

ENTERPRISE SERVER HELP



Attachmate®

DATABridge™



DATABridge Enterprise Server Help

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Welcome to Enterprise Server

Attachmate Enterprise Server is a Windows-based solution for DMSII data replication and integration. Enterprise Server works in conjunction with DATABridge Host software to move much of the cloning and filtering workload from the Unisys MCP-based mainframe (host) to a ClearPath PC or to a Windows server, thereby reducing mainframe resource usage and related expense.

From the DATABridge Enterprise window, you can view your data sources and their properties. Data sources can include MCP disks and sources defined by DATABridge Server Accessory (on the host). A complete description of DATABridge and how it works is available in the *DATABridge Installation Guide*.

Resources

You may want to consult the following resources when using Enterprise Server.

- **DATABridge Administrator Guides**

You can find the *DATABridge Host Administrator's Guide* and the *DATABridge Clients Administrator's Guide* in the DOCS folder on the DATABridge installation image.

The Client Console includes a browser-based help system, available from the **Help** menu.

- **Unisys MCP server documentation**

If you are not completely familiar with DMSII configuration refer to the Unisys documentation included with the Unisys ClearPath NX/LX series or A Series, DMSII, WFL, or CANDE.

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Conventions

This guide uses the following conventions:

- Text that you type as well as messages and prompts that appear on the screen are shown in `this type style`.
- In addition to emphasizing text, *italic* indicates variables. For example, if you were asked to type *CACHE sourcename* you would type the actual name of the source in place of the italicized word. Document titles, such as the title of this guide, are also shown in italic.
- Optional items in a command are enclosed in [square brackets]. If you include the optional items, do not type the brackets.
- This guide uses the terms *MCP server*, *host*, and *mainframe* interchangeably to refer to a Unisys ClearPath NX/LX series or A Series mainframe.

- The term *DBEnterprise* (the name of the executable file) is sometimes used to refer to DATABridge Enterprise Server. The term *DBServer Accessory* is sometimes used to refer to the DATABridge Server Accessory.

Abbreviations

The following abbreviations are used throughout this guide and are provided here for quick reference.

Abbreviation	Name
AA	Absolute Address
ABSN	Audit Block Serial Number
AFN	Audit File Number
API	Application Programming Interface
DASDL	Data and Structure Definition Language
DMSII	Data Management System II
IDX	Index
MCP	Master Control Program
RPC	Remote Procedure Call
SEG	Segment
WFL	Work Flow Language

Section 1: Setting Up

This section contains the essentials for configuring Enterprise Server after installation is complete. If you want to explore some of the optional configuration features of Enterprise Server, such as caching, see *Additional Configuration Options* (page [33](#)).

Note: To use Enterprise Server, the DATABridge Host software must be installed and running.

Connecting to a Host Running DATABridge

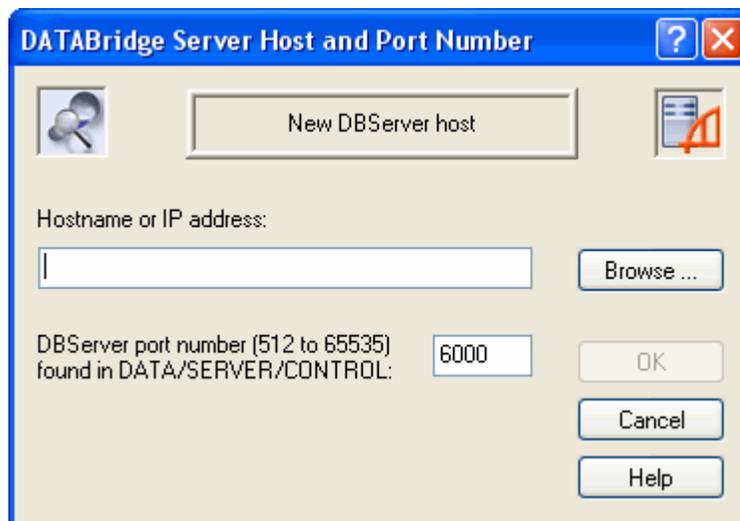
Before you can access DMSII data, you must connect to the host where the DATABridge Server Accessory is installed. You can also connect to another installation of Enterprise Server.

To connect to the Server Accessory or Enterprise Server

- 1 From the DATABridge Enterprise Server window, click the **DBServer**



The **DATABridge Server Host and Port Number** dialog box appears.



- 2 Type the host name or IP address for the remote mainframe on which the Server Accessory is running, or for a PC on which Enterprise Server is installed. If the server is visible in Windows, click the **Browse** button to navigate to it.
- 3 Type the port number. This is set by the TCP/IP port parameter within the Server Accessory configuration file. For Enterprise Server, the port is set during installation, but can be changed later using the **DBDirector dialog box**.
- 4 Click **OK**.

If the connection is successful, the new server appears in the left pane in the DATABridge Enterprise window. From there, you can view DMSII properties (of data sets, data item, and so on) for any source in the Server Accessory parameter file, and for Enterprise Server sources.

Host Properties Dialog Box

In the left pane of the DATABridge Enterprise window, right-click the server icon and choose **Properties**.

This dialog box displays connections from Enterprise Server to the selected host (MCP server). If the host uses multiple protocols or addresses (on one or more network adapters), multiple connections may appear in this dialog box.

The options are as follows:

Protocol	Indicates the TCP/IP protocol (IPv4 or IPv6) for the host connection.
Address	The IP address used for the host connection.

MCP Disk Properties Dialog Box

Note: To view MCP disks and their properties, you must have direct disk access (via a SAN or Logical disk).

- 1 In the left pane of the DATABridge Enterprise window, click the plus sign (+) next to the system running Enterprise Server.
- 2 Right-click the MCP disk and click **Properties**.

Use this dialog box to get information about the selected MCP disk. The properties in this dialog box are for information only and can't be edited.

Unit	Unit number.
Serial	Serial number of the disk.
Sector	Size and format of a disk sector.
Location	For a logical disk, this is the name of the file that contains the disk data. For a physical disk, this is the Windows physical drive number and SCSI address.
Capacity	Total disk capacity (in kilobytes).
I/O size	Maximum amount of data that can be read from the disk in a single physical I/O.
Product	The manufacturer's product name.

DATABridge Server Properties

- 1 In the left pane of the DATABridge Enterprise window, click the plus sign (+) next to the host.
- 2 Right-click the Server Accessory icon and choose **Properties**.

This dialog box provides versioning information for selected DATABridge Host components that are installed on the mainframe.

The properties in this dialog box are for information only and can't be edited.

TCP/IP address	The host address of the selected copy of the Server Accessory.
Status	The status of the TCP/IP connection.
Protocol level	The maximum supported level of the remote procedure call (RPC).
Port	The TCP/IP port number used by the Server Accessory.
DBServer	The version of the DATABridge Server Accessory component.
DBEngine	The version of the DATABridge Engine component.
DBSupport	The version of the DATABridge Support library component.
Network traffic	The number of bytes sent to and received from the Server Accessory.

Creating an Enterprise Server Source

To replicate DMSII data, you must first create an Enterprise Server source (also referred to as a *base source*) from the MCP server that contains DMSII data. A base source is the same as the SOURCE defined in the Server Accessory parameter file.

You can filter a base source by creating a *local source* from the base source, and then define filters for the local source. If filters are implemented in DBGenFormat, sources are filtered on the MCP server before the local filters are applied.

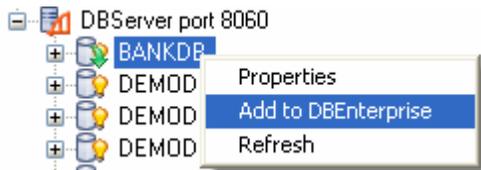
Use this procedure to create an Enterprise Server source via the user interface. You can also create sources by importing a configuration file. See *Importing a Configuration File* (page [83](#)).

To create a base source

- 1 Connect to an MCP server or to a Windows computer that is running DATABridge (see *Connect to a Server*) (page 11).
- 2 In the left pane of the DATABridge Enterprise window, under **DATABridge Sources**, click the plus sign (+) next to the host name. Then, click the plus sign (+) next to the DBServer item beneath it to view all available sources on that port.

Note: This process may take a long time, depending on how many sources are defined.

- 3 Right-click the source for which you want to create a base source and select **Add to DBEnterprise**.



The base source appears in the right pane of the DATABridge Enterprise window, under **DBEnterprise Sources**, using the same name as the DATABridge source. The status area on the bottom of the DATABridge Enterprise window notifies you if a source is unavailable or when the data set list is being retrieved, expanded, and so on.



- 4 Right-click the base source you just created and select **Properties**.
- 5 In the **Base Source Properties** dialog box, review the options and change them if necessary.
- 6 When you are finished selecting options, click **OK** to close the **Base Source Properties** dialog box.

Base Source Properties Dialog Box

In the right pane of the DATABridge Enterprise window, right-click a base source and click **Properties**.

This dialog box shows the properties of a base source. The base source name — which is the same as its counterpart source in the Server Accessory — appears at the top of this dialog box and cannot be changed.

The options are as follows:

Add	Click this button to add a new filtered local source that is derived from this base source. When you click the Add button, the Source Properties dialog box appears.
Imported configuration file	If you imported a configuration file to create this base source, the path and filename appears here.
When more audit is available, run	Use this text box to enter the path and filename of the batch file you want to run when the Server Accessory notifies Enterprise Server that new audit files are closed and ready for replication. To use this feature, you must also update a few parameters on the mainframe. For instructions, see <i>Setting Up Host-Initiated Runs</i> (page 26).
As user	The Windows user name required to run the batch file. Select this option to set up automatic scheduling.
Password	The associated Windows password required to run the batch file.
<hr/> <hr/>	
Show log and Ask First	<p>These options determine when log files are displayed and whether or not you want to be prompted to view them.</p> <p>For log filenames and directories, see <i>Log Files</i> (page 80).</p>
Always	<p>Select this option to automatically display log files for every Enterprise Server process after Enterprise Server finishes.</p> <p>Select the Ask First check box if you want to be prompted whether to display the log at the end of each process.</p>

Never	Select this option to not automatically display log files. This option is recommended for unattended servers. Ask First is not available when you select this option.
If failure	Select this option to automatically display log files only when an error occurs. Select the Ask First check box if you want to be prompted whether to display the log when a failure occurs.
Checkpoint	This button opens the Checkpoint options dialog box, from which you can set the frequency with which the DATABridge Client commits the updates it receives from Enterprise Server.
Cache	This button opens the Base Source Cache Properties dialog box, from which you can enable caching.
Audit Mirror	This button opens the Audit Mirror dialog box, in which you can configure the audit mirror functionality. After audit mirroring is configured, you can run it as a command line feature or as an interface option (right-click the base source and choose Start mirroring audit files). For information about the MIRROR command line feature, see <i>Mirror DMSII Audit Files</i> (page 44).
Extract Workers	This numeric setting specifies the maximum number of threads Enterprise Server can create when extracting data during a clone.
Remove	This button removes this base source from your Enterprise Server installation. It also removes any local (filtered) sources derived from this base source.

User Credentials Dialog Box

This Server Accessory source specifies a key (password). To access this source, you must supply the key.

After you successfully log on to this source, DATABridge Enterprise Server will encrypt and store this key for future logons.

Data Set Properties Dialog Box

From the DATABridge Enterprise window, right-click a data set and select **Properties**.

The properties in this dialog box are for information only and can't be edited.

Structure #	The unique number of the data set assigned by DMSII.
Record size	The size of the record, measured in words and bytes. (DMSII may allow larger record sizes than the relational database.)
Type	Indicates the physical organization of the data set. Certain data set types, such as STANDARD, do not move records and the AAs remain fixed until a reorganization. Other data set types, such as ORDERED, move records whenever needed and therefore do not have fixed AAs. For more information, see the documentation for <i>DASDL</i> (page 101).
Format Level	Indicates the <i>DASDL</i> (page 101) update level when a change was last made to the layout of this data set.
Row filter	Click to open the Row Filter dialog box. This button appears only when viewing data set properties of DBEnterprise local (filtered) sources.
ALTERed	When selected, indicates that the definition of the data set has been altered from its original layout using the ALTER declaration in DBGenFormat.
Reformatted	When selected, indicates that the data set layout has changed and requires either ALGOL code on the MCP server or C++ in Enterprise Server to reformat it.
Valid AA	When selected, indicates that the data record has an absolute address and may be suitable candidate for a key or primary key if a static AA is not available. The DMSII data set type (see Type) determines whether the AA is a valid key or not. Standard data sets, for example, have valid AAs.

Static AA	When selected, indicates that the data set includes a unique data item that won't change in the event of a reorganization and is therefore suitable for a key or primary key.
Links	When selected, indicates that the data set has one or more data items that refer to another record in this or another data set. A link can be sent to the client as a data item in an AA format and the table containing the link item can be joined with the table containing the target record. If checked, you may need to reclone this data set if the target data set is reorganized.
Extract only	When selected, indicates that the data set is embedded within a parent data set that does not have a valid AA (for example, Ordered or Compact). Records in this kind of embedded data set cannot be tracked. Also, if the DASDL option INDEPENDENTTRANS is reset, embedded data sets in the entire database cannot be tracked or fixed up. These embedded data sets can be extracted (the first phase of a clone), if the run-time option DBV_OP_EMB_EXTR is set.

Data Item Properties Dialog Box

From the DATABridge Enterprise window, expand a data set, and then right-click a data item.

The properties in this dialog box are for information only and can't be edited.

Item number	The data item number, a unique number that is assigned by DMSII.
Type	The data item type as described in <i>DASDL</i> (page 101) (for example, alphanumeric, thirty characters).
Format	Indicates information that's been specified to DBGenFormat so that the client knows the format of the data, such as date. See the DATABridge Host Guide for a complete description of the formats available.
Length	Indicates the length of the data item measured in half bytes (also referred to as digits).

Offset	The distance between the item and the start of the record (measured in half bytes).
Occurs	The number of different times the data item is repeated in the DMSII record.
Subscripts	The number of subscripts that are required due to each level of occurs. For example, if a data item occurs four times in a GROUP, and that GROUP occurs five times within a larger GROUP that occurs seven times, three subscripts would be required.
Raw offset	When selected, indicates that the data item doesn't appear in the formatted record. The offset is the location of the link item in the unformatted audit record. Only used in links.

Variable Format Properties

- 1 From the DATABridge Enterprise window, expand a data set.
- 2 Right-click the variable format icon  and select **Properties**.

The properties in this dialog box are for information only and can't be edited.

Structure #	The unique number of the data set. As data sets are added in DASDL updates, each is assigned the next available number.
Record type	The unique number that identifies this particular variable format.
Record size	The size of the record, measured in words and bytes.

Set Properties Dialog Box

In the left pane of the DATABridge Enterprise Server window, under a data set, right-click a set and click **Properties**.

The properties in this dialog box are for information only and can't be edited.

