



# ENTRÉ

## ACTIVE DIRECTORY AND SECURE LDAP GUIDE

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Access, Security, & Audit Compliance  
Management for Your Enterprise

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# SINGLE SIGN-ON VS. ACTIVE DIRECTORY



## Overview

Entré has the capability to control users' access to systems with single sign-on and Active Directory.

**Single Sign-On (SSO)** gives users the ability to log in to a system with one username and password that grants access to multiple parts of the system. For example, a user management system at a retail chain's corporate HQ allows employees to sign into a computer, then uses an authentication token to automatically sign them in to their email and programs.

**Active Directory (AD)** is a centralized user management feature included with Microsoft® operating systems that allows system administrators to manage users on a Windows® domain. For example, a college system administrator uses Active Directory to restrict access to specific network drives by assigning students to a pre-defined student user group.

## *How Does Single Sign-On Relate to Active Directory?*

Active Directory is often used as a source for user credentials, which allows Single Sign-On services to integrate with systems already managing users with Active Directory. These integrations allow SSO to use AD information to control access to non-Windows products like web applications.

## How Entré Uses SSO

In Version 8.4.0 and higher, Entré supports using SSO to authenticate users for Entré and panel access. To configure Single-Sign On for Entré, refer to the Entré Server Maintenance Guide (LT-3131),

### *Full Client*

After the Entré full client is installed and a local Windows user is assigned an operator profile, the user is automatically logged in to the full client with their Windows credentials. The user may perform the functions allowed according to the operator profile assigned to them.

### *Web Client*

Use PingFederate® or PingAccess® software from Ping Identity® to interact with Active Directory and create a certificate based on predetermined program access. The Entré application server uses the certificate sent from the Ping Identity server to allow users to log in to the web client without requiring them to re-enter their credentials. The user may perform the functions allowed according to the operator profile assigned to them.

The following information is needed to configure SSO for the Entré web client:

- › **Assertion Attribute Mapping**—The attribute in the IdP that is mapped to the Entré Operator's login username from the SAML Response's Attribute Statement
- › **Strict**—When checked, this option provides further validation of the SAML Response formatting for high security implementations
- › **IdP Entity ID**—The SSO Service Entity ID (URL) used for validation of the SAML Response
- › **IdP Redirect URL**— The IdP-initiated SSO URL from the IdP
- › **Assertion Consumer Service URL**— The URL for the SAML Response consuming service (Tomcat). The default is **http://[tomcat-web-server:port]/dmp/entre-acs**.
- › **SP Entity ID**— The configurable entity ID for Entré, the Service Provider

For more information about Ping Identity SSO software, refer to [PingFederate](#) and [PingAccess](#).

## How Entré Uses AD

The Entré NOC Active Directory Service allows organizations to deactivate personnel accounts in Entré for inactive users in the Active Directory. When personnel are disabled in the Active Directory, the Entré Active Directory Service queries both the AD and Entré databases, compares the information, then updates the appropriate table for that personnel record in Entré. The status of the associated personnel account and their badges is changed to inactive in Entré.

# CONFIGURE ACTIVE DIRECTORY FOR SECURE LDAP

The rest of the document walks you through setting up Secure LDAP over TKS 1.2 in Entré. Configuring Active Directory (AD) requires the Entré technician to employ the assistance of the customer's Active Directory Engineer because Microsoft will not allow any wrong entries to be deleted from Active Directory. These wrong entries may be labeled "defunct".

Active Directory Explorer is a small utility provided by Microsoft to view and modify Active Directory. It may be installed on the machine that is running the AD service or on a remote machine.

**Warning:** DMP Technical Support can assist with Entré's Secure LDAP module, but they are not able to support Active Directory. For Active Directory support, contact either the Active Directory administrator, your local IT department, or Microsoft.

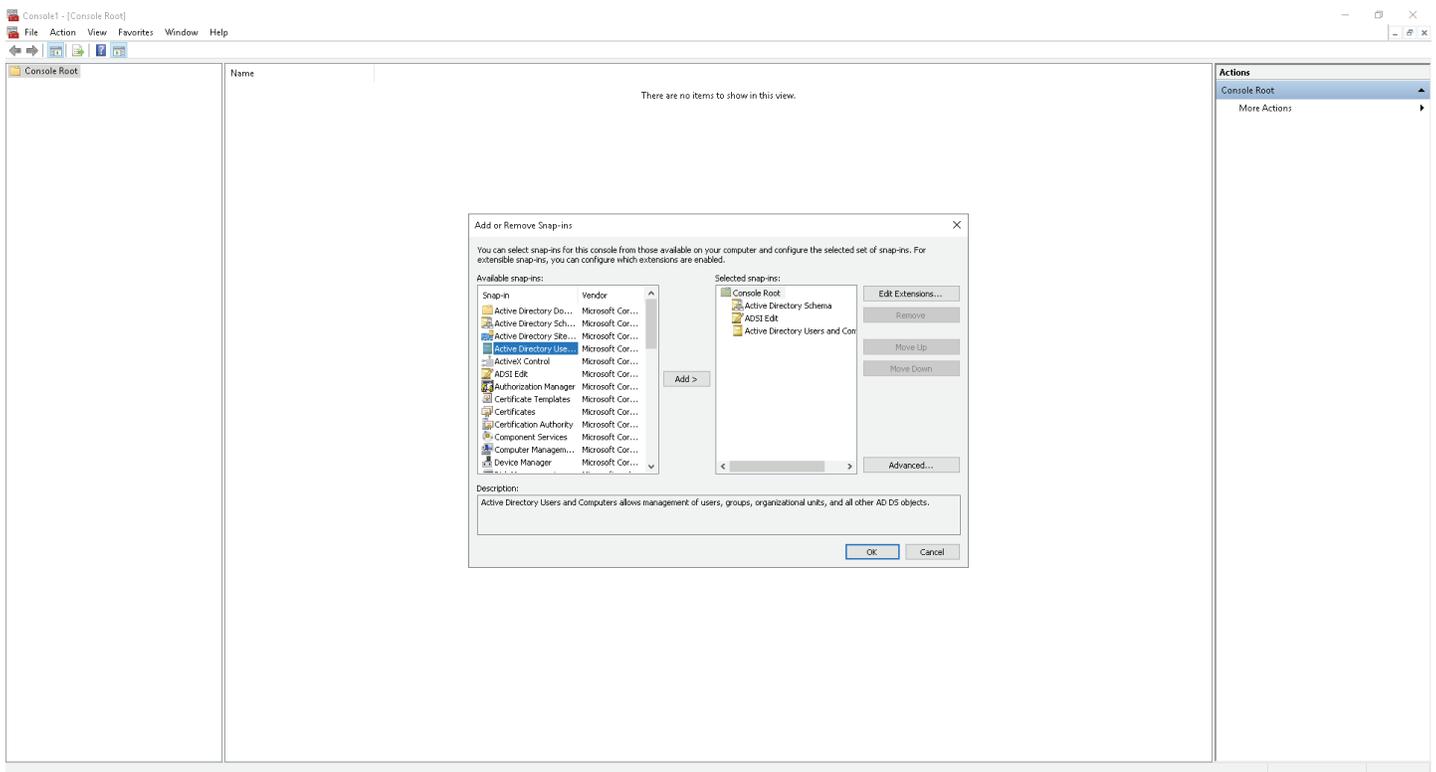
## Get Recommended Tools

### *Microsoft Management Console with Active Directory Snap-Ins*

The Microsoft Management Console (MMC) Active Directory (AD) Schema Snap-In is required for adding attributes and classes to the AD Schema and must be registered on the machine running the AD service.

ADSI Edit snap-in is required for adding a Container.

► <https://www.technipages.com/active-directory-schema-snap-in>

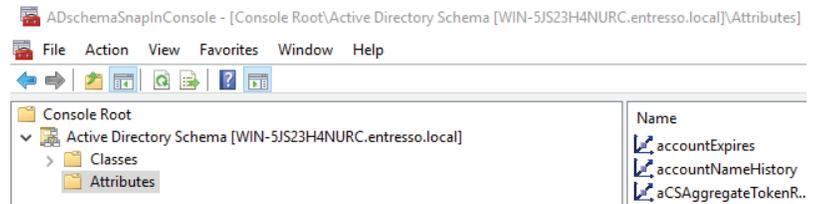


# Active Directory OID Generator Script

An Object Identifier (OID) is required when creating new attributes or classes in the AD Schema. This script must be executed on the machine running the AD service.

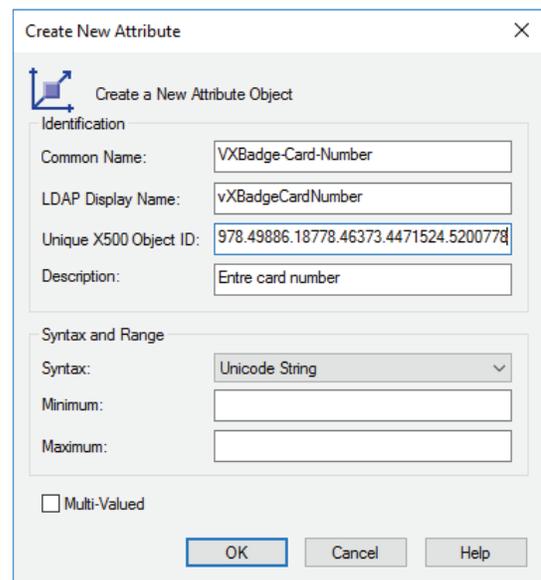
## Add Attributes to Active Directory

1. Open the **Active Directory Schema** management console snap-in.
2. Right-click the **Attributes** folder.
3. Select **New > Attribute**.



