`edxLogger`**, and **`edxUser`** are configured through the shell script **`edx_mqm_config`** installed with eaDirect.

JMS for WebSphere requires several components of third-party software. Check your eaDirect System Requirements to ensure you have the correct versions, patches, and JDK for MQSeries on your platform.

JMSAdmin is the WebSphere Java Message Service Administration Tool to administer JMS objects such as connection factories, queues, and topics, binding them to a JNDI name space. **`JMSAdmin.exe`** is the command-line executable file.

MQSeries is a third-party tool to configure JMS. **`JMSAdmin.config`** is the default configuration file for the MQSeries Classes for JMSAdmin.

- **MQSeries 5.2 with CSD06**. For information about installing MQSeries 5.2, see **`book/pdf/en_US/amqdac03`** on the MQSeries 5.2 installation CD-ROM.
- **MA0C** (MQSeries Publish and Subscribe package version 1.0.6). For more information, see http://www-3.ibm.com/software/ts/mqseries/txppacs/ma0c.html.
- **MQSeries for Java 5.2** (MA88 1.1.4). For more information, http://www-3.ibm.com/software/ts/mqseries/txppacs/ma0c.html.

To configure JMS for WebSphere (overview):

1. Configure the **`JMSAdmin`** executable for your eaDirect environment.
2. Configure the **`JMSAdmin.config`** settings for your eaDirect environment.
3. Create an MQSeries queue manager for eaDirect.
4. Verify that the MQSeries Publish/Subscribe broker is installed and running properly.

5. Configure the JMS connection factory and destinations with **`edx_mqm_config`**.

The following topics describe each step in detail.

These examples are for UNIX. Windows users should use the appropriate pathnames for your installation.

To configure JMSAdmin:

1. Switch user to the MQSeries owner, in this example **`edxadmin`**.

   ```
   su - edxadmin
   ```

2. Make the owner of your application server and eaDirect home directories a member of the **`mqm`** group.

3. Change directory to the Java home directory of your MQM Series installation, for example:

   ```
   cd /opt/mqm/java/bin
   ```

4. Open the executable **`JMSAdmin`** (not **`JMSAdmin.config`**) in a text editor. For example:

   ```
   vi JMSAdmin
   ```

5. Add the following code to the end of the file. All code following the PATH statement must be **on a single line**. Use the *Quick Reference Appendix* to edit the application server environment variables **`WAS_HOME`** and **`MQ_JAVA`** for your platform.

   ```
   WAS_HOME=/usr/WebSphere/AppServer
   MQ_JAVA_INSTALL_PATH=/usr/mqm/java
   PATH=$PATH:/usr/WebSphere/AppServer/java/jre/lib/ext
   export MQ_JAVA_INSTALL_PATH PATH WAS_HOME
   java -DMQJMS_LOG_DIR=$MQ_JAVA_INSTALL_PATH/log
   -DMQJMS_TRACE_DIR=$MQ_JAVA_INSTALL_PATH/trace
   -DMQJMS_INSTALL_PATH=$MQ_JAVA_INSTALL_PATH
   -Djava.ext.dirs=$MQ_JAVA_INSTALL_PATH/lib:$WAS_HOME/java
   /jre/lib/ext:$WAS_HOME/lib com.ibm.mq.jms.admin.JMSAdmin
   $*
   ```

6. Save and close the file.

To configure JMSAdmin.config:

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

   ```
   su - edxadmin
   ```

2. Change directory to the Java home directory of your MQM Series installation, for example:

   ```
   cd /opt/mqm/java/bin
   ```

3. Change directory to the Java home directory of your MQM Series installation, for example:

   ```
   cd /opt/mqm/java/bin
   ```

4. Open **JMSAdmin.config** (not the executable **JMSAdmin**) in a text editor. For example:

   ```
   vi JMSAdmin.config
   ```

5. From the list of JNDI service providers, **un**comment (remove **#**) the setting:

   ```
   INITIAL_CONTEXT_FACTORY=com.ibm.websphere.naming.WsnInitial
   ContextFactory
   ```

6. From the list of JNDI service providers, comment (**#**) the setting:

   ```
   INITIAL_CONTEXT_FACTORY=com.ibm.ejs.ns.jndi.CNInitialCon
   textFactory
   ```

7. From the list of URLs for JNDI service providers, **un**comment (remove **#**) the following setting and edit it for your application server and port:

   ```
   PROVIDER_URL=iiop://localhost:1025
   ```

Port 1025 is the default admin port for the administration server. You can specify another port number if necessary, but it must match the port for the admin server.

8. Make sure that no other settings are uncommented for a JNDI service provider and URL.

9. Save and close the file.

To create, start, and stop an MQSeries Queue Manager:

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

   ```
   su - edxadmin
   ```

2. Change directory to the Java home directory of your MQM Series installation, for example:

   ```
   cd /opt/mqm/java/bin
   ```

3. Create a queue manager called **edxQueueManager** using the **crtmqm** command:

   ```
   crtmqm –u SYSTEM.DEAD.LETTER.QUEUE edxQueueManager
   ```

4. Start the queue manager using the **strmqm** command:

   ```
   strmqm edxQueueManager
   ```

5. Verify that edxQueueManager is running using the **dspmqm** command:

   ```
   dspmqbrk –m edxQueueManager
   ```

6. If edxQueueManager is listed with a status of *Ended*, start it using the **strmqm** command.

7. You can stop the edxQueueManager using the **endmqm** command.

   ```
   endmqm edxQueueManager
   ```

To verify the MQSeries Publish/Subscribe broker:

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

   ```
   su - edxadmin
   ```

2. Change directory to the Java home directory of your MQM Series installation, for example:

   ```
   cd /opt/mqm/java/bin
   ```

3. Make sure that you have the pathname $JMS_HOME/bin in your PATH.

4. Verify that edxQueueManager is running using the **dspmqm** command:

   ```
   dspmqbrk –m edxQueueManager
   ```

5. If you receive an error message that the operating system cannot run the **dspmqbrk** command, confirm that the MQSeries Publish/Subscribe broker is installed properly, and that **$JMS_HOME/bin** in included in the system PATH setting.

6. If the operating system reports that the broker is unavailable (or inactive), start it using the following command:

   ```
   strmqbrk –m edxQueueManager
   ```

7. Run the following command to verify that the broker has been installed and is running:

   ```
   dspmqbrk –m edxQueueManager
   ```

8. If the broker is running, you should see a message similar to the following:

   ```
   MQSeries message broker for queue manager
   edxQueueManager running
   ```

9. Change directory to **$JMS_HOME/java/bin**, and create the MQ JMS System queues by running the following command:

   ```
   runmqsc edxQueueManager < MQJMS_PSQ.mqsc
   ```

To configure JMS topics and destinations with edx_mqm_config:

1. Start your application server if it is not already running.

2. Change directory to **$JMS_HOME/java/bin**.

3. Define and export the appropriate value for **EDX_HOME**, for example:

   ```
   EDX_HOME=/opt/EDCSbd; export EDX_HOME
   ```

4. Then run the following command to configure the JMS topics:

   ```
   $EDX_HOME/bin/edx_mqm_config
   ```

If your MQSeries server is on a remote machine, see the IBM MQSeries documentation for the appropriate configuration.

Windows Services for eaDirect

This section applies to all Windows platforms.

Installing WebLogic Server as a Windows Service

Once you have edited your startup script, you can install WebLogic Server as a Windows Service so that your eaDirect application server starts up automatically.

If you are upgrading from a version before 3.x. you will need to uninstall and then reinstall the WebLogic Service to include the new classpath (**`edx_common.jar`**). You should also delete the Logger service if you had installed it.

To install WebLogic Server as a Windows Service:

1. Open a Command Prompt window, and navigate to the directory containing your modified install command. For example:

   ```
   cd C:\bea\wlserver\config\mydomain
   ```

2. Run **`installNtService.cmd`** to install your server as a Windows Service.

   ```
   C:\> installNtService.cmd
   ```

3. If installation is successful, you will see a confirmation message. Close the command prompt window.

Installing WebSphere Server as a Windows Service

WebSphere uses the command-line utility **`itim.cmd`** to manage startup and shutdown. This command is part of the IBM Tivoli Identity Manager (ITIM) for WebSphere. If you use the **`itim.cmd`** command-line arguments **`start`** and **`stop`**, the server process will stop when you log out of the system. Starting WebSphere as a Windows Service will keep the server running whether or not the admin user is authenticated to Windows.

