

Upgrading the NCE Software

Contents

- [How to Upgrade or Downgrade the NCE Service Module, page 2-1](#)
- [How to Configure, Operate, and Administer the Network Capacity Expansion Service Module, page 2-9](#)

How to Upgrade or Downgrade the NCE Service Module

This section contains the following procedures:

- [Setting Up the Transport-opt Interface, page 2-1](#)
- [Opening and Closing a Session, page 2-4](#)
- [Check Software Version, page 2-5](#)
- [Software Upgrade or Downgrade, page 2-6](#)
- [First-time Bootup of a Service Module, page 2-7](#)

**Note**

- If you lose power or connection during any of the procedures, the system usually detects the interruption and tries to recover. If it fails to recover, fully reinstall the service by using the boothelper.
 - You can configure the module by using the CLI.
-

Setting Up the Transport-opt Interface

The first set-up task is to configure Cisco IOS on the NCE module.

**Note**

Step 1 through Step 4 open the host-router CLI and access the router interface to the module. Step 5 through Step 9 configure the interface.

SUMMARY STEPS

From the Host-Router CLI

1. **enable**
2. **configure terminal**
3. **interface Transport-Opt-Service-Engine** *slot/port*
4. **ip address** *ip-address mask*
or
ip unnumbered *type number*
5. **service-module ip address** *nm-side-ip-address subnet-mask*
6. **service-module ip default-gateway** *gateway-ip-address*
7. **no shutdown**
8. **end**
9. **copy running-config startup-config**
10. **show running-config**

DETAILED STEPS

	Command or Action	Purpose
	From the Host-Router CLI	
Step 1	enable Example: Router> enable	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode on the host router.
Step 3	interface Transport-Opt-Service-Engine <i>slot/port</i> Example: Router(config)# interface Transport-Opt-Service-Engine 1/0	Enters interface configuration mode for the module slot and port.

	Command or Action	Purpose
Step 4	<p>ip address <i>ip-address mask</i></p> <p>OR</p> <p>ip unnumbered <i>type number</i></p> <p>Example: Router(config-if)# ip address 10.0.0.20 255.255.255.0</p> <p>OR</p> <p>Router(config-if)# ip unnumbered Fastethernet 0</p>	<p>Specifies the router interface to the module. Arguments are as follows:</p> <ul style="list-style-type: none"> <i>ip-address</i>—IP address for the router interface to the module. <i>mask</i>—Subnet mask for the router interface to the module. <i>type number</i>—Type and number of another interface on which the router has an assigned IP address. It cannot be another assigned unnumbered interface.
Step 5	<p>service-module ip address <i>nm-side-ip-address subnet-mask</i></p> <p>Example: Router(config-if)# service-module ip address 10.0.0.40 255.255.255.0</p>	<p>Specifies the IP address for the module interface to the router. Arguments are as follows:</p> <ul style="list-style-type: none"> <i>nm-side-ip-address</i>—IP address for the interface. <i>subnet-mask</i>—Subnet mask to append to the IP address; must be in the same subnet as the gateway router.
Step 6	<p>service-module ip default-gateway <i>gateway-ip-address</i></p> <p>Example: Router(config-if)# service-module ip default-gateway 10.0.0.20</p>	<p>Specifies the IP address for the default gateway router for the module. The argument is as follows:</p> <ul style="list-style-type: none"> <i>gateway-ip-address</i>—IP address for the gateway router.
Step 7	<p>no shut</p> <p>Example: Router(config-if)# no shut</p>	<p>Brings up line interface.</p>
Step 8	<p>end</p> <p>Example: Router(config-if)# end</p>	<p>Returns to global configuration mode on the host router.</p>
Step 9	<p>copy running-config startup-config</p> <p>Example: Router# copy running-config startup-config</p>	<p>Saves the router's current running configuration.</p>
Step 10	<p>show running-config</p> <p>Example: Router# show running-config</p>	<p>Shows the router's running configuration, so that you can verify address configurations.</p>

Examples

The following partial output from the **show running-config** command shows how the interfaces are configured.

```
interface Transport-Opt-Service-Engine0/0
 ip address 10.0.0.20 255.255.255.0
```

```

service-module ip address 10.0.0.40 255.255.255.0
  service-module ip default-gateway 10.0.0.20
end
ip route 10.0.0.40 255.255.255.255 Transport-Opt-Service-Engine 1/0

```

Opening and Closing a Session

You can now open and close a session on the module.



