

# Essbase® Enterprise Services

Release 6.5

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## *Installation Guide*



Hyperion Solutions Corporation

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# Preface

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## Purpose

This guide provides you with the information that you need to install and configure Essbase Enterprise Services and Essbase Spreadsheet Services for use with Essbase®. This book explains Essbase Enterprise Services features and options and contains the concepts, processes, and procedures that you need to use the software.

## Audience

This guide is for system administrators and software developers who are responsible for installing Essbase Enterprise Services, configuring it, and building client programs for use with the product.

## Document Structure

This document contains the following information:

Chapter 1, “Product Overview,” introduces Essbase Enterprise Services features, the development platform, and computer resource allocation for the product.

Chapter 2, “Installing Software on Windows Systems,” describes how to install Essbase Enterprise Services on Windows systems.

Chapter 3, “Installing Software on UNIX Systems,” describes how to install Essbase Enterprise Services on UNIX systems.

Chapter 4, “Configuring and Running Software Components,” describes how to configure and run Essbase Enterprise Services servers. This chapter also describes how to configure Essbase servers to work with Essbase Enterprise Services servers.

Chapter 5, “Setting up the Sample Programs,” describes how to setup, compile, and run the sample client programs provided with Essbase Enterprise Services.

Chapter 6, “System Administration,” outlines how to perform administration and maintenance tasks for Essbase Enterprise Services systems.

Chapter 7, “Advanced Installation Topics,” lists locations of essential files and describes how to create pointer files, replicate users across a cluster of servers, and uninstall the product.

Glossary contains a list of key terms and their definitions.

Index contains a list of Essbase Enterprise Services terms and their page references.

## Related Documentation

Hyperion provides the following documentation for this product:

- The online *Essbase Enterprise Services Console Help* in the Essbase Enterprise Services DOCS directory, for more information about using the Enterprise Services Console to manage servers and domains.
- The online *Essbase Enterprise Services JAPI Reference* in the Essbase Enterprise Services DOCS directory, for more information about using the Essbase Enterprise Services Java application programming interface (JAPI).
- The online *Essbase.properties Reference* in the Essbase Enterprise Services DOCS directory, for more information about using the settings of the `essbase.properties` configuration file.
- The *Hyperion Essbase Database Administrator's Guide*, for more information about configuring and using Essbase OLAP servers.

## Online Help

➤ To access online help:

1. In the installation directory for Essbase Enterprise Services, locate the `viewDocs.cmd` file in the `bin` subdirectory.
2. Run the `viewDocs.cmd` file to display the online help.



- To print an online help topic, display the topic and select File > Print.  
To enable viewing of online documentation from the Help menu of Essbase Enterprise Services Console on UNIX Systems, see Chapter 3, “Installing Software on UNIX Systems”.

## Online Guides

The online guides are electronic versions of the printed documentation.

- To display an online guide:
  1. In the installation directory for Essbase Enterprise Services, locate the `viewDocs.cmd` file in the `bin` subdirectory.
  2. Run the `viewDocs.cmd` file to display the online help.

## Conventions

The following table shows the conventions used in this document:

*Table i: Conventions Used in This Document*

Item	Meaning
➤	Arrows indicate the beginning of a procedure consisting of sequential steps.
Brackets []	In examples, brackets indicate that the enclosed elements are optional.
<b>Bold</b>	Bold text indicates words or characters that you type exactly as they appear on the page. Bold in procedural steps highlights major interface elements.
CAPITAL LETTERS	Capital letters denote commands and various IDs. (Example: CLEARBLOCK command)
Example text	Courier font indicates that the material shown is a code or syntax example.

Table i: Conventions Used in This Document (Continued)

Item	Meaning
Ctrl + 0	Keystroke combinations shown with the plus symbol (+) indicate that you should press the first key and hold it while you press the next key. Do not type the + symbol.
<i>Courier italics</i>	Courier italic text indicates a variable field in command syntax. Substitute a value in place of the variable shown in Courier italics.
<i>Italics</i>	Italics in a product-related term in the body of a book indicates that the term is also included in the glossary of the book.
Ellipses (...)	Ellipsis points indicate that text has been omitted from an example.
Mouse orientation	This document provides examples and procedures using a right-handed mouse. If you use a left-handed mouse, adjust the procedures accordingly.
Menu options	Options in menus are shown in the following format: <i>Menu name &gt; Menu command &gt; Extended menu command</i> For example: File > Desktop > Accounts
<i>n, x</i>	The variable <i>n</i> indicates that you must supply a generic number; the variable <i>x</i> indicates that you must supply a generic letter.

## Additional Support

In addition to providing the documentation and online help, Hyperion offers the following support for product information.

### Ordering Documentation

A complete set of documentation is included with the product in PDF or HTML format. For more information on how to order printed documentation, refer to the Documentation Catalog that was shipped with this product, or contact your local support office.

## Training Services

Hyperion offers a variety of training options, including instructor-led training, custom training, and multimedia training. This training covers all Hyperion applications and technologies and is geared to end users, administrators, and information systems (IS) professionals.

Instructor-led training is delivered in formats and in locations suited to Hyperion's diverse, global customers. Hyperion Authorized Training Centers offer courses that they develop, as well as those developed by Hyperion. Custom training—training on the configured and tailored applications that employees use on the job—is another option to enhance user productivity and to ensure smooth day-to-day operations. Multimedia training—including computer-based training, Web-based training, and interactive distance learning—provides a cost-effective means of giving users a hands-on introduction to product features and functions. Computer-based training (CBT) provides high-quality interactive training at the user's convenience, regardless of location.

For more information about training, contact your local training services representative.

## Consulting Services

Hyperion Consulting Services assists customers in maximizing the use of, and the return on investment in, Hyperion products. Experienced Hyperion consultants and Hyperion Alliance Partners assist organizations in tailoring solutions to their particular requirements, such as reporting, analysis, modeling, and planning. Specific services include implementation consulting, custom business solutions, data integration, and technical consulting. Additionally, Hyperion offers a variety of Services Packages and Reviews.

For more information about Consulting Services, Services Packages, and Reviews, as well as the services offered by Alliance Partners, contact your local consulting services representative.

## Technical Support

Hyperion provides telephone and Web-based support to ensure that clients resolve product issues quickly and accurately. This support is available for all Hyperion products at no additional cost to clients with a current maintenance agreement.

For complete information on available support options, visit our Web sites at <http://www.hyperion.com> and <http://www.essbase.com>.



This chapter provides an overview of the Essbase Enterprise Services product, including major features, software components, development platform, and discusses the allocation of computer resources for a production system. Essbase Enterprise Services is a highly flexible software product and development technology platform, and it is recommended that you review this chapter in full before starting to develop client programs and deploy the product.

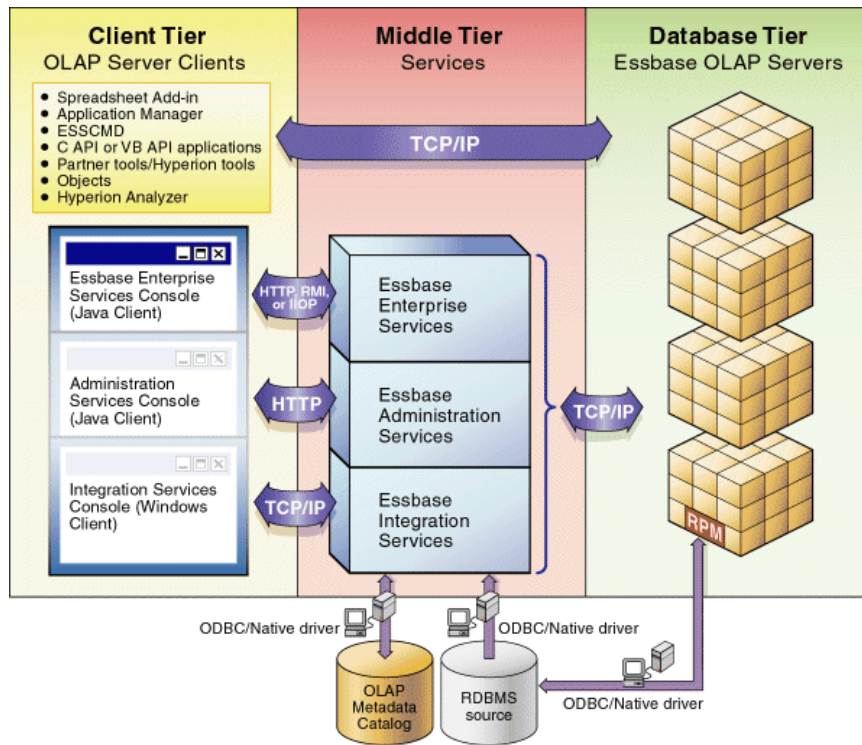
This chapter contains the following topics:

- “About Essbase Enterprise Services” on page 13
- “Understanding the Essbase Enterprise Services Development Platform” on page 17
- “Allocating Computing Resources for Essbase Enterprise Services” on page 21

## About Essbase Enterprise Services

Essbase Enterprise Services provides a highly scalable, available, and reliable platform for developing large-scale, Web-enabled Essbase applications. Essbase Enterprise Services works with Essbase and large-scale Java™ programming technology to bring enterprise-level performance and reliability to Essbase applications.

Figure 1: Essbase System Architecture Overview



The Essbase Enterprise Services platform supports large scale Essbase applications by providing the following capabilities:

- **Essbase server clustering:** Essbase Enterprise Services enables you to group sets of Essbase servers running applications with identical databases and use them as a single resource in your client programs. Support for server clustering enables additional features such as request load balancing and failover support.
- **Essbase server load balancing:** Essbase Enterprise Services servers can receive requests to a single Essbase application and distribute requests across a cluster of Essbase servers running copies of that application.
- **Essbase server failover support:** Essbase Enterprise Services detects Essbase service interruptions in a cluster and automatically reroutes requests to other available Essbase servers.

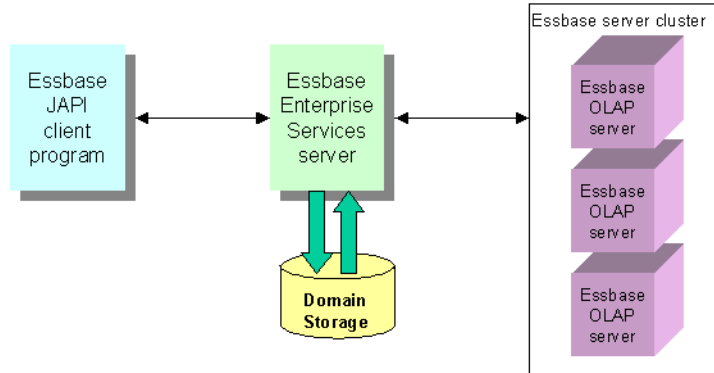
- **Essbase server connection pooling:** Essbase Enterprise Services enables client requests to share connections, conserving software and network resources and improving performance.

For an overview of the Essbase Enterprise Services technology platform, see “Understanding the Essbase Enterprise Services Development Platform” on page 17.

## Software Components

Essbase Enterprise Services requires two software components that are not included with the product: Enterprise Services must be connected to Essbase and you must have Java API client programs to run against the Enterprise Services server. You must purchase Essbase separately and develop the client programs using the Java programming language and the Essbase Java API. The relationship between the various Essbase and Essbase Enterprise Services components is shown in Figure 2. The communication between Essbase Enterprise Services and the Essbase cube is through TCP/IP by default. Optional protocols are described in this chapter.

*Figure 2: Essbase Enterprise Services System*



The client program is a custom-developed Java program that uses the Essbase JAPI to request data from Essbase applications.

Essbase is a multidimensional database server for business analysis. Essbase Enterprise Services is designed to provide the services of Essbase servers in a distributed, highly scalable way.

Essbase Enterprise Services acts as a broker for client program requests to Essbase servers. The Essbase Enterprise Services product family has four major components:

- **Essbase Enterprise Services Server**, which acts as a gateway for Essbase requests and provides user authentication, load balancing, failover support, event handling, and messaging services.
- **Essbase Enterprise Services Console**, which is a program for administering Enterprise Services servers, Essbase servers, user accounts, and security information.
- **Essbase Enterprise Services Command Shell**, which is a command-line interface for administering Enterprise Services domains, Essbase servers, user accounts, and security information.
- **Essbase JAPI**, which provides Java programming interfaces for developing custom, Web-enabled programs that use Essbase services.

These components work together with Essbase servers and Essbase Enterprise Services client programs to provide the services of the Essbase Enterprise Services product.

## Product Limitations

Essbase Enterprise Services Release 6.5 focuses on high performance, scalable delivery of Essbase data to query and reporting client programs. Given this focus, this release of the Essbase Enterprise Services product does not support or has had limited testing for certain Essbase services. In addition, testing of this release has focused on supporting a limited number of third party software. As a result, not all combinations of supported operating systems and third party software have been tested.

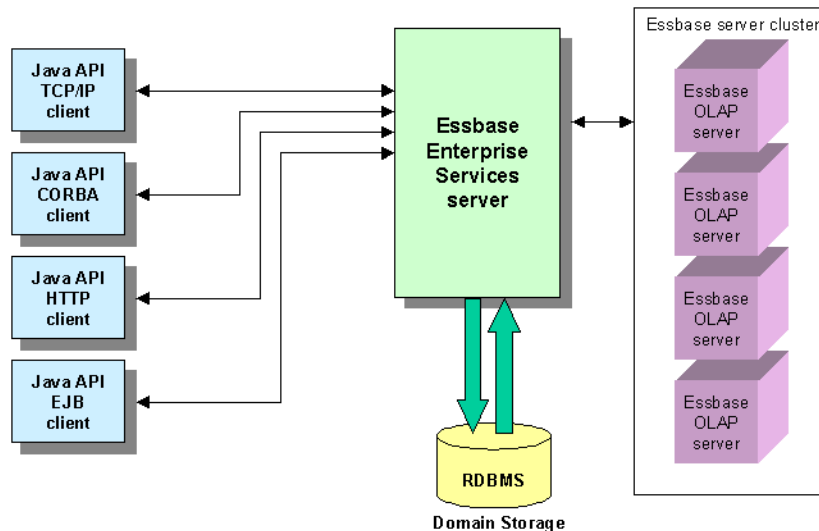
Essbase Enterprise Services Release 6.5 supports only client programs that read data from Essbase databases when they are configured in a cluster. Essbase Enterprise Services supports only data changes to Essbase databases that are not configured as part of a cluster.



# Understanding the Essbase Enterprise Services Development Platform

Essbase Enterprise Services supports four types of software technologies for Essbase JAPI client programs: Transfer Control Protocol/Internet Protocol (TCP/IP), Hypertext Transfer Protocol (HTTP), Enterprise JavaBeans (EJB), and Common Object Request Broker Architecture (CORBA) technologies. When you start developing client programs for Essbase Enterprise Services, you must choose one of these technologies for your client programs. The client program technologies are shown in Figure 3.

Figure 3: Client Program Technologies



Client programs for Essbase Enterprise Services must be written in Java, either as a servlet, applet, stand-alone application, or Enterprise Java Bean (EJB). The type of Java program you develop depends on the development technology (TCP/IP, HTTP, EJB, or CORBA) you use with Essbase Enterprise Services.

