

Programmability Command Reference, Cisco IOS XE Everest 16.6.1

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Programmability

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boot ipxe

To configure iPXE boot, use the **boot ipxe** command in global configuration mode. To disable the configuration, use the **no** form of this command.

boot ipxe {**forever** |**timeout** *seconds*} **switch** *switch-number*
no boot ipxe {**forever** |**timeout** *seconds*} **switch** *switch-number*

Syntax Description

forever	Attempts iPXE boot forever.
timeout *seconds*	Configures a timeout in seconds for iPXE network boot. Valid values are from 1 to 2147483647.
switch *switch-number*	Enables iPXE boot for switches in the stack. Valid values are from 0 to 9.

Command Modes

Global configuration (config)

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced on Cisco Catalyst 3650 and 3850 Series Switches.
Cisco IOS XE Everest 16.6.1	This command was implemented on Cisco Catalyst 9300 and 9500 Series Switches

Usage Guidelines

iPXE is an open source implementation of the Preboot eXecution Environment (PXE). Bootloaders boot an image located on an HTTP, FTP, or a TFTP server.

If the **forever** keyword is configured, the switch sends Dynamic Host Configuration Protcol (DHCP) requests forever. If the **timeout** keyword is configured, DHCP requests are sent for the specified amount of time, and when the timeout expires, the switch reverts to device boot.

Example

The following example shows how to configure an iPXE boot timeout for switch 2:

```
Device(config)# boot ipxe timeout 240 switch 2
```

boot manual

To configure manual boot, use the **boot manual** command in global configuration mode. To remove the configuration, use the **no** form of this command.

boot manual switch *switch-number*
no boot manual switch *switch-number*

Syntax Description

switch *switch-number*	Configures manual boot for the switches in the stack.

Command Default

Manual boot is enabled.

Command Modes

Global configuration (config)

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced on Cisco Catalyst 3650 and 3850 Series Switches.
Cisco IOS XE Everest 16.6.1	This command was implemented on Cisco Catalyst 9300 and 9500 Series Switches

Usage Guidelines

When manual boot is disabled, and the switch reloads, the boot process starts automatically. When manual boot is disabled, the bootloader determines whether to execute a device boot or a network boot based on the configured value of the iPXE ROMMON variable.

Example

The following example shows how to configure manual boot for switch 2:

```
Device(config)# boot manual switch 2
```

boot system

To enable a system image boot, use the **boot system** command in global configuration mode. To disable the configuration, use the **no** form of this command.

boot system switch {**all** *number*} {**flash: |ftp: |http: |tftp:**}

no boot system [{**switch** |{**all** *number*}}] [{**flash: |ftp: |http: |tftp:**}]

Syntax Description

flash:	Specifies the flash filesytem to boot an image.
ftp:	Specifies an FTP location to boot an image.
http:	Specifies an HTTP location to boot an image.
tftp:	Specifies a TFTP location to boot an image.
switch *number*	Enables booting for switches in a stack. Valid values are from 0 to 9.

Command Modes

Global configuration (config)

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced on Cisco Catalyst 3650 and 3850 Series Switches.
Cisco IOS XE Everest 16.6.1	This command was implemented on Cisco Catalyst 9300 and 9500 Series Switches

Usage Guidelines

You can either use an IPv4 or an IPv6 address for the remote FTP/HTTP/TFTP servers. When using an IPv6 address, you must enter the IPv6 address inside square brackets (as per RFC 2732); otherwise, the device will not boot.

Note IPv6 is not supported on Catalyst 9000 Series Switches.

Example

The following example shows how to boot an image from an IPv4 HTTP server:

```
Device(config)# boot system switch 1 http://192.0.2.42/image-filename
```

The following example shows how to boot an image from an IPv6 HTTP server:

```
Device(config)# boot system switch 1 http://[2001:db8::1]/image-filename
```

default boot

To modify the default boot system parameters, use the **defaut boot** command in global configuration mode.

default boot {**ipxe** {**forever** |**timeout** |**seconds**} |**manual** |**system** {**flash:** |**ftp:** |**http:** |**tftp:**}}**switch** *number*

Syntax Description

ipxe	Enables iPXE boot.
forever	Attempts iPXE boot forever.
timeout *seconds*	Configures a boot timeout in seconds. Valid values are from 1 to 2147483647.
manual	Enables manual boot.
system	Enables a system image boot.
flash:	Specifies the flash filesytem to boot an image.
ftp:	Specifies an FTP location to boot an image.
http:	Specifies an HTTP location to boot an image.
tftp:	Specifies a TFTP location to boot an image.
switch *number*	Enables booting for switches in a stack. Valid values are from 0 to 9.

Command Default

Device boot is enabled.

Command Modes

Global configuration (config)

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced on Cisco Catalyst 3650 and 3850 Series Switches.
Cisco IOS XE Everest 16.6.1	This command was implemented on Cisco Catalyst 9300 and 9500 Series Switches

Usage Guidelines

You can either use the **no boot ipxe** or the **default boot ipxe**command to configure device boot.

