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Databridge Installation Guide

7.1

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1. Databridge Installation Guide

Use this guide to install, configure, and run Databridge version 7.1. Follow the instructions for installing and upgrading the Databridge Host, Enterprise Server, Client, and other products (listed in the Table of Contents). Be sure to see:

What's New in This Release

System Requirements

Installed Files (files installed during installation)

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

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

> **Important**
>
> The service names for the "Databridge Client Manager" and "Databridge Director" services were changed to "Micro Focus Databridge Client Manager" and "Micro Focus Databridge Director".

1.1 What's New In This Release

- Implemented Postgres client for Windows and Linux platforms.
- Added Notifications. The **Administrative Console** can send alert messages using email to designated personnel when something goes wrong with a Databridge component.
- Modified the client to encrypt all passwords in configuration files (both text and binary). Previous obfuscated passwords will be encrypted when a configuration file is updated.
- Modified the `redefine` command to make back-to-back redefine commands work like the Administrative Console's Customize command. As a result, the `-u` option for the `Redefine` command means start over using the control tables in the unload file.
- Added the parameter `use_dmsii_keys` to the Kafka client to make it use the DMSII SET selected by the Engine as the keys, rather than always using the AA Values/RSN as the key for partitioning data.
- Modified the Kafka client to support transactional operations.
- Updated the Kafka client so it can operate using the daemon on Linux. A Windows version of the Kafka client is included in 7.1.
- Modified the Kafka client to operate without requiring a database. The SQLite database is included with these clients and is used to hold the control tables.
- Enhanced the UNIX/Linux dbdaemon script to use the TERM signal to stop the daemon in an orderly fashion. Additionally, the USR1 or USR2 signals are now used to cause the daemon to write the RPC trace and the program status to the file `trace.log` in the working directory. The daemon script will need to be updated using the provided `dbaemon.smp` file as template to support this feature.
- Modified the second database connection used by the clients to be dynamic, which means that unless doing data extraction, the client uses only a single database connection.
- Switched log files to include a line that points back to the previous log file, which may have a much older date.
- Modified the client to maintain row counts for all tables. The counts are updated after an audit file switch and at the end of a client run. In the case of Oracle, do not use stored procedures if you want the row counts to be correct. In these cases, do not terminate the client prematurely (that is, do not kill the service or the client). Instead of using a UNIX kill command or using the task manager to terminate a client run, use the Administrative Console's `Stop` and `Abort` command.
- Updated the client control tables to replace all binary data (raw in the case of Oracle) by numeric data (BIGINT for the SQL Server and Postgres clients, and NUMBER(15) for the Oracle client).
- Enhanced the Oracle client's index creation to use the `parallel 8` and the `nologging` options to speed the index creation. In the case of a primary key, a unique index is created

using use the `parallel 8` and the `nologging` options. Once the index is created, the table is altered to add a primary key constraint, which uses the index that was created.

- Enhanced the `deleted_record` user column to support the data type of BIGINT(19), which causes the client to combine the timestamp with the sequence number to form a 48-bit quantity that is used in place of the timestamp. This enhancement eliminates the duplicate

record problems that occurred when the same record was deleted and inserted multiple times during the same second in the client machine.

Changes in Databridge version 7.1

The `migrate` utility, which was designed to migrate sites from command line-based operations to service-based operations in version 6.0, is discontinued in 7.1.

The `dbpwenc` utility, which was designed to obfuscate passwords in text configuration files, is discontinued in 7.1. Use `import` and `export` commands to achieve the same result.

The configuration parameter `use_ctrltab_sp` has been dropped for the Oracle and SQL Server because these clients always use host variables to update the control tables.

See the Databridge Release Notes for other changes and fixes.

> **Reminder**
>
> We recommend that you install the Administrative Console on a separate server from the client machine(s) because:
>
> The Administrative Console code uses a lot resources, which could impact the client's performance, unless you have a powerful machine with lots of memory.
>
> Since the Administrative Console monitors the client machines, using a different machine avoids the chance of a downed client machine that cannot monitor itself.

1.2 Security Guidelines

Databridge 7.1 includes the following guidelines to decrease security risk.

Databridge 7.1	Security Guideline
Databridge Host	Install Databridge Host to the Unisys mainframe under its own privileged usercode. This is preferable to installing under the usercode of the DMSII database. If you install and run Databridge under multiple usercodes, you must install a copy of DBEngine under each of those usercodes. Alternatively, you can establish DBEngine as a system library (SL).

Databridge 7.1	Security Guideline
Databridge Client	File security helps to protect Client operations by restricting access to the working directory and its files and subdirectories. Access is limited to the administrators and the system account, and to designated users (or on Windows, user groups). In Windows, you can enable file security via the option **Enable File Security** at installation, or by running the program `setfilesecurity.exe` after the installation. From the **UserID** box and the **DBAdministrator** box, specify users who can run Databridge Client and modify the working directory and its files. User IDs specified in the **DBOperator** box can monitor operations by reading the log files, but cannot run Databridge Client. In UNIX, you restrict file access via the umask entry in the file `globalprofile.ini`. See Install Databridge Client on UNIX.

Databridge 7.1	Security Guideline
Databridge Enterprise Server	File security is automatically enabled when you install Databridge Enterprise. File security protects the configuration and log files by restricting privileges on the PC to users who need to modify the configuration. By default, any user in the Administrators group can modify the configuration files and delete the read-only log files. If you create a user group in Windows called DBEAdmins, only the users in that group will be able to alter the configuration files and delete log files. Likewise, if you create a group called DBEUsers, only the users in that group will be able to view the configuration. For more information, see **Implementing File Security** in the Databridge Enterprise Server Help.

1.3 System Requirements

Databridge 7.1 includes support for the following hardware and software.

1.3.1 System Support Updates

Note: Databridge will remove support for operating systems and target databases when their respective software company ends mainstream and extended support.

Databridge 7.1	Supported Systems
Databridge Host	Unisys mainframe system with an MCP level SSR 59.1 through 63.0 DMSII or DMSII XL software (including the DMALGOL compiler) DMSII database DESCRIPTION, CONTROL, DMSUPPORT library, and audit files

Databridge 7.1	Supported Systems
Databridge Enterprise Server	ClearPath PC with Logical disks or MCP disks (VSS disks in MCP format) -or- Windows PC that meets the minimum requirements of its operating system: - Windows Server 2022 - Windows Server 2019 - Windows Server 2016 (CORE mode must be disabled for installation and configuration) - Windows Server 2012 R2 (CORE mode must be disabled for installation and configuration) - Windows Server 2012 Direct Disk replication (recommended) requires read-only access to MCP disks on a storage area network (SAN) TCP/IP transport **NOTE:** To view the product Help, JavaScript must be enabled in the browser settings to navigate and search Help.
Databridge Administrative Console	One of following platforms can be used for the Administrative Console server: - Windows Server 2012 or later - Windows 10 x64 - Intel X-64 with Red Hat Enterprise Linux Release 7 or later - Intel X-64 with SUSE Linux Enterprise Server 11 SP1 or later - Intel X-64 with UBUNTU Linux 14.4 or later - Sun Microsystems SPARCstation running Solaris 11 or later

Databridge 7.1	Supported Systems
Databridge Client	We recommend running the Administrative Console on a different machine from the Client to avoid negatively impacting the client's performance. To access the Administrative Console, use a browser such as Microsoft Edge or Google Chrome on the client machine. **NOTE:** Disk space requirements for replicated DMSII data are not included here. For best results, use a RAID disk array and store the client files on a separate disk from the database storage. **NOTE:** Memory requirements do not include the database requirements when running the Client in the server that houses the relational database (consult your database documentation for these). The numbers are for a stand-alone client machine that connects to a remote database server.

Databridge 7.1	Supported Systems
Client - Windows	Unisys ES7000 -or- Pentium PC processor 3 GHz or higher (multiple CPU configuration recommended) 2 GB of RAM (4 GB recommended) 100 GB of disk space in addition to disk space for the relational database built from DMSII data) TCP/IP transport One of the following operating systems: - Windows Server 2022 - Windows Server 2019 - Windows Server 2016 (CORE mode must be disabled for installation) - Windows Server 2012 R2 (CORE mode must be disabled for installation) - Windows Server 2012 - Windows 10 One of the following databases: - Microsoft SQL Server 2022 - Microsoft SQL Server 2019 - Microsoft SQL Server 2017 - Microsoft SQL Server 2016 - Microsoft SQL Server 2014 - Microsoft SQL Server 2012 - Oracle 12c, 18c, 19c, 21c

Databridge 7.1	Supported Systems
Client - UNIX and Linux	One of the following systems: - Sun Microsystems SPARCstation running Solaris 11 or later - IBM pSeries running AIX 7.1 or later - Intel X-64 with Red Hat Enterprise Linux Release 8 or later - Intel X-64 with SUSE Linux Enterprise Server 11 SP1 or later - Intel X-64 with UBUNTU Linux 18.04 or later 2 GB of RAM (4 GB recommended) 100 GB of free disk space for installation (in addition to disk space for the relational database built from DMSII data) TCP/IP transport One of the following databases: - Oracle 12c, 18c, 19c, 21c

1.4 Related Documentation

Databridge product documentation

Databridge Documentation - all guides for the current and previous versions

Databridge installation image - the Docs folder contains the guides for installation and error codes as well as the administrator's guide for each Databridge product.

Databridge Support Resources - includes Knowledge Base articles

Product **Help** (HTML) is available for Databridge Enterprise Server and Databridge Administrative Console.

Unisys MCP Server documentation

For more information about DMSII configuration, refer to your Unisys documentation.

1.5 Description of Files on the Installation Image

The table below lists the directories and files on the installation image in alphabetical order. Databridge Host installation files (DISKINSTALL and IMAGE) are located on the root. Only 64-bit versions are provided for all Databridge Clients.

This directory	contains ...	File Descriptions
AIX	Tar files for installing Databridge clients on the AIX platform:	
	DB_AIX64_Ora12c.tar	64-bit programs for Oracle 12c client
	DB_AIX64_Ora18c.tar	64-bit programs for Oracle 18c client
	DB_AIX64_Ora19c.tar	64-bit programs for Oracle 19c client
Console	Files for installing Databridge Administrative Console, in the following subdirectories:	
	UNIX	databridge-container-7.1.0.tar and JDKs for Linux and Solaris
	Windows	Installation files for Databridge Administrative Console.
Documentation	Databridge Help documentation files in PDF format. Help for Enterprise Server and the Client Console are available from the **Help** menu of the application.	
Linux	Tar files for installing Oracle, Kafka and PostgreSQL clients on Intel® x64 series machines running various flavors of Linux including RedHat Enterprise (Release 8 or higher), SUSE, or UBUNTU:	
	DB_Linux64_Kafka.tar	64-bit programs for the Kafka client
	DB_Linux64_Ora12c.tar	64-bit programs for Oracle 12c client
	DB_Linux64_Ora18c.tar	64-bit programs for the Oracle 18c client

This directory	contains ...	File Descriptions
	DB_Linux64_Ora19c.tar	64-bit programs for the Oracle 19c client
	DB_Linux64_Ora21c.tar	64-bit programs for the Oracle 21c client
	DB_Linux64_Postgres.tar	64-bit programs for the PostgreSQL client
SunOS	Tar files for installing clients on Oracle SPARCstation running Solaris 11 or later:	
	DB_SunOS64_Ora12c.tar	64-bit programs for the Oracle 12c client
	DB_SunOS64_Ora18c.tar	64-bit programs for the Oracle 18c client
	DB_SunOS64_Ora19c.tar	64-bit programs for the Oracle 19c client

This directory	contains ...	File Descriptions
Windows	Installation files for Enterprise Server, Databridge Client (Windows)	

2. Installing Databridge Host

This chapter includes instructions for installing and upgrading Databridge Host software on the MCP server.

> **Note**
>
> **Before You Upgrade Databridge Host**
> Please note the following:
>
> The SAMPLE files are overwritten by the installation. If you have modified these files, make backup copies *before* you run Databridge Installation WFL. If you changed SYMBOL/DATABRIDGE/SUPPORT, note the changes you made and make the corresponding changes to the new SYMBOL/DATABRIDGE/SUPPORT.
>
> You can use Accessory parameter files from earlier versions with this release. If the current version includes new options you want to use, you can add them by typing them into your existing parameter file.

2.1 Install Databridge Host

The installation process for Hot Fixes, Updates and Service Packs for the host software has been simplified. Hotfixes will be supplied in a container file that has a name similar to the base release (e.g. DB71-01-Hotfix). To apply the patch, follow the same procedure as you did when installing the base release. Run the install WFL to install the software.

In this new installation process a patch will replace all files previously installed rather than only the changed files. If the base release isn't installed you can directly install a patch without having to first install the base release.

To install Databridge Host

1. **Sign on to a privileged usercode**

1. You can no longer use the install WFL to install Databridge to a nonprivileged usercode.

2. **Upload Databridge container to the host**

2. Upload the DB71-00-BASE file using a file transfer tool capable of binary/image transfers to the privileged usercode where Databridge is to be installed.

2. This DB71-00-BASE file replaces the IMAGE and DISKINSTALL files used in prior releases. The DISKINSTALL image is still available, and can be uploaded and utilized to get the install WFL. Note that, the install WFL can also be extracted from the DB71-00-BASE file, which makes this file redundant. The file DISKINSTALL will not be provided in the next release.

3. **Unwrap the Databridge installation WFL (WFL/DATABRIDGE/INSTALL)**

3. To extract the install WFL from the file `DB71-00-BASE`, enter the following CANDE command:

3. `WFL UNWRAP *WFL/DATABRIDGE/INSTALL AS WFL/DATABRIDGE/INSTALL OUTOF DB71-00-BASE`

4. **Start the Databridge Installation WFL.**

4. If you want to install the Databridge software to a different pack family than primary pack of your FAMILY substitution statement (FAMILY DISK = primarypack

4. OTHERWISE secondarypack) use the following command instead.

4. `START WFL/DATABRIDGE/INSTALL ("DATABRIDGE", "otherpack")`

4. Most WFLs are copied with a SAMPLE node in the title. They will also be copied without the SAMPLE node using the ADD command so that first-time installations will have WFL files with the standard name but *existing WFL files are not replaced*. Parameter files, like DATA/SERVER/SAMPLE/CONTROL, are also copied without the SAMPLE node if the file doesn't already exist.

5. **For first-time installations, edit the DBServer control file (DATA/SERVER/CONTROL).** Otherwise, skip to step 8.

    1. (Optional) Change `TCP/IP Port = 11367` (the default) to the port you want to use.
    2. Change `SOURCE <datasourcename>` to the name of the data source that the client will use.
    3. Change `Database = (<usercode>)DESCRIPTION/<databasename> ON <packname>` to reflect the usercode/location of the description file for the database to be replicated.

6. **If you are upgrading, do the following:**

    1. Bring down the Databridge Server using the `AX QUIT` command.
    2. Recompile your tailored support libraries by entering the following command (replacing usercode, databasename, and pack with your values):

2. `START WFL/DATABRIDGE/COMP ("SUPPORT", "(usercode)databasename ON pack")`

2. For more information on recompiling, see the *Databridge Host Administrator's Guide*.

Start the Databridge Server:

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

> **Note**
>
> If your database uses guardfiles, you can include Databridge under database guardfile validation. See Set Up Guardfiles.
>
> For information about security options, see "Databridge Security" in the *Databridge Host Administrator's Guide*.

2.2 After You Upgrade

Make sure to recompile any tailored support libraries. See the *Databridge Host Administrator's Guide*.

The DMSII Support library is compiled automatically after you upgrade. However, you can save time by manually compiling this library before you start replicating. For instructions, see Chapter 3, "DMSII Support" in the *Databridge Host Administrator's Guide*.

2.3 Set Up Guardfiles

If your database uses guardfiles, Databridge can be included under database guardfile validation. For validation of guardfiles to work, the relevant guardfile must specify read access (RO) for the Databridge Accessory and/or the usercode under which the Databridge Accessory is running.

In addition, the Databridge Engine (DBEngine) must have read access to the actual database guardfile. You can accomplish this in one of the following ways:

- Run the Databridge Accessory under the usercode that owns the guardfile. For example, if the guardfile is `(PROD)GUARDIAN/FILE`, run the Accessory under the PROD usercode.
- Change the security of the guardfile to `PUBLIC IN`.
- Make sure that DBEngine is a privileged program. DBEngine is marked as a privileged program on the release media.

> **Note**
>
> Access to the guardfile itself is enforced by the MCP. Therefore, even if you make the database visible to the Accessories, you must still give DBEngine read access to the guardfile, as explained above.

2.4 Databridge Components and Guardfiles

Databridge Accessories and the Databridge Server Workers (but not the Databridge Server itself) must have read access to the database (physical or logical) they are using. No other rights are necessary. DBInfo and GenFormat require read access to the physical database. DBInfo uses the physical (versus a logical) database when searching for a quiet point.

2.4.1 Databridge DMSII Support

The Databridge DMSII Support library must have OPENINQUIRY, OPENUPDATE, and FIND access to the physical database. OPENUPDATE allows the extract routines to generate a small amount of audit when doing an OFFLINE clone.