The following sections provide a brief overview of each of these supported technologies, along with some of their advantages and disadvantages.

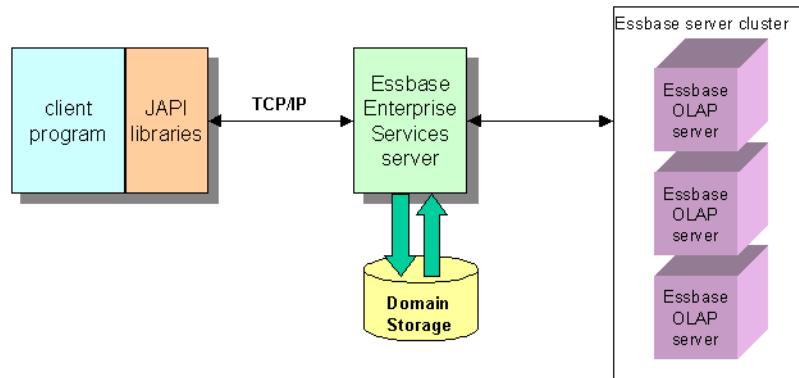
For information about how to configure Essbase Enterprise Services using one of these technologies, see Chapter 4, “Configuring and Running Software Components.”

## TCP/IP Client Programs

Client programs can use TCP/IP to communicate with Essbase Enterprise Services. TCP/IP is a well known and widely supported communication protocol used for computer to computer communication over the Internet.

Essbase Enterprise Services can be installed either as an executable or as a service on Windows NT. Refer to Chapter 2, “Installing Software on Windows Systems.”.

*Figure 4: Java applet client program using TCP/IP*



Client programs that use TCP/IP are usually stand-alone Java programs. However, these client programs can also run as Java servlets. If the client program uses TCP/IP, Essbase Enterprise Services must run as a stand-alone Java program.

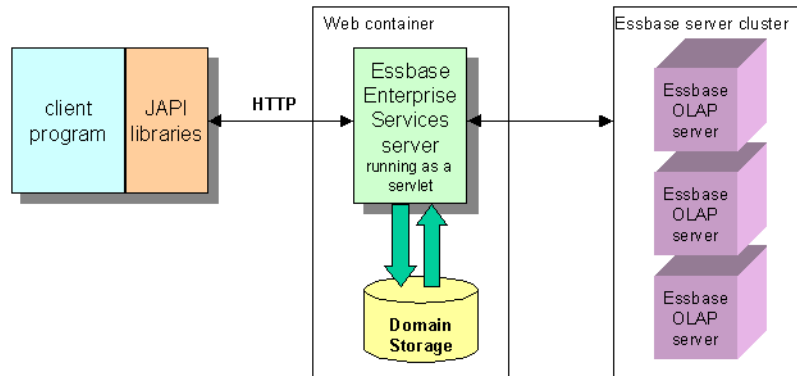
Implementations of Essbase Enterprise Services client programs using TCP/IP technology have the advantage of using small client programs. Client programs using TCP/IP with Essbase Enterprise Services are slightly more difficult to program than HTTP clients because they must be able to communicate with the Essbase Enterprise Services server using the lower-level TCP/IP communication protocol.

## HTTP Client Programs

Client programs can use HTTP to communicate with Essbase Enterprise Services. HTTP is a well known and widely supported communication protocol used by Web browsers and Web servers to communicate over the Internet.

Client programs that use HTTP are usually Java applets running in a Web browser, as shown in Figure 5. However, the client program can also run as a stand-alone Java program or servlet. If the client program uses HTTP, Essbase Enterprise Services must run as a Java servlet in a Java application server. The Essbase Enterprise Services product does not include a Java application server—this software must be purchased separately.

*Figure 5: Java applet client program using HTTP*



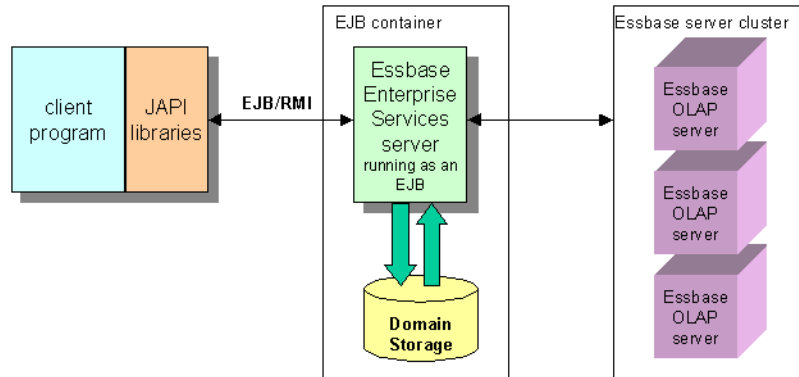
Implementations of Essbase Enterprise Services client programs using HTTP technology have the advantage of using the lightest client programs. Using an HTTP configuration also enables client programs to use Secure Sockets Layer (SSL) communication protocols. Client programs using HTTP with Essbase Enterprise Services tend to be slower because the HTTP protocol is not optimized for software to software communication.

## EJB Client Programs

Client programs can use EJB and Remote Method Invocation (RMI) to communicate with Essbase Enterprise Services. The RMI protocol is specifically designed for Java-to-Java communications and is meant for use within the context of Java application servers.

If you use EJB technology, both the client program and Essbase Enterprise Services must run as EJBs within a Java application server. The Essbase Enterprise Services product does not include a Java application server—this software must be purchased separately.

*Figure 6: Client Program Using EJB*



Implementations of Essbase Enterprise Services client programs using EJB technology have the advantage of running both the client and server software in a single Java application server context. The disadvantage to this type of implementation is that a service interruption in either the client or server component can stop the Essbase Enterprise Services system. This problem can be addressed by clustering Java application servers; that is, running additional copies of the Essbase Enterprise Services client and server on separate, connected Java application servers.

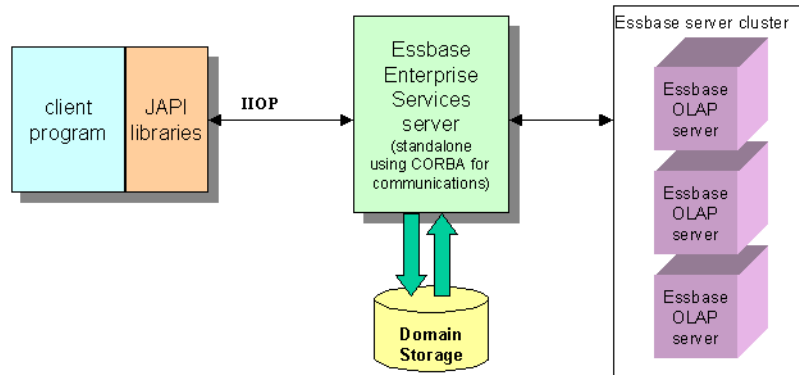
## CORBA Client Programs

Client programs can use CORBA technology to communicate with Essbase Enterprise Services. This strategy requires CORBA Object Request Broker (ORB) software, such as Borland™ VisiBroker®, to be present for both the client program and the Essbase Enterprise Services server. The Essbase Enterprise Services product does not include VisiBroker—this software must be purchased separately.

If a client program uses CORBA, it is usually a Java servlet running in a Java application server, communicating with Enterprise Services through Internet Inter-Orb Protocol (IIOP), as shown in Figure 7. However, the client program can also be a stand-alone Java program or a Java applet. A Java servlet client is the most likely use of this configuration, because it enables the creation of thinner,

browser-based, end-user client programs. The Essbase Enterprise Services product does not include a Java application server—this software must be purchased separately.

*Figure 7: Java servlet client program using CORBA*



Implementations of Essbase Enterprise Services client programs using CORBA technology usually provide the fastest performance, depending on the size and complexity of the client program logic. In this type of implementation, if the client program and the Essbase Enterprise Services server are separated by a security firewall, the client program must use tunneling protocols to communicate with Enterprise Services servers.

## Allocating Computing Resources for Essbase Enterprise Services

In planning the deployment of Essbase Enterprise Services as a production system, developers and system administrators must answer several questions to properly deploy the software on their computers and networks.

- What are the current computing resource requirements and user capacity of the Essbase application that will be served by Essbase Enterprise Services?
- What is the projected number of concurrent users for the Essbase Enterprise Services system?
- How much concurrent usage can the different components of the Essbase Enterprise Services system effectively serve?

- How much memory and processing power should be devoted to the Essbase Enterprise Services servers, Enterprise Services client programs, and Essbase servers?
- How much and what type of persistent storage will the Essbase applications and the Essbase Enterprise Services servers require?
- Is there enough network bandwidth to handle communications between the different components of the new Essbase Enterprise Services system?

Allocating resources for large-scale server applications is a challenging task. It is not possible to provide definitive answers to these questions because Essbase applications, Essbase Enterprise Services servers, and client programs require different resources in every case. However, the following considerations and guidelines should help in planning allocation of computing resources to your Essbase Enterprise Services system.

## Analyzing Essbase Applications

Before beginning the process of allocating resources for an Essbase Enterprise Services system, you must first analyze the Essbase application you plan to serve with Essbase Enterprise Services. The information obtained from this analysis will aid you in allocating resources for the Essbase Enterprise Services system.

- To analyze the Essbase application, perform the following general steps:
  1. Investigate the current system requirements for the Essbase application you will be serving through Essbase Enterprise Services. Make note of the following items:
    - Processor usage (how many and what type)
    - Memory usage while under a sustained load
    - Disk space usage
  2. Investigate how many concurrent users the application can serve with acceptable performance.

The statistics gathered in steps 1 and 2 provide a baseline for scaling your application to many more users. Once you understand the resources required to serve your Essbase application to a certain number of users, you can use this combination of processing power, memory, and disk space as a computing resource unit from which to estimate the resources required to serve a larger set of users.

3. Assess whether the Essbase application is optimized for best performance.

Many factors can affect the performance of a Essbase application. Ensuring that the Essbase application is designed for best performance will improve the overall performance of the Essbase Enterprise Services system. For information about optimizing the performance of Essbase applications, see the *Hyperion Essbase Database Administrator's Guide*.

In your performance analysis, pay particular attention to retrieval performance. Since Essbase Enterprise Services Release 6.5 supports primarily retrieval operations, performance for these tasks is critical.

4. Make changes to the Essbase application to improve performance.
5. Repeat steps 1 and 2 to reassess the system requirements and concurrent load capabilities of the Essbase application.

## Concurrent Usage Limits and Considerations

In planning to serve a large number of users, there are some concurrent usage limitations to take into consideration. Server software programs typically have limitations as to the actual number of concurrent users they can support. Knowing these general limitations will help you in planning the number of servers you will need to deploy.

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**CAUTION:** The numbers provided in the following section are estimates of capacity and are provided for planning purposes only. These estimates do not constitute a guarantee of actual capacity, as these numbers vary depending on application size, application logic, and hardware limitations.

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In planning capacity for large numbers of users, keep in mind that the total user community will typically not use the system at the same time. The standard estimate for the percentage of a total user community that will actually be logged on and using a large-scale system at any one time is 20%. Thus, to serve a total user community of 10,000 users, plan to provide capacity to serve at least 2,000 concurrent users.

A single Java 2, Enterprise Edition (J2EE)-compliant application server can typically handle up to 4000 concurrent users. Concurrent user limitations vary depending on the application server vendor. See the documentation for your application server for more information.

A single Essbase Release 6.1 server can typically handle between 250 and 500 concurrent users. Concurrent user limitations for Essbase depend on the size of the Essbase application and hardware limitations.

A single Essbase Enterprise Services server can typically handle up to 2000 concurrent users. Concurrent user limitations for Essbase Enterprise Services depend on the size and complexity of the client program logic and hardware limitations.

## Allocating Processing and Memory Resources

In an Essbase Enterprise Services system, the Essbase OLAP Server consumes the largest chunk of processing power and memory. Start your estimates with the resource requirements for your Essbase application as a stand-alone system.

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**CAUTION:** The guidelines provided in the following section are estimates and are provided for planning purposes only. Actual requirements will vary depending on application size, application logic, and hardware limitations.

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To get a rough idea of the amount of processing and memory your Essbase Enterprise Services system needs, take the number of concurrent users you need to serve with the system and divide it by the number of concurrent users that the computer running your Essbase application can effectively handle. This result tells you roughly how many computers with your current configuration you need to serve your user community.

**Tip:** If you are unsure of the number of concurrent users your Essbase application can handle, assume a maximum of 500 concurrent users

Estimating the computing resources necessary for Essbase Enterprise Services servers and your client programs is challenging, because it depends on the software technology you choose, the size of your client program code and the complexity of its logic. However, as a starting point, assume that Essbase Enterprise Services servers requires about one quarter to one third the processing power and memory that your Essbase servers need. For Essbase Enterprise Services client programs that use a server component to feed requests to Essbase Enterprise Services servers, assume these servers will need processing and memory resources at least equal to that of your Essbase Enterprise Services servers.



## Persistent Storage Considerations

Persistent storage and retrieval of data on hard disks are typically the slowest parts of a software system. Software processes that require access to data on hard disks typically have the most impact on software performance.

In an Essbase Enterprise Services system, the majority of performance impact from hard disk access comes from retrieval of data from Essbase databases. The Essbase Enterprise Services server also requires hard disk access for retrieving user authentication and server cluster information, but this impact is not as significant on system performance.

To minimize the impact of hard disk access on an Essbase Enterprise Services system, it is recommended that you store the database files for the Essbase applications in a high-speed RAID (Redundant Array of Independent Disks) system. This strategy minimizes the performance impact of hard disk access and increases the reliability of the Essbase Enterprise Services system.

## Assessing Network Bandwidth Requirements

Communications between large-scale server applications are taxing on network bandwidth. At the minimum, you should ensure that the computers that make up your Essbase Enterprise Services system, including the Enterprise Services servers, Essbase servers, and servers running the Essbase Enterprise Services client programs have at least 100 megabit connections between each other. Higher bandwidth connections and dedicated network connections between the computers in your Essbase Enterprise Services system are preferable. In general, the more concurrent usage of the system (the more users on the system at once), the more network bandwidth is required.



# Installing Software on Windows Systems

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This chapter describes the installation procedures for Essbase Enterprise Services software (Server, Console, Command Shell, Essbase JAPI, batch files, data files, and sample programs) on Windows NT and Windows 2000.

This chapter contains the following topics:

- “Windows System Requirements” on page 28
- “Installing Essbase Enterprise Services on Windows Systems” on page 28
- “Installing Essbase Enterprise Services as a Service on Windows NT” on page 33

To complete the installation and run Essbase Enterprise Services after running the installation program, see Chapter 4, “Configuring and Running Software Components.”

For information about setting up the sample applications for use with Essbase Enterprise Services, see Chapter 5, “Setting up the Sample Programs.”

## Windows System Requirements

Essbase Enterprise Services for Windows needs a system that meets specific requirements. These requirements are described in Table 1.