If the **forever** keyword is configured, the switch sends Dynamic Host Configuration Protocol (DHCP) requests forever. If the **timeout** keyword is configured, DHCP requests are sent for the specified amount of time, and when the timeout expires, the switch reverts to device boot.

Example

The following example shows how to enable the default boot mode:

```
Device(config)# default boot ipxe
```

dig

To do a lookup of the Domain Name System (DNS) server, use the **dig** command in rommon mode.

dig *hostname* {*v4 v6*} [{*dns-server-address*}]

Syntax Description

hostname	DNS host name
v4	IPv4 address.
v6	IPv6 address.
dns-server-address	(Optional) DNS Server IP address.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

This command does a look up of the DNS name and displays the IP/IPv6 address of the DNS server.

Example

The following is sample output from the **dig** *hostname* command:

```
Device: dig example.org

DNS lookup using 2001:DB8::1
addr = 2001:DB8:0000:0000:0000:0000:0000:0001
```

The following is sample output from the **dig** *hostname v4* command:

```
Device: dig example.org v4

DNS lookup using 10.29.27.5
addr = 172.16.0.1
```

The following is sample output from the **dig** *hostname v4 dns-server-address* command:

```
Device: dig example.org v4 10.29.27.5

DNS lookup using 10.29.27.5
addr = 172.16.0.1
```

The following is sample output from the **dig** *hostname v6* command:

```
Device: dig example.org v6

DNS lookup using 2001:DB::1
addr = 2001:DB8:0000:0000:0000:0000:0000:0001
```

Related Commands

Command	Description
net-debug	Displays or changes the network debug values.

guestshell

To configure Guestshell infastructure functionality, use the **guestshell** command in Privileged EXEC mode.

guestshell {**destroy** |**disable** |**enable** |**run** [{*linux-executable*}]}

Syntax Description

destroy	Deactivates and uninstalls the Guestshell service.
disable	Disables the Guestshell service.
enable	Disables the Guestshell service.
run [*linux-executable*]	Executes or runs a Linux program in the Guestshell.

Command Default

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

Guestshell is an embedded Linux environment that allows customers to develop and run custom Python applications for automated control and management of Cisco switches. Guestshell is packaged as a Cisco application hosting framework (CAF)-formatted tar file (guest_shell.tar) into the Cisco IOS XE Everest 16.5.x release image read-only file system.

Configure the **iox** command in global configuration mode, before configuring this command. IOx is the Cisco-developed framework for hosting customer-deployed Linux applications on Cisco networking systems.

Example

The follwing example shows how to enable and run the Guestshell:

```
Device# configure terminal
Device(config)# iox
Device(config)# exit
Device# guestshell enable
Device# guestshell run
```

Related Commands

Command	Description
iox	Configure IOx services.

guestshell portforwarding

To enable Guest Shell port forwarding, use the **guestshell portforwarding** command in privileged EXEC mode.

guestshell portforwarding {**add table-entry** *entry-name* **service** {**tcp** |**udp** }**source-port** *port-number* **destination-port** *port-number* |**delete table-entry** *entry-name* }

Syntax Description

add	Adds an IP table entry.
table-entry *entry-name*	Specifies the IP table name. The *table-name* argument must be unique, and it can be alphanumeric characters.
service	Specifies the service protocol.
tcp	Specifies TCP as the service protocol.
udp	Specifies UDP as the service protocol.
source-port *port-number*	Specifies the source port. Valid values for the *port-number* argument are from 1 to 65535.
destination-port *port-number*	Specifies the destination port. Valid values for the *port-number* argument are from 1 to 65535.
delete	Deletes an IP table entry.

Command Default

Port forwarding is not enabled.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

Use this command to enable port forwarding for Guest Shell, when it connected through the GigabitEthernet 0/0 management interface

Examples

The following example shows how to enable port forwarding for Guest Shell:

```
Device# configure terminal
Device(config)# iox
```

```
Device(config)# exit
Device# guestshell portforwarding add table-entry table1 service tcp
 source-port 32 destination-port 9
Device#
```

The following example shows how to disable port forwarding for Guest Shell:

```
Device# guestshell portforwarding delete table-entry table1
Device#
```

Related Commands

Command	Description
guestshell	Configures the Guest Shell infrastructure functionality.

install

To install data model update packages, use the **install** command in privileged EXEC mode.

install {**activate** |**file** {**bootflash:** |**flash:** |**webui:**} [{**prompt-level** {**all** |**none**}}] |**add file** {**bootflash:** |**flash:** |**ftp:** |**http:** |**https:** |**rcp:** |**scp:** |**tftp:** |**webui:**} [{**activate** [{**prompt-level** {**all** |**none**}}]}] |**commit** |**deactivate file** {**bootflash:** |**flash:** |**webui:**} [{**prompt-level** {**all** |**none**}}] |**remove** {**file** {**bootflash:** |**flash:** |**ftp:** |**http:** |**https:** |**rcp:** |**scp:** |**tftp:** |**webui:**}|**inactive** } |**rollback to** {**base** |**committed** |**id** {*install-ID* }}}

