



Red Hat Directory Server 12

Importing and exporting data

Procedures on how to populate and extract directory databases

Red Hat Directory Server 12 Importing and exporting data

Procedures on how to populate and extract directory databases

Legal Notice

Copyright © 2024 Red Hat, Inc.

The text of and illustrations in this document are licensed by Red Hat under a Creative Commons Attribution–Share Alike 3.0 Unported license ("CC-BY-SA"). An explanation of CC-BY-SA is available at

<http://creativecommons.org/licenses/by-sa/3.0/>

. In accordance with CC-BY-SA, if you distribute this document or an adaptation of it, you must provide the URL for the original version.

Red Hat, as the licensor of this document, waives the right to enforce, and agrees not to assert, Section 4d of CC-BY-SA to the fullest extent permitted by applicable law.

Red Hat, Red Hat Enterprise Linux, the Shadowman logo, the Red Hat logo, JBoss, OpenShift, Fedora, the Infinity logo, and RHCE are trademarks of Red Hat, Inc., registered in the United States and other countries.

Linux[®] is the registered trademark of Linus Torvalds in the United States and other countries.

Java[®] is a registered trademark of Oracle and/or its affiliates.

XFS[®] is a trademark of Silicon Graphics International Corp. or its subsidiaries in the United States and/or other countries.

MySQL[®] is a registered trademark of MySQL AB in the United States, the European Union and other countries.

Node.js[®] is an official trademark of Joyent. Red Hat is not formally related to or endorsed by the official Joyent Node.js open source or commercial project.

The OpenStack[®] Word Mark and OpenStack logo are either registered trademarks/service marks or trademarks/service marks of the OpenStack Foundation, in the United States and other countries and are used with the OpenStack Foundation's permission. We are not affiliated with, endorsed or sponsored by the OpenStack Foundation, or the OpenStack community.

All other trademarks are the property of their respective owners.

Abstract

You can import data into a Directory Server instance when the instance is offline or online. You can also extract data from a Directory Server database.

Table of Contents

PROVIDING FEEDBACK ON RED HAT DIRECTORY SERVER	3
CHAPTER 1. IMPORTING DATA TO DIRECTORY SERVER	4
1.1. IMPORTING DATA USING THE COMMAND LINE WHILE THE SERVER IS RUNNING	4
1.2. IMPORTING DATA USING THE COMMAND LINE WHILE THE SERVER IS OFFLINE	5
1.3. IMPORTING DATA USING THE WEB CONSOLE WHILE THE SERVER IS RUNNING	6
CHAPTER 2. EXPORTING DATA FROM DIRECTORY SERVER	8
2.1. EXPORTING DATA USING THE COMMAND LINE WHILE THE SERVER IS RUNNING	8
2.2. EXPORTING DATA USING THE COMMAND LINE WHILE THE SERVER IS OFFLINE	9
2.3. EXPORTING DATA USING THE WEB CONSOLE WHILE THE SERVER IS RUNNING	10
2.4. ADDITIONAL RESOURCES	10
CHAPTER 3. ENABLING MEMBERS OF A GROUP TO EXPORT DATA AND PERFORMING THE EXPORT AS ONE OF THE GROUP MEMBERS	11
3.1. ENABLING A GROUP TO EXPORT DATA	11
3.2. PERFORMING AN EXPORT AS A REGULAR USER	12

PROVIDING FEEDBACK ON RED HAT DIRECTORY SERVER

We appreciate your input on our documentation and products. Please let us know how we could make it better. To do so:

- For submitting feedback on the Red Hat Directory Server documentation through Jira (account required):
 1. Go to the [Red Hat Issue Tracker](#).
 2. Enter a descriptive title in the **Summary** field.
 3. Enter your suggestion for improvement in the **Description** field. Include links to the relevant parts of the documentation.
 4. Click **Create** at the bottom of the dialogue.
- For submitting feedback on the Red Hat Directory Server product through Jira (account required):
 1. Go to the [Red Hat Issue Tracker](#).
 2. On the **Create Issue** page, click **Next**.
 3. Fill in the **Summary** field.
 4. Select the component in the **Component** field.
 5. Fill in the **Description** field including:
 - a. The version number of the selected component.
 - b. Steps to reproduce the problem or your suggestion for improvement.
 6. Click **Create**.