*Table 1: Essbase Enterprise Services Server Windows System Requirements*

Component	Requirements
Microprocessor	Pentium or higher
RAM	128 MB
Windows version	Windows NT 4.0 or Windows 2000
Disk space	50 MB 15 MB for the server software, API, sample applications, and documentation 9 MB for the Essbase libraries 26 MB for the Java Runtime Environment
Essbase Release	6.2 or later
Java™ platform	Java Runtime Environment version 1.3

Depending on the type of client programs you use with Essbase Enterprise Services, additional system and software resources may be required. For more information on the types of client programs you can use with Essbase Enterprise Services, see Chapter 1, “Product Overview” and Chapter 4, “Configuring and Running Software Components.”

## Installing Essbase Enterprise Services on Windows Systems

The Essbase Enterprise Services installation program performs the following operations:

- Copies Essbase Enterprise Services files to the `\essbase\ess\` directory (or to the directory you specify) on your hard disk
- Installs, if you choose, the Java Runtime Environment to the `\essbase\ess\jre` directory

- Copies the Essbase Enterprise Services sample application files to the \essbase\ess\samples directory on your hard disk
- Copies the Essbase Enterprise Services documentation files to the \essbase\ess\docs directory on your hard disk
- Updates existing directories if you have a previous release of Essbase Enterprise Services installed
- Creates the initial default user account with name=system and password=password. This account is used to build additional user accounts. The password of the system account can be changed.

For more information about the directories created and files installed, see “Directories Created on Windows Systems” on page 32.

## Installation Procedure for Windows Systems

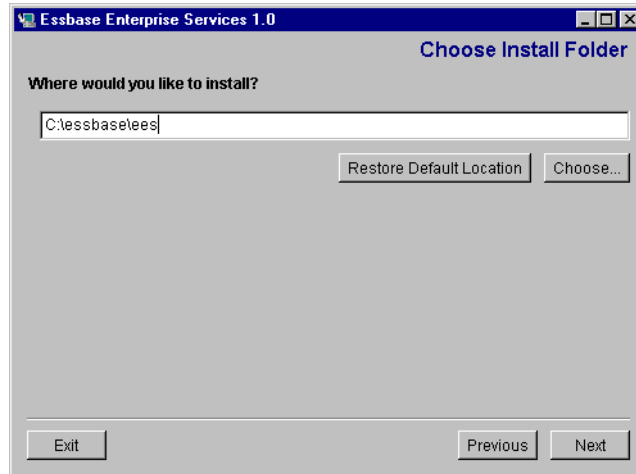
Install Essbase Enterprise Services server software on Windows platforms by running the self-extracting installation program that you downloaded from the Hyperion Web site.

- To install Essbase Enterprise Services software to a computer running Windows NT or Windows 2000:
  1. Run the .exe file that you downloaded from the Hyperion Web site.
  2. Follow the prompts and provide any information requested.

To cancel installation at any time, click the **Exit** button and then the **Exit Install** button.
  3. When prompted, type your license number exactly as it is shown on your registration letter. Click **Next** to continue.
  4. When the **Choose Install Folder** dialog box is displayed, specify the directory where you want to install Essbase Enterprise Services.

The default installation directory is `C:\essbase\ess\`, as shown in Figure 8. Type the name of another directory or click **Choose** to select a directory. If you type the name of a directory that does not exist, the installation program creates the directory for you.

*Figure 8: Choosing Where to Install Essbase Enterprise Services*



5. Click **Next** to continue.
6. In the **Choose Java Virtual Machine** dialog box, perform one of the following steps:
  - If you want to install a copy of Java specifically for Essbase Enterprise Services, select **Install Sun Java VM specifically for this application**.
  - If you want Essbase Enterprise Services to use an existing installation of Java, select **Choose a virtual machine already installed on this machine**. Then, in the list below this option, select an installation of Java.
 

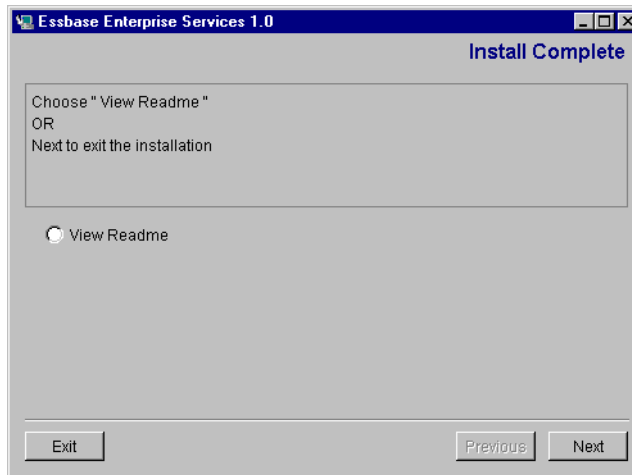
If you do not see the installation of Java that you want Essbase Enterprise Services to use, click **Search For Others** to have the installation program search for other installations of Java, or click **Choose Another** to locate an installation of Java manually.
7. When you finish selecting an option for Java, click **Next** in the **Choose Java Virtual Machine** dialog box.
8. In the **Choose Install Set** dialog box, perform one of the following steps:

- To install the Essbase Enterprise Services server, client, and the Essbase JAPI, select **Essbase Enterprise Server and Client**.
- To install only the Essbase Enterprise Services client and Essbase JAPI files, select **Essbase Enterprise Client**.

Installing the Essbase Enterprise Services client software separately is useful for computers that run an Essbase Enterprise Services client program.

9. In the **Choose Install Set** dialog box, perform one of the following steps:
  - To begin copying files to the hard drive, click **Install**.
  - To revise your choices, click **Previous**.
  - To exit the installation program without making changes, click **Exit**.
10. In the **Install Complete** dialog box, shown in Figure 9, perform one of the following steps:
  - To view the `readme.txt` file, select **View Readme**.

*Figure 9: Completing Installation of Essbase Enterprise Services*



11. Click **Next** to continue.
12. In the **Install Complete** dialog box, click **Done** to complete the installation.

## Directories Created on Windows Systems

If you chose to install the Essbase Enterprise Server and Client, the installation program creates a directory structure including the following directories:

```
\essbase\ess\  
    bin  
    data  
    devcorner  
    docs  
    essolap  
    external  
    jre  
    lib  
    samples  
    uninstallerdata
```

The `devcorner` directory is not installed if you chose to install only the Essbase Enterprise Client.

The `essenterprise` directory contains the subdirectories where the files for Essbase Enterprise Services are located. This directory is referred to in later chapters as the *ESS\_ES\_HOME* directory.

- The `bin` directory contains the executable program files and server setting files for Essbase Enterprise Services.
- The `data` directory contains a database file which Essbase Enterprise Services uses by default to store user names, server names, and other domain information.
- The `devcorner` directory contains documentation for developers using the Essbase JAPI and Essbase Enterprise Services.
- The `docs` directory contains documentation for the Essbase Enterprise Services, including the `readme.txt` file and the Essbase JAPI documentation.
- The `essolap` directory contains a runtime version of Essbase.
- The `external` directory contains library files from other vendors that support Essbase Enterprise Services.
- The `jre` directory contains a copy of the Java Runtime Environment. This directory is present only if you chose to install Java during installation.



- The `lib` directory contains library files for Essbase Enterprise Services, including versions of the software that run as a Java servlet and an Enterprise Java Bean (EJB).
- The `samples` directory contains sample programs for use with Essbase Enterprise Services. For more information about the sample programs, see Chapter 5, “Setting up the Sample Programs.”
- The `uninstallerdata` directory contains information for uninstalling Essbase Enterprise Services.

## Installing Essbase Enterprise Services as a Service on Windows NT

Essbase Enterprise Services can be installed to run as a service under Windows NT. As a service, Essbase Enterprise Services uses the native TCP/IP communications protocols.

The installation of Essbase Enterprise Services as a service is slightly different than the standard installation under Windows NT. After performing the standard installation on Windows NT, complete the following steps to run Essbase Enterprise Services as a service.

1. Add the following statements to the System path (this example assumes that you have installed Java at `c:\jdk1.3.1` and installed Essbase Enterprise Services at `c:\ees`):
  - `c:\jdk1.3.1\bin;c:\jdk1.3.1\jre\bin\server;c:\ees\bin`
2. Add the following statements to the Class path:
  - `c:\jdk1.3.1\bin;c:\ees\lib\ees_es_server.jar;c:\ees\lib\ess_japi.jar;`
3. Add the following jar/zip files to the Class path if you are using RDBMS as your Domain Storage:
  - For DB2 - `db2java.zip`
  - For SQL - `JSQConnect.jar`
  - For Oracle - `classes12.zip`
4. Specify the absolute path to the Essbase server in the `Essbase.Properties` file system.`arborPath` statement. By default the Essbase server is specified by a relative path.

5. Leave the EES executable, `EssbaseEnterprise.exe`, in the `ees/bin` folder. It is not necessary to put the EES executable in a system directory as is often the case with Windows NT services.
6. Restart your machine to effect all the Path and Classpath settings.
7. Register the service: `EssbaseEnterprise -i`. You will get a message stating that “the Essbase Enterprise Services are ready”.
8. Unregister the service: `EssbaseEnterprise -u`
9. After registering the service, go to Start>Control Panel> Services> EssbaseEnterprise, to start the service.
10. The Essbase Enterprise Services are now available through the EES console or through the client tools (`startcmd.cmd`, `startgui.cmd`, and `startees.cmd`).

# Installing Software on UNIX Systems

This chapter describes the installation procedures for Essbase Enterprise Services software (Server, Console, Command Shell, Essbase JAPI, batch files, data files, and sample programs) on Solaris™.

This chapter contains the following topics:

- “Solaris System Requirements” on page 36
- “Installing Essbase Enterprise Services on UNIX Systems” on page 36
- “Installing Essbase Enterprise Services to Run as a Background Process” on page 41

To complete the installation and run Essbase Enterprise Services after running the installation program, see Chapter 4, “Configuring and Running Software Components.”

For information about setting up the sample applications for use with Essbase Enterprise Services, see Chapter 5, “Setting up the Sample Programs.”

**Note:** This installation process also installs a new instance of the Essbase server for use with Essbase Enterprise Services. Because of the need to reset environment variables, it is recommended that this new instance is used rather than an existing instance. If you need to use an existing instance of the Essbase server, you will need to copy the library files to the /bin directory of that instance. Alternately, you can set the LD\_LIBRARY\_PATH to identify the library files in the /lib directory or the Essbase server that is installed with Essbase Enterprise Services.

## Solaris System Requirements

Essbase Enterprise Services for UNIX requires a system that meets minimal hardware and software requirements. Essbase Enterprise Services for Solaris requires a system with the following minimal hardware and software requirements:

*Table 2: Essbase Enterprise Services Solaris System Requirements*

Component	Requirements
Server platform	Sun SPARC or ULTRASPARC machines
Solaris version	7 or 8
Physical memory	128 MB RAM
Disk space	50 MB 15 MB for the server software, API, sample applications, and documentation 9 MB for the Essbase libraries 26 MB for the Java Runtime Environment
Essbase Release	6.2 or later
Java™ platform	Java Runtime Environment version 1.3

Depending on the type of client programs you use with Essbase Enterprise Services, additional system and software resources may be required. For more information on the types of client programs you can use with Essbase Enterprise Services, see Chapter 1, “Product Overview” and Chapter 4, “Configuring and Running Software Components.”

## Installing Essbase Enterprise Services on UNIX Systems

The Essbase Enterprise Services installation program performs the following operations:

- Copies Essbase Enterprise Services files to the `/home/essbase/ees` directory (or to the directory you specify) on your hard disk

- Installs, if you choose, the Java Runtime Environment to the `/home/essbase/ees/jre` directory
- Copies the Essbase Enterprise Services sample application files to the `/home/essbase/ees/samples` directory on your hard disk
- Copies the Essbase Enterprise Services documentation files to the `/home/essbase/ees/docs` directory on your hard disk
- Creates the initial default user account with `name=system` and `password=password`. This account is used to build additional user accounts. The password of the system account can be changed.
- Updates existing directories if you have a previous release of Essbase Enterprise Services installed

For more information about the directories created and files installed, see “Directories Created on UNIX Systems” on page 39.

## Installation Procedure for UNIX Systems

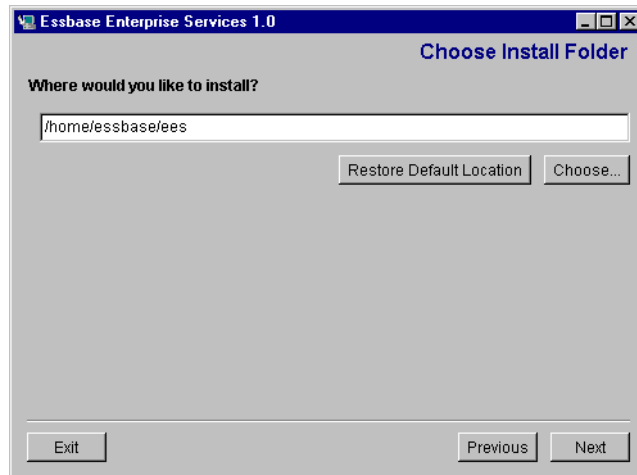
Install Essbase Enterprise Services server software on UNIX platforms by running the self-extracting installation program that you downloaded from the Hyperion Web site.

**Note:** The Essbase Enterprise Services installer requires a system with the Java Runtime Environment installed and graphical windowing software such as X-Windows or Motif.

- To install Essbase Enterprise Services software on a computer running a UNIX operating system:
  1. Log in using the Essbase Enterprise Services system administrator account. For example, log in as **admin** if you created a user account called **admin** that owns the target installation directory `/home/essbase/ees/`.
  2. Run the installer file that you downloaded from the Hyperion Web site.  
On Solaris systems, this file is a `.bin` file.
  3. Follow the prompts and provide any information requested.  
To cancel installation at any time, click the **Exit** button and then the **Exit Install** button.
  4. When the **Choose Install Folder** dialog box is displayed, specify the directory where you want to install Essbase Enterprise Services.

The default installation directory is `/home/essbase/ees/` as shown in Figure 10. Type the name of another directory or click **Choose** to select a directory. If you type the name of a directory that does not exist, the installation program creates the directory for you.

Figure 10: Choosing Where to Install Essbase Enterprise Services



5. Click **Next** to continue.
6. In the **Choose Java Virtual Machine** dialog box, perform one of the following steps:
  - If you want to install a copy of Java specifically for Essbase Enterprise Services, select **Install Sun Java VM specifically for this application**.
  - If you want Essbase Enterprise Services to use an existing installation of Java, select **Choose a virtual machine already installed on this machine**. Then, in the list below this option, select an installation of Java.
 

If you do not see the installation of Java that you want Essbase Enterprise Services to use, click **Search For Others** to have the installation program search for other installations of Java, or click **Choose Another** to locate an installation of Java manually.
7. When you finish selecting an option for Java, click **Next** in the **Choose Java Virtual Machine** dialog box.
8. In the **Choose Install Set** dialog box, perform one of the following steps:

- To install the Essbase Enterprise Services server, client, and the Essbase JAPI, select **Essbase Enterprise Server and Client**.
- To install only the Essbase Enterprise Services client and Essbase JAPI files, select **Essbase Enterprise Client**.

Installing the Essbase Enterprise Services client software separately is useful for computers that run a Essbase Enterprise Services client program.

