



enPortal™

4.6.1

Installation Guide

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Preface

This guide describes how to install and configure enPortal.

This preface contains the following sections:

- *Audience* on page 2
- *About this Guide* on page 3
- *Associated Publications* on page 4
- *Typographical Notation* on page 5
- *Operating System Considerations* on page 8

Audience

This book is intended for enPortal administrators who need to install and deploy enPortal. It includes installation, administration, and maintenance procedures. In addition, it contains information about configuring security and component communications. It also includes examples of enPortal architectures and how to implement them.

About this Guide

This book is organized as follows:

- Chapter 1: *Installation* on page 9 describes how to install, license, and configure enPortal.
- Chapter 2: *Administrating and Maintaining enPortal* on page 23 describes the activities that may need to be performed when administering the enPortal installation.
- Appendix A: *Configuring Databases* on page 31 describes how to configure any of the supported databases for use by enPortal.
- Appendix B: *Obtaining an Authorized Certificate for enPortal* on page 45 describes how to obtain and install a signed certificate for the enPortal web server.
- Appendix C: *Obtaining Installation Files and Settings* on page 49 describes how to obtain special installation details from the Support website.

Associated Publications

This section provides a description of the primary documentation that accompanies the enPortal product suite.

enPortal Administration Guide

This book is intended for system administrators who need to manage enPortal. It describes how to perform administrative tasks using the enPortal Administrator GUI, command line tools, and process control.

enPortal Installation Guide

This book is intended for enPortal administrators who need to install and deploy enPortal. It includes installation, upgrade, and licensing procedures. In addition, it contains information about configuring the database and security certificates.

enPortal Integration Guide

This book is intended for anyone who will be integrating applications into enPortal. It includes sections on procedures for content integration, Single Login, configuring Look and Feel, authentication, and integrating with external sources of users. The book also details how to use Product Integration Modules (PIMs).

enPortal Javadoc API

The Java API contains all of the interfaces, methods, and variables for the Java classes which are used in the enPortal product. These interfaces are the core of the operation of both the portal server and the servlets run by the tomcat server. The enPortal Java API is generated by the standard Javadoc tool from Sun Microsystems. It is generated as a standard HTML format document. The index page is initial point of access to the entire API.

Typographical Notation

Table 1 shows the typographical notation and conventions used to describe commands, SQL syntax, and graphical user interface (GUI) features. This notation is used throughout this book and other publications.

Table 1: Typographical Notation and Conventions (1 of 2)

Example	Description
Monospace	<p>The following are described in a monospace font:</p> <ul style="list-style-type: none"> • Commands and command line options • Screen representations • Source code • Object names • Program names • SQL syntax elements • File, path, and directory names <p>Italicized monospace text indicates a variable that the user must populate. For example, <code>-password <i>password</i></code>.</p>
Bold	<p>The following application characteristics are described in a bold font style:</p> <ul style="list-style-type: none"> • Buttons • Frames • Text fields • Menu entries <p>A bold arrow symbol indicates a menu entry selection. For example, File→Save.</p>
<i>Italic</i>	<p>The following are described in an italic font style:</p> <ul style="list-style-type: none"> • An application window name; for example, the <i>Login</i> window • Information that the user must enter • The introduction of a new term or definition • Emphasized text
[1]	<p>Code or command examples are occasionally prefixed with a line number in square brackets. For example:</p> <pre>[1] First command... [2] Second command... [3] Third command...</pre>
{ a b }	<p>In SQL syntax notation, curly brackets enclose two or more required alternative choices, separated by vertical bars.</p>
[]	<p>In SQL syntax notation, square brackets indicate an optional element or clause. Multiple elements or clauses are separated by vertical bars.</p>

Table 1: Typographical Notation and Conventions (2 of 2)

Example	Description
	In SQL syntax notation, vertical bars separate two or more alternative syntax elements.
...	In SQL syntax notation, ellipses indicate that the preceding element can be repeated. The repetition is unlimited unless otherwise indicated.
, ...	In SQL syntax notation, ellipses preceded by a comma indicate that the preceding element can be repeated, with each repeated element separated from the last by a comma. The repetition is unlimited unless otherwise indicated.
<u>a</u>	In SQL syntax notation, an underlined element indicates a default option.
()	In SQL syntax notation, parentheses appearing within the statement syntax are part of the syntax and should be typed as shown unless otherwise indicated.

Many commands have one or more command line options that can be specified following a hyphen (-).

Command line options can be `string`, `integer`, or `BOOLEAN` types:

- A `string` can contain alphanumeric characters. If the string has spaces in it, enclose it in quotation (") marks.
- An `integer` must contain a positive whole number or zero (0).
- A `BOOLEAN` must be set to `TRUE` or `FALSE`.

SQL keywords are not case-sensitive, and may appear in uppercase, lowercase, or mixed case. Names of ObjectServer objects and identifiers are case-sensitive.

Note, Tip, and Warning Information

The following types of information boxes are used in the documentation:



Note: Note is used for extra information about the feature or operation that is being described. Essentially, this is for extra data that is important but not vital to the user.



Tip: Tip is used for additional information that might be useful for the user. For example, when describing an installation process, there might be a shortcut that could be used instead of following the standard installation instructions.



Warning: Warning is used for highlighting vital instructions, cautions, or critical information. Pay close attention to warnings, as they contain information that is vital to the successful use of our products.

Syntax and Example Subheadings

The following types of constrained subheading are used in the documentation:



Syntax

Syntax subheadings contain examples of ObjectServer SQL syntax commands and their usage. For example:

```
CREATE DATABASE database_name;
```



Example

Example subheadings describe typical or generic scenarios, or samples of code. For example:

```
[1] <body>
[2]   
[6] </body>
```

Operating System Considerations

All command line formats and examples are for the standard UNIX shell. UNIX is case-sensitive. You must type commands in the case shown in the book.

Unless otherwise specified, command files are located in the `$PORTAL_HOME/bin` directory, where `$PORTAL_HOME` is the UNIX environment variable that contains the path to the enPortal home directory.

On Microsoft Windows platforms, replace `$PORTAL_HOME` with `%PORTAL_HOME%` and the forward slash (/) with a backward slash (\).

Chapter 1: Installation

This chapter describes the tasks that need to be performed when installing or upgrading the enPortal server.

This chapter contains the following sections:

- *Network Architecture* on page 10
- *System Requirements* on page 11
- *Prerequisites* on page 14
- *Installing and Upgrading* on page 16
- *Startup* on page 20

1.1 Network Architecture

In order to efficiently configure and administer the enPortal installation, it is recommended that you create a diagram of the network topology for your distributed enPortal system. Ensure that you include the client web browsers, the enPortal server and relational database, and the distributed web resources that can be accessed through enPortal.

Label the IP addresses and/or address ranges for each host or network. This will be helpful for the configuration of the system and to identify any network configuration changes that will be needed (such as firewall changes). Figure 1 provides an example.

