

DataFlux[®] Authentication Server Administrator's Guide



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DATAFLUX
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DataFlux® Authentication Server

Administrator's Guide

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The VMware virtual environment may affect certain functions in DataFlux products (for example, sizing and recommendations), and it may not be possible to fix all problems.

If DataFlux believes the virtualization layer is the root cause of an incident; the customer will be directed to contact the appropriate VMware support provider to resolve the VMware issue and DataFlux shall have no further obligation for the issue.

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Java Toolkit

This product includes the Web Services Description Language for Java Toolkit 1.5.1 (WSDL4J). The WSDL4J binary code is located in the file `wsdl4j.jar`.

Use of WSDL4J is governed by the terms and conditions of the Common Public License Version 1.0 (CPL). A copy of the CPL can be found here at <http://www.opensource.org/licenses/cpl1.0.php>.

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Introduction

[Accessibility Features](#)

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[Conventions Used in This Document](#)

[Reference Publications](#)

Accessibility

The DataFlux Authentication Server includes features that improve usability of the product for users with disabilities. These features are related to accessibility standards for electronic information technology that were adopted by the United States (U.S.) Government under Section 508 of the U.S. Rehabilitation Act of 1973, as amended.

If you have questions or concerns about the accessibility of DataFlux products, send an e-mail to (Undefined variable: Primary.EmailTechSupport).

Audience for this Guide

The primary audience for the *DataFlux Authentication Server Administrator's Guide* consists of administrators who install and configure the servers. These administrators also create and maintain the server's users, groups, domains, logins, and shared logins. Secondary audiences for this guide consist of managers and architects who plan deployments.

Conventions Used In This Document

This document uses several conventions for special terms and actions.

Typographical Conventions

The following typographical conventions may be used in this document:

Bold	A bold font represents the literal names of items that are displayed in a graphical user interface.
<i>italic</i>	An italic font indicates non-literal, variable, or user-defined text, for subjects such as version numbers or option values.

Path Conventions

In code examples in this document, the installation path of the Authentication Server is represented by the term *install-path*, as shown in this example:

```
install-path/bin/dasadmin start
```

The installation path depends on the operating environment.

Windows XP

```
drive: \Program Files\DataFlux\AuthServer\instance-name
```

Windows 7

```
32-bit-drive: \Program Files (x86)\DataFlux\AuthServer\instance-name
```

```
64-bit-drive: \Program Files\DataFlux\AuthServer\instance-name
```

UNIX and Linux

```
/opt/dataflux/authserver/instance-name
```

The *instance-name* is specified when you install the Authentication Server. The default instance name is server1.

Reference Publications

This document may reference other (Undefined variable: Primary.CompanyNameShort) publications including:

- DataFlux Authentication Server User's Guide
- DataFlux Data Management Studio User's Guide
- DataFlux Data Management Studio Installation and Configuration Guide
- DataFlux Web Studio User's Guide
- DataFlux Data Management Server Administrator's Guide
- DataFlux Data Management Server User's Guide
- DataFlux Federation Server Administrator's Guide
- DataFlux Federation Server User's Guide
- DataFlux Secure Administrator's Guide
- DataFlux Drivers for ODBC and JDBC: User's Guide
- DataFlux Expression Language Reference Guide
- DataFlux Quality Knowledge Base Online Help

Documentation provided with this software is located in the installation folder for (Undefined variable: Primary.CompanyNameShort).

Many of the documents listed can be found on the MyDataFlux Portal at (Undefined variable: Primary.URLCustPortal) under **Documentation**.

Overview of the Authentication Server

Purpose

The Authentication Server provides a central point of authentication management across multiple domains and multiple operating environments. Features include:

Centralized Authentication - the server accesses native authentication mechanisms, such as Windows Active Directory or LDAP, to verify the identity of the users of DataFlux client applications.

Centralized Management of Users and Groups - the server manages user and group definitions that form the basis for authorization on DataFlux servers.

Single or Reduced Sign-On - the server enables authenticated users to connect across domains to DataFlux servers and databases without submitting additional credentials.

Platform Architecture

The DataFlux Authentication Server is part of the DataFlux Data Management Platform. The platform provides centralized data access and data analysis for the data that is stored in DataFlux servers and databases across your enterprise, as shown in the following diagram.

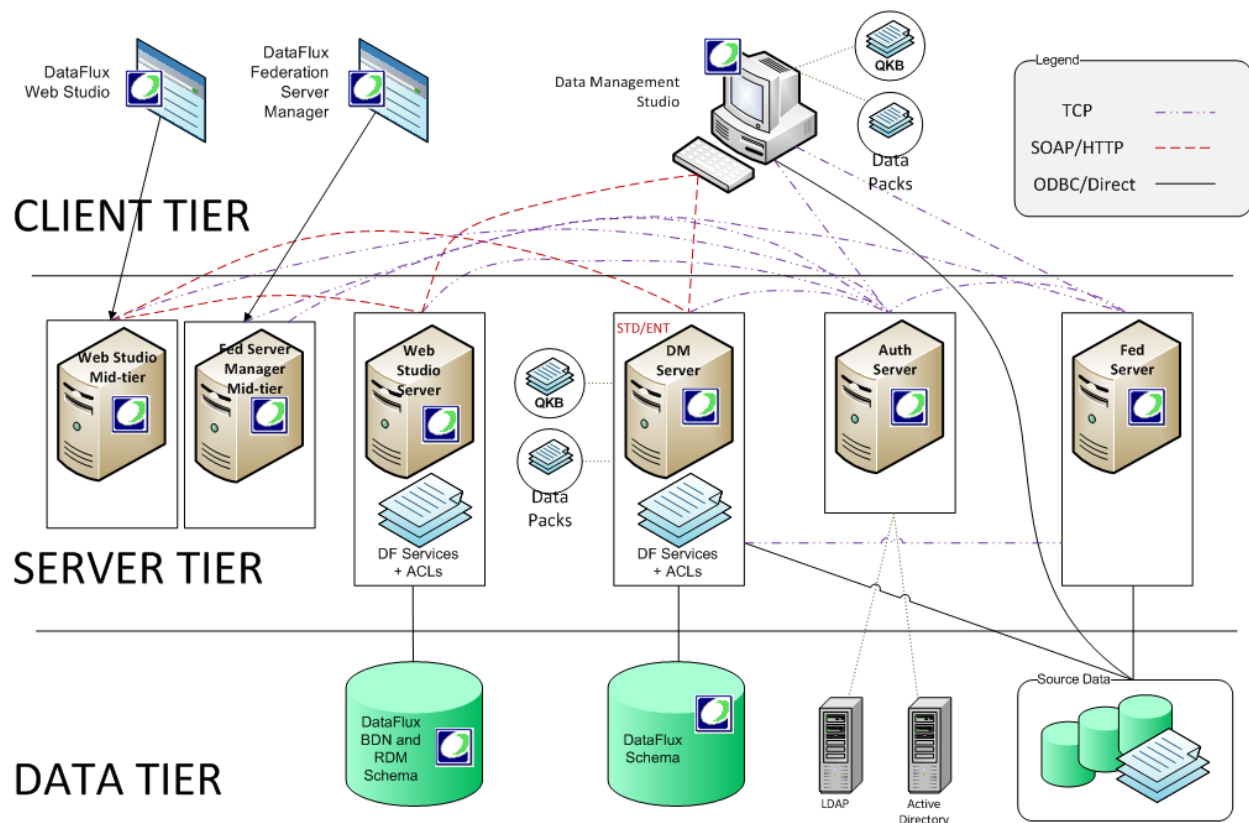
Deployment

The DataFlux Authentication Server is required in all deployments that include a DataFlux Federation Server. You can use an Authentication Server with Data Management Studio, Web Studio, or Data Management Server.

Your deployment may include more than one Authentication Server. Each server can authenticate in as many as three separate domains. The authentication process works with your existing authentication providers to validate submitted logins. Supported authentication providers include LDAP, Active Directory, and the host authentication providers that are supplied in the Windows, UNIX, or Linux operating environments.

Your production set up might not require all of these components.

Data Management Platform Architecture



DataFlux Secure: Encryption and FIPS Compliance

The Authentication Server can be installed with the DataFlux Secure software. The DataFlux Secure software provides the following features:

- 256-bit AES encryption for network traffic and password storage.
- SSL protection for communication with SSL-enabled authentication providers.
- Optional compliance with FIPS 140-2.

By default, the Authentication Server encrypts network traffic and stored passwords using the SASProprietary encryption algorithm. SASProprietary encryption uses 56-bit keys. Installing DataFlux Secure enables your platform to encrypt and decrypt with the Advanced Encryption Standard. AES uses 256-bit keys.

The Authentication Server can use the Secure Sockets Layer to communicate with authentication providers that are also configured to use SSL. SSL protects Internet connections that use HTTPS addresses, with or without the exchange of digital certificates.

FIPS 140-2 is a Federal Information Processing Standard that was created by the United States Institute of Standards and Technology. The standard specifies security requirements

for cryptographic modules. Governmental agencies or departments, as well as corporations, can require that contractors comply with FIPS 140-2.

FIPS compliance is available on the Authentication Server and the Federation Server. When FIPS compliance is enabled on these servers, the servers are required to communicate with Data Management Studio, Web Studio, and Data Management Server using the DataFlux drivers for ODBC or JDBC, rather than using direct platform connections.

With or without enabling FIPS compliance, if you install DataFlux Secure on your Authentication Server, then you must also install DataFlux Secure on all of the platform clients and servers that communicate with that Authentication Server.

To learn more about DataFlux Secure, and to enable FIPS compliance on your Authentication Server, see the *DataFlux Secure Administrator's Guide*.

Implementation

The Authentication Server maintains a database that is used for authentication and authorization. The authentication process validates the identities of users and jobs on the Data Management Platform. Authorization (access to data and services) is managed by Data Management Servers and Federation Servers. These servers authorize access by applying membership information from the Authentication Server to their locally maintained access control lists.

By default, each Authentication Server maintains a separate transactional database that resides on the server host. An alternative configuration stores data in an Oracle database. Using Oracle, multiple Authentication Servers can share a single set of system tables.

The Authentication Server database stores definitions of domains, users, groups, logins, and shared logins. Shared logins are a mechanism that enables multiple users to connect to relational databases without distributing database credentials to those users, using a single database account. For more information, see [About Users, Groups, Domains, Logins, and Shared Logins](#).

Users, groups, domains, logins, and share logins are created and maintained in the Administration riser in DataFlux Data Management Studio. You can also update the Authentication Server database using the [ASBATCH](#) utility.

How it Works

Connect to a Federation Server

The following process describes how the Authentication Server helps you connect to a Federation Server. After you connect to a Federation Server, you can open connections to databases.

1. An Administrator creates your user definition on Authentication Server and adds the user definition to groups and [shared logins](#).
2. If necessary, you add to your user definition a login for the domain of the Federation Server.

3. You open a connection to the Authentication Server. The Authentication Server authenticates your login. The Authentication Server sends a handle to Data Management Studio so that it can read the logins in your user definition.
4. You open a connection to the Federation Server.
5. Data Management Studio retrieves from the Authentication Server your login for the Federation Server domain.
6. Studio connects to the Federation Server using the login from the Authentication Server.
7. The Federation Server connects to Authentication Server using your login.
8. The Authentication Server authenticates the login and returns a handle to the Federation Server. At this point, you can open connections to databases.

If you connect to a Federation Server without first connecting to an Authentication Server, you are asked to supply credentials to the Federation Server.

Connect to a Database

After you connect to a Federation Server, you can open a connection to database using the following process:

1. You open a connection to a database.
2. The Federation Server uses your handle to retrieve from the Authentication Server a login to the database.

Depending on the DSN configuration for that database, the login that is retrieved can be a personal login (from your user definition, for that domain), or a shared login (for which your user definition has been designated as a consumer).

3. The Federation Server uses the login from the Authentication Server to connect to the database, without asking you to enter another login.

System Requirements

- [Supported Operating Systems](#)
- [Supported Database Clients](#)
- [Transactional Database Prerequisites](#)
- [Oracle Database Prerequisites](#)
- [Enable Streams on HP-UX](#)

Supported Operating Systems

OS	Bits	Supported Versions
AIX®	64	IBM® AIX 6.1 or 7.1.
HP-UX Itanium® Processor Family Architecture	64	HP-UX 11.31, update 5 and above. If you authenticate with the Pluggable Authentication Module, install patches PHCO_40360 and PHCO_40361. Also install the Atomic APIs from the AtomicAPI optional software pack. See also Enable Streams on HP-UX .
Red Hat Linux®	64	Red Hat Enterprise Linux 5 or 6. The Unicode libraries depend upon the installation of a compatible standard C++ library, which is located in /usr/lib/libstdc++.so.5 and/or /usr/lib64/libstdc++.so.5. The Native Posix Thread Library is supported. Linux threads are not supported. glibc 2.4 is required during the build.
SuSE Linux	64	Open SuSE SLES 10, SP 3 or higher. SuSE SLES 11 which has better thread support. Install all default packages. The Unicode libraries depend upon the installation of a compatible standard C++ library, which is located in /usr/lib/libstdc++.so.5 and/or /usr/lib64/libstdc++.so.5. The Native Posix Thread Library is supported. Linux threads are not supported. glibc 2.4 is required during the build.
Solaris®	64	Solaris x64 Version 10 1/06 or later.
Windows®	32 or 64	Microsoft® Windows Server 2008 Standard Edition Microsoft Windows Server 2008 Enterprise Edition Microsoft Windows Server 2008 Datacenter Edition Microsoft Windows Server 2008 Business Server Microsoft Windows Server 2003, Standard Edition with Service Pack 1 or higher Microsoft Windows Server 2003, Enterprise Edition with Service Pack 1 or higher Microsoft Windows Server 2003, Datacenter Edition with Service Pack 1 or higher Microsoft Windows Server 2003 for x64 systems, Standard Edition Microsoft Windows Server 2003 for x64 systems, Enterprise Edition Microsoft Windows Server 2003 for x64 systems, Datacenter Edition Microsoft Windows XP Professional, updated with Service Pack 2 Microsoft Windows Vista®, Enterprise, Business, and Ultimate Editions Microsoft Windows XP Professional for x64

OS	Bits	Supported Versions
		systems Microsoft Windows Vista for x64 systems, Enterprise, Business, and Ultimate Editions

Supported Database Clients

The following table lists the client versions for the native drivers:

Database Clients	Native Driver
DB2® V8.2 Fixpack 9 client and higher DB2 V9.1 Fixpack 4 client and higher The Windows 7 platform requires the DB2 V9.5 client.	DB2
MySQL® Version 5 and higher	MySQL
Oracle® 10g client and higher The SAX platform supports the Oracle 11g client.	Oracle
64-bit SAP® Unicode, Release 7.10 SAP Kernel Release 4.6C or higher	SAP
TTU 12 and higher (client and utilities, including TPT)	Teradata®

Transactional Database Prerequisites

By default, the Authentication Server is installed and configured to use a transactional database to manage users, groups, domains, logins, and shared logins. The database is installed on the host of the Authentication Server. After installation, you can reconfigure the Authentication Server to use Oracle rather than the transactional database.