9. In the **Choose Install Set** dialog box, perform one of the following steps:
  - To begin copying files to the hard drive, click **Install**.
  - To revise your choices, click **Previous**.
  - To exit the installation program without making changes, click **Exit**.
10. Click **Next** to continue.
11. In the **Install Complete** dialog box, click **Done** to complete the installation.

## Directories Created on UNIX Systems

If you chose to install the Essbase Enterprise Server and Client, the installation program creates a directory structure including the following directories:

```
/home/essbase/ees/
  bin
  data
  devcorner
  docs
  external
  jre
  lib
  essolap
  samples
  uninstallerdata
```

The devcorner directory is not installed if you chose to install only the Essbase Enterprise Client.

The essenterprise directory contains the subdirectories where the files for Essbase Enterprise Services are located. This directory is referred to in later chapters as the *ESS\_ES\_HOME* directory.

- The bin directory contains the executable program files and server setting files for Essbase Enterprise Services.

- The `data` directory contains a database file which Essbase Enterprise Services uses by default to store user names, server names, and other domain information.
- The `devcorner` directory contains documentation for developers using the Essbase JAPI and Essbase Enterprise Services.
- The `docs` directory contains documentation for the Essbase Enterprise Services, including the `readme.txt` file and the Essbase JAPI documentation.
- The `external` directory contains library files from other vendors that support Essbase Enterprise Services.
- The `jre` directory contains a copy of the Java Runtime Environment. This directory is present only if you chose to install Java during installation.
- The `lib` directory contains library files for Essbase Enterprise Services, including versions of the software that run as a Java servlet and an Enterprise Java Bean (EJB).
- The `olap` directory contains a runtime version of Essbase.
- The `samples` directory contains sample programs for use with Essbase Enterprise Services. For more information about the sample programs, see Chapter 5, “Setting up the Sample Programs.”
- The `uninstallerdata` directory contains information for uninstalling Essbase Enterprise Services.

## Viewing Online Documentation on UNIX Systems

On UNIX systems, you must modify the `startgui` file in order to launch the online documentation properly from the Help menu of Essbase Enterprise Services Console.

*Figure 11: Help Menu of Essbase Enterprise Services Console*





- To enable viewing of online documentation from the Help menu:
  1. Edit `startgui`, located in the `ESS_ES_HOME/bin` directory, where `ESS_ES_HOME` is the directory where you installed Essbase Enterprise Services.
  2. Add the following `CODEBASE` parameter to the `java.com` statement in `startgui`:

```
java.com.hyperion.essbase.beans.main.EssGuiConsole
CODEBASE=ESS_ES_HOME username=guest password=password
DOMAIN=essbase PREFSERVER=localhost ORBTYPE=tcip PORTNO=
5001
```

where `ESS_ES_HOME` is the directory where you installed Essbase Enterprise Services.

3. Save the `startgui` file.

Selecting Help Topics or Product Documentation from the Help menu of Essbase Enterprise Services Console launches the documentation properly.

## Installing Essbase Enterprise Services to Run as a Background Process

To Start the EES Server As Background Process on UNIX, you need to edit the `Essbase.Properties` file and make a change to the `StartEES.sh` command file.

In the `Essbase.Properties` file there is one line near the top that is used to turn the Console on. That line is as follows:

```
# Embedded Command console.
system.cmdShell.start=true
```

Change the line to turn off the Console as follows:

```
system.cmdShell.start=false
```

In the `Startees.sh` file, edit the last line. Originally, the last line in the file is:

```
java com.essbase.server.EssbaseEnterprise tcip
```

Change that line as follows:

```
nohup java com.essbase.server.EssbaseEnterprise tcip &
```

The change will take effect on the next restart of the machine.



# Configuring and Running Software Components

After installing Essbase Enterprise Services, you must configure it to work with your computer system and custom client programs. This chapter describes how to configure Essbase Enterprise Services servers, Essbase servers, Essbase server clusters, and connection pools, and explains how to start and stop Essbase Enterprise Services software components.

This chapter contains the following topics:

- “Configuring Essbase Enterprise Services Servers” on page 43
- “Configuring Essbase Servers” on page 57
- “Defining Clusters and Connection Pools” on page 59
- “Starting and Stopping Essbase Enterprise Services” on page 62

## Configuring Essbase Enterprise Services Servers

Before you can run Essbase Enterprise Services servers, you must configure a database for storing domain information. You must also configure an Essbase Enterprise Services server to use TCP/IP, HTTP, EJB, or CORBA.

For information on configuring domain storage, see “Configuring Domain Storage for Essbase Enterprise Services” on page 44. For information on configuring Essbase Enterprise Services to use TCP/IP, HTTP, EJB, or CORBA, see “Configuring Servers to Use TCP/IP, HTTP, EJB, or CORBA” on page 46.

## Configuring Domain Storage for Essbase Enterprise Services

Essbase Enterprise Services requires a place to store information about domains, including domain names, servers, users, and groups. Two mechanisms are available for storing domain information:

- Java Database Connectivity (JDBC)-compliant Relational Database Management System (RDBMS)
- Flat file database, `domain.db`

Essbase Enterprise Services is configured to use the flat file database by default. This domain storage mechanism is suitable for development and testing purposes, but is not suited for production-level use.

**Note:** Before putting Essbase Enterprise Services servers into production, you must configure them to use an RDBMS for domain information storage.

### Configuring RDBMS Domain Storage

When you use Essbase Enterprise Services in a production environment, you must use an RDBMS for domain storage. You must have RDBMS software installed, such as IBM DB2, to create and use an RDBMS domain storage. RDBMS software is not included with Essbase Enterprise Services.

To configure Essbase Enterprise Services to use an RDBMS for domain storage, you must set up a database on the RDBMS server and edit the `essbase.properties` file.

► To configure an RDBMS database for domain storage:

1. Create a database called **essbase** in the RDBMS.
2. Add a user with full administrative rights to the database **essbase**; for example, **db2admin** with the password **password**.

Specific procedures for creating a new database varies with the RDBMS product you are using. For more information about creating a new database, see the documentation for the RDBMS product.

You do not need to create a database schema (tables and fields) in the new database. The database schema is created the first time Essbase Enterprise Services successfully connects to the RDBMS.

- To configure domain storage to use an RDBMS database:
  1. In the `ESS_ES_HOME\bin` directory, locate the `essbase.properties` file and open it in a text editor.
  2. Set the `domain.store.type` variable to the value **rdbms** (all lower case); for example,
 

```
domain.store.type=rdbms
```
  3. Set the `domain.store.rdbms` variables to the appropriate values; for example,
 

```
domain.store.rdbms.product=DB2
domain.store.rdbms.jdbc.driver=
COM.ibm.db2.jdbc.net.DB2Driver
domain.store.rdbms.jdbc.url=jdbc:db2:localhost:essbase
domain.store.rdbms.user=db2admin
domain.store.rdbms.password=password
domain.store.rdbms.connectionPool.capacity=2
```

Verify that the user and password you specify in these fields is the same as those created in the RDBMS in the previous procedure.
  4. Save `essbase.properties` and close the file.

The `essbase.properties` file contains sample settings for DB2, Oracle, and SQL Server systems. Use the sample settings as a starting point for configuring the connection to your RDBMS database. For more information about configuring a JDBC connection to an RDBMS, refer to the documentation for the RDBMS product.

## Configuring Flat File Domain Storage

The installation program configures Essbase Enterprise Services to use the flat file database by default. To configure Essbase Enterprise Services to use a flat file for domain storage, you must edit the `essbase.properties` file.

- To configure domain storage to use a flat file:
  1. In the `ESS_ES_HOME\bin` directory, locate the `essbase.properties` file and open it in a text editor.
  2. Set the `domain.store.type` variable to the value **file**; for example,
 

```
domain.store.type=file
```

3. Set the `domain.store.file.name` variable to the full path and file name of the domain storage file; for example,

```
domain.store.file.name=  
c:/hyperion/essbase/essenterprise/data/domain.db
```

4. Save `essbase.properties` and close the file.

## Configuring Servers to Use TCP/IP, HTTP, EJB, or CORBA

Essbase Enterprise Services servers can run using TCP/IP, HTTP, EJB, or CORBA configurations. Each of these types of implementations requires additional software components and configuration of these components. The type of server you set up depends on the type of client program technology you plan to use with Essbase Enterprise Services. If you simply want to start working with Essbase Enterprise Services, use the default TCP/IP configuration, which is created by the installation program.

For more information on the use of TCP/IP, HTTP, EJB, or CORBA technology with Essbase Enterprise Services, see “Understanding the Essbase Enterprise Services Development Platform” on page 17.

The following sections explain how to create Essbase Enterprise Services servers in these configurations:

- TCP/IP running Enterprise Services as a stand-alone program
- HTTP using WebLogic to run Enterprise Services as a servlet
- HTTP using Jigsaw to run Enterprise Services as a servlet
- EJB using WebLogic to run Enterprise Services as an EJB
- CORBA using VisiBroker as an ORB

The Jigsaw server is intended only for evaluation purposes and initial scalability testing. This server is not suitable for full production use with Essbase Enterprise Services.

For information on running the server configurations described here, see “Starting and Stopping Essbase Enterprise Services Servers” on page 62.

## Configuring TCP/IP Servers

The installation program creates a TCP/IP implementation of Essbase Enterprise Services automatically. In this configuration, the Essbase Enterprise Services server runs as a stand-alone program and does not require any additional software.

**Note:** Essbase Enterprise Services client programs communicating with TCP/IP configurations of the server must use port 5001.

► To configure a TCP/IP server:

1. In the `ESS_ES_HOME\bin` directory, locate the `essbase.properties` file and open it in a text editor.
2. Set the `system.dataDir` variable to the Essbase Enterprise Services data directory; for example,

```
system.dataDir=../data
```

3. Verify that the domain storage is configured.

For more information about configuring domain storage, see “Configuring Domain Storage for Essbase Enterprise Services” on page 44.

4. Save `essbase.properties` and close the file.
5. In the `ESS_ES_HOME\bin` directory, locate the `startees` file (`.cmd` on Windows systems, `.sh` on UNIX systems) and open it in a text editor.
6. If you did not install the Java Runtime Environment with Essbase Enterprise Services, or if you want to use a different copy of Java, modify the `JAVA_HOME` variable.

In the `startees` file, find the line that starts with `set JAVA_HOME=` and modify this parameter to point to a copy of the Java Runtime Environment; for example,

```
set JAVA_HOME="C:\Program Files\JavaSoft\JRE\1.3\"
```

7. Save your changes and close the `startees` file.

For information on starting Essbase Enterprise Services TCP/IP servers, see “Starting and Stopping TCP/IP Servers” on page 63.

## Configuring HTTP/WebLogic Servers

An Essbase Enterprise Services server can run in a BEA WebLogic application server and use HTTP to communicate with client programs. This implementation of Essbase Enterprise Services requires that you have a copy of WebLogic Server installed on the computer running Essbase Enterprise Services. Once you have WebLogic Server installed, you can configure an Essbase Enterprise Services server that uses WebLogic and HTTP.

For information on starting a HTTP/WebLogic Essbase Enterprise Services server, see “Starting and Stopping HTTP/WebLogic Servers” on page 63.

► To configure a HTTP/WebLogic server:

1. In the `ESS_ES_HOME\bin` directory, locate the `essbase.properties` file.
2. Copy the `essbase.properties` file to the `weblogic` directory.

This version of the `essbase.properties` file will configure the settings for the Essbase Enterprise Services server running in the WebLogic server.

Alternatively, you can create a file which points to a copy of the `essbase.properties` file in another directory. For more information, see “Creating Pointer Files to `Essbase.properties`” on page 87.

3. Using a text editor, open the copy of the `essbase.properties` file in the `weblogic` directory, which contains the `weblogic.properties` file.
4. Set the `system.dataDir` variable to the Essbase Enterprise Services data directory; for example,

```
system.dataDir=c:/hyperion/essbase/essenterprise/data
```

5. Verify that the domain storage is configured.  
For more information about configuring domain storage, see “Configuring Domain Storage for Essbase Enterprise Services” on page 44.
6. Save `essbase.properties` and close the file.
7. In the `weblogic` directory, locate the `weblogic.properties` file and open the file in a text editor.
8. At the end of the `weblogic.properties` file, add the following line:  
**`weblogic.httpd.register.EssbaseEnterprise=  
com.essbase.server.plugins.http.EssbaseEnterprise`**
9. Save `weblogic.properties` and close the file.



10. In the `weblogic` directory, locate the `startWebLogic` file (`.cmd` on Windows systems, `.sh` on UNIX systems) and open the file in a text editor.

11. At the beginning of the `startWebLogic` file, add the following lines:

```
set ESS_ES_HOME=c:\hyperion\essbase\essenterprise
set PATH=%ESS_ES_HOME%\bin;%PATH%;

set EES_CLASSPATH=
%ESS_ES_HOME%\lib\ess_japi.jar;%ESS_ES_HOME%\lib\ess_es_
server.jar;

set POST_CLASSPATH=%POST_CLASSPATH%;%EES_CLASSPATH%;
```

If you are using an RDBMS product for Enterprise Services domain storage, you must also add the `.jar` or `.zip` files containing the JDBC driver for that product to the `POST_CLASSPATH`; for example, if you are using DB2 for domain storage, you must add the `db2java.zip` file to the `POST_CLASSPATH`. For more information, see the documentation for the RDBMS product you are using for domain storage.

12. If necessary, change the value of the `ESS_ES_HOME` variable in the `startWebLogic` file to the installation directory for Essbase Enterprise Services.

13. Save `startWebLogic` and close the file.

## Configuring HTTP/Jigsaw Servers

An Essbase Enterprise Services server can run in a Jigsaw Web server and use HTTP to communicate with client programs. This implementation of Essbase Enterprise Services requires that you have a copy of Jigsaw installed on your computer. Once you have Jigsaw installed, you can configure a Essbase Enterprise Services server that uses Jigsaw and HTTP.

The Jigsaw server is intended only for evaluation purposes and initial scalability testing. This server is not suitable for full production use with Essbase Enterprise Services.

For information on starting a HTTP/Jigsaw Essbase Enterprise Services server, see “Starting and Stopping HTTP/Jigsaw Servers” on page 64.

- To configure the Essbase Enterprise Services server and the Jigsaw script files:
  1. In the `ESS_ES_HOME\bin` directory, locate the `essbase.properties` file.

2. Copy the `essbase.properties` file to the `jigsaw\scripts` directory.

This version of the `essbase.properties` file configures the settings for the Essbase Enterprise Services server running in the Jigsaw server.

Alternatively, you can create a file which points to a copy of the `essbase.properties` file in another directory. For more information, see “Creating Pointer Files to `Essbase.properties`” on page 87.

3. In the `jigsaw\scripts` directory, open the copy of the `essbase.properties` file using a text editor.
4. Set the `system.dataDir` variable to point to the Essbase Enterprise Services data directory; for example,

```
system.dataDir=c:/hyperion/essbase/essenterprise/data
```

5. Verify that the domain storage is configured.

For more information about configuring domain storage, see “Configuring Domain Storage for Essbase Enterprise Services” on page 44.