Syntax Description

activate	Validates whether the model update package is added through the install add command, and restarts the NETCONF processes (confd and opdatamgrd). This keyword runs a compatibility check, updates package status, and if the package can be restarted, it triggers post-install scripts to restart the necessary processes, or triggers a reload for non-restartable packages.
file	Specifies the package to be activated.
{**bootflash:** | **flash:** | **http:** | **https:** | **rcp:** | **scp:** | **tftp:webui:**}	Specifies the location of the installed package.
prompt-level {**all** | **none**}	(Optional) Prompts the user about installation activities. For example, the **activate** keyword, automatically triggers a reload for packages that require a reload. Before activating the package, a message will prompt users as to whether they want to continue. The **all** keyword allows you to enable prompts. The **none** keyword disables prompts.
add	Copies files from a remote location (via FTP, TFTP) to a device, and performs a compatibility check for the platform and image versions. This keyword runs base compatibility checks to ensure that a specified package is supported on a platform. It also adds an entry in the package file, so that the status can be monitored and maintained.
{**http:** | **https:** | **rcp:** | **scp:** | **tftp:**}	Specifies the package to be added.

commit	Makes changes persistent over reloads. You can do a commit after activating a package, while the system is up, or after the first reload. If a package is activated, but not committed, it remains active after the first reload, but not after the second reload.
deactivate	Deactivates an installed package. Deactivating a package also updates the package status and triggers a process restart or a reload.
remove	Remove installed packages. The package file is removed from the file system. The **remove** keyword can only be used on packages that are currently inactive.
inactive	Removes all inactive packages from the device.
rollback	Rollbacks the data model update package to the base version, the last committed version, or a known commit ID, and restarts NECONF processes.
to base	Returns to the base image.
committed	Returns to the installation state when the last commit operation was performed.
id *install-ID*	Returns to the specific install point ID. Valid values are from 1 to 4294967295.

Command Default

Model update packages are not installed.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced on the following platforms: • Cisco 4000 Series Integrated Services Routers • Cisco Catalyst 9300 Series Switches • Cisco Catalyst 9500 Series Switches • Cisco Cloud Services Router 1000v • Cisco Integrated Services Virtual Routers (ISRv)

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was implemented on the following platforms: • Cisco Catalyst 3650 Series Switches • Cisco Catalyst 3850 Series Switches

Usage Guidelines

In Service Model Update adds new data models or extend functionality to existing data models. The update package provides YANG model enhancements outside of a release cycle. The update package is a superset of all existing models; it includes all existing models as well as updated YANG models.

A model update package must be added prior to activating the update package. A package must be deactivated, before it is removed from the bootflash.

Cisco 4000 Series Integrated Services Routers

The following example shows how to add an install package on a device:

```
Device# install add file tftp://172.16.0.1//tftpboot/folder1/isr4300-
universalk9.2017-01-10_13.15.1.CSCxxxxxxx.dmp.bin

install_add: START Sun Feb 26 05:57:04 UTC 2017
Downloading file tftp://172.16.0.1//tftpboot/folder1/isr4300-universalk9.2017-01-10_13.15.1.
CSCxxxxxxx.dmp.bin
Finished downloading file
tftp://172.16.0.1//tftpboot/folder1/isr4300-universalk9.2017-01-10_13.15.1.
CSCxxxxxxx.dmp.bin to bootflash:isr4300-universalk9.2017-01-10_13.15.1.CSCxxxxxxx.dmp.bin
SUCCESS: install_add /bootflash/isr4300-universalk9.2017-01-10_13.15.1.CSCxxxxxxx.dmp.bin
Sun Feb 26 05:57:22 UTC 2017
```

The following example shows how to activate an install package:

```
Device# install activate file bootflash:
isr4300-universalk9.2017-01-10_13.15.1.CSCxxxxxxx.dmp.bin

install_activate: START Sun Feb 26 05:58:41 UTC 2017
DMP package.
Netconf processes stopped
SUCCESS: install_activate /bootflash/isr4300-universalk9.2017-01-10_13.15.1.CSCxxxxxxx.dmp.bin

Sun Feb 26 05:58:58 UTC 2017
*Feb 26 05:58:47.655: %DMI-4-CONTROL_SOCKET_CLOSED:  SIP0: nesd:
Confd control socket closed Lost connection to ConfD (45): EOF on socket to ConfD.
*Feb 26 05:58:47.661: %DMI-4-SUB_READ_FAIL:  SIP0: vtyserverutild:
Confd subscription socket read failed Lost connection to ConfD (45):
EOF on socket to ConfD.
*Feb 26 05:58:47.667: %DMI-4-CONTROL_SOCKET_CLOSED:  SIP0: syncfd:
Confd control socket closed Lost connection to ConfD (45): EOF on socket to ConfD.
*Feb 26 05:59:43.269: %DMI-5-SYNC_START:  SIP0: syncfd:
External change to running configuration detected.
The running configuration will be synchronized to the NETCONF running data store.
*Feb 26 05:59:44.624: %DMI-5-SYNC_COMPLETE:  SIP0: syncfd:
The running configuration has been synchronized to the NETCONF running data store.
```