Note

If you change the IP address before you disconnect the session, you must clear the users by using the CLI command:

```
service-module t0/0 session clear
```

If you issue a **disconnect** command after changing the IP address, the **disconnect** command clears only the active session, but not the users connected to it.



Note

You can conduct only one session at a time.

Cisco IOS commands are entered from the host-router CLI. Application commands are entered from the service module interface.

SUMMARY STEPS

From the Host-Router CLI

1. **enable**
2. **service-module Transport-Opt-Service-Engine *slot/port* status**
3. **service-module Transport-Opt-Service-Engine *slot/port* session**

From the Service-Module Interface

4. Perform configuration or other procedures.
5. To switch the session back to the Cisco IOS, press **Control+Shift+6 x**

From the Host-Router CLI

6. **service-module Transport-Opt-Service-Engine *slot/port* session clear**

DETAILED STEPS

	Command or Action	Purpose
	From the Host-Router CLI	
Step 1	enable	Enters privileged EXEC mode on the host router. Enter your password if prompted.
	Example: Router> enable	

	Command or Action	Purpose
Step 2	<pre>service-module Transport-Opt-Service-Engine slot/port status</pre> <p>Example: Router# service-module Transport-Opt-Service-Engine 1/0 status</p>	<p>Shows the status and version of the application running on the specified module, so that you can ensure that the module is running (that is, in steady state).</p> <p>Note If the module is not running, start it with one of the startup commands listed in the “Shutting Down and Starting Up the Network Capacity Expansion Service Module” section on page 2-10.</p>
Step 3	<pre>service-module Transport-Opt-Service-Engine slot/port session</pre> <p>Example: Router# service-module Transport-Opt-Service-Engine 1/0 session</p> <p>Trying 10.10.10.1, 2065 ... Open</p>	<p>Begins a session on the specified module. To start a configuration session, press Enter.</p>
From the Service-Module Interface		
Step 4	<p>Example (Configuration):</p> <pre>SE-Module> configure terminal SE-Module(config)> . . . SE-Module(config)>exit SE-Module> write</pre>	<p>Enter configuration commands on the module as needed. Configuration commands are similar to those that are available for the router. To access global configuration mode, use the configure terminal command. Enter configuration commands. To exit global configuration mode use the exit command. To save your new configuration, use the write command. Notice that you do not use the enable command and that the prompt does not change from >.</p>
Step 5	<p>Press Control+Shift+6 x.</p>	<p>Switches the service-module session back to Cisco IOS and returns to the router CLI.</p> <p>Note The service-module session stays up until you clear it in the next step. While it remains up, you can return to it from the router CLI by pressing Enter.</p>
From the Host-Router CLI		
Step 6	<pre>service-module Transport-Opt-Service-Engine slot/port session clear</pre> <p>Example: Router# service-module Transport-Opt-Service-Engine 1/0 session clear</p>	<p>Clears the service-module session for the specified module. When prompted to confirm this command, press Enter.</p>

Check Software Version

Check software to determine if you should upgrade, downgrade, or install new software. Run Cisco IOS command **service-module Transport-opt slot/port status**.

Transport Optimization Module 2.0.1 is running on the service module if the output is similar to:

```
BRANCH-1-C3845-1#service-module t4/0 status
Service Module is Cisco Transport-Opt-Service-Engine4/0
Service Module supports session via TTY line 258
Service Module is in Steady state
Service Module heartbeat-reset is enabled
```

```
Getting status from the Service Module, please wait..
Transport Optimization Module 2.0.1
TPO Running on NM
BRANCH-1-C3845-1#.
```

**Note**

If there is an image installed on the service module, use the application command **software install clean url** *ftp://1.2.3.4/pub/filename.pkg* **user** *username* **password** *password* for any image upgrade or downgrade.

If there is no image installed on the service module, the output of the Cisco IOS command **service-module transport slot/port status** is similar to the output shown here. Follow the first-time installation instructions.

```
router#service-module t4/0 status
Service Module is Cisco Transport-Opt-Service-Engine4/0
Service Module supports session via TTY line 258
Service Module is trying to recover from error
Service Module heartbeat-reset is enabled
Service Module status is not available
```

Software Upgrade or Downgrade

Prerequisites

Have available the IP address of your download FTP file server.

