Databridge Enterprise Server Administrator's Guide

7.0 Service Pack 1

Table of contents

1. Databridge Enterprise Server Administrator's Guide

Micro Focus Databridge Enterprise Server is a Windows-based solution for DMSII data replication and integration that significantly reduces the replication time of DMSII data, thereby reducing MCP host resources and related expense. 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.

1.1 About this guide

This guide contains instructions for configuring and using Databridge Enterprise Server. This preface includes information to help you use this guide.

To configure and run this program, you should be a system administrator familiar with the following:

- Standard Unisys® operations for MCP-hosted mainframes such as the CS7xxx series, Libra series, ClearPath® NX/LX or ASeries
- DMSII databases and Data And Structure Definition Language (DASDL)

1.2 Conventions

The following conventions and terms may be used in this guide.

This convention	Is used to indicate this
menu > sub menu 1 > sub menu 2 ... > menu item (item)	This font style/color shows mouse-clicks in the order required to access a specific function, window, dialog box, etc. The greater than symbol > indicates the next item to click in the series. The parentheses ( ) indicate the setting, option, or parameter being discussed. Note the font style reverts back to normal.
`this type style`	text that you type, filenames and directory names, onscreen messages
italic	variables, emphasis, document titles
square brackets ([ ])	optional items in a command. For example, `[true	false]`. (Do not type the brackets.)  Buttons. For example, `[OK]`, `[Start]`, `[Cancel]`
pipe (`|`)	a choice between items in a command or parameter. When enclosed in braces `( { } )`, the choice is mandatory.
UPPERCASE	DMSII data set and data item names, buttons to click. For example, CANCEL, OK, APPLY.

This term	Is used to indicate this
MCP server host mainframe	Unisys ClearPath NX, LX or A Series mainframe
DBEngine	Databridge Engine on the mainframe
DBEnterprise	Databridge Enterprise Server
DBServer	Databridge Server on the mainframe
Service	For UNIX Clients, consider this term synonymous with "daemon"

1.3 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
IPC	Inter-Process Communications
MCP	Master Control Program
RPC	Remote Procedure Call
SEG	Segment
WFL	Work Flow Language

1.4 Related Documentation

When using Databridge, you may need to consult the following resources.

Databridge product documentation	On the Databridge installation image, the DOCS folder contains guides for installation, error codes, and administrator's guides for each Databridge product. These documents require Adobe Reader for viewing, which you can download from the Adobe website. This documentation, and current technical notes, is also available on the Support and Services site.
	Documentation for Databridge Enterprise Server and the Databridge Client Console is also available from the Help menu. A modern browser is required for viewing this documentation.
Unisys MCP server documentation	If you are not completely familiar with DMSII configuration, refer to your Unisys documentation.

2. Getting Started

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.

> ✏️ **Note**
>
> To use Enterprise Server, you must first install and run Databridge Host.

2.1 Implementing Security for DBEUsers and DBEAdmins Groups

Use the following procedure to create a Windows user group that has administrator privileges in Enterprise Server, but whose members are not required to be Windows Administrators. Users in this group will be able to add new sources, change properties, and delete log files.

By default, only members of the predefined Administrators group have the right to modify the Enterprise Server configuration.

1. In Windows, log on as an Administrator.

2. In the Microsoft Management Console, create a user group called DBEAdmins. Members of this group will have Enterprise Server administrator privileges. Optionally, create a group called DBEUsers. Members of this group will only be able to run Databridge Enterprise to view, but not change the configuration (that is, they won't have administrator privileges). For instructions on creating user groups, see the Windows Help.

3. At a command prompt, change the directory to the working directory:

   ```
   CD %ProgramData%\Micro Focus\Databridge\Enterprise
   ```

4. Type the following commands:

   ```
   icacls Logs /grant DBEUsers:(CI)(W,WA,WEA)
   icacls Logs /grant DBEAdmins:(CI)(W,WA,WEA,D)
   icacls Config /grant DBEUsers:(CI)(R,RA,REA)
   icacls Config /grant DBEAdmins:(CI)(R,RA,REA,W,WA,WEA,D)
   regedit
   ```

5. In the Registry Editor window, right-click HKEY_LOCAL_MACHINE\SOFTWARE\Micro Focus\Databridge\Enterprise\6.6 and choose Permissions.

6. Click **Add**.

7. In the **Enter the object names to select** dialog box, type `DBEAdmins`, and click `[OK]`.

8. Check the **Allow** box next to **Full Control** and click `[OK]`.

2.2 Running Enterprise Server in Browse Mode

To view or configure Databridge Enterprise, you must run Enterprise Server in browse mode. In Windows, from the **Start** menu, click **All Programs** > **Micro Focus Databridge 6.6** > **Databridge Enterprise** > **Configure Enterprise**.

If you are running under Windows Server 2012 R2 or later and have defined the DBEAdmins group as described in the Implementing Security for DBEUsers and DBEAdmins Groups section, you must right-click the **Configure Enterprise** shortcut and choose **Run as Administrator** in order to perform any configuration tasks.

Databridge Enterprise loads. The left side of the window shows the DBEnterprise machine and known DBServer machines, and the right side shows the Enterprise Server sources.

If MCP disks don't appear in the Enterprise Server window under the Enterprise Server system, see Troubleshooting.

Before you can access DMSII data, you must connect to the host where the Databridge Server accessory (DBServer) is installed.

To connect to Databridge Server

1. From the Databridge Enterprise window, click the **DBServer** button.
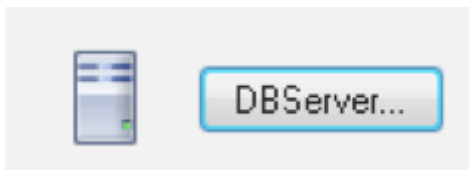
The **Databridge Server Host and Port Number** dialog box appears.
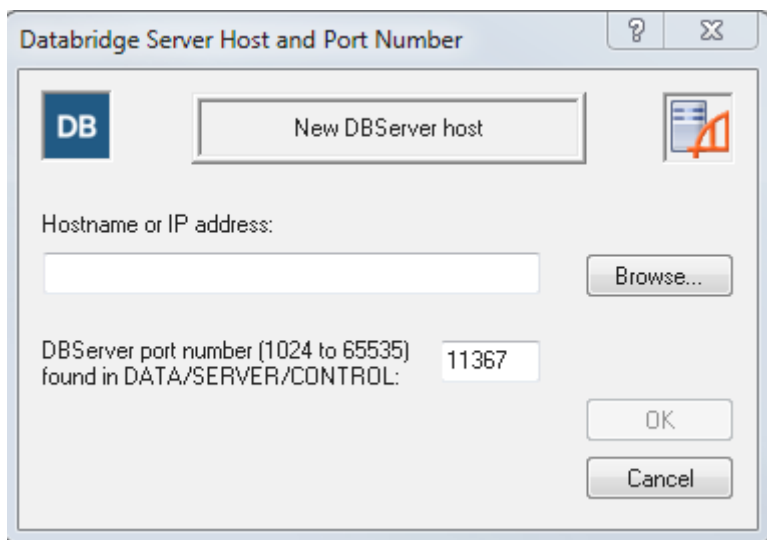
2. Type the host name or IP address for the remote mainframe on which DBServer is running. If the server is visible in Windows, click `[Browse]` to navigate to it.

