ipinfusion™

OcNOS®

Open Compute Network Operating System for Service Providers

Licensing Guide

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CONTENTS

Contents ... **3**

Preface ... **6**
About this Guide ... 6
Audience ... 6
Conventions ... 6
IP Infusion Product Release Version ... 6
Related Documentation ... 7
Feature Availability ... 7
Migration Guide ... 7
IP Maestro Support ... 7
Technical Support ... 7
Technical Sales ... 7
Technical Documentation ... 7
Documentation Disclaimer ... 8
Comments ... 8
Command Line Interface ... 9
Overview ... 9
Chapter Organization ... 9
Command Line Interface Help ... 9
Command Completion ... 10
Command Abbreviations ... 10
Command Line Errors ... 11
Command Negation ... 11
Syntax Conventions ... 11
Variable Placeholders ... 12
Command Description Format ... 13
Keyboard Operations ... 13
Show Command Modifiers ... 14
Begin Modifier ... 14
Include Modifier ... 15
Exclude Modifier ... 15
Redirect Modifier ... 16
Last Modifier ... 16
String Parameters ... 16
Command Modes ... 17
Command Mode Tree ... 18
Transaction-based Command-line Interface ... 18

Install, License, and Upgrade Configuration ... **20**

Licensing and Upgrade Commands ... **21**
license get ... 24

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Command Syntax 24
Parameters 24
Default 24
Command Mode 25
Applicability 25
Examples 25
license refresh 26
Command Syntax 26
Parameters 26
Default 26
Command Mode 26
Applicability 26
Examples 26
license release 27
Command Syntax 27
Parameters 27
Default 27
Command Mode 27
Applicability 27
Examples 27
show installers 28
Command Syntax 28
Parameters 28
Default 28
Command Mode 28
Applicability 28
Examples 28
show license 29
Command Syntax 29
Parameters 29
Default 29
Command Mode 29
Applicability 29
Examples 29
show sys-update details 30
Command Syntax 30
Parameters 30
Default 30
Command Mode 30
Applicability 30
Examples 30
sys-update delete 31
Command Syntax 31
Parameters 31
Default 31
Command mode 31
Applicability 31

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Examples 31
sys-update get 32
Command Syntax 32
Parameters 32
Default 33
Command Mode 33
Applicability 33
Examples 33
sys-update install 34
Command Syntax 34
Parameters 34
Default 35
Caution 35
Command Mode 35
Applicability 35
Examples 36
sys-update list-version 37
Command Syntax 37
Parameters 37
Default 37
Command Mode 37
Applicability 37
Examples 37
sys-update un-install 38
Command Syntax 38
Parameters 38
Default 38
Command Mode 38
Applicability 38
Examples 38
sys-update verify 39
Command Syntax 39
Parameters 39
Default 39
Command Mode 39
Applicability 39
Examples 39

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PREFACE

About this Guide

This guide describes how to configure Licensing Guide in OcNOS.

Audience

This guide is intended for network administrators and other engineering professionals who configure OcNOS.

Conventions

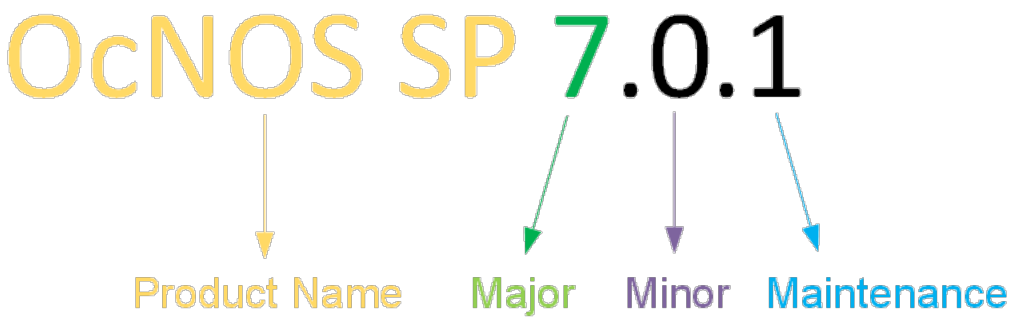
The Table 1 table shows the conventions used in this guide.

Table 1. Conventions

Convention	Description
Italics	Emphasized terms; titles of books
Note:	Special instructions, suggestions, or warnings
`monospaced type`	Code elements such as commands, parameters, files, and directories

IP Infusion Product Release Version

Each integer in release numbers indicates Major, Minor, and Maintenance release versions. Build numbers that follow the release numbers are for internal tracking and verification of the software build process and are visible to customers as part of the software version number.



Product Name: IP Infusion Product Family

Major Version: New customer-facing functionality that represents a significant change to the code base; including a significant marketing change or direction in the product.

Minor Version: Enhancements or extensions to existing features, changes to address external needs, or internal improvements to satisfy new sales regions or marketing initiatives.

Maintenance Version: A collection of product bugs or issues usually scheduled every 30 or 60 days, based on the number of issues.

Related Documentation

For information about installing OcNOS, see the *Installation Guide* for your platform.

Feature Availability

Each OcNOS SKU contains a set of supported features. For a list of available features based on the SKU that you purchased, refer to the *Feature Matrix* .