### Create Card Number

1. Enter the **Common Name**: *VXBadge-Card-Number*. This is case sensitive.
2. Enter the **LDAP Display Name**: *VXBadge-Card-Number*. This is case sensitive.
3. Enter the **Unique X500 Object ID** created by the OID generator script.
4. Enter the **Description** for the attribute: *Entré card number*.
5. Select the **Syntax**: *Unicode string*.
6. Click **OK**.



### Create Usercode

1. Enter the **Common Name**: *vxUserCode*. This is case sensitive.
2. Enter the **LDAP Display Name**: *vxUserCode*. This is case sensitive.
3. Enter the **Unique X500 Object ID** created by the OID generator script.
4. Enter the **Description** for the attribute: *Entré Badge user code*.
5. Select the **Syntax**: *Unicode string*.
6. Click **OK**.

## Create Usercode Profile

1. Enter the **Common Name**: *vxUserCodeProfiles*. This is case sensitive.
2. Enter the **LDAP Display Name**: *vxUserCodeProfiles*. This is case sensitive.
3. Enter the **Unique X500 Object ID** created by the OID generator script.
4. Enter the **Description** for the attribute: *Entré user code profile names*.
5. Select the **Syntax**: *Unicode string*.
6. Turn on **Multi-valued**.
7. Click **OK**.

## Create Operator Profile

1. Enter the **Common Name**: *vxOperatorProfiles*. This is case sensitive.
2. Enter the **LDAP Display Name**: *vxOperatorProfiles*. This is case sensitive.
3. Enter the **Unique X500 Object ID** created by the OID generator script.
4. Enter the **Description** for the attribute: *Entré operator profile names*.
5. Select the **Syntax**: *Unicode string*.
6. Turn on **Multi-valued**.
7. Click **OK**.

# Add Badge Class to Active Directory

1. Open the **Active Directory Schema**.
2. Right-click the **Classes** folder.
3. Select **Create Class** from the Action menu.
4. Enter the **Common Name**: *vxPersonnelBadge*. This is case sensitive.
5. Enter the **LDAP Display Name**: *vxPersonnelBadge*. This is case sensitive.
6. Enter the **Unique X500 Object ID** created by the OID generator script.
7. Enter the **Description** for the class: *Entré badge*.
8. Leave **Parent Class** blank.
9. Set **Class Type** to Structural.
10. Click **Next**.
11. Add **Mandatory** attributes: *vxBadgeCardNumber* and *employeeNumber*.



**Note:** You could also use any other attribute for *employeeNumber* that uniquely identifies a person in AD and is associated with Field Mapping.

12. Add additional attributes as necessary: *vxUserCode* and *vxUserCodeProfiles*.
13. Click **Finish**.

The screenshot shows the Active Directory Schema console with the 'Create New Schema Class' dialog box open. The dialog is filled with the following information:

- Identification:**
  - Common Name: vxPersonnelBadge
  - LDAP Display Name: vxPersonnelBadge
  - Unique X500 Object ID: 1.2.840.113556.1.8000.2554.65307.27978.49886.18778.46373.4471524.5200778
  - Description: Entré badge
- Inheritance and Type:**
  - Parent Class: (blank)
  - Class Type: Structural
- Attributes:**
  - Mandatory:** vxBadgeCardNumber, employeeNumber
  - Optional:** vxUserCode, vxUserCodeProfiles

