



List of Commands

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ains-soak

To configure the default AINS settings for all controllers, use the **ains-soak** command in the IOS XR configuration mode.

ains-soak **hours** *hours* **minutes** *minutes*

Syntax Description	ains-soak hours <i>hours</i> minutes <i>minutes</i>	Specifies the AINS configuration in hours and minutes.
Command Default	None	
Command Modes	Cisco IOS XR Configuration	

Example

The following is a sample in which all the controllers on a line card are configured with AINS with soak time period specified to be two minutes.

```
RP/0/RP0/CPU0:ios#configure
```

```
RP/0/RP0/CPU0:ios(config)#ains-soak hours 0 minutes 2
RP/0/RP0/CPU0:ios(config)#commit
```

automatic-in-service

To override the default AINS settings on a specific controller of a 1.2T and 2.4T card, use the **automatic-in-service** command.



Note This configuration does not persist after a RP reload operation.

```
automatic-in-service controller optics R/S/I/P hours hours minutes minutes
```

Syntax Description	<i>R/S/I/P</i>	Rack/Slot/Instance/Port of the optics controller.
	<i>hours</i> minutes <i>minutes</i>	Specifies the AINS configuration in hours and minutes.
Command Default	None	
Command Modes	None	

Example

The following is a sample in which the optics controller of the 2.4T card is configured with a soak time period of 45 minutes.

```
RP/0/RP0/CPU0:ios#automatic-in-service controller optics 0/1/0/0 hours 0 minutes 45
```

clear context

To clear core dump context information, use the **clear context** command.

```
clear context
```

Syntax Description	This command has no keywords or arguments.
Command Default	No default behavior or values
Command Modes	IOS XR EXEC

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines None

Example

The following example shows how to clear core dump context information:

```
RP/0/RP0/CPU0:ios#clear context
```

controller HundredGigECtrlr

To configure the Ethernet controller, use the **controller HundredGigECtrlr** command in the Ethernet controller configuration mode.

```
controller HundredGigECtrlr R/S/I/P [ pm { 30-sec | 15-min | 24-hour } { ether } { report | threshold } value ] | [ perf-mon disable ] | [ loopback { internal | line } ] | [ sec-admin-state maintenance ] | [ shutdown ] | [ laser-squelch ] | [ fec { none | standard } ] | [ holdoff-time trunk-fault timevalue ] insert-idle ingress insert-idle egress
```

Syntax Description	<i>R/S/I/P</i>	Rack/Slot/Instance/Port of the Ethernet controller.
pm { 30-sec 15-min 24-hour }		Configures performance monitoring parameters for 30 second, 15 minutes, or 24 hour intervals.
ether		Configures Ethernet PM data in 30 second, 15 minute or 24 hour intervals.
report		Configures TCA reporting status.
threshold		Configures threshold on Ethernet controller parameters.
perf-mon disable		Disables performance monitoring.
loopback [internal line]		Configures the internal or line loopback mode on the Ethernet controller. For the 1.2T line card, internal and line loopbacks are supported on the Ethernet controllers whereas only internal loopbacks are supported on the CoherentDSP controllers.
sec-admin-state <i>maintenance</i>		Configures the administrative state of the controller indicating that the controller is under maintenance.
shutdown		Disables the configuration of the controller.
laser-squelch		Enables laser squelching so that laser is brought down in the event of trunk faults (LOF, LOS) and a SQUELCHED alarm is raised.

fec { none standard }	Disables FEC or enables standard (Reed-Solomon) FEC.
holdoff-time trunk-fault <i>timevalue</i>	When a fault occurs on the trunk port, the user can hold the propagation of Local Fault using this parameter. The range of <i>timevalue</i> is 0 to 3000 ms.
insert-idle ingress	Enables idle frames insertion in the ingress direction.
insert-idle egress	Enables idle frames insertion in the egress direction.

Command Default None

Command Modes Ethernet controller configuration

Example

The following example shows how to configure the performance monitoring parameters of the Ethernet controller in 15 minute intervals.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 pm 15-min pcs report bip
enable
```

The following example shows how to configure the internal loopback.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 secondary-admin-state
maintenance
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 loopback internal
RP/0/RP0/CPU0:ios(config)#commit
```

The following example enables IDLE hold off timer in Ethernet controller.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 holdoff-time trunk-fault
3000
RP/0/RP0/CPU0:ios(config)#commit
```

The following is a sample where laser squelching is enabled on the Ethernet controller.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 laser-squelch
RP/0/RP0/CPU0:ios(config)#commit
```

controller fourHundredGigECtrlr

To configure the Ethernet controller, use the **controller FourHundredGigECtrlr** command in the Ethernet controller configuration mode.

```
controller FourHundredGigECtrlr R/S/IP [ pm { 30-sec | 15-min | 24-hour } { ether } { report
| threshold } value ] | [ perf-mon disable ] | [ loopback { internal | line } ] | [
sec-admin-state maintenance ] | [ shutdown ] | [ laser-squelch ] | [ fec { none |
```

standard }] | [**holdoff-time trunk-fault** *timevalue*] **insert-idle ingress** **insert-idle egress**
opu prbs mode { **source** | **sink** | **source-sink** } **pattern invertedpn31**

Syntax Description	R/S/I/P	Rack/Slot/Instance/Port of the Ethernet controller.
pm { 30-sec 15-min 24-hour }		Configures performance monitoring parameters for 30 second, 15 minutes, or 24 hour intervals.
ether		Configures Ethernet PM data in 30 second, 15 minute or 24 hour intervals.
report		Configures TCA reporting status.
threshold		Configures threshold on Ethernet controller parameters.
perf-mon disable		Disables performance monitoring.
loopback [internal line]		Configures the internal or line loopback mode on the Ethernet controller. For the 1.2T line card, internal and line loopbacks are supported on the ethernet controllers whereas only internal loopbacks are supported on the CoherentDSP controllers.
sec-admin-state <i>maintenance</i>		Configures the administrative state of the controller indicating that the controller is under maintenance.
shutdown		Disables the configuration of the controller.
laser-squelch		Enables laser squelching so that laser is brought down in the event of trunk faults (LOF, LOS) and a SQUELCHED alarm is raised.
fec { none standard }		Disables FEC or enables standard (Reed-Solomon) FEC.
holdoff-time trunk-fault <i>timevalue</i>		When a fault occurs on the trunk port, the user can hold the propagation of Local Fault using this parameter. The range of <i>timevalue</i> is 0 to 3000 ms.
insert-idle ingress		Enables idle frames insertion in the ingress direction.
insert-idle egress		Enables idle frames insertion in the egress direction.
opu		Configures Optical Channel Payload Unit (OPU) on the ODU2e controller.
prbs mode { source sink source-sink }		Configures Pseudo Random Binary Sequence (PRBS) mode as source, sink, or source sink.
patterninvertedpn31		Configures PRBS pattern as inverted pattern. Sequence length is from $2^{31} - 1$ bits.
Command Default	None	
Command Modes	Ethernet controller configuration	

Example

The following example shows how to configure the performance monitoring parameters of the Ethernet controller in 15 minute intervals.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 pm 15-min pcs report bip
enable
```

The following example shows how to configure the internal loopback.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 secondary-admin-state
maintenance
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 loopback internal
RP/0/RP0/CPU0:ios(config)#commit
```

The following example enables IDLE hold off timer in Ethernet controller.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 holdoff-time trunk-fault
3000
RP/0/RP0/CPU0:ios(config)#commit
```

The following is a sample where laser squelching is enabled on the Ethernet controller.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller HundredGigECtrlr 0/1/0/10 laser-squelch
RP/0/RP0/CPU0:ios(config)#commit
```

controller coherentDSP

To configure the coherent DSP controller, use the **controller coherentDSP** command in the Coherent DSP controller configuration mode.

```
controller coherentDSP R/S/I/P [ description ] | [ fec fec-value ] | [ pm { 30-sec
|15-min | 24-hour } { fec | otn } { report | threshold } value ] | [ perf-mon { enable | disable
} ] | [ loopback internal ] | [ secondary-admin-state { maintenance | normal } ] | [
shutdown ] | [ tti { sent | expected } { ascii | hex } tii-string ] [ gcc0 ] [ flexo { gid gid-no
| iid iid-no } ]
```

Syntax Description		
<i>R/S/I/P</i>		Rack/Slot/Instance/Port of the coherent DSP controller.
description <i>description</i>		Description of the coherent DSP controller.
fec <i>fec-value</i>		Configures the FEC on the controller. The supported option are: <ul style="list-style-type: none"> Etherne controllers: <i>Standard</i> coherentDSP controller: <i>EnhancedSD15</i>

pm { 30-sec 15-min 24-hour } { fec otn } { report threshold } <i>value</i>	<p>Configures performance monitoring parameters for 30 second, 15 minute, or 24-hour intervals.</p> <p>The fec keyword configures FEC PM data in 30 second, 15 minute, or 24-hour intervals.</p> <p>The otn keyword configures OTN PM data in 30 second, 15 minute, or 24-hour intervals.</p> <p>The report keyword configures TCA reporting status.</p> <p>The threshold keyword configures threshold values on PM parameters.</p>
perf-mon { enable disable }	Enables or disables performance monitoring.
loopback internal	<p>Configures the internal loopback mode on the controller.</p> <p>For the 1.2T line card, internal and line loopbacks are supported on the Ethernet controllers whereas only internal loopback is supported on the CoherentDSP controllers.</p>
secondary-admin-state	Configures the administrative state of the controller. The values are maintenance or normal.
shutdown	Disables the configuration of the controller.
ttn sent { ascii hex } <i>ttn-string</i>	Configures the Trail Trace Identifier (TTI) ASCII or hex string to be sent. From Release 7.3.2 onwards, TTI strings such as SAPI, DAPI, and operator inputs are supported.
ttn expected { ascii hex } <i>ttn-string</i>	Configures the expected TTI ASCII or hex string. The OTUK-TIM alarm is raised if the received TTI string does not match the expected TTI string. From Release 7.3.2 onwards, TTI strings such as SAPI, DAPI, and operator inputs are supported.
gcc0	Enables the GCC0 interface.
flexo { gid <i>gid-no</i> iid <i>iid-no</i> }	Configures FlexO group identification (GID) and FlexO instance identification (IID) on the controller. The range of the gid <i>gid-no</i> is 1–1,048,576. The range of the iid <i>iid-no</i> is 1–254.

Command Default

None

Command Modes

Coherent DSP controller configuration

Example

The following is a sample in which performance monitoring parameters of Coherent DSP controller is configured in 30-second intervals.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller coherentDSP 0/0/1/1 pm 30-sec fec threshold post-fec-ber
max OE-15
RP/0/RP0/CPU0:ios(config)#commit
```


The following example shows how to configure TTI on a coherentDSP controller with the sent and expected strings set to the same ASCII string. The state of the controller is up.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller coherentDSP 0/1/0/1 tti sent ascii 1234
RP/0/RP0/CPU0:ios(config)#controller coherentDSP 0/1/0/1 tti expected ascii 1234
RP/0/RP0/CPU0:ios(config)#commit
```

The following example shows how to configure TTI on a coherentDSP controller with the sent and expected strings set to different ASCII strings. The state of the controller goes down and the OTUK-TIM alarm is raised.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller coherentDSP 0/1/0/1 tti sent ascii 1234
RP/0/RP0/CPU0:ios(config)#controller coherentDSP 0/1/0/1 tti expected ascii 5678
RP/0/RP0/CPU0:ios(config)#commit
```

The following is a sample to enable the GCC0 interface.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller CoherentDSP0/0/0/0
RP/0/RP0/CPU0:ios(config-CoDSP)#gcc0
RP/0/RP0/CPU0:ios(config-CoDSP)#commit
RP/0/RP0/CPU0:ios(config-CoDSP)#exit
```

The following is a sample to configure FEC with the EnhancedSD15 option on the CoherentDSP controller of the OTN-XP card:

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller coherentDSP 0/0/0/0
RP/0/RP0/CPU0:ios(config-CoDSP)#fec EnhancedSD15
Tue Feb 25 11:25:52.670 UTC
WARNING! Changing FEC mode can impact traffic
RP/0/RP0/CPU0:ios(config-CoDSP)#commit
```

The following is a sample to configure with the O-FEC option on the CoherentDSP controller of the OTN-XP card:

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller coherentDSP 0/0/0/0
RP/0/RP0/CPU0:ios(config-CoDSP)#fec OFEC
Tue Feb 25 11:25:52.670 UTC
WARNING! Changing FEC mode can impact traffic
RP/0/RP0/CPU0:ios(config-CoDSP)#commit
```

The following is a sample to configure flexO GID and IID on the CoherentDSP controller of the OTN-XP card:

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller coherentDSP0/2/0/12
RP/0/RP0/CPU0:ios(config-CoDSP)#flexo
RP/0/RP0/CPU0:ios(config-CoDSP)#gid 2 iid 5,6,7,8
RP/0/RP0/CPU0:ios(config-CoDSP)#commit
```

The following sample displays how to configure loopback on a coherent DSP controller ports on the OTN-XP in inverse muxponder configuration mode.

```

Thu Sep 30 14:16:04.678 UTC
RP/0/RP0/CPU0:ios(config)#controller coherentDSP 0/2/0/12
RP/0/RP0/CPU0:ios(config-CoDSP)#secondary-admin-state maintenance
RP/0/RP0/CPU0:ios(config-CoDSP)#loopback internal
RP/0/RP0/CPU0:ios(config-CoDSP)#commit
Thu Sep 30 14:16:19.594 UTC
RP/0/RP0/CPU0:ios(config-CoDSP)#controller coherentDSP 0/2/0/13
RP/0/RP0/CPU0:ios(config-CoDSP)#secondary-admin-state maintenance
RP/0/RP0/CPU0:ios(config-CoDSP)#loopback internal
RP/0/RP0/CPU0:ios(config-CoDSP)#commit

```

The following sample displays how to configure TTI on a coherent DSP controller port 12 on the OTN-XP in inverse muxponder configuration mode.

```

RP/0/RP0/CPU0:ios#configure
Thu Sep 30 14:18:13.288 UTC
RP/0/RP0/CPU0:ios(config)#controller coherentDSP 0/2/0/12
RP/0/RP0/CPU0:ios(config-CoDSP)#tti sent sapi ascii cisco
RP/0/RP0/CPU0:ios(config-CoDSP)#commit

```

controller ODU4

To configure the ODU4 controller, use the **controller ODU4** command in the configuration mode.

controller ODU4 *R/S/I/P* **gcc2**

Syntax Description	<i>R/S/I/P/L</i> Rack/Slot/Instance/Port/Lane of the ODU4 controller.
Command Default	None
Command Modes	Configuration

Example

The following is a sample in which OTNSec is configured on ODU4 controllers.

```

RP/0/RP0/CPU0:ios#configure
Mon Mar 12 12:10:21.374 UTC
RP/0/RP0/CPU0:ios(config)#controller ODU4 0/1/0/0/1
RP/0/RP0/CPU0:ios(config-odu4)#otnsec
RP/0/RP0/CPU0:ios(config-otnsec)#source ipv4 10.0.0.1
RP/0/RP0/CPU0:ios(config-otnsec)#destination ipv4 10.0.0.2
RP/0/RP0/CPU0:ios(config-otnsec)#session-id 9000
RP/0/RP0/CPU0:ios(config-otnsec)#policy otnsec-policy1
RP/0/RP0/CPU0:ios(config-otnsec)#ikev2 profile1
RP/0/RP0/CPU0:ios(config-otnsec)#commit
Mon Mar 12 12:14:17.609 UTC
RP/0/RP0/CPU0:ios(config-otnsec)#exit
RP/0/RP0/CPU0:ios(config)#exit

```

The following is a running configuration on an ODU4 controller.

