



## Show Commands

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## show aaa dead-criteria radius

To verify the dead-server-detection information for a RADIUS server, use the **show aaa dead-criteria radius** command.

**show aaa dead-criteria radius** *ipaddr* **auth-port** *authport* **acct-port** *acctport*

<b>Syntax Description</b>	<i>ipaddr</i> IP address.				
	<i>authport</i> Authentication port.				
	<i>acctport</i> Accounting port.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.10.1</td> <td>This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.
Release	Modification				
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.				
<b>Usage Guidelines</b>	The <b>show aaa dead-criteria radius</b> <i>ipaddr</i> command displays output only if default ports are used. For non-default ports, use the <b>show aaa dead-criteria radius</b> <i>ipaddr</i> <b>auth-port</b> <i>authport</i> <b>acct-port</b> <i>acctport</i> command.				

### Example

The following example shows how to see the dead-server-detection information for a RADIUS server with non-default authorization and accounting ports:

```
Device# show aaa dead-criteria radius 4.4.4.4 auth-port 4444 acct-port 3333

RADIUS: No server group specified. Using radius
RADIUS Server Dead Criteria:
=====
Server Details:
Address : 4.4.4.4
Auth Port : 4444
Acct Port : 3333
Server Group : radius
Dead Criteria Details:
Configured Retransmits : 3
Configured Timeout : 5
Estimated Outstanding Access Transactions: 0
Estimated Outstanding Accounting Transactions: 0
Dead Detect Time : 10s
Computed Retransmit Tries: 10
Statistics Gathered Since Last Successful Transaction
=====
Max Computed Outstanding Transactions: 0
Max Computed Dead Detect Time: 0s
```

```
Max Computed Retransmits : 0
```

The following example shows how to see the dead-server-detection information for a RADIUS server using default ports:

```
Device# show aaa dead-criteria radius 9.3.13.37

RADIUS: No server group specified. Using radius
RADIUS Server Dead Criteria:
=====
Server Details:
Address : 9.3.13.37
Auth Port : 1812
Acct Port : 1813
Server Group : radius
Dead Criteria Details:
Configured Retransmits : 3
Configured Timeout : 30
Estimated Outstanding Access Transactions: 1
Estimated Outstanding Accounting Transactions: 0
Dead Detect Time : 10s
Computed Retransmit Tries: 10
Statistics Gathered Since Last Successful Transaction
=====
Max Computed Outstanding Transactions: 4
Max Computed Dead Detect Time: 48s
Max Computed Retransmits : 30
```

# show access-list

To display access control lists (ACLs) configured on the device, use the **show access-lists** command in privileged EXEC mode.

**show access-lists**[*{namenumber | hardware counters | ipc}*]

Syntax Description	
<i>number</i>	(Optional) ACL number. The range is 1 to 2799.
<i>name</i>	(Optional) Name of the ACL.
<b>hardware counters</b>	(Optional) Displays the access list hardware counters.
<b>ipc</b>	(Optional) Display Interprocess Communication (IPC) protocol access-list configuration download information

## Command Default

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.11.1	This command was introduced.

## Usage Guidelines

Though visible in the command-line help strings, the **rate-limit** keyword is not supported

The device supports only IP standard and extended access lists. Therefore, the allowed numbers are only 1 to 199 and 1300 to 2799.

This command also displays the MAC ACLs that are configured.

This is an example of output from the **show access-lists** command:

```
Device# show access-lists

Extended IP access list 103
  10 permit ip any any dscp af11
Extended IP access list ssm-range
  10 deny ip any 232.0.0.0 0.255.255.255
  20 permit ip any any
Extended MAC access list macl
```

This is an example of output from the **show access-lists hardware counters** command:

```
Device# show access-lists hardware counters
L3 ACL INPUT Statistics
  All Drop:                               frame count: 0
  All Bridge Only:                         frame count: 0
  All Forwarding To CPU:                   frame count: 294674
  All Forwarded:                           frame count: 2577677
```



```
All Drop And Log:          frame count: 0
All Bridge Only And Log:   frame count: 0
All Forwarded And Log:    frame count: 0
All IPv6 Drop:            frame count: 0
All IPv6 Bridge Only:     frame count: 0
All IPv6 Forwarding To CPU: frame count: 0
All IPv6 Forwarded:       frame count: 102
All IPv6 Drop And Log:    frame count: 0
All IPv6 Bridge Only And Log: frame count: 0
All IPv6 Forwarded And Log: frame count: 0
```

## L3 ACL OUTPUT Statistics

```
All Drop:                  frame count: 0
All Bridge Only:          frame count: 0
All Forwarding To CPU:    frame count: 0
All Forwarded:            frame count: 266050
All Drop And Log:         frame count: 0
All Bridge Only And Log:  frame count: 0
All Forwarded And Log:    frame count: 0
All IPv6 Drop:            frame count: 0
All IPv6 Bridge Only:     frame count: 0
All IPv6 Forwarding To CPU: frame count: 0
All IPv6 Forwarded:       frame count: 0
All IPv6 Drop And Log:    frame count: 0
All IPv6 Bridge Only And Log: frame count: 0
All IPv6 Forwarded And Log: frame count: 0
```

# show ap auth-list

To see the access point authorization list, use the **show ap auth-list** command.

**show ap auth-list** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

## Syntax Description

*chassis-number* Chassis number as either 1 or 2.

**active R0** Active instance in Route-processor slot 0.

**standby R0** Standby instance in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the access point authorization list:

```
Device# show ap auth-list
```

# show ap auth-list ap-cert-policy

To verify if the APs have been authorized by the AP certificate policy, use the **show ap auth-list ap-cert-policy**

**show ap auth-list ap-cert-policy**

---

<b>Syntax Description</b>	This command has no arguments.
---------------------------	--------------------------------

---

---

<b>Command Default</b>	Privileged EXEC (#)
------------------------	---------------------

---

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.5.1	This command was introduced.

---

## Example

The following example shows how to verify if the APs have been authorized by the AP certificate policy:

```
Device# show ap auth-list ap-cert-policy
```

# show ap auto-rf

To display the auto-RF settings for a Cisco lightweight access point, use the **show ap auto-rf** command.

**show ap auto-rf dot11** { **24ghz** | **5ghz** | **dual-band** } *cisco\_ap*

<b>Syntax Description</b>	<b>24ghz</b>	Specifies the 802.11b AP.
	<b>5ghz</b>	Specifies the 802.11a AP.
	<b>dual-band</b>	Specifies dual bands.
<b>Command Default</b>	None	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.12.1.

**Usage Guidelines** The **show ap auto-rf command** output will not display neighbor AP names.

The following example shows how to display auto-RF information for an access point:

```
Device# show ap auto-rf dot11 24ghz AP1

#####

Number of Slots                : 3
AP Name                        : APA023.9FD8.EA22
MAC Address                    : 40ce.24bf.8ca0
Ethernet MAC Address          : a023.9fd8.ea22
  Slot ID                      : 0
  Radio Type                   : 802.11n - 2.4 GHz
  Current TX/RX Band           : 2.4Ghz band
  Subband Type                 : All
Noise Information
  Noise Profile                : Passed
  Channel 1                    : -91 dBm
  Channel 2                    : -67 dBm
  Channel 3                    : -54 dBm
  Channel 4                    : -55 dBm
  Channel 5                    : -71 dBm
  Channel 6                    : -85 dBm
  Channel 7                    : -50 dBm
  Channel 8                    : -54 dBm
  Channel 9                    : -77 dBm
  Channel 10                   : -88 dBm
  Channel 11                   : -65 dBm
Interference Information
  Interference Profile         : Failed
  Channel 1                    : -47 dBm @ 21% busy
  Channel 2                    : -45 dBm @ 2% busy
  Channel 3                    : -128 dBm @ 0% busy
  Channel 4                    : -128 dBm @ 0% busy
  Channel 5                    : -48 dBm @ 2% busy
  Channel 6                    : -45 dBm @ 2% busy
```

```

Channel 7 : -42 dBm @ 3% busy
Channel 8 : -128 dBm @ 0% busy
Channel 9 : -128 dBm @ 0% busy
Channel 10 : -39 dBm @ 3% busy
Channel 11 : -46 dBm @ 3% busy
Rogue Histogram (20)
Channel 1 : 36
Channel 2 : 0
Channel 3 : 0
Channel 4 : 1
Channel 5 : 0
Channel 6 : 11
Channel 7 : 0
Channel 8 : 1
Channel 9 : 3
Channel 10 : 0
Channel 11 : 14
Load Information
Load Profile : Failed
Receive Utilization : 0%
Transmit Utilization : 0%
Channel Utilization : 98%
Attached Clients : 0 clients
Coverage Information
Coverage Profile : Passed
Failed Clients : 0 clients
Client Signal Strengths
RSSI -100 dBm : 0 clients
RSSI -92 dBm : 0 clients
RSSI -84 dBm : 0 clients
RSSI -76 dBm : 0 clients
RSSI -68 dBm : 0 clients
RSSI -60 dBm : 0 clients
RSSI -52 dBm : 0 clients
Client Signal to Noise Ratios
SNR 0 dB : 0 clients
SNR 5 dB : 0 clients
SNR 10 dB : 0 clients
SNR 15 dB : 0 clients
SNR 20 dB : 0 clients
SNR 25 dB : 0 clients
SNR 30 dB : 0 clients
SNR 35 dB : 0 clients
SNR 40 dB : 0 clients
SNR 45 dB : 0 clients
Nearby APs
AP d0ec.3572.b9a0 slot 0 : -23 dBm on ( 11, 20 MHz) (181.22.0.22)
AP 0c75.bdb3.9000 slot 0 : -28 dBm on ( 11, 20 MHz) (181.21.0.21)
AP a4b2.3980.3740 slot 0 : -28 dBm on ( 1, 20 MHz) (181.21.0.21)
AP d0ec.3576.8320 slot 0 : -33 dBm on ( 11, 20 MHz) (50.1.1.122)
AP a0f8.49dc.9780 slot 0 : -34 dBm on ( 1, 20 MHz) (9.9.57.94)
AP a0f8.49dc.8260 slot 0 : -34 dBm on ( 6, 20 MHz) (9.9.57.94)
AP d0ec.3573.7c80 slot 0 : -36 dBm on ( 6, 20 MHz) (192.185.183.44)

AP 00b0.e192.9d20 slot 0 : -36 dBm on ( 11, 20 MHz) (9.9.42.47)
AP a4b2.397f.41c0 slot 0 : -36 dBm on ( 1, 20 MHz) (185.10.0.10)
AP 2c5a.0fd5.b8c0 slot 0 : -36 dBm on ( 6, 20 MHz) (9.7.97.51)
AP a488.7351.4740 slot 0 : -36 dBm on ( 11, 20 MHz) (9.7.97.51)
AP 10b3.d5e9.c8e0 slot 0 : -36 dBm on ( 1, 20 MHz) (50.1.1.122)
AP 0c75.bdb3.ab00 slot 0 : -37 dBm on ( 6, 20 MHz) (185.10.0.10)
AP 68ca.e451.5120 slot 0 : -37 dBm on ( 1, 20 MHz) (9.4.155.15)
AP a0f8.49dc.97a0 slot 0 : -37 dBm on ( 11, 20 MHz) (9.9.57.94)
AP 188b.4501.7940 slot 0 : -38 dBm on ( 11, 20 MHz) (9.9.57.94)
AP 002c.c88a.f8e0 slot 0 : -38 dBm on ( 11, 20 MHz) (9.9.50.55)

```

```

AP 7069.5a78.4960 slot 0      : -38 dBm on ( 11, 20 MHz) (9.7.97.51)
AP 3c41.0ea7.0880 slot 0      : -39 dBm on ( 11, 20 MHz) (185.10.0.10)
AP a0f8.49dc.93a0 slot 0      : -39 dBm on ( 6, 20 MHz) (9.9.57.94)
AP f4db.e685.7360 slot 0      : -39 dBm on ( 6, 20 MHz) (50.1.1.122)
AP 7070.8bb4.4120 slot 0      : -40 dBm on ( 11, 20 MHz) (9.9.57.94)
AP 707d.b93e.39e0 slot 0      : -40 dBm on ( 1, 20 MHz) (4.4.4.1)
AP 706d.150c.6860 slot 0      : -40 dBm on ( 11, 20 MHz) (50.1.1.122)
Radar Information
Channel Assignment Information via DCA
  Current Channel Average Energy      : -50 dBm
  Previous Channel Average Energy      : -50 dBm
  Channel Change Count                : 9
  Last Channel Change Time            : 02/14/2021 20:54:57
  Recommended Best Channel            : 1
RF Parameter Recommendations
  Power Level                          : 8
  RTS/CTS Threshold                    : 2347
  Fragmentation Threshold              : 2346
  Antenna Pattern                      : 0
Persistent Interference Devices
Class Type          Channel  DC (%)  RSSI (dBm)  Last Update Time
-----
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```

# show ap config

To display configuration settings for all access points that join the device, use the **show ap config** command.

**show ap config {general | slots}**

<b>Syntax Description</b>	<b>ethernet</b> Displays ethernet related information for all Cisco APs.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Any command mode				
<b>Command History</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Release</th> <th style="text-align: left;">Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.12.2s</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.				

This example shows how to display global syslog server settings:

```

Device# show ap config general
Cisco AP Name      : APA023.9FAE.E190
=====
Cisco AP Identifier      : 40ce.24f7.50e0
Country Code            : US
Regulatory Domain Allowed by Country : 802.11bg:-A 802.11a:-AB
AP Country Code        : US - United States
AP Regulatory Domain
  Slot 0                : -B
  Slot 1                : -B
MAC Address             : a023.9fae.e190
IP Address Configuration : DHCP
IP Address              : 9.12.33.244
IP Netmask              : 255.255.255.0
Gateway IP Address     : 9.12.33.1
Fallback IP Address Being Used :
Domain                 :
Name Server            :
CAPWAP Path MTU       : 1485
Capwap Active Window Size : 1
Telnet State          : Disabled
SSH State             : Disabled
Cisco AP Location     : default location
Site Tag Name         : default-site-tag
RF Tag Name           : default-rf-tag
Policy Tag Name       : default-policy-tag
AP join Profile       : default-ap-profile
Flex Profile          : default-flex-profile
Primary Cisco Controller Name : ewlc-doc-17.1.1
Primary Cisco Controller IP Address : 9.12.35.10
Secondary Cisco Controller Name : Doc-86
Secondary Cisco Controller IP Address : 9.12.33.10
Tertiary Cisco Controller Name : Cisco-docwlc-85
    
```

```
Tertiary Cisco Controller IP Address      : 9.12.35.16
Administrative State                     : Enabled
Operation State                          : Registered
NAT External IP Address                  : 9.12.33.244
AP Certificate type                       : Manufacturer Installed Certificate
AP Mode                                  : Local
AP VLAN tagging state                    : Disabled
AP VLAN tag                               : 0
.
.
.
```



# show ap crash-file

To display the list of both crash and radio core dump files generated by lightweight access points, use the **show ap crash-file** command.

**show ap crash-file***chassis chassis-number <1-2>* **active standby**

Syntax Description	Parameter	Description
	<b>chassis</b>	Displays the chassis details.
	<i>chassis-number</i>	Specifies the chassis number, either 1 or 2.
	<b>active</b>	Specifies an active instance.
	<b>standby</b>	Specifies a standby instance.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

This example shows how to display the crash file generated by the access point:

```
Device# show ap crash-file
```

# show ap dot11

To view 802.11a or 802.11b configuration information, use the **show ap dot11** command.

