Dell™ One Identity Manager 7.1.3

LDAP Connector for IBM® AS/400 Reference Guide

Legend

△ **CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.**

⚠ **WARNING: A WARNING icon indicates a potential for property damage, personal injury, or death.**

ⓘ **IMPORTANT**, **NOTE**, **TIP**, **MOBILE**, or **VIDEO:** An information icon indicates supporting information.

One Identity Manager LDAP Connector for IBM® AS/400 Reference Guide
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Contents

1

Initializing and Configuring the LDAP Connector for IBM® AS/400

This document describes how to initialize and configure the AS/400 LDAP connector into an existing One Identity Manager system. This enables a One Identity Manager system to access, read and update data stored on an AS/400 system.

NOTE: Although the AS/400 system has been given more recent names such as iSeries and System i, it will be referred to as AS/400 throughout this document.

Detailed information about this topic

Pre-requisites

- The AS/400 computer must have IBM AS/400 Directory Services installed and configured.
- A service account must be created on your AS/400 server which has the appropriate permissions to administer users and groups on this platform:
  - Security administrator (*SECADM) special authority rights;
  - Object management (*OBJMGT) rights over the user profile accounts that are to be managed;
  - Use (*USE) rights over the user profile account(s) that are to be managed;
  - The service account must be set up as a projected user.

NOTE: Before attempting to connect to the AS/400 Directory Services LDAP Server with the One Identity Manager connector, it is recommended to first check that the LDAP server is running correctly. This can be tested with any LDAP browser for example the `LDP.exe` tool from Microsoft. For more information, see your LDAP browser documentation.

Platform Support

- The AS/400 LDAP connector has been verified for synchronization against os-400 V7R1 or later.

How to initialize and configure the AS/400 LDAP connector

NOTE: The following sequence describes how you configure a synchronization project if the Synchronization Editor is in expert mode.

To set up initial synchronization project for AS/400

1. Start the Synchronization Editor and log in.
2. From the start page, select **Start a new synchronization project**.

   This starts the Synchronization Editor's project wizard.
3. Select **AS/400 LDAP Connector** on the **Choose target system** page.
4. On the **System access** page, click **Next**.
5. On the **Create system connection** page, select **Create new system connection**.
6. On the system connection wizard start page, click **Next**.
7. On the **Network** page:
   a. In the **Server** field, enter the DNS name or IP address of your mainframe server.
   b. In the **Port** field, enter the port number.
   c. Click on the **Test** button to make sure the server is accessible.
   d. IBM AS/400 Directory Services supports LDAP v3. Enter the number 3 in the **Protocol version**.
   e. If SSL is to be used, check the **Use SSL** box.
8. On the **Authentication** page:
   a. Set the **Authentication method** to "Basic".
   b. In the **Credentials** section, enter the full DN and password of the administrator account on your AS/400 system.
   c. Click **Test** to check that the credentials are valid.
9. The schema will be loaded from the AS/400 system.
10. Ignore the **Define virtual classes** page. Click **Next**.
11. On the **Search options** page:
    a. In the **Base DN** drop-down list, select the correct base DN for your system. It should begin with `OS400-SYS=`.
    b. Ignore the **Use paged search** check box.
12. Ignore the **Modification capabilities** page. Click **Next**.
13. Ignore the **Auxiliary class assignment** page. Click **Next**.

14. On the **System attributes** page, in the **Revision properties** section, deselect the "createTimestamp" and "modifyTimestamp" entries by double clicking on them.
15. Ignore the **Select dynamic group attributes** page. Click **Next**.
16. Ignore the **Password settings** page. Click **Next**.
17. Click **Finish**.

    This takes you back to the Synchronization Editor's project wizard.
18. Enter the database connection data on the **One Identity Manager connection** page.
19. This will load the AS/400 schema into your One Identity Manager. Wait for this to complete.
20. On the **Select project template** page, select **Create blank project**.
21. On the **General** page, enter a display name for your synchronization project and set a scripting language if required.
22. Click **Finish** to complete the project wizard.
23. Select **Activate project** to activate the project.

