



Installing the Product Software

The Cisco Configuration Engine is a network management software that acts as a configuration service for automating the deployment, management, and upgrading of network devices and services. Each Configuration Engine manages a group of Cisco devices (switches and routers) and the services that they deliver, storing their configurations and delivering them as needed. The Cisco Configuration Engine automates initial configurations and configuration updates by generating device-specific configuration changes, sending them to the device, executing the configuration change, and logging the results.

This chapter provides system requirements and procedures for installing, uninstalling, and upgrading the Cisco Configuration Engine software on the host system running on Linux platforms. It contains the following sections:

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Operating System Dependencies

[Table 1-2](#) lists the supported Red Hat Enterprise Linux 6 operating system versions for Cisco Configuration Engine release 3.5.4.

Table 1-1 **Operating System Dependencies**

Operating System	Update Supported
Red Hat Enterprise Linux 6	Update 0 to 4
Red Hat Enterprise Linux 5	Update 5 or later

System Requirements—Linux

With the following system requirements, device connections can scale up to 20,000 devices:

- Red Hat Enterprise Linux 6 (64-bit SMP, kernel 2.6, and SELinux disabled) or Red Hat Enterprise Linux 5 (32 bit SMP, kernel 2.6, and SELinux disabled)
- 4 Intel(R) Xeon(R) CPUs 5140 at 2.33 GHz or equivalent and later
- 8 GB RAM
- 70 GB disk space (see the [“Understanding Disk Space Calculation”](#) section on page 1-2)

Understanding Disk Space Calculation

**Note**

This disk space calculation is based on the Berkeley Database.

The `/opt/ConfigEngine/openldap/var/openldap-data/data.mdbfile` contains all the entries in the directory database. The size of this file provides a good approximation of the size of the directory database.

The following example shows that the size of the `data.mdb` file is approximately 7 MB. Assume that the average size of an entry in the database is 1 KB and that the database contains approximately 7000 entries.

In addition to the directory database, you must consider the disk space for database backups, Configuration Engine jobs, and log files. Because backups require as much storage as the active directory database, you must allocate space for backups also.

To view the size of the `data.mdb` file, enter the **ls -alt** command.

Example

Average size of config job:

In-Progress/Stopped is 2K.
Completed is 2.5

Average size of Image job:

Stopped is 4K.
In-Progress is 2.5 K.

```
myCE(/opt/ConfigEngine/openldap/var/openldap-data)# ls -alt
total 31384
/opt/ConfigEngine/openldap/var/openldap-data
drwxr-xr-x 4 root root 4096 Oct 21 09:33 ..
-rw----- 1 root root 282624 Oct 24 11:44 data.mdb
drwxr-xr-x 2 bin bin 4096 Oct 24 11:45 .
-rw----- 1 root root 8192 Oct 24 15:28 lock.mdb
```

Cisco IOS Dependencies

Table 1-2 lists Cisco IOS versions with corresponding versions of Cisco Configuration Engine 3.5.4 including feature limitations associated with each version.

Table 1-2 Cisco Configuration Engine 3.5.4 and Cisco IOS Dependencies

Cisco IOS	Cisco Configuration Engine	Limitations
12.3	1.3.2 or later	—
12.2(11)T	1.2 or later	—
12.2(2)T	1.2 or later with no authentication.	Applications are unable to use exec commands or point-to-point messaging.

Understanding Installation

The Cisco Configuration Engine 3.5.4 image is provided in a tar file format. You must untar the image in a directory, then go to that directory and run the installation script. You need root access to install Cisco Configuration Engine. For details about the installation procedure, see the “[Installing the Software](#)” section on page 1-4.

Cisco Configuration Engine 3.5.4 shares the web infrastructure-related software with bundled Cisco software. The installation script checks for shared and nonshared packages and takes appropriate action to install, abort, or prompt the user for package path.

To support different types of installations and setup, you are provided with the following installation script options:

./ce_install.sh—Default option. Installs all packages. Allows interactive installation that prompts the user for input.

./ce_install.sh-batch—Allows non-interactive installation. The installation script reads the default values from the *installRule.linux6.xml* file as appropriate, and installs Cisco Configuration Engine 3.5.4 based on these settings without query for user input.

`./ce_install.sh-demo`—Installs the package without checking system resources except for minimum disk space, which is 650MB.

`./ce_install.sh-force`—Installs/uninstalls Cisco Configuration Engine 3.5.4 without installation or un-installation status check.

For details about the installation script, see the [“Information About the Installation Script”](#) section on page 1-8.

Installing the Software

The Cisco Configuration Engine 3.5.4 software is contained in a CD-ROM that is in the accessory kit.



Note

You need root access to install the Cisco Configuration Engine software.