Here's an example of a guard file fragment for a physical database. In this example, the fictional site has Databridge software installed under the (DB) usercode on the family named DBPACK and the database DESCRIPTION file is called (PROD)DESCRIPTION/BANKDB ON DMSPACK.

```
PROGRAM (DB)OBJECT/DATABRIDGE/DBINFO ON DBPACK = RO;

      PROGRAM (DB)OBJECT/DATABRIDGE/GENFORMAT ON DBPACK = RO;

      PROGRAM (DB)OBJECT/DATABRIDGE/DMSIISUPPORT/BANKDB/PROD ON DBPACK = RW,

      DMVERBS = (OPENINQUIRY, OPENUPDATE, FIND);
```

The `DMVERBS` list for the physical database prevents any actual updating because DELETE, STORE, etc., are not allowed.

If you are using DBTwin or the DMSII Client, the DMSII Support library on the secondary system must have updating access as well and in that case the DMVERBS list should be omitted entirely.

2.4.2 Accessories and Databridge Server Workers

The Accessories and Databridge Server Workers (but not the Databridge Server itself) must be listed in the guardfile that protects the database they will be using. However, if they use a logical database instead of a physical database, put these entries in the guardfile that protects the logical database.

Here's an example of guardfile fragments for a physical or logical database. (In this example, Databridge is installed under the (DB) usercode on the family named `DBPACK` and Databridge Clients run on hosts called IPADDRESS1 and IPADDRESS2.)

```
PROGRAM (DB)OBJECT/DATABRIDGE/SPAN ON DBPACK = RO;

       PROGRAM (DB)OBJECT/DATABRIDGE/SNAPSHOT ON DBPACK = RO,

       PROGRAM (DB)OBJECT/DATABRIDGE/LISTER ON DBPACK = RO;

       PROGRAM (DB)OBJECT/DATABRIDGE/AUDITTIMER ON DBPACK = RO;

       PROGRAM (DB)DBSERVER/WORKER/1 ON IPADDRESS1 = RO;

       PROGRAM (DB)DBSERVER/WORKER/1 ON IPADDRESS2 = RO;

       PROGRAM (DB)DBSERVER/WORKER/2 ON IPADDRESS1 = RO;

       PROGRAM (DB)DBSERVER/WORKER/2 ON IPADDRESS2 = RO;
```

If you allow more than two Databridge Server Workers to run concurrently, add entries like the ones above with the appropriate number for the last node.

3. Installing Databridge on Windows

Use this procedure to install or upgrade the following Databridge products:

- Databridge Client
- Databridge Administrative Console
- Databridge Enterprise Server
- Databridge Cluster Aware Service for Windows Clients

Before you install

The installer launches a post install performs additional configuration actions using a series of dialog boxes when you push the "Close" button after the installation completes successfully. One of these dialog boxes allows you to restrict access right to the files in the working directory. The `Enable File Security` checkbox, when enabled, allows you to specify which users can access the files in the working directory (step 5 of this procedure). File security for Databridge Enterprise Server is automatically enabled during installation. For more information, see Security Guidelines.

If the default location of the Enterprise Server configuration directory in this release is different from what you currently use, you can specify your current configuration directory during the upgrade process or import your configuration files after you upgrade (in Enterprise Server using the import button).

To install Databridge

> **Note**
>
> If you're installing on Windows Server 2012 R2 or newer in CORE mode, you must reboot with CORE mode disabled before installing Databridge.

1. Log on using a Windows account with administrator privileges.
2. To start the installer, do one of the following:
    - From the Windows subdirectory on the release medium choose the `setup.exe` file.
    - From the download site, click the Windows download link, select a location for the installer files, and then click **Next**.
3. In the Installer wizard, accept the license agreement and click **Continue**.
4. In the tabbed window, make your selections and then click **Install Now**:

Tab	Description
User Information	Personalize your install if desired.
File Location	Specify a location for the Databridge program files (or accept the default). This path is saved as the INSTALLDIR string value for the Windows registry key.
Feature Selection	Click the Databridge component(s) you want to install and choose Feature will be installed on local hard drive from the popup menu. (Items with a red "x" won't be installed.) Follow the same procedure if you choose the option to install Double-byte Support and Localization.

Tab	Description
Advanced	Specify the type of installation you want and your log file options. **Install to this PC**: Installs the selected Databridge components to your computer. **Create an Administrative Install image on a server**: An administrative installation does not actually install the product. Instead, it creates an installation image that you can use to deploy Databridge users. When you create an administrative installation image, an image of Databridge is copied to a network location for later installation to multiple workstations. This network location can be used by deployment tools to access and create packages that are deployed to workstations. Also, end users can perform installations by running setup.exe from this location. *Log file settings*: By default an installation log file is created, but this file is deleted if the installation succeeds. (This configuration avoids accumulation of large log files after successful installations.) To save a log file for all installations, including successful ones, click Create a log file for this installation, and uncheck Delete log file if install succeeds. The installation log file, which provides details about the installation, is saved in the user's temp directory (%tmp%) with a generated name that begins with atm. To open this folder, click the Start menu, type **Run** in the Search field, click Run to open the Run command window, type %tmp%, and hit enter.

5. Click the **Install Now** button to launch the installer.

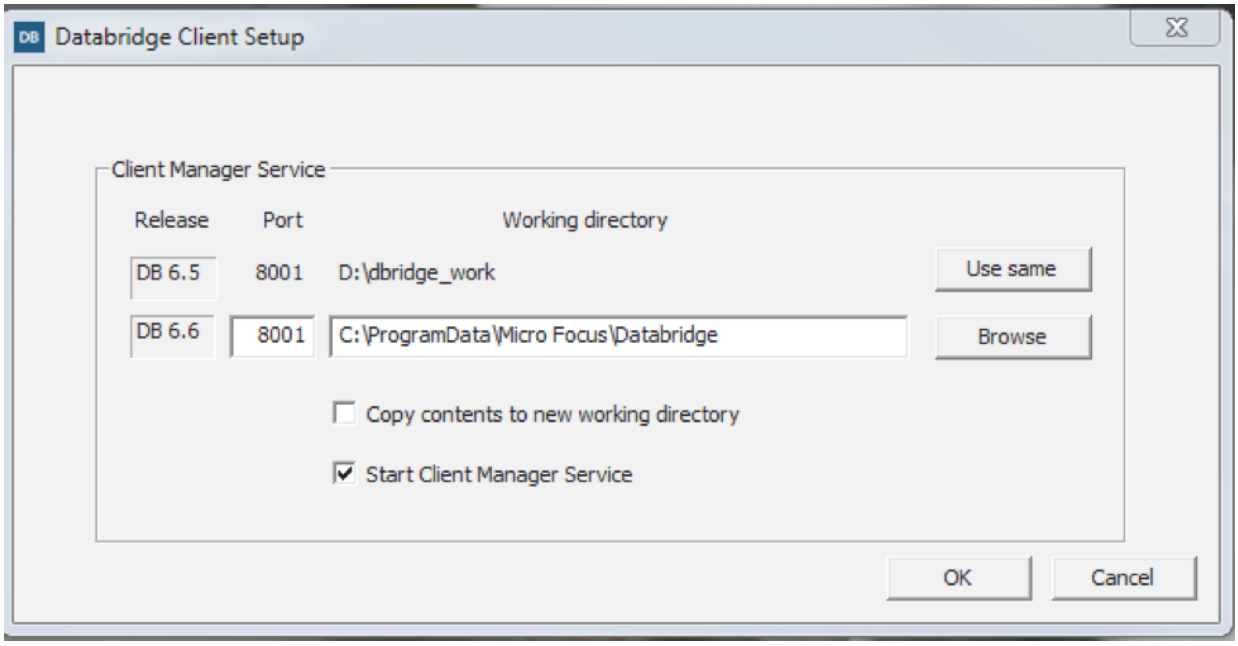
   When the installer finishes the message “Installation completed successfully” will appear in a dialog box that has a Close button. When you click Close the installer launches a program that performs additional configuration for the Client and Enterprise Server, when either the Databridge Client or Databridge Enterprise Server is selected in the Feature Selection tab of the installer.

Complete the various configuration tasks in these dialogs that are described in the next section.

After installation is complete, see the After Installation is Complete section of this guide.

3.1 Client Configuration Dialogs

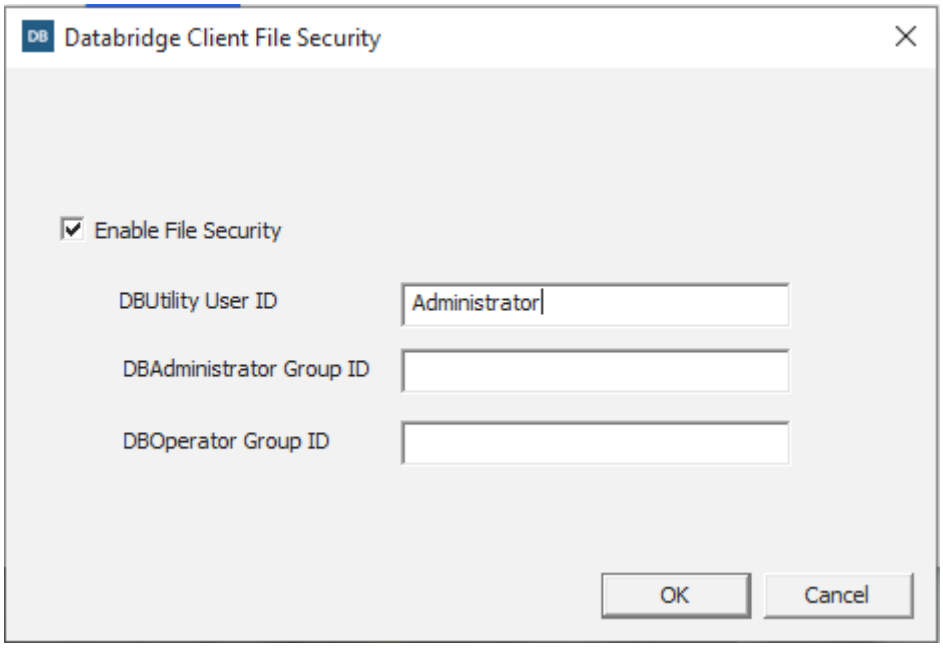
If you are installing Databridge Client software (SQL Server, Oracle, or Flat File) and click the Close button, the Databridge Client Setup dialog box opens. This dialog lists the version (as DB 6.n), the port number for the Client Manager Service and the working directory for older clients that are still installed on the machine. This is followed by a line containing the default port number and working directory **(C:\ProgramData\Micro Focus\Databridge)** for the 7.1 Client Manager Service.



Dialog Item	Description
Use same	This button allows a user to select the working directory used by the older software as the working directory. This should only be done with previous versions 7.0 SP1, 7.0, 6.6, 6.5, 6.3, and 6.2 SP1. (The binary configuration files for the services in version 6.2 and older are not compatible with version 7.1 or higher) When upgrading from older releases, use the migrate utility to populate the new working directory.
Browse	This button allows a user to browse to a directory on the system instead of typing the path in the edit box. To change the drive letter use the edit box to the left of the Browse button.
Port	This edit box allows a user to change the Client Manager service's port number
Copy contents to new working directory	This check box allows a user to copy pertinent files from the old working directory to the new one that is displayed in the edit box to the left of the Browse button. Log files, discard files and other files are omitted from the copy. This option makes it possible to keep the old working directory as a backup in case you decide to use older software.

Dialog Item	Description
Start Client Manager Service	This check box is checked by default to indicate that when the Client Configuration is completed the Client Manager Service will be started. When this happens you will get a confirmation message.
OK	Click this button when finished configuring the client to save your selection. The program will then display the next dialog.
Cancel	This button cancels the dialog, which will leave the Client partially installed. If Cancel is selected, double-click on `updatepath.exe` (found in the same directory as setup.exe) and redo the last part of the installation. Alternatively, you should uninstall Databridge and then run `setup.exe` again.

The next dialog is the **Databridge Client File Security** dialog.

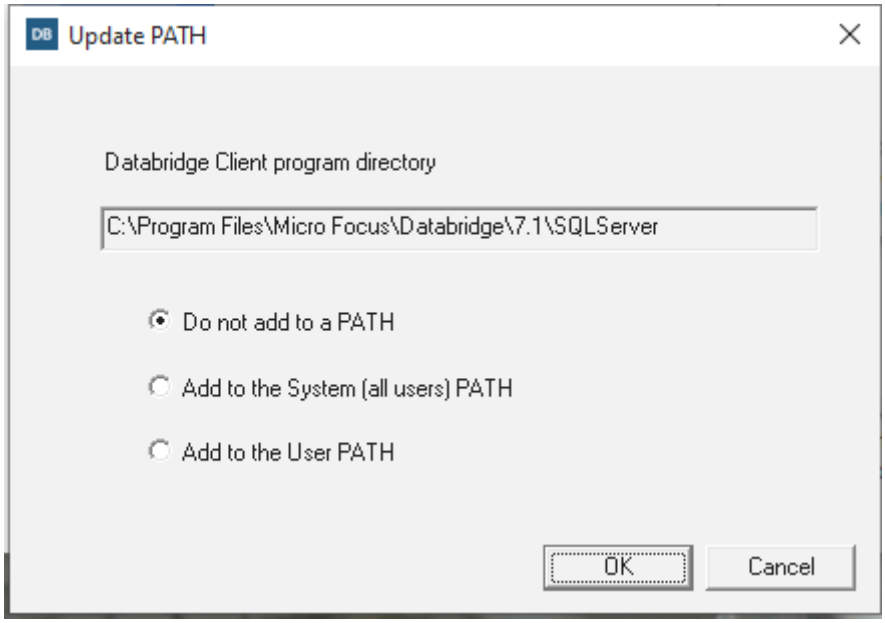


Dialog Item	Description
Enable File Security	Select this check box to set the security attributes for the Client working directory and its files and folders, according to the settings specified in this dialog box.

Dialog Item	Description
UserID and Optional Groups	When `Enable File Security` is selected, you can specify a user id or a group that has read-write privileges to all directories and files created by the Client programs (in addition to administrators and the built-in system account, which have these privileges by default). You can specify both individual users and groups if the user is not a member of the group. You can also specify a second group that has read-only privileges to these files.
UserID for dbutility	Specify the user ID that has full read-write control of the Databridge Client and its programs. All dbutility commands must be run under this user ID or by a member of the group specified in the DBAdministrator Group string in the Windows registry in the DBOperator Group ID edit box. **NOTE:** *When you install Databridge, this value will be populated with the current ID, which can be changed if needed.*
DBAdministrator Group	Specify a group name whose members can run the Databridge Client program and have read-write access to files in the Client Manager Services working directory. **NOTE:** *Do not use the group Administators, as this is not an ordinary group.*

Dialog Item	Description
DBOperator Group	(Optional) Specify a group name whose members can view the Databridge configuration and log files but cannot modify them. This selection is useful for groups who are not directly involved in running Databridge, but who need to monitor its operations.

Click **OK** to save selections. This will move you to the final Client Setup dialog, which is shown below.



Dialog Item	Description
Do not add to a PATH	By selecting this option users are required enter a fully qualified filename (including the Databridge install directory) each time a Databridge program is run from the command line. Make sure that you enclose the path in double quotation marks, as "Program Files" contains a space. Alternatively, set up command files to run the Client or use environment variables to make this task easier. Choose this setting if you use scripts that specify the full path for the client.
Add to the System (all users) PATH	Selecting this option allows anyone on the system to be run Databridge programs by just providing the program name without having to enter the full file specification by adding the Databridge program directories to the Windows Path environment variable. Do not select this option if system security is a concern.

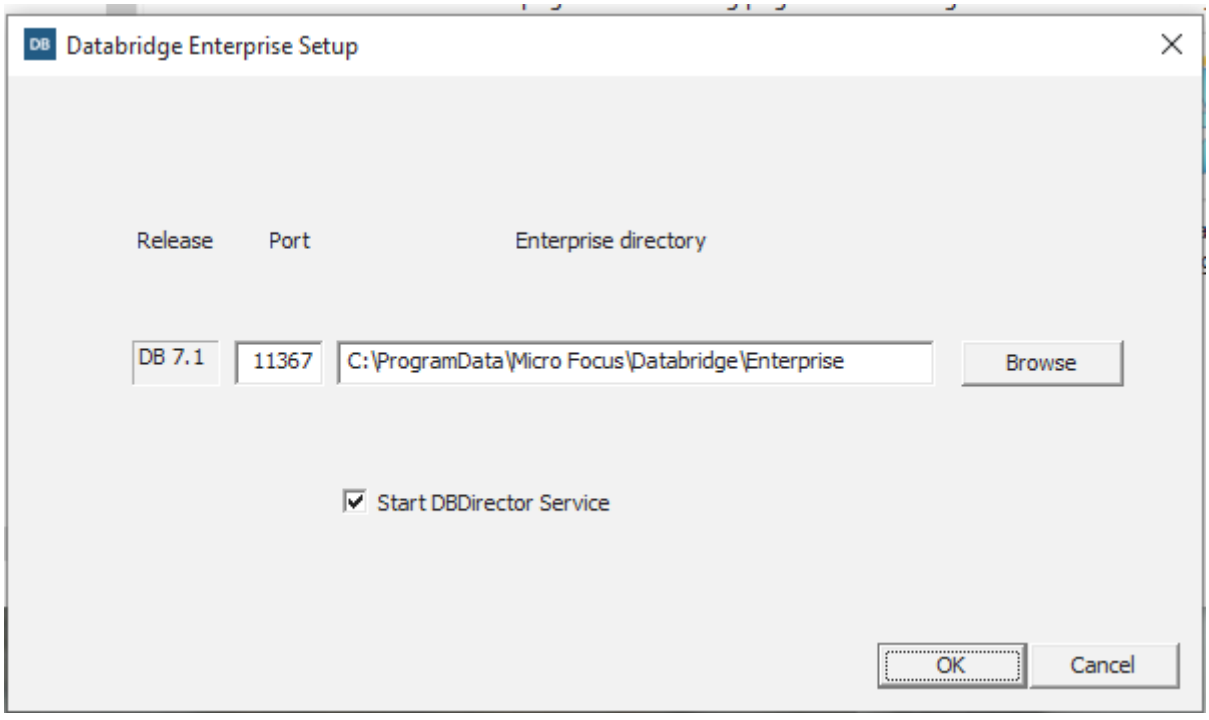
Dialog Item	Description
Add to the User PATH	Selecting this option the user who installed Databridge to run Databridge programs by just providing the program name.

