PLUS ADMINISTRATOR'S GUIDE

Attachmate® DATABridge™

Administrator's Guide

DATABridge Plus

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About This Guide

To install, 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)

Conventions

This guide uses the following conventions and terms.

Convention or Term	Used to indicate
`this type style`	text you type filenames and folder names onscreen messages
italic	emphasis document titles variables
[square brackets]	command options For example, [true | false]. (Do not type the brackets.)
UPPERCASE	DMSII data set and data item names
MCP server *host* *mainframe* (terms)	Unisys ClearPath NX, LX or A Series mainframe
DBEnterprise (term)	DATABridge Enterprise Server
DBServer (term)	DATABridge Server Accessory

Abbreviations

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

Abbreviation	Name
AA	Absolute Address
ABSN	Audit Block Serial Number
AFN	Audit File Number
API	Application Programming Interface
DASDL	Data and Structure Definition Language

Abbreviation	Name
DMSII	Data Management System II
IDX	Index
MCP	Master Control Program
RPC	Remote Procedure Call
SEG	Segment
WFL	Work Flow Language

Related Documentation

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

DATABridge product documentation

In the DOCS folder on the DATABridge installation image, you'll find guides for installation, error codes, and a separate administrator's guide for each DATABridge product. These documents require Adobe Reader for viewing, which you can download from the Adobe website at *http://get.adobe.com/reader/*. All DATABridge product documentation, including technical notes, is also available on the Attachmate website at http://support.attachmate.com/manuals/databridge.html.

Documentation for DATABridge Enterprise Server and the DATABridge Client Console is also available from the **Help** menu. A modern browser is required for viewing.

Unisys MCP server documentation

If you are not completely familiar with DMSII configuration, refer to the included Unisys documentation.

CHAPTER 1

Introducing DATABridge Plus

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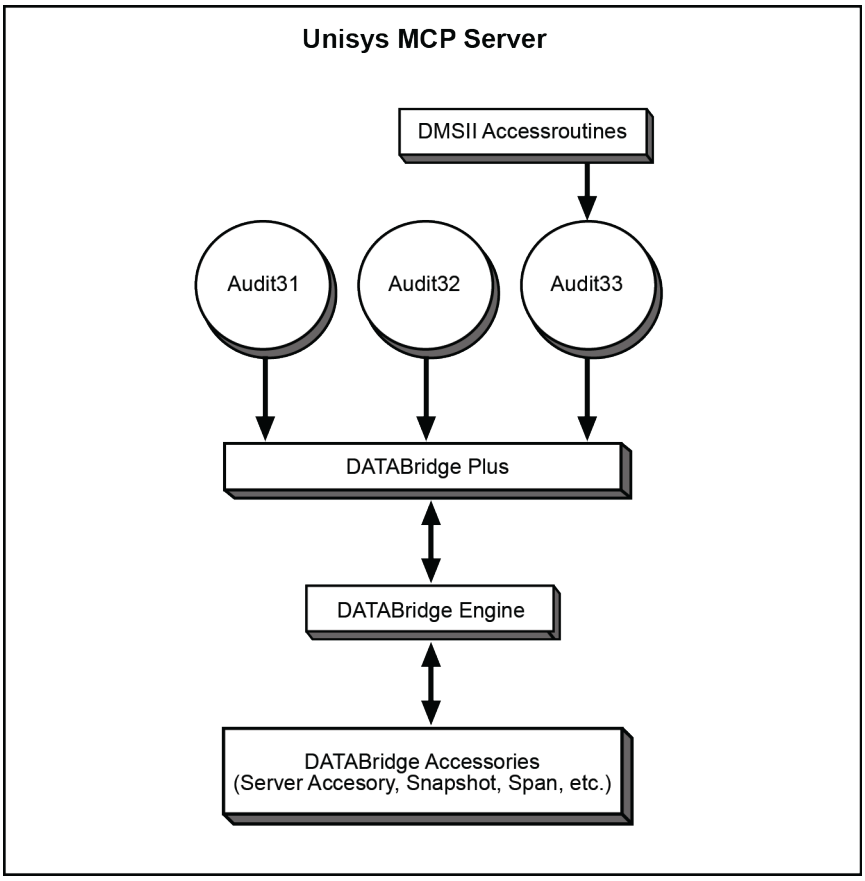
DATABridge Plus runs on all Unisys® MCP-hosted servers, such as the CS7xxx series, Libra series, ClearPath® NX, LX, or A Series. It is a system library that accesses DMSII audit files, including the current audit file, giving DATABridge the ability to perform near real-time replication of DMSII databases.

To use DATABridge Plus, you need a basic understanding of DATABridge and the DATABridge Accessories. See the *Glossary* (page 15) for a brief explanation of the DATABridge Accessories, or refer to the *DATABridge Host Administrator's Guide* for a complete explanation of DATABridge and its Accessories.