3. Type the port number. This is set by the TCP/IP port parameter within the DBServer configuration file.

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 DBServer parameter file.

More information

- Creating or Importing an Enterprise Server Source

2.3 Creating or Importing an Enterprise Server Source

Before you can replicate DMSII data, you must 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 DBServer parameter file.

After you create a base source, you can filter it by creating a *local source* from the base source. You can then assign a number of filters for that local source. If filters are implemented in **DBGenFormat**, sources are filtered on the MCP server before the local filters are applied.

> ✏️ **Note**
>
> DBGenFormat is a host utility that creates translation, filter, and format routines. The GenFormat utility interprets the GenFormat parameter file to generate ALGOL source code patches, which are included in the tailored Support Library.

This procedure describes how to create an Enterprise Server source by using the user interface. You can also create sources by importing a configuration file. See Importing a Configuration File.

To create a base source

1. Connect to an MCP server or to a Windows computer that is running Databridge (see Connecting to a Host Running Databridge.)

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 and change options as needed, and then click **OK**.

To import a base source

Use this procedure to import a source that was created in a different working directory location (for example, using a prior version of Enterprise Server).

1. In Enterprise Server, click the [Import] button on the right side of the window.

2. In the **Open Databridge Enterprise Configuration File** dialog box, click **DBEnterprise Configuration**, choose **DBEnterprise Sources (*.source)**, browse to the source file, and click `[Open]` .

More Information

- Creating a local source

2.3.1 Base Source Properties Dialog Box

Getting there

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 Databridge Server — 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 Databridge Server 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 Set Up a Host-Initiated Enterprise Server or Client Run.
As user	The Windows user name required to run the batch file.
Password	The associated Windows password required to run the batch file. **NOTE:** Enterprise Server encrypts user names and passwords and stores them in the registry.
Show log and **Ask First**	These options determine when log files are displayed and whether or not you want to be prompted to view them. For log filenames and directories, see Log Files. **Always:** select this option to automatically display log files for every Enterprise Server process after Enterprise Server finishes. Select the **Ask First** check box if you want to be prompted whether to display the log at the end of each process. **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	

14

	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 Mirroring DMSII Audit Files.
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.

2.3.2 User Credentials Dialog Box

This dialog box is displayed when a Databridge Server 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.

2.3.3 Data Set Properties Dialog Box

Getting there

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 DASDL (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.

2.3.4 Variable Format Properties

Getting there

1. From the Databridge Enterprise window, expand a variable format data set.

2. Right-click the variable format icon and click **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.

2.3.5 Set Properties Dialog Box

Getting there

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 DASDL 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 subset. A **Subset** is 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.

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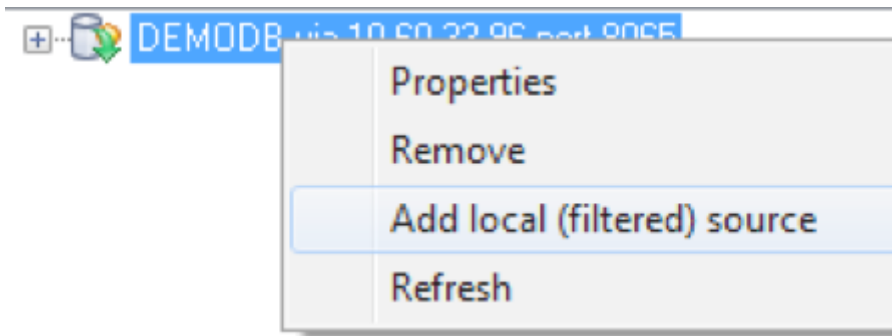
2. In the **Source Properties** dialog box, type the name for this local source. The source name must be a valid name that Databridge Clients can use in a Windows or a UNIX command session. It can include alphanumeric characters, hyphens, and underscores, but no spaces or other symbols.

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, except the restart data set, are included.
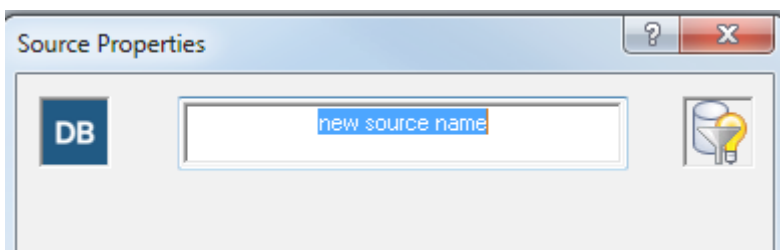
3. Review and change options in the Source Properties Dialog Box as needed. When you're done, click **[OK]**.

> ✏ **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.

More information

- Filtering a Local Source

2.4.1 Source Properties Dialog Box

Getting there

In the right pane of the Databridge Enterprise window, right-click a local (filtered) source, and click **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 log files are displayed and whether or not you want to be prompted to view them.
	For log filenames and directories, see Log Files.
	Always: select this option to automatically display log files for every Enterprise Server process after Enterprise Server finishes. Select the **Ask First** check box if you want to be prompted whether to display the log at the end of each process.
	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.
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.

Extract Workers	This numeric setting specifies the maximum number of threads Enterprise Server can create when extracting data during a clone.

2.5 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 *except* for the restart data set 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).