The following example shows how to commit an installed package:

```
Device# install commit

install_commit: START Sun Feb 26 06:46:48 UTC 2017
SUCCESS: install_commit  Sun Feb 26 06:46:52 UTC 2017
```

The following example shows how to rollback to the base package:

```
Device# install rollback to base

install_rollback: START Sun Feb 26 06:50:29 UTC 2017
7 install_rollback: Restarting impacted processes to take effect
7 install_rollback: restarting confd

*Feb 26 06:50:34.957: %DMI-4-CONTROL_SOCKET_CLOSED:  SIP0: syncfd:
Confd control socket closed Lost connection to ConfD (45): EOF on socket to ConfD.
*Feb 26 06:50:34.962: %DMI-4-CONTROL_SOCKET_CLOSED:  SIP0: nesd:
Confd control socket closed Lost connection to ConfD (45): EOF on socket to ConfD.
*Feb 26 06:50:34.963: %DMI-4-SUB_READ_FAIL:  SIP0: vtyserverutild:
Confd subscription socket read failed Lost connection to ConfD (45):
EOF on socket to ConfD.Netconf processes stopped
7 install_rollback: DMP activate complete
SUCCESS: install_rollback  Sun Feb 26 06:50:41 UTC 2017
*Feb 26 06:51:28.901: %DMI-5-SYNC_START:  SIP0: syncfd:
External change to running configuration detected.
The running configuration will be synchronized to the NETCONF running data store.
*Feb 26 06:51:30.339: %DMI-5-SYNC_COMPLETE:  SIP0: syncfd:
The running configuration has been synchronized to the NETCONF running data store.
```

Cisco Catalyst 3000 Series Switches

The following example shows how to add an install package on a device:

```
Device# install add file tftp://172.16.0.1//tftpboot/folder1/i
cat3k_caa-universalk9.16.06.01.CSCxxxxxxx.dmp.bin

install_add: START Sat Jul 29 05:57:04 UTC 2017
Downloading file tftp://172.16.0.1//tftpboot/folder1/
cat3k_caa-universalk9.16.06.01.CSCxxxxxxx.dmp.bin
Finished downloading file tftp://172.16.0.1//tftpboot/folder1/
cat3k_caa-universalk9.16.06.01.CSCxxxxxxx.Sdmp.bin to
bootflash:cat3k_caa-universalk9.16.06.01.CSCxxxxxxx.dmp.bin
SUCCESS: install_add /bootflash/
cat3k_caa-universalk9.16.06.01.CSCxxxxxxx.dmp.bin
Sat Jul 29 05:57:22 UTC 2017
```

The following sample output from the **show install summary** command displays that the update package is now committed, and that it will be persistent across reloads:

```
Device# show install summary

Active Packages:
bootflash:cat3k_caa-universalk9.16.06.01.CSCxxxxxxx.dmp.bin
Inactive Packages:
No packages
Committed Packages:
bootflash:cat3k_caa-universalk9.16.06.01.CSCxxxxxxx.dmp.bin
Uncommitted Packages:
No packages
Device#
```

Related Commands

Command	Description
show install	Displays information about model update packages.

Command	Description
show install	Displays information about data model update pacakges.

iox

To configure IOx services, use the **iox** command in global configuration mode. To remove the configuration, use the **no** form of this command.

```
iox
no iox
```

This command has no arguments or keywords.

Command Default

Command Modes

Global configuration (config)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

IOx is the Cisco-developed framework for hosting customer-deployed Linux applications on Cisco networking systems. The **iox** command must be configured before configuring the **guestshell** command.

The following example shows how to configure IOx services:

```
Device# configure terminal
Device(config)# iox
Device(config)# exit
```

Related Commands

Command	Description
guestshell	Configures Guestshell infrastructure functionality.

mlog

To direct log messages to a memory buffer instead of the serial port, use the **mlog** command in rommon mode.

mlog [{**show** |**reset** |**ctrl** [{**on** |**off** |**toggle**}]}]

Syntax Description

show	(Optional) Displays memory log messages.
reset	(Optional) Resets the logging of messages to the memory log.
ctrl	(Optional)
on	(Optional)
off	(Optional)
toggle	(Optional)

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

This command directs protocol log (that is all logs controlled by the **net-debug** command) messages to a memory buffer instead of the serial port.

With memory logging, log messages are displayed after a test is run. For example, HTTP debugs can be enabled through memory logging. Log messages are displayed in the memory buffer after running a copy from http://server/name to null: command.