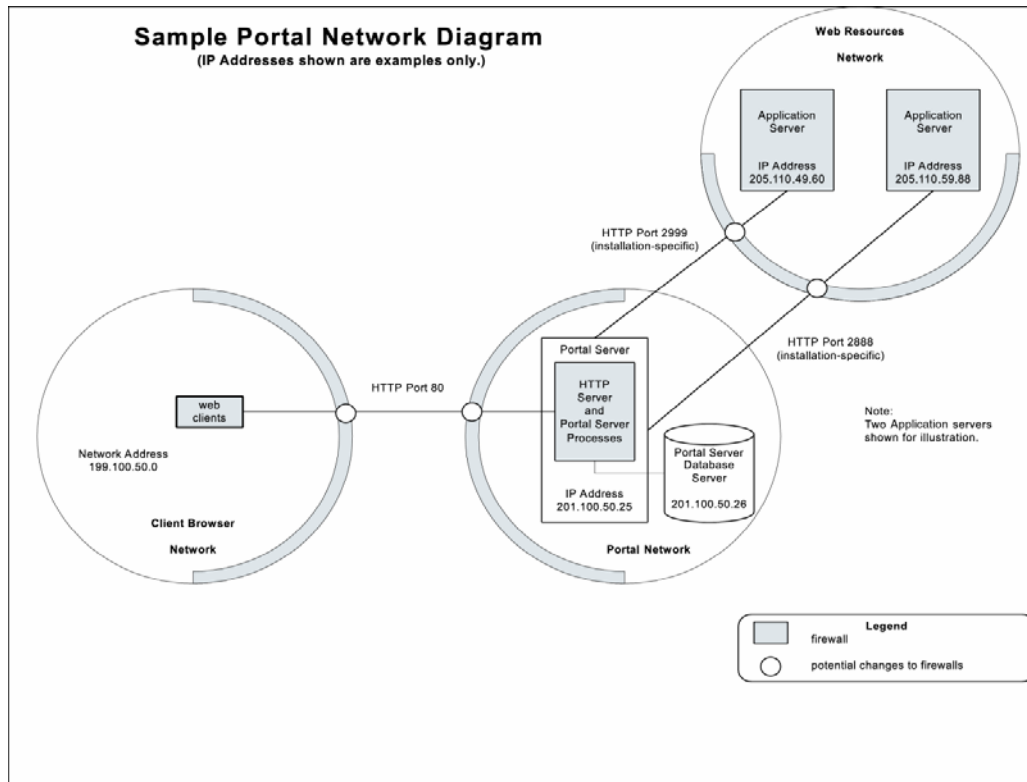


Figure 1: Example enPortal Network Diagram

1.2 System Requirements

The enPortal system is a multi-tiered application that is partitioned across several systems. The following tables identify the requirements for each tier of the system. Table 1 shows the platforms supported by enPortal.

Table 1: Supported Platforms

Vendor	Platform	Version(s)
Sun Microsystems	Solaris	8, 9, 10 / Sparc 32 bit
Red Hat	Linux	8.0, Enterprise ES 2.1, 3.0
Hewlett-Packard	HP-UX	11.00, 11i
IBM	AIX	5L v5.1, v5.2
Microsoft	Windows	Windows XP, 2003 Server, 2000

Table 2 shows the enPortal server requirements.

Table 2: Server Requirements (1 of 2)

Component	Requirements
Hardware	Windows, Linux: <ul style="list-style-type: none"> • 600 MHz Pentium III, • 512 MB RAM Solaris: <ul style="list-style-type: none"> • 400 MHz UltraSPARC-II CPU • 512 MB RAM
Disk Space	Minimum: 75 MB Typical: 100 MB Note: These values do not include database-related disk space requirements.

Table 2: Server Requirements (2 of 2)

Component	Requirements			
Memory Used (MB)	Minimum: <ul style="list-style-type: none"> • Web Server: 20 • JSP Server: 40 • enPortal Server: 40 • Total: 100 Typical: <ul style="list-style-type: none"> • Web Server: 100 • JSP Server: 250 • enPortal Server: 100 • Total: 450 			
Default IP Ports Used		Port	Protocol	Scope
	Web Server	443	HTTPS	public
	JSP Server	8200	AJP	used internally
	enPortal Server	8300	RMI	used internally
	Additional ports (allocated as needed)	9001+	RMI	used internally
Resources	<p>The following resources are used by enPortal:</p> <ul style="list-style-type: none"> • Java 2 Standard Edition Software Development Kit (J2SE SDK), v1.5+: <p>Note: The 32-bit and 64-bit JDK are supported. JDK v1.6.0_+ is also supported.</p> http://java.sun.com/j2se <p>The recommended version of the J2SE SDK for each supported platforms shown below:</p> <ul style="list-style-type: none"> – Solaris (all versions), Windows (all versions), and Linux: 1.5 (or higher) recommended – AIX: 1.5 – HP-UX (all versions): 1.5 • Apache Web Server v 2.0*: <p>enPortal uses a specially prepared version of the Apache web server. The enPortal-specific Apache distribution is available for download from the Support website. Instructions are provided in <i>Prerequisites</i> on page 14.</p> • Perl 5.6+ (optional): <p>If perl is not already available on your server, it can be obtained from:</p> http://www.activestate.com http://www.perl.com 			

Table 3 shows the enPortal client requirements.

Table 3: Client Requirements

Component	Requirements
Browser	Windows: Microsoft Internet Explorer 6.0+, Netscape 7.0+, Firefox 1.0+ UNIX, Linux: Netscape 7.0+
Resources	Java 2 Standard Edition Runtime Environment (JRE), v. 1.4.2_04+, 1.5. Note: The JRE only needs to be installed on client machines on which the enPortal Administration applet will be accessed. This software can be obtained from: http://java.sun.com/j2se

enPortal also requires a relational database management system (RDBMS). This database can reside on the same machine as the enPortal server or it can be hosted on a dedicated server that has a high bandwidth, low latency network connection to the machine that hosts the enPortal server. Table 4 shows the enPortal database requirements.

Table 4: Database Requirements

Supported Databases	MS SQL Server 2000, Sybase SQL Anywhere 8, Oracle 8.x, 9.x, 10g.
Database Requirements	A typical system stores at least 100 MB of data in its relational database. The amount of disk space required to support the storage of this information depends on the type of database you use. You must also make allowances for the memory and file system footprint of your database.



Note: JDBC drivers for Sybase and Oracle are bundled with the installation. SQL Server drivers must be obtained separately.

Appendix A provides instructions for configuring MS SQL Server, Sybase SQL Anywhere, or Oracle. For details, see Appendix A: *Configuring Databases* on page 31.

1.3 Prerequisites

This section describes the software and hardware requirements for enPortal installation. You cannot successfully install enPortal if your system does not meet the requirements specified in this section.

Apache

The enPortal product download web site provides a customized version of the Apache web server that you must use with enPortal. This site is regularly updated with the latest version of Apache so that it includes all of the latest security updates from the Apache Software Foundation.

The following procedure describes how to obtain and install the software:

1. Download the appropriate Apache distribution from the Support download site. For more detail on this process, see *Downloading the Apache Web Server Distribution* on page 50.

2. Create a home directory for the Apache distribution.

Windows: Create a home folder in any desired location, such as `c : /apache`.

UNIX: You must untar the distribution from the `/opt/` directory.

3. Extract the Apache distribution archive into the Apache home directory.

Windows: Extract the files directly into the home folder.

UNIX: Untar the distribution from the `/opt/` directory using the `tar xzvf` command.



Tip: Make a note of the Apache home directory location. The enPortal installer will ask for this location during the formal product installation process.

Database

Instructions for configuring MS SQL Server, Sybase SQL Anywhere, or Oracle are provided in Appendix A: *Configuring Databases* on page 31.

An open-source Hypersonic database is included with the enPortal installation. This database can be used for testing, development, and configuration purposes, but should not be used as a production database in an operational system. Hypersonic lacks the backup and management tools required for mission-critical applications.

JDK and Perl

See *System Requirements* on page 11 for more details about installing the JDK or Perl on your system.

UNIX User and Group

UNIX installations require a user named `portal` and a group named `portal` to be defined on your UNIX system. Create the `portal` user and `portal` group on your operating system before running the installer. Assign the `portal` user to the `portal` group.