System Variables

The following system variables need to be defined for the attribute mappings. For more detailed information about variables, see the Dell One Identity Manager Target System Synchronization Reference Guide.

Table 1: System variables

Name	Value
IdentDomain	The name of your AS/400 domain e.g. `AS400_001`
UserLocation	Parent DN of your AS/400 user container, e.g. `CN=ACCOUNTS,OS400-SYS=AS4001.MYCOMPANY.COM`
GroupLocation	Parent DN of your AS/400 group container, e.g. `CN=ACCOUNTS,OS400-SYS=AS4001.MYCOMPANY.COM`

Related Topics

- Domain Filter Setting on page 6
- Property Mapping Rules on page 8
- Property Mapping Rules on page 13

Domain Filter Setting

A domain filter needs to be created to identify information that has been retrieved from the AS/400 database to keep it separate from other imported data.

1. Update the One Identity Manager schema so that all entries are included.
    a. In the Synchronization Editor, open your AS/400 project.
    b. Select the category **Configuration | One Identity Manager connection**.
    c. Then in the "General" section on the right-hand side, click **Update schema**.
    d. Click on **Yes** in the next two dialog boxes.
    e. Click **Ok** when completed.
2. In the Manager
    a. Select the category **LDAP | Domains**.
    b. In the result list toolbar, click  .
    c. Enter at least the following general master data on the **General** tab.

    Table 2: Domain Master Data

Property	Description
Display name	Display name e.g. `AS400 Domain 001`
Distinguished name	Distinguished name of the domain e.g. `OS400-SYS=AS4001.MYCOMPANY.COM`
Domain	Domain name e.g. `AS400_001`
Structural object class	Structural object class representing the object type, enter `DCOBJECT`

    d. Save the changes.
3. In the Synchronization Editor, open your AS/400 project.
    a. Select the category **Configuration | One Identity Manager connection**.
    b. Select the **Scope view** and click **Edit scope**.
    c. Select the object type `LDPDomain` in the **Scope hierarchy** list and set the **Object filter** to: `Ident_Domain ='$IdentDomain$'`.
    d. Save the changes.

For more detailed information about scopes, see the Dell One Identity Manager Target System Synchronization Reference Guide.

Related Topics

- System Variables on page 6

User Mapping Information

This section shows a possible mapping between a user account in AS/400 and the standard One Identity Manager database table called `LDAPAccount`. User and group information on the AS/400 is stored in the same container, so a filter needs to be set up to tell these apart.

- When creating the user mapping, add a new schema class as follows.

  Table 3: Schema class settings

Property	Value
Schema type	os400-usprf
Display name	user_os400_usrprf
Class name	user_os400_usrprf
Select objects: Condition	os400_gid='*NONE'
Select objects: Ignore case	Activated

- Map the `LDAPAccount (all)` schema class to this new schema class, `user_os400_usrprf` for this user mapping.

For more detailed information about setting up mappings, see the Dell One Identity Manager Target System Synchronization Reference Guide.

Detailed information about this topic

- Mandatory AS/400 User Attributes on page 8
- Property Mapping Rules on page 8
- Object Matching Rules on page 10
- Sample User Mapping on page 12

Mandatory AS/400 User Attributes

When creating a user in the AS/400 database, the following LDAP attributes must be defined:

- objectclass
- os400-profile

Related Topics

- Property Mapping Rules on page 8
- Object Matching Rules on page 10

Property Mapping Rules

- CanonicalName ← vrtEntryCanonicalName

  `vrtEntryCanonicalName` is a virtual property, set to the canonical name of the object in the connector.

  Sample value:

  `AS4001.MYCOMPANY.COM/ACCOUNTS/USER1234`

- cn ←→ os400-profile

  On the AS/400 system, `os400-profile` is the user ID.

  Sample value:

  `USER1234`

- DistinguishedName ← vrtEntryDN

  `vrtEntryDN` is a virtual property, set to the DN of the object in the connector. Once this mapping rule has been created, edit the mapping rule by clicking on it. Then check the box marked **Force mapping against direction of synchronization**.

