

Chapter 12

Upgrading the SDX-300 Software

This chapter describes how to upgrade the SDX-300 software from one version of the software to a later version. The chapter contains the following sections:

- Upgrading the SDX Software on page 145
- Migrating Directory Data on page 146

Upgrading the SDX Software

To upgrade the SDX software from an earlier release:

1. Remove previously installed SDX components.
See [Installing the SDX-300 Software](#) on page 61.
2. Remove all other components to be upgraded.
3. Install the SDX software. Complete all the installation steps in *Chapter 5, [Installing the SDX-300 Software](#)*.
4. Update the workspace for the SDX Configuration Editor.
See [Chapter 17, Using SDX Configuration Editor](#).
5. (Optional) Perform migration procedures to preserve data from a previous installation.

See [Migrating Directory Data](#) on page 146.

Migrating Directory Data

When you upgrade from an earlier SDX or SSC release, you must migrate your current directories for the upgraded SDX release.

We provide procedures to migrate directory data for OpenLDAP, Sun ONE Directory Server (iPlanet), or DirX from an earlier SSC or SDX software release this release. If you use Oracle Internet Directory, see the documentation for that product for information about updating directory data.



NOTE: The documentation does not describe how to change from one directory type to another when you upgrade to the current SDX release. Contact Juniper Networks Professional Services for assistance if you need to change directory types.

Before you start the migration procedures, you must provide a new host machine for the new software. We refer to this host as the migration host. After you complete the migration procedure, you can transfer the new installation to the original host or use the migration host as your new deployment host.

The migration host must include the following features:

- Physical attributes, such as memory and CPU, equal to or greater than those available on the original host.
- A Solaris version compatible with the new SDX release.
- The Solaris patches appropriate to the Solaris version.
- The Python runtime environment appropriate to the SDX release from which you are migrating. This is the SMCpython package provided in the SDX software distribution for that release.

Overview of the Migration Script

The migration script performs different tasks depending on whether you are upgrading your existing directory server to the latest release or keeping the current release.

Script Tasks Without Directory Server Upgrade

1. Export and convert any existing LDAP objects into a file.
2. Delete the existing objects from the LDAP directory.
3. Delete all obsolete schema elements from the global directory schema.
4. Modify existing schema elements as needed, and add the new schema elements to the global directory schema.
5. Extend the access-control schema. For DirX only, extend the directory information tree (DIT) structure and DIT content rules.

6. Modify existing data as needed.
7. Import the modified LDAP objects into the directory.

Script Tasks With Directory Server Upgrade

1. Export and convert any existing LDAP objects into a file.
2. Delete the existing objects from the LDAP directory.
3. Export the existing database into an LDAP Data Interchange Format (LDIF) file in case the databases are not compatible between the current and upgraded versions.
4. Remove the existing LDAP directory instance and the corresponding directory add-on package.
5. Install the upgraded directory and the latest directory add-on package (which includes any schema changes).
6. Import the LDIF file generated from the existing database.
7. Modify existing data as needed.
8. Import the modified LDAP objects into the directory.

Overview of Steps to Migrate Directory Data

The migration procedure consists of the following steps:

- Managing Shadowed Directories When Migrating Directory Data on page 148
- Preparing the Migration Host on page 151
- Cloning the Directory Server on page 152
- Installing the UMCmig Migration Package on page 154
- Migrating Directory Data on page 146
- Running the Migration Script on page 155
- Completing the Migration on page 156
- Updating the Original Host on page 157



NOTE: If disk shadowing is employed, you must ensure that shadowing is stopped. See *Managing Shadowed Directories When Migrating Directory Data* on page 148 for further details.

Managing Shadowed Directories When Migrating Directory Data

The migration procedure executes only on the primary directory. If you are performing the migration in a shadowed environment setup, then you must ensure that shadowing is terminated before running the migration script.

