

IBM Security Verify Governance Identity
Manager
10.0

*IBM Security Verify Access Adapter
Installation and Configuration Guide*



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Chapter 1. Overview

An adapter is an interface between a managed resource and the Identity server. The IBM Security Verify Access Adapter uses the IBM Security Directory Integrator function to facilitate communication between the Identity server and IBM Security Verify Access Server.

Adapters can be installed on the managed resource. The Identity server manages access to the resource by using the security system. Adapters function as trusted virtual administrators on the target operating system. The adapter creates, suspends, restores user accounts, and other functions that administrators run manually. The adapter runs as a service, independently of whether you are logged on to the Identity server.

Features of the adapter

The adapter automates several administrative and management tasks.

You can use the IBM Security Verify Access Adapter to automate the following account management tasks:

- Creating new users.
- Creating SSO credentials for users.
- Modifying users' SSO credentials and attributes.
- Changing user account passwords.
- Suspending, restoring, and deleting user accounts.
- Reconciling user, SSO credentials, and user attributes.
- Creating and deleting groups, and modifying their descriptions

Architecture of the adapter

Several components are involved in running and using the adapter. Install all these components so that the adapter can function correctly.

You can do the following actions on an account:

- Add
- Delete
- Modify
- Change Password
- Restore
- Suspend
- Search for account information

The IBM Security Verify Access Adapter consists of IBM Security Directory Integrator AssemblyLines. When an initial request is made by Identity server to the IBM Security Verify Access Adapter, the AssemblyLines are loaded into the IBM Security Directory Integrator server. As a result, subsequent service requests do not require those same AssemblyLines to be reloaded.

The AssemblyLines use the IBM Security Directory Integrator IBM Security Verify Access connector and IBM Security Verify Access User connector to undertake user management-related tasks on the directory server. It does these tasks remotely by using the login user ID and password of a user that has administrator privileges.

Figure 1 on page 2 shows the various components that work together to complete user management tasks in an IBM Security Directory Integrator environment.

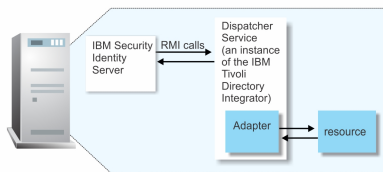


Figure 1. The architecture of the IBM Security Verify Access Adapter

For more information about IBM Security Directory Integrator, see the *IBM Security Directory Integrator: Getting Started Guide*.

Supported configurations

The IBM Security Verify Access Adapter supports a number of different configurations.

There are fundamental components of an IBM Security Verify Access Adapter environment:

- An Identity server
- An IBM Security Directory Integrator server
- A compatible directory server
- The IBM Security Verify Access Adapter.

The IBM Security Verify Access Runtime for Java™ Environment must also be configured on the same Java Runtime Environment (JRE) as used by IBM Security Directory Integrator.

The IBM Security Verify Access Adapter is both highly configurable and highly customizable. Support can extend only to the configuration of the adapter such as adding mapping for more attributes. Support cannot extend to customization by way of changes, additions, or modifications to its IBM Security Directory Integrator Assembly Line scripts for example.

Chapter 2. Planning

Installing and configuring the adapter involves several steps that you must complete in a specific sequence. Follow the roadmap for the main tasks.

Roadmap for IBM Security Directory Integrator based adapters, for IBM Security Verify Governance Identity Manager 10.x

Follow this section when using the guide to install, configure, troubleshoot, or uninstall the adapter.

Pre-installation

Complete these tasks.

1. Verify that your environment meets the software and hardware requirements for the adapter. See *Prerequisites*.
2. Obtain the installation software. See *Software downloads*.
3. Obtain the necessary information for the installation and configuration. See *Installation worksheet*.

Installation

Complete these tasks.

1. Install the dispatcher.
2. Install the adapter binaries or connector.
3. Install 3rd party client libraries.
4. Set up the adapter environment.
5. Restart the adapter service.
6. Import the adapter profile.
7. Create an adapter service/target.
8. Install the adapter language package.
9. Verify that the adapter is working correctly.

Upgrade

To upgrade the adapter, do a full installation of the adapter. Follow the *Installation roadmap*.

Configuration

Complete these tasks.

1. Configure secure communication between the Identity server and the adapter.
 - a. Configure 1-way authentication.
 - b. Configure 2-way authentication.
2. Configure secure communication between the adapter and the managed target.
 - a. Configure 1-way authentication.
 - b. Configure 2-way authentication.
3. Configure the adapter.
4. Modify the adapter profiles.
5. Customize the adapter.

Troubleshooting

See the following topics.

- Techniques for troubleshooting problems
- Configure debugging
- Logs
- Error messages and problem solving

Uninstallation

Complete these tasks.

1. Stop the adapter service.
2. Remove the adapter binaries or connector.
3. Remove 3rd party client libraries.
4. Delete the adapter service/target.
5. Delete the adapter profile.

Reference

See the following topics.

- Adapter attributes and object classes
- Adapter attributes by operations
- Special attributes

Prerequisites

Verify that your environment meets the software and hardware requirements for the adapter.

Table 1 on page 4 identifies hardware, software, and authorization prerequisites to install the IBM Security Verify Access Adapter.

Prerequisite	Description
Operating System	The IBM Security Verify Access Adapter can be used on any operating system that is supported by IBM Security Directory Integrator.
Network Connectivity	TCP/IP network
System Administrator Authority	The person who completes the IBM Security Verify Access Adapter installation procedure must have system administrator authority to complete the steps.

Table 1. Prerequisites to install the adapter (continued)

Prerequisite	Description
Directory Integrator	<p>IBM Security Directory Integrator 7.2 + FP6 + 7.2.0-ISS-SDI-LA0019</p> <p>Note:</p> <ul style="list-style-type: none"> • Earlier versions of IBM Security Directory Integrator that are still supported might function properly. However, to resolve any communication errors, you must upgrade your Directory Integrator release to the versions that the adapter officially supports. • The adapter supports IBM® Security Directory Integrator 7.2, which is available only to customers who have the correct entitlement. Contact your IBM representative to find out whether you have the entitlement to download IBM Security Directory Integrator 7.2.
Identity server	<p>The following servers are supported:</p> <ul style="list-style-type: none"> • IBM Security Verify Governance Identity Manager v10.0 • IBM Security Verify Governance v10.0 • IBM Security Identity Manager v7.0.x • IBM Security Identity Manager v6.0.x • IBM Security Privileged Identity Manager v2.x • IBM Security Identity Governance and Intelligence v5.2.x
IBM Security Verify Access	<ul style="list-style-type: none"> • Version 9.0.0-FP1 • Version 9.0.7.0
Dispatcher	<p>Obtain the dispatcher installer from the IBM Passport Advantage® website: http://www-01.ibm.com/software/howtobuy/passportadvantage/pao_customers.htm.</p>
IBM Security Verify Access Java Runtime (previously known as IBM Tivoli® Access Manager)	<p>Corresponding version to the IBM Security Verify Access Server. The IBM Security Verify Access Adapter supports IBM Security Verify Access versions 7.0, 8.0, 8.01, and 9.0.</p>

For information about the minimal system requirements and supported operating systems for IBM Security Directory Integrator, refer to the *IBM Security Directory Integrator: Administrator Guide*.

Software downloads

Download the software through your account at the IBM Passport Advantage website.

Go to [IBM Passport Advantage](#).

See the corresponding *IBM Security Verify Governance Identity Manager Download Document* for instructions.

Note:

You can also obtain additional adapter information from IBM Support.

Installation worksheet

The installation worksheet lists the information that is required to install and configure the adapter. Complete this worksheet before you start the installation procedure for ease of reference. Make a copy of the worksheet for each adapter instance you install.

Table 2 on page 6 identifies the information that you use to install the IBM Security Verify Access Adapter.

Required information	Description
Administrator account on the managed resource for running the IBM Security Verify Access Adapter.	An administrator account on the managed resource that has administrative rights.
IBM Security Verify Access Administrator account	An administrator account in IBM Security Verify Access with administrative rights. For example, sec_master.

The IBM Security Verify Access Adapter distribution package contains the following adapter profile:

itamprofile.jar

The `itamprofile.jar` profile is used when IBM Security Verify Access is configured against supported LDAP and Active Directory user registries, including Active Directory Application Mode (ADAM) or other supported user registries.

Note: For an IBM Security Verify Governance Identity Manager installation that uses Sun Directory Server, use `itamprofileSunDS.jar` to install the profile.

It extends IBM Security Verify Governance Identity Manager directory schema with:

- IBM Security Verify Access account attributes
- Attributes from the **InetOrgPerson** object class as define in *RFC 2798 "Definition of the inetOrgPerson LDAP Object Class"*
- Attributes that can be mapped to Active Directory attributes

See [Table 5 on page 22](#).

Chapter 3. Installing

Installing the adapter mainly involves importing the adapter profile and creating an adapter service. Depending on the adapter, several other tasks can be involved to completely install it.

Installing the dispatcher

If this is the first Security Directory Integrator-based adapter installation, you must install the RMI Dispatcher before you install the adapter. Install the RMI Dispatcher on the same Security Directory Integrator server where you want to install the adapter.