Migration Guide

Check the *Migration Guide* for necessary configuration changes before migrating from one version of OcNOS to another.

IP Maestro Support

Monitor devices running OcNOS Release 6.3.4-70 and above using IP Maestro software.

Technical Support

IP Infusion maintains an online technical support site that provides a variety of technical support programs for licensed OcNOS customers at the Technical Assistance Center.

Customers and partners enjoy full access to the support website. The site allows customers and partners to open technical support calls, update open calls with new information, and review the status of open or closed calls. The password-protected site includes technical documentation, Release Notes, and descriptions of service offerings.

Technical Sales

Contact the IP Infusion sales representative for more information about the OcNOS solution.

Technical Documentation

For core commands and configuration procedures, visit: Product Documentation.

For training videos, visit: OcNOS Free Training Videos.

For a list of supported platforms and SKUs of OcNOS features, refer to the OcNOS Feature Matrix.

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Documentation Disclaimer

The global documentation site is evolving to provide an enhanced website user experience for select topics included in this release. Some guides are now available outside the existing documentation library and can be accessed directly from custom documentation landing pages. These guides offer robust in-built search functionality.

For the latest documentation, visit the product-specific documentation landing page and select the relevant guide.

Comments

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Command Line Interface

This chapter introduces the OcNOS Command Line Interface (CLI) and how to use its features.

Overview

You use the CLI to configure, monitor, and maintain OcNOS devices. The CLI is text-based and each command is usually associated with a specific task.

You can give the commands described in this manual locally from the console of a device running OcNOS or remotely from a terminal emulator such as putty or xterm. You can also use the commands in scripts to automate configuration tasks.

Chapter Organization

The chapters in command references are organized as described in Command Description Format (page 13).

The chapters in configuration guides are organized into these major sections:

- An overview that explains a configuration in words
- Topology with a diagram that shows the devices and connections used in the configuration
- Configuration steps in a table for each device where the left-hand side shows the commands you enter and the right-hand side explains the actions that the commands perform
- Validation which shows commands and their output that verify the configuration

Command Line Interface Help

You access the CLI help by entering a full or partial command string and a question mark “?”. The CLI displays the command keywords or parameters along with a short description. For example, at the CLI command prompt, type:

```
> show ?
```

The CLI displays this keyword list with short descriptions for each keyword:

```
show ?
  application-priority            Application Priority
  arp                             Internet Protocol (IP)
  bfd                             Bidirectional Forwarding Detection (BFD)
  bgp                             Border Gateway Protocol (BGP)
  bi-lsp                          Bi-directional lsp status and configuration
  bridge                          Bridge group commands
  ce-vlan                         COS Preservation for Customer Edge VLAN
  class-map                       Class map entry
  cli                             Show CLI tree of current mode
  clns                            Connectionless-Mode Network Service (CLNS)
  control-adjacency               Control Adjacency status and configuration
  control-channel                 Control Channel status and configuration
  cspf                            CSPF Information
  customer                        Display Customer spanning-tree
  cvlan                           Display CVLAN information
  debugging                       Debugging functions
  etherchannel                    LACP etherchannel
```

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```
  ethernet                      Layer-2
...
```

If you type the ? in the middle of a keyword, the CLI displays help for that keyword only.

```
> show de?
debugging  Debugging functions
```

If you type the ? in the middle of a keyword, but the incomplete keyword matches several other keywords, OcNOS displays help for all matching keywords.

```
> show i? (CLI does not display the question mark).
interface  Interface status and configuration
ip         IP information
isis       ISIS information
```

Command Completion

The CLI can complete the spelling of a command or a parameter. Begin typing the command or parameter and then press the tab key. For example, at the CLI command prompt type **sh**:

```
> sh
```

Press the tab key. The CLI displays:

```
> show
```

If the spelling of a command or parameter is ambiguous, the CLI displays the choices that match the abbreviation. Type **show i** and press the tab key. The CLI displays:

```
> show i
  interface  ip         ipv6       isis
> show i
```

The CLI displays the **interface** and **ip** keywords. Type **n** to select **interface** and press the tab key. The CLI displays:

```
> show in
> show interface
```

Type ? and the CLI displays the list of parameters for the **show interface** command.

```
> show interface
  IFNAME  Interface name
  |       Output modifiers
  >       Output redirection
  <cr>
```

The CLI displays the only parameter associated with this command, the **IFNAME** parameter.

Command Abbreviations

The CLI accepts abbreviations that uniquely identify a keyword in commands. For example:

```
> sh int xe0
```

is an abbreviation for:

```
> show interface xe0
```

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Command Line Errors

Any unknown spelling causes the CLI to display the error **Unrecognized command** in response to the ?. The CLI displays the command again as last entered.