Structure #	The unique number of this set. As sets are added in updates, each is assigned the next available number.
--------------------	--

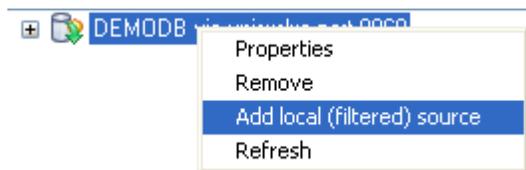
Target	The name of the data set to which this refers.
Duplicates	When selected, indicates that more than one record or row may have the same key value.
Key change OK	When selected, indicates that a program can change the key value of an existing record on the host. In this case, you would want to include before and after images in updates sent to the client to provide records that refer to previous key value.
Subset	When selected, indicates that this is a <i>subset</i> (page 104).

Creating a Local Source

You may want to apply additional filters to the data available in a base source. You can do that by creating a local source and defining filters for that local source. This task is optional.

To create a local source

- 1 In the right pane of the DATABridge Enterprise window, under **DBEnterprise Sources**, right-click the base source for which you want to create a local source and select **Add local (filtered) source**.



- 2 In the **Source Properties** dialog box, type the name for this local source. The source name must be a valid name that DATABridge Clients can type in a Windows or a UNIX command session. It can include alphanumeric characters, hyphens, and underscores, but no spaces or other symbols.



- 3 Review the options on the dialog box and change as needed.

The **Mark all data sets** buttons are disabled until you click **OK** and create the source. When you first create a local source, all of its *data sets* (page [101](#)), except the restart data set, are included.

- 4 When you are finished setting the options, click **OK** to exit the **Source Properties** dialog box.

Note: If the **Save** button in the DATABridge Enterprise window is enabled, you have made changes that have not been written to disk and therefore are not yet in effect. To put your changes into effect, click the **Save** button.

Source Properties Dialog Box

In the right pane of the DATABridge Enterprise window, right-click a local (filtered) source, and select **Properties**.

This dialog box shows the properties of a local, filtered source.

The options are as follows:

Source name	In the text box at the top of the dialog box, enter the name you want to give this local source. This name will appear in the Enterprise Server source tree.
Base source	Indicates the base source from which this local source is derived.
Filter name	The name you entered when you created this source.
Generated	The date and time when you created this source.
Imported configuration file	If you imported a configuration file to create this source, the path and filename appear here.
Show log and Ask First	These options determine when to create log files and whether the user is prompted to view them. For log filenames and directories, see <i>Log Files</i> (page 80).
Always	Select this option to display log files for every Enterprise Server process after the Enterprise Server starts.
	Select the Ask First check box if you want to be prompted to view the log at the end of each process.
Never	Select this option to not display log files automatically. This option is recommended for unattended servers.

Ask First is not available when you select this option.

If failure

Select this option to display log files only when an error occurs.

Select the **Ask First** check box if you want to be prompted whether to display the log when a failure occurs. If this check box is cleared, the log is displayed immediately.

Checkpoint

Click this button to open the **Checkpoint options** dialog box and set the frequency with which the DATABridge Client commits the updates it receives from Enterprise Server.

Cache

Click this button to open the **Filtered Source Cache Properties** dialog box and enable caching. Additional steps are required to enable caching. See *Caching* (page [35](#)).

Mark all data sets

The icons in the **Mark all data sets** section are disabled until you actually create the source by clicking **OK**.

Click the **Include** button to replicate all records from all data sets in the source.

Click the **Exclude** button if you want to specify each data set individually for replication, or if you don't want to replicate any data sets.

Extract Workers

This numeric setting specifies the maximum number of threads Enterprise Server can create when extracting data.

Filtering a Local Source

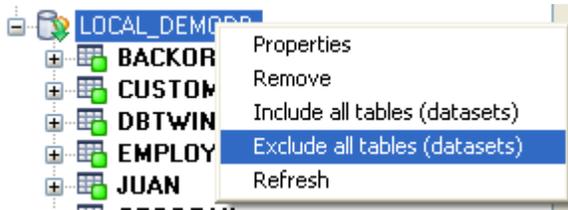
Creating filters for local sources is an easy way to add and change filters without making any changes on the mainframe. When you first create a local source, all of its *data sets* (page [101](#)) *except* for the restart data sets are included.

There are two approaches to filtering: Include all of the tables for a local source (the default) and then filter out the rows you don't need. Or, exclude all of the tables and use filtering conditions to pull in the rows you want. The appearance of the data set icon will change, depending on your selections (see *Icon Descriptions* (page [55](#))).

This task is optional.

To filter local sources

- 1 Right-click a local source and select an option to include or exclude all tables (data set).



- 2 Within the local source, filter a data set by right-clicking it and selecting one of the following:
 - Select the available options to include or exclude the data set. (Available options are determined by the status icon).
 - Select **Edit WHERE filter** to define a filtering condition in the **Row Filter** dialog box. In the **Row Filter** dialog box, create a filtering clause by typing in the **WHERE** box, or by clicking data items and functions and then clicking the adjacent arrow to add them to the **WHERE** box.

- 3 When the **WHERE** box reflects the filtering conditions you want, click **OK**.

If the filter has no syntax errors, it is added to the data set (and the status icon changes to yellow).

- 4 When you are finished creating filters, click **Save** to save your work.

After you set up filters, you can use a DATABridge Client to define, generate, and replicate a database using the Enterprise Server source.

Row Filter Dialog Box

- 1 In the right pane of the DATABridge Enterprise Server window, expand a source to show its data sets.
- 2 Right-click a data set, and do one of the following:
 - Select **Properties**, and in the **Data Set Properties** dialog box click the **Row filter** button.
 - Select **Edit WHERE filter**.

Use this dialog box to specify filtering conditions for each data set.

The options are as follows:

WHERE

In this text box, enter an expression that defines the filtering conditions you want. The expression can include typed values and items

from the **Data items** and **Functions** lists.

Data items

These are available data items that can be filtered. To add a data item to the **WHERE** text box, select it and then click the adjacent arrow button, or double-click the item in the list.

Functions

These are available functions you can use in the filter. To add a function to the **WHERE** text box, select it and then click the adjacent arrow button, or double-click the item in the list.

Connecting DATABridge Client to Enterprise Server

Use one of the following procedures to connect DATABridge Client to Enterprise Server.

To connect via the Client Console

If you run the DATABridge Client from the Client Console, use the Console to connect to Enterprise Server.

- 1 In the Client Console, in the **Explorer** tab, right-click the service and choose **Add Data Source**.
- 2 In the **Add Data Source** dialog box, in the **Data Source Name** box, type the name that will be referenced for all cloning and tracking. For SQL Server, this can be the ODBC data source or another name.
- 3 In the **SQL Server** or **Oracle** section, for **Data Source**, type the name that you've created for the relational database.
- 4 For **Host name**, type the IP address or the name of the computer on which Enterprise Server is running.
- 5 For **Port**, type the Enterprise Server port number. This number appears in the **DATABridge Director** dialog box.
- 6 Click **Finish**.

To connect the Client via a command session

If you run DATABridge Client from a command line, type the following command:

```
dbutility define datasource hostname portnumber
```

Where	Is
<i>datasource</i>	<p>One of the following:</p> <ul style="list-style-type: none">▪ The base source name (no additional filtering besides what is done on the mainframe)▪ The local source name (can include additional filtering) <p>Use source names as they appear in the DBEnterprise Sources pane.</p>
<i>hostname</i>	<p>The IP address or name of the PC on which Enterprise Server is installed</p>
<i>portnumber</i>	<p>The port number for Enterprise Server.</p> <p>To confirm this port number, in the Enterprise Server window, click the DBDirector button. The port number appears in the DATABridge Director dialog box.</p>

Setting Up a Host-Initiated Enterprise Server and Client Run

Enterprise Server supports a protocol that permits a program or job running on the Unisys MCP server to trigger a run of the DATABridge Client or Enterprise Server when audit files become available.

Important: This procedure, which uses the Notify option, replaces the DBAuditWait program available in DATABridge Client 5.0 and earlier.

To set up host-initiated runs of Enterprise Server

- 1 Open the Server Accessory parameter file, DATA/SERVER/CONTROL, and add the following NOTIFY option for each SOURCE declaration that you want to include. (A SOURCE can have multiple NOTIFY options and multiple SOURCES can NOTIFY the same PORT.)

```
NOTIFY [=] "host" PORT portnumber
```

where *host* is the host name or IP address of the Enterprise Server and *portnumber* is the Enterprise Server port on which DATABridge Director is listening.

Example:

```
SOURCE BANKDB:  
NOTIFY "192.168.1.100" PORT 8099  
notify "myserver.mycompany.com" port 8007
```

- 2 Save and close the Server Accessory parameter file.
- 3 Using a text editor, open the notification command file installed with Enterprise Server (Notify.cmd). (The default location for Notify.cmd is \Program Files\Attachmate\DATABridge\6.1\Enterprise.)
- 4 In the file, uncomment either the command to run Enterprise Server or the command to run dbutility, and then save the file with a new name.
- 5 Right-click an Enterprise Server source, and select **Properties**.
- 6 For the **When more audit is available, run** option, click Browse, and select the notification command file that you edited in step 4.

Note: If you use an Enterprise Server configuration file to create your sources, add the path and filename of the batch file to each remote or local source in the configuration file. For example:

on notify,

```
run "C:\Program  
Files\Attachmate\DATABridge\6.1\Enterprise\MySourceNotify.cmd"
```

When Director receives the connection request from the Server Accessory, it initiates Enterprise Server. Enterprise Server runs the specified batch file and passes the MCP server host name, SOURCE, and AFN to Director.

You can use the batch file to do things other than run Enterprise Server or a DATABridge Client. For example, you could set it up to append a message to a text file or to run other programs.

- 7 Use one of the following DATABridge host WFLs that will notify the Server Accessory:

- WFL/DATABRIDGE/COPYAUDIT - Change the line near the top to read:

```
WANINOTIFY = TRUE
```

- WFL/DATABRIDGE/NOTIFY - For the string parameter, type the database name.

For example:

```
START WFT/DATABRIDGE/NOTIFY ("BANKDB")
```

When either WFL notifies the Server Accessory that an audit file is available for processing (by opening a port file with YOURNAME = "DBSERVERNOTIFY"), the Server Accessory opens the port file on the Enterprise Server indicated by the NOTIFY option and sends a brief message containing the SOURCE name and AFN.

Section 2: Starting Enterprise Server via DATABridge Director

DATABridge Director is a Windows Service installed with Enterprise Server that starts Enterprise Server whenever a data request is received.

When you start your computer, Director starts and reads the ListenPort registry value to determine which TCP/IP port communicates with DATABridge Clients. Each time Director receives a connection request, it starts Enterprise Server (using command line parameters `CONNECT socketnumber ipaddress`) and then waits for the next connection. Director has very low resource requirements and can handle multiple Enterprise Server connection requests quickly. (There is no set limit on how many connections can run simultaneously.)

Director uses the LocalSystem account. (Running the Director service under other accounts is not supported.) When Director runs Enterprise Server for replication, Enterprise Server also runs under the LocalSystem account. For Enterprise Server to access MCP disks directly (for example, EMC disk), the LocalSystem account must be assigned Administrator rights.

Note: The notification batch file also runs under the LocalSystem account unless a user name and password is specified for that source.

Starting or Stopping DBDirector

These instructions explain how to control DBDirector from the Enterprise Server window. However, you can also start and stop DBDirector by using the **Start** menu shortcuts.

Note: To control DBDirector, your account must have Administrator rights. If the DBDirector service control buttons are disabled, your account does not have Administrator rights.

To start or stop DBDirector

- 1 From the DATABridge Enterprise window, click the **DBDirector** button



- 2 In the **DBDirector service control** area, control the DBDirector service by clicking a button.

Click this	To
	Stop DBDirector
	Start DBDirector
	Stop and then immediately start DBDirector

Changing the TCP/IP Port Number

DATABridge Director listens on the specified port number for incoming connection requests from the DATABridge Client and for notifications from the Server Accessory that audit files are available.

The port number is set to 11367, by default.

To change the TCP/IP port number

- 1 From the DATABridge Enterprise window, click the **DBDirector** button.
- 2 In the **TCP/IP port number** box, enter the number of a port (between 1024 and 65535) that is not currently in use on the Windows server, and then click the **Apply** button.



TCP/IP port number (1024 - 65535) to listen for DATABridge client connections. (Change requires DBDirector restart.)

- 3 Restart Director using the **Restart** button on the **DATABridge Director** dialog box.

The **Apply** button writes the new values to the Windows Registry.

Note: DATABridge Clients must use this port number to connect to Enterprise Server. If you use host-initiated client runs, specify this port number in the NOTIFY option of the Server Accessory parameter file. See *Setting Up Host-Initiated Runs* (page [26](#)).

DATABridge Director Properties Dialog Box

From the DATABridge Enterprise window, click the **DBDirector** button



Use the options in this dialog box to control the service that starts **Enterprise Server** when a client connects.

The options are as follows:

- | | |
|--|---|
| TCP/IP port number | Specify the TCP/IP port that the DATABridge Client uses to connect to Enterprise Server. |
| Use the debug version of DBEnterprise | Select this option and click Apply to run the debug version of Enterprise Server. The path beneath the Apply button indicates where the debug version of Enterprise Server is installed. The next time a client connects, DATABridge Director will run the debug version. Recommended for troubleshooting purposes. |

DBEnterprise dialog box

- | | |
|-----------------|--|
| Hide | Select to hide the DATABridge Enterprise Server window during replication and to prevent the log from appearing when replication is complete (the default for Windows 2008 and Vista). |
| Minimize | Select to minimize the DATABridge Enterprise Server window immediately after replication starts. However, clicking it from the taskbar restores it. |
| Normal | Select to display the DATABridge Enterprise Server window during replication (the default for systems prior to Windows 2008 and Vista). |

DBDirector service control

The status of the DATABridge Director service appears in this section below the controls. For example, if Director is running, the status will indicate that the service has been started.



Click to start Director.



Click to stop Director.



Register/Unregister

Click to restart Director.

Use this button to manually install (Register) or uninstall (Unregister) Director in case the service isn't registered during installation or is accidentally uninstalled from the Windows Services window.

Section 3: Additional Configuration Options

This section includes information about caching and other optional configuration features of Enterprise Server.

Caching

This section explains what caching is and how to configure Enterprise Server to use it.

How Caching Works

Caching is best suited for sites that track multiple data sources from a single DMSII database.

Caching allows you to separate the process of filtering data from the process of delivering client-requested data. Cached files are filtered in advance, thereby allowing Enterprise Server to send data requests quickly and without placing an additional resource burden on the mainframe. (By contrast, non-cached sources are retrieved and filtered *after* they've been requested from the client.) The more cached local sources that you have for a single remote source, the greater the performance improvement.

In Enterprise Server, you can create one or more local sources from a single Server Accessory source. Each local source can specify its own unique filtering conditions. When caching is enabled, Enterprise Server first looks for updates that match the filter requirements of the Server Accessory source. Then, Enterprise Server applies the filtering conditions of the local source and writes the update to the local cached file.

When a DATABridge Client requests updates from a cached local source, Enterprise Server reads the updates from the cache files instead of requesting them from MCP server or reading the DMSII audit files directly.

Setting Up a Base Source Cache

To enable caching, you must first configure a base source cache. The base source cache has additional options such as whether to cache before- and after-images. Each of the base source's local sources inherits these configurations.