If you already installed the RMI Dispatcher for another adapter, you do not need to reinstall it.

If you have not yet installed the RMI Dispatcher in the Security Directory Integrator environment, download the Dispatcher installer from the [IBM Passport Advantage](#) website. For more information about the installation, see the *Dispatcher Installation and Configuration Guide*.

Configuring the IBM Security Verify Access Run Time for Java System

The Java Run Time component (JRTE) must be installed on the same system where IBM Security Directory Integrator Server and IBM Security Verify Adapter are installed.

About this task

For more information about installing the JRTE, see the *IBM Security Verify Access: Install Guide*.

To configure JRTE against IBM Security Directory Integrator Server JRE, follow these configuration steps:

Procedure

1. Start the IBM Security Verify Access configuration utility.

Run the command

```
pdconfig
```

2. Select **Access Manager Runtime for Java** from the list of installed packages.
3. Click **Configure**.
4. Select **Full** for configuration type and then click **Next**.
5. Specify the JRE path such as C:\Program Files\ibm\TDI\V7.1\jvm\jre. Then, click **Next**.
6. Specify **Host name**, **Port**, and **Domain**. Then, click **Next**.
7. Optionally enable Tivoli Common logging. Then, click **Finish**. A message that states that JRTE is successfully configured is shown on the screen.
8. Click **Close** to exit the utility.

What to do next

For more information, see the *IBM Security Verify Access: Command Reference*.

Configuring the IBM Security Verify Access Registry Direct API for Java System

You must use the Registry Direct API to improve the adapter performance.

Procedure

Copy the `com.tivoli.pd.rgy.jar` file from IBM Security Verify Access installation directory to IBM Security Directory Integrator JRE installation directory.

On a Linux® IBM Security Verify Access system, the `com.tivoli.pd.rgy.jar` file is typically at:

```
/opt/PolicyDirector/java/export/rgy
```

Copy this file to the following directory on the system where IBM Security Directory Integrator is installed:

```
/opt/IBM/TDI/V7.1/jvm/jre/lib/ext
```

For more information, see Appendix D. Registry Direct Java API in the *IBM Security Verify Access: Administration Java Classes Development Reference*.

Configuring the IBM Security Directory Integrator Java Runtime Environment into the IBM Security Verify Access secure domain

To use IBM Security Verify Access security, the IBM Security Verify Governance Identity Manager adapter must be configured into your IBM Security Verify Access secure domain.

About this task

IBM Security Verify Access provides a utility class `com.tivoli.pd.jcfg.SvrSslCfg` that can be used for configuration and unconfiguration tasks.

You must use the IBM Security Directory Integrator JRE to run the utility.

For example, use the following command to configure the IBM Security Directory Integrator to use the Registry Direct API to connect to IBM Security Verify Access with standard ports and default installation paths:

```
/opt/IBM/TDI/V7.1/jvm/jre/bin/java com.tivoli.pd.jcfg.SvrSslCfg
-action config
-admin_id sec_master
-admin_pwd SEC_MASTER_PASSWORD
-appsvr_id itdi_tam
-port 1234
-mode remote
-policysvr amserver.example.com:7135:1
-authzsvr amserver.example.com:7136:1
-cfg_file /opt/IBM/TDI/V7.1/timsol/tam.conf
-key_file /opt/IBM/TDI/V7.1/timsol/tam.ks
-ldap_mgmt true
-ldap_svrs ldapserver:389:readwrite:5
-ldap_ssl_enable false
```

To set up a slower Administration API for IBM Security Verify Access, use the following command:

```
/opt/IBM/TDI/V7.1/jvm/jre/bin/java com.tivoli.pd.jcfg.SvrSslCfg
-action config
-admin_id sec_master
-admin_pwd SEC_MASTER_PASSWORD
-appsvr_id itdi_tam
-port 1234
-mode remote
-policysvr amserver.example.com:7135:1
-authzsvr amserver.example.com:7136:1
```



```
-cfg_file /opt/IBM/TDI/V7.1/timsol/tam.conf
-key_file /opt/IBM/TDI/V7.1/timsol/tam.ks
```

Note: The Administration API is available as a deprecated option for customers who were using it before the introduction of the Registry Direct API. All new deployments must use the Registry Direct API because the Administration API might not be available in subsequent IBM Security Verify Access releases. The Administration API is only needed in cases where the IBM Security Verify Access repository is not a standard LDAP server.

The `tam.conf` file that is generated in this step is used in a later configuration process.

For more information about configuring IBM Security Verify Access Runtime for Java, see Appendix A. `com.tivoli.pd.jcfg.SvrSslCfg` in *IBM Security Verify Access: Authorization Java Classes Developer Reference* and Appendix D. Registry Direct Java API (“Installation and configuration”) in *IBM Security Verify Access: Administration Java Classes Developer Reference*.

Installing the IBM Security Verify Access Adapter utilities package

The IBM Security Verify Access Adapter utilities package contains Java classes that are used by the IBM Security Verify Access Adapter assembly lines.

Procedure

1. Copy `TAMComboUtils.jar` from the installation package to an appropriate IBM Security Directory Integrator location:

Windows

```
ITDI_HOME\jars\connectors
```

UNIX or Linux

```
ITDI_HOME/jars/connectors
```

2. Restart the Dispatcher service if it is already installed and running.

For information about starting and stopping the Dispatcher service, see the *Dispatcher Installation and Configuration Guide*.

Restarting the adapter service

Various installation and configuration tasks might require the adapter to be restarted to apply the changes. For example, you must restart the adapter if there are changes in the adapter profile, connector, or assembly lines. To restart the adapter, restart the Dispatcher.

The adapter does not exist as an independent service or a process. The adapter is added to the Dispatcher instance, which runs all the adapters that are installed on the same Security Directory Integrator instance.

See the topic about starting, stopping, and restarting the Dispatcher service in the *Dispatcher Installation and Configuration Guide*.

Importing the adapter profile

An adapter profile defines the types of resources that the Identity server can manage. It is packaged with the IBM Security Verify Adapter. Use the adapter profile to create an adapter service on Identity server and establish communication with the adapter.

Before you begin

- You have root or administrator authority on the Identity server.

- The file to be imported must be a Java archive (JAR) file. The `<Adapter>Profile.jar` file includes all the files that are required to define the adapter schema, account form, service/target form, and profile properties. If necessary, you can extract the files from the JAR file, modify the files, and repackage the JAR file with the updated files. The JAR file for IBM Security Verify Governance Identity Manager is located in the top level folder of the installation package.

About this task

Service definition files are also called adapter profile files.

If the adapter profile is not installed correctly, the adapter cannot function correctly. You cannot create a service with the adapter profile or open an account on the service. You must import the adapter profile again.

Procedure

1. Log on to the Identity server by using an account that has the authority to perform administrative tasks.
2. From the navigation tree, select **Configure System > Manage Service Types**.
The **Manage Service Types** page is displayed.
3. On the **Manage Service Types** page, click **Import**.
The **Import Service Type** page is displayed.
4. On the **Import Service Type** page, complete these steps:
 - a) In the **Service Definition File** field, type the directory location of the `<Adapter>Profile.jar` file, or click **Browse** to locate the file.
For example, if you are installing the IBM Security Verify Adapter for a Windows server that runs Active Directory, locate and import the ADProfileJAR file.
 - b) Click **OK** to import the file.

Results

A message indicates that you successfully submitted a request to import a service type.

What to do next

- The import occurs asynchronously, which means it might take some time for the service type to load into the Identity server from the properties files and to be available in other pages. On the **Manage Service Types** page, click **Refresh** to see the new service type. If the service type status is Failed, check the log files to determine why the import failed.
- If you receive a schema-related error, see the `trace.log` file for information about it. The `trace.log` file location is specified by the `handler.file.fileDir` property that is defined in the `enRoleLogging.properties` file. The `enRoleLogging.properties` file is in the Identity server `HOME\data` directory. .

Attribute mapping

Attribute mapping is required to define which target attributes correspond to the Verify Governance account attributes.

About this task

This task involves an account attribute mapping definition file, which is included in the adapter package.

The file consists of Verify Governance account attributes and their equivalent attributes in the managed target. The file is structured as `<IGI_attribute> = <target_attribute>`.

The `<IGI_attribute>` is fixed and must not be modified. Edit only the `<target_attribute>`. Some `<IGI_attribute>` already has a fixed equivalent `<target_attribute>` of `eraccount`.

Some `<IGI_attribute>` do not have a defined `<target_attribute>` and you can assign the mapping. For example:

```
USER_TYPE=USER_TYPE
ATTR1=ATTR1
```

Note:

- The default mapping is already included out-of-the box. If there are no changes to the attribute mapping, there is no need to import the attribute mapping files.
- It might take up to 10 minutes for the attribute mapping changes to take effect once the file is imported.