```
> show dd?
% Unrecognized command
> show dd
```

When you press the Enter key after typing an invalid command, the CLI displays:

```
(config)#router ospf here
                        ^
% Invalid input detected at '^' marker.
```

where the ^ points to the first character in error in the command.

If a command is incomplete, the CLI displays the following message:

```
> show
% Incomplete command.
```

Some commands are too long for the display line and can wrap mid-parameter or mid-keyword, as shown below. This does *not* cause an error and the command performs as expected:

```
area 10.10.0.18 virtual-link 10.10.0.19 authentication-key 57393
```

Command Negation

Many commands have a **no** form that resets a feature to its default value or disables the feature. For example:

- The **ip address** command assigns an IPv4 address to an interface
- The **no ip address** command removes an IPv4 address from an interface

Syntax Conventions

Table 2 describes the conventions used to represent command syntax in this reference.

Table 2. Syntax conventions

Convention	Description	Example
monospaced font	Command strings entered on a command line	**show ip ospf**
lowercase	Keywords that you enter exactly as shown in the command syntax.	`show ip ospf`
`UPPERCASE`	See Variable Placeholders (page 12)	`IFNAME`
()	Optional parameters, from which you must select one. Vertical bars delimit the selections. Do not enter the parentheses or vertical bars as part of the command.	`(A.B.C.D|<0-4294967295>)`
()	Optional parameters, from which you select one or none. Vertical bars delimit the	`(A.B.C.D|<0-4294967295>|)`

Table 2. Syntax conventions (continued)

Convention	Description	Example
	selections. Do not enter the parentheses or vertical bars as part of the command.	
`()`	Optional parameter which you can specify or omit. Do not enter the parentheses or vertical bar as part of the command.	`(IFNAME|)`
`{}`	Optional parameters, from which you must select one or more. Vertical bars delimit the selections. Do not enter the braces or vertical bars as part of the command.	`{intra-area <1-255>|inter-area <1-255>|external <1-255>}`
`[]`	Optional parameters, from which you select zero or more. Vertical bars delimit the selections. Do not enter the brackets or vertical bars as part of the command.	`[<1-65535>|AA:NN|internet|local-AS| no-advertise|no-export]`
`?`	Nonrepeatable parameter. The parameter that follows a question mark can only appear once in a command string. Do not enter the question mark as part of the command.	`?route-map WORD`
`.`	Repeatable parameter. The parameter that follows a period can be repeated more than once. Do not enter the period as part of the command.	`set as-path prepend .<1-65535>`

Variable Placeholders

Table 3 shows the tokens used in command syntax use to represent variables for which you supply a value.

Table 3. Variable placeholders

Token	Description
`WORD`	A contiguous text string (excluding spaces)
`LINE`	A text string, including spaces; no other parameters can follow this parameter
`IFNAME`	Interface name whose format varies depending on the platform; examples are: **`eth0`**, **`Ethernet0`**, **`ethernet0`**, **`xe0`**
`A.B.C.D`	IPv4 address
`A.B.C.D/M`	IPv4 address and mask/prefix
`X:X::X:X`	IPv6 address
`X:X::X:X/M`	IPv6 address and mask/prefix
`HH:MM:SS`	Time format
`AA:NN`	BGP community value

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Table 3. Variable placeholders (continued)

Token	Description
`XX:XX:XX:XX:XX:XX`	MAC address

`<1-5>`
`<1-65535>`
`<0-2147483647>`
`<0-4294967295>`
	Numeric range

Command Description Format

The Table 4 table explains the sections used to describe each command in this reference.

Table 4. Command descriptions

Section	Description
Command Name	The name of the command, followed by what the command does and when should it be used
Command Syntax	The syntax of the command
Parameters	Parameters and options for the command
Default	The state before the command is executed
Command Mode	The mode in which the command runs; see Command Modes (page 17)
Applicability	The command introduced in a specific release version and modified or updated in subsequent versions.
Example	An example of the command being executed

Keyboard Operations

The Table 5 table lists the operations you can perform from the keyboard.

Table 5. Keyboard operations

Key combination	Operation
Left arrow or Ctrl+b	Moves one character to the left. When a command extends beyond a single line, you can press left arrow or Ctrl+b repeatedly to scroll toward the beginning of the line, or you can press Ctrl+a to go directly to the beginning of the line.
Right arrow or Ctrl-f	Moves one character to the right. When a command extends beyond a single line, you can press right arrow or Ctrl+f repeatedly to scroll toward the end of the line, or you can press Ctrl+e to go directly to the end of the line.
Esc, b	Moves back one word
Esc, f	Moves forward one word
Ctrl+e	Moves to end of the line

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Table 5. Keyboard operations (continued)

Key combination	Operation
Ctrl+a	Moves to the beginning of the line
Ctrl+u	Deletes the line
Ctrl+w	Deletes from the cursor to the previous whitespace
Alt+d	Deletes the current word
Ctrl+k	Deletes from the cursor to the end of line
Ctrl+y	Pastes text previously deleted with Ctrl+k, Alt+d, Ctrl+w, or Ctrl+u at the cursor
Ctrl+t	Transposes the current character with the previous character
Ctrl+c	Ignores the current line and redisplays the command prompt
Ctrl+z	Ends configuration mode and returns to exec mode
Ctrl+l	Clears the screen
Up Arrow or Ctrl+p	Scroll backward through command history
Down Arrow or Ctrl+n	Scroll forward through command history

Show Command Modifiers

Note: The show command output included in the guides is for illustration purposes only. Based on the combination of features enabled and ongoing enhancements made to the commands, the output for these commands may vary. For instance, the actual command output may differ depending on the software version, configuration, and platform. Field names, values, and formats are subject to change.

You can use two tokens to modify the output of a **show** command. Enter a question mark to display these tokens:

```
# show users ?
  | Output modifiers
  > Output redirection
```

You can type the | (vertical bar character) to use output modifiers. For example:

```
> show rsvp | ?
  begin     Begin with the line that matches
  exclude   Exclude lines that match
  include   Include lines that match
  last      Last few lines
  redirect  Redirect output
```

Begin Modifier

The **begin** modifier displays the output beginning with the first line that contains the input string (everything typed after the **begin** keyword). For example:

```
# show running-config | begin xe1
...skipping
interface xe1
ipv6 address fe80::204:75ff:fee6:5393/64
!
interface xe2
```

```
ipv6 address fe80::20d:56ff:fe96:725a/64
!
line con 0
login
!
end
```

You can specify a regular expression after the **begin** keyword, This example begins the output at a line with either “xe2” or “xe4”:

```
# show running-config | begin xe[2-4]

...skipping
interface xe2
 shutdown
!
interface xe4
 shutdown
!
interface svlan0.1
 no shutdown
!
route-map myroute permit 2
!
route-map mymap1 permit 10
!
route-map rmap1 permit 2
!
line con 0
 login
line vty 0 4
 login
!
end
```

Include Modifier

The **include** modifier includes only those lines of output that contain the input string. In the output below, all lines containing the word “input” are included:

```
# show interface xe1 | include input
    input packets 80434552, bytes 2147483647, dropped 0, multicast packets 0
    input errors 0, length 0, overrun 0, CRC 0, frame 0, fifo 1, missed 0
```

You can specify a regular expression after the **include** keyword. This examples includes all lines with “input” or “output”:

```
#show interface xe0 | include (in|out)put
    input packets 597058, bytes 338081476, dropped 0, multicast packets 0
    input errors 0, length 0, overrun 0, CRC 0, frame 0, fifo 0, missed 0
    output packets 613147, bytes 126055987, dropped 0
    output errors 0, aborted 0, carrier 0, fifo 0, heartbeat 0, window 0
```

Exclude Modifier

The **exclude** modifier excludes all lines of output that contain the input string. In the following output example, all lines containing the word “input” are excluded:

```
# show interface xe1 | exclude input
Interface xe1
  Scope: both
  Hardware is Ethernet, address is 0004.75e6.5393
  index 3 metric 1 mtu 1500 <UP,BROADCAST,RUNNING,MULTICAST>
```

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```
  VRF Binding: Not bound
  Administrative Group(s): None
  DSTE Bandwidth Constraint Mode is MAM
  inet6 fe80::204:75ff:fee6:5393/64
    output packets 4438, bytes 394940, dropped 0
    output errors 0, aborted 0, carrier 0, fifo 0, heartbeat 0, window 0
    collisions 0
```

You can specify a regular expression after the **exclude** keyword. This example excludes lines with “output” or “input”:

```
show interface xe0 | exclude (in|out)put
Interface xe0
  Scope: both
  Hardware is Ethernet  Current HW addr: 001b.2139.6c4a
  Physical:001b.2139.6c4a  Logical:(not set)
  index 2 metric 1 mtu 1500 duplex-full arp ageing timeout 3000
  <UP,BROADCAST,RUNNING,MULTICAST>
  VRF Binding: Not bound
  Bandwidth 100m
  DHCP client is disabled.
  inet 10.1.2.173/24 broadcast 10.1.2.255
  VRRP Master of :  VRRP is not configured on this interface.
  inet6 fe80::21b:21ff:fe39:6c4a/64
    collisions 0
```

Redirect Modifier

The **redirect** modifier writes the output into a file. The output is not displayed.

```
# show cli history | redirect /var/frame.txt
```

The output redirection token (>) does the same thing:

```
# show cli history >/var/frame.txt
```

Last Modifier

The **last** modifier displays the output of last few number of lines (As per the user input). The last number ranges from 1 to 9999.

For example:

```
#show running-config | last 10
```

String Parameters

The restrictions in Table 6 apply for all string parameters used in OcNOS commands, unless some other restrictions are noted for a particular command.

Table 6. String parameter restrictions

Restriction	Description
Input length	1965 characters or less
Restricted special characters	“?”, “,”, “>”, “|”, and “=” The “|” character is allowed only for the **description** command in interface mode.

Command Modes

Commands are grouped into modes arranged in a hierarchy. Each mode has its own set of commands. The table below lists the command modes common to all protocols.

Table 7. Common Command Modes

Name	Description
`Execution mode`	Also called *view* mode, this is the first mode to appear after you start the CLI. It is a base mode from where you can perform basic commands such as show, exit, quit, help, and enable.
Privileged execution mode	Also called *enable* mode, in this mode you can run additional basic commands such as debug, write, and show.
Configure mode	Also called *configure terminal* mode, in this mode you can run configuration commands and go into other modes such as interface, router, route map, key chain, and address family. Configure mode is single user. Only one user at a time can be in configure mode.
Interface mode	In this mode you can configure protocol-specific settings for a particular interface. Any setting you configure in this mode overrides a setting configured in router mode.
Router mode	This mode is used to configure router-specific settings for a protocol such as BGP or OSPF.