SUMMARY STEPS

1. Download the required software from the Cisco Software Center web site.

From the Host-Router CLI

2. **service-module Transport-Opt-Service-Engine** *slot/port session*

From the Service-Module Interface

3. **software install clean url** *ftp://1.2.3.4/pub/filename.pkg* **user** *username* **password** *password*
4. **show software versions**
5. **Control+Shift+6 x**

From the Host-Router CLI

6. **service-module Transport-Opt-Service-Engine** *slot/port session clear*

DETAILED STEPS

-
- Step 1** Download the NCE software (TPO Version 2.0.1 or later) as follows:
- a. Go to the NCE page of the Cisco Software Center web site and download the following files to the FTP server (check that the files are downloaded to the same directory):
 - TPO-AGGR
 - tpo-k9-full.aggr.2.0.1.prt1

- tpo-k9-installer.aggr.2.0.1.prt1
 - tpo-k9.aggr.2.0.1.pkg
- TPO-AIM-1/-2

- tpo-k9-full.aim.2.0.1.prt1
- tpo-k9-installer.aim.2.0.1.prt1
- tpo-k9.aim.2.0.1.pkg

Step 2 Open a session and access the application.

```
SE-Module# service-module Transport-Opt-Service-Engine slot/port session
```

Step 3 Install the upgrade software. In the following command, specify the pkg file and the other *.prt1 files are downloaded automatically.



Note An upgrade preserves configuration and user data. The following command presumes that you are performing an upgrade.

```
SE-Module> software install clean url ftp://1.2.3.4/filename.pkg user username password password
```

Respond as directed to any system prompts.

Step 4 (Optional) Display your software version to ensure that the new version is installed:

```
SE-Module> show software versions
```

Step 5 For a clean installation only: restore the configuration and user data and reload the module again. For restore instructions, see the [“Application-Level Troubleshooting”](#) section on page 10-10.

Step 6 Close the session by pressing **Control+Shift+6 x**.

Step 7 From the host-router CLI, clear the session:

```
Router# service-module Transport-Opt-Service-Engine slot/port session clear
```

First-time Bootup of a Service Module

In the following example, requests for user input are shown in bold.

```
***** rc.post_install *****
IMPORTANT::
IMPORTANT:: Welcome to Cisco Systems Service Engine
IMPORTANT:: post installation configuration tool.
IMPORTANT::
IMPORTANT:: This is a one time process which will guide
IMPORTANT:: you through initial setup of your Service Engine.
IMPORTANT:: Once run, this process will have configured
IMPORTANT:: the system for your location.
IMPORTANT::
IMPORTANT:: If you do not wish to continue, the system will be halted
IMPORTANT:: so it can be safely removed from the router.
IMPORTANT::
Do you wish to start configuration now (y,n)? y
Are you sure (y,n)? y
Enter Hostname
(my-hostname, or enter to use se-1-3-202-26): BRANCH
Enter Domain Name
```

```

(mydomain.com, or enter to use localdomain):
Using localdomain as default
IMPORTANT:: DNS Configuration:
IMPORTANT::
IMPORTANT:: This allows the entry of hostnames, for example foo.cisco.com, instead
IMPORTANT:: of IP addresses like 1.100.10.205 for application configuration. In order
IMPORTANT:: to set up DNS you must know the IP address of at least one of your
IMPORTANT:: DNS Servers.
Would you like to use DNS (y,n)?n
WARNING: If DNS is not used, IP addresses will be required.
Are you sure (y,n)? y
Enter IP Address of the Primary NTP Server
(IP address, or enter for 1.3.202.33):
*****
I could not reach 1.3.202.33 using NTP.
1.3.202.33 might not have been configured as
NTP server.
*****
Do you wish to continue with out Primary NTP server (y,n)? y
Enter IP Address of the Secondary NTP Server
(IP address, or enter to bypass):
Please identify a location so that time zone rules can be set correctly.
Please select a continent or ocean.
1) Africa 4) Arctic Ocean 7) Australia 10) Pacific Ocean
2) Americas 5) Asia 8) Europe
3) Antarctica 6) Atlantic Ocean 9) Indian Ocean
#? 2
Please select a country.
1) Anguilla 18) Ecuador 35) Paraguay
2) Antigua & Barbuda 19) El Salvador 36) Peru
3) Argentina 20) French Guiana 37) Puerto Rico
4) Aruba 21) Greenland 38) St Kitts & Nevis
5) Bahamas 22) Grenada 39) St Lucia
6) Barbados 23) Guadeloupe 40) St Pierre & Miquelon
7) Belize 24) Guatemala 41) St Vincent
8) Bolivia 25) Guyana 42) Suriname
9) Brazil 26) Haiti 43) Trinidad & Tobago
10) Canada 27) Honduras 44) Turks & Caicos Is
11) Cayman Islands 28) Jamaica 45) United States
12) Chile 29) Martinique 46) Uruguay
13) Colombia 30) Mexico 47) Venezuela
14) Costa Rica 31) Montserrat 48) Virgin Islands (UK)
15) Cuba 32) Netherlands Antilles 49) Virgin Islands (US)
16) Dominica 33) Nicaragua
17) Dominican Republic 34) Panama
#? 45
Please select one of the following time zone regions.
1) Eastern Time
2) Eastern Time - Michigan - most locations
3) Eastern Time - Kentucky - Louisville area
4) Eastern Time - Kentucky - Wayne County
5) Eastern Standard Time - Indiana - most locations
6) Eastern Standard Time - Indiana - Crawford County
7) Eastern Standard Time - Indiana - Starke County
8) Eastern Standard Time - Indiana - Switzerland County
9) Central Time
10) Central Time - Michigan - Wisconsin border
11) Central Time - North Dakota - Oliver County
12) Mountain Time
13) Mountain Time - south Idaho & east Oregon
14) Mountain Time - Navajo
15) Mountain Standard Time - Arizona
16) Pacific Time
17) Alaska Time