Procedure

1. Open the mapping definition file by using any text editor.
2. Edit the mapping.
3. If the target attribute has a list of predefined values, use the following syntax to convert its values to the corresponding Verify Governance attribute values.

```
[conversion].<target_attribute>.<IGI_attribute> =
<target_attribute_value1>=<IGI_attribute_value1>;...;
<target_attribute_valuen>=<IGI_attribute_valuen>]
```

4. For attributes that contains date and time, use the following syntax to convert its values. For example:

```
[conversion.date].erbirthdate.BIRTHDAY=[yyyyMMdd=dd/MM/yyyy HH:mm:ss]
[conversion.date].ACCOUNT_EXPIRY_DATE.ACCOUNT_EXPIRY_DATE=
[dd/MM/yyyy HH:mm:ss=dd/MM/yyyy HH:mm:ss]
```

5. Import the updated mapping definition file through the Target Administration module. For more information, see *Attribute-to-permission mapping service* in the IBM Security Verify Governance product documentation.

Creating an adapter service/target

After you import the adapter profile on the Identity server, create a service/target so that Identity server can communicate with the managed resource.

Before you begin

Complete [“Importing the adapter profile” on page 9](#).

About this task

You must create an administrative user account for the adapter on the managed resource. You can provide the account information such as administrator name and password when you create the adapter service. Ensure that the account has sufficient privileges to administer the users. For information about creating an administrative account, see the documentation for the managed resource.

To create or change a service, you must use the service form to provide information for the service. Service forms might vary depending on the adapter. The service name and description that you provide for each service are displayed on the console. Therefore, it is important to provide values that make sense to your users and administrators.

Procedure

1. From the navigation tree, click **Manage Services**.

- The **Select a Service** page is displayed.
2. On the **Select a Service** page, click **Create**.
The **Create a Service** wizard is displayed.
 3. On the **Select the Type of Service** page, click **Search** to locate a business unit.
The **Business Unit** page is displayed.
 4. On the **Business Unit** page, complete these steps:
 - a) Type information about the business unit in the **Search information** field.
 - b) Select a business type from the **Search by** list, and then click **Search**.
A list of business units that matches the search criteria is displayed.
If the table contains multiple pages, you can do the following tasks:
 - Click the arrow to go to the next page.
 - Type the number of the page that you want to view and click **Go**.
 - c) In the **Business Units** table, select business unit in which you want to create the service, and then click **OK**.
The **Select the Type of Service** page is displayed, and the business unit that you specified is displayed in the **Business unit** field.
 5. On the **Select the Type of Service** page, select a service type, and then click **Next**.
If the table contains multiple pages, you can do the following tasks:
 - Click the arrow to go to the next page.
 - Type the number of the page that you want to view and click **Go**.
 6. On either the **Service Information** or **General Information** page, specify the appropriate values for the service instance.
The content of the **General Information** page depends on the type of service that you are creating. The creation of some services might require more steps.
 7. To create a service with NTLM authentication, the administrator login is in the following format:


```
<Domain Name>\<Login Name>
```
 8. For NLTM authentication, select **Authentication** mode as 'Claims-Based Authentication.
 9. On the **Dispatcher Attributes** page, specify information about the dispatcher attributes, and then click **Next** or **OK**.
The **Dispatcher Attributes** page is displayed only for IBM Security Directory Integrator based services.
 10. Optional: On the **Access Information** page, select the **Define an Access** check box to activate the access definition fields. Select the type of access you want to enable.
Specify the expected access information and any other optional information such as description, search terms, more information, or badges.
 11. On the **Status and Information** page, view information about the adapter and managed resource, and then click **Next** or **Finish**.
The adapter must be running to obtain the information.
 12. On the **Configure Policy** page, select a provisioning policy option, and then click **Next** or **Finish**.
The provisioning policy determines the ownership types available for accounts. The default provisioning policy enables only Individual ownership type accounts. Additional ownership types can be added by creating entitlements on the provisioning policy.
Note: If you are creating a service for an identity feed, the **Configure Policy** page is not displayed.
 13. Optional: On the **Reconcile Supporting Data** page, either do an immediate reconciliation for the service, or schedule a supporting data reconciliation, and then click **Finish**.
The **Reconcile Supporting Data** page is displayed for all services except for identity feed services.

The **supporting data only** reconciliation option retrieves only the supporting data for accounts. The supporting data includes groups that are defined on the service. The type of supporting data is defined in the adapter guide.

- Optional: On the **Service Information** or **General Information** page, click **Test Connection** to validate that the data in the fields is correct, and then click **Next** or **Finish**.

If the connection fails, contact the analyst who is responsible for the computer on which the managed resource runs.

Results

A message is displayed, indicating that you successfully created the service instance for a specific service type.

Service/Target form details

Complete the service/target form fields.

SERVICE SETUP Tab

Service name

Specify a name that defines this IBM Security Verify Access Adapter service on the Identity server.

Note: Do not use slash signs "/" "\" in the service name. It is not allowed.

Description

Optionally, specify a description for this service.

IBM Security Directory Integrator location

Specify the URL for the IBM Security Directory Integrator instance. The valid syntax for the URL is `rmi://ip-address:port/ITDIDispatcher`, where *ip-address* is the IBM Security Directory Integrator host and *port* is the port number for the RMI Dispatcher.

The default URL for the default SDI1 instance is `rmi://localhost:1099/ITDIDispatcher`.

Owner

Optionally, specify the service owner.

Service prerequisite

Optionally, specify the service prerequisite.

IBM SECURITY VERIFY ACCESS SETUP tab

IBM Security Verify Access

The IBM Security Verify Access Adapter has two methods for managing IBM Security Verify Access user accounts and groups:

IBM Security Verify Access Administration API

This method is deprecated. It is only provided for use by customers whose IBM Security Verify Access server uses a non-standard LDAP repository.

IBM Security Verify Access Registry Direct API

This method uses the modern IBM Security Verify Access Registry Direct Java API. All deployments must use this method because it provides optimal performance and high availability support. For more information, see [“Optimizing performance” on page 30](#).

Enable GSO Support

If checked, the adapter manages GSO-related account attributes and resource objects. When you manage GSO-related attributes and objects, the adapter uses the IBM Security Verify Access Administration API regardless of the value of the **IBM Security Verify Access API** field in the service form. This is because the Registry Direct API does not support GSO management.

Use group cache on reconciliation

Enabling this option causes the IBM Security Verify Access Adapter to use an internal cache for resolving the group membership information for the users. In some circumstances, this

option might improve the reconciliation performance. For more information, see [“Optimizing performance” on page 30](#). Applies only when **IBM Security Verify Access Registry Direct API** is used.

Reload group cache on each reconciliation

Enabling this option causes the group cache to be reloaded on each reconciliation. For most cases, enable this option so the cache is up-to-date. In some circumstances, it might be useful to disable this option:

- Repeatedly running a full reconciliation for many users during testing.
- Environments in which the group membership information does not change or is irrelevant.

This option applies only when the **Use group cache on reconciliation** option is enabled.

Reconciliation Page Size

Optionally, apply only when you use IBM Security Verify Access Registry Direct API reconciliation.

If a page size other than 0 is specified, the IBM Security Verify Access Adapter uses **page mode** search to obtain user accounts information.

For more information, see [“Reconciliation page size ” on page 41](#).

IBM Security Verify Access Admin User

Specify the IBM Security Verify Access administrator account name (for example, `sec_master`). This account must have enough access rights to manage accounts.

IBM Security Verify Access Admin User Password

Specify the password for the IBM Security Verify Access administrator account.

IBM Security Verify Access Config File

Specify the file name and path for the configuration file that was created by using **SvrSslCfg** with the `-cfg_file` option during step [“Configuring the IBM Security Directory Integrator Java Runtime Environment into the IBM Security Verify Access secure domain” on page 8](#).

The example has this file path: `/opt/IBM/TDI/V7.1/timsol/tam.conf`.

Add Account

Specify the following options for adding IBM Security Verify Access user account:

Create user entry in registry.

Causes the adapter to create a user entry in the directory server registry with a specific DN. If the entry exists, requests for account provisioning fail.

Import user entry from registry.

Causes the adapter to reuse an existing user entry from the directory server registry. If an entry with a specified DN does not exist, the request fails.

Import or create user entry.

Causes the adapter to check whether a user entry with a specific DN exists, and if so, this user entry is used. Otherwise, a new registry entry for the IBM Security Verify Access account is created.

Delete user entry from Registry

If this check box is checked, during the deletion of the IBM Security Verify Access account, the user entry is removed from the directory server registry. If the check box is left cleared, the user entry remains in the registry.

Add group

Specify one of the following options for adding IBM Security Verify Access groups:

Create group entry

Causes the adapter to create a group in the directory server registry with a specific DN. If the entry exists, the group cannot be created.

Import group entry

Causes the adapter to import an existing group entry from the directory server registry. Import fails when the entry with the DN specified does not exist.

Delete group entry from registry

If this check box is checked, during the deletion of the IBM Security Verify Access group, the group entry is removed from the directory server registry. If the check box is left cleared, the group entry remains in the registry.

Synchronize IBM Security Verify Access password in SSO Lockbox

If this check box is checked, during the password change operation, all of the account SSO credentials passwords are synchronized with the new account password.