To install WebSphere Server as a Windows Service:

1. Open a Command Prompt window, and navigate to the Services directory of your WebSphere installation, for example:

   ```
   cd C:\WebSphere\AppServer\WASService
   ```

2. Enter the following command to install your server as a Windows Service.

   ```
   C:\> -add "IBM WAS for ITIM"
   ```

3. Close the command prompt window.

Installing the eaDirect Scheduler as a Windows Service

After all eaSuite 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 install the Scheduler as a Windows Service, you must modify the Scheduler template file **`SCH.txt`**, installed to the **`bin`** directory for eaDirect.

To install the Scheduler as a Windows Service:

1. Navigate to the **`bin`** directory for eaDirect, or **`%EDX_HOME%\bin`**.

2. Open the Scheduler template file **`SCH.txt`** and modify the Java classpath to reflect your active Java environment. For example:

   ```
   classpath=c:\jdk131\lib\tools.jar;c:\bea\wlserver\lib\we
   blogic.jar;c:\EDCSbd\lib\edx_client.jar;c:\EDCSbd\lib\ed
   x_common.jar
   ```

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

3. Confirm that the following line of code is present in the file for your host and port:

   ```
   -Djava.naming.provider.url=t3://localhost:7001
   ```

4. If you want the Scheduler to log information to a file rather than to the console, add the following value in **SCH.txt**:

   ```
   -Dcom.edocs.pwc.debug=true <scheduler_logfile>
   ```

5. Confirm that all the directory references in **SCH.txt** are correct.

6. Save and close **SCH.txt**.

Tip If you have a 2.x or earlier version of the Scheduler installed as a Windows service, you must remove it before installing the new version of the Scheduler.

7. Open a command window, and then change directory to **%EDX_HOME%\bin**. Use the **install** command to install the Scheduler as a Windows Service, for example:

   ```
   C:\> Schedulersvc -install C:\EDCSbd\bin\SCH.txt
   ```

8. If the Scheduler service is installed successfully, a confirmation message appears.

Installing the eaDirect Logger as a Windows Service

Tip This section applies to WebSphere deployments only. WebLogic deployments do not use the eaDirect Logger.

To install the eaDirect Logger as a Windows service:

1. Navigate to the **bin** directory for eaDirect, or **%EDX_HOME%\bin**.

2. Open the Logger script file **LGR.txt** and modify the Java classpath information to reflect the current environment. For example:

   ```
   classpath=c:\jdk1.3.1\lib\tools.jar;c:\bea\wlserver\lib\
   weblogic.jar;c:\edcsbd\lib\edx_client.jar;c:\edcsbd\lib\
   edx_common.jar
   ```

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

3. Confirm that the following line of code is present in the file for your host and port:

   ```
   -Djava.naming.provider.url=t3://localhost:9080
   ```

4. Confirm that all the directory references in **LGR.txt** are correct.

5. Save and close **LGR.txt**.

6. Open a command window, and then change directory to **%EDX_HOME%\bin**. Use the **install** command to install the Logger as a Windows Service, for example:

   ```
   C:\> Loggersvc -install C:\EDCSbd\bin\LGR.txt
   ```

7. If the Logger service is installed successfully, a confirmation message appears.

Starting the Scheduler and Logger

Starting the eaDirect Scheduler

This section applies to all platforms. Use the appropriate procedure.

You may start the Scheduler from a command line, or as a Windows service.

To start the eaDirect Scheduler from the UNIX command line:

1. Switch user to the application server owner.

   ```
   su - edxadmin
   ```

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

3. Run the Scheduler command for your application server (**wl_scheduler** or **ws_scheduler**), host, and port. This example shows the Scheduler command for WebSphere:

```
./ws_scheduler –start -url iiop://localhost:1025
```

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.

To start the Scheduler from a Windows command prompt:

1. Open a command prompt window and change directory to the **bin** directory of your eaDirect installation, **%EDX_HOME%\bin**.

2. Run the Scheduler command for your application server (**wl_scheduler** or **ws_scheduler**), host, and port. This example shows the Scheduler command for WebLogic:

```
C:\> wl_scheduler –start –url t3://localhost:7001
```

3. If the Scheduler starts successfully, a start-up message with the name of the log file appears in the command prompt window. **Do not close this window while eaDirect is running,** as closing it will stop the Scheduler. A log file is created in **%EDX_HOME%\Logs**.

4. You can stop the Scheduler by replacing the **-start** parameter with the **-stop** parameter, or simply by closing the command prompt window.

To start the eaDirect Scheduler as a Windows Service:

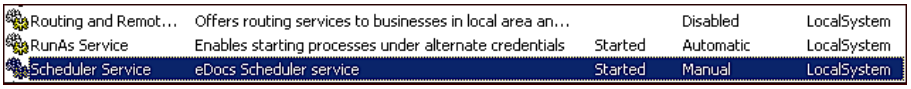
1. Install the Scheduler as a Windows Service if you have not already done so.

2. Start your application server if it is not already running.

3. From the Start menu, select **Settings**>**Control Panel**.

4. Double-click **Administrative Tools**, then double-click **Services**.

5. Right-click **Scheduler Service** and select **Start**. You may also click the Start icon.



6. To start the Scheduler automatically at startup, right-click the service and select **Properties**. From the Startup Type menu, select **Automatic**.

Starting the eaDirect Logger

Tip This section applies to all platforms, for **WebSphere** deployments only. WebLogic deployments do not use the eaDirect Logger.

Starting the eaDirect Logger is optional for **WebSphere** administrators. If you choose to generate log files for jobs being run in the Command Center, eaDirect copies all log files to **`%EDX_HOME\logs`**. The log files are presented in text format.

You may start the Logger from a command line, or as a Windows service.

To start the eaDirect Logger from the UNIX command line:

1. Switch user to the application server owner.
2. Change directory to the **`bin`** directory of your eaDirect installation, **`$EDX_HOME/bin.`**
3. Run the Logger command for your application server (**`ws_logger`**), host, and port. This example shows the Logger command for WebSphere:

```
./ws_logger -start -url iiop://localhost:1025
```

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 Logger by replacing the **`-start`** parameter with the **`-stop`** parameter.

To start the eaDirect Logger from a Windows command prompt:

1. Open a command prompt window and change directory to the **`bin`** directory of your eaDirect installation, **`%EDX_HOME%\bin`**.

2. Run the Logger command for your application server (**`ws_logger`**), host, and port. This example shows the Logger command for WebSphere:

   ```
   C:\> ws_logger –start –url iiop://localhost:900
   ```

3. If the Logger starts successfully, a start-up message with the name of the log file appears in the command prompt window. **Do not close this window while eaDirect is running,** as closing it will stop the Logger. A log file is created in **`%EDX_HOME%\Logs`**.

4. You can stop the Logger by replacing the **`-start`** parameter with the **`-stop`** parameter, or simply by closing the command prompt window.

To start the eaDirect Logger as a Windows Service:

1. Install the Logger as a Windows Service if you have not already done so.

2. Start your application server if it is not already running.

3. From the Start menu, select **Settings**>**Control Panel**.

4. Double-click **Administrative Tools**, then double-click **Services**.

5. Right-click **Logger Service** and select **Start**. You may also click the Start icon.

6. To start the Logger automatically at startup, right-click the service and select **Properties**. From the Startup Type menu, select **Automatic**.

Where to Go From Here

Once your application server is configured successfully, you may proceed to deploying the eaDirect J2EE applications that power the eaSuite. This requires customizing each web application's deployment code for your environment and platform. For details, see your application server documentation and *Deploying and Customizing J2EE Applications.*

for each web application to be deployed, WebSphere users will need to enter the system classpath for edocs JAR files **`edx_common.jar;edx_client.jar;edx_system.jar`**. For details, see *Deploying and Customizing J2EE Applications*.

Migrating To A New Version of eaDirect

5

Overview

This chapter provides instructions for migrating to a new version of eaDirect. This involves:

- backing up your existing database and checking logins and user objects
- migrating your eaDirect database
- checking for errors and resetting permissions after database migration
- Undeploying J2EE web applications and redeploying the new versions
- Migrating to a custom data source as necessary

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

Before Migrating Your eaDirect Database

Before migrating your database to a newer version of eaDirect, you should:

- Upgrade your database server software as necessary. Oracle 9i administrators should see the guide *Upgrading eaSuite 4.0 from Oracle8i to Oracle9i.*
- Make a full backup of your current database.
- Start the database instance for the database you are upgrading.
- Confirm that all login sessions using the eaDirect database user have logged out of the instance.