- Step 1** Install the CD-ROM into the disk drive on the host system.
- Step 2** Copy the tar file into a new folder with sufficient disk space (see the [“Understanding Disk Space Calculation”](#) section on page 1-2):

```
tar xvf <tarfilename>
```



Note

The tar file must be the only file in this new folder. You should use GNU tar for untarring the file.

- Step 3** Check the system requirements for the installation:
- `./ce_check.sh`**—checks the system software and hardware requirements before installing the Cisco Configuration Engine software.
- Step 4** Enter the appropriate installation script commands. (See the [“Understanding Installation”](#) section on page 1-3.)
- Step 5** After installing the software, log out, and then log back in, or open a new window.

- Step 6** Enter the following commands:
- ```
cd $CISCO_CE_INSTALL_ROOT/CSCOcsie/bin/
./setup
```
- Step 7** See [Chapter 2, “Running the Setup Program”](#) for a description of how to set up your system.
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## Upgrading from Release 2.0 or Later to Release 3.5.4

The Data Migration feature allows you to upgrade from Cisco Configuration Engine Release 2.0 till Release 3.5.3 to 3.5.4. This feature populates the directory with the data you established for the prior release.

**Note**

If you are using releases prior to Release 3.5.3, execute the `./schema_patch.sh` patch to upgrade to Release 3.5.4. If you are using Release 3.5.3, you do not have to execute this patch.

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This is a four-step process:

1. Execute the patch script. For more information, see [Execute Patch Script, page 1-5](#)
2. Export the data to a remote FTP site. For more information, see [Export Data to a Remote FTP Site, page 1-6](#).
3. Install Release 3.5.4 software. For more information, see [Install Release 3.5.4 Software, page 1-7](#)
4. Retrieve data from the FTP site and then set up the system. For more information, see the [“Run datamigrate and Configure the System”](#) section on page 1-7.

**Note**

When you perform data migration on a device in which Cisco Configuration Engine 3.5.4 is installed and the setup is executed, run the `./reinitialize` script from `CISCO_CE_HOME/bin`.

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## Execute Patch Script

If you have custom attributes defined in Cisco Configuration Engine 3.5.3 and are planning to migrate to Cisco Configuration Engine 3.5.4, run `./schema_patch.sh` patch script. The patch script will be a part of Cisco Configuration Engine Release 3.5.4; the patch script file is available in the Resource Policy Management System or Patch directory when you untar the Cisco Configuration Engine 3.5.4 tar file. After applying this patch, run the search queries based on your custom attributes.

To run the patch script, follow these steps:

1. Untar the Cisco Configuration Engine 3.5.4 tar file and go to the Patch folder.
2. Run the `./schema_patch.sh` script.

**Example of dataexport Prompts**

```
./schema_patch.sh

CE utility to patch schema of custom defined attributes.

Apply this patch if you are migrating from any CE release prior CE 3.5.3 to CE 3.5.3 or
later.
```

```
Do you want to apply the patch to update CE schema? (y/n) [n]y
Applying patch...
Patch SUCCESS!!!
Now you can run dataexport script for CE migration.
```

**Note**

After the schema patch is run, the older version of the Configuration Engine will not function. So, ensure to take a backup of the data before running the script.

## Export Data to a Remote FTP Site

Before exporting the data, it is assumed that your host has already been setup and is up and running. To export data to a remote FTP site from the Cisco Configuration Engine release 2.0, follow these steps.

**Step 1** Enter the data export command from `cd $CISCO_CE_HOME/bin` directory:

```
./dataexport
```



**Tip** Ensure you type the period (.) prior to the command.

**Step 2** Enter the information of the FTP site and storage location (absolute pathname including filename), by following the sequence of prompts.

### Example of dataexport Prompts

```
Entering Data Export
Type ctrl-c to exit
```

```
Enter FTP server (hostname.domainname or IP address): servername.cisco.com
Enter username used for FTP server: smith
Enter FTP password: *****
Re-enter FTP password: *****
Enter absolute pathname of data file on FTP server: /users/smith/migration.tar
```

**Step 3** Insert the Release 3.5.4 CD-ROM into the CD drive of your host system.

**Step 4** To mount the CD-ROM, login as **root** user, then enter the command:

```
mount /mnt/cdrom
```

**Step 5** Copy the following image file from *RPMS/DataExport* to `cd $CISCO_CE_HOME/bin` directory.

- `cns_export_utils_1.6.sh`
- `cnsexport_1.6.sh`
- `cns_import_utils.pl`
- `dataexport`
- `setuputils.pm`

**Step 6** After copying the image files, repeat steps 1 and 2.

## Install Release 3.5.4 Software

Install the Cisco Configuration Engine 3.5.4 software on the target system. For the procedure, see the “[Installing the Software](#)” section on page 1-4.