```
show ap dot11 { 24ghz | 5ghz } { channel | coverage | group | load-info | logging | media-stream
| monitor | network | profile | summary | txpower | }
```

Syntax	Description
<b>24ghz</b>	Specifies the 2.4-GHz band.
<b>5ghz</b>	Specifies the 5-GHz band.
<b>6ghz</b>	Specifies the 6-GHz band.
<b>channel</b>	Displays the automatic channel assignment configuration and statistics.
<b>coverage</b>	Displays the configuration and statistics for coverage hole detection.
<b>group</b>	Displays 802.11a or 802.11b Cisco radio RF grouping.
<b>load-info</b>	Displays channel utilization and client count information for all Cisco APs.
<b>logging</b>	Displays 802.11a or 802.11b RF event and performance logging.
<b>media-stream</b>	Display 802.11a or 802.11b Media Resource Reservation Control configurations.
<b>monitor</b>	Displays the 802.11a or 802.11b default Cisco radio monitoring.
<b>network</b>	Displays the 802.11a or 802.11b network configuration.
<b>profile</b>	Displays the 802.11a or 802.11b lightweight access point performance profiles.
<b>receiver</b>	Displays the configuration and statistics of the 802.11a or 802.11b receiver.
<b>summary</b>	Displays the 802.11a or 802.11b Cisco lightweight access point name, channel, and transmit level summary.
<b>txpower</b>	Displays the 802.11a or 802.11b automatic transmit power assignment.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

This example shows how to display the automatic channel assignment configuration and statistics:

```

Device# show ap dot11 5ghz channel
Automatic Channel Assignment
  Channel Assignment Mode      : AUTO
  Channel Update Interval     : 12 Hours
  Anchor time (Hour of the day) : 20
  Channel Update Contribution  : SNI.
  Channel Assignment Leader    : web (9.9.9.2)
  Last Run                    : 13105 seconds ago
  DCA Sensitivity Level       : MEDIUM (15 dB)
  DCA 802.11n Channel Width   : 40 Mhz
  Channel Energy Levels
    Minimum                   : unknown
    Average                   : unknown
    Maximum                   : unknown
  Channel Dwell Times
    Minimum                   : unknown
    Average                   : unknown
    Maximum                   : unknown
  802.11a 5 GHz Auto-RF Channel List
  Allowed Channel List       : 36,40,44,48,52,56,60,64,149,153,1
  57,161
  Unused Channel List       : 100,104,108,112,116,132,136,140,1
  65
  802.11a 4.9 GHz Auto-RF Channel List
  Allowed Channel List       :
  Unused Channel List       : 1,2,3,4,5,6,7,8,9,10,11,12,13,14,
  15,16,17,18,19,20,21,22,23,24,25,26
  DCA Outdoor AP option     : Disabled

```

This example shows how to display the statistics for coverage hole detection:

```

Device# show ap dot11 5ghz coverage
Coverage Hole Detection
  802.11a Coverage Hole Detection Mode : Enabled
  802.11a Coverage Voice Packet Count  : 100 packet(s)
  802.11a Coverage Voice Packet Percentage : 50 %
  802.11a Coverage Voice RSSI Threshold : -80dBm
  802.11a Coverage Data Packet Count   : 50 packet(s)
  802.11a Coverage Data Packet Percentage : 50 %
  802.11a Coverage Data RSSI Threshold : -80dBm
  802.11a Global coverage exception level : 25
  802.11a Global client minimum exception level : 3 clients

```

This example shows how to display Cisco radio RF group settings:

```

Device# show ap dot11 5ghz group
Radio RF Grouping
  802.11a Group Mode           : STATIC
  802.11a Group Update Interval : 600 seconds
  802.11a Group Leader         : web (10.10.10.1)
  802.11a Group Member         : web(10.10.10.1)
                               nb1(172.13.21.45) (*Unreachable)
  802.11a Last Run            : 438 seconds ago

```

```
Mobility Agents RF membership information
-----
```

```
No of 802.11a MA RF-members : 0
```

This example shows how to display 802.11a RF event and performance logging:

```
Device# show ap dot11 5ghz logging
RF Event and Performance Logging

Channel Update Logging           : Off
Coverage Profile Logging         : Off
Foreign Profile Logging          : Off
Load Profile Logging             : Off
Noise Profile Logging            : Off
Performance Profile Logging      : Off
TxPower Update Logging           : Off
```

This example shows how to display the 802.11a media stream configuration:

```
Device# show ap dot11 5ghz media-stream
Multicast-direct                 : Disabled
Best Effort                      : Disabled
Video Re-Direct                 : Disabled
Max Allowed Streams Per Radio    : Auto
Max Allowed Streams Per Client   : Auto
Max Video Bandwidth              : 0
Max Voice Bandwidth              : 75
Max Media Bandwidth              : 85
Min PHY Rate (Kbps)              : 6000
Max Retry Percentage              : 80
```

This example shows how to display the radio monitoring for the 802.11b network:

```
Device# show ap dot11 5ghz monitor
Default 802.11a AP monitoring

802.11a Monitor Mode             : Enabled
802.11a Monitor Mode for Mesh AP Backhaul : disabled
802.11a Monitor Channels         : Country channels
802.11a RRM Neighbor Discover Type : Transparent
802.11a AP Coverage Interval     : 180 seconds
802.11a AP Load Interval         : 60 seconds
802.11a AP Noise Interval        : 180 seconds
802.11a AP Signal Strength Interval : 60 seconds
```

This example shows how to display the global configuration and statistics of an 802.11a profile:

```
Device# show ap dot11 5ghz profile
Default 802.11a AP performance profiles
802.11a Global Interference threshold..... 10%
802.11a Global noise threshold..... -70 dBm
802.11a Global RF utilization threshold..... 80%
802.11a Global throughput threshold..... 1000000 bps
802.11a Global clients threshold..... 12 clients
802.11a Global coverage threshold..... 12 dB
802.11a Global coverage exception level..... 80%
802.11a Global client minimum exception lev..... 3 clients
```

This example shows how to display the network configuration of an 802.11a profile:

```
Device# show ap dot11 5ghz network
802.11a Network : Enabled
```

```
11nSupport : Enabled
  802.11a Low Band : Enabled
  802.11a Mid Band : Enabled
  802.11a High Band : Enabled

802.11a Operational Rates
  802.11a 6M : Mandatory
  802.11a 9M : Supported
  802.11a 12M : Mandatory
  802.11a 18M : Supported
  802.11a 24M : Mandatory
  802.11a 36M : Supported
  802.11a 48M : Supported
  802.11a 54M : Supported
802.11n MCS Settings:
  MCS 0 : Supported
  MCS 1 : Supported
  MCS 2 : Supported
  MCS 3 : Supported
  MCS 4 : Supported
  MCS 5 : Supported
  MCS 6 : Supported
  MCS 7 : Supported
  MCS 8 : Supported
  MCS 9 : Supported
  MCS 10 : Supported
  MCS 11 : Supported
  MCS 12 : Supported
  MCS 13 : Supported
  MCS 14 : Supported
  MCS 15 : Supported
  MCS 16 : Supported
  MCS 17 : Supported
  MCS 18 : Supported
  MCS 19 : Supported
  MCS 20 : Supported
  MCS 21 : Supported
  MCS 22 : Supported
  MCS 23 : Supported
802.11n Status:
  A-MPDU Tx:
    Priority 0 : Enabled
    Priority 1 : Disabled
    Priority 2 : Disabled
    Priority 3 : Disabled
    Priority 4 : Enabled
    Priority 5 : Enabled
    Priority 6 : Disabled
    Priority 7 : Disabled
  A-MSDU Tx:
    Priority 0 : Enabled
    Priority 1 : Enabled
    Priority 2 : Enabled
    Priority 3 : Enabled
    Priority 4 : Enabled
    Priority 5 : Enabled
    Priority 6 : Disabled
    Priority 7 : Disabled
  Guard Interval : Any
  Rifs Rx : Enabled
  Beacon Interval : 100
  CF Pollable mandatory : Disabled
  CF Poll Request Mandatory : Disabled
  CFP Period : 4
```

```

CFP Maximum Duration : 60
Default Channel : 36
Default Tx Power Level : 1
DTPC Status : Enabled
Fragmentation Threshold : 2346
Pico-Cell Status : Disabled
Pico-Cell-V2 Status : Disabled
TI Threshold : 0
Legacy Tx Beamforming setting : Disabled
Traffic Stream Metrics Status : Disabled
Expedited BW Request Status : Disabled
EDCA profile type check : default-wmm
Call Admission Control (CAC) configuration
Voice AC
  Voice AC - Admission control (ACM) : Disabled
  Voice Stream-Size : 84000
  Voice Max-Streams : 2
  Voice Max RF Bandwidth : 75
  Voice Reserved Roaming Bandwidth : 6
  Voice Load-Based CAC mode : Enabled
  Voice tspec inactivity timeout : Enabled
CAC SIP-Voice configuration
  SIP based CAC : Disabled
  SIP call bandwidth : 64
  SIP call bandwidth sample-size : 20
Video AC
  Video AC - Admission control (ACM) : Disabled
  Video max RF bandwidth : Infinite
  Video reserved roaming bandwidth : 0

```

This example shows how to display the global configuration and statistics of an 802.11a profile:

```

Device# show ap dot11 5ghz receiver
Default 802.11a AP performance profiles
802.11a Global Interference threshold..... 10%
802.11a Global noise threshold..... -70 dBm
802.11a Global RF utilization threshold..... 80%
802.11a Global throughput threshold..... 1000000 bps
802.11a Global clients threshold..... 12 clients
802.11a Global coverage threshold..... 12 dB
802.11a Global coverage exception level..... 80%
802.11a Global client minimum exception lev..... 3 clients

```

This example shows how to display the global configuration and statistics of an 802.11a profile:

```
Device# show ap dot11 5ghz service-policy
```

This example shows how to display a summary of the 802.11b access point settings:

```

Device# show ap dot11 5ghz summary
AP Name MAC Address Admin State Operation State Channel TxPower
-----
CJ-1240 00:21:1b:ea:36:60 ENABLED UP 161 1( )
CJ-1130 00:1f:ca:cf:b6:60 ENABLED UP 56* 1(*)

```

This example shows how to display the configuration and statistics of the 802.11a transmit power cost:

```

Device# show ap dot11 5ghz txpower
Automatic Transmit Power Assignment

Transmit Power Assignment Mode : AUTO

```

```
Transmit Power Update Interval      : 600 seconds
Transmit Power Threshold            : -70 dBm
Transmit Power Neighbor Count       : 3 APs
Min Transmit Power                  : -10 dBm
Max Transmit Power                  : 30 dBm
Transmit Power Update Contribution  : SNI.
Transmit Power Assignment Leader    : web (10.10.10.1)
Last Run                            : 437 seconds ago
```

This example shows how to display the configuration and statistics of the 802.11a transmit power cost:

```
Device# show ap dot11 5ghz ccx global
802.11a Client Beacon Measurements:
    disabled
```

# show ap dot11

To display 802.11 band parameters, use the **show ap dot11** command.

```
show ap dot11 {24ghz | 5ghz} {media-stream rrc}
```

<b>Syntax Description</b>	<b>media-stream rrc</b> Displays Media Stream configurations.
<b>Command Default</b>	None
<b>Command Modes</b>	User EXEC command mode or Privileged EXEC command mode
<b>Usage Guidelines</b>	None.

The following is a sample output of the **show ap dot11 24ghz media-stream rrc** command.

```
Device#show ap dot11 24ghz media-stream rrc

Multicast-direct           : Disabled
Best Effort                 : Disabled
Video Re-Direct           : Disabled
Max Allowed Streams Per Radio : Auto
Max Allowed Streams Per Client : Auto
Max Video Bandwidth        : 0
Max Voice Bandwidth        : 75
Max Media Bandwidth        : 85
Min PHY Rate (Kbps)       : 6000
Max Retry Percentage       : 80
```



# show ap dot11 24ghz

To display the 2.4 GHz RRM parameters, use the **show ap dot11 24ghz** command.

**show ap dot11 24ghz** {**channel** | **coverage** | **group** | **logging** | **monitor** | **profile** | **summary** | **txpower**}

Syntax Description	
<b>ccx</b>	Displays the 802.11b CCX information for all Cisco APs.
<b>channel</b>	Displays the configuration and statistics of the 802.11b channel assignment.
<b>coverage</b>	Displays the configuration and statistics of the 802.11b coverage.
<b>group</b>	Displays the configuration and statistics of the 802.11b grouping.
<b>l2roam</b>	Displays 802.11b l2roam information.
<b>logging</b>	Displays the configuration and statistics of the 802.11b event logging.
<b>monitor</b>	Displays the configuration and statistics of the 802.11b monitoring.
<b>profile</b>	Displays 802.11b profiling information for all Cisco APs.
<b>receiver</b>	Displays the configuration and statistics of the 802.11b receiver.
<b>summary</b>	Displays the configuration and statistics of the 802.11b Cisco APs.
<b>txpower</b>	Displays the configuration and statistics of the 802.11b transmit power control.

**Command Default** None.

**Command Modes** Global configuration.

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

**Usage Guidelines** None.

This example shows how to display configuration and statistics of the 802.11b coverage.

```
Device#show ap dot11 24ghz coverage
```

```
Coverage Hole Detection
 802.11b Coverage Hole Detection Mode      : Enabled
 802.11b Coverage Voice Packet Count      : 100 packet(s)
 802.11b Coverage Voice Packet Percentage  : 50%
 802.11b Coverage Voice RSSI Threshold    : -80 dBm
 802.11b Coverage Data Packet Count       : 50 packet(s)
 802.11b Coverage Data Packet Percentage  : 50%
 802.11b Coverage Data RSSI Threshold     : -80 dBm
 802.11b Global coverage exception level   : 25 %
 802.11b Global client minimum exception level : 3 clients
```

## show ap dot11 24ghz SI config

To see the spectrum intelligence (SI) configuration details for the 2.4-GHz band, use the **show ap dot11 24ghz SI config** command.

**show ap dot11 24ghz SI config** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

Syntax Description	
<i>chassis-number</i>	Chassis number as either 1 or 2.
<b>active R0</b>	Active instance of the configuration in Route-processor slot 0.
<b>standby R0</b>	Standby instance of the configuration in Route-processor slot 0.

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

### Examples

The following example shows how to see the SI configuration details for the 2.4-GHz band:

```
Device# show ap dot11 24ghz SI config chassis 1 R0
```

## show ap dot11 24ghz SI device type

To see the spectrum intelligence (SI) interferers of different types for the 2.4-GHz band, use the **show ap dot11 24ghz SI device type** command.

```
show ap dot11 24ghz SI device type {cont_tx | mw_oven | si_fhss} [chassis {chassis-number
| active | standby} R0]
```

### Syntax Description

<b>cont_tx</b>	SI interferers of type Continuous transmitter for the 2.4-GHz band.
<b>mw_oven</b>	SI interferers of type microwave oven for the 2.4-GHz band.
<b>si_fhss</b>	SI interferers of type Frequency Hopping Spread Spectrum for the 2.4-GHz band.
<i>chassis-number</i>	Enter the chassis number as either 1 or 2.
<b>active R0</b>	Active instance of the configuration in Route-processor slot 0.
<b>standby R0</b>	Standby instance of the configuration in Route-processor slot 0.

### Command Default

None

### Command Modes

Privileged EXEC

### Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

### Examples

The following example shows how to see the details of SI interferers of type microwave oven in the 2.4-GHz band:

```
Device# show ap dot11 24ghz SI device type mw_oven chassis 1 R0
```

# show ap dot11 5ghz

To display the 5GHz RRM parameters, use the **show ap dot11 5ghz** command.

**show ap dot11 5ghz** {**channel** | **coverage** | **group** | **logging** | **monitor** | **profile** | **summary** | **txpower**}

## Syntax Description

<b>ccx</b>	Displays the 802.11a CCX information for all Cisco APs.
<b>channel</b>	Displays the configuration and statistics of the 802.11a channel assignment.
<b>coverage</b>	Displays the configuration and statistics of the 802.11a coverage.
<b>group</b>	Displays the configuration and statistics of the 802.11a grouping.
<b>l2roam</b>	Displays 802.11a l2roam information.
<b>logging</b>	Displays the configuration and statistics of the 802.11a event logging.
<b>monitor</b>	Displays the configuration and statistics of the 802.11a monitoring.
<b>profile</b>	Displays 802.11a profiling information for all Cisco APs.
<b>receiver</b>	Displays the configuration and statistics of the 802.11a receiver.
<b>summary</b>	Displays the configuration and statistics of the 802.11a Cisco APs.
<b>txpower</b>	Displays the configuration and statistics of the 802.11a transmit power control.

## Command Default

None.

## Command Modes

Global configuration.

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

## Usage Guidelines

None.

This example shows configuration and statistics of 802.11a channel assignment.