If you use the transactional database, you are required to locate that database on the local host of the Authentication Server. You cannot, for example, move the default transactional database from the local host to a network share server.

The transactional database is implemented in a file that contains system tables. The name and location of the file is specified in an ENTITY declaration in the Authentication Server configuration file [as_serv_aspsql.xml](#). In that file, the ENTITY declaration for ASPSQL_TRANDBF needs to retain the default location of the database file.

Other ENTITY declarations in the configuration file define the system tables in the transactional database. These ENTITY declarations also need to maintain their default content.

Oracle Database Prerequisites

If you use Oracle to store your users, groups, domains, logins, and shared logins, please configure your Oracle database as directed in this section. To configure the Authentication Server to use Oracle, rather than the default transactional database, the see [Configure Oracle to Store Users, Groups, Domains, Logins, and Shared Logins](#).

To be able to access the Authentication Server data on Oracle, administrators must have system permissions that are sufficient for them to work with triggers. Specifically, administrators need the CREATE TRIGGER privilege and at least one of the following:

- own the table that contains the TRIGGER statement,
- have the ALTER privilege for the TRIGGER table, or
- have the ALTER ANY TABLE system privilege.

The Authentication Server has separate prerequisites for the [native Oracle driver](#) or for the [Oracle ODBC driver](#).


Prerequisites for the Native Oracle Driver

To enable the connection between the native Oracle driver and the Oracle server, install the Oracle 10g R1 or R2 (10.1 and 10.2) client on the Authentication Server host.

If your Authentication Server runs on UNIX, then enter the following commands so that the Authentication Server can access shared libraries (also known as shared objects):

```
cd installation-directory/authserver/lib
cp tkeora10.so tkeora.so
```

 **Note:** for Oracle 11, use `tkeora11` in place of `tkeora10`.

 **Note:** for HP64, use `sl` in place of `so`.

On UNIX, to allow the Authentication Server to find the shared libraries, you need to set the ORACLE_HOME environment variable to the home directory of the native driver, then set a value for the LIBPATH environment variable to specify the path to the shared library directory:

```
setenv LIBPATH $ORACLE_HOME/lib:$LIBPATH
```

Prerequisites for the Oracle ODBC Driver

If you use the DataFlux Oracle Wire Protocol ODBC driver, then you are not required to install the Oracle client on the Authentication Server host.

On UNIX, to enable the Authentication Server to use shared libraries, first set one environment variable to identify the home directory of the ODBC driver. Next, set another environment variable to identify the path to the share libraries. Using the C shell, enter the command from the following list that applies to your operating system:

Linux

```
setenv LD_LIBRARY_PATH=$ODBCHOME/lib:$LD_LIBRARY_PATH
```

Solaris

```
setenv LD_LIBRARY_PATH $ODBCHOME/lib:${LD_LIBRARY_PATH}
```

AIX

```
setenv LIBPATH $ODBCHOME/lib:${LIBPATH}
```

HP/UX

```
setenv SHLIB_PATH $ODBCHOME/lib:${SHLIB_PATH}
```

On UNIX, to configure data sources, you may need to edit the file `odbc.ini` in your home directory. If `odbc.ini` is maintained at a central location at your site, then you need to set the path to that file in the environment variable `ODBCINI`.

Enable Streams on HP-UX

Follow these steps to ensure that Streams is installed and enabled on HP-UX:

1. The HP-UX Streams product is generally installed by default. Issue the following command to verify that Streams has been installed:

```
/usr/sbin/swlist -l product | grep Streams
```
2. If necessary, install Streams from the HP-UX installation media. You will need to log in as a Superuser.
3. To ensure that Streams is enabled, issue the following command

```
/usr/sbin/kctune -v streampipes
```
4. If the current value of the `streampipes` variable is 1, then Streams is enabled and this procedure is complete.
5. If the current value is 0, issue the following command to change the `streampipes` variable:

```
/usr/sbin/kctune streampipes=1
```
6. Restart HP-UX to enable Streams.

Installing the Authentication Server

- [Upgrade Notes](#)
- [Install on Windows](#)
- [Install on UNIX or Linux](#)
- [Migrate Authentication Server Data from 2.x to 3.1](#)
- [Configure Your License](#)

Upgrade Notes

If you are upgrading an existing Authentication Server to a new release, be sure to follow these general steps:

1. Install the new server alongside your existing server.
2. Migrate your existing users, groups, domains, logins, and shared logins to the new release.
3. Migrate your server configuration, including authentication providers.
4. Test your new server.
5. Uninstall your old server.

These steps are included in the installation procedures for Windows and UNIX/Linux.



Note: The uninstall process for the Authentication Server removes all installed files, including the file ASDB.TDB, which contains the system tables for the default transactional database.

Install on Windows

Follow these steps to install an Authentication Server on a host that runs the Windows operating system. Supported versions of Windows are listed in the [System Requirements](#).

1. Download the DataFlux Authentication Server from the download section of <http://www.dataflux.com/Customer-Care/>.
2. To generate a host ID, select **Start > All Programs > DataFlux > GetHostID**. Write down the provided FLEXNet host ID.
3. If you obtained your Authentication Server from DataFlux, then obtain a DataFlux license. Open <http://www.dataflux.com/MyDataFlux-Portal.aspx>, login, and select **Request License Unlock Codes**. If you obtained your Authentication Server from SAS, then go to step 6.

4. Complete and submit the license request form. You will receive an email containing your license file by the end of the following business day.
5. Save the license file in a location that is accessible to the Authentication Server.
6. If you obtained your Authentication Server from SAS, then obtain a SAS SETINIT from [SAS Support](#). Complete the request form, and then request a DataFlux unlock code.
7. When you receive an email that contains the SETINIT, save the file in a location that is accessible to the Authentication Server.
8. To install the Authentication Server, enter the following command:

```
dfversion-as-winbit-length.exe
```

Where `version` is 31 or similar, and where `bit-length` is 32 or 64, as shown in the following example:

```
df31-as-win32.exe
```

9. In the installation wizard, accept the default installation directory or specify another directory.
10. Specify a name of your choice for this installed instance of the Authentication Server.
11. When you select components, choose **ONLY ODBC**.
12. When you identify the administrator for the Authentication Server, provide a user name that authenticates in a given domain. Enter the user name in the form `domain\user-name`.
13. Accept or change the default port number for the Authentication Server.
14. Select the license file.
15. If you are upgrading existing Authentication Server software, you are now ready to migrate your existing users, groups, domains, logins, and shared logins to your new server. Refer to [Migrate Authentication Server Data from 2.x to 3.1](#).

The default installation directory for the Authentication Server is specified in [Path Conventions](#).



Note: After installation, if your site uses Web addresses that conform to Internet Protocol Version 6 (IPv6), you are required to specify a value for the option [DNSNAME](#) in the configuration file `as_serv_aspsql.xml`.

Install on UNIX or Linux

Follow these steps to install an Authentication Server on a host that runs one of the supported versions of the UNIX or Linux operating systems. Supported operating systems are listed in the [System Requirements](#).



Note: If you are currently running an Authentication Server from a previous release, do not uninstall that server until you complete [migration process](#).

1. Download the DataFlux Authentication Server from the download section at <http://www.dataflux.com/Customer-Care/>.
2. To generate a host ID, run the following command:

```
./bin/lmhostid
```


Write down the FLEXnet host ID.
3. If you obtained your Authentication Server from DataFlux, then you need to obtain a DataFlux license. Open <http://www.dataflux.com/MyDataFlux-Portal.aspx>, login, and select **Request License Unlock Codes**. If you obtained your Authentication Server from SAS, then go to step 6.
4. Complete and submit the license request form.
5. When you receive the email that contains your license file, save the license file in a location that is accessible to the Authentication Server.
6. If you obtained your Authentication Server from SAS, then you need to obtain a SAS SETINIT from [SAS Support](#). Complete the request form, and then request a DataFlux unlock code.
7. Copy the DataFlux Authentication Server installer and `README.txt` file that correspond to your operating system to an accessible directory.
8. At the command prompt, connect to the location where you are installing the Authentication Server.
9. Specify the directory where you will be installing Authentication Server, and navigate to that directory.



Note: The installation or destination directory must be on a local drive because the Authentication Server database is installed in the same directory.

10. Enter the following command to uncompress the installation file.

```
gzip -c -d auth-server-home/dmpversion-auth-operating-system.tar.gz | tar xvf -
```

For example:

```
gzip -c -d ./dmp31-auth-hpux-i64.tar.gz | tar xvf -
```

Valid values for *operating-system* are: aix64, hpux-i64, lin64, sol64, and solaris-x64.

11. Run the installer:
`perl authserver/install.pl`
12. At the completion of the installation process, view the file ReleaseNotes.txt.
13. If you are upgrading an existing Authentication Server, then you are now ready to migrate your users, groups, domains, logins, and shared logins to your new server. Refer to [Migrate Authentication Server Data from 2.x to 3.1](#).



Note: After installation, if your site uses Web addresses conform to Internet Protocol Version 6 (IPv6), you are required to specify a value for the option [DNSNAME](#) in the configuration file `as_serv_aspsql.xml`.

Configure Your License

Follow these steps if your licensing information was not entered during the Authentication Server installation process, or if you need to add or replace a license.

This procedure assumes that you have obtained a DataFlux license file or a SAS SETINIT, and that you have installed the Authentication Server.

Licenses remain valid for one year after installation, with no service limits. A message is written to the server log when the license expires. DataFlux Data Management Studio automatically displays windows that help you track the status of your licenses.

1. [Stop](#) the Authentication Server.
2. On the host of the Authentication Server, edit the following file:

`install-path\etc\as_serv_aspsql.xml`

The [installation path](#) varies between operating environments.

3. Locate the **License** option and modify the **Provider** and **Location**. Be sure to capitalize all characters in the provider name (SAS or DATAFLUX). The default location is as follows:

`install-path\etc\license\`

The syntax of the License option is as follows:

```
<OptionSet name="License">
  <OptionSet name="Primary">
    <Option name="Provider">SAS | DATAFLUX</Option>
    <Option name="Location"> path-to-license-file-or-SETINIT</Option>
  </OptionSet>
  <OptionSet name="Secondary">
    <Option name="Provider">SAS|DATAFLUX</Option>
    <Option name="Location">path-to-secondary-license-file</Option>
  </OptionSet>
</OptionSet>
```


4. Save and close the configuration file, and then [restart](#) the Authentication Server.

Migrate Authentication Server Data from 2.x to 3.1

Follow these steps to ensure that your Authentication Server 3.1 has the same data and configuration as your Authentication Server from any release of Version 2.

1. [Install](#) Authentication Server 3.1 alongside your existing Authentication Server 2.x.
2. If your 2.x Authentication Server uses Oracle to manage users, groups, domain, logins and shared logins, then no specific migration tasks are required. Your 3.1 Authentication Server can use the 2.x system tables.

Configure your 3.1 server to use Oracle rather than the transactional database that is configured by the installation process. See [Configure Oracle to Store Users, Groups, Domains, Logins, and Shared Logins](#).

 **Note:** Before you configure your 3.1 Authentication Server to use Oracle, make sure that you first [backup](#) your existing (2.x) Oracle data.

Go to step 5.

3. If you are installing the 3.1 Authentication Server on Windows, then click the shortcut **Migrate 2.1.x Database**. The shortcut was created by the 3.1 installation process. Clicking the shortcut displays the Migration Utility Wizard, which will prompt you for the location of your 2.x transactional database. The wizard copies your 2.x system tables to the 3.1 directory and then updates the system tables as required.
4. If you are installing your 3.1 Authentication Server on UNIX or Linux, then execute the following command:

```
install-path/bin/dasadmin migrate
```

The [installation path](#) varies between operating environments.

The migration process copies your 2.x system tables to your 3.1 directory, displays any migration errors, and concludes with:

```
Authentication Server DB Migration completed successfully.
```

5. Compare the 2.x and 3.1 configuration files named as_serv_aspsql.xml. The path to the 3.1 file is as follows:

```
install-path\etc\as_serv_aspsql.xml
```

Update the 3.1 configuration file as needed to apply your 2.x configuration options. Pay particular attention to the options that apply to authentication.

For information on configuration options in the configuration files, see [Appendix: Configuration File Reference](#).

Close your 2.x configuration file without saving any changes.

6. Update your 3.1 configuration file to meet any new requirements. For example, you might want to update the location of the Authentication Server's [log file](#).

7. Save and close your 3.1 configuration file.
8. [Start](#) your Authentication Server 3.1.

Configuring the Authentication Server

- [About the Authentication Server Configuration Files](#)
- [Identify Administrators](#)
- [Configure Encryption](#)
- [Configure the Shared Login Manager on the Federation Server](#)
- [Configure Authorizations in the Operating System](#)
- [Configure Authentication Providers](#)
- [Configure Oracle to Store Users, Groups, Domains, Logins, and Shared Logins](#)
- [Add a New Default Authentication Server](#)

About the Authentication Server Configuration Files

The Authentication Server configuration files work with the options on the server invocation command to tailor the server to meet your needs. The options in the configuration files determine the server's operational parameters, such as authentication mechanisms and domains, administrative user IDs, log level, and encryption level.

The default server configuration is set during installation. The default configuration is fully operational. Default authentication uses the current authentication mechanism and domain of the server host.

Most of the configuration files are stored by default in *install-path\etc*, or in a similar path on UNIX or Linux. Files with other locations are listed below. The syntax of the [installation path](#) varies between operating environments.

It is recommended that you set authorizations to protect these files from general access, as described in [Configure Authorizations in the Operating System](#)

as_log.xml - defines the log level for the Authentication Server. The Authentication Server generates a log file by default. The default log file records user connections and server errors. You can configure the log file as needed to capture additional information, as described in [Administer Log Files](#).

as_serv_aspsql.xml - defines values for the majority of the [configuration options](#).

as_serv_aspsql_schema_trans.xml - describes how to build system tables for the default transactional database. This file is not intended to be edited.

as_serv_aspsql_schema_ora.xml - describes how to build the schema and system tables for an Oracle database. This file is not intended to be edited.

as_serv_aspsql_schema_odbc_ora.xml - when you use an Oracle database, and when you specify the location of the Oracle database server using an ODBC DSN (rather than a path), this file tells the server how to build the Oracle schema and and system tables. This file is not intended to be edited.

as_serv_aspsql_scf.dat - optionally stores the Oracle credentials that are used by the Authentication Server to access users, groups, domains, logins, and shared logins on Oracle. If you use this file to store your Oracle credentials, set the values of the option CredentialsLocation accordingly in the file [as_serv_aspsql.xml](#). This file is stored by default in *install-path\var*.

sasauth.conf - configures the SASAUTH software on UNIX and Linux hosts, as described in [Configure the SASAUTH Authentication Utility](#). This file is stored by default in *install-path/lib*.