OpenLDAP Deployment

To turn off shadowing and restart the directory server for an OpenLdap deployment:

1. Comment out the directives *replica* and *repllogfile* from the OpenLDAP configuration file *umc.slapd.conf*.
2. Restart the directory server.

`/opt/UMC/openldap/etc/ldap start`

3. Perform the migration procedures described in *Running the Migration Script on page 155*, *Completing the Migration on page 156*, and *Updating the Original Host on page 157*.

Updating OpenLDAP Secondary Directories

After moving the migrated directory into production, you must update the OpenLDAP secondary directories.

1. Shut down the primary directory.
2. Shut down the secondary directory.
3. Copy the database directory from the primary directory to the secondary directories. Follow the steps described in the section, *Cloning the OpenLDAP Directory Server on page 152*.
4. Activate the *replica* and *repllogfile* directives of the OpenLDAP configuration file of the primary directory.
5. Configure the OpenLDAP configuration files for the secondary directories. These files must be identical to the *umc.slapd.conf* file of the primary directory, with the following exceptions:
 - Do not include a *replica* directive.
 - Do not include a *repllogfile* directive.
 - Include an updated line. You already configured this line when you set up the shadowing environment.
 - Ensure that the DN given in the *updatedn* directive has permission to write to the database.
 - Use the *updateref* directive to define the URL that the secondary directory must return if an update request is received. You already configured this line when you set up the shadowing environment.

6. Start the primary directory.
7. Start the secondary directories.

DirX Deployment

In a DirX deployment, you must terminate the shadowing agreement by using the **dirxadm** tool as follows:

1. Log in as user **dirx** and access the *customize* directory.

```
su - dirx  
cd customize
```

2. Start **dirxadm**, perform a bind operation, and terminate the shadowing agreement.

```
dirxadm  
dirxadm> sou bind.tcl  
dirxadm> ob terminate -dsa <dsa_name> -operationalbindingid <ob-id>  
-bindingtype SOB  
dirxadm> exit
```

where **<dsa_name>** is the digital signature algorithm (DSA) of the partner (secondary) directory and **<ob-id>** is the operational binding ID. Both of these values were established when you established the shadowing agreement.

3. Perform the migration procedures described in *Running the Migration Script* on page 155, *Completing the Migration* on page 156, and *Updating the Original Host* on page 157.

Updating DirX Secondary Directories

After moving the migrated directory into production, you must update the DirX secondary directories.

1. Uninstall the current UMCdirxa package, and install the most recent one.
2. Log in as user **dirx** and access the *customize* directory.

```
su - dirx  
cd customize
```

3. Copy the *dirxabbr-ext.UMC* file.

```
cp <dirx_inst_path>/customize/dirxabbr-ext.UMC  
<dirx_inst_path>/client/conf/
```

where **<dirx_inst_path>** specifies the DirX installation directory.

4. Create the access point of the secondary directory.

```
dirxadm
dirxadm> bind
dirxadm> ob modownacp {AE={ /CN=UMC-DSA2}, PSAP={TS=DSA,
NA='TCP/IP!internet=127.0.0.1+port=21100' } }
dirxadm>exit
```

5. Generate the SDX schema.

```
dirxadm
dirxadm>bind
dirxadm> sou schema.adm
dirxadm>exit
```

6. Establish the shadowing agreements on secondary and primary hosts. Perform the following tasks on both secondary and primary host.

```
su - dirx
cd customize
dirxadm
dirxadm> sou bind.tcl
dirxadm> ob establish -dsa <dsa_name> -operationalbindingid <ob-id>
-bindingtype SOB
dirxadm> exit
```

Sun ONE Deployment

To turn off shadowing and restart the directory server for a Sun ONE deployment:

1. Terminate the shadowing agreements before the migration procedure is executed.
2. Migrate the primary directory as described in *Running the Migration Script* on page 155, *Completing the Migration* on page 156, and *Updating the Original Host* on page 157.
3. Uninstall the primary directory server and all secondary directory servers.
4. When the primary directory is up and running, set up the supplier directories and the shadowing agreements according to the documentation for Sun ONE Directory Server.