To set up a base source cache

- 1 In the right pane of the DATABridge Enterprise window, right-click a base source and click **Properties**.
- 2 In the **Base Source Properties** dialog box, click the **Cache** button.
- 3 In the **Base Source Cache Properties** dialog box, do the following, and then click **OK**.
 - a) In the **Cache parent directory** box, type or browse to the directory to which cached files are written. This option enables caching.
 - b) Select an option from the **When tracking, read cached files** menu to specify how caches will be read.

- c) To control when to run caching, specify the **Wait for audit to cache** options.
- 4 Specify other options as needed, and then click **OK** to close the **Base Source Properties** dialog box.
- 5 Click **Save** in the DATABridge Enterprise window.

Note: If the **Save** button in the DATABridge Enterprise window is enabled, you have made changes that have not been written to disk and therefore are not yet in effect. To put your changes into effect, click the **Save** button.

- 6 For each local source (derived from this base source) that you want to cache, set up the local source cache. If you don't have local sources you want to cache, you can populate the base cache.

Setting Up a Local Source Cache

You can set up a local source cache from a base source. The base source provides options that apply to all local sources derived from the base source.

To set up a cache

- 1 In the right pane of the DATABridge Enterprise Server window, do one of the following:
 - Right-click a base source and select **Properties**. In the **Base Source Properties** dialog box, click **Add**, and then type the name of the new local source.
 - Right-click a local (filtered) source, and select **Properties**.
- 2 Click the **Cache** button.
- 3 In the **Filtered Source Cache Properties** dialog box, select the cache settings you want, and click **OK**.
- 4 Click **OK** to close the **Source Properties** dialog box.
- 5 Click **Save** in the DATABridge Enterprise window.

Populating the Cache

Important: If DATABridge Clients are tracking only filtered sources, then only cached audit files from local (filtered) sources will be deleted (in accordance to the value set for **Remove cache files when read *n* times**). Since cache files for base sources aren't being tracked, they won't be removed and may require manual removal.

Use this procedure to initially populate Enterprise Server with local cache audit files from base or local sources after you have specified a cache directory in the **Base Source Properties**.

To populate the cache from the DATABridge Enterprise window

- In the right pane of the DATABridge Enterprise window, right-click the base source, and select **Start caching updates**.

To populate the cache from a command line

- 1 Open a command prompt window, navigate to the Enterprise Server directory, and then enter the following:

```
DBEnterprise cache basesource
```

- 2 If your audit file wait options time out, run the Enterprise Server cache command in step 1 again. If an error occurs, consult the `Cacher(basesourcename) dateandtime.log` file. Log file locations are explained in *Log Files* (page [80](#)).

When you populate the cache, Enterprise Server writes a copy of all updates from DMSII audit files for the base source to the *basesourcename* subdirectory of the specified parent directory.

The next run of the cache command starts reading DMSII audit files from the number specified in the Enterprise Server LastAFN.txt file in the cache subdirectory.

Ways to Initiate Caching

Two steps are required to start caching:

- Enable caching for the data source in the **Base Source Cache** dialog box.
- Initiate the caching process. The different options for doing this are listed in the following table. The method you choose will determine your entries when you set up caching.

Method	How to implement
Manual initiation	Each time you want Enterprise Server to run caching, right-click the base source and select Start caching updates , or type the following at a command prompt: <code>DBEnterprise CACHE basesource</code>
Scheduled initiation	Schedule a batch file that periodically runs Enterprise Server with the CACHE command* via Windows scheduler.
Host initiation	The Server Accessory establishes a connection to Enterprise Server when more audit is available. Enterprise Server starts a batch file that runs the application with the CACHE command.*

Starting Enterprise Server with the CACHE Command

You can run Enterprise Server with caching by using the CACHE command line parameter.

If you reboot the computer or quit Enterprise Server, caching does not need to be re-enabled but you must restart Enterprise Server using the cache command. (You can set this up as part of the Windows boot process.)

To start caching using a command

- Type the following command in a command prompt window

```
dbenterprise cache <source> [<startafn> [[ - ]  
<endafn> | +]]
```

This syntax also lets you specify a starting point, as well as an ending point. You can also use this option to limit the client to processing updates up to a particular AFN if the client is restricted to reading only cache files (that is, if Only is selected for **When tracking, read cached files** in the **Filtered Source Cache Properties** dialog box).

Base Source Cache Properties Dialog Box

- In the right pane of the DATABridge Enterprise window, right-click a base source and click **Properties**.
- In the **Base Source Properties** dialog box, click the **Cache** button.

Section 3: Additional Configuration Options

The following three options apply to both base and local sources:

Cache parent directory (enables update caching for this source)

Enter the name of a directory where you want to store cache files. Cache files will be stored in the sourcename subdirectory of the parent directory specified here. For example, if the source is named BANKDB and the parent directory is D:\DATABridge\Cache, then the cache files will be stored in the D:\DATABridge\Cache\BANKDB subdirectory.

In addition to setting the Cache parent directory, you must complete other steps before caching can start. See *Set Up Caching* (page 35).

When tracking, read cached files

Specify whether cached files can be read while tracking, and if a user name and password are required to read them.

If you specify **If available** or **Only**, you may specify a user name and password required to access the cache files. This information is stored as encrypted text within the Windows registry.

Remove cache files when read *n* times

Enter the number of DATABridge Clients you expect to read this cache. For example, if you know that three Clients will access this cache, enter 3; after a cache file has been read three times, Enterprise Server will remove it.

Options applying to this source and its local sources

Both before-images and after-images for modifies

Select this check box to store the before- and after-images for modified records. When this check box is cleared, before-images aren't stored (which results in smaller cache files). Clearing this option does not allow for scenarios where the key of a record is changed.

Wait for audit to cache

Select one of the following options to determine how long Enterprise Server waits before checking for more updates:

Don't wait Enterprise Server terminates when no more audit is available (no retries)

Wait forever Enterprise Server does not stop checking for additional audit (unlimited retries).

Wait max seconds Enterprise Server terminates if no audit is available for the period set in **Max seconds**.

Max seconds Applies only if you select **Wait max seconds**.

Enter the maximum number of seconds you want Enterprise Server to wait for more audit.

A value of 100 limits the number of consecutive failed retries so that the total time for all of the failed retries won't exceed 100 seconds. For example, if **Seconds between retries** is 5 and **Max seconds** is 100, Enterprise Server will check every 5 seconds up to 20 times before quitting because there is no more audit available. A value of -1 is the same as selecting the **Don't wait** setting. A value of 0 is the same as selecting the **Wait forever** setting.

Seconds between retries Applies only if you select **Wait forever** or **Wait max seconds**.

Enter the number of seconds you want Enterprise Server to wait before it checks again for more audit.

Filtered Source Cache Properties Dialog Box

- 1 In the right pane of the DATABridge Enterprise window, right-click a local (filtered) source, and select **Properties**.
- 2 In the **Source Properties** dialog box, click the **Cache** button.

If you've created one or more filters for the local source, the **Filtered Source Cache Properties** dialog box appears.

Use this dialog box to set caching options for your local sources.

The options are as follows:

Cache parent directory (enables update caching for this source) Enter or browse to the directory where you want to store the local source cache files.
Enterprise Server will create a subdirectory with the name of the local source, and that subdirectory will contain the cached *audit files* (page [99](#)).

When tracking, read This setting is enabled when a directory appears

Section 3: Additional Configuration Options

cached files

in the parent directory field.

Note: If **Never** or **If available** is selected for the local source and its cache is exhausted, Enterprise Server searches for additional updates in the original MCP-based audit files.

If available This setting causes Enterprise Server to rely on audit files that have been previously cached. When all of the available cache for the local source and its base source has been processed by the client, Enterprise Server queries the host for more audit information.

Only This setting causes Enterprise Server to rely exclusively on the cached audit files for the local source, and clients will not progress further than the Enterprise Server stored cache. This setting can prevent clients from adding to mainframe load by making them only use the Enterprise Server capacity.

Never This setting causes Enterprise Server to ignore any cached audit files for the local source. This can be used temporarily.

As user

Enter the user account that Enterprise Server will use when reading cached files. Use this setting when accessing cache files using Windows authentication.

If the user account is not specified, Enterprise Server will try to access the cache files using the LOCALSYSTEM account, which may not be permitted.

Password

Enter the password for the specified user.

Remove cache files when read *n* times

Enter the number of DATABridge Clients who will access this cached source. After the cache has been read that number of times, it is automatically deleted.

If you enter 0, Enterprise Server will not remove any cached audit files.

Configuring a Cascading Server

If you have multiple clients that access a single data source, you can reduce network traffic and improve performance by setting up cascading Enterprise Server servers. A cascading server configuration is best suited for data sources that are accessed by multiple clients that are either located in different regions or that have different data requirements.

How it works is that you install multiple copies of Enterprise Server -- one for each region -- and network them to a centrally located copy of Enterprise Server. The centrally located copy of Enterprise Server collects data required by all of the regions from the Server Accessory on the host. It then distributes this data to the networked copies of Enterprise Server. Each “regional” installation of Enterprise Server then caches (filters) the data to fulfill the specific requirements for that region. DATABridge Clients can connect to whichever regional Enterprise Server contains the data they need.

For example, DBE Corporation is the first server in the host chain. Several intermediate servers (called DBE East, DBE West, DBE North, and DBE South) are directly connected to DBE Corporation. Each of these intermediate servers has its own filter and receives and caches data specific to their region (that is, East, West, North, and South). This concept can be extended to any number of intermediate Enterprise Servers, each with its own local filters.

For more information about caching, see *Caching* (page [35](#)).

Checkpoint Options Dialog Box

- 1 In the right pane of the DATABridge Enterprise window, right-click a base source or a local source and select **Properties**.
- 2 In the **Base Source Properties** dialog box, click the **Checkpoint** button.

Use checkpoint options to determine the frequency with which the DATABridge Client commits (saves) updates from Enterprise Server for a particular data source.

The options are as follows:

Checkpoint every quiet point	When selected, the DATABridge Client commits updates at every quiet point, (that is, when there are no transactions in progress). This makes the updates visible in the client database sooner, but incurs additional overhead updating audit locations and committing changes.
Client may not change this	Prevents the Client from overriding the previous setting.
Allow checkpoints during Long Transactions	When selected, the DATABridge Client commits updates even if transactions are in progress.
Client may not change this	Prevents the Client from overriding the previous setting.

Checkpoint at the first quiet point after every

Enterprise Server commits a transaction group at the first quiet point after any one of the values is satisfied. A value of 0 indicates the parameter is disabled.

Enter default, minimum, and maximum values for one or more of the following:

Audit blocks	Number of audit blocks processed since the last commit as indicated by the Audit Block Serial Number (ABSN).
Updates	Number of creates, deletes, or modifies since the last commit.
Transactions	Number of completed transactions since the last commit.
Seconds	Number of seconds elapsed since the last commit. This indicates the time that elapses during replication (not the time that elapsed when the updates originally took place on the host system).

Note: If the Client specifies a value outside the permitted range, Enterprise Server will adjust the value to fall within the permitted range. If no value is specified, the default values are used.

DATABridge Server Host and Port Number Dialog Box

From the DATABridge Enterprise window, click the **DBServer** button.

The options are as follows:

Hostname or IP address Type the host name or IP address for the remote mainframe on which the Server Accessory is running, or for a PC on which Enterprise Server is installed. If the server is visible in Windows, click the **Browse** button to navigate to it

DBServer port number (512 to 65535) found in DATA / SERVER / CONTROL Type the port number. This is set by the TCP/IP port parameter within the Server Accessory configuration file. For Enterprise Server, the port is set during installation, but can be changed later using the **DBDirector dialog box**.

Mirroring DMSII Audit Files

Note: Mirroring is available as an additional Enterprise Server component and requires special licensing. Contact your sales representative for details.

After you have replicated a database to a secondary computer, you can propagate or "mirror" *audit files* (page [99](#)) from the primary computer through Enterprise Server to the secondary computer using audit file mirroring. After an audit file has been mirrored, you can use the standard DMSII recovery techniques to recover through the audit file and apply the changes to the secondary database.

There are two ways to mirror audit files for a configured source: from the DATABridge Enterprise graphical interface and from the command line. This procedure uses the graphical interface. The command line interface lets you specify a range of audit file numbers to be mirrored. For more information about mirroring audit files using the command line interface, see *Command Line Options* (page [93](#)).

To mirror audit files

Section 3: Additional Configuration Options

- 1 In the right pane of the DATABridge Enterprise window, right-click a base source and click **Properties**.
- 2 In the **Base Source Properties** dialog box, click the **Audit Mirror** button.
- 3 In the **Audit Mirroring Properties** dialog box, select the appropriate settings, and then click **OK** twice to close the **Audit Mirroring Properties** and the **Base Source Properties** dialog boxes.
- 4 Click **Save** to record your new configuration.
- 5 To mirror audit files for a configured source, right-click the Enterprise Server source, and select **Start mirroring audit files**.
- 6 To configure the secondary DATABridge host, load the sample *control file* (page 101) (DATA/AUDITMIRROR/SAMPLE/CONTROL) and save a copy as DATA/AUDITMIRROR/databasename/CONTROL.
- 7 In the sample control file, modify the parameters described in the following table to reflect your installation. (See the sample configuration file in this section.)

Parameter	Description
SOURCE	SOURCE name in Enterprise Server
AT	Hostname or IP address of the Enterprise Server computer
PORT	Port number where the DBDirector service listens (for example, 5100)
AUDIT "targetPath" on "pack"	For targetPath and pack, enter the directory path and pack on the secondary system where DBAuditMirror will write audit files it receives from Enterprise Server. The mirrored audit file will be created under the usercode that runs DBAuditMirror.
RETRY num SECONDS	Number of seconds to pause between retry attempts.
MAXWAIT maxwait	Maximum wait for additional audit updates before quitting. If maxwait is set to FOREVER, the host will retry indefinitely.

The mirrored audit file will be created under the usercode running DBAuditMirror.

- 8 On the secondary system, start DBAuditMirror

```
START WFL/DATABRIDGE/AUDITMIRROR("databasename" [, ["logicaldbname"] [,
startAFN[, endAFN]])
```

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where databasename is the name of the *secondary database* (page [104](#)). Optionally, you can include a logical database name as a second parameter, and can specify a starting and ending audit file number range as third and fourth parameters. If you want to specify a starting AFN but not a logical database name, include the comma where the logical database name would go and immediately follow it with another comma before the startAFN. For example:

```
START WFL/DATABRIDGE/AUDITMIRROR ("(MIRROR)BANKDB", , 21, 25)
```

For additional details, view WFL/DATABRIDGE/AUDITMIRROR.

Audit Mirroring Properties Dialog Box

- 1 In the right pane of the DATABridge Enterprise window, right-click a base source and click **Properties**.
- 2 In the **Base Source Properties** dialog box, click the **Audit Mirror** button.

The options are as follows:

Mirroring parent directory (enables audit file mirroring)	Target directory for mirrored <i>audit files</i> (page 99). This can be a local path, or a network path described in UNC format. (For example: \\server\share\directory.)
---	--

The mirrored audit files will be stored in the sourcename subdirectory of the parent directory specified here. For example, if the source is named BANKDB and the parent directory is D:\DATABridge\Mirror, then the mirrored audit files will be stored in the D:\DATABridge\Mirror\BANKDB subdirectory.