How DATABridge Plus Works

The following diagram shows how DATABridge Plus works:



DATABridge Accessories request audit file information for a specific database from DBEngine. DBEngine then initiates the DATABridge Plus system library to access DMSII audit files, including the current audit file, for the specified database. DATABridge Plus submits the DMSII audit file records to DBEngine until DATABridge Plus locates the end-of-file marker. DBEngine then rolls back transactions to the last quiet point before the end-of-file marker.

DATABridge Plus:

- Supports MCP levels SSR 49.1 through 55.1.
- Uses the same license key as the DATABridge host product.
- Is compatible with DATABridge Host 5.0 and later.

CHAPTER 2

Install and Configure DATABridge Plus

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Install DATABridge Plus

Note: It is recommended that you install DATABridge Plus into the same usercode and pack where you installed DATABridge.

Complete the following steps to install DATABridge Plus:

1. If you are upgrading, suspend DATABridge Plus. See *Suspending the DATABridge Plus System Library* (page 11).
2. Sign on to the usercode that was used to install DATABridge.
3. If the DATABridge Plus installation WFL has been moved or no longer exists, copy it from the release medium to your host.
4. To install, do one of the following:

   - If installing from DVD, use the following command:

   ```
   WFL UNWRAP *WFL/DATABRIDGE/INSTALL AS

   WFL/DATABRIDGE/INSTALL OUTOF *INSTALL FROM DBXX (CD) TO

   DISK (RESTRICTED = FALSE)
   ```

   where DB*XX* is the version of the software with no decimals. For example, DB61.

   It is recommended that you install to a privileged usercode. If you install to a nonprivileged usercode, all object files will be marked as restricted, which causes the installation WFL to pause (step 5).

   - If installing from uploaded files, upload DISKINSTALL and IMAGE files using a file transfer tool capable of binary/image transfers to the usercode where DATABridge is to be installed. Sign on to the usercode and then use the following command:

   ```
   WFL UNWRAP *WFL/DATABRIDGE/INSTALL AS WFL/DATABRIDGE/

   INSTALL OUTOF DISKINSTALL
   ```

1 From CANDE, start the installation WFL as follows:

```
START WFL/DATABRIDGE/INSTALL ("PLUS"[, "familyname"])
```

where *familyname* is an optional pack name that defaults to DISK. This allows family substitution to determine where DATABridge Plus will be installed. If you use this parameter, do not type the [brackets], but do type the quotation marks. Use this optional parameter only if you used the optional pack parameter when installing DATABridge.

2 When prompted, enter the access code (same as license key) located on your DATABridge host DVD package.

If the installation WFL pauses, continue with step 6.

Otherwise, the installation procedure is complete.

If you installed from DVD to a nonprivileged usercode and the installation WFL is paused, you must unrestrict OBJECT/ DATABRIDGE/KEYENTRY, as in this example:

```
RESTRICT -FILE (ENGR)OBJECT/DATABRIDGE/KEYENTRY ON PRODUCTION
```

3 After you have unrestricted OBJECT/DATABRIDGE/KEYENTRY, transmit mixnumberOK to the install WFL job.

OBJECT/DATABRIDGE/KEYENTRY now runs.

4 When prompted, enter the access code (same as license key) located on your DATABridge host DVD package.

5 After the installation WFL completes, mark all of the DATABridge object files as unrestricted by entering the following from either the ODT or from a privileged usercode in MARC:

Installation Results

The files listed below are copied to the usercode you designated when you installed DATABridge Plus:

```
(usercode)OBJECT/DATABRIDGE/AUDITSUPPORT
(usercode)DATA/AUDITSUPPORT/README
```

What to Do Next

Establish DATABridge Plus as a system library, as explained in the next section.

Establish DATABridge Plus as a System Library

You must establish DATABridge Plus as a system library so that DBEngine can invoke DATABridge Plus to access the audit files.

To establish DATABridge Plus as a system library

- Enter the following command from either the ODT or from MARC:

```
SL DBAUDITSUPPORT=
(usercode)OBJECT/DATABRIDGE/AUDITSUPPORT ON
familyname:TRUSTED,LINKCLASS=3
```

where *usercode* and *familyname* refer to the usercode and pack to which DATABridge Plus was installed.

The host responds with the following message to indicate that DATABridge Plus is established as a system library:

```
Function "DBAUDITSUPPORT=(usercode)OBJECT/DATABRIDGE/ AUDITSUPPORT ON
pack" ESTABLISHED
```

You can now use DATABridge as you normally would. DBEngine will automatically invoke DATABridge Plus to access audit files as needed.

Note: The DBEngine parameter file (DATA/ENGINE/ CONTROL or, if the file is specific to a database, the database name is a node in the file name) contains a DBPlus parameter that specifies whether or not DBEngine should use DBPlus when replicating a database.

Suspend the DATABridge Plus System Library

Some situations may require that you suspend DATABridge Plus, such as upgrading the DATABridge Plus software.

