

# InfoSphere Information Server

## Adding additional search bases to federated repositories



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This presentation will discuss how to add additional search bases to a federated repository configuration.

## Objectives

- What are search bases
- Adding base entries to realm
- Adding search bases to LDAP entity types
- How search base setup effects LDAP lookup

The objectives of this presentation are to discuss what search bases are and the benefits gained from setting up multiple search bases in federated repositories. It also discusses how to add a new base to the realm, how to configure search bases by way of the LDAP entity types and how the different configurations for search bases effect the LDAP lookup.

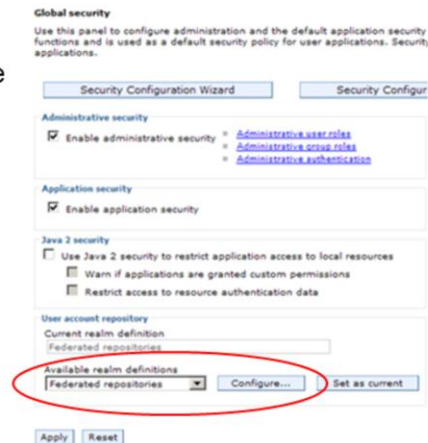
## Multiple search bases

- Information Server 8.5 and 8.7 ship with WebSphere® 7.0
  - WebSphere 7.0 allows for multiple search bases
- Makes LDAP lookup faster
  - Important with multiple LDAP domains and very large LDAP domains
- Multiple search paths can be defined two ways
  - Click Add Base entry to Realm
  - Change search base for PersonAccount and Group (under LDAP entity type)

Information Server 8.5 and 8.7 ship with WebSphere 7.0 which includes federated repositories for LDAP authentication. A feature of federated repositories is the ability to set multiple search bases. This is useful to help make LDAP lookups faster. This is important when you have a very large LDAP domain or have configured multiple LDAP domains. You can add an additional search base two ways. You can click Add Base entry to Realm or you can add it to the LDAP Entity Type for Person Account in the repository.

## Add base entry to realm (1 of 4)

- Example: NewcoAD
  - US users are in DC=us,DC=NewcoUsers,DC=Newco,DC=com
  - UK users are in DC=gb,DC=NewcoUsers,DC=Newco,DC=com
  - All groups located in DC=NewcoGroups,DC=Newco,DC=com
  - For Standalone and WebSphere 6.0 base, must be DC=Newco,DC=com
- WebSphere 7.0
  - Add additional search bases
- Open WebSphere Administrative console
  - Security => Global Security
  - Select Federated repositories
  - Click Configure



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Adding additional search bases to federated repositories

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This slide displays a federated repository that will authenticate against the Newco Active directory. The issue that Newco is experiencing is that the company's LDAP directory is very large and it is taking too long to return the user list. When the user list is returned, it is too long to work with. Newco will only have users in the US and Great Britain using Information Server. Newco needs to set up their search base to include both the US and Great Britain branches and the branch for their LDAP groups. In WebSphere 6.0 and in a standalone LDAP repository, you have to resolve this issue by setting the base DN to DC=Newco,DC=com as it is the only search base that contains all the desired users and groups. The problem with that is LDAP will have to search the entire company directory for their users and groups. When requesting a user or group list, they will also get all users or groups in the company. This example will resolve this issue by adding multiple search bases within federated repositories.

The first step is to open the WebSphere Administrative console, click Security on the left side and then Global Security. Next, be sure that Federated repositories is selected under Available realm definitions and click Configure.

## Add base entry to realm (2 of 4)

- Click Add Base entry to Realm

Repositories in the realm:

| Select                                      | Base entry                                 | Repository Identifier   | Repository Type |
|---|--|-------------------------|-----------------|
| You can administer the following resources: |  |                         |                 |
| <input type="checkbox"/>                    | <a href="#">DC=Newco,DC=com</a>            | <a href="#">NewcoAD</a> | LDAP:AD         |
| <input type="checkbox"/>                    | <a href="#">o=defaultWIMFileBasedRealm</a> | InternalFileRepository  | File            |

**Additional Properties**

- [Property extension repository](#)
- [Entry mapping repository](#)
- [Supported entity types](#)

**Related Items**

- [Manage repositories](#)
- [Trusted authentication realms - inbound](#)

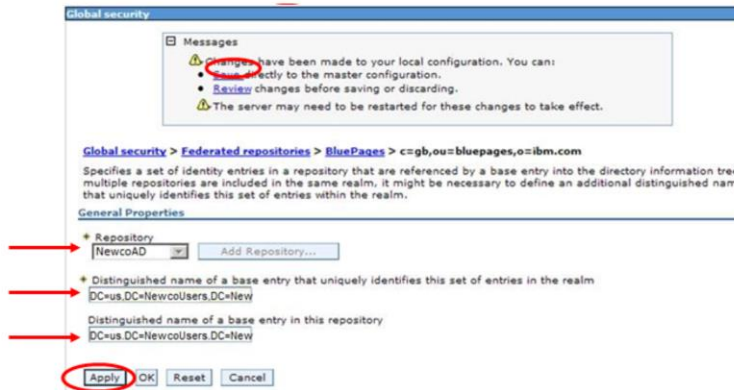
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This screen capture shows Newco's federated repository configuration. Click Add Base entry to Realm.