  Sample value:

  `os400-profile=USER1234,CN=ACCOUNTS,OS400-SYS=AS4001.MYCOMPANY.COM`

- ObjectClass ←→ objectClass

  The `objectClass` attribute (multi-valued) on the AS/400 system. Activate the check box **Ignore case sensitivity**.

  Sample value:

  `TOP;OS400-USRPRF`

- StructuralObjectClass ← vrtStructuralObjectClass

  `vrtStructuralObjectClass` on the AS/400 system defines the single object class for the object type.

  Sample value:

  `OS400-USRPRF`

- UID_LDPDomain ← vrtIdentDomain

  Create a fixed value property variable on the AS/400 side called `vrtIdentDomain` that is set to the value `$IdentDomain$`. Map this to `UID_LDPDomain`. This will cause a conflict and the Property Mapping Rule Conflict Wizard opens automatically.

  To solve the conflict

  1. In the Property Mapping Rule Conflict Wizard, select the first option and click **OK**.
  2. On the **Select an element...** page, select **Ident_Domain** and click **OK**.
  3. Confirm the security prompt with **OK**.
  4. On the **Edit property...** page,
     a. Deactivate **Save unresolvable keys**.
     b. Activate **Handle failure to resolve as error**.
     c. To close the Property Mapping Rule Conflict Wizard, click **OK**.

  Sample value:

  `AS400_001`

- vrtParentDN → vrtEntryParentDN

  Create a fixed value property variable on the One Identity Manager side called `vrtParentDN` equal to a fixed string with value `$UserLocation$`. Map this to `vrtEntryParentDN` on the AS/400 side.

  Sample value:

`CN=ACCOUNTS,OS400-SYS=AS4001.MYCOMPANY.COM`

- vrtRDN → vrtEntryRDN

  Create a new variable on the One Identity Manager side of type "Format Defined Property" with name `vrtRDN`. Set its value to `os400-profile=%CN%`. Then map this to `vrtEntryRDN` on the AS/400 side.

  Sample value:

  `os400-profile=USER1234`

- userPassword → os400-password

  Used to change a user's AS/400 password. A condition needs to be set on this rule to map the password only when there is a value to be copied.

  To add a condition

  1. Create the mapping.
  2. Edit the property mapping rule.
  3. Expand the **Condition for execution** section at the bottom of the dialog.
  4. Click on **Add condition** and set the following condition (a blank password is indicated by using two apostrophe characters).

     `Left.UserPassword<>''`

- UID_LDAPContainer ← vrtEmpty

  This is a workaround needed to support group mappings. Create a new fixed value variable on the AS/400 side of type "String" with no value called `vrtEmpty`. Map this to `UID_LDAPContainer`. This generates a property mapping rule conflict.

  To solve the conflict

  - In the Property Mapping Rule Conflict Wizard, highlight **Select this option if you do not want to change anything** and click **OK**.

Related Topics

- Mandatory AS/400 User Attributes on page 8
- System Variables on page 6
- Object Matching Rules on page 10
- Sample User Mapping on page 12

Object Matching Rules

- DistinguishedName (primary rule) vrtEntryDN

  `vrtEntryDN` is a virtual property, set to the DN of the object in the connector. This forms a unique ID to distinguish individual user objects on the AS/400 system.

To convert this mapping into an object matching rule

1. Select the property mapping rule in the rule window.
2. Click  in the rule view toolbar.

   A message appears.
3. Click **Yes** to convert the property mapping rule into an object matching rule and save a copy of the property mapping rule.
4. Open the new object matching rule in the top window and uncheck the option **Case sensitive**.