IBM Security Verify Access Domain Name

Optionally, specify the IBM Security Verify Access Domain Name. If this field is left blank, the default IBM Security Verify Access runtime domain is used.

DISPATCHER ATTRIBUTES Tab

Disable AL Caching

Select the check box to disable the assembly line caching in the dispatcher for the service. The assembly lines for the add operation, modify operation, delete operation, and test operation are not cached.

AL FileSystem Path

Specify the file path from where the dispatcher loads the assembly lines. If you do not specify a file path, the dispatcher loads the assembly lines that are received from Identity server. You can specify the following file path to load the assembly lines from the profiles directory of the Windows operating system:

```
c:\Program Files\IBM\TDI\V7.1\profiles
```

or you can specify the following file path to load the assembly lines from the profiles directory of the UNIX and Linux operating system:

```
/opt/IBM/TDI/V7.1/profiles
```

Max Connection Count

Specify the maximum number of assembly lines that the dispatcher can run simultaneously for the service. Enter 10 when you want the dispatcher to run a maximum of 10 assembly lines simultaneously for the service. You can enter 0 in the **Max Connection Count** field. In this case, the dispatcher does not limit the number of assembly lines that are run simultaneously for the service.

On the Status and information tab

The page contains read only information about the adapter and managed resource. These fields are examples. The actual fields vary depending on the type of adapter and how the service form is configured. The adapter must be running to obtain the information. Click **Test Connection** to populate the fields.

Last status update: Date

Specifies the most recent date when the **Status and information** tab was updated.

Last status update: Time

Specifies the most recent time of the date when the **Status and information** tab was updated.

Managed resource status

Specifies the status of the managed resource that the adapter is connected to.

Adapter version

Specifies the version of the adapter that the service uses to provision request to the managed resource.

Profile version

Specifies the version of the profile that is installed in the Identity server.

TDI version

Specifies the version of the Security Directory Integrator on which the adapter is deployed.

Dispatcher version

Specifies the version of the Dispatcher.

Installation platform

Specifies summary information about the operating system where the adapter is installed.

Adapter account

Specifies the account that running the adapter binary file.

Adapter up time: Date

Specifies the date when the adapter started.

Adapter up time: Time

Specifies the time of the date when the adapter started.

Adapter memory usage

Specifies the memory usage for running the adapter.

If the connection fails, follow the instructions in the error message. Also

- Verify the adapter log to ensure that the test request was successfully sent to the adapter.
- Verify the adapter configuration information.
- Verify service parameters for the adapter profile. You might verify the work station name or the IP address of the managed resource and the port.

Installing the adapter language package

The adapters use a separate language package from IBM Security Verify Governance Identity Manager.

See *Installing the adapter language pack* from the [IBM Security Identity Manager](#) product documentation.

Installing the ILMT tag files

This topic describes the procedures to install ILMT tag files.

About this task

Ensure that the Dispatcher is installed.

Procedure

- Copy the files from **ILMT-Tags** folder to the specified location:
 - Windows: <SDI-HOME>/swidtag
 - Unix/Linux: <SDI-HOME>/swidtag

Verifying that the adapter is working correctly

After you install and configure the adapter, verify that the installation and configuration are correct.

Procedure

1. Test the connection for the service that you created on the Identity server.
2. Run a full reconciliation from the Identity server.
3. Run all supported operations such as add, modify, and delete on one user account.
4. Verify the `ibmdi.log` file after each operation to ensure that no errors are reported.
5. Verify the `trace.log` file to ensure that no errors are reported when you run an adapter operation.

Chapter 4. Upgrading

Upgrading an IBM Security Directory Integrator-based adapter involves tasks such as upgrading the dispatcher, the connector, and the adapter profile. Depending on the adapter, some of these tasks might not be applicable. Other tasks might also be required to complete the upgrade.

Upgrading from adapter version 5.1.12 or older

To upgrade the adapter, you must remove the existing `TAMComboUtils.jar` file and install the new one. You will also need to modify the LDAP schema to allow the new profile to load successfully.

About this task

Note: The location to install the IBM Security Verify Access Adapter utilities JAR file is changed.

Procedure

1. Remove the `TAMComboUtils.jar` from the `ITDI_HOME\jars\3rdparty\IBM\` directory.
2. Copy `TAMComboUtils.jar` from the installation package to the `ITDI_HOME\jars\connectors` directory.
3. Restart the Dispatcher service if it is already installed and running.

For information about starting and stopping the Dispatcher service, see the *Dispatcher Installation and Configuration Guide*.

4. Due to the effort to merge two profiles into one, the LDAP schema Object Identifier (OID) of an existing attribute had to change. When you upgrade the adapter profile from 5.x.13 or earlier, you must do the following steps before you install the new profile:
 - a. Change the following values in `<tds_instance_home>/etc/V3.modifiedschema` of the IBM Security Verify Governance Identity Manager directory server. Change

```
( 1.3.6.1.4.1.6054.3.141.2.35 NAME 'eritamgroupcn' DESC 'TAM Group CN'  
SYNTAX 1.3.6.1.4.1.1466.115.121.1.15 )
```

to

```
( 1.3.6.1.4.1.6054.3.141.2.37 NAME 'eritamgroupcn' DESC 'TAM Group CN'  
SYNTAX 1.3.6.1.4.1.1466.115.121.1.15 )
```

- b. Restart the directory server.

Note: If these steps are not made before you install the new profile, the installation might fail with the following error message in IBM Security Verify Governance Identity Manager `msg.log` or `trace.log`:

```
Failed to Modify Attribute eritamgroupcn:[LDAP: error code 16 - GLPSCH027E  
attribute type '1.3.6.1.4.1.6054.3.141.2.37' does not exist; replace operation  
failed.]
```

Upgrading the dispatcher

The new adapter package might require you to upgrade the Dispatcher.

Before you upgrade the dispatcher, verify the version of the dispatcher.

- If the dispatcher version mentioned in the release notes is later than the existing version on your workstation, install the dispatcher.
- If the dispatcher version mentioned in the release notes is the same or earlier than the existing version, do not install the dispatcher.

The IBM Security Verify Access Adapter now supports the following dispatcher attributes:

- **Assembly Line File System Path**
- **Max Connection Count**
- **Disable Assembly Line Cache**

Upgrade your dispatcher to the latest version to support these new attributes.

Upgrading the adapter profile

The IBM Security Verify Access Adapter distribution package now contains only one main adapter profile: `itamprofile.jar`. It is a merge of the existing `itamprofile.jar` and `itamprofileAD.jar` files.

Use this profile when IBM Security Verify Access is configured against a supported LDAP server, Active Directory, Active Directory Application Mode (ADAM), or other supported user registries.

Note: For an IBM Security Verify Governance Identity Manager installation that uses Sun Directory Server, use `itamprofileSunDS.jar` to install the profile.

To import the profile, see [“Importing the adapter profile”](#) on page 9.

Chapter 5. Configuring

After you install the adapter, configure it to function correctly. Configuration is based on your requirements or preference.

Configuring SSL authentication

To establish a secure connection between the adapter and the Identity server, configure SSL authentication for connections that originate from the Identity server or from the adapter. You can configure the adapter for one-way or two-way SSL authentication with signed certificates.

You must configure secure communication between Identity server and IBM Security Verify Access Adapter.

Secure communication requires that SSL authentication is used between the various components.

You must configure secure communication between:

- Identity server and IBM Security Verify Access Adapter. See [“SSL configuration for Identity server and IBM Security Verify Access Adapter” on page 19](#)

Note: When you configure Secure Sockets Layer (SSL) communication for the adapters that are based on IBM Security Directory Integrator, you must configure SSL between WebSphere Application Server and IBM Security Directory Integrator.

- IBM Security Verify Access Adapter and Policy Server. See [“Configuring the IBM Security Directory Integrator Java Runtime Environment into the IBM Security Verify Access secure domain” on page 8](#)

Note: This communication path is used by the Verify Access Admin API. Even if the adapter is configured to use Registry Direct API, the Admin API is still needed to manage GSO credentials. This pathway is automatically setup for SSL via SvrSslCfg.

- IBM Security Verify Access Adapter and LDAP registry. See [“Configuring Registry Direct API to use SSL” on page 20](#)

Note: The Registry Direct API bypasses the Policy Server and connects directly to the Verify Access LDAP repository. By default, this connection is unsecured, and additional steps are needed to configure it to use SSL.

SSL configuration for Identity server and IBM Security Verify Access Adapter

When you configure Secure Sockets Layer (SSL) communication for the adapters that are based on IBM Security Directory Integrator, you must configure SSL between WebSphere Application Server and IBM Security Directory Integrator.

You must configure the IBM Security Directory Integrator to use SSL. You must also configure WebSphere to use SSL by using the default keystore and default truststore. For more WebSphere SSL configuration information, see the WebSphere online help available from the WebSphere Application Server Administrative Console.

For information about providing SSL communications between the Identity server and the IBM Security Directory Integrator server, see the *Dispatcher Installation and Configuration Guide*.