## Add base entry to realm (3 of 4)

- Select repository to add base to
- Enter new base DN
- Click Apply and then Save
  - If errors appear, check base DN entry
- Repeat steps in slides 3 and 4 to add additional bases  
 DC=gb,DC=NewcoUsers,DC=Newco,DC=com  
 DC=NewcoGroups,DC=Newco,DC=com



Next, click the Repository drop down and select the repository that you are adding the new search base to. Enter the new search base to be added to the realm. In this case Newco is going to add DC=us,DC=NewcoUsers,DC=Newco,DC=com. In this example, both Distinguished name fields are set to the same value. Click Apply and Save. WebSphere will go out and check to be sure that the base that is typed in exists in the repository. If it does not, an error will display in the Messages at the top of the screen. Click OK to go back to the main page.

Repeat these steps to add additional bases. For example, the base for Newco's Great Britain users, DC=gb,DC=NewcoUsers,DC=Newco,DC=com and Newco groups DC=NewcoGroups,DC=Newco,DC=com.

## Add base entry to realm (4 of 4)

- New bases now appear in repository list
- Original DC=Newco,DC=com still exists
  - Delete original base entry
- Addition of new bases complete

Repositories in the realm:

| Select                                      | Base Entry                          | Repository Identifier  | Repository Type |
|---|-------------------------------------|------------------------|-----------------|
| You can administer the following resources: |                                     |                        |                 |
| <input checked="" type="checkbox"/>         | DC=Newco,DC=com                     | NewcoAD                | LDAP:AD         |
| <input type="checkbox"/>                    | DC=us,DC=NewcoUsers,DC=Newco,DC=com | NewcoAD                | LDAP:AD         |
| <input type="checkbox"/>                    | DC=gb,DC=NewcoUsers,DC=Newco,DC=com | NewcoAD                | LDAP:AD         |
| <input type="checkbox"/>                    | DC=NewcoGroups,DC=Newco,DC=com      | NewcoAD                | LDAP:AD         |
| <input type="checkbox"/>                    | o=defaultWIMFileBasedRealm          | InternalFileRepository | File            |

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The new search bases will now display in the list of base entries. It is important to note that the original search base, DC=Newco,DC=com still exists from when the repository was originally created. Be sure to remove that base entry or the entire NewcoAD directory will still be searched. Check the box next to the base to be deleted and click the Remove button at the top. Save the changes. This completes the steps necessary to set the new search bases by adding them to the realm.

## Change LDAP entity to add new search base (1 of 6)

- Click your Repository Identifier
- Click LDAP entity types

Repositories in the realm:

| Select                   | Base Entry                 | Repository Identifier  | Repository Type |
|--------------------------|----------------------------|------------------------|-----------------|
| <input type="checkbox"/> | DC=Newco,DC=com            | NewcoAD                | LDAP:AD         |
| <input type="checkbox"/> | o=defaultWIMFileBasedRealm | InternalFileRepository | File            |

You can administer the following resources:

Additional Properties

- Property extension repository
- Entry mapping repository
- Supported entity types

Related Items

- Manage repositories
- Trusted authentication realms - inbound

General Properties

Repository identifier: NewcoAD

LDAP server

Directory type: Microsoft Windows Active Directory

Primary host name: NewcoAD.newco.com Port: 389

Failover server used when primary is not available:

| Select | Failover Host Name | Port |
|--------|--------------------|------|
| None   |                    |      |

Support referrals to other LDAP servers: ignore

Additional Properties

- Performance
- LDAP entity types
- Group attribute definition

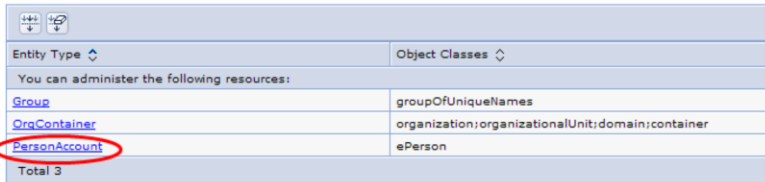
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A second way to set additional search bases is to set them from the LDAP identity type for PersonAccount or Group or both. From the Main federated repositories screen, click the identifier you want to add additional search bases to. Under Additional Properties, click LDAP entity types.