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 sets).
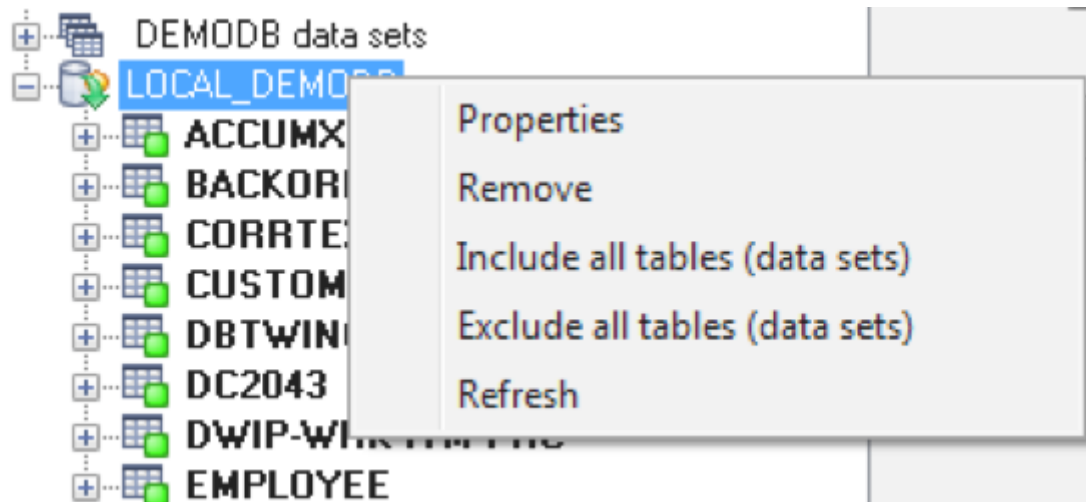
2. Within the local source, filter a data set by right-clicking it and selecting one of the following:

- Select the option to include or exclude all rows of the data set.

- Select **Edit WHERE filter** to define a filtering condition in the Row Filter Dialog Box. Type a filtering clause in the **WHERE** box, or click data items and functions and then click 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 local source.

2.5.1 Row Filter Dialog Box

Getting there

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.

2.6 Connecting a 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 **SOURCE Name** box, type the name of the Enterprise Server source.

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

datasource	One of the following:
	   • The base source name (no additional filtering besides what is done on the mainframe)
	   • The local source name (can include additional filtering)
	Use source names as they appear in the DBEnterprise Sources pane.

hostname	The IP address or name of the PC on which Enterprise Server is installed.
portnumber	The port number for Enterprise Server. To confirm this port number, in the Enterprise Server window, click the DBDirector button. The port number appears in the **Databridge Director** dialog box.

2.6.1 Host Options and Enterprise Server

Many options and settings in the DBEngine and DBServer parameter files apply to DBEnterprise. Some can be overridden and some don't apply at all. The following table summarizes the direct effect of various host options on DBEnterprise.

Host Option	Direct Effect in DBEnterprise
Audit	Determines audit file title prefix
Audit job	N/A
Audit level	N/A
Audit no wait	Wait/don't wait for missing audit file
Audit on	Determines where to find the audit files
Authorized usercode	Client must be run by the specified user
Available	Restricts access to certain times
Checkpoint client	Can be overridden in Checkpoint Properties
Client host	Client must be run on the specified machine
Clone	DBEnterprise always does online clones
Convert reversals	Converts reversals to normal updates if true
Database	Title of DESCRIPTION file on the host
Dynamic names	N/A
Enterprise Workers	Determines number of Reader threads during a clone
Filter	Name of filter in DBSupport
Key	Client must supply the password
Links	N/A
Manual compile	N/A
Mirrored	N/A
Notify	N/A
Print statistics	N/A
Priority	N/A
Property level	N/A
Read active audit	DBEnterprise always reads the active audit
Readahead	N/A
Stop	Can be overridden by client

Host Option	Direct Effect in DBEnterprise
Support	Name of DBSupport library
Transform	Name of transform in dynamic link library or DBSupport
Usercode	N/A
Workers	N/A

2.6.2 Databridge Server Host and Port Number Dialog Box

Getting there

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 DBServer is running, or for a PC on which another copy of Enterprise Server is installed. If the server is visible in Windows, click the **Browse** button to navigate to it.
DBServer port number (1024 to 65535) found in DATA / SERVER / CONTROL	Type the port number. This is set by the TCP/IP port parameter within the DBServer configuration file. For Enterprise Server, the port is set during installation, but can be changed later in the Databridge Director Dialog Box.

2.7 Set Up a Host-Initiated Enterprise Server or 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.

**To set up host-initiated runs of Enterprise Server**

1. Open the DBServer 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
```
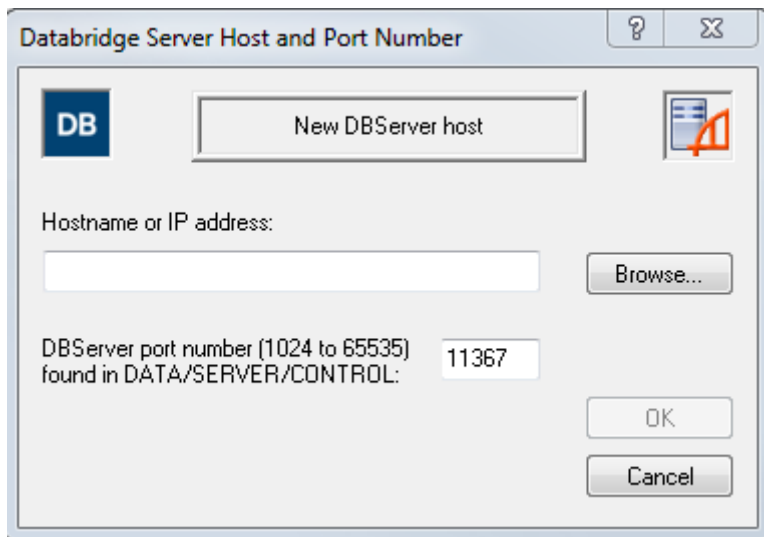

2. Save and close the DBServer parameter file.

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\Micro Focus\Databridge\7.0\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\Micro Focus\Databridge\6.6\Enterprise\MySourceNotify.cmd"
> ```

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

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 DBServer:

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

