

TWIN ADMINISTRATOR'S GUIDE



Attachmate®

DATABridge™



July 2010

© 2010 Attachmate Corporation. All rights reserved.

No part of the documentation materials accompanying this Attachmate software product may be reproduced, transmitted, transcribed, or translated into any language, in any form by any means, without the written permission of Attachmate Corporation. The content of this document is protected under copyright law even if it is not distributed with software that includes an end user license agreement. The content of this document is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Attachmate Corporation. Attachmate Corporation assumes no responsibility or liability for any errors or inaccuracies that may appear in the informational content contained in this document.

Attachmate and the Attachmate logo are registered trademarks and DATABridge is a trademark of Attachmate Corporation in the USA.

All other trademarks, trade names, or company names referenced herein are used for identification only and are the property of their respective owners.

A copy of the Attachmate software license agreement governing this product can be found in a 'license' file in the root directory of the software distribution.

Third party notices (if any) can be found in a 'thirdpartynotices' file in the root directory of the software distribution.

Attachmate Corporation
1500 Dexter Avenue North
Seattle, WA 98109 USA
+1.206.217.7100
<http://www.attachmate.com>

Contents

	About This Guide	vii
	Audience	viii
	Conventions	ix
	Abbreviations	x
	Related Documentation	xi
Chapter 1	Introducing DATABridge Twin	1
	What Is DATABridge Twin?	2
	Primary System	2
	Secondary System	2
	Primary Database	2
	Secondary Database	3
	Primary and Secondary Database Locations	3
	DATABridge Twin Components	6
	How DATABridge Twin Works	7

Contents

Chapter 2	Installing DATABridge Twin	11
	Installation Requirements	12
	Installation Overview	13
	Procedure Overview	13
	Configuring the Primary System for DATABridge Twin	14
	Installing DATABridge Twin to the Secondary System	19
	Installation Results for the Secondary System	22
	DATABridge Twin Parameter File	25
	DATABridge Twin Parameters	26
	Upgrading DATABridge Twin.	33
	Before You Begin	33
	Procedure	34
Chapter 3	Replicating a Database	37
	Cloning.	38
	Before You Begin	38
	Cloning procedure	38
	Cloning using LOAD and a dump file.	41
	Before You Begin	41
	Cloning Procedure on the Primary System	41
	Cloning Procedure on the Secondary System.	43
	Specifying Audit File Location	46
	Tracking.	47
	Audit Files on the Secondary System	48
Chapter 4	Commands Reference	49
	Server Accessory Commands (Primary System).	50
	Starting Server Accessory	50
	Terminating Server Accessory	50
	DATABridge Twin Commands (Secondary System)	51
	Starting DATABridge Twin	51
	Terminate DATABridge Twin51	
	DATABridge Twin AX Commands.	52

Appendix A	Troubleshooting	53
	General Troubleshooting Procedures	54
	Troubleshooting Table	56
	Error and Status Messages	58
	Glossary	63
	Index	71

About This Guide

This guide contains instructions for installing and configuring Attachmate DATABridge Twin. This preface includes information to help you use this guide. The following sections are included in this preface:

Audience	viii
Conventions	ix
Abbreviations	x
Related Documentation	xi

Audience

To install, configure, and run DATABridge Twin, you must be a system administrator, and you must be thoroughly familiar with the following:

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

Conventions

This guide uses the following conventions:

- Text that you type as well as messages and prompts that appear on the screen are shown in this type style.
- In addition to emphasizing text, *italic* indicates variables. For example, if you were asked to type START WFL/DATABRIDGE/TWIN (“*databasename*”), you would type the actual name of the database in place of the italicized word.
- Actual file names and parameter names are in CAPITAL LETTERS, as follows:
DATA/TWIN/*databasename*/CONTROL parameter file
AUDIT ON parameter
- Optional items in a command are enclosed in [square brackets]. If you include the optional items, do not type the brackets.
- The terms *host* and *mainframe* are used interchangeably to refer to a Unisys MCP-hosted mainframe such as the CS7xxx series, Libra series, ClearPath NX/LX series, or A series.



Caution: This caution icon indicates that there is a possibility of losing data or corrupting files. When you see this caution icon, follow the instructions carefully.

Abbreviations

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

Abbreviation	Name
ABSN	Audit block serial number
AFN	Audit file number
API	Application programming interface
DASDL	Data and Structure Definition Language
DMSII	Data Management System II
INX	Index
MCP	Master control program
SEG	Segment
SL	System library
WFL	Work flow language

Related Documentation

The following is a list of the documentation you might need to consult when using DATABridge Twin.

DATABridge Twin Readme File

The DATABridge Twin Readme file contains important information, including any information that became available after this guide was written, and a list of changes/additions to DATABridge Twin since the last release. You can view the DATABridge Twin Readme file in either of the following locations:

Installation CD Location	Installed Location
Docs\readme_twin.txt	DATA/TWIN/README

DATABridge Database Replication Software

Before you can use DATABridge Twin, the DATABridge host database replication software must be installed and operating on the primary system. Complete instructions are in the *DATABridge Host Administrator's Guide*, which is located in the DOCS folder on your DATABridge installation CD.

DATABridge Plus

DATABridge Plus is a system library that offers near real-time access to DMSII audit files by enabling DATABridge to access the current audit file. It works with all DATABridge Accessories and is documented in the *DATABridge Plus Administrator's Guide*, which is located in the DOCS folder on your DATABridge installation CD.

DATABridge Plus is available on your DATABridge host installation medium.

Unisys Mainframe

You should have available standard Unisys ClearPath NX/LX series or A Series, DMSII, WFL, and CANDE documentation. This guide lists only general instructions. If you are not completely familiar with DMSII configuration, for example, you may need to refer to the Unisys documentation.

Introducing DATABridge Twin

1

In This Chapter

This chapter explains what DATABridge Twin is, how it works, and what is new for this release. The following sections are included in this chapter:

What Is DATABridge Twin?	2
DATABridge Twin Components	6
How DATABridge Twin Works	7

What Is DATABridge Twin?

DATABridge Twin is a mainframe program that replicates (clones and then updates) a DMSII database as another DMSII database.

The original DMSII database is called the primary database, and it is typically a production database. The clone of the primary DMSII database is called the secondary database, and it typically resides on a development or departmental mainframe. Updates to the primary database are applied to the secondary database as DMSII audit becomes available.

Primary System

The primary system is the mainframe that contains the original DMSII database. The primary system must contain the DATABridge database replication software. See “[Accessories](#)” on page 65 of the glossary for a brief explanation of the DATABridge Accessories, or refer to the *DATABridge Host Administrator’s Guide* for a complete explanation of the DATABridge Accessories.

If you have only one mainframe, the primary system is the usercode under which the original DMSII database resides.

Secondary System

The secondary system is the mainframe that contains the clone of the DMSII primary database. The secondary system does not require a DATABridge database replication software installation. It does, however, require the DATABridge Twin software. For a list of software components, see “[DATABridge Twin Components](#)” on page 6.

If you have only one mainframe, the secondary system is the usercode under which the secondary DMSII database resides.

Primary Database

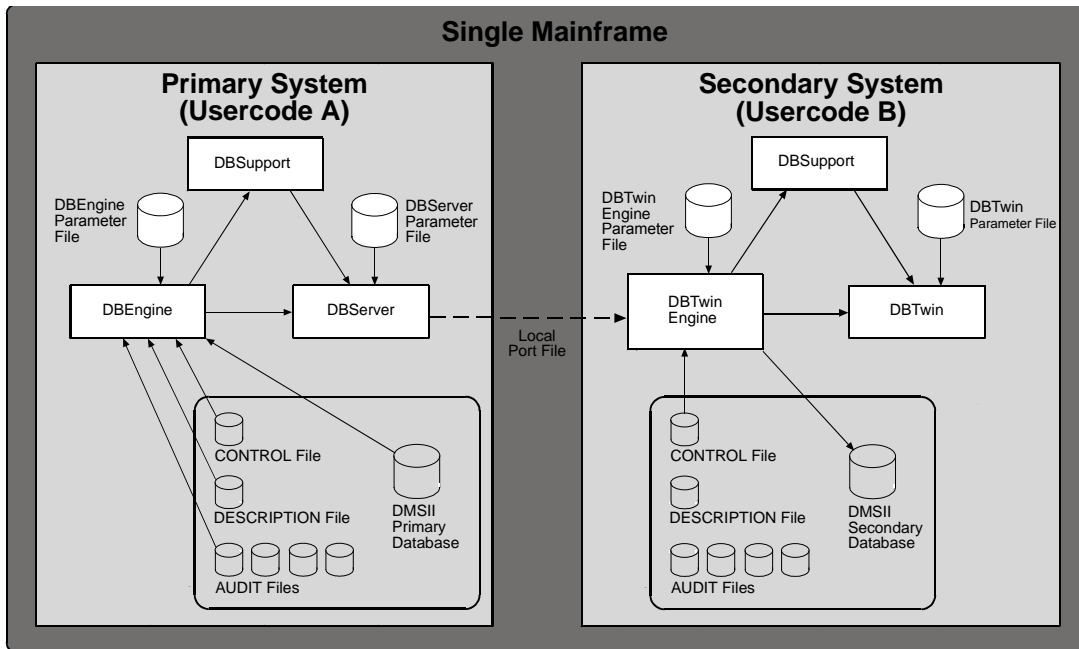
The primary database is always the original DMSII database.

Secondary Database

The secondary database is a clone or copy of the primary database except that it may or may not contain the entire contents of the primary database. In all other respects, however, it is a complete DMSII database with its own CONTROL, DESCRIPTION, and audit files. The secondary database is typically used only for queries and not updates. Some of the query workload can be offloaded from the primary system to the secondary system. Only the DATABridge Twin Engine updates the secondary database, and the audit files reflect the replication updates from the primary database.

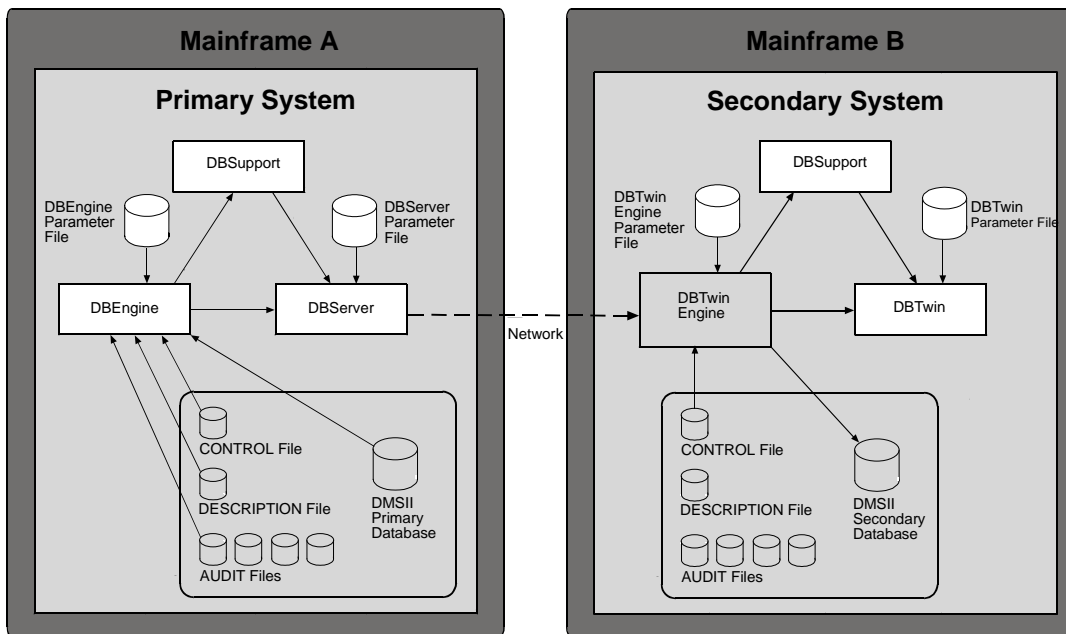
Primary and Secondary Database Locations

The primary database and the secondary database can reside on the same mainframe or on separate mainframes. If the databases are on the same mainframe, they are differentiated by their usercodes. The primary and secondary systems communicate via a port file. The following diagram shows a typical installation of DATABridge and DATABridge Twin on a single mainframe.