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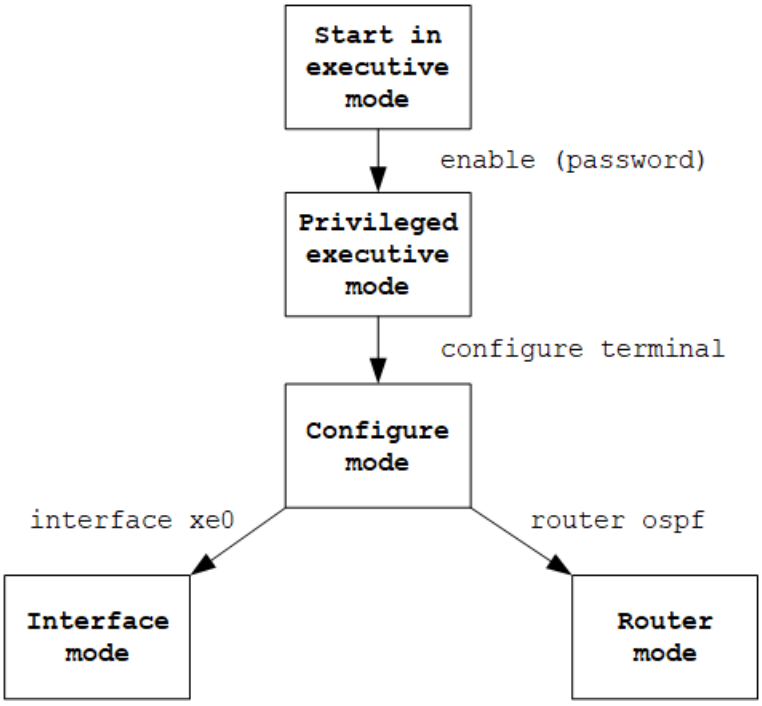
Command Mode Tree

The diagram below shows the common command mode hierarchy.

Figure 1. Common command modes



To change modes:

1. Enter privileged executive mode by entering **`enable`** in Executive mode.
2. Enter configure mode by entering **`configure terminal`** in Privileged Executive mode.

The example below shows moving from executive mode to privileged executive mode to configure mode and finally to router mode:

```
> enable mypassword
# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
(config)# router ospf
(config-router)#
```

Note: Each protocol can have modes in addition to the common command modes. See the command reference for the respective protocol for details.

Transaction-based Command-line Interface

The OcNOS command line interface is transaction based:

- Any changes done in configure mode are stored in a separate *candidate* configuration that you can view with the `show transaction current` command.
- When a configuration is complete, apply the candidate configuration to the running configuration with the command.

- If a `commit` fails, no configuration is applied as the entire transaction is considered failed. You can continue to change the candidate configuration and then retry the `commit`.
- Discard the candidate configuration with the `abort transaction` command.
- Check the last aborted transaction with the `show transaction last-aborted` command.
- Multiple configurations cannot be removed with a single . You must remove each configuration followed by a `commit`.

Note: All commands MUST be executed only in the default CML shell (**`cmlsh`**). If you log in as root and start **`imish`**, then the system configurations will go out of sync. The **`imish`** shell is not supported and should not be started manually.

INSTALL, LICENSE, AND UPGRADE CONFIGURATION

The OcNOS Installation Guide provides instructions for installing the OcNOS software, including the correct license. It includes the following steps:

- Download the OcNOS installation image.
- Download an OcNOS license.
- Install OcNOS:
  - From an FTP, HTTP/HTTPS, or TFTP server
  - From a USB stick
  - Using Zero Touch Provisioning (ZTP)
  - Set up a license

Note: USB restoration disables ZTP.

OcNOS supports both patch upgrades and full upgrades:

- A patch upgrade updates the software with a new OcNOS image that includes bug fixes, but does not involve changes to the kernel.
- A full upgrade updates the software with a new OcNOS ONIE image, including bug fixes and kernel changes.

Note: Installing OcNOS using HTTPS is not supported through ONIE.

The OcNOS Installation Guide also covers procedures for upgrading existing OcNOS installations by either:

- Installing a new OcNOS version over an existing OcNOS version saves the existing configuration files.
- Installing a fresh OcNOS version is destructive and removes existing configuration files, SSH keys, and trial licenses. Users must manually restore these items from backups as needed.

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LICENSING AND UPGRADE COMMANDS

This chapter describes the license and upgrade commands.

license get 24
- Command Syntax 24
- Parameters 24
- Default 24
- Command Mode 25
- Applicability 25
- Examples 25

license refresh 26
- Command Syntax 26
- Parameters 26
- Default 26
- Command Mode 26
- Applicability 26
- Examples 26

license release 27
- Command Syntax 27
- Parameters 27
- Default 27
- Command Mode 27
- Applicability 27
- Examples 27

show installers 28
- Command Syntax 28
- Parameters 28
- Default 28
- Command Mode 28
- Applicability 28
- Examples 28

show license 29
- Command Syntax 29
- Parameters 29
- Default 29
- Command Mode 29
- Applicability 29
- Examples 29

