



> ShowCase® Essbase® 7.1 Administrator's Guide



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1 2 3 4 5 6 7 8 9 0 08 07 06 05

ISBN 1-56827-364-9

Preface

Welcome to the *ShowCase® Essbase® Administrator's Guide*. This guide discusses the administration and maintenance of ShowCase Essbase. For installation information, see the *ShowCaseEssbaseInstallation Guide*.

This preface provides the following information:

- What is included in this guide
- Where to find additional information
- How to contact the documentation team to provide feedback about this guide

Adobe Acrobat (.pdf) versions of the guides are available on the CD-ROM. Viewing and printing the documents requires Adobe Acrobat Reader. If necessary, you can download it at no cost from www.adobe.com. Use the Adobe Acrobat Reader online Help for answers to your questions about viewing and navigating the documents.

About This Guide

Chapter 1, "Technical Support," contains contact information.

Chapter 2, "Starting and Stopping the Servers," explains how to start and stop the ShowCase Essbase servers.

Chapter 3, "Configuring and Connecting to Server Components," explains how to access the ShowCase Essbase servers with client applications. It also explains how to set up Essbase Integration Services and Hybrid Analysis.

Chapter 4, "Managing Performance," explains how to manage performance to ensure successful deployment.

Chapter 5, "Essbase Server Maintenance," explains how to use and maintain your ShowCase Essbase library. If you are familiar with Essbase on other platforms, we recommend reading this chapter to understand how Essbase differs on the iSeries platform.

Appendix A, "Commands," describes commands used to maintain ShowCase Essbase libraries.

Additional Resources

- For information on getting started, licensing, passwords, and installation instructions, see the *ShowCase Essbase 7.1 Installation Guide*.

- See the online Help in each application or the *Quick Start* guides on the Support Web site at <http://support.spss.com>. After you log on, click Documentation and then ShowCase Documentation.
- For information about upgrading to ShowCase Essbase 7.0, see the *ShowCase Essbase Upgrade Guide* at <http://support.spss.com/upgradeinfo/>.

For the latest updates regarding ShowCase Essbase 7.1, see the Readme at <http://support.spss.com>. After you log on to the SPSS Technical Support site, click Documentation and then ShowCase Documentation.

Finding Documentation

You can view and download ShowCase Essbase documentation from the SPSS Technical Support site at <http://support.spss.com>. You can access Hyperion Essbase documentation on the CD or after you install the product. From the Windows Start menu, choose:

Programs
Hyperion Solutions

Send Us Your Comments

Your comments are important to us. Please tell us what you think about the ShowCase Essbase documentation by contacting:

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Rochester, MN 55901-0144
Tel: (507) 288-5922
E-mail: documentationroch@spss.com

Customer Service

If you have questions concerning your shipment or account, call your local office, listed on the SPSS Web site at <http://www.spss.com/worldwide/>.

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Technical Support

Contacting SPSS Technical Support

Phone. Our goal is to provide one-on-one technical support. However, based on the complexity and/or frequency of calls, you may reach our phone-mail system. Leave your name, company name, and telephone number, and a technical support member will call you back.

Fax. Send your name, company name, and telephone and fax numbers, along with the details of your request and the name of the product with which you need assistance.

Internet. Enter your questions and requests on the SPSS Technical Support Web site. You can also use the site to find documentation, search resolutions, download patches, open a case, and participate in the customer forum. See “Technical Support Web Site” below.

E-mail. Include your name, e-mail address, company name, the feature you have a question about, and your question or request.

Technical Support Web Site

Table 1-1
Internet addresses

Site	Address
Technical Support Web site	http://support.spss.com
SPSS Web site	http://www.spss.com
Documentation team e-mail	documentationroch@spss.com

If you are a ShowCase maintenance customer, you can apply for a personalized ID for the Technical Support Web site. If you do not already have an ID, access the SPSS Technical Support Web site at <http://support.spss.com> and apply for an ID. Information such as the following is available after you log on:

Troubleshooting. Search for a resolution, view frequently used resolutions, open a technical support case, and view the status of your cases.

Documentation. Read technical support policies, browse the technical support newsletters for technical issues, or view and download the latest documentation.

Supported Platforms. Find supported ShowCase software versions, release dates, end dates, iSeries and PC operating systems, and Web browsers.

Upgrade Info. Order an upgrade and view upgrade information pertinent to each release.

Patches. Download patches for all supported products.

My Corporate Info and My Personal Info. View your agreements, passwords, cases, and other status information.

Contact Us. Find the most current technical support phone numbers, e-mail addresses, and fax numbers for North America, Europe, and Japan/Asia Pacific. You can also open a case here.

Customer Forum. Network with other maintenance customers in this discussion group.

Other Links. Find information about products, training, and upcoming events.

Technical Support for North America

For the most current contact information, log on to the SPSS Technical Support Web site at <http://support.spss.com>.

Table 1-2

Technical support and services information for North America

Service	Phone	Fax	E-mail
North American technical support (relational products)	(507) 288-5922 option 2, then option 1	(507) 287-2809	scsupport@spss.com
North American technical support (multidimensional products)	(507) 288-5922 option 2, then option 2	(507) 287-2809	scsupport@spss.com
Product training and consulting services	(800) 543-2185		sales@spss.com

Technical Support for Europe

For the most current contact information, log on to the SPSS Technical Support Web site at <http://support.spss.com>.

Table 1-3

Technical support information for Europe

Country	Language	Phone	Fax	E-mail
Austria	German	49 89 48 9047 333	49 89 44 83115	suppge@spss.com
Belgium	Dutch	32 2 477 17 00	32 2 474 03 63	eursupport@spss.com
Belgium	French	32 2 477 17 01	32 2 474 03 63	eursupport@spss.com
Belgium	German	32 2 477 17 02	32 2 474 03 63	eursupport@spss.com
Denmark	English	45 361 58731	32 2 474 03 63	eursupport@spss.com
France	French	33 155 21 25 32	32 2 474 03 63	eursupport@spss.com
Germany	German	49 89 48 9074 333	49 89 44 83115	suppge@spss.com
Italy	Italian and English	39 0280 663036	32 2 474 03 63	eursupport@spss.com
Luxembourg	French	32 2 477 17 03	32 2 474 03 63	eursupport@spss.com
Switzerland	French	33 155 21 25 32	32 2 474 03 63	eursupport@spss.com
Switzerland	German	49 89 48 9047 333	49 89 44 83115	suppge@spss.com
The Netherlands	Dutch	31 205 82 94 96	32 2 474 03 63	eursupport@spss.com
United Kingdom	English	44 1483 719 202	44 1483 719 290	support@spss.co.uk

Technical Support for Japan and Asia Pacific

For the most current contact information, log on to the SPSS Technical Support Web site at <http://support.spss.com>.

Table 1-4

Technical support information for Japan and Asia Pacific

Region	Phone	Fax	E-mail
Japan and Asia Pacific	81 3 5466 5674	81 3 5466 5622	<i>jpscsupport@spss.com</i>

Starting and Stopping the Servers

This chapter describes how to start and stop the Essbase servers.

Before You Begin

If this is the first time starting Essbase, or you did not enter Essbase information during installation, you will be prompted for the following information when you start the servers:

- **Enter your company name.** Enter your company name. This information is displayed in the registration message when you start Essbase. The name must be at least three characters long.
- **Enter your initial system supervisor user ID.** Enter an Essbase administrator ID. The ID is used for initial security administration and ending the server. This ID is not the same as an OS/400 user ID. It does not need to match an existing OS/400 user profile, although you may choose a name that corresponds to an iSeries user ID. The Essbase user ID must be at least three characters long. Write down the user ID.
- **Enter the system password.** Enter the password for the Essbase administrator's initial user ID. The password must be at least six characters long and different from the user ID. Write down the password; it cannot be retrieved if you forget it.

Using Scripts to Start or Stop the Servers

If you are using scripts to automate starting or stopping the Essbase servers, the Essbase Analytic Server library must be in your library list. You can add the server library to your library list by adding the following command to your script (on a line before the start or stop command):

```
ADDLIBLE esslib
```

where `esslib` is the Essbase Analytic Server library.

Starting the Servers

Ensure that iSeries TCP/IP (`STRTCP`) is running before starting any servers.

1. Log on with `*SECOFR` or equivalent authority (`*ALLOBJ`, `*IOSYSCFG`, `*SAVSYS`, `*JOBCTL`, and `*SECADM` special authorities are needed).

Note: The `GRTESSAUT` command allows a user who lacks the proper authority to start or stop the servers. Refer to *Commands* on p. 67 for `GRTESSAUT` restrictions.

2. Add the Essbase Analytic Server library to your library list.

3. Use the STRESSSVR command to start the servers.

STRESSSVR Command

The STRESSSVR command starts one or more Essbase servers. The SERVER parameter indicates which server to start.

The SERVER parameter is defined by one of four values:

- *ALL indicates that all three Essbase servers should be started.
- *OLAP indicates that the Analytic Server should be started.
- *ADMIN indicates that the Administration Server should be started.
- *INTEGRATION indicates that the Integration Server should be started.

By default, when you enter the STRESSSVR command, both the *OLAP and *ADMIN parameters are used. Both parameters are packaged in the *SAME parameter.

The STRESSSVR command's JOBD parameter indicates which OS/400 job description is used for the server job. If the SERVER parameter uses *ALL, all server jobs use the same job description. If the SERVER parameter uses a specific server, such as *OLAP or *INTEGRATION, only that server uses the specified job description.

The JOBD parameter of the STRESSSVR command is the only way to control the subsystem in which Essbase related servers will run. An appropriate JOBQ, attached to the appropriate subsystem, must be set in the job description listed in the JOBD parameter. If the JOBD parameter is set to *USRPRF, the job description attached to the profile starting the server must have an appropriate JOBQ parameter set. Use of the JOBD and JOBQ parameters in an SBMJOB containing a STRESSSVR command will not affect the server's run location.

The JOBD parameter of the profile starting the server must contain the Essbase library name and any other library containing "DB2 Universal Database (UDB) for iSeries" tables that you want to use with the EIS Server. If the JOBD INITLIBL parameter is set to *SYSVAL, you must update the QUSRLIBL system value to ensure JOBD contains the appropriate information.

Note: The Integration Server does not utilize the library list defined in the STRESSSVR command's JOBD parameter.

To use different job descriptions for different servers, run the STRESSSVR command multiple times.

To start all Essbase servers (Analytic, Administration, and Integration):

- ▶ Enter the command:

```
STRESSSVR SERVER(*ALL) JOBD(esslib/ESSJOB)
```

where esslib is your Essbase library and ESSJOB is your job description.

To start only the Analytic Server:

- ▶ Enter the command:

```
STRESSSVR SERVER(*OLAP) JOBD(esslib/ESSJOB)
```

where `esslib` is the Essbase library and `ESSJOB` is the job description.

To start only the Administration Server:

- ▶ Enter the command:

```
STRESSSVR SERVER(*ADMIN) JOB(esslib/ESSJOB)
```

where `esslib` is the Essbase library and `ESSJOB` is the job description.

To start only the EIS Server:

- ▶ Enter the command:

```
STRESSSVR SERVER(*INTEGRATION) JOB(esslib/EISJOB)
```

where `esslib` is the Essbase library and `EISJOB` is the job description.

To start a combination of two servers:

- ▶ Enter the command `STRESSSVR` and press F4 to prompt. Enter the two parameters.

Note: `*SAME` is the default parameter. It starts both the Analytic Server (`*OLAP`) and Administration Server (`*ADMIN`).

To Change the SERVER Parameter Default Value

The `SERVER` parameter default is `*SAME`, which means that both the Analytic Server (`*OLAP`) and Administration Server (`*ADMIN`) are started when you run the `STRESSSVR` command. Change the `SERVER` parameter default if you want to start all servers or only one server. For example, to change the `SERVER` parameter default value to `*ALL`, use the following command:

```
CHGCMDDFLT CMD(esslib/STRESSSVR) NEWDFLT('SERVER(*ALL)')
```

where `esslib` is the name of the Essbase library.

Stopping the Servers

The `ENDESSSVR` command terminates all current TCP/IP connections to the specified library.

Note: A user ID and password are required to stop the Analytic Server. If they are not specified, the `*CURUSR` value is used, which may not be valid for the Analytic Server.

1. Log on with `*SECOFR` or equivalent authority (`*ALLOBJ`, `*IOSYSCFG`, `*SAVSYS`, `*JOBCTL`, and `*SECADM` special authorities are needed).

Note: The `GRTESSAUT` command allows a user who lacks the proper authority to stop or start the servers. For `GRTESSAUT` restrictions, see *Commands* on p. 67.

2. Add the Essbase Analytic Server library to your library list.
3. Use the `ENDESSSVR` command to stop the servers.

ENDESSVR Command

The ENDESSVR command stops one or all Essbase servers. The SERVER parameter indicates which server to stop and has three values:

- *ALL indicates that all three Essbase servers and server jobs should be stopped. This is the default value.
- *OLAP indicates that the Analytic Server and server job should be stopped.
- *ADMIN indicates that the Administration Server and server job should be stopped.
- *INTEGRATION indicates that the EIS Server and server job should be stopped.

To stop all Essbase servers:

- ▶ Enter the command:

```
esslib/ENDESSVR SVRUSER(userID) SVRPW(password) SERVER(*ALL)
```

where `esslib` is the Essbase library.

To stop only the Essbase Analytic Server:

- ▶ Enter the command:

```
esslib/ENDESSVR SVRUSER(userID) SVRPW(password) SERVER(*OLAP)
```

where `esslib` is the Essbase library.

To stop only the Essbase Administration Server:

- ▶ Enter the command:

```
esslib/ENDESSVR SERVER(*ADMIN)
```

where `esslib` is the Essbase library.

To stop only the EIS Server:

- ▶ Enter the command:

```
esslib/ENDESSVR SERVER(*INTEGRATION)
```

where `esslib` is the Essbase library.

Verifying Server Status

You can use the WRKACTJOB command to verify which Essbase servers are running. The **Analytic Server** job name is identical to the job description name, with a job type of BCH and a function of PGM-ESSBASE.

The **EIS Server** job name is identical to the job description name, with a job type of BCH and a function of PGM-OLAPISVR.

The **EAS Server** job name is identical to the job description name, with two jobs:

V5R1 and V5R2:

- Job type BCH with function CMD-RUNJVA
- Job type BCI with function PGM-QJVACMSRV

V5R3:

- Job type BCH with function CMD-RUNJVA
- Job type BCI with function JVM-org.apache

Configuring and Connecting to Server Components

Logging into the Administration (EAS) Console

The Administration Console is a client interface for managing the servers. Administrators should use the Console to connect to the Administration Server, add EAS users, and define the Analytic Servers that users can see and access. On the iSeries, EAS can connect to:

- Analytic (OLAP) Server version 6.1.
- Analytic (OLAP) Server version 6.2 or later with the latest patch.

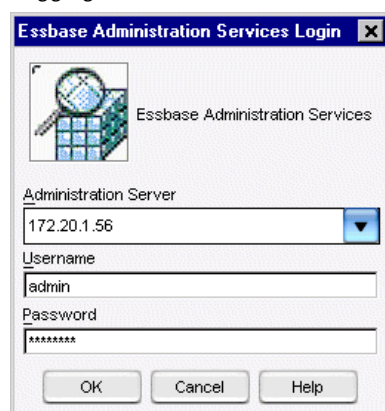
On Windows, EAS can connect to Analytic Server version 6.5.1 and later.

Before logging in and connecting to the servers, use the `WRKACTJOB` command to verify that the Analytic and Administration servers are running. For more information, see “Verifying Server Status” in Chapter 2 on p. 8. For instructions on starting the servers, see Chapter 2.