```

RP/0/RP0/CPU0:ios#show run controller ODU4 0/1/0/0/1
Tue Mar 12 12:20:49.153 UTC

```

```

controller ODU40/1/0/0/1
  gcc2
  otnsec
  policy otnsec-policy1
  source ipv4 10.0.0.1
  destination ipv4 10.0.0.2
  session-id 9000
!
!

```

controller oms

To configure the OMS controller, use the **controller oms** command in the controller OTS configuration mode.

controller oms *R/S/I/P* [**tone-rate**] [**tone-pattern-expected**] [**tone-frequency**]

Syntax Description	<i>R/S/I/P</i>	Rack/Slot/Instance/Port of the OTS controller.
	tone-rate <i>value</i>	Configures the tone rate for tone generation.
	tone-pattern <i>value</i>	Configures the tone pattern for tone generation.
	tone-frequency <i>value</i>	Configures the tone frequency for tone generation.

Command Default None

Command Modes controller configuration mode

Command History	Release	Modification
	Release 7.11.1	Introduced this command.

Example

The following output is a sample of configuring various tone generation parameters using the **controller oms 0/0/0/3** command.

```

RP/0/RP0/CPU0: (config) #controller oms 0/1/0/0
RP/0/RP0/CPU0: (config-Oms) #tone-rate 2
RP/0/RP0/CPU0: (config-Oms) #tone-pattern-expected aabbccdd
RP/0/RP0/CPU0: (config-Oms) #tone-detect-oob
RP/0/RP0/CPU0: (config-Oms) #commit

```

controller optics

To configure the optics controller, use the **controller optics** command in the optics controller configuration mode.

```

controller optics R/S/I/P [ baud-rate rate ] [ bits-per-symbol value ] [ cd-max cd-max
| cd-min cd-min | cd-low-threshold cd-low | cd-high-threshold cd-high |
dgd-high-threshold dgd-value | lbc-high-threshold lbc-value | osnr-low-threshold osnr-value
description description | rx-high-threshold rx-high | rx-low-threshold rx-low |
tx-high-threshold tx-high | tx-low-threshold tx-low | sec-admin-state {maintenance | normal}
| shutdown | transmit-power transmit-power | transmit-shutdown | perf-mon { enable
| disable } | pm { 30-sec | 15-min | 24-hour } | optics { report | threshold { cd |
dgd | lbc | lbc-pc | opr | opt | osnr | pcr | pdl | pn | sopmd | rx-sig-pow
| rx-sig-pow-dbm } } ]

```

To configure the sub-sea parameters for the optics controller, use the following command:

```

controller optics R/S/I/P [ rx-voa target-power value | rx-voa fixed-ratio value |
enh-colorless-mode value | enh-sop-tol-mode value | nleq-comp-mode value ]

```

Syntax	Description
<i>R/S/I/P</i>	Rack/Slot/Instance/Port of the optics controller.
baud-rate <i>rate</i>	Sets baud-rate for this controller in GBd.
bits-per-symbol <i>value</i>	Sets bits-per-symbol for this controller.
cd-max <i>cd-max</i>	(Only for trunk optics controllers) Maximum chromatic dispersion. The range is -350000 to +350000 ps/nm.
cd-min <i>cd-min</i>	(Only for trunk optics controllers) Minimum chromatic dispersion. The range is -350000 to +350000 ps/nm.
cd-low-threshold <i>cd-low</i>	(Only for trunk optics controllers) Minimum acceptable chromatic dispersion. The CD alarm is raised if the chromatic dispersion goes below this value. The range is -350000 to +350000 ps/nm.
cd-high-threshold <i>cd-high</i>	(Only for trunk optics controllers) Maximum acceptable chromatic dispersion. The CD alarm is raised if the chromatic dispersion exceeds this value. The range is -350000 to +350000 ps/nm.
dgd-high-threshold <i>dgd-value</i>	(Only for trunk optics controllers) Configures the maximum acceptable Differential Group Delay (DGD) value. The DGD alarm is raised if DGD exceeds this value. The range is 0-18000 (in the units of 0.01 ps).
lbc-high-threshold <i>lbc-value</i>	Configures the high laser bias current threshold. The range is 0 to 100%.
osnr-low-threshold <i>osnr-value</i>	(Only for trunk optics controllers) Configures the minimum acceptable Optical Signal to Noise ratio (OSNR) value. The OSNR alarm is raised if OSNR goes below this value. The range is 0-4000 (in units of 0.01db).

description <i>description</i>	Description of the optics controller.
rx-high-threshold <i>rx-high</i>	Configures high receive power threshold. The range is –400 to 300 (in the units of 0.1 dBm).
rx-low-threshold <i>rx-low</i>	Configures low receive power threshold. The range is –400 to 300 (in the units of 0.1 dBm).
tx-high-threshold <i>tx-high</i>	Configures high transmit power threshold. The range is –400 to 300 dBm (in the units of 0.1 dBm).
tx-low-threshold <i>tx-low</i>	Configures low transmit power threshold. The range is –400 to 300 dBm (in the units of 0.1 dBm).
sec-admin-state	Configures the administrative state of the controller. The values are maintenance or normal.
shutdown	Disables the configuration of the controller.
pm	Configures performance monitoring parameters for 30 second, 15 minute, and 24-hour intervals.
transmit-power <i>transmit-power</i>	(Only for trunk optics controllers) Configures the transmit power. The range is –190 to 30 dBm (in the units of 0.1 dBm).
transmit-shutdown	Shuts down the transmit laser.
perf-mon { enable disable }	Enables or disables performance monitoring.
cd	Configures the chromatic dispersion threshold.
dgd	Configures the differential group delay threshold.
lbc	Configures the laser bias current threshold.
lbc-pc	Configures the laser bias current threshold in percentage.
opr	Configures the optical Rx power threshold in uW.
opt	Configures the optical Tx power threshold in uW.
osnr	Configures the OSNR threshold.
pcr	Configures the Polarization Change Rate (PCR) threshold.
pdl	Configures the Polarization-Dependent Loss (PDL) threshold.
pn	Configures the Phase Noise (PN) threshold.
sopmd	Configures the Second Order Polarization Mode Dispersion (SOPMD) threshold.
rx-sig-pow	Configures the Rx signal power threshold in uW.
rx-sig-pow-dbm	Configures the Rx signal power threshold in dBm. The unit is 0.01 dBm.

rx-voa target-power <i>value</i>	Configures the receive target power. The range is –190 to +30.
rx-voa fixed-ratio <i>value</i>	Configures the receive ratio of optical attenuation. The range is +100 to +1700.
enh-colorless-mode <i>value</i>	Configures the enhanced colorless mode. The range is 1–3.
enh-sop-tol-mode <i>value</i>	Configures the enhanced SOP tolerance mode. The range is 1–3.
nleq-comp-mode <i>value</i>	Configures the non-linear compensation. The range is 1–4.

Command Default

None

Command Modes

Optics controller configuration

Usage Guidelines

The configurations for chromatic dispersion (cd-max, cd-min, cd-low-threshold, and cd-high-threshold) must be performed only after the **hw-module** configuration. These configurations must be removed before the **no hw-module** configuration.

Example

The following example shows how to configure the optics controller and set the high-power threshold at the transmit and receive side.

```
RP/0/RP0/CPU0:ios# configure
RP/0/RP0/CPU0:ios(config)#controller optics 0/0/1/1
RP/0/RP0/CPU0:ios(config-optics)#rx-high-threshold 200
RP/0/RP0/CPU0:ios(config-optics)#tx-high-threshold 300
```

The following example shows how to configure the optics controller and set the ranges for chromatic dispersion.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller optics 0/0/1/1
RP/0/RP0/CPU0:ios(config-optics)#cd-max 10000
RP/0/RP0/CPU0:ios(config-optics)#cd-min 2000
```

The following is a sample in which the performance monitoring parameters of optics controller are configured in 24-hour intervals.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#controller optics 0/0/1/1 pm 24-hour optics threshold osnr max
345
RP/0/RP0/CPU0:ios(config)#commit
```

dir

To display the list of files on a file system or in a specific directory, use the **dir** command.

```
dir [ filesystem: ] [ filename ]
```

Syntax Description	<i>filesystem</i> : Name of the directory containing the files to be displayed. Include the file system alias for the <i>filesystem</i> argument, followed by a colon, and, optionally, the name of a directory.
	<i>filename</i> Name of the files to display. The files can be of any type.

Command Default When the **dir** command is entered without keywords or arguments, the contents of the present working directory are displayed.

Command Modes IOS XR EXEC

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines None

Example

The following example checks for core files of NCS 1014:

```
RP/0/RP0/CPU0:ios#dir harddisk:/*core.gz
Wed Dec 6 04:54:16.336 UTC
```

```
Directory of harddisk:/*core.gz
2476 -rw-r--r--. 1 8120038 Oct 30 15:08
cma_server_41264.by.6.20231030-150817.node0_RP0_CPU0.502a7.core.gz
```

dwdm-carrier

To configure the wavelength on the trunk port, use the **dwdm-carrier** command in optics controller configuration mode. To return the wavelength to its default value, use the **no** form of this command.

dwdm-carrier { **100MHz-grid** *frequency frequency* } | { **50GHz-grid** *frequency frequency* }

Syntax Description	50Ghz-grid 100MHz-grid Configures the wavelength in 50GHz grid and 100MHz (0.1GHz) grid spacing respectively in accordance with ITU definition.
	frequency <i>frequency</i> Specifies the frequency for the optics controller.

Command Default None

Command Modes Optics controller configuration

Usage Guidelines The controller must be in the shutdown state before you can use the **wavelength** command.

Example

The following example shows how to configure the frequency in 100MHz grid spacing.

```
RP/0/RP0/CPU0:ios# config
RP/0/RP0/CPU0:ios(config)# controller optics 0/0/0/0
RP/0/0/CPU0:ios(config-optics)# dwdm-carrier 100MHz-grid frequency 1865000
```

hw-module

To configure the card modes and turn on LEDs in the 1.2T, 2.4T, and 2.4TX, use the **hw-module** command in Cisco IOS XR configuration mode.

Muxponder Slice Mode Keywords

hw-module location *location* **mxponder-slice** *mxponder-slice-number* **trunk-rate** [**400G** | **600G** | **800G** | **1000G** |] **client-port-rate** *client-port-number* [**client-type** **400GE** | **lane** *lane-number* **client-type** **100GE**]

Port LED Keywords

hw-module location *location* **attention-led** [**all-ports** | **port** *port-number*]

ARP Snoop Keywords

hw-module location *location* **mxponder arp-snoop**

Syntax	Description
location <i>location</i>	Specifies the location of the optics controller.
mxponder-slice <i>mxponder-slice-number</i>	Configures the card in muxponder slice mode. Slice numbers can be 0 or 1.
mxponder	Configures the card in muxponder module mode. Activates the split client ports 2 and 3.
client-rate [100GE 400GE]	Specifies the traffic rate on the client ports. The supported client rates are 100GE and 400GE.
trunk-rate [400G 500G 600G 800G 1000G 1200G]	Specifies the traffic rate on the trunk ports. The supported trunk rates are 400G, 500G, 600G, 800G, 1000G, and 1200G.
client-port-ains-soak hours <i>hours</i> minutes <i>minutes</i>	Specifies the AINS configuration in hours and minutes.
arp-snoop	Configures MAC address or ARP snoop on the client ports.
attention-led [all-ports port <i>port-number</i>]	Turns on the attention LED on all the ports or on a specific port of the line card.
client-port-rate <i>client-port-number</i>	Specifies client port number. <ul style="list-style-type: none"> Mxponder-slice 0—Client ports 1, 2, and 3 are mapped to the trunk port 0. Mxponder-slice 1—Client ports 4, 5, and 6 are mapped to the trunk port 1.

<i>lanelane-number</i>	Specifies the lane number for each breakout channel.
------------------------	--

Command Default	NONE
------------------------	------

Command Modes	Cisco IOS XR Configuration
----------------------	----------------------------

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Example

The following is a sample in which the 2.4T card is configured with *400G* trunk rate on the *mxponder-slice 0* mode on port 1 QDD-4x100G client pluggable.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#hw-module location 0/1/NXR0 mxponder-slice 0
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#trunk-rate 400G
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#client-port-rate 1 lane 1 client-type 100GE
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#client-port-rate 1 lane 2 client-type 100GE
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#client-port-rate 1 lane 3 client-type 100GE
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#client-port-rate 1 lane 4 client-type 100GE
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#commit
```

The following is a sample in which the 2.4T card is configured for *600G* trunk rate with mixed client rate on the *mxponder-slice 1* mode. The client rate is configured with 400GE in port 4 and 2x100GE in port 5.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#hw-module location 0/1/NXR0 mxponder-slice 1
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#trunk-rate 600G
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#client-port-rate 4 client-type 400GE
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#client-port-rate 5 lane 1 client-type 100GE
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#client-port-rate 5 lane 2 client-type 100GE
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#commit
```

The following is a sample in which the 2.4T card is configured with *800G* trunk rate on the *mxponder-slice 0* mode. The client rate is configured with 400GE each in port 1 and port 2.

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#hw-module location 0/1/NXR0 mxponder-slice 0
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#trunk-rate 800G
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#client-port-rate 1 client-type 400GE
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#client-port-rate 2 client-type 400GE
RP/0/RP0/CPU0:ios(config-hwmod-mxp)#commit
```

ipv4-access-group

To control access to an interface, use the **ipv4 access-group** command in interface configuration mode. To remove the specified access group, use the **no** form of this command.

```
ipv4 access-group access-list-name { ingress | egress } [ compress level compression-level ]
```

Syntax Description	<i>access-list-name</i>	Name of an IPv4 access list as specified by an ipv4 access-list command.
	ingress	Filters on inbound packets.
	egress	Filters on outbound packets.
	compress level <i>compression-level</i>	Configures compression level for interface ACLs. Compression level values range from zero and two.

Command Default The interface does not have an IPv4 access list applied to it.

Command Modes Interface configuration

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines Use the **ipv4 access-group** command to control access to an interface. To remove the specified access group, use the **no** form of the command. Use the *access-list-name* argument to specify a particular IPv4 access list.

If the access list permits the addresses, the software continues to process the packet. If the access list denies the address, the software discards the packet and returns an Internet Control Message Protocol (ICMP) host unreachable message.

If the specified access list does not exist, all packets are passed.

Task ID	Task ID	Operations
	acl	read, write

Examples The following example shows how to apply the access list named IPV4-ACL to the management interface:

```
RP/0/RP0/CPU0:ios(config)# interface mgmtEth 0/RP0/CPU0/0
RP/0/RP0/CPU0:ios(config-if)# ipv4 access-group IPV4-ACL ingress
RP/0/RP0/CPU0:ios(config-if)# commit
```

ipv6-access-group

To control access to an interface, use the **ipv6 access-group** command in interface configuration mode. To remove the specified access group, use the **no** form of this command.

ipv6 access-group *access-list-name* { **ingress** | **egress** } [**compress level** *compression-level*]

Syntax Description	<i>access-list-name</i>	Name of an IPv6 access list as specified by an ipv6 access-list command.
	ingress	Filters on inbound packets.
	egress	Filters on outbound packets.
	compress level <i>compression-level</i>	Configures compression level for interface ACLs. Compression level values range from zero and two.
Command Default	The interface does not have an IPv6 access list applied to it.	
Command Modes	Interface configuration	
Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.
Usage Guidelines	Use compression level two to create Hybrid ACLs with an ACE that uses IPv6 extension headers to filter ingress and egress IPv6 packets.	
Task ID	Task ID	Operations
	acl	read, write

Examples

The following example shows how to apply the access list named IPV6-ACL to the management interface:

```
RP/0/RP0/CPU0:ios(config)# interface mgmtEth 0/RP0/CPU0/0
RP/0/RP0/CPU0:ios(config-if)# ipv6 access-group IPV6-ACL ingress
RP/0/RP0/CPU0:ios(config-if)# commit
```

ipv4-access-list

To define an IPv4 access list by name, use the **ipv4 access-list** command in IOS XR Config mode. To remove all entries in an IPv4 access list, use the **no** form of this command.

```
ipv4 access-list name
no ipv4 access-list name
```

Syntax Description	<i>name</i>	Name of the access list. Names cannot contain a space or quotation marks.
Command Default	No IPv4 access list is defined.	
Command Modes	IOS XR Config mode	

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines Use the **ipv4 access-list** command to configure an IPv4 access list. This command places the system in access list configuration mode, in which the denied or permitted access conditions must be defined with the **deny** or **permit** command.