Placing the mirrored audit files near the secondary system rather than on a local drive of the Enterprise Server computer is strongly recommended. That way, if the network connection fails between the Enterprise Server computer and the DBAuditMirror computer, DBAuditMirror can continue mirroring all available audit files.

Read mirrored files as user	Enter the Windows account and password that Enterprise Server will use when running the batch file, reading mirrored audit files, and so on.
-----------------------------	--

Password	Enter the password for the Windows account specified in the previous box.
----------	---

After mirroring an audit file to the secondary host, run	Optionally, you may specify a batch file or application to run after mirroring each audit file. This batch file might remove the mirrored file from the audit mirroring directory. Enterprise Server includes a sample FinishMirrored.cmd file in the Enterprise Server directory that removes the mirrored file after it is mirrored to the secondary system using DBAuditMirror. This file also contains information about parameters available to any batch file specified in this option.
--	---

Wait for audit to mirror

From the menu, specify the wait and retry rules that Enterprise Server follows when mirroring.

If you select **Wait forever**, set a value for **Seconds between retries**.

If you select **Wait max seconds**, set values for **Max seconds** and **Seconds between retries**.

Sample Audit Mirror Configuration File

```

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% DATABridge Audit Mirror Parameter File
% Source:          DATA/AUDITMIRROR/SAMPLE/CONTROL
% Version:         6.1
%
% Copyright (C) 2010 Attachmate Corporation
%                 All Rights reserved
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% How to locate the Enterprise Server SOURCE ...

SOURCE <sourcename> % SOURCE name in Enterprise Server
AT "<host/ipaddress>" % Enterprise Server's host
PORT <portnumber>
                                % Enterprise Server's port number, e.g. 5100

% example:
% source BANKDB at "WINSERVER" port 5100

% Where to write the audit files ...

AUDIT ["<prefix>"] ON "<mirroredauditfamily>"
[ JOB "<finishedauditwfl>" ]

% The default <prefix> is <dbname>/MIRRORED and the
% default <mirroredauditfamily> is DISK (subject to
% FAMILY substitution).
%
% If you are running the DBAuditMirror program on the
% same system as the primary database be sure at least
% one of the following is true:
%
%     <prefix> is not <dbname>
%
%     <mirroredauditfamily> is not the original audit
%     family
%
% otherwise you will overwrite the primary database's
% audit files.
%
% DBAuditMirror will start the <finishedauditwfl> job
% after successfully mirroring an audit file.

% example:
% audit "BANKDB/MIRRORED" on "ALTPACK"
%     job "WFL/DATABRIDGE/FINISHMIRRORED"

% When waiting for an audit file ...

RETRY <retrysecs> SECONDS % seconds delay between retries

% example: retry 10 seconds

MAXWAIT <waitsecs> SECONDS % max total seconds to wait
% MAXWAIT FOREVER          % keep retrying indefinitely
% MAXWAIT DONTWAIT         % don't retry at all

% example: maxwait 60 seconds

```

User Written Libraries

User-written libraries allow DBEnterprise to perform many of the reformatting and transform functions that previously required ALGOL procedures running on the MCP Server. The ALTER and TRANSFORM declarations in DBGenFormat require these procedures.

Typically, if the ALTER and TRANSFORM declarations do not require access to a database or file on the MCP Server, then DBEnterprise can call a user-written dynamic link library (dll) to accomplish the same reformatting and reduce the MCP Server resource utilization.

DBEnterprise can also call user-written libraries to provide FileXtract functionality, which also reduce MCP Server resource utilization. The Samples\LINCLOG subfolder contains all of the source code and project settings for building a FileXtract LINCLOG Reader dll. When such a dll is available to DBEnterprise, the MCP Server will not use the equivalent ALGOL-based LINCLOG Reader.

LINCLOG Source Support Library

DBEnterprise 6.1 includes the LINCLOG Source Support Library (LINCLOG.dll). This library illustrates how to write your own libraries and can be used to process LINCLOGs directly in DBEnterprise.

The Enterprise\Support subfolder in the program folder contains C++ header files and a code library (DBEUser.lib) that provide useful DBEnterprise functions. You can use these functions to simplify writing a library for reformatting, transforming, and FileXtract functionality. The DataItem.h and DataItem.cpp files in Samples\LINCLOG provide useful routines for accessing and updating individual data items.

After you build the library, copy it as <sourcename>(<updatelevel>).dll to the subdirectory containing DBEnterprise.exe. You can also copy it as <sourcename>.dll if you don't want to keep separate versions for each update level.

When DBEnterprise first links to a user-written library it calls an initialization function in the library. If the initialization function returns an error code signifying the library needs to be recompiled, DBEnterprise will automatically recompile it using the MakeUserLib.cmd batch file in the DBEnterprise program folder. This mechanism mirrors the DATABridge Host capability and ensures that the user library will always be current. See the batch file for additional information and customization directions.

Sample reformatting and/or transforming libraries are available upon request.

Section 4: Monitoring and Controlling Replication

The **DBEnterprise** dialog box shows the current audit location, the number of updates, and the number of kilobytes processed anytime a DATABridge Client connects to Enterprise Server for replication. (For this dialog to appear, Minimize or Normal must be selected in the **DBDirector Properties** dialog box.)

To	Click
Temporarily stop Enterprise Server from sending data to the Client	Pause (the button becomes Resume)
Start Enterprise Server from the exact point at which it was previously paused	Resume (the button becomes Pause)
Stop Enterprise Server at the next <i>quiet point</i> (page 103)	Quit
Stop Enterprise Server as soon as possible, without waiting for a <i>quiet point</i> (page 103)	Quit Now!

Replication Methods

Enterprise Server automatically uses the replication method most appropriate for your hardware configuration and the data set type. You can also choose a replication method in the **Server MCP Disk Properties** dialog box, provided your hardware and data support it.

This hardware and data set type	Uses this replication method
ClearPath PC or LX computer using a Logical Disk (implemented as a normal Windows file)	Direct disk (with or without caching)
-or-	
Windows Server and MCP disks on a Storage Area Network (SAN), where the MCP disks are visible to both the MCP and Windows environment (for example, EMC or SCI disks).	This method gives Enterprise Server direct access to the DMSII data, bypassing the network traffic between MCP, the Server Accessory, and Enterprise Server. After requesting basic file attribute information from the DATABridge Engine, Enterprise Server reads data set disk files directly from the MCP server without using any mainframe resources.
	Note: If your MCP disks aren't available in the Enterprise Server window, see <i>Detecting Visible MCP Disks</i> (page 82).

Windows Server (no access to MCP disks or Logical disks)

Disk-region (Indirect disk)

This method allows Enterprise Server to read disk regions like Direct Disk. However, because the Server Accessory is used to access the disks and DMSII data must be retrieved across the network, it's significantly more resource intensive.

Any of the previous hardware configurations when replicating the following types of data sets without a user-written DLL:

- Virtual
- Embedded standard
- Embedded compact
- Altered that require a reformat

Standard

Requires that the Server Accessory provide the data record-by-record because some reformatting or other procedures must be done on the mainframe before the record can be sent.

Notes:

- FileXtract data sets are treated as virtual data sets because they require a Reader program to supply the records.
 - Virtual and altered data sets can be replicated directly in Enterprise Server if a user-written DLL is available for them. See *User Written Libraries* (page [50](#)).
-

Server MCP Disk Properties Dialog Box

- 1 In the left pane of the DATABridge Enterprise window, click the plus sign (+) next to the system running Enterprise Server.
- 2 Right-click `<systemname>` **visible MCP disk units**, and select **Properties**.

Use this dialog box to control how Enterprise Server accesses MCP disks. The system on which Enterprise Server is installed appears at the top of this dialog box.

For more information about the replication methods Enterprise Server uses, see *Replication Methods* (page 51) and "Benefits of Enterprise Server" in the *DATABridge Installation Guide*.

Method for reading MCP disks

The options are as follows:

Direct disk with Windows caching	Use this Direct Disk replication method to provide the fastest disk access and cloning.
Direct disk without caching	Use this Direct Disk replication method to avoid errors caused by delayed MCP disk writes.
Indirect disk only	Select this option only in cases where, for testing or other reasons, you must force Enterprise Server to use the Indirect Disk method when one or more MCP disks are visible.

Using High Speed File Transfer

Note: High Speed File Transfer is available as an additional Enterprise Server component and requires special licensing. Contact your sales representative for details.

The DATABridge High Speed File Transfer component (XFER) can minimize the use of mainframe resources when transferring text, printer, and data files. By using High Speed File Transfer, you can copy almost any file or directory from an MCP disk to a Windows disk. If the MCP disk is visible to Enterprise Server running on the Windows platform, it uses very few mainframe resources to copy the file. If the MCP disk is not visible to Enterprise Server, the file transfer is still typically faster than FTP.

Enterprise Server uses a command line interface so that repetitive file transfers can be put in batch files for periodic execution.

As it copies files, DBEnterprise translates EBCDIC characters to ASCII characters and inserts carriage-returns and linefeeds at the end of each line for various kinds of text files. For printer files, it also inserts form feed characters at page breaks. Binary files, such as code files or DMSII DESCRIPTION files, are copied without any translation or character insertions.

Configure MAKEUSER on Host

XFER requires the DATABridge Unisys host computer to be configured to allow connections from the computer running Enterprise, using the MAKEUSER command. For information about MAKEUSER, see the Unisys documentation. The following MAKEUSER example configures Unisys to allow file transfers using XFER:

```
+RU SALLY OF *IPADDRESS 192.168.16.1 LOCALALIAS=PROD
```

In this example, SALLY is the name of the Windows user account where Enterprise Server is running, the value following IPADDRESS identifies the computer running Enterprise Server, and PROD is the MCP server user code that has permissions to access the host files to be transferred. This command allows user SALLY to act as user code PROD from the IP address specified.

Reuse XFER Commands

Enterprise Server tracks the last XFER command performed by each Windows user, and can re-use the parameters as default values on subsequent XFER commands. For example, if a user enters this XFER command

```
dbenterprise xfer (gpc)source/bankdb/= on user from mcpvlan port 5000 to  
e:\xferfiles text
```

followed by this XFER command

```
dbenterprise xfer to d:\differentfolder\test
```

then Enterprise Server will populate the missing parameters using stored settings, which expand internally to the following command:

```
dbenterprise xfer (gpc)source/bankdb/= on user from mcpvlan port 5000 to  
d:\differentfolder\test text
```

Using command memory, the following command will repeat the previous XFER command:

```
dbenterprise xfer
```

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In some cases, Enterprise Server infers default values even when no user command history exists. If a Windows user has never specified FROM or PORT values, Enterprise Server searches for a Server Accessory using the sources configured within Enterprise Server. The default destination for the TO option is the Xfer subdirectory under the main Enterprise Server program directory. If neither BINARY nor TEXT is specified in the XFER command, Enterprise Server uses the MCP file attribute FILEKIND to determine the appropriate mode. For example, COBOL source files are transferred in TEXT mode by default. For files whose FILEKIND is set to DATA, Enterprise Server examines the first record. If the first record consists of all "printable" characters then TEXT mode is used. If the first record contains unprintable characters, BINARY mode is used.

Icon Descriptions

The following icons appear in the main window of Enterprise Server. Items in the left pane of the DATABridge Enterprise window represent MCP servers, Windows servers, and remote data sources and their properties. Items in the right pane represent the Enterprise Server data sources and their properties.

To view the properties of an item, right-click the icon and select **Properties**.

Icon	Description
	MCP or Windows server (host)
	MCP disk unit
	Server Accessory source
	Enterprise Server data source (base source)
	Filtered data source (local source)
	Data set
	Data set to which no conditions (filters) are applied (that is, all records are sent to the client).
	Data set to which conditions (filters) are applied (that is, only records that satisfy the conditions are sent to the client).
	Data set to which conditions are applied, specifying that all records are excluded.
	Set
	Data item
	Key. The properties for a key are the same as for a data item.
	Variable format

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Appendix A: Errors

This section lists errors that might appear while using the Enterprise Server and provides additional information to help you resolve the problem that caused the error.

Errors in Enterprise Server

The following errors can appear when you run Enterprise Server.

Error	Meaning
1100 [DBM_IO_ERROR] "I/O error on <i>filename: description</i> "	Enterprise Server encountered an I/O error on the indicated file.
1101 [DBM_OPENERROR] "Open error on <i>filename: description</i> "	Enterprise Server was unable to open the indicated file. This is not necessarily a fatal error. For example, there are no cache files present the first time Enterprise Server is run to cache a particular source.
1102 [DBM_READERROR] "Error reading from <i>filename: description</i> "	Enterprise Server encountered an error trying to read the indicated file.
1103 [DBM_WRITEERROR] "Error writing to <i>filename: description</i> "	Enterprise Server encountered an error trying to write the indicated file.
1104 [DBM_BADMEMALLOC] "Allocation of number bytes failed"	The operating system could not provide the requested number of bytes of memory from the heap.
1105 [DBM_BADMEMDEALLOC] "Deallocation of number bytes failed"	The operating system could not return the specified number of bytes of memory to the heap.
1106 [DBM_TOOMANYSELECTS] "Selection limit <i>maxselects</i> exceeded: <i>numselections</i> "	The DATABridge Client tried to select more data sets than the maximum allowed.
1107 [DBM_WINSOCK] "WinSock initialization failure. <i>description</i> "	Windows Sockets couldn't be initialized. This means TCP/IP is unavailable
1108 [DBM_COMMANDLINE] "Invalid command line <i>parameter: 'parametername'</i> "	Check the spelling of the parameter you are entering, and make sure that parameter is valid for the command. See <i>Command Line Options</i> . (page 93)
1109 [DBM_PROTOCOLLEVEL] "Client protocol level (<i>clientlevel</i>) must be at least <i>minimumlevel</i> "	The DATABridge Client's protocol level is obsolete and must be upgraded. To access Enterprise Server, the client's protocol level must be the equal to or greater than the specified <i>minimumlevel</i> .

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1110 [DBM_FILTERFAILED] "Filter routine failed"	An error was encountered in the filtering routines. Remove the associated filter files from the Enterprise Server Config directory and rerun the client: <i>sourcename(updatelevel).filter</i> If the error persists, contact Attachmate Technical Support.
1111 [DBM_AUDITCLOSE] "Trouble closing audit file <i>afn</i> "	Enterprise Server encountered an error while trying to close a cache file.
1112 [DBM_NODSNAME] "DBSelect requires data set name (<i>#structurenum</i>)"	The data set selection Remote Procedure Call from the client did not include a data set name, which is required. <i>structurenum</i> is the DMSII <i>structure</i> (page 104) number.
1113 [DBM_NOBASE] "Source does not have a base"	Enterprise Server could not find the base source associated with a local source. Delete the local source, add the base source, and then create the local source from it.
1114 [DBM_AUDITCORRUPT] "Audit file <i>afn</i> corrupted"	A cached <i>audit file</i> (page 99) is corrupted. Remove it and any later cached audit files for that source and then run Enterprise Server with the CACHE command to rebuild them.
1115 [DBM_DATACORRUPT] "Corrupted data in data set block <i>blocknum</i> "	A file block in an ORDERED data set is corrupted. Report this to your DMSII database administrator.
1116 [DBM_BADLABEL] "Incorrect MCP label <i>headerfield = 'value'</i> on drive <i>filterlevel</i> unit <i>datasetlevel</i> "	The disk label is incorrect for an MCP disk. Enterprise Server will not try to use that drive for direct disk cloning.
1117 [DBM_FILTERMISMATCH] "Structure <i>#structurenum</i> format level mismatch: Filter (<i>filterlevel</i>) vs. record (<i>datasetlevel</i>)"	The loaded filter has a different data set format level than the record currently being filtered. Remove the associated filter files from the Enterprise Server Config directory and rerun the client: <i>sourcename(updatelevel).filter</i> If the error persists, contact Attachmate Technical Support.