```
Device#show ap dot11 5ghz channel
```

```
Automatic Channel Assignment
Channel Assignment Mode           : AUTO
Channel Update Interval          : 12 Hours
Anchor time (Hour of the day)    : 20
Channel Update Contribution      : SNI..
Channel Assignment Leader        : web (9.9.9.2)
Last Run                          : 16534 seconds ago
DCA Sensitivity Level            : MEDIUM (15 dB)
DCA 802.11n Channel Width       : 40 Mhz
Channel Energy Levels
  Minimum                         : unknown
```

```
Average : unknown
Maximum : unknown
Channel Dwell Times
  Minimum : unknown
  Average : unknown
  Maximum : unknown
802.11a 5 GHz Auto-RF Channel List
Allowed Channel List : 36,40,44,48,52,56,60,64,149,153,1
                    57,161
Unused Channel List : 100,104,108,112,116,132,136,140,1
                    65
802.11a 4.9 GHz Auto-RF Channel List
Allowed Channel List :
Unused Channel List : 1,2,3,4,5,6,7,8,9,10,11,12,13,14,
                    15,16,17,18,19,20,21,22,23,24,25,26
DCA Outdoor AP option : Disabled
```

# show ap dot11 24ghz cleanair air-quality

To display the air-quality summary information and air-quality worst information for the 802.11 networks, use the **show ap dot11 cleanair** command.

**show ap dot11 {24ghz | 5ghz | dual-band} cleanair {air-quality | config | device | summary}**

Syntax Description	
<b>24ghz</b>	Displays the 2.4 GHz band.
<b>5ghz</b>	Displays the 5 GHz band.
<b>dual-band</b>	Displays 802.11 dual-band radios.
<b>cleanair</b>	Displays cleanair configurations.
<b>air-quality</b>	Displays the Cleanair Air-Quality (AQ) data for 2.4GHz band.
<b>device</b>	Displays the CleanAir Interferers of device for 2.4GHz band.
<b>config</b>	Displays CleanAir Configuration for 2.4GHz band.
<b>summary</b>	Displays cleanair configurations for all 802.11a Cisco APs.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

This example shows how to display the worst air-quality information for the 5 GHz band:

```
Device# show ap dot11 5ghz cleanair air-quality worst
```

```
AQ = Air Quality
DFS = Dynamic Frequency Selection
AP Name      Channel Avg AQ Min AQ Interferers DFS
-----
CISCO_AP3500 36      95      70      0          40
```

This example shows how to display the worst air-quality information for the 2.4 GHz band:

```
Device# show ap dot11 24ghz cleanair air-quality worst
```

```
AQ = Air Quality
DFS = Dynamic Frequency Selection
AP Name      Channel Avg AQ Min AQ Interferers DFS
-----
CISCO_AP3500 1        83      57      3          5
```

## show ap dot11 24ghz cleanair air-quality

To display the air-quality summary information and air-quality worst information for the 802.11 networks, use the **show ap dot11 cleanair air-quality** command.

```
show ap dot11 {24ghz | 5ghz} cleanair air-quality {summary | worst}
```

Syntax Description	24ghz	Displays the 2.4 GHz band.
	5ghz	Displays the 5 GHz band.
	summary	Displays a summary of 802.11 radio band air-quality information.
	worst	Displays the worst air-quality information for 802.11 networks.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

This example shows how to display the worst air-quality information for the 5 GHz band:

```
Device# show ap dot11 5ghz cleanair air-quality worst
```

```
AQ = Air Quality
DFS = Dynamic Frequency Selection
AP Name      Channel Avg AQ Min AQ Interferers DFS
-----
CISCO_AP3500 36      95      70      0          40
```

This example shows how to display the worst air-quality information for the 2.4 GHz band:

```
Device# show ap dot11 24ghz cleanair air-quality worst
```

```
AQ = Air Quality
DFS = Dynamic Frequency Selection
AP Name      Channel Avg AQ Min AQ Interferers DFS
-----
CISCO_AP3500 1       83      57      3          5
```

# show ap dot11 cleanair config

To display the CleanAir configuration for the 802.11 networks, use the **show ap dot11 cleanair config** command.

**show ap dot11 {24ghz | 5ghz} cleanair config**

<b>Syntax Description</b>	<b>24ghz</b> Displays the 2.4 GHz band.				
	<b>5ghz</b> Displays the 5 GHz band.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Any command mode				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.12.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.				

This example shows how to display the CleanAir configuration for the 2.4 GHz band:

```

Device# show ap dot11 24ghz cleanair config
Clean Air Solution..... : Disabled
Air Quality Settings:
  Air Quality Reporting..... : Disabled
  Air Quality Reporting Period (min)..... : 15
  Air Quality Alarms..... : Enabled
  Air Quality Alarm Threshold..... : 10
Interference Device Settings:
  Interference Device Reporting..... : Enabled
  Bluetooth Link..... : Enabled
  Microwave Oven..... : Enabled
  802.11 FH..... : Enabled
  Bluetooth Discovery..... : Enabled
  TDD Transmitter..... : Enabled
  Jammer..... : Enabled
  Continuous Transmitter..... : Enabled
  DECT-like Phone..... : Enabled
  Video Camera..... : Enabled
  802.15.4..... : Enabled
  WiFi Inverted..... : Enabled
  WiFi Invalid Channel..... : Enabled
  SuperAG..... : Enabled
  Canopy..... : Enabled
  Microsoft Device..... : Enabled
  WiMax Mobile..... : Enabled
  WiMax Fixed..... : Enabled
Interference Device Types Triggering Alarms:
  Bluetooth Link..... : Disabled
  Microwave Oven..... : Disabled
  802.11 FH..... : Disabled
  Bluetooth Discovery..... : Disabled
  TDD Transmitter..... : Disabled
  Jammer..... : Disabled
  Continuous Transmitter..... : Disabled
  DECT-like Phone..... : Disabled
    
```



```
Video Camera..... : Disabled
802.15.4..... : Disabled
WiFi Inverted..... : Enabled
WiFi Invalid Channel..... : Enabled
SuperAG..... : Disabled
Canopy..... : Disabled
Microsoft Device..... : Disabled
WiMax Mobile..... : Disabled
WiMax Fixed..... : Disabled
Interference Device Alarms..... : Enabled
Additional Clean Air Settings:
CleanAir Event-driven RRM State..... : Disabled
CleanAir Driven RRM Sensitivity..... : LOW
CleanAir Persistent Devices state..... : Disabled
```

## show ap dot11 cleanair summary

To view CleanAir configurations for all 802.11a Cisco APs, use the **show ap dot11 cleanair summary** command.

**show ap dot11 {24ghz | 5ghz} cleanair summary**

<b>Syntax Description</b>	<b>24ghz</b>	Specifies the 2.4-GHz band
	<b>5ghz</b>	Specifies the 5-GHz band
	<b>cleanair summary</b>	Summary of CleanAir configurations for all 802.11a Cisco APs
<b>Command Default</b>	None	
<b>Command Modes</b>	Any command mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

# show ap dot11 dual-band summary

To view a brief summary of access points with dual-band radios, use the **show ap dot11 dual-band summary** command.

**show ap dot11 dual-band summary**

---

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

---

<b>Command Default</b>	None
------------------------	------

---

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

---

<b>Command History</b>	
------------------------	--

---

## Example

The following example shows how to view brief summary of tag names:

```
Device# show ap dot11 dual-band summary
```

# show ap environment

To see the AP environment information of all APs, use the **show ap environment** command.

**show ap environment** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

## Syntax Description

*chassis-number* Enter the chassis number as either 1 or 2.

**active R0** Active instance of the AP filters in Route-processor slot 0.

**standby R0** Standby instance of the AP filters in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the AP environment information:

```
Device# show ap environment
```

## show ap filters active

To see the details of active AP filters, use the **show ap filters active** command.

```
show ap filters active [chassis {chassis-number | active | standby} R0]
```

### Syntax Description

*chassis-number* Chassis number as either 1 or 2.

**active R0** Active instance of the active AP filters in Route-processor slot 0.

**standby R0** Standby instance of the active AP filters in Route-processor slot 0.

### Command Default

None

### Command Modes

Privileged EXEC

### Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

### Examples

The following example shows how to see the details of the active AP filters for the active instance:

```
Device# show ap filters active chassis active R0
```

# show ap filters all

To see the details of all AP filters, use the **show ap filters all** command.

**show ap filters all** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

## Syntax Description

*chassis-number* Enter the chassis number as either 1 or 2.

**active R0** Active instance of the AP filters in Route-processor slot 0.

**standby R0** Standby instance of the AP filters in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the details of all the AP filters for the active instance:

```
Device# show ap filters all chassis active R0
```

# show ap fra

To see the flexible radio assignment (FRA) configurations in APs, use the **show ap fra** command.

```
show ap fra [chassis {chassis-number | active | standby} R0]
```

## Syntax Description

*chassis-number* Chassis number as either 1 or 2.

**active R0** Active instance in Route-processor slot 0.

**standby R0** Standby instance in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the FRA configurations in APs:

```
Device# show ap fra
```

# show ap gps location

To see the GPS location of all APs, use the **show ap gps location** command.

**show ap gps location** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

## Syntax Description

*chassis-number* Enter the chassis number as either 1 or 2.

**active R0** Active instance of the AP filters in Route-processor slot 0.

**standby R0** Standby instance of the AP filters in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the GPS location of all APs:

```
Device# show ap gps location
```



# show history channel interface dot11Radio all

To check channel change or trigger reason and history, use the **show history channel interface dot11Radio all** command.

**show history channel interface dot11Radio all**

<b>Syntax Description</b>	This command has no keywords or arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.2.1	This command was introduced.

## Examples

This example shows how to check channel change or trigger reason and history:

```
Device# show history channel interface dot11Radio all

          Timestamp Slot Client count Channel Trigger
Fri May 31 12:57:04 2019    0         0      11 RRM-DCA
Fri May 31 13:10:02 2019    0         0       1 RRM-DCA
Fri May 31 12:57:04 2019    1         0      60 Manual
Fri May 31 13:00:16 2019    1         0     149   DFS
```

# show ap link-encryption

To display the link encryption status, use the **show ap link-encryption** command.

**show ap link-encryption**[{**chassis** | {*chassis-number* | **active** | **standby**} | **R0**}]

Syntax Description	
<i>chassis-number</i>	Chassis number as either 1 or 2.
<b>active R0</b>	Active instance in Route-processor slot 0.
<b>standby R0</b>	Standby instance in Route-processor slot 0.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

This example show how to display the link-encryption status:

```
Device# show Cisco IOS XE Gibraltar 16.12.2s link-encryption
```

# show ap lldp neighbors detail

To view the details of the AP Link Layer Discovery Protocol (LLDP) neighbor information on the controller, when the AP is connected to the third-party switch.

## show ap lldp neighbors detail

<b>Syntax Description</b>	This command has no arguments.	
<b>Command Default</b>	None	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.5.1	This command was introduced.
<b>Usage Guidelines</b>	None	

## Example

The following example shows how to view the details of AP Link Layer Discovery Protocol (LLDP) neighbor information on the controller, when the AP is connected to the third-party switch:

```
Device# show ap lldp neighbors detail
Number of neighbors: 1
AP Name           : 9130-ap1
AP Interface      : GigabitEthernet0
-----
Neighbor MAC      : c89c.1dbl.1f80
Neighbor Name     : flex-ctrl-switch
System Description : Cisco IOS Software, C3750E Software (C3750E-UNIVERSALK9-M), Version
                  15.2(4)E6, RELEASE SOFTWARE (fc4)
Technical Support : http://www.cisco.com/techsupport
Copyright (c) 1986-2018 by Cisco Systems, Inc.
Compiled Thu 05-Apr-18 02:22 by prod_rel_team
Port ID           : Gi1/0/15
Port Description  : 9130-ap2
Chassis Alias    :
Management Addresses :
  IPv4 address    : None
  IPv6 address    : None
Capabilities      :
  Bridge
  Router
Last updated time : 12/02/2020 09:15:48
```

## show ap lldp neighbors

To view the AP Link Layer Discovery Protocol (LLDP) neighbor information on the controller, when the AP is connected to the third-party switch.

### show ap lldp neighbors

<b>Syntax Description</b>	This command has no arguments.
---------------------------	--------------------------------

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.5.1	This command was introduced.

<b>Usage Guidelines</b>	None
-------------------------	------

### Example

The following example shows how to view the AP Link Layer Discovery Protocol (LLDP) neighbor information on the controller, when the AP is connected to the third-party switch:

```
Device# show ap lldp neighbors
```

```
Capability Codes:
```

```
(R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
(W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other
```

AP Name	AP Interface	Neighbor Name	Neighbor MAC	Port ID	Mgmt. Address	Capabilities	Last updated time
9130-ap1	GigabitEthernet0	switch	cxxc.1dxx.1fxx	Gi1/0/15	None	B R	12/02/2020 09:15:48
9117-ap1	GigabitEthernet0	switch	cxxc.1dxx.1fxx	Gi1/0/19	None	B R	12/02/2020 09:15:47

# show ap name lldp neighbors detail

To view the details of the AP Link Layer Discovery Protocol (LLDP) neighbor information on the controller, for a specific AP, when the AP is connected to the third-party switch.

**show ap name** *ap-name* **lldp neighbors detail**

<b>Syntax Description</b>	This command has no arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.5.1	This command was introduced.
<b>Usage Guidelines</b>	None	

## Example

The following example shows how to view the details of the AP Link Layer Discovery Protocol (LLDP) neighbor information on the controller, for a specific AP, when the AP is connected to the third-party switch:

```
Device# show ap name 9130-ap1 lldp neighbors detail
AP Name          : 9130-ap1
AP Interface     : GigabitEthernet0
-----
Neighbor MAC     : c89c.1db1.1f80
Neighbor Name    : flex-ctrl-switch
System Description : Cisco IOS Software, C3750E Software (C3750E-UNIVERSALK9-M), Version
                  15.2(4)E6, RELEASE SOFTWARE (fc4)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2018 by Cisco Systems, Inc.
Compiled Thu 05-Apr-18 02:22 by prod_rel_team
Port ID         : Gi1/0/15
Port Description : 9130-ap2
Chassis Alias   :
Management Addresses :
  IPv4 address   : None
  IPv6 address   : None
Capabilities    :
  Bridge
  Router
Last updated time : 12/02/2020 09:15:48
```

# show ap name lldp neighbors

To view the AP Link Layer Discovery Protocol (LLDP) neighbor information on the controller, for a specific AP, when the AP is connected to the third-party switch.

**show ap name** *ap-name* **lldp neighbors**

<b>Syntax Description</b>	This command has no arguments.
---------------------------	--------------------------------

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.5.1	This command was introduced.

<b>Usage Guidelines</b>	None
-------------------------	------

## Example

The following example shows how to view the AP Link Layer Discovery Protocol (LLDP) neighbor information on the controller, for a specific AP, when the AP is connected to the third-party switch:

```
Device# show ap name 9130-ap1 lldp neighbors
AP Name           : 9130-ap1
AP Interface      : GigabitEthernet0
-----
Neighbor MAC      : c89c.1db1.1f80
Neighbor Name     : flex-ctrl-switch
System Description : Cisco IOS Software, C3750E Software (C3750E-UNIVERSALK9-M), Version
                  15.2(4)E6, RELEASE SOFTWARE (fc4)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2018 by Cisco Systems, Inc.
Compiled Thu 05-Apr-18 02:22 02:22 by prod_rel_team
Port ID           : Gi1/0/15
Port Description  : 9130-ap2
Chassis Alias    :
Management Addresses :
  IPv4 address    : None
  IPv6 address    : None
Capabilities     :
  Bridge
  Router
Last updated time : 12/02/2020 09:15:48
```

## show ap name ntp status

To display the Network Time Protocol (NTP) status of an AP, use the **show ap name ntp status** command.

**show ap name** *ap-name* **ntp status**

### Syntax Description

*ap-name* AP  
name.

### Command Default

None

### Command Modes

Privileged EXEC (#)

### Command History

Release	Modification
Cisco IOS XE Bengaluru 17.6.1	This command was introduced.

### Examples

The following example shows how to view the NTP status of an AP:

```
Device# show ap name AP-G1-230 ntp status
```

ap-name	enabled	v4/v6	IPAddress	Status	Stratum	LastSync	SyncOffset
AP-G1-230	Y	v4	198.51.100.5	AuthFail	4	1000	100

# show ap ntp status

To display the Network Time Protocol (NTP) status for all the APs, use the **show ap name ntp status** command.

## show ap ntp status

---

**Syntax Description** This command has no keywords and arguments.

---



---

**Command Default** None

---



---

**Command Modes** Privileged EXEC (#)

---



---

Command History	Release	Modification
	Cisco IOS XE Bengaluru 17.6.1	This command was introduced.

---

## Examples

The following example shows how to view the NTP status for all the APs:

```
Device# show ap ntp status
```

ap-name	enabled	v4/v6	IPAddress	Status	Stratum	LastSync	SyncOffset
AP-G1-230	Y	v4	198.51.100.5	AuthFail	2	Never	
AP-G1-231	Y	v4	198.51.100.10	Synced	3	1000	100
AP-G1-232	Y	v4	198.51.100.15	Synced	16	2000	50



# show ap master list

To see the AP master list, use the **show ap master list** command.