Configuring Registry Direct API to use SSL

To communicate securely with the Verify Access LDAP repository, you must configure the Registry Direct API to use SSL.

Procedure

1. Retrieve the Certificate Authority signer certificate chain that signed the certificate presented by the LDAP server. Usually there is only one signer certificate involved, but if there is a certificate chain, all signer certificates must be retrieved. Also, if multiple LDAP servers are involved, the signer certificates from all of them must be retrieved. Your LDAP administrator can provide this information.

Note: When using the internal LDAP with the IBM Security Verify Access appliance, the certificate is self-signed. To retrieve the signer certificate, do the following procedures:

- a. Log in to the **Management Interface**.
 - b. In **Secure Settings**, select **Manage System Settings > SSL Certificates**
 - c. Select **embedded_ldap_keys**.
 - d. In **Manage**, select **Edit SSL Certificate Database**.
 - e. Select the **Personal Certificates** tab.
 - f. Select the certificate name, **Server**.
 - g. Select **Manage > Export**.
 - h. Save the file in a temp directory.
2. In the Directory Integrator, `$SOLUTION_DIRECTORY`, open `solution.properties`.
 3. Locate the configuration file for `javax.net.ssl.trustStore`.

Note: This file must contain the signer certification for SSL to work.

4. Run `$ITDI_HOME/jvm/jre/bin/ikeyman`.
5. In `ikeyman`, open the `truststore` file that is defined in the `solution.properties`.

Note:

If you are using the default `serverapi/testadmin.jks` file, the password is 'administrator'.

6. Change the selection from **Personal Certificates** to **Signer Certificates**.
7. Click **Add**.
8. Select the certificate that you retrieved earlier and name it. For example, `ISAM LDAP`.

Note: Repeat for any additional signer certificates in the chain.

9. Exit `ikeyman`.
10. In the Directory Integrator `$SOLUTION_DIRECTORY`, edit the `tam.conf` file that was created by `SvrSslCfg`. Ensure that the following two lines are set to 'true':
 - `ldap.ssl-enable=true`
 - `tls-v11-enable=true`
11. Restart the Directory Integrator Dispatcher process for the changes to take effect.

Customizing the adapter

You can use the configuration options to customize the IBM Security Verify Access Adapter.

The IBM Security Verify Access Adapter supports a standard set of attributes for default object classes that are used in IBM Security Verify Access servers. Because IBM Security Verify Access server requirements vary, you might customize or extend the IBM Security Verify Access Adapter schema to support more attributes or object classes.

Note: The adapter does not support modifying **UID, CN, principal name**, and attributes that form the Distinguished Name (DN).

Customizing the adapter profile

You can customize the adapter profile by enabling various user entry attributes for the default IBM Security Verify Access configurations.

User entry attributes for default IBM Security Verify Access configurations

The adapter profile by default enables on the account form only IBM Security Verify Access attributes.

The attribute labels, names, and types are listed in [Table 3 on page 21](#).

Name	Attribute name in schema	Schema	Note
User ID	eruid	Directory String	
User password	erpassword	Binary	
Password Last Changed	eritampwlastchanged	Directory String	This attribute cannot be modified.
Distinguish Name	eritamdn	DN	
Full Name	cn	Directory String	
Last Name	sn	Directory String	
Description	description	Directory String	
Max number of failed logon	eritammaxfailedlogon	Integer	
Disable time interval	eritamdisabletime	Integer	
Max concurrent web sessions	eritameritammaxwebsessions	Integer	
Max password age	eritameritammaxpwdage	Integer	
Do Not Enforce Password Policy	eritamppolicy	Boolean	
Change Password on Next Login	eritampvalid	Boolean	
Single Signon Capability	eritamsinglesign	Boolean	
Group Membership (multi-value attribute)	eritamgroupname	Directory String	
SSO Credentials (multi-value attribute)	eritamcred	Directory String	
Date of last access	erlastaccessdate	Directory String	
State of the account	eraccountstatus	Integer	

The IBM Security Verify Access Adapter is designed to work with user entry attributes from object classes that are defined in the IBM Security Verify Access configuration. Typically for non-Active Directory configuration, the user entry object classes are **inetOrgPerson**, **organizationPerson** and **Person**. For Active Directory typical configuration, the user entry object class is **User**.

The adapter schema contains attributes from **inetOrgPerson**, **organizationPerson**, and **Person** object classes. These attributes are shown in [Table 4 on page 22](#).

Table 4. The inetOrgPerson attributes supported by the IBM Security Verify Access Adapter

Attribute	Attribute	Attribute
BusinessCategory	homePostalAddress	PreferredLanguage
CarLicense	initials	RegisteredAddress
HomePhone	L	RoomNumber
DepartmentNumber	Mail	Secretary
preferreddeliverymethod	manager	UserPassword
DestinationIndicator	mobile	St
DisplayName	Pager	Street
EmployeeNumber	physicalDeliveryOfficeName	TelephoneNumber
EmployeeType	postalAddress	teletexTerminalIdentifier
FacsimileTelephoneNumber	postalCode	TelexNumber
GivenName	postOfficeBox	Title

The adapter schema also contains attributes from the **User** object class. Table 5 on page 22 lists attributes from the **User** object class only. Some of these attributes have different names in the Identity server schema and Windows Active Directory schema. The names mapping and attribute description are also shown in this table.

Table 5. Mapping of Windows Active Directory User attributes supported by the IBM Security Verify Access Adapter

Windows Active Directory Attribute	IBM Security Directory Server Attribute	Description	Note
accountExpires	ntUserAcctExpires	Account expires on AD Account Tab	IBM Security Directory Integrator does the advanced mapping to support this attribute.
c	c	Country/region on AD Address Tab	
co	co	Country/region on AD Address Tab	
company	company	Company on AD User Organization Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
countryCode	countryCode	Country/region on AD Address Tab	

Table 5. Mapping of Windows Active Directory User attributes supported by the IBM Security Verify Access Adapter (continued)

Windows Active Directory Attribute	IBM Security Directory Server Attribute	Description	Note
department	department	Department on AD User Organization Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
displayName	displayName	Display name on AD General Tab	
facsimileTelephone Number	facsimileTelephone Number	Fax on AD Telephones Tab	
homeDirectory	NTUserHomeDir	Home folder: Local path/To on AD Profile Tab	IBM Security Directory Integrator does the advanced mapping to support this attribute.
homeDrive	ntUserHomeDirDrive	Home folder: Connect on AD Profile Tab	IBM Security Directory Integrator does the advanced mapping to support this attribute.
homePhone	homePhone	Home on AD Telephones Tab	
info	info	Notes® on AD Telephones Tab	
initials	initials	Initials on AD General Tab	
ipPhone	ipPhone	IP phone on AD User Telephones Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
l	l	City on AD Address Tab	
mail	mail	Email on AD General Tab	
manager	manager	DN of manager on AD Organization Tab	
mobile	mobile		

Table 5. Mapping of Windows Active Directory User attributes supported by the IBM Security Verify Access Adapter (continued)

Windows Active Directory Attribute	IBM Security Directory Server Attribute	Description	Note
otherFacsimile TelephoneNumber	otherFacsimile TelephoneNumber	Fax Number (Others) on AD User Telephones Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
otherHomePhone	otherHomePhone	Home Phone (Others) on AD User Telephones Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
otherIpPhone	otherIpPhone	IP Phone Number (Others) on AD User Telephones Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
otherMobile	otherMobile	Mobile Number (Others) on AD User Telephones Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
otherPager	otherPager	Pager Number (Others) on AD User Telephones Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
otherTelephone	otherTelephone	Phone Number (Others) on AD User General Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.

Table 5. Mapping of Windows Active Directory User attributes supported by the IBM Security Verify Access Adapter (continued)

Windows Active Directory Attribute	IBM Security Directory Server Attribute	Description	Note
pager	pager	Pager on AD Telephones Tab	
physicalDeliveryOfficeName	physicalDeliveryOfficeName	Office on AD General Tab	
postalCode	postalCode	Zip/Postal Code on AD Address Tab	
postOfficeBox	postOfficeBox	P.O. Box on AD Address Tab	
profilePath	profilePath	Profile path on AD User Profile Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
sAMAccountName	sAMAccountName	User logon name (preWindows 2000) on AD User Account Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.
scriptPath	ntUserScriptPath	Log on script on AD Profile Tab	IBM Security Directory Integrator does the advanced mapping to support this attribute.
st	st	State/province on AD Address Tab	
streetAddress	streetAddress	Street on AD Address Tab	
telephoneNumber	telephoneNumber	Telephone number on AD General Tab	
title	title	Title on AD Organization Tab	
url	url	Web Page Address (Others) on AD General Tab	
userPrincipalName	userPrincipalName	User logon name on AD Account Tab	

Table 5. Mapping of Windows Active Directory User attributes supported by the IBM Security Verify Access Adapter (continued)

Windows Active Directory Attribute	IBM Security Directory Server Attribute	Description	Note
userWorkstations	ntUserWorkstations	Log On To/Logon Workstations on AD Account Tab	IBM Security Directory Integrator does the advanced mapping to support this attribute.
wWWHomePage	wWWHomePage	Web page on AD User General Tab	To support its management, this attribute is added to the IBM Security Directory Server schema during the importation of the IBM Security Verify Access profile.