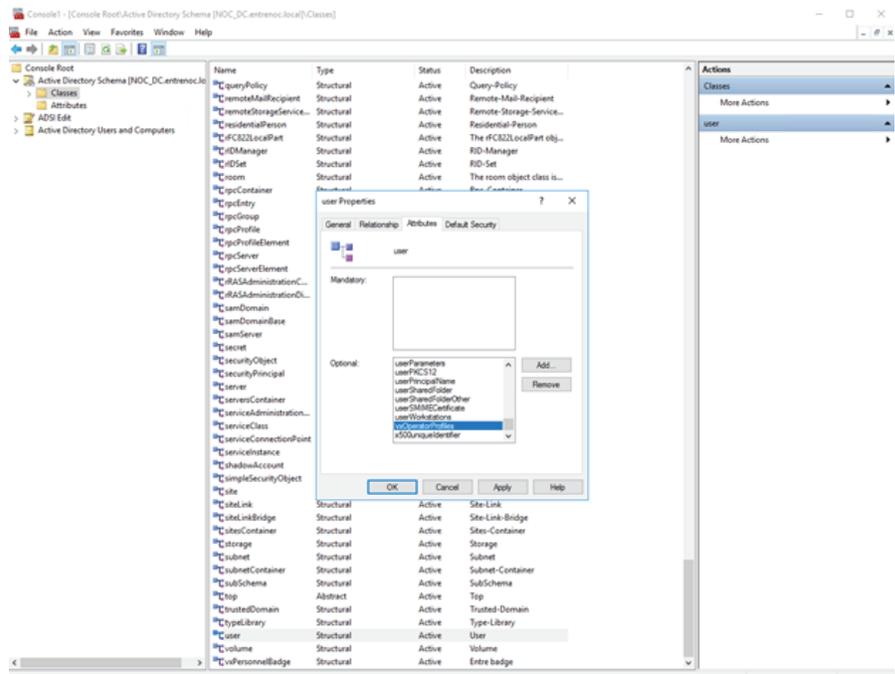
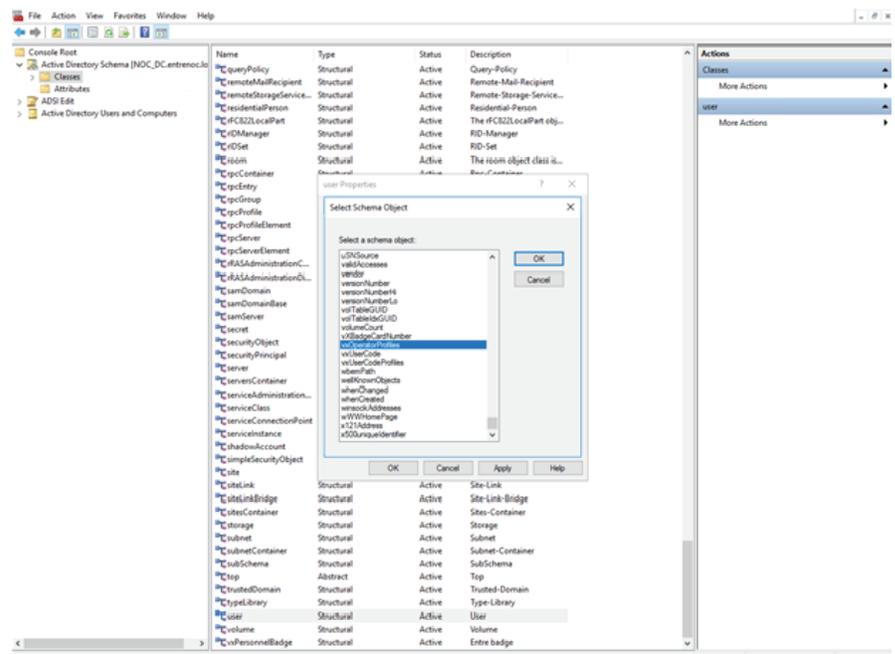
The background shows a PowerShell terminal window with the following command and output:

```
PS C:\Users\Administrator> $Prefix="1.2.840.113556.1.8000.2554"
PS C:\Users\Administrator> $GUID=[System.Guid]::New($Prefix).ToString()
PS C:\Users\Administrator> $Parts=@()
PS C:\Users\Administrator> $Parts+= [UInt64]::Parse($GUID.SubString(0,4))."AllHexSpecifier"
PS C:\Users\Administrator> $Parts+= [UInt64]::Parse($GUID.SubString(4,4))."AllHexSpecifier"
PS C:\Users\Administrator> $Parts+= [UInt64]::Parse($GUID.SubString(8,4))."AllHexSpecifier"
PS C:\Users\Administrator> $Parts+= [UInt64]::Parse($GUID.SubString(12,4))."AllHexSpecifier"
PS C:\Users\Administrator> $Parts+= [UInt64]::Parse($GUID.SubString(16,4))."AllHexSpecifier"
PS C:\Users\Administrator> $Parts+= [UInt64]::Parse($GUID.SubString(20,4))."AllHexSpecifier"
PS C:\Users\Administrator> $Parts+= [UInt64]::Parse($GUID.SubString(24,4))."AllHexSpecifier"
PS C:\Users\Administrator> $Parts+= [UInt64]::Parse($GUID.SubString(28,4))."AllHexSpecifier"
PS C:\Users\Administrator> $OIDString=Format("{0:012}. {1:012}. {2:012}. {3:012}. {4:012}. {5:012}. {6:012}. {7:012}. {8:012}. {9:012}. {10:012}. {11:012}. {12:012}. {13:012}. {14:012}. {15:012}. {16:012}. {17:012}. {18:012}. {19:012}. {20:012}. {21:012}. {22:012}. {23:012}. {24:012}. {25:012}. {26:012}. {27:012}. {28:012}. {29:012}. {30:012}. {31:012}. {32:012}. {33:012}. {34:012}. {35:012}. {36:012}. {37:012}. {38:012}. {39:012}. {40:012}. {41:012}. {42:012}. {43:012}. {44:012}. {45:012}. {46:012}. {47:012}. {48:012}. {49:012}. {50:012}. {51:012}. {52:012}. {53:012}. {54:012}. {55:012}. {56:012}. {57:012}. {58:012}. {59:012}. {60:012}. {61:012}. {62:012}. {63:012}. {64:012}. {65:012}. {66:012}. {67:012}. {68:012}. {69:012}. {70:012}. {71:012}. {72:012}. {73:012}. {74:012}. {75:012}. {76:012}. {77:012}. {78:012}. {79:012}. {80:012}. {81:012}. {82:012}. {83:012}. {84:012}. {85:012}. {86:012}. {87:012}. {88:012}. {89:012}. {90:012}. {91:012}. {92:012}. {93:012}. {94:012}. {95:012}. 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{824:012}. {825:012}. {826:012}. {827:012}. {828:012}. {829:012}. {830:012}. {831:012}. {832:012}. {833:012}. {834:012}. {835:012}. {836:012}. {837:012}. {838:012}. {839:012}. {840:012}. {841:012}. {842:012}. {843:012}. {844:012}. {845:012}. {846:012}. {847:012}. {848:012}. {849:012}. {850:012}. {851:012}. {852:012}. {853:012}. {854:012}. {855:012}. {856:012}. {857:012}. {858:012}. {859:012}. {860:012}. {861:012}. {862:012}. {863:012}. {864:012}. {865:012}. {866:012}. {867:012}. {868:012}. {869:012}. {870:012}. {871:012}. {872:012}. {873:012}. {874:012}. {875:012}. {876:012}. {877:012}. {878:012}. {879:012}. {880:012}. {881:012}. {882:012}. {883:012}. {884:012}. {885:012}. {886:012}. {887:012}. {888:012}. {889:012}. {890:012}. {891:012}. {892:012}. {893:012}. {894:012}. {895:012}. {896:012}. {897:012}. {898:012}. {899:012}. {900:012}. {901:012}. {902:012}. {903:012}. {904:012}. {905:012}. {906:012}. {907:012}. {908:012}. {909:012}. {910:012}. {911:012}. {912:012}. {913:012}. {914:012}. 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```