Preparing the Migration Host

The directory server software and its add-on packages listed in the following table must be installed on both the original host and the migration host.

Directory Server	Software	SDX Add-On Package
DirX	Available from Siemens	UMCdirxa
Sun ONE (iPlanet)	Available from Sun Microsystems	UMCiDSa
OpenLDAP	UMColdap	UMColdapa

The software and add-on packages should already be present on the original host. See the *SDX Integration Guide: Network Devices, Directories, and RADIUS Servers* for information about installing the DirX or Sun ONE software. To install the required SDX packages on either host:

1. From a UNIX window, log in as `root`.
2. Load the SDX software disk 1.
3. Start the Solaris software management tool.

swmtool

The Admintool: Software window appears.

4. Select and add the desired package(s).

See the Solaris **man** page for **pkgadd** for more information about this utility. See *Chapter 5, Installing the SDX-300 Software* for an example of adding a package.

5. For Sun ONE (iPlanet) only, perform that software's setup utility.



NOTE: If the deployed software is earlier than Release 2.0.2, use the UMColdap or DirX-SV package from the Release 4.x SDX software CD. However, the UMColdapa and UMCdirxa add-on packages must be from SSC Release 2.0.

NOTE: Ensure that the directory contents do not change after you save the database on the original host. Additionally, keep the stored directory archives in case the migration fails and you need to restart the migration procedure from the beginning.

Cloning the Directory Server

You must transfer the contents of the original directory to a cloned directory on the migration host. The procedure depends on the type of directory in your current deployment.

Cloning the OpenLDAP Directory Server

To set up the OpenLDAP directory server on the migration host:

1. On the original host, log in as `root`.
2. On the original host, stop the OpenLDAP server.

```
/opt/UMC/openldap/etc/ldap stop
```

3. On the original host, archive the database.

```
tar cvf /tmp/openldapdb.tar /opt/UMC/openldap/var/openldap-ldbm/
```

where *openldapdb.tar* is the filename of the archive to be stored in the */tmp* directory.

4. On the original host, start the OpenLDAP server.

```
/opt/UMC/openldap/etc/ldap start
```

5. Transfer the archive by using FTP into the */tmp* directory on the migration host.



NOTE: If the OpenLDAP configuration file *umc.slapped.conf* differs from the original supplied file, as is the case for a shadowed environment, then you must also transfer that file to the migration host */tmp* directory by using FTP.

6. On the migration host, log in as `root`.
7. On the migration host, verify that the OpenLDAP server is shut down.

```
/opt/UMC/openldap/etc/ldap status
```

8. If the OpenLDAP configuration file *umc.slapped.conf* on the deployment host differs from the original file with the SDX software, then on the migration host you must copy it to the correct directory.

```
cp /tmp/umc.slapped.conf /opt/UMC/openldap/etc/openldap/
```

9. On the migration host, extract the archive.

```
tar xfv /tmp/openldapdb.tar
```

10. On the migration host, start the OpenLDAP server.

```
/opt/UMC/openldap/etc/ldap start
```

Cloning the DirX Directory Server

To set up the DirX directory server on the migration host:

1. On the original host, log in as user `dirx`, and access the `customize` subdirectory.

```
cd customize
```

2. On the original host, archive the database.

```
dirxadm  
dirxadm> source bind.tcl  
dirxadm> save -file /tmp/dirxdb
```