Note that the *.xml configuration files are accompanied by *.template files, which are used as a reference to the default configuration.

If you edit a configuration file, you need to restart the Authentication Server to put your changes into effect.

Identify Administrators

Authentication Server administrators are authorized to add, edit, and delete users, groups, domains, and shared logins.

An administrator is initially identified when you install the Authentication Server. The individual who executed the installation application becomes the administrator by default unless you specify another individual (by user ID) at that time.

After installation, you can add or delete administrators by editing the SystemUsers option in the [as_serv_aspsql.xml](#) configuration file.

Configure Encryption

By default, the DataFlux Authentication Server encrypts all of the data that is transferred between clients and the Authentication Server. You can change the default encryption level by changing the value of the Clientencryptionlevel option in the configuration file [as_serv_aspsql.xml](#). You can choose between no encryption, login encryption, and all encryption. The default value is EVERYTHING, which encrypts all network traffic.

By default, the Authentication Server uses the SASProprietary encryption algorithm. SASProprietary uses 56-bit keys. If you install the Authentication Server with DataFlux Secure, you can upgrade to AES encryption. AES encryption uses 256-bit keys.

The DataFlux Secure software also enables the Authentication Server to communicate with authentication providers that use SSL. The Secure Sockets Layer authenticates Internet connections that use HTTPS addresses, with or without the exchange of digital certificates.

DataFlux Secure also enables your Authentication Server to run in compliance with the Federal Information Processing Standard 140-2. You optionally enable FIPS compliance

when you configure DataFlux Secure. FIPS compliance is available on the Authentication Server and the Federation Server. When FIPS compliance is enabled on these servers, the servers are required to communicate with Data Management Studio, Web Studio, and Data Management Server using the DataFlux drivers for ODBC or JDBC, rather than using direct platform connections.

Installing DataFlux Secure affects the values of two options in the Authentication Server's configuration file [as_serv_aspsql.xml](#): NetworkEncryptionAlgorithm and EncryptFIPS.



Note: If you install DataFlux Secure on your Authentication Server, you also need to install that software on any related instances of Data Management Studio, Federation Server, and Data Management Server. All platform components are required to use the same level of encryption.

For additional information on DataFlux Secure, see the *DataFlux Secure Administrator's Guide*, which is available when you select the Information riser in Data Management Studio. To order DataFlux Secure, see download section of the DataFlux Customer Care Portal, at <http://www.dataflux.com/Customer-Care/>.

Configure the Shared Login Manager on the Federation Server

On the Federation Server, the Shared Login Manager requests outbound logins from the Authentication Server. The outbound logins enable the Federation Server to authenticate Studio users on databases such as Oracle.

To configure the Shared Login Manager, you specify a login and a shared login key. The key grants the Shared Login Manager access to all of the shared logins that were assigned that particular key.

If you assign the Shared Login Manager a non-administrative login, access is granted only to the subset of shared logins that list the non-administrative login as a shared login manager.

To display shared login managers and shared login keys, connect to the Authentication Server and click the **Shared Logins** riser.

To assign a login to the Shared Login Manager, follow these steps:

1. Open Data Management Studio.
2. Click the **Administration** riser.
3. Connect to the Federation Server.
4. Select **Tools > Federation Server Options**.
5. In the **Federation Server Manager Options** dialog, click the **Advanced** tab.
6. Enter the user ID and password of the login of the Shared Login Manager, as well as an optional shared login key.
7. Click **OK** to save your entries.

Configure Authorizations in the Operating System

The following tables recommend that you set read, write, and execute authorizations for certain users in certain directories. Deny directory access to all users other than those listed below.

Recommended Authorizations for Windows

Directories	User Role	Authorizations
install-path\AuthServer	Installer	Full control
	Process user	Read, write, execute, list folder contents
install-path\var	Installer	Full control
	Process user	Read, write, execute, list folder contents
	Person who backs up the Authentication Server	Read, list folder contents

Recommended Authorizations for UNIX and Linux

Directories	User Role	Authorizations
install-path/AuthServer	Installer	Read, write execute
	Process user	Read, execute
install-path/var	Installer	Read, write execute
	Process user	Read, write execute
	Person who backs up the Authentication Server	Read, execute

Configure Authentication Providers

- [About Authentication Providers](#)
- [Configure Authentication in Windows](#)
- [Configure Authentication in UNIX and Linux](#)

About Authentication Providers

Authentication takes place when a client such as (Undefined variable: Primary.dfUnityMed) requests a connection to a DataFlux Federation Server or Data Management Server. To authenticate, the client's Authentication Server works with an authentication provider in the operating environment, in the domain that is specified in the login. Successful authentication enables the client to establish a connection to the DataFlux server.

You can configure as many as three authentication providers for each Authentication Server, one of each of the following types. Each provider needs to have its own domain.

AD - Windows Active Directory authentication.

LDAP - the Lightweight Directory Access Protocol authenticates against an LDAP authentication provider, and can also enable UNIX and Linux servers to authenticate against a Windows authentication provider.

Host - Host authentication is configured by default. In Windows, you specify host authentication when the Authentication Server host uses proprietary Windows authentication. In UNIX or Linux, you specify host authentication when you use the SASAUTH authentication utility. SASAUTH can be configured to authenticate with PAM (pluggable authentication modules).

To configure authentication providers, see [Configure Authentication in Windows](#), or [Configure Authentication in UNIX/Linux](#).

Configure Authentication in Windows

Follow these steps to configure authentication providers when your Authentication Server is running in the Windows operating environment. You can specify up to three authentication providers, one of each type (LDAP, Active Directory, and Host), in unique domains.

1. If the Authentication Server is running, then [stop](#) the Authentication Server.
2. Open the configuration file `as_serv_aspsql.xml`. The default path of that file is:
`auth-server-home\etc\as_serv_aspsql.xml`
3. In the configuration file, locate the **AuthProviderDomain** option. This option associates the types of authentication providers with your domains. To learn more about this option, see [Appendix: Configuration File Reference](#).

4. To configure a single authentication provider of the type Host, specify a domain for the HOSTUSER keyword:

```
<Option name="AuthProviderDomain">HOSTUSER:your-domain-name</Option>
```

The HOSTUSER domain is used by default if the login being authenticated does not contain a domain. If this option is not specified in the configuration file, then the default domain name is HOSTUSER.

5. To configure a single Active Directory authentication provider, specify a domain for the ADIR keyword:

```
<Option name="AuthProviderDomain">ADIR:your-AD-domain</Option>
```

6. To configure a single LDAP authentication provider, specify a domain for the LDAP keyword:

```
<Option name="AuthProviderDomain">LDAP:your-LDAP-domain</Option>
```

7. To specify two or three authentication providers, use the following syntax:

```
<Option name="AuthProviderDomain">(provider1:domain1,provider2:domain2,provider3:domain3)</Option>
```

For example:

```
<Option
name="AuthProviderDomain">(HOSTUSER:NYCWIN,ADIR:BRONXAD,LDAP:BROOKLYNKLDAP)</Op
tion>
```



Note: You can specify a maximum of one provider of each type, and the domains must be unique.

8. If you specified an Active Directory authentication provider, then use the SetEnv option set to specify AD_HOST and AD_PORT:

```
<OptionSet name="SetEnv">
  <!-- specify a host for Active Directory authentication-->
  <Option name="AD_HOST">yoursite.yourcompany.com</Option>
  <Option name="AD_PORT">host-port-number-for-AD</Option>
</OptionSet>
```

If you did not configure an LDAP authentication provider, you can proceed to step 12.

9. If you specified an LDAP authentication provider, then specify the environment variables LDAP_BASE, LDAP_HOST, and LDAP_PORT:

```
<OptionSet name="SetEnv">
  <!-- specify envvars for LDAP authentication -->
  <Option name="LDAP_HOST">yourldaphost.yoursite.mycompany.com</Option>
  <Option name="LDAP_PORT">host-port</Option>
  <Option name="LDAP_BASE">ou=yourorgunit,o=yourorg</Option>
</OptionSet>
```

The environment variable LDAP_BASE defines the default base DN (Distinguished Name). The values for LDAP_BASE are site-specific.

10. If you specified an LDAP authentication provider, and if that provider does not allow anonymous binds, then specify the privileged DN in the environment variables LDAP_PRIV_DN, and LDAP_PRIV_PW:

```
<OptionSet name="SetEnv">
  <!-- specify an authorized LDAP user for simple binds -->
  <Option name="LDAP_PRIV_DN">user-name</Option>
  <Option name="LDAP_PRIV_PW">password</Option>
</OptionSet>
```

The user that you specify must be authorized to search for users.

11. If you specified an LDAP authentication provider, and if the LDAP server is configured to use a value other than DN for authentication, then specify an alternate value in the environment variable LDAP_IDATTR:

```
<OptionSet name="SetEnv">
  <!-- specify an LDAP authentication attribute other than DN -->
  <Option name="LDAP_IDATTR">CN</Option>
</OptionSet>
```

CN is an example value. The value at your site may differ. The default value of LDAP_IDATTR is userid.

Contact your site administrator to determine if additional configuration steps are required for your LDAP implementation.

12. Save and close the configuration file.
13. [Start](#) the Authentication Server.

Configure Authentication in UNIX and Linux

- [Getting Started with Authentication in UNIX and Linux](#)
- [Configure LDAP Authentication](#)
- [Configure AD Authentication](#)
- [Configure SASAUTH Authentication](#)
- [Configure SASAUTH for PAM](#)

Getting Started with Authentication in UNIX and Linux

When you install an Authentication Server on a UNIX or Linux host, you can configure a maximum of three authentication providers, in separate domains. You can configure one LDAP, one Active Directory, and one Host authentication provider. You configure multiple domains as needed to authenticate all of the users of your DataFlux Data Management Platform.

To access existing authentication providers, you configure the host of the Authentication Server accordingly. For example, if your site uses centralized LDAP authentication, then the host of the Authentication Server should be configured as an LDAP client of that central repository.

To configure authentication providers, you will need input from your network administrator so that you can apply site-specific values. Using site-specific values, you configure your LDAP and AD providers in the Authentication Server configuration file.

Host authentication is provided by your UNIX or Linux operating environment. To interact with the host authentication provider, the Authentication Server uses the SASAUTH utility. SASAUTH:

1. Looks up the submitted userid in a user database.
2. Compares the submitted password to the password in a password database.
3. Retrieves the UID number for the user and apply the access controls that are associated with that UID.

If your host authentication provider uses pluggable authentication modules (PAM), SASAUTH can be configured accordingly.

Configure LDAP Authentication

Follow these steps to configure an LDAP authentication provider on an Authentication Server that is installed on a UNIX or Linux host.

1. Begin by ensuring that your LDAP authentication provider is properly configured to authenticate UNIX users. In order for the Authentication Server to connect directly to the LDAP database, the database must include the required UNIX/Posix user

attributes, such as UID. Most LDAP servers provide an LDAP schema that contains this information. Your LDAP database must conform to the RFC 2307 standard for UNIX user attributes.

2. If the Authentication Server is running, then [stop](#) the Authentication Server.
3. Open the configuration file `auth-server-home/etc/as_serv_aspsql.xml`.
4. In the option `AuthProviderDomain`, change the single authentication provider to `LDAP`, or add the LDAP provider and domain to your existing authentication providers:

```
<!-- single-provider syntax -->
<Option name="AuthProviderDomain">LDAP:your-ldap-domain</Option>
```

```
<!-- multi-provider syntax -->
<Option name="AuthProviderDomain">ADIR:domain1,HOSTUSER:domain2,
  LDAP:domain3</Option>
```

5. Use the `SetEnv` Option Set to configure the following LDAP environment variables:

`LDAP_HOST` - identifies the LDAP server host.

`LDAP_PORT` - the port number of the LDAP service. If `LDAP_PORT` is not defined, then the default port value is used.

`LDAP_BASE` - specifies the default base DN (Distinguished Name) to use when performing LDAP operations.

```
<OptionSet name="SetEnv">
  <Option name="LDAP_HOST">myldaphost.mysite.mycompany.com</Option>
  <Option name="LDAP_PORT">myport</Option>
  <Option name="LDAP_BASE">ou=myorgunit,o=myorg</Option>
</OptionSet>
```

6. If the LDAP server does not allow anonymous binds, then `LDAP_PRIV_DN` and `LDAP_PRIV_PW` are required. The `LDAP_PRIV_DN` user needs to be authorized to search for users:

`LDAP_PRIV_DN=privileged-DN`

`DN LDAP_PRIV_PW=password-for-privileged-DN`

```
<OptionSet name="SetEnv">
  <Option name="LDAP_PRIV_DN">user1</Option>
  <Option name="LDAP_PRIV_PW">password1</Option>
</OptionSet>
```

7. If the LDAP server is configured to use a value other than `DN` (Distinguished Name) for authentication, then specify the alternate value using `LDAP_IDATTR`. The default value of `LDAP_IDATTR` is `userid`.

`LDAP_IDATTR=attribute-name`

```
<OptionSet name="SetEnv">
  <Option name="LDAP_IDATTR">CN</Option>
```

```
</OptionSet>
```

8. Consult with your network administrator to determine if any additional site-specific LDAP settings are required.
9. Save and close the configuration file.
10. [Start](#) the Authentication Server.

Configure AD Authentication

Follow these steps to configure an AD authentication provider on an Authentication Server that is installed on a UNIX or Linux host.

1. Begin by ensuring that your AD authentication provider is properly configured to authenticate UNIX users. In order for the Authentication Server to connect directly to the AD database, the database must include the required UNIX/Posix user attributes, such as UID. Most AD servers provide an AD schema that contains this information. To enable connections, install Microsoft Services for UNIX (SFU) 2 or 3 on the hosts of your AD repositories.

2. If the Authentication Server is running, then [stop](#) the Authentication Server.

3. Open the configuration file *auth-server-home/etc/as_serv_aspsql.xml*.

4. In the option AuthProviderDomain, change the single authentication provider to `ADIR`, or add the AD provider and domain to your existing authentication providers:

```
<!-- single-provider syntax -->
<Option name="AuthProviderDomain">ADIR:your-ldap-domain</Option>

<!-- multi-provider example -->
<Option name="AuthProviderDomain">HOSTUSER:domain2,LDAP:domain2,
  ADIR:domain3</Option>
```

5. Use the SetEnv Option Set to configure the following LDAP environment variables:

AD_HOST - identifies the Active Directory server host.

AD_PORT – specifies the port number for Active Directory.

```
<OptionSet name="SetEnv">
  <Option name="AD_HOST">your-AD-network-hostname</Option>
  <Option name="AD_PORT">port-number-on-AD-host</Option>
</OptionSet>
```

6. Save and close the configuration file.
7. [Start](#) the Authentication Server.

Configure the SASAUTH Authentication Utility

The SASAUTH utility is used to implement Host authentication. SASAUTH can be configured to use default authentication (known as PM) or pluggable authentication modules (PAM), or even both methods in series. SASAUTH also provides three levels of logging, and a configurable response to invalid authentications. All of these features are configured in the file `sasauth.conf`.