  ```
  WANTNOTIFY = TRUE
  ```

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

  For example: `START WFL/DATABRIDGE/NOTIFY ("BANKDB")`

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

3. Starting Enterprise Server via Databridge Director

Databridge Director (also referred to as DBDirector) is a Windows Service installed with Enterprise Server that starts Enterprise Server whenever it receives a connection request.

When you start your computer, DBDirector 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. (We do not support running the Director service under other accounts.) 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), you assign the LocalSystem account Administrator rights.

> ✏ **Note**
>
> The notification batch file also runs under the LocalSystem account unless you specify a user name and password for that source.

3.1 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

3.2 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 Databridge Server 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 [Apply].
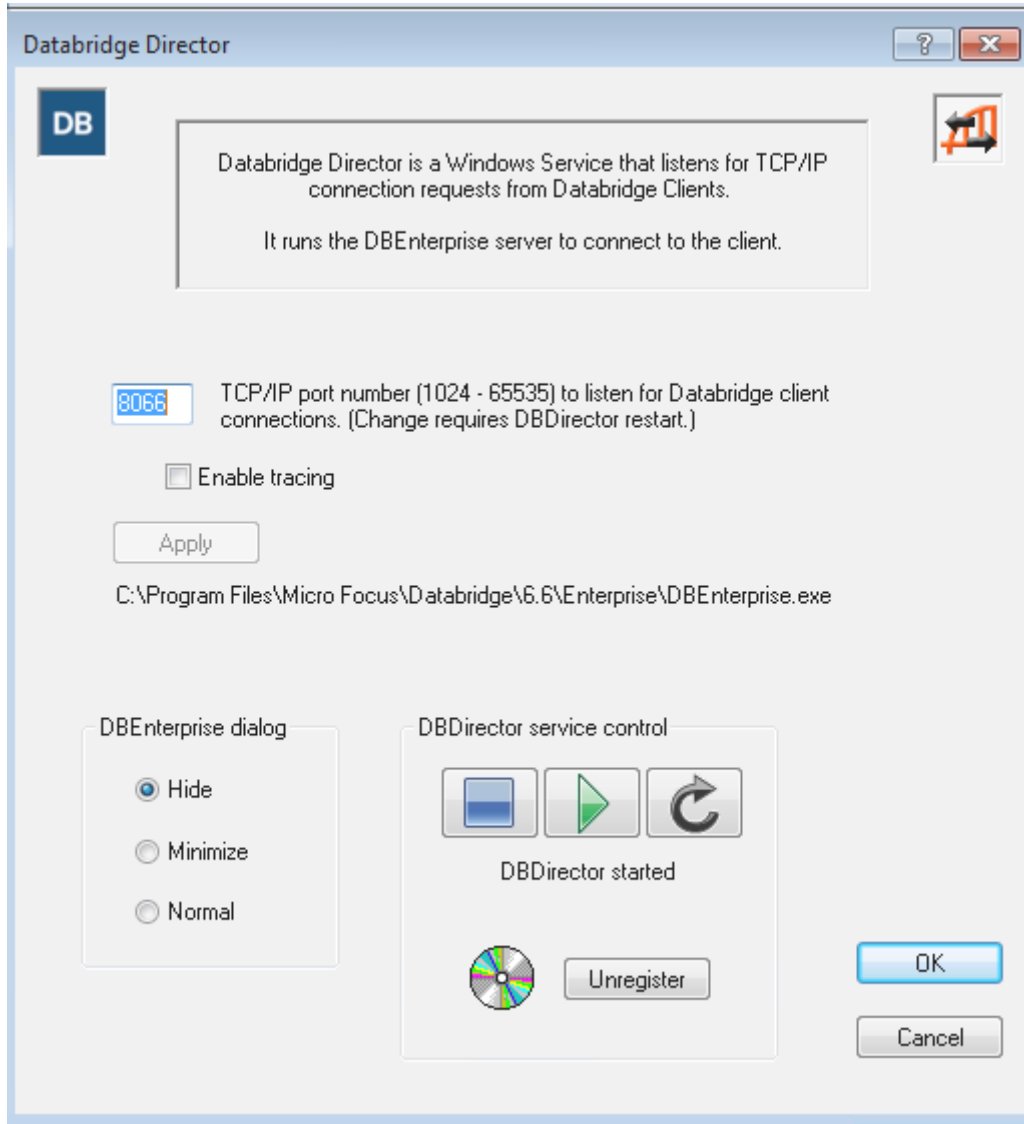
3. Click the **Restart** button to restart Director.

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 DBServer parameter file. See Set Up a Host-Initiated Enterprise Server or Client Run.

3.3 Databridge Director Dialog Box

Getting there

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 DBEnterprise.
Enable Tracing	Select this option and click **[Apply]** to enable tracing in the Enterprise Server log file. The next time a client connects, Enterprise Server will write debugging information to the log.

**DBEnterprise dialog

Hide	Select to hide the window showing replication information and prevent the log from appearing when replication is complete.
Minimize	Select to minimize the window showing replication information immediately after replication starts. However, clicking it from the task bar restores it.
Normal	Select to show the replication information window during replication.

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
↻	Click to restart Director
Register/ Unregister	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.

4. Additional Configuration Options

This section includes optional configuration features of Enterprise Server.

4.1 Caching

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

4.1.1 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 delivering client-requested data from filtering that data. Cached files are filtered in advance. This lets Enterprise Server quickly respond to data requests without placing an additional resource burden on the mainframe.

In Enterprise Server, you can create one or more local sources from a single DBServer source. Each local source can specify its own unique filtering conditions. When caching is enabled, Enterprise Server applies the filtering conditions of the local source and writes the update to the local cached file. When you have multiple local sources for a single remote source, caching them will improve performance.

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.

4.1.2 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.

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 **[Cache]**.

3. In the Base **Source Cache Properties** Dialog Box, do the following:

   a. In the **Cache parent directory** box, type or browse to select the directory to which cached files are written. This box enables caching.

   b. From the **When tracking, read cached files menu**, specify an option to determine whether cached files can be read while tracking.

   c. From the **Wait for audit to cache** options, specify how long you're willing to wait for additional updates to cache.

   d. For **Remove cache files when read** *n* **times**, enter the number of Databridge Clients you expect to read this cache. If Clients are tracking only filtered sources, only cached audit files from local filtered sources will be deleted; cache files for base sources will need to be removed manually.

   e. Select the check box **Both before-images and after-images for modifies** if you want to store before- and after-images for modified records. Not selecting this check box results in smaller cache files but does not allow for changes to record keys.

   f. From the **Wait for audit to cache** menu, select an option that determines if or how long Enterprise Server waits before checking for more updates.

4. Click **OK**, and then 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.

5. Set up a local source cache for each local source (derived from this base source) that you want to cache. If you don't have local sources you want to cache, you can populate only the base cache. When you first create a local source, all of its data set except for the restart data sets are included.

If the client requests updates from a local un-cached source, Enterprise Server will read updates from the base source's cache and apply the local source's filters. A filter is a set of conditions you can define, which allows you to replicate only the data that's relevant to a particular client. See Filtering a Local Source.

4.1.3 Setting Up a Local Source Cache

You can set up a local source cache from a base source. The base source provides some 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** window, if the local source has not yet been defined, do one of the following:

   • Right-click a base source and select **Add local (filtered) 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.

4.1.4 Ways to Initiate Caching

To start caching, you must complete the following two steps:

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.