<p>1118 [DBM_NOTCACHED] "Source <i>sourcename</i> does not have a cache"</p>	<p>You attempted to use the Enterprise Server cache command for a source that does not have caching set up yet. See <i>Caching</i> (page 35).</p>
<p>1119 [DBM_AUDITNOTOPEN] "Audit file <i>afn</i> is not open"</p>	<p>Note: This error may appear in the log the first time the source is cached but Enterprise Server will continue creating the cache files.</p>
<p>1120 [DBM_INCOMPATIBLE] "Unrecognized file type version in <i>cachefile</i>"</p>	<p>The cached audit file was expected to be open but was not. If this error persists, contact Attachmate Technical Support.</p>
<p>1121 [DBM_MISSINGAUDLOC] "Audit location not found: AFN <i>afn</i>, ABSN <i>absn</i>, Inx <i>index</i>"</p>	<p>The cache file was created by an unsupported version of Enterprise Server or the file is not a cache file at all. Remove the file(s) from the cache directory before reprocessing.</p>
<p>1122 [DBM_ALTERUNSUPP] "DBEnterprise can not clone an ALTERed data set: <i>datasetname</i>"</p>	<p>The client specified an audit location that was missing or incorrect. Either correct the client control tables or reclone the database</p> <p>Enterprise Server cannot clone altered data sets that require a REFORMAT routine. These data sets require special formatting routines on the mainframe, so they can be cloned only by the DATABridge Host software (unless you create a user-written .dll to perform the reformatting).</p> <p>If there is an altered data set that you don't need in one of your local (filtered) Enterprise Server sources, right-click it and select Exclude all rows. The red square appears in the data icon, indicating that it will be omitted from replication.</p>
<p>1123 [DBM_NOUNIT] "Family <i>familyname</i> has no local disk units"</p>	<p>Enterprise Server does not have visibility to the disk units comprising the indicated family name. It will not use direct disk cloning to access the data on that family.</p>
<p>1124</p>	<p>This number is currently not used.</p>

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1125 [DBM_READCHECKSUM] "Checksum error reading data set"	The block checksum in a data set was incorrect and therefore the data in the block is suspect. Notify your DMSII database administrator. Enterprise Server will not use direct disk cloning to process this data set.
1126 [DBM_EMBEDDEDCLONE] "DBEnterprise can not clone an embedded data set: <i>datasetname</i> "	Enterprise Server cannot clone embedded STANDARD or embedded COMPACT data sets. If there is an embedded data set that you don't need in one of your local (filtered) Enterprise Server sources, right-click it and select Exclude all rows . The red square appears in the data icon, indicating that it will be omitted from replication.
1127 [DBM_CONFIGDIRERROR] "Unable to access configuration directory. Please use setup.exe to install DBEnterprise"	The Config directory is created by Enterprise Server during a successful installation. Reinstall Enterprise Server to create the directory and the associated registry keys. If the registry keys were incorrect and the directory is still on disk, the setup program will preserve the sources you have already defined.
1128 [DBM_MISSINGCONFIG] "Unable to access configuration file ' <i>filename</i> '"	Make sure that the configuration text file you are trying to import is in the Enterprise Server Config directory.
1129 [DBM_CONFIGERROR] "Errors in configuration file <i>filename</i> "	Review the configuration log file to determine where the error occurred. See <i>Enterprise Server Log Files</i> (page 79).
1130 [DBM_NOCLIENTIP] "Unable to determine client IP address"	Enterprise Server was unable to retrieve the IP address associated with a specified host name. The operating system was unable to reach a DNS to convert the host name to an IP address. This might be due to firewall restrictions.

<p>1131 [DBM_BASEUNSELECTED] "Virtual data set <i>datasetname</i> is derived from <i>datasetname</i>, so they must be selected together"</p>	<p>You must select both of the specified data sets. To include both of the data sets in a local source, right-click and select Include all rows for each data set. The green square appears in the data icon, indicating that it will be included in replication.</p> <p>The DATABridge Client must select both data sets during replication. For example, you cannot clone just the virtual data set or just the data set it is derived from.</p>
<p>1132 [DBM_AUDITLEVEL] "Audit file <i>afn</i> audit level <i>auditlevel</i> is not supported"</p>	<p>The audit file that Enterprise Server reads from the MCP server has an unsupported audit level and therefore can't be interpreted properly. Enterprise Server will try to request the audit data from the Server Accessory.</p>
<p>1133 [DBM_INPUT_INTERRUPT] "Host '<i>hostname</i>' interrupted data transmission"</p>	<p>The specified host transmitted a new request before Enterprise Server finished responding to the previous request. This caused Enterprise Server to discard the rest of the previous response.</p>
<p>1134</p>	<p>This number is not currently used.</p>
<p>1135 [DBM_QUIT_ENTERPRISE] "Operator terminated <i>programname</i>"</p>	<p>Someone stopped Enterprise Server. It terminated at the first <i>quiet point</i> (page 103) after receiving the quit command. If you run the DATABridge Client again it will begin at that quiet point</p>
<p>1136 [DBM_MISSINGFILTER] "Unable to load <i>filename</i> filter for update level <i>updatelevel</i>"</p>	<p>The update level stored in the filter did not match the update level number in the filename. If this is a fatal error, delete <i>filename</i> and Enterprise Server will regenerate it the next time you run the Client.</p>
<p>1137 [DBM_NOSOURCEINFO] "Unable to load <i>sourceinfoname</i> source information"</p>	<p>Enterprise Server was unable to find the source information file for the requested source. The source information file should be in the Config folder and have the file extension ".source". Correct the source name if it is in error.</p>

Otherwise, use Enterprise Server to define it.

1138 [DBM_PROCESSERROR] "Unable to start description"	Enterprise Server was unable to start a process or thread. It will not be able to use direct disk cloning (or whatever the description indicates).
1139 [DBM_UNSUPPORTED] "Unsupported function"	The requested RPC is not supported in the current release of Enterprise Server. This can occur in some situations with "cascading" Enterprise Server.
1140 [DBM_MISSINGDIR] "Unable to change to directory <i>directoryname</i> "	Either the directory is missing or Enterprise Server does not have access rights to change to it.
1141 [DBM_XMLERROR] "XML parser error: <i>description</i> "	The flat file schema file had syntax or semantic errors. Correct the schema file.
1142	This number is not currently used.
1143 [DBM_MISSINGFILE] "Unable to find <i>filename (reason)</i> "	A necessary file is missing. Restore the file or regenerate it.
1144 [DBM_NOLOG] "Fatal error: Unable to open a log file for <i>functionname</i> "	Enterprise Server was unable to create a log file in the Logs subdirectory. Either the subdirectory is missing or corrupted or out of space. Enterprise Server will not continue if it can't write a log file.
1145 [DBM_EOF] "Unexpected EOF reading from <i>filename</i> "	Enterprise Server encountered the end of the input file before it found data it expected to be there. If the filename is <code>LastSchema.txt</code> , make sure that it contains a valid number.
1146 [DBM_BADUPDATELEVEL] "Update level requested (<i>updatelevel</i>) > LastSchema update level (<i>currentupdatelevel</i>)"	A flat file "audit" or clone subdirectory requires a schema level greater than the current schema level, which is specified in the <code>LastSchema.txt</code> file. Provide a schema for the desired update level and change the <code>LastSchema.txt</code> file to contain the new level.

<p>1147 [DBM_WRONGLEVEL] "Update level is <i>schemaupdatelevel</i> not <i>clientupdatelevel</i>"</p>	<p>The flat file schema update level is <i>schemaupdatelevel</i> but the DATASOURCES table in the client database had update level <i>clientupdatelevel</i>. You must provide the proper flat file schema or redefine and reclone the client database.</p>
<p>1148 [DBM_SQLINIT] "SQL ODBC initialization failed"</p>	<p>When Enterprise Server tried to process the VALIDATE command it was unable to access ODBC. Make sure that ODBC is supported in your Windows operating system.</p>
<p>1149 [DBM_SQLLOGINFAILED] "SQL Server login failed"</p>	<p>The username/password was missing or incorrect on the VALIDATE command. Make sure that the username is valid for the Client database.</p>
<p>1150 [DBM_SQLNODB] "Unable to connect to database '<i>databasename</i>'"</p>	<p>Enterprise Server cannot connect to the DATABridge Client database. Verify that the Client, server, and relational database are running.</p>
<p>1151 [DBM_SQLAPPEND] "Unable to append SQL text '<i>text</i>'"</p>	<p>While constructing an SQL command, ODBC returned an error. If this error persists notify Attachmate Technical Support.</p>
<p>1152 [DBM_SQLEXEC] "Unable to execute SQL command: <i>command</i>"</p>	<p>The SQL command failed probably due to a syntax error or security restrictions. If the command has a syntax error, notify Attachmate Technical Support. Otherwise correct the problem and rerun the command.</p>
<p>1153</p>	<p>The SQL Free command failed. If this error persists, notify Attachmate Technical Support.</p>
<p>1154</p>	<p>The SQL Prepare command failed. If this error persists, notify Attachmate Technical Support.</p>
<p>1155</p>	<p>The SQL Fetch command failed. If this error persists, notify Attachmate Technical Support.</p>
<p>1156 [DBM_SQLBINDFAIL] "SQL variable bind failed"</p>	<p>The dbbind function failed when trying to associate local variables to SQL columns. If this error persists, notify Attachmate Technical Support.</p>

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1157 [DBM_SQLCONVERT] "SQL data conversion failed"	Enterprise Server was unable to convert an SQL variable to a text string for comparison with a text file. If this error persists, notify Attachmate Technical Support.
1158 [DBM_SQLTYPE] "Unexpected SQL data type: <i>datatype</i> "	The VALIDATE command encountered an SQL variable type that is not currently supported in Enterprise Server. If you need this data type, contact Attachmate Technical Support with this error for a possible new feature enhancement.
1159 [DBM_NODATAITEMS] "No data items found for ' <i>datasetname</i> ' in source ' <i>sourcename</i> '"	This can occur when all of the data items were filtered out by the Server Accessory (via the DATABridge Support library), or that the local filter has filtered out the data items.
1160 [DBM_SQLNOROW] "Table ' <i>tablename</i> ' key ' <i>keyvalue</i> ' row not found for record number <i>%recnum</i> "	The VALIDATE command read a record from the flat file but no matching row was found in the client database. Most likely the record was filtered out.
1161 [DBM_DATAMISMATCH] "Table ' <i>tablename</i> ' key ' <i>keyvalue</i> ' data mismatch for record number <i>recnum</i> , offset <i>offset</i> "	The VALIDATE command has found a mismatch between the record in the input text file and the row that was stored in the relational database. Report this to Attachmate Technical Support.
1162 [DBM_SQLDUPS] "Table ' <i>tablename</i> ' key ' <i>keyvalue</i> ' duplicate rows"	The specified key was found in more than one row in the specified table. Check to see that the index in the Client database is UNIQUE. You will probably have to reclone the table after the problem is corrected.
1163 [DBM_NOCONNECTION] "Unable to connect to server <i>servername</i> at port <i>portnumber</i> "	This can occur in the following circumstances: <ul style="list-style-type: none">▪ The destination server is down.▪ The server name or IP address was entered incorrectly.▪ Server access is prohibited by a firewall.
1164 [DBM_SOCKINITERROR]	This is a Windows error indicating that there is a problem with

"Winsock initialization failed"	TCP/IP.
1165 [DBM_SOCKOPENERROR] "Error opening communication socket"	Enterprise Server was unable to establish a TCP/IP connection with the remote host (either the Server Accessory or a DATABridge Client). Make sure the remote host is still responding to TCP/IP requests.
1166 [DBM_SOCKCLOSEERROR] "Host ' <i>hostname</i> ' closed communication socket"	Communication may have been interrupted on the specified host. This error occurs when the remote process terminates abnormally, such as a Ctrl-C on the DATABridge Client or a DS on the Server Accessory. Check the host, make sure it is running, and then try again. When running the debug version of Enterprise Server, the log will contain these messages when the Client or the Server Accessory disconnects. If replication is complete these messages can be ignored.
1167 [DBM_SOCKWRITEERROR] "Error sending network message"	This message indicates a problem sending messages on the network. Replication will terminate immediately. Usually this means the remote process has terminated abnormally.
1168 [DBM_SOCKREADERROR] "Error reading network message"	This message indicates a problem reading messages on the network. Replication will terminate immediately. Usually this means the remote process has terminated abnormally.
1169 [DBM_SEQUENCEERROR] "Message sequence error (expected <i>requestnum</i> but received <i>responsenum</i>)"	The response from the remote process has a sequence number different from the last request sent to it. This could indicate network errors or messages leftover from a previous replication run.
1170 [DBM_BADPROTOCOLLEVEL] "Protocol level (<i>DBServerlevel</i>) must be at least <i>minlevel</i> "	The DATABridge Server protocol is too low to be compatible with Enterprise Server. A new release of the DATABridge Host software must be installed.

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1171 [DBM_BADUPDATETYPE] "Unrecognized update type: <i>updatetypenum</i> "	The Server Accessory has sent an update containing an unrecognized update type in the <code>UpdateInfo</code> . If this persists report it to Attachmate Technical Support.
1172 [DBM_INTERNALERROR] "Internal software error: <i>description</i> "	Contact Attachmate Technical Support.
1173 [DBM_BADSOURCECTYPE] "Invalid source type (<i>sourcetypenum</i>) for <i>sourcenam</i> "	The source information found in <i>sourcenam.source</i> contains an unrecognized source type number. Source types can be Remote, File, or Local. The source information file has been corrupted. Remove it and use DBEnterprise to create it.
1174 [DBM_NOCLIENTHOSTNAME] "Unable to determine client host name for <i>ipaddress</i> "	The operating system is unable to retrieve the host name associate with an IP address. Typically this means the reverse-DNS is not accessible. Contact your network administrator.
1175 [DBM_NOTINSTALLED] "Please use setup.exe to install DBEnterprise"	You are attempting to use an Enterprise Server feature that is not successfully installed.
1176 [DBM_PRUNE] "Tree item description removed"	This is a status message informing you that the source you selected to remove was removed successfully.
1177 [DBM_MIRRORDISABLED] "Audit Mirroring is not enabled for <i>sourcenam</i> "	Audit mirroring is disabled because the Mirroring parent directory option is blank.
1178 [DBM_SHORTREAD] "Audit read size (<i>length</i>) too short for block"	The amount of data read from the audit file is less than the declared size of the audit block. The entire audit block has to be readable in order to process it. Enterprise Server will automatically retry the read after a brief waiting period. If this error persists, notify Attachmate Technical Support.
1179 [DBM_BLOCKTOOLONG] "Audit block size (<i>length</i>) exceeds max (<i>maxlength</i>)"	The value in the audit block size field exceeds the maximum size declared in the <i>DASDL</i> (page 101). Usually this error indicates that data read is not really an audit block, just leftover data on disk. Enterprise Server will automatically retry the read after a

brief waiting period. If this error persists, notify Attachmate Technical Support.