6. Save `essbase.properties` and close the file.
7. In the `jigsaw\scripts` directory, locate the `jigsaw.bat` file and open the file in a text editor.
8. At the beginning of the `jigsaw.bat` file, add the following lines:

```
set ESS_ES_HOME=c:\hyperion\essbase\essenterprise
set JAVA_HOME=C:\progra~1\javasoft\jre\1.3
set PATH=%JAVA_HOME%\bin;%ESS_ES_HOME%\bin;%PATH%
```

Change the `ESS_ES_HOME` and the `JAVA_HOME` variables above to reflect the locations of Essbase Enterprise Services and the Java Runtime Environment on your computer.

9. After the line starting with `set CLASSPATH`, add the following line that contains an additional `set CLASSPATH` statement:

```
set CLASSPATH=
%CLASSPATH%;%ESS_ES_HOME%\lib\ess_japi.jar;%ESS_ES_HOME%
\lib\ess_es_server.jar;%ESS_ES_HOME%\thirdparty\db2_jdbc
\db2java.zip;
```

If you are using an RDBMS product for Enterprise Services domain storage, you must also add the `.jar` or `.zip` files containing the JDBC driver for that product to the `CLASSPATH`; for example, if you are using DB2 for domain

storage, you must add the `db2java.zip` file to the *CLASSPATH*. For more information, see the documentation for the RDBMS product you are using for domain storage.

10. Save `jigsaw.bat` and close the file.
11. In the `jigsaw\scripts` directory, locate the `jigadmin.bat` file and open the file in a text editor.
12. At the beginning of the `jigadmin.bat` file, add the following lines:

```
set JAVA_HOME=C:\progra~1\javasoft\jre\1.3
```

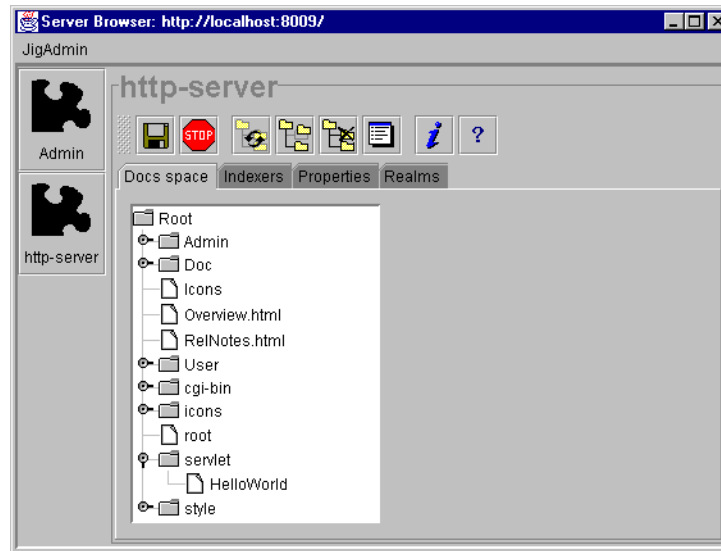
```
set PATH=%JAVA_HOME%\bin;%PATH%
```

Change the `JAVA_HOME` variable to reflect the location of the Java Runtime Environment on your computer.

13. Save `jigadmin.bat` and close the file.
  14. In the `jigsaw\scripts` directory, locate the `install.bat` file and run it.
- To configure the Jigsaw server to run the Essbase Enterprise Services servlet:
1. In the `jigsaw\scripts` directory, locate the `jigsaw.bat` file and run it.
  2. In the `jigsaw\scripts` directory, locate the `jigadmin.bat` file and run it.
  3. In the **Authorization for JigAdmin** dialog box, type a user name and password. The default administrative user name is **admin** and default password is **admin**.

4. Click **http-server**.

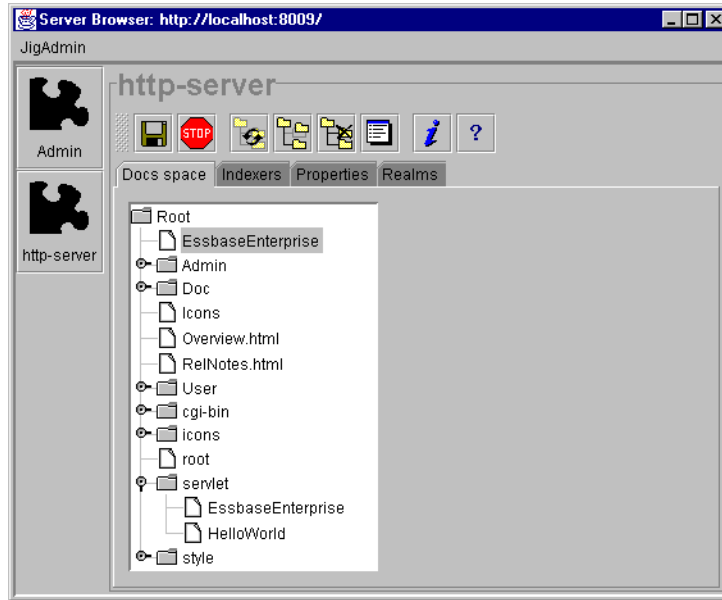
Figure 12: Jigsaw *http-server* Administration Controls



5. In the **Docs space** tab, right-click the **servlet** folder and select **Add resource** to display the **Add Resource** dialog box.
6. In the **Class name** field, select `org.w3c.jigsaw.servlet.ServletWrapper`.
7. In the **Identifier** field, type **EssbaseEnterprise** and then click **OK**.
8. In the **Docs space** tab, open the **servlet** folder and right-click on **EssbaseEnterprise**, then select **Edit resource** to display the **Edit Resource** dialog box.
9. In the **Servlet Class** field, type the following class name:  
**`com.hyperion.essbase.server.plugins.http.EssbaseEnterprise`**
10. Click **Commit** and close the **Edit Resource** dialog box.
11. In the **Docs space** tab, right-click on the **root** folder and select **Add resource** to display the **Add Resource** dialog box.
12. In the **Class name** field, select `org.w3c.jigsaw.servlet.ServletWrapper`.
13. In the **Identifier** field, type **EssbaseEnterprise** and then click **OK**.
14. In the **Docs space** tab in the **Root** folder, right-click on the **EssbaseEnterprise** icon and select **Edit resource** to display the **Edit Resource** dialog box.

15. In the **Frames** list, select the ServletWrapperFrame folder, then right-click it and select **Delete frame**.
16. In the **Frames** list, select the EssbaseEnterprise folder, then right-click it and select **Add frame** to display the **Add Frame** dialog box.
17. In the **Class name** field, select org.w3c.jigsaw.servlet.ServletMapperFrame and then click **OK**.
18. In the **Frames** list, select the ServletMapperFrame folder to display the Attributes list for this component in the **Edit Resource** dialog box.
19. In the **servlet-url** field, type /servlet/EssbaseEnterprise.
20. Click **Commit** and close the **Edit Resource** dialog box.

*Figure 13: Jigsaw with Essbase Enterprise Services Servlet Added*



21. Select the **Properties** tab and then click **general**.
22. In the **Port** field, type **7001**.
23. Click **Commit**.
24. Exit the JigAdmin utility and restart the Jigsaw server.

## Configuring EJB/WebLogic Servers

An Essbase Enterprise Services server can run as an EJB in a WebLogic Java application server and use Remote Method Invocation (RMI) to communicate with other EJB client programs. This implementation of Essbase Enterprise Services requires that you have a copy of WebLogic Server installed on the computer running Essbase Enterprise Services. Once you have WebLogic Server installed, you can configure an Essbase Enterprise Services server that runs in WebLogic Server as an EJB program.

For information on starting an EJB/WebLogic Essbase Enterprise Services server, see “Starting and Stopping EJB/WebLogic Servers” on page 64.

► To configure an EJB/WebLogic server:

1. In the *ESS\_ES\_HOME\lib* directory, locate the *ess\_es\_ejb.jar* file.
2. Copy the *ess\_es\_ejb.jar* file to the *weblogic\myserver* directory.
3. In the *ESS\_ES\_HOME\bin* directory, locate the *essbase.properties* file.
4. Copy the *essbase.properties* file to the *weblogic* directory.

This version of the *essbase.properties* file configures the settings for the Essbase Enterprise Services server running in the WebLogic server.

Alternatively, you can create a file which points to a copy of the *essbase.properties* file in another directory. For more information, see “Creating Pointer Files to *Essbase.properties*” on page 87.

5. Using a text editor, open the copy of the *essbase.properties* file in the *weblogic* directory, which contains the *weblogic.properties* file.
6. Set the *system.dataDir* variable to point to the Essbase Enterprise Services data directory; for example,

```
system.dataDir=c:/hyperion/essbase/essenterprise/data
```

7. Verify that the domain storage is configured.  
For more information about configuring domain storage, see “Configuring Domain Storage for Essbase Enterprise Services” on page 44.
8. Save *essbase.properties* and close the file.
9. In the *weblogic* directory, locate the *weblogic.properties* file and open the file in a text editor.

10. In the EJB section of the `weblogic.properties` file, before the `WEBLOGIC EJB DEMO PROPERTIES` title, add the following line:  

```
weblogic.ejb.deploy=C:/weblogic/myserver/ess_es_ejb.jar
```

 If necessary, change directory path shown in the preceding example to the location where you copied the `ees_es_ejb.jar` file.
11. Save `weblogic.properties` and close the file.
12. In the `weblogic` directory, locate the `startWebLogic` file (`.cmd` on Windows systems, `.sh` on UNIX systems), and open the file in a text editor.
13. At the beginning of the `startWebLogic` file, add the following lines:  

```
set ESS_ES_HOME=c:\hyperion\essbase\essenterprise
set PATH=%ESS_ES_HOME%\bin;%PATH%;

set EES_CLASSPATH=%ESS_ES_HOME%\lib\ess_japi.jar;
%ESS_ES_HOME%\lib\ess_es_server.jar;%ESS_ES_HOME%\thirdparty\
db2_jdbc\db2java.zip;

set POST_CLASSPATH=%POST_CLASSPATH%;%EES_CLASSPATH%;
```

 If you are using an RDBMS product for Enterprise Services domain storage, you must also add the `.jar` or `.zip` files containing the JDBC driver for that product to the `POST_CLASSPATH`; for example, if you are using DB2 for domain storage, you must add the `db2java.zip` file to the `POST_CLASSPATH`. For more information, see the documentation for the RDBMS product you are using for domain storage.
14. If necessary, change the value of the `ESS_ES_HOME` variable in the `startWebLogic` file to the installation directory for Essbase Enterprise Services.
15. Save `startWebLogic` and close the file.

## Configuring CORBA/VisiBroker Servers

An Essbase Enterprise Services server can use CORBA/VisiBroker software to communicate with client programs. This implementation of Essbase Enterprise Services requires that you have a copy of VisiBroker installed on the computer running Essbase Enterprise Services and on the computer running the Essbase Enterprise Services client program. Once you have VisiBroker installed, you can configure a Essbase Enterprise Services server that runs with VisiBroker as a stand-alone Java program.

After installing VisiBroker, add the `vbjorb.jar` file to the classpath and run the `osagent.exe` file before starting the Essbase Enterprise Services server. See the `ESS_ES_HOME\bin\startees.cmd` file for an example of how to automate these steps in a script file.

► To configure a CORBA/VisiBroker server:

1. In the `ESS_ES_HOME\bin` directory, locate the `essbase.properties` file and open it in a text editor.

2. Set the `system.dataDir` variable to the Essbase Enterprise Services data directory; for example,

```
system.dataDir=../data
```

3. Verify that the domain storage is configured.

For more information about configuring domain storage, see “Configuring Domain Storage for Essbase Enterprise Services” on page 44.

4. Save `essbase.properties` and close the file.

5. In the `ESS_ES_HOME\bin` directory, locate the `startees` file (`.cmd` on Windows systems, `.sh` on UNIX systems) and open it in a text editor.

6. If you did not install the Java Runtime Environment with Essbase Enterprise Services, or if you want to use a different copy of Java, modify the `JAVA_HOME` variable.

In the `startees` file, find the line that starts with `set JAVA_HOME=` and modify this parameter to point to a copy of the Java Runtime Environment; for example,

```
set JAVA_HOME="C:\Program Files\JavaSoft\JRE\1.3\"
```

7. Save your changes and close the `startees` file.

For information on starting Essbase Enterprise Services CORBA/VisiBroker Server, see “Starting and Stopping CORBA/VisiBroker Servers” on page 64.



## Configuring Essbase Servers

Before using Essbase servers with Essbase Enterprise Services, you must configure the Essbase servers to better support concurrent usage, create replicas of your application, and create users for Essbase Enterprise Services. In addition, for Essbase servers running on Windows systems, you should configure them for remote activation.

► To configure Essbase servers for use with Essbase Enterprise Services:

1. On the computer running Essbase server, in the `ARBORPATH\bin` directory, locate the `essbase.cfg` file. If the `essbase.cfg` file does not exist, create one using a text editor.
2. For Essbase servers used in a production system with Essbase Enterprise Services, consider adding the following lines to the `essbase.cfg` file:

```
AGENTLOGMESSAGELEVEL  ERROR
LOGMESSAGELEVEL      ERROR
```

These settings reduce the amount of messages that are logged by the Essbase server. Under heavy use, Essbase logs can become very large and unusable by the server, requiring that you delete the log or reduce its size. Adding these settings will reduce the amount of information recorded in the logs and, consequently, reduce the need to manage the logs. To permanently solve problems with overlarge log files, consider adding the following line to the `essbase.cfg` file:

```
CLEARLOGFILE  TRUE
```

The `CLEARLOGFILE` setting causes Essbase to clear the log file before recording any new message, so that only the last message is available in the log file. For more information about these `essbase.cfg` file settings, see the *Hyperion Essbase Technical Reference* in the `docs` directory.

3. If you plan to use Essbase servers in a cluster configuration with Essbase Enterprise Services, you must make copies of the Essbase application that the cluster will serve on each of the Essbase servers in the cluster.

To gain a minimal benefit of load balancing and failover from Essbase Enterprise Services, you must set up at least a main application with a database and one replica application with an identical database. For more information about setting up clusters, see “Defining Clusters and Connection Pools” on page 59.

For more information about copying Essbase applications, see the *Hyperion Essbase Database Administrator's Guide*.

4. Create users and their access permissions on each of the Essbase servers to use with Essbase Enterprise Services.

For more information about creating users in Essbase, see the *Hyperion Essbase Database Administrator's Guide*.

For more information about creating users across a cluster of Essbase servers, see “Synchronizing Users and Security Across a Cluster” on page 77.

## Configuring Essbase Servers for Remote Activation

You can enable Essbase Enterprise Services to start an Essbase server on a remote Windows NT system. You need to have the appropriate privileges and you must specify the exact path of the Essbase server on the remote machine. This feature uses DCOM activation on both machines.