If the databases are on separate mainframes, the two mainframes communicate via port files over a BNA, HLCN, or TCP/IP network. Further, the DMSII levels *must* match on both mainframes.

The following diagram shows a typical installation of DATABridge and DATABridge Twin on separate mainframes.



When the databases are on separate mainframes, the primary and secondary databases must use the same pack names. Even though the primary and secondary databases physically reside on separate mainframes, the secondary database pack name *must be the same as that on the primary system*. The following table summarizes the usercode and pack requirements:

Primary and Secondary Databases on Same Mainframe	Primary and Secondary Databases on Separate Mainframes
Use a <i>different usercode</i> for each database. For example, the primary database might be under usercode (PRIMARY), and the secondary database might be under (SECONDARY).	You can use the same usercode or a different one for the primary and secondary databases.
Use the same <i>physical</i> pack for both databases. For example, both databases might reside ON DBPACK.	Use the <i>same pack names</i> , even though the databases are on physically different mainframes. For example, if the primary database pack is named PRODUCTS, then the secondary database must also reside on a pack named PRODUCTS.

DATABridge Twin Components

As shown in the previous diagrams, DATABridge Twin consists of the following components:

Component	Description
DATABridge Server Accessory	The Server Accessory program calls the DATABridge Engine, which reads the CONTROL and audit files on the primary system. When requested, Server Accessory sends the updates to the DATABridge Twin Engine running on the secondary system.
DATABridge Twin	The DATABridge Twin program reads the database dump and creates the secondary database. It is also a shell for calling the DBUPDATETWIN entry point in the DATABridge Twin Engine, which updates the secondary database.
DATABridge Twin Engine	The DATABridge Twin Engine is a subset of the full DATABridge Engine. The DATABridge Twin Engine has the same file name as the full DATABridge Engine (OBJECT/DATABRIDGE/ENGINE). It does not require registration as an SL.
DATABridge Support Library	The Support Library on the secondary system is the same as the Support Library on the primary system, except that you cannot use column filtering, complex ALTERs, or VIRTUALs. You can use the Support Library to filter the records coming from the primary system so that only certain records are replicated.
DBPlus	(Not shown) DATABridge Plus can be used with DATABridge Twin through Server Accessory to supply updates at near real-time from the current primary audit file. Refer to the <i>DATABridge Plus System Administrator's</i> guide for more information about DATABridge Plus.

How DATABridge Twin Works

Following is a simplified description of the flow of data between the primary and secondary DMSII databases. This description starts after all of the necessary DATABridge database replication software and DATABridge Twin components are correctly installed and configured.

- 1 The DATABridge Twin program (secondary system) calls Server Accessory (primary system).
- 2 Server Accessory initiates DATABridge Engine to retrieve updated information from the audit trail. Server Accessory then sends the updated information to the DATABridge Twin Engine.

Note: By default, DATABridge Engine processes only closed audit files. However, if you set the Read Active Audit option to true in the DATABridge Engine parameter file, DATABridge Engine can also process the current audit file. (Refer to the *DATABridge Plus Administrator's Guide* for more information about DATABridge Plus.)

To determine how long DATABridge Twin waits before checking for available audit files, use the RETRY and MAXWAIT options in the DATABridge Twin parameter file. Also note that you can use the DBAuditTimer utility (primary system) to close the current audit file periodically. The DBAuditTimer utility is explained in the *DATABridge Host Administrator's Guide*.

- 3** When the DATABridge Twin Engine receives the audit file data, it does the following:
- Updates the secondary database with LOCK, STORE, and DELETE.
 - Prior to commits, updates either the restart data set or the DBTWINCONTROL data set (whichever is currently being used) in the secondary database.

Note: To avoid recompiling the DATABridge Twin Engine when the primary database layout changes, LOCK, STORE, and DELETE are not the actual verbs. Instead, they are calls to the same routines in the Accessroutines that a COBOL program would call. Therefore, all of the usual operations apply to DATABridge Twin, such as the possibility for DEADLOCKS, auditing all updates, etc.

The following DATABridge Twin features are available:

- REDUNDANT UPDATES, a configuration parameter, specifies whether updates already present in the secondary database should be applied anyway, or discarded.

See “[DATABridge Twin Parameter File](#)” on page 25 for details.

- The tailored support library on the secondary database will apply reformatting specified in an ALTER command. Reformatted data items must be the same size and type as the original item, and virtual items are not allowed.
- DATABridge Twin writes the audit location and record contents to the report file for any record it cannot find in the client database. By default, DATABridge Twin writes report files to the DBBD/RUN/TWIN directory on the normal printer backup disk.

Installing DATABridge Twin

2

In This Chapter

This chapter explains how to install or upgrade DATABridge Twin. The following sections are included in this chapter:

Installation Requirements	12
Installation Overview	13
Configuring the Primary System for DATABridge Twin	14
Installing DATABridge Twin to the Secondary System	19
Upgrading DATABridge Twin	34

Installation Requirements

Installing DATABridge Twin might require that you bring down the primary DMSII database one time. Therefore, it is essential that you plan the installation for a time when this is possible.

You must install the DATABridge 6.1 database replication software to your primary system before you install DATABridge Twin 6.1. Refer to the *DATABridge Host Administrator's Guide* for installation instructions.

DATABridge Twin runs on all Unisys MCP-hosted mainframes.

For DATABridge Twin to work properly, your primary and secondary system must have MCP level SSR 49.1 or later.

If you plan to use DATABridge Twin on separate mainframes:

- It is recommended that both mainframes use the same MCP level.
- Both mainframes *must* be running the same DMSII level.
- DATABridge Twin does not support embedded data sets. Any embedded data sets will be empty in the secondary database.
- DATABridge Twin does not support data sets with an RSN (Record Serial Number) data item. In general, a record's RSN in the secondary database will differ from the same record's RSN in the primary database. Any sets that use the RSN data item as a key item will return a different record in the secondary database than in the primary database. If a data item in a data set contains the RSN of another record it will, in general, refer to a different record in the primary database than in the secondary database.
- DATABridge Twin will not return an error if a data set has a visible RSN data item, but the results are unpredictable.

Installation Overview

Note: If you are upgrading, see “Upgrading DATABridge Twin” on page 34.

Part of the planning for installation involves determining the usercodes and packs to which you will install DATABridge Twin. Use the following table as a guide:

If	Then
The primary and secondary database will reside on the same mainframe	You must have two separate usercodes—one for the primary database and one for the secondary database. Plan to use the same pack for both the primary and secondary database.
The primary and secondary database will reside on separate mainframes	You can use the same usercode or a different one for the primary and secondary databases. Use the <i>same pack names</i> , even though the databases are on different mainframes. For example, if the primary database pack is named PRODUCTS, then the secondary database must also reside on a pack named PRODUCTS.

Plan the installation so that you can take the primary database down once during the installation if you need to add the DBTWINCONTROL data set or if you are using a new logical database. The installation process can take several hours, especially if you perform the initial clone immediately after the installation. Keep in mind that the amount of time required depends on several factors, including the size of the DMSII database you are replicating and the type of mainframes you are using.

Procedure Overview

The installation and configuration of DATABridge Twin is a two-step process. The first step is to configure your primary system to work with DATABridge Twin. The second step is to install and configure DATABridge Twin on the secondary system. To begin the installation process, proceed to the next section, “Configuring the Primary System for DATABridge Twin.”

Configuring the Primary System for DATABridge Twin

Note: If you are upgrading, see “Upgrading DATABridge Twin” on page 34.

- 1 Sign on to the primary system.
- 2 Determine if your restart data set meets either of the following requirements:
 - It has one non-key data item at least 18 bytes long.
 - It has both of the following:
 - One data item (either key or nonkey) at least 6 bytes long.
 - Either two nonkey data items each at least 6 bytes long or one nonkey data item at least 12 bytes long.

if	Then
Yes and you do <i>not</i> want to add any new logical databases for DATABridge Twin to use	Go to step 8 on page 16.
Yes and you do want to add a new logical database for DATABridge Twin to use	Go to step 3 on the next page.
No	Complete the remainder of this step.

If your restart data set does not meet the above requirements, then you must place PATCH/DATABRIDGE/TWIN/DASDL into the primary database DASDL source (the patch defines a data set called DBTWINCONTROL and is explained in “DBTWINCONTROL Data Set” on page 17).

Place the patch file into your DASDL as you would any other data set, using one of the following techniques:

- Use the CANDE INSERT command to insert the text.
- Put `$INCLUDE "PATCH/DATABRIDGE/TWIN/DASDL"` in the DASDL source.

- 3 (Optional.) If you want to replicate only part of the primary database, declare a logical database that lists the data sets you want to replicate.

If you previously defined a logical database in the DASDL, you can use that DASDL in step 4. However, if you included the DBTWINCONTROL patch, make sure you enter the data set name DBTWINCONTROL in the data sets list for the logical database.

- 4 Compile the DASDL for an UPDATE.

Follow the procedures you normally use at your site, such as backing up the DESCRIPTION/*databasename*, DMSUPPORT/*databasename*, and *databasename*/CONTROL files. Then compile the DASDL. An example is as follows:

```
COMPILE AS $databasename WITH DASDL
```

A new DESCRIPTION file is created.

Important: This is an update, not a reorganization. You do not have to recompile any other applications that use this database.

- 5 Check your DASDL for ZIP and DMCONTROL settings.

If they are both set, skip to step 6. Otherwise, use the following table to determine what you must do. Note that you must do the following manually.

If your DASDL contains	Enter this
\$ RESET ZIP	START DATABASE/WFL/COMPILEACR ("DB= <i>databasename</i> AUDIT=SET")
\$ RESET DMCONTROL	RUN *SYSTEM/DMCONTROL ("DB= <i>databasename</i> UPDATE");

At this point, your DASDL is compiled and you have new software for your database and a new DMSII CONTROL file. Next, if your DASDL does not contain \$ SET INITIALIZENEW, you must run DMUTILITY to initialize the DBTWINCONTROL data set.

- 6 Bring down the primary database. Do this as you usually would at your site.

- 7 Complete this step only if you added the DBTWINCONTROL data set, and your DASDL does not contain `$ SET INITIALIZENEW`; otherwise skip to step 8.

Run DMUTILITY by entering the following:

```
RUN $SYSTEM/DMUTILITY ("DB=databasename INITIALIZE
    DBTWINCONTROL" );
```

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

DMUTILITY inserts the DBTWINCONTROL data set into the primary database. The next time a program opens the database for updating, DMSII will open a new audit file.

Now you can allow application programs to use the primary database as usual.

- 8 Copy the DASDL source and DESCRIPTION/*databasename* file to the usercode and pack of the secondary system.
- 9 Modify the Server Accessory parameter file (DATA/SERVER/CONTROL) to reflect the settings for your site. The Source to which DATABridge Twin connects must *not* include any of the following options:

```
NOTIFY
AUDIT JOB
FILTER
STOP
PREFILTERED
```

Important: The Source setting in the Server Accessory parameter file (DATA/SERVER/CONTROL) must include the following option:

```
TRANSFORM=RAWFORMAT
```

Confirm this setting, modify any other part of the file to reflect the settings for your installation, and SAVE the file.

Refer to Server Accessory in the *DATABridge Host Administrator's Guide* for more instructions.

- 10 If Server Accessory is not already running, enter the following CANDE command to start it:

```
START WFL/DATABRIDGE/SERVER
```

What to Do Next

At this point, you have configured the primary system to work with DATABridge Twin. You are now ready to start the installation process on the secondary system. See [“Installing DATABridge Twin to the Secondary System”](#) on page 19.

**DBTWINCONTROL
Data Set**

The information in this section explains the DBTWINCONTROL data set as mentioned in step 2 on page 14.