Note: Specify the Bash or Bourne shell as the login shell for the `portal` user.

1.4 Installing and Upgrading

This section describes how to install or upgrade enPortal on Windows and UNIX systems.



Tip: If you have an existing enPortal installation and only need to update the Java JDK version or Apache Web Server, you do not need to run a full portal installation. You can upgrade these elements by navigating to `PORTAL_HOME/bin` directory and running the `portal setup` command. You can also make changes to the database configuration by running the `portal dbsetup` command from this same location.

Obtaining the Software

The enPortal software is generally downloaded from the Support website, as follows:



Note: The Support website requires authorization for access to the enPortal distribution. Please contact Support to obtain a valid user name and password. Contact details are provided in *Contact Information* on page 59.

1. Download the appropriate installation file from the Support download site. For more detail on this process, see *Downloading the enPortal Installation File* on page 50.
2. Navigate to the appropriate location and verify that the installation file was correctly downloaded to your local filesystem.

Starting the Installer on UNIX

To start the installer:

1. In a UNIX shell, change to the directory where you stored the enPortal distribution.
2. Switch to the root user by entering the following command:

```
su
```

3. Extract the distribution by running the following commands:

```
[1] gunzip install.tgz  
[2] tar xvf install.tar
```

4. Start the installer by running:

```
./portal-install/pinstall
```


Starting the Installer on Windows

To start the installer:

1. Login to your operating system as an administrator.
2. Start the installer by running `install.exe`.



Warning: On 64-bit Windows operating systems, do not run the installer program. You must open `install.exe` as a zip file, extract the files, edit the `local.properties` file, and then run the portal setup command.

Performing the Installation

In addition to creating new installations, the installer provides the option of upgrading from older versions. An upgrade is a special type of installation in which new features are added to an existing enPortal while the previous enPortal configurations and customizations are retained for ongoing use.

In either case, the installer will ask you for certain information. Provide this information when prompted, and continue through the installation process until it successfully completes.

Table 5 details the information that you must provide during the enPortal installation.

Table 5: Installation Information

Information	Details	Notes
Home for new install	Filesystem path of new <code>PORTAL_HOME</code> folder.	
Location of JDK	Filesystem path of <code>JAVA_HOME</code> folder.	
Location of Apache	Filesystem path of <code>APACHE_HOME</code> folder.	
Location of Perl	Filesystem path of the Perl executable file.	Optional
Database Connection Parameters	JDBC connection parameters for communicating to the RDBMS.	Can be skipped and done later.
Windows Start Menus	Enter <code>y</code> if you want enPortal to create a menu section under the Windows Start Menu.	Windows only. Can be skipped and done later.
Service Installation	Enter <code>y</code> if you want to register the enPortal server to start when your operating system starts.	Can be skipped and done later.

Post-Installation Activities

When the installer finishes, and a valid license has been installed, you will be able to start the system using all of the default configurations included with the installation.

For a new installation, you will generally want to provide some additional configuration information to customize the system to work best in your environment. To adjust the default values, and fully configure your system, see the following sections.

Upgrade Considerations

After installing a full enPortal upgrade to a new version, the previous enPortal configurations and customizations are retained for ongoing use. You should review and confirm the values described in the following sections, but you generally will not need to update them.



Note: If you are upgrading from a prior installation, and have not previously run the `CredentialsUpdate` command, you must perform this update as detailed in Appendix D: *Creating a Custom enPortal Encryption Key* on page 55.



Note: If you are upgrading the Apache web server from version 1.3.x to version 2.0.x, you need to confirm that the system is configured correctly after running the upgrade. Look in the file `PORTAL_HOME/config/activation.properties` for the appropriate `httpd.version` parameter, and confirm that the value is `2.0`. Then check to see if there is a file called `PORTAL_HOME/config/custom.properties`. If there is a `httpd.version` parameter in this file, make sure the value is set to `2.0`. If this file does not exist, it is recommended that you create it to include the line `httpd.version@unix=20` or `httpd.version@windows=20`, whichever corresponds to your operating system.

Adjust the Web Port and Protocol

By default, the enPortal web server will activate HTTPS on the default HTTPS port (443). See *Setting the Web Server Port and Protocol* on page 25 for details on changing this configuration.

Loading Sample Content (optional)

Sample content is included in the enPortal distribution under the `PORTAL_HOME/xmlroot/server/sample/` folder. This content is intentionally disabled to avoid loading undesired data into your system; however, if you are unfamiliar with the enPortal product, consider loading these XML data files that define sample domains, roles, users, login pages, and Look and Feels (LAFs).

To automatically load the sample content, prior to starting enPortal rename the following file:

```
xmlroot/server/sample/loadSample.txt.disabled
```

to

```
xmlroot/server/sample/loadSample.txt
```

Acquire a New or Updated License

See *Installing a Formal License* on page 26 for details.

Configure the Database Connection

If you did not complete the configuration of your database connection during the installation, you need to do so before starting the portal server. If a database connection is not configured, the server runs in a memory-only Design Mode (see *Running in Design Mode* on page 29). In this mode, any changes made to the running system will be lost when the system stops.

See *Configuring the Database Connection* on page 27 for more details.

Get a Valid SSL Certificate

This product distribution includes an invalid dummy SSL certificate for the HTTPS web server. It allows the HTTPS server to function, but it is not applicable to a production system. If you are using HTTPS for your production system, you need to obtain a valid SSL certificate from a valid Certificate Authority.

See *Obtaining an Authorized SSL Server Certificate* on page 30 for more details.

Create a Custom Password Security Key

The enPortal distribution includes a default encryption key that is used for storing authentication passwords in the database and XML files. You may choose to add a level of security to the system by creating a custom key for encrypting passwords. For instructions on creating a custom encryption key, see Appendix D: *Creating a Custom enPortal Encryption Key* on page 55.

Review the Release Notes

The Release Notes document describes the features introduced in this release. Instructions and notices unique to this release are provided there. Review this document before starting the server. For more information on acquiring this document, see *Downloading enPortal Documentation* on page 51.

1.5 Startup

When the enPortal server processes are started for the very first time, the database is populated with data defined in XML data files. The initial population of the database may take several minutes. During this activity, load progress information will be presented in the console running the enPortal server.

To start the server processes, run the following command:

```
portal AllStart
```

The above command is accessible in `PORTAL_HOME/bin`.

See *Starting and Stopping Processes* on page 24 for more details on manually starting processes. Also, see *Automatic Startup* on page 25 for details on starting processes when your server boots.

Validation

To validate that the enPortal server is running properly, connect to the enPortal web server using a web browser client. You can start the browser client on any machine that has network connectivity to your server. Access your enPortal server at the following web address:

```
protocol://IP_Hostname_of_your_server/
```

The login page opens. Log in as one of the following preset users:

Table 6: User IDs and Initial Passwords

Domain	User ID	Initial Password	Role
System	administrator	administrator	portalAdministration
	guest	guest	guest

Getting Started

The help resources described in Table 7 can assist you in understanding and using the enPortal system.

Table 7: Help Resource Descriptions

Help Resource	Overview	Accessing
Administration Help	Describes how to administer a running enPortal system	This Help is accessible from the web interface. Log in as an administrator and select the Administration Help channel under the Administration tab.
Integration Help	Describes how to integrate additional web applications into enPortal and how to integrate with LDAP user directories. Includes a suite of specifications and APIs which are available when developing a custom enPortal solution.	This Help is accessible from the web interface. Log in as an administrator and select the Integration Help channel under the Integration Management tab.