- To configure remote activation of Essbase servers on Windows systems:
  1. Run the batch file `regact.cmd` in the `ESS_ES_HOME\bin` directory. This updates the registry to enable DCOM activation.
  2. Copy `regact.cmd` and `eds_rexec.exe` to the `/bin` directory of the remote Essbase server. Run `regact.cmd` (it calls `eds_rexec.exe`).
  3. Edit the file `startolap.cmd` in the `ESS_ES_HOME\bin`. The `ARBORPATH` entry must specify the path of the Essbase home directory on the remote machine. The entries in the `startolap.cmd` file should appear as follows:

```
@echo off

REM This command file is used to start the Essbase OLAP server.
REM Make sure to change the ARBORPATH to suit your setup.
REM For remote activation set ARBORPATH to point to the remote machine.
set ARBORPATH=C:\hyperion\essbase
set PASSWORD=%1
set PATH=%ARBORPATH%\bin;%PATH%
essbase %PASSWORD%
```

4. Copy `startolap.cmd` to the `/bin` directory of the remote Essbase server.

5. Using the Enterprise Services Console, add the remote Essbase server to the Enterprise Services domain. Set the server property named Remote start command to `ESS_ES_HOME\bin\startolap.cmd <password>` (for example, `c:\essbase\ees\bin\startolap.cmd password`). Save the server properties.
6. Edit `startees.cmd` and make sure all directories are specified as absolute paths.
7. Edit the `essbase.properties` file to replace `system.dataDir=..\data` with the absolute path. For example, `c:\essbase\ees\data`.
8. In the EES Console, add the Enterprise server to the Essbase Enterprise domain, and set the Remote start command property to the absolute path of the `startees.cmd` file.
9. Remote activation is now enabled. From the EES Console, select `olap` or `enterprise server`, and select `Control>Start`.

## Defining Clusters and Connection Pools

Essbase server clusters and connection pools enable Essbase Enterprise Services to provide features of load balancing, failover, and handling of large concurrent loads. If you do not use clusters and connection pools in your client programs, you are not taking advantage of the primary benefits of using Essbase Enterprise Services.

A cluster of Essbase servers is a set of servers running on different computers (or different CPUs, on multi-processor systems) that run copies, or replicas, of the same Essbase application, a single Essbase server that runs replicas of the same application, or a combination of both.

A connection pool is set of login sessions from Essbase Enterprise Services to a Essbase server. Enterprise Services uses a connection pool to process requests for Essbase services.

Clusters and connection pools are defined in the `essbase.properties` file and can be used only through client programs. These features are not configurable through the Console or the Command Shell. In general, client programs should take advantage of clusters and connection pools by using connection pools that include clusters. Thus, in general, you should include a cluster in your connection pool to take full advantage of the features of Essbase Enterprise Services.

For an example of a client program that uses connection pools and clusters, refer to the DataQuery sample program in the `ESS_ES_HOME\samples` directory. For more information about the sample programs, see Chapter 5, “Setting up the Sample Programs.” For more information about using clusters and connection pools in client programs, see the `IEssCube.openCubeView` method and related methods in the online *Hyperion Essbase JAPI Reference* in the Essbase Enterprise Services DOCS directory.

## Defining Essbase Server Clusters

Essbase servers must be configured to be used effectively with Essbase Enterprise Services. For more information about configuring Essbase servers for use in a cluster, see “Configuring Essbase Servers” on page 57.

Essbase Enterprise Services enables you to group sets of Essbase servers running applications with identical databases and use them as a single resource in your client programs. Clustering of servers enables features such as load balancing and failover support. Load balancing enables requests to Essbase servers to be distributed across a cluster of Essbase servers running identical databases. Failover support detects service interruptions in a cluster, and reroutes requests to other available Essbase servers in a cluster. You must restart the server to reflect changes to the cluster.

To define a cluster:

1. In the navigation panel, select a domain under Domains or select Clusters if clusters have already been created.
2. Right-click, then select Create > Cluster.
3. In the dialog that is displayed, type the name for your cluster; for example, `mycluster`.
4. Click OK.
5. In the navigation panel, select the cluster that you have just created.
6. In the cluster's properties panel, set the service component name; for example, `localhost/Demo/Basic;localhost/Demo2/Basic`.
7. Click Save.
8. Specify the cluster name in the properties panel of the Enterprise Services server for which you want to associate the cluster.

After configuring a set of Essbase servers for use in a cluster, you must define and enable the cluster in the Enterprise Services Console. For complete instructions on configuring clusters refer to the online *Essbase Enterprise Services Console Help* in the Essbase Enterprise Services DOCS directory.

## Defining Connection Pools

Connection pools are defined in the Enterprise Services Console. For complete information on configuring connection pools refer to the online *Essbase Enterprise Services Console Help* in the Essbase Enterprise Services DOCS directory.

Essbase Enterprise Services enables client requests to share connections, which conserves software and network resources, and improves performance. You must restart the Enterprise Services server to reflect changes to the connection pool.

To define a connection pool:

1. In the navigation panel, select a domain under Domains or select Connection Pools if connection pools have already been created.
2. Right-click, then select Create > Connection Pool.
3. In the dialog that is displayed, type the name for your connection pool; for example, `mypool`.
4. Click OK.
5. In the navigation panel, select the connection pool that you have just created.
6. In the connection pool's properties panel, set the service component name for the cluster associated with the connection pool; for example, `mycluster`.
7. Enable the check box for the service component.
8. Enter the username and password.
9. Set the initial capacity, maximum capacity, capacity increment.
10. Specify whether to enable access for everyone.
11. Click Save.
12. Specify the connection pool name in the properties panel of the Enterprise Services server you want to associate with the connection pool.

## Starting and Stopping Essbase Enterprise Services

Essbase Enterprise Services contains several software components in that you must start and stop separately. Depending on the configuration of the Essbase Enterprise Services server, there are different procedures for starting and stopping it. For more information about starting Essbase Enterprise Services server, see “Starting and Stopping Essbase Enterprise Services Servers” on page 62.

You must start the server components of Essbase Enterprise Services, shown in the following list, before starting the other components of Essbase Enterprise Services:

- Essbase servers
- Essbase Enterprise Services servers

For information about starting Essbase servers, see the *Hyperion Essbase Installation Guide*.

After the preceding software components have been started, you can start the following components in any order:

- Essbase Enterprise Services Console
- Essbase Enterprise Services Command Shell
- Essbase Enterprise Services client programs

## Starting and Stopping Essbase Enterprise Services Servers

Essbase Enterprise Services servers can be configured in multiple ways. Each configuration uses different technology and supporting software. This section describes how to start and stop the following Essbase Enterprise Services server configurations:

- TCP/IP servers
- HTTP/WebLogic servers
- HTTP/Jigsaw servers
- EJB/WebLogic servers
- CORBA/VisiBroker servers

For more information about configuring the different types of Essbase Enterprise Services servers, see “Configuring Servers to Use TCP/IP, HTTP, EJB, or CORBA” on page 46.

## Starting and Stopping TCP/IP Servers

Starting the Essbase Enterprise Services TCP/IP server requires that you run a command script. For information about configuring the command script, see “Configuring TCP/IP Servers” on page 47.

- To start a TCP/IP server:
  1. At a command prompt, change to the *ESS\_ES\_HOME*\bin directory, locate the *startees* file (.cmd on Windows systems, .sh on UNIX systems).
  2. Run the *startees* file with the input parameter *TCPIP*; for example:  

```
>startees tcpip
```
- To stop a TCP/IP server:
  1. Click the window for the TCP/IP server and press **Enter**.
  2. At the prompt, type **exit** and press **Enter**.

## Starting and Stopping HTTP/WebLogic Servers

Starting the Essbase Enterprise Services server requires that you run a WebLogic command script. For information about configuring Essbase Enterprise Services and WebLogic to run a HTTP implementation of the Essbase Enterprise Services server, see “Configuring HTTP/WebLogic Servers” on page 48.

- To start a HTTP/WebLogic server:
  1. In the *weblogic* directory, locate the *startWebLogic* file (.cmd on Windows systems, .sh on UNIX systems).
  2. Run the *startWebLogic* file.

- To stop a HTTP/WebLogic server, close the WebLogic server window.

## Starting and Stopping HTTP/Jigsaw Servers

Starting the Essbase Enterprise Services server requires that you run a Jigsaw command script. For information about configuring Essbase Enterprise Services and Jigsaw to run a HTTP implementation of the Essbase Enterprise Services server, see “Configuring HTTP/Jigsaw Servers” on page 49.

- To start a HTTP/Jigsaw server:
  1. In the `jigsaw\scripts` directory, locate the `jigsaw.bat` file.
  2. Run the `jigsaw.bat` file.
- To stop a HTTP/Jigsaw server:
  1. Select the Jigsaw server window.
  2. Press **Ctrl + c** and type **y** to exit the server.

## Starting and Stopping EJB/WebLogic Servers

Starting the Essbase Enterprise Services server requires that you run a WebLogic command script. For information about configuring Essbase Enterprise Services and WebLogic to run an EJB implementation of the Essbase Enterprise Services server, see “Configuring EJB/WebLogic Servers” on page 54.

- To start an EJB/WebLogic server:
  1. In the `weblogic` directory, locate the `startWebLogic` file (`.cmd` on Windows systems, `.sh` on UNIX systems).
  2. Run the `startWebLogic` file.
- To stop an EJB/WebLogic server, close the WebLogic server window.

## Starting and Stopping CORBA/VisiBroker Servers

Starting the Essbase Enterprise Services server requires that you run a command script. For information about configuring the command script, see “Configuring CORBA/VisiBroker Servers” on page 55.



- To start a CORBA/VisiBroker server:
  1. At a command prompt, change to the `ESS_ES_HOME\bin` directory, locate the `startees` file (`.cmd` on Windows systems, `.sh` on UNIX systems).
  2. Run the `startees` file with the input parameter `CORBA`; for example:
 

```
>startees corba
```
- To stop a CORBA/VisiBroker server:
  1. Click the window for the CORBA/VisiBroker server and press **Enter**.
  2. At the prompt, type **exit** and press **Enter**.

## Starting and Stopping the Enterprise Services Console

The Essbase Enterprise Services Console is a graphical interface that enables you to manage Essbase Enterprise Services domains, servers, users, and groups. You must have a Essbase Enterprise Services server running to start the Console.

For more information about using the Console, see the online *Essbase Enterprise Services Console Help* in the Essbase Enterprise Services `DOCS` directory.

- To start the Console:
  1. Verify that the Essbase Enterprise Services server is running.
  2. In the `ESS_ES_HOME\bin` directory, locate the `startgui` file (`.cmd` on Windows systems, `.sh` on UNIX systems).
  3. Run the `startgui` file.
  4. In the **User Name** field, type a user name; for example, **admin**.
  5. In the **Password** field, type a password; for example, **password**.
  6. In the **Domain** field, type the name of a Essbase Enterprise Services domain; for example, **essbase**.
 

The default domain for Essbase Enterprise Services is **essbase**.
  7. In the **Preferred Server** field, type the host name or numeric IP address of the computer running Essbase Enterprise Services; for example, **sequoia2** or **254.0.0.26**.

You can find a running Essbase Enterprise Services server on the local network by clicking **Locate**.

8. In the **ORB** field, select the type of Essbase Enterprise Services server you are logging on to; for example, **HTTP**.

If you specify an option other than CORBA, you must also specify the port number of the Java application server or Web server in the **Port No** field.

9. Click **Sign On** to log on to the Essbase Enterprise Services server and start the Console.

- To stop the Console, in the Console window, select File > Exit.

## Starting and Stopping the Enterprise Services Command Shell

The Essbase Enterprise Services Command Shell is a command-line interface that provides basic tools to manage Essbase Enterprise Services servers and users. You must have an Essbase Enterprise Services server running to start the Command Shell.

For more information about using the Command Shell commands, see “Command Shell Commands” on page 89.

- To start the Command Shell:
  1. Verify that the Essbase Enterprise Services server is running.
  2. In the *ESS\_ES\_HOME\bin* directory, locate the *startcmd* file (.cmd on Windows systems, .sh on UNIX systems).
  3. Run the *startcmd* file.
  4. At the prompt, use the *signon* command to log on to the Essbase Enterprise Services server; for example, type:
 

```
ESS>signon
```
  5. At the next prompt, type a Essbase Enterprise Services user name, password, domain name, server name, and server type, separated by commas; for example,
 

```
admin,password,essbase,sequoia2,corba, port#
```
  6. Press Enter to log on to the Essbase Enterprise Services server.
- To stop the Command Shell, in the Command Shell window at the prompt, type **Exit**.

# Setting up the Sample Programs

Essbase Enterprise Services includes a set of sample Java programs for testing the product and to use as a reference when developing custom client programs. This chapter discusses the sample programs, how to set up your computer environment to work with them, and how to compile and run them.

This chapter contains the following topics:

- “Understanding the Sample Programs” on page 67
- “Configuring Essbase Servers” on page 69
- “Configuring Essbase Enterprise Services Servers” on page 70
- “Compiling and Running the Sample Programs” on page 70
- “Next Steps” on page 73

## Understanding the Sample Programs

The sample programs provided with Essbase Enterprise Services help you test the software and get you started on developing client programs for Essbase Enterprise Services. In order to run the sample programs, you must configure your environment with the following components:

- An Essbase Enterprise Services server
- A supported Essbase server with users and sample applications

For information about setting up Essbase Enterprise Services for the sample programs, see “Configuring Essbase Enterprise Services Servers” on page 70. For information about setting up Essbase for the sample programs, see “Configuring Essbase Servers” on page 69.

Unless otherwise noted in this document, the sample programs assume that all necessary software components (Essbase Enterprise Services, Essbase, and the sample programs themselves) are running on the same computer.

The sample programs demonstrate areas of functionality provided through the Essbase JAPI. The sample programs are located in the *ESS\_ES\_HOME\samples* directory. The areas covered by each sample program are summarized in the following list:

- `Connect.java`, demonstrates a simple connection and disconnection from a Essbase Enterprise Services server
- `DataQuery.java`, demonstrates basic retrieval of data from a Essbase database
- `DataSource.java`, demonstrates the retrieval of Essbase server information and execution of reports
- `Domain.java`, demonstrates management of Essbase Enterprise Services domains, including adding and removing of users, groups, domains, Essbase servers, and Essbase Enterprise Services servers
- `MetaData.java`, demonstrates retrieval of metadata information from a Essbase database, including member selection
- `GridDataUpdate.java`, demonstrates the retrieving and updating of data in a grid format
- `RunReport.java`, demonstrates the running of a report from a Essbase database
- `ViewOutlineTree.java`, demonstrates the listing of all outline members from Essbase database outline
- `SyncCubeReplicas.java`, demonstrates the replication of data between two Essbase databases
- `UserCustomPreference.java`, demonstrates the setting of a custom preference for a user on a Essbase Enterprise Services server
- `ClientCache.java`, demonstrates the setting and use of client-side caching with the Essbase JAPI

The sample programs can use an Essbase Enterprise Services server that uses a supported configuration; for example, CORBA/VisiBroker. For more information about creating client programs that work with Essbase Enterprise Services servers, see the online *Hyperion Essbase JAPI Reference* in the Essbase Enterprise Services DOCS directory.

## Configuring Essbase Servers

The sample programs require a Essbase Release 6.1 patch 3 or later server with the Demo Basic sample application loaded. You must also create the users admin and guest on the Essbase server.

If you plan to use several Essbase servers in a cluster with the sample programs, you must perform the following procedure for all Essbase servers in the cluster.