# Edit User Class in Active Directory

Associate operator profile attribute with the existing user class.

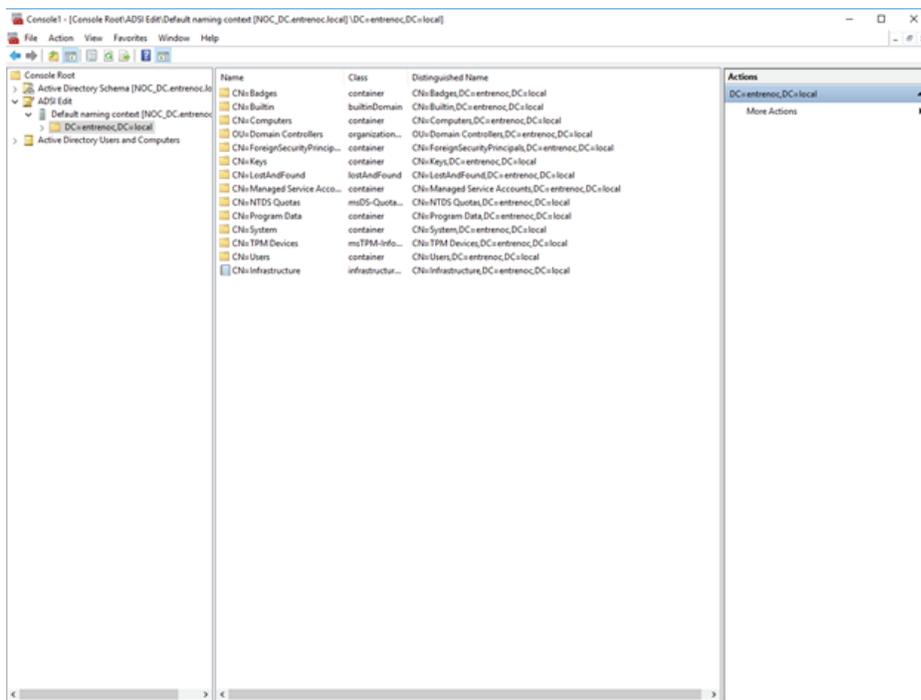
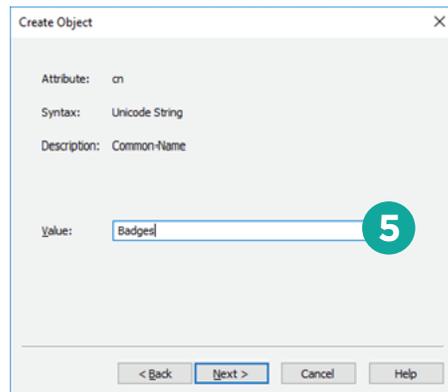
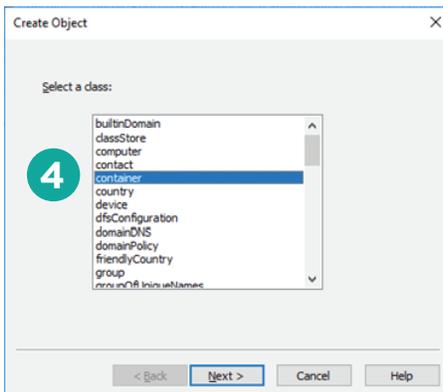
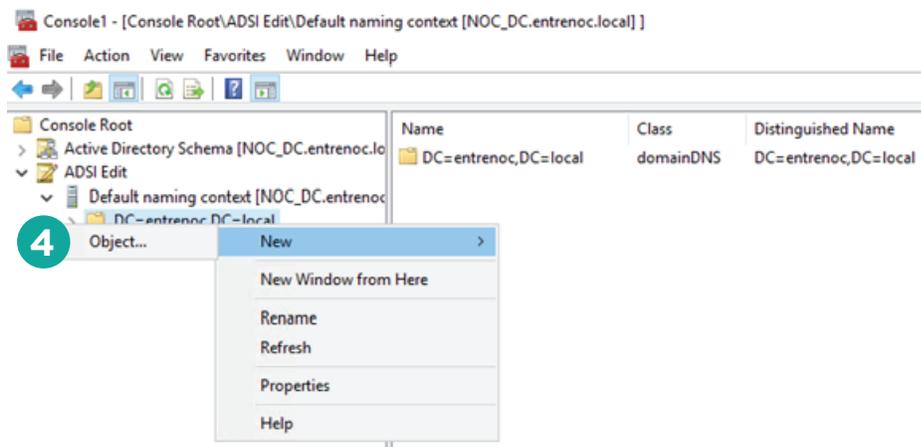
1. Open the Active Directory schema management console snap-in.
2. Open the **Classes** folder.
3. Right-click the **User** class and select **Properties**.
4. Open the **Attributes** tab.
5. If creating Entré operators from the directory, add additional attributes as necessary: *vxOperatorProfiles*.
6. Click **OK**.



# Add Badges Container to Active Directory

Similar to User objects, Badge objects must also have a container in AD.

1. Open the ADSI Edit snap-in. You can use either ADSI Edit or Active Directory Explorer. The steps may vary depending on which program used. The steps shown here are for the ADSI Edit.
2. Connect using the Connection Point.
3. Select a well-known naming context.
4. Select the **Domain Controller** node and choose **New** > **Object** of class **Container**.
5. Set the common name to **CN=Badges**.
6. Click **OK**.



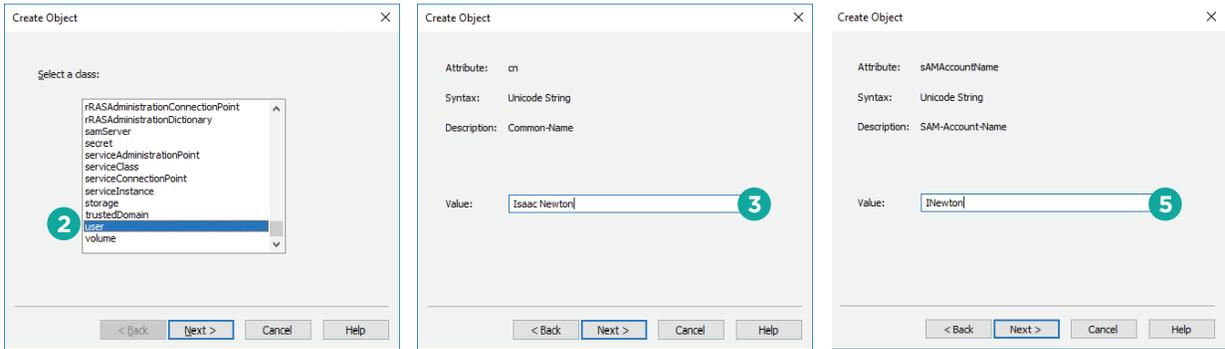
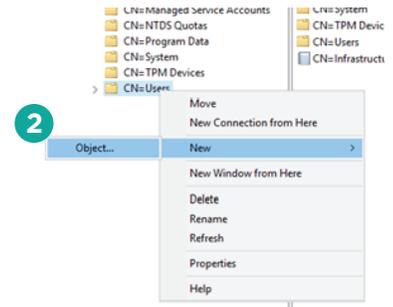
# Add New Users and New Badges to Active Directory

Panel Users are added to Entré by creating User and Badge objects in Active Directory. When adding existing AD users you can do a full import to bring all existing users into Entré. The User needs to be created before the Badge in order for individual imports to work without performing a full import.

 **Note:** Be sure Users and Badges are active when creating them in Active Directory in order for them to be active in Entré.

## Add New Users

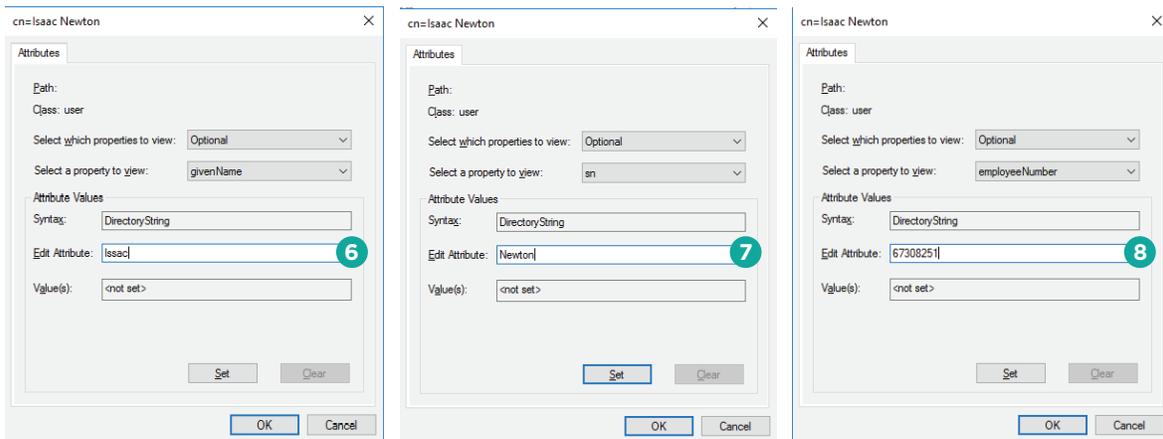
1. Open Active Directory Explorer and connect to AD. You can use either ADSI Edit or Active Directory Explorer. The steps may vary depending on which program used. The steps shown here are for Active Directory Explorer.
2. Right-click the Users Container and select **New > Object** of class **user**.
3. Set the common **Name** attribute.
4. Select **More Attributes**.



5. Set the **SAM-Account-Name** attribute.
6. Set the **givenName** (first name) attribute.
7. Set the **sn** (last name) attribute.
8. Set the **employeeNumber** attribute.

 **Note:** This could instead be employeeID or another similar attribute as long as it uniquely identifies a Person in AD and is associated to the Entré Property: Person.personIdentifier.govtId in the Entré Secure LDAP Server Field Mapping. Field Mapping will be described later in this document.

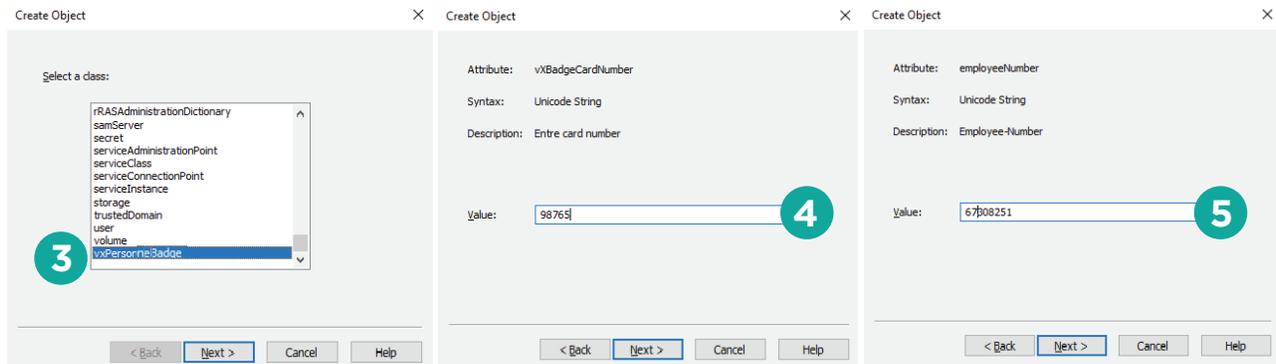
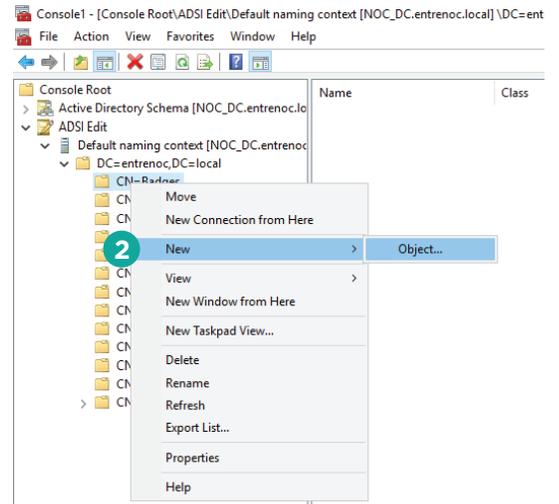
9. Click **OK**.



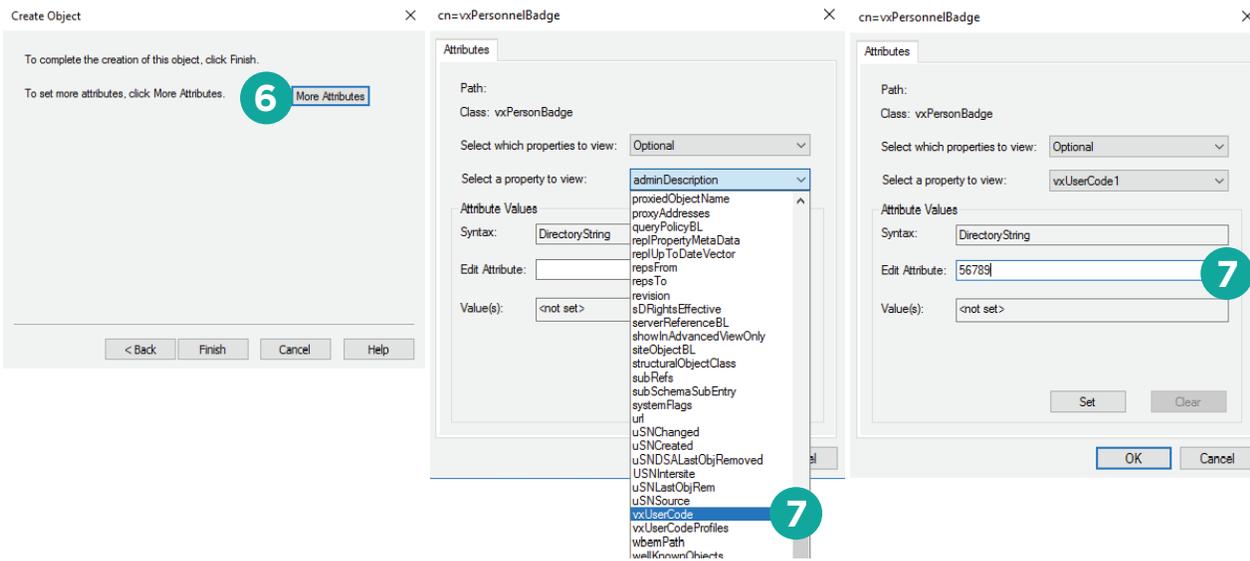
## Add New Badges

1. Open the ADSI Edit snap-in. You can use either ADSI Edit or Active Directory Explorer. The steps may vary depending on which program used. The steps shown here are for the ADSI Edit.
2. Right-click the Badges Container and select **New > Object** of class *vxPersonnelBadge*.