- Check the status of all user objects. If any of them indicate an INVALID status, contact the database administrator to correct this problem before migrating.
- Oracle users should have the password for user SYS available (the default is **`change_on_install`**).
- Undeploy any J2EE applications, including eaDirect and samples.

Migrating an Existing eaDirect Database for UNIX

This section applies to all UNIX platforms.

To migrate an existing eaDirect database to a newer version, UNIX administrators will use the database setup shell script **`edx_admin.sh.`** This script's main menu has a Database Version Migration option that lists available migration paths.

The following procedure shows example variables for the **DB2** database. Database administrators on other platforms should consult the *eaDirect* *Quick Reference Appendix* for appropriate variables.

To migrate an eaDirect database for UNIX:

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

   ```
   su - db2inst1
   ```

2. Change directory to the database directory of your edocs installation. For example:

   ```
   cd /usr/EDCSbd/db/db2
   ```

3. Run **`edx_admin.sh`**. The edocs Server Administration Main Menu appears.

4. Select option 5, **`Database Version Migration`**.

```
edocs eaDirect Server Administration for DB2 Main Menu
 ------------------------------------------------------
 [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: 5
```

5. From the Database Version Migration menu, select the version you are migrating from and migrating to, for example **34xTo40**.

Be sure to select the correct version for your existing installation.

You will be prompted to enter the Database ID for the database, and your eaDirect database username and password.

6. Indicate whether you have already done a full backup of your database.

```
We strongly advise taking full backup of your existing
database before applying the migration

Do you have a backup (Y/N): Y
```

If you have not backed up your database, you are asked whether you want to continue the migration process.

```
Still continue with the migration (Y/N): N
```

7. Enter your choice to abort the migration process or continue. If **no**, you are returned to the Database Version Migration menu where you can select the option to return to the previous menu.

   If **yes**, migration begins. Select 'Q' to end the database migration session.

   If you choose to continue with the database migration, the migration script **migrate.sh** runs for your version upgrade.

```
**********************************************
Migration process started
**********************************************
```

8. Enter the number of partitions for the Index database table:

   ```
   Enter the partition count...([1|4|12] Default is 1)> 1
   ```

   For more information on partitioning, please see Using Database Partitioning with eaDirect.

9. You will see the message:

   ```
   This migration requires the creation of 2 new
   tablespaces!>
   Please enter valid paths and ensure at least 200mb disk
   space...>
   ```

   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:

   ```
   $DB2_HOME/edx_db2data
   ```

   However, if you plan to disperse the software over several disks (to possibly improve performance) the following pathnames might be more suitable:

Database Files	Suggested Mount Point
Stage data tablespace	**/u01/ edx_db2data**
Stage index data tablespace	**/u02/ edx_db2data**

   The configuration process checks the validity of the specified locations and displays a success message if no problems are encountered.

10. A successful database migration will display the message:

    ```
    Migration successful
    ```

11. The script will then prompt you to check your session log for errors.

    ```
    ***********************************************
    Please check the log file for any errors...
    Log filename: /usr/EDCSbd/db/db2/migrate0411100446.log
    ***********************************************
    Ending migration process
    ```

12. From the Database Version Migration menu, select **Return to previous menu (R)**.

13. From the edocs Server Administration Main Menu, select **`Quit (Q)`**.

Checking for Errors and Resetting Permissions

After you migrate a database from a previous release of eaDirect, you should:

- Check **`.log`** files for errors
- Reset permissions for edocs directories and files

Checking .log files for errors

After migrating an eaDirect database, you should check the following log files for errors:

- **`scan.log`**
- **`migrate<version>.log`**

In the context of migrating an eaDirect database, a **normal error** is one that does not cause the upgrade process to fail, such as trying to drop an object that does not exist. An **abnormal error** is one that can cause the database migration process to fail, which can have a cascading effect. A single abnormal error can lead to many other abnormal errors as the database migration process proceeds.

Although there is no easy way to differentiate between normal and abnormal errors, there is a way to check whether the database upgrade was successful. Typically, if the process does not flag invalid objects or there are no violations of referential constraints, then the operation was successful.

Resetting Permissions

After migrating your database, confirm that all the eaDirect directories, with the exception of the **`/db`** directory and its subdirectories, reflect the same directory and file ownership as that of the application server owner.

For database files and directories under **`$EDX_HOME`**, eaDirect uses the default owner and group permissions.

Updating a Changed Database Password for UNIX

If the database password for an existing database has changed, UNIX administrators can update your eaDirect environment with the application server script **`edx_config.`** Run this script **on your application server** using the instructions in Capturing UNIX Environment Data with edx_config. Enter your new password at the prompt.

Once the script has completed, check to see that the following files have been updated with your new password:

- **`edx_env`**
- **`edx_sqlldr.config`**
- **`ws_config.xml`** (WebSphere) or **`config.xml`** (WebLogic)
- JVM settings for system properties in your application server console

Migrating an Existing eaDirect Database for Windows

This section applies to all Windows platforms.

To migrate an eaDirect database for Windows:

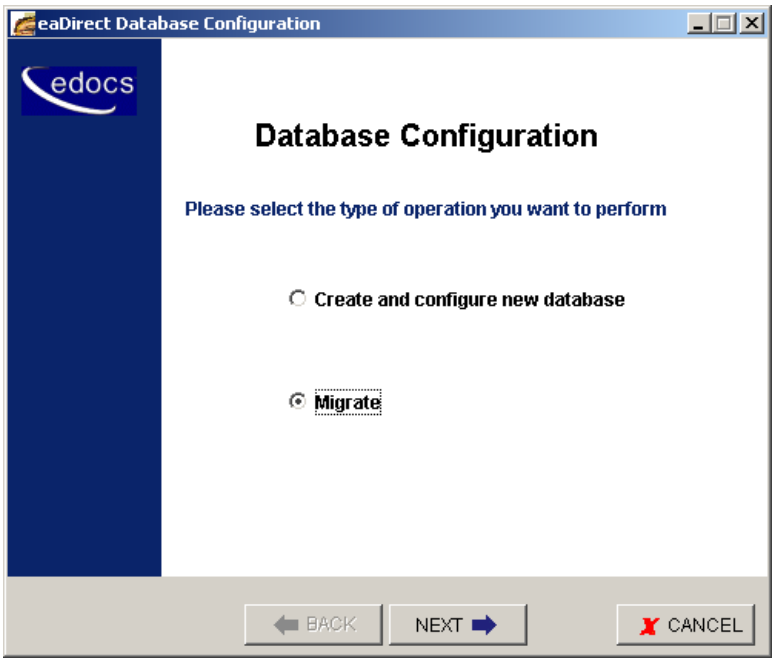
1. Open a command window and change directory to your database home directory, for example:

   ```
   cd %EDX_HOME%\db\mssql
   ```

2. Run the Java database creation and configuration tool, **`DBConfigTool.jar`**.

   ```
   C:\> java –jar DBConfigTool.jar
   ```

3. The Database Configuration screen appears. Click **`Migrate`**, and then click **`Next`**.

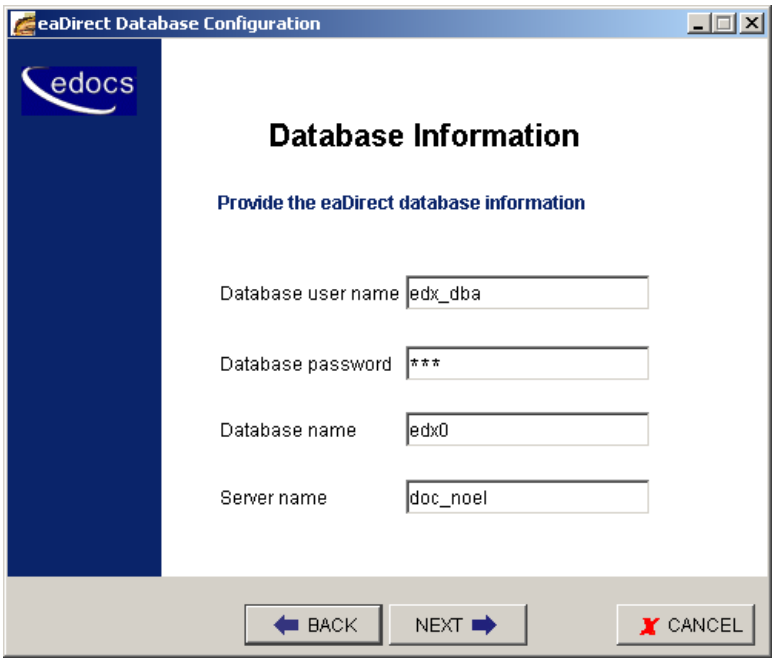


The Database version migration screen appears.