Note: The SASAUTH utility requires root authorizations.

Follow these steps to enable and configure the SASAUTH utility:

1. [Stop](#) the Authentication Server.
2. Login with root privileges, or contact your network administrator, to run the following script, which establishes root privileges for the SASAUTH utility:

```
sh> auth-server-home/lib/sasauth.inst.sh
```
3. Execute the following script to enable the SASAUTH utility:

```
sh> auth-server-home/bin/set_auth sasauth
```
4. Edit the SASAUTH configuration file.

```
auth-server-home/lib/utilities/bin/sasauth.conf
```
5. In the configuration file, the `methods` variable specifies authentication methods for the SASAUTH utility. The `methods` variable accepts the values `pm` and `pam`. Use the `pm` value for authentication via `/etc/passwd`. On some hosts, `pm` provides non-traditional authentication using protected password databases or other enhancements. Use the `pam` value if your site uses pluggable authentication modules.

You can specify `pw`, `pam`, or both. If you specify both, then SASAUTH will authenticate with the first method, then attempt to authenticate with the second method if necessary.

Specify one of the following values for the `methods` variable:

```
methods=pw
methods=pam
methods=pw pam
methods=pam pw
```


If you specify `pam`, then you need to configure that method. See [Configure SASAUTH for PAM](#).

6. Activate and configure the SASAUTH logging facility by enabling a log file. In the configuration file, remove a comment character and insert a path for one of the three log files, as shown in the following example.

The following example enables the Access Log and populates a log file at the specified location:

```
#debugLog=  
accessLog=/tmp/sasauth.log  
#errorLog=
```

Enable the `debugLog` only when testing or diagnosing errors.

 **Note:** You may need to configure the syslog on your Authentication Server host in order to collect log messages from SASAUTH.

7. To configure repeated authentication attempts, edit the options `maxtries`, `maxtriesPeriod`, and `maxtriesWait`.

`maxtries` - specifies the number of authentication attempts allowed before a waiting period is imposed.

`maxtriesPeriod` - specifies the number of seconds that can elapse before the termination of the authentication process.

`maxtriesWait` - specifies the number of seconds that a user must wait if that user exceeds the `maxtries` value within the time limit of `maxtriesPeriod`. After the waiting period, the `maxtries` count is reset to zero.

The default values specify 5 attempts in 60 seconds, following by a waiting period of 5 minutes:

```
maxtries=5  
maxtriesPeriod=60  
maxtriesWait=300
```

To disable the limits on authentication retries, insert comment characters in front of each variable:

```
# maxtries=5  
# maxtriesPeriod=60  
# maxtriesWait=300
```

8. Save and close the `sasauth.conf` configuration file.
9. When it is installed on UNIX or Linux, the Authentication Server is configured by default to authenticate with the UNIXUSER domain. If you wish to change the name of the domain, open the configuration file [as_serv_aspsql.xml](#). In that file, edit the UNIXUSER domain name in the following entry:

```
<Option name="AuthProviderDomain">HOSTUSER:UNIXUSER</Option>
```

Save and close the configuration file.

10. [Start](#) the Authentication Server.

Configure SASAUTH for PAM

If you configured the [SASAUTH](#) utility for host authentication, and if you specified PAM as an authentication method, then use this topic to configure PAM authentication.

PAM requires you to register the applications that use authentication services. In the operating environment, upgrade your PAM configuration to register SASAUTH. In the HP-UX, Solaris, and AIX operating environments, the PAM configuration is stored in `/etc/pam.conf`. In that file, you need to specify the authentication services that are used by SASAUTH, and you need to specify when SASAUTH performs authentication. These specifications are made in the module types `account` and `auth`.

Caution: *PAM allows you to register other, which permits any application to use authentication services. The use of other is not recommended.*

PAM supports applications that run in both 32-bit and 64-bit environments. The SASAUTH utility has a 64-bit format. In the `pam.conf` configuration file, make sure that the modules that you associate with SASAUTH also have a 64-bit format.

PAM modules are usually provided in separate directories for 32-bit and 64-bit libraries. The `pam.conf` configuration file contains pathnames that are either relative (Solaris and AIX) or that contain a symbolic variable (HP-UX).

The entries in `pam.conf` that are used to register applications have the following form:

```
application-name module-type control-flag module-path options
```


Examples for Solaris:

```
sasauth auth requisite pam_authtok_get.so.1
sasauth auth required pam_dhkeys.so.1
sasauth auth required pam_unix_auth.so.1
sasauth account required pam_unix_account.so.1
```

Examples for HP/UX:

```
Sasauth account required /usr/lib/security/$ISA/libpam_unix.so.1
Sasauth auth required /usr/lib/security/$ISA/libpam_unix.so.1
```

Refer to the `man` page for PAM to ensure that you correctly register SASAUTH.

 **Note:** On AIX, PAM is not activated by default. To activate PAM, refer to the IBM document Security Guide - Authentication Module.

In Linux operating environments, the directory `/etc/pam.d` contains one configuration file for each application that is authorized to use PAM. The name of the configuration file matches the name of the application. For SASAUTH, the configuration file is `/etc/pam.d/sasauth`. The SASAUTH configuration file needs to contain entries in the following form:

```
module-type control-flag module-path options
```


Examples for Linux:


```
#%PAM-1.0
auth sufficient pam_rootok.so
auth required pam_unix2.so nullok
account required pam_unix_acct.so
```


Configure Oracle to Store Users, Groups, Domains, Logins, and Shared Logins

Overview

By default, the Authentication Server uses a transactional database to store users, groups, domains, logins, and shared logins. You can choose to configure your Authentication Server to store these objects on an Oracle relational database. The Oracle configuration uses an Oracle driver, or one of two available ODBC drivers. The Oracle driver uses a path to access the database. The ODBC drivers use a data source name (DSN) to access the database.

 **Note:** Before you start, make sure that your system meets the [Prerequisites for Oracle](#).

After you install your Authentication Server, you update the primary Authentication Server configuration file to configure the Oracle database. If you choose an ODBC driver, you may also need to add an ODBC data source, as described later in this topic.

 **Note:** If you already have an ODBC data source, make sure that your `odbc.ini` file contains the required value `EnableNcharSupport=1`.

Configure the Oracle Database

1. Edit the Authentication Server configuration file shown in this Windows path:

```
install-path\etc\as_serv_aspsql.xml
```

See [Path Conventions](#) for the value of *install-path*.

2. For the entity ASPSQL_SCHEMA, enter the name of the Oracle schema for the Authentication Server database.

```
<!ENTITY ASPSQL_SCHEMA "oracle-schema-name">
```

3. Add comment tags as follows to prevent the creation of these two entities:

```
<!-- <!ENTITY ASPSQL_TRANDBF "C:\Program
Files\DataFlux\AuthServer\server1\var\asdb.tdb"> -->
<!-- <!ENTITY ASPSQL_CONFIG_DBMS SYSTEM "as_serv_aspsql_schema_tran.xml"> -->
```

4. Remove comment tags as follows to create these three entities:

```
<!ENTITY ASPSQL_ORAPATH "TKTSORA">
<!ENTITY ASPSQL_CONFIG_DBMS SYSTEM "as_serv_aspsql_schema_ora.xml">
<!ENTITY ASPSQL_CREDENTIALS_LOC "C:\Program
Files\DataFlux\AuthServer\server1\var\as_serv_aspsql_scf.dat">
```

5. Remove comment tags around the following option:

```
<Option name="CredentialsLocation">&ASPSQL_CREDENTIALS_LOC;</Option>
```

6. If you plan to store Oracle credentials on disk, then continue with this step to create an Oracle credentials file. If you plan to enter Oracle credentials manually, then [jump ahead](#) to the next step.

DataFlux recommends that you store the Oracle credentials file in the `var` directory, as indicated in the default value of the entity `ASPSQL_CREDENTIALS_LOC`. The `var` directory is recommended to receive access restrictions in the operating environment, as specified in [Configure Authorizations in the Operating System](#). If you use a non-default storage location, be sure to specify an absolute path for the entity, rather than a relative path.

Open the Oracle credentials file. Add Oracle credentials in the following format:

```
UID=myuser;PWD=mypwd
```

The credentials in the file will be encrypted when you start or restart the Authentication Server. Save and close the credentials file.

7. If you plan to enter Oracle credentials manually, rather than storing them on disk, you can use **Set Provider Credentials**, or you can write a script that runs when you start the server. If you write a script, then the script will need to prompt the user for credentials, which would then be maintained in memory until the server is restarted.

To use **Tools -> Set Provider Credentials** in Data Management Studio to manually enter credentials, set a blank value for the entity `ASPSQL_CREDENTIALS_LOC`:

```
<!ENTITY ASPSQL_CREDENTIALS_LOC "">
```

To use a script to capture Oracle credentials, set the following two environment variables in the script:

```
DFAS_PROVIDER_SOURCE_UID=my-Oracle-UID  
DFAS_PROVIDER_SOURCE_PWD=my-Oracle-PWD
```

8. If it is still open, save and close the configuration file `as_aspsql.xml`
9. [Start or restart](#) the Authentication Server.

Example Configuration File

The following version of the file `as_serv_aspsql.xml` shows typical values for a configuration that uses Oracle to store users, groups, domains, logins, and shared logins.

```
<?xml version="1.0"?>  
  
<!--  
    HOW TO CONFIGURE AN ORACLE DATA STORE:  
    In order to configure the Authentication Server to use an Oracle data  
    store,  
    search for the word "Oracle" in this file and follow the instructions in  
    the comments. -->  
  
<!DOCTYPE Config [  
<!-- ASPSQL Provider DBMS independent content -->  
<!ENTITY ASPSQL_CATALOG "AS">
```

```

<!-- When configuring an Oracle data store, specify a valid Oracle schema for
ASPSQL_SCHEMA below -->
<!ENTITY ASPSQL_SCHEMA "">

<!ENTITY ASPSQL_SCHEMA_QUALIFIER "">
<!ENTITY ASPSQL_BT_DOMAINS "DOMAINS">
<!ENTITY ASPSQL_BT_SUBJECTS "SUBJECTS">
<!ENTITY ASPSQL_BT_GROUPS "GROUPS">
<!ENTITY ASPSQL_BT_SUBJECT_GROUPS "SUBJECT_GROUPS">
<!ENTITY ASPSQL_BT_GROUP_GROUPS "GROUP_GROUPS">
<!ENTITY ASPSQL_BT_PRINCIPALS "PRINCIPALS">
<!ENTITY ASPSQL_BT_PRINCIPAL_MAPS "PRINCIPAL_MAPS">
<!ENTITY ASPSQL_BT_GROUP_MAP_MGRS "GROUP_MAP_MGRS">
<!ENTITY ASPSQL_BT_GROUP_MAP_USERS "GROUP_MAP_USERS">
<!ENTITY ASPSQL_BT_SUBJECT_MAP_MGRS "SUBJECT_MAP_MGRS">
<!ENTITY ASPSQL_BT_SUBJECT_MAP_USERS "SUBJECT_MAP_USERS">
<!ENTITY ASPSQL_BT_VERSION "VERSION">
<!ENTITY ASPSQL_BT_SENTINEL "SENTINEL">

<!-- Transactional data store used by default -->

<!--
    Add comment tags around the following lines when configuring an Oracle
    data store
-->
<!ENTITY ASPSQL_TRANDBF "C:\Program
Files\DataFlux\AuthServer\server1\var\asdb.tdb">
<!ENTITY ASPSQL_CONFIG_DBMS SYSTEM "as_serv_aspsql_schema_tran.xml">

<!--
    Remove comment tags from the following lines to configure an Oracle data
    store
    and supply a valid Oracle Path
-->
<!-- <!ENTITY ASPSQL_ORAPATH "TKTSORA"> -->
<!-- <!ENTITY ASPSQL_CONFIG_DBMS SYSTEM "as_serv_aspsql_schema_ora.xml"> -->
<!-- <!ENTITY ASPSQL_CREDENTIALS_LOC "C:\Program
Files\DataFlux\AuthServer\server1\var\as_serv_aspsql_scf.dat"> -->

]>
<Config name="ASConfig">
    <!-- Port to listen on -->
    <Option name="Port">21030</Option>

    <!-- Administrative account -->
    <OptionSet name="SystemUsers">
        <Option name="Account">LOCAL\tsadm</Option>
    </OptionSet>

    <OptionSet name="SetEnv">
        <Option name="FIREBIRD">C:\Program
Files\DataFlux\AuthServer\server1\lib\fbembed</Option>
        <Option name="FIREBIRD_LOG">C:\Program
Files\DataFlux\AuthServer\server1\var\log</Option>
    </OptionSet>

    <OptionSet name="PrependEnv">
        <Option name="Path">C:\Program
Files\DataFlux\AuthServer\server1\lib\fbembed</Option>
    </OptionSet>

    <!-- Encryption Algorithm -->
    <Option name="NetworkEncryptAlgorithm">SASProprietary</Option>

```

```

<Option name="ObjectServerParms">CLIENTENCPTIONLEVEL=EVERYTHING</Option>

<OptionSet name="License">
  <OptionSet name="Primary">
    <Option name="Provider">DATAFLUX</Option>
    <Option name="Location">C:\Program
Files\DataFlux\AuthServer\server1\etc\license</Option>
  </OptionSet>
  <OptionSet name="Secondary">
  </OptionSet>
</OptionSet>

<OptionSet name="TrustedUsers">
  <Option name="Account">DATAFLUX\dfcnn19</Option>
</OptionSet>

<!-- Provider name -->
<Option name="AuthenticationProvider">ASPSQL</Option>

  <!-- Provider-specific root element -->
<OptionSet name="ASPSQLProvider">
  <!-- System catalog and schema names -->
  <Option name="SystemCatalog">&ASPSQL_CATALOG;</Option>
  <Option name="SystemSchema">&ASPSQL_SCHEMA;</Option>
  <Option name="MinConnections">1</Option>
  <Option name="MaxConnections">2</Option>

  <!-- Remove comment tags from the following line to configure an
Oracle data store -->
  <!-- <Option
name="CredentialsLocation">&ASPSQL_CREDENTIALS_LOC;</Option> -->

  &ASPSQL_CONFIG_DBMS;
</OptionSet>
</Config>

```

Add an ODBC Data Source on Windows

If your Authentication Server runs on Windows, follow these steps to add an ODBC data source:

1. Open the Windows application ODBC Data Source Administrator:
 - a. Select **Start > Settings > Control Panel**, or use the current Windows equivalent path.
 - b. Double-click **Administrative Tools**.
 - c. Double-click **Data Sources (ODBC)**.
2. In the ODBC Data Source Administrator, click the **System DSN** tab, and then click **Add**.
3. In the Create New Data Source dialog, select **DATAFLUX 32-BIT Oracle**, or select **DATAFLUX 32-BIT Oracle Wire Protocol**. Click **Finish**.
4. In the driver setup dialog, enter your data source properties in the provided fields and tabs.