3. Set the common **Name** attribute value to *vxPersonnelBadge*.
4. Set the **vXBadgeCardNumber** attribute.  
This is the number on the prox card or a unique number not duplicated in the database.
5. Set the **employeeNumber** attribute.  
This is the employee number assigned to the user created in the previous step.

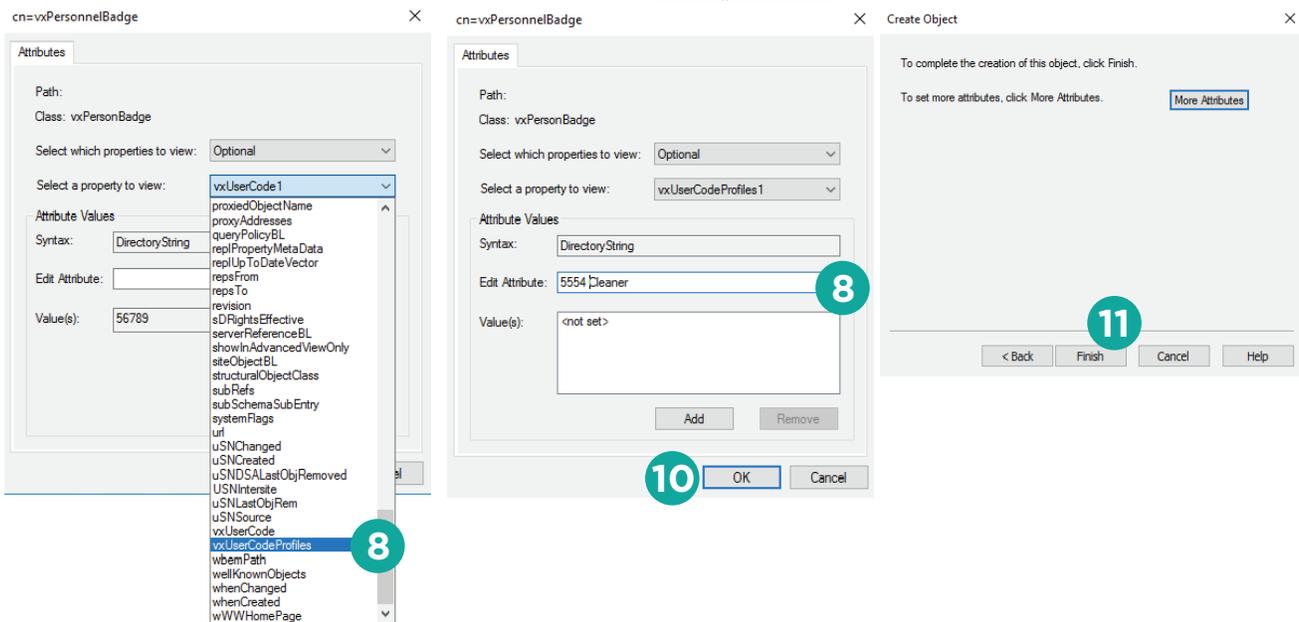
 **Note:** This could instead be employeeID or another similar attribute as long as it uniquely identifies a Person in AD and is associated to the Entré Property *Person.personIdentifier.govtId* in the Entré Secure LDAP Server Field Mapping. When Entré imports Badge objects from AD it uses this attribute value to determine what Badges are assigned to a Person. Field Mapping will be described later in this document.



6. Select **More Attributes**.
7. Set the **vxUserCode** attribute. This is the code in the prox card or a unique code created for the badge.



8. Set the **vxUserCodeProfiles** attribute. This is the name of the user code profile found in Entré for the panel that this badge will be sent to.
9. Add or remove as many profiles as needed for this badge by selecting **Add** or **Remove**.
10. Click **OK**.
11. Click **Finish**.



# SECURE LDAP INTEGRATION INFORMATION

## Standard Import Command

The Standard Import searches Active Directory for Personnel and Badge changes made since the previous import. Those changes are then saved to Entré. Deleted personnel and badges are found in the Active Directory deleted object container.

## Full Import Command

The Full Import search procedure pulls all entries from an Active Directory folder. Discovered personnel and badges are saved to Entré. Deleted personnel and badges are inferred by synchronizing the directories entries with the previously imported records. A Full Import is recommended from time to time, because entries can be moved to different folders or pruned from the deleted object container before an import is run.

## Update Direction Configuration

Each property integrated between Entré and Active Directory is given a contract. That contract defines how the property is expected to receive updates.

The possible contracts are listed in the following table.

UPDATE DIRECTION	DESCRIPTION	KEYWORD
All sources send updates	Pull the field from Active Directory on Import Push the field to Active Directory on Export Automatically push changes to Active Directory	NONE
The directory sends updates	Never push changes for this field Always pull changes for this field Active Directory is expected to update this field	DIRECTORY
The application sends updates	Always push changes for this field Never push changes for this field Active Directory should not update this field	APPLICATION

 **Note:** Microsoft AD is active/inactive since it does not have the mapping for *Retired*, *On Leave*, or *Terminated*.

Integration does not allow for person, badge, or operator deletions.

## Import Troubleshooting

During an import, the Entré app server log may show the following warning after binding to the Secure LDAP server, and no records will import:

```
[2022-02-24 15:21:30,912] INFO - DtLdapConnection - Connecting and binding to the Secure LDAP server: 10.3.6.21:636 [2022-02-24 15:21:31,237] WARN - DtLdapImportRunnable - Unable to retrieve a remote timestamp. Time drift related synchronization issues may occur.
```

By default, Entré touches the CN attribute of the binding DN to get the timestamp from the Secure LDAP server. Depending on the client schema, Entré may not have rights to touch this specific attribute. There may be another attribute in the binding DN that could be used. Contact Software Services for assistance at **SoftwareServices@dmp.com**.

# CONFIGURE ENTRÉ FOR SECURE LDAP

## Initiate the Secure LDAP Server Setup

1. Ensure Entré license includes data transfer plugin key-value pairs.
2. Open the **Hardware Tree**.
3. If the **Data Transfer Driver** is not listed in the Hardware Tree, right click on the **Driver Manager** and select **New Data Transfer Driver**.
4. Right-click and select **Start** to bring the driver online.
5. Right-click driver and choose **New LDAP Server**.

 **Warning:** DMP Technical Support can assist with Entré's Secure LDAP module, but they are not able to support Active Directory. For Active Directory support, contact either the Active Directory administrator, your local IT department, or Microsoft.

## Set Up the Server Information

Fill the fields with information for your organization.

FIELD NAME	DESCRIPTION	EXAMPLES
IP address	The IP address where the Active Directory service is running	10.10.10.10
Port	The network communication port	636
Password	The service login password	*****
Bind DN	The Active Directory container which the service login has ownership of	This is not guaranteed to be the username: CN=aduser,CN=Users,DC=example,DC=org CN=AD_User,CN=Users,DC=example,DC=org
Schema DN	The Active Directory container which stores information about attributes and classes	CN=Schema,CN=Configuration,DC=example,DC=org
Schema Request Filter	This specifies the conditions that must be met for a record to be included in the collection that results from a schema query	(&(&(objectClass=attributeSchema)(attributeSyntax=*))(!(isDefunct=TRUE)))
LDAP Implementation	The identity management solution chosen by the customer	Active Directory Open LDAP eDirectory
User DN	The Active Directory container which stores User objects	CN=Users,DC=example,DC=org
User Request Filter	This specifies the conditions that must be met for a record to be included in the collection that results from a user query	(&(&(objectCategory=vx PersonnelBadge)(vXBadgeCardNumber=*))(!(objectClass=vxDeletedObject)))
Badge DN	The Active Directory container which stores Badge objects	CN=Badges,DC=example,DC=org
Badge Request Filter	This specifies the conditions that must be met for a record to be included in the collection that results from a badge query	(&(&(objectCategory=vxPersonnelBadge)(vXBadgeCardNumber=*))(!(objectClass=vxDeletedObject)))

## Example of Open LDAP:

**Edit - LDAP Server**

Save and Close Report

General  
Location  
**Configuration**  
Properties  
Import Poll Schedule  
Field Mapping  
Field Transformations  
Audit Records  
Recent Events  
Device Commands

Configuration

IP address: 10.3.6.210

Port: 636

Password: ●●●●●●●●

Bind DN (Distinguished name): cn=admin,dc=dc,dc=openldap,dc=local

Schema DN (Distinguished name): cn=subschema

Schema Request Filter: (&(objectClass=\*))

LDAP Implementation: Active Directory

User DN (Distinguished name): ou=People,dc=dc,dc=openldap,dc=local

(&(objectClass=person))

User Request Filter:

Badge DN (Distinguished name): ou=DMPBadges,dc=dc,dc=openldap,dc=local

(&(objectClass=Badgeclass))

Badge Request Filter:

Timestamp Attribute Name: modifyTimestamp

UID Attribute Name: uidNumber

Use memberOf as Personnel Validity

Preview Changes

## Example of Active Directory:

**Add - LDAP Server**

Save and Close Report

General  
Location  
**Configuration**  
Properties  
Import Poll Schedule  
Field Mapping  
Field Transformations  
Audit Records  
Recent Events  
Device Commands

Configuration

IP address: 255.255.255.255

Port: 389

Password: ●●●●●●●●

Bind DN (Distinguished name): cn=admin,cn=Users,dc=entrelDAP,dc=local

Schema DN (Distinguished name): cn=schema,cn=configuration,dc=entrelDAP,dc=local

Schema Request Filter: (&(&(objectClass=attributeSchema)(attributeSyntax=\*))(!(isDefunct=TRUE)))

LDAP Implementation: Active Directory

User DN (Distinguished name): cn=users,dc=entrelDAP,dc=local

(&(&(objectCategory=Person)(employeeNumber=\*))(!(objectClass=vxDeletedObject)))

User Request Filter:

Badge DN (Distinguished name): cn=badges,dc=entrelDAP,dc=local

(&(&(objectCategory=vxPersonnelBadge)(vxBadgeCardNumber=\*))(!(objectClass=vxDeletedObject)))

Badge Request Filter:

Timestamp Attribute Name: whenChanged

UID Attribute Name: objectGUID

Use memberOf as Personnel Validity

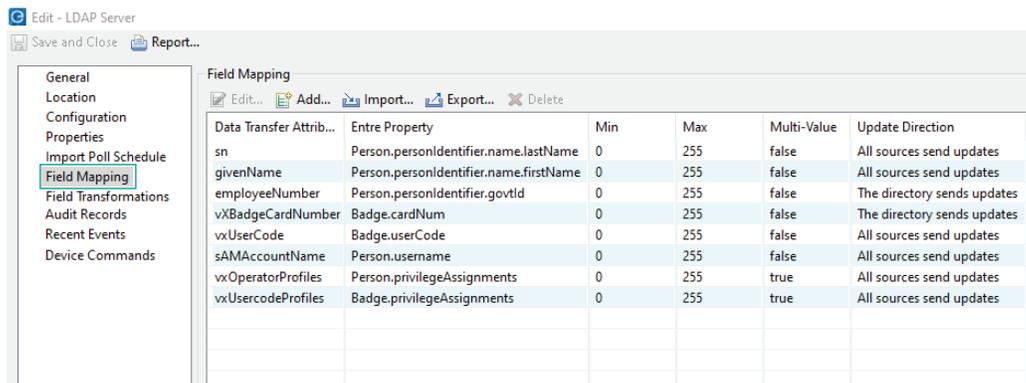
Preview Changes

## Preview Changes

**Preview Changes** displays a list of high-level changes, focusing mainly on items that would be made inactive or new records when an operator makes a change to the configuration. **Records Made Inactive (Incoming)** refers to new badges and **Existing** refers to badges already in Entré.

## Configure the Field Mapping

The **Field Mapping** control describes what Secure LDAP Directory data field ties to what Entré data field. There is a minimum set of mapping definitions required to transfer Personnel and Badges between Active Directory and Entré.



### Map a Single Directory Attribute to Many Entré Properties

DMP does not recommend using the **Application sends updates** or **All sources send updates directions**. This may cause unexpected results. DMP recommends **The directory sends updates**.

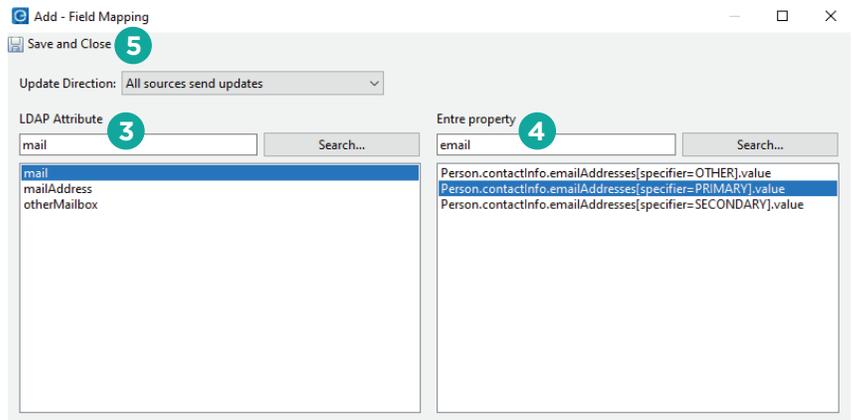
In Active Directory, users are either **Active** or **Inactive**. LDAP3 directories may be able to map an employee status name such as *Retired* or *On-Leave* by using field mapping and field transformation JavaScripts. See the screenshots for Import Transformation and Export Transformation. The Active Directory attribute `memberOf` can be mapped to `Person.privilegeAssignments` for operator profile assignment.