DBTWINCONTROL contains audit locations that are maintained on a structure-by-structure basis. Ultimately, the DBTWINCONTROL data set will reside in both the primary and the secondary databases, although the DBTWINCONTROL data set is always empty in the primary database. In the secondary database, it can contain a record for each data set you clone from the primary database to the secondary database.

DBTWINCONTROL keeps track of the respective audit locations for each data set cloned from the primary database. Typically, one global record keeps track of all of the data sets that are in normal mode (indicated by the number 2 in DBTWIN-MODE) and up-to-date.

Data sets that are not in normal mode have their own record that reflects their mode (for example, 3 for reorganization or 4 for purged). This situation is rare, however. The majority of the time, DBTWINCONTROL will have only the global record. (For an explanation of normal and other modes, see the *DATABridge Host Administrator's Guide*.)

```
% DATABRIDGE TWIN ADDITIONS
DBTWINCONTROL DATASET
(
  DBTWIN-STRNUM      REAL (S11) INITIALVALUE 0;
  DBTWIN-RECTYPE    REAL (S11) INITIALVALUE 0;
  DBTWIN-AFN        REAL (S11) INITIALVALUE 0;
  DBTWIN-ABSN       REAL (S11) INITIALVALUE 0;
  DBTWIN-SEG        REAL (S11) INITIALVALUE 0;
  DBTWIN-INX        REAL (S11) INITIALVALUE 0;
  DBTWIN-TIME       REAL          INITIALVALUE 0;
  DBTWIN-MODE       REAL (S11) INITIALVALUE 0;
  DBTWIN-FORMAT-LVL REAL (S11) INITIALVALUE 0;
  DBTWIN-TABLE-LVL REAL (S11) INITIALVALUE 0;
  DBTWIN-ITEM-COUNT REAL (S11) INITIALVALUE 0;
), BLOCKSIZE = 30 RECORDS;

DBTWINSET          SET OF DBTWINCONTROL
  KEY (DBTWIN-STRNUM,
       DBTWIN-RECTYPE)
  NO DUPLICATES;
```

Installing DATABridge Twin to the Secondary System

Important: If you are upgrading, see “Upgrading DATABridge Twin” on page 34.

Before you begin this procedure, you must complete “Configuring the Primary System for DATABridge Twin” on page 14.

Follow these steps to install DATABridge Twin to the secondary system.



Caution: If you are running DATABridge Twin and the DATABridge database replication software on the same mainframe, the usercode from which you run DATABridge Twin *must* be different than the usercode where the DATABridge database replication software resides.

- 1 Sign on to the secondary system.
- 2 Copy the DATABridge Twin installation WFL from the release medium to the usercode and pack from which you plan to run DATABridge Twin. Installing from CD, use the following command:

```
WFL UNWRAP *WFL/DATABRIDGE/INSTALL AS
      WFL/DATABRIDGE/INSTALL OUTOF *INSTALL FROM
      DATABRIDGE (CD) TO DISK (RESTRICTED = FALSE)
```

It is recommended that you install to a privileged usercode. If you install from CD to a nonprivileged usercode, all object files will be marked as restricted, which causes the installation WFL to pause (step 4).

- 3 Run the DATABridge Twin installation WFL as follows:

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

where *familyname* is an optional parameter that specifies the name of the pack to which you want to install DATABridge Twin. If you use this parameter, do not type the [brackets], but do type the quotation marks. If you do not specify a family name, the default is DISK. Depending on your family substitution statement, however, the files may be copied to a pack with a name different from DISK.

- 4 When prompted, enter the access code (same as license key) located on your DATABridge host CD package. (If you want to install an evaluator copy, enter the evaluation code located on your DATABridge host CD package.)

If the installation WFL pauses, continue with step *a*. *Otherwise, proceed to step 5.*

- a If you installed from CD 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
```

- b After you have unrestricted OBJECT/DATABRIDGE/KEYENTRY, transmit *mixnumber*OK to the install WFL job.

OBJECT/DATABRIDGE/KEYENTRY now runs.

- c When prompted, enter the access code (same as license key) located on your DATABridge host CD package.
 - d 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:

```
RESTRICT -FILE objectfilename
```

- 5 Modify the DASDL source file you copied from the primary system (step 8 on page 16), as follows:
 - Set the INDEPENDENTTRANS option if it is not already set.

- Reset the DMCONTROL option if it is not already reset.
- If the secondary database will have a different usercode than the primary database, change the usercode to match the secondary database. Do this in the CONTROL file physical attributes section of the secondary database DASDL, as in the following CONTROL file excerpt:

```
CONTROL FILE ATTRIBUTES
(
USERCODE = secondarydatabaseusercode
);
```

- If the DASDL is set to INITIALIZE, change it to UPDATE.
- If you are using guardfiles to protect the database, change the guardfile titles as necessary for the secondary database. This is recommended so that no program other than DATABridge Twin updates the database.
- If the DASDL specifies a usercode in the title for DMSUPPORT, change it to the usercode of the secondary database.
- If the DASDL specifies a usercode in the title for RECONSTRUCT, change it to the usercode of the secondary database.

6 Compile the DASDL for an UPDATE.

Follow the procedures you normally use at your site. An example is as follows:

```
COMPILE AS $databasename WITH DASDL
```

A new DESCRIPTION file is created.

7 If the DASDL contains \$ RESET ZIP, then compile the DMSUPPORT and RECONSTRUCT programs using the following command:

```
START DATABASE/WFL/COMPILERACR ( "DB=databasename
AUDIT=SET" )
```

where *databasename* is the name of the database.

- 8 Get the DATABridge Twin parameter file using CANDE, as follows:

```
GET DATA/TWIN/SAMPLE/CONTROL AS DATA/TWIN/databasename/
CONTROL
```

where *databasename* is the name of the secondary database. If you are using a logical database, enter the logical database name in place of *databasename*.

- 9 Modify the DATABridge Twin parameter file (DATA/TWIN/*databasename*/CONTROL) to reflect settings for your site. See “[DATABridge Twin Parameter File](#)” on page 25 for more information.
- 10 Save the DATABridge Twin parameter file.

At this point, you have installed DATABridge Twin to the secondary system. You should now verify that all of the secondary system files were installed. See the next section, “[Installation Results for the Secondary System](#),” for a list of these files.

Installation Results for the Secondary System

The following is a list of files that are installed on the secondary system. These files are copied to the secondary system via the DATABridge Twin installation WFL:

File Name	Description
OBJECT/DATABRIDGE/ENGINE	Required. This is the object file for the DATABridge Twin Engine, which is a subset of the full DATABridge Engine.
DATA/ENGINE/SAMPLE/CONTROL	Required. This data file contains the keys to run the DATABridge Twin Engine.
WFL/DATABRIDGE/TWIN OBJECT/DATABRIDGE/TWIN	Required. These are the WFL and object files for the DATABridge Twin program. DATABridge Twin is a shell for calling the DATABridge Twin Engine. The WFL starts the DATABridge Twin program.
OBJECT/DATABRIDGE/SUPPORT	Required. This object file filters records coming from the primary system so that only certain records are replicated.

File Name	Description
OBJECT/DATABRIDGE/DBINFO	<p>DBInfo creates reports about your DMSII database. For DATABridge Twin Engine, only the DBInfo normal mode is supported because the DATABridge Twin Engine does not provide access to the audit file.</p> <p>For instructions on DBInfo, see the <i>DATABridge Host Administrator's Guide</i>.</p>
DATA/TWIN/SAMPLE/CONTROL	<p>Required. This DATABridge Twin parameter file provides information to the DATABridge Twin program on where and how to locate the Server Accessory SOURCE for the primary database.</p>
WFL/DATABRIDGE/COMP SYMBOL/DATABRIDGE/SUPPORT OBJECT/DATABRIDGE/ GENFORMAT DATA/GENFORMAT/SAMPLE/ CONTROL	<p>Optional. These files are needed for compiling the Support Library.</p>
SYMBOL/DATABRIDGE/INTERFACE	<p>Optional. This file supplies the API for the DATABridge Engine. It is required for compiling the Support Library.</p>
WFL/DATABRIDGE/INCLUDE/ DBTITLE	<p>Required. This WFL is required for running any DATABridge WFL. It parses the database name you enter when you start the WFL.</p>
PATCH/DATABRIDGE/TWIN/DASDL	<p>Optional. This file is required if you use the INCLUDE statement in your DASDL instead of inserting the contents of this patch file into the DASDL.</p> <p>If you use an INCLUDE statement to include this file in the DASDL, you must copy this file to both the primary and the secondary systems.</p>

File Name	Description
WFL/DATABRIDGE/TWININITIALIZE	If you run this WFL, it starts WFL/DATABRIDGE/TWIN with the LOAD command. Note: This feature is deprecated, but still operates to support legacy use.
WFL/DATABRIDGE/INSTALL	Required. This WFL is required for installing DATABridge Twin.
DATA/TWIN/README	Optional. This file is a CANDE text file that lists important notices and last minute information about DATABridge Twin.

After you have verified the files, you are ready to perform the initial clone of the primary database. You can do this immediately after installation, or you can wait until you are ready for the replication process.

To replicate the primary database, see [Chapter 3, “Replicating a Database,”](#) beginning on page 39.

**DATABridge Twin
Parameter File**

The DATABridge Twin parameter file (DATA/TWIN/*databasename*/CONTROL) is a SEQDATA file. It provides information to the DATABridge Twin program on where and how to locate the Server Accessory SOURCE of the primary database.

Note: If you are completing step 9 in “Installing DATABridge Twin to the Secondary System,” use the following information to configure your DATABridge Twin parameter file. After you have configured the DATABridge Twin parameter file, continue with step 10.

```

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%                               DATABridge Twin Parameter File                               %
%                                                                                             %
%      Source:                   DATA/TWIN/SAMPLE/CONTROL                                   %
%                                                                                             %
%      Version:                   6.1                                                         %
%                                                                                             %
%      Copyright (C) 1998-2010 by Attachmate Corporation                                     %
%                               All Rights reserved                                           %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% How to locate the Server Accessory SOURCE ...

SOURCE <sourcename> % SOURCE name in Server Accessory parameter file
      AT <host>      % Server Accessory hostname or IP address
      VIA <protocol> % network protocol, e.g. TCPIP
      PORT <portnumber> % Server Accessory port number, e.g. 3000

% example: SOURCE BANKDB AT PRODHOST VIA TCPIP PORT 3000

% Filter in the Support Library selects which records ...

SUPPORT OBJECT/DATABRIDGE/SUPPORT % title of the Support Library
FILTER   DBFILTER                 % filter entrypoint name in "

% When waiting for an audit file ...

RETRY    60                       % seconds delay between retries
MAXWAIT  0                         % max total seconds to wait
                                     % (0 means 'forever')

% When to stop processing ...
% STOP AFTER "<program name>" OR BEFORE hh:mm PM ON mm/dd/yyyy

% How to find records using subsets if no sets
% FIND data set USING subset1, subset2, ...

```

```
% Allow other update programs ...