Methods

• **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:

   DBEnterprise CACHE *basesourcename*

• **Scheduled initiation:** Schedule a batch file that periodically runs Enterprise Server with the CACHE command via Windows scheduler.

• **Host initiation:** The Databridge Server establishes a connection to Enterprise Server when more audit is available. (See the Databridge Server NOTIFY option in the *Databridge Host Administrator's Guide*.) Enterprise Server starts a batch file that runs the application with the CACHE command.

The first time you cache a particular base source, Enterprise Server begins by caching the oldest audit file available on the host. Each subsequent time Enterprise Server caches that source, it uses the AFN (from the file LastAFN.txt) to determine where to resume caching.

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.

If you restart the computer or quit Enterprise Server while it is caching, you must restart caching using one of the initiation methods.

4.1.5 Starting Enterprise Server with the CACHE Command

You can start Enterprise Server in caching mode by using the CACHE command-line parameter.

To start caching using a command

- Type the following command in a command prompt window

  dbenterprise cache basesourcename [password [=] "*password*"] [*startafn* [[-] *endafn* | +]]

This syntax lets you specify a starting point in addition to an ending point. You can 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).

The password corresponds to the KEY (password) SOURCE option in the DBServer parameter file. The plus sign (+) indicates that Enterprise Server will continue caching all available audit files that follow the *startafn*. If you specify only a *startafn*, Enterprise Server will cache only the specified audit file and then stop.

4.2 Checkpoint Options Dialog Box

Getting there

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 [Checkpoint].

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.

5. Monitoring and Controlling Replication

The **DBEnterprise** replication 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 Databridge Director 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 quiet point*	**Quit**
Stop Enterprise Server as soon as possible, without waiting for a quiet point	**Quit Now!**

* A quiet point is a point in the audit trail when the DMSII database is quiet and no program is in transaction state. This can occur naturally, or it can be forced by a DMSII sync point.

5.1 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) -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).	Direct disk (with or without caching) This method gives Enterprise Server direct access to the DMSII data, bypassing the network traffic between MCP, the DBServer, and Enterprise Server. After requesting basic file attribute information from the Databridge Engine, Enterprise Server reads data set disk files directly from the MCP disks without using any mainframe resources. **NOTE:** If MCP disks don't appear in the Enterprise Server window under the Enterprise Server system, see Detecting Visible MCP Disks.
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 DBServer 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 data sets • Embedded standard • data sets • Embedded compact data sets • Altered data sets that require a reformat	Standard Requires that DBServer provide the data record-by-record because some reformatting or other procedures must be done on the mainframe before the record can be sent.

This hardware and data set type	Uses this replication method

NOTE:

- 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 Library Overview.

5.2 Server MCP Disk Properties Dialog Box

Getting there

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 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.

6. Bidirectional File Transfer

> ✎ **Note**
>
> This feature is available as an additional Enterprise Server component and requires special licensing. Contact your sales representative for details.

Bidirectional high-speed file transfer can minimize the use of mainframe resources when transferring text, printer, and data files. By using bidirectional file transfer, you can copy almost any file or directory to or from an MCP disk and 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 a file from the MCP disk to the Windows disk. 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 text files to a Windows disk, Enterprise Server translates EBCDIC characters to ASCII characters and inserts carriage-returns and linefeeds at the end of each line. For printer files, it inserts form feed characters at page breaks. Binary files, such as code files or container files, are copied without any translation or character insertions.

As it copies text files from a Windows disk to an MCP disk, Enterprise Server translates ASCII characters to EBCDIC characters and removes carriage-returns and linefeeds from the end of each line. The longest line in the first 4096 bytes of the file determines the MCP file's MAXRECSIZE attribute.

Binary files created on the MCP disk will have FILESTRUCTURE = STREAM.

Before you can use bidirectional high-speed file transfer, the Unisys host must be configured using the MAKEUSER program.

6.1 Configuring Security on Host

Before you can use bidirectional file transfer in Enterprise Server, the Unisys host must be configured using the MAKEUSER program. For information about MAKEUSER, see the Unisys documentation. The following MAKEUSER example configures the Unisys host to allow file transfers using COPY:

To configure security

1. Sign on to CANDE and transmit