5. Click the **Advanced** tab, and then click **Enable N-CHAR Support**, to display a check mark for that property. This selection is required.
6. Click **OK** twice to save your changes.

Add an ODBC Data Source on UNIX or Linux

If your Authentication Server runs on UNIX or Linux, follow these steps to add an ODBC data source.

1. Run the DataFlux ODBC Configuration tool:
`bin/dfdbconf`
2. Enter **A** to add a new data source.
3. In the **Available Templates** list, choose **Oracle Wire Protocol [DataDirect 6.0 Oracle Wire Protocol]**. On certain versions of UNIX, you can choose **Oracle [DataDirect 6.0 Oracle]** instead.
4. Enter a value of 1 for the property **Enable N-CHAR Support**. This entry is required.
5. Enter your site's data source parameters, or press **Enter** to select default values.
6. Enter a name for the new data source.

Add a New Default Authentication Server

After you install, configure, and start a new Authentication Server, you and other users follow these steps to create a new server definition and select the new server as their default. The default server authenticates your login when you start Data Management Studio.


1. In Data Management Studio, click the **Administration** riser.
2. Right-click Authentication Server and select **New Authentication Server Connection**.
3. In the window Add Authentication Server Definition, create the server definition and test the connection.
4. In the Administration riser, right-click the new server definition and select **Set as Default**.

When you select a default Authentication Server, the client creates the following configuration file:

```
C:\Documents and Settings\userid\Application  
Data\DataFlux\DataManagement\version\app.cfg
```

In this user-specific instance of app.cfg, Studio stores the following option/value pair:

```
BASE/AUTH_SERVER_LOC=auth-server-network-host-name:port  
  
Example: BASE/AUTH_SERVER_LOC=d14885.ourCompany.com:21030
```

 **Note:** If your user-specific instance of the app.cfg file is not removed before you upgrade Data Management Studio, the new version of Studio will attempt to authenticate with your previous default server.

You can change your default Authentication Server at any time by selecting **Set as Default**.

Administering the Authentication Server

- [Start or Stop an Authentication Server in Windows](#)
- [Start, Stop, or Display Information for an Authentication Server in UNIX or Linux](#)
- [Backup and Restore the Authentication Data Store](#)
- [Administer Log Files](#)

Start or Stop an Authentication Server in Windows

Follow these steps to start or stop an Authentication Server that is running on a Windows host.

1. On the Authentication Server host, click **Start > Settings > Control Panel**.
2. Double-click **Administrative Tools**.
3. Double-click **Computer Management**.
4. Expand the **Services and Applications** folder.
5. Double-click **Services**.
6. Right-click **DataFlux Authentication Server** and select **Stop** or **Start**. It is recommended that you ask all users to disconnect from the server before you stop it.



Note: Version number differences between the Authentication Server database schema and the Authentication Server itself can terminate the start process. Major version numbers must match. The minor version number of the schema can be 1 less than the minor version number of the server.

Start, Stop, or Display Server Information in UNIX or Linux

Use the script `dasadmin` to start, stop, and display information for an Authentication Server that is running on a host in the UNIX or Linux operating environments.

The `dasadmin` script accepts the following commands:

start - starts the Authentication Server.

stop - stops the Authentication Server.

status - displays the operational status (running, not running) of the Authentication Server.

help - displays usage information for the dfsadmin script.

version - displays version information for the Authentication Server and records the same information in the Authentication Server log file.

To start an Authentication Server on a host that runs UNIX or Linux, enter the following command:

```
install-path/bin/dasadmin start
```

To stop an Authentication Server, use:

```
install-path/bin/dasadmin stop
```

Note that version number differences between the Authentication Server database schema and the Authentication Server itself can terminate the start process. Major version numbers must match. The minor version number of the schema can be 1 less than the minor version number of the server.

Backup or Restore the Authentication Server

Overview

Use this section to backup or restore your users, groups, domains, logins, and shared logins, either in the default transactional database or on Oracle. Also use this section to backup the executable files of your Authentication Server.

Backup Server Files

To back up your Authentication Server executable files, make copies of the following directories and subdirectories.

On Windows, copy the following directories or the equivalent directories at your site:

```
C:\Documents and Settings\admin-id\Application Data\DataFlux\AuthServer
```

Or, on Windows 7:

```
C:\Users\admin-id\Application Data\DataFlux\AuthServer
```

And:

```
C:\Program Files\DataFlux\AuthServer
```

On UNIX or Linux, copy the Authentication Server's home directory, and all of its contents.

Backup or Restore a Transactional Database

The Authentication Server uses a transactional database by default to store users, groups, domains, logins, and shared logins. The database is implemented in a file. The file is required to be stored locally, on the host of the Authentication Server. The name and

location of the database file are specified in the configuration file `as_serv_aspsql.xml`. The location is specified for the entity `ASPSQL_TRANDBF`, as follows:

```
ENTITY ASPSQL_TRANDBF "C:\Program  
Files\DataFlux\AuthServer\server1\var\asdb.tdb">
```

To backup the transactional database file, enter the following `dasutil` command:

```
win-install-path\bin\dasutil backup full-path-to-transdb-backup-file
```

or

```
unix-linux-install-path/bin/dasutil backup full-path-to-transdb-backup-file
```

To restore the transactional database, enter:

```
win-install-path\bin\dasutil restore full-path-to-transdb-backup-file
```

The full path points to a backup file, not to the file that you are backing up, as shown in the following Windows examples:

```
dasutil backup \\myBackupHost\DataFlux\AuthServer\server1\120831asdb.tdb  
dasutil restore \\myBackupHost\DataFlux\AuthServer\server1\120831asdb.tdb
```



Note: If you backup your transactional database with `dasutil`, then you are required to restore your database with `dasutil`.

Backup or Restore an Oracle Database

If you use Oracle to store your users, groups, domains, logins, and shared logins, then locate the Oracle schema that contains the Authentication Server tables. The schema is identified in the configuration file [as_serv_aspsql.xml](#).

Copy the following tables into a new schema, or copy these tables into the same schema using a different name:

DOMAINS

GROUPS

SUBJECTS

SUBJECT_GROUPS

GROUP_GROUPS

PRINCIPALS

PRINCIPAL_MAPS

GROUP_MAP_MGRS

GROUP_MAP_USERS

SUBJECT_MAP_MGRS

SUBJECT_MAP_USERS

VERSION

SENTINEL



Note: These are the default table names. If you changed the names of the tables in the `as_serv_aspsql.xml` configuration file, use the customized names.

Administer Log Files

- [Overview](#)
- [About Appenders and Loggers](#)
- [Change Log Events and Thresholds](#)
- [Initial Log File](#)

Overview

By default, the DataFlux Authentication Server records a selected set of events in a file that is stored on the local host. On Windows, the default path to the log file is:

```
install-path\var\log\as_%d_%S {pid}.log
```

See [Path Conventions](#) for the value of *install-path*. The *d* value becomes the date, the *s* value becomes the server hostname, and *pid* represents the process ID.

In the UNIX and Linux operating environments, the default path to the log file is:

```
$DM_HOME$/DataFlux/DataManagementPlatform/AuthServer/instance-  
name/var/log/as_%d_%S{pid}.log
```

Log events and thresholds are specified in the log configuration file `as_log.xml`. In the Windows operating environment, the default location of that file is:

```
C:\Program Files\DataFlux\AuthServer\server1\etc\as_log.xml
```

About Appenders and Loggers

As shown in the log configuration file `as_log.xml`, the default log configuration consists of one appender and nine loggers. The appenders specify a log output destination. The loggers specify log event types and thresholds.

The `RollingFileAppender` is configured by default to generate a new log file each day and for each invocation of the Authentication Server.

Loggers define the log events that are monitored. Loggers also define a threshold level for each monitored log event. The threshold levels determine the amount of information that is recorded in the log for each event.

The following list of threshold levels is ordered from least-information at the top, to most-information at the bottom:

OFF
FATAL
ERROR
WARN
INFO
DEBUG
TRACE
ALL

The default loggers and thresholds are defined in the following table.

Default Loggers and Thresholds

Logger	Description	Threshold
Cradle	records cradle messages	Info
DataFlux.licensing	records license checks	Warn
Admin	records administrative activity	Info
App	records messages from the Studio client	Info
Audit	records file reads, writes, and deletes	Info
IOM	records messages from other servers	Info
root	threshold applies to all unspecified log events	Error
App.TableServices.SQLDriver	INACTIVE, records database transactions, for use with tech support only	Trace
App.Statement.Statement . ExecDirect	INACTIVE, records statements input from Studio	Trace
App.Statement.Statement . Prepare	INACTIVE, records statements output to Studio	Trace



Note: The three inactive loggers should be enabled only when you are directed to do so by DataFlux technical support.

Change Log Events and Thresholds

The default log configuration captures most of the events that you will need to diagnose server problems. You can change the default log configuration at any time by changing log events and threshold levels. Log changes are generally used to help diagnose errors.

Note that if you opt to receive additional log messages, by using a threshold level of DEBUG, TRACE, or ALL, you may experience a reduction in server performance. In general,

it is recommended that you not select a threshold below INFO when the server is operational in a production environment.

Also note that the logging facility can be adapted to use other appenders and loggers. Please contact DataFlux Technical Support for further information.

To disable a logger or change a logger's threshold level, follow these steps:

1. Open in a text editor the log configuration file `as_log.xml`.
2. To prevent any further collection of log events for a given logger, enclose the logger in comment tags, as in:

```
<!-- Administration message logger -->
  <!--<logger name="Admin"> -->
    <!--<level value="Info"/> -->
  <!--</logger> -->
```

3. To change the threshold of a logger, replace the existing level value with OFF, FATAL, ERROR, WARN, INFO, DEBUG, TRACE, or ALL, as in:

```
<!-- Administration message logger -->
  <logger name="Admin">
    <!-- DEFAULT <level value="Info"/> -->
  <level value="Warn"/>
</logger>
```

4. Save and close the log file.
5. [Restart](#) the Authentication Server.

Initial Log File

Here is the XML log file that is initially installed with the Authentication Server:

```
<?xml version="1.0" encoding="UTF-8"?>
<logging:configuration xmlns:logging="http://www.sas.com/xml/logging/1.0/">

  <!-- Rolling log file with default rollover of midnight -->
  <appender class="RollingFileAppender" name="TimeBasedRollingFile">
    <param name="Append" value="true"/>
    <param name="ImmediateFlush" value="true"/>
    <rollingPolicy class="TimeBasedRollingPolicy">
      <param
name="fileNamePattern"
      value="$home\var\log\as_%d_%S{pid}.log"/>
    </rollingPolicy>
    <layout>
      <param name="HeaderPattern" value="Host: '%S{hostname}',
      OS: '%S{os_family}',
      Release: '%S{os_release}',
      SAS Version: '%S{sup_ver_long2}',
      Command: '%S{startup_cmd}'"/>
      <param name="ConversionPattern"
      value="%d %-5p [%t] %c %X{Client.ID}:%u - %m"/>
    </layout>
  </appender>
```

```

<!-- Cradle message logger -->
<logger name="Cradle">
    <level value="Info"/>
</logger>

<!-- DataFlux licensing message logger -->
<logger name="DataFlux.Licensing">
    <level value="Warn"/>
</logger>

<!-- Administration message logger -->
<logger name="Admin">
    <level value="Info"/>
</logger>

<!-- Application message logger -->
<logger name="App">
    <level value="Info"/>
</logger>

<!-- Audit message logger -->
<logger name="Audit">
    <level value="Info"/>
</logger>

<!-- IOM protocol message logger -->
<logger name="IOM">
    <level value="Info"/>
</logger>

<root>
    <level value="Error"/>
    <appender-ref ref="TimeBasedRollingFile"/>
</root>

<!-- Perf -->
<logger name="Perf.ARM.SQLServices">
    <level value="Warn"/>
</logger>

</logging:configuration>

```

Administering Users, Groups, Domains, Logins, and Shared Logins

- [Overview of Administration Tools](#)
- [Use the Administration Riser](#)
- [Update in Batch with the ASBATCH Utility](#)

Overview

By default, each Authentication Server maintains a database of users, groups, domains, logins, and shared logins, as defined in [About Users, Groups, Domains, Logins, and Shared Logins](#). The database is used for authentication and authorization. Authentication Servers use logins and shared logins to authenticate connection requests for Federation Servers, Data Management Servers, and relational databases. Authorization is implemented in the Data Management Servers and Federation Servers. These servers authorize access to data collections and jobs based on group membership information that is provided by an Authentication Server.

The Authentication Server provides two interfaces that enable you to create and maintain users, groups, domains, logins, and shared logins: the Administration riser in SAS Data Management Studio, and the ASBATCH utility.

The Administration riser provides administrators with read/write access to Authentication Server data. Passwords cannot be displayed, and logins cannot be accessed by default. Non-administrative users can use the Administration riser to display authorized information and add logins to their user definitions.

The ASBATCH utility provides a scripting interface that enables you to update the Authentication Server database during off-peak hours. In the script file that drives the updates, you can use filters to update multiple rows with a single command.

[Using the Administration Riser](#)

[Using the ASBATCH Utility](#)

Use the Administration Riser

Follow these steps to use the Administration riser to create and maintain users, groups, domains, logins, and shared logins on an Authentication Server:

1. Open (Undefined variable: Primary.dfUnityMed).
2. Click the **Administration** riser on the lower left.

3. Expand **Authentication Server** in the tree, right-click an Authentication Server, and select **Open**.

4. Enter a user ID and password.

To create or edit users, groups, domains, logins, or shared logins, you need a login that is listed as an administrator for the current Authentication Server. Administrators cannot add or delete logins other than their own.

If you connect with a login that is not administrative, you can add logins to your user, view memberships in groups, and view the consumers of shared logins.

5. Click a riser to display users, domains, groups, and shared logins. To add or view logins, click the **User** riser.
6. Click icons or right-click to create or maintain users, groups, domains, logins, or shared logins.



Note: When you create users, groups, domains, logins, and shared logins, the Authentication Server may accept special characters that are not accepted in your operating environment. Be sure to follow the naming conventions of your operating environment.

Access User Logins

After an administrator creates a new user definition, the individual who is identified in that user definition adds a password and can also add more logins. Normally, and by default, administrators cannot add, delete, or modify logins. If such access is necessary on a temporary basis, you can enable access, make changes, and then disable access to logins. Similar capabilities are also available in the [ASBATCH utility](#).

Follow these steps to access user logins in the Administration riser:

1. Stop the Authentication Server and edit the configuration file `as_serv_aspsql.xml`.
2. Add the following option to the configuration file:

```
<Option name="AdminLoginManagementPolicy">ADD REMOVE  
UPDATE</AdminLoginManagementPolicy>
```

You can specify any combination of ADD, REMOVE, or MODIFY. When you modify a login, you change the password.