CHAPTER 1. IMPORTING DATA TO DIRECTORY SERVER

Import data from an LDIF file to a Directory Server database using the command line or the web console.



IMPORTANT

To import data, you must store the LDIF file that you want to import in the `/var/lib/dirsrv/slapd-instance_name/ldif/` directory.

1.1. IMPORTING DATA USING THE COMMAND LINE WHILE THE SERVER IS RUNNING

To import data while the Directory Server instance is running, use the **dsconf backend import** command.



WARNING

When you start an import operation, Directory Server first removes all existing data from the database and, subsequently, imports the data from the LDIF file. Therefore, if the import fails, the server returns no entries or a partial set of entries.

Prerequisites

- The LDIF file permissions allow the **dirsrv** user to read the file.
- The LDIF file to import contains the root suffix entry.
- The suffix and its database, to which you want to import data, exists in the directory.
- The Directory Server instance is running.
- The LDIF file to import uses UTF-8 character set encoding.

Procedure

1. Optional: By default, Directory Server sets the entry update sequence numbers (USNs) of all imported entries to **0**. To set an alternative initial USN value, set the **nsslapd-entryusn-import-initval** parameter. For example, to set USN for all imported values to **12345**, enter:

```
# dsconf -D "cn=Directory Manager" ldap://server.example.com config replace
nsslapd-entryusn-import-initval=12345
```

2. If you copied the file you want to import to `/var/lib/dirsrv/slapd-instance_name/ldif/`, reset the SELinux context on that file:

```
# restorecon -Rv /var/lib/dirsrv/slapd-instance_name/ldif/example.ldif
```

3. Use the **dsconf backend import** command to import data from an LDIF file.

For example, to import the `/var/lib/dirsrv/slapped-instance_name/ldif/example.ldif` file into the `userRoot` database:

```
# dsconf -D "cn=Directory Manager" ldap://server.example.com backend import
userRoot /var/lib/dirsrv/slapped-instance_name/ldif/example.ldif
The import task has finished successfully
```

4. Search the `/var/log/dirsrv/slapped-instance_name/errors` log for problems during the import.

Verification

- Search for entries under the imported suffix, for example `dc=example,dc=com`:

```
# ldapsearch -D "cn=Directory Manager" -W -H ldap://server.example.com -b
"dc=example,dc=com" -s sub -x
```

Additional resources

- [Storing suffixes in separate databases](#)
- [nsslapd-entryusn-import-initval](#)

1.2. IMPORTING DATA USING THE COMMAND LINE WHILE THE SERVER IS OFFLINE

If the Directory Server instance is offline, use the `dsctl ldif2db` command to import data.



WARNING

When you start an import operation, Directory Server first removes all existing data from the database and, subsequently, imports the data from the LDIF file. Therefore, if the import fails, the server returns no entries or a partial set of entries.

Prerequisites

- The LDIF file permissions allow the `dirsrv` user to read the file.
- The LDIF file to import contains the root suffix entry.
- The suffix and its database, to which you want to import data, exists in the directory.
- The Directory Server instance is not running.
- The LDIF file to import uses UTF-8 character set encoding.

Procedure

- Optional: By default, Directory Server sets the entry update sequence numbers (USNs) of all imported entries to **0**. To set an alternative initial USN value, set the **nsslapd-entryusn-import-initval** parameter. For example, to set USN for all imported values to **12345**, enter:

```
# dsconf -D "cn=Directory Manager" ldap://server.example.com config replace
nsslapd-entryusn-import-initval=12345
```

- If you copied the file you want to import to `/var/lib/dirsrv/slapd-instance_name/ldif/`, reset the SELinux context on that file:

```
# restorecon -Rv /var/lib/dirsrv/slapd-instance_name/ldif/example.ldif
```