Attributes such as **userAccountControl**, non-modifiable attributes such as the **memberOf** and **logonHours** attribute are not supported. These attributes have INTEGER8 syntax; hence it would be difficult to manage them on the account form.

To manage any of the user entry attributes, complete the following steps:

1. Log in to the Identity server as an Administrator.
2. Navigate to **Configuration** and then **Form Customization**.
3. Expand **Account** and then select the **itamaccount** Account.
4. Select the tab where you want to place an attribute.
5. From the attribute list, double-click the attribute to add it to the account form.
6. Click **Save Form Template**.

Adding attributes to Registry Direct reconciliation method

You can add IBM Security Verify Access attributes by modifying the `TamIterRgy` connector within the `TamSearch.xml` assembly line.

About this task

The Registry Direct reconciliation method is optimized to return a minimum set of attributes that are needed to manage an IBM Security Verify Access account. This method enhances performance by not retrieving sets of attributes that are not needed by most deployments. In some cases, however, there is a business need to manage more IBM Security Verify Access account attributes from within Identity server. This procedure allows those attributes to be reconciled by the adapter.

Procedure

1. Add an `inetOrgPerson` attribute or a custom object class attribute by using the Security Directory Integrator 7.1 Configuration Editor. Do the following tasks:
 - a) Open the `tamSearch.xml` **Assembly Line**.
 - b) Select **TamIterRgy**.
 - c) Click **Input Map**.
 - d) Click **Add**.
 - e) Enter the name of the new attribute.
For example, mail.
 - f) Click **OK**.

2. Save the assembly line changes.
3. Package the `itamprofile.jar` to include the modified `TamSearch.xml`.
4. Re-import the `itamprofile.jar` into the Identity server.
5. Restart the RMI dispatcher.

Customizing the adapter workflows to provide credentials password in clear text

The adapter form for the attribute **SSO Credentials** creates a composite **eritamcred** attribute value that is sent to the adapter.

The attribute has this format:

```
<Resource Name> (Web Resource OR Group Resource) |
<Resource Account Name>|<Resource Password Base64 encoded>;
```

To specify initial resource password in a workflow, you must implement base64 encoding of the password.

The following example shows that a resource called `WebRsrc1`, of type `Web Resource`, with resource user ID `resid1` and resource password `pwd01`. The password `pwd01` has base64-encoding:

```
WebRsrc1 (Web Resource) |resid1|cHdkMDE=
```

The adapter offers alternative format for this attribute that makes it possible to specify the resource password in clear text, by putting prefix `{clear}`:

```
<Resource Name> (Web Resource OR Group Resource) |
<Resource Account Name>|{clear}<Resource Password in clear text>
```

This example of a web resource credential has a resource password that is set to “changeMe” concatenated with their surname:

```
WebRsrc1 (Web Resource) |resid1|{clear}changeMe" + subject.getProperty("sn")
```

Alternatively, you can still choose to assign a constant, simple, human-readable resource password. Here is an example of a group resource credential:

```
GroupRsrc2 (Group Resource) |resid2|{clear}tempPwd
```

Note:

- Resource passwords that are prefixed with `{clear}` must not contain the pipe character (`|`).
- There is no space between the string `{clear}` and password.
- If the string `{clear}` is incorrectly typed, the `base64encode` method that is used in the adapter does not report an error. A corrupted password is set.

Customizing the adapter to report corrupted or not well-formed accounts

The adapter user account attributes are the super set of IBM Security Verify Access user attributes and corresponding user registry attributes. During the reconciliation operation, the adapter merged those two sets of attributes into one.

About this task

If directory server is corrupted, some accounts can be corrupted to the point that only account name can be retrieved. By default the adapter is designed to log the error in the dispatcher log file and continue reconciliation.

The behavior can be changed to force reconciliation to stop on first corrupted account event.

Follow these steps to enable this feature:

Procedure

1. Extract the `itamprofile.jar` file by using the following command:

```
jar -xvf itamprofile.jar
```

Note: For an Identity server installation that uses Sun Directory Server, use `itamprofileSunDS.jar`.

Two directories are created:

- a. The directory `itamprofile` contains the adapter profile.
 - b. The directory `META-INF` contains metadata for the JAR file.
2. Delete the `META-INF` directory. It is re-created by repackaging the adapter profile.
 3. Under the `itamprofile` directory, in the `service.def`, change **`dispatcherParameter continueSearchOnMalformedAccount`** to `FALSE` for operation search.

Use the following syntax:

```
<dispatcherParameter name="continueSearchOnMalformedAccount">  
<default>FALSE</default>  
</dispatcherParameter>
```

4. Repackage the file by using the following command from a command prompt:

```
jar -cvf itamprofile.jar itamprofile
```

5. Import the customized profile.
6. Restart the dispatcher.

What to do next

For more information about how to customize adapter profile, see the *Identity server Custom Adapter Developer's Guide*.

Dispatcher configuration properties

Dispatcher configuration properties are set on the IBM Security Directory Integrator.

For information about setting IBM Security Directory Integrator configuration properties for the operation of the IBM Security Verify Access Adapter, see the *Dispatcher Installation and Configuration Guide*.

Using a custom IBM Security Verify Access object class

In some installations, a custom objectclass was added to IBM Security Verify Access accounts to provide more attributes to manage. The IBM Security Verify Access Adapter must be aware of these changes if Identity server is managing them.

About this task

The method for specifying custom objectclasses was changed as of IBM Security Verify Access Adapter 6.0.20. All add and modify provisioning operations are now performed by using the `Registry Direct` API. As a result, custom objectclasses can no longer be specified on the IBM Security Verify Access service form.

Procedure

- Include an extra parameter in the `SvrSslCfg-generated tam.conf` file that is used by Security Directory Integrator to access IBM Security Verify Access.

The following parameter:

ldap.user-objectclass=<yourobjectclass>;<yourobjectclass>;<yourobjectclass>

The specified objectclasses are separated by semi-colons in the list.

For example:

ldap.user-objectclass=customperson;inetorgperson;person

Note: The **ldap.user-objectclass** is not a valid parameter when you use SvrSslCfg to generate the tam.conf file. Rather, it must be added manually to the tam.conf file after it is configured.

Related tasks

[“Adding attributes to Registry Direct reconciliation method” on page 26](#)

You can add IBM Security Verify Access attributes by modifying the TamIterRgy connector within the TamSearch.xml assembly line.

Managing IBM Security Verify Access groups

You can manage IBM Security Verify Access groups by using the IBM Security Verify Access Adapter.

- [“Add Group” on page 29](#)
- [“Modify Group” on page 29](#)
- [“Delete Group” on page 30](#)
- [“Group Operation Notes” on page 30](#)

Add Group

You can add a group by either creating one or importing an existing group. The **Add Group** configuration option is available on the IBM Security Verify Access Service form.

The adapter creates new groups with the default object classes as specified by the IBM Security Verify Access Java Administration API. You cannot specify custom object classes when you use the adapter to create a group. However, you can use the adapter to modify and delete IBM Security Verify Access groups with non-default object classes after they are imported.

When the adapter creates new groups it assigns them to the default group container, which is also specified by IBM Security Verify Access Java Administration API. By default, the adapter places new groups in the object space under /Management/Groups. You cannot specify a different group container when you use the adapter to create a group.

The parameters that are required on the IBM Security Verify Governance Identity Manager Add Group form are **group name** and **Distinguished Name (DN)**. You can also provide an optional **description**. The adapter does not support specifying a **Common Name(CN)** for the group, as the IBM Security Verify Access Java Administration API does not support this parameter. You cannot specify any other group attributes when you add a group.

Modify Group

You can use the IBM Security Verify Access Adapter to modify the group description.

The **description** attribute that is managed by the IBM Security Verify Access Java Administration API is the only group attribute that the adapter can modify. You cannot use the adapter to modify any other attributes present in the group registry entry. These attributes can include the **UID, CN, principal name**, and attributes that form the **Distinguished Name**.

Note: In Active Directory, an existing description cannot be modified to an empty string. This condition is a known limitation in the IBM Security Verify Access Java Administration API. The description remains unchanged if you attempt to modify it to an empty string.

Delete Group

You can use the adapter to delete IBM Security Verify Access groups.

If **Delete group entry from registry** is checked on the IBM Security Verify Access service form, then the entire group object is deleted from the registry. Otherwise, the group is removed from IBM Security Verify Access, but its registry object remains.

Group Operation Notes

Group operations are logged in the IBM Security Directory Integrator `ibmdi.log` log file.

If a group operation is not successful, review the log for more detailed information.

Also, dynamic groups are not supported.

Enabling last login information

The adapter supports reconciling the last login information for determining dormant accounts.

About this task

To enable this feature, all IBM Security Verify Access servers must be configured to record the last login information. For more information about login information and dormant accounts, see the IBM Security Verify Access documentation.