Example

The following example shows how to direct log messages to the memory buffer:

```
Device: mlog show
```

Related Commands

Command	Description
net-debug	Displays or changes the network debug values.

netconf legacy

To enable legacy NETCONF protocol, use the **netconf legacy** command in global configuration mode. To disable the legacy NETCONF protoocol, use the **no** form of this command.

netconf legacy
no netconf legacy

This command has no arguments or keywords.

Command Default

Legacy NETCONF protocol is not enabled.

Command Modes

Global configuration (config)

Command History

Release	Modification
Cisco IOS XE Denali 16.3.1	This command was introduced.

Usage Guidelines

If this command is enabled, the RFC-compliant NETCONF client (ncclient) does not work. This command enables the legacy NETCONF protocol that is non-RFC-compliant.

Example

The following example shows how to disable the legacy NETCONF protocol:

```
Device> enable
Devcie# configure terminal
Device(config)# no netconf legacy
```

net-dhcp

To initiate an IPv4 Dynamic Host Control Protocol (DHCP) request for remote configuration, use the **net-dhcp** command in rommon mode.

net-dhcp [{**timeout**}]

Syntax Description

timeout	(Optional) Timeout in seconds.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

This command initiates an IPv4 DHCP request and processes the reply.

Example

The following example shows how to enable the **net-dhcp** command:

```
Device: net-dhcp
```

Related Commands

Command	Description
net-debug	Displays or changes the network debug values.
net-show	Displays network parameters.
net6-dhcp	Initiates an IPv6 DHCP request for remote configuration.

net-debug

To display or change the network debug values use the **net-debug** command in rommon mode.

net-debug [{*new-value*}]

Syntax Description

new-value	(Optional) New debug value to use.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

This command enables or disables log levels for each of the following functional areas:

- Domain Name System (DNS)
- Dynamic Host Control Protocol (DHCP)
- File Transfer Protocol (FTP)
- Hypertext Transfer Protocol (HTTP)
- IP
- TCP
- UDP
- Uniform Resource Identifier (URI)

Example

This following is sample output from the **net-debug** command:

```
Device: net-debug

 ether: 0
    ip: 0
  dhcp: 0
  udp:  0
  tcp: 0
 http: 0
  dns: 0
  uri: 0
t/ftp: 2
  ip6: 0
dhcp6: 0:000 200 000 000
```

Related Commands

Command	Description
mlog	Directs log messages to a memory buffer instead of the serial port.

net-show

To display network parameters, use the **net-show** command in rommon mode.

net-show

This command has no arguments or keywords.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

This command displays network configuration such as IP address, gateway, MAC address and so on.

Example

The following is sample output from the **net-show** command:

```
Device:  net-show
Network params:
IPv4:
         ip addr 10.29.27.150
         netmask 255.255.0.0
         gateway 10.29.0.1
IPv6:
link-local addr fe80::366f:90ff:feb8:cb80
site-local addr fec0::366f:90ff:feb8:cb80
       DHCP addr 2001:dead:beef:cafe::9999
     router addr fe80::7ada:6eff:fe13:8580
      SLAAC addr 2001:dead:beef:cafe:366f:90ff:feb8:cb80 /64
      SLAAC addr f00d::366f:90ff:feb8:cb80 /64
      SLAAC addr feed::366f:90ff:feb8:cb80 /64
Common:
         macaddr 34:6f:90:b8:cb:80
             dns 2001:dead:beef:cafe::5
        bootfile http://www.example.org/ed10m
          domain ip6.example.org
```

Command	Description
net6-show	Displays IPv6 network parameters.

net-tcp-bufs

To display TCP buffers, use the **net-tcp-bufs** command in rommon mode.

net-tcp-bufs [{*mss*}]

Syntax Description

mss	(Optional) The Maximum Segment Size (MSS) of TCP buffers.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

You can set the MSS of TCP buffers using the *mss* argument.

Example

The following is sample output from the **net-tcp-bufs** command:

```
Device: net tcp-bufs

tcp_num_buffs 4
```

Related Commands

Command	Description
net-tcp-mss	View or set the TCP MSS.

net-tcp-mss

To view or set the TCP Maximum Segment Size (MSS), use the **net-tcp-mss** command in rommon mode.

net-tcp-mss [{*mss*}]

Syntax Description

mss	(Optional) The Maximum Segment Size (MSS) of TCP buffers.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

Use the *mss* argument to change the MSS size.