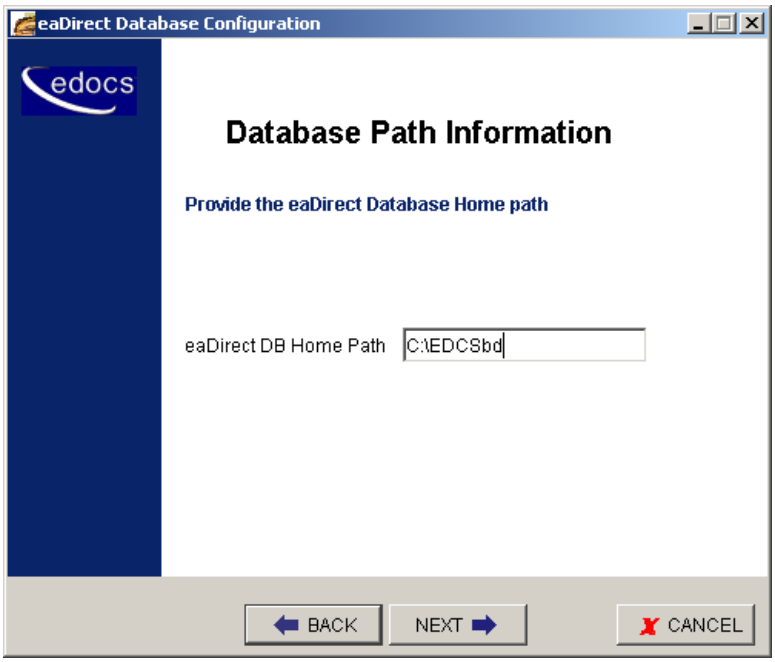
4. Read the information concerning version migration, and then click **`Next`**.

The Database Information screen appears.

5. Enter your database user name, password, database name, and the name of the machine on which the database resides. For example:



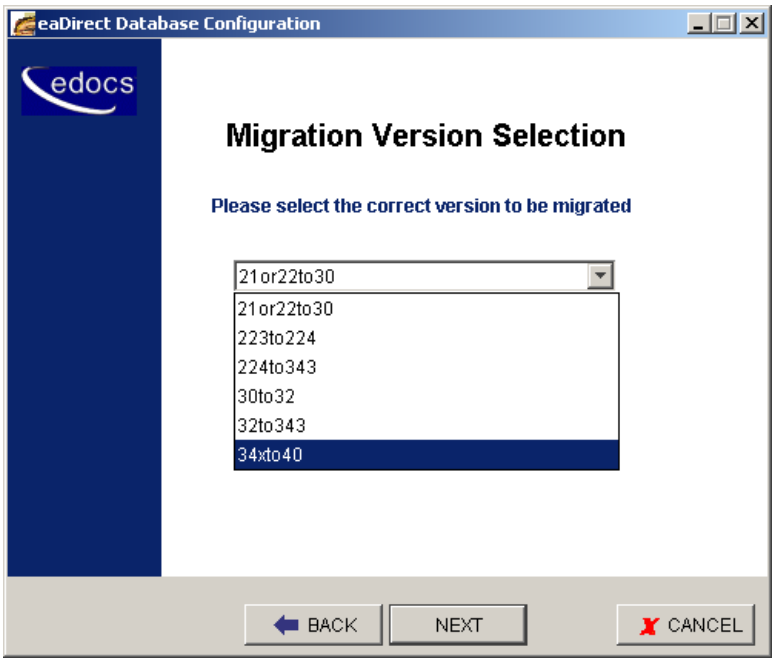
6. Click **Next**. The Database Path Information screen appears.
7. Enter the pathname to the eaDirect installation directory, and then click **Next**.



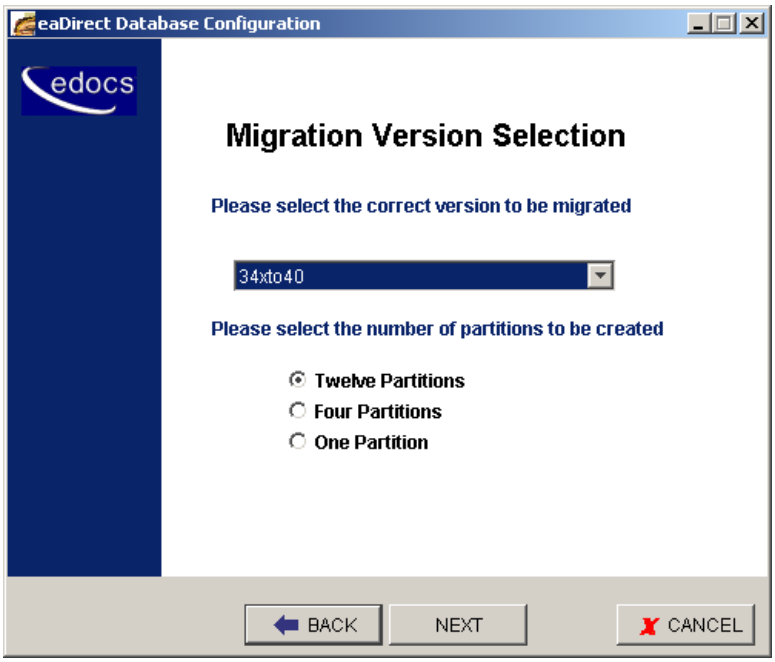
The Migration Version Selection screen appears.

8. Select the version of the database you want to migrate from the drop-down menu, and then click **Next**.

Tip	The number of tables you need is dependent on your database platform and the anticipated volume of data. For an Oracle database, we recommend you create one index table and use Oracle's native table partitioning functionality. For DB2 and SQLServer, we recommend using 4 or 12 index tables for quarterly or monthly index tables.

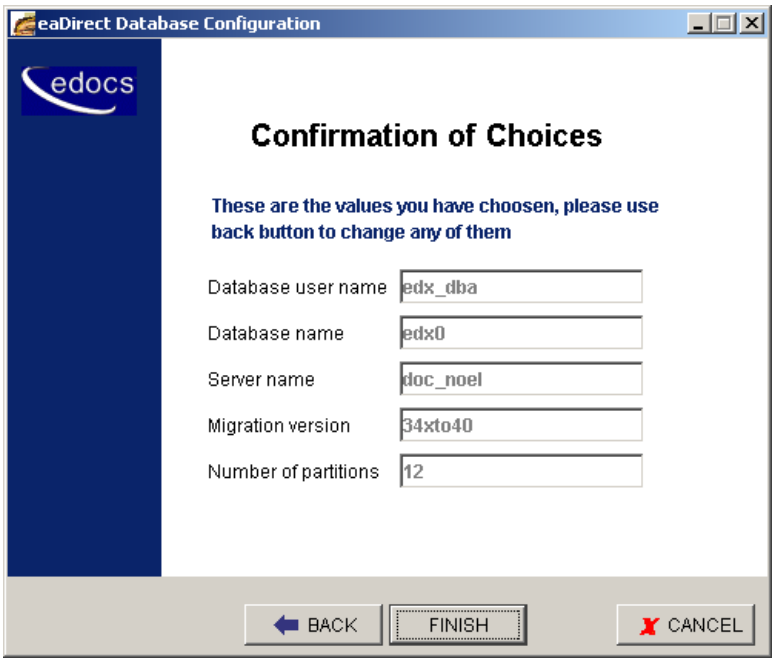


The Partition Selection screen appears.