> **Note**
>
> The Client Manager Service does not rely on the PATH being set up, it uses fully qualified file names when launching Client runs.

Click **OK** to save your selections. You will then get a confirmation message if updating the PATH has been selected. If you checked the Start Client Manager Service you will get an additional message informing you that the service was started using the specified port. If you are also installing Databridge Enterprise Server you will then get the Databridge Enterprise Setup dialog.

3.2 Enterprise Configuration Dialog

This dialog, which is almost identical to the Databridge Client Setup dialog, lists the version (as DB 6.n), the port number for the DBDirector Service, and the working directory for older versions of Enterprise Server that are still installed on the machine. This is followed by a line containing the default port number and working directory **(C:\ProgramData\Micro Focus\Databridge\Enterprise)** for the Databridge Enterprise Server.



Dialog Item	Description
Use same	This button allows the user to select the working directory used by the older software, as the Enterprise working directory.
Browse	This button allows the user to browse to a directory on the system instead of typing the path in the edit box. Change the drive letter in the edit box to the left of the Browse button.
Port	This edit box allows a user to change the DBDirector service port number.
Copy contents to new Enterprise directory	This check box allows the user to copy pertinent files from the old working directory to the one that is displayed in the edit box to the left of the Browse button. Log files are omitted from the copy. This option makes it possible to keep the old working directory as a backup in case the old software is used.
Start DBDirector Service	This check box, which is checked by default, indicates that the service will be started when the Enterprise Server Configuration is completed. A confirmation message will appear when the service is started.
OK	Click this button when done configuring Enterprise Server to save your selection.

Dialog Item	Description
Cancel	This button cancels the dialog, which will leave Databridge Enterprise partially installed. If Cancel is selected, double-click on updatepath.exe (found in the same directory as setup.exe) and redo the last part of the installation. Alternatively, you should uninstall Databridge and then run setup.exe again.

> **Note**
>
> The post install program that generates all the dialogs described above does not get launched when reinstalling or the repairing the installation. We strongly recommend that you uninstall the software and reinstall it to configure Databridge.

3.3 Installing Databridge Client and Enterprise Patches

Open the Windows folder of the Hot Fix, Update, or Service Pack and double-click the file `databridge-7.1.bbbb-xxxx-W64.exe` (where xxxx can be "hotfix", "update", or "service pack"). Depending on the software you installed, the Client and/or Enterprise Server will be updated.

> **Note**
>
> After the installation is complete, restart the Client Manager service/daemon manually. The service will not automatically start after a patch is applied.

3.4 Run the Migrate Program on Windows

If upgrading from any version of 6.6, 6.5, 6.3, 6.2, or 6.1 SP3, you do not need to run migrate or dbfixup when using the service. Use the existing working directory and configuration files and simply start the service.

If you're upgrading from 6.1 (or earlier) to 7.0, use this procedure after you install the Client. (See Installing Databridge on Windows.) The migrate program creates a new Client working directory and files.

3.5 Upgrading on Windows

The easiest way to upgrade is to create a new working directory and copy the working directories for the data sources to be migrated from the old working directory to the new working directory.

Delete the old log files that are already in the old working directory. To include the data source in the service simply execute an "Add > Existing" command from the Administrative Console. If using a test system, you can use same working directory.

3.6 The Working Directory

Databridge Client's global working directory (also referred to as the *service's working directory*) is required for the Client to run. The *working directory* is different from the *install directory*, where the installer copies all of its files.

The first time you install Databridge Client on UNIX, you must create a working directory. In subsequent installations, you can reuse this directory. For instructions on creating this directory, see Install Databridge Client on UNIX.

The first time you install Databridge Client on Windows, the installer creates the working directory for you in the location you specify. This path is saved as the WORKINGDIR string value in the Windows registry key.

Contents of the Client Working Directory

The working directory contains four subdirectories: `config`, `locks`, `logs`, and `scripts`.

This subdirectory	Contains
`config`	The program-generated file (log.cfg) that keeps track of the current log file and the binary configuration file (dbcontrol.cfg), which the service updates when you make changes to settings in the Client Console. If you export the service configuration file, the exported copy (dbcontrol.ini) is created in this subdirectory. When you add a data source, a backup copy of the service configuration file dbcontrol.cfg is created (dbcontrol.bak).

This subdirectory	Contains
`locks`	Lock files for each data source. A lock file is created the first time a client run starts. The file is re-opened on subsequent runs and kept open for the duration of the run to prevent additional runs using the same data source. The locks subdirectory is created the first time you start the service (new installations).
`logs`	Log files (`.log`) created by the service. A section in the configuration file named [Log_File] allows the user to set the criteria for switching log files. For more information, see Appendix C in the *Databridge Client Administrator's Guide*.

This subdirectory	Contains
`scripts`	Command files launched by the service under circumstances such as, when a client run terminates or the BCNOTIFY program on the MCP sends the service a request to run a specific script file. This is a suitable location for saving Batch Console source files that contain the commands for the Batch Console.

Each Data Source Has a Working Directory

Each data source requires its own separate working directory within the Client working directory. This directory is created automatically when you add a new data source in the Administrative Console or when you upgrade existing data sources using the Migrate program. If you use the command-line client (**dbutility**), you must create directories for your data sources. When **dbutility** executes a `configure` or a `define` command, it creates the subdirectories (if they don't exist) and a binary configuration file (`dbridge.cfg`) in the `config` subdirectory.

The data source working directory contains the following subdirectories:

This subdirectory	Contains
`config`	The client configuration file (dbridge.cfg). For runs initiated by the Client service, this file must be binary. The command-line client can use a binary or a text file. For details, see Appendix C in the *Databridge Client Administrator's Guide*. Make sure that you delete any exported text configuration files (`dbridge.ini`) that are no longer used. These become obsolete when the configuration is updated from the Client Console. The Null record file for the data source and two program-generated files (`log.cfg` and `trace.cfg`), which keep track of the current log and trace files. **NOTE:** You can make the Client add signon information to the configuration files it creates by running the configure or a define commands with switches to specify your signon parameters. For more information, see Signon Configuration.
`dbscripts`	Files created by the `generate` command, SQL scripts, bulk loader files (`.ctl` , `.fmt`), and command files to invoke the bulk loader. In Oracle, the control files also specify parameters for SQL * Loader.

This subdirectory	Contains
`discards`	Files created by the client or the bulk loader when they encounter a data record that cannot be processed. If the Client determines that a DMSII record is bad before handing it to the bulk loader, it puts this record in the client discard file as if it was an insert operation. The data is encoded as an SQL stored procedure call using the appropriate stored procedure based on the type of update. Discard files can be executed using the database's query tool: SQL Server Management Studio query window
`logs`	Client log files. The filename includes a user-configurable prefix followed by a date (*yyyymmdd*). If multiple log files exist for the same date, a time (*_hhmmss*) is appended to the end of the filename to make it unique.

This subdirectory	Contains
`scripts`	User script files

The data source working directory also contains temporary files. Many of these files aren't removed by the Client and should be deleted periodically. You can safely delete them any time the Client is not running (except during the interval between a `redefine` command and a `reorganize` command). Temporary files include: trace files; bcp log files; unload files; scripts that are executed by the `redefine` command; and temporary files used by the Windows client during data extraction. Use the **logmaint** utility to get rid of old log files. This utility lets you specify the number of log files you want to keep at a given time.

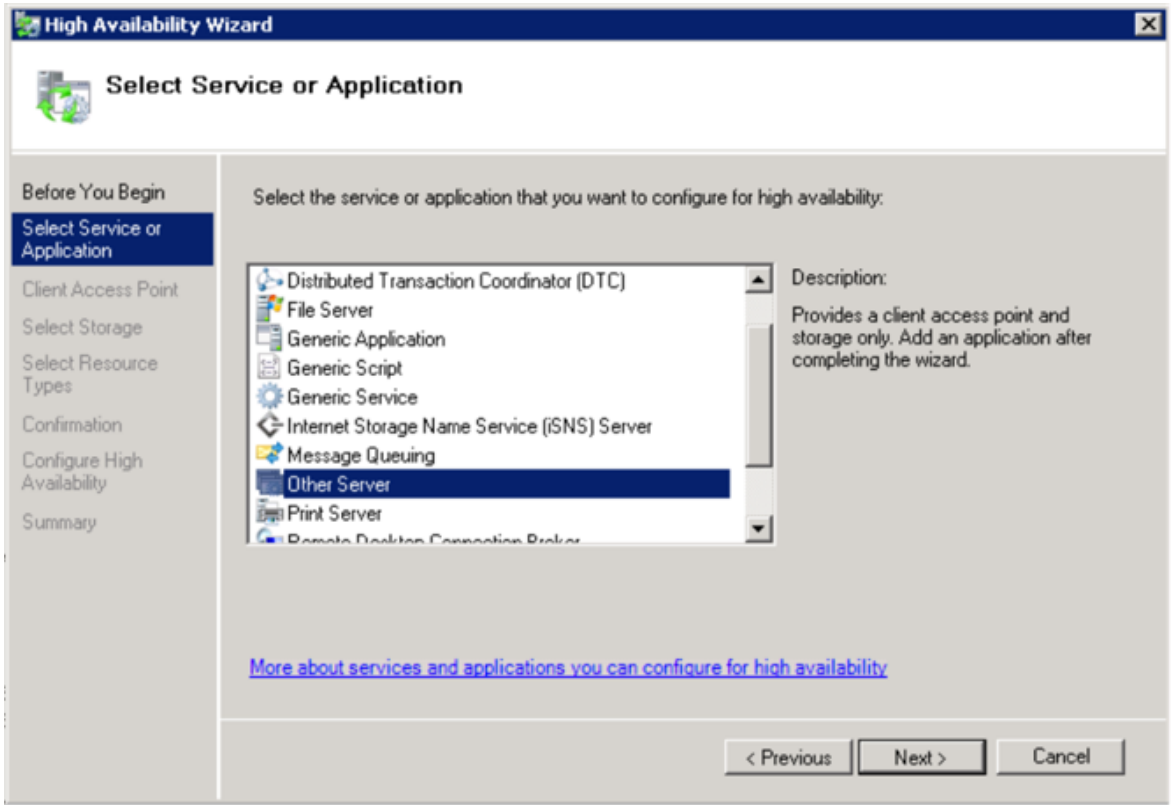
3.7 Installing and Configuring Databridge Cluster

The following procedure will enable an administrator to configure and run Databridge with the service on a clustered Windows Operating system. A cluster database provides scalability and data-sharing between multiple compute nodes. This sharing is designed to offer a fault tolerant database with high availability to minimize the effects of a single failure loss of service within your storage architecture.

If you are attempting to install the cluster feature after an unsuccessful install of Databridge version 7.1 please read Uninstalling the Cluster section prior to your installation.

3.7.1 Configuring the First Node

The First Node that you will be installing the client on should be your active node. If it is not the active node you will need to move the client to the active node.

1. From the Server Manager, expand the tree view features and expand **Failover Cluster Manager** to list the available clusters. Expanding the cluster to which Databridge will be added, right-click **Services and applications** in the tree view or select **Configure a Service or Application** on the right side taskbar to launch the High Availability Wizard.
2. Click **Next** on the Before You Begin prompt.
3. In the Select Service of Application prompt select **Other Server** from the list and click **next** as seen in Figure1-1.
3. 

4. In the **Client Access Point** prompt enter your desired name for the cluster and configure accordingly with your IPv4 address in the **Address** field and click **next**.
5. When prompted to Select Storage select from the available disks and click **next**. This disk will be shared by Databridge nodes for configuration and logging.
6. In the Select Resources Type prompt do not select an option and click **next**.
7. Continue through the Confirmation, Configure High Availability, and Summary prompts and select **finish**.
8. Install the Databridge Client version on the **first node** by following the steps in the **Installing Databridge on Each Node** section.

3.7.2 Installing Databridge on Each Node

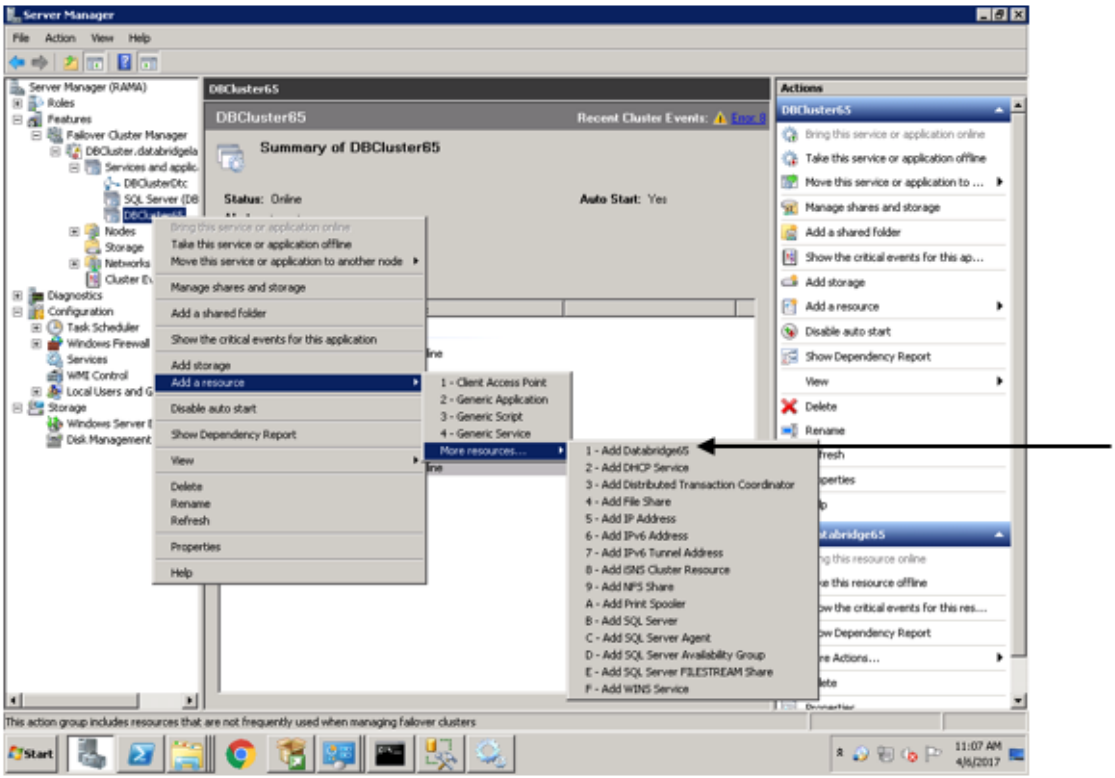
Install the Databridge Client version 7.1 and follow the steps below. Ensure the Databridge installation is on the active node per the instructions.

1. Launch the Databridge **setup.exe** installer.
2. In the Feature Selection tab select the Databridge Enterprise Server (optional), SQL Server and Databridge Cluster to be included in the install.
3. We selected (**"\ProgramData\Micro Focus\Databridge 7.1\Client"**) for the Client Working Directory and (**"\ProgramData\Micro Focus\Databridge 7.1\Enterprise"**) for the Databridge Enterprise Working Directory.

4 When configuring your **Client Service Working Directory** and **Database Folder** set the ports (assigned by a network administrator) and select **Install Now**.

> **Note**
>
> Do not start the service after this step.

3.7.3 Configuring and Installing the Second Node

1. In the second node, launch the **Server Manager**.
2. From the Server manager right-click the newly created application under the **Service or applications** tree view from Step 4 on your first node.
3. In the right click menu select **Move this service or application to another node** and select the second node.
4. Repeat the **Installing Databridge on Each Node** steps for the second node. Be sure to configure Databridge with the same Feature Selection and Options as done for your first Node.
5. After installing and configuring the client do not start the service. Launch **Powershell** as an administrator and type the following commands:
5. `import-module failoverclusters`
5. `add-clusterresourcetype Databridge71 "c:\program files\micro focus\Databridge\7.1\clusterdll\dbcluster.dll" "Databridge Cluster Resource Type"`
6. Return to the Server Manager and click on **dbcluster71** located under Services and applications in the left hand tree view. **Add** dbcluster70 to **Other Resources**.
6. 