3. Transfer the archive by using FTP into the `/tmp` directory on the migration host.

4. On the migration host, log in as user `dirx`, and access the `customize` subdirectory.

```
cd customize
```

5. On the migration host, copy the abbreviation file as described below.

For SSC 2.x versions:

```
cp dirxabbr-ext.UMC2.0 ../client/conf/
```

For SDX 3.0 and higher versions:

```
cp dirxabbr-ext.UMC ../client/conf/
```

6. On the migration host, verify that the DirX server is running. See your DirX documentation for details.
7. On the migration host, restore the archive.

```
dirxadm  
dirxadm> source bind.tcl  
dirxadm> restore -file /tmp/dirxdb
```

Cloning Sun ONE Directory Server (iPlanet)

To set up Sun ONE Directory Server (iPlanet) on the migration host:

1. On the original host, log in as `root`.
2. On the original host, access the database directory.

For SSC Release 3.x:

```
cd /opt/UMC/iDS/slaped-ssc
```

For SDX Release 4.0 and higher:

```
cd /opt/UMC/iDS/slaped-sdx
```

3. On the original host, back up the database.

```
db2bak /tmp/iDSbak
```

4. On the original host, archive the database.

```
tar cfv /tmp/iDSdb.tar /tmp/iDSbak/
```

5. Transfer the archive by using FTP into the */tmp* directory on the migration host.

6. On the migration host, log in as `root`.

7. On the migration host, verify that Sun ONE Directory Server (iPlanet) is shut down.

8. On the migration host, extract the archive.

```
tar xfv /tmp/iDSdb.tar
```

9. On the migration host, access the database directory.

For SSC Release 3.x:

```
cd /opt/UMC/iDS/slaped-ssc
```

For SDX Release 4.0 and higher:

```
cd /opt/UMC/iDS/slaped-sdx
```

10. On the migration host, restore the saved database.

```
bak2db /tmp/iDSbak
```

11. On the migration host, start Sun ONE Directory Server (iPlanet).

```
/opt/UMC/iDS/etc/start-slaped
```

Installing the UMCmig Migration Package

The UMCmig package is provided in the SDX software distribution and includes a single migration procedure that handles all migration possibilities. See the Solaris **man** page for **pkgadd** or **smc** for information about using one of these utilities to add a package. By default, the migration files are installed in the */opt/UMC/migration* directory.

Customizing Migration

You must modify the file */etc/migration.conf* to provide the following information. Figure 24 shows a sample modified file.

- Host—IP address of the migration host. In general, this is localhost because you have cloned the production system.
- Administrator distinguished name (DN)

- Administrator password—The current administrator’s password is specified as a value of the type CurrentPwd. If the password changes between the previously deployed and current releases, the value of NewPwd must be different from the CurrentPwd value. Otherwise, the values are identical.
- Deployed directory—The migration procedure varies depending on the directory server. Only the OpenLDAP and DirX directory servers are supported for the migration from SSC 2.x releases. If you migrate from SDX 3.0.x to SDX 3.x, iPlanet Directory Server 4.1.x is also supported.
- Trap community and version—If you are migrating from SSC 3.0.x, you must provide values for these in the existing trap entries.

Figure 24: Sample Edited `etc/migration.conf` File

```
## Configuration file for migration procedure
#
# Current deployed SSC/SDX release.
# CurrentRelease: SSC_2.0.5
# CurrentRelease: SSC_3.0.1
# CurrentRelease: SDX_3.1.0
# CurrentRelease: SDX_4.0.0
# CurrentRelease: SDX_4.1.x
# CurrentRelease: SDX_4.2.x
CurrentRelease: SDX_4.3.x
Host: 127.0.0.1
Port: 389
Base: o=umc
Root: cn=umcadmin,o=umc
CurrentPwd: admin123
NewPwd: admin123
# Kind of deployed directory type. Possible values are OpenLDAP,
# DirX or iPlanet
# Type: DirX
# Type: OpenLDAP
Type: iPlanet
# Trap upgrade from SDX 3.0.x to SDX 3.x
Community: public
Version: 1
```

Running the Migration Script

The entire migration is valid for a single directory deployment.