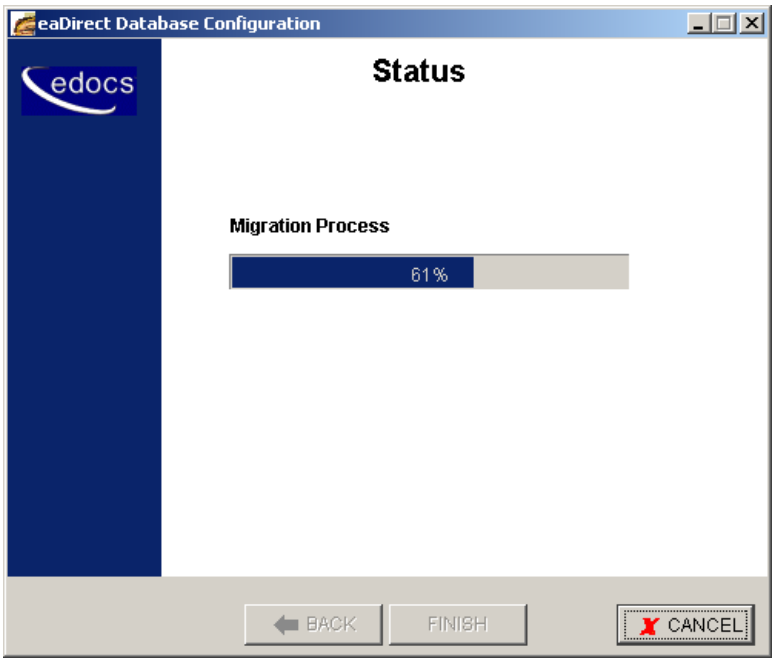


9. Select the number of partitions to create. For more information, see Using Database Partitioning with eaDirect.

   A confirmation screen appears.



10. Confirm your choices and click **Finish**. A Status screen appears showing the database being migrated.



11. A Success screen appears if the database migration process completed without errors.

12. If a Failed screen appears, see What to Do If Database Configuration Fails.

Tip

When database migration completes, check the migration log files in your selected version subdirectory of **`%EDX_HOME%\db\mssql\migration\<version>\*.log`** to make sure that all the database tables were created, including tables for annotations and disputes.

Updating a Changed Database Password for Windows

If the database password for an existing database has changed, Windows administrators can update your eaDirect environment with the application server script **`edx_bcp.config.bat.`** Edit this script **on your application server** using the instructions in Editing Windows Environment Data with edx_env.bat and edx_bcp.config.bat to have the correct user, password and database alias. This file is then sourced at application server startup.

Migrating eaDirect Applications

When migrating to a new version of eaDirect, you must first undeploy J2EE applications running on your application server. Once you have migrated your database, you should then redeploy the new versions of each eaSuite web application, including eaDirect and samples. These sample applications provide examples of how to use the current features of eaDirect. You will need to:

- See the *Release Notes* for your version for important information about specific migration requirements and settings.
- See *What's New in eaDirect* for information about new features, and information about how to add support for those features to your application.
- See *Deploying and Customizing J2EE Applications* for information about the components that make up the J2EE and Web applications, and the procedures for recreating EAR and WAR files.
- Merge your custom code into the sample application, and rename it. For more information, see *Deploying and Customizing J2EE Applications*.
- Redeploy your custom application.

For more information on deployment, see the eaDirect guide to *Deploying and Customizing J2EE Applications.*

If you receive error messages when starting up your application server after migration, check to make sure you have undeployed all old versions of edocs J2EE web applications and redeployed the new versions. edocs does not recommend manually editing the **`config.xml`** files for deployment.

Migrating To a Custom Data Source EJB

eaDirect 3.4 and later versions allow you to specify a datasource EJB for each eaDirect application (DDN) you create in the Command Center. When creating an eaDirect application in the Command Center, a datasource refers to an EJB in your application (EAR file) that specifies summary information and location of your document data.

Please consult the Release Notes for information on migrating from one particular version to another, as migration may require several steps.

During database migration, the `edx_admin.sh` script maps DDNs to the default datasource **`edx/ejb/EdocsDataSource`**, packaged in **`ear-eadirect.ear.`** For more information about datasource mapping, see *What's New in eaDirect*.

To change the datasource value to point to a custom datasource, or to another datasource in a different deployed application, you can edit and run the SQL script **`update_data_source.sql`** on the database server. This script is located in the `/migration/32to34` subdirectory of the database directory in your eaDirect installation.

You do not need to run this script if you are using the default datasource.

You will need to edit **`update_data_source.sql`** to replace the placeholder values for datasource name and document definition name (DDN) with your own values. Since each DDN may now have its own datasource, you can copy and paste the update sequence for each DDN. Save and close **`update_data_source.sql`** and run this SQL script to update your DDNs.

Consult the Release Notes for your version and platform to locate the correct version of **`update_data_source.sql`.**

6 Uninstalling eaDirect

Overview

This chapter describes how to uninstall and remove eaDirect components, deployed J2EE applications, and Windows services.

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

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

Uninstalling eaDirect

Before uninstalling eaDirect components, you must:

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

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

To uninstall eaDirect:

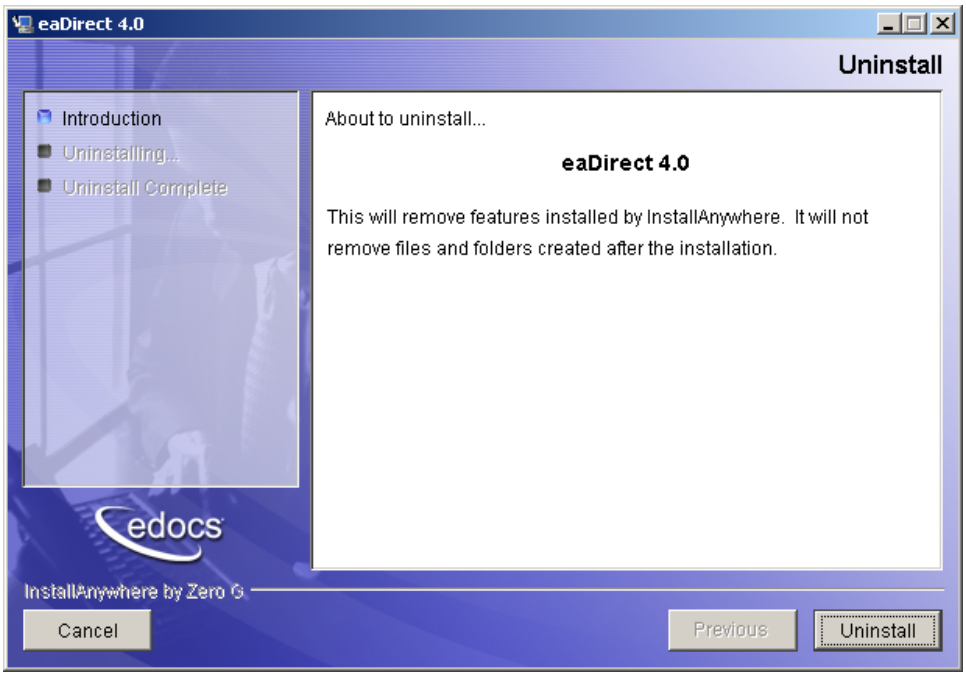
1. Navigate to your eaDirect home directory, **`$EDX_HOME.`**

2. UNIX users may launch the eaDirect Uninstaller with the command **`./Uninstall_eaDirect`**. The dot and slash are required, and there is no space after the slash.