```
show ap master list[{chassis | {chassis-number | active | standby} | R0}]
```

## Syntax Description

*chassis-number* Chassis number as either 1 or 2.

**active R0** Active instance in Route-processor slot 0.

**standby R0** Standby instance in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the AP master list:

```
Device# show ap master list
```

## show ap multicast mom (multicast over multicast)

To confirm if the APs receive multicast to multicast (mom) traffic sent by the controller, using CAPWAP multicast group, use the **show ap multicast mom** command.

<b>Syntax Description</b>	This command has no keywords and arguments.
---------------------------	---

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.2	This command was introduced.

This example shows how to confirm if the APs receive multicast to multicast traffic sent by the controller using CAPWAP multicast group:

```
Device# show ap multicast mom
```

AP Name	MOM-IP	TYPE	MOM-	STATUS
SS-E-1	IPv4		Up	
SS-E-2	IPv4		Up	
9130E-r3-sw2-g1012	IPv4		Up	
9115i-r3-sw2-te1-0-38	IPv4		Up	
AP9120-r3-sw3-Gi1-0-46	IPv4		Up	
ap3800i-r2-sw1-te2-0-2	IPv4		Up	

# show ap name auto-rf

To display the auto-RF settings for a Cisco lightweight access point, use the **show ap name auto-rf** command.

**show ap name *ap-name* auto-rf dot11 {24ghz | 5ghz | dual-band}**

Syntax Description	
<i>ap-name</i>	Name of the Cisco lightweight access point.
<b>24ghz</b>	Displays the 2.4 GHz band.
<b>5ghz</b>	Displays the 5 GHz band.
<b>dual-band</b>	Displays dual band.

**Command Default** None

**Command Modes** Privileged EXEC.

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

This example shows how to display auto-RF information for an access point:

```

Device# show ap name AP01 auto-rf dot11 24ghz

Number of Slots                : 2
AP Name                        : TSIM_AP-1
MAC Address                    : 0000.2000.02f0
Slot ID                        : 0
Radio Type                     : 802.11b/g
Subband Type                   : All

Noise Information
  Noise Profile                : Failed
  Channel 1                    : 24 dBm
  Channel 2                    : 48 dBm
  Channel 3                    : 72 dBm
  Channel 4                    : 96 dBm
  Channel 5                    : 120 dBm
  Channel 6                    : -112 dBm
  Channel 7                    : -88 dBm
  Channel 8                    : -64 dBm
  Channel 9                    : -40 dBm
  Channel 10                   : -16 dBm
  Channel 11                   : 8 dBm

Interference Information
  Interference Profile         : Passed
  Channel 1                    : -128 dBm @ 0% busy
  Channel 2                    : -71 dBm @ 1% busy
  Channel 3                    : -72 dBm @ 1% busy
  Channel 4                    : -73 dBm @ 2% busy
  Channel 5                    : -74 dBm @ 3% busy
  Channel 6                    : -75 dBm @ 4% busy
  Channel 7                    : -76 dBm @ 5% busy
    
```

## show ap name auto-rf

```

Channel 8 : -77 dBm @ 5% busy
Channel 9 : -78 dBm @ 6% busy
Channel 10 : -79 dBm @ 7% busy
Channel 11 : -80 dBm @ 8% busy

Rogue Histogram (20/40_ABOVE/40_BELOW)
Channel 36 : 27/ 4/ 0
Channel 40 : 13/ 0/ 0
Channel 44 : 5/ 0/ 0
Channel 48 : 6/ 0/ 1
Channel 52 : 4/ 0/ 0
Channel 56 : 5/ 0/ 0
Channel 60 : 1/ 3/ 0
Channel 64 : 3/ 0/ 0
Channel 100 : 0/ 0/ 0
Channel 104 : 0/ 0/ 0
Channel 108 : 0/ 1/ 0

Load Information
Load Profile : Passed
Receive Utilization : 10%
Transmit Utilization : 20%
Channel Utilization : 50%
Attached Clients : 0 clients

Coverage Information
Coverage Profile : Passed
Failed Clients : 0 clients

Client Signal Strengths
RSSI -100 dBm : 0 clients
RSSI -92 dBm : 0 clients
RSSI -84 dBm : 0 clients
RSSI -76 dBm : 0 clients
RSSI -68 dBm : 0 clients
RSSI -60 dBm : 0 clients
RSSI -52 dBm : 0 clients

Client Signal to Noise Ratios
SNR 0 dB : 0 clients
SNR 5 dB : 0 clients
SNR 10 dB : 0 clients
SNR 15 dB : 0 clients
SNR 20 dB : 0 clients
SNR 25 dB : 0 clients
SNR 30 dB : 0 clients
SNR 35 dB : 0 clients
SNR 40 dB : 0 clients
SNR 45 dB : 0 clients

Nearby APs
AP 0000.2000.0300 slot 0 : -68 dBm on 11 (10.10.10.1)
AP 0000.2000.0400 slot 0 : -68 dBm on 11 (10.10.10.1)
AP 0000.2000.0600 slot 0 : -68 dBm on 11 (10.10.10.1)

Radar Information

Channel Assignment Information
Current Channel Average Energy : 0 dBm
Previous Channel Average Energy : 0 dBm
Channel Change Count : 0
Last Channel Change Time : Wed Oct 17 08:13:36 2012
Recommended Best Channel : 11

```

```
RF Parameter Recommendations
  Power Level                : 1
  RTS/CTS Threshold          : 2347
  Fragmentation Threshold    : 2346
  Antenna Pattern            : 0

Persistent Interference Devices
```

# show ap name ble detail

To display BLE management details, use the **show ap name ble detail** command.

**show ap name** *ap-name* **ble detail**

<b>Syntax Description</b>	<i>ap-name</i> Specifies the name of the AP.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Amsterdam 17.3.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Amsterdam 17.3.1	This command was introduced.
Release	Modification				
Cisco IOS XE Amsterdam 17.3.1	This command was introduced.				
<b>Usage Guidelines</b>	None				

## Example

The following example shows how to display the BLE management details:

```
Device(config)# show ap name ap-name ble detail
```

# show ap name cablemodem

To see cable modem information of an AP, use the **show ap name *ap-name* cablemodem** command.

**show ap name *ap-name* cablemodem** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

Syntax Description		
<i>ap-name</i>	Name of the AP.	
<i>chassis-number</i>	Enter the chassis number as either 1 or 2.	
<b>active R0</b>	Active instance of the AP filters in Route-processor slot 0.	
<b>standby R0</b>	Standby instance of the AP filters in Route-processor slot 0.	
Command Default	None	
Command Modes	Privileged EXEC	
Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see cable modem information of an AP:

```
Device# show ap name my-ap cablemodem
```

## show ap name config

To display common information and Ethernet VLAN tagging information for a specific Cisco lightweight access point, use the **show ap name config** command.

```
show ap name ap-name config {ethernet | general}
```

<b>Syntax Description</b>	<i>ap-name</i> Name of the Cisco lightweight access point.				
	<b>ethernet</b> Displays Ethernet tagging configuration information for an access point.				
	<b>general</b> Displays common information for an access point.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Any command mode				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.12.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.				

This example shows how to display Ethernet tagging information for an access point:

```
Device# show ap name AP01 config ethernet
```

```
VLAN Tagging Information for AP01
```

This example shows how to display common information for an access point:

```
Device# show ap name AP01 config general
```

```
Cisco AP Name : AP01
Cisco AP Identifier : 5
Country Code : US - United States
Regulatory Domain Allowed by Country : 802.11bg:-A 802.11a:-A
AP Country Code : US - United States
AP Regulatory Domain : Unconfigured
Switch Port Number : Tel1/0/1
MAC Address : 0000.2000.02f0
IP Address Configuration : Static IP assigned
IP Address : 10.10.10.12
IP Netmask : 255.255.0.0
Gateway IP Address : 10.10.10.1
Fallback IP Address Being Used : 10.10.10.12
Domain : Cisco
Name Server : 0.0.0.0
CAPWAP Path MTU : 1485
Telnet State : Enabled
SSH State : Disabled
Cisco AP Location : sanjose
Cisco AP Group Name : default-group
Primary Cisco Controller Name : CAPWAP Controller
Primary Cisco Controller IP Address : 10.10.10.1
Secondary Cisco Controller Name :
Secondary Cisco Controller IP Address : Not Configured
```



```
Tertiary Cisco Controller Name           :
Tertiary Cisco Controller IP Address     : Not Configured
Administrative State                     : Enabled
Operation State                          : Registered
AP Mode                                  : Local
AP Submode                               : Not Configured
Remote AP Debug                           : Disabled
Logging Trap Severity Level              : informational
Software Version                          : 7.4.0.5
Boot Version                              : 7.4.0.5
Stats Reporting Period                   : 180
LED State                                 : Enabled
PoE Pre-Standard Switch                   : Disabled
PoE Power Injector MAC Address           : Disabled
Power Type/Mode                          : Power Injector/Normal Mode
Number of Slots                           : 2
AP Model                                  : 1140AG
AP Image                                  : C1140-K9W8-M
IOS Version                               :
Reset Button                              :
AP Serial Number                          : SIM1140K001
AP Certificate Type                       : Manufacture Installed
Management Frame Protection Validation    : Disabled
AP User Mode                              : Customized
AP User Name                              : cisco
AP 802.1X User Mode                       : Not Configured
AP 802.1X User Name                      : Not Configured
Cisco AP System Logging Host              : 255.255.255.255
AP Up Time                                : 15 days 16 hours 19 minutes 57
seconds
AP CAPWAP Up Time                         : 4 minutes 56 seconds
Join Date and Time                       : 10/18/2012 04:48:56
Join Taken Time                           : 15 days 16 hours 15 minutes 0
seconds
Join Priority                             : 1
Ethernet Port Duplex                     : Auto
Ethernet Port Speed                      : Auto
AP Link Latency                          : Disabled
Rogue Detection                          : Disabled
AP TCP MSS Adjust                        : Disabled
AP TCP MSS Size                          : 6146
```

## show ap name config slot

To display the configuration of a Cisco AP and also display the common information for a slot, use the **show ap name config slot** command.

**show ap name** *Cisco-ap-name* **slot** *0-3*

Syntax Description	
<i>Cisco-ap-name</i>	Specifies the name of the Cisco AP.
<i>0-3</i>	Specifies the slot ID.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

### Example

This example shows how to display common information for a slot in an access point:

```
Device# show ap name Cisco-ap-name config slot 3
```

# show ap name config ethernet

To see Ethernet related configuration information of an AP, use the **show ap name *ap-name* config ethernet** command.

**show ap name *ap-name* config ethernet** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

## Syntax Description

<i>ap-name</i>	Name of the AP.
<i>chassis-number</i>	Enter the chassis number as either 1 or 2.
<b>active R0</b>	Active instance of the AP filters in Route-processor slot 0.
<b>standby R0</b>	Standby instance of the AP filters in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see Ethernet related configuration information of an AP:

```
Device# show ap name my-ap config ethernet
```

# show ap name dot11

To display 802.11a or 802.11b configuration information that corresponds to specific Cisco lightweight access points, use the **show ap name dot11** command.

```
show ap name ap-name dot11 { 24ghz | 5ghz } { SI | airtime-fairness | call-control | cleanair | radio-reset | voice }
```

Syntax Description		
	<i>ap-name</i>	Name of the Cisco lightweight access point.
	<b>24ghz</b>	Displays the 2.4-GHz band.
	<b>5ghz</b>	Displays the 5-GHz band.
	<b>SI</b>	Displays the SI configurations.
	<b>airtime-fairness</b>	Displays the stats of 24Ghz or 5Ghz airtime-fairness.
	<b>call-control</b>	Displays the call control information.
	<b>radio-reset</b>	Displays radio-reset.
	<b>slot</b>	Displays slot information.
	<b>voice</b>	Displays voice information.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

This example shows how to display the cleanair air-quality that is associated with the access point:

```
Device# show ap name test-ap dot11 24ghz cleanair air-quality chassis active r0
```

# show ap name environment

To see the AP environment information of an AP, use the **show ap name *ap-name* environment** command.

**show ap name *ap-name* environment** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

## Syntax Description

<i>ap-name</i>	Name of the AP.
<i>chassis-number</i>	Enter the chassis number as either 1 or 2.
<b>active R0</b>	Active instance of the AP filters in Route-processor slot 0.
<b>standby R0</b>	Standby instance of the AP filters in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the AP environment information of an AP:

```
Device# show ap name my-ap environment
```

# show ap name gps location

To see the GPS location of the AP, use the **show ap name gps location** command.

**show ap name** *ap-name* **gps location** [ {*chassis-number* | **active** | **standby**} **R0**

## Syntax Description

<b>ap-name</b>	Name of the Access Point
<b>gps</b>	See the GPS information of a Cisco AP
<b>location</b>	Shows the Mesh linktest data
<i>chassis-number</i>	Enter the chassis number as either 1 or 2.
<b>active R0</b>	Active instance of the active AP filters in Route-processor slot 0.
<b>standby R0</b>	Standby instance of the configuration in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the GPS location of an AP:

```
Device# show ap name mesh-profile-name gps location
```

## show ap name mesh backhaul

To see mesh backhaul statistics of an AP, use the **show ap name *ap-name* mesh backhaul** command.

**show ap name *ap-name* mesh backhaul** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

### Syntax Description

*chassis-number* Enter the chassis number as either 1 or 2.

**active R0** Active instance of the AP filters in Route-processor slot 0.

**standby R0** Standby instance of the AP filters in Route-processor slot 0.

### Command Default

None

### Command Modes

Privileged EXEC

### Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

### Examples

The following example shows how to see mesh backhaul statistics of an AP:

```
Device# show ap name mymeshap mesh backhaul
```

# show ap name mesh bhrate

To see mesh backhaul data rate for an AP, use the **show ap name *ap-name* mesh bhrate** command.

**show ap name *ap-name* mesh bhrate** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

<i>ap-name</i>	Name of the AP.
<i>chassis-number</i>	Enter the chassis number as either 1 or 2.
<b>active R0</b>	Active instance of the AP filters in Route-processor slot 0.
<b>standby R0</b>	Standby instance of the AP filters in Route-processor slot 0.

**Command Default** None

**Command Modes** Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see mesh backhaul data rate for an AP:

```
Device# show ap name mymeshap mesh bhrate
```



# show ap name mesh linktest

To see the mesh linktest data, use the **show ap name mesh linktest data** command.

**show ap name** *ap-name* **mesh linktest data** *dest-mac* [**chassis** {*chassis-number* | **active** | **standby**}**R0**]

Syntax Description	
<i>ap-name</i>	Name of the Access Point
<b>linktest</b>	Shows the Mesh linktest
<b>data</b>	Shows the Mesh linktest data
<i>dest-mac</i>	Enter the AP MAC address.
<i>chassis-number</i>	Enter the chassis number as either 1 or 2.
<b>active R0</b>	Active instance of the configuration in Route-processor slot 0.
<b>standby R0</b>	Standby instance of the configuration in Route-processor slot 0.

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the mesh linktest data of an AP:

```
Device# show ap name mesh-profile-name mesh linktest data 83-88-15-0C-83-72
```

# show ap name mesh path

To see information about the mesh AP's path, use the **show ap name *ap-name* mesh path** command.

**show ap name *ap-name* mesh path** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

## Syntax Description

*chassis-number* Enter the chassis number as either 1 or 2.

**active R0** Active instance of the AP filters in Route-processor slot 0.

**standby R0** Standby instance of the AP filters in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see information about the mesh AP's path:

```
Device# show ap name mymeshap mesh path
```

# show ap name mesh stats

To see mesh statistics, use the **show ap name *ap-name* mesh stats** command.