Sample value:

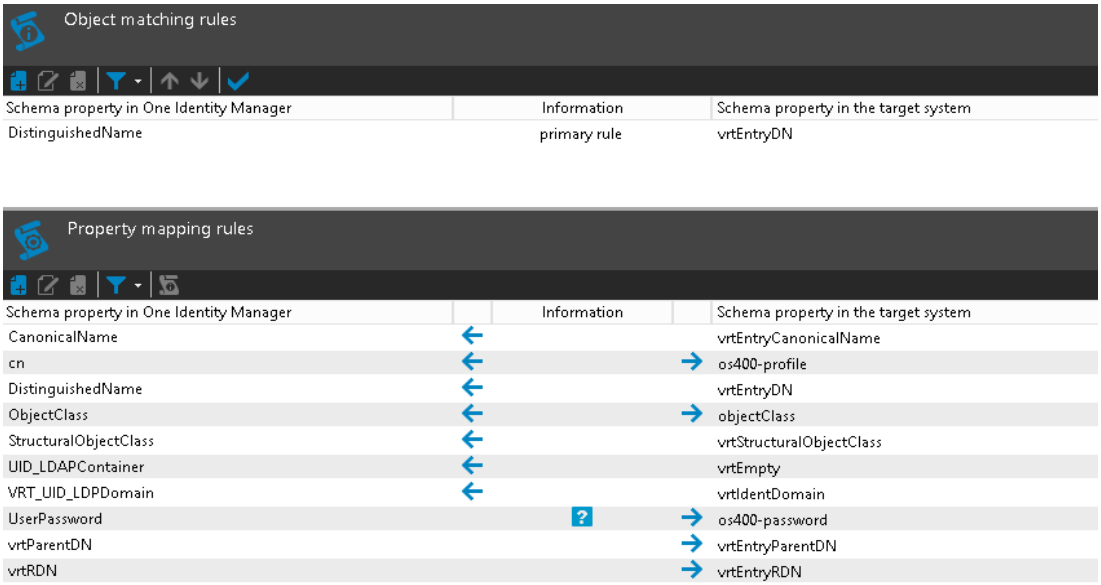
```
os400-profile=USER1234,CN=ACCOUNTS,OS400-SYS=AS4001.MYCOMPANY.COM
```

Related Topics

- Mandatory AS/400 User Attributes on page 8
- Property Mapping Rules on page 8
- Sample User Mapping on page 12

Sample User Mapping

The following figure shows the above user mapping in operation.



Group Mapping Information

This section shows a possible mapping between a group profile in AS/400 and the standard One Identity Manager database table called `LDAPGroup`. User and group information on the AS/400 is stored in the same container, so a filter needs to be set up to tell these apart.

- When creating the group mapping, add a new schema class as follows.

  Table 4: Schema class settings

Property	Value
Schema type	os400-usprf
Display name	group_os400_usrprf
Class name	group_os400_usrprf
Select objects: Condition	os400_gid<>*NONE'
Select objects: Ignore case	Activated

- Map the `LDAPGroup (all)` schema class to this new schema class, `group_os400_usrprf` for this group mapping.

For more detailed information about setting up mappings, see the Dell One Identity Manager Target System Synchronization Reference Guide.

Detailed information about this topic

Mandatory AS/400 Group Attributes

When creating a group in the AS/400 database, the following LDAP attributes must be defined:

- objectclass
- os400-profile
- os400-groupmember (this is not mandatory but if omitted, a user profile will be created instead)

Related Topics

Property Mapping Rules

- CanonicalName ← vrtEntryCanonicalName

  `vrtEntryCanonicalName` is a virtual property, set to the canonical name of the object in the connector.

  Sample value:

  `AS4001.MYCOMPANY.COM/ACCOUNTS/GROUP123`

- cn ←→ os400-profile

  On the AS/400 system, `os400-profile` is the group ID.

  Sample value:

  `USERGRP`

- DistinguishedName ← vrtEntryDN

  `vrtEntryDN` is a virtual property, set to the DN of the object in the connector.

  Sample value:

  `os400-profile=GROUP123,CN=ACCOUNTS,OS400-SYS=AS4001.MYCOMPANY.COM`

- ObjectClass ←→ objectClass

  The `objectClass` attribute (multi-valued) on the AS/400 system. Activate the check box **Ignore case sensitivity**.