   ```
   ./Uninstall_eaDirect
   ```

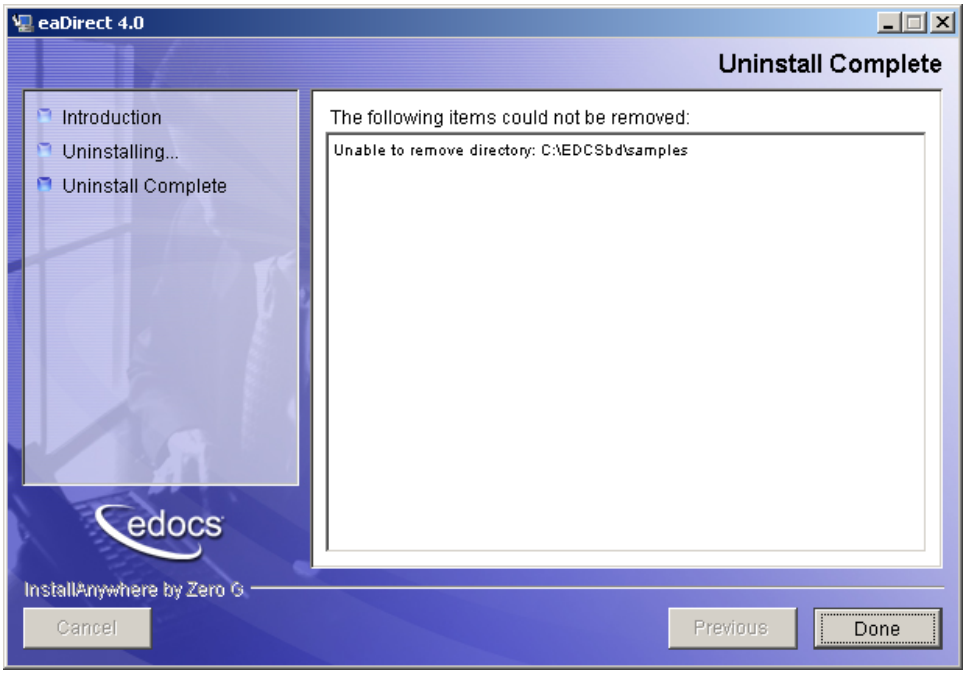
   Windows users may run the command-line script **`Uninstall_eaDirect.bat`**, or select **Start Menu>Programs>eaDirect>Uninstall eaDirect**.

3. The Uninstall screen appears.



4. Click **`Uninstall`**. A second uninstall screen appears showing eaDirect components being removed from your machine.

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



6. Change directory to your eaDirect home directory and manually remove any remaining files and directories as necessary.

7. Click **`Done`** to close the uninstaller.

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

Undeploying eaDirect J2EE Applications

When migrating to a new version of eaDirect, you must first undeploy J2EE applications running on your application server. Once you have migrated your database, you should then redeploy the new versions of each eaSuite web applications, including eaDirect and samples. For more information on deployment, see the eaDirect guide to *Deploying and Customizing J2EE Applications*.

WebSphere

To undeploy eaDirect J2EE applications from WebSphere:

1. Switch user to your application server owner.
2. Open your application server console. For instructions, see Starting and Stopping Your Application Server in an Active Production Environment.
3. Navigate to the J2EE application that you want to undeploy.
4. Open a command line window and navigate to the **`installedApps`** directory of your application server home directory.

   ```
   $WAS_HOME/installedApps
   ```

5. Manually remove the EAR file from the directory.
6. Navigate to **`$EDX_HOME/J2EEApps/websphere`**.
7. Manually remove the deployed EAR file from the directory.

Uninstalling Windows Services

This section applies to all Windows platforms.

Uninstalling WebLogic Server as a Windows Service

Uninstalling this Windows Service will require that you start and stop WebLogic Server from the command line or the administrative console.

To uninstall WebLogic Server as a Windows Service:

1. Open a Command Prompt window, and change directory to the **`domain`** directory of your application server home directory.

   ```
   C:\> cd %WL_HOME%\config\mydomain
   ```

2. Uninstall WebLogic Server as a Windows Service with the **`uninstallNtService`** command:

   ```
   C:\> uninstallNtService.cmd
   ```

   You do not have to specify the WebLogic service name on the command line, because it is named in **`uninstallNtService.com`**.

Uninstalling the eaDirect Scheduler as a Windows Service

Uninstalling this Windows Service will require that you start and stop the Scheduler from the command line.

To uninstall the Scheduler as a Windows Service:

1. Open a command prompt window, and change directory to the **`\bin`** directory of your EDCSbd home directory.

   ```
   C:\> cd %EDX_HOME%\bin
   ```

2. Uninstall the Scheduler as a Windows Service with the **`-remove`** command:

```
C:\> Schedulersvc -remove
```

Uninstalling the eaDirect Logger as a Windows Service

Uninstalling this Windows Service will require that you start and stop the Logger from the command line.

Tip This section applies to WebSphere deployments only. WebLogic deployments do not use the eaDirect Logger.

To uninstall the Logger as a Windows Service:

1. Open a command prompt window, and change directory to the **\bin** directory of your EDCSbd home directory.

   ```
   C:\> cd %EDX_HOME%\bin
   ```

2. Uninstall the Logger as a Windows Service with the **-remove** command:

   ```
   C:\> Loggersvc -remove
   ```

Appendix A: Quick Reference

Overview

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

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

eaDirect System Requirements

Solaris

OPERATING SYSTEM

- Sun Solaris 2.6 with patch 105591-16 **OR** Sun Solaris 8 with patches 108434-09 and 108435-09

HARDWARE

- CD-ROM
- disk space (database) 2.6 GB
- disk space (software) 60 MB
- Sun SPARC platform

- Swap space 512 MB per CPU (1 GB recommended)
- RAM 512 MB per CPU (1 GB recommended)

JAVA/C++

- Sun Java 2 SDK Standard Edition 1.3.1 (version shipped with WebLogic 6.1)
- Sun Java 2 SDK Standard Edition 1.3.1 (version shipped with WebLogic 7.0)
- IBM Java 2 SDK Standard Edition 1.3.1 (version shipped with WebSphere 4.0.6)
- Sun C++ runtime packages **`SUNWesu`** and **`SUNWlibC`**

SUPPORTED DATABASE SERVERS

Migrating from eaSuite 3.x

- Oracle 8i (Oracle 8.1.7)
- Oracle 8i client software (for application server)
- Oracle 8i JDBC driver

New installation of eaSuite 4.x

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

SUPPORTED APPLICATION SERVERS

- BEA WebLogic Server 6.1 SP4
- BEA WebLogic Server 7.0 SP2
- IBM WebSphere 4.0.6: **requires**
  - IBM MQSeries 5.2 with CSD06* **OR** IBM MQSeries 5.3.1**

  MQSeries 5.2** requires and includes MA0C (MQSeries Publish/Subscribe package ***Version 1.0.6) and MQSeries for Java ***V5.2*** to support JMS.

MQSeries 5.3.1 requires and includes MA0C (MQSeries Publish/Subscribe package ***Version 1.1***) and MQSeries for Java ***V5.3*** (Version 1.1.4) to support JMS.

SUPPORTED BROWSERS

- Netscape Navigator 6.2
- Microsoft Internet Explorer 5.5 SP2 or 6 (on networked PC)

AIX

OPERATING SYSTEM

- IBM AIX 4.3.3 Maintenance Level 10 **OR** IBM AIX 5.2

HARDWARE

- CD-ROM
- Disk space (database) 2.6 GB
- Disk space (software) 60 MB
- IBM RS/6000 platform
- Swap space 512 MB per CPU (1 GB recommended)
- RAM 512 MB per CPU (1 GB recommended)

JAVA/C++

- IBM JDK for AIX/PPC 1.3.1 (version shipped with WebSphere 4.0.6)
- IBM C Set++ for AIX 3.6.3 **OR** 64-bit IBM VisualAge C++ 4

SUPPORTED DATABASE SERVERS

- IBM DB2 7.2 FixPak 6
- IBM DB2 7.2 client software (for application server)

SUPPORTED APPLICATION SERVERS

- IBM WebSphere 4.0.6: **requires**
  - WebSphere JDBC driver Connect 3.1
  - WebSphere stored procedure patch for JTA
  - IBM MQSeries 5.2 with CSD06* **OR** IBM MQSeries 5.3.1**

  MQSeries 5.2** requires and includes MA0C (MQSeries Publish/Subscribe package ***Version 1.0.6) and MQSeries for Java ***V5.2*** to support JMS.

  ****MQSeries 5.3.1** requires and includes MA0C (MQSeries Publish/Subscribe package ***Version 1.1***) and MQSeries for Java ***V5.3*** (Version 1.1.4) to support JMS.