Example

The following is sample output from the **net-tcp-mss** command:

```
Device: net-tcp-mss

switch: net-tcp-mss
tcp_segment_size 1024
```

The following is sample output from the **net-tcp-mss** *mss* command:

```
Device: net-tcp-mss 700

switch: net-tcp-mss 700
tcp_segment_size 700
```

Related Commands

Command	Description
net-tcp-bufs	Displays TCP buffers.

net6-dhcp

To initiate an IPv6 Dynamic Host Control Protocol (DHCP) request for remote configuration, use the **net6-dhcp** command in rommon mode.

net6-dhcp [{**timeout**}]

Syntax Description

timeout	(Optional) Timeout in seconds.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

You can change the timeout by specifying a time in seconds

Example

The following example shows how to enable the **net6-dhcp** command:

```
Device: net6-dhcp
```

Related Commands

Command	Description
net-debug	Displays or changes the network debug values.
net-dhcp	Initiates an IPv4 DHCP request and processes the reply.
net-show	Displays network parameters.

net6-show

To display IPv6 network parameters, use the **net6-show** command in rommon mode.

net6-show

This command has no arguments or keywords.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

Example

The following is sample output from the **net6-show** command:

```
Device: net6-show

switch: net6-show
IP6 addresses
link-local addr fe80::366f:90ff:feb8:cb80
site-local addr fec0::366f:90ff:feb8:cb80
       DHCP addr 2001:dead:beef:cafe::9999
     router addr fe80::7ada:6eff:fe13:8580
      SLAAC addr 2001:dead:beef:cafe:366f:90ff:feb8:cb80 /64
      SLAAC addr f00d::366f:90ff:feb8:cb80 /64
      SLAAC addr feed::366f:90ff:feb8:cb80 /64
--
       null addr ::
  all-nodes addr ff02::1
all-routers addr ff02::2
   all-dhcp addr ff02::1:2
  Slct-node addr ff02::1:ffb8:cb80
    ll mmac addr 33:33:00:00:00:01
    sl mmac addr 33:33:00:00:00:02
    sn mmac addr 33:33:ff:b8:cb:80
  dhcp mmac addr 33:33:ff:00:99:99
router mac addr 78:da:6e:13:85:80

IP6 neighbour table
0: ip6 fec0::366f:90ff:feb8:cb80 MAC 34:6f:90:b8:cb:80
1: ip6 fe80::366f:90ff:feb8:cb80 MAC 34:6f:90:b8:cb:80
2: ip6 fe80::7ada:6eff:fe13:8580 MAC 78:da:6e:13:85:80
3: ip6 2001:dead:beef:cafe::5 MAC 30:f7:0d:08:7e:bd
4: ip6 fe80::32f7:dff:fe08:7ebd MAC 30:f7:0d:08:7e:bd
```

Related Commands

Command	Description
net-show	Displays network parameters.

ping

To diagnose basic network connectivity, use the **ping** command in rommon mode.

ping [{*host_ip_address*}] [{*retries*}]

Syntax Description

host_ip_address	(Optional) IP address of the host.
retries	(Optional) Number of retries.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

The **ping** and **ping4** commands are the same.

The **ping** command is a very common method for troubleshooting the accessibility of devices

A timeout is implemented at the bootloader device prompt, that allows the bootloader to poll the TCP stack every 200 ms. As a result, the bootloader may take up to 200 ms to respond to pings. However, when the bootloader is downloading a file, and thus actively polling for new packets, it responds to ping quickly.

Example

The following is sample output from the **ping** command:

```
Device: ping 10.29.27.5

Ping 10.29.27.5 with 32 bytes of data ...
Host 10.29.27.5 is alive.
```

The following is sample output from the **ping** *host_ip_address retries* command:

```
Device: ping 10 6.29.27.5 6

Ping 10.29.27.5 with 32 bytes of data ... reply received in 0 ms
Ping 10.29.27.5 with 32 bytes of data ... reply received in 0 ms
Ping 10.29.27.5 with 32 bytes of data ... reply received in 0 ms
Ping 10.29.27.5 with 32 bytes of data ... reply received in 1 ms
Ping 10.29.27.5 with 32 bytes of data ... reply received in 0 ms
Ping 10.29.27.5 with 32 bytes of data ... reply received in 0 ms
```

Related Commands

Command	Description
ping4	Diagnoses basic network connectivity.
ping6	Determines the network connectivity to another device using IPv6 addressing.

ping4

To diagnose basic network connectivity, use the **ping4** command in rommon mode.

ping4 [{*host_ip_address* }][{*retries*}]

Syntax Description

host_ip_address	(Optional) IP address of the host to be pinged.
retries	(Optional) Number of retries.

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

The **ping** and **ping4** commands are the same

A timeout is implemented at the bootloader device prompt, that allows the bootloader to poll the TCP stack every 200 ms. As a result, the bootloader may take up to 200 ms to respond to pings. However, when the bootloader is downloading a file, and thus actively polling for new packets, it responds to ping quickly.

Example

The following is sample output from the **ping4** *host_ip_address* command:

```
Device: ping4 10.29.27.5

Ping 10.29.27.5 with 32 bytes of data ...
Host 10.29.27.5 is alive.
```

Related Commands

Command	Description
ping	Diagnoses basic network connectivity.
ping6	Determines the network connectivity to another device using IPv6 addressing.

ping6

To determine the network connectivity to another device using IPv6 addressing, use the **ping6** command, rommon mode.

ping6 [{*host*}] [{*repeats*}] [{*len*}]

Syntax Description

host	(Optional) IP address of the host to be pinged.
repeats	(Optional) Number of times to repeat the ping.
len	

Command Modes

Rommon

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines

A timeout is implemented at the bootloader device prompt, that allows the bootloader to poll the TCP stack every 200 ms. As a result, the bootloader may take up to 200 ms to respond to pings. However, when the bootloader is downloading a file, and thus actively polling for new packets, it responds to ping quickly.