## Change LDAP entity to add new search base (2 of 6)

- Click PersonAccount

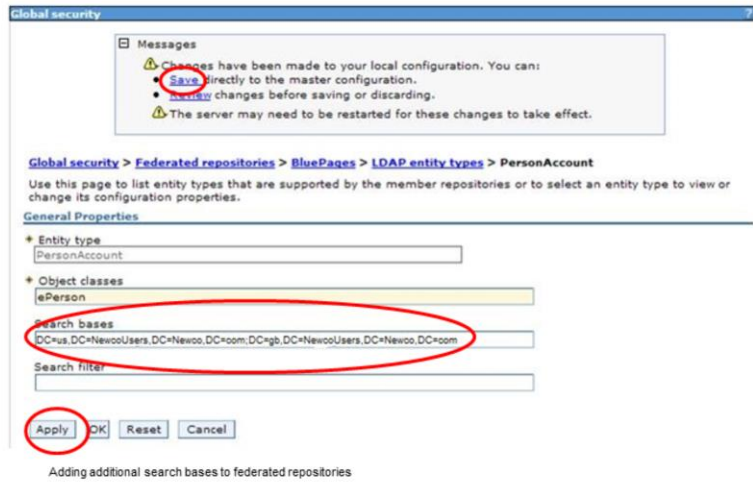


| Entity Type                                 | Object Classes                                   |
|---|--|
| You can administer the following resources: |  |
| <a href="#">Group</a>                       | groupOfUniqueNames                               |
| <a href="#">OrgContainer</a>                | organization;organizationalUnit;domain;container |
| <a href="#">PersonAccount</a>               | ePerson  |
| Total 3                                     |  |

This example will first set the search base for the users. Click PersonAccount.

## Change LDAP entity to add new search base (3 of 6)

- Add search bases
  - Add multiple bases by separating with semicolon



Under Search bases, type in the additional search bases. In this example, the search bases for the US and Great Britain users are added. Multiple search bases are defined by separating them with a semicolon. Next, click Apply and Save.

## Change LDAP entity to add new search base (4 of 6)

- Set base search for groups

The screenshot displays the configuration interface for LDAP entity types. On the left, a table lists available entity types: Group, OrgContainer, and PersonAccount. The 'Group' entry is circled in red. A large blue arrow points from this entry to the right-hand configuration panel. The configuration panel shows the 'Group' entity selected, with its object classes set to 'groupOfUniqueNames'. The 'Search bases' field is highlighted in yellow and contains the value 'DC=NewcoGroups,DC=Newco,DC=room', which is also circled in red. The 'Apply' button at the bottom is also circled in red. A message box at the top right indicates that changes have been made to the local configuration and provides instructions to save or review changes.

| Entity Type   | Object Classes     |
|---------------|--------------------|
| Group         | groupOfUniqueNames |
| OrgContainer  | org                |
| PersonAccount | ePe                |
| Total 3       |                    |

Global security > Federated repositories > BluePages > LDAP entity types > Group

Use this page to list entity types that are supported by the member repositories or to select an entity type to vi change its configuration properties.

General Properties

- \* Entity type  
Group
- \* Object classes  
groupOfUniqueNames
- Search bases  
DC=NewcoGroups,DC=Newco,DC=room
- Search title

Apply OK Reset Cancel

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The Group search base needs to be set next. Under the LDAP entity types screen, click Group and set the search base for the Newco groups. Click Apply and Save.

## Change LDAP entity to add new search base (5 of 6)

- Repository screen only shows original base  
DC=Newco,DC=com
- Save changes
- Restart WebSphere

**General Properties**

+ Realm name  
defaultWIMFileBasedRealm

+ Primary administrative user name  
ldwasadm

**Server user identity**

Automatically generated server identity

Server identity that is stored in the repository

Server user ID or administrative user on a Version 6.0.x node  
ldwasadm

Password  
\*\*\*\*\*

Ignore case for authorization

**Repositories in the realm:**

Add Base entry to Realm... Use built-in repository Remove

| Select                   | Base Entry                 | Repository Identifier  |
|--------------------------|----------------------------|------------------------|
| <input type="checkbox"/> | DC=Newco,DC=com            | NewcoAD                |
| <input type="checkbox"/> | o=defaultWIMFileBasedRealm | InternalFileRepository |

You can administer the following resources:

**Additional Properties**

- Property extension repository
- Entry mapping repository
- Supported entity types

**Related Items**

- Manage repositories
- Trusted authenticator

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This will bring you back to the repository screen. Notice the Repositories in the realm display just shows the original base. Save the changes and restart WebSphere in order for the changes to take effect.