To log into the Administration Console:

1. Open the Administration Console (via the Start menu).
2. At the login dialog box, enter the Essbase installation IP address. If connecting for the first time after installation, enter the default username (`admin`) and the default password (`password`). For security reasons, the default password should be changed for this account.

Figure 3-1
Logging into the Administration Console



Note: Starting with ShowCase Essbase patch 7.10.030, users must enter the IP and the port number in the Administration Server field in the following format:

172.20.1.55:9001 (where 172.20.1.55 is the IP address and 9001 is the port number).

3. If you cannot log in, see “Troubleshooting Connection Failures” on p. 19.

Before other users can begin using Administration Services to manage Essbase, they must be added to the Administration Server, and each user’s view populated with the appropriate Analytic Server information. For instructions, see the *Hyperion Essbase Administration Services Installation Guide*, section titled “Working with Administration Services.”

Initializing or Updating the EAS Repository

There are two scenarios in which you will need to update the Administration Server repository:

- If you did not enter an EAS Database Initialization username and password during server installation (or if you entered a profile without the correct authority), your EAS repository/database was not initialized. You must initialize it before using the Log Analyzer feature (the Generate Log Charts menu option) in the EAS Console.
- If the profile you used to initialize the repository/database changes or has an expired password, you must run the `INITADMDB` command to update the repository with the new information.

Note: The `INITADMDB` command cannot be run via the console.

To initialize or update the Administration Server repository (requires `*ALLOBJ` or equivalent authority):

1. Add the Essbase library to your library list with the `ADDLIB` command.
2. Type `INITADMDB` and press F4.
3. **Database User:** Specify the username used to connect to the repository. This profile must be a valid OS/400 profile with `*ALLOBJ` authority for creating tables.
4. **Database User Password:** Specify the password used to connect to the repository. The password must be valid as typed and must meet all password validation rules as defined on the OS/400.
5. **Reset Database:** Specify whether the repository should be reset. Selecting `*YES` causes all user configuration information to be lost.
6. After you run the `INITADMDB` command, stop and restart the EAS Server for the change to take effect.

Aggregate and Block Storage

EAS provides an aggregate storage kernel as a persistence mechanism for multidimensional databases. Aggregate storage databases enable dramatic improvements, over block storage databases, in both database aggregation time and dimensional scalability. Aggregate storage applications do have some limitations that do not apply to block storage applications. Refer to the *Hyperion Essbase Administration Services Database Administrator’s Guide*, section titled

“Comparison of Aggregate and Block Storage” for detailed information regarding aggregate and block storage applications.

Connecting to Integration Services (EIS)

Instructions for connecting to the Essbase Integration Server (EIS) are located in the *Hyperion Essbase Integration Services Installation Guide*. The following sections contain important notes for using EIS on the iSeries.

Before connecting to the EIS Server, use the `WRKACTJOB` command to verify the server is running. The server job name is identical to the job description name, with a job type of `BCH`, and a function of `PGM-OLAPISVR`. For instructions on starting the server, see Chapter 2.

Note: The EIS Server is installed in the same library as the Analytic Server.

Integration Services Licensing

Authorized use of the EIS Server is determined by the Analytic Server’s license key. If you attempt any EIS work that requires proper licensing, such as creating Essbase applications drilling down on Essbase cubes, or using Hybrid Analysis features, you will receive an error message if proper EIS licensing is not set.

Integration Services ODBC Data Source Name

You do not need to configure an ODBC data source on your client PC to use EIS. The EIS Server offers complete DB2 iSeries relational database support using SQL call level interface (CLI). Any iSeries system may have a number of relational databases defined, and these databases may be on a local and/or remote system. To find a list of defined databases in the relational database directory, use the `WRKRDBDIRE` command on the iSeries. For EIS to work properly, you should have at least one database entry defined on your iSeries system.

Note: EIS often uses the OLAP metadata catalog and ODBC data source interchangeably.

Integration Services Library List

The EIS library list is determined by the job description of the profile used to start the EIS Server. Before starting the EIS Server, be sure to add libraries to or remove libraries from the job description of the EIS administrator profile. Use the `CHGJOB` command to alter the `INLLIBL` parameter

Note: It is recommended that separate user profiles (and thus separate job descriptions) be used to manage (start and stop) the Analytic and EIS servers.

Integration Services Quick Setup

1. Create a new job description (or modify an existing one) to include the Essbase installation library and any other libraries you want to use with EIS. Use the following command, where `ESSBASE` is the name of the installation library and `DATALIB` contains user data files:

```
CRTJOB JOB(QGPL/EISJOB) INLLIBL(ESSBASE QGPL DATALIB)
```

Important: EIS only has access to the libraries specified in the `INLLIBL` parameter. You can only add libraries existing on the system, otherwise the library list will not be replaced and may cause errors.

2. Create a new user profile (or modify an existing one) that will use this job description during EIS startup. This user profile must have the authority required to start the server (see Chapter 2). In the following command, `EISADMIN` is the new user profile and `EISPASSWORD` is the new password:

```
CRTUSRPRF USRPRF(EISADMIN) PASSWORD(EISPASSWORD) USRCLS(*SECOFR)  
JOB(QGPL/EISJOB)
```

3. Sign on to the iSeries with the new profile, and start the EIS Server:

```
STRESSSVR SERVER(*INTEGRATION)
```

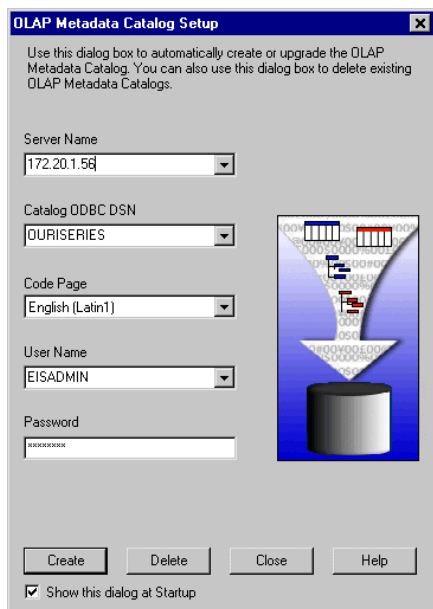
4. From a client PC, open the Integration Services console (via the Start menu) and create the OLAP metadata catalog, using the guidelines in the following section (“Creating the Metadata Catalog”). Until the metadata catalog is created, attempts to login will return errors. Additional instructions for creating the catalog are in the *Hyperion Essbase Integration Services Installation Guide*.
5. Once the catalog is created, you may connect to the EIS Server. To enter the correct login information, follow the guidelines in “Logging into Integration Services” on p. 16.

You are now ready to create your model and metaoutline. You may want to create a sample application to see EIS in action. Follow the instructions in “Creating the Integration Services Sample Application” on p. 17.

Creating the Metadata Catalog

The EIS Server manages access to OLAP metadata catalogs and relational data sources. An **OLAP metadata catalog** stores the OLAP models and metaoutlines you create. You only have to create the catalog once. The catalog setup dialog box may display when you open the EIS Console. If it doesn't, from the Tools menu, choose Create Catalog.

Figure 3-2
OLAP Metadata Catalog Setup dialog box



When creating catalogs for use on the iSeries, enter the following information:

Server Name. Enter the Essbase IP address. The EIS Server uses the same IP address as the Analytic Server.

Note: To find your IP address, use the iSeries DSPESSENV command.

Catalog ODBC DSN. Once you enter an IP address for the server name, the EIS Server returns all entries it can find in the iSeries relational database directory (you can also type a name in this box). Each of these entries is considered an ODBC data source. Select a data source name that has the remote location entry defined as *LOCAL on the iSeries. EIS uses the Essbase installation library as the default collection (WRKRDBDIRE on the system will show if you have the right collection).

Code Page. Select the code page that corresponds to the code page of the source database used as the OLAP Metadata Catalog. The code page is a portion of the locale, which identifies the local language and cultural conventions such as the formatting of currency and dates and the sort order of data.

Note: If you want to create a Unicode OLAP Metadata Catalog, you must manually create it by running the provided scripts, as described in the chapter on OLAP Metadata Catalog setup in the *Hyperion Essbase Integration Services Installation Guide*. This release does not support the automatic creation of a Unicode catalog.

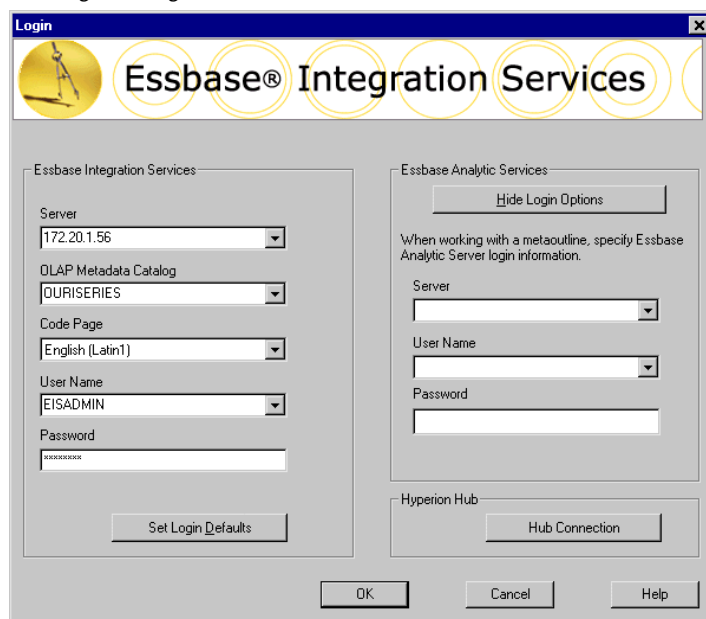
User Name and Password. Specify a valid iSeries username and password for the EIS connection. You do not have to create a separate EIS username and password, but the installation library (default ESSBASE) must be in this user's library list. It is recommended that you use the profile created for EIS startup (for example, EISADMIN).

Note: All the catalog tables are created in the server installation library. Only one catalog per server installation can exist on the iSeries.

Logging into Integration Services

To create an OLAP model or a metaoutline, first connect to the EIS Server. Connection instructions are in the *Hyperion Essbase Integration Services Installation Guide*. When connecting to the server, use the EIS Login dialog box, as shown in the following figure.

Figure 3-3
EIS Login dialog box



When connecting to EIS for use on the iSeries, use the following information:

Server. Enter the Essbase IP address. The EIS Server uses the same IP address as the Analytic Server.

Note: To find your IP address, use the iSeries DSPESSENV command from the Essbase library.

OLAP Metadata Catalog. Once you enter an IP address for the server name, the EIS Server returns all entries in the system's relational database directory. Each of these entries is considered an ODBC data source. Select a data source name that has the remote location entry defined as *LOCAL on the iSeries. EIS uses the Essbase installation library as the default collection (WRKRDBDIRE on the system will show if you have the right collection).

Note: EIS often uses the terms *OLAP metadata catalog* and *ODBC data source* interchangeably.

Code Page. Select the code page of the language to use during the current EIS Console session.

User Name and Password. Specify a valid iSeries username and password for the EIS connection. You do not have to create a separate EIS username and password, but the installation library (default ESSBASE) must be in this user's library list. It is recommended that you use the profile created for EIS startup (for example, EISADMIN).

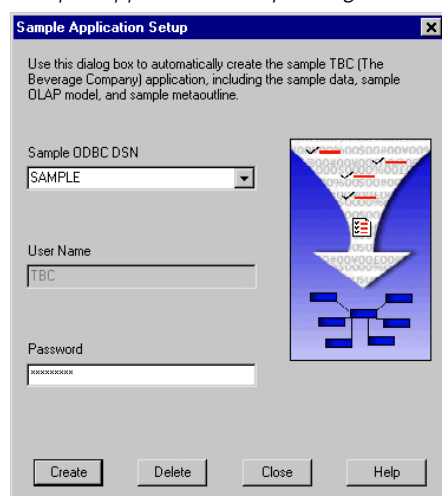
Note: When connecting to the Analytic Server (using the right side of the dialog box), you must also provide a valid Essbase username. For instructions on using your OS/400 user profile and password to log into the Analytic Server, refer to the integrated security topic in Chapter 5.

Creating the Integration Services Sample Application

EIS provides a sample application that is based on a fictitious company, The Beverage Company (TBC). Creating the sample application is not required, but it may provide valuable insight for novice users. Instructions for setting up the sample application are located in the *Hyperion Essbase Integration Services Installation Guide*.

Before you begin the setup, the system administrator must create an OS/400 user profile called TBC for sample application maintenance. This is the only profile that is allowed to create or delete the sample application. When you open the Essbase Integration Services console's Sample Application Setup dialog box (from the Tools menu), you will notice the username (TBC) is read-only and cannot be changed. See the following figure.

Figure 3-4
Sample Application Setup dialog box



Use the following guidelines when creating the sample application:

- The Sample ODBC DSN is the OS/400 relational database name with remote location *LOCAL (WRKRDBDIRE on the system will show if you have the right name).
- The sample application setup process performs several tasks. It creates the TBC library and places sample data in various tables in the library (the tables are normalized). It also creates an EIS model and EIS metaoutline. You may later use this metaoutline to create your Essbase application database.
- Once the sample applications are created, change the EIS job description (created in step 1 of “Integration Services Quick Setup” on p. 14) to include the TBC library in the INLLIBL parameter. Restart the server before using TBC to create Essbase applications.

Enabling Hybrid Analysis on the iSeries

To Enable Hybrid Analysis on the Server

1. Stop the Analytic Server using the instructions in Chapter 2.

2. Add the line `HAENABLE TRUE` to the Analytic Server `essbase.cfg` file. For instructions on modifying the `essbase.cfg` file, see Chapter 5.
3. Restart the Analytic Server to activate your changes.

To Enable Hybrid Analysis for the Excel Spreadsheet Add-in

1. In the Excel spreadsheet, select Essbase, then Options.
2. In the Essbase Options dialog box, click the Zoom tab.
3. Select Enable Hybrid Analysis. This enables data retrieval from the Hybrid Analysis source.
4. Click OK to close the Essbase Options dialog box.

Note: In Hybrid Analysis reports, if you use the `RESTRICT` command in the report script, it must be placed before the `ROW` specification. Otherwise, the `RESTRICT` command will not be honored.

Creating Hybrid Analysis Samples

The sample application includes a Hybrid Analysis-enabled OLAP model and metaoutline. To use the model and metaoutline, the Hybrid Analysis sample tables must be created *before* setting up the sample application. The following command creates the necessary tables in the TBC library and populates the tables with sample data for Hybrid Analysis.

To create the Hybrid Analysis sample tables:

- Run the following iSeries command:

```
CALL ESSBASE/CRTHASAMP
```

where `ESSBASE` is the Analytic Server installation library.

For instructions on setting up the model and metaoutline, see “Importing or Exporting XML Files” on p. 19.

Removing Hybrid Analysis Samples

This procedure removes Hybrid Analysis sample tables from the TBC library.

To remove Hybrid Analysis sample tables from the system:

- Run the following iSeries command:

```
CALL ESSBASE/DRPHASAMP
```

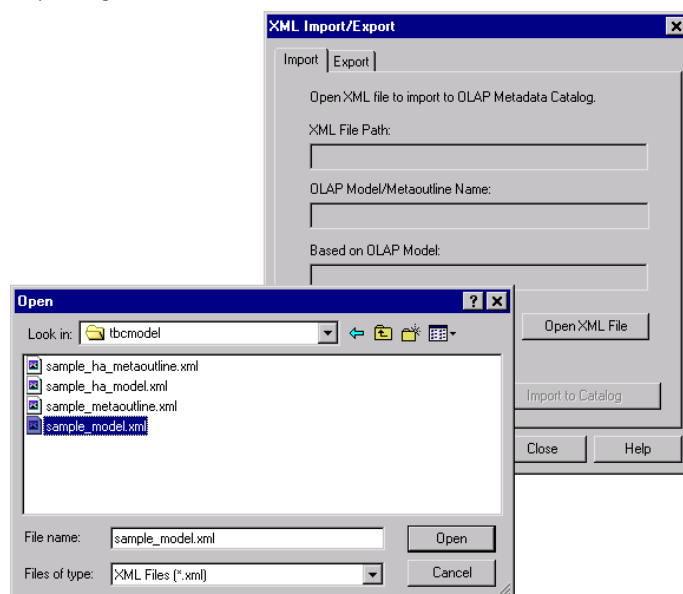
where `ESSBASE` is the Analytic Server installation library.