  Sample value:

  `TOP;OS400-USRPRF`

- StructuralObjectClass ← vrtStructuralObjectClass

  `vrtStructuralObjectClass` on the AS/400 system defines the single object class for the object type.

  Sample value:

  `OS400-USRPRF`

- vrtParentDN → vrtEntryParentDN

  Create a fixed value property variable on the One Identity Manager side called `vrtParentDN` equal to a fixed string with value `$GroupLocation$`. Map this to `vrtEntryParentDN` on the AS/400 side.

  Sample value:

  `CN=ACCOUNTS,OS400-SYS=AS4001.MYCOMPANY.COM`

- vrtRDN → vrtEntryRDN

  Create a virtual attribute on the One Identity Manager side equal to the CN value. Then map this to `vrtEntryRDN` on the AS/400 side.

  Sample value:

  `os400-profile=GROUP123`

- UID_LDAPContainer ← vrtEmpty

  This is a workaround needed to support group mappings. Create a new fixed value variable on the AS/400 side of type "String" with no value called `vrtEmpty`. Map this to `UID_LDAPContainer`. This generates a property mapping rule conflict.

  ### *To solve the conflict*

  - In the Property Mapping Rule Conflict Wizard, highlight **Select this option if you do not want to change anything** and click **OK**.

- vrtMember ←→ os400-groupmember

  Synchronizing this attribute on the AS/400 will manage the group memberships for the user.

  1. Create a new virtual entry on the One Identity Manager side of type "Members of M:N schema types" with name `vrtMember`. Activate the boxes to **Ignore case** and **Enable relative component handling**.
  2. Add an entry for `LDAPAccountInLDAPGroup(all)`. Set the left box to `UID_LDAPGroup` and the right box to `UID_LDAPAccount`. Set the **Primary Key Property** to `DistinguishedName`.
  3. Create a new mapping rule of type "Multi-reference mapping rule". Set the rule name to "Member" and the mapping direction to "Both directions". Set the One Identity Manager schema property to `vrtMember` and the AS/400 schema property to `os400-groupmember`.

- UID_LDPDomain ← vrtIdentDomain

  Create a fixed value property variable on the AS/400 side called `vrtIdentDomain` that is set to the value `$IdentDomain$`. Map this to `UID_LDPDomain`. This will cause a conflict and the Property Mapping Rule Conflict Wizard opens automatically.

  ### *To solve the conflict*

  1. In the Property Mapping Rule Conflict Wizard, select the first option and click **OK**.
  2. On the **Select an element...** page, select **Ident_Domain** and click **OK**.

3. Confirm the security prompt with **OK**.
4. On the Edit property... page,
    a. Deactivate **Save unresolvable keys**.
    b. Activate **Handle failure to resolve as error**.
    c. To close the Property Mapping Rule Conflict Wizard, click **OK**.

Sample value:

`AS400_001`

Related Topics

- Mandatory AS/400 Group Attributes on page 13
- System Variables on page 6
- Object Matching Rules on page 15
- Sample Group Mapping on page 15

Object Matching Rules

- DistinguishedName (primary rule) vrtEntryDN

  `vrtEntryDN` is a virtual property, set to the DN of the object in the connector. This forms a unique ID to distinguish individual user objects on the AS/400 system.

  To convert this mapping into an object matching rule

  1. Select the property mapping rule in the rule window.
  2. Click  in the rule view toolbar.

     A message appears.
  3. Click **Yes** to convert the property mapping rule into an object matching rule and save a copy of the property mapping rule.