- Use the **dsctl ldif2db** command to import data from an LDIF file. For example, to import the `/var/lib/dirsrv/slapd-instance_name/ldif/example.ldif` file into the **userRoot** database:

```
# dsctl instance_name ldif2db userRoot /var/lib/dirsrv/slapd-
instance_name/ldif/example.ldif
OK group dirsrv exists
OK user dirsrv exists
[17/Jul/2021:13:42:42.015554231 +0200] - INFO - ldbm_instance_config_cachememsize_set
- force a minimal value 512000
...
[17/Jul/2021:13:42:44.302630629 +0200] - INFO - import_main_offline - import userRoot:
Import complete. Processed 160 entries in 2 seconds. (80.00 entries/sec)
ldif2db successful
```

- Search the `/var/log/dirsrv/slapd-instance_name/errors` log for problems during the import.
- Optional: Start the instance:

```
# dsctl instance_name start
```

Verification

- Search for entries under the imported suffix, for example **dc=example,dc=com**:

```
# ldapsearch -D "cn=Directory Manager" -W -H ldap://server.example.com -b
"dc=example,dc=com" -s sub -x
```

Additional resources

- [Storing suffixes in separate databases](#)
- [nsslapd-entryusn-import-initval](#)
- To display all additional settings that you can use to import data, see the output of the **dsctl ldif2db --help** command.

1.3. IMPORTING DATA USING THE WEB CONSOLE WHILE THE SERVER IS RUNNING

Directory Server supports importing data using the web console.



WARNING

When you start an import operation, Directory Server first removes all existing data from the database and, subsequently, imports the data from the LDIF file. Therefore, if the import fails, the server returns no entries or a partial set of entries.

Prerequisites

- The LDIF file permissions allow the **dirsrv** user to read the file.
- The LDIF file to import contains the root suffix entry.
- The suffix and its database, to which you want to import data, exists in the directory.
- The LDIF file is stored in the **/var/lib/dirsrv/slapped-instance_name/ldif/** directory and has the **dirsrv_var_lib_t** SELinux context set.
- The Directory Server instance is running.
- You are logged in to the instance in the web console.
- The LDIF file to import uses UTF-8 character set encoding.

Procedure

1. In the web console, open the **Database** menu.
2. Select the suffix entry.
3. Click **Suffix Tasks**, and select **Initialize Suffix**.
4. Click the **Import** button next to the LDIF file you want to import. If the LDIF file is stored in a directory different than **/var/lib/dirsrv/slapped-instance_name/ldif/**, enter the full path to the file and click the **Import** button.
5. Select **Yes, I am sure**, and click **Initialize Database** to confirm.
6. To check the log for problems during the import, open the **Monitoring** → **Logging** → **Errors Log** menu.

Verification

1. Search for entries under the imported suffix, for example **dc=example,dc=com**:

```
# ldapsearch -D "cn=Directory Manager" -W -H ldap://server.example.com -b
"dc=example,dc=com" -s sub -x
```

Additional resources

- [Storing suffixes in separate databases](#)

CHAPTER 2. EXPORTING DATA FROM DIRECTORY SERVER

Export data from the Directory Server database to an LDIF file using the command line or the web console.



NOTE

The export operations include only directory data. Export does not include the configuration information (**cn=config**), schema information (**cn=schema**), and monitoring information (**cn=monitor**).

Use the export feature to:

- Copy data to another Directory Server.
- Export data to another application.
- Repopulate databases after a change to the directory topology.
- Split the database.

2.1. EXPORTING DATA USING THE COMMAND LINE WHILE THE SERVER IS RUNNING

To export data while the Directory Server instance is running, use the **dsconf backend export** command.

Prerequisites

- The **dirsrv** user has write permissions in the destination directory. Note that Directory Server uses its own private directories by default. As a result, backups and exports under directories **/var/tmp/**, **/tmp/**, and **/root/** fail unless you disabled the **PrivateTmp** systemd directive.
- The Directory Server instance is running.

Procedure

1. Use the **dsconf backend export** command to export data to an LDIF file. For example, to export the **userRoot** database:

```
# dsconf -D "cn=Directory Manager" ldap://server.example.com backend export
userRoot
The export task has finished successfully
```

By default, **dsconf** stores the export in a file called **instance_name_database_name-time_stamp.ldif** in the **/var/lib/dirsrv/slapd-instance_name/ldif/** directory. Alternatively, add the **-l file_name** option to the command to specify a different location.