Importing or Exporting XML Files

To import an XML file to an OLAP model or metaoutline, or export a model or metaoutline to an XML file, follow the instructions in the Essbase Integration Services online Help, using the following iSeries-specific hints. The following example demonstrates importing.

1. To import an XML file, in the XML Import/Export dialog box, click Open XML File and navigate to the appropriate XML file.

Figure 3-5
Importing an XML file



2. The samples are located in the Essbase installation library. Navigate to the following directory: *L:\ESSBASE\samples\tbcmodel*, where *L* is a drive mapped to the integrated file system (IFS) root directory and *ESSBASE* is the installation library.
3. Select the XML file to import, and click OK.
4. Continue using the Hyperion Essbase instructions.

Note: When exporting an XML file, navigate to the mapped IFS drive and save the file there. Do not save the file to your local (C) drive.

Troubleshooting Connection Failures

Problem: Cannot connect to Administration Services Console.

Solution 1: Use the `WRKACTJOB` command to verify the Administration server is running. For more information, see “Verifying Server Status” in Chapter 2 on p. 8.

Solution 2: Do not login using an Analytic Server profile.

Problem: Cannot start the server from the Administration Services Console.

Solution: Starting an Analytic Server from within the Administration Console is not supported. You must start the Analytic Server using the iSeries `STRESSSVR` command.

Problem: In the Application Manager's Essbase System Login dialog box, no servers display in the Server drop-down list.

Solution: Initially, the server IP address or host name must be manually entered in the Server drop-down list. After a valid connection is established, the server IP address and host name are stored.

Problem: The following error message is displayed: Network Error (10060): Unable to Connect to (x.x.x.x). The client timed out waiting to connect to the Essbase Agent using TCP/IP.

Solution: Verify the TCP/IP address. Run the `DSPESEENV INFO(*ALL)` command in an Essbase Server library and check the second-level text of the Essbase/400 Server attributes error message. This displays the Essbase Server TCP/IP address.

Problem: The following error message is displayed: Error 1042017: The client or server timed out waiting to receive data using TCP/IP.

Solution: Create or edit the `NETDELAY` and `NETRETRYCOUNT` settings in the `.cfg` file to override the default settings. The `.cfg` file resides in the Essbase library on the server or in the `\bin` folder on your PC (for example, `arborpath\bin`). The file may reside on both the server and your PC.

- `NETDELAY` dictates how long (in milliseconds) Essbase waits before retrying an unsuccessful operation. The default is 200.
- `NETRETRYCOUNT` dictates how many times the network tries to connect to the host. The default is 600.

Increase the values based on the frequency of the error (the more often the error occurs, the larger the value). For example, increase the value of a less frequent error by hundreds; increase the value of a more frequent error by thousands.

In addition, consider how many users experience the problem. If only a few users are affected, change the PC `.cfg` file; if a significant number of users are affected, change the iSeries `.cfg` file. After editing the file, stop and restart the ShowCase Essbase OLAP Server.

Problem: The following error message is displayed: ODBC ErrorApplication error. MCH340.

Solution: During the OLAP Integration Server's catalog create or delete operation, this error message may be returned when a user attempting the create or delete operation does not have the proper authority level or does not have the `ESSBASE` installation library name in his/her initial library list.

If the problem is not an authority-related issue, you may be able to resolve it by modifying the user's job description. First locate the appropriate job description for the user using `DSPUSRPRF` (or a similar command). Then modify the `INLLIBL` parameter of the job description to include the Essbase installation library. For example:

```
CHGJOB JOB(ESSBASE/EISJOB) INLLIBL(ESSBASE)
```

In this instance `ESSBASE` is the Essbase installation library name. There may be other libraries besides `ESSBASE` in the `INLLIBL` parameter. If the `INLLIBL` value is `*SYSVAL`, you must update the `QUSRLIBL` system value to add the necessary libraries.

Managing Performance

This chapter provides insight into performance planning and tuning of Essbase databases.

Optimizing Performance

It is important to optimize performance for:

- Essbase Analytic Server
- iSeries system on which the server is running

Tuning Performance

Load, calculation, and retrieval performance are critical to a successful Essbase implementation. Performance varies based on the relationships between the source data, the amount of data, the configuration of the outline, the size and complexity of retrievals, and the tuning applied to the database settings.

Note: It is important that you understand the concepts in the *Hyperion Essbase Database Administrator's Guide* and in the documentation provided by IBM regarding work management.

Designing an Optimized SQL Data Load Plan

To optimize an Essbase data load:

1. Sort your input records so that the same sparse member combinations are grouped consecutively. In addition, sort your input records so that the sparse dimensions appear in the same order as the sparse dimensions in the outline. Sorting data on the sparse dimension members minimizes the number of times an Essbase data block must be read from disk, decompressed, enlarged, recompressed, and written back to disk. To sort your input data, specify the appropriate `ORDER BY` clause on the SQL statement in your rule file.
2. Load the data from a data source on the server. If the data is not on the source, moving it to the server will improve load times since the data does not have to be transported over the network at load time.

See the *Hyperion Essbase Database Administrator's Guide* for additional information and other optimization tips.

Optimizing the Essbase Calculation Process

Calculating an Essbase model is CPU-intensive, and decisions you make about the calculation process can affect performance. See the *Hyperion Essbase Database Administrator's Guide* for more information about optimizing Essbase calculations.

Tuning iSeries Performance

Performance can change depending on the system resources available to Essbase (CPU, number and type of disk units, and main memory), the number of users accessing the data, and other concurrent activities on the system. For more information on tuning your iSeries, see the documentation provided by IBM regarding work management.

Once you understand your requirements, examine your implementation environment to determine the limits placed on your solution. The following sections introduce items to consider before continuing with the next implementation phase.

Balancing Priority between Essbase and other Server Jobs

If you attempt to run other server jobs while running Essbase servers, the two activities will compete for system resources. This is especially true if you are running on a single-processor system.

For example, Warehouse Builder distributions typically run at a default priority of 20. If you start the Analytic Server as a typical batch job, it runs at a default batch priority of 50. Both of these tasks are iSeries resource-intensive. Since Warehouse Builder jobs run at a higher priority, your Essbase operations (load, calculations, retrievals) will run very slowly.

Note: To prevent slow Essbase operations, set identical tuning priorities for your server and data distributions. For example, if you run the server at priority 50, set the data distribution to priority 50 as well. In addition, set your time slice under 25 milliseconds to prevent job atrophy.

Controlling Memory Allocations

Essbase performance is largely affected by the amount of memory it is allowed to use. You can manipulate the standard OS/400 work management techniques to control memory allocations. On the iSeries, memory is allocated to various memory pools by OS/400. For example, memory can be allocated to the *BASE pool, *INTERACTIVE pool, or other user-defined pools. For more information on memory pools, consult the documentation provided by IBM regarding work management.

Essbase can run under the *BASE pool or under a dedicated memory pool. Use a sufficiently large memory pool that does not compete excessively with other applications running on the iSeries. It is recommended you start with a memory pool of 256 megabytes (MB) for small databases accessed by a limited number of users. As you increase the number of databases, the size of the databases, or the number of users, consider increasing the amount of memory available for Essbase.

Because every database is unique, we cannot recommend specific system size and memory requirements.

Preventing Storage Overflow

Essbase data load or calculation operations may exceed the predetermined auxiliary storage lower-level limit and eventually crash the system. You can configure the iSeries to stop the data load and/or calculation operation before storage overflow to prevent the system from crashing.

To stop the data load and/or calculation operation before storage overflow:

1. Set the QSTGLOWACN system value to *REGFAC.
2. Register SCSTGEXIT to QIBM_QWC_QSTGLOWACN by typing the following at the iSeries command line:

```
ADDEXITPGM EXITPNT(QIBM_QWC_QSTGLOWACN) FORMAT(STGL0100) PGMNBR(1)
PGM(esslib/SCSTGEXIT)
```

where *esslib* is the name of the Essbase installation library.

Note: The PGMNBR parameter must not already be in use.

3. When there is enough storage available, you must run the following command from an OS/400 command line before Essbase can resume normal functions:

```
RMVENVVAR ENVVAR(OS400STGLOWLMTREACHED) LEVEL(*SYS)
```

Grouping Databases into Applications

A typical installation will run many Essbase databases on a single iSeries. While you can group several databases into a single application, a single application and database for each business problem is usually the best choice to simplify administrative tasks.

Symmetric Multiprocessing

Symmetric multiprocessing (SMP) refers to a system with more than one main processor. For example, some iSeries models can be equipped with two, four, eight, or more processors. In this case, SMP is a feature of the hardware. Multiple processors let the system simultaneously process more than one task.

Essbase takes advantage of hardware SMP by using multiple threads to spread end-user retrievals across multiple processors. This applies to retrievals submitted using the spreadsheet add-ins, Analyzer, or user-written report scripts. As multiple users run simultaneous retrievals, Essbase uses multiple threads to process the retrievals (calculations, however, are processed in a single thread).

There are two methods for calculating with multiple processors:

Using multiple processors for multiple databases. By default, the Essbase database calculation process is single-threaded and uses only one processor. Since each database is calculated under a separate thread, you can use multiple processors when calculating more than one database at the

same time. Performance will vary depending on other system activity or iSeries resources such as the available memory and the performance of the server's disk units.

Using multiple processors for a single database. Parallel calculation enables multiple processor calculations. This feature requires modification of the *Essbase.cfg* file. For more information on parallel calculation, see the chapter on optimizing calculations in the *Hyperion Essbase Database Administrator's Guide*.

If you have a single-processor system, limited memory, or limited I/O capacity (few disk arms), you will achieve better results by calculating only one database at a time.

On the iSeries, SMP can also mean a DB2 iSeries software offering that improves DB2 query performance regardless of the number of system processors. This software offering enables OS/400 to process a query in several simultaneous steps, run in separate jobs, and can assist in Essbase SQL builds and loads when heavy SQL is processed.

Essbase Query Optimization Tips

This section contains tips for improving the performance of your Essbase queries. Many of these Essbase query optimization features can be found in the Essbase Options dialog box in Query and Report Writer.

Limiting Rows

If you have created a complex Essbase query or one that may return a large quantity of data, test the query first by limiting the number of rows returned. By doing so, the query returns only a specified number of rows, indicating that the query runs correctly. To limit rows, you can use any of the following three options:

- **Top/bottom sorting.** Use top/bottom sorting to return an exact number of top- or bottom-ranked values in your report. For example, if your database contains 2,000 cities and you want to sort sales by city and display only the top 10 cities by sales, you can apply top/bottom sorting to one column per report. To apply top/bottom sorting, see "Applying top/bottom sorting" in the Query or Report Writer online Help index.
- **Suppressing rows that are missing all values.** Use this option to exclude rows containing only #MISSING values from the result data. #MISSING means that the data in a given cell does not exist. This may be because the member combination is not meaningful (for example, a given company does not sell toboggans in Miami) or has never been entered. This option can be useful if you have many rows with no values. To activate this option, from the Query menu choose Essbase Options, and then in the Essbase Options dialog box, select Suppress Rows that are Missing All Values.
- **Suppressing rows that are all zeros.** Use this option to exclude rows containing only zeros from the result data. To activate this option, from the Query menu choose Essbase Options, and then in the Essbase Options dialog box, select Suppress Rows that are All Zeros.

Suppressing Duplicate Shared Members

Suppress Duplicate Shared Members is an Essbase command that suppresses the display of duplicate shared members, reducing the amount of returned output data. Use this option to remove duplicate rows from the result data by excluding duplicate shared members from the query. To activate this option, from the Query menu choose Essbase Options, and then in the Essbase Options dialog box, select Suppress Duplicate Shared Members. For more information about shared members, see “Suppress Duplicate Shared Members” in the Query or Report Writer online Help index.

Optimizing Essbase Reports

Intelligent sparse reporting data retrieval is an Essbase feature that may improve data retrieval. Query and Report Writer can use this method to request data from the Analytic Server. The Generate a Sparse Report option uses the sparse data extraction method, which optimizes performance when a high proportion of the requested data rows are #MISSING. For more information on how sparse reporting works and when to use it, see “sparse reporting” in the Query or Report Writer online Help index.

Intelligent Sparse Reporting (ISR) is a separately licensed Essbase enhancement that enables faster query/retrieval processing for Essbase databases containing related dimensions comprising a large number of members (defined as sparse dimensions to the Essbase engine). For example, a database may contain several dimensions representing product SKUs such as product, color, and size.

For more information, contact your sales representative or refer to the Intelligent Sparse Reporting document on the SPSS Support Web site at <http://support.spss.com>. To access documentation, log in to Support, click Documentation, and click ShowCase Documentation.

Essbase Server Maintenance

This chapter discusses maintenance procedures and operating considerations for ShowCase Essbase servers.

Understanding Essbase Configuration

Essbase servers provide two mechanisms for configuring information on the iSeries: the configuration file and environment settings. The following sections explain:

- The objects Essbase installs
- The Essbase environment and how to use the iSeries configuration file
- How the configuration file relates to the Essbase environment settings

Installation Library and Directory

During installation, you can specify an Essbase installation library name. The default name is `ESSBASE`. The installation program uses the library name to create a `QSYS.LIB` library (which stores configuration and program information) and a root file system directory (which stores user data associated with Essbase application databases). The default root file system directory name is also `ESSBASE`.

If you specify `MYBASE` as the installation library name, the installation program creates a library named `MYBASE` in the `QSYS.LIB` file system and a directory named `MYBASE` in the root file system.

To differentiate between the storage areas, we will refer to the library as the *Essbase library* and to the root file system directory as the *Essbase directory*.

QSYS.LIB Objects Created During Installation

The following sections explain which objects are stored in the `QSYS.LIB` file system. If you are familiar with an Essbase file not mentioned, it probably can be found in the Essbase directory structure in the root file system.

Files. The configuration file is a source physical file named `CFG`. It contains two members: `ESSBASE` and `EIS`. In most Hyperion Essbase documentation, the files are referred to as `ESSBASE.CFG` and `EIS.CFG`.

Server and application logs are written in ASCII format to the integrated file system. To view the logs from an iSeries command line, use the `DSPSSLOG` command. `DSPSSLOG` can also copy the logs to the `QSYS.LIB` file system.

Miscellaneous objects. Essbase includes miscellaneous objects that implement iSeries-specific functions. The miscellaneous objects include user spaces to store environment information, commands to provide user interfaces, a message queue for additional logging support, and a message file that logs iSeries-specific error messages.

Using Configuration File Settings

Where `ESSBASE.CFG` is referenced in the Hyperion documentation, substitute the ShowCase equivalent, `essbaselib/CFG` member `ESSBASE` (where `essbaselib` is the Essbase installation library).

When Essbase is installed, the configuration file is created as an empty source physical file unless it already exists. If the file exists, it is converted to a source physical file, maintaining the existing settings. If the configuration file is deleted, use the command below to recreate it.