7. Right-click your created resource and select **Properties**.
8. Name the Resource added.
9. Navigate to the**Set Dependencies** tab and ensure the dependency is set on the server name and click insert.
10. Right click your created resource under **Other Resources** and select the **Bring resource on-line** option.

3.7.4 Uninstalling Databridge for Cluster Installation

To remove Databridge with the cluster feature, or, if your installation of Databridge with the cluster feature was unsuccessful follow the installation steps outlined to clean your workstation and re-install Databridge with the cluster feature.

1. Using Server Manager, take DBCluster offline.
2. Using Server Manager, delete DBCluster.
3. Using Powershell, `remove-clusterResourceType "Databridge71"`
4. On each node that is in **DBCluster** use Windows Explorer to navigate to Windows\cluster and delete `dbcluster.exe`.
5. In the Control Panel uninstall Databridge version 7.1.

4. Installing Databridge Client on UNIX

This section provides instructions for installing and upgrading Databridge Client, including the Client Console and daemon, on a UNIX system.

4.1 Install Databridge Client on UNIX

Use this procedure for first-time installations and upgrades on all UNIX, Linux, and related systems. In this procedure, you'll install the Client, create a Client working directory, and specify a user ID for the daemon.

If you are running Oracle Client on a non-English database, the system detects this automatically, reads the Oracle NLS parameters, and adjusts the affected client parameters accordingly.

If you are running Oracle Client on a database that uses the UTF-8 character set, the system detects this by automatically reading the Oracle NLS parameters, and adjusts the session parameters to accommodate UTF-8.

> **Important**
>
> Commands, filenames, and often, passwords, are case-sensitive on UNIX systems. Type the commands as shown.

4.1.1 To install the Client on UNIX

1. Log on using a userid that has root privileges.
2. If a previous version of Databridge Client is running on your system, stop it.
3. Create a new install directory for Databridge 7.1 (for example, "`/opt/dbridge71`").
4. Move the appropriate tar files (Client, Client Console) to the UNIX system using binary FTP. See Description of Files on the Installation Image.
5. Change the directory to the install directory you created in step 3 and extract the tar file:
5. `tar -xvf filename`
5. where *filename* is the full tar filename, including location.
5. The extract program creates a client subdirectory named after the database (for example, Oracle). Files are extracted to this subdirectory and to the directory you specified.
6. Next, change the owner and group for the files in the install directory to the userid (and the group to which the userid belongs) designated to run Databridge Client (that is, the USERID specified in the file `globalprofile.ini`). To do this, type the following command:
6. `chown -R dbridge:users *`
6. where dbridge is the user ID and users is the corresponding group.

> **Caution**
>
> To prevent the files in the install directory from being accidentally deleted, we recommend that you leave them set to read-only (the default). Before you update the software, to prevent the extraction from failing, either remove all of the files from the install directory or make them writeable until the update is successfully installed.

7. In the editor, open the sample daemon script file (`dbdaemon`) located on the root of the install directory, update the necessary environment variables, and then save `dbdaemon` to the following location:

   On Linux and Solaris: `/etc/init.d`
8. Create the directory `/etc/MicroFocus/Databridge/7.1`

9. In the editor, open the `globalprofile.smp` file on the root of the install directory and make the following changes:

> **Warning**
>
> This file is critical for client operations. If this file is missing or contains the wrong information, the client will not run.

   For `INSTALLDIR`, specify the install directory you created in step 3.

   For WORKINGDIR, specify the full name of the Client's working directory for 7.1. If you're upgrading from an older version than 6.2, make sure that the working directory for 7.1 is different from the older working directory**. You create the actual directory later in this procedure.

   For USERID, specify the user under which you'll run the daemon. When you start the daemon, you must log in as this user or as the root user. Clients can only be run under this userid.

   To enable file security for the Client working directory, specify a value for umask. The bits specified get removed from the default file security bits. A umask of 027 (the default) indicates that the owner bits are unchanged, but the group's w and x bits are reset and all 3 bits are reset for other users. For a stronger mask, specify a value such as 077.

10. Save the file as `globalprofile.ini` to the directory in which the file was created in step 8.

10. `/etc/MicroFocus/Databridge/7.1`

11. Do one of the following:

    - (New installations) In the home directory, use the editor to update your profile (for example, `.profile` or `.bash_profile`) and include the environment variable `ORACLE_HOME`. Consult the Oracle database administrator to determine what this variable should be set to (typically, `/opt/oracle...`). You must also include the directory `$ORACLE_HOME/bin` in the PATH to ensure that the bulk loader `sqlldr` can be located. You may want to also include the environment variable INSTALLDIR, which points to the directory created in step 3. You can then add the Client program directory $INSTALLDIR/Oracle to the PATH, making it a lot easier to run the Client from the command line.
    - (Upgrades - Optional) Update your profile so that the PATH points to the newly-installed Client.

12. For Databridge Client to find the Oracle shared libraries, add the Oracle **lib** directory to the appropriate environment variable for your system, as shown in the following table. The ORACLE_HOME environment variable is used instead of typing the complete Oracle **lib**

directory name. Similarly the Databridge client's **lib** directory needs to be specified, because the encryption software and the Kafka client libraries reside in this directory.

To update	Add the following to you profile
All clients except on AIX 7.1 or newer	`LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$ORACLE_HOME/lib:$INSTALLDIR/lib`
Clients on AIX 7.1 or newer	`LIBPATH=LIBPATH:$ORACLE_HOME/lib:$INSTALLDIR/lib`

> **Note**
>
> The UNIX shell you use may require that you add a line that exports the environment variable. For instructions, consult your UNIX documentation.

13. Using the value you specified in step 9b, create a Client working directory for 7.1 that contains the three subdirectories `config`, `locks` and `logs`.
14. When installation is complete, verify that the Client directory files are correctly installed. For a list of installed files, see Files Installed with Databridge Client and Client Console.
15. If you run the Client from a command line, you must also update the environment variable PATH in your profile to include the directory that contains Databridge Client. If you installed the

Client to the directory `/opt/dbridge71`, add "`:/opt/dbridge71/Oracle`" to the PATH. The PATH is defined as:

15. `PATH=$PATH:$ORACLE_HOME/bin`
15. where each specified directory is separated by a colon.
15. Individual clients use the database names as the directories names (for example, Oracle).
15. !!! caution Make sure that the mknod utility's directory (usually `/usr/sbin`) is included in the PATH. If the shell scripts used to clone data sets cannot find this utility, files will be used in place of named pipes resulting in bulk loader problems, such as broken pipes.

16. Do one of the following:

    - If you're upgrading, proceed to Upgrading on UNIX to complete the installation.
    - If you're installing for the first time, install the Client Console to configure the Client parameters.
    - The `auto_reclone` parameter has been deprecated, as this feature did not work correctly with online garbage collection reorgs. The two available options are to either stop the client when a garbage collection is detected, or, let the client deselect the affected data sets and reclone them later when all the reorgs are completed. The `-y` option for the process command makes it easy to reclone these data sets without having to do anything else.
    - The `max_wait_secs` parameter now accepts two values, the second is optional and defaults to 0. When the second parameter is non-zero, it enables code that breaks up long wait-and-retry loops, implemented by the engine alone, into smaller wait-and-retry loops in the engine. The client repeatedly issues DBWait remote procedure calls until the period of inactivity exceeds the value specified by the first value. This allows you to break up a one-hour loop into 60 one-minute loops, which ensures that the line does not go idle for long periods of time.
    - The index suffixes for the Oracle client now can use the environment variable `$(INDEX_NAME)` which gets replaced by the actual index name when the suffix is applied. See the *Databridge Client Administrator's Guide* section on SQL suffixes in *Appendix C: Client Configuration*.
    - The client implements row filtering for secondary tables derived from items (or GROUPS) that have OCCURS clauses that are not flattened. This is done by using a text file to specify the filtering criteria for such tables using a SQL like syntax.
    - The client implements the flattening of unsigned NUMBER items and ALPHA items with OCCURS clauses to a CHAR of VARCHAR column instead of making each occurrence of the item into a separate column. This process is referred to as flattening the OCCURS to a string. You can have fixed format strings and CSV format strings where the delimiter can be selected.
    - The DMSII time handling code now supports NUMBER(12) items that represents time in the format "HHMMSSmmmmmm", where the last 6 digits are the fractional part of the seconds.

17. The SQL Server client can now handle table names that are TRANSACT-SQL reserved words by enclosing them in square brackets in all SQL statements it uses. In order to maintain backward compatibility we implemented the configuration parameter `bracket_tabnames` that enables this feature.
18. The `-k` option was added to force the Client to drop tables rather than run cleanup scripts in a multi-source environments when recloning datasets. This is designed to be used after a DMSII reorganization that requires certain data sets to be recloned. Using the `-k` option for the first

such clones makes the process a lot simpler, as manually dropping the tables to get them recreated with the new layouts are no longer required.

4.2 Installing Databridge Client Patches

Overwriting the old software is not always advisable, we recommend renaming the old install directory first. You can then create a new install directory with the same name. For example if you installed the base release of 7.1 to /opt/dbridge71, rename the directory dbridge71_save and create a new /opt/dbridge71 directory before installing the patch. The tar files for the patch contain all the file that were in the base release, so this procedure is perfectly. Upload the appropriate tar file for the Client from the hot fix, update or service pack to a temporary directory (The Client and Console should be installed in separate directories to facilitate maintenance.) If you use Windows to process the extract of the tar file from the zip file, you must transfer the tar file to UNIX using binary FTP. Change the current directory to be install directory and use the following command to extract the files:

`tar -xvf <filename>` where `<filename>` is the full name of the tar file. This command replaces the files in the Databridge install directory with updated files from the tar file.

> **Note**
>
> To avoid accidentally deleting the Databridge applications, we recommend that you always keep the install directory and the working directory separate.

4.3 Upgrading on UNIX

The easiest way to upgrade is to create a new working directory and copy the working directories for the data sources to be migrated from the old working directory to the new working directory.

Delete the old log files that are already in the old working directory. To include the data source in the daemon, simply execute an "Add > Existing" command from the Administrative Console. If using a test system, you can use same working directory. The daemon takes care of the rest.

5. Installing Databridge Administrative Console

> **Important**
>
> Unlike earlier versions of Databridge, the installation of the Administrative Console is a separate install.

5.1 Installing the Administrative Console on Windows

Installing the Administrative Console on Windows follows the same proccess as installing the Databridge Clients and Enterprise Server.

5.1.1 To install the Administrative Console on Windows

1. Double click `setup.exe` in the `Console\Windows` directory on the install medium.
1. This will load the **Databridge Administrative Console** installer. Select **Continue** to proceed.
2. Accept the terms of the license agreement by clicking the checkbox and select **Continue**.
3. If you are customizing your installation, use the following tabs to configure as needed:

    - **User Information** tab: Enter **Full name** and **Organization name**.
    - **File Location** tab: Specify a location for the Databridge program files (or accept the default).

    > **Warning**
    >
    > Do not attempt to use a different JRE; we cannot guarantee that the product will work with it.

    - **Advanced** tab: Select **Install to this PC** or **Create an Administrative install image on a server**. There will also be log configuration options that can be disabled in this tab.

4. When the Administrative Console is successfully installed, click **Close**.
4. At the end of the installation the installer launches a Java program that checks to see if there is a configuration in the expected place and if not it copies the starter configuration file, which

will need to updated before the console can be used. For more information, see Setting Up the Administrative Console.

5. To connect to the Administrative Console server from the browser use the following URL `https://hostname:7445` where *hostname* is the name or IP address of the Administrative Console server.

> **Note**
>
> Updates to the Administrative Console and the JRE will be included in future Hot Fixes, Updates and Service Packs, which will use the same procedures as the original install. The installer will remove the product and proceed to installing new copies of the files and the JRE.

The configuration files that were updated will be preserved, as uninstalling the Administrative Console will not remove files that the installer did not install. This avoids having to reconfigure anything after installing a Hot Fix, Update or Service Pack.

5.2 Installing the Administrative Console on Linux or UNIX

Follow the steps to install the Administrative Console on Linux or on UNIX (Solaris).

5.2.1 To install the Administrative Console on Linux

1. Create the directory where the Databridge Administrative Console will be installed.
2. Copy `databridge-container-7.1.0.tar` and `zulu11.56.19-ca-jdk11.0.15-linux_x64.tar.gz` to the directory created in step 1.
3. Extract the files by entering the following commands:

3. `tar -xvf databridge-container-7.1.0.tar`

3. `tar -xvf zulu11.56.19-ca-jdk11.0.15-linux_x64.tar.gz`

4. Move the file using the following command:

4. `mv zulu11.56.19-ca-jdk11.0.15-linux_x64 java`

5. Run the `./postinstall.sh` file.
6. Launch the Administrative Console web service by running `bin/server start`.
6. The following arguments are available:

6. `bin/server` { `console` | `start` | `stop` | `restart` | `status` | `dump` }

5.2.2 To install the Administrative Console on UNIX (Solaris)

1. Create the directory where the Databridge Administrative Console will be installed.
2. Copy `databridge-container-7.1.0.tar` and `zulu11.56.19-ca-jdk11.0.15-solaris_sparcv9.zip` to the directory created in step 1.
3. Extract the files by entering the following commands:
3. `tar -xvf databridge-container-7.1.0.tar`
3. Extract the other file that was copied:
3. `unzip zulu11.56.19-ca-jdk11.0.15-solaris_sparcv9.zip`
4. Move the file using the following command:
4. `mv zulu11.56.19-ca-jdk11.0.15-solaris_sparcv9 java`
5. Run the `./postinstall.sh` file.
6. Launch the Administrative Console web service by running `bin/server start`.
6. The following arguments are available:
6. `bin/server` { `console` | `start` | `stop` | `restart` | `status` | `dump` }

5.3 Setting up the Administrative Console

On Windows, the services are created through the installation process.
On Linux or UNIX, start and stop the Administrative Console using the server command in the 'bin' subdirectory:

Usage: `bin/server { console | start | stop | restart | status | dump }`

Note: `console` starts the server in the foreground while `start` runs the server in the background.

Start the service (or daemon) and connect to 7445 with your browser of choice.
To connect to the Administrative Console server, use this URL: `https://hostname:7445` where *hostname* is the name or IP address of the Administrative Console server.

> **Note**
>
> Microsoft Edge, Google Chrome, or Firefox are recommended. Do not use Internet Explorer when running the Databridge Administrative Console.

Sign on using the userid `dbridge` with the initial password of `dbridge`. Doing so allows you to update the `"container.properties"` file from the browser. We recommend using LDAP to control access to the server from browsers. Using LDAP requires setting up a few configuration parameters; then you can start using the Administrative Console.

If you choose not to use LDAP and want to use a simpler, less secure authentication method, you will need to add the userid/password pairs to a file that the authentication service uses in place of LDAP. You cannot edit this file directly because the passwords are obfuscated; you must do this from the Administrative Console.

> **Caution**
>
> Make sure you change the password for the user `dbridge` as anyone reading this document will know what its default password is.

5.4 Upgrading from an older service

Upgrading from an older Client Manager service

When the service starts, it examines the permission bits for the various users in its configuration file. If it finds userids that have deprecated security bits, it concludes that this is an old configuration and proceeds to update it. This is done in a manner that gives the users equivalent permissions and preserves their roles. It then enters the upgrading state, during which access to the service is granted to the first user to sign in.

The console signs on to the service using a built-in userid (normally used by the monitor), which allows it to configure things. The console immediately tries to add the current userid to the console to the service's configuration. If it is not present, it is added with the role of Administrator. If the userid happens to already be present, it gets updated to have the ability to Manage Users.

Userids still need to be present in the service's configuration file. This is done to prevent any LDAP userid from automatically gaining access to the service. The authentication is no longer done in the service, with the exception of batch console connections not initiated from a script launched by the service. So you still need to have userids with passwords in the service to support batch console connection from places like the Windows scheduler (or chron in UNIX) or from a command prompt (terminal session in UNIX). Scripts launched by the service can run the bconsole using the token passed to them by the service as the password.

5.5 Replacing the self-signed certificate

1. Create a Certificate Signing Request (CSR) for the Administrative Console server and send it to the CA of your choice. When you receive the signed certificate from the CA, proceed to step 2.
2. Import the CA-signed certificate/chain into the Administrative Console server's keystore.
2. You can accomplish this task using either KeyStore Explorer or the Java Keytool command line instructions. With either tool, if the CA reply contains separate root and intermediate certificate files, import the root certificate into the keystore first, followed by the intermediate certificate.