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show sys-update details 30
Command Syntax 30
Parameters 30
Default 30
Command Mode 30
Applicability 30
Examples 30
sys-update delete 31
Command Syntax 31
Parameters 31
Default 31
Command mode 31
Applicability 31
Examples 31
sys-update get 32
Command Syntax 32
Parameters 32
Default 33
Command Mode 33
Applicability 33
Examples 33
sys-update install 34
Command Syntax 34
Parameters 34
Default 35
Caution 35
Command Mode 35
Applicability 35
Examples 36
sys-update list-version 37
Command Syntax 37
Parameters 37
Default 37
Command Mode 37
Applicability 37
Examples 37
sys-update un-install 38
Command Syntax 38
Parameters 38
Default 38

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Command Mode 38
Applicability 38
Examples 38
sys-update verify 39
Command Syntax 39
Parameters 39
Default 39
Command Mode 39
Applicability 39
Examples 39

license get

Use this command to fetch the license for this device from a network path or a USB mount path. This command validates the license against the device identifier.

Notes:

- Ensure the system date is correct to avoid installation failure.
- For HTTP/HTTPS, FTP, or TFTP, ensure the IP address is reachable from the OcNOS device and the file location is correct.
- Installing OcNOS using HTTPS is not supported through ONIE.
- To install a license from a USB stick, insert the USB stick, and access its contents at `///mnt/usb/`. For example:

  ```
  >license get file:///mnt/usb/IPI-CC37ABBE0340.bin
  ```

- After running the `license get` command, users can immediately use the switch without rebooting. To verify, run the show license (page 29) command after executing this command.

Command Syntax

```
license get (|(source-interface IFNAME)) WORD
```

Parameters

IFNAME

Specifies the interface used to download the license. If not specified, the system uses `eth0` by default. If the management interface of the switch is in the “management” VRF, the command will use the “management” VRF to get the license from the specified path. Users do not need to know if the management port is in the default VRF or the “management” VRF.

WORD

Specifies the location from which to get the license.

`ftp://your-server-ip/path/to/file/IPI_deviceId.bin`

`http://your-server-ip/path/to/file/IPI_deviceId.bin`

`https://your-server-ip/path/to/file/IPI_deviceId.bin`

`tftp://your-server-ip/path/to/file/IPI_deviceId.bin`

`file:///mnt-point/usb/path/to/file/IPI_deviceId.bin`

Default

None

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Command Mode

Exec mode

Applicability

Introduced before OcNOS version 1.3.

Examples

```
>license get http://myServer/IPI-CC37ABBE0340.bin
>license get https://myServer/IPI-CC37ABBE0340.bin
```

Specify the `source-interface` parameter to set the interface to use:

```
>license get source-interface xe2 http://myServer/IPI-CC37ABBE0340.bin
>license get source-interface xe2 https://myServer/IPI-CC37ABBE0340.bin
```

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license refresh

Use this command to install a license that is already present on the device. This command is needed only if the license get command reports an error while installing the license, but successfully downloads the license.

If users run this command without specifying a file name, the device installs the most recently downloaded license file.

Note: Always ensure the device date is up to date to avoid license installation failures.

Once this command completes successfully, users can use the device without needing to reboot. Verify the license installation with the show license (page 29) command.

Command Syntax

```
license refresh (FILENAME|)
```

Parameters

FILENAME
Specifies the license file name, which exists on the device.

Default

None

Command Mode

Exec mode

Applicability

Introduced in OcNOS version 1.3.7.

Examples

```
>license refresh
>license refresh IPI-CH3QX42.bin
```

license release

Use this command to release any license, whether node-locked or floating, on the device. The device license is revoked immediately.

Command Syntax

```
license release
```

Parameters

None

Default

None

Command Mode

Exec mode

Applicability

Introduced in OcNOS version 3.0.

Examples

```
>license release
```

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show installers

Use this command to display a list of downloaded images on the device.

Command Syntax

```
show installers
```

Parameters

None

Default

None

Command Mode

Exec mode

Applicability

Introduced in OcNOS version 1.3.6.

Examples

```
OcNOS#show installers
/installers/OcNOS-SP-IPBASE-Q1-6.3.3-41-MR-installer
```

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show license

Use this command to display the current license details and errors. Each device requires a separate license, as licenses are device-specific and locked to a particular device.

Command Syntax

```
show license
```

Parameters

None

Default

None

Command Mode

Exec mode

Applicability

Introduced before OcNOS version 1.3.

Examples

```
OcNOS>show license
License Type: Trial edition
Remaining day to expires : 21 day(s)
Node Identifier: 1402EC2DA140
Device Software : OCNOS-SP-IPBASE-300
```

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show sys-update details

Use this command to display upgrade details. The output indicates whether the current version is committed or rolled back.

Command Syntax

```
show sys-update details
```

Parameters

None

Default

None

Command Mode

Exec mode and Privileged Exec mode

Applicability

Introduced before OcNOS version 1.3.

Examples

```
OcNOS#show sys-update details
Previous_version OcNOS-6.1.0-133-IPBASE_Q1-LD-installer
Current_version OcNOS-SP-IPBASE-Q1-6.3.3-41-MR-installer
(committed)
Last_upgraded Wed Sep 26 14:40:06 UTC 2018
Auto Rollback end time NA
```

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sys-update delete

Use this command to delete a downloaded image.