The configuration file contains keywords and values that define Analytic Server characteristics. The *Hyperion Essbase Technical Reference* provides specific information regarding each keyword and value that can be used in the configuration file. The configuration file can contain the same keywords and values used by Essbase on other platforms, but keywords and values not supported by the Analytic Server are ignored.

To recreate the configuration file:

```
CRTSRCPF FILE(essbaselib/CFG) RCDLEN(240) MBR(ESSBASE)
ACCPHYSIZ(*MAX4GB) SIZE(*NOMAX) CCSID(37)
```

where `essbaselib` is the Essbase installation library.

`EIS.CFG` can be added using the following command:

```
ADDPFM FILE (essbaselib/CFG) MBR(EIS)
```

where `essbaselib` is the Essbase installation library.

Modifying the ESSBASE.CFG File

To edit or display the `ESSBASE.CFG` file from an iSeries command line, use the iSeries `EDTF` command:

```
EDTF FILE(essbaselib/CFG) MBR(ESSBASE)
```

where `essbaselib` is the Essbase installation library.

To insert a new line (for editing): Type `I` and press Enter. To delete a line, type `D` and press Enter.

Displaying the ESSBASE.LOG File

To display the `ESSBASE.LOG` file from an iSeries command line, use the iSeries `DSPF` command:

```
DSPF STMF(essbaselib/ESSBASE.LOG)
```

where `essbaselib` is the Essbase installation library.

Using Environment Settings

Each installation library has unique settings. Use parameters to tailor the environment. Some parameters are configured during installation; others are configured only when you need them. The environment parameters are implemented with OS/400 environment variables. Each Essbase installation has its own set of environment variables.

Two Essbase commands allow you to work with ShowCase Essbase environment variables:

- `CHGESSENV` allows you to change the standard ShowCase Essbase environment variables and additional generic Essbase environment variables.
- `DSPESSENV` displays the currently configured Essbase environment.

See the following sections for details on configuring, displaying, and removing environment parameters.

Understanding When the Environment Is Used

The Essbase environment is activated when Essbase, MaxL/400, or ESSCMD/400 is started. Even though the Essbase environment can be changed while Essbase operations are active, the changes are not active until all Essbase operations are ended and restarted.

Configuring Environment Variables

A standard Essbase environment is configured at installation time. After installation, the environment can be changed with the `CHGESSENV` command. The following table lists the standard environment variables and their associated command parameters.

Table 5-1
Standard Essbase environment parameters

Command parameter	Environment variable
LIB	ARBORLIB
PATH	ARBORPATH
SERIALNUM	ESSBASE_SERIAL
IPADDR	ESSBASE_IP_ADDR
THREADS	SERVER_THREADS
EBCCSID	ESSBASE_EBCDIC_CCSID
ESSLANG	ESSLANG
SCRSYNTAX	N/A
ALLOBJ	Run with all object authority
CLASSPATH	CLASSPATH

The generic variables in the following table can also configure Essbase operations.

Table 5-2
Generic Essbase environment variables

Environment variable	Description
ESSBASE_UPPERCASE	When this variable is defined with a non-NULL value, all text output Essbase generates in messages and log files is displayed in uppercase English. This environment variable is most effective using Essbase on systems outside the United States that do not support lowercase English characters.
LINES	Specifies the number of lines to be displayed by the Help command in the ESSCMD interface.
ESSBASE_JOURNAL	Specifies the library and name of a journal where Essbase will log debug information. Developers may use this information to investigate problems. <i>Note:</i> Use this variable only at the direction of technical support.

Displaying Environment Variables

To display the currently configured environment, run the `DSPESSENV` command. This command displays all defined environment variables and their values.

Removing Environment Variables

The standard Essbase environment variables cannot be removed. Once set, they can only be changed to another value. The generic variables can be removed by specifying `*REMOVE` as the value on the `CHGESSENV` command.

Understanding the Configuration and Environment Relationship

Because Essbase configures operating characteristics in two ways, it is important to understand how the characteristics relate to one another.

- The Essbase **configuration file** allows administrators to define characteristics common among all Essbase platforms.
- The Essbase **environment settings** allow administrators to define characteristics unique to ShowCase Essbase, characteristics that have different value ranges, or ShowCase Essbase defaults.

Server threads can be configured in both places. If a value is configured in both places, the environment setting takes precedence over the configuration file setting. To reduce confusion, it is recommended that server threads be configured using only the environment settings.

Configuring Essbase for Java

Essbase supports Java-related functionality. See the *ShowCase Essbase Installation Guide* for Java requirements. The `JVMModuleLocation` parameter, which is set in the `ESSBASE.CFG` file, is ignored in ShowCase Essbase. Instead, a standard environment variable named `CLASSPATH` was created. `CLASSPATH` specifies the location of the Java files needed to run with ShowCase

Essbase. ShowCase Essbase always seeks the CLASSPATH default value. Do not change the default value. Any changes must be appended, or Java will not function.

The CLASSPATH default value is:

```
\essbaselib\java:  
\essbaselib\java\essbase.jar:  
\essbaselib\java\maxljni.jar:
```

where `essbaselib` is the Essbase installation library.

Unicode

The Essbase Analytic Server is Unicode-enabled. Unicode is a standard that enables users around the world to view company data in their own language.

Unicode-Mode Applications

Using Administration Services, MaxL, or the API, you can create applications and designate them as non-Unicode (default) or Unicode. You can also migrate existing applications to Unicode mode. Both Unicode and non-Unicode applications can reside on the Analytic Server.

Before you consider migrating your applications to Unicode, you should understand the following terms, described in the *Hyperion Essbase Analytic Services Database Administrator's Guide*.

- Unicode-enabled Analytic Server (Analytic Server version 7.1 and later)
- Non-Unicode-enabled Analytic Server (Analytic Server prior to 7.1)
- Unicode-enabled client (includes Unicode-mode client program, such as the Administration Services Console, and non-Unicode mode client program, such as the Excel Spreadsheet Add-in)
- Non-Unicode-enabled client (such as Application Manager and all ShowCase applications)
- Unicode-mode application (user-created application)
- Non-Unicode-mode application (user-created application)

Notes:

- Unicode applications cannot be changed back to non-Unicode mode.
- Application Manager is compatible with both Unicode-enabled and non-Unicode-enabled servers, but not compatible with Unicode-mode applications.

Enabling the Analytic Server for Unicode-Mode Applications

The Analytic Server must have permission to create Unicode-mode applications and to migrate applications to Unicode mode. When this permission is enabled, Analytic Server is said to be in Unicode mode. You can set this permission in the Essbase Administration Services Console. For more information, see the Essbase Administration Services online Help.

The Unicode setting in Analytic Server only affects the creation and migration of applications. Regardless of the Analytic Server Unicode setting, you can work with both Unicode mode and non-Unicode-mode applications.

For Unicode Instructions and Information

For information on when to use Unicode-mode applications, and instructions on setting the Analytic Server to Unicode mode, creating a new Unicode-mode application, migrating applications to Unicode mode, or viewing the Unicode-related mode of an application, see the *Hyperion Essbase Analytic Services Database Administrator's Guide* and Essbase Analytic Services online Help.

Server-Client-Application Unicode Compatibility

The tool used to extract data from Unicode-mode Essbase applications must be Unicode-enabled. ShowCase Analyzer, Query, and Report Writer are non-Unicode-enabled tools and thus cannot connect to Unicode-mode Essbase applications.

Table 5-3
Compatibility Between Analytic Server and ShowCase Programs

	Non-Unicode-enabled Analytic Server	Unicode-enabled Analytic Server, Non-Unicode-mode application	Unicode-enabled Analytic Server, Unicode-mode application
Excel Add-in for releases prior to 7.1	Yes	Yes	No
Excel Add-in packaged with Unicode-enabled Analytic Services (version 7.1 and later)	Yes, except for clients using the grid API	Yes	Yes, but no changes can be made to outlines. No outline synchronization
Analyzer 6.21 and 7.01	Yes	Yes	No
Query (prior to 7.0)	Yes	Yes	No
Report Writer (prior to 7.0)	Yes	Yes	No

UNICODEAGENTLOG Configuration Setting

A configuration setting UNICODEAGENTLOG enables viewing of application and database names in different character sets from the locale of the server. For more information on this setting, see the *Hyperion Essbase Technical Reference*.

Unicode Sample Application and Database

To demonstrate Unicode-mode applications, the sample applications include a Unicode-mode application and database: *Sample_U Basic*. For information, see the *Hyperion Essbase Analytic Services Installation Guide*.

Converting Non-Unicode to UTF8

The ESSUTF8 utility converts non-Unicode text files to UTF8, adds UTF8 signatures to text files, and manages locale indicators for non-Unicode text, rules and outline files.

- To run this utility, from an iSeries command line type:

```
CALL ESSUTF8
```

The Help topics are displayed when you do not specify any parameters (as above). Follow the Help instructions for the various parameters. For more information, see the *Hyperion Essbase Technical Reference*.

Using National Language Support

Essbase uses the `ESSLANG` variable to associate the server locale with the corresponding Essbase ASCII environment. On the iSeries, `ESSLANG` is paired with an EBCDIC CCSID. To view and/or change the EBCDIC CCSID or `ESSLANG` variable for the Essbase Analytic Server, see the following sections.

Migrating to the Euro CCSID

If you need support for the Euro CCSID, you must change the EBCDIC CCSID. See the following table for easy conversions. If the conversion you need is not in the table, see “Changing EBCDIC CCSID and `ESSLANG` Values” on p. 36.

Country, region, or language group	EBCDIC CCSID	Euro CCSID
United States/Canada/Brazil	37	1140
Germany/Austria	273	1141
Denmark/Norway	277	1142
Finland/Sweden	278	1143
Italy	280	1144
Spain/Latin America	284	1145
United Kingdom	285	1146
France	297	1147
Multinational #5	500	1148
Iceland	871	1149

To migrate to the Euro CCSID:

1. Type the iSeries command:

```
essbaselib/CHGESSENV EBCCSID(euro CCSID)
```

where `essbaselib` is the name of the Essbase installation library and `euro CCSID` is the new Euro CCSID.

2. Press Enter.

3. Stop and restart the server using the instructions in Chapter 2.

Displaying the Current EBCDIC CCSID

1. To display the current EBCDIC CCSID value, type the iSeries command:

```
essbaselib/DSPESEENV INFO (*ALL)
```

where `essbaselib` is the name of the Essbase installation library.

2. Press Enter.
3. Locate the `ESSBASE_EBCDIC_CCSID` variable. The value displayed is the current EBCDIC CCSID.

To display Help text, place the cursor on the Essbase/400 server attributes message line and press F1.

Displaying the Current ESSLANG Value

1. To display the current ESSLANG value, type the iSeries command:

```
essbaselib/DSPESEENV INFO (*ALL)
```

where `essbaselib` is the name of the Essbase installation library.

2. Press Enter.
3. Locate the `ESSLANG` variable.

To display Help text, place the cursor on the Essbase server attributes message line and press F1.

Changing EBCDIC CCSID and ESSLANG Values

In most environments, an EBCDIC CCSID change will not impact the interpretation of character data stored in the Essbase Analytic Server. However, changing your EBCDIC server CCSID *could* corrupt your security file, which could result in improperly modified application names, database names, and usernames. This requires you to delete your security file and may require you to reinstall your server from scratch. For this reason, users should not change Essbase server CCSIDs.

If the `ESSLANG` variable is changed after applications are created on the Analytic Server, those applications cannot be opened.

Before attempting a change, examine the differences between the values you are considering and the significance of the changes. If you still believe a CCSID change is necessary, follow the steps below.

To change the EBCDIC CCSID:

1. Save outlines, rules files, calculation scripts, and report scripts to the client PC.

2. Type the iSeries command:

```
essbaselib/CHGESSENV EBCCSID(ccsid)
```

where:

- `essbaselib` is the name of the Essbase installation library.
- `ccsid` is the new EBCDIC CCSID.

Note: For EBCDIC values, see the EBCDIC CCSID and ESSLANG Pairs table in the *ShowCase Essbase Installation Guide*.

3. Verify that the change is correct.
4. Reload all outlines, rules files, calculation scripts, and report scripts from the client PC to the Analytic Server.
5. Import any Essbase data interpreted differently as a result of the CCSID change.

To change the ESSLANG value:

1. Save outlines, rules files, calculation scripts, and report scripts to the client PC
2. Type the iSeries command:

```
essbaselib/CHGESSENV ESSLANG(value)
```

where:

- `essbaselib` is the name of the Essbase installation library.
- `value` is the new ESSLANG value.

Note: For ESSLANG values, see the EBCDIC CCSID and ESSLANG Pairs table in the *ShowCase Essbase Installation Guide*.

3. Verify that the change is correct.
4. Reload all outlines, rules files, calculation scripts, and report scripts from the client PC to the Analytic Server.
5. Import any Essbase interpreted differently as a result of the ESSLANG change.

Administering the Essbase Analytic Server

iSeries users can administer the Essbase Analytic Server from a command line using MaxL/400. Traditionally, ESSCMD/400 has provided functionality that is consistent with the PC ESSCMD (ESSCMD and ESSCMDW). You may want to consider transitioning from ESSCMD/400 to MaxL/400 if you have not already done so.

While ESSCMD/400 and the ESSCMD API continue to be supported, many Essbase features are accessible only through the MaxL/400 interface. Thus, we recommend using MaxL/400 to automate and maintain your Analytic Server. The following sections explain how to use MaxL/400 with Essbase and with existing ESSCMD/400 and ESSCMD API automation. Since

ShowCase Essbase fully supports the MaxL language, see the *Hyperion MaxL User's Guide* for more information.

MaxL/400 and ESSCMD/400 uses standard iSeries input, output, and error devices to retrieve input, write output, and write errors, respectively. MaxL/400 uses IFS files exclusively for its input/output files. ESSCMD/400 uses *QSYS.LIB* physical or source physical files for input/output files. Using parameters from the respective commands, these files can be switched from using the device interface to using a file on the iSeries. An administrator can script and run a sequence of Essbase commands. From this point forward, we will refer to running MaxL/400 or ESSCMD/400 commands with an input file as the *scripted interface* and running commands without an input file as the *nonscripted interface* or *command line*.

An alternative to ESSCMD/400 is the ESSCMD API Toolkit, which provides OS/400 command interfaces and OS/400 error handling for all ESSCMD/400 operations. For more information, see "Using the ESSCMD API Toolkit" on p. 44.

ESSCMD to MaxL Conversion Utility

The `CMD2MAXL` utility converts an existing ESSCMD script file to a suitable MaxL script file. The generated script file can be processed by the `ESSMSH` command. The utility also produces a status file.

To run the utility, at an iSeries command line, type `CMD2MAXL` and press F4 to prompt. Enter the following information:

- ▶ **Input file name (INFILE).** Specify the name of an input file that contains ESSCMD statements.

If the file is in the QSYS file system, it must be specified in the following format:

```
'/QSYS.LIB/lib_name.LIB/file_name.FILE/member_name.MBR'
```

If the file is in the root file system, it may be specified in the following format:

```
'/folder/file_name.extension'
```

- ▶ **Output file name (OUTFILE).** Specify the name of an output file that will contain converted MaxL statements. The name may be specified in the following format:

```
'/folder/file_name.extension'
```

- ▶ **Status log file name (STSFILE).** Specify the name of a status log file. After running the command, consult this file for conversion status. The name may be specified in the following format:

```
'/folder/file_name.extension'
```

Press Enter to run the command.

Notes on the conversion:

- The utility only translates syntactically and semantically valid ESSCMD scripts.
- For ESSCMD scripts that are not valid, the resulting MaxL script is undefined.
- All ESSCMD statements in the scripts should end with a semicolon (;) statement terminator.