Use the **ipv4 access-group** command to apply the access list to an interface.

Task ID	Task ID	Operations
	acl	read, write

Examples This example shows how to define a standard access list named ACL:

```
RP/0/RP0/CPU0:ios(config)# ipv4 access-list ACL
RP/0/RP0/CPU0:ios(config-ipv4-acl)# 10 permit tcp 192.0.2.2 255.255.255.0 any
RP/0/RP0/CPU0:ios(config-ipv4-acl)# 20 deny udp any any
RP/0/RP0/CPU0:ios(config-ipv4-acl)# 30 permit ipv4 192.0.2.64 255.255.255.0 any
RP/0/RP0/CPU0:ios(config-ipv4-acl)# commit
```

ipv6-access-list

To define an IPv6 access list by name, use the **ipv6 access-list** command in IOS XR Config mode. To remove all entries in an IPv6 access list, use the **no** form of this command.

```
ipv6 access-list name
no ipv6 access-list name
```

Syntax Description	<i>name</i> Name of the access list. Names cannot contain a space or quotation mark, or begin with a numeric.
--------------------	---

Command Default	No IPv6 access list is defined.
-----------------	---------------------------------

Command Modes	IOS XR Config mode
---------------	--------------------

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines The IPv6 access lists are used for traffic filtering based on source and destination addresses, IPv6 option headers, and optional, upper-layer protocol type information for finer granularity of control. IPv6 access lists are defined by using the **ipv6 access-list** command in XR Config mode mode and their permit and deny

conditions are set by using the **deny** and **permit** commands in IPv6 access list configuration mode. From IPv6 access list configuration mode, permit and deny conditions can be set for the defined IPv6 access list.

The **ipv6 access-list** command is similar to the **ipv4 access-list** command, except that it is IPv6-specific.

Use the **ipv6 access-group** command to apply the access list to an interface.

Every IPv6 access list has an implicit **deny ipv6 any any** statement as its last match condition. An IPv6 access list must contain at least one entry for the implicit **deny ipv6 any any** statement to take effect.

Task ID	Task ID	Operations
	acl	read, write

Examples

This example shows how to define a standard access list named ACL:

```
RP/0/RP0/CPU0:ios(config)# ipv6 access-list ACL
RP/0/RP0/CPU0:ios(config-ipv6-acl)# 10 permit ipv6 any any
RP/0/RP0/CPU0:ios(config-ipv6-acl)# 20 deny udp any any
RP/0/RP0/CPU0:ios(config-ipv6-acl)# commit
```

license smart deregister

To deregister smart license, use the **license smart deregister**

license smart deregister

Syntax Description *None* -

Command Default None

Command Modes IOS XR Config mode

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines Use the **license smart deregister** command to deregister smart license command.

Task ID	Task ID	Operations
	acl	read, write

Examples

This example shows how to deregister smart license:

```
RP/0/RP0/CPU0:iso#license smart deregister
```

license smart register

To register smart license, use the **license smart register**

license smart register

Syntax Description

None -

Command Default

None

Command Modes

IOS XR Config mode

Command History

Release	Modification
Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines

Use the **license smart register** command to register smart license command.

Task ID

Task ID	Operations
acl	read, write

Examples

This example shows how to deregister smart license:

```
RP/0/RP0/CPU0:iso#license smart register
```

lldp holdtime

Use the **lldp holdtime** command to specify the hold time for the receiving device to hold the information from an LLDP packet before aging and removing it. To return to the default, use the **no** form of this command.

lldp holdtime *seconds*

no lldp holdtime

Syntax Description	seconds	Specify the time in seconds to hold the packet information. Default value: 120
---------------------------	----------------	---

Command Default None

Command Modes Config mode

Usage Guidelines None

Task ID	Task ID	Operation
	ethernet-services	read, write

Example

The following example shows how to specify the hold time:

```
RP/0/RP0:hostname(config)# lldp holdtime 60
```

lldp reinit

Use the **lldp reinit** command to specify the time to delay the initialization of LLDP on an interface. To return to the default, use the **no** form of this command.

lldp reinit *seconds*

no lldp reinit

Syntax Description	seconds	Specify the time in seconds for which LLDP should delay initialization. Default value: 2
---------------------------	----------------	---

Command Default None

Command Modes Config mode

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operation
	ethernet-services	read, write

Example

The following example shows how to specify the time to delay the initialization of LLDP on an interface:

```
RP/0/RP0:hostname(config)# lldp reinit 4
```

lldp timer

Use the **lldp timer** command to specify the interval at which the device sends LLDP packets to neighboring devices. To return to the default, use the **no** form of this command.

lldp timer *seconds*

no lldp timer

Syntax Description	seconds	Specify the interval in seconds. Default value: 30
Command Default	None	
Command Modes	Config mode	
Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.	
Task ID	Task ID	Operation
	ethernet-services	read, write

Example

The following example shows how to LLDP time interval:

```
RP/0/RP0:hostname(config)# lldp timer 60
```

receive disable

Use the **lldp receive disable** command to disable the reception of LLDP packets on an interface. To return to the default, use the **no** form of this command.

receive disable

no receive disable

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes LLDP configuration

Usage Guidelines None

Task ID	Task ID	Operation
	ethernet-services	read, write

Example

The following example shows how to disable LLDP receive operations on an interface:

```
RP/0/RP0:hostname(config-if)# lldp
RP/0/RP0:hostname(config-if-lldp)# receive disable
```

transmit disable

Use the **transmit disable** command to disable the transmission of LLDP packets from an interface. To return to the default, use the **no** form of this command.

transmit disable

no transmit disable

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes LLDP configuration

Usage Guidelines None

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Task ID	Task ID	Operation
	ethernet-services	read, write

Example

The following example shows how to disable LLDP receive operations on an interface:

```
RP/0/RP0:hostname(config-if)# lldp
RP/0/RP0:hostname(config-if-lldp)# transmit disable
```

ntp

To enter Network Time Protocol (NTP) configuration mode and run NTP configuration commands, use the **ntp** command in global configuration mode.

ntp

Syntax Description	This command has no keywords or arguments.
---------------------------	--

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Global configuration
----------------------	----------------------

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Task ID	Task ID	Operations
	ip-services	read, write

The following example shows how to enter NTP configuration mode:

```
RP/0/RP0/CPU0:ios(config)#ntp
RP/0/RP0/CPU0:ios(config-ntp)#
```

reload

To perform a reload operation on the NCS 1014 unit and its modules, use the **reload** command.

This command is not traffic affecting, but service affecting.

reload location *location*

Syntax Description	location <i>location</i>	(Optional) Location for the unit or module which you want to reload.
---------------------------	-----------------------------------	--

Command Default All slots are reloaded.

Command Modes Cisco IOS XR

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Usage Guidelines None

Example

To reboot the Cisco NCS 1014 system, use the following command.

This command is not traffic affecting.

```
RP/0/RP0/CPU0:ios#reload
Fri Oct 27 08:34:15.416 UTC
Proceed with reload? [confirm]
RP/0/RP0/CPU0:ios#
Preparing system for backup. This may take a few minutes especially for large configurations.
Status report: node0_RP0_CPU0: BACKUP INPROGRESS
Status report: node0_RP0_CPU0: BACKUP HAS COMPLETED SUCCESSFULLY
[Done]
```

To reboot the entire Cisco NCS 1014 system along with its modules, use the following command.

This command is service affecting.

```
RP/0/RP0/CPU0:ios#reload location all noprompt
Mon Sep 25 12:40:35.755 UTC
RP/0/RP0/CPU0:ios#yes
% Invalid input detected at '^' marker.
RP/0/RP0/CPU0:ios#
*****Completed Card Reload of all *****
##### Rack reload : all#####
##### Iteration under Test : 7 #####
Waiting for 1000 seconds...
Waiting for 990 seconds...
Waiting for 980 seconds...
Waiting for 970 seconds...
.
.
output snipped
.
.
Waiting for 110 seconds...
Waiting for 100 seconds...
Waiting for 90 seconds...
Waiting for 80 seconds...
Waiting for 70 seconds...
Waiting for 60 seconds...
Waiting for 50 seconds...
Waiting for 40 seconds...
Waiting for 30 seconds...
Waiting for 20 seconds...
Waiting for 10 seconds...
XR Prompt = RP/0/RP0/CPU0:P2A_DT_08#
Login successful
```

```

type is <class 'telnetlib.Telnet'>
clear logging
Mon Sep 25 13:10:21.480 UTC
Clear logging buffer [confirm]
[y/n] :y
RP/0/RP0/CPU0:ios#
*****XR Logging Cleared*****
*****Started Sanity Verification Tests *****
The term length 0 op is term length 0
Mon Sep 25 13:11:20.125 UTC

```

To perform cold reboot of the Cisco NCS 1014 RP, use the following command.

This command is not traffic affecting.

```

RP/0/RP0/CPU0:ios#reload location 0/RP0 noprompt
Mon Sep 25 20:31:15.168 UTC
RP/0/RP0/CPU0:ios#yes
% Invalid input detected at '^' marker.
RP/0/RP0/CPU0:ios#
*****Completed Card Reload of 0/RP0 *****
##### Rack reload : 0/RP0#####
##### Iteration under Test : 1 #####
Waiting for 900 seconds...
Waiting for 890 seconds...
.
.
output snipped
.
.
Waiting for 110 seconds...
Waiting for 100 seconds...
Waiting for 90 seconds...
Waiting for 80 seconds...
Waiting for 70 seconds...
Waiting for 60 seconds...
Waiting for 50 seconds...
Waiting for 40 seconds...
Waiting for 30 seconds...
Waiting for 20 seconds...
Waiting for 10 seconds...
XR Prompt = RP/0/RP0/CPU0:ios#
Login sucessfull

```

```

type is <class 'telnetlib.Telnet'>
clear logging
Mon Sep 25 20:40:35.134 UTC
Clear logging buffer [confirm]
[y/n] :y
RP/0/RP0/CPU0:ios#
*****XR Logging Cleared*****
*****Started Sanity Verification Tests *****
The term length 0 op is term length 0
Mon Sep 25 20:40:36.045 UTC

RP/0/RP0/CPU0:ios#reload location 0/0/NXR0 noprompt
Wed Sep 27 09:07:45.340 UTC
RP/0/RP0/CPU0:ios#yes
% Invalid input detected at '^' marker.
RP/0/RP0/CPU0:ios#
*****Completed Card Reload of 0/0/NXR0 *****
##### Rack reload : 0/0/NXR0#####
##### Iteration under Test : 1 #####
Waiting for 900 seconds...
Waiting for 890 seconds...

```

```

Waiting for 880 seconds...
Waiting for 870 seconds...
.
.
output snipped
.
.
Waiting for 40 seconds...
Waiting for 30 seconds...
Waiting for 20 seconds...
Waiting for 10 seconds...
XR Prompt = RP/0/RP0/CPU0:ios#
Login sucessfull

type is <class 'telnetlib.Telnet'>
clear logging
Wed Sep 27 09:30:24.432 UTC
Clear logging buffer [confirm]
[y/n] :y\
RP/0/RP0/CPU0:ios#
*****XR Logging Cleared*****
*****Started Sanity Verification Tests *****
The term length 0 op is term length 0
Wed Sep 27 07:43:24.240 UTC

```

To perform cold reboot of the Cisco NCS 1014 line card, use the following command.

This command is traffic affecting.

```

RP/0/RP0/CPU0:ios#reload location 0/0 noprompt
Mon Sep 25 14:16:53.322 UTC
RP/0/RP0/CPU0:ios#yes
% Invalid input detected at '^' marker.
RP/0/RP0/CPU0:ios#
*****Completed Card Reload of 0/0 *****
##### Rack reload : 0/0#####
##### Iteration under Test : 1 #####
Waiting for 900 seconds...
Waiting for 890 seconds...
Waiting for 880 seconds...
Waiting for 870 seconds...
.
.
output snipped
.
.
Waiting for 80 seconds...
Waiting for 70 seconds...
Waiting for 60 seconds...
Waiting for 50 seconds...
Waiting for 40 seconds...
Waiting for 30 seconds...
Waiting for 20 seconds...
Waiting for 10 seconds...
XR Prompt = RP/0/RP0/CPU0:ios#
Login sucessfull

type is <class 'telnetlib.Telnet'>
clear logging
Mon Sep 25 14:46:44.124 UTC
Clear logging buffer [confirm]
[y/n] :y
RP/0/RP0/CPU0:ios#
*****XR Logging Cleared*****
*****Started Sanity Verification Tests *****

```

```
The term length 0 op is term length 0
Mon Sep 25 22:40:52.228 UTC
```

To perform warm reboot of the Cisco NCS 1014 RP card, use the following command.

This command is not traffic affecting.

```
RP/0/RP0/CPU0:ios#reload location 0/RP0/CPU0 noprompt
Wed Sep 27 11:15:20.002 UTC
RP/0/RP0/CPU0:ios#yes
% Invalid input detected at '^' marker.
RP/0/RP0/CPU0:ios#
*****Completed Card Reload of 0/RP0/CPU0 *****
##### Rack reload : 0/RP0/CPU0#####
##### Iteration under Test : 1 #####
Waiting for 900 seconds...
Waiting for 890 seconds...
Waiting for 880 seconds...
Waiting for 870 seconds...
Waiting for 860 seconds...

.
.
output snipped
.
.
Waiting for 70 seconds...
Waiting for 60 seconds...
Waiting for 50 seconds...
Waiting for 40 seconds...
Waiting for 30 seconds...
Waiting for 20 seconds...
Waiting for 10 seconds...
XR Prompt = RP/0/RP0/CPU0:P2A_DT_08#
Login successful

type is <class 'telnetlib.Telnet'>
clear logging
Wed Sep 27 13:16:20.265 UTC
Clear logging buffer [confirm]
[y/n] :y
RP/0/RP0/CPU0:ios#
*****XR Logging Cleared*****
*****Started Sanity Verification Tests *****
The term length 0 op is term length 0
Wed Sep 27 15:34:45.765 UTC
```

server

To allow the system clock to be synchronized by a NTP time server, use the **server** command in one of the NTP configuration modes. To remove the **server** command from the configuration file and restore the system to its default condition with respect to this command, use the **no** form of this command.

server

```
[{ ipv4 | ipv6 }] ip-address [ version number ] [ key key-id ] [ minpoll interval ] [ maxpoll interval ] [ source type interface-path-id ] [prefer] [burst] [iburst]
```

no server

```
[{ ipv4 | ipv6 }] ip-address
```

Syntax Description	
ipv4	(Optional) Specifies an IPv4 IP address.
ipv6	(Optional) Specifies an IPv6 IP address.
<i>ip-address</i>	IPv4 or IPv6 address of the time server providing the clock synchronization.
version number	(Optional) Defines the Network Time Protocol (NTP) version number, where the <i>number</i> argument is a value from 1 to 4. The default is 4.
key key-id	(Optional) Defines the authentication key, where the <i>key-id</i> argument is the authentication key to use when packets are sent to this peer. By default, no authentication key is used.
minpoll interval	(Optional) Defines the shortest polling interval, where the <i>interval</i> argument is specified in powers of two seconds. Range is from 4 to 17. The default value is 6.
maxpoll interval	(Optional) Defines the longest polling interval, where the <i>interval</i> argument is specified in powers of two seconds. Range is from 4 to 17. The default value is 10.
source	(Optional) Specifies the IP source address. The default is the outgoing interface.
<i>type</i>	(Optional) Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	(Optional) Physical interface or virtual interface.
	Note Use the show interfaces command to see a list of all interfaces currently configured on the device.
prefer	(Optional) Makes this peer the preferred server that provides synchronization.
burst	(Optional) Sends a series of packets instead of a single packet within each synchronization interval to achieve faster synchronization.
iburst	(Optional) Sends a series of packets instead of a single packet within the initial synchronization interval to achieve faster initial synchronization.

Command Default No servers are configured by default.