```
RUN *SYSTEM/MAKEUSER
```

1. After your terminal opens as a remote file displaying the version information, then transmit the following:

```
$ LIST IGNORE
```

1. Next, create a remote user. For example, transmit the following:

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

1. Finish by transmitting the following:

```
END
```

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 usercode that has permissions to access the host files to be transferred. This command allows user SALLY to act as usercode PROD from the IP address specified.

6.2 Transferring Files or Folders

Use the following procedure and examples to transfer files to or from an MCP disk.

To transfer a file or folder

> ✎ **Note**
>
> To use this feature, you must have certain privileges. See Accessing File Transfer.

At a command prompt, type `<DBEnterprise program directory>\DBEnterprise` followed by a COPY command, as in the following example. Additional examples are provided below. Make sure that you enclose Windows filenames and directory names in quotation marks. Keywords and MCP filenames are case insensitive.

```
COPY "localname" { TO | AS } (usercode)MCPName [ ON familyname ]
[ { FROM | VIA } ipnameoraddress ] [ PORT portnbr ]
[ TEXT | BINARY ] [ HIDE ]
COPY (usercode)MCPName [ ON familyname ] { TO | AS } "localname"
```

```
[ { FROM | VIA } ipnameoraddress ] [ PORT portnbr ]
[ TEXT | BINARY ] [ INDIRECT ] [ HIDE ] [ OVERWRITE ]
```

Use this keyword	For
TO	The folder or directory destination. Files will have the same name in the destination directory as the source. To specify a file name use the AS keyword instead of TO.
AS	The filename destination. Use this keyword to specify a desired target name. For example, use AS if you want to retain ON *\<familyname\>* in the name of a file that is copied from the MCP environment to Windows. If the source is multiple files, the AS keyword is treated as TO and the destination will be a folder or a directory.
FROM -or- VIA	The host name or IP address of the DBServer. The keywords are synonymous. The *ipnameoraddress* is the host name or IP address of DBServer. An IP address must be enclosed in double quotation marks. The portnbr is the number of the DBServer port.
TEXT	Translating the file contents between ASCII and EBCDIC and adding or removing carriage returns and line feeds.
BINARY	Preventing any translation
INDIRECT	Using Indirect Disk access even though Direct Disk might be available
HIDE	Hiding the DBEnterprise Replication Dialog during the file transfer
OVERWRITE	Overwriting the destination file if it already exists without prompting for confirmation

🔥 **Important**

The Windows file name or folder name must always be enclosed in double quotation marks.

When copying from Windows, the localname can include wildcard characters.

The *MCPname* can be a directory name, which is indicated by /=.

If a syntax error occurs, a dialog box appears with the correct syntax, provided the attempted command can be determined. Otherwise, the dialog box will show the syntax for all commands.

Examples

```
DBEnterprise copy "e:\batch\data\*.txt" to (PROD)batchfiles/= on mypack via "192.168.16.1" port 6100
DBEnterprise copy "y:\logs\dailyrun.log" as (admin)logfile/daily on prodpack
DBEnterprise COPY (PROD)DATA/SPAN/= ON DBPACK TO "D:\BACKUP\SPAN\DATA"
```

6.3 Transferred Filenames and Logs

When you transfer a file to the MCP environment, nodes (in filenames or folder names) containing characters that are invalid in MCP titles are enclosed in quotation marks. Nodes longer than 17 characters are truncated if the SYSOPS LONGFILENAMES option is reset.

When you transfer MCP files to the Windows environment, slashes that separate filename nodes are converted to the percentage sign (%), and quotation marks are removed. Additionally, the ON *<familyname>* portion of the file title is dropped. If you want to retain this title in the filename of the copied file on Windows, use the AS keyword. See Transferring Files or Folders.

Logs for file transfers are placed in one of two folders in the Logs directory:

- Copy from *<ipaddress>* contains logs for files that were copied from the MCP environment to Windows
- Copy to *<ipaddress>* contains logs for files that were copied to the MCP environment from Windows

6.4 Accessing File Transfer

To use bidirectional high-speed file transfer, your user ID must belong to either the DBEAdmins or DBEUsers group, if they've been defined. If these groups have not been defined, any user of the system can access this feature.

To transfer files from MCP disk using Direct Disk mode requires that your user ID belongs to the Windows Administrator group. Non Administrators are limited to Indirect Disk mode.

6.5 Default COPY Parameters

Enterprise Server tracks the last COPY command performed by each Windows user and can re-use the DBServer parameters as default values on subsequent COPY commands.

For example, suppose you enter these two COPY commands:

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

dbenterprise copy (JOE)UPDATES/= ON SYSPACK to "d:\hostfiles\test"
```

Enterprise Server will populate the missing parameters using stored settings. Internally, the second copy command expands to the following:

```
dbenterprise copy (JOE)UPDATES/= ON SYSPACK to "d:\hostfiles\test" from mcpvlan port 5000
```

In some cases, Enterprise Server infers default values even when no user command history exists.

If a Windows user has never specified FROM/VIA or PORT values, Enterprise Server uses the DBServer addresses and port numbers that are associated with configured sources in Enterprise Server.

If the COPY command does not specify BINARY or TEXT mode, Enterprise Server does the following to determine the mode:

If	Enterprise Server
Copying from MCP	Uses the MCP file attribute FILEKIND. If FILEKIND is set to DATA, Enterprise Server examines the first record of the file. If it only contains printable characters, TEXT mode is used. If it contains any nonprintable characters, BINARY mode is used. Some files, such as COBOL source files, are transferred in TEXT mode by default.
Copying from Windows	If the first 4096 bytes contain nonprintable characters Enterprise Server copies the files in BINARY mode. Otherwise it uses TEXT mode.

7. Mirroring DMSII Audit Files

7.1 Introduction to Mirroring

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

After you have loaded a dump of a DMSII database to a secondary MCP host computer, you can propagate or "mirror" Audit Files

- An operator closes the audit file with the mixnumber SM 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.

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. Because the audit files are first mirrored to the Enterprise Server environment, they are available even if the primary system is unusable. Mirroring in near real-time ensures that very few updates are lost in the case of a primary system failure. 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 lets you specify a range of audit file numbers to be mirrored. For more information about mirroring audit files using the command line, see Command-Line Options.

To mirror audit files

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 [Audit Mirror].

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

   Timestamps

   - INDEPENDENTRANS 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

   (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, type 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.

8. On the secondary system, start DBAuditMirror

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

where databasename is the name of the **secondary database**. 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.

 * **Secondary database:** The replicated database. The replicated database is the database that usually resides on the client machine and contains records cloned from the DMSII database. 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.

7.2 Audit Mirroring Properties Dialog Box

Getting there

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 [Audit Mirror].

The options are as follows:

Mirroring parent directory (enables audit file mirroring)	Target directory for mirrored Audit Files • An operator closes the audit file with the mixnumber SM 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. . 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 to the secondary MCP system. This batch file might remove the mirrored file from the audit mirroring directory. Enterprise Server includes a sample file FinishMirrored.cmd in the Enterprise Server directory that removes the mirrored file after it is mirrored to the secondary system (using DBAuditMirror). This file

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.

7.3 Sample Audit Mirror Configuration File

```
%----------------------------------------------------------------------
%
% Copyright 2019 Micro Focus, or one of its affiliates.
%
% Module: DATA/AUDITMIRROR/SAMPLE/CONTROL
%
% Project: Databridge
%
% Description: Databridge Audit Mirror Sample Parameter File
%
% Copyright 2019 Micro Focus, or one of its affiliates.
%
%----------------------------------------------------------------------

            % How to locate the DBEnterprise SOURCE ...

    SOURCE  <sourcename>  % SOURCE name in DBEnterprise
        AT  "<host/ipaddress>" % DBEnterprise's host
      PORT  <portnumber>  % DBEnterprise's port number, e.g. 11367

            % example:
    % source BANKDB at "WINSERVER" port 11367

            % 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
```

8. User Written Libraries

User-written libraries allow DBEnterprise to perform many of the reformatting and transform functions that would otherwise require 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, 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 will reduce MCP Server resource utilization.