- Although most ESSCMD commands have corresponding MaxL statements, there are exceptions. For such exceptions, a comment is generated in the log file, and the resulting MaxL script will have to be modified to work correctly. Note that if an ESSCMD command is still needed, it can be invoked from a MaxL script using shell ESSCMD.
- All strings in the ESSCMD scripts should be surrounded by double quotation marks (“”).

Command Interface

Commands can be run in script mode, interactive mode, or command mode.

Script mode. Use a scripting language, such as CL, along with commands to automate processing. No shell is invoked, and commands are processed from an input file.

Interactive mode. Enter statements and receive responses on the MaxL/400 or ESSCMD/400 shell or command line. This mode is effective for day-to-day administrative tasks, error/syntax checking, determining status, or checking information quickly. In ESSCMD/400, interactive and command modes are very similar.

Command mode. Pass MaxL or ESSCMD statements to the respective interpreter and eventually to Essbase. Use the respective command with parameters to pass the statement and use iSeries commands to specify the statement, output file, and escape message level.

Using an Input Script File

To use the script interface, place the commands in an input file and specify an output or error file, depending on the script's intent. If you are running a short script or testing a script, you can run the script interactively while directing the output and error information to the workstation. This allows a properly coded script to display what the script did or did not do. While running scripts in this manner is useful for testing, script information is usually directed to a file. This allows you to start scripts, let them run unattended, and verify later that they finished correctly. When an output or error file is specified, the output or error information that is normally displayed on the screen is written to the specified file.

A script file may contain ESSCMD/400 and MaxL/400 commands. The ESSCMD/400 and/or MaxL/400 session must be initiated with the LOGIN command.

MaxL/400 Scripts (ESSMSH Command)

All filenames referenced in the ESSMSH parameters must reside in IFS and be in ASCII format. DB2 files are not supported as input scripts. Create the appropriate input files in the IFS before specifying them in the command.

The syntax for running a script file with the MaxL/400 shell interpreter specifies an input file, an output file, and up to 32 arguments:

```
essbaselib/ESSMSH INFILE(infile)OUTFILE(outfile) ARG(argument1 argument2)
```

where:

- `essbaselib` is the Essbase installation library.

- `infile` is the input script file that contains the input script.
- `outfile` is the file that will contain the command output. The output file is optional.
- `argument1` and `argument2` are values to be passed to the script.

Following is an example ESSMSH command:

```
essbaselib/ESSMSH INFILE('/ESSBASE/essmsh/mshvariabl.mxl') ARG(USER1 PASSWORD)
```

where:

- `mshvariable.mxl` is a script file containing MaxL commands.
- `USER1` and `PASSWORD` are values to be passed to the script.

There is a 32-variable limit, from \$1 to \$32, and variables must be no larger than 64 bytes. Variables are assigned values based on their list order in the ARG parameter. Following is an example of the `mshvariable.mxl` script, using the above ESSMSH command to call variables:

```
LOGIN $1 $2 ON 172.1.1.1;

DISPLAY USER $1;

LOGOUT;
```

where:

- \$1 is assigned the `USER1` value.
- \$2 is assigned the `PASSWORD` value.

Note: To run a Max/L 400 script, your job CCSID must be set to 37 or another non-hex CCSID.

ESSCMD/400 Scripts (STRESSCMD)

To create ESSCMD/400 script files, create an iSeries *QSYS.LIB* file and member to contain the Essbase commands. The file can be created as a physical or source physical file. Set the record size between 80 and 240 characters to allow easy iSeries-based editing and viewing. Once the file and member are created, update the file to contain the Essbase commands that ESSCMD/400 will run.

The syntax for running ESSCMD/400 with an input, output, and error file is:

```
essbaselib/STRESSCMD INFILE(inlibrary/infile) INMBR(inmember)
OUTFILE(outlibrary/outfile) OUTMBR(outmember)
ERRFILE(errlibrary/errfile) ERRMBR(errmember)
```

where:

- `essbaselib` is the Essbase installation library.
- `inlibrary` is the library in which the input script file is located.
- `infile` is the input script file containing the input script file member.
- `inmember` is the input script file member containing valid Essbase commands.
- `outlibrary` is the library in which the output file is located.
- `outfile` is the file containing the output file member.
- `outmember` is the output member where ESSCMD/400 screen output is written.

- `errlibrary` is the library in which the error file is located.
- `errfile` is the file containing the error file member.
- `errmember` is the error file member where ESSCMD/400 error information is written.

Specifying ESSCMD/400 Output and Error Files in ESSCMD/400 Script Files

When creating ESSCMD/400 scripts, several ESSCMD commands let you specify input, output, and error files for a given command. If a command you are running requires a filename as a parameter, enter the filename in a syntax that Essbase understands.

If you specify a file in the *QSYS.LIB* file system as shown in the example, the library and file must exist before running ESSCMD/400. ESSCMD/400 does not create the library and file. ESSCMD/400 will create the specified member if it does not exist. If the member does not exist, verify that the `MAXMBRS` setting on the file will allow the creation of a new member. If the `MAXMBRS` limit has been reached, the new member cannot be created.

The files can be created as physical or source physical files. We recommend a record size between 80 and 240 characters for easy iSeries-based editing and viewing. If the ESSCMD/400 output file is not created in advance, the file is created as a source physical file with a data field of 254 characters. The size of the data field makes it difficult to view or edit the output. If the record size is not large enough to store the ESSCMD/400 output record, the output record is truncated. Ensure the file is created with a record size large enough to accommodate the error messages and any failing input records that are logged to the file.

When using the `BUILDDIM` or `IMPORT` commands, you can specify a filename to use for recording errors found during the operation. You must enter an IFS path name. You may store the file in the root file system or the *QSYS.LIB* file system.

The following example stores the information in a library named `MYLIB`, a file named *MYFILE*, and a member named `MYMEMBER` in the *QSYS* file system:

```
/qsys.lib/MYLIB.lib/MYFILE.file/MYMEMBER.mbr
```

The following example stores the information in the *DIMBUILD.ERR* file in the Essbase directory for the Sample Basic application database of the root file system:

```
/ESSBASE/app/Sample/Basic/dimbuild.err
```

When a root file system path is specified, the directories must exist before running ESSCMD/400. The file will be created automatically if it does not exist. If the file exists, it is overwritten.

Using the Command Line Interface

To run commands from a command line interface, issue the respective commands from an OS/400 command line. Do not specify any parameters. The respective command interpreter will start.

MaxL/400 (RUNMAXLSTM)

Issue RUNMAXLSTM from an OS/400 command line. F1 command Help explains the possible values for each parameter. The syntax is as follows:

```
essbaselib/RUNMAXLSTM COMMAND(command)
OUTPUT(outfile) ESCLEVEL(esclevel)
```

where:

- `essbaselib` is the Essbase installation library.
- `command` is the MaxL/400 command.
- `outfile` is the file that contains the output file.
- `esclevel` specifies the level of the messages that are returned. F1 Help lists the parameter values.

ESSCMD/400 (STRESSCMD)

Issue the STRESSCMD command from an OS/400 command line. Do not specify any parameters. The ESSCMD/400 interpreter shell starts.

ESSCMD/400 File Differences

ESSCMD/400 provides nearly identical support for the PC ESSCMD commands. Although the interface that ESSCMD/400 provides is very similar to the interfaces provided by ESSCMD utilities on other platforms, there are differences in coding an ESSCMD/400 script file.

Creating ESSCMD/400 Output and Error Files

Before creating or viewing a QSYS file that holds error records, determine the EBCDIC server CCSID Essbase is configured to use:

1. Find the server CCSID. Run the DSPESSENV command to determine the value of the ESSBASE_EBCDIC_CCSID variable. Place the cursor on the Essbase/400 server attributes message line and press F1.
2. Create the source file in QSYS with the following command:

```
CRTSRCPF FILE(mylib/filename) RCDLEN(length) CCSID(value)
```

where:

- `mylib` is the QSYS library name.
- `filename` is the QSYS filename.
- `length` is the record length. Specify a length long enough to handle the longest rejected record. Tab characters are expanded to spaces at a ratio of eight spaces per tab character.
- `value` is the single-byte CCSID that Essbase uses. On servers using double-byte character sets, `value` must be the single-byte CCSID associated with the mixed CCSID of the Essbase Analytic Server.

Viewing Output and Error Files

If you wrote the error file to the root file system and want to view the error file, use the iSeries command DSPF. For example:

```
DSPF STMF('/path/filename')
```

where:

- path is the location of the file.
- filename is the name of the output or error file to view.

If you wrote the error file to the *QSYS.LIB* file system and want to view the error file, use the iSeries command DSPF. For example:

```
DSPF FILE(mylib/filename) MBR ESSBASE
```

where:

- mylib is the QSYS library name.
- filename is the name of the output or error file to view.

Output Command

ESSCMD/400. The OUTPUT command directs process information output from the session to an iSeries file.

```
OUTPUT lib/file(member)
```

where lib/file(member) is the library and filename of the output file.

MaxL/400. The OUTPUT command directs process information output from the session to a text file.

```
OUTPUT ('/path/file.ext')
```

where '/path/file.ext' is the path and filename of the output text file.

Reloading Rejected Records

You can specify an error file that receives rejected records if a dimension build or data load error occurs. This file can reside in either the root file system or the *QSYS.LIB* file system. To use the error file to reload rejected records, direct it to a stream file in the root file system. To display only the error file, store the file in the QSYS file system. Tabs in the file are expanded to spaces, making the file easier to read.

If you direct the error file to the root file system, you can use the CPYFRMSTMF command to copy the error file to the QSYS file system to read:

1. Create a source physical file using the previously described CRTSRCPF command.
2. Copy the file from the root file system to the QSYS file system using the command:

```
CPYFRMSTMF FROMSTMF('file name')
TOMBR('/QSYS.LIB/mylib.lib/pf.file/member.mbr') TABEXPN(*NO)
```

where:

- `file name` is the full path and filename in the root file system in which the error records were originally logged (for example, `/essbase/app/smslbc/dbcs/dimerr.txt`).
- `mylib` is the QSYS library name.
- `pf` is the QSYS filename.
- `member` is the name of the member to create in the QSYS file system (for example, `dimerr.mbr`).

Getting Help with ESSCMD or MaxL Commands

Hyperion documentation is installed with the product. For MaxL/400 or ESSCMD/400 command Help, see the Hyperion Essbase documentation. To view this Help on your PC, from the Windows Start menu choose:

```
Programs
  Hyperion Solutions
    Hyperion Essbase
```

Using the ESSCMD API Toolkit

The ESSCMD API Toolkit provides OS/400 command interfaces and OS/400 error handling for all the ESSCMD/400 operations. The ESSCMD API Toolkit is enabled automatically and sits atop the ESSCMD/400 function, transforming the script-based interface of ESSCMD/400 into an OS/400 command interface.

Use the ESSCMD API Toolkit to open and maintain an ESSCMD/400 session across multiple OS/400 commands. You can intersperse ESSCMD/400 commands with other OS/400 commands. You can also code your CL program to respond to errors reported by Essbase on a command-by-command basis, using standard OS/400 error- and message-handling mechanisms.

The *Hyperion Essbase Technical Reference* includes ESSCMD API Toolkit information. For details about individual ESSCMD API commands, see the iSeries online Help. To use the Help, enter an ESSCMD API command, press F4, and then press F1 for Help on a parameter.

Command Structure

The ESSCMD API Toolkit consists of four base OS/400 commands and many supplemental commands (discussed later). OS/400 command-level Help is available for each of the base and supplemental commands. The four base commands are:

- LOGINESS
- RUNESSCMD
- LOGOUTESS
- RTVESSSTS

Note: The STRESSCMD command is not an ESSCMD API command. STRESSCMD acts independently from the ESSCMD API commands.

LOGINESS Command

Issue the LOGINESS command before running other ESSCMD API commands. After issuing the LOGINESS command, RUNESSCMD (or a supplemental command) interacts with the Analytic Server under the session opened by the LOGINESS command. Multiple logons with LOGINESS are not allowed.

RUNESSCMD Command

RUNESSCMD lets you run any ESSCMD command directly from the OS/400 command line or from within a CL or other program. With RUNESSCMD, type the underlying ESSCMD/400 command as follows:

```
RUNESSCMD COMMAND('UNLOADAPP MYAPP')
```

Typically, you will use the LOGINESS command to initiate the session before using RUNESSCMD.

LOGOUTESS Command

LOGOUTESS ends the connection and closes the ESSCMD API session by issuing the ESSCMD EXIT command within the regular ESSCMD interface.

RTVSSSTS Command

From within a CL program, RTVSSSTS can retrieve information about a previous ESSCMD API Toolkit command if the session associated with that command has not been closed. The following information can be retrieved:

- Essbase message number
- Essbase message severity
- Essbase message text

See the online command Help for more information about the variable data types and the possible return values.

Auto-logoff Considerations

When using ESSCMD API commands within another program, consider how Essbase's auto-logoff feature will affect the program. Essbase is installed with a default 60-minute auto-logoff time (this may be reduced). This may be a problem in a program such as the following:

```
LOGIN SVRUSR(userid) SVRPW(password)
ENDESSAPP APPNAME(mycube)
SAVLIB DEV(TAP01) ...
STRESSAPP APPNAME(mycube)
```

The SAVLIB operation may take a long time, particularly if loading or changing a tape is required to complete the operation. If the time between the completion of the ENDESSAPP and start of the STRESSAPP command is longer than the auto-logoff setting, STRESSAPP will fail.

The auto-logout setting applies to all users, so you cannot adjust it for a specific user ID. If you prefer not to change the time-out for all Essbase users (it can be set to no auto-logout), run LOGOUTESS and LOGINESS again wherever a problem might occur. For example:

```
LOGIN SVRUSR(userid) SVRPW(password)
ENDESSAPP APPNAME(mycube)
LOGOUTESS SAVLIB DEV(TAP01) ...
LOGINESS userid password
STRESSAPP APPNAME(mycube)
```

Supplemental ESSCMD Commands

In addition to the previously described commands, the ESSCMD API Toolkit provides alternative commands to RUNESSCMD. There is no need to remember the ESSCMD command syntax. The underlying ESSCMD syntax is mapped to OS/400 command keywords.

Each supplemental command corresponds to an ESSCMD/400 command. For example, the ESSCMD API command STRESSAPP corresponds to the ESSCMD/400 LOADAPP command. These OS/400 commands have the look and feel of standard OS/400 commands, complete with prompted keywords, Help, and so on. For ESSCMD/400 commands with no corresponding ESSCMD API command, use RUNESSCMD.

With ESSCMD/400, choose an application and database using the SELECT command so that subsequent commands (that do not specify an application or database) can operate on the selected database. The ESSCMD API supplemental commands require that you specify the application and database on the command itself. The appropriate SELECT command is implicitly issued for you.

Most supplemental commands let you use the full power of the underlying ESSCMD/400 commands. This list contains all of the Essbase ESSCMD API supplemental commands and indicates the corresponding ESSCMD command issued. For more information about each ESSCMD command, see the ESSCMD documentation in the *Hyperion Essbase Technical Reference*.

Note: The IMPESSSQL and BLDESSDIM commands do not permit all forms of their respective ESSCMD commands to be issued. In each case, only the SQL form with a server-based rule file is supported, since this is the most common usage. To handle other cases, use RUNESSCMD.