If you need to perform the migration in a large-scale deployment with a shadowed directory setup, then before you run the migration script you must follow the instructions in *Managing Shadowed Directories When Migrating Directory Data* on page 148. After you have completed those tasks, return to this section and continue with the following procedure.

The migration script logs the migration steps in the file `/opt/UMC/migration/etc/migration.log`. You can check this file for migration errors.

To run the migration script on the migration host:

1. On the migration host, log in.
 - If OpenLDAP or Sun ONE Directory Server (iPlanet) is the deployed directory, log in as `root`.
 - If DirX is the deployed directory, log in as user `dirx`.
2. Access the migration directory.

```
cd /opt/UMC/migration
```

3. Start the migration script.

```
sh migrate.sh
```

Completing the Migration

Depending on your directory server, you may have additional steps to complete the migration.

DirX

For DirX, the migration is completed when the migration script successfully terminates. You can now transfer the migrated database to the original host.

OpenLDAP

For OpenLDAP, the migration is completed when the migration script successfully terminates. You can now transfer the migrated database to the original host.

Sun ONE (iPlanet)

For Sun ONE (iPlanet), the migration script displays additional steps that you must manually perform.

1. Remove the Sun ONE add-on package.

```
pkgrm UMCiDSa
```

2. Remove the Sun ONE Directory instance from its installation directory.

```
/opt/UMC/iDS/uninstall
```

3. Install the latest Sun ONE Directory Server add-on package.

```
pkgadd /cdrom/cdrom0/SDX/solaris/UMCiDSa
```

4. Install the recommended Sun ONE Directory Server release. See the *SDX Release Notes* for the latest recommended version.

```
<Sun-ONE-bin-path>/setup -s -f /opt/UMC/conf/iDS/sdx.inf
```

where `<Sun-ONE-bin-path>` is the location of the Sun ONE Directory Server binaries.

5. Configure Sun ONE Directory Server for the SDX software.



NOTE: Do NOT load the sample database.

/opt/UMC/conf/iDS/load

6. Access the migration directory.

cd /opt/UMC/migration

7. Complete the migration.
-



NOTE: This step is required only if you are migrating from a 3.x release to a 4.x or higher release.

sh finalizeMigration.sh

When you have successfully completed these steps, you can then transfer the migrated database to the original host.

Updating the Original Host

There are two ways to move the migrated data into production:

- Turn off the original host and replace it with the migration host. This method requires that both hosts be initially set up in the same manner, including hostname and IP address.
- Transfer the migrated data from the migration host back to the original host. This method requires the following steps:
 1. Remove the directory add-on package (UMCdirxa, UMColdapa, or UMCiDSa) to establish a clean directory environment.
 2. Remove the directory package.
 3. Install the directory server and add-on package from the latest SDX release.
 4. For DirX deployment

**cp <dirx_inst_path>/customize/dirxabbr-ext.UMC
<dirx_inst_path>/client/conf/**

where <dirx_inst_path > specifies the DirX installation directory.

5. For a Sun ONE Directory Server deployment, install and configure the directory server.

- a. Install the latest Sun ONE Directory Server add-on package.

```
pkgadd /cdrom/cdrom0/SDX/solaris/UMCiDSa
```

- b. Install the recommended Sun ONE Directory Server release. See the *SDX Release Notes* for the latest recommended version.

```
<Sun-ONE-bin-path>/setup -s -f /opt/UMC/conf/IDS/sdx.inf
```

where `<Sun-ONE-bin-path>` is the location of the Sun ONE Directory Server binaries.

- c. Configure Sun ONE Directory Server for the SDX software.



NOTE: Do NOT load the sample database.

```
/opt/UMC/conf/IDS/load
```

6. Transfer the data from the migrated computer to the original host. Follow the procedure for your directory in *Cloning the Directory Server* on page 152.



NOTE: For a DirX deployment, you must skip the step where you copy the abbreviation file, *dirxabbr-ext.UMC20*.