```
show ap name ap-name [{packet error | queue | security}]
```

## Syntax Description

<i>ap-name</i>	Name of the AP.
<b>packet error</b>	Mesh packet error statistics.
<b>queue</b>	Mesh queue statistics.
<b>security</b>	Mesh security statistics.
<i>chassis-number</i>	Enter the chassis number as either 1 or 2.
<b>active R0</b>	Active instance of the AP filters in Route-processor slot 0.
<b>standby R0</b>	Standby instance of the AP filters in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see mesh statistics:

```
Device# show ap name mymeshap mesh stats
```

# show ap name wlan

To display the Basic Service Set Identifier (BSSID) value for each WLAN defined on an access point and to display WLAN statistics, use the **show ap name wlan** command.

```
show ap name ap-name wlan {dot11 {24ghz | 5ghz} | statistic}
```

Syntax Description	
<i>ap-name</i>	Name of the Cisco lightweight access point.
<b>dot11</b>	Displays 802.11 parameters.
<b>24ghz</b>	Displays 802.11b network settings.
<b>5ghz</b>	Displays 802.11a network settings.
<b>statistic</b>	Displays WLAN statistics.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

This example shows how to display BSSID information of an access point in an 802.11b network:

```
Device# show ap name AP01 wlan dot11 24ghz

Site Name                : default-group
Site Description         :

WLAN ID  Interface  BSSID
-----
1        default    00:00:20:00:02:00
12       default    00:00:20:00:02:0b
```

This example shows how to display WLAN statistics for an access point:

```
Device# show ap name AP01 wlan statistic

WLAN ID   : 1
WLAN Profile Name : maria-open

EAP Id Request Msg Timeouts           : 0
EAP Id Request Msg Timeouts Failures  : 0
EAP Request Msg Timeouts              : 0
EAP Request Msg Timeouts Failures     : 0
EAP Key Msg Timeouts                  : 0
EAP Key Msg Timeouts Failures          : 0

WLAN ID   : 12
WLAN Profile Name : 24
```

```
EAP Id Request Msg Timeouts           : 0
EAP Id Request Msg Timeouts Failures  : 0
EAP Request Msg Timeouts               : 0
EAP Request Msg Timeouts Failures     : 0
EAP Key Msg Timeouts                   : 0
EAP Key Msg Timeouts Failures         : 0
```

# show ap profile

To see overall status of Hyperlocation for an AP profile, use the **show ap profile** command.

```
show ap profile profile-name {detailed | hyperlocation {ble-beacon | detail | summary}} [chassis
{chassis-number | active | standby} R0]
```

Syntax	Description
<i>profile-name</i>	AP profile name.
<b>detailed</b>	Shows the detailed parameters of the AP join profile.
<b>hyperlocation</b>	Shows Hyperlocation information for the AP profile.
<b>ble-beacon</b>	Show the list of configured BLE beacons for the AP profile.
<b>detail</b>	Shows detailed status of Hyperlocation for the AP profile.
<b>summary</b>	Shows overall status of Hyperlocation for the AP profile
<i>chassis-number</i>	Chassis number as either 1 or 2.
<b>active R0</b>	Active instance in Route-processor slot 0.
<b>standby R0</b>	Standby instance in Route-processor slot 0.

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the overall status of Hyperlocation for an AP profile:

```
Device# show ap profile my-ap-profile detailed
```

# show ap rf-profile name

To display the selected ap RF-Profile details, use the **show ap rf-profile name** command.

**show ap rf-profile name** *profile-name* **detail**

<b>Syntax Description</b>	<i>profile-name</i>	Name of the RF-Profile.
	<b>detail</b>	Show detail of selected RF Profile.
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Denali 16.3.1	This command was introduced.
<b>Usage Guidelines</b>	None	

This example shows how to display the details of the selected RF-Profile.

```

Device#show ap rf-profile name doctest detail
Description :
AP Group Names :
RF Profile Name : doctest
Band : 2.4 GHz
802.11n client only : Disabled
Transmit Power Threshold v1: -70 dBm
Min Transmit Power: -10 dBm
Max Transmit Power: 30 dBm
Operational Rates
 802.11b 1M Rate : Mandatory
 802.11b 2M Rate : Mandatory
 802.11b 5.5M Rate : Mandatory
 802.11b 11M Rate : Mandatory
 802.11b 6M Rate : Mandatory
 802.11b 9M Rate : Supported
 802.11b 12M Rate : Supported
 802.11b 18M Rate : Supported
 802.11b 24M Rate : Supported
 802.11b 36M Rate : Supported
 802.11b 48M Rate : Supported
 802.11b 54M Rate : Supported
Max Clients : 200
Wlan name                               Max Clients
-----
Trap Threshold
  Clients: 12 clients
  Interference: 10%
  Noise: -70 dBm
  Utilization: 80%
Multicast Data Rate: auto
Rx SOP Threshold : auto
Band Select

```

**show ap rf-profile name**

```
Probe Response: Disabled
Cycle Count: 2 cycles
Cycle Threshold: 200 milliseconds
Expire Suppression: 20 seconds
Expire Dual Band: 60 seconds
Client RSSI: -80 dBm
Client Mid RSSI: -80 dBm
Load Balancing
Window: 5 clients
Denial: 3 count
Coverage Data
Data: -80 dBm
Voice: -80 dBm
Minimum Client Level: 3 clients
Exception Level: 25%
DCA Channel List : 1,5,9,13
DCA Foreign AP Contribution : Enabled
802.11n MCS Rates
MCS 0 : Enabled
MCS 1 : Enabled
MCS 2 : Enabled
MCS 3 : Enabled
MCS 4 : Enabled
MCS 5 : Enabled
MCS 6 : Enabled
MCS 7 : Enabled
MCS 8 : Enabled
MCS 9 : Enabled
MCS 10 : Enabled
MCS 11 : Enabled
MCS 12 : Enabled
MCS 13 : Enabled
MCS 14 : Enabled
MCS 15 : Enabled
MCS 16 : Enabled
MCS 17 : Enabled
MCS 18 : Enabled
MCS 19 : Enabled
MCS 20 : Enabled
MCS 21 : Enabled
MCS 22 : Enabled
MCS 23 : Enabled
MCS 24 : Enabled
MCS 25 : Enabled
MCS 26 : Enabled
MCS 27 : Enabled
MCS 28 : Enabled
MCS 29 : Enabled
MCS 30 : Enabled
MCS 31 : Enabled
State : Down
```



# show ap rf-profile summary

To display the ap RF-Profile summary, use the **show ap rf-profile summary** command.

**show ap rf-profile summary**

<b>Syntax Description</b>	<b>summary</b>	Show summary of RF Profiles
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Denali 16.3.1	This command was introduced.
<b>Usage Guidelines</b>	None	

This example shows how to display the ap RF-Profile summary .

```
Device#show ap rf-profile summary
Number of RF Profiles : 1
```

RF Profile Name	Band	Description	Applied	State
doctest	2.4 GHz		No	Down

# show ap summary

To display the status summary of all Cisco lightweight access points attached to the device, use the **show ap summary** command.

**show ap summary**

<b>Syntax Description</b>	This command has no keywords and arguments.
---------------------------	---

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Any command mode
----------------------	------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

<b>Usage Guidelines</b>	Use this command to display a list that contains each lightweight access point name, number of slots, manufacturer, MAC address, location, and the device port number.
-------------------------	--

This example shows how to display a summary of all connected access points:

```
Controller# show ap summary
```

```
Number of APs: 1
```

```
Global AP User Name: Cisco
```

```
Global AP Dot1x User Name: Not configured
```

AP Name	AP Model	Ethernet MAC	Radio MAC	State
3602a	3502I	003a.99eb.3fa8	d0c2.8267.8b00	Registered

# show ap tag sources

To see AP tag sources with priorities, use the **show ap tag sources** command.

```
show ap tag sources [chassis {chassis-number | active | standby} R0]
```

## Syntax Description

*chassis-number* Chassis number as either 1 or 2.

**active R0** Active instance of the AP filters in Route-processor slot 0.

**standby R0** Standby instance of the AP filters in Route-processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the AP tag sources with priorities for the active instance:

```
Device# show ap tag sources chassis active R0
```

# show ap tag summary

To view brief summary of tag names, use the **show ap tag summary** command.

## show ap tag summary

---

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

---

<b>Command Default</b>	None
------------------------	------

---

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

---

## Example

The following example shows how to view brief summary of tag names:

```
Device# show ap tag summary
```

# show ap timezone

To check the AP timezone information, use the **show ap timezone** command.

**show ap timezone**

---

<b>Syntax Description</b>	This command has no keywords and arguments.
---------------------------	---

---

---

<b>Command Default</b>	None
------------------------	------

---

---

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

---

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.6.1	This command was introduced.

---

## Examples

The following example shows how to check the AP timezone information:

```
Device# show ap timezone

AP Name    Status    Offsets (h/m)
-----
AP1        Disabled  0:0
AP2        Enabled   1:0
```

# show ap upgrade

To see AP upgrade information, use the **show ap upgrade** command.

**show ap upgrade** [{**name** *ap-upgrade-report-name* | **summary** | **chassis** {*chassis-number* | **active** | **standby**}]

Syntax Description	
<b>name</b> <i>ap-upgrade-report-name</i>	Enter the name of the AP upgrade report.
<b>summary</b>	Shows a summary of AP upgrade information.
<i>chassis-number</i>	Enter the chassis number as either 1 or 2.
<b>active R0</b>	Active instance in Route-processor slot 0.
<b>standby R0</b>	Standby instance in Route-processor slot 0.

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see a summary of the AP upgrade information:

```
Device# show ap upgrade summary
```

# show arp

To view the ARP table, use the **show arp** command.

## show arp

---

**Syntax Description**

---

**arp** Shows ARP table

---

---

**Command Modes**

User EXEC (>)  
Privileged EXEC (#)

---

**Command History**

---

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

---

The following example shows a sample output of the command:

```
Device# show arp
Address Age (min)      Hardware Addr
 9.11.8.1             0 84:80:2D:A0:D2:E6
9.11.32.111           0 3C:77:E6:02:33:3F
```

# show arp summary

To see the ARP table summary, use the **show arp summary** command.

```
show arp summary
```

---

**Command Default**

None

---

**Command Modes**

Privileged EXEC

---

**Command History**

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

---

## Examples

The following example shows how to see the ARP table summary:

```
Device# show arp summary
```



# show ap upgrade site

To view the upgrade site-related information, use the **show ap upgrade site** command.

**show ap upgrade site** [ **summary** ]

<b>Syntax Description</b>	<b>summary</b> (Optional) Displays a summary of access point (AP) upgrade on individual sites.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Cupertino 17.9.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Cupertino 17.9.1	This command was introduced.
Release	Modification				
Cisco IOS XE Cupertino 17.9.1	This command was introduced.				

## Examples

The following example shows how to view the upgrade site-related information:

```
Device# show ap upgrade site

Site-filtered AP upgrade report data
=====
Source controller: Controller1
Destination controller: Controller2
Site-filters present: Yes

AP image upgrade site summary
-----
Operation: N+1 move

Site Tag                               Status
-----
sitel                                  In Progress

AP upgrade reports linked to these site-filters
-----

Start time           Operation type           Report name
-----
01/30/2022 10:34:36 IST AP image upgrade/move CLI AP_upgrade_to_Controller2_3002022103435
```

# show avc client

To display information about top number of applications, use the **show avc client** command in privileged EXEC mode.

**show avc client** *client-mac* **top n application** [**aggregate** | **upstream** | **downstream**]

<b>Syntax Description</b>	<b>client</b> <i>client-mac</i> Specifies the client MAC address.				
	<b>top n application</b> Specifies the number of top "N" applications for the given client.				
<b>Command Default</b>	No default behavior or values.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.12.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.				

The following is sample output from the **show avc client** command:

```
Device# sh avc client 0040.96ae.65ec top 10 application aggregate
```

Cumulative Stats:

No.	AppName	Packet-Count	Byte-Count	AvgPkt-Size	usage%
1	skinny	7343	449860	61	94
2	unknown	99	13631	137	3
3	dhcp	18	8752	486	2
4	http	18	3264	181	1
5	tftp	9	534	59	0
6	dns	2	224	112	0

Last Interval(90 seconds) Stats:

No.	AppName	Packet-Count	Byte-Count	AvgPkt-Size	usage%
1	skinny	9	540	60	100

# show avc wlan

To display information about top applications and users using the applications, use the **show avc wlan** command in privileged EXEC mode.

**show avc wlan ssid top n application** [**aggregate** | **upstream** | **downstream**]

<b>Syntax Description</b>	<b>wlan ssid</b>	Specifies the Service Set Identifier (SSID) for WLAN.
	<b>top n application</b>	Specifies the number of top "N" applications.

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

**Command Modes** Privileged EXEC

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

The following is sample output from the **show avc wlan** command:

Device# **show avc wlan Lobby\_WLAN top 10 application aggregate**

Cumulative Stats:

No.	AppName	Packet-Count	Byte-Count	AvgPkt-Size	usage%
1	ssl	10598677	1979525706	997	42
2	vnc	5550900	3764612847	678	14
3	http	3043131	2691327197	884	10
4	unknown	1856297	1140264956	614	4
5	video-over-http	1625019	2063335150	1269	8
6	binary-over-http	1329115	1744190344	1312	6
7	webex-meeting	1146872	540713787	471	2
8	rtp	923900	635650544	688	2
9	unknown	752341	911000213	1210	3
10	youtube	631085	706636186	1119	3

Last Interval (90 seconds) Stats:

No.	AppName	Packet-Count	Byte-Count	AvgPkt-Size	usage%
1	vnc	687093	602731844	877	68
2	video-over-http	213272	279831588	1312	31
3	ssl	6515	5029365	771	1
4	webex-meeting	3649	1722663	472	0
5	http	2634	1334355	506	0
6	unknown	1436	99412	69	0
7	google-services	722	378121	523	0
8	linkedin	655	393263	600	0
9	exchange	432	167390	387	0
10	gtalk-chat	330	17330	52	0

# show chassis

To see the chassis information, use the **show chassis** command.