Note: These documents can also be downloaded directly from the Support site. For more details, see *Downloading enPortal Documentation* on page 51.

Chapter 2: Administrating and Maintaining enPortal

This chapter summarizes the activities that may need to be performed when administering the enPortal installation.

This chapter contains the following section:

- *Administrative Tasks* on page 24

2.1 Administrative Tasks

The following sections describe the administrative tasks you may encounter subsequent to installation.

Starting and Stopping Processes

The enPortal system consists of multiple web clients, one or more enPortal server nodes, and a database. A server node consists of the following three processes: web server, JSP server, and enPortal server.

Most enPortal systems consist of a single server node, which runs all three server processes. However, in certain cases, a single node will only run one or two of these three processes. In any case, the following command will start all processes which are configured to run on this node.

```
portal AllStart
```

The above command is in `PORTAL_HOME/bin`.



Note: See *Automatic Startup* on page 25 for details on how to run this command automatically when the server is booted.

Additionally, the server processes can be individually started and stopped using the syntax described in Table 8.

Table 8: Server Start and Stop Syntax

Process	Activity	Command Syntax
Web Server	Start	<code>portal WebStart</code>
	Stop	<code>portal WebStop</code>
JSP Server	Start	<code>portal JSPStart</code>
	Stop	<code>portal JSPStop</code>
enPortal Server	Start	<code>portal PortalStart</code>
	Stop	<code>portal PortalStop</code>



Note: In Windows, these commands are also available on the Windows **Start** menu, if this option was selected during installation.



Note: enPortal does not provide any facilities to start or stop your database. It is assumed that the database will start automatically when the server it is hosted on is booted.

Automatic Startup

The operating system hosting the enPortal server can be directed to automatically start the server processes when the computer is booted. This will cause the enPortal `AllStart` command (described in *Starting and Stopping Processes* on page 24) to be automatically called each time the computer is booted.

This automatic startup behavior can be added to your operating system when installing enPortal. It can also be added or removed at any time using the following commands:

```
portal ServicesAdd  
portal ServicesRemove
```



Note: In Windows, services must be removed and re-added if the location of the JDK changes.

Setting the Web Server Port and Protocol

enPortal is accessible through the HTTPS protocol on the default HTTPS port (443). The protocol and the port can be changed using the `HostConfig` utility, by entering the following command:

```
portal HostConfig
```



Note: You can also change the protocol and host configuration by editing the `config/hosts.properties` file directly.

Installing a Formal License

You must purchase a license for your enPortal server(s) from Licensing (see support *Contact Information* on page 59). You will need to provide your server's IP address before Licensing can generate the license file. You install the formal license by placing the license file in the following location:

```
PORTAL_HOME/config/license.properties
```

Changing the JDK

You can change the JDK that is used by the enPortal server processes by running the following command:

```
portal Setup
```

To begin using the new JDK, restart all processes. See *Starting and Stopping Processes* on page 24 for more information.



Warning: On Windows, enPortal Services must be reinstalled if the JDK is changed. See *Starting and Stopping Processes* on page 24 for instructions.

Upgrading the Web Server

Product Support maintains the latest enPortal-compatible Apache distribution on the Support website. The distribution is updated regularly based on the availability of new security patches, and so forth, from Apache. To upgrade to a new Apache distribution:

1. Download the latest Apache distribution from the Support website and install it on your server. See *Downloading the Apache Web Server Distribution* on page 50 for details.
2. If the location of Apache has changed, run the following command to specify the new location:

```
portal Setup
```
3. Restart all server processes to begin using the new Apache.

Exporting Custom Files

The enPortal implementation typically involves the creation of many new files. The enPortal filesystem structure includes placeholder directories to organize these new files—this simplifies system upgrades and maintenance.

All custom files that have been created in these placeholder directories can be exported to a jar archive file (with paths relative to `PORTAL_HOME`) by running the following command:

```
portal FilesExport -jar output_filename.jar custom.all
```



Note: Run `portal FilesExport` without arguments to see the usage instructions.

Running this command and examining the contents of the generated jar file identifies the files that will be preserved during the next system upgrade. This jar file is also useful for synchronizing redundant systems.

The list of directories and files that get archived to the jar file is specified by the `custom.all` property in the `PORTAL_HOME/config/export.properties` file. You can add additional files and directories to this export list by adding a property named `custom.other` to the `PORTAL_HOME/config/custom.properties` file. You may need to create this file if it does not exist already.

Follow the lexical conventions used by the properties of the `PORTAL_HOME/config/export.properties` file when specifying the value of the `custom.other` property.

Configuring the Database Connection

The server connects to the database through JDBC. Configuring this connection requires the following:

- a database-specific JDBC driver
- the IP location of the database
- the database ID
- database security credentials

A Database Setup tool is provided to simplify this configuration activity.



Note: Follow the instructions for installing the Sybase or MS SQL Server JDBC Driver provided in Appendix A: *Configuring Databases* on page 31 before configuring a Sybase or MS SQL Server database connection.

You must configure the database connection to ensure that enPortal functions properly. This configuration is typically done during the enPortal installation. However, you can also start the Database Setup tool at any time by running the following command:

```
portal DBSetup
```



Note: If your server does not have a graphical display, you can configure your database connection by directly editing the `POTAL_HOME/config/config.properties` and `POTAL_HOME/config/persist.properties` file. You can also install enPortal on another machine, run the DBSetup tool there, and transfer the resulting `config.properties` and `persist.properties` files to your server.

The following procedure provides instruction for setting up the database connection.

When you open the Database Setup tool, the *Portal Database Setup* window will open as shown in Figure 2. The current settings for the database connection are displayed.

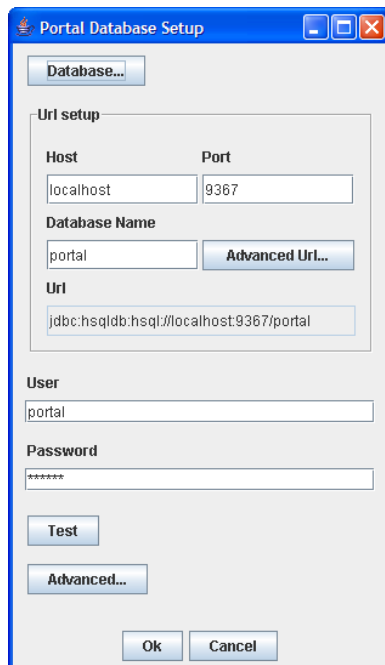


Figure 2: Database Setup Tool

To configure a database, do the following:

1. Click the **Database** button and select your type of database from the selection list.
2. Set the **Host** and **Port** fields to match the IP location of your database (as resolved from the enPortal server).
3. Set the **Database Name** field to match the name of the database created to store the enPortal data. See your database configuration worksheet.
4. Set the **User** and **Password** fields to match the database user and password that were configured on your database to control access. See your database configuration worksheet.
5. Test the Connection by clicking the **Test** button to verify the database connection settings.



Note: If you selected the Hypersonic database that is bundled with enPortal, the test will indicate failure because the Hypersonic database is not started until the portal process is started. Disregard the failure message and proceed to the next step. The Hypersonic database will start and establish a connection when you start the portal.

6. Select **Ok** to save the changes and exit the tool.

Exporting Database Data to XML

You can export the data managed by your enPortal system into XML text files. To export the data, run the following command:

```
portal XMLExport
```

You can find the XML files that are created as a result of this export in the following directory:

```
PORTAL_HOME/xmlroot/server/backup/
```

Running in Design Mode

Running enPortal in Design Mode means that enPortal is operating without an attached database. The server reads the XML files declared in the `load.txt` file(s) into memory at startup time and does not retain any runtime changes to this information when the enPortal server is stopped. However, a running enPortal system can be directed to dump its data to XML files at any time. See *Exporting Database Data to XML* in the section above for information on the XMLExport command.