SUPPORTED BROWSERS

- Netscape Navigator 6.2
- Microsoft Internet Explorer 5.5 SP2 or 6 (on networked PC)

HP-UX

OPERATING SYSTEM

- Hewlett Packard HP-UX 11i for PA-RISC systems, December 2002 release

HARDWARE

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

JAVA/C++

- Sun Java 2 SDK Standard Edition 1.3.1 (version shipped with WebLogic 6.1)

- Sun Java 2 SDK Standard Edition 1.3.1 (version shipped with WebLogic 7.0)

SUPPORTED DATABASE SERVERS

Migrating from eaSuite 3.x

- Oracle 8i (Oracle 8.1.7)
- Oracle 8i client software (for application server)
- Oracle 8i JDBC driver

New installation of eaSuite 4.x

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

SUPPORTED APPLICATION SERVERS

- BEA WebLogic Server 6.1 SP4
- BEA WebLogic Server 7.0 SP2

SUPPORTED BROWSERS

- Netscape Navigator 6.2
- Microsoft Internet Explorer 5.5 SP2 or 6 (on networked PC)

Windows

OPERATING SYSTEM

- Microsoft Windows 2000 Server SP3

HARDWARE

- CD-ROM

- Disk space (database) 2.6 GB
- Disk space (software) 60 MB
- Pentium III or higher or compatible processor
- RAM 512 MB per CPU (1 GB recommended)

JAVA/C++

- Sun Java 2 SDK Standard Edition 1.3.1 (version shipped with WebLogic 6.1)
- Sun Java 2 SDK Standard Edition 1.3.1 (version shipped with WebLogic 7.0)
- IBM Java 2 SDK Standard Edition 1.3.1 (version shipped with WebSphere 4.0.6)

SUPPORTED DATABASE SERVERS

- Microsoft SQL Server 2000
- SQL 2000 Client Tools (for application server)

SUPPORTED APPLICATION SERVERS

- BEA WebLogic Server 6.1 SP4
- BEA WebLogic Server 7.0 SP2
- IBM WebSphere 4.0.6: **requires**
  - WebSphere JDBC driver Connect 3.1 for Windows
  - WebSphere stored procedure patch for JTA for Windows
  - IBM MQSeries 5.2 with CSD06* **OR** IBM MQSeries 5.3.1**

  MQSeries 5.2** requires and includes MA0C (MQSeries Publish/Subscribe package ***Version 1.0.6) and MQSeries for Java ***V5.2*** to support JMS.

  ****MQSeries 5.3.1** requires and includes MA0C (MQSeries Publish/Subscribe package ***Version 1.1***) and MQSeries for Java ***V5.3*** (Version 1.1.4) to support JMS.

SUPPORTED BROWSERS

- Netscape Navigator 6.2
- Microsoft Internet Explorer 5.5 SP2 or 6

Owner and Group Privileges for eaDirect 4.0

This section applies to all UNIX platforms.

Installation

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

O/S	DEFAULT	EXAMPLE	CUSTOM
Solaris	root:other	edxadmin:edxadmin	
AIX	root:other	edxadmin:edxadmin	
HP-UX	root:other	edxadmin:edxadmin	

Database Server

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

DATABASE	DEFAULT	EXAMPLE	CUSTOM
Oracle	oracle:dba	edx_dba:edx	
DB2	db2inst1:db2adm1	edx_dba:edx	

Application Server

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

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

Database Server Environment Variables

Oracle

VARIABLE	DEFINITION	SOLARIS	HP-UX	CUSTOM
EDX_HOME	eaDirect home path	`opt/EDCSbd`	`opt/EDCSbd`	
ORACLE_BASE	Mount point base path	`/u01/app/oracle`	`/u01/app/oracle`	
ORACLE_HOME	Data File Path	`$ORACLE_BASE/Oracle/9.2.0` OR `8.1.7`	`$ORACLE_BASE/Oracle/9.2.0` OR `8.1.7`	
ORACLE_DATA	Data File Path	`$ORACLE_HOME/oradata`	`$ORACLE_HOME/oradata`	
ORACLE_PASSWD	Database password	`edx`	`edx`	
ORACLE_SID	Database instance name	`edx0`	`edx0`	
ORACLE_USER	Database user name	`edx_dba`	`edx_dba`	
ORACLE_DBALIAS	Database alias	`edx.db`	`edx.db`	
LD_LIBRARY_PATH	Shared Library Path	`$ORACLE_HOME/lib`	`$ORACLE_HOME/lib`	

SQL Server

VARIABLE	DESCRIPTION	WINDOWS	CUSTOM
ADMIN_NAME	Admin name	**sa**	
ADMIN_PASSWD	Admin password	**<none>**	
DB_USERNAME	Database user name	**edx_dba**	
DB_PASSWD	Database password	**edx**	
DB_NAME	Database name	**edx0**	
SERVER_NAME	Server name	**localhost**	
EDX_HOME	eaDirect home path	**c:\EDCSbd**	
DB_DATAPATH	Database Data File Path	**c:\sqldir\data**	
LOG	Database Log File Path	**c:\sqldir\log**	

DB2

VARIABLE	DESCRIPTION	AIX	CUSTOM
EDX_HOME	eaDirect home path	**usr/EDCSbd**	
DB2_HOME	Database Data File Path	**/export/home/db2inst1**	
DB2INSTANCE	database instance	**db2inst1**	
PATH	Executables path	**$PATH:$HOME/bin**	
DB2_NAME	Database instance name	**edx0**	
DB2_USER	Database user name	**edx_dba**	
DB2_PASSWD	Database password	**edx**	
DB_PORT	database port	**50000**	

VARIABLE	DESCRIPTION	AIX	CUSTOM
DBADMIN_NAME	Admin name	**edx_dba**	
DBADMIN_PW	Admin password	**edx**	
EDX_DB_TYPE	Database type	**db2**	

Application Server Environment Variables

WebLogic

VARIABLE	DESCRIPTION	WINDOWS	SOLARIS	HP-UX	CUSTOM
WL_HOME	app server home	**C:\bea\wlserver**	**/export/home/bea/wlserver**	**/export/home/bea/wlserver**	
APP_OWNER	app server owner		**edxadmin**	**edxadmin**	
APP_GROUP	app server group		**edxadmin**	**edxadmin**	
APP_PORT	app server port	**7001**	**7001**	**7001**	
ADMIN_PORT	app server admin port	**7002**	**7002**	**7002**	
JAVA_HOME	Java home directory	**%WL_HOME%\jdk131**	**$WL_HOME/jdk131**	**$WL_HOME/jdk131**	

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

WebSphere

- **WebSphere** for **Windows** on **MSSQL** requires a WebSphere branded version of a JDBC driver, **Connect 3.1**. This version supports WebSphere 4.0.5, 4.0.6, and 5.0, 5.0.1 and 5.0.2. Version 2.2 does not support WAS 5.0 or higher, so edocs recommends version 3.1.
- **WebSphere** for **Windows** on **MSSQL** also requires the stored procedure patch for JTA, downloadable from IBM WebSphere.
- WebSphere 4.04 FixPak 4 and FixPak 5 use the same version JDK. IBM does not support changing the JDK from the version installed with each fix pack.

VARIABLE	DESCRIPTION	WINDOWS	SOLARIS	AIX	CUSTOM
WAS_HOME	Application Server home	`C:\WebSphere\AppServer`	`/opt/WebSphere/AppServer`	`/usr/WebSphere/AppServer`	
APP_OWNER	app server owner		`edxadmin`	`edxadmin`	
APP_GROUP	app server group		`edxadmin`	`edxadmin`	
APP_PORT	app server port	`9080`	`9080`	`9080`	
ADMIN_PORT	app server admin port	`900`	`900`	`900`	
JAVA_HOME	Java home directory	`C:\WebSphere\AppServer\java`	`$WAS_HOME/java`	`$WAS_HOME/java`	
JMS_HOME	MQSeries java client directory	`C:\Program Files\IBM\MQSeries`	`/opt/mqm/java`	`/usr/mqm/java`	

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

Java DataBase Connectivity (JDBC)

Connection pool size increased in 3.4 and later versions to support concurrency for multiple jobs.

You will be entering the same information six times: one connection pool and one Tx data source each for **`Admin`**, **`User`**, and **`Logger`**. Make sure you have chosen the correct properties for your application server and database server, and that each datasource and its properties maps to the connection pool of the same name.

For details of how to configure JDBC connections, see your application server documentation. For the procedure to create connections for eaDirect, see the topic for your application server:

- Configuring JDBC Connections for WebLogic
- Configuring JDBC Connections for WebSphere

WebLogic and WebSphere properties look similar, with minor differences in property names (Driver Classname for WebLogic, Implementation Class for WebSphere, connection pool URL vs. Tx datasource URL, &c). Make sure you are using the correct properties for your application server, database, and JDBC resource.

WebLogic for SQL Server (Windows)

JDBC Connection Pools

Create three connection pools, using your application server documentation. Use the same **Properties** for all three connection pools.