Example

The following is sample output from the **ping6** *host retries len* command:

```
Device: ping6 2001:dead:beef:cafe::5 6 1000

Ping host 2001:dead:beef:cafe::5, 6 times, 1000 bytes
Pinging 2001:dead:beef:cafe::5 ... reply in 0 ms
Pinging 2001:dead:beef:cafe::5 ... reply in 1 ms
Pinging 2001:dead:beef:cafe::5 ... reply in 1 ms
Pinging 2001:dead:beef:cafe::5 ... reply in 0 ms
Pinging 2001:dead:beef:cafe::5 ... reply in 0 ms
Pinging 2001:dead:beef:cafe::5 ... reply in 0 ms
```

Related Commands

Command	Description
ping	Diagnoses basic network connectivity.
ping4	Diagnoses basic network connectivity.

show install

To display information about data model update packages, use the **show install** command in privileged EXEC mode.

show install {**active** |**committed** |**inactive** |**log** |**package** {**bootflash:** |**flash:** |**webui:**}|**rollback** |**summary** |**uncommitted**}

Syntax Description

active	Displays information about active packages.
committed	Displays package activations that are persistent.
inactive	Displays inactive packages.
log	Displays entries stored in the logging installation buffer.
package	Displays metadata information about the package, including description, restart information, components in the package, and so on.
{**bootflash:** | **flash:** | **webui:**}	Specifies the location of the model update package.
rollback	Displays the software set associated with a saved installation.
summmary	Displays information about the list of active, inactive, committed, and superseded packages.
uncommitted	Displays package activations that are non persistent.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced on the following platforms: • Cisco 4000 Series Integrated Services Routers • Cisco Catalyst 9300 Series Switches • Cisco Catalyst 9500 Series Switches • Cisco Cloud Services Router 1000v • Cisco Integrated Services Virtual Routers (ISRv)
Cisco IOS XE Everest 16.6.1	This command was implemented on the following platforms: • Cisco Catalyst 3650 Series Switches • Cisco Catalyst 3850 Series Switches

Usage Guidelines

Use the show commands to view the status of an installed model update package.

Cisco 4000 Series Integrated Services Routers

The following is sample output from the **show install package** command:

```
Device# show install package bootflash:
isr4300-universalk9.16.05.01.CSCxxxxxxx.dmp.bin

Name: isr4300-universalk9.16.05.01.CSCxxxxxxx.dmp.bin
Version: 16.5.1.0.199.1484082952..Everest
Platform: ISR4300
Package Type: dmp
Defect ID: CSCxxxxxxx
Package State: Added
Supersedes List: {}
Smu ID: 1
Device#
```

The following is sample output from the **show install summary** command:

```
Device# show install summary

Active Packages:
bootflash:isr4300-universalk9.16.05.01.CSCxxxxxxx.dmp.bin
Inactive Packages:
No packages
Committed Packages:
No packages
Uncommitted Packages:
bootflash:isr4300-universalk9.16.05.01.CSCxxxxxxx.dmp.bin
Device#
```

The following is sample output from the **show install log** command:

```
Device# show install log

[0|install_op_boot]: START Fri Feb 24 19:20:19 Universal 2017
[0|install_op_boot]: END SUCCESS  Fri Feb 24 19:20:23 Universal 2017
[3|install_add]: START Sun Feb 26 05:55:31 UTC 2017
[3|install_add( FATAL)]: File path (scp) is not yet supported for this command
[4|install_add]: START Sun Feb 26 05:57:04 UTC 2017
[4|install_add]: END SUCCESS /bootflash/isr4300-universalk9.16.05.01.CSCxxxxxxx.dmp.bin
Sun Feb 26 05:57:22 UTC 2017
[5|install_activate]: START Sun Feb 26 05:58:41 UTC 2017
```

The table below lists the significant fields shown in the display.

Table 1: show install summary Field Descriptions

Field	Description
Active Packages	Name of the active model update package.
Inactive Packages	List of inactive packages.
Committed Packages	Installed model update packages that have saved or committed changes to the hard disk, so that the changes become persistent across reloads.

Field	Description
Uncommitted Packages	Model update package activations that are non persistent.