3. Save and close the configuration file.
4. Start the Authentication Server and change logins.
5. Stop the Authentication Server and edit the configuration file.
6. To preserve security, delete the option `AdminLoginManagementPolicy`, and then save and close the file.
7. Restart the Authentication Server.

To query the status of the login management policy, use the following read-only Boolean category items:

- `Server.LoginManagementPolicy.Add`
- `Server.LoginManagementPolicy.Remove`
- `Server.LoginManagementPolicy.Update`

Update in Batch with the ASBATCH Utility

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- [Install ASBATCH](#)
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- [Sample XML and CSV Files for ASBATCH](#)
- [ASBATCH Operators and Options for XML and CSV Files](#)
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ASBATCH Overview

The ASBATCH utility enables you to update the Authentication Server database using a script and an XML or CSV file. You can execute the script at times of minimal server access.

The ASBATCH utility is installed as a selectable component of Federation Server Client software. The system requirements for ASBATCH are the same as those for the Authentication Server.

When you invoke `asbatch.exe`, command-line options point to an XML or CSV file. In the XML or CSV file, operators and options cause ASBATCH to add, modify, or delete users, groups, domains, and logins.



Note: ASBATCH does not add, modify, or delete shared logins. Use the [Administration riser](#) in SAS Data Management Studio for that purpose.



Note: CSV files do not add, modify, or delete groups. Use an XML file for that purpose.

The ASBATCH utility generates an audit file that lists all changes made, and also generates an undo file that enables you to remove newly added users, groups, domains and logins.

You can create a log configuration file that will cause ASBATCH to generate log entries at a specified level of detail.

To execute ASBATCH, you need to log in with an account that is specified separately from the accounts of Authentication Server administrators. You also need to set an option that specifies explicit permission to add, delete, and/or update the data.

Install ASBATCH

Install the ASBATCH utility on any network host, including the host of the Authentication Server.

ASBATCH is installed as a selectable component of the Federation Server Client software. The Federation Server Client software also includes the DataFlux drivers for ODBC and JDBC.

To install ASBATCH, download the Federation Server Client software from <http://www.dataflux.com/Customer-Care/>. Then execute the installer. The installer will present a list of components that are available for installation. Select ASBATCH.

Use ASBATCH

After you [install](#) ASBATCH, follow these steps to use the ASBATCH utility:

1. If you prefer to not include an administrative login in the command that executes `asbatch.exe`, then set the following environment variables in the operating environment:

```
set ASBATCH_UID=asbatch-username
set ASBATCH_PWD=asbatch-password
```



Note: The ASBATCH password will be available in plaintext. To minimize risk, do not set these variables as defaults, and remove the variables or quit your session after you complete your update.

2. [Stop](#) the Authentication Server and edit the configuration file `as_serv_aspsql.xml`.
3. Open the Authentication Server configuration file `as_serv_aspsql.xml`. Add the following option to permit access to logins, and specify the type of access you require.

```
<Option name="AdminLoginManagementPolicy">ADD REMOVE UPDATE </Option>
```

You can specify any combination of ADD, REMOVE, and UPDATE. When you update a login, you replace the password.

4. Save and close the configuration file.
5. Create your ASBATCH script file in XML or CSV format. See [Sample XML and CSV Files for ASBATCH](#) and [ASBATCH Operators and Options for XML and CSV Files](#).
6. Optionally create a configuration file that will cause ASBATCH to generate a log file. See [Generate a Log File for ASBATCH](#).
7. Generate a command line that invokes [asbatch.exe](#).



Note: Be sure to specify file names for the audit file, undo file, and log file.

8. Contact Data Management Studio users as necessary to prevent connections to the Authentication Server during the execution of ASBATCH.
9. [Start](#) the Authentication Server.
10. Execute your ASBATCH command.
11. Review the contents of the audit file and optional log file.
12. To remove the additions that were made by the most recent run of ASBATCH, use the [undo file](#).
13. To preserve security and prevent impersonation, stop the Authentication Server, open the configuration file `as_serv_aspsql.xml`, and delete the option `AdminLoginManagementPolicy`. Save and close the configuration file.
14. In the operating environment, either quit your current session or remove the environment variables `ASBATCH_UID` and `ASBATCH_PWD`.
15. [Start](#) the Authentication Server and contact Data Management Studio users to permit connections to the Authentication Server.

Sample XML and CSV Files for ASBATCH

ASBATCH updates the Authentication Server's database based on the [operators and options](#) that are specified in an XML or CSV file.

The XML or CSV file is opened and read when you invoke `asbatch.exe`.

Sample XML File

In the following example file in XML format, the first line is required, as are the opening and closing ASBATCH tags.

```
<?xml version="1.0" encoding="utf-8"?>
<ASBatch major="major-release-num" minor="minor-num" delta="delta-num">
  <Add>
    <User name="user-name" login="principal-name" domain="domain-name"
      desc="description" />
    <Domain name="ASTEST" desc="Used for testing."
      isLogin="false"
      isCase="false"
      isUPN="false"/>
    <Group name="group-name" owner="group-owner" desc="Group description" />
  </Add>
  <Update>
    <Domain name="domain-name" desc="New domain name" />
    <Group name="group-name" newname="new-group-name" />
    <Group name="group-name" owner="new-group-owner" />
    <Group name="group-name" desc="New description for new group" />
    <User name="old-name" newname="new-name" />
    <User name="name" desc="New description for new name" />
  </Update>
</ASBatch>
```

```

<User filter="description='user description' " desc="New description" />
<User name="name" isEnabled="false" />
<User filter="isEnabled='true' " isEnabled="false" />
<User name="name">
  <Add>
    <Login name="principal-name" domain="domain-name" password="password" />
  </Add>
  <Remove>
    <Login domain="domain-name" />
  </Remove>
  <Update>
    <Login domain="domain-name" password="new-password" />
  </Update>
</User>
<Group name="group-name">
  <Add>
    <User name="user-name" />
    <Group name="group-name" />
  </Add>
  <Remove>
    <User name="user-name" />
    <Group name="user-group" />
  </Remove>
</Group>
</Update>
<Remove>
  <User name="name" />
  <User filter="description=' User description' " />
  <Domain name="dname" />
  <Domain name="dname" isCascade="TRUE" />
  <Domain filter="description=' Domain description' " />
  <Group name="group-name" />
  <Group filter="description=' Group description' " />
</Remove>
</ASBatch>

```

Sample CSV File

The following example of a comma-separated file shows the required descriptor on the first line.

```

TITLE: ,ASBATCH,major=version-major,minor=version-minor,delta=version-delta
ADD_USER: ,name=uname, domain=dname, login=lname, desc=User description
ADD_DOMAIN: ,name=dname, desc=Domain description, isLogin=TRUE, isCase=FALSE, isUPN=NO
UPDATE_USER: ,name=uname, desc=New description
UPDATE_USER: ,filter=description=' User description' , desc=New description
UPDATE_USER: ,name=uname, IsEnabled=FALSE
UPDATE_USER: ,filter=description=' User description' , IsEnabled=FALSE
UPDATE_DOMAIN: ,name=dname, desc=New description
UPDATE_USER_ADD_LOGIN: ,name=uname, domain=dname, password=password
UPDATE_USER_REMOVE_LOGIN: ,domain=dname
UPDATE_USER_UPDATE_LOGIN: ,name=uname, domain=dname, password=new-password
REMOVE_USER: ,name=uname
REMOVE_USER: ,filter=description=' User description'
REMOVE_DOMAIN: ,name=dname
REMOVE_DOMAIN: ,filter=description=' Domain description'
REMOVE_DOMAIN: ,name=dname, isCascade=TRUE

```

ASBATCH Operators and Options for XML and CSV Files

Using an XML file, you can add, update, and remove users, groups, and domains. Using a CSV file, you can add, update, and remove users and domains. Use the Administration riser to maintain shared logins.

For information on valid values for options that take boolean values, see [Valid Values for Boolean Options](#).

Operator - Description	Options	Option Description and Syntax
Add User	name	Name of new user. XML: <Add> <User name="user-name" login="user-id" domain="domain-name" desc="user-description" /> </Add> CSV: ADD_USER: ,name=user-name,domain=domain-name,login=user-id,desc=user-description
	login	User's login for authentication.
	domain	Name of domain that authenticates the login
	desc	User description, 0-256 bytes
	isEnabled	Boolean value of 1 or true enables authentication for the user.
Add Domain	name	Domain name. XML: <Add> <Domain name="domain-name" desc="domain-description" isLogin="boolean" isCase="boolean" isUPN="boolean" /> CSV: ADD_DOMAIN: ,name=domain-name,desc=domain-description,isLogin=boolean,isCase=boolean,isUPN=boolean
	desc	Domain description, 0-256 bytes
	isLogin	Boolean value 1 or true indicates the default domain, user enters login only.
	isCase	Boolean value 1 or true indicates a case-sensitive domain name. A value of 0 or false indicates an all-caps domain name.
	isUPN	Boolean value 1 or true indicates up-level domain (login@domain). A value of 0 or false indicates a down-level domain (domain\login).

Operator - Description	Options	Option Description and Syntax
Add Group - add a new group, in XML only.	name	Group name. XML: <Add> <Group name="group-name" owner="owner-name" desc="group-description" /> </Add>
	owner	Existing user name of group owner.
	desc	Group description, 0-256 bytes.
Remove User, Remove Domain, Remove Group - remove existing entry. Remove group is available in XML only.	name	Name of user, domain, or group to be removed. Use name or filter but not both. XML: <Remove> <User Domain Group filter="option-name='option-value'"/> </Remove> CSV: REMOVE_GROUP: ,filter=match-option-name='match-option-value',isCascade=True
	filter	Removes multiple users, domains, or groups, based on matching option values.
	isCascade	For Remove Groups, 1 or True indicates that any users who belong to the removed group will have that group membership removed. When isCascade=False, the group remove operation fails if any users are still members of that group.
Update User - change descriptions and/or enablement for existing user(s).	name	Name of user. XML 1 of 3 -for one user, change description and/or enablement): <Update> <User name="user-name" isEnabled="boolean-auth-enable-or-disable" desc="new-description" /> </Update> XML 2 of 3 - change description and/or enablement for all users with matching strings in the description option: <Update> <User filter="description='desc-match-string'" desc="new-description" isEnabled=boolean /> </Update> XML 3 of 3 (change descriptions for all matching enablements):

Operator - Description	Options	Option Description and Syntax
		<pre><Update> <User filter="isEnabled='boolean'" desc="new-description" /> </Update></pre> <p>CSV 1 of 3: UPDATE_USER:,name=user-name,isEnabled=boolean,desc=new-desc</p> <p>CSV 2 of 3: UPDATE_USER:,filter=description='desc-match-string',desc=new-description</p> <p>CSV 3 of 3: UPDATE_USER:,filter=isEnabled=boolean,desc=new-value</p>
	desc	Description of user, 0-256 bytes.
	filter	For matching user options, make the specified change.
	isEnabled	Boolean value of 1 or true enables authentication for the user.
Update User Add Login - add login to existing user.	login	<p>User ID for authentication.</p> <p>XML: <pre><Update> <User name=existing-user-name> <Add> <login=new-login domain=new-domain password=new-pwd /> </User> </Update></pre> </p> <p>CSV: UPDATE_USER_ADD_LOGIN:,name=existing-user-name,login=new-login,domain=new-domain,password=new-pwd</p>
	domain	Domain used for authentication.
	password	Password that accompanies the user ID.
Update User Update Login - change existing login, without changing the user ID.	name	<p>Name of an existing login.</p> <p>XML: <pre><Update> <User name="username" domain="new-domain" password="new-password" /> </Update></pre> </p> <p>CSV: UPDATE_USER_UPDATE_LOGIN:,name=existing-user-</p>

Operator - Description	Options	Option Description and Syntax
		<i>name, domain=new-domain,password=new-pwd</i>
	domain	New domain value for existing login.
	password	New password for existing login.
Update User Remove Login - remove a login from an existing user.	domain	<p>Domain of login to be removed.</p> <p>XML:</p> <pre><Update> <User name=existing-user-name> <Remove> <Login domain=domain-name/> </Remove> </User> </Update></pre> <p>CSV:</p> <pre>UPDATE_USER_REMOVE_LOGIN:name=existing-user-name,domain=domain</pre>
Update Domain - change the description of a domain.	name	<p>Name of domain to be updated.</p> <p>XML:</p> <pre><Update> <Domain name=existing-domain-name desc=new-domain-description /> </Update></pre> <p>CSV:</p> <pre>UPDATE_DOMAIN:,name=existing-domain-name, desc=new-domain-description</pre>
	desc	New description for domain, 0-256 bytes.
Update Group - change the name, description, or owner of an existing group, in XML only.	name	<p>Name of group to be updated.</p> <p>XML:</p> <pre><Update> <Group name="existing-group-name" desc="new-description" newname="new-group-name" owner="new-group-owner" </Group> <Update /></pre>
	desc	New group description, 0-256 bytes.
	newname	New group name
	owner	New group owner.
Update Group Add or Remove - add	name	Name of group to be updated, name of user or group to be added or removed.

Operator - Description	Options	Option Description and Syntax
or remove a user or group from an existing group, in XML only.		XML: <Update> <Group name="group-name"> <Add Remove> <User name="user-name" /> <Group name="group-name" /> </Add Remove> </Group> </Update>
	user	Add or remove a user.
	group	Add or remove a group.

Valid Values for Boolean Options in ASBATCH

ASBATCH accepts the following values for boolean options:

Valid values for "true:" TRUE, true, YES, yes, 1, T, t, Y, y

Valid values for "false:" FALSE, false, NO, no, 0, F, f, N, n

ASBATCH Command-Line Options

Use the following options to execute asbatch.exe:

-a | --audit *audit-file-path*

specifies the name and path of the file that ASBATCH generates to record all database changes.

-h | --help

Displays a list of available command line options and exits.

-i | --input *path-to-XML-or-CMV-file*

Specifies the name and location of the XML or CSV file that contains ASBATCH [operators and options](#).

-lc | --log-config-loc *path-to-asbatch-log-config-file*

Specifies the name and location of the file that [configures logging](#) for ASBATCH.

-p | --port *auth-server-port-number*

Specifies the port number used by the target Authentication Server.

-pw | password *plaintext-password*

Specifies the password of the user definition that will be used along with the user and domain options to authenticate ASBATCH. Specify this value only if you choose not to set the environment variable ASBATCH_PWD, as described in [Use ASBATCH](#). This password is displayed in plaintext.

-r | --uri *connection-string*

Specifies an IOM connection string that is used only when the port option is not specified.

-s | --server *server-identifier*

Specifies the name of the host of the target Authentication Server. Valid values are a network name, an IP address, or `localhost`.

-t | --type *type-of-changes-file*

Specifies the format of the input file that specifies database changes. Valid values are XML or CSV. XML is the default.

-u | --user *user-name*

Specifies the name of the user definition that will be used to authenticate ASBATCH, along with the values of the password and domain options. Specify this value only if you choose not to set the environment variable ASBATCH_UID, as described in [Use ASBATCH](#).