- To configure Essbase servers for use with the sample programs:
1. On the Essbase server, verify that the sample applications Demo Basic and Sample Basic are installed and that the databases have been loaded with data. For information about installing the sample applications in Essbase, see the *Hyperion Essbase Installation Guide*.
  2. If you are going to use the SyncCubeReplicas sample program, make a copy of the Demo application and name it Demo2. For information about copying Essbase applications, see the *Hyperion Essbase Database Administrator's Guide*.
  3. On the Essbase server, create the following users:
    - **system**, a user with supervisor rights and a password of password
    - **guest**, a normal user with read access to the Demo application (and the Demo2 application, if created) and a password of password

For information on creating users in Essbase, see the *Hyperion Essbase Database Administrator's Guide*.

4. After completing these steps, keep the Essbase server running.

You do not have to keep the Essbase Demo and Demo2 applications running. Essbase Enterprise Services starts these applications automatically when they are required.

## Configuring Essbase Enterprise Services Servers

In order to use the sample programs, you must configure and run an instance of the Essbase Enterprise Services server that uses one of the supported configurations; for example, CORBA/VisiBroker. For information on configuring an instance of the server, see “Configuring Servers to Use TCP/IP, HTTP, EJB, or CORBA” on page 46.

Once you have configured an instance of the server, you must perform additional configuration so you can use it with the sample programs.

- To configure a Essbase Enterprise Services server for use with the sample programs:
  1. In the `ESS_ES_HOME\bin` directory, locate the `essbase.properties` file and open it in a text editor.

The `essbase.properties` file may be located in a different directory, depending on the type of server you are using. For more information, see “Essbase Enterprise Services File Locations” on page 88.
  2. In the `essbase.properties` file, find the line that starts with `olap.server.autoStart=` and set this parameter to `true`; for example,  
`olap.server.autoStart=true`

This setting enables the Essbase Enterprise Services server to start applications automatically on connected Essbase servers.
  3. Save your changes and close the `essbase.properties` file.

After you have set this parameter, you must stop and restart the Essbase Enterprise Services server. For information on starting servers see, “Starting and Stopping Essbase Enterprise Services Servers” on page 62.

## Compiling and Running the Sample Programs

After you have configured the required servers, you can then compile and run the sample programs.

The script file `runsamples` is provided for compiling the sample programs. This script must be configured to work with your computer environment. Once you have this script working in your environment, you can use it as a template for creating compile and run scripts for the other sample programs.

## Configuring the runsamples Script File

To configure the `runsamples` script file to work in your computer environment, you must verify that the path and other environment variables in the script are set correctly.

► To configure the `runsamples` file to work with your computer environment:

1. In the `ESS_ES_HOME\samples` directory, locate the `runsamples` script (`.cmd` on Windows systems, `.sh` on UNIX systems).
2. Open the `runsamples` script in a text editor.
3. Verify that the `ESS_ES_HOME` variable is set to the location of your Essbase Enterprise Services installation; for example,

```
set ESS_ES_HOME=C:\hyperion\essbase\essenterprise\
```

4. Verify that the `JAVA_HOME` variable points to a supported version of the Java Runtime Environment. If you did not install the Java Runtime Environment with Essbase Enterprise Services, you must update this variable with a full path to the Java installation; for example,

```
set JAVA_HOME="C:\Program Files\JavaSoft\JRE\1.3\"
```

5. Replace the variable values for `USER`, `PASSWORD`, `DOMAIN`, `EES_SERVER`, and `OLAP_SERVER`, as necessary. These variables are set at the beginning of the `runsamples` file.

**Tip:** To make running the example programs easier, set up Essbase Enterprise Services and Essbase on your local computer. Then, in Essbase, create a user system with a password of password and full access to the Sample Basic, Demo Basic, and Demo2 Basic databases. If you set up your computer system in this configuration, you do not need to modify the default settings for the sample client programs.

6. Save the `runsamples` script file.

## Running the runsamples Script

After you have configured the runsamples script to work with your environment, you are ready to run the script, which compiles the sample programs and runs one of them.

➤ To run the runsamples script:

1. Verify that the Essbase Enterprise Services server and Essbase server are running.
2. In the `ESS_ES_HOME\samples` directory, locate the runsamples script (`.cmd` on Windows systems, `.sh` on UNIX systems).
3. Run the script by typing the following command at the command prompt:

```
>runsamples corba
```

This example runs the sample program for a Essbase Enterprise Services server that uses CORBA. For other server types, replace CORBA with the server type you are using.

4. Follow the on-screen prompts to compile and run the sample programs.

## Creating Compile and Run Scripts

The runsamples script compiles all the sample programs but runs only one of them. To run the other sample programs, you must create your own scripts or modify the runsamples script.

You can use the runsamples script as a template for new scripts. The following procedure shows you how to create a version of the runsamples script to run a different sample program.

➤ To create a version of the runsamples script to run another sample program:

1. In the `ESS_ES_HOME\samples` directory, locate the runsamples script (`.cmd` on Windows systems, `.sh` on UNIX systems).
2. Open the runsamples script in a text editor.
3. In the script file, find the line that begins with `echo Step-2` and modify the two lines as shown below:

```
echo Step-2: Ready to run MetaData example ...  
pause
```



```
%JAVA_HOME%\bin\java %VBROKER_PROPS%
com.hyperion.essbase.samples.MetaData %USER% %PASSWORD%
%DOMAIN% %EES_SERVER% %ORB% %PORT% %OLAP_SERVER%
```

To use the script to run another sample program, substitute the name of the sample program class for **MetaData**, as shown in the preceding sample.

4. Configure this script to work in your computer environment by performing the procedure described in “Configuring the runsamples Script File” on page 71.
5. Save the script file in the `ESS_ES_HOME\samples` directory. Save the file with an extension `.cmd` on Windows systems or a `.sh` extension on UNIX systems.

## Running Compile and Run Scripts

After you have created compile and run scripts for the other sample programs and configured them to work with your computer environment, you are ready to run these scripts.

- To run the compile and run scripts:
  1. Verify that the Essbase Enterprise Services server and Essbase server are running.
  2. In the `ESS_ES_HOME\samples` directory, locate the script file (`.cmd` on Windows systems, `.sh` on UNIX systems).
  3. Run the script by double-clicking the file or by typing the name of the script command at the command prompt.
  4. Follow the on-screen prompts to compile the sample program and run it.

## Next Steps

After you have successfully compiled and run the sample programs, you are ready to create your own client programs for Essbase Enterprise Services.

For more information about the available classes and methods in the Essbase JAPI, see the online *Hyperion Essbase JAPI Reference* in the Essbase Enterprise Services DOCS directory.



This chapter discusses administration tasks for system administrators of Essbase Enterprise Services, including managing data and security information in a Essbase server cluster.

## Managing Essbase Server Clusters

Using Essbase Enterprise Services with clusters of Essbase servers creates a new set of tasks for Essbase system administrators. In particular, administrators must develop strategies for synchronizing data and security information across multiple Essbase servers.

The Essbase Enterprise Services and Essbase teams are working toward solutions to these server management challenges. In the meantime, the following sections provide strategies for managing data and security synchronization.

### Outline Caching

Essbase Enterprise Services has the option of storing outline information along with other services information. This option makes it possible to keep the outline of a specific Essbase database locally on the Enterprise Services server eliminating unnecessary queries of the database itself. This option is enabled through the Essbase Enterprise Services console and can be set and reset as required. Outline Caching is set by specifying the absolute path to the For more information refer to the Essbase Enterprise Services Console Help.

### External Authentication

Essbase Enterprise Services allows the authentication of users external to the security measures present in the Essbase database itself. Security authentication of users can be done through four different schemes:

- Enterprise server - Essbase Enterprise server authentication (default).
- LDAP - LDAP authentication.
- Windows NT - Windows NT authentication.
- Custom - virtually any external authentication scheme can be used, provided it is set up correctly.

The internal authentication by Essbase Enterprise Services is the default scheme. The external authentication schemes (LDAP, Windows NT, and Custom) are set up by editing the Essbase Properties file (essbase.properties is in ESS\_HOME\bin). Refer to the online *Essbase.properties Reference* in the Essbase Enterprise Services DOCS directory.

## Synchronizing Data Across a Cluster

There are three general strategies for replicating data across a cluster:

- Using the features of Essbase Partitioning to create replicated partitions of the served application on each Essbase server
- Using Essbase Integration Server to load data onto each server in the cluster
- Exporting data from the master server and loading it into each Essbase server

## Synchronizing Data Using Partitioning

The Essbase Partitioning module enables you to create replicated partitions of a database over multiple Essbase servers. By creating replicated database partitions which mirror each other on each of the servers in a Essbase server cluster, you can effectively synchronize data across multiple Essbase servers.

For more information about using Partitioning, see the *Hyperion Essbase Database Administrator's Guide*.

## Synchronizing Data Using Essbase Integration Server

Essbase Integration Server enables you to load data into Essbase databases quickly and easily. If you use Essbase Integration Server to load and update your master Essbase application for a cluster, you can also use it to load and update the other mirror application on the other Essbase servers in a cluster.

For more information about using Essbase Integration Server, see the *Hyperion Essbase Integration Services System Administrator's Guide*.

## Synchronizing Data Using Export and Load Functions

Essbase provides a basic solution to synchronizing data between servers in the data export and import features. Using this methodology you export the data from the master Essbase database and import it into the other servers in the cluster.

Essbase Enterprise Services provides a command to perform this type of synchronization in the Command Shell. This command uses the Essbase JAPI method `IEssDomain.syncCubeReplicas()`. A sample client program demonstrating this method is provided in the `ESS_ES_HOME\samples` directory. The sample program file is named `SyncCubeReplicas.java`.

For more information about the Command Shell, see “Command Shell Commands” on page 89. For more information about the sample programs, see Chapter 5, “Setting up the Sample Programs.” For more information about using exporting and loading data, see the *Hyperion Essbase Database Administrator’s Guide*.

## Synchronizing Users and Security Across a Cluster

When you create a cluster of Essbase servers with Essbase Enterprise Services, you must add users and their relevant access permissions to all Essbase servers in the cluster. If you have large numbers of users, this can be time consuming.

Essbase Enterprise Services provides a command for loading Essbase users into its domain storage and settings for pushing those users to other Essbase servers in a cluster, but the information is incomplete. For more information see, “Loading Essbase Users into Essbase Enterprise Services” on page 77.

Beyond the procedure mentioned above, consider creating users and access information on the master Essbase server using a MaxL or ESSCMD script and reuse this script on the other servers in the cluster. Finally, you may have to manually replicate some user and access information across the servers of your cluster. For more information about using MaxL and ESSCMD, see *Hyperion Essbase Technical Reference* in the `docs` directory.

## Loading Essbase Users into Essbase Enterprise Services

Essbase Enterprise Services provides a way to load users from a Essbase server and then push those user names and passwords onto other Essbase servers. The process requires that the Enterprise Services server reset all the passwords on the Essbase server and the push process creates the users but does not replicate their privileges on the other Essbase servers.

- To load users into Essbase Enterprise Services from a Essbase server:
1. Verify that the Essbase Enterprise Services server and the Essbase server containing the users you want to load are running.
  2. In the `ESS_ES_HOME\bin` directory, locate the `startCmdShell` file (`.cmd` on Windows systems, `.sh` on UNIX systems).
  3. Run the `startCmdShell` file.
  4. Log on to the Essbase Enterprise Services server using the `signon` command; for example,
 

```
EES>signon
Enter input as user,password,domain,prefServer,plugin:
system,password,essbase,localhost,corba
```
  5. Use the `syncsectoees` command to load the user name information into the Essbase Enterprise Services server and reset the password to a default value on both servers; for example,
 

```
EES>syncsectoees
Enter input as olapSvrName,domName,defPwd,syncPwd:
localhost,essbase,password,true
```

---

**CAUTION:** Performing this operation resets the passwords for all users on the Essbase server.

---

User names and passwords are now the same on the Essbase Enterprise Services server and Essbase server with which you connected.

After loading the user names, you can configure the Essbase Enterprise Services server to create user names on Essbase servers as it connects to them. The settings for this configuration are set in the `essbase.properties` file.

Essbase Enterprise Services can not create users and passwords automatically on the Essbase servers with which it connects. Create all needed user accounts directly on the Essbase servers. If necessary you can replicate the user list on

additional Essbase servers. If a user changes a password through an Essbase Enterprise Services client program, that password is loaded on to the Essbase servers as the user connects to each server.

---

**CAUTION:** The Enterprise Services server creates the users and passwords on the Essbase servers but it does not replicate the access privileges of the users.

---

Additional steps are required to complete this replication of users. You must manually create the privileges for the users on each of the Essbase servers. Once these privileges have been created, you must continue to maintain them. Essbase Enterprise Services does not synchronize the privileges of users across the Essbase servers.

## Fault Tolerance

There are two levels of fault tolerance in Essbase Enterprise Services.

### Fault Tolerance in the Java API

If EES stops (normally or abnormally) and is restarted while a Java API client session is already in progress, the Java API will automatically restore the session. This feature is currently not supported for outline operations and cube view operations, and is supported for all the rest of the functionality.

### Fault Tolerance in Essbase Enterprise Services

#### Case 1:

To get Enterprise Services to reconnect and retry data query operations (read-only) on the same OLAP server, perform the following steps.

Enterprise Services needs to be configured with connection pooling (in connection per operation mode or connection per session mode) over a cluster or over a component (cube).

The Java API client performing data query using openCubeView, make sure that the last four parameters are True.

```
IEssDomain.openCubeView(String cubeViewName,
                        String olapSvrName,
                        String appName,
                        String cubeName,
                        boolean useConnPool,
                        boolean connPerOp,
                        boolean useCluster,
                        boolean readOnly)
```

In addition, make sure connection pool is configured for the specified appName and cubeName.

The following Essbase error conditions can be recovered:

- User logged out by Supervisor (1013095 ).
- Essbase agent restarted (1042006 ).
- Invalid login id (1013136).
- Logged out due to inactivity (1051021 ).
- System is temporarily busy (1051010 ).
- Client timed out to receive data via tcp (1042017).
- Cannot receive data (1042013).

Several external conditions can also be recovered. Many conditions can be identified in the Essbase.Properties file before the condition occurs. Specify the following in the Essbase.Properties file before starting the EES server:

```
system.faultTolerance.reconnectRetryOnSameSvcComp.onErrorCodes=
1013095,1042006,1013136,1051021,1051010,1042017,1042013
```

If you encounter error codes other than those specified in the condition above, add those to the comma-separated list in the above Essbase.Properties entry.

Example usage scenario:

1. Create a cluster (for example, demobasiccluster) with 2 identical components (localhost/demo/basic, localhost/demo2/basic)
2. Create a connection pool (for example, demobasicpool) using this cluster (demobasiccluster), and set initial connections as 4, maximum connections as 4, and connection increment as 0.
3. Enable this cluster and connection pool to be hosted by EES server.



4. Start the OLAP servers and the EES server.
5. Start the clients that use Java API data query operations over the connection pool.
6. See that the requests are equally distributed between demo/basic and demo2/basic.
7. Logout the connection pool user from the OLAP server using the Essbase Application Manager.
8. Continue running clients using the Java API data query operations.
9. See that the EES server automatically reestablishes the connection on the same OLAP server, without interrupting the clients.