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.

After you build the library, copy it as `<sourcename>(<updatelevel>).dll` to the subdirectory containing DBEnterprise.exe. You can also copy it as .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.

The LINCLOC.dll library is installed in the DBEnterprise Program Files folder and provides reading and reformatting capabilities for replicating an **Enterprise Application Builder** (LINC) database with minimal mainframe resource usage. DBEnterprise will automatically use that library if the SOURCE name is LINCLOG.

9. 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
	Databridge Server 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

10. Troubleshooting

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

For a complete list of errors and informational messages related to this product, see the *Databridge Error and Message Guide* on the installation image or on the Databridge Documentation page.

10.1 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.

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 DBDirector 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 Databridge Server on the mainframe.**

   - Make sure that DBServer 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 DBServer port number to which Enterprise Server is connecting (shown in the **DBEnterprise Sources** pane) matches the port that DBServer actually uses. If more than one copy of DBServer is running, make sure they use different port numbers.

   - If Enterprise Server returns an error in interactive mode saying it could not connect, Databridge Server 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 user name and password associated with the notification batch file are valid.

   - If multiple copies of DBServer are running, make sure that they use different notification filenames. (See the *Databridge Host Administrator's 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 Micro Focus Technical Support at Databridge Customer Support.

10.2 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 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.
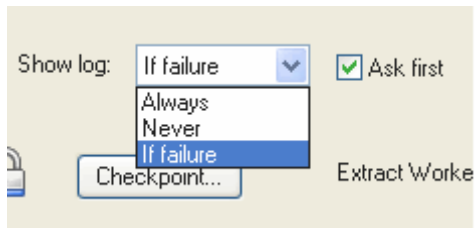
For this	Select this
To automatically display log files for every Enterprise Server process	**Always** If you additionally want to be asked whether to display the log at the end of each process, select Ask First. Otherwise, clear the Ask First check box. In this case, the log file is displayed automatically after Enterprise Server runs.
To not automatically display log files	**Never** (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).

10.3 Log Files

To open log files, from the Windows **Start** menu, click **All Programs** > **Micro Focus Databridge 7.0** > **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 "Tics" in the statistics summary refers to milliseconds. The "Cases" column is the number of times that statistic was recorded.

Function	Log Filename
Loading (LOAD or CONFIGURE command)	Enterprise Server (*configfilename*) dayname, month day, year time.log where *configfilename* is the name of the Enterprise Server configuration file.
Serving a Databridge Client	*databaseClientType* Server (*ipaddress*) dayname, month day, year time.log where *databaseClientType* is the database type of the Databridge Client, and *ipaddress* is its TCP/IP address. This log file appears in the subdirectory named for the data source the Client is using. **Example:** `BANKDB\MS-SQL Client Server (192.168.16.2) Friday, December 11, 2009 07-54-47 PM 542.log`
Caching updates	Cacher (*basesourcename*) dayname, month day, year time.log where *basesourcename* is the name of a Server Accessory source. This name appears in both Databridge Server sources tree and the Enterprise Server sources tree.
Using the enumerating disk function	EnumerateDisks (*localhost*) dayname, month day, year time.log
Using the CODE function	Code Listing (*basesourcename*) dayname, month day, year time.log where *basesourcename* is the name of the data source. This log file appears in the subdirectory named for the data source being mirrored.
Browsing/interactive configuration through the user interface	Browser dayname, month day, year time.log **Example:** `Browser Wednesday, December 9, 2009 11-18-11 PM 125.log`
	File Transfer *dateTime*.log where dateTime is the start time of the file transfer. This log file

Function	Log Filename
Transferring a file using the XFER command	appears in a sub-directory named "Xfer from ipaddress" where ipaddress is the host name or TCP/IP address of the Unisys host source of the file transferred, with decimals replaced with underscores. *Example:* `Xfer from 192_168_16_1\File Transfer Monday, December 7, 2009 07-17-21 PMPM 422.log`
Mirroring audit files from the primary DMSII database	Mirror DMSII Audit (*datasource*) dayname, month day, year time.log where *datasource* is the data source being mirrored. This log file appears in the subdirectory named for the data source being mirrored.
Serving audit mirror files to the host running DBAuditMirror	AuditMirror Server (*ipaddress*) dayname, 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.

10.4 Databridge Director Log Files

The Databridge Director service writes its log information to the Windows Application log. Use the Windows Event Viewer to read that information. The event source is DBDirectorxx, where xx is the release number; for example, 70 for the 7.0 release.

Events logged include start up messages and client connections (CONNECT).

10.5 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, click **All Programs** > **Micro Focus Databridge 7.0** > **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 the user's TEMP folder, by default.

11. 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.

11.1 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 Databridge Server 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.

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.

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 Connecting a Databridge Client to Enterprise Server.

11.2 Sample Configuration File

```
############################################################
#                                                          #
#                Databridge Enterprise Server              #
#                                                          #
#                 Sample Configuration File                #
#                                                          #
#                                                          #
#        Copyright (C) 2019 Micro Focus or one of its affiliates.   #
#                                                          #
############################################################
# 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 Databridge Server 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
# When caching ...   maxwait 10 seconds
# Number of seconds to wait for more audit
# or FOREVER or DONTWAIT (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 DBServer 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 DBServer.
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"
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 L1        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 datasets
# keep everything for unselected datasets
# (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 datasets
# discard everything for unselected datasets
#----------------------------------------------------------------------
# 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.
```