Table 5-4
ESSCMD API supplemental commands

ESSCMD/400 API command	ESSCMD/400 command
ADDESSGRPU	ADDUSER
BLDESSDIM	BUILDDIM
CLCESSDFT	CALCDEFAULT
CPYESSAPP	COPYAPP
CPYESSDB	COPYDB
CRTESSAPP	CREATEAPP
CRTESSDB	CREATEDB
CRTESSGRP	CREATEGROUP
CRTESSUSR	CREATEUSER

ESSCMD/400 API command	ESSCMD/400 command
CRTESSVAR	CREATEVARIABLE
DISESSLGN	DISABLELOGIN
DLTESSAPP	DELETEAPP
DLTESSDB	DELETEDB
DLTESSGRP	DELETEGROUP
DLTESSUSR	DELETEUSER
DLTESSVAR	DELETEVARIABLE
ENBESSLGN	ENABLELOGIN
GETESSAPP	GETAPPSTATE
IMPESSSQL	IMPORT
STRESSAPP	LOADAPP
LOGINESS	LOGIN
LOGOUTESS	EXIT
LSTESSAPP	LISTAPP
LSTESSDB	LISTDB
LSTESSGRPS	LISTGROUPS
LSTESSGRPU	LISTGROUPUSERS
LSTESSUSR	LISTUSERS
LSTESSVAR	LISTVARIABLES
CLRESSDB	RESETDB
RNMESSAPP	RENAMEAPP
RNMESSDB	RENAMEDB
RNMESSUSR	RENAMEUSER
RMVESSGRPU	REMOVEUSER
RUNESSCLC	RUNCALC
ENDESSSVR	SHUTDOWNSERVER
ENDESSAPP	UNLOADAPP
UPDESSVAR	UPDATEVARIABLE

Output Processing

RUNESSCMD and other ESSCMD/400 API commands each have an `OUTFILE` keyword. This keyword follows normal OS/400 `OUTFILE` conventions. If the file does not exist, it is created with a record length of 240 characters.

Controlling Error Handling When Programming

The Essbase messaging mechanism defines five message severity levels:

- Informational

- Warning
- Error
- Serious
- Fatal

If Essbase returns only informational and/or warning messages, by default an ESSCMD/400 API command will end with a normal OS/400 completion message. If Essbase returns an error, serious, or fatal message, the ESSCMD/400 API command issues an OS/400 escape message.

To override this behavior, use the optional `ESCLEVEL` keyword on most ESSCMD/400 API commands. For example, you can use the following sequence of commands to delete an existing application and then re-create it by copying another application:

```
LOGINESS myuserid mypassword
DLTESSAPP myapp ESCLEVEL(*SERIOUS)
CPYESSAPP yourapp myapp ESCLEVEL(*ALL)
LOGOUTESS
```

When `DLTESSAPP` uses `ESCLEVEL(*SERIOUS)` the sometimes expected error message does not cause the program to fail:

```
(1051030) ERROR: Application myapp does not exist.
```

Note: In the previous example, the Essbase `ERROR` level message will behave the same way, resulting in an OS/400 completion message. Serious and fatal messages will still result in an OS/400 escape message.

In the previous `ESCLEVEL` example, the `CPYESSAPP` command uses `ESCLEVEL(*ALL)` because the copy should always work after successfully deleting the application. `CPYESSAPP` does not return any Essbase messages (not even an informational one). By using `*ALL`, the program will fail if anything other than what is expected (no messages) occurs. See the online Help for more information about the `ESCLEVEL` keyword.

In addition to the `ESCLEVEL` keyword, you can use the `RTVSSSTS` command within your program to retrieve status information regarding the most recent Essbase message issued. This lets you programmatically retrieve the message level (for example, informational, warning), the Essbase message number, and the message text. For example, the following message:

```
(1051030) ERROR: Application myapp does not exist.
```

would return 1051030 for the `STATUS` (message number), “ERROR” for the `MSGLEVEL`, and “Application myapp does not exist.” for the `MESSAGE`.

See the online Help for `RTVSSSTS` for more information about the types and sizes of the keywords for `RTVSSSTS`.

Debugging ESSCMD API

It is possible to see the commands that the ESSCMD/400 API passes to the ESSCMD/400 engine. To log each ESSCMD/400 command, issue the following command in the job under which ESSCMD/400 is running. This command also logs the password.

```
ADDENVVAR ENVVAR(ESSBASE_CMDAPI_LOG) VALUE('your_library/your_file')
```


Once the environment variable is set, turn off logging with the next command:

```
CHGENVVAR ENVVAR(ESSBASE_CMDAPI_LOG) VALUE(*NULL)
```

Logging can be turned on and off again with the CHGENVVAR command.

You can use all of the standard OS/400 built-in debugging support for your CL program, RPG program, or other programs that uses the ESSCMD/400 API.

To more easily debug CL programs that use the ESSCMD API, you may want to create your CL program to log CL program commands:

```
CRTCLPGM ... LOG(*YES)
```

In addition, change your job to not log CL program commands by issuing:

```
CHGJOB LOGCLPGM(*NO)
```

The combination of these changes results in a job log (using DSPJOBLOG) showing only the commands issued directly by your CL program and not those issued internally by product software.

OLAPICMD Scripts (OLAPICMD Command)

All filenames referenced in the OLAPICMD parameters must be in IFS format. The input and output files are IFS files and in ASCII format. Create the input files in the IFS before specifying them in the command.

The syntax for running a script file with the shell interpreter specifies an input and output file:

```
essbaselib/OLAPICMD INFILE(infile)OUTFILE(outfile)
```

where:

- `essbaselib` is the Essbase installation library.
- `infile` is the input script file containing the input script file member.
- `outfile` is the file containing the output file member.

Maintaining Essbase Log Files

While Essbase is running, entries are added to various log files. These files reside in the IFS root file system in the application directories. Over time, these files can grow very large. If the logs are not properly maintained, they may fill up or consume an unnecessary amount of storage space.

To control the size of the log file, use the OS400DAYSLOGRETAIN parameter in the Essbase configuration file. When starting an Essbase server or application, the server uses OS400DAYSLOGRETAIN to determine how many days of log records to keep. For instructions on editing the configuration file, see “Using Configuration File Settings” on p. 30. Deleted records are not recoverable.

Table 5-5
OS400DAYSLOGRETAIN value

Value	Results
None or Invalid	Retain all records
0	Retain records from current session
1	Retain records logged in last 24 hours
2 and greater	Retain records from specified number of days

You can also manually clear the server and application logs. In Administration Services Console, right-click on a server or application, and choose Delete Log.

Index Cache Size

The Essbase database index cache size depends on the database index page size. For every 1 KB of index page size, you can specify up to 125 MB for the index cache size. The following table shows the maximum sizes allowed for the index cache, depending on the size of the index page.

Table 5-6
Maximum sizes for the index cache

Index page size	Maximum index cache size
1 KB (1024 B)	125 MB (131072000 B)
2 KB (2048 B)	250 MB (262144000 B)
4 KB (4096 B)	500 MB (524288000 B)
8 KB (8192 B)	1000 MB (1048576000 B)

If the index cache size limit is exceeded, Essbase resets the cache size to the maximum size allowed for the index page size. For example, if you specify a cache size of 1000 MB but your index page size is 2 KB, Essbase resets the cache size to 250 MB.

Note: Data file cache is not used. Therefore, a value of 0 is correct.

Loading Data from DB2 iSeries

Essbase data load and dimension build operations work most efficiently when using SQL. SQL support is shipped as part of the base Essbase package; you do not need to install a separate SQL module as long as only *LOCAL connections are used.

Setting Up Your iSeries to Allow SQL Loads

1. Type WRKRDBDIRE and press Enter.
2. If you do not see an entry for *LOCAL, use option 1 to add a *LOCAL entry.

Loading Data Using SQL

1. Using the Administration Services Console, open or create a rules file.

2. From the File menu choose Open SQL.
3. In the Select Database box, select your server, application, and database and click OK.
4. In the Open SQL Data Sources selection box, the *LOCAL Relational Database Directory entry is highlighted. The Connect information should *not* be filled in.

Note: The *LOCAL entry allows your rules files to be portable between Essbase servers on different systems. You can also select the name of your system from the list, but your rules file must always be used on that system only.

5. Specify the Select, From, and/or Where clause information to load data into the Data Prep Editor. In the From box, enter the names of the tables in the SQL naming convention (as opposed to the iSeries naming convention). In the SQL naming convention, a period (.) is used between a library and filename. For example:

```
library.filename
```

You cannot specify a specific OS/400 database file member name in this interface.

6. If you want to add GROUP BY or ORDER BY clauses, you can do so in the Where box. You must first specify at least one WHERE condition. If you do not have a WHERE condition to specify, simply use 1 = 1 as a placeholder WHERE condition in the Where box. For example: 1 = 1 ORDER BY Product.
7. Click OK/Retrieve.

Substitution Variables in Rule File SQL Statements

Essbase substitution variables can be used in calculation scripts, report scripts, and spreadsheets. With ShowCase Essbase, you can also use substitution variables in the SQL statement specified in a Data Load or Dimension Build rule file. This allows for easy reuse of rule files for multiple data files of the same format or for retargeting loads for test-versus-production libraries. Modify the value of substitution variables as needed; this modifies the behavior of the scripts and rule files that use the variables.

To use substitution variables in the SQL statement, simply specify the variable prefixed with an ampersand (&). If a variable is used in the Where box and the result of the entire WHERE clause after all variables are substituted is all blanks or an empty string, the entire WHERE clause is omitted from the SQL statement.

Note: If a variable reference does not have a value assigned to it, no substitution occurs and the original variable name along with the ampersand are passed in as part of the SQL statement.

The following is an example of the message that is logged if the variable reference is not assigned a value:

```
Local/Appname/Dbname/Userid/Info(1012042) Substitution variable <xy> doesn't exist.
```

Substitution variables can be managed by double-clicking Variables under the server in Administration Services Console or through the ESSCMD commands: CREATEVARIABLE, UPDATEVARIABLE, and DELETEVARIABLE. See the Hyperion Essbase documentation for more information regarding substitution variables.

Flat File Support

Many non-iSeries systems support character-delimited files, also known as flat files. Flat files often use a delimiter character such as a tab or a space to separate individual fields within a record.

Essbase can load flat files stored in the IFS application/database directory with a *.txt* extension. ESSCMD/400 can also read from flat files in the IFS. The recommended way to load data is to use a load rule with an SQL statement. To load data from DB2 files, specify the appropriate SQL statement to select the fields that you want to load. You can load a flat file using the same technique. In this case, the standard OS/400 database file contains a single character field. This field is used to hold character-delimited data.

For example, suppose you have a tab-delimited text file on a PC. You can load data directly into Essbase from this file using ESSCMD on the PC. Alternatively, you can copy this file to the iSeries and load the data using SQL. Use the following steps:

1. Create a database file on the iSeries using the appropriate record length:

```
CRTPF FILE(MYLIB/FILE) RCDLEN(132)
```

2. Using the FTP PUT command, copy the data from the PC to the iSeries:

```
put c:\pcdata.txt mylib/file.file
```

3. The file MYLIB/FILE now contains the tab-delimited data. Using the Administration Services Console, create or edit the load rule to read this data by using the following select statement:

```
SELECT * FROM MYLIB.FILE
```

4. From the Options menu, choose Data source properties. In the dialog box, use the Delimiter tab to set the appropriate delimiter.

Loading Data from SQL Data Sources

In addition to iSeries data sources, you can load data into your cube from SQL data sources located on other platforms. Supported platforms include Microsoft SQL and Oracle. The corresponding DataDirect JDBC drivers are installed with the Essbase server.

To Enable Loading from Non-iSeries SQL Data Sources

1. From an iSeries command line, open the *ESSBASE.CFG* file using the iSeries EDTF command:

```
EDTF FILE(essbaselib/CFG) MBR(ESSBASE)
where essbaselib is the Essbase installation library.
```

2. Type I and press Enter. Insert the line:

```
SCEnableJDBCSources TRUE
```

This enables support for non-iSeries data sources.

Note: You must restart the server for this change to take effect.

3. Navigate to the Essbase server directory in the IFS, and open the *bin* folder. Using a text editor (such as Notepad), open the *ExternalDataSource.cfg* file for editing.

4. Using the examples shown below and in the *ExternalDataSource.cfg* file, create a “definition” for each non-iSeries data source. The definition must consist of the following elements, separated by spaces:
 - Data source name
 - JDBC driver name
 - URL of the relational database to be used as data

Microsoft SQL Example

Format: <datasource_name> spss.jdbc.sqlserver.SQLServerDriver
 jdbc:merant:sqlserver://<SQL_server_PC_name>:<SQL_server_port_number>;
 DatabaseName=<database_name>;SelectMethod=cursor

Example: To configure a URL to connect to SQL Server data source *DS1*, database *TBC*, located on a Windows server (PC) named *SQLPC*, and listening on the *default port*, the entry would be:

```
DS1 spss.jdbc.sqlserver.SQLServerDriver
jdbc:merant:sqlserver://SQLPC:1433;DatabaseName=TBC;SelectMethod=cursor
```

Oracle Example

Format: <Oracle_datasource_name> spss.jdbc.oracle.OracleDriver
 jdbc:merant:oracle://<Oracle_PC_name>:<Oracle_port>;SID=<your_SID>

Example: To configure a URL to connect to Oracle data source *ORACLESOURCE* on an Oracle server (PC) named *ORACLEPC* with port *1521* and SID *MYSID*, the entry would be:

```
ORACLESOURCE spss.jdbc.oracle.OracleDriver
jdbc:merant:oracle://ORACLEPC:1521;SID=MYSID

DB2SOURCE spss.jdbc.db2.DB2Driver jdbc:merant:db2://DB2PC/TBC
```

5. Save the file with your new definitions. As an administrator, you can create or edit this **ExternalDataSource.cfg** file when needed. However, the file name must always be *ExternalDataSource.cfg*.
6. When you create a rule file or load data in the **EAS Console**, the non-iSeries data sources are listed along with the iSeries data sources. The name listed will match the data source name in your *ExternalDataSource.cfg* definition. For example, in the SQL example above, *DS1* is the data source name. *DS1* is what displays in the EAS Console.

Using Warehouse Builder with Essbase

Using Warehouse Builder, you can perform several operations against a ShowCase Essbase database (for example, clear a database, build dimensions, load a database, calculate a database). When using Warehouse Builder to build dimensions or load data, Essbase uses SQL to read records and load them into the database. Essbase validates each record as it is processed and may reject records if it encounters an error.

Dimension Build and Data Load Rejected Records

The member names identified by each record must match the member names specified in the outline. If they do not match, Essbase rejects the record. In this situation, if the Essbase build plan defined in Warehouse Builder is set to `Continue on Error`, Warehouse Builder logs the rejected record in the `JOBMSGs` table and continues processing.

The records causing an error are logged with a `MSG_ID` of `'TXT0208'` (for a data load) or `'TXT0207'` (for a dimension build). The record itself is logged in the `MSG_HELP` field. The object ID for the Essbase build plan is stored in the `OBJECTID` field. The sequence number of the Essbase build plan identifies the Essbase operations within the build plan and is stored in `SEQ_NUMBER`.

Reloading Rejected Records

After fixing the Essbase outline, it is possible to reprocess only the rejected records (instead of reprocessing all data). To reprocess the rejected records, use the Administration Services Console to create a dimension build or data load rule that points to the `JOBMSGs` table. The following is an example of an SQL statement that reprocesses the rejected records of an Essbase build plan whose object ID is 101 and whose sequence number is 1:

```
SELECT MSG_HELP FROM SCSERVER.JOBMSGs
WHERE MSG_ID = 'TXT0208' AND OBJECTID = 101 AND SEQ_NUMBER =1
```

Note: To reprocess the rejected records for a dimension build, the `MSG_ID` value is `'TXT0207'`.

To determine the correct object ID and sequence number to use, run the queries (*.dbq*) shipped with Warehouse Builder against the `JOBMSGs` table. The queries are located in the *Reports* folder where Warehouse Builder is installed.