2. Search the **/var/log/dirsrv/slapd-instance_name/errors** log for problems during the export.

Additional resources

- To display all additional settings that you can use to export data, see the output of the **dsconf ldap://server.example.com backend export --help** command.
- [Importing data using the command line while the server is running](#)
- [Backing up Directory Server](#)

2.2. EXPORTING DATA USING THE COMMAND LINE WHILE THE SERVER IS OFFLINE

If the Directory Server instance is offline, use the **dsctl db2ldif** command to export data.

Prerequisites

- The **dirsrv** user has write permissions in the destination directory.
Note that Directory Server uses its own private directories by default. As a result, backups and exports under directories **/var/tmp/**, **/tmp/**, and **/root/** fail unless you disabled the **PrivateTmp** systemd directive.
- The Directory Server instance is not running.

Procedure

1. Use the **dsctl db2ldif** command to export data to an LDIF file. For example, to export the **userRoot** database to the **/var/lib/dirsrv/slapd-instance_name/ldif/example.ldif** file:

```
# dsctl instance_name db2ldif userRoot
/var/lib/dirsrv/slapd-instance_name/ldif/example.ldif
OK group dirsrv exists
OK user dirsrv exists
ldiffile: /var/lib/dirsrv/slapd-instance_name/example.ldif
[18/Jul/2021:10:46:03.353656777 +0200] - INFO - ldbm_instance_config_cachememsize_set
- force a minimal value 512000
[18/Jul/2021:10:46:03.383101305 +0200] - INFO - ldbm_back_ldbm2ldif - export userRoot:
Processed 160 entries (100%).
[18/Jul/2021:10:46:03.391553963 +0200] - INFO - dlayer_pre_close - All database threads
now stopped
db2ldif successful
```

2. Search the **/var/log/dirsrv/slapd-instance_name/errors** log for problems during the export.
3. Optional: Start the instance:

```
# dsctl instance_name start
```

Additional resources

- To display all additional settings that you can use to import data, see the output of the **dsctl db2ldif --help** command.
- [Importing data using the command line while the server is offline](#)
- [Backing up Directory Server](#)

2.3. EXPORTING DATA USING THE WEB CONSOLE WHILE THE SERVER IS RUNNING

Directory Server supports exporting data using the web console.

Prerequisites

- The **dirsrv** user has write permissions in the destination directory.
Note that Directory Server uses its own private directories by default. As a result, backups and exports under directories **/var/tmp/**, **/tmp/**, and **/root/** fail unless you disabled the **PrivateTmp** systemd directive.
- The Directory Server instance is running.
- You are logged in to the instance in the web console.

Procedure

1. Open the **Database** menu.
2. Select the suffix entry.
3. Click **Suffix Tasks**, and select **Export Suffix**.
4. Enter the name of the LDIF file in which you want to store the export. Directory Server will store the file in the **/var/lib/dirsrv/slaped-*instance_name*/ldif/** directory using the specified file name.
5. Click **Export Database**.
6. To check the log for problems during the export, open the **Monitoring** → **Logging** → **Errors Log** menu.

Additional resources

- [Importing data using the web console while the server is running](#)
- [Backing up Directory Server](#)

2.4. ADDITIONAL RESOURCES

- [LDIF Technical Specification - RFC 2849](#).

CHAPTER 3. ENABLING MEMBERS OF A GROUP TO EXPORT DATA AND PERFORMING THE EXPORT AS ONE OF THE GROUP MEMBERS

You can configure that members of a group have permissions to export data. This increases the security because you no longer need to set the credentials of **cn=Directory Manager** in your scripts. Additionally, you can easily grant and revoke the export permissions by modifying the group.

3.1. ENABLING A GROUP TO EXPORT DATA

Use this procedure to add the **cn=export_users,ou=groups,dc=example,dc=com** group and enable members of this group to create export tasks.