To change to Design Mode:

1. If enPortal is running, stop all processes.
2. Edit the `PORTAL_HOME/config/persist.properties` file.

3. Change the `persisting=true` property to `persisting=false`.
4. Identify the data to load into memory through XML load list files. You have two options - load the default enPortal data or load data that you have exported from the existing system. Perform only the step that corresponds to your situation.
 - Load Default Data: Rename the XML load-list files previously loaded into the system so that the filenames end with the `.txt` extension.

You can identify previously loaded content by looking in the `PORTAL_HOME/xmlroot/server/` directory for files ending with `YYYYMMDD.completed`. For example, the file `load_01.txt_20040504.completed` should be renamed to `load_01.txt`.
 - Load Exported Data: If the `XMLExport` command was run and you wish load the data exported from the existing system, then in the `PORTAL_HOME/xmlroot/server` directory, rename the file `load_restore.txt.disabled` to `load_restore.txt`. This file is an XML load-list file that references all of the XML files within `PORTAL_HOME/xmlroot/server/backup`.
5. Start all processes. The XML declared in the `load.txt` file will be loaded into the enPortal server process memory.

To change back to persistent mode, reset `persisting` to `true`, and remove or rename the XML load-list files in `PORTAL_HOME/xmlroot/server/` to avoid reloading this data into the database.

Obtaining an Authorized SSL Server Certificate

A utility for generating Certificate Signing Requests is available on the Support website. A Certificate Signing Request (CSR) is provided to a Certificate Authority (CA) in order to acquire an authorized web server certificate for `Apache mod_ssl`.

Refer to Appendix B: *Obtaining an Authorized Certificate for enPortal* on page 45 for more information about how to obtain and install an SSL certificate for your installation.

Advanced Architecture: Partitioning Server Processes

Contact Support for technical assistance (see *Contact Information* on page 59).

Advanced Architecture: Configuring Redundant Servers

Contact Support for technical assistance (see *Contact Information* on page 59).

Appendix A: Configuring Databases

This appendix provides a summary of the tasks necessary to configure any of the supported databases for use by enPortal. The instructions in this section are only general guidelines—please obtain the assistance of your DBA and refer to the database vendor’s documentation for more detailed instructions.

The first three databases outlined in this appendix are those most commonly used in production environments - Sybase SQL Anywhere, Oracle, and MS SQL. Various other databases can also be used, if they meet certain standards such as support of JDBC.

Each database package has associated strengths and weaknesses. The selection of the database is up to the portal and database administrators. Since enPortal makes light usage of the database, all of the supported databases work well with enPortal.

This appendix contains the following sections:

- *Sybase SQL Anywhere* on page 32
- *Oracle* on page 37
- *Microsoft SQL Server* on page 41

A.1 Sybase SQL Anywhere

This section describes the tasks that you must perform to use SQL Anywhere with enPortal:

- *Downloading the Sybase JDBC Driver* on page 32
- *Installing Sybase SQL Anywhere on Windows* on page 32
- *Creating a Database* on page 33
- *Creating a Service Pointing to the Database* on page 34
- *Connecting to the Database and Creating a User* on page 35

Downloading the Sybase JDBC Driver

After you have installed enPortal, you must download a JDBC driver that will enable enPortal to establish a connection to your Sybase database.

To install the JDBC driver:

1. Access the Sybase JDBC driver files at the following location:
<http://www.sybase.com/products/informationmanagement/softwaredeveloperkit/jconnect>
2. Download the jConnect zip file to your local filesystem.
3. Locate the file `jconn3.jar` within the jConnect zip file.
4. Extract the file `jconn3.jar` and place it in the folder `PORTAL_HOME/classes-custom/`

Installing Sybase SQL Anywhere on Windows

To install Sybase SQL Anywhere on Windows systems:

1. Copy or unzip the Sybase installation files to a temporary folder.
2. Go the temporary folder where the installation files were unzipped and run `setup.exe`. The *Welcome* window opens. Click **Next**.
3. After reading the license agreement terms, click **Yes** to proceed with the installation.
4. On the *Select Components* window, select only the following components:
 - Under the **Databases** node, select **Adaptive Server Anywhere for Windows**.
 - Under the **Synchronization** node, select **SQL Remote for Adaptive Server Anywhere**.

5. Click **Next**.
The *Choose SQL Anywhere 8 Location* window opens.
6. Specify the directory where SQLAnywhere 8 should be installed and click **Next**.
The *Choose Shared Components Location* window opens.
7. Specify the directory where shared components should be installed and click **Next**.
The *Select Program Folder* window opens.
8. Click **Next** unless you want to change the name of the program folder.
9. On the *Server License* window, enter the appropriate details.
10. The *Start Copying Files* window opens. Review your prior selections. Click **Next** if all items are correct or **Back** to change any information.
11. Click **Finish** on the next window that opens. The installation process begins. You will need to reboot your computer after the installation process is complete and before you proceed to the next stage.
12. Create a Sybase data archive file as outlined in *Creating a Database* on page 33
13. Place the data archive file in a directory under the main Sybase directory, for example:

```
sybase home directory/SYBSSa8/
```

Creating a Database

To create a Sybase SQL database:

1. Launch Sybase Central 4.0. In Windows, this is launched from the Start menu by selecting **Programs**→**SQL Anywhere 8**→**Sybase Central**.
2. On the Sybase Central screen, select **Tools**→**Adaptive Server Anywhere 8**→**Create Database**.
3. The *Choose a Connection* window opens. Select **Connection created by a local engine** and click **Next**.
4. The *Create an Adaptive Server Anywhere Database* window opens. Click the **Browse** button to display the *Choose File* dialog box.

Navigate to the directory where you would like to create the database (the typical location is `Sybase\SQLAnywhere`) and then type the name. It is recommended that you use `portal` as the database name. Click **Open** and the dialog box closes.



Warning: Sybase will not start the database if another database running on the same network/port already has the same name. Ensure that you use different names if you are running multiple databases, such as in a training or testing environment.

5. On the main window, click **Next**. The *Choose the Transaction Log Options* window displays. Keep the default values and click **Next**.
6. The *Mirror the Transaction Log* window opens. Accept the default values and click **Next**.
7. The *Java in the Database* window is displayed. Ensure that both check boxes are checked. Click **Next**.
8. The *Choose the Database Attributes* window opens. Check the **Case sensitivity for all names and values** and **Create SYSCOLUMNS and SYSINDEXES** views check boxes. Click **Next**.
9. The *Which Page Size do you Want the Database to use* window appears. Keep the default values and click **Next**.
10. The *Which Collation Sequence do you Want the Database to use* window appears. If internationalization is required, click the **Use the following supplied collation** radio button, and then select the **UTF8** collation.
11. Click **Finish**. A database is created in the directory specified, with the parameters set. You are returned to the main *Sybase Central* screen.

Creating a Service Pointing to the Database

To create a Windows service that points to the Sybase SQL database:

1. Launch Sybase Central 4.0. In Windows, this is launched from the **Start** menu by selecting **Programs**→**SQL Anywhere 8**→**Sybase Central**.
2. In the left pane of the *Sybase Central* screen, expand the node **Adaptive Server Anywhere 7** and then select **Services**.
3. In the right pane, double-click **Add Service**. The *Create New Service* window opens. Click **Next**.
4. The *Choose Service Type* window opens. Select **Network Database Server** from the list box and click **Next**.
5. The *Choose Name and Startup* window opens. Type `SQLAnywhere` in the field and select **Automatic**. Click **Next**.
6. The *Choose Path Name* window opens. Keep the default values and click **Next**.
7. The *Specify Parameters* window opens. On the first line, enter:

```
-n database
```

Where `database` is the value you specified in *Creating a Database* on page 33.