Command Modes NTP configuration

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines The value for the **minpoll** keyword must be less than or equal to the value for the **maxpoll** keyword. If this is not the case, the system issues an error message.

Using the **prefer** keyword reduces switching back and forth among servers.

Task ID	Task ID	Operations
	ip-services	read, write

The following example shows how to configure the device to allow its system clock to be synchronized with the clock of the peer at IP address 203.0.113.51 using NTP.

```
RP/0/RP0/CPU0:ios(config)#ntp
RP/0/RP0/CPU0:ios(config-ntp)#server 203.0.113.51 minpoll 8 maxpoll 12 prefer iburst
```

show access-lists-ipv4

To display the contents of current IPv4 access lists, use the **show access-lists ipv4** command in IOS XR EXEC mode.

```
show access-lists ipv4 [{ access-list-name hardware { ingress | egress } [ interface type
interface-path-id ] { sequence number | location node-id } | [ usage pfilter { location node-id
} ] ] }
```

Syntax	Description
<i>access-list-name</i>	(Optional) Name of a particular IPv4 access list. The name cannot contain spaces or quotation marks, but can include numbers.
hardware	(Optional) Identifies the access list as an access list for an interface.
ingress	(Optional) Specifies an inbound interface.
interface	(Optional) Displays interface statistics.
<i>type</i>	(Optional) Interface type.
<i>interface-path-id</i>	Physical interface or virtual interface.
	<p>Note Use the show interfaces command to see a list of all interfaces currently configured on the router.</p>
sequence number	(Optional) Sequence number of a particular IPv4 access list. Range is 1 to 2147483644.
location node-id	(Optional) Location of a particular IPv4 access list. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

summary	(Optional) Displays a summary of all current IPv4 access lists.
<i>sequence-number</i>	(Optional) Sequence number of a particular IPv4 access list. Range is 1 to 2147483644.
usage	(Optional) Displays the usage of the access list on a given line card.
pfilter	(Optional) Displays the packet filtering usage for the specified line card.

Command Default The default displays all IPv4 access lists.

Command Modes IOS XR EXEC

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines Use the **show access-lists ipv4** command to display the contents of all IPv4 access lists. To display the contents of a specific IPv4 access list, use the *name* argument. Use the *sequence-number* argument to specify the sequence number of the access list.

Use the **hardware**, **ingress** and **location** keywords to display the access list hardware contents and counters for all interfaces that use the specified access list in a given direction. To display the contents of a specific access list entry, use the **sequence number** keyword and argument. The access group for an interface must be configured using the **ipv4 access-group** command for access list hardware counters to be enabled.

Use the **show access-lists ipv4 summary** command to display a summary of all current IPv4 access lists. To display a summary of a specific IPv4 access list, use the *name* argument.

Use the **show access-list ipv4 usage** command to display a summary of all interfaces and access lists programmed on the specified line card.

Task ID	Task ID	Operations
	acl	read

Examples

In the following example, the contents of all IPv4 access lists are displayed:

```
RP/0/RP0/CPU0:ios# show access-lists ipv4 acl_1
Fri Oct 20 06:22:17.223 UTC
ipv4 access-list acl_1
10 permit ipv4 172.16.0.0 0.0.255.255 any
20 deny ipv4 192.168.34.0 0.0.0.255 any
```

show access-lists ipv6

To display the contents of current IPv6 access lists, use the **show access-lists ipv6** command in IOS XR EXEC mode.

```
show access-lists ipv6 [{ access-list-name hardware { ingress | egress } [ interface type
interface-path-id ] { sequence number | location node-id |[ usage pfilter { location node-id
} ] } }
```

Syntax Description	
<i>access-list-name</i>	(Optional) Name of a particular IPv6 access list. The name cannot contain a spaces or quotation marks, but can include numbers.
hardware	(Optional) Identifies the access list as an access list for an interface.
ingress	(Optional) Specifies an inbound interface.
interface	(Optional) Displays interface statistics.
<i>type</i>	(Optional) Interface type.
<i>interface-path-id</i>	(Optional) Either a physical interface instance or a virtual interface instance as follows: <ul style="list-style-type: none"> Physical interface instance. Naming notation is <i>rack/slot/instance/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> <i>rack</i>: Chassis number of the rack. <i>slot</i>: Physical slot number of the modular services card or line card. <i>instance</i>: Module number. <i>port</i>: Physical port number of the interface. Virtual interface instance. Number range varies depending on interface type.
sequence number	(Optional) Sequence number of a particular IPv6 access list. Range is 1 to 2147483644.
location node-id	(Optional) Location of a particular IPv6 access list. The <i>node-id</i> argument is entered in the <i>rack/slot/instance</i> notation.
summary	(Optional) Displays a summary of all current IPv6 access lists.
<i>sequence-number</i>	(Optional) Sequence number of a particular IPv6 access list. Range is 1 to 2147483644.
usage	(Optional) Displays the usage of the access list on a given line card.
pfilter	(Optional) Displays the packet filtering usage for the specified line card.
all	(Optional) Displays the location of all the line cards.

Command Default Displays all IPv6 access lists.

Command Modes IOS XR EXEC

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines

The **show access-lists ipv6** command is similar to the **show access-lists ipv4** command, except that it is IPv6 specific.

Use the **show access-lists ipv6** command to display the contents of all IPv6 access lists. To display the contents of a specific IPv6 access list, use the *name* argument. Use the *sequence-number* argument to specify the sequence number of the access list.

Use the **hardware**, **ingress** and **location** keywords to display the access list hardware contents and counters for all interfaces that use the specified access list in a given direction. To display the contents of a specific access list entry, use the **sequence number** keyword and argument. The access group for an interface must be configured using the **ipv6 access-group** command for access list hardware counters to be enabled.

Use the **show access-lists ipv6 summary** command to display a summary of all current IPv6 access lists. To display a summary of a specific IPv6 access list, use the *name* argument.

Use the **show access-list ipv6 usage** command to display a summary of all interfaces and access lists programmed on the specified line card.

Task ID	Task ID	Operations
	acl	read

Examples

In the following example, the contents of all IPv6 access lists are displayed:

```
RP/0/RP0/CPU0:ios# show access-lists ipv6
Fri Oct 20 05:29:01.125 UTC
ipv6 access-list V6-INGRESS-ACL
10 permit ipv6 any any
20 deny udp any any
```

show alarms

To display alarms in brief or detail, use the **show alarms** command.

show alarms brief [card [location *location*] [active]]

Syntax Description	brief	Displays alarms in brief.
	active	Displays active alarms.
	location	Specifies the target location.
	card	Displays card scope alarms related data.

show alarms

Command Default None

Command Modes IOS XR EXEC

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines None
Example

The following example shows the output of the **show alarms** command:

```
RP/0/RP0/CPU0:ios#show alarms brief card location 0/RP0/CPU0 active
```

```
-----
Active Alarms
-----
```

Location	Severity	Group	Set Time	Description
----------	----------	-------	----------	-------------

```
-----
```

0/0 HundredGigECtrlr0/0/0/2	Major	Ethernet	11/21/2023 11:11:35 UTC	- Carrier Loss On The LAN
--------------------------------	-------	----------	-------------------------	---------------------------

0/3 HundredGigECtrlr0/3/0/2	Major	Ethernet	11/21/2023 11:11:37 UTC	- Remote Fault
--------------------------------	-------	----------	-------------------------	----------------

0/0 HundredGigECtrlr0/0/0/4	Major	Ethernet	11/21/2023 11:11:38 UTC	- Local Fault
--------------------------------	-------	----------	-------------------------	---------------

0/3 HundredGigECtrlr0/3/0/3	Major	Ethernet	11/21/2023 11:11:38 UTC	- Local Fault
--------------------------------	-------	----------	-------------------------	---------------

0/3 HundredGigECtrlr0/3/0/4	Major	Ethernet	11/21/2023 11:11:38 UTC	- Local Fault
--------------------------------	-------	----------	-------------------------	---------------

0/0 HundredGigECtrlr0/0/0/5	Major	Ethernet	11/21/2023 11:11:38 UTC	- Local Fault
--------------------------------	-------	----------	-------------------------	---------------

0/0 HundredGigECtrlr0/0/0/6	Major	Ethernet	11/21/2023 11:11:38 UTC	- Local Fault
--------------------------------	-------	----------	-------------------------	---------------

0/0 HundredGigECtrlr0/0/0/7	Major	Ethernet	11/21/2023 11:11:38 UTC	- Local Fault
--------------------------------	-------	----------	-------------------------	---------------

0/3 HundredGigECtrlr0/3/0/5	Major	Ethernet	11/21/2023 11:11:39 UTC	- Local Fault
--------------------------------	-------	----------	-------------------------	---------------

0/3	Major	Ethernet	11/21/2023 11:11:39 UTC
HundredGigECtrlr0/3/0/6 - Local Fault			
0/3	Major	Ethernet	11/21/2023 11:11:38 UTC
HundredGigECtrlr0/3/0/7 - Local Fault			
0/0	Major	Ethernet	11/21/2023 11:11:43 UTC
HundredGigECtrlr0/0/0/3 - Local Fault			
0/3	Major	Ethernet	11/21/2023 11:11:57 UTC
HundredGigECtrlr0/3/0/8 - Local Fault			
0/3	Major	Ethernet	11/21/2023 11:11:57 UTC
HundredGigECtrlr0/3/0/9 - Local Fault			
0/3	Major	Ethernet	11/21/2023 11:11:59 UTC
HundredGigECtrlr0/3/0/12 - Local Fault			
0/3	Major	Ethernet	11/21/2023 11:11:59 UTC
HundredGigECtrlr0/3/0/13 - Local Fault			
0/0	Major	Ethernet	11/21/2023 11:12:03 UTC
HundredGigECtrlr0/0/0/9 - Local Fault			
0/0	Major	Ethernet	11/21/2023 11:12:04 UTC
HundredGigECtrlr0/0/0/8 - Local Fault			
0/0	Major	Ethernet	11/21/2023 11:12:04 UTC
HundredGigECtrlr0/0/0/10 - Local Fault			
0/0	Major	Ethernet	11/21/2023 11:12:04 UTC
HundredGigECtrlr0/0/0/11 - Local Fault			
0/0	Major	Ethernet	11/21/2023 11:12:04 UTC
HundredGigECtrlr0/0/0/12 - Local Fault			
0/0	Major	Ethernet	11/21/2023 11:12:04 UTC
HundredGigECtrlr0/0/0/13 - Local Fault			
0/3	Major	Ethernet	11/21/2023 11:12:04 UTC
HundredGigECtrlr0/3/0/11 - Local Fault			
0/3	Major	Ethernet	11/21/2023 11:12:05 UTC
HundredGigECtrlr0/3/0/10 - Local Fault			

show context

To display core dump context information, use the **show context** command.

show context

Syntax Description	This command has no keywords or arguments.
---------------------------	--

Command Default	None
------------------------	------

Command Modes	IOS XR EXEC
----------------------	-------------

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines	None
-------------------------	------

Example

The following example shows sample output from the **show context** command:

```
RP/0/RP0/CPU0:ios#show context

node: node0_RP0_CPU0
Context number: 1
-----
Core location: 0/RP0/CPU0:/misc/disk1

Core for pid = 6232 (Terminal_Device)
Core for process: opt_terminal_device_6232.by.11.20231204-170249.node0_RP0_CPU0.877b9.core.gz
Core dump time: 2023-12-04 17:02:50.144240146 +0000

Process:
Core was generated by `opt_terminal_device'.

Build information:
### XR Information

User = deenayak
Host = iox-ucs-061
Workspace = /auto/iox-ucs-061-san1/prod/24.1.1.32I.SIT_IMAGE/ncs1010/ws/
Built on = Fri Nov 17 17:17:31 UTC 2023
Lineup = r241x.lu%EFR-00000453356
XR version = 24.1.1.32I

### Leaba Information

Platform information:
card_product_id: NCS1014
platform: ncs1010

Signal information:
```

Program terminated with signal 11, Segmentation fault.

Faulting thread: 6232

Registers for Thread 6232

```

rax:    0x7f2d0d7be000
rbx:    0x0
rcx:    0x0
rdx:    0x7f
rsi:    0x0
rdi:    0x7fff2f3d3420
rbp:    0x0
rsp:    0x7fff2f3d3410
r8:     0x0
r9:     0x7fff2f3d3510
r10:    0xfffffffffffff80
r11:    0x5287
r12:    0x7f
r13:    0x7fff2f3d3420
r14:    0x7f2d0dac4684
r15:    0x7fff2f3d3598
rip:    0x7f2d0d6701ca
eflags: 0x10206
cs:     0x33
ss:     0x2b
ds:     0x0
es:     0x0
fs:     0x0
gs:     0x0

```

Backtrace for Thread 6232

```

#0  0x00007f2d0d6701ca in ?? () from /lib64/libc-2.31.so
#1  0x00007f2d0d64b4d5 in sprintf+0x85 from /lib64/libc-2.31.so
#2  0x00007f2d0dadf5cf in ?? () from /opt/cisco/install-iosxr/base/lib/libopenconfig_cmn.so
#3  0x00007f2d0dade7a2 in ?? () from /opt/cisco/install-iosxr/base/lib/libopenconfig_cmn.so
#4  0x00007f2d0dfd6b35 in ?? () from
/opt/cisco/install-iosxr/base/lib/libinfra_sysdb_combine_82eb6a4d2fa15d0e.so
#5  0x00007f2d0dfd4b0e in sysdb_process_pending_pulse+0x512 from
/opt/cisco/install-iosxr/base/lib/libinfra_sysdb_combine_82eb6a4d2fa15d0e.so
#6  0x00007f2d0e11e3bd in ?? () from
/opt/cisco/install-iosxr/base/lib/libinfra_combine_82eb6a4d2fa15d0e.so
#7  0x00007f2d0e12831e in xr_event_dispatch+0x48 from
/opt/cisco/install-iosxr/base/lib/libinfra_combine_82eb6a4d2fa15d0e.so
#8  0x00005607924be6a9 in ?? ()
#9  0x00007f2d0d61cd1b in __libc_start_main+0xeb from /lib64/libc-2.31.so
#10 0x00005607924be31a in ?? ()

```

node: node0_RP0_CPU0

Context number: 2

Core location: 0/RP0/CPU0:/misc/disk1

Core for pid = 5155 (sh_proc_mem_edm)

Core for process: sh_proc_mem_edm_5155.by.user.20231204-105935.node0_RP0_CPU0.4b884.core.gz

Core Dump time: Mon Dec 4 10:59:35 2023

Process:

Core was generated by: user requested dump of pid 5155

Build information:

XR Information

```
User = deenayak
Host = iox-ucs-061
Workspace = /auto/iox-ucs-061-san1/prod/24.1.1.32I.SIT_IMAGE/ncs1010/ws/
Built on = Fri Nov 17 17:17:31 UTC 2023
Lineup = r241x.lu%EFR-00000453356
XR version = 24.1.1.32I
```

```
### Leaba Information
```

```
Registers for Thread (LWP 5155)
```

```
rax: 0xffffffffffffc
rbx: 0x5570ec6edd60
rcx: 0x7f0239431cd6
rdx: 0x20
rsi: 0x5570ec6ee060
rdi: 0x1b
rbp: 0x7ffca2a8b690
rsp: 0x7ffca2a8b4e0
r8: 0x0
r9: 0x436
r10: 0xffffffff
r11: 0x293
r12: 0x5570ec6ee020
r13: 0x5570ec6ede70
r14: 0x5570ec6ee060
r15: 0x5570ec6edd60
rip: 0x7f0239431cd6
eflags: 0x293
cs: 0x33
ss: 0x2b
ds: 0x0
es: 0x0
fs: 0x0
gs: 0x0
```

```
Backtrace for Thread (LWP 5155)
```

```
#0 0x00007f0239431cd6 in ?? () from /lib64/libc-2.31.so
#1 0x00007f0238fef2a in event_del_nolock_+0x3a from /usr/lib64/libevent-2.1.so.7.0.0
#2 0x00007f0238fe3d8e in ?? () from /usr/lib64/libevent-2.1.so.7.0.0
#3 0x00007f0239799034 in event_block+0x204 from
/opt/cisco/install-iosxr/base/lib/libinfra_combine_82eb6a4d2fa15d0e.so
#4 0x00005570ec41fba8 in ?? () from /opt/cisco/install-iosxr/base/bin/sh_proc_mem_edm
#5 0x00007f023935ed1b in ?? () from /lib64/libc-2.31.so
#6 0x00005570ec41f8fa in ?? () from /opt/cisco/install-iosxr/base/bin/sh_proc_mem_edm
```

```
-----
node: node0_RP0_CPU0
```

```
Context number: 3
```

```
-----
Core location: 0/RP0/CPU0:/misc/disk1
```

```
Core for pid = 4316 (sysdb_mc_main)
```

```
Core for process: sysdb_mc_4316.by.user.20231203-161922.node0_RP0_CPU0.3f09d.core.gz
```

```
Core Dump time: Sun Dec 3 16:19:22 2023
```

```
Process:
```

```
Core was generated by: user requested dump of pid 4316
```

```
Build information:
```

```
### XR Information
```



```

User = deenayak
Host = iox-ucs-061
Workspace = /auto/iox-ucs-061-san1/prod/24.1.1.32I.SIT_IMAGE/ncs1010/ws/
Built on = Fri Nov 17 17:17:31 UTC 2023
Lineup = r241x.lu%EFR-00000453356
XR version = 24.1.1.32I