```
show chassis [{1 | 2} | detail | mode | neighbors | ha-status {active | local | standby}]
```

## Syntax Description

<b>{1   2}</b>	Chassis number as 1 or 2 to see the information about the relevant chassis.
<b>detail</b>	Shows detailed information about the chassis.
<b>mode</b>	Shows information about the chassis mode.
<b>neighbors</b>	Shows information about the chassis neighbors.
<b>ha-status</b>	Option to see information about the High Availability (HA) status.
<b>active</b>	Shows HA status on the chassis that is in active state.
<b>local</b>	Shows HA status on the local .
<b>standby</b>	Shows HA status on the chassis that is in standby state.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the HA status on the active chassis:

```
Device# show chassis ha-status active
```

# show checkpoint

To display information about the Checkpoint Facility (CF) subsystem, use the **show checkpoint** command.

```
show checkpoint { clients client-ID <0-381> | entitiesentity-ID <1-7> | statisticsbuffer-usage }
```

Syntax Description	clients	Displays detailed information about checkpoint clients.
	<b>entities</b>	Displays detailed information about checkpoint entities.
	<b>statistics</b>	Displays detailed information about checkpoint statistics.
	<b>buffer-usage</b>	Displays the checkpoint statistics of clients using large number of buffers.

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
		This command was introduced.

This example shows how to display all the CF clients.

```
Client residing in process : 8135
-----
Checkpoint client: WCM_MOBILITY
Client ID                : 24105
Total DB inserts         : 0
Total DB updates        : 0
Total DB deletes        : 0
Total DB reads          : 0
Number of tables         : 6
Client residing in process : 8135
-----
Checkpoint client: WCM_DOT1X
Client ID                : 24106
Total DB inserts         : 2
Total DB updates        : 1312
Total DB deletes        : 2
Total DB reads          : 0
Number of tables         : 1
Client residing in process : 8135
-----
Checkpoint client: WCM_APFROGUE
Client ID                : 24107
Total DB inserts         : 0
Total DB updates        : 0
Total DB deletes        : 0
Total DB reads          : 0
Number of tables         : 1
Client residing in process : 8135
-----
Checkpoint client: WCM_CIDS
Client ID                : 24110
Total DB inserts         : 0
```

show checkpoint

```
Total DB updates      : 0
Total DB deletes      : 0
Total DB reads        : 0
Number of tables      : 0
Client residing in process : 8135
```

```
-----
Checkpoint client: WCM_NETFLOW
Client ID              : 24111
Total DB inserts      : 7
Total DB updates      : 0
Total DB deletes      : 0
Total DB reads        : 0
Number of tables      : 1
Client residing in process : 8135
```

```
-----
Checkpoint client: WCM_MCAST
Client ID              : 24112
Total DB inserts      : 0
Total DB updates      : 0
Total DB deletes      : 0
Total DB reads        : 0
Number of tables      : 1
Client residing in process : 8135
```

```
-----
Checkpoint client: wcm_comet
Client ID              : 24150
Total DB inserts      : 0
Total DB updates      : 0
Total DB deletes      : 0
Total DB reads        : 0
Number of tables      : 0
Client residing in process : 8135
```

All iosd checkpoint clients

```
-----
Client Name           Client      Entity      Bundle
                    ID          ID          Mode
```

```
-----
Network RF Client    3          --          Off
```

```
Total API Messages Sent: 0
Total Transport Messages Sent: 0
Length of Sent Messages: 0
Total Blocked Messages Sent: 0
Length of Sent Blocked Messages: 0
Total Non-blocked Messages Sent: 0
Length of Sent Non-blocked Messages: 0
Total Bytes Allocated: 0
Buffers Held: 0
Buffers Held Peak: 0
Huge Buffers Requested: 0
Transport Frag Count: 0
Transport Frag Peak: 0
Transport Sends w/Flow Off: 0
Send Errs: 0
Send Peer Errs: 0
Rcv Xform Errs: 0
Xmit Xform Errs: 0
Incompatible Messages: 0
Client Unbundles to Process Memory: T
```

```
-----
Client Name           Client      Entity      Bundle
```

```

-----
                ID      ID      Mode
-----
SNMP CF Client      12      --      Off

Total API Messages Sent:          0
Total Transport Messages Sent:    0
Length of Sent Messages:         0
Total Blocked Messages Sent:      0
Length of Sent Blocked Messages:  0
Total Non-blocked Messages Sent:  0
Length of Sent Non-blocked Messages: 0
Total Bytes Allocated:            0
Buffers Held:                    0
Buffers Held Peak:               0
Huge Buffers Requested:          0
Transport Frag Count:            0
Transport Frag Peak:             0
Transport Sends w/Flow Off:      0
Send Errs:                       0
Send Peer Errs:                  0
Rcv Xform Errs:                  0
Xmit Xform Errs:                  0
Incompatible Messages:           0
Client Unbundles to Process Memory: T
-----

Client Name      Client  Entity  Bundle
                ID      ID      Mode
-----
Online Diags HA      14      --      Off

Total API Messages Sent:          0
Total Transport Messages Sent:    0
Length of Sent Messages:         0
Total Blocked Messages Sent:      0
Length of Sent Blocked Messages:  0
Total Non-blocked Messages Sent:  0
Length of Sent Non-blocked Messages: 0
Total Bytes Allocated:            0
Buffers Held:                    0
Buffers Held Peak:               0
Huge Buffers Requested:          0
Transport Frag Count:            0
Transport Frag Peak:             0
Transport Sends w/Flow Off:      0
Send Errs:                       0
Send Peer Errs:                  0
Rcv Xform Errs:                  0
Xmit Xform Errs:                  0
Incompatible Messages:           0
Client Unbundles to Process Memory: T
-----

Client Name      Client  Entity  Bundle
                ID      ID      Mode
-----
ARP                22      --      Off

Total API Messages Sent:          0
Total Transport Messages Sent:    0
Length of Sent Messages:         0
Total Blocked Messages Sent:      0
Length of Sent Blocked Messages:  0
Total Non-blocked Messages Sent:  0
Length of Sent Non-blocked Messages: 0
Total Bytes Allocated:            0

```

```

Buffers Held: 0
Buffers Held Peak: 0
Huge Buffers Requested: 0
Transport Frag Count: 0
Transport Frag Peak: 0
Transport Sends w/Flow Off: 0
Send Errs: 0
Send Peer Errs: 0
Rcv Xform Errs: 0
Xmit Xform Errs: 0
Incompatible Messages: 0
Client Unbundles to Process Memory: T
-----
Client Name          Client  Entity  Bundle
                   ID      ID      Mode
-----
Tableid CF           27      --      Off

Total API Messages Sent: 0
Total Transport Messages Sent: 0
Length of Sent Messages: 0
Total Blocked Messages Sent: 0
Length of Sent Blocked Messages: 0
Total Non-blocked Messages Sent: 0
Length of Sent Non-blocked Messages: 0
Total Bytes Allocated: 0
Buffers Held: 0
Buffers Held Peak: 0
Huge Buffers Requested: 0
Transport Frag Count: 0
Transport Frag Peak: 0
Transport Sends w/Flow Off: 0
Send Errs: 0
Send Peer Errs: 0
Rcv Xform Errs: 0
Xmit Xform Errs: 0
Incompatible Messages: 0
Client Unbundles to Process Memory: T
-----
Client Name          Client  Entity  Bundle
                   ID      ID      Mode
-----
Event Manager       33      0      Off

Total API Messages Sent: 0
Total Transport Messages Sent: --
Length of Sent Messages: 0
Total Blocked Messages Sent: 0
Length of Sent Blocked Messages: 0
Total Non-blocked Messages Sent: 0
Length of Sent Non-blocked Messages: 0
Total Bytes Allocated: 0
Buffers Held: 0
Buffers Held Peak: 0
Huge Buffers Requested: 0
Transport Frag Count: 0
Transport Frag Peak: 0
Transport Sends w/Flow Off: 0
Send Errs: 0
Send Peer Errs: 0
Rcv Xform Errs: 0
Xmit Xform Errs: 0
Incompatible Messages: 0
Client Unbundles to Process Memory: T

```



```

-----
Client Name          Client      Entity      Bundle
                   ID          ID          Mode
-----
LAN-Switch Port Mana      35          0          Off

Total API Messages Sent:                0
Total Transport Messages Sent:           --
Length of Sent Messages:                 0
Total Blocked Messages Sent:            0
Length of Sent Blocked Messages:         0
Total Non-blocked Messages Sent:         0
Length of Sent Non-blocked Messages:     0
Total Bytes Allocated:                   0
Buffers Held:                            0
Buffers Held Peak:                       0
Huge Buffers Requested:                  0
Transport Frag Count:                    0
Transport Frag Peak:                     0
Transport Sends w/Flow Off:              0
Send Errs:                               0
Send Peer Errs:                          0
Rcv Xform Errs:                          0
Xmit Xform Errs:                         0
Incompatible Messages:                   0
Client Unbundles to Process Memory:      T
-----

```

```

-----
Client Name          Client      Entity      Bundle
                   ID          ID          Mode
-----
LAN-Switch PAgP/LACP      36          0          Off

Total API Messages Sent:                0
Total Transport Messages Sent:           --
Length of Sent Messages:                 0
Total Blocked Messages Sent:            0
Length of Sent Blocked Messages:         0
Total Non-blocked Messages Sent:         0
Length of Sent Non-blocked Messages:     0
Total Bytes Allocated:                   0
Buffers Held:                            0
Buffers Held Peak:                       0
Huge Buffers Requested:                  0
Transport Frag Count:                    0
Transport Frag Peak:                     0
Transport Sends w/Flow Off:              0
Send Errs:                               0
Send Peer Errs:                          0
Rcv Xform Errs:                          0
Xmit Xform Errs:                         0
Incompatible Messages:                   0
Client Unbundles to Process Memory:      T
-----

```

```

-----
Client Name          Client      Entity      Bundle
                   ID          ID          Mode
-----
LAN-Switch VLANs         39          0          Off

Total API Messages Sent:                0
Total Transport Messages Sent:           --
Length of Sent Messages:                 0
Total Blocked Messages Sent:            0
Length of Sent Blocked Messages:         0
Total Non-blocked Messages Sent:         0
-----

```

```

Length of Sent Non-blocked Messages:      0
Total Bytes Allocated:                    0
Buffers Held:                             0
Buffers Held Peak:                        0
Huge Buffers Requested:                  0
Transport Frag Count:                     0
Transport Frag Peak:                      0
Transport Sends w/Flow Off:               0
Send Errs:                                0
Send Peer Errs:                           0
Rcv Xform Errs:                           0

```

This example shows how to display all the CF entities.

```

KATANA_DOC#show checkpoint entities
                        Check Point List of Entities

```

CHKPT on ACTIVE server.

```

-----
Entity ID      Entity Name
-----
          0      CHKPT_DEFAULT_ENTITY

Total API Messages Sent:      0
Total Messages Sent:         0
Total Sent Message Len:     0
Total Bytes Allocated:       0
Total Number of Members:    10

Member(s) of entity 0 are:
  Client ID      Client Name
-----
          168      DHCP Snooping
          167      IGMP Snooping
           41      Spanning-tree
           40      AUTH MGR CHKPT CLIEN
           39      LAN-Switch VLANs
           33      Event Manager
           35      LAN-Switch Port Mana
           36      LAN-Switch PAgP/LACP
          158      Inline Power Checkpoint

```

This example shows how to display the CF statistics.

```

KATANA_DOC#show checkpoint statistics
                        IOSd Check Point Status
CHKPT on ACTIVE server.

Number Of Msgs In Hold Q:      0
CHKPT MAX Message Size:      0
TP MAX Message Size:          65503
CHKPT Pending Msg Timer:      100 ms

FLOW_ON total:                0
FLOW_OFF total:               0
Current FLOW status is:      ON
Total API Messages Sent:     0
Total Messages Sent:         0
Total Sent Message Len:     0
Total Bytes Allocated:       0
Rcv Msg Q Peak:              0
Hold Msg Q Peak:             0

```

```
Buffers Held Peak:          0
Current Buffers Held:      0
Huge Buffers Requested:    0
```

## show cts environment data

To display the TrustSec environment data on the AP, use the **show cts environment data** command:

### show cts environment data

<b>Syntax Description</b>	This command has no arguments or keywords.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco Amsterdam 17.1.1	This command was introduced.

### Examples

The following example shows the TrustSec environment data on the AP:

```
Device# show cts environment

CTS Environment Data
=====
Current state = COMPLETE
Last status   = Successful
Local Device SGT:
SGT tag = 0-07:Unknown
Server List Info:
Installed list: CTSServerList1-0001, 1 server(s):
Server: 8.109.0.85, port 1812, A-ID 9818EE1ECA02B7BFE359C28B30EA7E2A
Status = ALIVE
auto-test = FALSE, keywrap-enable = FALSE, idle-time = 60 mins, deadtime = 20 secs
Security Group Name Table:
0-07:Unknown
2-00:TrustSec_Devices
3-00:Network_Services
4-00:Employees
5-00:Contractors
6-00:Guests
7-00:Production_Users
8-00:Developers
9-00:Auditors
10-00:Point_of_Sale_Systems
11-02:Production_Servers
12-00:Development_Servers
13-00:Test_Servers
14-00:PCI_Servers
15-00:BYOD
16-06:BGL15
17-00:BGL12
255-00:Quarantined_Systems
Environment Data Lifetime = 86400 secs
Last update time = 11:50:49 UTC Sun Jan 9 2022
Env-data expires in 0:00:28:54 (dd:hr:mm:sec)
Env-data refreshes in 0:00:28:54 (dd:hr:mm:sec)
```

```
Cache data applied = NONE  
State Machine is running
```

## show cts role-based sgt-map all

To display the bindings of IP address and SGT source names on the AP, use the **show cts role-based sgt-map all** command:

```
show cts role-based sgt-map all
```

<b>Syntax Description</b>	This command has no arguments or keywords.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco Amsterdam 17.1.1	This command was introduced.

### Examples

The following example shows the bindings of IP address and SGT source names on the AP:

```
Device# show cts role-based stg-map all
```

```
Active IPv4-SGT Bindings Information
IP Address                               SGT      Source
=====
8.73.1.101                               16       LOCAL
8.73.1.102                               16       LOCAL
8.73.1.103                               16       LOCAL
8.73.1.104                               16       LOCAL
8.73.1.105                               16       LOCAL
8.73.1.106                               16       LOCAL
8.73.1.107                               16       LOCAL
8.73.1.108                               16       LOCAL
8.73.1.109                               16       LOCAL
8.73.1.110                               16       LOCAL
8.73.1.111                               16       LOCAL
8.73.1.112                               16       LOCAL
8.73.1.113                               16       LOCAL
8.73.1.114                               16       LOCAL
8.73.1.115                               16       LOCAL
8.73.1.116                               16       LOCAL
8.73.1.117                               16       LOCAL
8.73.1.118                               16       LOCAL
8.73.1.119                               16       LOCAL
8.73.1.120                               16       LOCAL
8.73.1.121                               16       LOCAL
8.73.1.122                               16       LOCAL
8.73.1.123                               16       LOCAL
8.73.1.124                               16       LOCAL
8.73.1.125                               16       LOCAL
8.73.1.126                               16       LOCAL
8.73.1.127                               16       LOCAL
8.73.1.128                               16       LOCAL
8.73.1.129                               16       LOCAL
8.73.1.130                               16       LOCAL
8.73.1.131                               16       LOCAL
```

```
8.73.1.132          16      LOCAL
8.73.1.133          16      LOCAL
8.73.1.134          16      LOCAL
8.73.1.135          16      LOCAL
8.73.1.136          16      LOCAL
8.73.1.137          16      LOCAL
8.73.1.138          16      LOCAL
8.73.1.139          16      LOCAL
8.73.1.140          16      LOCAL
8.73.1.141          16      LOCAL
8.73.1.142          16      LOCAL
FD09:8::            16      LOCAL
FD09:8:73:0:4051:EB27:B4A2:F6DB 16      LOCAL
FD09:8:73:0:4C3C:1D75:81E0:DB94 16      LOCAL
FD09:8:73:0:5136:9045:9D11:E191 16      LOCAL
FD09:8:73:0:6903:B84E:5BDF:9D54 16      LOCAL
FD09:8:73:0:A9F8:7825:B07:75A8   16      LOCAL
FD09:8:73:0:B505:626B:51D7:6DB6 16      LOCAL
FD09:8:73:0:D0B4:3316:7CE9:8AE8  16      LOCAL
FD09:8:73:0:ECA8:F5E:CCF5:FFD7   16      LOCAL
```

IP-SGT Active Bindings Summary