8. On the same line, enter `-x "tcpip(ServerPort=port_number)"`. This is optional and typically used when more than one database service is created.

9. On the next line, enter the full path (including the filename) of the database file you specified in *Creating a Database* on page 33.



Note: Make sure you enclose the path in double quotes.

Click **Next**.

10. The *Choose Account* window opens. Select the **Local** system account option. Click **Next**.
11. The *Choose Options* window opens. Ensure that **Start service when created** is unchecked. Click **Next**.
12. The *Ready to create new Service* window opens. Click **Finish**. You are returned to the main *Sybase Central* screen
13. On the *Sybase Central* screen, right-click **SQLAnywhere** to display the pop-up menu and then select **Start** to start the service.



Note: You can also start the service from the NT service menu.

Connecting to the Database and Creating a User

To connect to the Sybase SQL database and create a user:

1. On the Sybase Central screen, select **Tools**→**Connect**.
2. The *Connect* window opens. Click the **Identification** tab and enter the following:
 - DBA in the **User** field.
 - SQL in the **Password** field.
3. Click the **Database** tab and perform the following:
 - In the **Server Name** field, type the value you specified for **Server Hostname**. Note that the name is case-sensitive. Use the **Find** button to verify the name.
 - In the **Database** name field, type the value you specified for **Database Name** in *Creating a Database* on page 33. You can also use the drop-down list to select the database.
 - Ensure that the location of the database is displayed in the **Database file** field. If necessary, click the **Browse** button and navigate to the correct location.
 - Ensure that both check boxes are checked and Click **OK**.
4. The window closes and Sybase Central connects to the portal database. You are returned to the main *Sybase Central* screen.

5. You should now change the password for the SQL Anywhere Database Administrator. This step is optional, but it is recommended in order to ensure security.
 - In the right pane of the *Sybase Central* screen, select **DBA**.
 - Right-click to display the pop-up menu and click **Properties**.
 - Enter and confirm the new password.
 - Click **OK** to return to the *Sybase Central* screen.
6. In the left pane of the *Sybase Central* screen, expand server **portal** and then database **portal (DBA)**. Then select the **Users and Groups** node.
7. In the right pane, double-click **Add User or Group**.
8. The *Choose Name and Type* window is displayed. Select the radio button **Create a user** and type the desired user name in the field. It is recommended that you use `portal` for the user. Click **Next**.
9. The *Attributes* window is displayed. Enter values into the **Password** and **Confirm** fields. It is recommended that you use `portal` for the password.
10. Ensure that the check boxes **User/Group is allowed to connect**, **Resource**, and **Remote DBA** are checked.
11. Click **Finish**. A user is created for this database. You are returned to the main *Sybase Central* screen.

A.2 Oracle

This section describes the tasks that must be performed in order to use Oracle with enPortal:

- *Installing Oracle* on page 37
- *Listener Verification* on page 38
- *Creating a Database* on page 38
- *Managing the Database* on page 39
- *Creating a User* on page 39

Installing Oracle

These installation instructions apply to Oracle 8i. To install Oracle:

1. Obtain the Oracle installation media.
2. On the server, start the Oracle Universal Installer.
3. Follow the instructions that appear and enter appropriate values when necessary. When prompted for the following information, enter the values listed in Table A1. This will help ensure that Oracle functions properly with enPortal.



Note: The database must be set to treat strings in a case-sensitive manner.

Table A1: Oracle Installation Screen Prompts

Prompt	Value
Product Selection	Oracle 8i Enterprise Edition
Installation Type	Minimal
Make Starter Database	No

Listener Verification

To verify a listener for Oracle is active:

1. Start the Oracle Net8 Assistant.
 - Windows: Launched from the **Start** menu.
 - UNIX: Launched by executing the following command:

```
$ORACLE_HOME/bin/netasst
```
2. Ensure that a listener exists for the local machine and identify the TCP/IP port on which it is listening. The default port is 1521.
3. Close the Oracle Net8 Assistant.

Creating a Database

To create an Oracle database:

1. Start the Oracle Database Configuration Assistant.
 - Windows: Launched from the Start menu.
 - UNIX: Launched by executing the following command:

```
$ORACLE_HOME/bin/dbassist
```
2. Choose *Custom* for the type of database to create. Except for the values shown in Table A2, choose all defaults:

Table A2: Oracle Database Configuration Assistant Prompts and Values

Prompt	Value
Type of Configuration	Custom
Database Identification: <ul style="list-style-type: none">• Global Database Name• SID	portal (recommended value) portal (recommended value)
Character Set (same screen as SID)	UTF8

Managing the Database

To connect to an Oracle database as manager:

1. Start the Oracle Database DBA Studio.
 - Windows: Launched from the **Start** menu.
 - UNIX: Launched by executing the following command:

```
$ORACLE_HOME/bin/oemapp dbastudio
```
2. Add a new database to the tree.
3. Open the database and connect to the new database using the following parameters:
 - Username: `system`
 - Password: `manager`
 - Connect As: `SYSDBA`
4. Click **Instance** and set the state to **Open**.

Creating a User

To create a new Oracle database user:

1. Start the Oracle Database DBA Studio.
 - Windows: Launched from the Start menu.
 - UNIX: Launched by executing the following command:

```
$ORACLE_HOME/bin/oemapp dbastudio
```
2. Connect to the `portal` database using the following parameters:
 - Username: `system`
 - Password: `manager`
 - Connect As: `NORMAL`
3. Expand `portal`→**Security**→**Users**
4. Right-click **Users** and select **Create** from the pop-up menu.
5. In the *Create User* window, enter values for the **Name** and **Password**. It is recommended that you use `portal` for both.

6. Click the **Role** tab. The *Role* page opens.
7. Grant the additional roles of:
 - **IMP_FULL_DATABASE**
 - **RESOURCE**
8. Click **Create**. The user has been created.

A.3 Microsoft SQL Server

This section describes the following tasks that must be performed in order to use SQL Server with enPortal:

- *Downloading the Microsoft SQL JDBC Driver* on page 41
- *Installing Microsoft SQL Server* on page 41
- *Creating a Database and Configuring Security* on page 42
- *Configuring Automatic Startup* on page 43
- *Installing Microsoft SQL Server JDBC Driver* on page 43

Downloading the Microsoft SQL JDBC Driver

After you have installed enPortal, you must download a JDBC driver that will enable enPortal to establish a connection to your Microsoft SQL Server database.

To install the JDBC driver:

1. Access the jTDS driver files at the following location:
<http://jtds.sourceforge.net/>
2. Download the file `jTDS-1.2-dist.zip` to your local filesystem.
3. Locate the file `jtds-1.2.jar` within the downloaded zip file.
4. Extract the file `jtds-1.2.jar` and place it in the folder `PORTAL_HOME/classes-custom/`

Installing Microsoft SQL Server

These installation instructions apply to SQL Server 2000. To install Microsoft SQL Server:

1. Select **Install SQL Server 2000 Components**.
2. Select **Install Database Server**. The InstallShield begins.
3. On the first screen, select **Local Install**. Click **Next** or **Yes** on the following screens until the *Setup Type* screen opens.
4. On the *Setup Type* screen, select **Custom** and click **Next**.
5. On the *Select Components* screen change or accept the default settings and click **Next**.
6. On the *Character Set/Sort Order/Unicode Collation* screen, in the **Sort Order** field, select **Dictionary Order, Case Sensitive**. Keep the other default settings and click **Next**.