Command Syntax

```
sys-update delete IMAGE_NAME
```

Parameters

IMAGE_NAME
Specifies the installer name to delete.

Default

None

Command mode

Privileged Exec mode

Applicability

Introduced in OcNOS version 1.3.6.

Examples

```
OcNOS#sys-update delete OcNOS-SP-IPBASE-Q1-6.3.3-41-MR-installer
```

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sys-update get

Use this command to download an installer image.

Notes:

- Ensure that the URL complies with RFC 3986.
- When downloading the installer through the TFTP protocol, users may encounter a situation where the download progress shows 100% from the start to the end of the download. This behavior occurs when the TFTP server does not support TFTP Option Negotiation. Additionally, there are instances where the TFTP download takes longer, even timing out after 30 minutes, despite the client and server being on the same subnet. This delay is often due to latency issues, with some TFTP server implementations exhibiting performance lag. In such cases, switching to a different TFTP server is recommended. The TFTP download operation has been verified on a Debian Linux machine against the server present in the `tftpd-hpa` package.
- For SCP and SFTP downloads, ensure that the IP address/hostname is present in the `known_hosts` file. Otherwise, SCP and SFTP will fail with the error message `curl: (60) SSL peer certificate or SSH remote key was not OK`. If sys-update fails, the user is prompted to add the hostname/IP address in the known_hosts file to proceed with sys-update.

Command Syntax

```
sys-update get ((source-interface IFNAME) | (source-ip (A.B.C.D | X:X::X:X))|) URL (verbose|)
```

Parameters

source-interface IFNAME

(Optional) Specifies the source interface name used to download the new version. If not specified, eth0 is used.

URL

Specifies the URL parameter to indicate where to get the installer.

`http://username:password@your-server-ip/path/to/file/<abc-installer>> or`

`https://username:password@your-server-ip/path/to/file/<abc-installer>> or`

`ftp://username:password@your-server-ip/path/to/file/<abc-installer>> or`

`tftp://your-server-ip/path/to/file/<abc-installer>> or`

`scp://username:password@your-server-ip/path/to/file/<abc-installer> or`

`sftp://username:password@your-server-ip/path/to/file/<abc-installer>> or`

`file:///mnt/usb/path/to/file/<abc-installer>`

source-ip A.B.C.D

(Optional) Specifies the IPv4 address of the interface used to download the new version.

source-ip X:X::X:X

(Optional) Specifies the IPv6 address of the interface used to download the new version.

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verbose
(Optional) Include download logs in the output.

Default

None

Command Mode

Privileged Exec mode

Applicability

Introduced in OcNOS version 1.3.6.

Examples

```
OcNOS#sys-update get source-interface xe3 http://myServer/OcNOS-SP-MPLS-Q1-6.3.3-41-MR-installer
OcNOS#sys-update get source-interface xe3 https://myServer/OcNOS-SP-MPLS-Q1-6.3.3-41-MR-installer
```

Example using SCP if the IP address or hostname is not present in the `known_hosts` file:

```
OcNOS#sys-update get scp://root@10.12.33.204/home/OcNOS-SP-MPLS-Q1-6.3.3-41-MR-installer
VRF default cannot be deleted or not exists
Please wait ...
curl: (60) SSL peer certificate or SSH remote key was not OK
More details here: curl - SSL CA Certificates
curl failed to verify the legitimacy of the server and therefore could not
establish a secure connection to it. To learn more about this situation and
how to fix it, please visit the web page mentioned above.
The host name is not added in known_host
Do you want to add it to known_host
continue (y/n):y
Successfully added host to known_hosts file.
Please wait ...

OcNOS#show installers
/installers/OcNOS-SP-MPLS-Q1-6.3.3-39-MR-installer
/installers/OcNOS-SP-MPLS-Q1-6.3.3-41-MR-installer
```

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sys-update install

Use this command to upgrade the current software to a newer version. Users can perform two types of installations:

- If a `.deb` file is provided, the board is loaded with new binaries.
- If an installer file is provided, the board is completely installed with a new kernel and binaries.

Notes:

- During an upgrade, if a license is not available, the existing configuration is not applied. Also, the `ZebOS.conf` file is not created and the `terminal monitor` command is not allowed.
- Ensure that the URL complies with RFC 3986.
- When executing this command without the source-interface parameter, the system uses eth0 and the default management VRF. When executing this command with the source-interface parameter, it uses the specified interface.
- When downloading the installer through the TFTP protocol, users may encounter a situation where the download progress shows 100% from the start to the end of the download. This behavior occurs when the TFTP server doesn't support TFTP Option Negotiation. Additionally, there are instances where the TFTP download takes longer, even timing out after 30 minutes, despite the client and server being on the same subnet. This delay is often due to latency issues, with some TFTP server implementations exhibiting performance lag. In such cases, switching to a different TFTP server is recommended. The TFTP download operation has been verified on a Debian Linux machine against the server present in the tftpd-hpa package.
- For SCP and SFTP downloads, ensure that the IP address/hostname is present in the `known_hosts` file. Otherwise, SCP and SFTP will fail with the error message `curl: (60) SSL peer certificate or SSH remote key was not OK`. If sys-update fails, the user is prompted to add the hostname/IP address in the `known_hosts` file to proceed with sys-update.
- When a USB drive containing an ONIE installer is attached to the board, executing `sys-update install` command may use the installer from the USB. Ensure that the USB is removed or the USB backup feature is disabled before running `sys-update`.