Using this tool	**Do this...**
KeyStore Explorer	- Open *keystore.bcfks* in KeyStore Explorer. Use the password changeit - If separate root and intermediate certificate files are available, from the tool bar, select **Import Trusted Certificate** to import certificates. - Select the servlet-engine key pair. Right-click and select **Import CA Reply** to import the file into the key pair. - If prompted, enter the password, `changeit`. - Browse to the location where the CA Reply file is stored, select the file, and select **Import**.

Java Keytool	**Windows** These examples use keytool command in the sessionserver\etc directory. **Import Root CA and intermediate certificates** ....\java\bin\keytool.exe -importcert -alias rootca -trustcacerts -file -keystore keystore.bcfks –storetype bcfks -storepass changeit `..\..\java\bin\keytool.exe -importcert -alias intermediateca -trustcacerts -file <IntermediateCA.cer> -keystore keystore.bcfks –storetype bcfks -storepass changeit -providername BCFIPS -providerpath ../lib/bc-fips-*.jar -providerclass org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider` **Import CA reply** `..\..\java\bin\keytool.exe -importcert -alias servlet-engine -trustcacerts -file <CertChainFromCA.p7b> -keystore keystore.bcfks –storetype bcfks -storepass changeit -providername BCFIPS -providerpath ../lib/bc-fips-*.jar -providerclass org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider` --- **UNIX** **Import Root CA and intermediate certificates** `../../java/bin/keytool -importcert -alias rootca -trustcacerts -file <RootCA.cer> -keystore keystore.bcfks –storetype bcfks -storepass changeit -providername BCFIPS -providerpath ../lib/bc-fips-*.jar -providerclass org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider ../../java/bin/keytool -importcert -alias intermediateca -trustcacerts -file <IntermediateCA.cer> -keystore keystore.bcfks –storetype bcfks -storepass changeit -providername BCFIPS -providerpath ../lib/bc-fips-*.jar -providerclass org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider`  **Import CA Reply**  `../../java/bin/keytool -importcert -alias servlet-engine -trustcacerts`

Using this tool	Do this...
	`-file <CertChainFromCA.p7b> -keystore keystore.bcfks –storetype bcfks -storepass changeit -providername BCFIPS -providerpath ../lib/bc-fips-*.jar -providerclass org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider`

5.6 Replacing the self-signed certificate with certificate reply from Certificate Authority

1. Create a Certificate Signing Request (CSR) for the Administrative Console server and send it to the CA of your choice. When you receive the signed certificate from the CA, proceed to step 2.
2. Import the CA-signed certificate/chain into the Administrative Console server's keystore.
2. You can accomplish this task using either KeyStore Explorer or the Java Keytool command line instructions. With either tool, if the CA Reply contains separate root and intermediate certificate files, import the root certificate into the keystore first, followed by the intermediate certificate.

Using this tool	Do this...
KeyStore Explorer	1. Open keystore.bcfks in KeyStore Explorer. Use the password changeit. 2. If separate root and intermediate certificate files are available, from the tool bar, select Import Trusted Certificate to import certificates. 3. Select the servlet-engine key pair. Right-click and select Import CA Reply to import the file into the key pair. 4. If prompted, enter the password, changeit. 5. Browse to the location where the CA Reply file is stored, select the file, and click Import.

Java Keytool

Windows

These examples use keytool command in the sessionserver\etc directory.

Import Root CA and intermediate certificates

```
..\..\java\bin\keytool.exe -importcert -alias rootca -
trustcacerts -file <RootCA.cer> -keystore keystore.bcfks –
storetype bcfks -storepass changeit<br><br>..\..
\java\bin\keytool.exe -importcert -alias intermediateca -
trustcacerts -file <IntermediateCA.cer> -keystore keystore.bcfks
–storetype bcfks -storepass changeit -providername BCFIPS -
providerpath ../lib/bc-fips-*.jar -providerclass
org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider
```

Import CA Reply

```
..\..\java\bin\keytool.exe -importcert -alias servlet-engine -
trustcacerts -file <CertChainFromCA.p7b> -keystore
keystore.bcfks –storetype bcfks -storepass changeit -
providername BCFIPS -providerpath ../lib/bc-fips-*.jar -
providerclass
org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider
```

UNIX

Import Root CA and intermediate certificates

```
../../java/bin/keytool -importcert -alias rootca -trustcacerts -
file <RootCA.cer> -keystore keystore.bcfks –storetype bcfks -
storepass changeit -providername BCFIPS -providerpath ../lib/bc-
fips-*.jar -providerclass
org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider
```

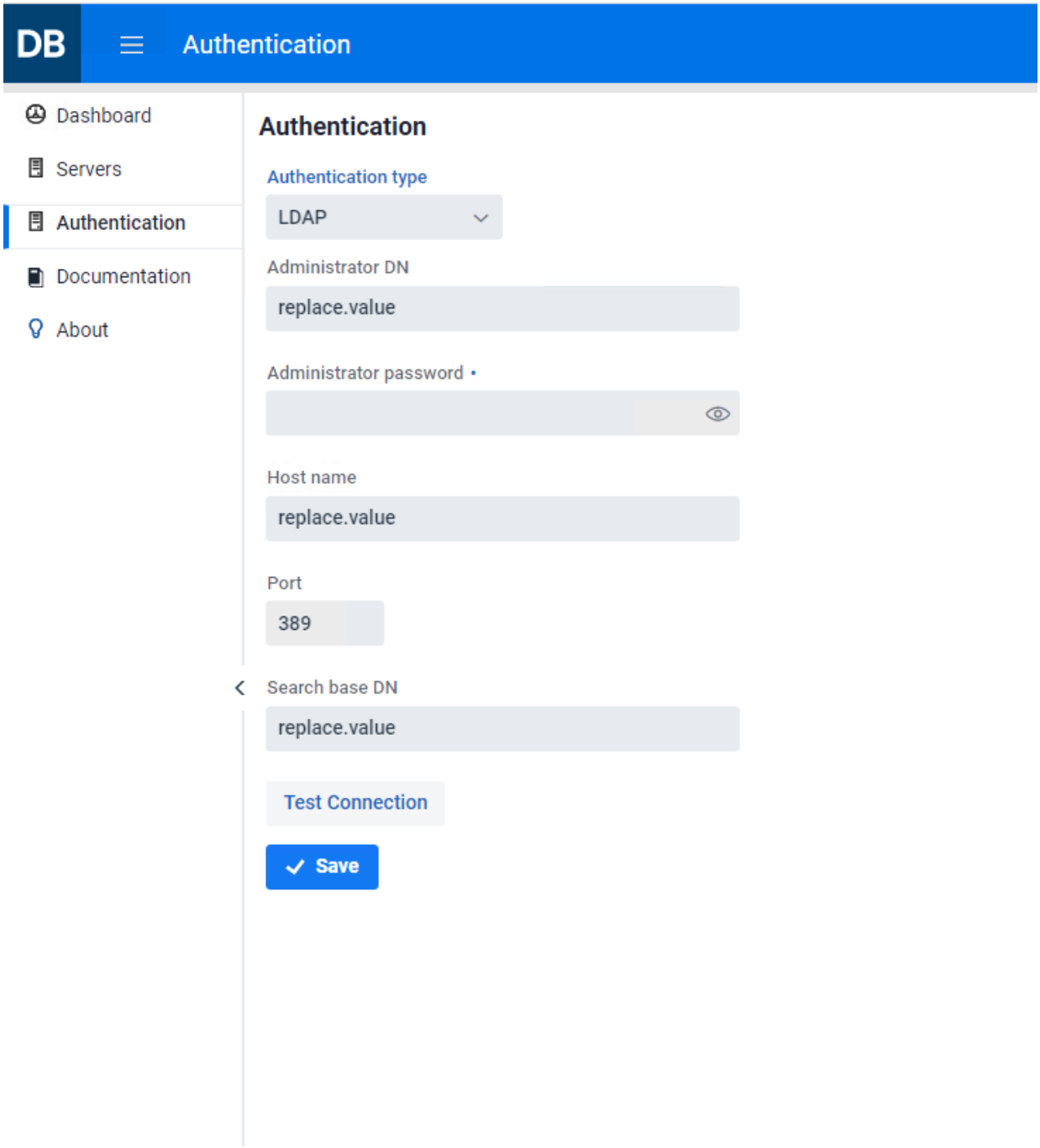
```
../../java/bin/keytool -importcert -alias intermediateca -
trustcacerts -file <IntermediateCA.cer> -keystore keystore.bcfks
–storetype bcfks -storepass changeit -providername BCFIPS -
providerpath ../lib/bc-fips-*.jar -providerclass
org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider
```

Import CA Reply

Using this tool	Do this...
	`../../java/bin/keytool -importcert -alias servlet-engine -trustcacerts -file <CertChainFromCA.p7b> -keystore keystore.bcfks –storetype bcfks -storepass changeit -providername BCFIPS -providerpath ../lib/bc-fips-*.jar -providerclass org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider`

5.7 Choosing an Authentication Method

The first time the console is run use the `dbridge` for the **User Name** and **Password**. Once signed, select the hamburger icon ( ) on the left-side of the header, this will expand a left-side menu. Select **Authentication** to load the relevant settings as seen in the screenshot below.



You can chose the desired authentication mode using the drop down titled **Authentication type**, the available options are **LDAP** (default) and **Simple authentication**.

5.8 Setting up LDAP

To setup LDAP parameters for your site you will need to contact your IT personnel and ask them to provide you with the information needed.

> **Tip**
>
> **Here a few simple steps you can have your IT services perform.**
>
> Remote desktop to your site's network authentication server and open an elevated Command Prompt (or have someone authorized perform this task).

1. To search the entire domain use the first line returned from a `dsquery*` command as the base DN. To limit the scope of the base DN, one can use an OU. Running a `dsquery OU` will provide a list of Organizational Units from which the base DN can be selected. Enter this information into the **Search base DN** input field in the dialog.

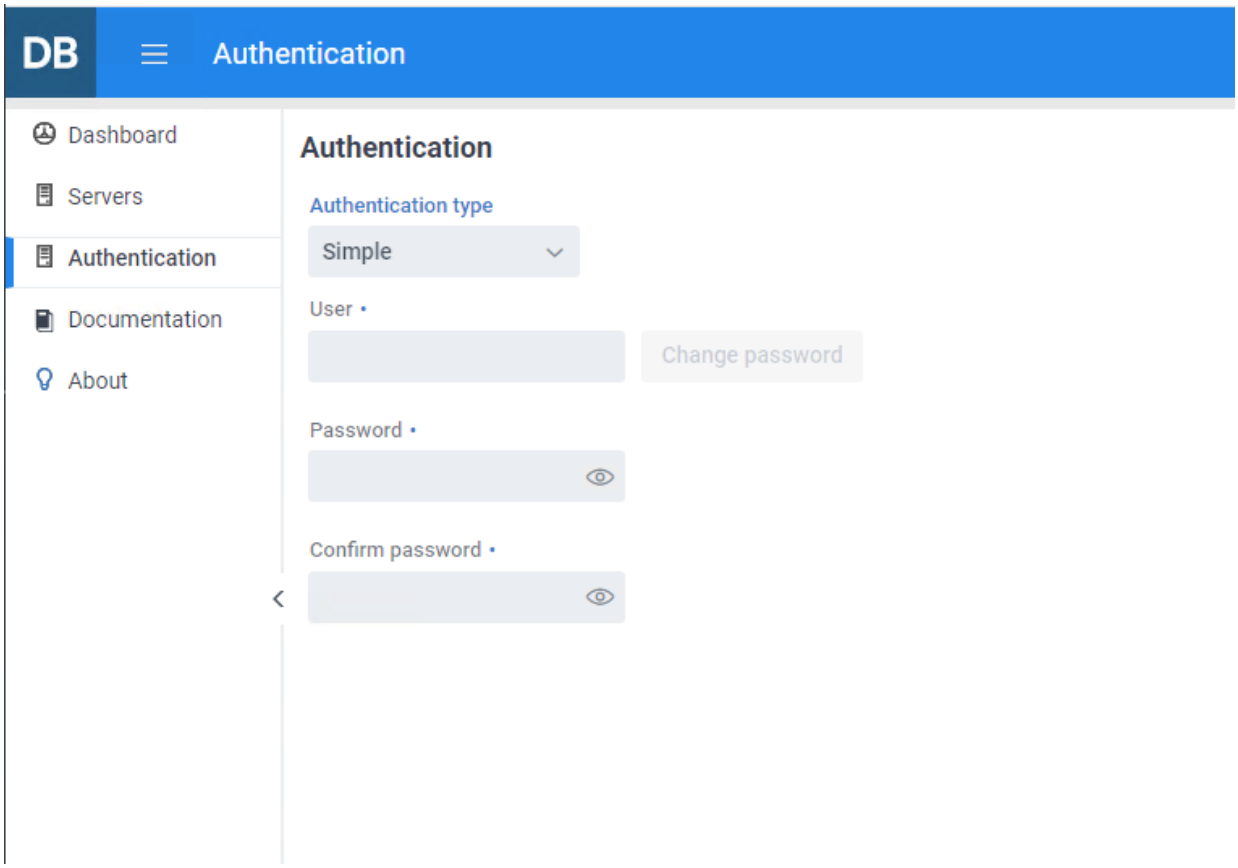
> **Example**
>
> "CN=example, CN=com" or "OU=DBUser, CN=example, CN=com"

2. To get the value to be entered in the **Administrator DN** input field `"dsquery user -name` *username*`"`, where *username* is the userid of an administrator on the authentication server. Copy the output line, and paste it into the **Administrator DN** input field.
3. Enter the *hostname* of the network authentication server into the **Host Name** input field.
4. Enter the password for the administrator's you selected in step 2 into the **Administrator password** input field.
5. Ensure that the default port of 389 is correct for your site.
6. Select **Save**.
6. Your changes will only take effect after restarting the service. At this point, you will be able to connect to the Administrative Console from a browser using your network credentials though this alone is not enough to gain access to the Client Managers.
6. For access to the Client Manager(s), userids will need to be granted access to a Client Manager. To do this use **Manage Users** in the **Client Manager** page. To do this, assign a predefined role to the user (**Administrator**, **Operator**, **User**, or **Custom**). You can customize the permissions for each user, it is recommended to start with a predefined role and then customize as needed.

> **Caution**
>
> **How do you gain access to the Client Manager to assign roles?**
>
> When upgrading from previous versions the userids and roles will be honored in the new Administrative Console. If this is not the case, `dbridge` will be available from the Client Manager configuration file to get initial access to the Client Manager page with permissions to the **Manage Users** page. As a backup, in the case that neither of the afformentioned options are available the `dbridge` userid and password is automatically added as an administrator for hte first sign-on to the Client Manager following an upgrade. The service automatically detects if there was an upgrade the first time it is started.

5.9 Creating Userid/Password Pairs

With the **Simple** authentication type selected, the administrator will need to add the userid/password pairs as seen in the screenshot below.



Enter as many userid/password pairs as needed. Users can access this dialog in the same way as an administrator, but they will only be able to view and change their own password. Userids and passwords are stored in the file `osp-users.csv` in the sub-directory **microservices\auth-service** of the install directory for the Administrative Console, and all passwords are encrypted.

Userids assigned with **Simple** authentication behave in the same manner as the LDAP userids. Userids must be registered with each Client Manager in exactly the same way as LDAP users.

For access to the Client Manager(s), userids will need to be granted access to a Client Manager. To do this use **Manage Users** in the **Client Manager** page. To do this, assign a predefined role to the user (**Administrator**, **Operator**, **User**, or **Custom**). You can customize the permissions for each user, it is recommended to start with a predefined role and then customize as needed.

6. Installing Databridge DMSII Client

This chapter explains how to install DMSII Client on a Unisys MCP-hosted mainframe. For DMSII Client to work properly, you must configure it according to the instructions provided in the *DMSII Client Administrator's Guide*

6.1 Databridge DMSII Client Installation Requirements

DMSII Client software itself takes less than 2 MB of disk space. The size of the client database depends on the size of the data sets and sets replicated from the primary system. The size of the client database audit trail depends on the number of audit files you keep on the system. For a rough estimate of the disk space required multiply the size of the primary database by the fraction of the database that will be replicated. If the whole primary database will be replicated then an equal amount of disk space will be required for the client database.

The system resource requirements are proportional to the amount of data replicated. DMSII Client uses the standard DMSII application program interface to the client database and its processor and memory usage would be similar to other application programs.

The DMALGOL and DASDL compilers must be visible to DMSII Client in order to automatically compile the client database and associated library programs. If these compilers are not available you must specify the COMPILE MANUAL option in the parameter file and compile the software using other means.

6.2 Install Databridge DMSII Client

You must install Databridge components on both the primary and secondary systems. Before you install DMSII Client on the secondary system, you must install the current version of Databridge Host software on your primary system. See Install Databridge Host in this guide for Host installation instructions and system requirements.

Follow this procedure to install the DMSII Client. You can install DMSII Client to the same mainframe where you installed the Databridge server software, or you can install it to a different mainframe.

Before you install, you'll need to determine the usercode and pack that you\'ll use to install. For best results, we recommend that you choose a privileged usercode and the primary pack of the FAMILY substitution statement.

1. Sign on to a privileged usercode.

1. If you install to a nonprivileged usercode, all object files will be marked as restricted and you will have to use the ODT command RESTRICT -- FILE objectcode on every program.