  Sample value:

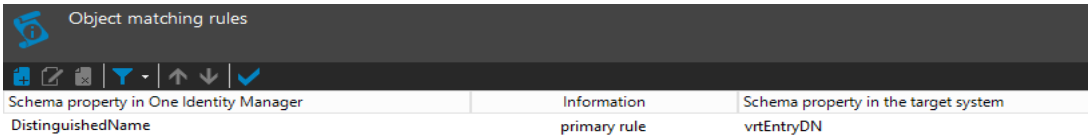
  `os400-profile=GROUP123,CN=ACCOUNTS,OS400-SYS=AS4001.MYCOMPANY.COM`

Related Topics

- Mandatory AS/400 Group Attributes on page 13
- Property Mapping Rules on page 13
- Sample Group Mapping on page 15

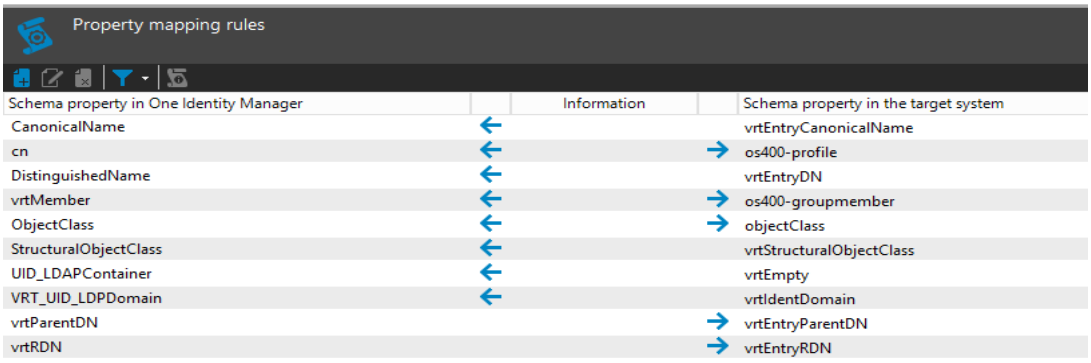
Sample Group Mapping

The following figure shows the above group mapping in operation.



Object matching rules

Schema property in One Identity Manager	Information	Schema property in the target system
DistinguishedName	primary rule	vrtEntryDN



Property mapping rules

Schema property in One Identity Manager		Information		Schema property in the target system
CanonicalName	←			vrtEntryCanonicalName
cn	←		→	os400-profile
DistinguishedName	←			vrtEntryDN
vrtMember	←		→	os400-groupmember
ObjectClass	←		→	objectClass
StructuralObjectClass	←			vrtStructuralObjectClass
UID_LDAPContainer	←			vrtEmpty
VRT_UID_LDPDomain	←			vrtIdentDomain
vrtParentDN			→	vrtEntryParentDN
vrtRDN			→	vrtEntryRDN

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Appendix: AS/400 Attributes

The following table lists the AS/400 attributes that are made available to One Identity Manager by the AS/400 LDAP connector. User and group objects in the AS/400 Directory Server are treated at the same level.

Table 5: List of AS/400 Attributes

Attribute Name
os400-acgcde
os400-astlvl
os400-atnpgm
os400-audlvl
os400-ccsid
os400-chridctl
os400-cntryid
os400-curlib
os400-dlvry
os400-docpwd
os400-dspsgninf
os400-eimassoc
os400-gid
os400-groupmember
os400-grpaut
os400-grpauttyp
os400-grpprf
os400-homedir
os400-laspStorageInformation
os400-inlmnu
os400-inlpgm
os400-invalidSignonCount

Attribute Name
os400-jobd
os400-kbdbuf
os400-langid
os400-lclpwdmgt
os400-lmtdevssn
os400-locale
os400-maxstg
os400-msgq
os400-objaud
os400-outq
os400-owner
os400-password
os400-passwordExpirationDate
os400-passwordLastChanged
os400-previousSignon
os400-profile
os400-prtdev
os400-ptylmt
os400-pwdexp
os400-pwdexpitv
os400-setobatr
os400-sev
os400-spcaut
os400-spcenv
os400-status
os400-storageUsed
os400-storageUsedOnlasp
os400-supgrpprf
os400-text
os400-uid
os400-usrcls
os400-usropt

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The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. In addition, the Support Portal provides direct access to product support engineers through an online Service Request system.

The Support Portal enables you to:

- Create, update, and manage Service Requests (cases)
- View Knowledge Base articles
- Obtain product notifications
- Download software. For trial software, go to http://quest.com/trials.
- View how-to videos
- Engage in community discussions
- Chat with a support engineer