## Change LDAP entity to add new search base (6 of 6)

- Entity Search base must fall within a sub tree of base set for repository in realm
- Entity Search base takes precedence over base set for repository

Repositories in the realm:

| Select                              | Base Entry                 | Repository Identifier  |
|-------------------------------------|----------------------------|------------------------|
| <input checked="" type="checkbox"/> | DC=Newco,DC=com            | NewcoAD                |
| <input type="checkbox"/>            | o=defaultWIMFileBasedRealm | InternalFileRepository |

You can administer the following resources:

General Properties

- \* Entity type: Group
- \* Object classes: groupOfUniqueNames
- \* Search bases: DC=NewcoGroups,DC=Newco,DC=com
- Search filter:

Repositories in the realm:

| Select                              | Base Entry                    | Repository Identifier  |
|-------------------------------------|-------------------------------|------------------------|
| <input checked="" type="checkbox"/> | DC=NewcoUsers,DC=Newco,DC=com | NewcoAD                |
| <input type="checkbox"/>            | o=defaultWIMFileBasedRealm    | InternalFileRepository |

You can administer the following resources:

General Properties

- \* Entity type: Group
- \* Object classes: groupOfUniqueNames
- \* Search bases: DC=NewcoGroups,DC=Newco,DC=com
- Search filter:

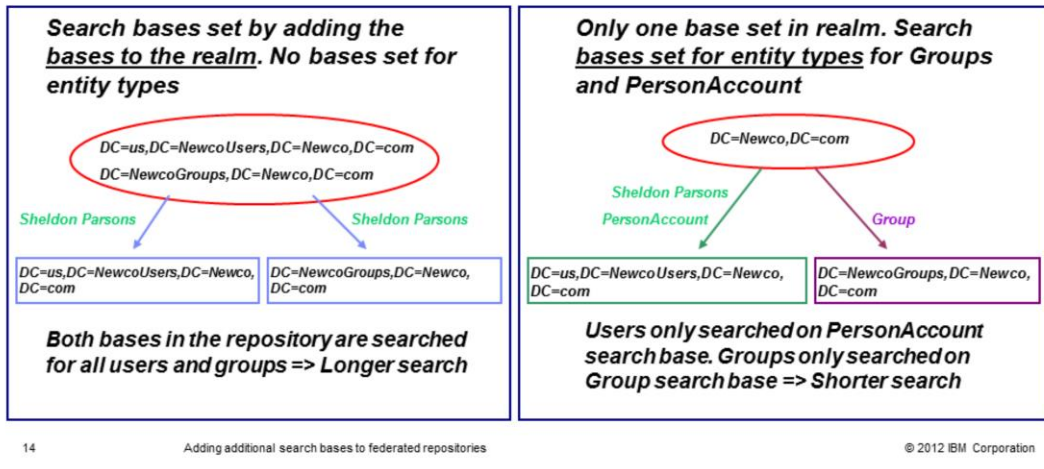
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When a search base or bases is set up as part of the Entity type, it is important to be sure that the search base set in the entity type falls within a sub tree of the base set for the repository. In this example, the setup on the left side is correct. The base for the repository is set to DC=Newco,DC=com and the Search base in the Group entity is DC=NewcoGroups,DC=Newco,DC=com.

The example displayed on the right shows an incorrect configuration. The base of the repository is restricted to the NewcoUsers branch sub tree and the group base does not fall under that sub tree. When a search is done, the Search bases in the entity types will take precedence over the Search base set in the repository. However, they still must fall within a sub tree of the base set in the repository.

## Federated repository search base – Which one to use?

- Entity Search base compared to Adding base entry to realm
  - All bases in realm are searched for users and groups
  - Entity Search base only searches matching entity type



This presentation showed two different ways to set up the search bases. It is important to understand how WebSphere performs an LDAP lookup in order to decide what is the best way to configure your federated repositories. When WebSphere searches for a user, it will look for the user under all bases that are created in the repository. In the example displayed on the left, the search bases have all been set up by adding a new base to the realm. No search bases have been defined in the entity types. WebSphere will search for user Sheldon Parsons by looking for the user under both the NewcoUsers branch and the NewcoGroups branch. Since Sheldon is a user and not a group, the search down the NewcoGroups branch is not necessary, however, it will always take place in the first scenario.

In the example displayed on the right, the base for the repository is set to `DC=Newco,DC=com` and the search bases are instead set in the PersonAccount and Group entity types. In this case, when WebSphere searches for user Sheldon Parsons whom it knows is a user, it will only look under the search base defined in the PersonAccount entity type. This will save search time as it does not have to do any unnecessary searching.

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