```



```

18) Alaska Time - Alaska panhandle
19) Alaska Time - Alaska panhandle neck
20) Alaska Time - west Alaska
21) Aleutian Islands
22) Hawaii
#? 16
The following information has been given:
United States
Pacific Time
Therefore TZ='America/Los_Angeles' will be used.
Is the above information OK?
1) Yes
2) No
#? 1
Local time is now: Mon Sep 24 05:05:38 PDT 2007.
Universal Time is now: Mon Sep 24 12:05:38 UTC 2007.
No NTP servers configured.
Would you like to manually adjust the system time (y,n)? n
Configuring the system. Please wait...
Changing owners and file permissions.
Change owners and permissions complete.
INIT: Switching to runlevel: 4
INIT: Sending processes the TERM signal
STARTED: cli_server.sh
STARTED: ntp_startup.sh
STARTED: LDAP_startup.sh
STARTED: dnwldr_startup.sh
STARTED: HTTP_startup.sh
STARTED: probe
STARTED: superthread_startup.sh
STARTED: /bin/products/wpo/wanopt_startup.sh

```

How to Configure, Operate, and Administer the Network Capacity Expansion Service Module

This section contains the following procedure:

- [Shutting Down and Starting Up the Network Capacity Expansion Service Module, page 2-10](#)



Note

- The tables in these sections show only common router and module commands.
- To view a complete list of command keyword options, type ? at the end of the command (Example: Router# service-module Transport-Opt-Service-Engine ?).
- The tables group commands by the configuration mode in which they are available. If the same command is available in more than one mode, it may act differently in each mode.

Shutting Down and Starting Up the Network Capacity Expansion Service Module


To shut down or start up the service module, use common router and module commands that are listed in [Table 1](#) as needed.



Note

Some shutdown commands can potentially disrupt service. If command output for such a command shows a confirmation prompt, confirm by pressing **Enter** or cancel by typing **n** and pressing **Enter**.

Table 1 Common Shutdown and Startup Commands

Configuration Mode	Command	Purpose
Router#	service-module Transport-Opt-Service-Engine slot/port reload	Shuts down the module operating system gracefully and then restarts it from the bootloader.
Router#	service-module Transport-Opt-Service-Engine slot/port reset	Resets the hardware on a module. Use only to recover from shutdown or a failed state. <div style="border: 1px solid black; padding: 5px; width: fit-content;">  <p>Caution Use this command with caution. It does <i>not</i> provide an orderly software shutdown and consequently may impact file operations that are in progress.</p> </div>
Router#	service-module Transport-Opt-Service-Engine slot/port session	Accesses the specified service engine and begins a module configuration session.
Router#	service-module Transport-Opt-Service-Engine slot/port shutdown	Shuts down the module operating system gracefully. Use when removing or replacing a hot-swappable module during online insertion and removal (OIR).
Router#	service-module Transport-Opt-Service-Engine slot/port status	Shows configuration and status information for the module hardware and software.
SE-Module>	reload	Shuts down the NCE Service Module gracefully and reboots it from the bootloader.
SE-Module>	shutdown	Shuts down the NCE Service Module application gracefully and shuts down the module.