UPDATERS DENIED          % DENIED - no other updaters (default)
                        % ALLOWED - other programs can update
                        %           the client database while Twin
                        %           is running

REDUNDANT UPDATES DISCARDED
                        % DISCARDED - skip Update if already in
                        %           secondary database. Required for
                        %           bidirectional updates, i.e. Twin
                        %           running on both primary and
                        %           secondary system.
                        % APPLIED - apply all updates
```

Each parameter in this file is explained in the next section.

DATABridge Twin Parameters

Note the following for the format of the DATABridge Twin parameter file:

- You can list the options in the parameter file in any order.
- You can list multiple options on a single line.
- You can split options across multiple lines.
- If you name any entry the same as a parameter file keyword, enclose the name in “quotation marks.” For example, if you create a filter named SUPPORT (which is also the name of a keyword in the DATABridge Twin parameter file), enclose SUPPORT in “quotation marks” as follows:

```
FILTER "SUPPORT"
```

The remainder of this section explains each option in the DATABridge Twin parameter file.

SOURCE **Required.** The SOURCE parameter is a four-part parameter that enables DATABridge Twin to link up with Server Accessory. The syntax of the SOURCE parameter is as follows:

SOURCE *sourcename* AT *host* VIA *protocol* PORT *portnumber*

Where	Is
<i>sourcename</i>	Your entry for the SOURCE option in the Server Accessory parameter file. The SOURCE option in the Server Accessory parameter file is a unique name that is assigned to the primary database.
<i>host</i>	One of the following for the mainframe where Server Accessory resides: <ul style="list-style-type: none"> ▪ TCP/IP—The host name or the IP address ▪ BNA—The host name ▪ HLCN—The netaccesspoint
<i>protocol</i>	Your network protocol, TCPIP, BNA, or HLCN.
<i>portnumber</i>	The Server Accessory port number (if using TCP/IP) or name (if using BNA or HLCN).

SUPPORT **Optional.** Enter the name of the Support library you want to use for replicating the primary database. The default support library is OBJECT/DATABRIDGE/SUPPORT. If you create a tailored support library for the secondary database, however, enter that file name instead. For an explanation of the Support Library and instructions on creating your own tailored support library, refer to the *DATABridge Host Administrator's Guide*.

FILTER **Optional.** Enter the name of the filter you want to use. The filter prohibits replication of certain records into the secondary database. (Note that DATABridge Twin ignores any column filtering.) You must create and name a filter and compile it in the tailored support library before you can enter a filter here. For instructions, refer to the *DATABridge Host Administrator's Guide*.

RETRY **Required.** The default is 60 seconds. Enter the number of seconds you want DATABridge Twin to wait before it retries its audit check. If more audit is unavailable, DATABridge Twin will wait this many seconds before it tries to read more audit again.

MAXWAIT

Required. The default is 0 seconds. Enter the maximum number of seconds you want DATABridge Twin to wait for more audit to become available. Since DATABridge Twin is designed to run continuously, you can enter 0 (zero, which is the default) to indicate there is no limit to the waiting time.

When you enter a value, DATABridge Twin will try to access more audit every *nn* seconds, where *nn* is the value of the RETRY option. If the MAXWAIT time expires before more audit becomes available, DATABridge Twin terminates on the secondary system. Once DATABridge Twin terminates, you must restart it manually. See “[DATABridge Twin Commands \(Secondary System\)](#)” on page 53 for instructions.

STOP

Optional. Use this command when you want to run DATABridge Twin for specific or limited times instead of continuously.

You can stop DATABridge Twin at a specified quiet point. The quiet point can be before or after a specified time, day, or program. For example, if you wanted to limit daily transactions to only those processed before 4:00 P.M., you would configure the STOP command to stop processing at the last quiet point before 4:00 P.M. Once DATABridge Twin terminates, you must restart it manually. See “[DATABridge Twin Commands \(Secondary System\)](#)” on page 53 for instructions.

Note: Time in the STOP command refers to the time the update occurred on the primary system, not the current time of day.

The “+/- days” are in relation to the DATABridge Twin start date. For example, when DATABridge Twin starts, it calculates an Audit location STOP date based on the current date plus or minus the “+/- days” parameter. DATABridge Twin stops when it reaches an Audit location from the primary system with this calculated date.

Use one of the following examples of syntax when entering a STOP command:

```
STOP before_or_after timedate
STOP before_or_after "taskname" OR before_or_after timedate
```

where *before_or_after* is either the word BEFORE or AFTER and [*timedate* or "*taskname*"] is a value from the following table. If you specify a taskname, you must also specify a timedate.

Possible Entries For [<i>timedate</i> or " <i>taskname</i> "]	Sample Entry
<i>hh:mm</i>	STOP BEFORE 22:30 This command informs DATABridge Twin to stop processing at the last quiet point before 10:30 P.M.
<i>hh:mm AM</i>	STOP AFTER 10:30 AM This command informs DATABridge Twin to stop processing at the first quiet point after 10:30 A.M.
<i>hh:mm PM</i>	STOP BEFORE 9:45 PM This command informs DATABridge Twin to stop processing at the last quiet point before 9:45 P.M.
<i>hh:mm + days</i>	STOP BEFORE 22:30 + 1 This command informs DATABridge Twin to stop processing tomorrow at the last quiet point before 10:30 P.M.
<i>hh:mm - days</i>	STOP AFTER 22:30 - 1 This command informs DATABridge Twin to stop processing at the first quiet point after 10:30 P.M. yesterday.
<i>hh:mm AM + days</i>	STOP BEFORE 10:30 AM + 1 This command informs DATABridge Twin to stop processing tomorrow at the last quiet point before 10:30 A.M.
<i>hh:mm PM - days</i>	STOP AFTER 10:30 PM - 1 This command informs DATABridge Twin to stop processing at the first quiet point after 10:30 P.M. yesterday.
<i>hh:mm ON mm/dd/yyyy</i>	STOP BEFORE 13:30 ON 12/9/2010 This command informs DATABridge Twin to stop processing at the last quiet point before 1:30 P.M. on December 9, 2010.

Possible Entries For [<i>timedate</i> or " <i>taskname</i> "]	Sample Entry
<i>hh:mm</i> AM ON <i>mm/dd/yyyy</i>	STOP BEFORE 10:30 AM ON 12/9/2010 This command informs DATABridge Twin/DATABridge Twin to stop processing at the last quiet point before 10:30 A.M. on December 9, 2010.
<i>hh:mm</i> PM ON <i>mm/dd/yyyy</i>	STOP AFTER 9:30 PM ON 12/9/2010 This command informs DATABridge Twin to stop processing at the first quiet point after 9:30 P.M. on December 9, 2010.
" <i>taskname</i> "	STOP AFTER "OBJECT/SAVINGS/POSTING" This command informs DATABridge Twin to stop processing at the first quiet point after the EOT of task name "OBJECT/SAVINGS/POSTING."
" <i>taskname</i> " or <i>timedate</i>	STOP AFTER "OBJECT/SAVINGS/POSTING" OR BEFORE 8:15 PM This command informs DATABridge Twin to stop processing at the first quiet point after the EOT of task name "OBJECT/SAVINGS/POSTING" or at the last quiet point before 8:15 P.M., whichever occurs first.

Keep in mind the following when using the STOP command:

- The STOP command terminates DATABridge Twin (it takes DATABridge Twin out of the mix). To get DATABridge Twin back into the mix, you must manually start DATABridge Twin. See ["DATABridge Twin Commands \(Secondary System\)"](#) on page 53 for instructions.
- If a STOP BEFORE "*taskname*" command is specified, DATABridge Twin will stop at the quiet point *before* the task did an OPEN UPDATE on the database. If the task opened the database more than once, DATABridge Twin will stop at the last quiet point before the first open.
- If a STOP AFTER "*taskname*" command is specified, DATABridge Twin will stop at the quiet point *after* the task closed the database. If the task opened the database more than once, DATABridge Twin will stop at the first quiet point after the first close.

- If more than one "*taskname*" is specified, only the last one specified is used. Similarly, if more than one *timedate* is specified, only the last *timedate* specified is used.

FIND

Optional. Normally, DATABridge Twin uses the set that does not allow duplicates and contains the fewest number of key elements to find a data set record to update. In situations where a data set has subsets but no sets, you can use this option to tell DATABridge Twin which subsets to use to locate records.

Enter the subsets to use when searching for a data set record when there is no set available. Use the following syntax when entering a FIND command:

```
FIND dataset USING subsetlist
```

where *dataset* is the data set DATABridge Twin is searching for, and *subsetlist* is the list of subsets you want DATABridge Twin to search.

For example, to search the POSTDAY, POSTUSR, and POSTBATCH subsets for a data set called EVENT, you would enter the following command:

```
FIND EVENT USING POSTDAY, POSTUSR, POSTBATCH;
```

When searching for a data set record, DATABridge Twin will try the listed subsets in the order specified until it finds the record. List the subsets that most likely contain the data set record first in the subset list. If DATABridge Twin does not find the data set record using the listed subsets, it displays an error and the data set record will not be updated.

UPDATERS

Optional. The default is DENIED. Use this parameter to specify if the database should open for exclusive updating by DATABridge Twin (recommended) or if it should open to allow other programs to update the database concurrently with DATABridge Twin. Add one of the following to UPDATERS:

- DENIED - Only DATABridge Twin can update the database.
- ALLOWED - One or more programs can update the database at the same time as DATABridge Twin.

REDUNDANT
UPDATES

Optional. The REDUNDANT UPDATES parameter tells DATABridge Twin how to handle redundant operations, such as a create operation for an existing record, or updates for records that have already been updated.

Syntax:

```
REDUNDANT UPDATES [ APPLIED | DISCARDED ]
```

- APPLIED is the default setting if no optional keyword appears.
- When set to DISCARDED, DATABridge Twin skips redundant operations. When set to APPLIED, DWTwin perform redundant operations.

Warning: If you have implemented bidirectional replication, where changes to either database are sent to the other, you must set this feature to DISCARDED to avoid endless replication of updates.

Upgrading DATABridge Twin

If you have a previous version of DATABridge Twin installed, use this section to upgrade it to version 6.1.

Before You Begin

If you made changes to any of the following files, note those changes now. The installation WFL overwrites these files; therefore, when the installation WFL finishes, you may want to update the new files to match the settings in the previous ones.

Secondary System

WFL/DATABRIDGE/COMP

Option	Your Setting
QUEUE =	
STARTTIME =	
BDNAME =	

WFL/DATABRIDGE/TWIN

Option	Your Setting
QUEUE =	
STARTTIME =	
BDNAME =	

DATA/GENFORMAT/SAMPLE/CONTROL—Most sites will not be using this file. If you are, make sure you keep a record of all of the changes you have made because the file will be overwritten. After the upgrade installation, you must recompile your SUPPORT libraries. This procedure is explained in the *DATABridge Host Administrator's Guide*.

Procedure

Complete the following steps to upgrade DATABridge Twin:

- 1 Primary system:** Configure the options in the Server Accessory parameter file. Refer to Server Accessory in the *DATABridge Host Administrator's Guide* for instructions on configuring the Server Accessory parameter file. The CLONE command requires the Server Accessory Source settings to include the following:

```
TRANSFORM=RAWFORMAT
```

- 2 Primary system:** If it is not already running, run Server Accessory under the usercode that contains the DATABridge database replication software, as follows:

```
START WFL/DATABRIDGE/SERVER
```

- 3 Secondary system:** Bring down DATABridge Twin, as follows:

```
mixnumber AX QUIT
```

where *mixnumber* is the mix number of OBJECT/DATABRIDGE/TWIN.

- 4 Secondary system:** Copy the installation WFL from the release medium, as follows:

- If you are installing from CD, use the following command:

```
WFL UNWRAP *WFL/DATABRIDGE/INSTALL AS  
WFL/DATABRIDGE/INSTALL OUTOF *INSTALL FROM  
DATABRIDGE (CD) TO DISK (RESTRICTED = FALSE)
```

It is recommended that you install to a privileged usercode. If you install from CD to a nonprivileged usercode, all object files will be marked as restricted, which causes the installation WFL to pause (step 6).

- 5 Secondary system:** Start the installation WFL, as follows:

```
START WFL/DATABRIDGE/INSTALL ("SECONDARY", "familyname")
```

where *familyname* is the name of the pack where the existing DATABridge Twin software resides.

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

If the installation WFL pauses, continue with step [a](#). Otherwise, proceed to step [7](#).

- a If you installed from CD 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
```

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

OBJECT/DATABRIDGE/KEYENTRY now runs.

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

- d 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:

```
RESTRICT -FILE objectfilename
```

- 7 **Secondary system:** If you changed options in the following files, update the new files to match your original settings. See “[Secondary System](#)” on page 34.

```
WFL/DATABRIDGE/COMP  
WFL/DATABRIDGE/TWIN  
DATA/GENFORMAT/SAMPLE/CONTROL
```

- 8 **Secondary system:** Get the DATABridge Twin parameter file using CANDE, as follows:

```
GET DATA/TWIN/SAMPLE/CONTROL AS DATA/TWIN/databasename/  
CONTROL
```

where *databasename* is the name of the secondary database. If you are using a logical database, enter the logical database name in place of *databasename*.