## Case 2:

To get Enterprise Services to retry (without reconnecting) data query operations (read-only) on the same OLAP server, perform the following steps.

1. Enterprise Services needs to be configured with connection pooling (in connection per operation mode or connection per session mode) over a cluster or over a component (cube).
2. Specify the following in the Essbase.Properties file, along with proper error codes separated by comma, before starting the EES server:

```
system.faultTolerance.retryOnSameSvcComp.onErrorCodes=
```

## Case 3:

To get Enterprise Services to retry data query operations (read-only) on different OLAP server in the cluster, perform the following steps.

Enterprise Services needs to be configured with connection pool (in connection per operation mode) over a cluster. In addition, make sure connection pool over cluster is configured with at least one component matching the specified appName and cubeName.

The Java API client performing a data query using openCubeView needs to make sure that the last four parameters are True.

```
IEssDomain.openCubeView(String cubeViewName,
                        String olapSvrName,
                        String appName,
                        String cubeName,
```

```

boolean useConnPool,
boolean connPerOp,
boolean useCluster,
boolean readOnly)

```

The following error conditions can be recovered :

- Disabled user commands (1013009, 1013204, 1054009, 1054010)
- Active database stopped by supervisor (1013110)

Several external conditions can also be recovered. Many conditions can be identified in the Essbase.Properties file before the condition occurs. Specify the following in the Essbase.Properties file before starting the EES server:

```

system.faultTolerance.retryOnNextSvcComp.onErrorCodes=
1013009,1013204,1054009,1054010,1013110

```

If you encounter error codes other than those specified in the condition above, add those to the comma-separated list in the Essbase.Properties entry.

Example usage scenario:

1. Create a cluster (for example, demobasiccluster) with 2 identical components (localhost/demo/basic, localhost/demo2/basic)
2. Create a connection pool (for example, demobasicpool) using this cluster (demobasiccluster), and set initial connections as 4, maximum connections as 4, and connection increment as 0.
3. Enable this cluster and connection pool to be hosted by EES server.
4. Start the OLAP servers and the EES server.
5. Start the clients that use the Java API data query operations over the connection pool.
6. See that the requests are equally distributed between demo/basic and demo2/basic.
7. Disable commands on demo application using the Essbase Application Manager or the Enterprise Services Console. The reason to disable commands on an application is to perform operations such as data load.
8. See that the requests now only go to localhost/demo2/basic, as EES detects the error and re-routes the request to the next component in the cluster (localhost/demo2/basic)
9. Enable commands on demo application.

10. See that the requests are equally distributed between demo/basic and demo2/basic.

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This chapter describes advanced installation procedures for Essbase Enterprise Services, provides a list of locations for commonly needed files, lists the commands for Essbase Enterprise Services Command Shell, and provides instructions for uninstalling the product.

This chapter contains the following topics:

- “Manually Installing Java” on page 85
- “Creating Pointer Files to Essbase.properties” on page 87
- “Essbase Enterprise Services File Locations” on page 88
- “Command Shell Commands” on page 89
- “Uninstalling Essbase Enterprise Services” on page 90

## Manually Installing Java

Essbase Enterprise Services requires the Java Runtime Environment (JRE) to run the Essbase Enterprise Services server. On UNIX systems, the JRE must be installed to run the Essbase Enterprise Services installation.

**Note:** On UNIX systems, you may need to install operating system patches to support the JRE. For more information, see “Installing the JRE on UNIX Systems” on page 86.

If you have already installed a supported version of the Java Runtime Environment, you do not have to reinstall the JRE. However, you must verify that the necessary PATH environment variables are set.

For more information about supported versions of the JRE, see “Windows System Requirements” on page 28 or “Solaris System Requirements” on page 36.

## Installing the Java Runtime Environment

The Java Runtime Environment is required by Essbase Enterprise Services to run the server software. The setup program automatically installs the JRE if you choose this option. Alternatively, you can install the JRE separately before installing Essbase Enterprise Services and use the existing installation of the JRE. For more information about using an existing installation of the JRE, see “Installing Essbase Enterprise Services on Windows Systems” on page 28 or “Installing Essbase Enterprise Services on UNIX Systems” on page 36.

### Installing the JRE on Windows Systems

The Java Runtime Environment installation package for Windows systems is a self-installing executable that walks you through the installation of the JRE.

- To install the Java Runtime Environment on Windows systems:
  1. If necessary, download the installation package from the appropriate Web site. Web site locations are listed in the `readme.txt` file located in the Essbase Enterprise Services `docs` directory.
  2. Change to the directory containing the downloaded JRE installer for Windows systems:
  3. Run the `.exe` file in the directory.
  4. Follow the on-screen installation instructions to complete the installation of the JRE.

### Installing the JRE on UNIX Systems

The Java Runtime Environment installation packages and installation procedures for each of the supported platforms are substantially different. Installation instructions from the JRE providers are provided at the Web sites where you download the package. Review these instructions carefully.

- To install the Java Runtime Environment on UNIX systems:
  1. Log on as the Essbase Enterprise Services system administrator account. For example, log on as **admin** if you created a user account called **admin** that owns the target installation directory,  
`/home/hyperion/essbase/essenterprise.`

2. If necessary, download the installation package from the appropriate Web site. Web site locations are listed in the `readme.txt` file located in the Essbase Enterprise Services `docs` directory.
3. At the JRE download Web site, review and print the installation instructions for the install package. You will need to refer to these instructions when you install the JRE.
4. Change to the directory containing the downloaded JRE install package for the operating system:
5. Follow the instructions you printed in Step 3. In most cases you must execute an installation program or decompress a file to install the JRE.

**Note:** Use of the JRE requires operating system patches on some platforms. Review the installation instructions for the JRE for patch requirements and verify that you have installed the correct patch level to support the JRE you are installing.

6. Set any environment variables specified by the installation instructions for the JRE you have installed.

## Creating Pointer Files to `Essbase.properties`

When you set up Essbase Enterprise Services to run as servlet or EJB in a Java application server or Web server, you must provide the Enterprise Services server with access to an `essbase.properties` file. The usual way to handle this requirement is to copy the `essbase.properties` file into a directory of the Java application server or Web server. However, you can avoid having duplicate copies of this file by creating `essbase.properties` files that act as pointers to a central `essbase.properties` file. By creating files that point to a central `essbase.properties` file, you can have a single `essbase.properties` file for all Essbase Enterprise Services servers. This technique simplifies the administration of Essbase Enterprise Services by minimizing the number of `essbase.properties` files you have to manage.

**Note:** A pointer file cannot point to another pointer file.

- To create a pointer file to another `essbase.properties` file:
  1. In a text editor, start a new file called `essbase.properties`.
  2. Type the following text into the file:

```
# pointer file to essbase.properties
system.props.file=C:/hyperion/ess/bin/essbase.properties
```

The above example shows the default location for the `essbase.properties` file. Modify the path to this file to fit your computer environment.

3. Save the `essbase.properties` file in directory of the Java application server where you would normally put the full `essbase.properties` file.

For more information on where this file should be located, see “Essbase Enterprise Services File Locations” on page 88 or “Configuring Servers to Use TCP/IP, HTTP, EJB, or CORBA” on page 46.

## Essbase Enterprise Services File Locations

Installation and configuration of the Essbase Enterprise Services software and other component software can lead to a complex array of files. After configuring an Essbase Enterprise Services server, you can use Table 3 to help find the files that start a server and control its configuration.

Table 3 lists the default locations and names of the scripts that are needed to start Essbase Enterprise Services servers of specific types. The table also lists the location of the `essbase.properties` file, which controls the configuration of the Essbase Enterprise Services server.

*Table 3: Default Locations of Start Scripts and `essbase.properties` File*

Server Type	Server Start Script	<code>essbase.properties</code> file
TCP/IP	c:\hyperion\essbase\essenterprise\bin\startees.cmd	c:\hyperion\essbase\essenterprise\bin\
HTTP/WebLogic	c:\weblogic\startWebLogic.cmd	c:\weblogic\
HTTP/Jigsaw	c:\program files\jigsaw\scripts\jigsaw.bat	c:\program files\jigsaw\scripts\
EJB/WebLogic	c:\weblogic\startWebLogic.cmd	c:\weblogic\
CORBA/VisiBroker	c:\hyperion\essbase\essenterprise\bin\startees.cmd	c:\hyperion\essbase\essenterprise\bin\



## Command Shell Commands

Essbase Enterprise Services has a command line interface component called the Command Shell. When you start the Essbase Enterprise Services server as a stand-alone application—using the `startees.cmd` file—the Command Shell is displayed. Use this console to perform high-level server operations. Pressing the Enter key in the server window displays the Command Shell prompt. Typing help and pressing Enter provides a list of all available commands.

You can start the Command Shell as a program separate from the Essbase Enterprise Services server. For information about starting the Command Shell as a separate program, see “Starting and Stopping the Enterprise Services Command Shell” on page 66.

You can use the following commands in the Command Shell:

*Table 4: Command Shell Commands*

Commands	Description
quit/exit	Shuts down the Command Shell If this command is issued from within the Essbase Enterprise Services server window, the server is also shut down.
help	Lists all Command Shell commands and their functions
runningeesservers	Lists all the currently running Essbase Enterprise Services servers
signon	Logs on to an Essbase Enterprise Services domain
signoff	Logs off of an Essbase Enterprise Services domain
apiver	Displays the Essbase JAPI version number
apiverdetail	Displays the Essbase JAPI version number, client version number, and compatibility information
adduser	Adds a user to the root domain
changepwd	Changes the password for a user
listusers	Displays a list of all users that are registered in the root domain of the Essbase Enterprise Services server
removeuser	Removes a user from the root domain

*Table 4: Command Shell Commands (Continued)*

Commands	Description
addolapserver	Adds a Essbase server to the root domain
listolapservers	Lists the Essbase servers in the root domain
removeolapserver	Removes an Essbase server from the root domain
setprompt	Sets the prompt text for the Command Shell
synccubereplicas	Synchronizes data among replicas of a Essbase application
syncsectoees	Synchronizes security information from a Essbase server to the Essbase Enterprise Services server

## Uninstalling Essbase Enterprise Services

You can uninstall Essbase Enterprise Services from Windows systems and UNIX systems. This section shows you how to uninstall Essbase Enterprise Services software from your computer or from a network drive.

### Instructions for Uninstalling from Windows Systems

To uninstall Essbase Enterprise Services, use the Windows Add/Remove Programs icon in the Control Panel.

- To uninstall Essbase Enterprise Services from Windows NT 4.0 and Windows 2000:

1. Select Start > Settings > Control Panel > Add/Remove Programs.
2. Complete the following step that is appropriate for your operating system:
  - On Windows NT 4.0:  
On the **Install/Uninstall** tab, select the Essbase Enterprise Services software you want to remove, and click **Add/Remove**.
  - On Windows 2000:  
Select **Change/Remove Programs**, select the Essbase Enterprise Services software you want to remove, and click **Change/Remove**.
3. Click **Yes** to confirm that you want to remove the program.

4. If a **Remove Shared File?** prompt appears, click **Yes To All**.

Windows removes the program and associated files. If some elements of the program could not be removed, click **Details** for more information.

5. Click **OK**.

## Instructions for Uninstalling from UNIX Systems

To uninstall Essbase Enterprise Services, use the uninstaller program created by the Essbase Enterprise Services setup program. The uninstaller program requires a supported version of the Java Runtime Environment to be in the path.

- To uninstall Essbase Enterprise Services from UNIX systems:
  1. Log on to the computer where Essbase Enterprise Services using the same user account that installed the software.
  2. Move to the *ESS\_ES\_HOME/UninstallerData/* directory.
  3. Execute the `UninstallEES` file; for example, at the command prompt, type the following command:

```
> ./UninstallEES
```

The uninstaller program removes the program and associated files.



## Glossary

**accounts.** A list of users and groups that determine access to a domain in Hyperion Essbase Enterprise Services.

**Application Programming Interface (API).** A library of functions that you can use in a custom program. Essbase Enterprise Services provides a Java API that you can use to develop client programs.

**applet.** In Java, a program that can run in a Web browser. Small programs written in languages other than Java are sometimes referred to as applets.

**application server.** A Java software server that runs Enterprise Java Bean (EJB) programs, Java servlets, Java Server Pages (JSPs) and provides infrastructure for large-scale Java programs, such as connection pooling, session pooling, multithreading and load balancing.

**cluster.** A group of Essbase Enterprise Services or Essbase servers to act as a single server to share task loads and provide failover support. Clustering eliminates Essbase servers as a single point of failure in a system.

**connection pooling.** A collection of user logins to Essbase servers. Pooling of user connections facilitates the scaling of Essbase applications to thousands of users.

**Common Object Request Broker Architecture (CORBA).** A distributed software-to-software communication specification which enables remote procedure calls from one software program to another on the same computer or across a network.

**cube.** A representation of an Essbase multidimensional database.

**domain.** A logical grouping of administrative objects, such as users, groups, and servers.

**Enterprise JavaBean (EJB).** Server side framework and programming architecture for creating distributed java applications.

**Enterprise Services server.** A server running the Essbase Enterprise Services software that manages requests between the client and OLAP servers, in addition to providing various services, such as event handling and authentication.

**Essbase JAPI.** Object-oriented application programming interface, enabling programmers to create custom Java applications for Essbase and Essbase Enterprise Services.

**failover support.** Automatic detection of service interruption due to Essbase server failure. When failure occurs, Essbase Enterprise Services dynamically routes server requests to the next Essbase database in the cluster.

**group.** A list of Essbase users. A user can belong to more than one group.

**Hypertext Transfer Protocol (HTTP).** A widely supported communication protocol used by Web browsers, Web servers, and other software programs to communicate over the Internet.

**Internet Inter-ORB Protocol (IIOP).** The communication protocol used to communicate between CORBA ORBs over TCP/IP.

**JAPI.** Java Application Programming Interface.

**J2EE (Java 2, Enterprise Edition).** A specification for Java technology, including the Java programming language, Java application servers and related technology.

**load balancing.** Distribution of requests across a group of Essbase servers, which ensures optimal end user performance.

**OLAP server.** A server running multidimensional databases, such as Essbase.

**Object Request Broker (ORB).** Technology that enables clients to communicate with servers via an object bus.

**RAID (redundant array of independent [or inexpensive] disks).** A persistent storage system that provides convenient, low-cost, and highly reliable storage by saving data on more than one disk simultaneously.

**Relational Database Management Systems (RDBMS).** A type of database management system that stores data in the form of related tables.

**Remote Method Invocation (RMI).** A programmatic remote access communication protocol for communication between Java programs. This protocol is typically used in communication between EJBs running on application servers.

**replication.** In Essbase Enterprise Services, the copying of data from one Essbase application database to another.

**single sign-on.** Ability to log into an Essbase Enterprise Services domain only once and, based on access rights, access resources.

**Service Provider Interface (SPI).** A technology enabling new services to be added to Essbase Enterprise Services.

**Servlet.** An small application (applet) that runs on the server rather than the client in a client/server system.





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