To suspend DATABridge Plus

- Enter the following command from either the ODT or from MARC:

  ```
  SL - DBAUDITSUPPORT
  ```

  The host responds with the following message to indicate that DATABridge Plus is suspended:

  ```
  FUNCTION "DBAUDITSUPPORT" IS NO LONGER ESTABLISHED
  ```

  To reestablish DATABridge Plus as a system library, complete the steps in *Establishing DATABridge Plus as a System Library* (page 10).

Get Automatic Updates in Real-time

Use this procedure to configure updates to automatically occur in real-time while optimizing performance. This procedure uses the commit parameters values in either the DBEngine control file or the Client configuration file to control the frequency of DBEngine commits.

Commit parameter values represent a trade-off between overhead and lag time. Because long transactions tax the relational database and short commits generate a lot of overhead, you'll need to adjust these values to achieve a balance between optimized performance and minimal lag time.

To configure the frequency of commits

1. In a text editor, open the DBEngine control file or the Client configuration file (dbridge.cfg). Before you can edit the Client configuration file, you must first export the binary file to a text file. For instructions, see the DATABridge Client Administrator's Guide.
2. Set `use_dwait=true`.

3 Set the value for max_retry_secs to 10 or 15 seconds. (The default is 600 seconds or 10 minutes.) This is the amount of time DBEngine waits [["to commit"?]] after it reaches the end of the current audit file. If you pick a very low value for max_retry_secs you will cause unnecessary overhead by making DBEngine retry too often.

4 Set the value for max_wait_secs to 0, which allows it to continually retry to commit.

Note: If your programs include a BEGIN TRANSACTION but wait a long time before a COMMIT transaction, DBEngine will be unable to find a quiet point in the audit trail. (The definition of a quiet point is a point where there are no programs in transaction mode in DMSII.) To resolve this problem, enable LONG TRANSACTIONS in either the DBEngine Control file of the Client configuration file. This tells DBEngine to do a COMMIT when it encounters a LONG TRANSACTION.

DATABridge Plus Messages

Following are messages that may occur when using DATABridge Plus:

`AUDLEVEL=n`

n is the audit level of the audit file DATABridge Plus is trying to open. DATABridge Plus supports audit levels 6 and 7. If, for example, your DMSII audit level changes to 8, you will receive this message. If you receive this message, contact Attachmate Technical Support.

`Partial Audit`

Block xxxx xxxx is additional information about the error. If you receive this message, contact Attachmate Technical Support and provide the additional information listed in the error message.

`No File filename`

The audit file DATABridge Plus is trying to open is no longer on the original audit pack or on the AUDIT ON pack location. Copy the audit file to the original pack or the audit on pack location and then perform an FA command.

Glossary of Terms

A

About this Glossary

This section includes terms that are unique to DATABridge, as well as terms that are standard for DMSII databases.

Note: Some of the terms listed here are standard terms for Unisys mainframes. Complete, detailed definitions for these terms can be found in Unisys ClearPath NX, LX or A Series documentation.

ABSN

Audit block serial number—The audit block serial number is a 10-digit number that identifies an audit block.

Accessories

DATABridge Accessories access the services in DBEngine and DBSupport. Some of the Accessories provided with DATABridge are as follows:

- DBServer, which provides communication and DMSII database replication services to DATABridge Clients.
- DBSpan, which produces a replication of one or more data sets into flat sequential disk files. DBSpan updates the cloned flat files by appending the changes to the end of the flat files (unlike DBSnapshot, which replaces the changed records).
- DBSnapshot, which produces a one-time replication of one or more data sets into flat sequential disk files or tape.
- DBTanker, which provides filtered audit files for the DBSpan and DBServer Accessories.
- DBInfo, which produces a report of your DMSII database timestamps, update levels, DMSII release levels, etc.
- DBLister, which produces a report of the layout of the structures in your DMSII database, including structure numbers and key sets.
- DBAuditTimer, which closes the current audit file when it is older than a specified length of time.

Accessroutines

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

DATABridge Plus enables DATABridge to perform near real-time replication of DMSII databases by accessing the audit file while the Accessroutines program is creating it.

AFN

The audit file number is a four-digit number that identifies an audit file.

audit file

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.

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

C

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

D

DASDL

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

DATABridge Engine

The DATABridge Engine (also referred to as DBEngine) is a host library program that provides several entry points for retrieving both data definition and data records from a DMSII database. To provide this information, DBEngine reads the DMSII DESCRIPTION file, the CONTROL file, and the audit trail. DBEngine uses the services of the Accessroutines to retrieve data from the database for the initial cloning.

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.

Q

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.

S

Support Library

A library that provides translation, formatting, and filtering to DATABridge Server.
After DATABridge Server receives data from the DATABridge Engine, it calls the DATABridge Support Library to determine if the data should be replicated, and if so, passes the data to the Support Library for formatting.

system library

A program that maps function names to library code files.