```

```
### Leaba Information
```

```
Registers for Thread (LWP 4316)
```

```

rax: 0xfffffffffffffc
rbx: 0x0
rcx: 0x7f46904eca92
rdx: 0x0
rsi: 0x0
rdi: 0x7ffd281477c0
rbp: 0x7ffd28147a00
rsp: 0x7ffd281476e0
r8: 0x0
r9: 0x0
r10: 0x8
r11: 0x293
r12: 0x1
r13: 0x0
r14: 0x0
r15: 0x7ffd281477c0
rip: 0x7f46904eca92
eflags: 0x293
cs: 0x33
ss: 0x2b
ds: 0x0
es: 0x0
fs: 0x0
gs: 0x0

```

```
Backtrace for Thread (LWP 4316)
```

```

#0 0x00007f46904eca92 in ?? () from /lib64/libc-2.31.so
#1 0x00005583860ea640 in ?? () from /opt/cisco/install-iosxr/base/sbin/sysdb_mc
#2 0x00005583860bbbd1 in ?? () from /opt/cisco/install-iosxr/base/sbin/sysdb_mc
#3 0x00007f46904d7d1b in ?? () from /lib64/libc-2.31.so
#4 0x00005583860bbada in ?? () from /opt/cisco/install-iosxr/base/sbin/sysdb_mc

```

```
-----
node: node0_RP0_CPU0
```

```
Context number: 4
```

```
-----
Core location: 0/RP0/CPU0:/misc/disk1
```

```
Core for pid = 4212 (sysdb_svr_local)
```

```
Core for process: sysdb_svr_local_4212.by.user.20231203-161920.node0_RP0_CPU0.bf2d1.core.gz
```

```
Core Dump time: Sun Dec 3 16:19:20 2023
```

```
Process:
```

```
Core was generated by: user requested dump of pid 4212
```

```
Build information:
```

```
### XR Information
```

```

User = deenayak
Host = iox-ucs-061

```

```

Workspace = /auto/iox-ucs-061-san1/prod/24.1.1.32I.SIT_IMAGE/ncs1010/ws/
Built on = Fri Nov 17 17:17:31 UTC 2023
Lineup = r241x.lu%EFR-00000453356
XR version = 24.1.1.32I

### Leaba Information

Registers for Thread (LWP 4212)
rax: 0xfffffffffffffc
rbx: 0x0
rcx: 0x7f1fcb1c4a92
rdx: 0x0
rsi: 0x0
rdi: 0x7fff60339f50
rbp: 0x7fff6033a200
rsp: 0x7fff60339e80
r8: 0x0
r9: 0x0
r10: 0x8
r11: 0x293
r12: 0x0
r13: 0x0
r14: 0x7fff60339f50
r15: 0x7f1fcb50da9e
rip: 0x7f1fcb1c4a92
eflags: 0x293
cs: 0x33
ss: 0x2b
ds: 0x0
es: 0x0
fs: 0x0
gs: 0x0

Backtrace for Thread (LWP 4212)
#0 0x00007f1fcb1c4a92 in ?? () from /lib64/libc-2.31.so
#1 0x00007f1fcb5af472 in sysdb_svr_main+0xd15 from
/opt/cisco/install-iosxr/base/lib/libsysdbsvr_only.so
#2 0x000055e2fd529851 in ?? () from /opt/cisco/install-iosxr/base/sbin/sysdb_svr_local
#3 0x00007f1fcb1afd1b in ?? () from /lib64/libc-2.31.so
#4 0x000055e2fd52975a in ?? () from /opt/cisco/install-iosxr/base/sbin/sysdb_svr_local

-----
RP/0/RP0/CPU0:ios#

```

show controllers

To display status and configuration information about the interfaces on a specific node, use the **show controllers** command in XR EXEC mode.

Show controllers *Controller-type R/S/I/P* [**tone-info** | **prbs-details**]

Syntax Description

Controller-type R/S/I/P Rack/Slot/Instance/Port of the controller.

spectrum-info Displays the Optical Channel Monitoring (OCM) raw data at slice level, such as Tx-power and Rx-power.

tone-info	Displays the Tone Generation parameters that are set for connection verification and the status of the connection verification operation.
------------------	---

prbs-details	Displays the PRBS details configured on the controller.
---------------------	---

Command Default	None
------------------------	------

Command Modes	XR EXEC mode
----------------------	--------------

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Usage Guidelines	None
-------------------------	------

Example

To view the parameter values set for Tone Generation and the status of connection verification on the OMS controller, use the following command:

```
RP/0/RP0/CPU0:#show controllers oms 0/1/0/0 tone-info
Fri Sep 22 06:04:03.787 UTC
Tone Info:
Tone Rate : 2 bits/second
Tone Pattern Expected(Hex value) : aabbccdd
Tone Pattern Received(Hex value) : aabbccdd
Tone Detected OOB : Enabled
Detection State: Success
```

show environment

To display environmental monitor parameters for the system, including fans, power supply voltage, current information, temperatures, and altitude, use the **show environment** command.

```
show environment [ all | altitude | current | fan | power | voltages [ location | location ] ] | temperature [ location | location ] ]
```

Syntax Description		
all	Displays information for all the environmental monitor parameters.	
altitude	Displays information about the altitude.	
current	Displays current sensor information.	
fan	Displays information about the fans.	
power	Displays power supply voltage and current information.	
temperature	Displays system temperature information.	
voltages	Displays system voltage information.	

location Enter the location for which the environmental information needs to be displayed.

Command Default All environmental monitor parameters are displayed.

Command Modes IOS XR EXEC

Command History

Release	Modification
Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines None

Example

The following example shows sample output from the **show environment** command with the **fan** keyword:

```
RP/0/RP0/CPU0:ios#show environment fan
=====
Location          FRU Type          Fan speed (rpm)
                  FAN_0            FAN_1
-----
0/PM0             NCS1K4-DC-PSU-2  11520  11216
0/PM1             NCS1K4-DC-PSU-2  12256  12128
0/FT0             NCS1K14-FAN      11400  9960
0/FT1             NCS1K14-FAN      11340  9960
0/FT2             NCS1K14-FAN      11400  9960
```

The following example shows sample output from the **show environment** command with the **temperature** keyword:

```
RP/0/RP0/CPU0:ios#show environment temperature location 0/rp0/CPU0
=====
Location          TEMPERATURE          Value      Crit      Major      Minor
                  Minor      Major      Crit
                  Sensor          (deg C)    (Lo)      (Lo)      (Lo)
                  (Hi)      (Hi)      (Hi)
-----
0/RP0/CPU0
RP_TEMP_PCB          38      -10      -5      0
    80      85      90
RP_TEMP_HOT_SPOT    38      -10      -5      0
    80      85      90
RP_TEMP_LTM4638_0   38      -10      -5      0
    85      90      95
RP_TEMP_LTM4644_0   37      -10      -5      0
    85      90      95
```

```

RP_TEMP_LTM4644_1          38    -10    -5    0
      85      90      95
RP_TEMP_LTM4638_1          37    -10    -5    0
      80      90      95
RP_TEMP_LTM4644_2          38    -10    -5    0
      85      90      95
RP_TEMP_LTM4638_2          38    -10    -5    0
      80      90      95
TEMP_CPU_DIE                39    -10    -5    0
      80      85      90
TEMP_DDR_DIMM                39    -10    -5    0
      80      85      90
TEMP_CPU_SSD                 48    -10    -5    0
      70      75      80
TEMP_EITU_SSD                39    -10    -5    0
      70      75      80

```

The following example shows sample output from the **show environment** command with the **power** keyword:

```

RP/0/RP0/CPU0:ios#sh environment power
Tue Nov 28 14:14:52.169 UTC
=====
CHASSIS LEVEL POWER INFO: 0
=====
Total output power capacity (Group 0 + Group 1) :    2000W +    2000W
Total output power required                      :    1896W
Total power input                               :    741W
Total power output                              :    653W

Power Group 0:
=====
Power      Supply      -----Input-----      -----Output-----      Status
Module     Type                Volts    Amps    Volts    Amps
=====
0/PM0      NCS1K4-AC-PSU      224.0    1.8    12.1    28.9    OK

Total of Group 0:                403W/1.8A                349W/28.9A

Power Group 1:
=====
Power      Supply      -----Input-----      -----Output-----      Status
Module     Type                Volts    Amps    Volts    Amps
=====
0/PM1      NCS1K4-AC-PSU      225.2    1.5    12.1    25.2    OK

Total of Group 1:                337W/1.5A                304W/25.2A

=====
Location   Card Type                Power      Power      Status
           Type                Allocated  Used
           Type                Watts      Watts
=====
0/FT0      NCS1K14-FAN            170        27        ON
0/FT1      NCS1K14-FAN            170        27        ON
0/FT2      NCS1K14-FAN            170        28        ON

```

show environment

0/0/NXR0	NCS1K4-1.2T-K9	260	220	ON
0/1/NXR0	NCS1K4-1.2T-K9	260	221	ON
0/2/NXR0	NCS1K4-1.2T-K9	260	54	ON
0/3/NXR0	NCS1K14-2.4T-K9	460	15	ON
0/Rack	NCS1014	73	14	ON

The following example shows sample output from the **show environment** command with the **voltages** keyword:

```
RP/0/RP0/CPU0:ios#show environment voltage location 0/rp0/cpu0
```

Location	VOLTAGE Sensor	Value (mV)	Crit (Lo)	Minor (Lo)	Minor (Hi)	Crit (Hi)
0/RP0/CPU0						
	RP_ADM1266_12V0	12035	10800	11280	12720	13200
	RP_ADM1266_1V8_CPU	1801	1670	1750	1850	1930
	RP_ADM1266_1V24_VCCREF	1238	1150	1200	1280	1330
	RP_ADM1266_1V05_CPU	1053	980	1020	1080	1120
	RP_ADM1266_1V2_DDR_VDDQ	1205	1120	1160	1240	1280
	RP_ADM1266_1V0_VCC_RAM	1123	650	700	1250	1300
	RP_ADM1266_1V0_VNN	946	550	600	1250	1300
	RP_ADM1266_1V0_VCCP	704	450	500	1250	1300
	RP_ADM1266_0V6_DDR_VTT	600	560	580	620	640
	RP_ADM1266_12V0_DB	12028	10800	11280	12720	13200
	RP_ADM1266_3V3_STAND_BY_DB	3302	3069	3201	3399	3531
	RP_ADM1266_3V3_STAND_BY	3306	3070	3200	3400	3530
	RP_ADM1266_5V0_DB	5000	4650	4850	5150	5350
	RP_ADM1266_3V3_DB	3328	3069	3201	3399	3531
	RP_ADM1266_2V5_DB	2507	2325	2425	2575	2675
	RP_ADM1266_1V8_DB	1804	1674	1746	1854	1926
	RP_ADM1266_1V0_PHY	997	930	970	1030	1070
	RP_ADM1266_5V0	5048	4650	4850	5150	5350
	RP_ADM1266_3V3	3330	3070	3200	3400	3530
	RP_ADM1266_2V5_PLL	2516	2330	2430	2580	2680
	RP_ADM1266_2V5_FPGA	2505	2330	2430	2580	2680
	RP_ADM1266_1V2_FPGA	1196	1120	1160	1240	1280
	RP_ADM1266_3V3_CPU	3332	3070	3200	3400	3530
	RP_ADM1266_2V5_CPU	2498	2330	2430	2580	2680

The following example shows a sample output of the **show environment current** command:

```
RP/0/RP0/CPU0:ios#show environment current
```

Location	CURRENT Sensor	Value (mA)
0/RP0/CPU0		
	RP_JMAC_1V0_VCCP_IMON	0
	RP_JMAC_1V0_VNN_IMON	93
	RP_JMAC_1V0_VCC_RAM_IMON	0
	RP_JMAC_1V2_DDR_VDDQ_IMON	156
	RP_CURRMON_LTM4638_0	345
	RP_CURRMON_LTM4644_0	145
	RP_CURRMON_LTM4644_1	250
	RP_CURRMON_LTM4638_1	199
	RP_CURRMON_DB	455
0/0/NXR0		
	IMON_CLI	2979
	IMON_CTLPL	974
	IMON_MODULE	11270
	IMON_CDR	3357
	SA_ADM1275_12V_IMON_LC	18624
0/1/NXR0		
	IMON_CTLPL	887

```

IMON_CLI 4587
IMON_META0_IN0 807
IMON_META0_CORE_IOUT0 5648
IMON_META0_CORE_IOUT1 4570
IMON_META0_IN2 669
IMON_META0_CORE_IOUT2 3726
IMON_META0_AVD_IOUT 5085
IMON_META1_IN0 326
IMON_META1_CORE_IOUT0 2566
IMON_META1_CORE_IOUT1 1578
IMON_META1_IN2 650
IMON_META1_CORE_IOUT2 3718
IMON_META1_AVD_IOUT 4593
SA_ADM1275_12V_IMON_LC 9433
0/2/NXR0
IMON_OPTM 867
IMON_CTLPL 512
SA_ADM1275_12V_IMON_LC 1209
0/3/NXR0
IMON_CLI 2867
IMON_CTLPL 1017
IMON_MODULE 11153
IMON_CDR 3457
SA_ADM1275_12V_IMON_LC 17582
0/Rack
SA_ADM1275_12V_IMON_CPU 1843
--More--

```

The following example shows sample output from the **show environment** command with the **altitude** keyword:

```

RP/0/RP0/CPU0:ios#sh environment altitude
Location      Altitude Value (Meters)  Source
0             0                          config
RP/0/RP0/CPU0:ios#

```

show fpd package

To determine the FPDs that are supported with the current software release and the minimum hardware requirements for each FPD, use the **show fpd package** command.

show fpd package

Syntax Description

This command has no keywords or arguments.

Command Default

Firmware information of all the hardware components are displayed.