Procedure

- In `webseald.conf`, ensure that the following parameter is set:

```
enable-last-login = yes
```

- Configure the IBM Security Verify Access Policy Server to return the last login information. For example, in `ivmgrd.conf`, set the following parameter:

```
provide-last-login = yes
```

Optimizing performance

Modifying the settings for the Dispatcher, the directory server, reconciliation, and group caching might improve the performance of the system.

Dispatcher tuning

You can modify the setting on the Dispatcher to optimize the performance.

For reconciling many entries, the following Dispatcher tuning settings are suggested for optimal performance:

- Edit `itim_listener.properties` in the IBM Security Directory Integrator installation directory to set **SearchResultSetSize** to a larger value. For example, `SearchResultSetSize=1000`.

This setting reduces the number of times that Identity server must contact the adapter to fetch a subset of entries. Increasing this value causes Identity server and the adapter to use more memory during reconciliation. You might also increase the JVM heap size for the Dispatcher and Identity server.

- Increase the JVM heap size for Dispatcher. For example, on Windows edit the `ibmdiservice.props` file in the adapter `timso1` directory. Set the following property: `jvcmcmdoptions=-Xms1024M -Xmx1024M`

On UNIX systems, edit the IBM Security Directory Integrator server start script. For example, /opt/IBM/TDI/V7.1/ibmdirsrv. Modify the Java command line:

```
"$JRE_PATH/java" -Xms1024M -Xmx1024M -cp "/opt/IBM/TDI/V7.1/jars/3rdparty/IBM/db2jcc_license_c.jar" "-Dlog4j.configuration=file:etc/log4j.properties" -jar "/opt/IBM/TDI/V7.1/IDILoader.jar" com.ibm.di.server.RS "$@"
```

The Dispatcher must be restarted after these changes are made.

See the *Dispatcher Installation and Configuration Guide*.

Directory server performance tuning

Reconciliations retrieve a large amount of data from the IBM Security Verify Access user registry. The reconciliation performance of IBM Security Verify Access Adapter depends on the performance of the user registry.

To achieve the optimal performance, it is suggested that all documented performance tuning settings for the IBM Security Verify Access user registry be implemented.

For example, for IBM Security Directory Server:

- Increase the **search result size limit** to be greater than the total number of entries that are required to be reconciled. For example, edit the `ibmslapd.conf` file to set the following parameter:

```
ibm-slapdSizeLimit: 0
```

- Run **runstat** to help DB2® optimizer to determine the optimal accesses to the database.
- Run **reorgchk** and **reorg** to defragment the DB2 table spaces.
- Enable group members cache. If enough memory exists, set the maximum number of groups to the total number of groups. Set the maximum number of members to the number of members of the largest group. The first reconciliation is slower because it populates the cache.

The tests show that applying the preceding performance tuning settings improves the reconciliation performance especially for many users and groups with many members. This document does not describe all the performance tuning parameters for each user registry that is supported by IBM Security Verify Access. Review and configure all performance parameters to improve the general performance of the IBM Security Verify Access environment and any client that relies on it.

See these publications:

- *IBM Security Directory Server: Performance Tuning and Capacity Planning Guide*
- *IBM Security Directory Server: Administration Guide*
- *IBM Security Verify Access: Performance Tuning Guide*
- Vendor-specific documentation for other user registries that are supported by IBM Security Verify Access

Reconciliation method

Two reconciliation methods exist. Depending on your system, the method that you choose, might affect the performance during reconciliation.

<i>Table 6. Reconciliation methods</i>	
IBM Security Verify Access API used	Menu selection
Administration API	IBM Security Verify Access Administration API
Registry Direct API	IBM Security Verify Access Registry Direct API

Use **Registry Direct API** when the IBM Security Verify Access user registry is an LDAP server. These factors improve performance:

- Use of the **ibm-allgroups** attribute for IBM Security Directory Server.
- Direct access to the user registry instead of using the IBM Security Verify Access Policy Server.
- Use of multiple directory server replicas.

Group cache

Enabling the group cache for **Registry Direct API** reconciliation results in some performance improvement when there are many users and many small or empty groups.

When there are few groups or when the group cache is used within IBM Security Directory Server, the benefit of using the adapter group cache is negligible. In addition, when there are groups with many members (for example, over 50000) using the group cache can negatively affect the reconciliation performance. The cache must be repopulated at the start of each reconciliation.

The group cache stores an internal representation of all users' group membership information. It requires a significant amount of memory. For 1 million users each belonging to 100 groups, approximately 1 GB of extra memory and JVM heap might be required for the adapter.

Chapter 6. Troubleshooting

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and how to resolve the problem. This topic provides information and techniques for identifying and resolving problems that are related to the adapter, including troubleshooting errors that might occur during the adapter installation.

Techniques for troubleshooting problems

Certain common techniques can help with the task of troubleshooting. The first step in the troubleshooting process is to describe the problem completely.

Problem descriptions help you and the IBM technical-support representative find the cause of the problem. This step includes asking yourself basic questions:

- What are the symptoms of the problem?
- Where does the problem occur?
- When does the problem occur?
- Under which conditions does the problem occur?
- Can the problem be reproduced?

The answers to these questions typically lead to a good description of the problem, which can then lead you to a problem resolution.

What are the symptoms of the problem?

When you start to describe a problem, the most obvious question is "What is the problem?" This question might seem straightforward; however, you can break it down into several more-focused questions that create a more descriptive picture of the problem. These questions can include:

- Who, or what, is reporting the problem?
- What are the error codes and messages?
- How does the system fail? For example, is it a loop, hang, crash, performance degradation, or incorrect result?

Where does the problem occur?

Determining where the problem originates is not always easy, but it is one of the most important steps in resolving a problem. Many layers of technology can exist between the reporting and failing components. Networks, disks, and drivers are only a few of the components to consider when you are investigating problems.

The following questions help you to focus on where the problem occurs to isolate the problem layer:

- Is the problem specific to one operating system, or is it common across multiple operating systems?
- Is the current environment and configuration supported?
- Do all users have the problem?
- (For multi-site installations.) Do all sites have the problem?

If one layer reports the problem, the problem does not necessarily originate in that layer. Part of identifying where a problem originates is understanding the environment in which it exists. Take some time to completely describe the problem environment, including the operating system and version, all corresponding software and versions, and hardware information. Confirm that you are running within an environment that is a supported configuration. Many problems can be traced back to incompatible levels of software that are not intended to run together or are not fully tested together.

When does the problem occur?

Develop a detailed timeline of events that lead up to a failure, especially for those cases that are one-time occurrences. You can most easily develop a timeline by working backward: Start at the time an error was reported (as precisely as possible, even down to the millisecond), and work backward through the available logs and information. Typically, you use the first suspicious event that you find in a diagnostic log.

To develop a detailed timeline of events, answer these questions:

- Does the problem happen only at a certain time of day or night?
- How often does the problem happen?
- What sequence of events leads up to the time that the problem is reported?
- Does the problem happen after an environment change, such as upgrading or installing software or hardware?

Responding to these types of questions can give you a frame of reference in which to investigate the problem.

Under which conditions does the problem occur?

Knowing which systems and applications are running at the time that a problem occurs is an important part of troubleshooting. These questions about your environment can help you to identify the root cause of the problem:

- Does the problem always occur when the same task is being done?
- Is a certain sequence of events required for the problem to occur?
- Do any other applications fail at the same time?

Answering these types of questions can help you explain the environment in which the problem occurs and correlate any dependencies. Remember that just because multiple problems might occur around the same time, the problems are not necessarily related.

Can the problem be reproduced?

From a troubleshooting standpoint, the ideal problem is one that can be reproduced. Typically, when a problem can be reproduced you have a larger set of tools or procedures at your disposal to help you investigate. Problems that you can reproduce are often easier to debug and solve.

However, problems that you can reproduce can have a disadvantage: If the problem is of significant business impact, you do not want it to recur. If possible, re-create the problem in a test or development environment, which typically offers you more flexibility and control during your investigation.

- Can the problem be re-created on a test system?
- Do multiple users or applications have the same type of problem?
- Can the problem be re-created by running a single command, a set of commands, or a particular application?

Error messages and problem solving

You might encounter some problems at run time. Use this information to resolve some of these common runtime problems.