<p>1180 [DBM_ABSNMISMATCH] "Block first ABSN (<i>absn</i>) not = dup ABSN (<i>dupabsn</i>)"</p>	<p>The ABSNs in the current audit block do not match. An audit block contains its ABSN in two places for integrity checking. Usually this indicates that the audit block has not been completely written yet. DBEnterprise will automatically retry the read after a brief waiting period. If this error persists, notify Attachmate Technical Support.</p>
<p>1181 [DBM_ENCRYPTION] "Username/password encryption error: <i>errmsg</i>"</p>	<p>The Windows encryption routine encountered the error identified by <i>errmsg</i> when encrypting the username and password.</p>
<p>1182 [DBM_DECRYPTION] "Username/password decryption error: <i>errmsg</i>"</p>	<p>The Windows decryption routine encountered the error identified by <i>errmsg</i> when decrypting the username and password.</p>
<p>1183 [DBM_LOGONFAIL] "Logon to user '<i>username</i>' failed"</p>	<p>The Windows logon using username and password failed. This error occurs when Enterprise Server attempts to use an invalid username/password pair. Correct the username and password in the appropriate configuration dialog box.</p>
<p>1184 [DBM_AUDCHECKSUM] "Checksum error in Afn <i>afn</i> Absn <i>absn</i> sector <i>sector</i>"</p>	<p>The computed checksum and the stored checksum for an audit block do not match. This error indicates this audit file has experienced some type of I/O error. Enterprise Server will automatically retry the read after a brief waiting period. If this error persists, notify Attachmate Technical Support.</p>
<p>1185 [DBM_ADDRESSCHECK] "Address Check error in <i>auditfile</i> sector <i>sector</i> found address"</p>	<p>The audit block read at the specified sector has an AddressCheck value of address, when sector was expected. This error indicates this audit file has experienced some type of I/O error. Enterprise Server automatically retries the read after a brief waiting period. If this error persists, notify Attachmate Technical Support.</p>

1186 [DBM_NEED_RELINK]	Not currently in use.
"Need to relink to user library (dll)"	
1187 [DBM_INVALID_JULIAN]	The date conversion routines received a request to convert a Julian date but the supplied date was not a valid Julian date.
"Invalid Julian date (YYYYDDD): <i>date</i> "	
1188 [DMB_INVALID_GREG]	The date conversion routines received a request to convert a Gregorian date but the supplied date was not a valid Gregorian date.
"Invalid Gregorian date (YYYYMMDD): <i>date</i> "	
1189 [DBM_INVALID_PARAM]	The parameter value was not legal for the indicated parameter. Correct the parameter value and try again.
"Invalid <i>type</i> parameter ' <i>param</i> '"	
1190 [DBM_SERVER_FUNCTION]	A remote procedure call (RPC) was attempted for a function that is not supported by the attached DBServer. Upgrade DBServer (DATABridge Host software) to a later release and try again.
"DBServer protocol level does not support RPC <i>function</i> "	

Errors in Windows Event Log

The following error messages can appear in the Windows Application Event log and the DBDirector log. Message numbers 30005-30013, 30112, 30117, and 30125 in the following list are for information only and do not indicate an error. Some of the following error messages will have a suffix of the form

[<*winerror*>] <*winerrormsg*>

where <*winerror*> is a Windows-defined error number and <*winerrormsg*> is the associated error text returned by the Windows *FormatMessage* system call.

Message	Meaning
30001 [DBDS_Unauthorized]	[Administrator rights are required for controlling DBDirector.]
30002 [DBDS_BadParam]	"Bad DBDirector parameter"
30003 [DBDS_NotInstalled]	"DBDirector not registered"
30004 [DBDS_StatusFailed]	"Unable to retrieve DBDirector status"

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30005 [DBDS_ContinuePending]	"DBDirector continue pending"
30006 [DBDS_PausePending]	"DBDirector pause pending"
30007 [DBDS_Paused]	"DBDirector paused"
30008 [DBDS_StartPending]	"DBDirector start pending"
30009 [DBDS_StopPending]	"DBDirector stop pending"
30010 [DBDS_Installed]	"DBDirector registered"
30011 [DBDS_Removed]	"DBDirector unregistered"
30012 [DBDS_Started]	"DBDirector started"
30013 [DBDS_Stopped]	"DBDirector stopped"
30014 [DBDS_InstallFailed]	"DBDirector register failed"
30015 [DBDS_RemoveFailed]	"DBDirector unregister failed"
30016 [DBDS_StartFailed]	"DBDirector start failed"
30017 [DBDS_StopFailed]	"DBDirector stop failed"
30018 [DBDS_AlreadyStarted]	"DBDirector already started"
30019 [DBDS_AlreadyStopped]	"DBDirector already stopped"
30020 [DBDS_StillActive]	"DBDirector query still active"
30021 [DBDS_Unknown]	"DBDirector unknown result <num>"
30022 [DBDS_NoDBDirector]	"DBDirector program not found!"
30100 [DBDS_EventLogOpenErr]	"Unable to open EventLog key"
30101 [DBDS_EventLogKeyErr]	"Unable to create EventLog subkey"
30102 [DBDS_EventFileErr]	"Unable to create EventMessageFile value"

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30103 [DBDS_EventTypesSuppErr]	"Unable to create TypesSupported value"
30104 [DBDS_NoModuleName]	"Unable to get module name for install"
30105 [DBDS_ServiceMgrErr]	"Open Service Control Manager failed"
30106 [DBDS_ServiceOpenErr]	"Open Service failed"
30110 [DBDS_ServiceCtrlErr]	"Start Service Control Dispatcher failed"
30111 [DBDS_BadCommandOp]	"Unrecognized command line option <option>"
30112 [DBDS_ServiceCtrl]	"Calling Service Control Dispatcher. Please wait."
30113 [DBDS_WinSockErr]	"[WinSock error <num>] <errmsg>"
30114 [DBDS_NoListenPort]	"DATABridge registry entry ListenPort not found. Using default port <num>."
30115 [DBDS_NoProgFiles]	"DATABridge registry entry ProgFiles not found"
30116 [DBDS_NoConfigFiles]	"DATABridge registry entry ConfigFiles not found"
30117 [DBDS_EventRunServer]	"DBEnterprise for client at host '<hostname>' Process: <id>, thread: <num>, socket: <hexnum> ConfigFiles: <dir>, Command: <command>"
30118 [DBDS_RunErr]	"CreateProcess failed for <processname>"
30121 [DBDS_BlockingReset]	"Reset to blocking mode failed"
30122 [DBDS_SocketOpenErr]	"Can't open TCP socket"
30123 [DBDS_SocketBindErr]	"Can't bind local address to socket"
30124 [DBDS_ListenErr]	"Listen failure"

30125 [DBDS_EventListen]	"Listening for DATABridge client connections on port <num>"
30126 [DBDS_MgrReportErr]	"Service manager error"
30127 [DBDS_WaitErr]	"Event wait failure"
30129 [DBDS_WinSockInit]	"WinSock startup"
30130 [DBDS_WinSockTerm]	"WinSock cleanup"

Syntax Errors

For information about syntax errors, see "Appendix A: Error and Status Messages" in the *DATABridge Host Administrator's Guide*.

Appendix B: Troubleshooting

This section can help you identify and resolve problems that may occur when running Enterprise Server.

General Troubleshooting

If you have problems running Enterprise Server, complete the following steps:

1 Check the system requirements.

Make sure your system meets the minimum hardware and software requirements necessary to use the product. Refer to the system requirements for Enterprise Server in the *DATABridge Installation Guide*.

2 Check log files.

Check the Enterprise Server log files for error messages. The **Start** menu includes a shortcut to the Log files. For more information, see *Log Files* (page [80](#)).

3 Check the DATABridge Director settings.

Determine whether the Director service is running and listening on the correct port. (In the DATABridge Enterprise window, click the **DBDirector** button. The service status is indicated below **DBDirect Service Control**.) Also check the Windows Event Application log for messages from Director. Possible problems include:

- Another program is already using the specified port.
- The Enterprise Server registry keys are missing or corrupted.
- The Enterprise Server program is missing from the program directory.
- The program directory has been renamed or moved.

4 Check the Server Accessory on the mainframe.

- Make sure that the Server Accessory is running on the primary system. If it is not running, refer to the *DATABridge Host Administrator's Guide* for instructions on how to start it.
- Make sure that the Server Accessory port number to which Enterprise Server is connecting (shown in the **DBEnterprise sources** pane) matches the port that the Server Accessory actually uses. If more than one copy of the Server Accessory is running, make sure they use different port numbers.

- If Enterprise Server returns an error in interactive mode saying it could not connect, the Server Accessory may have reached its limit on the number of Workers. To resolve this, increase the limit set in the DBServer AX WORKERS configuration setting.
 - Check if DATABridge has any waiting entries. For example, DATABridge may be unable to recompile the DBSupport library because of a missing file.
- 5 If the audit-available notify feature doesn't work, determine the cause.**
- Check the Windows Event log for errors.
 - Verify that Director initiates a copy of Enterprise Server to respond to the notification.
 - Confirm that the username and password associated with the notification batch file are valid.
 - If multiple copies of the Server Accessory are running, make sure that they use different notification filenames. (See the *DATABridge Host Administration Guide* for details.)
- 6 Check if Windows Task Manager shows copies of DBEnterprise.exe running after replication has finished.**

If Enterprise Server encounters errors during replication, it may be displaying a dialog box prompting you to display the log.

- 7 Contact your product distributor or technical support.**
- If you cannot identify and solve the problem without assistance, contact your product distributor. Call from a location where you have access to the problem MCP server.
 - Troubleshoot the problem using information available from Attachmate Technical Support at <http://support.attachmate.com/contact/>. This service directly links you to our internal help desk system, 24 hours a day, 7 days a week.

Using the Debug Version of Enterprise Server

Use the debug version of Enterprise Server when you are requested to do so by Attachmate technical support. The debug version of Enterprise Server writes additional entries to the log file to help you troubleshoot. The debugging version of Enterprise Server is installed in the Debug subdirectory. The default installation directory for the debug programs are located at \Program Files\Attachmate\DATABridge\Enterprise\6.1\Debug.

To start the debug version of Enterprise Server

- 1 Quit Enterprise Server.
- 2 From the **Start** menu, select **Programs > Attachmate DATABridge > DATABridge Enterprise > Configure Enterprise with debugging**.

Coordinate with Attachmate Technical Support to determine how long you need to run the debug version and where to send the log files.

Showing Enterprise Server Log Files

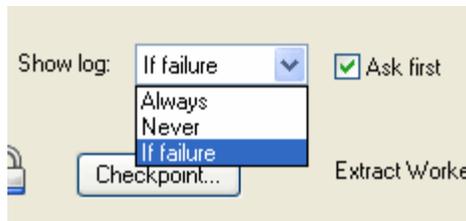
Enterprise Server creates log files for several different Enterprise Server functions, each log file named representing the Enterprise Server function or command. Log files specific to a data source are grouped within a directory named for the data source.

Note: For information about where to find the Config, Logs, and Samples folders, see "Files Installed with DATABridge Enterprise Server" in the *DATABridge Client and Enterprise Server Installation Guide*.

Enterprise Server always creates a log file when it runs. By default, if there are errors, it will prompt you after the error to view the log file.

To show the log file

- 1 Right-click a source and select **Properties**.
- 2 In the **Properties** dialog box, update the **Show log** option.



For this	Select this
To automatically display log files for every Enterprise Server process	<p>Always</p> <p>If you additionally want to be asked whether to display the log at the end of each process, select Ask First.</p> <p>Otherwise, clear the Ask First check box. In this case, the log file is displayed automatically after Enterprise Server runs.</p>
To not automatically	Never

display log files

(The **Ask First** check box is not available when you select this option.)

Select **Never** if you run Enterprise Server on an unattended server.

To display log files only when an error occurs

If failure

If you additionally want to be asked whether to display the log when a failure occurs, select **Ask First**.

Otherwise, clear the **Ask First** check box. In this case, the log is displayed immediately after a run of Enterprise Server in which a failure occurs.

Your selection takes effect the next time Enterprise Server starts (via the command line, Director, or the user interface).

Log Files

To open log files, from the Windows **Start** menu, choose **Programs > Attachmate DATABridge > DATABridge Enterprise > Folders > Log files**.

The first part of each log filename indicates which function caused the log file creation. Enterprise Server creates a log file for each of the above functions and closes it when the function is finished. The next time that function runs, a new log file is created.

The end of each Enterprise Server log contains statistics indicating the counts and time spent performing various activities. The term "Ticks" in the statistics summary refers to milliseconds. The "Cases" column is the number of times that statistic was recorded.

Function	Log Filename
Loading (<i>LOAD</i> or <i>CONFIGURE</i> command) a configuration file	Enterprise Server (<i>configfilename</i>) day, month day, year time.log where <i>configfilename</i> is the name of the Enterprise Server configuration file.
Serving a DATABridge Client	<i>databaseClientType</i> Server (<i>ipaddress</i>) day, month day, year time.log where <i>databaseClientType</i> is the database type of the DATABridge Client, and <i>ipaddress</i> is its TCP/IP address. This log file appears in the subdirectory named for the data source the Client computer is using.

Example:

BANKDB\MS-SQL Client Server (192.168.16.2)
Friday, December 11, 2009 07-54-47 PM.log

Caching updates	<p>Cacher (<i>basesourcename</i>) day, month day, year time.log</p> <p>where <i>basesourcename</i> is the name of a Server Accessory source. This name appears in both the Server Accessory sources tree and the Enterprise Server sources tree.</p>
Using the enumerating disk function	<p>EnumerateDisks (<i>localhost</i>) day, month day, year time.log</p>
Using the CODE function	<p>Code Listing (<i>basesourcename</i>) day, month day, year time.log</p> <p>where <i>basesourcename</i> is the name of the data source. This log file appears in the subdirectory named for the data source being mirrored.</p>
Browsing/interactive configuration through the user interface	<p>Browser day, month day, year time.log</p> <p>Example:</p> <p>Browser Wednesday, December 9, 2009 11-18-11 PM.log</p>
Transferring a file using the XFER command	<p>File Transfer <i>dateTime</i>.log</p> <p>where <i>dateTime</i> is the start time of the file transfer. This log file appears in a sub-directory named "Xfer from <i>ipaddress</i>" where <i>ipaddress</i> is the host name or TCP/IP address of the Unisys host source of the file transferred, with decimals replaced with underscores.</p> <p>Example:</p> <p>Xfer from 192_168_16_1\File Transfer Monday, December 7, 2009 07-17-21 PM.log</p>
Mirroring audit files from the primary DMSII database	<p>Mirror DMSII Audit (<i>datasource</i>) day, month day, year time.log</p> <p>where <i>datasource</i> is the data source being mirrored. This log file appears in</p>

the subdirectory named for the data source being mirrored.