-v | --version

Displays ASBATCH version information and exits.

Sample ASBATCH Command

```
C:\ProgramFiles\DataFlux\AuthServer\version\bin\asbatch.exe
--input c:\ProgramFiles\DataFlux\AuthServer\server1\etc\XMLfile1.xml
--audit asboutfile.xml
--port 21030
--server localhost
--user LOCAL\ADMIN -password ADMIN_PASS
--type XML
--logconfigloc c:\ProgramFiles\DataFlux\AuthServer\server1\etc\asbatch_log4sas.xml
```

Use the ASBATCH Audit and Undo Files

When you run ASBATCH, the utility generates an audit file and an undo file. The audit file records all of the changes that ASBATCH makes to the Authentication Server database. The undo file enables you to remove new entries that were added by the last run of ASBATCH. ASBATCH will not remove any new entries that were modified after the last run of ASBATCH.

The names and paths of the audit and undo files are specified by the `audit` option of the [command](#) that executes `asbatch.exe`. The name of the audit file determines the name of the undo file, which is of the form: `audit-fileU.xml`.

To remove new additions with the undo file, edit the `input` option in the previous ASBATCH command. Replace the name and path of the input XML or CSV file with the name and path of the undo file, and then execute the command. ASBATCH generates a new audit to confirm the removals.

The undo file does not replace database entries that were modified or removed. To see a list of modifications and removals, refer to the audit file.

Use the ASBATCH Log File

Default Log Configuration

As you may recall, ASBATCH is installed on a client host, as a selectable component of the Federation Server Client software package. When you install ASBATCH, you receive a log file and a log configuration file. ASBATCH uses those files to collect log entries by default.

The default log file is named `asbatch.log`. The default path for that file is one of the following:

```
win-xp-drive:\Program Files\FedCleint\instance-name\var\log\asbatch.log
```

```
win-32-bit-drive:\Program Files (x86)\DataFlux\FedClient\instance-name\var\log\asbatch.log
```

```
win-64-bit-drive:\Program Files\DataFlux\FedClient\instance-name\var\log\asbatch.log
```

```
unix-or-linux-drive:/opt/dataflux/fedclient/instance-name\var\log\asbatch.log
```

The default instance name is `client1`.

The default path and name of the ASBATCH log configuration file is as follows:

```
install-path/instance-name/etc/asbatch_log.xml
```

Changing the Default Logging Behavior

To change the default logging behavior of ASBATCH, you can edit your existing log configuration file or you can create a new log configuration file. The new log configuration file can point to a new log file in a different location on the local host. For information on setting logging levels, see .

Initial ASBATCH Log Configuration File

The following XML content is delivered in `asbatch_log.xml` when you install ASBATCH:

```
<?xml version="1.0"?>
```

```
<log4sas:configuration xmlns:log4sas="http://www.sas.com/rnd/Log4SAS/">
```

```
  <appender name="LOG" class="FileAppender">
```

```
    <param name="File" value="/home/eredwa/asbatch/asbatch.log"/>
```

```
    <param name="ImmediateFlush" value="true"/>
```

```
    <param name="Append" value="false"/>
```

```
  </layout>
```

```
    <param name="ConversionPattern" value="%d %-5p [%t] %u %c - %m (%F@%L)"/>
```

```
        </layout>
    </appender>

    <root>
        <level value="ERROR"/>
        <appender-ref ref="LOG"/>
    </root>

</log4sas:configuration>
```

About Users, Groups, Domains, Logins, and Shared Logins

- [Overview](#)
- [Domains](#)
- [Users](#)
- [Logins](#)
- [Groups](#)
- [Shared Logins](#)

Overview

Users, groups, domains, logins, and shared logins are records in a database that is maintained by an Authentication Server. By default, the Authentication Server uses a transactional database that resides on the host of the Authentication Server. Each Authentication Server maintains a distinct database, and records are not shared between databases. As an alternative to the default configuration, you can configure your Authentication Server to maintain users, groups, domains, logins, and shared logins in Oracle. Using Oracle, multiple Authentication Servers can share a single set of system tables, with available TCP optimizations between servers. For further information about using Oracle to store authentication objects, see [Configure Oracle to Store Users, Groups, Domains, Logins, and Shared Logins](#).

Database records are created, displayed, edited, and deleted using the [Administration riser](#) in DataFlux Data Management Studio. You can also update the database in batch using an XML or CMV file and the [ASBATCH utility](#).

To connect to an Authentication Server, open the Administration riser in Data Management Studio, expand Authentication Servers, right-click a server, and select **Open**.

Your access to users, groups, domains, logins, and shared logins depends on your role. Passwords cannot be displayed regardless of your role. Administrators can add, edit, and delete all records other than logins, and can update the passwords of shared logins. Owners and managers of groups and shared logins can add and delete members. Users can see their logins. Everyone can see all users and groups.

DataFlux clients and servers query the Authentication Server database for user and group membership information. User and group information is used by clients and servers to manage access to data, jobs, and services.

During operation, database updates are immediately made available to DataFlux clients and servers. Changes and deletions can result in changes to existing connections between DataFlux clients and servers.

Note that when you create or rename records, the Authentication Server may accept special characters that are not accepted in the operating environment. Be sure to follow the naming conventions of your operating environment.

Domains

A domain is named collection of logins that share an authentication provider. The Authentication Server defines domains so that Data Management Studio users can connect to DataFlux servers and database servers in those domains. The domains are associated with logins for authentication.

As an example of how domains are implemented, assume that you have a DataFlux Federation Server that runs on a Windows host in a domain named CHICAGO. To enable a DataFlux Data Management Studio user to connect to that server, you would follow these general steps:

1. You, the administrator, connect to an Authentication Server to create the CHICAGO domain, using the Domains riser. Use the same format that is used on Windows, such as CHICAGO/myLogin or us.ourcorp.chicago.com.
2. Identify the authentication mechanism of the CHICAGO domain in the Authentication Server's configuration file `as_serv_aspsql.xml`, as an added value for the option `AuthProviderDomain`.
3. The Studio user adds a CHICAGO login to his or her user definition.

At this point, the user can request a connection to the Federation Server, authenticate in the CHICAGO domain, and access data based on his or her user definition and group memberships.

When users add logins to a new domain, they can create no more than one login per domain for their one user definition.

If a Studio user logs in without a domain, a default domain is supplied. The default comes from the `PrimaryProviderDomain` option. If that value is not defined, then the default comes from the `AutoAddDefaultDomain` option. If that option has no value, then the Authentication Server uses host authentication.

Domains have properties that determine how they will be submitted for authentication. Domains can be defined as user name only (`userid`), user login name (`userid@domain`), or down-level login name (`domain\userid`). Additionally, domains can be case-sensitive (mixed-case), or case-insensitive (domain entries from users are converted to uppercase before authentication).

Logins

Logins consist of a combination of a user ID and a password. The Authentication Server works with three types of logins:

Inbound logins - are sent from Data Management Studio to the Authentication Server to verify the identity of the user when the user starts the Studio application or when the user connects to the Authentication Server. Inbound logins are also used to establish connections

to DataFlux servers. When a Studio user requests a connection to a DataFlux server, the Authentication Server forwards that user's inbound login to the DataFlux server's domain for authentication. If the user authenticates successfully, the Authentication Server notifies the DataFlux server, and the DataFlux server accepts the connection.

Outbound logins - are submitted to database servers to validate the identity of the users whom request connections to those databases. Outbound logins are defined for each shared login. A shared login enables consumers (users or groups) to access the database using a shared database account. When a user requests a connection to a database server, the Authentication Server confirms that the user is a consumer, and sends the login to the client. The client sends the login to the database to establish the connection. The outbound login is not displayed to the user.

Oracle login - if you choose to store your users, groups, domains, logins, and shared logins in Oracle, the Authentication Server uses an outbound Oracle login to connect to that database, as described in [Configure Oracle to Store Users, Groups, Domains, Logins, and Shared Logins](#).

Administrators define one initial inbound login when they create a new user definition. The user can then add unique logins to his or her user definition. A user definition can have no more than one login for each domain.

Administrators cannot display passwords and they cannot edit another user's logins. However, administrators can edit the outbound logins of shared logins, including the passwords.

Logins can be shared by multiple Authentication Servers if those servers share a single set of system tables in Oracle. Otherwise, each Authentication Server maintains a separate set of logins.

Users

User definitions, or simply "users", are database entries that associate a platform name with one or more logins in the operating environment. Each login consists of a unique combination of a domain, user ID, and password.

A user can be added as a member of a group or added as a consumer of a shared login.

User passwords are not displayed. By default, administrators cannot add or delete logins, or change passwords in a user definitions.

Groups

Groups are collections of users that form categories, often according to work role, such as Payroll, Accounting, and Human Resources. Groups are used to structure authorization to the jobs and data that are stored on DataFlux Federation Servers and Data Integration Servers. The DataFlux servers query their Authentication Servers as needed to determine group membership.

Each group has an owner. The owner of a group owner can edit the group definition, add and delete members, and assign a new owner. The owner is defined from the existing set of user definitions. A group is required to have an owner at all times.

Administrators can add and delete groups, add and delete members, and reassign group owners.

Groups can be members of other groups.

Groups can be designated as consumers of shared logins.

Groups can be designated as managers of shared logins.

Two top-level groups, PUBLIC and USERS, are continuously maintained by the Authentication Server. The PUBLIC group includes all Data Management Studio users who successfully authenticate in the Authentication Server's host environment. PUBLIC users are not required to have a registered user definition on the Authentication Server. This all-inclusive group receives minimal access to data.

The USERS group is a member of the PUBLIC group. The USERS group consists of all PUBLIC users who do have user definitions on the Authentication Server. The USERS group inherits the minimal permissions of the PUBLIC group. Additionally, members of the USERS group can edit their user definitions and group memberships.

By default, members of the PUBLIC group have read access to the group membership information that is displayed in Data Management Studio. You can remove this read access by changing the value of the option [PublicUserGroupManagementPolicy](#).

Shared Logins

Shared logins are collections of users and groups that use outbound logins to connect to database servers. When a Studio user requests a connection to a database, if that user is a *consumer* of a shared login for that database, then the Authentication Server sends the outbound login (database credentials) to the Studio client, and the client connects to the database. The Studio user sees no information about the outbound login.

Consumers of shared logins do not need individual accounts on the respective database servers.

The passwords for outbound logins cannot be displayed.

Administrators can add and delete shared logins and add and delete consumers of shared logins. Administrators cannot delete or replace the outbound login.

Each shared login has a designated owner. The designated owner can be a user or a group. The owner has full access to the shared login, including the ability to read and replace the outbound user ID and password. The owner can also change his login and reassign his or her ownership to another user.

Shared logins have designated managers as well as owners. Managers can be users or groups. Managers can add and delete consumers and read the outbound login. Users that are designated as managers can add and delete memberships in the shared login. Manager

logins are configured on the Federation Server to read the outbound login without revealing that login to the connecting client.

Each shared login has a required key value. You can assign the same key to multiple shared logins. Keys are used by the Shared Login Managers on Federation Servers. The Shared Login Manager uses a login and key value to gain access to one or more shared logins. The Shared Login Manager uses the accessible shared logins to make connections to relational databases.

Appendix: Configuration File Reference

The options in the main Authentication Server configuration file, `as_serv_aspsql.xml`, are defined as follows.

In the Windows operating environment, the default location of the file is:

```
install-path\etc\as_serv_aspsql.xml
```

Note that when you install an Authentication Server, the default configuration file does not contain default entries for all of the following options. To specify a value for an option that does not have a default entry, simply add that option as a new entry.

For information about other configuration files, see [About the Authentication Server Configuration Files](#).

Valid Values for Boolean Options

Options such as `AddUser` and `AutoAddDefaultDomain` accept Boolean values. The valid values for all Boolean options in this configuration file consist of: `TRUE`, `FALSE`, `YES`, `NO`, `Y`, and `N`. Other Boolean values, such as `y`, `n`, `t`, `f`, `1`, or `0`, are inapplicable.

About ENTITY Declarations

In the configuration file, ENTITY declarations are used to define the transactional database that the Authentication Server uses to manage users, groups, domains, logins, and shared logins. DataFlux recommends that you retain the default values of these entities.

If you decide to configure your database on Oracle, then you should comment-out the entity declarations for the transactional database, as directed in [Configure Oracle to Store Users, Groups, Domains, Logins, and Shared Logins](#).

If you use the default transactional database, then you are required to locate the database on the Authentication Server host and specify a full, non-relative, path as the value of the entity `ASPSQL_TRANDBF`.

Options in the Configuration File

[AdminLoginManagementPolicy](#)

[ASPSQLProvider](#)

[AuthProviderDomain](#)

[AutoAddUsers](#)

[CredentialsLocation](#)

[EncryptFIPS](#)

[FIREBIRD_LOG](#)

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[PublicUserGroupManagementPolicy](#)

[SetEnv](#)

[SystemSchema](#)

[TrustedUsers](#)

AdminLoginManagementPolicy

```
<Option name="AdminLoginManagementPolicy">keywords</Option>
```

All administrators are authorized to add users and create one login per user. By default, only users can change their logins. The AdminLoginManagementPolicy option allows administrators to add logins, delete logins, and update logins. Specify any of the following keywords in any order:

ADD – administrators can add user logins
REMOVE – administrators can remove user logins
UPDATE – administrators can reset user passwords.

Example:

```
<Option name="AdminLoginManagementPolicy">ADD REMOVE UPDATE</Option>
```

You can specify any combination of ADD, REMOVE, and/or UPDATE.

None of these values are specified by default.

Specifying this option poses a security risk. As such, you should specify this option only when you need to make a specific change. After the change is made, you should remove this option from the configuration file.

AppendEnv

```
<OptionSet name="AppendEnv">  
  <Option name="your-variable">your-append-value</Option>  
</OptionSet>
```

The AppendEnv option will find the indicated environment variable in the operating environment and append the option value to the end of the existing value. If the environment variable does not exist, then it will be created and set to the option value. The AppendEnv option will not add a delimiter of any sort between the existing and new environment variable value. If a semi-colon (;) is needed, then it must appear as the first character in the option value.

ASPSQLProvider

```
<OptionSet name="ASPSQLProvider">
  <Option name="SystemCatalog">AS</Option>
  <Option name="SystemSchema">schema-name</Option>
  <Option name="MinConnections">1</Option>
  <Option name="MaxConnections">4</Option>
  <Option name="CredentialsLocation">file-path</Option>
</OptionSet>
```

SystemCatalog - specifies the name of the catalog of the Authentication Server database.

SystemSchema - specifies the name of the schema of the Authentication Server database.

MinConnections - specifies the minimum number of connections to keep open to the Authentication Server database.

MaxConnections - specifies the maximum number of connections to keep open to the Authentication Server database. In highly concurrent environments, this value should be raised. Generally speaking, a value of 4 should meet most needs.