Command Modes

Cisco IOS XR EXEC

Command History

Release	Modification
Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines

None

Example

The following example shows sample output from the **show fpd package** command.

```
RP/0/RP0/CPU0:ios#show fpd package
Mon Dec 4 15:37:36.521 UTC
```

```
=====
                                Field Programmable Device Package
                                =====
Card Type           FPD Description           Req   SW   Min Req  Min Req
=====           =====           ===== =====
                                Reload Ver   SW Ver   Board Ver
=====           =====           ===== =====
NCS1014-SA          ADM-CHASSIS               NO    0.21   0.21    0.0
                   IoFpga                   NO    1.10   1.10    0.0
                   IoFpgaGolden             NO    1.05   1.05    0.0
                   SsdIntelSC2KB            YES   1.20   1.20    0.0
-----
NCS1K14-2.4T-K9     CpuModFw                  NO   234.10 234.10   0.0
-----
NCS1K14-2.4T-L-K9   CpuModFw                  NO   234.10 234.10   0.0
-----
NCS1K14-CCMD-16-C   CpuModFw                  NO   234.10 234.10   0.0
                   OptModFw                 NO    18.03 18.03    0.0
-----
NCS1K14-CCMD-16-L   CpuModFw                  NO   234.10 234.10   0.0
                   OptModFw                 NO    18.03 18.03    0.0
-----
NCS1K14-CNTRLR-K9  ADM-DB                    NO    2.10   2.10    0.2
                   ADM-MB                    NO    2.30   2.30    0.2
                   BIOS                      YES   4.70   4.70    0.0
                   BIOS-Golden               YES   4.70   0.01    0.0
                   CpuFpga                   YES   1.09   1.09    0.0
                   CpuFpgaGolden             YES   1.09   1.09    0.0
                   SsdIntelS4510             YES  11.32  11.32    0.0
                   SsdIntelSC2KB            YES   1.20   1.20    0.0
                   SsdMicron5300            YES   0.01   0.01    0.0
                   TamFw                    YES   9.04   9.04    0.0
                   TamFwGolden              YES   9.04   9.04    0.0
-----
NCS1K14-CTLR-B-K9  ADM-DB                    NO    2.10   2.10    0.2
                   ADM-MB                    NO    2.30   2.30    0.2
                   BIOS                      YES   4.70   4.70    0.0
                   BIOS-Golden               YES   4.70   0.01    0.0
                   CpuFpga                   YES   1.09   1.09    0.0
                   CpuFpgaGolden             YES   1.09   1.09    0.0
                   SsdIntelS4510             YES  11.32  11.32    0.0
                   SsdIntelSC2KB            YES   1.20   1.20    0.0
                   SsdMicron5300            YES   0.01   0.01    0.0
                   TamFw                    YES   9.04   9.04    0.0
                   TamFwGolden              YES   9.04   9.04    0.0
-----
NCS1K4-1.2T-K9     CpuModFw                  NO   234.10 234.10   0.0
                   OptModFw                 NO    1.38  1.38    0.0
-----
NCS1K4-AC-PSU       PO-PriMCU                 NO    2.04   2.04    0.1
                   PO-SecMCU                 NO    2.06   2.06    0.1
-----
NCS1K4-AC-PSU-2    PO-PriMCU                 NO    1.03   1.03    0.1
                   PO-SecMCU                 NO    1.05   1.05    0.1
```


show hw-module

To display the muxponder slice and firmware information of various hardware components of NCS 1014, use the **show hw-module** command.

```
show hw-module fpd [ fpd-name ]
show hw-module location location { mxponder-slice mxponder-slice-number }
```

Syntax Description		
fpd-name	Name of the FPD.	
location <i>location</i>	Specifies the location of the optics controller.	
mxponder-slice <i>mxponder-slice-number</i>	Displays information for a specific slice of the muxponder. The valid values of <i>slice-number</i> are 0 and 1.	
Command Default	NONE	
Command Modes	Cisco IOS XR EXEC	
Command History	Release	Modification
	Release 7.11.1	This command was introduced.
Usage Guidelines	None	

Example

The following example shows sample output from the **show hw-module fpd** command.

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Wed Nov 15 19:29:37.061 UTC

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware

                                FPD Versions
                                =====
Location      Card type      HWver  FPD device      ATR Status  Running Programd Reload Loc
-----
0/RP0/CPU0    NCS1K14-CNTRLR-K9  0.2    ADM-DB          CURRENT     2.10  2.10  NOT REQ
0/RP0/CPU0    NCS1K14-CNTRLR-K9  0.2    ADM-MB          CURRENT     2.30  2.30  NOT REQ
0/RP0/CPU0    NCS1K14-CNTRLR-K9  0.2    BIOS S          CURRENT     4.70  4.70  0/RP0
0/RP0/CPU0    NCS1K14-CNTRLR-K9  0.2    BIOS-Golden    BS CURRENT     4.70  4.70  0/RP0
0/RP0/CPU0    NCS1K14-CNTRLR-K9  0.2    CpuFpga        S CURRENT     1.09  1.09  0/RP0
0/RP0/CPU0    NCS1K14-CNTRLR-K9  0.2    CpuFpgaGolden  BS CURRENT     1.09  1.09  0/RP0
0/RP0/CPU0    NCS1K14-CNTRLR-K9  0.2    SsdMicron5300  S CURRENT     0.01  0.01  0/RP0
0/RP0/CPU0    NCS1K14-CNTRLR-K9  0.2    TamFw          S CURRENT     9.04  9.04  0/RP0
0/RP0/CPU0    NCS1K14-CNTRLR-K9  0.2    TamFwGolden    BS CURRENT     9.04  9.04  0/RP0
0/PM0         NCS1K4-AC-PSU      0.1    PO-PrimMCU     CURRENT     2.04  2.04  NOT REQ
0/PM0         NCS1K4-AC-PSU      0.1    PO-SecMCU      CURRENT     2.06  2.06  NOT REQ
0/PM1         NCS1K4-AC-PSU      0.1    PO-PrimMCU     CURRENT     2.04  2.04  NOT REQ
0/PM1         NCS1K4-AC-PSU      0.1    PO-SecMCU      CURRENT     2.06  2.06  NOT REQ
0/0/NXR0     NCS1K4-1.2T-K9     0.1    CpuModFw       S CURRENT     234.10 234.10 NOT REQ
0/0/NXR0     NCS1K4-1.2T-K9     0.1    OptModFw       S CURRENT     1.38  1.38  NOT REQ
```

show install active summary

```

0/1/NXR0   NCS1K14-2.4T-K9   0.1   CpuModFw           S CURRENT   234.10 234.10 NOT REQ
0/2/NXR0   NCS1K14-CCMD-16-C   0.1   CpuModFw           S CURRENT   234.10 234.10 NOT REQ
0/2/NXR0   NCS1K14-CCMD-16-C   0.1   OptModFw           S CURRENT   1.38 1.38 NOT REQ
0/3/NXR0   NCS1K4-1.2T-K9      0.1   CpuModFw           S CURRENT   234.10 234.10 NOT REQ
0/3/NXR0   NCS1K4-1.2T-K9      0.1   OptModFw           S CURRENT   1.38 1.38 NOT REQ
0/Rack     NCS1014              0.1   ADM-CHASSIS        CURRENT     0.21 0.21 NOT REQ
0/Rack     NCS1014              0.1   IoFpga             S CURRENT   1.10 1.10 NOT REQ
0/Rack     NCS1014              0.1   IoFpgaGolden       BS CURRENT   1.05 NOT REQ
0/Rack     NCS1014              0.1   SsdIntelSC2KB      S CURRENT   1.20 1.20 0/Rack

```

The following is a sample to verify the 800G muxponder mode with 400GE client rate configured on slice 1:

```

RP/0/RP0/CPU0:ios#show hw-module location 0/1/NXR0 mxponder-slice 1
Thu Nov 16 14:50:32.407 UTC

Location:                0/1/NXR0
Slice ID:                 1
Client Bitrate:          400GE
Trunk Bitrate:           800G
Status:                   Provisioned
LLDP Drop Enabled:       FALSE
ARP Snoop Enabled:       FALSE
Client Port               Mapper/Trunk Port       CoherentDSP0/1/0/7
                          Traffic Split Percentage

FourHundredGigECtrlr0/1/0/4   ODU-FLEX0/1/0/7/4           100
FourHundredGigECtrlr0/1/0/5   ODU-FLEX0/1/0/7/5           100

```

The following is a sample to verify the 1000G muxponder mode with mixed client rate configured on slice 0:

```

RP/0/RP0/CPU0:ios#show hw-module location 0/1/NXR0 mxponder-slice 0
Thu Nov 16 15:17:14.082 UTC

Location:                0/1/NXR0
Slice ID:                 0
Client Bitrate:          MIXED
Trunk Bitrate:           1000G
Status:                   Provisioned
LLDP Drop Enabled:       FALSE
ARP Snoop Enabled:       FALSE
Client Port               Mapper/Trunk Port       CoherentDSP0/1/0/0
                          Traffic Split Percentage

HundredGigECtrlr0/1/0/3/1     ODU-FLEX0/1/0/0/3/1         100
HundredGigECtrlr0/1/0/3/2     ODU-FLEX0/1/0/0/3/2         100
FourHundredGigECtrlr0/1/0/1   ODU-FLEX0/1/0/0/1           100
FourHundredGigECtrlr0/1/0/2   ODU-FLEX0/1/0/0/2           100

```

show install active summary

To display the summary of the installation in the NCS 1014 platform, use the **show install active summary** command.

show install active summary

Syntax Description

This command has no keywords or arguments.

Command Default None

Command Modes Administration for Cisco IOS XR

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Usage Guidelines None.

This example shows you how to use the **show install active summary** command, and the sample output.

```
RP/0/RP0/CPU0:ios#show install active summary
Wed Nov 15 18:20:38.783 UTC
Active Packages: XR: 160 All: 1318
Label: 7.11.1.48I-Weekly
Software Hash: ec69dcceb81c0da69b297aa7de1d00f56b8aef52403c5e0ffe6e5db098bd83b8
```

Optional Packages	Version
xr-bgp 7.11.1.48I	v1.0.0-1
xr-cdp 7.11.1.48I	v1.0.0-1
xr-cosm 7.11.1.48I	v1.0.0-1
xr-dt-sit 7.11.1.48I	v1.0.0-1
xr-eigrp 7.11.1.48I	v1.0.0-1
xr-healthcheck 7.11.1.48I	v1.0.0-1
xr-ipsla 7.11.1.48I	v1.0.0-1
xr-is-is 7.11.1.48I	v1.0.0-1
xr-k9sec 7.11.1.48I	v1.0.0-1
xr-license-util 7.11.1.48I	v1.0.0-1
xr-lldp 7.11.1.48I	v1.0.0-1
xr-mpis-oam 7.11.1.48I	v1.0.0-1
xr-netsim 7.11.1.48I	v1.0.0-1
xr-olc 7.11.1.48I	v1.0.0-1
xr-ospf 7.11.1.48I	v1.0.0-1
xr-perfmgmt 7.11.1.48I	v1.0.0-1
xr-rip 7.11.1.48I	v1.0.0-1
xr-telnet 7.11.1.48I	v1.0.0-1
xr-tftp 7.11.1.48I	v1.0.0-1
xr-track 7.11.1.48I	v1.0.0-1

show install committed summary

To display the summary committed installation in the NCS 1014 platform, use the **show install committed summary** command.

show install committed summary

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes Administration for Cisco IOS XR

Command History

Release	Modification
Release 7.11.1	This command was introduced.

Usage Guidelines None.

This example shows you how to use the **show install committed summary** command, and the sample output.

```
RP/0/RP0/CPU0:ios#show install committed summary
```

```
Wed Nov 15 18:21:35.919 UTC
Committed Packages: XR: 160 All: 1318
Label: 7.11.1.48I-Weekly
Software Hash: ec69dcecb81c0da69b297aa7de1d00f56b8aef52403c5e0ffe6e5db098bd83b8
```

Optional Packages	Version
xr-bgp 7.11.1.48I	v1.0.0-1
xr-cdp 7.11.1.48I	v1.0.0-1
xr-cosm 7.11.1.48I	v1.0.0-1
xr-dt-sit 7.11.1.48I	v1.0.0-1
xr-eigrp 7.11.1.48I	v1.0.0-1
xr-healthcheck 7.11.1.48I	v1.0.0-1
xr-ipsla 7.11.1.48I	v1.0.0-1
xr-is-is 7.11.1.48I	v1.0.0-1
xr-k9sec 7.11.1.48I	v1.0.0-1
xr-license-util 7.11.1.48I	v1.0.0-1
xr-lldp 7.11.1.48I	v1.0.0-1
xr-mp1s-oam 7.11.1.48I	v1.0.0-1
xr-netsim 7.11.1.48I	v1.0.0-1
xr-olc 7.11.1.48I	v1.0.0-1
xr-ospf 7.11.1.48I	v1.0.0-1
xr-perfmgmt 7.11.1.48I	v1.0.0-1
xr-rip 7.11.1.48I	v1.0.0-1
xr-telnet 7.11.1.48I	v1.0.0-1
xr-tftp 7.11.1.48I	v1.0.0-1
xr-track 7.11.1.48I	v1.0.0-1

show install request

To display the current status of the install operation in the NCS 1014 platform, use the **show install request** command.

show install request

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes Administration for Cisco IOS XR

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Usage Guidelines None.

This example shows you how to use the **show install request** command, and the sample output.

```
RP/0/RP0/CPU0:ios#show install request
Wed Nov 15 10:00:35.713 UTC
User request: install replace /harddisk:/ncs1010-golden-x86_64-7.11.1.48I-Weekly.iso
Operation ID: 1.1
State:In progress since 2023-11-15 09:50:23 UTC
Current activity:   Package add or other package operation
Next activity:     Apply
Time started:      2023-11-15 09:55:24 UTC
Timeout in:        84m 43s
Locations responded: 0/1
Location           Packaging operation stage Notification Phase Clients responded
-----
0/RP0/CPU0         Package operations          None in progress          N/A
```

show inventory

To retrieve and display the physical inventory information, use the **show inventory** command in XR EXEC or administration EXEC mode.

XR EXEC Mode

show inventory [**all** | **fan** | **raw** | **power** | **vendor-type** | **chassis** | **word** | **location** *location*]

Administration EXEC Mode

show inventory [**all** | **chassis** | **fan** | **power** | **raw** | **location** *location*]

Syntax Description	
all	(Optional) Displays inventory information for all the physical entities.
fan	(Optional) Displays inventory information for the fans.
power	(Optional) Displays inventory information for the power supply.
raw	(Optional) Displays raw information about the chassis for diagnostic purposes.
chassis	(Optional) Displays inventory information for the entire chassis.
location <i>location</i>	(Optional) Displays inventory information for a specific node, or for all nodes in the chassis.
word	(Optional) Displays partially qualified location specification.

Command Default All hardware inventory information is displayed.

Command Modes XR EXEC

Administration EXEC

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Usage Guidelines Enter the **show inventory** command with the **raw** keyword to display every RFC 2737 entity installed in NCS 1014, including those without a PID, unique device identifier (UDI), or other physical identification. The **raw** keyword is primarily intended for troubleshooting problems with the **show inventory** command itself.

Example

The following examples show sample output from the **show inventory** command in both EXEC and Administration EXEC modes.