## Run *datamigrate* and Configure the System

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**Step 1** Log in as **root**.

**Step 2** Start *datamigrate* by entering the following command:  
**\$CISCO\_CE\_HOME/bin/datamigrate**

The script proceeds in the following three stages:

- a. Acquires information of the FTP server that stores the migration data and retrieves the data.
- b. Starts Release 3.5.4 setup prompts and configures the system.
- c. Populates internal directory storage with retrieved data.

### Example of *datamigrate* Prompts

```
Enter FTP server (hostname.domainname or IP address): sername.cisco.com
Enter username used for FTP server: smith
Enter FTP password: *****
Re-enter FTP password: *****
Enter absolute pathname of data file on FTP server: /users/smith/migration.tar
```

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## Uninstalling the Software

To uninstall the software, use the uninstall script command, **ce\_uninstall.sh**. The uninstall script is copied into */var/ciscoce/install* directory. This script reads the *installdata.xml* file to do package uninstallation. It proceeds in the following four stages:

1. Stops all running Cisco Configuration Engine 3.5.4 processes.
2. Removes all presence of installed packages.

To uninstall Cisco Configuration Engine 3.5.4 packages without checking the installation status, use the **\$ce\_uninstall.sh {-force}** command. The option **-force** in the uninstallation script removes all Cisco Configuration Engine 3.5.4 packages except the preexisting shared packages on the target host.

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## Synchronizing Clocks

The clock (date and time) on your host and the clock on the PC that you use to access the Cisco Configuration Engine 3.5.4 user interface must be synchronized. This is particularly important when scheduling an update-image job for a future time (see the [Cisco Configuration Engine Troubleshooting Guide](#)).

If the host clock lags the PC clock, the user interface will not allow you to schedule the job and you will see an error message. For example, if your host clock reads 11:10 while the PC clock reads 12:10, the user interface will not allow a job to be scheduled before 12:10. You will see the following error message:

```
Please input a future time.
```

To verify that the clocks are correctly synchronized, make sure you have entered a valid time value on the client side. You can do this by using the clock on your PC with the browser used to access the Cisco Configuration Engine user interface.

## Information About the Installation Script

The default behavior of the install script, *ce\_install.sh*, is defined in the *installRule.linux6.xml* file as appropriate. This file is located in the same directory where the Cisco Configuration Engine 3.5.4 tar file is untarred. The *installRule* files contain the following information:

- Which package for which version should be installed.
- Can a package be shared.
- The behavior of the installation if the package exists or not.
- The methods to install and un-install the package.

The result of the installation is logged under */var/log/CNSCE/install.log*. This log file lists exactly what is being installed into the system. For a successful install, the contents of this log file should be the same as the contents of the *installRule.linux6.xml* file as appropriate.

The *installError.xml* file is generated if there is an error during installation. Other files, such as those that contain all Cisco Configuration Engine 3.5.4 related environmental variables, are also generated during the installation stage including: *global.sh*, *global.csh*, *global.pm*, and *installdata.properties*.

### Options for Setup Script

- Interactive Mode—This is the default option that prompts the user to provide inputs such as installation base directory, environment variables, and store them in a data file. The default value is read from *setupRule.xml* under: `/${CISCO_CE_INSTALL_ROOT}/CSCOcsie/bin/`.

The result is stored in the log file: */var/log/CNSCE/appliance-setup.log*.

- Batch Mode—Reads all the information it requires for setup without user interaction from the data file: `/${CISCO_CE_INSTALL_ROOT}/CSCOcsie/bin/setupRule.xml`.

The result is stored in the log file: */var/log/CNSCE/appliance-setup.log*.



#### Note

Before running batch mode the first time, you must run the utility script `/${CISCO_CE_HOME}/bin/passwdEncryption.pl`. This creates encrypted passwords and loads them into the *setupRule.xml* file. The passwords in XML must be in encrypted text, not plain text.

## Information About the Check Script

The default behavior of the Check script, *ce\_check.sh* is defined in the *installRule.linux6.xml* file as appropriate. The script checks for the following:



- Root user
- OS
- CPU
- RAM
- Disk space for /var directory
- List of dependent packages and their versions. Reports errors and warnings when there is a mismatch in the requirement and package dependencies.

The result is stored in the checkError.log file in the same directory where the Cisco Configuration Engine 3.5.4 tar file is untarred.

**Note**

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The disk space requirement check for `/${CISCO_CE_INSTALL_ROOT}` directory is done only during the installation.

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## Troubleshooting the Installation

For more information about the installation script, see the [Cisco Configuration Engine Troubleshooting Guide](#).