7. On the *Network Libraries* screen, accept the defaults and click **Next**.
8. On the *Services Accounts* screen, select **Use the same account for each service. Autostart SQL Server Service**. For **Service Settings**, select **Use the local system account**. Then click **Next**.
9. Click **Next** until you reach the final screen and then click **Finish** when the installation is complete.

Creating a Database and Configuring Security

To create and configure a Microsoft SQL database, do the following:

1. From the Windows **Start** menu, select **SQL Server – Enterprise Manager**.
2. Expand **SQL Servers**.
3. Expand **SQL Server Group**.
4. Expand your host name (to get to the local databases).
5. Right-click **Databases** and select **New Database**.
6. Enter `portal` in the **Name** field and click **OK**.
7. Expand **Security**.
8. Right-click **Logins** and select **New Login**.
9. Enter `portal` in the **Name** field.
10. Select **SQL Server Authentication** and enter a password for the `portal` user.
11. For **Defaults**, select `portal` as the database.
12. Click the **Database Access** tab and select `portal` as the permitted database.
13. For **Database roles for portal** select:
 - `db_ddladmin`
 - `db_datareader`
 - `db_datawriter`Select **OK**.
14. Because the default is blank, it is recommended that you change the password for the `sa` account.
 - Click **Logins**.
 - Right-click `sa` and select **Properties**.
 - Enter a password and click **OK**.

Configuring Automatic Startup

To configure a Microsoft SQL database for automatic startup:

1. From the Windows **Start** menu, select **Settings**→**Control Panel**.
2. Open **Services** and double-click **MSSQLServer**.
3. For **Startup Type**, ensure that **Automatic** is selected.
4. For **Log On As**, select **System Account**.
5. Click **OK**.

Installing Microsoft SQL Server JDBC Driver

To install the Microsoft JDBC Driver, do the following:

1. Download the Microsoft SQL Server JDBC Driver from Microsoft:
<http://www.microsoft.com/sql/downloads>
2. Install the JDBC Driver.
3. Copy the three JAR files within the `lib` directory where the driver was installed, to the `%PORTAL_HOME%\class-custom` directory (where `%PORTAL_HOME%` is the directory where `enPortal` was installed). There should be three JAR files, and they are named `msbase.jar`, `mssqlserver.jar` and `msutil.jar`.
4. Proceed with the steps to configure the database.



Note: If the `DBSetup` utility is already running, you must re-start it so that it can successfully test the database connection.

Appendix B: Obtaining an Authorized Certificate for enPortal

This appendix describes the steps involved in obtaining and installing a signed certificate for the enPortal web server.

This appendix contains the following section:

- *Creating a Secure enPortal Server* on page 46

B.1 Creating a Secure enPortal Server

enPortal is distributed with an invalid dummy SSL certificate for its Apache web server. This allows the system to function, but the client web browser will warn the user if one or more issues are identified with regard to the web server certificate:

- The certificate has expired.
- The certificate is not applicable to the server.
- The certificate is not signed by an authorized Certificate Authority.

Selecting a Certificate Authority

A certificate for your web server must be signed by a Certificate Authority that is trusted by your web browser. There are many such authorities and most provide detailed assistance for obtaining a signed server certificate. When selecting an authority, be aware of the following points:

- You need to obtain a signed Apache `mod_ssl` server certificate.
- You may need to provide physical documentation to the Authority to establish proof of identity.
- You need to renew certificates periodically (at least every 2 years). Renewal activities are typically less involved than origination activities.

Obtaining Certificate Signing Tools

An OpenSSL utility is used to generate Certificate Signing Requests (CSRs) and certificates. The files for this are included in the Apache distribution that you installed as part of the enPortal installation.

To prepare the `Apache_Home/bin` directory for generating the Certificate Signing Request, copy the sample file `PORTAL_HOME/httpd/apache-integration/conf/openssl.cnf` to the `Apache_Home/bin` directory.

Generating a Certificate Signing Request (CSR)

You must submit a Certificate Signing Request (CSR) to your Certificate Authority (CA). The following steps describe how to generate a CSR containing the information appropriate to your system.

1. Open a command prompt and change to the `Apache_Home/bin` directory containing the SSL certificate generation files.
2. Generate the CSR and a private key by running the command:

```
openssl req -config openssl.cnf -new -out server.csr
```

- Enter a **PEM pass phrase**.
- Enter the desired values for the next set of attributes starting with **Country**, **State**, **Locality**, **Organization**, and **Organizational Unit**.



Note: For the **Common Name**, enter the exact domain-qualified hostname for the server on which you are installing Apache for enPortal.

- Enter the **Email Address** for the contact responsible for the certificate, then press enter for the final optional attributes.
 - After successfully executing this command, two files should have been created in the temporary directory: `server.csr` and `privkey.pem`.
3. Send the `server.csr` file to your selected Certificate Authority according to their instructions.



Note: Do not send them the private `server.key` file.

4. Create the key file and remove the pass phrase from the private key by executing the following command. Enter the **PEM pass phrase** you specified.

```
openssl rsa -in privkey.pem -out server.key
```

The `server.key` file will be created in the current directory. You must copy this file to your enPortal server.



Tip: If you are not able to successfully generate a Certificate Signing Request with the method outlined in this section, you can download a full kit of tools and instructions from the OpenSSL web site at <http://www.openssl.org/related/kits.html>.

Installing the Certificate Files on the enPortal Server

Install the private key generated by the `openssl` tool. Copy the `server.key` file from your `Apache_Home/bin` directory to the following location on your enPortal server:

```
PORTAL_HOME/httpd/apache-integration/conf/ssl.key/
```

When your Certificate Authority provides you with a signed certificate, copy the file to the following location on your enPortal server:

```
PORTAL_HOME/httpd/apache-integration/conf/ssl.crt/
```

Note: You must re-start the enPortal web server after installing these files.



Appendix C: Obtaining Installation Files and Settings

Certain key installation information, such as files on your Support website, are provided by the organization which manages your portal distribution. This appendix provides detailed information such as how to access your support website and locate the appropriate materials on the site. A number of sections in the Installation Guide refer to specific parts of this appendix.

This appendix contains the following section:

- *Downloading enPortal Files* on page 50
- *Installing Sybase SQL Anywhere* on page 53

C.1 Downloading enPortal Files

Current versions of enPortal files can be downloaded from the Support website to your local filesystem.

The Support Website

The support website is the location where current versions of product installation and related files are maintained. These files are available to registered users of enPortal any time they are needed.

Accessing the Website

Perform the following steps to access the Support website:

1. Access the Support website at the following URL:
<http://www.edge-technologies.com/edgefiles/login.cfm>
2. Log in with the user name and password provided to you by Sales or Support.

Downloading the Apache Web Server Distribution

A special customized version of Apache is used with enPortal. Perform the following steps to download the Apache files:



Warning: The Apache files on the support website are not identical to the standard Apache distributions that are available from open source websites such as www.Apache.org. Make sure you download the customized Apache file from the support website.

1. Log in to the Support site as outlined under *Accessing the Website* on page 50.
2. Click the `extra` link to go to the `\extra\` sub-folder.
3. Click the `apache` link to go to the `\extra\apache\` sub-folder.
4. Navigate to the appropriate sub-folder for your platform.
5. Select the desired Apache archive and download it to your local filesystem.