```
sysadmin-vm:0_RP0# show inventory
```

```
RP/0/RP0/CPU0:ios#
RP/0/RP0/CPU0:ios# show inventory
Thu Oct 5 02:32:14.231 UTC

NAME: "Rack 0", DESCR: "Network Convergence System 1014 chassis with timing support"
PID: NCS1014 , VID: V00, SN: FCB2717B151

NAME: "0/RP0/CPU0", DESCR: "Network Convergence System 1014 Controller"
PID: NCS1K14-CNTRLR-K9 , VID: V00, SN: FCB2718B1AX

NAME: "0/0/NXR0", DESCR: "NCS1K4 12x QSFP28 2 Trunk C-Band DWDM card"
PID: NCS1K4-1.2T-K9 , VID: V00, SN: CAT2250B0B9

NAME: "0/1/NXR0", DESCR: "Network Convergence System 1014 2.4T Line Card"
PID: NCS1K14-2.4T-K9 , VID: V00, SN: FCB2710B0L5

NAME: "Optics0/1/0/0", DESCR: "Cisco CIM8 C K9 Pluggable Optics Module"
PID: CIM8-C-K9 , VID: VES1, SN: SIM-AX12-SW

NAME: "Optics0/1/0/1", DESCR: "Cisco 100G QSFP28 SR4-S Pluggable Optics Module"
PID: QSFP-100G-SR4-S , VID: ES1 , SN: AVF1933G18C

NAME: "Optics0/1/0/2", DESCR: "Non-Cisco UNKNOWN TYPE Pluggable Optics Module"
PID: TR-IQ13L-N00 , VID: 1B, SN: INFBH1940242

NAME: "Optics0/1/0/3", DESCR: "Cisco UNKNOWN TYPE Pluggable Optics Module"
PID: ONS-QSFP-4X10-MLR , VID: V01 , SN: INL21010375

NAME: "Optics0/1/0/4", DESCR: "Cisco 100G QSFP28 SR4-S Pluggable Optics Module"
PID: QSFP-100G-SR4-S , VID: ES1 , SN: AVF1933G16A

NAME: "Optics0/1/0/6", DESCR: "Cisco QSFP DD 400G FR4 S Pluggable Optics Module"
PID: QDD-400G-FR4-S , VID: V01 , SN: FIW250504DL

NAME: "Optics0/1/0/7", DESCR: "Cisco CIM8 C K9 Pluggable Optics Module"
PID: CIM8-C-K9 , VID: VES1, SN: ACA27370055

NAME: "0/2/NXR0", DESCR: "NCS1K4 12x QSFP28 2 Trunk C-Band DWDM card"
```

```

PID: NCS1K4-1.2T-K9      , VID: V03, SN: CAT2329B32K

NAME: "Optics0/2/0/10", DESCR: "Cisco QSFP28 100G CUIM Pluggable Optics Module"
PID: QSFP-100G-CUIM      , VID: V01 , SN: LCC2402GKJ3-B

NAME: "Optics0/2/0/11", DESCR: "Cisco 100G QSFP28 LR-S Pluggable Optics Module"
PID: QSFP-100G-LR-S      , VID: ES0 , SN: FBN2321A013

NAME: "Optics0/2/0/12", DESCR: "Cisco 100G QSFP28 AOC Pluggable Optics Module"
PID: QSFP-100G-AOC3M     , VID: V03 , SN: INL23302076-B

NAME: "Optics0/2/0/13", DESCR: "Cisco 100G QSFP28 LR-S Pluggable Optics Module"
PID: QSFP-100G-LR-S      , VID: ES0 , SN: FBN2321A024

NAME: "Optics0/2/0/3",  DESCR: "Cisco QSFP28 100G CUIM Pluggable Optics Module"
PID: QSFP-100G-CUIM      , VID: V01 , SN: LCC2402GKJ3-A

NAME: "Optics0/2/0/4",  DESCR: "Cisco 100G QSFP28 CWDM4 Pluggable Optics Module"
PID: QSFP-100G-CWDM4-S   , VID: V02 , SN: JFQ2210800T

NAME: "Optics0/2/0/5",  DESCR: "Cisco 100G QSFP28 AOC Pluggable Optics Module"
PID: QSFP-100G-AOC3M     , VID: V03 , SN: INL23302076-A

NAME: "Optics0/2/0/6",  DESCR: "Non-Cisco 100G QSFP28 CWDM4 Pluggable Optics Module"
PID: FTLC1152RGPL2-G2    , VID: A0 , SN: UYL0AL9

NAME: "Optics0/2/0/7",  DESCR: "Non-Cisco 100G QSFP28 LR4 Pluggable Optics Module"
PID: FIM37700/171        , VID: 01 , SN: 37700171Z00PK

NAME: "Optics0/2/0/8",  DESCR: "Cisco 100G QSFP28 LR4 Pluggable Optics Module"
PID: ONS-QSFP28-LR4      , VID: V01 , SN: FNS20520RM6

NAME: "0/3/NXR0", DESCR: "Network Convergence System 1014 Filler"
PID: NCS1K14-BLANK       , VID: V01, SN: N/A

NAME: "0/FT0", DESCR: "Network Convergence System 1014 FAN Module"
PID: NCS1K14-FAN         , VID: V00, SN: FCB2720B15J

NAME: "0/FT1", DESCR: "Network Convergence System 1014 FAN Module"
PID: NCS1K14-FAN         , VID: V00, SN: FCB2720B15L

NAME: "0/FT2", DESCR: "Network Convergence System 1014 FAN Module"
PID: NCS1K14-FAN         , VID: V00, SN: FCB2720B15E

NAME: "0/PM0", DESCR: "Network Convergence System 1004 AC Power Supply Unit"
PID: NCS1K4-AC-PSU       , VID: V00, SN: POG2221CL0Z

NAME: "0/PM1", DESCR: "Network Convergence System 1004 AC Power Supply Unit"
PID: NCS1K4-AC-PSU       , VID: V01, SN: POG2505CL53
RP/0/RP0/CPU0:ios#
RP/0/RP0/CPU0:ios#

```

show license platform summary

To display the summary of FCM licenses in the NCS 1014 platform, use the **show license platform summary** command.

show license platform summary

show license status

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes Administration for Cisco IOS XR

Command History

Release	Modification
Release 7.11.1	This command was introduced.

Usage Guidelines None.

This example shows you how to use the **show license platform summary** command, and the sample output.

```
RP/0/RP0/CPU0:ios#show license platform summary
Mon Jul 18 10:50:59.263 UTC
Collection: LAST: Mon Jul 18 2022 10:50:07 UTC
           NEXT: Mon Jul 18 2022 10:52:07 UTC
Reporting: LAST: Mon Jul 18 2022 10:50:07 UTC
           NEXT: Mon Jul 18 2022 10:52:07 UTC
*****IMPORTANT*****
SIA Status: Out of Compliance(Remaining Grace Period: 89 days, 23 hours)
           Device is in Authorization Expired state.
           SW Upgrade will still be allowed as SIA Grace Period is remaining
*****
Feature/Area      Entitlement                                     Count
=====          =====
FCM               NCS1014 - Essentials Tier - Optical Line Terminal R   9   0
FCM               NCS1014 - Essentials Subscription - Optical Line Te   9   0
```

show license status

To display the license usage count, use the **show license usage** command.

show license status

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes Administration for Cisco IOS XR

Command History

Release	Modification
Release 7.11.1	This command was introduced.

Usage Guidelines None.

This example shows you how to use the **show license status** command, and the sample output.

```
RP/0/RP0/CPU0:iso#show license status
Thu Jul 19 15:45:27.137 UTC
Smart Licensing
7
Smart Licensing
Reserve Specific Licenses for NCS 1014
REVIEW DRAFT - CISCO CONFIDENTIAL
Smart Licensing is ENABLED
Utility:
Status: DISABLED
License Reservation is ENABLED
Data Privacy:
Sending Hostname: yes
Callhome hostname privacy: DISABLED
Smart Licensing hostname privacy: DISABLED
Version privacy: DISABLED
Transport:
Type: Transport Off
Registration:
Status: REGISTERED - SPECIFIC LICENSE RESERVATION
Export-Controlled Functionality: ALLOWED
Initial Registration: SUCCEEDED on Jul 19 2022 15:21:24 UTC
License Authorization:
Status: AUTHORIZED - RESERVED on Jul 19 2022 15:21:24 UTC
Export Authorization Key:
Features Authorized:
<none>
Miscellaneous:
Custom Id: <empty>
```

show license usage

To display the license usage count, use the **show license usage** command.

show license usage

Syntax Description	This command has no keywords or arguments.	
Command Default	None	
Command Modes	Administration for Cisco IOS XR	
Command History	Release	Modification
	Release 7.11.1	This command was introduced.
Usage Guidelines	None.	

This example shows you how to use the **show license usage** command, and the sample output.

```
RP/0/RP0/CPU0:iso#show license usage
Fri Jul 15 08:17:40.048 UTC
```

```

License Authorization:
Status: OUT OF COMPLIANCE on Jul 15 2022 07:01:00 UTC
NCS1014 - Essentials - OLT RTU (NCS1014_ESS_OLT_RTU):
Description: NCS1014 - Essentials Tier - Optical Line Terminal RTU (Per Port)
Count: 32
Version: 1.0
Status: OUT OF COMPLIANCE
Export status: NOT RESTRICTED
NCS1014 - Essentials - OLT SIA (NCS1014_ESS_OLT_SIA):
Description: NCS1014 - Essentials Subscription - Optical Line Terminal - SIA
(Per Port)
Count: 32
Version: 1.0
Status: OUT OF COMPLIANCE
Export status: NOT RESTRICTED

```

show lldp

Use the **show lldp** command to display the global LLDP configuration status and the operational characteristics of the system.

show lldp

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

LLDP configuration

Command History

Release	Modification
Release 7.11.1	This command was introduced.

Usage Guidelines

The **show lldp** command displays the LLDP status and operational characteristics when LLDP is enabled globally on the system using the **lldp** command. The settings for the following commands are displayed:

- **lldp timer**
- **lldp holdtime**
- **lldp reinit**

Task ID

Task ID	Operation
ethernet-services	read, write

Example

The following example shows how to display the default LLDP operational characteristics when LLDP is enabled globally on the system:

```
RP/0/RP0:hostname# show lldp
Wed Dec 13 06:16:45.510 DST
Global LLDP information:
Status: ACTIVE
LLDP advertisements are sent every 30 seconds
LLDP hold time advertised is 120 seconds
LLDP interface reinitialisation delay is 2 seconds
```

show lldp interface

Use the **show lldp interface** display LLDP configuration and status information on an interface.

```
show lldp interface { type } { interface-path-id }
```

Syntax Description	<i>type</i>	Specify the interface type.
	<i>interface-path-id</i>	Specify the physical interface or virtual interface ID in the rack/slot/module notation.
	Note	Use the show interfaces command to see a list of all interfaces currently configured on the router.
Command Default	LLDP configuration and status information for all interfaces is displayed.	
Command Modes	EXEC mode	
Task ID	Task ID	Operation
	ethernet-services	read

Example

The following example shows sample output for the **show lldp interface** command:

```
RP/0/RP0/CPU0:regen#show lldp interface
Thu Nov 7 08:45:22.934 UTC

MgmtEth0/RP0/CPU0/0:
  Tx: enabled
  Rx: enabled
  Tx state: IDLE
  Rx state: WAIT FOR FRAME

MgmtEth0/RP0/CPU0/1:
```

```

Tx: enabled
Rx: enabled
Tx state: IDLE
Rx state: WAIT FOR FRAME

```

Table 1: show lldp interface Field Descriptions

Field	Description
Tx:	Configuration status of the interface to transmit LLDP advertisements.
Rx:	Configuration status of the interface to receive LLDP advertisements.
Tx state:	Status of the LLDP transmit process on the interface.
Rx state:	Status of the LLDP receive process on the interface.

show lldp neighbors

Use the **show lldp neighbors** command to display the basic details of the neighbor devices.

show lldp neighbors

Syntax Description

This command has no arguments or keywords.

Command Default

Basic device information for LLDP neighbors is displayed.

Command Modes

EXEC mode

Command History

Release	Modification
Release 7.11.1	This command was introduced.

Task ID

Task ID	Operation
ethernet-services	read

Example

The following example shows sample output for the **show lldp neighbors** command:

```

RP/0/RP0:ios#show lldp neighbors
Capability codes:
  (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
  (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other

Device ID          Local Intf          Hold-time          Capability          Port ID

```

```

R1          TenGigECtrlr0/5/0/4/1    150          R          TenGigECtrlr0/5/0/4/1
Total entries displayed: 1

```

Table 2: show lldp neighbor Field Descriptions

Field	Description
Device ID	Name of the neighbor device.
Local Interface	Displays the interface on which the LLDP packet is received.
Hold Time	Time (in seconds) that the local device will hold the LLDP advertisement from a sending device before discarding it.
Capability	Name of the system capability advertised by the neighbor. Capabilities are represented in a bitmap that defines the system's primary functions.
Port ID	Displays the Port identifier that identifies the port component of the endpoint identifier associated with the transmitting LLDP agent.

show lldp neighbors detail

Use the **show lldp neighbors detail** command to display the neighbor devices details such as system description, name, and capabilities.

show lldp neighbors detail

Syntax Description

This command has no arguments or keywords.

Command Default

Detailed device information for LLDP neighbors is displayed.

Command Modes

EXEC mode

Command History

Release	Modification
Release 7.11.1	This command was introduced.

Task ID

Task ID	Operation
ethernet-services	read

Example

The following example shows sample output for the **show lldp neighbors detail** command:

```

RP/0/RP0:ios#show lldp neighbors detail
Capability codes:
  (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
  (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other
-----
Local Interface: TenGigEctrlr0/5/0/4/1
Chassis id: 22 33
Port id:
Port Description - not advertised
System Name - not advertised
System Description - not advertised
Time remaining: 16 seconds
Hold Time: 17 seconds
System Capabilities: N/A
Enabled Capabilities: N/A
Management Addresses - not advertised
Peer MAC Address: 10:02:03:04:05:06
Total entries displayed: 1

```

Table 3: show lldp neighbor details Field Descriptions

Field	Description
Local Interface	Displays the interface on which the LLDP packet is received.
Chassis id	Displays the chassis component of the endpoint identifier associated with the transmitting LLDP agent.
Port id	Displays the port ID that identifies the port component of the endpoint identifier associated with the transmitting LLDP agent.
Port Description	Displays the description of the port associated with the interface on which the LLDP agent is transmitting.
System Name	Displays the system's administratively assigned name.
System Description	Displays the description of the network entity.
Time remaining	Displays the remaining time.
Hold Time	Displays the time or duration in seconds that an LLDP device maintains the neighbor information before discarding.
System Capabilities	Displays a bit-map of the capabilities that define the primary functions of the system. A system may advertise more than one capability.
Enabled Capabilities	Indicates whether the corresponding system capability is enabled on the neighbor.
Management Addresses	Displays a network address of the remote device.
Peer MAC Address	Displays the source MAC address in the received LLDP packet.

show ntp associations

To display the status of Network Time Protocol (NTP) associations, use the **show ntp associations** command in privileged EXEC mode.

```
show ntp associations [detail] [location node-id]
```

Syntax Description	detail (Optional) Displays detailed information about each NTP association.				
	location node-id (Optional) Displays the status of NTP associations from the designated node. The <i>node-id</i> argument is entered in the <i>rack/slot</i> notation.				
Command Default	None				
Command Modes	EXEC				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XR Release 7.11.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XR Release 7.11.1	This command was introduced.
Release	Modification				
Cisco IOS XR Release 7.11.1	This command was introduced.				
Usage Guidelines	Output for the show ntp associations command is displayed only if NTP is configured.				
Task ID	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>ip-services</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	ip-services	read
Task ID	Operations				
ip-services	read				

This example shows sample output from the **show ntp associations** command:

```
RP/0/RP0/CPU0:ios#show ntp associations
Sun Nov 5 15:14:44.128 UTC

address ref clock st when poll reach delay offset disp
*~203.0.113.51 10.64.58.50 2 81 128 377 1.84 7.802 2.129
* sys_peer, # selected, + candidate, - outlayer, x falseticker, ~ configured
```

Table 4: show ntp associations Field Descriptions

Field	Description
*	Peer has been declared the system peer and lends its variables to the system variables.

Field	Description
#	<p>A pound sign (#) displayed next to a configured peer indicates that the router does not synchronize with the peer even though NTP request and response packets are exchanged.</p> <p>In this case, check the output of the show ntp associations detail command or the NTP debugs to see why the clocks are not synchronized.</p> <p>Use the show ntp associations detail and show ntp status commands to obtain additional information about the state of NTP.</p> <p>One possible reason for the # sign is that the NTP client clock differs by more than 4000 seconds from the NTP server clock. On Cisco routers, a time difference of greater than 4000 seconds is considered out of range and prevents the router from synchronization to the server. This does not apply when you first configure an NTP peer on a Cisco router or on reload. In this case, the NTP client clock is changed to match the NTP server clock. Verify the time zone of the client clock; local time is displayed, but time values in NTP messages are in UTC (GMT) time zone. You can manually change the client clock to within a few minutes of the NTP server clock.</p>
+	Peer is a survivor and a candidate for the combining algorithm.
-	Peer is discarded by the clustering algorithm as an outlier.
x	Peer is discarded by the intersection algorithm as a falseticker.
~	Indicates peer is statically configured.
address	IPv4 or IPv6 address of the peer. If a nondefault VRF is configured for the peer, the VRF follows the address.
ref clock	Reference clock type or address for the peer.
st	Stratum setting for the peer.
when	Time since last NTP packet was received from peer, in milliseconds.
poll	Polling interval between NTP poll packets, in seconds. As the NTP server and client are better synced (and there are no dropped packets), this number increases to a maximum of 1024.
reach	<p>Peer reachability (bit string, in octal).</p> <p>The reach field is a circular bit buffer. It gives you the status of the last eight NTP messages (eight bits in octal is 377, so you want to see a reach field value of 377).</p> <p>If an NTP response packet is lost, the lost packet is tracked over the next eight NTP update intervals in the reach field.</p>
delay	Round-trip delay to peer, in milliseconds.

Field	Description
offset	<p>Relative time difference between the client time and server time, in milliseconds. The client slows down or speeds up its clock to match the server time value.</p> <p>The offset decreases toward zero over time. It likely never reaches zero since the packet delay between the client and server is never exactly the same. Therefore, the client NTP cannot ever exactly match its clock with the server.</p> <p>If there is an asterisk (*) next to a configured peer, then you are synchronized to this peer and use them as the primary clock.</p>
disp	Dispersion.

This example shows sample output from the **show ntp associations** command with the **detail** keyword:

```
RP/0/RP0/CPU0:ios#show ntp associations detail
Sun Nov 5 15:14:48.763 UTC

4.33.0.51 configured, our_master, stratum 2
ref ID 10.64.58.50, time E8F22BB9.79D4A841 (14:56:57.475 UTC Sun Nov 5 2023)
our mode client, peer mode server, our poll intvl 128, peer poll intvl 128
root delay 0.6866 msec, root disp 1.04, reach 377, sync dist 6.2590
delay 1.84 msec, offset 7.802 msec, dispersion 2.129
precision 2**23, version 4
org time E8F22F92.B647E8FC (15:13:22.712 UTC Sun Nov 5 2023)
rcv time E8F22F92.B88F303C (15:13:22.720 UTC Sun Nov 5 2023)
xmt time E8F22F92.B88F303C (15:13:22.720 UTC Sun Nov 5 2023)
filtdelay = 1.844 1.772 1.983 1.954 1.945 2.000 1.902 1.778
filtoffset = 7.857 7.802 8.065 8.063 8.332 8.397 8.664 8.684
filtererror = 0.000 0.060 1.995 2.055 4.050 4.110 6.060 6.120
```

Table 5: show ntp associations detail Field Descriptions

Field	Descriptions
vrf	Nondefault VRF, if specified for this peer.
configured	Statically configured peer.
dynamic	Dynamically discovered peer.
our_master	Synchronization of the local machine to this peer.
sane	Passing of basic sanity checks by this peer.
ref ID	Address of machine to which the peer is synchronized.
time	Last time stamp that the peer received from its master.
our mode	Mode relative to peer (active/passive/client/server/bdcast/bdcast client).
peer mode	Mode of peer relative.
our poll intvl	Poll interval to peer.

Field	Descriptions
peer poll intvl	Poll interval of interval.
root delay	Delay along path to root (ultimate stratum 1 time source).
root disp	Dispersion of path to root.
reach	Peer reachability (bit string in octal).
sync dist	Peer synchronization distance.
delay	Round-trip delay to peer.
offset	Offset of peer clock relative to this clock.
dispersion	Dispersion of peer clock.
precision	Precision of peer clock in (Hertz) Hz.
version	NTP version number that peer is using.
org time	Originate time stamp.
rcv time	Receive time stamp.
xmt time	Transmit time stamp.
filtdelay	Round-trip delay of each sample, in milliseconds.
filtoffset	Clock offset of each sample, in milliseconds.
filterror	Approximate error of each sample.

show ntp status

To display the status of Network Time Protocol (NTP), use the **show ntp status** command in XR EXEC mode.

```
show ntp status [ location node-id ]
```

Syntax Description	location <i>node-id</i> (Optional) Displays the status of NTP from the designated node. The <i>node-id</i> argument is entered in the <i>rack/slot</i> notation.
Command Default	None
Command Modes	XR EXEC mode

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines None

Task ID	Task ID	Operations
	ip-services	read

This example shows sample output from the **show ntp status** command:

```
RP/0/RP0/CPU0:ios#show ntp status
Sun Nov 5 15:14:36.949 UTC

Clock is synchronized, stratum 3, reference is 203.0.113..51
nominal freq is 1000000000.0000 Hz, actual freq is 44881851.3383 Hz, precision is 2**24
reference time is E8F22D7A.AB020D97 (15:04:26.668 UTC Sun Nov 5 2023)
clock offset is 9.690 msec, root delay is 2.553 msec
root dispersion is 24.15 msec, peer dispersion is 2.13 msec
loopfilter state is 'CTRL' (Normal Controlled Loop), drift is 0.0000212807 s/s
system poll interval is 128, last update was 610 sec ago
authenticate is disabled, panic handling is disabled,
hostname resolution retry interval is 1440 minutes.
```

Table 6: show ntp status Field Descriptions

Field	Description
synchronized	Synchronized system to an NTP peer.
stratum	NTP stratum of this system.
reference	IPv4 address or first 32 bits of the MD5 hash of the IPv6 address of the peer to which clock is synchronized.
nominal freq	Nominal frequency in Hertz (Hz) of the system hardware clock.
actual freq	Measured frequency in Hz of the system hardware clock.
precision	Precision of the clock of this system in Hz.
reference time	Reference time stamp.
clock offset	Offset of clock to synchronized peer, in milliseconds.
root delay	Total delay along path to root clock, in milliseconds.
root dispersion	Dispersion of root path.
peer dispersion	Dispersion of synchronized peer.
loopfilter state	The state of the clock state machine transition function.

Field	Description
drift	Drift of the hardware clock.
system poll interval	Poll interval of the peer.
last update	Time the router last updated its NTP information.

show platform

To display information and status for each node in the network, use the **show platform** command.

show platform

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes IOS XR EXEC

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines None

Example

To view the information of the node, use the following command:

```
RP/0/RP0/CPU0:ios#show platform
Fri Sep 22 06:56:28.653 UTC
Node          Type          State          Type          Config state
-----
0/RP0/CPU0    NCS1K14-CNTLR-K9 (Active) IOS XR RUN     NSHUT, NMON
0/PM0         NCS1K4-AC-PSU OPERATIONAL    NSHUT, NMON
0/FT0         NCS1K14-FAN   OPERATIONAL    NSHUT, NMON
0/FT1         NCS1K14-FAN   OPERATIONAL    NSHUT, NMON
0/FT2         NCS1K14-FAN   OPERATIONAL    NSHUT, NMON
0/0/NXR0     NCS1K14-CCMD-16-L OPERATIONAL    NSHUT, NMON
0/2/NXR0     NCS1K14-CCMD-16-C OPERATIONAL    NSHUT, NMON
0/3/NXR0     NCS1K14-CCMD-16-C OPERATIONAL    NSHUT, NMON
```

show route ipv4

To display status and configuration information about the routes of a specific IPv4 address, use the **show route ipv4** command.

show route ipv4

Syntax Description	This command has no keywords or arguments.
---------------------------	--

Command Default	None
------------------------	------

Command Modes	Administration for Cisco IOS XR
----------------------	---------------------------------

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Usage Guidelines	None.
-------------------------	-------

This example shows you how to use the **show route ipv4** command, and the sample output.

```
P/0/RP0/CPU0:BGp_ROUTER_HOP1#show route ipv4
Fri Apr 21 07:16:58.381 UTC
```

```
Codes: C - connected, S - static, R - RIP, B - BGP, (>) - Diversion path
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
        i - ISIS, L1 - IS-IS level-1, L2 - IS-IS level-2
        ia - IS-IS inter area, su - IS-IS summary null, * - candidate default
        U - per-user static route, o - ODR, L - local, G - DAGR, l - LISP
        A - access/subscriber, a - Application route
        M - mobile route, r - RPL, t - Traffic Engineering, (!) - FRR Backup path
```

```
Gateway of last resort is 203.0.113.1 to network 0.0.0.0
```

```
S* 209.165.200.225/27 [1/0] via 203.0.113.1, 1d00h
B 209.165.200.227/27 [200/0] via 203.0.113.8, 17:14:55
L 209.165.200.232/27 is directly connected, 1d17h, Loopback1
C 209.165.201.1/27 is directly connected, 1d15h, MgmtEth0/RP0/CPU0/2
L 209.165.201.4/27 is directly connected, 1d15h, MgmtEth0/RP0/CPU0/2
B 209.165.201.10/27 [200/2] via 203.0.113.8, 17:14:51
C 209.165.202.130/27 is directly connected, 1d00h, MgmtEth0/RP0/CPU0/1
L 209.165.202.134/27 is directly connected, 1d00h, MgmtEth0/RP0/CPU0/1
B 209.165.202.141/27 [200/0] via 209.165.202.133, 1d00h
C 203.0.113.0/16 is directly connected, 1d17h, MgmtEth0/RP0/CPU0/0
L 203.0.113.104/32 is directly connected, 1d17h, MgmtEth0/RP0/CPU0/0
```

show running-config lldp

Use the **show running-config lldp** command to display the LLDP configuration details.

show running-config lldp

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Command Default	None
------------------------	------

Command Modes	LLDP configuration
----------------------	--------------------

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Example

The following example shows how to display the LLDP configuration using the `show running-config lldp` command:

```
RP/0/RP0/CPU0:regen#show running-config lldp
Tue Dec 10 10:36:11.567 UTC
lldp
timer 30
reinit 2
holdtime 120
management enable
```

show interface MgmtEth

To display the list of all interfaces currently configured for the system, use the **show interfaces MgmtEth** command.

show interface MgmtEth

Syntax Description	This command has no keywords or arguments.
---------------------------	--

Command Default	No default behavior or values
------------------------	-------------------------------

Command Modes	IOS XR EXEC
----------------------	-------------

Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.

Usage Guidelines	None
-------------------------	------

Examples

The following example shows interfaces currently configured for the system :

```
RP/0/RP0/CPU0:ios#show interfaces MgmtEth 0/RP0/CPU0/0
MgmtEth0/RP0/CPU0/0 is up, line protocol is up
  Interface state transitions: 3
  Hardware is Management Ethernet, address is 4014.82ba.d26e (bia 4014.82ba.d26e)
  Internet address is 10.105.57.37/25
  MTU 1514 bytes, BW 1000000 Kbit (Max: 1000000 Kbit)
    reliability 255/255, txload 0/255, rxload 0/255
  Encapsulation ARPA,
  Full-duplex, 1000Mb/s, CX, link type is autonegotiation
  loopback not set,
```

```

Last link flapped 00:09:12
ARP type ARPA, ARP timeout 04:00:00
Last input 00:00:00, output 00:00:00
Last clearing of "show interface" counters never
5 minute input rate 1000 bits/sec, 2 packets/sec
5 minute output rate 5000 bits/sec, 1 packets/sec
  6715 packets input, 640515 bytes, 0 total input drops
  0 drops for unrecognized upper-level protocol
Received 2213 broadcast packets, 4430 multicast packets
  0 runts, 0 giants, 0 throttles, 0 parity
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
944 packets output, 355004 bytes, 0 total output drops
Output 94 broadcast packets, 114 multicast packets
  0 output errors, 0 underruns, 0 applique, 0 resets
  0 output buffer failures, 0 output buffers swapped out
  3 carrier transitions

```

show version

To display the software version and details such as system uptime, use the **show version** command.

show version

Syntax Description	This command has no keywords or arguments.	
Command Default	None	
Command Modes	Cisco IOS XR	
Command History	Release	Modification
	Cisco IOS XR Release 7.11.1	This command was introduced.
Usage Guidelines	None	

Example

The following example shows a sample output from the **show version** command.

```

RP/0/RP0/CPU0:ios#sh version
Cisco IOS XR Software, Version 7.11.1.49I LNT
Copyright (c) 2013-2023 by Cisco Systems, Inc.

Build Information:
  Built By       : sajshah
  Built On      : Sun Nov 19 20:31:06 UTC 2023
  Build Host    : iox-ucs-077
  Workspace     :
  /auto/ioxdepot6/GISO/giso_build_lindt/giso_eng_create/yshivapp_2023-11-20_04-28-49_UTC
  Version      : 7.11.1.49I
  Label       : 7.11.1.49I-Weekly

cisco NCS1010 (C3758R @ 2.40GHz)
cisco NCS1014 (C3758R @ 2.40GHz) processor with 32GB of memory

```

```
KEPLER_PF6 uptime is 1 hour, 40 minutes
NCS 1014 - Chassis
```

tone-pattern-detect controller

Use the **tone-pattern-detect controller** command to start or stop detecting the tone pattern that is initiated from the OTS controller.

tone-pattern-detect controller *controllertype R/S/I/P* [**start** | **stop**]

Syntax Description	tone-pattern-detect controller Use this parameter to stop or start the tone-pattern detect operation in a particular controller.				
	<i>controllertype R/S/I/P</i> Rack/Slot/Instance/Port of the controller.				
	start Use this parameter to start the tone-pattern detect operation in a particular controller.				
	stop Use this parameter to stop the tone-pattern detect operation in a particular controller.				
Command Default	None				
Command Modes	controller configuration mode				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XR Release 7.11.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XR Release 7.11.1	This command was introduced.
Release	Modification				
Cisco IOS XR Release 7.11.1	This command was introduced.				
Usage Guidelines	None				

Example

The following is a sample configuration of the **tone-pattern-detect controller** command that starts the tone pattern detection on the OMS controller.

```
RP/0/RP0/CPU0:ios#tone-pattern-detect controller oms 0/1/0/0 start
Wed May 25 12:00:03.271 UTC
Tone pattern detect started
```

The following is a sample configuration of the **tone-pattern-detect controller** command that stops the tone pattern detection on the OMS controller.

```
RP/0/RP0/CPU0:ios#tone-pattern-detect controller oms 0/1/0/0 stop
Wed May 25 12:00:03.271 UTC
Tone pattern detect started
```


ztp clean

To remove all Zero Touch Provisioning (ZTP) logs and settings that are saved on the node, use the **ztp clean** command in EXEC mode.

ztp clean

Syntax Description	This command has no keywords or arguments.
---------------------------	--

Command Default	None
------------------------	------

Command Modes	Cisco IOS XR Configuration
----------------------	----------------------------

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Usage Guidelines	None
-------------------------	------

To remove all the ZTP logs and saved settings, use the following command:

```
RP/0/RP0/CPU0:ios#ztp clean
Fri Sep 15 17:12:33.477 IST
This would remove all ZTP temporary files.
Would you like to proceed? [no]: yes
All ZTP operation files have been removed.
ZTP logs are present in /var/log/ztp*.log for logrotate.
Please remove manually if needed.
If you now wish ZTP to run again from boot, do 'conf t/commit replace' followed by reload.
RP/0/RP0/CPU0:ios#
```

ztp initiate

To invoke a new ZTP DHCP session, use the **ztp initiate** command in EXEC mode. Logs can be found in **/disk0:/ztp/ztp.log**.

ztp initiate

Syntax Description	This command has no keywords or arguments.
---------------------------	--

Command Default	None
------------------------	------

Command Modes	Cisco IOS XR Configuration
----------------------	----------------------------

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Usage Guidelines None

Example

To initiate the ZTP, use the following command:

```
RP/0/RP0/CPU0:ios#ztp initiate
Fri Sep 15 17:13:28.580 IST
Initiating ZTP may change your configuration.
Interfaces might be brought up if they are in shutdown state
Would you like to proceed? [no]: yes
ZTP will now run in the background.
Please use "show logging" or look at /var/log/ztp.log to check progress.
RP/0/RP0/CPU0:ios#
```

ztp terminate

To terminate all existing Zero Touch Provisioning (ZTP) processes, use the **ztp terminate** command in EXEC mode.

ztp terminate

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes Cisco IOS XR Configuration

Command History	Release	Modification
	Release 7.11.1	This command was introduced.

Usage Guidelines None

Example

To terminate the ZTP process, use the following command:

```
RP/0/RP0/CPU0:ios#ztp terminate
Fri Sep 15 17:15:04.592 IST
This would terminate active ZTP session if any (this may leave your system in a partially
configured state)
Would you like to proceed? [no]: yes
Terminating ZTP
RP/0/RP0/CPU0:ios#
```