Serving audit mirror files to the host running DBAuditMirror	AuditMirror Server (<i>ipaddress</i>) day, month day, year time.log
--	---

where *ipaddress* is the host name or TCP/IP address of the host system running DBAuditMirror. This log file appears in the subdirectory named for the data source being mirrored.

DATABridge Director Log Files

The DATABridge Director service writes its log information to the Windows Application log. Use the Event Viewer to read that information.

When you use the debug version of Director, it writes additional information to the DBDirector [datetime].log file in the Logs folder.

Detecting Visible MCP Disks

Enterprise Server can replicate DMSII data without using any significant mainframe resources if the data is on MCP disks that are configured to be visible in Windows (for example, via a Storage Area Network (SAN), VSS, or a Logical Disk).

Use this procedure if the MCP disks aren't automatically detected after Enterprise Server starts.

To enumerate MCP disks

- From the Start menu, select **Programs > Attachmate DATABridge DATABridge Enterprise > Enumerate MCP Disks**.

A command prompt window opens to run the program. When it's finished, the log file appears with the results. The log file, named EnumerateDisks([localhost])[datetime].log, is saved to DATABridge\Enterprise\logs by default.

Appendix C: Configuration Files

This section can help you create, edit, and use configuration files with Enterprise Server.

You can use a configuration file to do any of the following:

- Save a custom setup that you can move from one Enterprise Server server to another.
- Restrict DATABridge Client access to specified local sources, base or filtered. (This feature is currently not available via the user interface.)
- Create filters that are more complex than those you can create in the user interface. For example, you can define a parametric filter that can be invoked for multiple sources using a different parameter value for each one.

Importing a Configuration File

When you create or edit a Enterprise Server configuration file, observe the following formatting guidelines.

- The remote source configuration options must match the SOURCE settings in the Server Accessory parameter file.
- The remote (or file) source must be declared before any of its local sources in the parameter file. Otherwise, options can be listed in any order.
- Multiple options can be listed on a single line, or can be split across multiple lines.
- No termination or continuation characters are required.
- The comment character is the pound sign (#). It can appear anywhere on a line; anything after the comment character is ignored.

To import a configuration file

Note: After the file is imported, any further configuration changes must be made via the user interface. (Note that restricted host lists can't be edited in the user interface.)

- 1 Open the sample Enterprise Server configuration file (see *Sample Configuration File* (page [84](#))).
- 2 Save the sample configuration file with a new name in the Config directory.
- 3 Using a text editor, in the configuration file specify the following sources:
 - Remote source
 - Local source(s) and their filters
- 4 Specify any other configuration options while making sure to observe the formatting guidelines, and then save the file (see *Configuration File Options* (page [88](#))).
- 5 Import the configuration file using one of the following methods:
 - Open a command prompt window, navigate to the directory where you installed Enterprise Server and enter the following:

```
dbenterprise configure configfilename
```

where *configfilename* is the name of the Enterprise Server configuration file. If the configuration file is in a different directory than the Enterprise Server Config subdirectory, enter the directory, too.
 - From the **DBEnterprise** window, click the **Import** button, navigate to the file you want to import, and then click the **Open** button.

For both methods, a message informs you whether the import was successful. If successful, the Enterprise Server window updates with the new sources. This may take a while, depending on the number of sources you are creating and on your connection to the MCP server. If the import was not successful, consult the log file for the reason.
- 6 After you've successfully imported the configuration file, provide the DATABridge Clients with the information necessary to use the sources you just created. See *Set Up DATABridge Clients* (page [25](#))

Sample Configuration File

```
#####
#
#           DATABridge Enterprise Server           #
#
#           Sample Configuration File             #
#
#
#           Copyright (C) 2010 by Attachmate Corporation #
#           All Rights reserved                   #
#
#####

# This is a Enterprise Server configuration file that defines
# the remote source and local sources, any of which may be cached.
# Configuration files are typically stored in the directory
# specified by the ConfigFiles registry key.
#
# To process this file use:
#
#           DBEnterprise configure <thisfilename>
#
# or run Enterprise Server without any command line options and click on
# the Import button and specify this file name.
#
#
#-----
#
#           Remote Source
#
#-----

# The Remote Source specifies the Server Accessory SOURCE, host name or
# IP address, and port number. Enclose the IP address with quotation marks.
# For example: "192.168.1.100".
# A configuration file can have only one remote source.
# All local sources are based on the remote source.

remote source BankDB at "192.168.1.100" port 5000
#
#-----

# The VIEW LOG option determines if Enterprise Server opens
# the log file at the end of each server or cacher run.
# Possible values for the VIEW LOG option:
#
#           ALWAYS [ ASK ]
#           NEVER
#           ON FAILURE [ ASK ]   (display log if result other than
#                               OK, COMMIT, or AUD_UNAVAIL)
#
# If ASK is specified, Enterprise Server asks if you want
# to view the log. The default setting is:
#           VIEW LOG = ON FAILURE ASK.

view log = never

mirror in directory "d:\data\Mirrored"   # parent directory of mirrored
audits

cached in directory "d:\DATABridge\Cache" # location of cached files for this source
e

# When caching ...
```

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```
maxwait 10 seconds      # Number of seconds to wait for more audit
                        # or FOREVER or DONWAIT (default).

retry 5 seconds        # Number of seconds between retries.
                        # Default is 60 seconds.

modifies before and after images # cache both for modified records (default)

#- modifies after images only    # saves space but won't work with key changes

# The following list restricts which hosts can run a DBClient
# that uses this source.

host "TURING"
host "hawking"

# When the Server Accessory sends a notification that more audit is
# available, run the following batch file.

on notify,
    run "C:\Program Files\DATABridge\Enterprise\Notify.bat"

clients 2              # Number of client databases using this source.
                        # (Determines when to purge processed cache files.)

#-----
#
#           Local Sources
#
#-----

# Local sources are accessible via Enterprise Server
# but not via the Server Accessory.

local source Warehouse
# -----

view log = on failure ask

cache directory "d:\DATABridge\Cache"
                # Individual cached audit files are titled:
                #
                #       <directory>\<source>\<afn>
                #
                # where <directory> is the directory name specified in this option,
                # <source> is the name of the source,
                # and <afn> is the Audit File Number.
                #
                # For example, d:\DATABridge\Cache\Warehouse\0891

clients 1             # number of client databases using this source
                     # (determines when to purge processed cache files)
                     # Defaults to 1.

# The following list restricts which hosts can run a DBClient
# that uses this source.

host "TURING"
```

Appendix C: Configuration Files

```
host "192.168.1.51"
host "192.168.16.2"

# filtering conditions

select * from BANK      where ^ updatetype (delete);
select * from BRANCH    where ^ updatetype (delete);
select * from ACCOUNT   where ^ updatetype (delete);
select * from CUSTOMER  where ^ updatetype (delete);
select * from Ll        where ^ updatetype (delete);
select * from SHORT-VF  where ^ updatetype (delete);
select * from TELLER    where ^ updatetype (delete);

select none from TRIALBALANCES; # discard everything for this data set

select all from other data sets # keep everything for unselected data sets
                                # (This is set by default.)
#-----

# The following defines a filter with one formal parameter, BankNbr.
# When a local source uses this filter it must specify the actual value
# for BankNbr.

filter ByBank (BankNbr)
# -----

select * from BANK      where BANK-ID = BankNbr;
select * from BRANCH    where BANK-ID = BankNbr;
select * from CUSTOMER  where BANK-ID = BankNbr;
select * from HISTORY   where BANK-ID = BankNbr;

select none from other data sets # discard everything for unselected data
sets
#-----

# The following sources are filtered but not cached. Updates are
# always read from the remote host and then filtered before
# returning them to the client.

local source OnlyBank1
# -----
    using ByBank (1)      # Filter is defined above. Use 1 for BankNbr.

local source OnlyBank3
# -----
    using ByBank (3)      # Filter is defined above. Use 3 for BankNbr.

local source OnlyBank99
# -----
    using ByBank (99)     # Filter is defined above. Use 99 for BankNbr.

local source OnlyBank880
# -----
    using ByBank (880)    # Filter is defined above. Use 880 for BankNbr.
```

Configuration File Options

The configuration file has three types of declarations: RemoteSource, LocalFilter and LocalSource. The file must start with a RemoteSource declaration followed by RemoteSource declaration options. Either LocalFilter or LocalSource declarations can appear next, followed by any number of declaration options specific to that declaration.

All configuration file options have a corresponding option or method in the Enterprise Server user interface, except for the restricted host list (which can only be created in the configuration file).

As you create or edit a configuration file, observe the following formatting rules:

- Multiple options can be listed on a single line, or can be split across multiple lines.
- No termination or continuation characters are required.
- The comment character is the pound sign (#). It can appear anywhere on a line; anything after the comment character is ignored.
- Declarations and options can end with a comma or semicolon, if desired.

Note: The syntax examples in this document represent options two ways: optional items (items that may or may not be specified) are enclosed by square brackets ([]) and separated by vertical bars; required items (items that must be specified) are enclosed by braces ({}) and separated by vertical bars. All options are shown in italics.

RemoteSource Declaration

When you create a remote source, the host name or IP address and port number must match that of the running Server Accessory. The base source is implicit in the remote source. (When you create a remote source using the user interface application, you must explicitly create a base source via the **Add to DBEnterprise** command.)

For the RemoteSource declaration, you can use options from the SourceOptions table and the RemoteSourceOnlyOptions table. RemoteSourceOnlyOptions are unique to a RemoteSource and can follow only RemoteSource declarations. Options can be listed in any order. The syntax is as follows:

```
[ REMOTE ] SOURCE remotesourcenam AT "hostnameoripaddress" PORT portnum  
RemoteSourceOptions
```

LocalSource Declaration

The LocalSource declaration specifies a local source that is derived from a base source. The user interface equivalent to this declaration is the **Add local (filtered) source** command on the context menu for a Server Accessory defined base source. The syntax is as follows:

```
[ LOCAL ] SOURCE localsourcenam LocalSourceOptions
```

For the LocalSource declaration, you can use any combination of options from the SourceOptions. In addition, you can use FilterReference and LocalFilterOptions, which are unique to local sources. FilterReference uses the following syntax:

```
USING filtername [ ( parameterlist ) ]
```

where *filtername* is the name of a LocalFilter.

The optional *parameterlist* (which must be enclosed in parentheses) is a list of values that substitute for the formal parameters specified in the LocalFilter declaration. (See the ByBank filter and the OnlyBank1, OnlyBank3, OnlyBank99, and OnlyBank880 local sources declared in the BankDB.cfg sample configuration file.)

For an example of LocalFilterOptions syntax, see "LocalFilterOptions" at the end of this document.

LocalFilter Declaration

A local filter specifies conditions that are required of the updates (in addition to DBGenFormat FILTER conditions on the MCP Server) before they are sent to the client. The syntax is as follows:

```
FILTER filtername [ ( formalparameterlist ) ] localfilteroptions
```

The *filtername* can be any name and is the identifier that a LocalSource includes in the USING option. The optional *formalparameterlist*, which must be enclosed in parentheses, are the place-holder names that will be replaced by the actual values in the USING option. See the ByBank filter and the OnlyBank1, OnlyBank3, OnlyBank99, and OnlyBank880 local sources declared in the BankDB.cfg sample configuration file.

The *localfilteroptions* are listed in the FilterOptions table.

SourceOptions

SourceOptions can be used for RemoteSources or LocalSources. Once you describe the RemoteSource declaration, you can map the remote source into several local sources. Local sources can specify their own filtering in addition to the filtering already done by the Remote Source (Server Accessory). You can list these options in any order.

This option	Does this	Syntax	User interface equivalent
cache parent directory -or- cached in directory	Enables update caching and specifies the location of cached update files.	[{ CACHE CACHED } [IN ON AT] DIRECTORY "path"	Cache directory in the Source Properties and Base Source Properties dialog boxes
checkpoint	Determines the frequency with which the	CHECKPOINT [CLIENT CLIENTS] [EVERY] numblocks [AUDIT	Checkpoint Options

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	<p>DATABridge Client commits (saves) updates from Enterprise Server.</p>	<p>] BLOCKS</p> <p>CHECKPOINT [CLIENT CLIENTS] [EVERY] numrecords [UPDATE] RECORDS</p> <p>CHECKPOINT [CLIENT CLIENTS] [EVERY] num { SECOND SECONDS }</p> <p>CHECKPOINT [CLIENT CLIENTS] [EVERY] { QUIETPOINT QPT }</p>	<p>dialog box</p>
client count	<p>Indicates the number of DATABridge Clients that are expected to read the cached audit updates.</p>	<p>CLIENTS [=] number</p>	<p>Remove cache files when read n times in the Base Source Cache Properties and Source Cache Properties dialog boxes</p>
restricted host list	<p>Specifies DATABridge Clients that have access to this Enterprise Server source. Leave blank to give all DATABridge Clients access.</p>	<p>HOST { "hostname" "ipaddress" }</p>	<p>Not available</p>
view log	<p>Determines if the log file opens at the end of each server or cacher run.</p>	<p>VIEW LOG = { ALWAYS [ASK] NEVER ON FAILURE [ASK] }</p>	<p>Show Log after tracking and Ask First in the Base Source Properties and Source Properties dialog boxes</p>

RemoteSourceOnlyOptions

RemoteSource options are unique to RemoteSource declarations (that is, they're only used for remote sources).

This option	Does this	Syntax	User interface equivalent
on notify	Specifies a batch file or a command to run when the Server Accessory sends a notification that more audit is available.	ON NOTIFY [,] RUN "commandfilepath"	When more audit is available, run in the Base Source Properties dialog box
maxwait	Specifies a maximum wait period, which essentially determines the number of times that Enterprise Server re-queries the Server Accessory for new audit when caching updates.	MAXWAIT { FOREVER DONTWAIT <i>numseconds</i> [SECONDS] }	Wait for audit to cache / Max seconds in the Base Source Cache Properties dialog box
mirror directory	Specifies where mirrored audit files will be stored.	MIRROR [IN ON AT] DIRECTORY "path"	Mirroring parent directory in the Audit Mirroring Properties dialog box
modifies	Specifies whether the before-images, after-images (or both) of a base source are cached.	MODIFIES { AFTER IMAGES ONLY BEFORE AND AFTER IMAGES }	Both before-images and after-images for modifies in the Base Source Cache Properties dialog box
retry	Specifies the time interval (in seconds) that Enterprise Server waits between queries for new audit.	RETRY <i>numseconds</i>	Wait for audit to cache in the Base Source Cache Properties dialog box

LocalFilterOptions

These "select" options determine which records are sent to the client.

This option	Does this	Syntax	User interface equivalent
select from	<p>Specifies which updates to send to the client from the indicated data set.</p> <p>Use as many times as needed for other data sets.</p> <p>ALL and * are equivalent.</p>	<pre>SELECT { ALL * } FROM datasetname [WHERE expression]</pre> <hr/> <p><i>Note:</i> If <i>datasetname</i> is a reserved word, it must be in quotation marks.</p> <p>The syntax for <i>expression</i> is the same as that used for DBGenFormat (see the <i>DATABridge Host Administrator's Guide</i>).</p>	<p>WHERE box in the Row Filter dialog box. See <i>Filter Local Sources</i> (page 23).</p>
select none from	<p>Discard all updates from the indicated data set.</p> <p>Use as many times as needed for other data sets.</p>	<pre>SELECT NONE FROM datasetname</pre> <hr/> <p><i>Note:</i> If <i>datasetname</i> is a reserved word, it must be in quotation marks.</p>	<p>WHERE box in the Row Filter dialog box.</p>
select from other data sets	<p>Determines what to do with updates for data sets not specified by one of the first two options.</p> <p>The NONE value discards all other updates.</p> <p>ALL and * are equivalent.</p>	<pre>SELECT { ALL * NONE } FROM OTHER DATASETS</pre>	<p>WHERE box in the Row Filter dialog box.</p>

Appendix D: DBEnterprise Commands

You can run the Enterprise Server executable program (DBEnterprise.exe) as either a command prompt program or as a Windows dialog. This section lists commands you can use when running DBEnterprise.exe from a command prompt.

Command Line Options

The following table lists the command options available to you when you run Enterprise Server as a command prompt program.

Note: Some features are only available through the command line interface.

Option	Description
None	Runs Enterprise Server in interactive mode as a Windows dialog box.
<code>CACHE <i>sourcename</i></code> <code>[PASSWORD [=] "<i>password</i>"]</code> <code>[<i>startafn</i> [<i>endafn</i> +]]</code>	<p>If caching is enabled for the base source, writes the updates from all DMSII audit files for this base source to local disk drives. If local sources are configured, the filtered updates from each audit file are also saved.</p> <p>The PASSWORD option specifies the password to be used when accessing the remote source. The password must match the KEY option in the Server Accessory SOURCE.</p> <p>After cache files exist, the next run of the cache command starts reading DMSII audit files from the number specified in the LastAFN.txt file located in the Cache subdirectory.</p> <p>The cache command can specify an AFN range to indicate where caching should start and stop, which will override the value specified in the LastAFN.txt file. If only the startafn is specified, only that file will be cached.</p> <p>Examples:</p>

cache bankdb 460 % only 460

cache bankdb 460 - 488 % beginning of
460 through end of 488

cache bankdb 460 + % beginning of
460 to end of audit

CODE " <i>filtername</i> " <i>updatelevel</i>	Writes the filtering pseudo-code to the log file. <i>filtername</i> is usually the same as the source name. <i>updatelevel</i> is the desired database update level. This command is intended for Attachmate support's diagnostic purposes.
CONFIGURE " <i>configfilename</i> "	Loads a configuration text file into Enterprise Server to define sources and filters. It is equivalent to using the Import button on the DATABridge Enterprise window.
CONNECT socketnumber " <i>ipaddress</i> "	Used by DATABridge Director to get Enterprise Server to accept the connection from a DATABridge Client or the Server Accessory.
DUMP <i>sourcename</i> <i>afn</i>	Writes every update from a cache file to the log file. <i>sourcename</i> is the name of a cached base or local (filtered) source, and <i>afn</i> is the cache audit file number. This command is intended for diagnostic use upon request of Attachmate support.
LOAD " <i>configfilename</i> "	LOAD is a synonym for the CONFIGURE command.

MIRROR *remotesourcename*

[PASSWORD [=] "*password*"]
 [*startafn* [*endafn* | +]]

Mirrors audit files from a remote source. Optionally, a range or just a beginning audit file number can be specified.

The PASSWORD option specifies the password to be used when accessing the remote source. The password must match the KEY option in the Server Accessory SOURCE.

Mirroring must be configured within Enterprise Server before command line mirroring can occur. See *Mirroring DMSII Audit Files* (page [44](#)).

PRINTAUDIT *remotesourcename* [*startafn*
 [-] *endafn*] [RECORDS]

Displays mirrored audit information in human-readable form. Shows sectioned audit files one section at a time. The RECORDS option causes the report to list one line for each audit record showing the *structure* (page [104](#)) number, record type, and other information.

Example:

```
dbenterprise printaudit bankdb 357 -
359 records
```

VALIDATE *sourcename* DATABASE [=]
ODBCsourcename
 [USER [=] *username*] [PASSWORD [=]
 "*password*"]
 [TABLE [=] *tablename*]

Compares a cloned database to the original flat files from a JADE database. Enterprise Server will write any differences to the log file.

sourcename is the Enterprise Server source name.

ODBCsourcename is the name of an ODBC source that provides access to the client database.

username and *password* are used to sign on to that ODBC source.

If a *tablename* is specified, only that table will be validated. The default is to validate the entire client database.

XFER
 [(usercode)*MCPdirectory* [ON family
]]
 [FROM *ipnameoraddress*]

Transfers a file or directory of files from an MCP disk to the local computer. The DATABridge host computer must be configured to allow file transfers using XFER. For

[PORT *portnbr*]

[TO *localdirectory*]

[TEXT | BINARY [INDIRECT]]

details, see *Configure XFER* (page [53](#)).

Note: This feature is available as an additional Enterprise Server component. Contact your sales representative for details.

MCPdirectory is a directory or filename in normal MCP format. It must include either the user code in parentheses or *. For example:

(PROD)DBBD/RUN ON PRINTPACK

ipnameoraddress is the host name or IP address of the MCP host system where the Server Accessory is running. For example: FROM GALILEO or FROM "192.168.16.1"

portnbr is the TCP/IP port number that the Server Accessory uses.

localdirectory is the path where Enterprise Server should place the files transferred from the host system. For example: TO

d:\data\MCPFiles

BINARY copies file(s) as-is. TEXT translates all characters from EBCDIC to ASCII and inserts CR-LF (except for STREAM files). For print files, TEXT translates from EBCDIC to ASCII, substituting a form feed character (0x0C) for page breaks, and inserting LF characters for line spacing.

INDIRECT forces Enterprise Server to read the source files using Indirect Disk rather than Direct Disk. This is required when Enterprise Server has visibility to MCP disks but for the wrong MCP Server.

A list of files copied by the XFER command is placed in the same directory as the corresponding log file. More information about the XFER command appears in the next section.

Glossary of Terms

A

Accessroutines

The Accessroutines program is a DMSII library program that controls access to the database, reads and writes records, and creates the audit trail.

audit file

An audit file is created by DMSII and contains the raw format of changes made to the DMSII database by update programs. Audit file records contain the deletes, adds, and modifies that were made to the various structures. It can contain, for example, hours, days, or weeks worth of information.

When an audit file is closed, DMSII creates the next one in the series. Audit files are closed for several reasons, including the following:

- An operator closes the audit file with the mixnumberSM AUDIT CLOSE command
- The audit file reaches the file size set in its DASDL
- There is an I/O error on the audit file
- There is not enough disk space for this audit file
- The database update level changes due to database definition changes
- A DATABridge accessory closed the file in preparation for the fixup phase after extracting records from a DMSII database
- The current audit file could not be found
- A file reorganization was executed to modify the DMSII structure

DATABridge uses the audit file for the raw data of each database change to exactly replicate the primary database. DATABridge records the audit location (AFN, ABSN, SEG, IDX) between runs, so it can restart without losing any records.

If you have DATABridge Plus or you set the DBEngine Read Active Audit option, DATABridge can access the current audit file. If you do not have DATABridge Plus, and you do not set Read Active Audit = true in the DBEngine parameter file, DATABridge can access audit information up to and including the current audit file minus one. Additionally, the audit file contains the update level at the time the audit file was created. The update level in the audit file and the update level in the DESCRIPTION file used by DATABridge must match before DATABridge will update a replicated database.

audit trail

The audit trail contains all of the audit files generated for a database. DBEngine reads the audit files to extract updates, which it passes to the Client to be applied to the relational database.

C

caching

A process that filters files before they're requested by the DATABridge Client. Caching allows DATABridge Enterprise Server to send Client data requests quickly and without placing an additional resource burden on the mainframe.

client

The client is the computer system that will receive DMSII records from the primary database. The client could be a Windows computer, a UNIX computer, or an MCP server. The client can have a relational or a DMSII database.

cloning

Cloning is the process of generating a complete snapshot of a data set to another file. Cloning creates a static picture of a dynamic database. DATABridge uses the DMSII data sets and the audit trail to ensure that the cloned data represents a synchronized snapshot of the data sets at a quiet point, even though other programs may be updating the database concurrently. DATABridge clones only those data sets you specify.

Cloning is one phase of the database replication process. The other phase is tracking (or updating), which is the integration of database changes since the cloning.

DATABridge Accessories are available for cloning, as follows:

- DATABridge Snapshot — a batch method that provides a one-time snapshot only.
- DATABridge Span — a dynamic method that provides a one-time extraction and ongoing tracking. Span does not apply the fixup records to the extracted records. It is up to the user to combine these into a snapshot.
- DATABridge Clients — perform an initial clone of a DMSII database and then subsequent tracking of the changes made to the DMSII database. All DATABridge Clients use the DATABridge Server Accessory.

consolidated file

A file created by DATABridge Span that contains all replicated records from various data sets.

CONTROL file

The DMSII CONTROL file is the runtime analog of the DESCRIPTION file. The DESCRIPTION file is updated only when you compile a modified DASDL. The CONTROL file controls database interlock. It stores audit control information and verifies that all database data files are compatible by checking the database timestamp, version timestamp, and update level. The CONTROL file is updated each time anyone opens the database for updates. The CONTROL file contains timestamps for each data set (when the data set was defined, when the data set was updated). It contains parameters such as how much memory the Accessroutines can use and titles of software such as the DMSUPPORT library (DMSUPPORT/databasename).

DATABridge uses the CONTROL file for the following information:

- Timestamps
- INDEPENDENTTRANS option
- AFN for the current audit file and ABSN for the current audit block
- Data set pack names
- Audit file pack name
- Database user code

D

DASDL

Data and Structure Definition Language (DASDL) is the language that defines DMSII databases. The DASDL must be compiled to create a DESCRIPTION file.

data set

A file (structure) in DMSII in which records are stored. It is similar to a table in a relational database. You can select the data sets you want to store in your replicated database.

DATABridge Director

DATABridge Director is a Windows Service installed with Enterprise Server that starts Enterprise Server whenever a data request is received.

When you start your computer, Director starts and reads the ListenPort registry value to determine which TCP/IP port communicates with DATABridge Clients.

DATABridge Plus

DATABridge Plus is an optional program that enables DATABridge to access and retrieve information from the current audit file. If you have not set Read Active Audit = true, the most recent audit file DATABridge can read is the current audit file minus one. For example, if the current audit file number is 23, DATABridge can access audit file number 22 (23 - 1).

DESCRIPTION file

The DESCRIPTION file contains the structural characteristics of a databases (physically and logically). It is created from the DASDL source by the DASDL compiler and contains the layout (physical description), timestamp, audit file size, update level, logical database definition, and any static information about the database. It contains information about the database, not the data itself.

There is only one current DESCRIPTION file for each DMSII database. DATABridge must have access to the DESCRIPTION file before it can replicate a database. Additionally, DATABridge uses the DESCRIPTION file information for consistency checks between the primary database and the secondary or replicated database.

The DESCRIPTION file corresponds to the schema in a relational database.

direct disk

A cloning method that allows DATABridge Enterprise Server to clone and update DMSII data sets without using any significant mainframe resources. Direct disk cloning requires a SAN (Storage Area Network) or Logical Disks configured to make MCP disks visible in Windows.

E

entry point

A procedure in a library object.

extraction

The process of reading through a data set sequentially and writing those records to a file (either a secondary database or flat file).

F**file format conversion**

A DMSII file format conversion affects file size values (for example, AREASIZE, BLOCKSIZE, or TABLESIZE), but it does not change the layout of the records in a DMSII database.

G**garbage collection reorganization**

A garbage collection reorganization moves records around, but it doesn't change the layout of the DMSII database. Its primary function is to improve disk and/or I/O efficiency by eliminating the space occupied by deleted records. Optionally, a garbage collection reorganization reorders the remaining records in the same sequence as one of the sets.

N**null value**

The value defined in the DASDL to be NULL for that ALPHA data item. If the DASDL does not explicitly specify a NULL value for a data item, the NULL value is all bits turned on.

P**primary database**

This is the original DMSII database that resides on the host. DATABridge replicates from the primary database to one or more client databases. The client databases can be another DMSII database or one of several relational databases. Compare this to the replicated (or secondary) database.

Q**quiet point (QPT)**

A point in time when no program is in transaction state. This can occur naturally, or it can be forced by a DMSII syncpoint. The quiet point is a point in time in the audit trail that DATABridge uses as a reference point to help synchronize cloning or tracking of the DMSII database.

DATABridge uses the quiet points to ensure an accurate snapshot of the data. Audit addresses of these quiet points are stored in the replicated database for database synchronization purposes.

R

record format conversion

A DMSII record format conversion occurs when a data set or set (group of keys) is reordered or reformatted. It indicates that changes were made to a data set format, or to data items, such as changing the length of an item, for example, BANK-ID NUMBER (10) to BANK-ID NUMBER (15).

replicated database

This is the database that resides on the client (also called the client or secondary database) and that contains all of the records cloned from the DMSII database you specified for cloning. The replicated database is updated periodically with changes made to the primary (original) DMSII database. The periodic update (or tracking process) is explained later in this section. Compare this to the primary database.

replication

The ongoing process of cloning and tracking a DMSII database.

S

secondary database

The replicated database. This is the database that resides on the client (also called the client or secondary database) and that contains all of the records cloned from the DMSII database you specified for cloning. The replicated database is updated periodically with changes made to the primary (original) DMSII database. The periodic update (or tracking process) is explained later in this section. Compare this to the primary database.

set

An index into a data set. A set has an entry (key + pointer) for every record in the data set.

structure

A data set, set, subset, access, or remap. Each structure has a unique number called the structure number.

subset

An index into a data set. A subset does not necessarily have an entry (key + pointer) for every record in the data set. Subsets are used to access selected members of a data set and to represent relationships between data set records. Subsets typically contain fewer entries than normal sets.

An automatic subset is any subset that contains a WHERE clause and is maintained by DMSII.

A manual subset is any subset that is maintained by an application.

T

table

A data structure in the client database corresponding to a data set or remap in the host DMSII database.

tracking

Retrieving only the changes from the audit trail to apply to the replicated database. Tracking is an ongoing process for propagating changes made to records in the DMSII primary database to the replicated database. The DATABridge Span accessory and the DATABridge Server Accessory perform extraction as well as tracking.

Tracking is one phase of the database replication process. The other phase is cloning.

U

undigits

A NUMBER data item containing bit values from 10 to 15 in one or more digits. The digits in a NUMBER data item should contain values from 0 to 9; however, it is possible for the digits in NUMBER data item to contain values 0 to 15. Because values 10 to 15 are not valid digit values, the digits in NUMBER data items containing values from 10 to 15 are called undigits.

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