- 9 **Secondary system:** Modify and then save the DATABridge Twin parameter file (DATA/TWIN/*databasename*/CONTROL) to reflect settings for your site. See “[DATABridge Twin Parameter File](#)” on page 25 for more information.
- 10 **Secondary system:** If you previously created tailored support libraries for filtering, recompile the support libraries. Instructions are in the *DATABridge Host Administrator’s Guide*.
- 11 **Secondary system:** Start DATABridge Twin, as follows:

```
START WFL/DATABRIDGE/TWIN ("secondarydatabasename"  
  [, "logicaldatabasename"])
```

Where	Is
<i>secondarydatabasename</i>	The replicated DMSII database.
<i>logicaldatabasename</i>	The DMSII logical database you are replicating. If you are not replicating a logical database, do <i>not</i> enter text for <i>logicaldatabasename</i> . This is an optional parameter and if omitted defaults to an empty string.

What to Do Next Use DATABridge Twin as you normally would.

Replicating a Database

3

In This Chapter

This chapter explains the DATABridge Twin replication process, which is a two step process. The first step is cloning and the second step is tracking. The following sections are included in this chapter:

Cloning	38
Cloning using LOAD and a dump file	41
Tracking	47
Audit Files on the Secondary System	48

Cloning

In this release, the initial DATABridge Twin clone task no longer requires an offline or online dump. Instead, this release provides a CLONE option that is the preferred method to perform the initial clone task. If you prefer to perform the initial clone task using a dump and the LOAD option, see *Cloning using LOAD and a dump file* later in this chapter.

Before You Begin

It is strongly recommended that no program other than the DATABridge Twin Engine updates the secondary database. Other programs can cause DATABridge Twin to encounter various DMSII errors such as NOTFOUND or DUPLICATES. Some update programs, such as LINC-generated report programs, can generally coexist with DATABridge Twin because they don't actually update the same records as DATABridge Twin.

To prevent other programs from updating the same records in the secondary database as DATABridge Twin, consider using guardfiles. Guardfiles are explained in Unisys mainframe documentation.

Before proceeding, you must complete installation and configuration on both computers. Make sure the Server Accessory Source section contains the setting TRANSFORM = RAWFORMAT. For details, see [“Configuring the Primary System for DATABridge Twin”](#) on page 14 and [“Installing DATABridge Twin to the Secondary System”](#) on page 19.

Cloning procedure

Start from the secondary system usercode that will contain the secondary database. Follow these steps to complete the cloning procedure on the secondary system:

Note: The following procedure uses the DATABridge Twin CLONE command to create the cloned database. If you cloned the primary database using a method other than the DATABridge Twin CLONE or LOAD commands, skip the steps below and instead run DATABridge Twin with the LOCATION command. The LOCATION command gives DATABridge Twin the audit location in the cloned database so that DATABridge Twin can run in its normal tracking mode. (For the LOCATION command syntax, see [“Specifying Audit File Location”](#) on page 48.)

- 1 Sign on to the usercode on the secondary system containing the DATABridge Twin software and enter the following on one line to start DATABridge Twin:

```
START WFL/DATABRIDGE/TWIN
  ("secondarydatabasename", "logicaldatabasename",
  "CLONE ")
```

Parameter	Description
secondarydatabasename	Name of the DMSII database on the secondary computer. If you also specify a usercode, make sure it is the usercode of the secondary database.
logicaldatabasename	Name of the DMSII logical database on the primary computer. This is the logical database you want to clone into the secondary computer. If you are not using a logical database, just enter empty double-quotes ("") for this parameter.
CLONE	Required literal.

DATABridge Twin resets any family name overrides found in DMCONTROL and updates DMCONTROL. Then it requests a clone of the datasets via Server Accessory and DATABridge Engine on the primary system, which sends the requested records.

Note: If DATABridge Twin fails for any reason, remove all of the secondary database files, including the database CONTROL file and the audit files. (You can leave the DESCRIPTION, DASDL, DMSUPPORT, and RECONSTRUCT files.) Then go back to step 1.

After the clone (or after a successful DATABridge Twin LOCATION command), DATABridge Twin prints a status report. By default, it is a printer file whose internal name is REPORT and external name is STATUS. The printer file would be titled similar to the following:

```
(DB50)DBBD/RUN/TWIN/BANKDB/0002241/0002242/000000000000/
STATUS
```

A sample report for a database called BANKDB might look like this:

```
DBTwin Status Report for BANKDB as of Wednesday, December
 29, 2006 @ 22:11:43
Str# Name Mode AFN ABSN Segment Index Host info
-----
(common) normal 1145 31271 200 10
```

If any datasets have a mode other than normal or a different audit location, they will be printed on a separate line in the report.

After the clone is complete, DATABridge Twin switches to the UPDATE command and stays in the mix, replicating any additional updates that occurred on the primary database during and after the clone. The secondary database (named the same as the primary database) is now available for queries. DATABridge Twin runs continuously until a STOP command, DEADLOCK, etc., occurs. For information on manually starting DATABridge Twin, see [“DATABridge Twin Commands \(Secondary System\)”](#) on page 53.

Cloning using LOAD and a dump file

Cloning the primary DMSII database to the secondary DMSII database using the LOAD command requires two procedures, one on the primary computer and one on the secondary computer. You will perform both procedures from the same computer, or from separate computers, depending on how you have installed DATABridge Twin.

Note: Cloning using the LOAD command and a dump file bypasses any filters specified in the DATABridge Twin parameter file. After loading the dump file, the secondary database will have all records that were dumped from the primary database, not just those that satisfy the filter.

Before You Begin

It is strongly recommended that no program other than the DATABridge Twin Engine updates the secondary database. Other programs can cause DATABridge Twin to encounter various DMSII errors such as NOTFOUND or DUPLICATES. Some update programs, such as LINC-generated report programs, can generally coexist with DATABridge Twin because they don't actually update the same records as DATABridge Twin.

To prevent other programs from updating the same records in the secondary database as DATABridge Twin, consider using guardfiles. Guardfiles are explained in Unisys mainframe documentation.

Cloning Procedure on the Primary System

Before you begin this procedure, you must complete installation and configuration on both the primary and secondary systems. See [“Configuring the Primary System for DATABridge Twin”](#) on page 14 and [“Installing DATABridge Twin to the Secondary System”](#) on page 19 for instructions.

Follow these steps to complete the cloning procedures on the primary system:

1 Perform an online or offline dump of the primary database:

For	Do this
Dump to tape	<p>Write the dump to tape using either of the following syntaxes:</p> <ul style="list-style-type: none"> • To clone the entire database, enter: <pre>RUN \$SYSTEM/DMUTILITY ("DB=databasename DUMP = TO dumpname")</pre> • To clone a logical database, dump (at least) the data sets and sets that belong to the logical database. For example, if the logical database contains data sets D1 and D2 in a physical database called MYDB, you would use the following command: <pre>RUN \$SYSTEM/DMUTILITY ("DB=MYDB DUMP MYDB/ D1/= ,MYDB/D2/= TO dumpname")</pre>
Dump to disk	<p>To write the dump to disk, do the following:</p> <ol style="list-style-type: none"> 1 Write the dump to the primary database usercode using one of the following procedures: <ul style="list-style-type: none"> • To dump the entire database to the primary database usercode, enter: <pre>RUN \$SYSTEM/DMUTILITY("DB=databasename DUMP = TO dumpname ON packname")</pre> • To dump selected data sets to the primary database usercode, enter: <pre>RUN \$SYSTEM/DMUTILITY ("DB=databasename DUMP datasetdirectories TO dumpname ON packname")</pre> 2 Change the security of the dump file on the disk to PUBLIC IN so that the secondary usercode can read it, as in the following example: <pre>SEC dumpname PUBLIC IN</pre> <p>The secondary usercode requires this access when you run DATABridge Twin.</p>

- 2 The primary database can now be used as normal. Run at least one program that does a database OPEN UPDATE before proceeding.
- 3 Preserve the audit files covering the period from the start of the dump to the end of the dump for use on the secondary system.

- 4 If you wrote the dump to tape, move the tape(s) to the secondary system. If you wrote the dump to disk instead of tape, use BNA or whatever is appropriate at your site to copy the dump to the secondary system.

At this point, you have the primary database dump (on tape or disk). Now you are ready to start the cloning process on the secondary system, as described in the next section.

Cloning Procedure on the Secondary System

Before you begin this procedure, you must complete the previous procedure, “[Cloning Procedure on the Primary System](#).” Start from the secondary system usercode that will contain the secondary database.

Note: The following procedure uses the DATABridge Twin LOAD command to create the cloned database. If you prefer to clone the primary database using a method other than the DATABridge Twin LOAD command, skip the steps below and instead run DATABridge Twin with the LOCATION command after you have loaded the secondary database. The LOCATION command gives DATABridge Twin the audit location in the cloned database so that DATABridge Twin can run in its normal tracking mode. (For the LOCATION command syntax, see “[Specifying Audit File Location](#)” on page 48.)

Follow these steps to complete the cloning procedure on the secondary system:

- 1 If you dumped the primary database to tape, mount the tape on the secondary system. If you dumped the primary database to disk, make sure you copied the dump to the secondary system.

- 2 Sign on to the usercode containing the DATABridge Twin software and enter the following to start DATABridge Twin:

```
START WFL/DATABRIDGE/TWIN
  ("secondarydatabasename", "logicaldatabasename",
  "LOAD dumpname [ON familyname]")
```

Where	Is
<i>secondarydatabasename</i>	<p>The name of the DMSII database on the secondary system.</p> <p>Note: If you specify a usercode, make sure it is the usercode of the secondary database.</p>
<i>logicaldatabasename</i>	<p>The name of the DMSII logical database on the primary system. This is the logical database you want to clone on the secondary system. If you are not using a logical database, do <i>not</i> enter text for <i>logicaldatabasename</i>. Instead, enter just the quotation marks (no space in between) as shown in the following example:</p> <pre>("secondarydatabasename" , " " , "LOAD dumpname")</pre>
<i>dumpname</i> –or– <i>dumpname,</i> <i>dumpname, ...</i>	<p>The name of the resulting dump(s) from the primary database. If you used the example in “Cloning Procedure on the Primary System” on page 43, the dump name is DATABridge TwinDUMP.</p> <p>Note that you can also specify a comma-delimited list of tape dump names for the dump parameter. This allows partial dumps to be combined into a complete secondary database. The following is an example of a comma-delimited list of tape dumps:</p> <pre>START WFL/DATABRIDGE/TWIN ("BANKDB" , " " , "LOAD MONDAYDUMP , THURSDAYDUMP , CUSTDUMP")</pre> <p>The default is tape dumps. If you dumped to disk, be certain to include ON <i>familyname</i> in the dump name. If you include the family name, do not type the brackets.</p>
LOAD	A required literal that initializes the secondary database and loads the structures from the dumps taken on the primary system.

DATABridge Twin resets any family name overrides in DMCONTROL, updates DMCONTROL, and then initiates DMUTILITY to load the dump. In addition, DATABridge Twin will request one or more audit files by displaying a NO FILE message on the terminal and ODT. The messages look similar to the following:

```
NO FILE databasename/AUDITnnnn (MT) #1
```

- 3 Copy the requested audit file from the primary system to the secondary system and usercode.

If you use sectioned audit files, be sure to copy all of the sections. Then give the waiting task an FA command:

```
FA TITLE = databasename/AUDITnnnn ON family
```

- 4 Watch for additional requests for audit files and repeat step 3 if necessary.