Procedure

1. Create the **cn=export_users,ou=groups,dc=example,dc=com** group:

```
# dsidm -D "cn=Directory manager" ldap://server.example.com -b
"dc=example,dc=com" group create --cn export_users
```

2. Add an access control instruction (ACI) that allows members of the **cn=export_users,ou=groups,dc=example,dc=com** group to create export tasks:

```
# ldapadd -D "cn=Directory Manager" -W -H ldap://server.example.com

dn: cn=config
changetype: modify
add: aci
aci: (target = "ldap:///cn=export,cn=tasks,cn=config")
(targetattr="*") (version 3.0 ; acl "permission:
Allow export_users group to export data" ;
allow (add, read, search) groupdn
= "ldap:///cn=export_users,ou=groups,dc=example,dc=com");)
-
add: aci
aci: (target = "ldap:///cn=config")(targetattr =
"objectclass || cn || nsslapd-suffix || nsslapd-ldifdir")
(version 3.0 ; acl "permission: Allow export_users
group to access ldifdir attribute" ; allow
(read,search) groupdn = "ldap:///cn=export_users,ou=groups,dc=example,dc=com");)
```

3. Create a user:

- a. Create a user account:

```
# dsidm -D "cn=Directory manager" ldap://server.example.com -b
"dc=example,dc=com" user create --uid="example" --cn="example" --
uidNumber="1000" --gidNumber="1000" --homeDirectory="/home/example" --
displayName="Example User"
```

- b. Set a password on the user account:

```
# dsidm -D "cn=Directory manager" ldap://server.example.com -b
"dc=example,dc=com" account reset_password
"uid=example,ou=People,dc=example,dc=com" "password"
```

4. Add the **uid=example,ou=People,dc=example,dc=com** user to the **cn=export_users,ou=groups,dc=example,dc=com** group:

```
# dsidm -D "cn=Directory manager" ldap://server.example.com -b
"dc=example,dc=com" group add_member export_users
uid=example,ou=People,dc=example,dc=com
```

Verification

- Display the ACIs set on the **cn=config** entry:

```
# ldapsearch -o ldif-wrap=no -LLLx -D "cn=directory manager" -W -H
ldap://server.example.com -b cn=config aci=* aci -s base
dn: cn=config
aci: (target = "ldap:///cn=export,cn=tasks,cn=config")(targetattr="*)(version 3.0 ; acl
"permission: Allow export_users group to export data" ; allow (add, read, search) groupdn =
"ldap:///cn=export_users,ou=groups,dc=example,dc=com";)
aci: (target = "ldap:///cn=config")(targetattr = "objectclass || cn || nsslapd-suffix || nsslapd-
ldifdir")(version 3.0 ; acl "permission: Allow export_users group to access ldifdir attribute" ;
allow (read,search) groupdn = "ldap:///cn=export_users,ou=groups,dc=example,dc=com";)
...
```

3.2. PERFORMING AN EXPORT AS A REGULAR USER

You can perform exports as a regular user instead of **cn=Directory Manager**.

Prerequisites

- You enabled members of the **cn=export_users,ou=groups,dc=example,dc=com** group to export data.
- The user you use to perform the export is a member of the **cn=export_users,ou=groups,dc=example,dc=com** group.

Procedure

- Create an export task using one of the following methods:
 - Using the **dsconf backend export** command:

```
# dsconf -D "uid=example,ou=People,dc=example,dc=com"
ldap://server.example.com backend export userRoot
```

- By manually creating the task:

```
# ldapadd -D "uid=example,ou=People,dc=example,dc=com" -W -H
ldap://server.example.com
```

```
dn: cn=userRoot-2021_07_23_12:55_00,cn=export,cn=tasks,cn=config
```



```
changetype: add
objectClass: extensibleObject
nsFilename: /var/lib/dirsrv/slapd-instance_name/ldif/None-userroot-
2021_07_23_12:55_00.ldif
nsInstance: userRoot
cn: export-2021_07_23_12:55_00
```

Verification

- Verify that the backup was created:

```
# ls -l /var/lib/dirsrv/slapd-instance_name/ldif/*.ldif
total 0
-rw-----. 1 dirsrv dirsrv 10306 Jul 23 12:55 None-userroot-2021_07_23_12_55_00.ldif
...
```

Additional resources

- [Enabling a group to export data](#)