Cisco Catalyst 3000 Series Switches

The following sample output from the **show install summary** command displays that the update package is now committed, and that it will be persistent across reloads:

```
Device# show install summary

Active Packages:
bootflash:cat3k_caa-universalk9.16.06.01.CSCxxxxxxx.dmp.bin
Inactive Packages:
No packages
Committed Packages:
bootflash:cat3k_caa-universalk9.16.06.01.CSCxxxxxxx.dmp.bin
Uncommitted Packages:
No packages
Device#
```

Related Commands

Command	Description
install	Installs data model update packages.

show platform yang-management process

To display the status of the software processes required to support NETCONF-YANG, use the **show platform yang management process** in privileged EXEC mode.

show platform yang-management process [{**monitor** [{**switch** {*switch-number* |**active** |**standby** }**R0**}]|**switch** |{*switch-number* |**active** |**standby** }|**R0**}]

Syntax Description

monitor	(Optional) Displays detailed information about processes that are running.
switch *switch-number*	(Optional) Displays information about the specified switch.
active	(Optional) Displays information about the active instance of the switch.
standby	(Optional) Displays information about the standby instance of the switch.
R0	(Optional) Displays information about the Route Processor (RP) slot zero.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.3.1	This command was introduced.

Usage Guidelines

Examples

The following is sample output from the **show platform software yang-management process** command:

```
Device# show platform software yang-management process

confd            : Running
nesd             : Running
syncfd           : Running
ncsshd           : Running
dmiauthd         : Running
vtyserverutild   : Running
opdatamgrd       : Running
nginx            : Running
ndbmand          : Running
```

The table below lists the significant fields shown in the display.

Table 2: show platform software yang-management process Field Descriptions

Field	Description
confd	Configuration daemon
nesd	Network element synchronizer daemon
syncfd	Sync from daemon
ncsshd	NETCONF Secure Shell (SSH) daemon
dmiauthd	Device management inteface (DMI) authentication daemon
vtyserverutild	VTY server util daemon
opdatamgrd	Operational Data Manager daemon
nginx	NGINX web server
ndbmand	NETCONF database manager

The following is sample output from the **show platform software yang-management process monitor** command:

```
Device# show platform software yang-management process monitor

COMMAND           PID S    VSZ   RSS %CPU %MEM     ELAPSED
nginx           24689 S 139328 11996  0.0  0.2 24-02:00:55
nginx           24695 S 146544  6824  0.0  0.1 24-02:00:55
```

The table below lists the significant fields shown in the display.

Table 3: show platform software yang-management process monitor Field Descriptions

Field	Description
COMMAND	Command name
PID	Process ID
S	Process state
VSZ	Virtual memory size (in KB)
RSS	Resident set size (in KB)
%CPU	CPU usage percentage
%MEM	Memory usage percentage
ELAPSED	Elapsed execution time

show telemetry ietf subscription

To display information about telemetry subscriptions on a device, use the **show telemetry ietf subscription** command in user EXEC or privileged EXEC mode.

show telemetry ietf subscription {*subscription-ID* **|all |configured |dynamic**} [{**brief |detail**}]

Syntax Description

subscription-ID	Subscription ID. Valid values are from 0 to 4294967295.
all	Displays all subscription information.
configured	Displays a list of subscriptions configured via CLI or NETCONF set config.
dynamic	Displays information about dynamic subscriptions created using the <establish-subscription> RPC.
brief	(Optional) Displays a brief summary of the subscription information.
detail	(Optional) Displays the subscription information in detail.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

Use the **show telemetry ietf subscription** command or the <get> RPC to retrieve the list of current subscription details on a device.

Example

The following is sample output from the **show telemetry ietf subscription** *subscription-ID***detail** command:

```
Device#  telemetry ietf subscription 2147483667 detail

Telemetry subscription detail:

  Subscription ID: 2147483667
  State: Valid
  Stream: yang-push
  Encoding: encode-xml
  Filter:
    Filter type: xpath
```

```
    XPath: /mdt-oper:mdt-oper-data/mdt-subscriptions
  Update policy:
    Update Trigger: periodic
    Period: 1000
  Notes:
```

The following is sample output from the **show telemetry ietf subscription dynamic brief** command:

```
Device# show telemetry ietf subscription dynamic brief

Telemetry subscription brief

  ID               Type        State       Filter type
  ------------------------------------------------------
  2147483667       Dynamic     Valid       xpath
  2147483668       Dynamic     Valid       xpath
  2147483669       Dynamic     Valid       xpath
```

The table below lists the significant fields shown in the display.

Table 4: show telemetry ietf subscription Field Descriptions

Field	Description
Subscription ID	Subscription identifier
State	Validity of a configured subscription. State will always be valid for dynamic subscriptions. For example, a configured subscription can be in a half-configured state, and therefore invalid. However, if a dynamic establish subscription is invalid, an error RPC response is sent back, and the subscription will not appear in this table.
Stream	Type of streaming used for subscriptions. Only YANG-push is supported.
Encoding	Specifies encode-xml as the encoding type.
Filter Type	Type of filter used for subscriptions. Only XPath is supported.
XPath	XPath filter type or how the subscribed information was selected.
Update Trigger	Type of trigger to update subscriptions.
Period	Periodic timer configured to trigger an update. Values are specified in centiseconds (1/100 of a second).
Notes	A brief explanation about why a subscription is invalid. But for dynamic subscriptions, this field is always be empty.

Field	Description
ID	Subscription ID.