Naming the Essbase Server in Warehouse Builder

When using Warehouse Builder with Essbase, the value you specify for the Essbase Analytic Server in the Build Plan dialog box must be a numeric IP address or a valid name on the iSeries control server. To check whether a name is valid, enter the iSeries command `CFGTCP` from an iSeries session on the iSeries control server and choose option 10. Verify that the name associated with the TCP/IP address for the Essbase Analytic Server is the same as the name defined on your PC.

Refer to the Warehouse Builder online Help for additional information on using Warehouse Builder with Essbase.

Security

ShowCase Essbase supports all Hyperion Essbase security functions; however, individual data files reside in the OS/400 IFS and may be accessible through other OS/400 interfaces. You should verify that these files are properly secured with respect to the iSeries-defined security mechanisms. In particular, the Essbase security file `ESSBASE.SEC` is stored in the integrated file system.

ALLOBJ Authority

A profile with *ALLOBJ authority has full iSeries access, including all databases, programs, folders, and files. If you want a user profile to have access to certain iSeries objects but do not want to assign *ALLOBJ authority, you can grant the authority needed to access only certain objects. For example, a profile at the *USER level can be granted access to library ABC but not to library XYZ.

Using a profile that has been assigned the *SECOFR class is the easy way to start the servers. However, to enable a user to run Essbase with anything less than *ALLOBJ authority, follow these steps:

1. Create a user profile with the desired security class to be dedicated to starting Essbase. Ensure that Essbase will always be started with this user profile.

Type the command GRTESSAUT to grant the user profile all the necessary authorities to start Essbase and press Enter. (For GRTESSAUT restrictions, see the appendix.)

2. Type CHGESSENV and press Enter.
3. Change the Run with All Object Authority field to *NO.
4. To verify a user profile is authorized to start Essbase, run the CHKESSAUT command.

About Integrated Security

Essbase provides support for integrated security. With OS/400 security controls, you can control who has access to Essbase. As a result, your security scheme for ShowCase Essbase and Analyzer is greatly simplified.

Warning: If you are setting up integrated security for Essbase, create at least one Essbase superuser profile that is not an OS/400 user, and ensure this user profile is not deleted or demoted. If an Essbase system supervisor ID is the same as another Essbase ID, you may lose your supervisory status.

Once you set up the integrated security environment between Essbase and OS/400, OS/400 user profile operations are applied to Essbase security. You can then perform most routine Essbase user security changes from OS/400 security interfaces or from Warehouse Manager Client. You will no longer need to add or remove users or change group memberships using the Essbase security interfaces. However, you will still use Essbase security interfaces to establish which applications and databases a group can access.

If you choose *not* to use the integrated security feature, no action is required. By default, Essbase runs with its own security system, independent of OS/400 security.

Note: Whether or not integrated security is enabled, access to DB2 iSeries for data loading and dimension building requires OS/400 authorization information to be entered.

Setting Up Essbase Integrated Security

To set up Essbase integrated security, you should be familiar with basic Essbase and OS/400 security, including OS/400's group profile support. This includes experience creating users and groups in Essbase using the Administration Services Console and OS/400 using Warehouse Manager Client. You also should be familiar with editing the Essbase configuration file (see "Modifying the ESSBASE.CFG File" on p. 30).

For detailed information regarding basic Essbase and OS/400 security, see the *Hyperion Essbase Analytic Services Database Administrator's Guide* and the IBM security documentation. For more information regarding Warehouse Manager Client, see the Warehouse Manager Client online Help.

Essbase requires actual Essbase user IDs to be defined for many operations. For example, locks on objects such as outlines, rule files, or calculation scripts must be associated with an Essbase user ID. For this reason, the integrated security feature automatically creates and deletes Essbase user IDs in response to OS/400 user profile creations, deletions, and other operations.

To implement integrated security

Step 1. Start the Essbase Analytic Server.

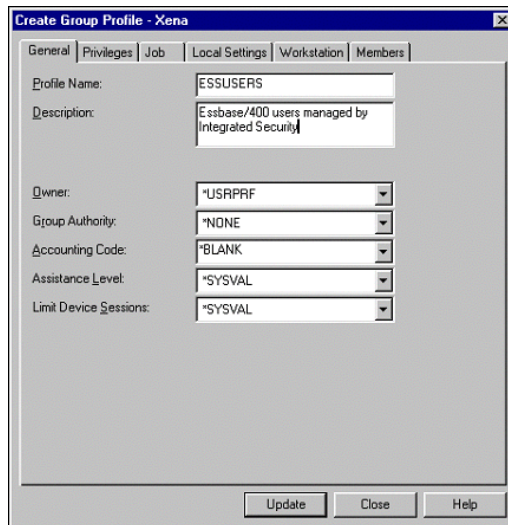
Decide which OS/400 user profiles should have access to Essbase. You can give *all* valid OS/400 user profiles (both existing profiles and those created in the future) access to Essbase, or you can give a *subset* of OS/400 users access to Essbase. Regardless of your choice, you are able to give non-OS/400 users access to Essbase.

To give *all* current and future OS/400 users access to Essbase, skip to step 6. To give only a *subset* of OS/400 users access to Essbase, continue with step 2.

Step 2. Create an OS/400 group. To add a group user profile, follow these steps:

1. Open Warehouse Manager Client.
2. In the Explorer, connect to the iSeries on which you want to create the profile.
3. From the Manage menu, choose Profile, and then choose Create Group. The Create Group Profile dialog box displays.
4. Enter a name and description for the profile. The name for the group profile can be anything. In this guide, we will assume you are using the name ESSUSERS.

Figure 5-1
Warehouse Manager Create Group Profile dialog box



5. Define any other settings on the other tabs. When setting up integrated security, you can accept the defaults displayed on these tabs. No special authorities are required.
6. Click Update to update the iSeries and refresh the profiles list in Explorer; then click Close.

You have created a group user profile (ESSUSERS) that identifies OS/400 users with access to Essbase. Next, you will update the Essbase configuration file to indicate that the members of this group have Essbase access. You will need to create a corresponding Essbase group later.

Step 3. Without stopping the server, type the following line in the Essbase configuration file. (For information about editing the configuration file, see “Modifying the ESSBASE.CFG File” on p. 30.)

```
OS400USERSGROUP ESSUSERS
```

where `ESSUSERS` refers to the name of the OS/400 group you just created.

Step 4. You can now add OS/400 users to your new group, `ESSUSERS`. Each OS/400 user profile can be associated with one *primary* group user profile and several *supplemental* group user profiles. By establishing `ESSUSERS` as either the primary or supplemental group for an OS/400 user, you indicate that the user has access to Essbase.

Note: `ESSUSERS` can be either the primary *or* supplemental group for any of your users. For example, it could be the primary group for Joe and the supplemental group for Bob.

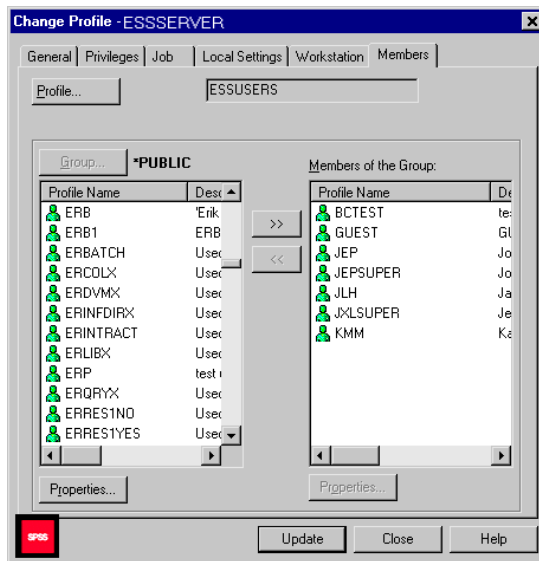
Step 5. Use Warehouse Manager Client to add users to the `ESSUSERS` group. How you do this depends on whether `ESSUSERS` is a primary or supplemental user group.

To make `ESSUSERS` the primary group for users (those who *do not* already have a primary group):

1. Find `ESSUSERS` in the Explorer view. Right-click and choose Change.

- The Change Profile dialog box displays. Click the Members tab and add all necessary members, as in the following figure.

Figure 5-2
Warehouse Manager Change Profile dialog box, Members tab



- When finished, click Update.

To make `ESSUSERS` a supplemental group for users (those who *do* have a primary group), you must add the users individually using the Change Profile dialog box:

- Find the user in the Explorer view. Right-click and choose Change.
- The Change Profile dialog box displays. Click the Group tab.
- From the list of all groups, choose `ESSUSERS`, and then click the double-arrow button to add the group to the user's list of current supplemental groups.
- Click Update. Repeat this for as many users as necessary.

Step 6. If you have completed steps 2–5, skip to step 7.

You have chosen to allow all valid OS/400 users access to Essbase.

To provide all valid OS/400 users access to Essbase, *without* stopping the server, add the following line to the Essbase configuration file (for information about editing the configuration file, see “Modifying the ESSBASE.CFG File” on p. 30).

```
OS400UsersGroup *ALL ESSUSERS
```

where `ESSUSERS` is the group name for all users who have access to Essbase.

Note: Be sure to choose a group name *not* currently in use by Essbase.

Step 7. At this point, you have specified the OS/400 users who have access to Essbase (either all, or a subset of all). Now, using the Essbase Administration Services Console, create the Essbase group (which was specified in the configuration file in step 3 or 6) using the following steps:

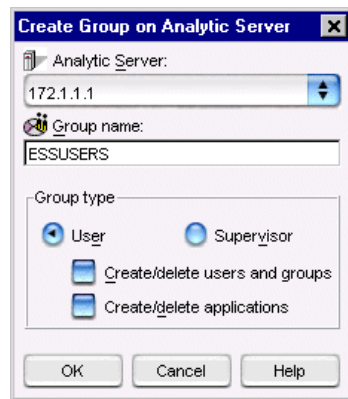
1. Open the Administration Services Console on your PC. Connect to the Analytic Server.

Note: If you cannot connect, verify that the Analytic Server is running.

2. Expand the Analytic server and the Security node. Right-click on Groups and select Create Group.
3. Create an Essbase group that matches the group name specified in the OS400UsersGroup configuration file entry (in this case, ESSUSERS). Specify the group type as User.

Figure 5-3

Creating a new Essbase group in Administration Console



4. Click OK. The new Essbase group is added.

Note: Implementing integrated security shifts user management to OS/400 and Warehouse Manager Client. As a result, you will no longer add users to Essbase using Administration Services security. You should use Administration Services security only to create the Essbase group; after that, any user maintenance (for example, adding or deleting users) should be done through OS/400.

Step 8. Stop and restart the Essbase Analytic Server. Integrated security is now in effect.

Step 9. In the Administration Services Console, right-click your Analytic Server and select View log. Scroll to the bottom of the log to ensure there are no errors related to integrated security. If you restarted the server before completing the necessary steps (such as creating the OS/400 or Essbase groups), you may see some error messages. All necessary groups must be created before stopping the server.

Now, as users log on to Essbase, it will verify that the user ID is an eligible integrated security OS/400 user and will validate the password against the OS/400 user password. If the OS/400 user is deleted, the Essbase user is automatically deleted. If the OS/400 user is disabled, the Essbase user is disabled. Likewise, if the OS/400 password expires, the Essbase password expires. In addition, the OS/400 user profile description is reflected in the Essbase user description.

At this point, all integrated security users can access only the Essbase applications and databases to which the `ESSUSERS` group has access. For instructions on controlling which OS/400 users have access to which applications and databases, see the following section (“Setting Up Group-Level Control”).

Note: If all Essbase users will have the same level of access, you may choose to modify the rights of the `ESSUSERS` group so that as each integrated security user is added automatically to Essbase, the appropriate rights are granted through the `ESSUSERS` group. See the *Hyperion Essbase Analytic Services Database Administrator’s Guide* for more information. If you want to have different levels of access for different groups, do not give `ESSUSERS` any additional access; instead, continue with the following section.

Setting Up Group-Level Control

Integrated security provides even more control by enabling you to assign group-level access to applications and databases. For example, members of the Sales group can see the Sales database, while members of the Human Resources group can see the Human Resources database.

Note: To implement group-level security, you must define an `OS400USERSGROUP` in the Essbase configuration file (such as `ESSUSERS`). If you have not done that, see “Setting Up Essbase Integrated Security” on p. 56.

You may already have OS/400 group profiles established for different departments or roles in your company. For example, you may have different OS/400 group profiles for access to sales data, accounting information, or HR data. If these group profiles provide an appropriate method of defining access to Essbase applications, you can modify integrated security so that as users are added or removed from the OS/400 groups, access to Essbase applications and databases are adjusted accordingly. If you already have these groups defined, skip the Step 1. Remember that members of these OS/400 groups must also be members of OS/400 group `ESSUSERS` (or the equivalent) to participate in Essbase integrated security.

Step 1: Define OS/400 Groups

Using Warehouse Manager Client, create OS/400 groups for your Essbase application and database security requirements. The group profile name can be anything. In this guide, we will assume you are using the name `ESSUSERS`. To add a group:

1. Open Warehouse Manager Client.
2. In the Explorer, connect to the iSeries system on which you want to create the profile.
3. From the Manage menu, choose Profile, and then choose Create Group. The Create Group Profile dialog box displays.
4. Enter a profile name and description. The name for the group profile is your choice. In this section, we will assume you are creating two new groups, Sales and HR.
5. Define any other settings on the General through Workstation tabs. These settings do not affect Essbase usage rights. Generally, you can accept the defaults.
6. Click Update to refresh the profiles list in Explorer. Then click Close.

7. Repeat the previous steps for each group you want to create.
8. You can add users to these groups now or later. For users who do not have a primary group, find `ESSUSERS` in the Explorer view. Right-click and choose `Change`. The Create Group Profile dialog box displays. Click the `Members` tab and add all the necessary members. When you are finished, click `Update`. Remember that members in these groups must also be members of `ESSUSERS` or the equivalent.

Step 2: Create Essbase Groups

At this point, you have created group profiles (Sales and HR) identifying users who can access the Sales and HR applications and databases. You will now create these groups in Essbase:

1. Open Administration Services Console on your PC and connect to the Essbase Analytic Server.

Note: If you cannot connect to the Analytic Server, verify that it is running.

2. Expand the Analytic server and the Security node. Right-click on Groups and select `Create Group`.
3. Create an Essbase group that matches the group name you just created in Warehouse Manager (in this case, `Sales`). Specify the group type as `User`.
4. Click `OK`. The new Essbase group is added.
5. Repeat these steps to create the HR group.

Step 3: Specify Application and Database Access

Adjust the application and database access as needed for each group. For example, the Sales group should have access to the Sales database and the HR group should have access to the HR database.

1. In the Administration Services Console, right-click on the Security node, and select `Display groups table`.
2. Select a group and click `Edit`. This opens the Group Properties dialog box.
3. From the Group Info tab, on the Group Type node, select `User`.
4. To specify the group's application access, select the `App/Db Access` tab.
5. Choose an application and right-click to grant access to the group.
6. Expand the application to set access for databases.
7. When you are finished, click `Apply` and close the dialog box.
8. Repeat these steps for each group for which you want to set access.

Step 4: Add Entries to ESSBASE.CFG

Add entries to the Essbase configuration file that tell Essbase which groups are participating in integrated security. Without stopping the server, add one line, as shown below, to the Essbase configuration file for each group you have defined (for information about editing the configuration file, see “Modifying the ESSBASE.CFG File” on p. 30).

```
OS400COMMONGROUP GROUPNAME
```

where `GROUPNAME` refers to the Essbase group name you just created (for example, `Sales` or `HR`).

Step 5: Stop and Restart the Essbase Analytic Server

For instructions, see Chapter 2.