2. Upload Databridge container to the host.Upload the DB71-00-BASE file using a file transfer tool capable of binary/image transfers to the privileged usercode where Databridge is to be installed.

3. Unwrap the Databridge installation WFL (WFL/DATABRIDGE/INSTALL).

3. To extract the install WFL from the file DB71-00-BASE, enter the following CANDE command:

```
WFL UNWRAP *WFL/DATABRIDGE/INSTALL AS WFL/DATABRIDGE/INSTALL OUTOF DB71-00-BASE
```

4. Start the Databridge Installation WFL.

```
START WFL/DATABRIDGE/INSTALL ("DMSIICLIENT")
```

4. If you want to install DMSII Client software to a different pack family than primary pack of your FAMILY substitution statement (FAMILY DISK = primarypack OTHERWISE secondarypack), use the following command instead.

```
START WFL/DATABRIDGE/INSTALL ("DMSIICLIENT", "otherpack")
```

The WFLs are copied with a SAMPLE node in the title. They will also be copied without the SAMPLE node using the ADD command so that first-time installations will have WFL files with the standard name but *existing WFL files are not replaced*.

7. Installing Databridge Twin

7.1 Installation Requirements

Databridge components must be installed on both the primary and secondary systems.

You must install the current version of Databridge Host software on your primary system before you install Databridge Twin on the secondary system. Go to Install Databridge Host in this guide for Host installation instructions and system requirements.

Databridge Twin runs on all Unisys MCP-hosted mainframes. *If you plan to use Databridge Twin and Databridge Host on separate mainframes*:

- We recommend that both mainframes use the same MCP level.
- Both mainframes must be running the same DMSII level.

7.2 Install Databridge Twin to the Secondary System

Use this procedure to install Databridge Twin to the secondary system.

> **Caution**
>
> If you run Databridge Twin and Databridge Host software on the same mainframe, the usercode from which you run Databridge Twin must be different than the usercode where Databridge Host resides.

Use this procedure to install Databridge Twin. You can install the Databridge Twin on the same mainframe where you installed the Databridge server software, or you can install it to a different mainframe.

Before you install, you'll need to determine the usercode and pack that you'll use to install. For best results, we recommend that you choose a privileged usercode and the primary pack of the FAMILY substitution statement.

1. **Sign on to a privileged usercode on the secondary system.**

1. If you install to a nonprivileged usercode, all object files will be marked as restricted and you will have to use the ODT command RESTRICT -- FILE objectcode on every program.

2. **Upload Databridge container to the host.**

2. Upload the DBadministrative-00-BASE files using a file transfer tool capable of binary/image transfers to the privileged usercode where Databridge is to be installed. The DB71-00-BASE file replaces the IMAGE and DISKINSTALL files used in previous releases.

2. The DISKINSTALL image is still available, and can be uploaded and utilized to get the install WFL.

> **Note**
>
> The install WFL can also be extracted from the DB71-00-BASE file, which makes this file redundant. The file DISKINSTALL will not be provided in the next release.

3. **Unwrap the Databridge installation WFL (WFL/DATABRIDGE/INSTALL).**

3. To extract the install WFL from the file DB71-00-BASE, enter the following CANDE command:

3. `WFL UNWRAP *WFL/DATABRIDGE/INSTALL AS WFL/DATABRIDGE/INSTALL OUTOF DB71-00-BASE`

3. Enter the following CANDE command:

3. `UNWRAP *= AS = OUTOF DISKINSTALL`

4. **Start the Databridge Installation WFL.**

4. `START WFL/DATABRIDGE/INSTALL ("TWIN")`

4. If you want to install Databridge Twin to a different pack family than primary pack of your FAMILY substitution statement (FAMILY DISK = primarypack OTHERWISE secondarypack) use the following command instead.

4. `START WFL/DATABRIDGE/INSTALL ("TWIN", "otherpack")`

4. The WFLs are copied with a SAMPLE node in the title. They will also be copied without the SAMPLE node using the ADD command so that first-time installations will have WFL files with the standard name but *existing WFL files are not replaced*.

5. **Edit WFL/DATABRIDGE/INCLUDE/SSRTITLES.**

5. Modify WFL/DATABRIDGE/INCLUDE/SSRTITLES such that the locations and file titles of the various compilers and system software is correct for each SSR (System Software Release) Databridge Twin will use.

5. When installation is complete, configure Twin. See **Configuring Databridge Twin** (chapter 3) in the *Databridge Twin Administrator's Guide*.

8. Setting Up a Relational Database

This chapter covers instructions for setting up a relational database to receive DMSII data.

8.1 Setting Up a SQL Server Database

Use the following procedures to set up a Microsoft SQL Server database for use with Databridge Client for SQL Server.

Databridge Client uses only the ODBC data source parameter to connect to ODBC. The ODBC data source parameter provides the database and server parameters required to run BCP.

In addition, the following notes apply to Microsoft SQL Server:

- The default schema for the Databridge user determines the ownership of tables.
- Databridge Client for SQL Server uses ODBC, which places no restrictions on the user's schema.
- You can use primary keys with non-clustered indexes without having to edit the scripts generated by the client.

8.1.1 To set up a SQL Server 2016 database

> **Note**
>
> Starting with SQL Server 2016, SQL Server Management Studio no longer allows you to add "NT AUTHORITY\SYSTEM" to the sysadmin role.

The available options are:

1. Run the service under the user account that is setup to run the command line client (dbutility) and use Integrated Windows authentication.
2. Setup the database to use SQL Server authentication and run the service under the built-in system account.

8.1.2 To set up a SQL Server 2012 or 2012 R2 database

1. If you use Integrated Windows Authentication with Databridge Client on Microsoft SQL Server 2012 and are running the service using the default account, you must add NT AUTHORITY\SYSTEM to the sysadmin Server Role. In the Microsoft SQL Server 2012

Management Studio, use the left pane to navigate to **Security** > **Server Roles**, right-click **sysadmin**, click **Properties**, then click the **Add** button.

2. Create an ODBC data source, unless one already exists. See the following procedure for instructions.

> **Important**
>
> When creating ODBC data sources for Databridge Client, use the Microsoft SQL Server Native Client driver. The Microsoft SQL Server driver doesn't support columns longer than 32K, multi-threaded updates, and several other important Databridge features.

3. Make sure that you have enough disk space free for the Microsoft SQL Server database.
4. If your DMSII data sets contain case-sensitive ALPHA key items, using the default Microsoft SQL Server installation may result in duplicate keys. To avoid this, **make certain the collating sequence for the client database is set to a case-sensitive or binary collation**.

8.2 Create an ODBC Data Source

Use this procedure to set up an ODBC data source. If you have not created a new SQL Server database, and are not using an existing database, you must create a new database as outlined in the previous section. This database will hold your Databridge Client control tables and the replicated DMSII tables.

To create an ODBC Data Source

1. Click **Start** > **Settings** > **Control Panel** > **Administrative Tools**. The Administrative tools dialog box opens.
2. Double-click **Data Sources (ODBC)**. The ODBC Data Source Administrator dialog box opens.
3. Click the **User DSN** or **System DSN** tab. User DSNs are limited to the user who created them. System DSN data sources are available to all users of the computer and are required if you use the service.
4. Click the **Add** button.
5. In the **Create New Data Source** dialog box, select the Microsoft ODBC driver for SQL Server (recommended) or the driver **SQL Native Client**, and then click Finish.
5. !!! caution} The driver **SQL Server** doesnS't support columns longer than 32K, multi-threaded updates, and several other important Databridge features.
6. In the **Create a New Data Source to SQL Server** wizard, name the data source (for example, databasenameDS). You will enter this name as the data source parameter value in the Databridge Client Configuration file.
7. In the **Server** field, choose your local computer name, and then click **Next**.
8. To connect to this data source, choose an authentication method, and then click **Next**:

Options	Description
Integrated Windows Authentication	SQL Server uses the credentials of the user currently logged in to validate the login. Most installations use Integrated Windows Authentication. **NOTE:**If you select this option on Microsoft SQL Server 2012 and are running the service using the default account, you must add NT AUTHORITY\SYSTEM to the sysadmin Server Role. In the Microsoft SQL Server 2012 Management Studio, use the left pane to navigate to **Security** > **Server Roles**, right-click **sysadmin**, select **Properties**, and click the **Add** button.
SQL Server Authentication	Databridge connects to SQL Server using the user ID/password pair specified in the Databridge configuration file.

9. Click Finish to create the ODBC data source.

8.3 Setting Up an Oracle Database

The following notes apply to Oracle:

- The Oracle clients have a configuration parameter that allows you to specify a rollback segment larger than the default rollback segment. You can use a rollback segment to execute the SQL statement SET TRANSACTION USE ROLLBACK SEGMENT at the start of every transaction.
- The Oracle clients support the CLOB data type for holding DMSII ALPHA items that are too large for the VARCHAR2 data type. The parameters in PL/SQL stored procedures for these clients limit the CLOB data type to 32K (Oracle 11g). For backward compatibility, this feature is enabled via the `use_clob` parameter.
- Starting in Oracle 11g Release 2, Oracle database passwords are case-sensitive.

The Oracle open_cursors Parameter

We recommend that you add the `open_cursors` parameter to the `initSID.ora` file. Depending on the setting of the `aux_stmts` parameter, you may need to increase the value of `open_cursors` to make it slightly higher than the value of `aux_stmts`.

If `open_cursors` is not set high enough, an error occurs, indicating that the maximum number specified was exceeded. Refer to your Oracle documentation for information on setting these values.

8.4 Setting Up a User ID

If you're installing Databridge Client software for the first time, you must set up a user ID that allows the client to access the relational database.

8.4.1 Microsoft SQL Server

> ⚠ **Caution**
>
> Do not use the `sa` user ID to run Databridge Client. The `sa` user ID typically owns tables that Databridge Client should not have access to.

If you are the Microsoft SQL Server database administrator (DBA) or if you have a user ID with DBA privileges, set up a user ID for Databridge Client that has the following:

- (Required) The ability to select from any table, including system tables. Databridge reads the data dictionary to determine if a table or procedure exists.
- (Required) The ability to create tables, stored procedures, and indexes for tables that the user ID owns.
- (Optional) Unlimited space usage. This is recommended because of the large amounts of data that can be replicated from a DMSII database.

To include rights to modify the database as needed, use the Databridge owner (db_owner) to set up the user ID. After you set up the user ID, you must configure the user ID, password, server, and database. For instructions, see Signon Configuration.

8.4.2 Oracle

> **Caution**
>
> Do not use IDs such as SYS, SYSTEM, or SYSMAN to run Databridge Client. These user IDs typically own tables that Databridge Client should not have access to.

If you are the database administrator (DBA), or if you have a user ID with DBA privileges, set up a user ID for Databridge Client that has the following.

(With Oracle 12c or newer, the DBA role is much more restrictive and is not sufficient to run Databridge Client. In Oracle 12c or newer, the user ID must start with C## or c##. This identifies a common user.)

(Required) The ability to create and drop tables, stored procedures, and indexes for tables that the user ID owns.

(Required) The ability to alter tables.

(Required) The ability to alter the session.

(Optional) Unlimited tablespace privileges. This is recommended because of the large amounts of data that can be replicated from a DMSII database.

> **Note**
>
> In Oracle 12c or newer, you can accomplish all of the above by granting the DBA privilege to the user.

For information on creating a user ID, see your Oracle documentation.

8.5 Signon Configuration

If you have installed Databridge Client for the first time, you must supply the appropriate logon parameters to your relational database. In addition, you may be required to supply a password to sign on to the Databridge Server on the host.

When you create a new data source from the Client Console, the **Hostname** and **Port** settings (in the **Add Data Source** dialog box) provide these logon parameters. If a KEY is specified for the source in the DATA/SERVER/CONTROL, provide one in the **Password** box. These settings are saved to the binary Client configuration file (`dbridge.cfg`), which automatically encodes passwords.

If you supply logon parameters via dbutility command-line options, you must type them each time you run dbutility.

> **Note**
>
> Configuration file settings override environment variables. However, command-line options override both configuration file settings and environment variables.

8.5.1 Signon Parameters

The following table shows signon parameters in the dbutility configuration file (`dbridge.cfg`) and their equivalent command-line options.

Configuration file parameter	Command-line option	Description
user	-U	Specifies the user ID for the relational database. The user ID must have read and write access to the designated database.
password	-P	Specifies the password associated with the user ID for the relational database. Note that Oracle 11g and later uses case-sensitive passwords. Configuration file only: If the password contains non-alphanumeric characters besides the underscore (_), you must enclose it in double quotation marks, as follows: `password = "a$bb%"`

Configuration file parameter	Command-line option	Description
database	-D	For Oracle, this name identifies the Oracle instance or Net8 service being accessed. If the service name contains non-alphanumeric characters, you must enclose them in double quotation marks, as follows: `database = "orcl.databridge.com"`
datasource	-O	For the Databridge SQL Server client, this parameter is the name that identifies the ODBC data source, as configured within the Windows Control Panel.

Configuration file parameter	Command-line option	Description
use_nt_authen	-W	When the ODBC data source uses Integrated Windows authentication, set this parameter to True. When the ODBC data source uses SQL Server Authentication (using userid and password), set it to False. If you set this parameter incorrectly, the client will work, but bulk loader operations will fail.

8.5.2 Integrated Windows Authentication for Microsoft SQL Server

The Microsoft SQL Server database provides two methods for database user authentication. SQL Server authentication uses a userid/password mechanism to authenticate user connections to SQL Server. Integrated Windows Authentication relies on the Windows operating system to authenticate user connections to SQL Server.

> **Note**
>
> Databridge Client requires a user account with administrator privileges when using Integrated Windows Authentication to access SQL Server. For details about `use_nt_authen`, see [signon] in Appendix C of the *Databridge Client Administrator's Guide*.

9. After Installation is Complete

9.1 Next Steps for Databridge Client

After the installation is complete, you can start using Databridge Client. If you're using Databridge Client for the first time, we recommend that you run it from the Administrative Console. If you plan on using encryption for the communication between the Databridge Client and the Databridge Server on the MCP follow the instruction in the next section.

9.1.1 Using TLS with Databridge

There are several steps to configure data encryption for use with Databridge Clients, outlined below. A Databridge Server can support only one type of connection. If configured to use TLS, then only TLS connections are supported. Likewise, if TLS is not configured, only unencrypted connections are supported.

MCP configuration

Using Security Center MCP Cryptographic Services Manager, create a new key in Trusted Keys -> Other Keys. Fill out the form and create a certificate request to submit to a certificate authority to obtain a certificate. When the certificate has been obtained, install it into the newly created key. Note that the Application and Service entries are concatenated to form a key container id. Thus, if the application is DATABRIDGE and the service is SSLKEY, then the key container will be DATABRIDGE_SSLKEY. Note that the trusted key usercode must be that of the Databridge install.

Edit the DATA/SERVER/CONTROL file located in the Databridge usercode and uncomment the KeyContainer parameter and set it equal the key container created above. Using the example key container from above, the parameter in DATA/SERVER/CONTROL should be:

KEYCONTAINER = “DATABRIDGE_SSLKEY”

The Databridge Server must be restarted for it to use the KeyContainer.

Client configuration

To configure a client to use TLS, the enable encryption parameter must be set to true. The server certificate requires either the CAFile or CAPath parameters to be verified. CAFile is the full path to a file that can be used to verify the server certificate and CAPath references a directory where the server certificate can be verified.

If you're upgrading and want to start using the Client Configurator to customize your relational database, see Switch from User Scripts to the Client Configurator.

If you're upgrading and plan to run the Client from a command line, use your existing Client configuration file. See Appendix C in the *Databridge Client Administrator's Guide* for information about configuration parameters.

9.2 Start and Stop the Client Manager

9.2.1 Start the Service (Windows)

If you checked the "Start Client Manager Service" checkbox, the Client Manager will open on its own. If not, use the following procedure to start the service in Windows.

To start the Client Manager

1. From the **Start** menu, open your **Control Panel**, click **Administrative Tools**, then double-click **Services**.
2. In the **Services** window, find and double-click **Micro Focus Databridge Client Manager 7.1** in the list.
2. Databridge Client Manager 7.1 Properties dialog box opens.
3. **(Optional)** On the **Recovery** tab of the dialog box, specify that the service is restarted after the first or second failures and click **Apply** to save your settings.

> **Note**
>
> Do not set more than two failures; if the service fails more than that, a service failure is important to inform you of the problem.)

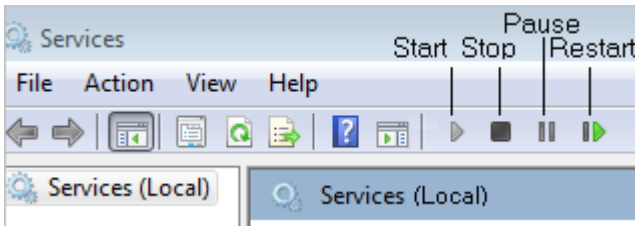
4. Click the **Start** button under "Service status".
5. Click **OK** to save and close the Properties dialog box.

9.2.2 Stop the service (Windows)

Use the following procedure to stop the service in Windows.