If the requested audit file is in use on the primary system because it is the current audit file, either wait for DMSII to switch to the next audit file or force a switch immediately. To force an audit file switch, find the mix number of the database by entering the DBS command from the ODT or MARC, and then direct an SM AUDIT CLOSE FORCE command to that mix number. After the load (or

Note: If DATABridge Twin fails for any reason, remove all of the secondary database files, including the database CONTROL file and the audit files. (You can leave the DESCRIPTION, DASDL, DMSUPPORT, and RECONSTRUCT files.) Then go back to step 1.

after a successful DATABridge Twin LOCATION command), DATABridge Twin prints a status report. By default, it is a printer file whose internal name is REPORT and external name is STATUS. The printer file would be titled similar to the following:

```
(DB50)DBBD/RUN/TWIN/BANKDB/0002241/0002242/000000000000
/STATUS
```

A sample report for a database called BANKDB might look like this:

```
DBTwin Status Report for BANKDB as of Wednesday, December 29, 2006 @ 22:11:43
Str# Name Mode AFN ABSN Segment Index Host info
-----
( common) normal 1145 31271 200 10
```

If any datasets have a mode other than normal or a different audit location, they will be printed on a separate line in the report.

Then, DATABridge Twin stays in the mix (automatically switching to the UPDATE command), replicating any additional updates that occurred on the primary database since the end of the dump. The secondary database (named the same as the primary database) is now available for queries. DATABridge Twin runs continuously until a STOP command, DEADLOCK, etc., occurs. For information on manually starting DATABridge Twin, see “[DATABridge Twin Commands \(Secondary System\)](#)” on page 53.

Specifying Audit File Location

It is necessary to specify the audit file location only when you cloned the primary database using a method other than the DATABridge Twin LOAD and CLONE commands. The DATABridge Twin LOCATION command gives DATABridge Twin the audit location in the cloned database so that DATABridge Twin can run in its normal tracking mode.

```
START WFL/DATABRIDGE/TWIN ("secondarydatabasename"  
    [, "logicaldatabasename", "LOCATION afn absn seg  
    inx" ])
```

DATABridge Twin stores this audit location in the cloned (client) database as the starting point for tracking. DATABridge does not validate the specified audit location until the next time DATABridge Twin is run in tracking mode.

DATABridge Twin prints a STATUS report after storing the new location.

Important: Incorrect use of the LOCATION command can cause the client database to miss the updates that would have occurred before the specified audit location.

What to Do Next

Use the primary database as you usually would, and use the secondary database only for queries.

Tracking

After you have performed the initial clone, tracking, which is the process of retrieving only the changes from the audit file(s) to apply to the replicated database, is automatic.

If you have set the STOP command to stop DATABridge Twin, or if you have set the MAXWAIT command to something other than 0, DATABridge Twin will stop when the STOP or MAXWAIT conditions are met. In this case, you must restart DATABridge Twin as explained in “Starting DATABridge Twin” on page 53.

If you find that data in the secondary database is not current enough, you can also set the Read Active Audit option to true in the DATABridge Engine parameter file on the primary system for near real-time access to the audit trail. Alternatively, you might consider adjusting the number of times audit files close on the primary database. You can accomplish this via the DBAuditTimer utility, which is described in the *DATABridge Host Administrator's Guide*.

Audit Files on the Secondary System

In most cases, the audit file numbers on the secondary system will not match those on the primary system. Even though both databases start with the same audit file number, the secondary database may close its audit files more or less frequently than the primary database. Remember that the only program updating the secondary database should be DATABridge Twin. All other secondary database activity should be from queries only.

Commands Reference

4

In This Chapter

This chapter explains Server Accessory and DATABridge Twin commands. The following sections are included in this chapter:

Server Accessory Commands (Primary System)	52
DATABridge Twin Commands (Secondary System)	53

Server Accessory Commands (Primary System)

Note that Server Accessory has a parameter file that you must configure. Refer to the *DATABridge Host Administrator's Guide* for information about configuring the Server Accessory parameter file.

Starting Server Accessory

To execute Server Accessory, enter the following from CANDE or MARC under the usercode containing the DATABridge software:

```
START WFL/DATABRIDGE/SERVER
```

The WFL starts Server Accessory, which runs continuously.

Terminating Server Accessory

In most cases, you do not need to terminate Server Accessory. However, if you do want to terminate Server Accessory, enter the following from CANDE, MARC, or the ODT under the usercode containing the DATABridge software:

```
mixnumber AX QUIT
```

where *mixnumber* is the task number of OBJECT/DATABRIDGE/SERVER.

DATABridge Twin Commands (Secondary System)

Starting DATABridge Twin

If DATABridge Twin is stopped (STOP command, MAXWAIT command, DEADLOCK, etc.), start it manually using the following command:

```
START WFL/DATABRIDGE/TWIN ("secondarydatabasename"
    [, "logicaldatabasename", "taskstring"])
```

Where	Is
<i>secondarydatabasename</i>	The name of the replicated DMSII database.
<i>logicaldatabasename</i>	The name of the DMSII logical database you are replicating. If you are not replicating a logical database, do <i>not</i> enter text for <i>logicaldatabasename</i> . This is an optional parameter and if omitted defaults to an empty string.
<i>taskstring</i>	One of the following commands: STATUS - Prints a report of current audit locations as indicated by the DBTWINCONTROL or restart data set UPDATE TRACK empty - Causes DATABridge Twin to perform normal tracking. Most of the time, you will run DATABridge Twin in normal tracking mode.

When you run DATABridge Twin with the UPDATE command, it runs continuously until it is interrupted by a STOP command, MAXWAIT command, DEADLOCK, HALT/LOAD, etc.

Terminate DATABridge Twin

In most cases, you do not need to terminate DATABridge Twin. However, if you do want to terminate DATABridge Twin, enter the following:

```
mixnumber AX QUIT
```

where *mixnumber* is the task number of OBJECT/DATABRIDGE/TWIN.

**DATABridge Twin
AX Commands**

The following AX commands are available for DATABridge Twin. Enter them on the secondary system.

Command	Description
<i>mixnumber</i> AX QUIT	Terminates DATABridge Twin at the end of the next transaction group.
<i>mixnumber</i> AX STATUS	Displays DATABridge Twin's location and timestamp in the primary database audit file, as well as the number of records replicated to the secondary database. See the following sample output.

**Sample Output for
DATABridge Twin AX
STATUS Command**

```
DBTwinEngine: Waiting for AFN 41 to become available.  
DBTwinEngine: Errors Create:0 Modify:0 Delete:0.  
DBTwinEngine: Updates Create:0 Modify:3 Delete:0.  
DBTwinEngine: Audit time: month day, year @ 16:42:52.  
DBTwinEngine: Audit location: AFN=40 ABSN=3552 (70%).
```

In this example, the (70%) means that 70 percent of the audit file (audit file number 40 in this example) has been processed.

Troubleshooting

A

In This Appendix

This appendix contains troubleshooting information. The following sections are included in this appendix:

General Troubleshooting Procedures	56
Troubleshooting Table	58
Error and Status Messages	60

General Troubleshooting Procedures

If you have problems using DATABridge Twin, complete the following steps:

- 1 Make sure your system meets the requirements necessary to use the product. See [“Installation Requirements”](#) on page 12 for this information.
- 2 If your primary and secondary systems are on separate mainframes, ensure that the mainframes are communicating, as follows:
 - If you are using BNA or HLCN, try copying a file between the two mainframes.
 - If you are using TCP/IP, try the PING function.
- 3 Check your set up, as follows:
 - Is Server Accessory running on the primary system? Check the mix to make sure. If it is not running, refer to [“Starting Server Accessory”](#) on page 52 for instructions on how to start it.
 - If your restart data set did not meet the criteria in [“Configuring the Primary System for DATABridge Twin”](#) on page 14, did you use the INCLUDE statement or copy the DBTWINCONTROL patch to your DASDL source?
- 4 Check your configuration options for connecting to the mainframe and the DMSII primary database, as follows:
 - Verify that **SOURCE** in the DATABridge Twin parameter file is pointed to the correct Server Accessory and SOURCE on the primary system. For details, see [“SOURCE”](#) on page 27. Also check the Server Accessory parameter file and make sure the entry for SOURCE is correct. Refer to Server Accessory in the *DATABridge Host Administrator’s Guide* for instructions.
 - Verify that your entries in the DATABridge Twin parameter file match your entries in the Server Accessory parameter file. Refer to Server Accessory in the *DATABridge Host Administrator’s Guide* for instructions on configuring the Server Accessory parameter file.

- 5** Check the status of the DATABridge Twin Engine.
See “[DATABridge Twin AX Commands](#)” on page 54 for instructions.
- 6** Resolve any errors that you receive.
If you are receiving error messages or status messages that you don’t understand, see “[Error and Status Messages](#)” beginning on page 60 for help resolving these messages.
- 7** 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 mainframe.
- 8** Troubleshoot the problem using information available from Attachmate Technical Support.
<http://www.attachmate.com/en-US/Support/>
This service directly links you to our internal help desk system, 24 hours a day, 7 days a week.
- 9** Contact Attachmate Technical Support:
<http://support.attachmate.com/contact/>

Troubleshooting Table

The following table lists common problems and their solutions:

Problem	Resolution
DATABridge Twin fails to execute	Verify that Server Accessory is running on the primary system. If not, see “Starting Server Accessory” on page 52.
DATABridge Twin gets a PORT file I/O error and terminates	Start Server Accessory on the primary system. Server Accessory must be running for DATABridge Twin to contact it. If Server Accessory is not running, DATABridge Twin tries until it eventually gets a PORT file I/O error and terminates.
<p>Any of the following occur:</p> <ul style="list-style-type: none"> · Disk crash on the secondary system. · Any reorganization of the primary database. · Loss of communications between the primary and secondary database for enough time that it is less expensive to recreate the secondary database than it is to process all of the audit files. For example, if the primary database is relatively small but highly volatile, it would most likely be less expensive to recreate the secondary database. 	<p>Reclone the secondary database on the secondary system, as follows:</p> <ol style="list-style-type: none"> 1 On the secondary system, remove all of the database and audit files for the secondary database. 2 Perform the entire replication procedure as described in “Cloning Procedure on the Primary System” on page 43 and “Cloning Procedure on the Secondary System” on page 45.
A message appears stating that the DBTWINCONTROL data set is not defined or is not available.	<p>Check the following:</p> <ul style="list-style-type: none"> · Did you compile the DASDL after adding the \$INCLUDE “PATCH/DATABRIDGE/TWIN/DASDL” statement or after inserting the contents of PATCH/DATABRIDGE/TWIN/DASDL? · Did you initialize DBTWINCONTROL using DMUTILITY? See step 7 on page 16 for instructions.

Problem	Resolution
<p>An I-DS occurs on the secondary system along with the following message:</p> <pre data-bbox="165 672 698 756">mixnumber File Commport Open Error: Open Aborted by Correspondent@80944200</pre> <p>Note: When this occurs, you do <i>not</i> have to repeat the initial clone.</p>	<p>Check the following:</p> <ul data-bbox="698 640 1250 1081" style="list-style-type: none">· Verify that Server Accessory is running on the primary system. If not, see “Starting Server Accessory” on page 52.· Verify that the parameter settings in the DATABridge Twin parameter file match the parameter settings in the Server Accessory parameter file and vice versa. See “DATABridge Twin Parameters” on page 26 for information about setting the DATABridge Twin parameters. Refer to Server Accessory in the <i>DATABridge Host Administrator’s Guide</i> for information about setting the Server Accessory parameters.· If you are using separate mainframes, verify that communication between the mainframes is functional, as follows: <p data-bbox="698 1092 1250 1144">For BNA or HLCN, try a file copy between the two hosts.</p> <p data-bbox="698 1155 1250 1192">For TCP/IP, try the PING function.</p>

Error and Status Messages

Following are messages that may be generated by DATABridge Twin. These messages appear only on the secondary system.