Step 6: View Messages

In the Administration Services Console, right-click your Analytic Server and select View log. Scroll to the bottom of the log to ensure there are no errors related to integrated security. If you restarted the server before completing the necessary steps (such as creating the OS/400 or Essbase groups), you may see some error messages. All necessary groups must be created before stopping the server.

You have completed the setup for integrated security.

For users who are members of the `OS400USERSGROUP` (that is, `ESSUSERS`), membership in the “common” Essbase groups (for example, `Sales` and `HR`) is dynamically synchronized with the current membership status in the corresponding OS/400 common group.

Automatic creation of an Essbase user occurs when the user first logs on to Essbase. Automatic deletion of users (if required) and synchronization of group memberships occurs at every logon, at Essbase startup, and when the Security dialog box in the Administration Services Console is opened.

Troubleshooting Integrated Security

If you followed all the previous instructions and integrated security does not seem to be working, check this list for common problems and their fixes. After fixing problems, stop and restart the Essbase Analytic Server to apply your changes.

- ▶ Your log file has any of the following error messages:

```
1180002: OS400USERSGROUP (ESSUSERS) is not an OS/400 Group User Profile, OS400USERSGROUP disabled
1180003: OS400USERSGROUP (ESSUSERS) is not an Essbase group, OS400USERSGROUP disabled
1180004: OS400COMMONGROUP (HR) ignored. It is not an OS/400 Group User Profile.
```

11800005: OS400COMMONGROUP (HR) ignored. It is not an Essbase group.

Verify you have created the group profile in Warehouse Manager Client, entered the group in the Essbase configuration file, and added the group in the Administration Services Console. Remember that the group name must be the same in all three locations.

- ▶ You have set up your special groups, Sales and HR, but the users are rejected when they try to log on.

Verify the users are also members of the OS/400 `ESSUSERS` group. If you are enabling a subset of your users to access Essbase, those users must first be members of OS/400 group `ESSUSERS`. You can then add them to any additional OS/400 groups you define (for example, Sales, HR).

- ▶ Your error file includes the following message:

11800008: OS400USERSGROUP (ESSUSERS) has been deleted, OS400USERSGroup disabled

Verify the `OS400USERSGROUP` is still defined in Administration Services Console. If the group has been deleted, it must be re-created for integrated security to work properly.

Automatically Deleting Essbase Users

Essbase users are deleted automatically in two ways:

- If you specified only a group name (for example, `ESSUSERS`) in the `OS400UsersGroup` configuration entry (that is, you did not specify `*ALL`), then any user in the Essbase group specified on the configuration entry who is not a member of the OS/400 group is automatically deleted from Essbase. This ensures that when an OS/400 user is deleted, the Essbase user is also deleted.
- If you have specified `*ALL` on the `OS400UsersGroup` entry, automatic deletion will occur when the OS/400 user profile is deleted.

What about Passwords?

Passwords for Essbase user IDs created by the integrated security feature must be changed by changing the OS/400 password using either the `CHGPWD` or `CHGUSRPRF` command. Some ShowCase Essbase client programs (including Administration Services Console and Spreadsheet Add-ins) will allow the end user to change a password at Essbase logon time if the password has expired. For an integrated security user, this will change the OS/400 password as well.

Note: Changing a password using the Administration Services Console security node or using `ESSCMD` will not affect the OS/400 password.

Essbase normally requires passwords to be at least six characters long. OS/400 allows a wide variety of password rules to be optionally enforced and even allows a user exit for password screening. When using the integrated security feature, the normal Essbase requirement of six-character passwords is no longer enforced. This allows existing OS/400 users with shorter passwords to use Essbase without needing a new password. Any rules or exits defined under OS/400 will also apply to integrated security users when they attempt to change an expired password using an Essbase interface.

ShowCase Essbase adheres to the rules defined by the OS/400 system value QPWDVLV. For QPWDVLV option 1, the password is limited to 10 characters and is not case sensitive. For QPWDVLV options 2 and 3, ShowCase Essbase supports password strings up to 100 characters only. It supports case-sensitive passwords, as well as special characters, such as @, #, \$, and so on, within the password string.

After Changing a Password: SCCHKPWD Command

If a user's password changes or expires, the user can update the applicable control table settings with the SCCHKPWD command. This command searches the local system and lists and/or updates the necessary control table settings with the new password.

Renaming Users and Groups

When integrated security is enabled, the special-purpose groups specified in the Essbase configuration file entries for OS400UsersGroup and OS400CommonGroup cannot be renamed. In addition, Essbase integrated users cannot be renamed. These restrictions prevent inconsistencies in the integrated security configuration.

Accessing Message Logs

When running Essbase on platforms other than the iSeries, messages that track the requests and subsequent error messages are displayed on the terminal. Because of internal iSeries restrictions, most of these messages are recorded in the log file and are not displayed on the terminal. To access the Essbase log file on the iSeries, use the DSPESLOG command. For information regarding log file maintenance, see "Maintaining Essbase Log Files" on p. 49.

Backing Up Essbase Files

Use the SAVLIB or SAV command to save Essbase applications and libraries. The following procedure creates two save files in QGPL, which contains the QSYS file system and IFS information. It also backs up Essbase Integration Services (EIS) models and metaoutlines and EAS repositories. This procedure assumes the server name is ESSBASE.

Note: All files in the APP directory and the ESSBASE.SEC file must be backed up and restored together to ensure consistency.

To back up Essbase files:

1. Stop all Essbase servers.
2. At an iSeries command line, type CRTSAVF FILE(QGPL/SAVEQSYS) and press Enter.
3. Type SAVLIB LIB(ESSBASE) DEV(*SAVF) SAVF(QGPL/SAVEQSYS)

or

```
SAV DEV( '/QSYS.LIB/QGPL.LIB/SAVEQSYS.FILE' )
OBJ( ( '/QSYS.LIB/ESSBASE.LIB' ) )
```


and press Enter.

4. Type `CRTSAVF FILE(QGPL/SAVEIFS)` and press Enter.
5. Type `SAV DEV(' /QSYS.LIB/QGPL.LIB/SAVEIFS.FILE') OBJ((' /ESSBASE'))` and press Enter.

To back up EAS user information:

After you create EAS users in the Administration Services Console and create each user's list of Analytic Servers, you can export the information for restoring if necessary. To do so, see the instructions in the *Hyperion Essbase Administration Services Installation Guide*, section titled "Backing Up and Restoring User Information."

Backing Up and Archiving the Security File

The Essbase security file (*essbase.sec*) is automatically backed up and archived during each successful server shut-down and placed in the `\essbaselib\bin\backup` directory of the IFS. In the event that the *essbase.sec* file becomes corrupted, you can restore it using one of the backup files. As an administrator, you can decide how many backup copies to retain on the server.

How many backup copies to retain. You can retain between 5 and 25 files. As the number of files grows, the processing time to replace the oldest file increases. By default, the server keeps up to 10 backup files and replaces the oldest file with the 11th saved file.

Scenario. For example, a database administrator wants to keep a maximum of 10 backup files. She recycles the Analytic Server once every weekend. After 10 weekends, the maximum file limit is reached. On the 11th weekend (or shutdown), the oldest security file is replaced. Accordingly, in the following week the oldest archived security file is replaced.

If the administrator ever needs to use one of these archived files to replace the *essbase.sec* file, she can choose from any of the 10 saved files: the most recent, the oldest, or any file in-between.

Specifying the Security File Archiving Value

By default, the archiving process is already active in the *ESSBASE.CFG* file with the following default values:

```
OLAPSECFILEARCHIVE 10
```

This indicates that up to 10 files are archived. If this value is acceptable for your system, there is no need to add an entry to the *ESSBASE.CFG* file.

To change the security file archiving value

1. Use the instructions in "Modifying the ESSBASE.CFG File" on p. 30 to open the *ESSBASE.CFG* file for editing.
2. Add the `OLAPSECFILEARCHIVE` parameter in the following format:

```
OLAPSECFILEARCHIVE [F]
```

where [F] indicates the number of files.

To turn off security file archiving

Set [F] to zero to turn this option off (no archiving takes place). For example:

```
OLAPSECFILEARCHIVE 0
```

Restoring Essbase Files

If you used the backup procedure described in the previous section, use the following procedure to restore your Essbase files. This procedure assumes the server name is `ESSBASE`.

1. Type `RSTLIB SAVLIB(ESSBASE) DEV(*SAVF) SAVF(QGPL/SAVEQSYS)`

or

```
RST DEV( '/QSYS.LIB/QGPL.LIB/SAVEQSYS.FILE' )  
OBJ( ( '/QSYS.LIB/ESSBASE.LIB' ) )
```

and press Enter.

2. Type `RST DEV('QSYS.LIB/QGPL.LIB/SAVEIFS.FILE') OBJ(('/ESSBASE'))` and press Enter.

Restoring the Security File

To replace a corrupted security file with a backup file

1. In your IFS, navigate to `\Essbase\bin\backup` (where *Essbase* is the name of your installation library).
2. Copy the *essbase.sec* file you want to use, and paste it into `\Essbase\bin\`.
3. Rename the file to *essbase.sec* to replace the existing *essbase.sec* file.

Commands

This appendix lists the iSeries and ShowCase Essbase commands needed to maintain the software.

iSeries Commands

The following table lists the common iSeries commands for maintaining server libraries.

Table A-1
Common iSeries commands

Command	Description	Usage
ADDLIBLE	Add a library to your library list.	To add a Warehouse Manager Server or Essbase Server library to the library list when you need to run a server command from the iSeries command line.
CFGTCP	Configure TCP/IP.	To configure iSeries TCP/IP.
DSPPTF	Display PTFs.	To find the latest PTFs installed on your system.
DSPSYSVAL	Find system information.	To find system information, such as model and serial number. For example, to find the model number, enter <code>DSPSYSVAL SYSVAL(QMODEL)</code> ; to find the serial number, use <code>QSRLNBR</code> for the system value.
DSPUSRPRF	Display user profile.	To display a user's profile.
EDTF	Edit file.	To display or edit iSeries files.
SCCHKPWD	Manage iSeries passwords stored in control tables.	To update the control tables with a user's new password, or set the <code>UPDATE</code> parameter to <code>*NO</code> to simply generate a list. Type the <code>SCCHKPWD</code> command on the iSeries command line, and press <code>F1</code> for parameter information.
WRKACTJOB	View active jobs.	To see if the Warehouse Manager Server or Essbase servers are running or to view active jobs.
WRKOBJLCK	Check for active jobs against a Warehouse Manager library.	To check for iSeries jobs that may be active against a Warehouse Manager Server or Essbase Server library; in particular, to check for TCP/IP jobs. Useful when installing over the top of an existing Warehouse Manager library or debugging system-related problems (for example, when TCP/IP connections fail).
WRKSRVTBLE	View port numbers already in use.	To find an available port number when configuring TCP/IP.

ShowCase Essbase Commands

The following table lists commands for maintaining a ShowCase Essbase library.

Note: Before using the following commands, add your Essbase library to your iSeries library list and make sure you have only one Essbase library in your library list. Run the command ADDLIBLE ESSBASE, where ESSBASE is the name of the Essbase library with which you want to work.

Table A-2
ShowCase Essbase commands

Command	Description	Usage
CHGESSENV	Change Essbase environment variables.	To change the environment.
CMD2MAXL	CMD2MAXL utility.	To convert an existing ESSCMD script file to a suitable MaxL script file.
DSPESSENV	Display Essbase environment variables.	To display the version or the environment.
DSPESLOG	Display Essbase logs.	To read the server and application logs from the iSeries.
ENDESSSVR	End the Essbase Server.	To stop the server.
ESSMSH	Start MaxL/400 or run MaxL statements.	To start the MaxL/400 shell or to run MaxL statements from a script.
ESSUTF8	Analytic Services Unicode File Utility	To enable adding encoding identifiers to files used with Unicode-mode applications.
GRTESSAUT	Grant Essbase authority.	To allow users lacking proper authority to end/start the Essbase servers. However, when using this command, you may not change the OS/400 password for integrated security users when a password has expired or the password is set to be reset on the next login. This is because the OS/400 API that accomplishes the password change requires that the profile with which you started the server have *SECADM authority.
INITADMDB	To initialize or update the EAS Database Initialization username and password.	If you do not enter an EAS database initialization username and password during server installation, you must initialize the database with this command. Or, if the EAS initialization profile's password changes or expires, you must update the profile with this command.
OLAPICMD	Access the Essbase Integration Server from an OS/400 session.	To allow users access to the Essbase Integration Server from an OS/400 session.
RSTSAMPAPP	Restore/install the Hyperion Essbase samples into your server library.	If you did not install the samples during Essbase server installation, you can install them with this command. It overwrites any existing samples of the same name on your Essbase server.
RUNMAXLSTM	Run MaxL statements with return codes.	To run MaxL statements and receive return codes (completion status) that you can use in another program.
STRESSCMD	Start the ESSCMD command processor.	To run any ShowCase Essbase command or to run scripts.
STRESSSVR	Start the Essbase Server.	To start the server and specify job descriptions to assign to the server.
UNINSTSC	Uninstall the Essbase or Warehouse Manager Library.	To remove a library from the system. For more information about the UNINSTSC save file, see the <i>ShowCase Suite Administrator's Guide</i> .

ShowCase Essbase Configuration File Settings

The following table lists configuration file settings for tasks such as implementing integrated security and specifying how many days of log records to preserve. These keywords are added to the Essbase configuration file.

Table A-3
ShowCase Essbase configuration file settings

Setting	Description	Usage
OLAPSECFILEARCHIVE	Reduce or increase the number of backup security files to preserve.	Use this setting to change the default number of backup security files that are preserved. Valid values are 5 through 25. The default value is 10.
OS400AutoDelete	Enable automatic deletion of Essbase users.	When setting up integrated security, this setting automatically deletes all users in the auto-delete group each time the Analytic Server is started.
OS400ChangeLastLoginDate	Update the date/time of the last integrated Essbase user's login.	By default, the last iSeries profile's login date and time, that has been integrated into Essbase, will not be updated when the profile is signed onto Essbase. Valid values are: <ul style="list-style-type: none"> ■ *YES: updates the last integrated Essbase user's login date/time ■ *NO: does not update the last integrated Essbase user's login date/time. This is the default setting.
OS400CommonGroup	Assign OS/400 user profiles to Essbase groups.	When setting up integrated security, as OS/400 users are added or removed from OS/400 groups, they are automatically added or removed from the corresponding Essbase group.
OS400UsersGroup	Enable all OS/400 users or a subset of OS/400 users to access Essbase.	When setting up integrated security, this setting provides Essbase access to all users or to a specified group of users.
OS400DAYSLOGRETAIN	Specify how many days of Essbase log files to preserve.	To set the number of days of log records to keep when the Analytic Server or an Essbase application is started. Example: A value of 2 retains 2 days of records.

Setting	Description	Usage
SCHASHCALCWOSHAREDMBR	Improve performance when calculating databases without shared members.	If CALCOPTCALCHASHTBL is true, insert a SCHASHCALCWOSHAREDMBR line in the config file, specifying each database that does not have shared members (must be applied once per database). Example: SCHASHCALCWOSHAREDMBR tbc demo
_SM_SERIAL_MODE	Improve performance by disabling parallel calculations.	The calculation engine includes parallel calculations. This can cause performance degradation on single CPU systems. _SM_SERIAL_MODE is a global setting that disables all parallel calculations. Valid values are: <ul style="list-style-type: none"> ■ TRUE: disables parallel calculations ■ FALSE: does not disable parallel calculations. This is the default setting.
SCEnableJDBCSources	Enable or disable JDBC data sources.	When TRUE, JDBC sources are listed and processed when a user selects a JDBC data source. <ul style="list-style-type: none"> ■ TRUE: enables JDBC data sources ■ FALSE: disables JDBC data sources. This is the default setting.

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