Runtime Problems and corrective actions are described in the following table:

Table 7. Runtime Problems

Problem	Corrective Action
<p>Reconciliation does not return all IBM Security Verify Access accounts. It returns 500 or 2048 accounts only.</p>	<p>The default settings for LDAP and IBM Security Verify Access have constraints on the search size limit. The best practice is as follows:</p> <ol style="list-style-type: none"> 1. Modify the IBM Security Directory Server configuration file, <code>ibmslapd.conf</code>. This file is in the <code>etc</code> directory of the IBM Security Directory Server. Set the <code>ibm-slapdSizeLimit</code> variable to 0 (no limit). 2. Modify the IBM Security Verify Access LDAP <code>ldap.conf</code> configuration file in the <code>etc</code> directory of the IBM Security Verify Access Policy Server. Set the <code>max-search-size</code> variable to greater than 2048 (the default setting). Setting the <code>max-search-size</code> to 0 means that the search size is unlimited. 3. Modify the IBM Security Verify Access configuration file, <code>pd.conf</code>, in the <code>etc</code> directory of the IBM Security Verify Access Policy Server. Set the <code>ssl-v3-timeout</code> variable to 84600 (the maximum setting) and set the <code>ssl-io-inactivity</code> variable to 0 (no limit). <p>For ADAM only:</p> <p>Change the <code>MaxResultSetSize</code> and the <code>MaxPageSize</code> attribute to increase the search size limit on ADAM by using <code>dsmgmt</code>. The following example demonstrates setting the value of <code>MaxResultSetSize</code> and <code>MaxPageSize</code> to 200000 with the ADAM Tools Command Prompt:</p> <pre style="background-color: #f0f0f0; padding: 5px;">C:\WINDOWS\ADAM>dsmgmt dsmgmt: LDAP Policies ldap policy: Connections server connections: Connect to server localhost:389 Binding to localhost:389 ... Connected to localhost:389 using credentials of locally logged on user. server connections: Quit ldap policy: Show Values ldap policy: Set MaxResultSetSize to 200000 ldap policy:Set MaxPageSize to 200000 ldap policy:Commit Changes</pre> <p>For more information, see the ADAM Help.</p>

Table 7. Runtime Problems (continued)

Problem	Corrective Action
<p>Reconciliation does not return all IBM Security Verify Access accounts. Reconciliation is successful but some accounts are missing.</p>	<p>For the adapter to reconcile many accounts successfully, you can increase the WebSphere JVM memory. The following steps must be completed on the WebSphere host computer:</p> <p>Note: Do not increase the JVM memory to a value higher than the System memory.</p> <ol style="list-style-type: none"> 1. Log in to the WebSphere Administrative Console. 2. Expand Servers in the left menu and select Application Servers. 3. A table displays the names of known application servers on your system. Click the link for your primary application server. 4. Select Process Definition from within the Configuration tab. 5. Select the Java Virtual Machine property. 6. Enter a new value for the Maximum Heap Size. The default value is 256 MB. <p>The allocated JVM memory might not be large enough. In this case, an attempt to reconcile many accounts by using the IBM Security Verify Access adapter results in log file errors. The reconciliation process is not completed successfully. The adapter log files contain entries that state <code>ErmpduAddEntry failed</code>. The <code>WebSphere_install_dir/logs/itim.log</code> file contains <code>java.lang.OutOfMemoryError</code> exceptions.</p>
<p>The reconciliation of large numbers of IBM Security Verify Access accounts times out</p>	<p>During the reconciliation of large numbers of IBM Security Verify Access accounts (in the hundreds of thousands or millions), initialization of the reconciliation might take some time. This delay is hardware and performance-tuning dependent. Problems might occur as a result of timeout issues if you have IBM Security Directory Server and DB2 configured against your IBM Security Verify Access Policy Server. Refer to the IBM Security Directory Server user guides for information about configuring the <code>ibm-slapdIdleTimeOut</code> value in the <code>ibmslapd.conf</code> file. As a guideline, this value can be increased to greater than 10,000 for the reconciliation of approximately 5 million accounts.</p>
<p>A search filter with an asterisk character returns more accounts than expected</p>	<p>A Search Filter can be specified for the IBM Security Verify Access reconciliation query. You can provide an LDAP filter in the Query page to specify a subset of accounts only (no supporting data) to be included in the reconciliation.</p> <p>Both the IBM Security Verify Access Administration API and Registry Direct API reconciliation methods support IBM Security Verify Access user account filtering. A subset of user accounts might be required. In this case, a Search Filter can be supplied that conforms to the IBM Security Verify Access pattern that was used to list User accounts.</p> <p>For example, a Search Filter to reconcile a subset of IBM Security Verify Access User accounts that include JaneDoe, JonDoe and JimDolt might be: <code>(eruid=J*Do*)</code>. The pattern for the <code>eruid</code> attribute is interpreted as a literal string. The asterisk (*) character, which is interpreted as a metacharacter that matches zero or more characters is the exception. Asterisks can be at the beginning, in the middle, or at the end of the pattern, and the pattern can contain multiple asterisks.</p>

Table 7. Runtime Problems (continued)

Problem	Corrective Action
<p>Enabling the option Do not reconcile SSO credentials removes all credentials IBM Security Verify registry.</p>	<p>Selecting this check box removes any current account credentials from IBM Security Verify registry after first successful reconciliation. The Identity server considers any non-returned credential to mean that the credential no longer exists for the account.</p> <p>However, it is possible to retain any credentials that were reconciled previously by excluding the SSO credentials attribute from the reconciliation query.</p>
<p>The Test operation failed.</p>	<p>During a test of the IBM Security Verify Access service, the following message might be observed:</p> <pre data-bbox="646 590 1461 863"> CTGIMT605E An error occurred while processing the CTGIMT401E An error occurred while starting the tamTest_TAMCombo on my_server-requestid_4329bac6- 28ad-11b2-d8dc-00000930ab5b agent. Error: java.lang.NoClassDefFoundError: com/tivoli/pd/jutil/PDException operation on the IBM Security Directory Integrator server. Error: {1} </pre> <p>This error might be because of either of the following reasons:</p> <ul style="list-style-type: none"> • The IBM Security Directory Integrator JVM is not configured with IBM Security Verify Access. • The Dispatcher was not stopped and restarted to pick up the change. <p>Ensure that the IBM Security Verify Access Runtime for Java is installed and configured correctly. Alternatively, restart the Dispatcher as described in the <i>Dispatcher Installation and Configuration Guide</i>.</p>
<p>When you use the Registry Direct API, the first request after an extended time takes a long time to complete.</p>	<p>By default, the connection between the IBM Security Verify Access Registry Direct API and the LDAP servers is open indefinitely. If the connection is closed by a firewall, it might take 15-20 minutes for the API to detect this outage and open a new connection.</p> <p>In that situation, the following setting must be added to the <code>tam.conf</code> file used by the IBM Security Verify Access Adapter:</p> <pre data-bbox="646 1461 1461 1503"> ldap.connection-inactivity = <value in seconds> </pre> <p>This setting must be set lower than the firewall stale connection timeout value. After you update the <code>tam.conf</code> file, restart the Directory Integrator process.</p>

Reconciliation of supporting data

You can use search filters to limit the reconciliation of attributes such as **group names**.

The reconciliation of only **group names** is not currently supported. You can use a search filter to limit the attributes that are returned. For example:

```
(exitamgroup=pattern)
```

All supporting data can be reconciled by using the search filter in the reconciliation query. To reconcile supporting data only, the following search filter can be used:

```
(!(objectclass=eritamaccount))
```

Such a filter reconciles all non-account information.

Chapter 7. Uninstalling

To remove an adapter from the Identity server for any reason, you must remove all the components that were added during installation. Uninstalling an IBM Security Directory Integrator based adapter mainly involves removing the connector file, and the adapter profile from the Identity server. Depending on the adapter, some of these tasks might not be applicable, or there can be other tasks.

About this task

Uninstalling the adapter requires the removal of the JAR file and the removal of the adapter profile from Identity server.

Note: The Dispatcher component must be installed on your system in order for adapters to function correctly in an IBM Security Directory Integrator environment. If you delete the adapter profile for the IBM Security Verify Access Adapter, do not uninstall the Dispatcher.

Procedure

1. Stop the adapter service.
2. Remove the `TAMComboUtils.jar` file.
3. Start the adapter service.
4. Delete the IBM Security Verify Access profile from Identity server.

Chapter 8. Reference

Reference information is organized to help you locate particular facts quickly, such as adapter attributes, registry settings, and environment variables.

Adapter attributes and object classes

Adapter attributes and object classes are required for customization, creating provisioning rules, and understanding what service/target attributes are supported by the adapter. The Identity server communicates with the adapter by using attributes, which are included in transmission packets that are sent over a network.

For more information about IBM Security Verify Access Adapter attributes, see [“User entry attributes for default IBM Security Verify Access configurations”](#) on page 21.

Reconciliation page size

Page mode causes the directory server to return a specific number of entries in multiple chunks instead of all entries in a single chunk. The chunks are also called pages.

Not all directory servers support this option. Verify whether your directory server supports Page Mode before you use this option.

If your directory service supports Page Mode, use the **SearchResultSetSize** value of the Dispatcher **itim_listener.properties** file for this value.

To locate this value, see the *Dispatcher Installation and Configuration Guide*.

High availability support

Support for high availability is provided by the Verify Access Registry Direct API, which eliminates the dependency on the IBM Security Verify Access policy server.

You can configure the Registry Direct API against multiple directory servers for failover as well as load balancing. Due to limitations in Registry Direct API, high availability is not supported for:

- Active Directory and Domino user registries
- IBM Security Verify Access older than version 6.1 fix pack 6
- GSO management, including the lifecycle management of GSO enabled accounts

For more information about configuring Registry Direct API, see Appendix D that describes Registry Direct Java API installation and configuration in version 6.1.1 of the *IBM Tivoli Access Manager for e-business: Authorization Java Classes Developer Reference*.

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