Command Syntax

```
sys-update install (|(source-interface IFNAME | (source-ip (A.B.C.D | X:X::X:X)))) URL (verbose|)
```

Parameters

source-interface IFNAME

(Optional) Specifies the source interface name used to install the new version. If not specified, `eth0` is used.

URL

Specifies the URL parameter to indicate where to get the installer.

```
 <http://username:password@your-server-ip/path/to/file/<abc-updater.deb> or abc-
installer> or
```

```
<https://username:password@your-server-ip/path/to/file/<abc-updater.deb> or abc-
installer> or
 <ftp://username:password@your-server-ip/path/to/file/<abc-updater.deb> or abc-
installer> or
 tftp://your-server-ip/path/to/file/<abc-updater.deb> or abc-installer> or
 scp://username:password@your-server-ip/path/to/file/<abc-updater.deb or abc-
installer> or
 sftp://username:password@your-server-ip/path/to/file/<abc-updater.deb> or abc-
installer> or
 file:///mnt/usb/path/to/file/<abc-updater.deb or abc-installer>
```

source-ip A.B.C.D
(Optional) Specifies the IPv4 address of the interface used to download the new version.

source-ip X:X::X:X
(Optional) Specifies the IPv6 address of the interface used to download the new version.

verbose
(Optional) Include download logs in the output.

Default

None

Caution

OcNOS services use the `/usr/local/etc` path to store the device configuration, and this path is mounted into a separate partition to isolate system configurations. This partition is meant only for system configuration. Using this partition for storing general files can affect system stability. In this problematic state, if the device reboots, OcNOS services will not start properly, which would even create problems with device connectivity. There will be an impact on normal system configuration operations.

The user must take care of this problem before issuing the following commands:

- `reload/sys-reload` - Reboots the device.
- `sys-shutdown` - This is to shut down the device, but when the user powers the device on, OcNOS services will not start cleanly.
- `reboot / shutdown` - From Linux shell
- Also includes all copy commands from the Linux shell before issuing the user-triggered reload commands.

Command Mode

Privileged execution mode

Applicability

Introduced before OcNOS version 1.3 and was updated in OcNOS version 7.0.0

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Examples

```
OcNOS#sys-update install source-interface eth2 http://10.12.52.150/myServer/OcNOS-SP-MPLS-Q1-6.3.3-
41-MR-installer
OcNOS#sys-update install http://10.12.52.150/myServer/OcNOS-SP-MPLS-Q1-6.3.3-41-MR-installer
```

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sys-update list-version

Use this command to display files and folders; it supports only FTP and the local file systems.

Command Syntax

```
sys-update list-version ((source-interface IFNAME)|) URL
```

Parameters

source-interface IFNAME

(Optional) Specifies the source interface name used to list the version. If not specified, `eth0` is used.

URL

Specifies the URL parameter to indicate where to get the installer.

```
ftp://(username@|)serverIP/path/to/file/
file:///mnt/usb/path/to/file/
```

Default

None

Command Mode

Privileged Exec mode

Applicability

Introduced before OcNOS version 1.3.

Examples

```
OcNOS#sys-update list-version ftp://10.12.52.150/
```

sys-update un-install

Use this command to uninstall the device software remotely using the CLI and NetConf management interfaces. This command decouples the device console dependency to uninstall OcNOS.

This command puts the device in ONIE uninstall mode and triggers a reboot of the device. Upon reboot, ONIE detects the uninstall mode and performs the uninstallation. Once the un-installation completes, the device boots ONIE. To understand more about the un-installation technique, see the U-Boot and x86 Architecture sections.

Note: By default, ONIE has SSH and Telnet services running, allowing users also to trigger the installation through the management connection. For more information, refer to SSH and Telnet connectivity.

Command Syntax

```
sys-update un-install
```

Parameters

None

Default

None

Command Mode

Privileged Exec mode

Applicability

Introduced in OcNOS version 1.3.8.

Examples

```
OcNOS#sys-update un-install
```

sys-update verify

Use this command to verify the checksum and compatibility of the downloaded image. This command does not install the image. It lists the compatibility with hardware, license, and checksum.

Command Syntax

```
sys-update verify IMAGE_PATH
```

Parameters

IMAGE_PATH
Specifies the path of the downloaded image. The file should be present in `/installers/`.

Default

None

Command Mode

Privileged Exec mode

Applicability

Introduced in OcNOS version 6.2.0.

Examples

```
OcNOS#sys-update verify /installers/OcNOS-6.1.0-133-IPBASE_Q1-LD-installer
Verifying installer at /installers/OcNOS-6.1.0-133-IPBASE_Q1-LD-installer
Checksum Validation: PASS: Checksum: d5b641802bac97df08ea87353d1e3f5daa73212b
Installer compatibility with HW: PASS
License compatibility: PASS
Overall Status: PASS
```

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