To stop the Client Manager

1. Return to the **Services** window. (See step 1 of Start the Service (Windows) above)
2. Click the square **Stop** button on the Services toolbar.



9.2.3 Start and stop the daemon (UNIX)

Log in using the user ID you specified for the daemon in step 9c of Install Databridge Client on UNIX or as a user with root privileges. If you start the daemon from the root (for example, by typing `su`), the daemon automatically assumes the specified user ID.

Make sure that you specified the appropriate environment variables in the dbdaemon script. If you use Oracle, add the Oracle **bin** directory to the PATH. Failing to do this causes the bulk loader scripts to not find the `sqlldr` program, unless you specify the `sqllr` path using the Client configuration parameter `bulk_loader_path` and run a `generate` command to update the scripts. Also, add **lib** sub-directory of the Databridge install directory and the Oracle **lib** directory to the LD_LIBRARY_PATH environment variable, or the Client program will be unable to find the shared libraries and will not start. For more information, see Install Databridge Client on UNIX.

Start the daemon by doing one of the following:

On Linux and Solaris systems, type: `/etc/init.d/dbdaemon start`

On HP_UX systems, type: `/sbin/init.d`

The daemon automatically creates the `config` and `logs` subdirectories in the working directory, and then places a binary configuration file (`dbcontrol.cfg`) in the `config` subdirectory. This configuration file is updated each time you add a new data source in the Administrative Console.

If you're using the Administrative Console, see Setting up the Administrative Console).

To stop the daemon (UNIX)

You can start or stop the daemon anytime by manually running the dbdaemon script with the appropriate options (start or stop).

9.3 The Batch Console

The Batch Console automates routine Client tasks by allowing command files/shell scripts launched by the Client service to interact with the service. It interprets a source file that contains a set of statements written in a language similar to Visual Basic. These statements can initiate a connection, perform rudimentary tests, and issue console requests, to the service. For example, by using the Batch Console in an end-of-run script that runs daily reports, you can restart the Client after the reports are generated.

To use the Batch Console, you must first create a source file for the Batch Console and place it in the `scripts` directory of the service's working directory (also referred to as the Client's global working directory). We recommend that you use a file extension that allows you to easily identify this file as a Batch Console source file (for example, .bcs). You can debug this source file by running the Batch Console from the command line, using the source filename (including directory, such as scripts\source_filename) as the first argument of the Batch Console command.

The Batch Console always runs as a background run. Its activity is written to a log file in the current directory. The log filename uses the source filename with the extension `.log` added to it. For example, if your source filename is `sourcefile.bcs`, the log file is named `sourcefile.bcs.log`.

For more information, see **Automating Client Operations with the Service** in the *Databridge Client Administrator's Guide*.

9.4 Switch from User Scripts to the Client Configurator

If you currently customize your database via user scripts but wish to start using the Client Configurator, you must first run the dbscriptfixup program for each of your data sources. This program updates the client control tables so that you no longer need the user scripts. The dbscriptfixup program also creates a new set of user scripts that are compatible with the Client Configurator for backup purposes.

> **Note**
>
> This task is not time-sensitive and can be completed at any time after installation. We recommend that you get Databridge Client 7.1 running to your satisfaction before you perform this task.

To run dbscriptfixup

1. Create a backup copy of your user scripts.
2. Open a command prompt and change the directory to the working directory of a data source.
3. Run the dbscriptfixup `verify` command (replacing \<data_source> with the actual name):
3. `dbscriptfixup verify <data_source>`
3. The dbscriptfixup program performs a read-only review of the user scripts and reports changes you must make to the scripts.
4. Make any changes if indicated by the dbscriptfixup program and then repeat step 2 until you get no errors. You may want to remove or rename problem user scripts and deal with them later.
5. Back up the control tables for the data source to an unload file by typing the following command:
5. `dbutility unload <data_source> <data_source>_control_tables.sav`
6. Run the dbscriptfixup upgrade command:
6. `dbscriptfixup upgrade <data_source>`
7. Depending on the results of step 6, do one of the following:
    - If the command succeeded (exit code=0), you can now use the Client Configurator. If you want to verify the process, see the following section.
    - If the command failed (exit code=1), reload your control tables by typing the following command and then replace any user scripts you changed in step 4 to restore the configuration to its previous state.
4. `dbutility reload <data_source> <data_source>_control_tables.sav`

Verifying the results

You can verify that the dbscriptfixup program successfully updated your control tables by executing a `redefine` command for the data source with the `-R` option. If the command finds no changes in the table layouts, you can safely use the Client Configurator, knowing that all of the changes you made via user scripts are preserved.

9.5 Start Enterprise Server

You can start Databridge Enterprise Server using the shortcuts installed on the Windows Start menu or from a command prompt session. When you start Enterprise Server from the **Start** menu, Enterprise Server starts the application with Administrator privileges. DBDirector will also start Enterprise Server anytime DBDirector receives a connection request from a Databridge Client.

From the Enterprise Server Help menu, you can find instructions for importing sources (upgrades), creating sources, and configuring the program.

9.5.1 Start from the Start menu

1. From the **Start** menu, click **All Programs** > **Micro Focus Databridge 7.1** > **Databridge Enterprise** > **Configure Enterprise**.

1. This runs Enterprise Server with elevated administrator privileges.
2. When Enterprise Server starts, the Databridge Enterprise window appears.

9.5.2 Start from a command session

Navigate to the directory where you installed Enterprise Server and type the following:

```
DBEnterprise.exe
```

For information about command-line options, see the *Databridge Enterprise Server Help*.

10. Installed Files

This section lists and describes the files that are installed with each product.

10.1 Files Installed with Databridge Host

Databridge software is organized into the following directories:

Directory	Description
DATA/=	Parameter and data files
OBJECT/DATABRIDGE/=	Executable files
PATCH/=	Source files
SYMBOL/DATABRIDGE/=	Source files

Directory	Description
WFL/DATABRIDGE/=	WFL job files

10.1.1 OBJECT/DATABRIDGE Directory

Databridge Host files are copied to the usercode designated at installation.

Filename	Description
OBJECT/DATABRIDGE/ AUDITMIRROR	Object code for the Databridge AuditMirror Accessory
OBJECT/DATABRIDGE/ AUDITTIMER	Object code for the Databridge AuditTimer program
OBJECT/DATABRIDGE/ BCNOTIFY	Object code for the BCNOTIFY utility
OBJECT/DATABRIDGE/ CHANGEUSER	Object code for the Databridge ChangeUser library, which changes the usercode of a Server Accessory Worker in cases where the SOURCE specifies a USERCODE, so the Worker will run under that usercode.
OBJECT/DATABRIDGE/ COBOLSUPPORT	Object code for Databridge CobolSupport library
OBJECT/DATABRIDGE/ DBINFO	Object code for the Databridge Database Info utility
OBJECT/DATABRIDGE/ DCKEYIN	Object code for the ODT command program
OBJECT/DATABRIDGE/ ENGINE	Object code for Databridge Engine Library
OBJECT/DATABRIDGE/ GENFORMAT	Object code for the Databridge GenFormat program
OBJECT/DATABRIDGE/ LICENSEMANAGER	Object code for product key management program
OBJECT/DATABRIDGE/ LICENSESUPPORT	Object code for the license verification library
OBJECT/DATABRIDGE/ LISTER	Object code for the Databridge Lister Accessory

Filename	Description
OBJECT/DATABRIDGE/SAMPLE/AUDITCLOSE	Object code for the sample Databridge Audit Close utility
OBJECT/DATABRIDGE/SAMPLE/COBOLGEN	Object code for the sample Databridge COBOLGen Accessory
OBJECT/DATABRIDGE/SAMPLE/DASDLGEN	Object code for the sample Databridge DASDLGen Accessory
OBJECT/DATABRIDGE/SAMPLE/EXTRACTADDRESS	Object code for the sample ExtractAddress Library
OBJECT/DATABRIDGE/SAMPLE/READDOC	Object code for the sample Databridge ReadDoc Accessory
OBJECT/DATABRIDGE/SAMPLE/REFORMAT	Object code for sample data item conversion routines
OBJECT/DATABRIDGE/SAMPLE/SQLGEN	Object code for the sample Databridge SQLGen Accessory
OBJECT/DATABRIDGE/SERVER	Object code for the Databridge Server Accessory
OBJECT/DATABRIDGE/SNAPSHOT	Object code for the Databridge Snapshot Accessory
OBJECT/DATABRIDGE/SPAN	Object code for the Databridge Span Accessory
OBJECT/DATABRIDGE/SUPPORT	Object code for the Databridge Support Library

10.1.2 SYMBOL/DATABRIDGE Directory

Databridge Host files are copied to the usercode designated at installation.

Filename	Description
SYMBOL/DATABRIDGE/COBOLSUPPORT	Source code for providing entry points to COBOL Accessories for filtering and formatting routines in the Support Library (ALGOL file type)

Filename	Description
SYMBOL/DATABRIDGE/DMSIISUPPORT	Source code for the DMSII Support Library
SYMBOL/DATABRIDGE/SAMPLE/AUDITCLOSE	Sample source code for closing a DMSII audit file (ALGOL file type)
SYMBOL/DATABRIDGE/SAMPLE/COBOLGEN	Sample source code for generating COBOL file layouts corresponding to a DMSII database (ALGOL file type)
SYMBOL/DATABRIDGE/SAMPLE/DASDLGEN	Sample source code for generating a DMSII DASDL source corresponding to a DMSII database (ALGOL file type)
SYMBOL/DATABRIDGE/SAMPLE/DATABASE	Source code for defining the sample DMSII database (DASDL file type)
SYMBOL/DATABRIDGE/SAMPLE/EXTRACTADDRESS	Sample source code for a library that will extract addresses and build VIRTUAL records (COBOL85 file type)
SYMBOL/DATABRIDGE/INTERFACE	Source code Databridge host software API (ALGOL file type)
SYMBOL/DATABRIDGE/SAMPLE/READDOC	Sample source code for reading audit records (ALGOL file type)
SYMBOL/DATABRIDGE/SAMPLE/REFORMAT	Sample source code for writing data item conversion routines in a REFORMAT library (ALGOL file type)
SYMBOL/DATABRIDGE/SAMPLE/SQLGEN	Sample source code for generating an SQL script to create tables that correspond to a DMSII database. (ALGOL file type)
SYMBOL/DATABRIDGE/SUPPORT	Source code for the Support Library (ALGOL file type)

10.1.3 WFL/DATABRIDGE Directory

Databridge Host files are copied to the usercode designated at installation.

Filename	Description
WFL/DATABRIDGE/INSTALL	Work flow for installing the Databridge software

Filename	Description
WFL/DATABRIDGE/SAMPLE/AUDITCLOSE	Work flow for executing the Audit Close sample Accessory
WFL/DATABRIDGE/SAMPLE/AUDITMIRROR	Work flow that receives mirrored audit files on the secondary computer
WFL/DATABRIDGE/SAMPLE/AUDITTIMER	Work flow for executing the AuditTimer utility
WFL/DATABRIDGE/SAMPLE/BCNOTIFY	Work flow for executing BCNOTIFY
WFL/DATABRIDGE/SAMPLE/COBOLGEN	Work flow for executing the COBOL file layout generator program
WFL/DATABRIDGE/SAMPLE/COMP	Work flow for compiling a Databridge sample program, the Support Library or DMSII Support Library
WFL/DATABRIDGE/SAMPLE/COPYAUDIT	Work flow that can be used in place of the DMSII COPYAUDIT WFL to postpone removal of audit files
WFL/DATABRIDGE/SAMPLE/DATABASE	Work flow for creating and populating the sample database (BANKDB) supplied with Databridge
WFL/DATABRIDGE/SAMPLE/DBINFO	Work flow for executing the Databridge Database Info utility
WFL/DATABRIDGE/SAMPLE/DBNOTIFY	Work flow for executing the DBNOTIFY program
WFL/DATABRIDGE/SAMPLE/INCLUDE/DBTITLE	Work flow that parses the DMSII database title for all other WFLs
WFL/DATABRIDGE/SAMPLE/LISTER	Work flow for executing the Lister accessory
WFL/DATABRIDGE/SAMPLE/NOTIFY	Work flow for executing the DBNOTIFY program
WFL/DATABRIDGE/SAMPLE/READDOC	Work flow for executing the ReadDoc sample Accessory
WFL/DATABRIDGE/SAMPLE/REMOVEAUDIT	Work flow for removing audit files
WFL/DATABRIDGE/SAMPLE/SPAN	Work flow for executing Databridge Span

Filename	Description
WFL/DATABRIDGE/SAMPLE/SQLGEN	Work flow for executing the SQLGen sample Accessory
WFL/DATABRIDGE/SAMPLE/SERVER	Work flow for executing Databridge Server
WFL/DATABRIDGE/SAMPLE/SNAPSHOT	Work flow for executing the Snapshot Accessory

10.1.4 DATA Directory

Databridge Host files are copied to the usercode designated at installation.

Filename	Description
DATA/AUDITMIRROR/SAMPLE/CONTROL	Sample parameter file for the AuditMirror program (SEQDATA file type)
DATA/AUDITTIMER/SAMPLE/CONTROL	Sample parameter file for the AuditTimer program (SEQDATA file type)
DATA/COBOLTODASDL/SAMPLE/BANKFILE/CONTROL	COBOLTODASDL parameter file for the BANKFILE FileXtract example.
DATA/COBOLTODASDL/SAMPLE/BANKFILE/FD	COBOL FD for the BANKFILE FileXtract example.
DATA/COBOLTODASDL/SAMPLE/LINCLOGDB/FD	COBOL FD for the LINCLOGDB FileXtract example.
DATA/COBOLTODASDL/SAMPLE/LINCLOGDB/CONTROL	COBOLTODASDL parameter file for the LINCLOGDB FileXtract example.
DATA/DATABRIDGE/SAMPLE/LICENSE	Sample software license file (DATA file type)
DATA/ENGINE/CONTROL	Parameter file that contains the key information for running this release of Databridge, as well as other options for DBEngine operation

Filename	Description
DATA/ENGINE/SAMPLE/CONTROL	Sample DBEngine parameter file for specifying database-specific DBEngine parameters (SEQDATA file type)
DATA/GENFORMAT/SAMPLE/CONTROL	Sample parameter file for the GenFormat program (SEQDATA file type)
DATA/GENFORMAT/SAMPLE/BANKFILESDB/CONTROL	Sample BANKFILESDB parameter file for the GenFormat program (SEQDATA file type).
DATA/GENFORMAT/SAMPLE/LINCLOGDB/CONTROL	Sample LINCLOGDB parameter file for the GenFormat program (SEQDATA file type).
DATA/GENFORMAT/SAMPLE/NAPFILESDB/CONTROL	Sample NAPFILESDB parameter file for the GenFormat program (SEQDATA file type)
DATA/GENFORMAT/SAMPLE/SYSFILESDB/CONTROL	Sample SYSFILESDB parameter file for the GenFormat program (SEQDATA file type))
DATA/GENFORMAT/SAMPLE/USERDATADB/CONTROL	Sample USERDATADB parameter file for the GenFormat program (SEQDATA file type).
DATA/LISTER/SAMPLE/CONTROL	Sample parameter file for the Lister Accessory (SEQDATA file type)
DATA/LOAD/SAMPLE/DATABASE	Data for the sample database that you can use with Databridge
DATA/SERVER/SAMPLE/CONTROL	Sample parameter file for Databridge Server (SEQDATA file type)
DATA/SERVER/SAMPLE/FILEBRIDGE/CONTROL	Sample FileXtract parameter file for the DBServer program (SEQDATA file type)

10.1.5 PATCH Directory

Databridge Host files are copied to the usercode designated at installation.

Filename	Description
PATCH/DATABRIDGE/COBOLFD/PARSER	Routines for parsing a COBOL FD.
PATCH/DATABRIDGE/COBOLTODASDL/PARSER	Routines for parsing a COBOLTODASDL parameter file.

Filename	Description
PATCH/DATABRIDGE/DASDL/TWIN	A DASDL patch you must include in your database to run Databridge Twin if your restart data set does not have the required fields
PATCH/DATABRIDGE/PARSER/DEFINES	Definitions included when compiling a parser.
PATCH/DATABRIDGE/SAMPLE/SUPPORT/REFORMAT	Sample INTERNAL REFORMAT program
PATCH/DATABRIDGE/SAMPLE/SUPPORT/ERRORHANDLER	Sample error manager routine
PATCH/DATABRIDGE/SAMPLE/SUPPORT/FORMATADDRESS	Sample formatting routine for VIRTUAL data sets
PATCH/DATABRIDGE/SAMPLE/SUPPORT/NAPREFORMAT	Sample INTERNAL REFORMAT program for the NAPFilesDB FileXtract database.
PATCH/DATABRIDGE/SAMPLE/SUPPORT/SHUTDOWN	Sample shutdown procedure for a Support Library
PATCH/DATABRIDGE/SAMPLE/SUPPORT/SYSREFORMAT	Sample INTERNAL REFORMAT program for the SYSFilesDB FileXtract database.
PATCH/DATABRIDGE/SAMPLE/SUPPORT/STARTUP	Sample startup procedure for a Support Library
PATCH/DATABRIDGE/SAMPLE/SUPPORT/VIRTUAL	Sample skeleton patch to the Support Library for a VIRTUAL TRANSFORM routine

10.2 Files Installed with DMSII Client

The following files are copied to the usercode you designated when you installed DMSII Client:

Filename	Description
DATA/DMSIICLIENT/SAMPLE/CONTROL	Sample parameter file for DMSII Client See Modifying the DMSII Client Parameter File in the *DMSII Client Administrator's Guide* for an example.