Number	Message	Description
008	DBEngine: Missing DESCRIPTION file for Audit file update level <i>n</i> .	<p>This message indicates that the database dump was performed before running an update program after the DASDL update. Check the following:</p> <ul style="list-style-type: none"> · Did you open the primary database for updates after you installed the patch file? If not, see step 2 on page 44. · Did you copy the DASDL source, DESCRIPTION file, and audit file to the secondary system. If not, do so and try the replication processes again.
027	DBEngine: <i>datasetname</i> does not have a set with a unique key	<p>This message indicates that the data set indicated by <i>datasetname</i> does not have a NO DUPLICATES set. Therefore, you cannot clone this data set. Cloning of certain types of data sets requires a NO DUPLICATES set.</p>
044	DBEngine: DBTWINCONTROL data items are incorrect	<p>The DBTWINCONTROL data set must have a certain layout of data items. This error indicates that the data set does not have the proper layout. In this case, check the file PATCH/DATABRIDGE/TWIN/DASDL and make sure you inserted it exactly as is into <i>both</i> the primary database and secondary database DASDLs.</p>
048	DBEngine: Missing audit location information. Please run DBTwin with the LOAD or LOCATION command.	<p>This message indicates that there are no records in the DBTWINCONTROL (or restart) data set. Before you attempt to run DATABridge Twin in normal tracking mode, you must do one of the following:</p> <ul style="list-style-type: none"> · Run DATABridge Twin with the LOAD command (which populates the secondary database) · Run DATABridge Twin with the LOCATION command (which provides a specified audit location in the client database as the starting point for tracking when you clone the database using a method other than the LOAD command). <p>For more information, see “Cloning Procedure on the Secondary System” on page 45.</p>

Number	Message	Description
049	DBEngine: Missing Database-Stack-Terminate record at end of audit file <i>auditfilenumber</i>	This message indicates that DATABridge Twin could not find the special record marking the end of the loaded dump. <i>auditfilenumber</i> is the number of the last audit file it tried. Remove the secondary database and all of its audit files and start DATABridge Twin with the LOAD command again.
058	DBEngine: DMUTILITY failed	DATABridge Twin tried to run DMUTILITY to initialize a data set, but DMUTILITY failed. Contact the DMSII database administrator to determine the cause.
066	DBEngine: Audit location: AFN = <i>value_1</i> ABSN = <i>value_2</i> (<i>value_3</i> %)	This status message appears in response to a DATABridge Twin AX STATUS command. It indicates DATABridge Twin's location in the primary database audit file: <ul style="list-style-type: none"> · <i>value_1</i> is the audit file number. · <i>value_2</i> is the audit block serial number. · <i>value_3</i> is the percentage of the audit file processed.
067	DBEngine: Audit time: <i>timestamp</i>	This status message appears in response to a DATABridge Twin AX STATUS command, and it displays the audit file timestamp. <i>timestamp</i> is the timestamp of the audit location.
068	DBEngine: <i>subtype</i> Create: <i>value_1</i> Modify: <i>value_2</i> Delete: <i>value_3</i>	This status message appears in response to a DATABridge Twin AX STATUS command. It indicates the number of records replicated to the secondary database: <ul style="list-style-type: none"> · <i>subtype</i> indicates whether these counts are for successful updates or for errors. · <i>value_1</i> is the number of new records. · <i>value_2</i> is the number of updated records. · <i>value_3</i> is the number of deleted records.
069	DBEngine: Waiting for AFN <i>number</i> to become available	This message appears in response to a DATABridge Twin AX STATUS command. This status message indicates that the DATABridge Twin Engine is waiting for the audit file indicated by <i>number</i> . Typically, the audit file is in use by the Access routines.
070	DBEngine: Terminating at end of transaction group	This message appears in response to a DATABridge Twin AX QUIT command. This status message indicates that the DATABridge Twin Engine will stop at the end of the current transaction group.

Appendix A Troubleshooting

Number	Message	Description
075	DBEngine: <i>datasetname</i> does not have a set	<p>DATABridge Twin requires a set for each data set that is replicated. When this message appears, DATABridge Twin continues replicating all of the other data sets that do have sets.</p> <p>If you want DATABridge Twin to replicate the data set indicated by <i>datasetname</i>, add a set to that data set in both the primary and secondary databases. Or, use the FIND command in the DATABridge Twin parameter file if the data set has suitable subsets. See "FIND" on page 32 for information about the FIND command.</p>
076	DBEngine: Entry point not supported in TwinEngine. You must have the complete version.	To use this entry point, you must have the DATABridge Engine that is part of the complete DATABridge host release. The Accessory you are using is linking to the DATABridge TwinEngine, which is part of the DATABridge Twin release and does not support all of the entry points in the standard DATABridge Engine.
092	DBEngine: Expected ABSN= <i>number</i> in AUDIT <i>number</i> at segment <i>segmentnumber</i> but found ABSN= <i>number</i>	<p>This message indicates possible corruption in the audit trail. Do the following:</p> <ol style="list-style-type: none">1 Load the backup of the audit file (indicated by AUDIT<i>number</i>) on the primary system.2 Run DATABridge Twin again. <p>If this message no longer occurs, continue as usual. If this message reappears after you have tried the backup audit file, contact Technical Support.</p>
098	DBEngine: <i>subset</i> is not a set of <i>dataset</i>	<p>The parameter file contains a "FIND <i>dataset</i> USING <i>subsetlist</i>" option and one of the names in the subset list is not a set or subset of the data set.</p> <p>Correct the subset name in the parameter file and run DATABridge Twin again.</p>
105	DBEngine: Database update level changed from <i>previousupdatelevel</i> to <i>updatelevel</i>	This message indicates that the DMSII database update level of the primary system does not match the update level of the secondary system. You must reclone the primary database. See "Cloning" beginning on page 40 for instructions.
108	DBEngine: Restart dataset is unsuitable for DBTwin	The restart data set does not meet the criteria listed in "Configuring the Primary System for DATABridge Twin" on page 14. Either modify the layout of the restart data set or add the DBTWINCONTROL data set to your primary database DASDL source.

Number	Message	Description
901	DBTwin: Invalid filter name: <i>name</i>	The FILTER name specified in the parameter file is not the name of a DBFILTER routine in the DATABridge Support library. Either correct the name in the parameter file or use the DBGenFormat program to define the filter to the Support library and recompile it.
904	DBTwin: Interface version mismatch: Engine = <i>nnn</i> , DBTwin = <i>nnn</i>	DATABridge Engine and DATABridge Twin were compiled with different versions of the DATABridge API. Copy the correct version of the DATABridge software and rerun DATABridge Twin.
906	DBTwin: Syntax error in parameter file	This message indicates that there is an error in the DATABridge Twin parameter file. It is preceded by a more descriptive message indicating the line number and column number of the syntax error.
910	DBTwin: Warning: previous <i>limittype</i> limit ignored	The parameter file contains duplicate settings for the STOP option. <i>limittype</i> can be any of the following: <ul style="list-style-type: none"> · Time · Taskname Specify only one taskname and one time limit. If you specify a second taskname or a second time limit, DATABridge Twin discards the first one and uses only the second one. See “STOP” on page 28 for more information.
911	DBTwin: Parameter file not available: <i>filename</i>	This message indicates that the DATABridge Twin parameter file is not available to be opened exclusively or it is missing. Copy the sample parameter file as DATA/TWIN/ <i>dbname</i> /CONTROL, modify it so that it matches the Server Accessory SOURCE on the primary system, and rerun DATABridge Twin.
912	DBTwin: Invalid time limit= <i>hh:mm</i>	The time you entered for the STOP option is invalid for any of the following reasons: <ul style="list-style-type: none"> · The value for hours (<i>hh</i>) is outside of the valid range of 0 to 23. · The value for minutes (<i>mm</i>) is outside of the valid range of 0 to 59. Correct the time and run DATABridge Twin again. See “STOP” on page 28 for more information.
913	DBTwin: Invalid date limit= <i>days</i>	The number of days you entered for the STOP option is invalid because it caused the date to be before 1970. Correct the number and run DATABridge Twin again. See “STOP” on page 28 for more information.

Appendix A Troubleshooting

Number	Message	Description
914	DBTwin: Invalid number of days= <i>days</i>	The number of days you entered for the STOP option is invalid because it caused the date to be before 1970. Correct the number and run DATABridge Twin again. See “STOP” on page 28 for more information.
917	DBTwin: <i>nmn</i> error(s) in parameter file <i>filename</i>	This message indicates that there are errors in the DATABridge Twin parameter file. Correct the errors and run DATABridge Twin again.
999	DBTwin: Fatal error	DATABridge Twin encountered an error condition that won't allow it to continue processing. The program will terminate. Possible errors include: <ul style="list-style-type: none">· Syntax error in the parameter file· An error retrieving the creation date and time· Software version mismatch· An error during initialization· A failure in actually switching the audit file
1900	DBTwin: Please specify a SOURCE rather than CFPRIMARY	This message indicates that you are using an older version of the DATABridge Twin parameter file. Use the current version of the DATABridge Twin parameter file, as explained in “DATABridge Twin Parameters” on page 26.
1901	DBTwin: Option <i>name</i> ignored. Use SOURCE	This message indicates that you are using an older version of the DATABridge Twin parameter file. Use the current version of the DATABridge Twin parameter file, as explained in “DATABridge Twin Parameters” on page 26.
1902	DBTwin: Remote SOURCE cannot have ' <i>option</i> '	The Server Accessory source DATABridge Twin is attempting to use has a source option that DATABridge Twin does not allow. Remove the option from the Server Accessory SOURCE declaration.
1903	DBTwin: Remote SOURCE must have ' <i>option</i> '	The Server Accessory source DATABridge Twin is attempting to use does not have a source option that DATABridge Twin requires. Add the option to the Server Accessory SOURCE declaration.

Glossary

This glossary includes terms that are unique to DATABridge as well as terms that are standard for DMSII databases. Complete, detailed definitions for ClearPath NX/LX, A Series, and DMSII terms can be found in Unisys documentation. The purpose of this glossary is to explain how these terms relate to DATABridge Twin.

- Accessories** DATABridge Accessories access the services in DATABridge Engine and DATABridge Support Library. Some of the Accessories provided with DATABridge are as follows:
- DATABridge Server Accessory, which provides communication and DMSII database replication services to DATABridge Twin.
 - DATABridge Span, which produces a replication of one or more data sets into flat sequential disk files. DATABridge Span updates the cloned flat files by appending the changes to the end of the flat files (unlike DATABridge Snapshot, which replaces the changed records).
 - DATABridge Snapshot, which produces a one-time replication of one or more data sets into flat sequential disk files or tape. DATABridge Snapshot clones the selected data sets each time you run it.
 - DATABridge Tanker, which provides filtered audit files for the DATABridge Span and Server Accessories.

- DATABridge Lister, which produces a report of the layout of the structures in your DMSII database, including structure numbers and key sets.

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

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

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

- An operator closes the audit file with the *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 cloned records from a DMSII database and DATABridge Engine required access to the active audit file.
- The current audit file could not be found.
- A file reorganization was executed to modify the DMSII structure.

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

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

audit trail The audit trail contains all of the audit files generated for a database. It can contain recovery records, which indicate that there was a failure such as a HALT/LOAD that caused the Accessroutines to rollback the DMSII database to a quiet point. If DATABridge Engine encounters one of these recovery records, it notifies the caller to rollback the replicated data accordingly.

The audit trail consists of the audit files named as follows:

databasename/AUDITnnnn

where *databasename* is the name of the DMSII database, AUDIT is a literal, and *nnnn* is the AFN (Audit File Number), a number between 1 and 9999. For example, if you have a database named BANKDB, an audit file would be named similarly to the following:

BANKDB/AUDIT7714

cloning Cloning is the process of generating a complete snapshot of one or more data sets in a database 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 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, which is the integration of database changes since the cloning. For more details, see the definition for “[tracking](#)” on page 71.

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

DASDL Data and structure definition language—This is the language that defines DMSII databases. The DASDL must be compiled to create a DESCRIPTION file.