CredentialsLocation - specifies the location of the credentials file that is used to connect to the Authentication Server database. This option is not required when you use the default transactional database. When you use Oracle, this option can be used to store the encrypted credentials that the Authentication Server uses to connect to that database. If your site security policy forbids the storage of database credentials, you can enter credentials manually at server startup, or store the credentials in environment variables, as described in [Configure Oracle to Store Users, Groups, Domains, Logins, and Shared Logins](#).

AuthenticationProvider

```
<Option name="AuthenticationProvider">ASPSQL</Option>
```

The **AuthenticationProvider** option identifies the authentication process in the Authentication Server. The named process accesses the Authentication Server database. **ASPSQL** is the only valid value.

AuthProviderDomain

```
<Option name="AuthProviderDomain">authentication-provider:domain-name</Option>
```

Or, for two or a maximum of three domains:

```
<Option name="AuthProviderDomain">(provider1:domain1,
  provider2:domain2,
  provider3:domain3)
</Option>
```

The **AuthProviderDomain** option associates authentication providers with domains. You can specify a maximum of one authentication provider for each domain, and all domain values must be unique. Also, you can specify a maximum of one authentication provider of each type. Valid values for *authentication-provider* are as follows:

ADIR - specifies that authentication is provided by a Microsoft Active Directory server.

HOSTUSER - specifies that authentication is provided by the Authentication Server's host operating system.

LDAP - specifies that authentication is provided by an LDAP directory server.

For Windows, the `domain-name` value should be a case-sensitive name that is recognized on your network. If a domain name contains spaces, use quotation marks around the name. See also [PrimaryProviderDomain](#).

Adding an authentication provider requires additional configuration. The configuration process depends on the provider type and on the operating environment of the Authentication Server host. To configure your new authentication provider, see [About Authentication Providers](#).

AutoAddDefaultDomain

```
<Option name="AutoAddDefaultDomain"/>
```

or

```
<OptionSet name="AutoAddDefaultDomain">  
  <Option name="Enabled">boolean</Option>  
</OptionSet>
```

For valid values, see [Valid Values for Boolean Options](#).

The `AutoAddDefaultDomain` option instructs the Authentication Server to automatically register the host domain if that domain has not already been registered, at server start time, as shown in the following examples:

```
<Option name="AutoAddDefaultDomain"/>
```

or

```
<OptionSet name="AutoAddDefaultDomain">  
  <Option name="Enabled">TRUE</Option>  
</OptionSet>
```

When it is enabled, the `AutoAddDefaultDomain` option creates a domain definition using the value of the option `PrimaryProviderDomain`. The domain is created only if the `PrimaryProviderDomain` is mapped to host authentication in the option `AuthProviderDomain`. For example, on Windows, the `AutoAddDefaultDomain` option is valid when you set the `PrimaryProviderDomain` and `AuthProviderDomain` options as shown:

```
<Option name="AutoAddDefaultDomain"/>  
<Option name="AuthProviderDomain">HOSTUSER:auth-server-domain-name</Option>  
<Option name="PrimaryProviderDomain">auth-server-domain-name</Option>
```

If the domain of the Authentication Server was DATAFLUX, then the option values would be:

```
<Option name="AutoAddDefaultDomain"/>
<Option name="AuthProviderDomain">HOSTUSER:DATAFLUX</Option>
<Option name="PrimaryProviderDomain">DATAFLUX</Option>
```

On UNIX and Linux, the following option values are specified in the configuration file by default after the installation of the Authentication Server:

```
<Option name="AutoAddDefaultDomain"/>
<Option name="AuthProviderDomain">HOSTUSER:UNIXUSER</Option>
<Option name="PrimaryProviderDomain">UNIXUSER</Option>
```

The Authentication Server uses the UNIXUSER domain during authentication if the supplied login does not specify a domain.

The AutoAddDefaultDomain option is not specified by default. Add the option to the configuration file as needed. To summarize the default behavior, when a domain is not specified, the Authentication Server uses the PrimaryProviderDomain if AutoAddDefaultDomain is enabled. Otherwise, the server uses the host authentication provider.

The domain object that is created receives attributes based on the following table:

Attributes of the Default Domain

Domain Attribute	Authentication Server OS	
	Windows	UNIX and Linux
Use as part of login	Yes	No
Logins are case-sensitive	No	Yes

AutoAddUsers

```
<Option name="AutoAddUsers"/>
```

or

```
<OptionSet name="AutoAddUsers">
  <Option name="Enabled">boolean</Option>
  <Option name="DomainFilter">filter-string</Option>
  <Option name="UserIDFilter">filter-string</Option>
</OptionSet>
```

When enabled, the AutoAddUsers option specifies that Authentication Server automatically adds users as they authenticate based on the domain and user ID that they use to connect. Automatically added users receive a single login composed of the inbound user ID, in the domain specified.



Note: The AutoAddUsers option does not automatically add domains.

By default the value of the Enabled option is TRUE.

The shorthand Option element form activates the auto-add feature for all users in all domains. The longer OptionSet element activates the auto-add feature for specified users in specified domains.

For example, to automatically add user definitions for any and all users who login from the BOULDERNT and OURCO domains, add the following specification to the configuration file:

```
<OptionSet name="AutoAddUsers">
  <Option name="DomainFilter">BOULDERNT OURCO</Option>
</OptionSet>
```

The values of the UserIDFilter and DomainFilter options are case-insensitive when they are compared against the logins of connecting users.

Filter option values may contain the wildcard characters, % (percent) and _ (underscore), matching zero or more characters or any one character, respectively.

Clientencryptionlevel

```
<Option name="ObjectServerParms">
  clientencryptionlevel=none | credentials | everything
</Option>
```

This parameter of the ObjectServerParms option determines how Authentication Server data is encrypted for transmission on your network. Valid values include:

none - nothing is encrypted.

credentials - login credentials are encrypted. These credentials are used to authenticate to the Authentication Server.

everything - all client-server network communications are encrypted. This is the default value.

Dnsname

```
<Option name="ObjectServerParms">
  dnsname=dns-ip-address
</Option>
```

This parameter of the ObjectServerParms option specifies the IP address of the Domain Name Servers that is used for authentication. Specify this parameter when the operating environment of your Authentication Server uses Internet Protocol Version 6 (IPv6) addresses.

EnableFIPS

```
<Option name="EncryptFIPS">FALSE</Option>
```

This option enables the Authentication Server to run in compliance with Federal Information Processing Standard 140-2. The default value is FALSE. After you install your Authentication

Server with the DataFlux Secure software, the configuration process can be directed to change the value to TRUE.

FIREBIRD and FIREBIRD_LOG

```
<OptionSet name="SetEnv">
  <Option name="FIREBIRD">install-path\lib\fbembed</Option>
  <Option name="FIREBIRD_LOG">install-path\var\log</Option>
</OptionSet>
```

The FIREBIRD environment variable specifies the installation path of the default transactional database, which is Authentication Server to manage users, groups, domains, logins, and shared logins. The transactional database is required to be stored on the Authentication Server host.

You can reconfigure your Authentication Server to use an Oracle database rather than the transactional database, as described in [Configure Oracle to Store Users, Groups, Domains, Logins, and Shared Logins](#). The Oracle database does not use the options FIREBIRD or FIREBIRD_LOG.

The FIREBIRD_LOG environment variable identifies the directory that stores the log files that are generated by the Authentication Server's transactional database.

In the Windows operating environment, the default values for FIREBIRD and FIREBIRD_LOG are set in the configuration file by the Authentication Server installation process. In the UNIX and Linux operating environments, the Authentication Server startup script dasadmin sets the environment variable FIREBIRD_LOG.

License

```
<OptionSet name="License">
  <OptionSet name="Primary">
    <Option name="Provider">SAS | DATAFLUX</Option>
    <Option name="Location">path</Option>
  </OptionSet>
  <OptionSet name="Secondary">
    <Option name="Provider">SAS | DATAFLUX</Option>
    <Option name="Location">path</Option>
  </OptionSet>
</OptionSet>
```

The License option provides information about the types of license checks that are performed by the Authentication Server. Provider choices are SAS or DATAFLUX, and uppercase is required. Both license methods may be enabled. One method will be identified as the primary license provider, while the other will be the secondary license provider. The Location option specifies the path to the DataFlux license file or the SAS SETINIT. The default path is as follows:

```
install-path\etc\license
```

NetworkEncryptAlgorithm

```
<Option name="NetworkEncryptAlgorithm">algorithm</Option>
```

The NetworkEncryptAlgorithm option specifies the encryption algorithm that is used to encrypt network data transfers between clients and the Authentication Server. Valid values for this option are SASProprietary and AES. The default SASProprietary encryption algorithm uses 56-bit keys. You can upgrade to the 256-bit keys of the AES encryption algorithm by installing the DataFlux Secure software with the Authentication Server software. The configuration process for DataFlux Secure changes the value of this option to AES. For more information, see [Configure Encryption](#).

ObjectServerParms

```
<Option name="ObjectServerParms">  
    auth-server-parameter-options  
</Option>
```

The ObjectServerParms option specifies a series of Authentication Server parameters. The parameters can be specified in any order. The parameters are delimited by blank spaces.

PrependEnv

```
<OptionSet name="PrependEnv">  
    <Option name="your-variable">your-prepend-value</Option>  
</OptionSet>
```

The PrependEnv option will find the indicated OS environment variable and prepend the option value to the beginning of the existing value. If the environment variable does not exist, it will be created and set to the option value. The PrependEnv option will not add a delimiter of any sort between the existing and new environment variable value. If a semi-colon (;) is needed, then it must appear as the last character in the option value.

Port

```
<Option name="Port">21030</Option>
```

The Port option identifies the port that the server runs on. 21030 is the default value.

PrimaryProviderDomain

```
<Option name="PrimaryProviderDomain">your-domain</Option>
```

The PrimaryProviderDomain option specifies the domain that is used first by default when a user submits credentials without a domain. The value of the option must be a domain name that is included in the AuthProviderDomain option set.

If `your-domain` contains spaces, then enclose the name in quotation marks.

PublicUserGroupManagementPolicy

```
<Option name="PublicUserGroupManagementPolicy">READ</Option>
```

The PublicUserGroupManagementPolicy option specifies the access permission that is applied to members of the PUBLIC group. By default, members of the PUBLIC group have

read access to the group membership information that is displayed in Data Management Studio. Groups are displayed after PUBLIC members connect to the Authentication Server and select the Groups riser. To remove read access, either add comment characters around the option above, remove the option text entirely, or remove the READ value. READ is the only valid value for this option.

SetEnv

```
<OptionSet name="SetEnv">
  <Option name="your-variable">your-value</Option>
</OptionSet>
```

The SetEnv option defines environment variables and assigns values to those variables. Use this option to set environment variables that are required for Active Directory and LDAP authentication on the host of the Authentication Server. See the following options FIREBIRD and FIREBIRD_LOG. See also the environment variables that are set for [AuthProviderDomain](#).

SystemUsers

```
<SystemUsers>
  <Option name="Account">domain\uid1</Option>
  <Option name="Account">domain\uid2</Option>
</SystemUsers>
```

The SystemUsers option defines administrative accounts for the Authentication Server. The user IDs must represent existing accounts in the specified domains.

TrustedUsers

```
<OptionSet name="TrustedUsers">
  <Option name="Account">domain\userid1</Option>
  <Option name="Account">domain\userid2</Option>
</OptionSet>
```

The TrustedUsers option set defines the user accounts that are privileged to act on behalf of other users, for the purpose of retrieving information from the Authentication Server. Trusted users are authorized to read Authentication Server data, but not to add, modify, or delete that data.



Note: Because of their differing permissions, trusted users should not also be system users.

Trusted user accounts enable Federation Servers to query relational databases. To execute a relational query, the Federation Server must first obtain group membership information from the Authentication Server for the user who defined the query. This is necessary because the user who defined the query must be authorized on the Federation Server to submit the query and store retrieved data. The user who requested the query only needs permission to make the request.

If the defining user is authorized, then the Federation Server connects to the relational database and submits the query. The relational query is authenticated and authorized on the relational database using a shared login that the Federation Server obtains from the Authentication Server.

Glossary

A

Active Directory

an authentication mechanism in the Windows operating environment, with LDAP-like directory services and DNS-based naming.

administrator

an individual who has been granted access to all authentication objects except for passwords in the configuration file `as_server_aspsql.xml`.

AES encryption

the advanced encryption standard is optionally available on Authentication Servers to encrypt specified network traffic using 256-bit keys.

authentication

the process of verifying the identity of an individual.

authentication data store

a database that contains definitions of domains, users, groups, and shared logins. The database is accessed by an Authentication Server.

authentication mechanism

a program that authenticates users who login to that mechanism's domain.

Authentication Server

a component of the Data Management Platform that provides a central location for the management of connections between the Data Management Studio client, the DataFlux Federation and Data Management Servers, and native database servers.

authorization

the process of determining which users have which permissions for which resources. The outcome of the authorization process is an authorization decision that either permits or denies a specific action on a specific resource, based on the requesting user's identity and group memberships.

C

consumer

a user or group who is allowed to use a shared login to connect to a database.

D

DNS

the Domain Name System uses authoritative servers to assign names in domains and sub-domains. DNS provides translation services between domain names and IP addresses.

domain

a collection of logins designated to be authenticated using the same or like authentication mechanism.

DSN

Database Source Names enable ODBC drivers to connect to data sources.

E

encryption

the act or process of converting data to a form that only the intended recipient can read or use.

G

group

an object in the authentication data store that represents a collection of users and other groups. A group can be a consumer and/or manager of a shared login.

H

host authentication

a process in which a server sends credentials to its host operating system for verification.

L

LDAP

the lightweight directory access protocol is used to access directories or folders. LDAP servers provide an authentication mechanism that can be accessed by Authentication Servers.

login

a DataFlux copy of information about an external account. Each login includes a user ID and belongs to one user or group. Most logins do not include a password.

M

manager

a user or group in the authentication data store that has been granted permission to add and delete consumers from a shared login.

member

a user or group who has been added to a group.

O

ODBC

The Open Database Connectivity Standard is an application programming interface that enables applications to access data from a variety of database management systems.

owner

a user in the authentication data store that has been given permission to add and delete the members of a group. Each group is required to have one and only one owner at all times.

P

PAM

in UNIX and Linux, programmable authentication modules in the operating environment enable authentication across a network.

PUBLIC

this default group, which cannot be edited, contains all users who have authenticated in the host environment of the Authentication Server, but do not have a user definition on the server.

pw

the default authentication mechanism in UNIX and Linux.

S

SASProprietary encryption

the default encryption algorithm for the Authentication Server.

shared login

an object in the authentication data store that associates a collection of users and groups with an outbound login that connects the consumers of that shared login to a database server.

U

user

an object in the authentication data store that associates one or more logins with one individual. A user can be a member of a group, a consumer of a shared login, or be granted access on a DataFlux server.

user definition

same as user. This term is used to differentiate objects in the authentication data store from the individuals who run client applications.

USERS

a default group that includes all individuals who have a user definition and have logged in at least once.