Filename	Description
OBJECT/DATABRIDGE/DMSIICLIENT	Object code for DMSII Client
OBJECT/DATABRIDGE/DMSIICLIENT/AUTOCONNECT	Object code for the auto connect feature
PATCH/DATABRIDGE/DMSIICLIENT/SAMPLE/DASDL	Sample patch file to specify DASDL particulars See Modifying the DMSII Client DASDL File in the *DMSII Client Administrator's Guide* for an example.
SYMBOL/DATABRIDGE/DMSIICLIENT/LIB	Library source code used by DMSII Client when accessing a client database
SYMBOL/DATABRIDGE/DMSIISUPPORT	Library source code for performing the actual inquiries and updates of the client database
SYMBOL/DATABRIDGE/INTERFACE	Source code INCLUDE file for the API
WFL/DATABRIDGE/INSTALL	Work flow for installing DMSII Client
WFL/DATABRIDGE/SAMPLE/BACKUPTAILORED	Workflow for backing up tailored DMSII software, DESCRIPTION and DMSUPPORT, with the update level as the last node of the file titles.
WFL/DATABRIDGE/SAMPLE/DMSIICLIENT	Work flow for executing DMSII Client
WFL/DATABRIDGE/SAMPLE/DMSIICLIENT/COMPILEDB	Work flow for compiling DMSII Client database when using the manual compile option

Filename	Description
WFL/DATABRIDGE/SAMPLE/DMSIICLIENT/REORGDB	Work flow for compiling the DMSII Reorganization program for generating the sets for a cloned data set.

The SAMPLE work flows are also copied without the SAMPLE node if those files don't already exist.

10.3 Files Installed with Databridge Twin

The following files are installed on the secondary system. These files are copied to the secondary system via the Databridge installation WFL:

Filename	Description
DATA/ENGINE/SAMPLE/CONTROL	**Required:** This data file contains options for running the Databridge Twin Engine.
DATA/TWIN/SAMPLE/CONTROL	**Required:** This Databridge Twin parameter file provides information to the Databridge Twin program on where and how to locate the Server SOURCE for the primary database.
OBJECT/DATABRIDGE/DBINFO	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. For instructions on DBInfo, see the *Databridge Host Administrator's Guide*.
OBJECT/DATABRIDGE/ENGINE	**Required:** This is the object file for the Databridge Twin Engine, which is a subset of the full Databridge Engine.
OBJECT/DATABRIDGE/GENFORMAT	**Optional:** Object code for the Databridge GenFormat program
OBJECT/DATABRIDGE/SUPPORT	**Required:** This is the object code for the non-tailored Support library.
OBJECT/DATABRIDGE/TWIN	**Required:** This is the object file for the Databridge Twin program, which calls the Databridge Twin Engine.

Filename	Description
PATCH/DATABRIDGE/TWIN/DASDL	**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. If you use an INCLUDE statement to include this file in the DASDL, this file must be on both the primary and the secondary systems.
SYMBOL/DATABRIDGE/DMSIISUPPORT	**Required:** This file is the source file for the DMSIISupport Library that will update the secondary database.
SYMBOL/DATABRIDGE/INTERFACE	**Optiona:**. This file supplies the API for the Databridge Engine. It is required for compiling the Support Library.
SYMBOL/DATABRIDGE/SUPPORT	**Optional:** This is the source code for the Support Library.
WFL/DATABRIDGE/INCLUDE/DBTITLE	**Required:** This WFL source file is required for running any Databridge WFL. It parses the database name you enter when you start the WFL
WFL/DATABRIDGE/INSTALL	**Required:** This WFL is required for installing Databridge Twin.
WFL/DATABRIDGE/SAMPLE/COMP	**Optional:** This WFL compiles the Support Library.
WFL/DATABRIDGE/SAMPLE/TWIN	**Required:** This is the WFL for running the Databridge Twin program.
WFL/DATABRIDGE/SAMPLE/INCLUDE/SSRTITLES	**Required:** This WFL source file is included by WFL/DATABRIDGE/COMP to specify the location of the compilers for each SSR (system software release).

Filename	Description
WFL/DATABRIDGE/TWININITIALIZE	**Optional:** 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.

After you have verified the files, you are ready to configure the primary and secondary databases. See **Configuring Databridge Twin** in the *Databridge Twin Administrator's Guide*.

To replicate the primary database, see the chapter **Replicating a Database** in the *DataBridge Twin Administrator's Guide*.

10.4 Files Installed with Databridge Enterprise Server

Use this document to verify the default installation results for Databridge Enterprise Server.

In addition to installing the Enterprise Server files, the setup program adds shortcuts to the Start menu from which you can configure a source and view the configuration and log files folder.

The following files are installed to `C:\Program Files\Micro Focus\Databridge\7.1\Enterprise`:

Filename	Description
DBUI.dll	The optional message and dialog text for Enterprise Server, which can be translated into other (non-English) languages
DBDirector.exe	Windows service that listens for requests from Databridge Clients and then initiates the Enterprise Server application
Help folder	The Databridge Enterprise Server Help files (.html) which are viewable from the program by selecting the Help menu or by pressing the F1 key.
Support folder	Header files and DBEUser.lib for compiling user-written libraries
Support\MakeUserLib.cmd	Batch file for building user-written libraries
DBEnterprise.exe	Enterprise Server executable file
EnumDisk.exe	Enterprise Server utility that lists the MCP disks available on the server where Enterprise Server is installed

Filename	Description
FinishMirrored.cmd	Sample batch file to run whenever an audit file is successfully mirrored to the secondary system.
LINCLOG.dll	LINC log FileXtract Reader library
Notify.cmd	Sample batch file to run when the Databridge Server accessory signals the availability of more audit files to process

10.5 Files Installed with Databridge Client

During installation, Databridge Client 7.1 copies files to the install directory and a client-specific directory. The directories include **SQLServer**, **Oracle**, **Postgres**, **Kafka**, and **FlatFile**. In addition there is a directory named **lib** that contains the DLLs (windows) or shared libraries (UNIX) for encryption and the Kafka client.

On Windows, the install directory is located at `C:\Program Files\Micro Focus\Databridge\7.1`. The Micro Focus Installer Program also installs a **Setup** folder in this location.

In the following tables, the filenames represent both UNIX and Windows files. Windows extensions are provided in brackets ([ ]). The following files are copied to the install directory:

Filename	Description
bconsole[.exe]	The Batch Console automates routine Client tasks by allowing command files/shell scripts launched by the Client service to interact with the service. For more information, see the *Databridge Client Administrator's Guide*.
DATABridge_Messages.dat	A binary file that the Databridge service/daemon uses to retrieve the text associated with error status codes generated by various Databridge components.
DBClntControl[.exe]	The service (Windows) or daemon (UNIX) that automates most Client operations. It handles operator requests from the administrative and batch consoles and routes all log and informational messages to the consoles. The service has no effect on dbutility command-line operations.

Filename	Description
dbctrlconfigure[.exe]	A command-line program that implements the import and export commands for the Client Manager service configuration file. It converts the service configuration file (dbcontrol.cfg) from its native binary format to text format (.ini) and back using the export and import commands.
logmaint[.exe]	A utility that allows you to delete all log files from the service and the individual data source directories except for the most recent. Run this utility from the working directory for the service or the data source whose log files you want to manage. The number of files to retain are specified on the command line for logmaint as optional parameters. When used for the client, it has two parameters. The first parameter is for the DBClient and dbutility log files. The second parameter is for DBClnCfgServer log files. The parameters default to 10 and can be set to a value as low as 2.
readme.txt	A text file that contains late-breaking information for the product. This file is updated to document patches in Hot Fixes, Updates and Service Packs.
setbcuserid.exe (Windows only)	A Windows program that lets you register a specific Windows userid as a trusted user. This allows this userid to run the bconsole utility without specifying a password by adding /T option to the command line. This avoids having clear-text passwords in command files that run bconsole. This is meant for runs that are initiated from places like the Windows scheduler or third-party job scheduling tools.
setfilesecurity.exe (Windows only)	A Windows program that lets you set file security for all files and directories in the Working Directory (which includes changes to the Windows registry). This program functions the same as the utility started by the installer, except that it doesn't allow you change the system or user path. You must run this program as Administrator.

Filename	Description
showerror.exe	A utility that prints the text associated with a Databridge error number.

The following files are copied to the client-specific directory:

Filename	Description
bcp_auditor.exe (SQL Server only)	A program that scans the bcp output to determine if the **bcp** utility was successful. The `bcp_auditor` utility sets the exit code correctly. This utility applies only to Microsoft SQL Server databases.
DBClient[.exe]	A Client program that is launched by the service. DBClient handles the processing of DMSII data and updates the same as dbutility, except that it runs as a background run and uses the Administrative Console to display its output and interact with the operator.
DBClntCfgServer[.exe]	A program that handles all requests from the Administrative Console specific to a data source. These requests include updating the client configuration file, providing access to the client control tables, and handling the Client Configurator. Like DBClient, this program is run by the service as a background run.

Filename	Description
* dbeatran_cp932.dll * dbgaiji.smp * dbtrans_jbis8.smp * dbtrans_v24jbis8.smp	Japanese double-byte translation DLL and sample configuration files. Depending on which character set the mainframe uses, copy the appropriate dbtrans file to the **config** directory as `dbtrans.cfg`. Also, copy the file `dbgaiji.smp` to the config directory as `dbgaiji.cfg`.
* dbeatran_cp950.dll * dbtrans.smp	Traditional Chinese double-byte translation DLL and sample configuration file. Copy the file `dbtrans.smp` file to the **config** directory as `dbtrans.cfg`.
dbfixup[.exe]	A program used for updating existing client control tables when upgrading from a previous client release.
dbscriptixup[.exe]	A program that modifies the Client control tables according to changes specified by the user scripts and enables the Client Configurator to make future modifications to the table layout.
dbutility[.exe]	A program that runs Databridge Client from a command line.

Filename	Description
getlogtail.exe	A program that extracts the tail of the current log file and writes it to the file `trace.log`.
splitter[.exe]	A utility that splits large trace files into smaller files. Used primarily for sending files to Micro Focus for troubleshooting.
dumpnullrecs[.exe]	A program that displays the content of the NULL record file for a given data source.

`*` Installed only when the Japanese language feature is selected.

The following DLLs (shared libraries on UNIX and Linux are copied to the **lib** directory:

Filename	Description
`*` atmcrypto.dll	The Open SSL encryption engine
`*` atmtls.dll	Library that implements TLS
`*` libcurl.dll (Kafka only)	Library used by the Kafka Client
`*` librdbkafka.dll (Kafka only)	Main library used by the Kafka Client
`*` libzstd.dll (Kafka only)	Library used by the Kafka Client
`*` libzstd.dll (Kafka only)	Library used by the Kafka Client

Filename	Description
* sqlite3.dll (PostgreSQL only)	Library that implements a SQLite database for the **pgloader** utility

* On UNIX and Linux these files have extension of `.so`.

Administrative Console Directories and Files

Files for the Administrative Console are installed in the following two directories at `C:\Program Files\Micro Focus\Databridge\7.1\Administrative Console\`.

Directory	Description
bin	Contains a set of batch files, some of which are platform specific.
conf	Contains configuration files. The one that you need to be aware is "container.properties". The post-install script, launched by the postinstall program at the end of the installation in Windows, creates using the file with the same name in the templates folder, unless the file is already present in the "conf" directory when reinstalling the Administrative Console. In a new installation file needs to be updated before you can start using the Administrative Console
java	The private JRE for running the Administrative Console code.
lib	Contains the administrative console jar files and library files.
microservices	The two subdirectories "adminconsole" and "auth-service" contain files for configuring the corresponding services.
templates	contains the starter configuration file "container.properties"

Directory	Description
utilities	contains utilities including the keystore explorer

11. Glossary of Terms

11.1 A - C

absolute address (AA) value

AA is a DMSII term that stands for absolute address. An absolute address value is an A Series WORD (48-bits in length). In Databridge Client, AA is the hexadecimal representation (12 character strings containing the characters 0--9 and A--F) of the AA Value on the host. Databridge Client uses the AA Values to implement unique keys for the parent structures of embedded data set records. It also uses AA Values to reference the records of data sets that do not have DMSII SETS with the NO DUPLICATES ALLOWED attribute.

AA Values are not constant. Any DMSII reorganization (record conversion, file format, or garbage collection) changes these values.

Databridge Client supports numeric AA Values that are stored as NUMBER(15) in Oracle and BIGINT in SQL Server. It also supports binary AA Values that are stored as RAW(6) in Oracle and BINARY(6) in SQL Server.

Audit Files

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

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

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

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

- An operator closes the audit file with the mixnumber SM AUDIT CLOSE command.
- The audit file reaches the file size set in its DASDL.
- There is an I/O error on the audit file.
- There is not enough disk space for this audit file.
- The database update level changes due to database definition changes
- The current audit file could not be found.

audit trail

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

Batch Console

The Batch Console automates routine Client tasks by allowing command files/shell scripts launched by Databridge Client Manager to interact with the service.

caching

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

client

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

cloning

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

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

11.2 D - G

DASDL

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

data set

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

Databridge Director

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

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

Databridge Engine

Databridge Engine (also referred to as DBEngine) is the main library program on the host that reads and interprets the database DESCRIPTION file, the database CONTROL file, and the audit trail.

Databridge Server

Databridge Server is a generic term that can refer to either DBServer or Databridge Enterprise Server. The two are interchangeable as far as Databridge Client is concerned.

DBClient

A Client program that is launched by the Client Manager service. DBClient handles the processing of DMSII data and updates the same as dbutility, except that it runs as a background run and uses the Client Console to display its output and interact with the operator.

DBClntCfgServer

A program that handles all requests from the Client Console specific to a data source. These requests include updating the Client configuration file, providing access to the Client control tables, and handling the Client Configurator. Like DBClient, this program is run by the Client Manager service as a background run.

DBServer

DBServer is a Databridge Host accessory that responds to Databridge Client requests for DMSII data or DMSII layout information and provides communications between the following components:

- Databridge Engine and Databridge Enterprise Server
- Databridge Engine and Databridge Client

> **Note**
>
> When Enterprise Server is used with Databridge Client, Enterprise Server takes over much of the functionality of DBServer and Databridge Engine.

direct disk

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

entry point

A procedure in a library object.

extraction

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

file format conversion

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

flat files

A flat file is a plain text or mixed text and binary file which usually contains one record per line. Within the record, individual fields may be separated by delimiters, such as commas, or have a fixed length and be separated by padding. An example of a flat file is an address list that contains fields for *Name* and *Address*.

garbage collection reorganization

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

11.3 J - R

Japanese Support

Select this option to install translation for double-byte EBCDIC to Code Page 932.

lag time

The lag time is defined as the elapsed time between the time a record in the DMSII database is updated and the time where this update appears in the relational database. This value accounts for any difference between the clock on the mainframe and that on the client machine.

Localization

Select this option to install a dynamic link library (DBUI.dll), which contains the interface and message text for Enterprise Server. This file can be decompiled and translated to provide non-English text for the program interface.

mutex

A mutex is an operating system resource that is used to implement a critical section and prevent multiple processes from updating the same variables at the same time.

null record

A record for a data set where every data item is null.

null value

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

primary database

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

quiet point (QPT)

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

record format conversion

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

record serial number (RSN)

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

reorganization

Structural or formatting changes to records in the DMSII database, which may require parallel changes to (or re-cloning of) records in the secondary, or relational, database.

replicated database

The replicated database is the database that usually resides on the client machine and contains records cloned from the DMSII database. The replicated database is updated periodically with changes made to the primary (original) DMSII database. The periodic update (or tracking process) is explained later in this section. Compare this to the primary database.

replication

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

rollback

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

11.4 S - W

secondary database

The replicated database. The replicated database is the database that usually resides on the client machine and contains records cloned from the DMSII database. The replicated database is updated periodically with changes made to the primary (original) DMSII database. The periodic update (or tracking process) is explained later in this section. Compare this to the primary database.

semaphores

Operating system resources that are mainly used to implement thread synchronization and signaling.

service

The service (Windows) or daemon (UNIX) that automates most Client operations. It handles operator requests from the Client Console and routes all log and informational messages to the consoles.

set

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

state information

Data that reflects information about the cloned data, such as the audit location and format level.

structure

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

table

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

tracking

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

visible RSN

An RSN (record serial number) that is declared in the DASDL. These appear as an item in the data set and are therefore visible to the database user.

working directory

A directory structure that is required for the Client to run. This global working directory contains scripts, logs, lock files and configuration files. Each configured data source has its own working directory within the global working directory.

12. Legal Notice

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