The Personnel ID, in Entré, is a unique number. This number is mapped to the Directory's GUID. The GUID is a required field in order for the LDAP integration to work with Entré. Changing this property may result in a duplicate entry and not send a update to the Directory. Changing this property in the Directory will send to Entré as a new user.

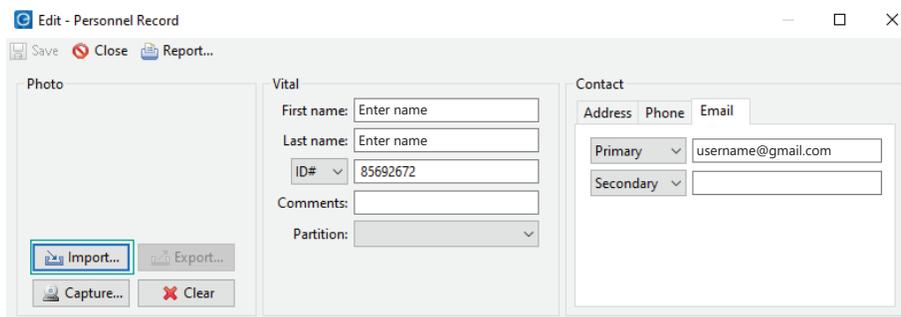
This integration does not support sending new personnel or badges from Entré to the Directory.

## Add Additional Mapping Definitions

1. To add additional mapping definitions, select **Add**.
2. Choose a desired update direction.
3. Select the **LDAP Attribute**. In this example: **Mail**.
4. Select an **Entré property** value.  
*Example: Person.contactInfo.emailAddresses[specifier=PRIMARY].value*
5. Click **Save and Close**.



After another import/full import executes, the email address should appear in Entré:



## List of Mappable Entré Properties

### By Badge:

NAME	PROPERTY	FIELD LIMITATIONS
Grant one Free APB Pass	Badge.antiPassbackExempt	1 or 0 (Checked or Unchecked)
Generic card format (Prox)	Badge.badgeCardFormat.name	64
Badge format	Badge.badgeFormat.name	24
Badge type	Badge.badgeType.name	32
Card#	Badge.cardNum	17
Comments	Badge.comments	255
Facility code	Badge.facilityCode	4
Hot stamp	Badge.hotStamp	10
Issue code	Badge.issueCode	8
Large card number	Badge.largeCardNumber	1024
PIN	Badge.pin	20
User Code Profiles	Badge.privilegeAssignments	255
Site	Badge.site.name	8
User code	Badge.userCode	12
Effective	Badge.validity.timespan.effectiveDate	8
Expires	Badge.validity.timespan.expirationDate	8
Validity	Badge.validity.type.name	32
Watch level	Badge.watchLevel.name	32

### By Person:

NAME	PROPERTY	FIELD LIMITATIONS
Comments	Person.comments	255
Home City	Person.contactInfo.addresses[specifier=HOME].city	255
Home Country	Person.contactInfo.addresses[specifier=HOME].country	255
Home Line 1	Person.contactInfo.addresses[specifier=HOME].line1	255
Home Line 2	Person.contactInfo.addresses[specifier=HOME].line2	255
Home Zip	Person.contactInfo.addresses[specifier=HOME].postalCode	255
Home State	Person.contactInfo.addresses[specifier=HOME].stateProvince	255
Other City	Person.contactInfo.addresses[specifier=OTHER].city	255
Other Country	Person.contactInfo.addresses[specifier=OTHER].country	255
Other Line 1	Person.contactInfo.addresses[specifier=OTHER].line1	255
Other Line 2	Person.contactInfo.addresses[specifier=OTHER].line2	255
Other Zip	Person.contactInfo.addresses[specifier=OTHER].postalCode	255
Other State	Person.contactInfo.addresses[specifier=OTHER].stateProvince	255
Work City	Person.contactInfo.addresses[specifier=WORK].city	255
Work Country	Person.contactInfo.addresses[specifier=WORK].country	255
Work Line 1	Person.contactInfo.addresses[specifier=WORK].line1	255
Work Line 2	Person.contactInfo.addresses[specifier=WORK].line2	255
Work Zip	Person.contactInfo.addresses[specifier=WORK].postalCode	255
Work State	Person.contactInfo.addresses[specifier=WORK].stateProvince	255
Email Other	Person.contactInfo.emailAddresses[specifier=OTHER].value	255
Email Primary	Person.contactInfo.emailAddresses[specifier=PRIMARY].value	255

NAME	PROPERTY	FIELD LIMITATIONS
Email Secondary	Person.contactInfo.emailAddresses[specifier=SECONDARY].value	255
Phone Fax	Person.contactInfo.phoneNumbers[specifier=FAX].value	255
Phone Home	Person.contactInfo.phoneNumbers[specifier=HOME].value	255
Phone Mobile	Person.contactInfo.phoneNumbers[specifier=MOBILE].value	255
Phone Other	Person.contactInfo.phoneNumbers[specifier=OTHER].value	255
Phone Work	Person.contactInfo.phoneNumbers[specifier=WORK].value	255
Grant one Free APB Pass	Person.credentials[primaryLdapBadge].antiPassbackExempt	1 or 0 (Checked or Unchecked)
Generic card format (Prox)	Person.credentials[primaryLdapBadge].badgeCardFormat.name	32
Badge format	Person.credentials[primaryLdapBadge].badgeFormat.name	24
Badge type	Person.credentials[primaryLdapBadge].badgeType.name	32
Card#	Person.credentials[primaryLdapBadge].cardNum	17
Comments	Person.credentials[primaryLdapBadge].comments	255
Facility code	Person.credentials[primaryLdapBadge].facilityCode	4
Hot stamp	Person.credentials[primaryLdapBadge].hotStamp	10
Issue code	Person.credentials[primaryLdapBadge].issueCode	8
Large card number	Person.credentials[primaryLdapBadge].largeCardNumber	1024
PIN	Person.credentials[primaryLdapBadge].pin	20
User Code Profiles	Person.credentials[primaryLdapBadge].privilegeAssignments	255
Site	Person.credentials[primaryLdapBadge].site.name	8
User code	Person.credentials[primaryLdapBadge].userCode	12
Effective	Person.credentials[primaryLdapBadge].validity.timespan.effectiveDate	8
Expires	Person.credentials[primaryLdapBadge].validity.timespan.expirationDate	8
Validity	Person.credentials[primaryLdapBadge].validity.type.name	32
Watch level	Person.credentials[primaryLdapBadge].watchLevel.name	32
Date of birth	Person.personIdentifier.DOB	8
Date of hire	Person.personIdentifier.DOY	8
Department	Person.personIdentifier.department.name	8
Employee #	Person.personIdentifier.employeeNumber	40
Status	Person.personIdentifier.employeeStatus.active	32
Personnel type	Person.personIdentifier.employeeType.name	32
ID#	Person.personIdentifier.govtId	64
SSN / FIN / ID#	Person.personIdentifier.govtIdSpecifier.name	32
First name	Person.personIdentifier.name.firstName	30
Last name	Person.personIdentifier.name.lastName	50
Middle name	Person.personIdentifier.name.middleName	30
Suffix	Person.personIdentifier.name.nameSuffix	15
Title	Person.personIdentifier.name.nameTitle	15
Nickname	Person.personIdentifier.name.nickname	30
Nationality	Person.personIdentifier.nationality.name	255

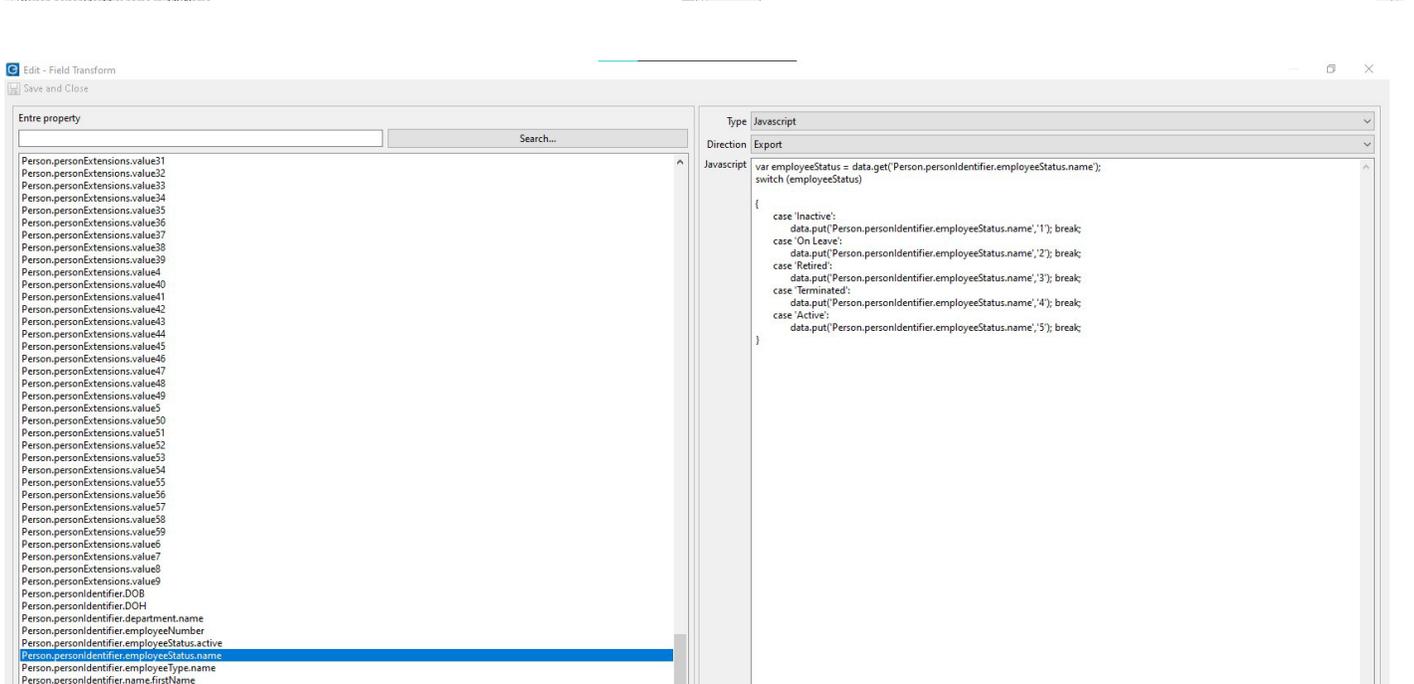
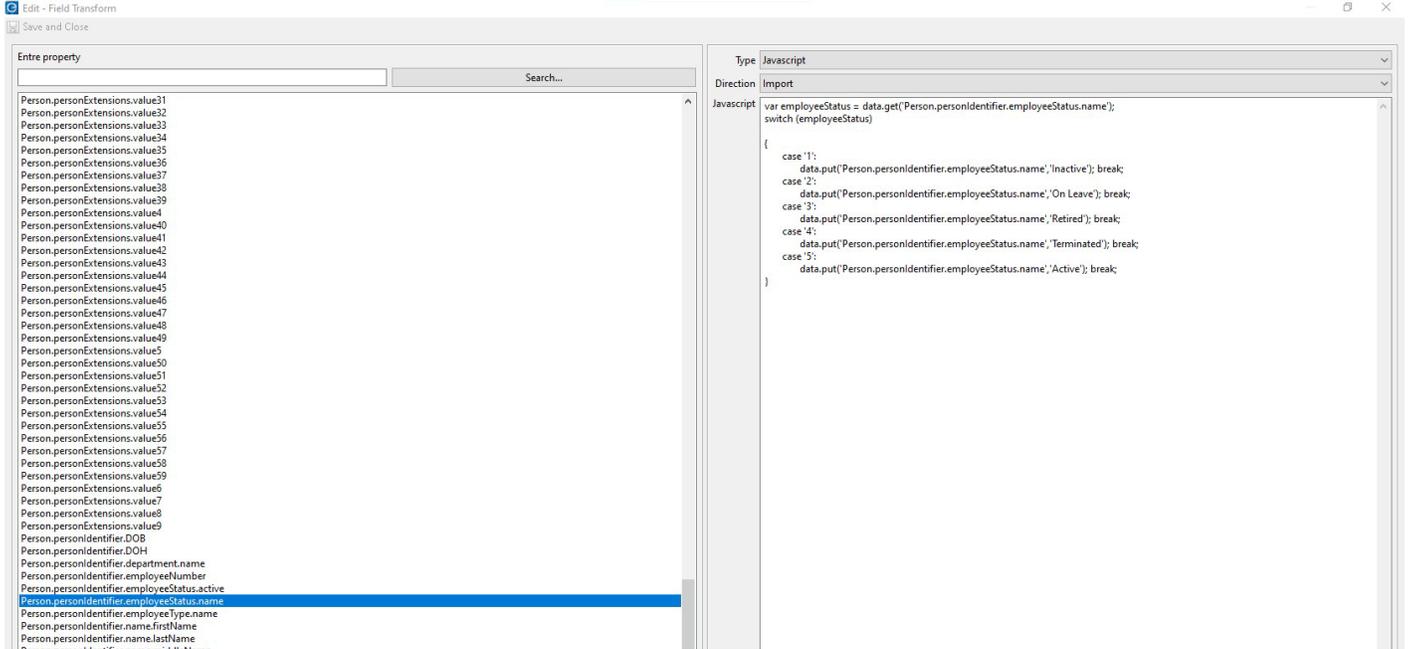
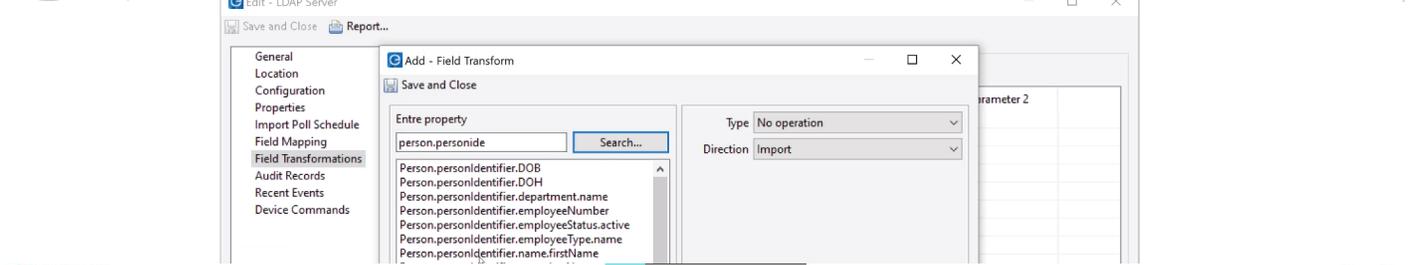
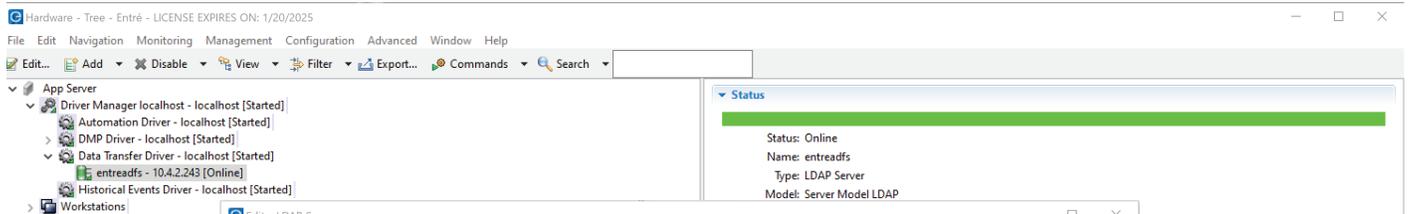
NAME	PROPERTY	FIELD LIMITATIONS
Organization	Person.personIdentifier.organization.name	8
Date of termination	Person.personIdentifier.terminationDate	8
Title in organization	Person.personIdentifier.titleInOrg	200
User ID	Person.personIdentifier.userId	32
Photo	Person.primaryIdPhoto.image.data	24
Signature	Person.primaryIdSignature.image.data	24
Profiles	Person.privilegeAssignments	255
Partition	Person.region.name	255
Username	Person.username	64

## Configure the Field Transformations

Use the **Field Transformations** tool to map custom personnel and badge fields. Create custom fields that pull from attributes found in **Field Mapping**.

The following is an example for **Person Identifier** scripts:

```
var employeeStatus = data.get('Person.personIdentifier.employeeStatus.name');
switch (employeeStatus)
{
    case '1':
        data.put('Person.personIdentifier.employeeStatus.name','Inactive'); break;
    case '2':
        data.put('Person.personIdentifier.employeeStatus.name','On Leave'); break;
    case '3':
        data.put('Person.personIdentifier.employeeStatus.name','Retired'); break;
    case '4':
        data.put('Person.personIdentifier.employeeStatus.name','Terminated'); break;
    case '5':
        data.put('Person.personIdentifier.employeeStatus.name','Active'); break;
}
```



# AUTOMATE SECURE LDAP IMPORT AND EXPORT



## Import Automation

### *Set Up Import Schedules*

The wizard defaults to a regular import interval of every 10 seconds. It is recommended to extend this interval to limit excessive calls to Active Directory and free resources of Entré.

### *Schedule the Full Import Command*

A full import can be scheduled using an automation rule.

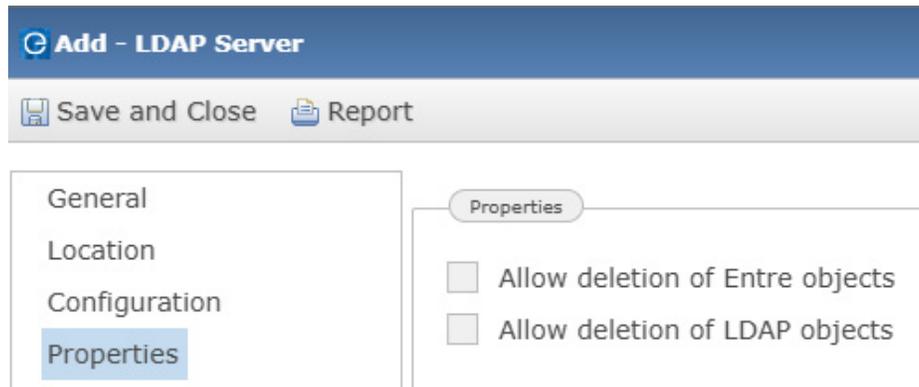
# POTENTIAL ISSUES AND RESOLUTIONS FOR SECURE LDAP

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## Some Changes in Entré Do Not Make it to Active Directory

Modifying an entry in Active Directory and modifying the related record in Entré can cause synchronization issues. Entré queues up a set of changes to send out. Though if a change is imported from Active Directory on the same field, the data from Active Directory will overwrite the exported change.

# LDAP SERVER PROPERTIES



## Allow deletion of Entre objects

**Allow deletion of Entré objects** allows during import for Entré objects to be deleted when an object in LDAP is deleted.

## Allow deletion of LDAP objects

**Allow deletion of LDAP objects** allows during export for LDAP objects to be deleted when an object in Entré is deleted.

 **Note: Allow deletion of LDAP objects** is not recommended as exporting to LDAP is currently not supported by Entré.

# SYSTEM CONFIGURATION — DATA TRANSFER

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## Change processing tasks (max)

Change the max number for the buffer when processing LDAP Imports.

## Change processing batch size (max)

Change the max read count when processing LDAP Imports.

## Halt import at number of changes

Set the max number of import changes, specifically new records or records going inactive, before the LDAP Server pauses the import in Entré to allow the user to fix the reason for halt.

## Number of LDAP Retries

Number of times Entré will attempt to reach out to the LDAP server.

## Acceptable error margin for LDAP import

The max difference between the halt number and the actual number of changes. This is between when we calculate the expected number of changes and the actual number of changes that are acceptable.

## Disable User Request Filter

Disables the User Request Filter field in the LDAP Server Configuration.

## Enable Dynamic Memberof Group Fetching

Enabled the Dynamic Memberof Group for the User Request Filter field in LDAP Server Configuration. See [Dynamic MemberOf Group Fetching](#) section for more information.

# DYNAMIC MEMBEROF GROUP FETCHING

## Dynamic MemberOf Group Fetching

The dynamic memberOf group fetching feature enables Entré to reach out to Active Directory to retrieve memberOf groups to be selectable in a list format. The user can check and uncheck to select the memberOf groups desired to be imported, and the User Request Filter will be formatted for the user.

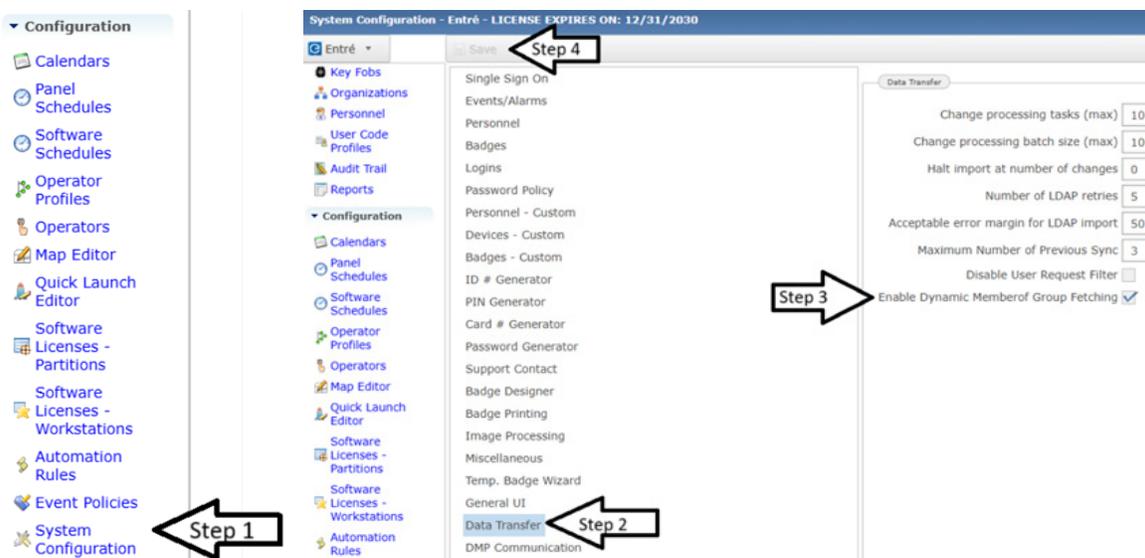
## How to set up the Dynamic MemberOf Group Fetching

Complete the following steps:

1. Navigate to **Configuration > System Configuration**.
2. Select **Data Transfer**.
3. Check the box for **Enable Dynamic Memberof Group Fetching**.
4. Select **Save**.

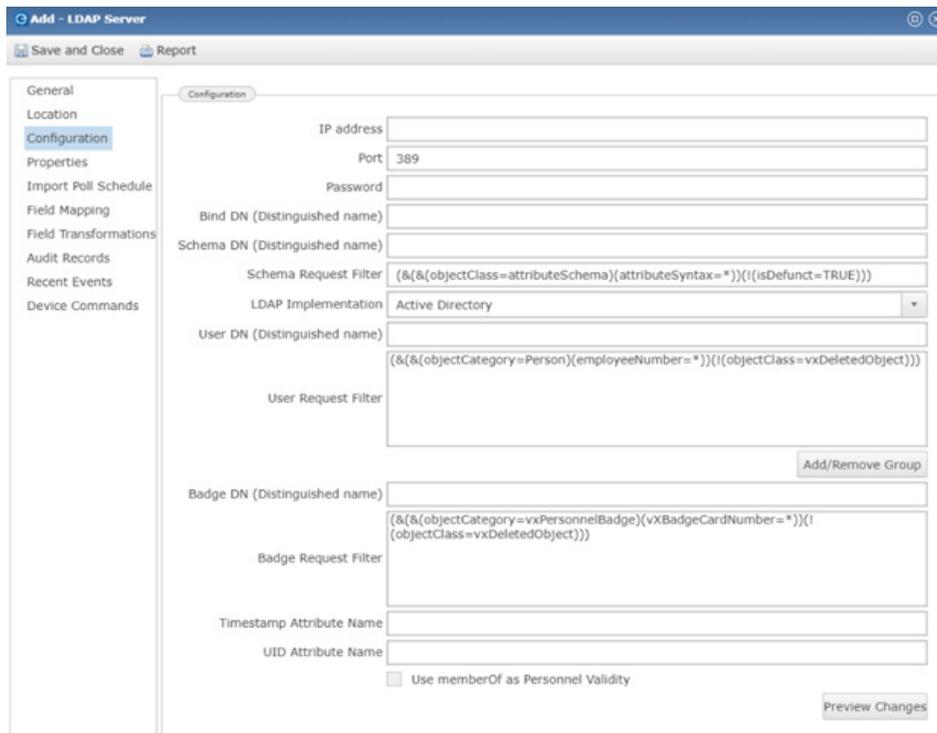


**Note:** After making a change to the System Configuration, log out and log back into Entré to see changes take effect.



**Figure 1: Example of LDAP Server window with the new Add/Remove Group button.**

This example shows the LDAP Server window when the Dynamic Memberof Group Fetching is enabled for the User Request Filter.



**Figure 2: New Dynamic Memberof Group Fetching window.**

The following example is the new Dynamic Memberof Group Fetching window where the user can search for the Memberof Group in the search bar and use checkboxes to select which Memberof Groups to be imported.