Downloading the enPortal Installation File

The installation file contains all of the files to be installed for operating the portal. Perform the following steps to download the installation file:

1. Log in to the Support site as outlined under *Accessing the Website* on page 50.
2. Click the `enportal` link to go to the `\enportal\` sub-folder.

3. A list of folders will be displayed. Each folder name is the version number of a formal release or patch. Click on the appropriate folder to see files available for the desired version of enPortal.
4. One or two folders will be displayed for the selected release.

Table C1: Available Folders for Portal Releases

Folder Name	Description
full	<p>Represents a complete set of installation files for the selected portal version, including:</p> <ul style="list-style-type: none"> • UNIX installation file: <code>install.tgz</code> • Windows installation file: <code>install.exe</code> • Product documentation • Release version and build numbers • Release Notes
patch	<p>Represents a set of files for updating an existing installation of enPortal, including:</p> <ul style="list-style-type: none"> • Patch file: <code>patch.jar</code> <p>The patch file contains a set of files to be copied over an existing portal filesystem, to upgrade the system to the selected version</p> <ul style="list-style-type: none"> • Release version and build numbers • Patch Notes

5. Download the installation file(s) to a temporary location on your local filesystem.



Tip: After downloading the installation file, you can also download relevant product documentation. For more information on the available documentation files, see *Downloading enPortal Documentation* on page 51.

Downloading enPortal Documentation

Several documents are available on the Support site to assist with installation, configuration, and administration of enPortal. Perform the following steps to download the documentation files:

1. Log in to the Support site as outlined under *Accessing the Website* on page 50.
2. Click the `enportal` link to go to the `\enportal\` sub-folder.
3. A list of folders will be displayed. Each folder name is the version number of a formal release or patch. Click on the appropriate folder to see files available for the desired version of enPortal.

4. A folder named `full`, if available, will contain all of the documentation corresponding to the selected version of enPortal. This will generally include the following documents:

Table C2: Available Documents for Full Portal Releases

File Name	Description
<code>Administration Guide.pdf</code>	A book intended for system administrators who need to manage enPortal. It describes how to perform administrative tasks using the enPortal Administrator GUI, command line tools, and process control.
<code>buildInfo.txt</code>	The version and build numbers for the release
<code>install.exe</code>	Windows installation file (executable)
<code>install.tgz</code>	UNIX installation file (compressed)
<code>Installation Guide.pdf</code>	A book intended for enPortal administrators who need to install and deploy enPortal. It includes installation, upgrade, and licensing procedures. In addition, it contains information about configuring the database and security certificates.
<code>Integration Guide.pdf</code>	A book intended for anyone who will be integrating applications into enPortal. It includes sections on procedures for content integration, Single Login, configuring Look and Feel, authentication, and integrating with external sources of users. The book also details how to use Product Integration Modules (PIMs).
<code>License.txt</code>	Product licensing details. Note, this is not the license file that is needed to run enPortal. For information on obtaining the product license file, see <i>Installing a Formal License</i> on page 26.
<code>QuickStart-README.txt</code>	Describes the basics of installing or upgrading enPortal on UNIX systems
<code>Portal-README</code>	General information related to the release. Generally includes notes, setup instructions, and known issues.
<code>ReleaseNotes.html</code>	Formal details regarding the release. Generally includes release history, summary of bug fixes or enhancements, and notes regarding upgrade from a previous version of enPortal.
<code>White Paper.pdf</code>	Technical description of enPortal architecture and features.

C.2 Installing Sybase SQL Anywhere

If you will be running the portal with the Sybase SQL Anywhere database, there are no special downloads required from the Support site. You will need to install and start your Sybase database, and then configure the portal to run with the database as described in *Configuring the Database Connection* on page 27.

Appendix D: Creating a Custom enPortal Encryption Key

enPortal integrates applications into a common interface. Most of these applications require a Username and Password for access. enPortal's Single Sign-on feature saves these user credentials and automatically submits them to applications on behalf of the enPortal user. When these passwords are stored by enPortal, it is critical that they are securely encrypted so that they cannot be accessed by other parties.

The enPortal distribution includes a default encryption key that is used for securely storing authentication passwords in the database and XML files. You may choose to add a level of security to the system by creating a custom key for encrypting passwords.

This appendix contains the following section:

- *Creating a Custom Encryption Key* on page 56

D.1 Creating a Custom Encryption Key

This section details the considerations and procedures for a system administrator to implement a custom encryption key in the enPortal system. If you do not create a custom key upon initial installation, you can still create one at any future time.

The security of enPortal protects user credentials stored within the portal database. The user credentials are protected even if an attacker were to gain access to the database content (such as from a discarded backup) or an XML export of enPortal content. enPortal utilizes a one-way hashing algorithm for the storage of internal product passwords. External application passwords used for Single Sign-on are encrypted using strong encryption (specifically, the NIST sponsored AES algorithm). Creating a custom key will enhance security by creating a custom private key applicable to only your system.

The Custom Key File

If you create a custom encryption key, enPortal will create the file `crypto.properties`. This file does not exist in a fresh enPortal installation, and will not exist in any enPortal system that does not have a custom key. This file operates conceptually as a certificate that enPortal uses for encrypting passwords.



Warning: Once you create a custom key file, you must permanently retain the `crypto.properties` file for enPortal to be able to decrypt passwords. If you lose the `crypto.properties` file, all passwords will be lost.

Executing the KeyCreate Command

The `KeyCreate` command is used to generate the custom `crypto.properties` file. You will generally only need to run this command once over the lifetime of the enPortal system.



Tip: enPortal does not have to be running to execute the `KeyCreate` command.

To create the custom encryption key:

1. Go to the `PORTAL_HOME/bin` directory.
2. Enter the following command:

```
portal KeyCreate
```

A prompt will ask you to confirm that you want to proceed.

3. Enter `yes` to proceed.
A prompt will indicate that the key creation was successful.
A prompt will ask if you want to update stored passwords. If you are not sure, or do not have enPortal running, you can select `no` and update the stored passwords later with the `CredentialsUpdate` command (see *Executing the CredentialsUpdate Command* on page 57).
4. Enter `yes` or `no`.
5. Locate the new file `PORTAL_HOME/config/crypto.properties` to confirm that the file was created successfully.
6. If you are running a clustered enPortal system where multiple enPortal installations are sharing a single database, you must manually copy the `crypto.properties` and `persist.properties` files into the `PORTAL_HOME/config` directory of each enPortal filesystem.

Executing the CredentialsUpdate Command

After you create an encryption key for your enPortal system, it is important that you update any existing passwords that were previously stored in your enPortal database. The `CredentialsUpdate` command performs this update by decrypting every password in the enPortal database and then re-encrypting the passwords using the encryption key in the `crypto.properties` file.



Tip: If you are installing a new enPortal system, you do not need to execute the `CredentialsUpdate` command.

There are two ways to perform this update:

- Execute the `KeyCreate` command with a running portal and answer `yes` when asked if you want to update stored passwords. (See *Executing the KeyCreate Command* on page 56)
- Go to the `PORTAL_HOME/bin` directory and enter the following command:

```
portal CredentialsUpdate
```

A login dialog box will be displayed. You must enter credentials for a portal administrator to complete the update of credentials. If you are on a system that does not have a graphical interface to display the login box, you can pass the administrator credentials in the command as follows:

```
portal CredentialsUpdate -uid adminuserid -pwd adminpassword -dmn  
adminomain
```



Note: The `CredentialsUpdate` command will update all passwords stored in the enPortal database, but not passwords in XML files previously generated by the `XMLExport` process. XML files generated by running `XMLExport` after running `CredentialsUpdate` will contain the updated passwords.

Contact Information

Corporate

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