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

Properties	
URL	`jdbc:inetpool:inetdae7://localhost:1433`
Driver Classname	`com.inet.pool.PoolDriver`

Properties	`poolurl=jdbc:inetpool:inetdae7://localhost:1433`
	`user=edx_dba`
	`password=edx`

Test Table Name	`job`
Test Reserved Connections	`TRUE (checked)`
Test Released Connections	`FALSE (unchecked)`

JDBC Tx Data Sources

Create three transaction data sources, using your application server documentation. Remember to move the Targets-Server from **`Available`** to **`Chosen`** for each data source as you configure it.

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

WebLogic for Oracle (Solaris and HP-UX)

JDBC Connection Pools

Create three connection pools, using your application server documentation. Use the same **Properties** for all three connection pools.

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

Properties	
URL	`jdbc:oracle:thin:@localhost:1521:edx0`
Driver Classname	`oracle.jdbc.driver.OracleDriver`

Properties	`poolurl= jdbc:oracle:thin:@localhost:1521:edx0`
	`user=edx_dba`
	`password=edx`

Test Table Name	`dual`
Test Reserved Connections	`TRUE (checked)`
Test Released Connections	`FALSE (unchecked)`

JDBC Tx Data Sources

Create three transaction data sources, using your application server documentation. Remember to move the Targets-Server from **`Available`** to **`Chosen`** for each data source as you configure it.

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

WebSphere for Oracle (Solaris)

JDBC Connection Pools

Create three connection pools, using your application server documentation. Use the same **Properties** for all three connection pools.

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

Properties	
Implementation Class	`oracle.jdbc.pool.OracleConnectionPoolDataSource`
Node	`localhost`
Specify Driver/Add Driver	`$ORACLE_HOME/jdbc/lib/classes12.zip`

JDBC Tx Data Sources

Create three transaction data sources, using your application server documentation. Use the same **Custom Properties** for all three datasources.

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

Custom Properties	
URL	`jdbc:oracle:thin:@localhost:1521:edx0`
user	`edx_dba`
password	`edx`
databaseName	`edx0`
Connection Pooling Maximum Pool Size	`50`
Disable AutoConnection	`FALSE (unchecked)`

WebSphere for DB2 (AIX)

JDBC Connection Pools

Create three connection pools, using your application server documentation. Use the same **Properties** for all three connection pools.

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

Properties	
Implementation Class	`COM.ibm.db2.jdbc.DB2ConnectionPoolDataSource`
Node	`localhost`
Specify Driver/Add Driver	`$DB2_HOME/sqllib/java12/db2java.zip`

JDBC Tx Data Sources

Create three transaction data sources, using your application server documentation. Use the same **Custom Properties** for all three datasources.

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

Custom Properties	
user	`edx_dba`
password	`edx`
database Name	`edx0`
Connection Pooling Maximum Pool Size	`50`
Disable AutoConnection	`FALSE (unchecked)`

WebSphere for SQL Server (Windows)

JDBC Connection Pools

Create three connection pools, using your application server documentation. Use the same **Properties** for all three connection pools.

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

Properties	
Implementation Class	`com.ibm.websphere.jdbcx.sqlserver.SQLServerDataSource`
Node	`localhost`
Specify Driver/Add Driver	`$SQL_HOME/sqllib/java12/sqlserver.jar`

JDBC Tx Data Source

Create three transaction data sources, using your application server documentation. Use the same **Custom Properties** for all three datasources.

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

Custom Properties	
Server Name	`localhost`
port number	`1433`
user	`edx_dba`
password	`edx`
database Name	`edx0`
Disable2Phase	`TRUE (checked)`
Connection Pooling Maximum Pool Size	`50`
Disable AutoConnection	`FALSE (unchecked)`

Java Messaging Services for WebLogic

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

To configure JMS resources for WebLogic:

1. Create three JMS connection factories, using your application server documentation. Use the same **Properties** for all three connection factories.

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

JMS Connection Factory		
Tab	**Property**	**Value**
General	Client ID	`<NULL>`
General	Default Priority	`4`
General	Default Time to Live	`0`
General	Default Delivery Mode	`Persistent`
General	Default Redelivery Delay	`0`
General	Messages Maximum	`10`
General	Overrun Policy	`Keep Old`
General	Allow Close on Message	`FALSE`
General	Acknowledge Policy	`ALL`
General	Load Balancing Enabled	`TRUE`
General	Server Affinity Enabled	`TRUE`

2. Create three JMS stores, using your application server documentation. Use the Prefix Name **<NULL>** for all three stores.

CF 1: Annotation	CF 2: Dispute	CF 3: Logger
edxAnnotationStore	edxDisputeStore	edxLoggerStore
edxUserConnectionPool	edxUserConnectionPool	edxLoggerConnectionPool

3. Create three **JMS Servers,** using your application server documentation. Use **Paging Store =NONE** and **Temporary Template=NONE** for all three Servers.

CF 1: Annotation	CF 2: Dispute	CF 3: Logger
edxAnnotationServer	edxDisputeServer	edxLoggerServer
edxAnnotationStore	edxDisputeStore	edxLoggerStore

4. Create three **JMS Topics,** using your application server documentation. Use the same **Properties** for all three Topics.

CF 1: Annotation	CF 2: Dispute	CF 3: Logger
edxAnnotationTopic	edxDisputeTopic	edxLoggerTopic
edx/jms/annotate	edx/jms/dispute	edx/jms/log

JMS Topic Tab	Property	Value
General	Enable Store	**TRUE**
General	Template	**NONE**
General	Destination Keys	**NONE**

5. Create one pair of **JMS Session Pools and Consumers each** for **Annotation and Dispute,** using your application server documentation. **`Set Acknowledge Mode`** to **`auto`** and **`Sessions Maximum`** to **`-1`** for all three Session Pools.

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

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

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

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

6. Create FIVE pairs of **JMS Session Pools and Consumers** for **Logger,** using your application server documentation. **`Set Acknowledge Mode`** to **`auto`** and **`Sessions Maximum`** to **`-1`** for all five Session Pools.

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

1) Admin Activity

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

JMS consumer		
Tab	**Property**	**Value**
Configuration	Name	`edxLoggerAdminActivityConsumer`
Configuration	Messages Maximum	`10`
Configuration	Selector	`JMSType='ADM'`
Configuration	Destination	`edx/jms/log`

2) CSR Activity

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

JMS consumer		
Tab	**Property**	**Value**
Configuration	Name	`edxLoggerCSRActivityConsumer`
Configuration	Messages Maximum	`10`
Configuration	Selector	`JMSType='CSR'`
Configuration	Destination	`edx/jms/log`

3) Message Log

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

JMS consumer		
Tab	**Property**	**Value**
Configuration	Name	`edxLoggerMessageLogConsumer`
Configuration	Messages Maximum	`10`
Configuration	Selector	`JMSType='MSG'`
Configuration	Destination	`edx/jms/log`

4) System Activity

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

JMS consumer		
Tab	**Property**	**Value**
Configuration	Name	`edxLoggerSystemActivityConsumer`
Configuration	Messages Maximum	`10`
Configuration	Selector	`JMSType='SYS'`
Configuration	Destination	`edx/jms/log`

5) User Activity

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

JMS consumer		
Tab	**Property**	**Value**
Configuration	Name	`edxLoggerUserActivityConsumer`
Configuration	Messages Maximum	`10`
Configuration	Selector	`JMSType='USER'`
Configuration	Destination	`edx/jms/log`

Java Messaging Services for WebSphere

WebSphere uses the third-party tools **JMSAdmin** and **MQSeries** to configure and administer JMS. edocs JMS settings for **`adxAdmin`**, **`edxLogger`**, and **`edxUser`** are configured through the shell script **`edx_mqm_config`** installed with eaDirect.

Check your eaDirect System Requirements to ensure you have the correct versions, patches, and JDK for MQSeries on your platform.

For details, see Configuring JMS for WebSphere with MQSeries, which describes procedures to:

1. Configure the **`JMSAdmin`** executable for your eaDirect environment.
2. Configure the **`JMSAdmin.config`** settings for your eaDirect environment.
3. Create an MQSeries queue manager for eaDirect.
4. Verify that the MQSeries Publish/Subscribe broker is installed and running properly.
5. Configure JMS connection factories and destinations with **`edx_mqm_config`**.

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