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

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

DATABridge Support Library	<p>The DATABridge Support Library (DBSupport) provides formatting, translation, and filtering to the DATABridge Accessories. Once an Accessory receives data from DATABridge Engine, the Accessory can call a filtering routine in the Support Library to determine if the data should be replicated, and if so, it passes the data to the Support Library for formatting.</p>
DATABridge Engine	<p>DATABridge Engine (DBEngine) is a host library program that provides services (entry points) for DATABridge Accessories to retrieve data definition and data records for replication.</p> <p>DATABridge Engine reads the DESCRIPTION file, the CONTROL file, the database data files (via the DMSII Accessroutines), and initiates DATABridge Plus or DMAuditLib to read the current audit file.</p> <p>DATABridge Engine initializes when DATABridge Accessories call it, and one copy is spawned for each Accessory. DATABridge Engine shares the same code stack as other copies of DATABridge Engine, but it does not share the same data stack.</p>
DESCRIPTION file	<p>The DESCRIPTION file contains the structural characteristics of a database (physical and logical). It is created from the DASDL source by the DASDL compiler and contains the layout (physical description), timestamp, audit file size, update level, logical database definition, and any static information about the database. It contains information about the database, not the data itself.</p> <p>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.</p>
extraction	<p>The process of reading through a data set sequentially and writing those records to a file (either a secondary database or flat file).</p>
fixup phase	<p>This phase occurs after the extraction phase. In the fixup phase, DATABridge extracts any changes that occurred to the database during the extraction phase.</p>
primary database	<p>The primary database is always the original DMSII database.</p>

Glossary

primary system	The primary system is the mainframe that contains the original DMSII database. The primary system must contain the DATABridge database replication software.
quiet point (QPT)	A point in time when no program is in the transaction state. This can occur naturally, or it can be forced by a DMSII syncpoint. The quiet point is a point in time in the audit trail that DATABridge uses as a reference point to help synchronize cloning or tracking of the DMSII database. DATABridge uses the quiet points to ensure an accurate snapshot of the data. Audit addresses of these quiet points are stored in the replicated database for database synchronization purposes.
replication	The process of cloning a database and then tracking the changes that occur to that database.
secondary database	The secondary database is a clone or copy of the primary database except that it may or may not contain the entire contents of the primary database. In all other respects, however, it is a complete DMSII database with its own CONTROL, DESCRIPTION, and audit files. The secondary database is typically used only for queries and not updates. Some of the query workload can be offloaded from the primary database system to the secondary database. Note that only the DATABridge Twin Engine updates the secondary database, and the audit files reflect the replication updates from the primary database.
secondary system	The secondary system is the mainframe that contains the clone of the DMSII primary database. The secondary system does not require a DATABridge database replication software installation. It does, however, require DATABridge Twin.
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.

tracking Retrieving only the changes from the audit file to apply to the replicated database. Tracking is an ongoing process for propagating changes made to records in the DMSII primary database to the replicated database.

Tracking is one phase of the database replication process. The other phase is cloning. For more details, see the definition for “[cloning](#)” on page 67.

Index

A

Abbreviations [x](#)
Access code [20, 35](#)
Accessories, definition [63–69](#)
Accessroutines
 definition [64](#)
 related to audit file [64](#)
AT, DBTwin parameter [27](#)
Audit file
 checking [27](#)
 DBTwin parameter options [7](#)
 definition [64](#)
 locations [17](#)
 numbering on primary and secondary systems [48](#)
 possible corruption [60](#)
 reasons for closing [64](#)
 rollback [65](#)
 size set in DESCRIPTION file [67](#)
 using DBAuditTimer utility [46](#)
Audit location
 message [59](#)
 report of current [51](#)
 specifying starting point [43, 46](#)

Audit trail, definition [65](#)
AX command, display messages [59](#)
AX QUIT command
 for DBServer [50](#)
 for DBTwin [34, 51, 59](#)
AX STATUS command [52](#)

B

Brackets, documentation conventions [ix](#)

C

Caution icon, use of [ix](#)
Cloning
 definition [65](#)
 procedure on primary system [41–43](#)
 procedure on secondary system [43–46](#)
 using non-DATABridge procedure [43](#)
Closing audit files, reasons for [64](#)
Communication loss between mainframes [56](#)
Components, DBTwin [6](#)
Configuring the primary system
 DBTWINCONTROL data set [17](#)
 procedure [14–16](#)
CONTROL file (DMSII), definition [66](#)

D

DASDL

- definition 66
- modifying on the secondary system 20
- on primary database 14

Data and Structure Definition Language (*see* DASDL)

Data flow, between primary and secondary databases 7

Data set

- DBTWINCONTROL 17
- definition 66
- no set 60
- no unique key for set 58
- selecting for replication 15

DATA/ENGINE/CONTROL 22

DATA/GENFORMAT/SAMPLE/CONTROL 23

Database (*see also* Logical database)

- locations 3
- primary 2, 67
- secondary 3, 68

Database reports, DBInfo 23

Database, allowing concurrent updates 31

Database, opening exclusively for DBTwin 31

DATABridge

- Accessories 63–69
- related documentation xi
- same mainframe as DBTwin 3
- separate mainframe from DBTwin 4
- terminology 63–69

DATABridge Plus, definition 66

DBAuditTimer utility (*see also* Updating the secondary database)

- closing audit files 46
- related documentation 7

DBEngine (*see also* DBTwin Engine)

- definition 67
- in replication process 7

DBInfo

- DMSII database reports 23

DBServer

- AX QUIT command 50
- description 6
- starting 50
- terminating 50

DBSupport library

- as used in replicating 27
- definition 6, 67
- object file for filtering 22

DBTwin

- AX QUIT command 51
- AX STATUS command 52
- commands 51–??, 52
- components 6
- definition 2
- description 6
- how it works 7
- installation requirements 12
- introduction 1–9
- port file I/O error 56
- restarting 50
- same mainframe as DATABridge 3
- separate mainframe from DATABridge 4
- starting 51
- status report 45
- taskstring attributes 51
- terminates unexpectedly 56
- terminating 51
- will not execute 56

DBTwin components

- DBServer 6
- DBSupport 6
- DBTwin 6

DBTwin Engine

- before you begin 38, 38, 41
- DBInfo in normal mode 23
- updating the secondary database 8

DBTwin parameter file 25

- configuration options 26
- format 26
- related to audit files 7

DBTwin parameters 26–31

- AT 27
- FILTER 27
- FIND 31
- MAXWAIT 28
- PORT 27
- RETRY 27
- SOURCE 27
- STOP ??–30
- SUPPORT 27
- UPDATERS 31
- VIA 27

DBTWINCONTROL data items are incorrect, message 58

DBTWINCONTROL data set

- configuring the primary system 17
- DBTWIN-MODE record 17
- definition 17
- not available 56
- not defined 56

DBTWINCONTROL is empty, message 58

DEADLOCK, how to recover 50

DESCRIPTION file, definition 67

Diagram (see Illustrations)

DMCONTROL option 15

DMSUPPORT library, related to CONTROL file 66

DMUTILITY

- failed message 59
- running 16

Documentation

- conventions ix
- related xi

Down time, primary database 13

E

Entry point not supported in DBTwinEngine, message 60

Evaluation code 20, 35

Evaluator copy, installing 20, 35

Expected ABSN=number in AUDITnumber at segment segmentnumber but found ABSN=number, message 60

F

File Commport Open Error, message 57

Files

- parameter for DBTwin 25
- secondary system 22–24

FILTER, DBTwin parameter 27

FIND, DBTwin parameter 31

Format, DBTwin parameter 26

G

Guardfiles 21, 38, 38, 41

H

HALT/LOAD, related to audit files 65

I

I/O error 56

Illustrations

- DBTwin and DATABridge on one mainframe 3
- DBTwin and DATABridge on separate mainframes 4

Installation

- access code 20, 35
- evaluation code 20, 35

Installation (see also Upgrading)

- down time for primary database 13
- files for secondary system 22–24
- overview 13
- planning 13
- primary system 14–17
- requirements 12
- secondary system 19–22

Introduction of DBTwin 1–9

Italic type, use of ix

L

LOAD command 43, 51

LOCATION command 43, 46, 46, 51

Logical database

- preparing to replicate 15
- replicating 15

M

MAXWAIT, DBTwin parameter 28

MCP requirements 12

Messages 58–60

Missing Database-Stack-Terminate record at end of audit file, message 59

Mode, data set 17

O

OBJECT/DATABRIDGE/ENGINE 22

OBJECT/DATABRIDGE/GENFORMAT 23

OBJECT/DATABRIDGE/SUPPORT 22

OBJECT/DATABRIDGE/TWIN 22

Open Aborted by Correspondent, message 57

Overviews

- DBTwin 1–9
- installation 13
- replication 38–??, 38–??, 41–46

Index

P

- Pack names, matching on primary and secondary system 5, 13
- Parameter file, DBTwin 25
- PATCH/DATABRIDGE/TWIN/DASDL 23
- Port file I/O error 56
- PORT, DBTwin parameter 27
- Primary database 2
 - communicating with secondary database 3
 - definition 2, 67
 - location 3
 - reorganization 56
 - when to bring down 13
- Primary system
 - communication loss with secondary system 56
 - configuring 14–16
 - definition 2
 - matching pack name on secondary system 13
 - primary database reorganization 56
 - usercode 13

Q

- QPT
 - definition 68
 - in audit trail 65
 - stopping at specified ??–30
- Quiet point (*see* QPT)
- Quit command (*see* AX QUIT command)

R

- Records
 - filtering 27
 - recovery 65
- Recovery records 65
- Related documentation xi
- Reorganization
 - data set mode 18
 - primary database 56
- Replication
 - definition 68
 - down time for primary database 13
 - guardfiles 38, 38, 41
 - related to cloning 65
 - selecting data sets 15
 - tracking 47

Report

- sample of DBTwin Status 45
- STATUS command to create 51
- Required files, for the secondary system 22
- Requirements, for installation 12
- RETRY, DBTwin parameter 27
- Rollback, related to audit files 65

S

- Secondary database
 - communicating with primary database 3
 - definition 2, 68
 - for querying 3
 - location 3
 - reinstalling 56
- Secondary system
 - communication loss with primary system 56
 - definition 2
 - disk crash 56
 - files 22–24
 - I-DS 57
 - installation 19–22
 - matching pack name on primary system 13
 - reinstalling database 56
 - usercode 13
- Set, definition 68
- SOURCE, DBTwin parameter 27
- Square brackets, use of ix
- Starting DBTwin 51
- STATUS command 51
- Status command (*see* AX STATUS command)
- Status report 45
- STOP, DBTwin parameters ??–30
- Structure, definition 68
- Sublist is not a set of data set, message 60
- Subset, definition 68
- Subtype Create, message 59
- SUPPORT, DBTwin parameter 27
- Support, technical 55
- SYMBOL/DATABRIDGE/INTERFACE 23
- SYMBOL/DATABRIDGE/SUPPORT 23
- System requirements 12

T

- Tailored support library 27
- TASKSTRING attributes, DBTwin 51

-
- Technical support 55
 - Terminating at end of transaction group, message 59
 - Terminating DBTwin 51
 - TRACK command 51
 - Tracking
 - definition 47, 69
 - related to cloning 65
 - Troubleshooting
 - error and status messages 58–60
 - general procedures 54–55
 - problem and resolution table 56–57
 - Typical installation
 - on separate mainframes 4
 - on the same mainframe 3
 - U**
 - UPDATE command 51
 - UPDATERS, DBTwin parameter 31
 - Updating the secondary database
 - DBAuditTimer utility 7, 46
 - DBTwin Engine 8
 - Upgrading (*see also* Installation)
 - before you begin 33
 - procedure 34
 - secondary system 33
 - Usercode, primary and secondary system 5, 13
 - Usercodes and packs, planning for installation 13
 - V**
 - VIA, DBTwin parameter 27
 - W**
 - Waiting for AFN number to become available, message 59
 - Warnings
 - previous limit ignored 61
 - WFL/DATABRIDGE/COMP 23
 - WFL/DATABRIDGE/INCLUDE/DBTITLE 23
 - WFL/DATABRIDGE/TWIN 22
 - Z**
 - ZIP option 15