11.3 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 variable items 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 Databridge Server. 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 remotesourcename 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 Databridge Server defined base source. The syntax is as follows:

```
[ LOCAL ] SOURCE localsourcename 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 (Databridge Server). You can list these options in any order.

Option	Does this	Syntax	UI Setting
cache parent directory -or- cached in directory	Enables update caching and specifies the location of cached update files.	[{ CACHE	CACHED } [IN
checkpoint	Determines the frequency with which the Databridge Client commits (saves) updates from Enterprise Server.	CHECKPOINT [CLIENT	CLIENTS] [EVERY] numblocks [AUDIT] BLOCKS CHECKPOINT [CLIENT
client count	Indicates the number of Databridge Clients that are expected to read the cached audit updates.	CLIENTS [=] number	**Remove cache files when read n times** in the Base Source Cache Properties and Source Cache Properties dialog boxes
restricted host list	Specifies Databridge Clients that have access to this Enterprise Server source. Leave blank to give all Databridge Clients access.	HOST { "*hostname*"	"*ipaddress*" }
view log	Determines if the log file opens at the end of each server or cacher run.	VIEW LOG = { ALWAYS [ASK]	NEVER

RemoteSourceOnlyOptions

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

Option	Does this	Syntax	UI Setting
on notify	Specifies a batch file or a command to run when Databridge Server 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 Databridge Server for new audit when caching updates.	MAXWAIT { FOREVER | DONTWAIT | numseconds [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

LocalFilterOptions

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

Option	Does this	Syntax	UI Setting
select from	Specifies which updates to send to the client from the indicated data set. Use as many times as needed for other data sets. ALL and * are equivalent.	SELECT { ALL	* } FROM datasetname [WHERE expression] **NOTE:** If datasetname is a reserved word, it must be in quotation marks. The syntax for expression is the same as that used for DBGenFormat (see the *Databridge Host Administrator's Guide*).
select none from	Discard all updates from the indicated data set. Use as many times as needed for other data sets.	`SELECT NONE FROM` `datasetname` **NOTE:** If datasetname is a reserved word, it must be in quotation marks.	**WHERE** box in the Row Filter dialog box.
select from other data sets	Determines what to do with updates for data sets not specified by one of the first two options. The NONE value discards all other updates. ALL and * are equivalent.	SELECT { ALL	*	NONE } FROM OTHER DATASETS	**WHERE** box in the Row Filter dialog box.

12. 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 the commands you can use when running DBEnterprise.exe from a command prompt.

12.1 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.

CACHE *sourcename*
 	
[PASSWORD [=] "*password*"]
 	
[*startafn* [[-] *endafn* | +]]
	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.
	
	The PASSWORD option specifies the password to be used when accessing the remote source. The password must match the KEY option in the Databridge Server SOURCE.
	
	After cache files exist, the next run of the cache command starts reading DMSII audit files from the number specified in the file LastAFN.txt located in the Cache subdirectory.
	
	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.
	
	Examples:
	
	```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 "*filtername*" *updatelevel*	Writes the filtering pseudo-code to the log file. *filtername* is usually the same as the source name. *updatelevel* is the desired database update level. This command is intended for Databridge technical support's diagnostic purposes.
CONFIGURE "*configfilename*"	Loads a configuration text file into Enterprise Server to define sources and filters. It is equivalent

Option	Description
	to using the Import button on the Databridge Enterprise window.
CONNECT socketnumber "*ipaddress*"	Used by Databridge Director to get Enterprise Server to accept the connection from a Databridge Client or Databridge Server.
`COPY "`*localname*`" { TO`	AS } *(usercode)MCPName* [ON *familyname*] `[ { FROM`
DUMP *sourcename afn*	Writes every update from a cache file to the log file. *sourcename* is the name of a cached base or local (filtered) source, and *afn* is the cache audit file number. This command is intended for diagnostic use upon request of Databridge Technical Support.
LOAD "*configfilename*"	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 Databridge Server SOURCE. Mirroring must be configured within Enterprise Server before command line mirroring can occur. See Mirroring DMSII Audit Files.
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 number, record type, and other information. **Example:**

Option	Description
	`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*] [PORT *portnbr*] [TO *localdirectory*] [TEXT **|** BINARY [INDIRECT]]	Transfers a file or directory of files from an MCP disk to the local computer. The XFER command performs a subset of the capabilities of the COPY command. The Databridge host computer must be configured to allow file transfers using XFER. For details, see Configuring Security on Host. **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 Databridge Server is running. For example: FROM GALILEO or FROM "192.168.16.1"* portnbr *is the TCP/IP port number that Databridge Server uses.*

Option	Description
	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.

13. Glossary of Terms

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 Files

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.

An audit file is created by the DMSII Accessroutines and contains the raw format of changes made to the DMSII database by update programs. Audit file records contain the deletes, creates, and modifies that were made to the various structures. Depending on the frequency of changes made to a database, the information in an audit file can span a few hours or several weeks.

If you set the DBEngine Read Active Audit option, Databridge can access the current audit file. If 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. 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.

- 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 mixnumber SM 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.

audit trail

The audit trail contains all of the audit files generated for a database. The Databridge Engine reads the audit files to extract updates. It then passes the updates to the Client to be applied to the relational database. After the updates have been successfully extracted, the Client saves the state information, which includes the location in the audit trail from which the last group of updates for the data set were read.

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 one-time 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.

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

- INDEPENDENTRANS 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

DASDL

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

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data set

A data set is 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 (also referred to as DBDirector) is a Windows Service installed with Enterprise Server that starts Enterprise Server whenever a connection request is received.

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

DESCRIPTION file

The DESCRIPTION file contains the structural characteristics of a database, physically and logically. This file 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 replication method that allows Databridge Enterprise Server to clone and track DMSII data sets without using any significant mainframe resources. Direct disk replication requires a SAN (Storage Area Network) or Logical Disks configured to make MCP disks visible in Windows.

entry point

A procedure in a library object.

extraction

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

file format conversion

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

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.

GenFormat

A host utility that creates translation, filter, and format routines. The GenFormat utility interprets the GenFormat parameter file to generate ALGOL source code patches, which are included in the tailored Support Library.

null value

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

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.

quiet point (QPT)

A quiet point is a point in the audit trail when the DMSII database is quiet and no program is in transaction state. This can occur naturally, or it can be forced by a DMSII sync point.

record format conversion

A type of DMSII reorganization that 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).

record serial number (RSN)

Record sequence numbers (RSN) are 48-bit quantities used by the Databridge Engine, in the case of DMSII XE, to uniquely identify a record. RSNs will always be used instead of AA values when available except for data sets having embedded data sets. RSNs are always static; they will not change after a garbage collection reorganization.

reorganization

Structural or formatting changes to records in the DMSII database, which may require parallel changes to (or re-cloning of) records in the secondary, or relational, database. See also file format conversion and record format conversion.

replicated database

The replicated database is the database that usually resides on the client machine and contains records cloned from the DMSII database. 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

Replication is the ongoing process of cloning and tracking changes to a DMSII database.

rollback

A systematic restoration of the primary or secondary database to a previous state in which the problem or bad data is no longer found.

secondary database

The replicated database. The replicated database is the database that usually resides on the client machine and contains records cloned from the DMSII database. 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.

table

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

tracking

Tracking is an ongoing process for propagating changes made to records in the DMSII primary database to the replicated database after the initial clone. The Databridge Engine performs extraction as well as tracking.

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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