```
=====
Total number of LOCAL   bindings = 9
Total number of active  bindings = 9
```

# show cts role-based counters

To clear all role-based counters on the AP, use the **show cts role-based counters** command:

**show cts role-based counters**

---

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

---

**Command Default** None

**Command Modes** Privileged EXEC (#)

---

Command History	Release	Modification
	Cisco Amsterdam 17.1.1	This command was introduced.

---

## Examples

The following example shows the clear all role-based counters on the AP:

Device# **show cts role-based counters**

```

From  To    SW-Denied HW-Denied SW-Permitt HW-Permitt  SW-Monitor HW-Monitor
=====
*     *     0         0         0         178837189  0         0
16    0     0         0         0         39250482   0         0
16    16    0         52835    0         0          0         0
17    16    0         0         0         0          0         0

```



# show flexconnect office-extend diagnostics

To display the results of the network diagnostics for all flexconnect OfficeExtend AP, use the **show flexconnect office-extend diagnostics** command.

**show flexconnect office-extend diagnostics**

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.5.1	This command was introduced.

**Usage Guidelines** To get periodic details for latency (current, minimum, or maximum) ensure that you enable link-latency under the ap profile, as given in the following example:

```
Device(config)# ap profile default-ap-profile
Device(config-ap-profile)# link-latency
```

If the above configuration is not in place, you will only see the following output:

```
Summary of OfficeExtend AP Link Latency

CAPWAP Latency Heartbeat

Current: current latency (ms)
Min: minimum latency (ms)
Max: maximum latency (ms)

Link Test

Upload: DTLS Upload (Mbps)
Latency: DTLS Link Latency (ms)
Jitter: DTLS Link Jitter (ms)

AP Name Last Latency Heartbeat from AP Current Max Min Last Link Test Run Upload Latency
Jitter
-----
ap-18 Disabled - - - 12/04/20 11:08:58 16 3
0
```

## Examples

This following example shows how to display the network diagnostics information for OfficeExtend AP.

```
Device# show flexconnect office-extend diagnostics

Summary of OfficeExtend AP Link Latency

CAPWAP Latency Heartbeat

Current: current latency (ms)
```

## show flexconnect office-extend diagnostics

Min: minimum latency (ms)  
Max: maximum latency (ms)

Link Test

Upload: DTLS Upload (Mbps)  
Latency: DTLS Link Latency (ms)  
Jitter: DTLS Link Jitter (ms)

AP Name	Last Latency	Heartbeat from AP	Current	Max	Min	Last Link Test	Run	Upload	Latency
ap-18	1 minute 1 second		0	0	0	12/04/20 09:19:48	8		2

# show flow exporter

To display flow exporter status and statistics, use the **show flow exporter** command in privileged EXEC mode.

```
show flow exporter [{export-ids netflow-v9|[name] exporter-name [{statistics|templates}]]|statistics|templates}]
```

Syntax Description	
<b>export-ids netflow-v9</b>	(Optional) Displays the NetFlow Version 9 export fields that can be exported and their IDs.
<b>name</b>	(Optional) Specifies the name of a flow exporter.
<i>exporter-name</i>	(Optional) Name of a flow exporter that was previously configured.
<b>statistics</b>	(Optional) Displays statistics for all flow exporters or for the specified flow exporter.
<b>templates</b>	(Optional) Displays template information for all flow exporters or for the specified flow exporter.

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

The following example displays the status and statistics for all of the flow exporters configured on a device:

```
Device# show flow exporter
Flow Exporter FLOW-EXPORTER-1:
  Description:           Exports to the datacenter
  Export protocol:       NetFlow Version 9
  Transport Configuration:
    Destination IP address: 192.168.0.1
    Source IP address:     192.168.0.2
    Transport Protocol:    UDP
    Destination Port:     9995
    Source Port:           55864
    DSCP:                  0x0
    TTL:                   255
    Output Features:       Used
```

This table describes the significant fields shown in the display:

**Table 1: show flow exporter Field Descriptions**

Field	Description
Flow Exporter	The name of the flow exporter that you configured.

Field	Description
Description	The description that you configured for the exporter, or the default description User defined.
Transport Configuration	The transport configuration fields for this exporter.
Destination IP address	The IP address of the destination host.
Source IP address	The source IP address used by the exported packets.
Transport Protocol	The transport layer protocol used by the exported packets.
Destination Port	The destination UDP port to which the exported packets are sent.
Source Port	The source UDP port from which the exported packets are sent.
DSCP	The differentiated services code point (DSCP) value.
TTL	The time-to-live value.
Output Features	Specifies whether the <b>output-features</b> command, which causes the output features to be run on Flexible NetFlow export packets, has been used or not.

The following example displays the status and statistics for all of the flow exporters configured on a device:

```
Device# show flow exporter name FLOW-EXPORTER-1 statistics
Flow Exporter FLOW-EXPORTER-1:
  Packet send statistics (last cleared 2w6d ago):
    Successfully sent:      0                (0 bytes)
```

# show flow interface

To display the configuration and status for an interface, use the **show flow interface** command in privileged EXEC mode.

**show flow interface** [*type number*]

## Syntax Description

*type* (Optional) The type of interface on which you want to display accounting configuration information.

*number* (Optional) The number of the interface on which you want to display accounting configuration information.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

## Examples

The following example displays the accounting configuration on Ethernet interfaces 0/0 and 0/1:

```
Device# show flow interface gigabitethernet1/0/1

Interface Ethernet1/0
  monitor:          FLOW-MONITOR-1
  direction:        Output
  traffic(ip):      on
Device# show flow interface gigabitethernet1/0/2
Interface Ethernet0/0
  monitor:          FLOW-MONITOR-1
  direction:        Input
  traffic(ip):      sampler SAMPLER-2#
```

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

**Table 2: show flow interface Field Descriptions**

Field	Description
Interface	The interface to which the information applies.
monitor	The name of the flow monitor that is configured on the interface.
direction:	The direction of traffic that is being monitored by the flow monitor. The possible values are: <ul style="list-style-type: none"> <li>• Input—Traffic is being received by the interface.</li> <li>• Output—Traffic is being transmitted by the interface.</li> </ul>

Field	Description
traffic(ip)	<p>Indicates if the flow monitor is in normal mode or sampler mode.</p> <p>The possible values are:</p> <ul style="list-style-type: none"><li>• on—The flow monitor is in normal mode.</li><li>• sampler—The flow monitor is in sampler mode (the name of the sampler will be included in the display).</li></ul>

# show flow monitor

To display the status and statistics for a flow monitor, use the **show flow monitor** command in privileged EXEC mode.

Syntax Description	name	(Optional) Specifies the name of a flow monitor.
	<i>monitor-name</i>	(Optional) Name of a flow monitor that was previously configured.
	<b>cache</b>	(Optional) Displays the contents of the cache for the flow monitor.
	<b>format</b>	(Optional) Specifies the use of one of the format options for formatting the display output.
	<b>csv</b>	(Optional) Displays the flow monitor cache contents in comma-separated variables (CSV) format.
	<b>record</b>	(Optional) Displays the flow monitor cache contents in record format.
	<b>table</b>	(Optional) Displays the flow monitor cache contents in table format.
	<b>statistics</b>	(Optional) Displays the statistics for the flow monitor.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

**Usage Guidelines** The **cache** keyword uses the record format by default.

The uppercase field names in the display output of the **show flowmonitor monitor-name cache** command are key fields that uses to differentiate flows. The lowercase field names in the display output of the **show flow monitor monitor-name cache** command are nonkey fields from which collects values as additional data for the cache.

## Examples

The following example displays the status for a flow monitor:

```
Device# show flow monitor FLOW-MONITOR-1

Flow Monitor FLOW-MONITOR-1:
  Description:      Used for basic traffic analysis
  Flow Record:     flow-record-1
  Flow Exporter:   flow-exporter-1
                  flow-exporter-2

Cache:
  Type:            normal
  Status:          allocated
  Size:            4096 entries / 311316 bytes
  Inactive Timeout: 15 secs
  Active Timeout:  1800 secs
```

This table describes the significant fields shown in the display.

Table 3: show flow monitor monitor-name Field Descriptions

Field	Description
Flow Monitor	Name of the flow monitor that you configured.
Description	Description that you configured or the monitor, or the default description User defined.
Flow Record	Flow record assigned to the flow monitor.
Flow Exporter	Exporters that are assigned to the flow monitor.
Cache	Information about the cache for the flow monitor.
Type	Flow monitor cache type. The value is always normal, as it is the only supported cache type.
Status	Status of the flow monitor cache. The possible values are: <ul style="list-style-type: none"> <li>• allocated—The cache is allocated.</li> <li>• being deleted—The cache is being deleted.</li> <li>• not allocated—The cache is not allocated.</li> </ul>
Size	Current cache size.
Inactive Timeout	Current value for the inactive timeout in seconds.
Active Timeout	Current value for the active timeout in seconds.

The following example displays the status, statistics, and data for the flow monitor named FLOW-MONITOR-1:

This table describes the significant fields shown in the display.

The following example displays the status, statistics, and data for the flow monitor named FLOW-MONITOR-1 in a table format:

The following example displays the status, statistics, and data for the flow monitor named FLOW-MONITOR-IPv6 (the cache contains IPv6 data) in record format:

The following example displays the status and statistics for a flow monitor:



# show flow record

To display the status and statistics for a flow record, use the **show flow record** command in privileged EXEC mode.

```
show flow record [{name] record-name}]
```

<b>Syntax Description</b>	<b>name</b> (Optional) Specifies the name of a flow record.
	<i>record-name</i> (Optional) Name of a user-defined flow record that was previously configured.
<b>Command Default</b>	None
<b>Command Modes</b>	Privileged EXEC
<b>Command History</b>	<b>Release</b>
	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.1 This command was introduced.

The following example displays the status and statistics for FLOW-RECORD-1:

```
Device# show flow record FLOW-RECORD-1
flow record FLOW-RECORD-1:
  Description:      User defined
  No. of users:    0
  Total field space: 24 bytes
  Fields:
    match ipv6 destination address
    match transport source-port
    collect interface input
```

## show interfaces

To display the administrative and operational status of all interfaces or for a specified interface, use the **show interfaces** command in privileged EXEC mode.

```
show interfaces [{interface-id|vlan vlan-id}] [{accounting|capabilities [module number]|debounce
|description|etherchannel|flowcontrol|private-vlan mapping|pruning|stats|status [{err-disabled}]
|trunk}]
```

Syntax	Description
<i>interface-id</i>	(Optional) ID of the interface. Valid interfaces include physical ports (including type, stack member, module, and port number) and port channels. The port channel range is 1 to 48.
<b>vlan</b> <i>vlan-id</i>	(Optional) VLAN identification. The range is 1 to 4094.
<b>accounting</b>	(Optional) Displays accounting information on the interface, including active protocols and input and output packets and octets.  <b>Note</b> The display shows only packets processed in software; hardware-switched packets do not appear.
<b>capabilities</b>	(Optional) Displays the capabilities of all interfaces or the specified interface, including the features and options that you can configure on the interface. Though visible in the command line help, this option is not available for VLAN IDs.
<b>module</b> <i>number</i>	(Optional) Displays capabilities of all interfaces on the switch or specified stack member.  This option is not available if you entered a specific interface ID.
<b>description</b>	(Optional) Displays the administrative status and description set for an interface.
<b>etherchannel</b>	(Optional) Displays interface EtherChannel information.
<b>flowcontrol</b>	(Optional) Displays interface flow control information.
<b>private-vlan mapping</b>	(Optional) Displays private-VLAN mapping information for the VLAN switch virtual interfaces (SVIs). This keyword is not available if the switch is running the LAN base feature set.
<b>pruning</b>	(Optional) Displays trunk VTP pruning information for the interface.
<b>stats</b>	(Optional) Displays the input and output packets by switching the path for the interface.
<b>status</b>	(Optional) Displays the status of the interface. A status of unsupported in the Type field means that a non-Cisco small form-factor pluggable (SFP) module is inserted in the module slot.

<b>err-disabled</b>	(Optional) Displays interfaces in an error-disabled state.
<b>trunk</b>	(Optional) Displays interface trunk information. If you do not specify an interface, only information for active trunking ports appears.



**Note** Though visible in the command-line help strings, the **crb**, **fair-queue**, **irb**, **mac-accounting**, **precedence**, **random-detect**, **rate-limit**, and **shape** keywords are not supported.

<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

**Usage Guidelines** The **show interfaces capabilities** command with different keywords has these results:

- Use the **show interface capabilities module *number*** command to display the capabilities of all interfaces on that in the stack. If there is no with that module number in the stack, there is no output.
- Use the **show interfaces *interface-id* capabilities** to display the capabilities of the specified interface.
- Use the **show interfaces capabilities** (with no module number or interface ID) to display the capabilities of all interfaces in the stack.

This is an example of output from the **show interfaces** command for an interface on stack member 3:

```

Device#show interfaces gigabitEthernet 0
GigabitEthernet0 is up, line protocol is up
Hardware is MEWLC management port, address is 0000.5e00.0101 (bia 0000.0000.0000)
Internet address is 20.61.1.12/16
MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Unknown, Unknown, media type is unknown media type
output flow-control is unsupported, input flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00
Last input 03:06:36, output 00:00:07, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 watchdog, 0 multicast, 0 pause input
0 packets output, 0 bytes, 0 underruns
    
```

```

0 output errors, 0 collisions, 1 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier, 0 pause output
0 output buffer failures, 0 output buffers swapped out

```

This is an example of output from the **show interfaces interface description** command when the interface has been described as *Connects to Marketing* by using the **description** interface configuration command:

```

Device# show interfaces gigabitethernet1/0/2 description
Interface                Status      Protocol Description
Gi1/0/2                  up          down      Connects to Marketing

```

This is an example of output from the **show interfaces interface-id pruning** command when pruning is enabled in the VTP domain:

```

Device# show interfaces gigabitethernet1/0/2 pruning
Port      Vlans pruned for lack of request by neighbor
Gi1/0/2   3,4

Port      Vlans traffic requested of neighbor
Gi1/0/2   1-3

```

This is an example of output from the **show interfaces stats** command for a specified VLAN interface:

```

Device# show interfaces vlan 1 stats
Switching path  Pkts In   Chars In   Pkts Out   Chars Out
  Processor    1165354   136205310   570800     91731594
  Route cache   0         0           0          0
  Total        1165354   136205310   570800     91731594

```

These are examples of output from the **show interfaces status** command for a specific interface when private VLANs are configured. Port 22 is configured as a private-VLAN host port. It is associated with primary VLAN 20 and secondary VLAN 25:

```

Device# show interfaces gigabitethernet1/0/22 status
Port      Name      Status      Vlan      Duplex      Speed      Type
Gi1/0/22          connected   20,25      a-full    a-100      10/100BaseTX

```

In this example, port 20 is configured as a private-VLAN promiscuous port. The display shows only the primary VLAN 20:

```

Device# show interfaces gigabitethernet1/0/20 status
Port      Name      Status      Vlan      Duplex      Speed      Type
Gi1/0/20          connected   20         a-full    a-100      10/100BaseTX

```

This is an example of output from the **show interfaces status err-disabled** command. It displays the status of interfaces in the error-disabled state:

```

Device# show interfaces status err-disabled
Port      Name      Status      Reason
Gi1/0/2          err-disabled  gbic-invalid
Gi2/0/3          err-disabled  dtp-flap

```

This is an example of output from the **show interfaces interface-id pruning** command:

```

Device# show interfaces gigabitethernet1/0/2 pruning
Port Vlans pruned for lack of request by neighbor

```

```
Device# show interfaces gigabitethernet1/0/1 trunk
Port      Mode           Encapsulation  Status      Native vlan
Gi1/0/1   on             802.1q         other       10

Port      Vlans allowed on trunk
Gi1/0/1   none

Port      Vlans allowed and active in management domain
Gi1/0/1   none

Port      Vlans in spanning tree forwarding state and not pruned
Gi1/0/1   none
```

# show install package

To view the install package details, use the **show install package** command.

## show install package

---

<b>Syntax Description</b>	This command has no arguments.
---------------------------	--------------------------------

---

---

<b>Command Default</b>	None
------------------------	------

---

---

<b>Command Modes</b>	Global configuration mode
----------------------	---------------------------

---

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.1.1s	This command was introduced.

---

## Example

This example shows how to view the install package details:

```
Device#show install package
```

# show install rollback

To view the package information for a rollback point, use the **show install rollback** command.

**show install rollback**

<b>Syntax Description</b>	This command has no arguments.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Global configuration mode				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco IOS XE Amsterdam 17.1.1s</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco IOS XE Amsterdam 17.1.1s	This command was introduced.
Release	Modification				
Cisco IOS XE Amsterdam 17.1.1s	This command was introduced.				

## Example

This example shows how to view the package information for a rollback point:

```
Device#show install rollback
```

# show install summary

To view the install manager summary, use the **show install summary** command.

## show install summary

<b>Syntax Description</b>	This command has no arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Global configuration mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.1.1s	This command was introduced.

## Example

This example shows how to view the install summary information:

```
Device#show install summary
```



# show ip

To view the IP information, use the **show ip** command.

Syntax	Description
<b>access-lists</b>	Lists the IP access lists
<b>interface</b>	Displays the IP interface status and configuration
<b>brief</b>	Displays the brief summary of IP status and configuration
<b>route</b>	Displays the IP routing table
<b>tunnel</b>	Displays the IP tunnel information
<b>eogre</b>	Displays the EoGRE tunnel information
<b>domain</b>	Displays the EoGRE tunnel domain information
<b>forwarding-table</b>	Displays the EoGRE tunnel encapsulation and decapsulation information
<b>gateway</b>	Displays the EoGRE tunnel gateway information
<b>fabric</b>	Displays the IP fabric tunnel information
<b>summary</b>	Displays the information for all tunnels

Command Modes
User EXEC (>)
Privileged EXEC (#)

Command History	Release	Modification
	8.1.111.0	This command was introduced.

The following example shows how to view information about the lists the IP access lists:

```
cisco-wave2-ap# show ip access-lists
```

# show ip nbar protocol-id

To see NBAR protocol classification ID, use the **show ip nbar protocol-id** command.

**show ip nbar protocol-id name**

<b>Syntax Description</b>	<b>protocol-id</b>	The protocol classification ID.
	<b>name</b>	Host server name
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE 16.12.1	This command was introduced.

## Examples

The following example shows how to see the NBAR protocol classification ID:

```
Device# show ip nbar protocol-id name
```

# show ldap attributes

To view information about the default LDAP attribute mapping, use the **show ldap attributes** command.

**show ldap attributes**

<b>Syntax Description</b>	This command has no arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Global configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

This example shows how to view information about the default LDAP attribute mapping:

```

Device# show ldap attributes
LDAP Attribute          Format      AAA Attribute
=====
airespaceBwDataBurstContract  Ulong      bsn-data-bandwidth-burst-contr
userPassword            String      password
airespaceBwRealBurstContract  Ulong      bsn-realtime-bandwidth-burst-c
employeeType            String      employee-type
airespaceServiceType     Ulong      service-type
airespaceACLName         String      bsn-acl-name
priv-lvl                 Ulong      priv-lvl
memberOf                  String DN   supplicant-group
cn                        String      username
airespaceDSCP             Ulong      bsn-dscp
policyTag                 String      tag-name
airespaceQOSLevel         Ulong      bsn-qos-level
airespace8021PType        Ulong      bsn-8021p-type
airespaceBwRealAveContract  Ulong      bsn-realtime-bandwidth-average
airespaceVlanInterfaceName  String      bsn-vlan-interface-name
airespaceVapId            Ulong      bsn-wlan-id
airespaceBwDataAveContract  Ulong      bsn-data-bandwidth-average-con
sAMAccountName           String      sam-account-name
meetingContactInfo        String      contact-info
telephoneNumber           String      telephone-number
Map: att_map_1
department                String DN   element-req-qos
    
```

# show ldap server

To view the LDAP server state information and various other counters for the server, use the **show ldap server** command.

**show ldap server**

<b>Syntax Description</b>	This command has no arguments.
---------------------------	--------------------------------

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Global configuration
----------------------	----------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

This example shows how to view the LDAP server state information and various other counters for the server:

```
Device# show ldap server
```

# show license air entities

To display information about active APs, new APs, and deleted APs in connection with a Cisco Catalyst Wireless Controller, enter the **show license air entities** command in privileged EXEC mode.

**show license air entities** { **added** | **bulk** | **deleted** | **no-change** | **summary** }

Syntax Description		
<b>added</b>	Displays the list of newly reported APs. A newly added AP is one that was not listed in the last RUM report that the product instance generated.	
<b>bulk</b>	Displays the list of all currently active APs for the product instance	
<b>deleted</b>	Displays the list of deleted APs. A delete AP is one that was listed as active APs in the last RUM report that the product instance generated but is now disconnected.	
<b>no-change</b>	Displays the list of APs where there has been no change in the status since the last report.	
<b>summary</b>	Displays the RUM report generation particulars and information about active APs, new APs, and deleted APs, and indicates by when an acknowledgement (ACK) must be installed on the product instance.	

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
	Cisco IOS XE Amsterdam 17.3.2a	Command output was updated to display information relating to Smart Licensing Using Policy.

**Usage Guidelines** **Smart Licensing:** If the software version on the device is Cisco IOS XE Amsterdam 17.3.1 or an earlier release, command output displays fields pertinent to Smart Licensing.

**Smart Licensing Using Policy:** If the software version on the device is Cisco IOS XE Amsterdam 17.3.2 or a later release, command output displays fields pertinent to Smart Licensing Using Policy.

## Examples

For information about fields shown in the display for the **show license air entities summary** command, see [Table 4: show license air entities summary Field Descriptions, on page 117](#).

For sample output, see

- [#unique\\_577 unique\\_577\\_Connect\\_42\\_section\\_gtj\\_hjm\\_frb](#)
- [show license air entities summary on a Cisco Catalyst 9800-L Wireless Controller, on page 118](#)

**Table 4: show license air entities summary Field Descriptions**

Field	Description
Last license report time	When the last RUM report was generated, in the local time zone.

Field	Description
Upcoming license report time	When the next RUM report will be generated, in the local time zone.
No. of APs active at last report	Total number of APs listed as active APs in the last RUM report that was generated.
No. of APs newly added with last report	Number of new APs in the last RUM report that was generated. For example, if the number displayed here is 2, this means the <i>last but one</i> RUM report did not list these 2 APs, and are therefore newly added in the last RUM report that the product instance generated.
No. of APs deleted with last report	Total number of APs deleted as of the last RUM report that was generated. For example, if the number displayed here is 2, this means 2 APs were in the <i>last but one</i> RUM report, but were deleted in the <i>last</i> RUM report that was generated.

#### show license air entities summary on a Cisco Catalyst 9800-L Wireless Controller

The following is sample output on a Cisco Catalyst 9800-L Wireless Controller. Note how the output on this device does not display the `License Ack expected within` field. Reporting requirements on all Cisco Catalyst Wireless Controllers (except Cisco Catalyst 9800-CL Wireless Controller) are as per the standard guidelines in the Smart Licensing Using Policy environment: Reporting is required if the policy (**show license status**) or system messages indicate that it is.

```
Device# show license air entities summary
Upcoming license report time.....: 15:13:27.403 IST Tue Oct 26 2021
No. of APs active at last report.....: 1
No. of APs newly added with last report.....: 1
No. of APs deleted with last report.....: 0
```

# show license all

To display all licensing information enter the **show license all** command in Privileged EXEC mode. This command displays status, authorization, UDI, and usage information, all combined.

## show license all

<b>Syntax Description</b>	This command has no keywords or arguments	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
	Cisco IOS XE Amsterdam 17.3.2a	Command output was updated to display information relating to Smart Licensing Using Policy.  Command output no longer displays Smart Account and Virtual account information.
	Cisco IOS XE Cupertino 17.7.1	The output of the command was enhanced to display the following information: <ul style="list-style-type: none"> <li>• RUM report statistics, in section <code>Usage Report Summary</code>.</li> <li>• Smart Account and Virtual Account information, in section <code>Account Information</code>.</li> </ul>

## Usage Guidelines

**Smart Licensing:** If the software version on the device is Cisco IOS XE Amsterdam 17.3.1 or an earlier release, command output displays fields pertinent to Smart Licensing.

**Smart Licensing Using Policy:** If the software version on the device (also referred to as a product instance) is Cisco IOS XE Amsterdam 17.3.2 or a later release, command output displays fields pertinent to Smart Licensing Using Policy.

This command concatenates the output of other **show license** commands, enabling you to display different kinds of licensing information together. For field descriptions, refer to the corresponding commands in the links provided below.

The `Smart Licensing Status` and `Account Information` sections of the **show license all** command corresponds with the output of the [show license status, on page 140](#) command.

The `License Usage` section of the **show license all** command corresponds with the output of the [show license usage, on page 169](#) command.

The `Product Information` section of the **show license all** command corresponds with the output of the [show license udi, on page 168](#) command.

The `Agent Version` section of the **show license all** command displays the Smart Agent version and is available only in this command.

The `License Authorizations` section of the **show license all** command corresponds with the output of the [show license authorization, on page 125](#) command.

The Usage Report Summary section of the **show license all** command corresponds with the output in the [show license tech, on page 153](#) command.

### Examples

For sample output, see:

[Example: show license all \(Cisco Catalyst 9800-CL Wireless Controllers, 17.7.1\), on page 120](#)

[Example: show license all \(Cisco Catalyst 9800-CL Wireless Controllers\), on page 121](#)

### Example: show license all (Cisco Catalyst 9800-CL Wireless Controllers, 17.7.1)

The following is sample output of the **show license all** command, on a product instance where the software version is Cisco IOS XE Cupertino 17.7.1. Note the addition of the two new sections in this release: Account Information and Usage Report Summary:

```
Device# show license all

Smart Licensing Status
=====

Smart Licensing is ENABLED

Export Authorization Key:
  Features Authorized:
    <none>

Utility:
  Status: DISABLED

Smart Licensing Using Policy:
  Status: ENABLED

Account Information:
  Smart Account: Eg-SA
  Virtual Account: Eg-VA

Data Privacy:
  Sending Hostname: yes
  Callhome hostname privacy: DISABLED
  Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Smart
  URL: https://smartreceiver.cisco.com/licservice/license
  Proxy:
    Not Configured
  VRF:
    Not Configured

Miscellaneous:
  Custom Id: <empty>

Policy:
  Policy in use: Merged from multiple sources.
  Reporting ACK required: yes (CISCO default)
  Unenforced/Non-Export Perpetual Attributes:
    First report requirement (days): 365 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 90 (CISCO default)
```



```

Unenforced/Non-Export Subscription Attributes:
  First report requirement (days): 90 (CISCO default)
  Reporting frequency (days): 90 (CISCO default)
  Report on change (days): 90 (CISCO default)
Enforced (Perpetual/Subscription) License Attributes:
  First report requirement (days): 0 (CISCO default)
  Reporting frequency (days): 0 (CISCO default)
  Report on change (days): 0 (CISCO default)
Export (Perpetual/Subscription) License Attributes:
  First report requirement (days): 0 (CISCO default)
  Reporting frequency (days): 0 (CISCO default)
  Report on change (days): 0 (CISCO default)

Usage Reporting:
  Last ACK received: <none>
  Next ACK deadline: <none>
  Reporting push interval: 0 (no reporting)
  Next ACK push check: <none>
  Next report push: <none>
  Last report push: <none>
  Last report file write: <none>

Trust Code Installed: <none>

License Usage
=====

No licenses in use

Product Information
=====
UDI: PID:C9800-CL-K9,SN:9KGIXIDOXFE

HA UDI List:
  Active:PID:C9800-CL-K9,SN:9KGIXIDOXFE
  Standby:PID:C9800-CL-K9,SN:9UBKZU955E4

Agent Version
=====
Smart Agent for Licensing: 5.3.14_rel/47

License Authorizations
=====
Overall status:
  Active: PID:C9800-CL-K9,SN:9KGIXIDOXFE
  Status: NOT INSTALLED
  Standby: PID:C9800-CL-K9,SN:9UBKZU955E4
  Status: NOT INSTALLED

Purchased Licenses:
  No Purchase Information Available

Usage Report Summary:
=====
Total: 0, Purged: 0
Total Acknowledged Received: 0, Waiting for Ack: 0
Available to Report: 0 Collecting Data: 0

```

### Example: show license all (Cisco Catalyst 9800-CL Wireless Controllers)

The following is sample output of the **show license all** command on a Cisco Catalyst 9800-CL Wireless Controller. Similar output is displayed on all supported Cisco Catalyst Wireless Controllers.

```
Device# show license all

Smart Licensing Status
=====

Smart Licensing is ENABLED
License Reservation is ENABLED

Export Authorization Key:
  Features Authorized:
    <none>

Utility:
  Status: DISABLED

Smart Licensing Using Policy:
  Status: ENABLED

Data Privacy:
  Sending Hostname: yes
  Callhome hostname privacy: DISABLED
  Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Transport Off

Miscellaneous:
  Custom Id: <empty>

Policy:
  Policy in use: Merged from multiple sources.
  Reporting ACK required: yes (CISCO default)
  Unenforced/Non-Export Perpetual Attributes:
    First report requirement (days): 365 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 90 (CISCO default)
  Unenforced/Non-Export Subscription Attributes:
    First report requirement (days): 90 (CISCO default)
    Reporting frequency (days): 90 (CISCO default)
    Report on change (days): 90 (CISCO default)
  Enforced (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 0 (CISCO default)
  Export (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 0 (CISCO default)

Usage Reporting:
  Last ACK received: <none>
  Next ACK deadline: <none>
  Reporting push interval: 0 (no reporting)
  Next ACK push check: Nov 01 20:31:46 2020 IST
  Next report push: <none>
  Last report push: <none>
  Last report file write: <none>

Trust Code Installed: <none>

License Usage
=====
```

```

air-network-advantage (DNA_NWStack):
  Description: air-network-advantage
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: air-network-advantage
  Feature Description: air-network-advantage
  Enforcement type: NOT ENFORCED
  License type: Perpetual
  Reservation:
    Reservation status: SPECIFIC INSTALLED
    Total reserved count: 20

air-dna-advantage (AIR-DNA-A):
  Description: air-dna-advantage
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: air-dna-advantage
  Feature Description: air-dna-advantage
  Enforcement type: NOT ENFORCED
  License type: Perpetual
  Reservation:
    Reservation status: SPECIFIC INSTALLED
    Total reserved count: 20

Product Information
=====
UDI: PID:C9800-CL-K9,SN:93BBAH93MGS

HA UDI List:
  Active:PID:C9800-CL-K9,SN:93BBAH93MGS
  Standby:PID:C9800-CL-K9,SN:9XECPSUU4XN

Agent Version
=====
Smart Agent for Licensing: 5.0.6_rel/47

License Authorizations
=====
Overall status:
  Active: PID:C9800-CL-K9,SN:93BBAH93MGS
    Status: SPECIFIC INSTALLED on Nov 02 03:16:01 2020 IST
    Last Confirmation code: 102fc949
  Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN
    Status: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
    Last Confirmation code: ad4382fe

Specified license reservations:
  Aironet DNA Advantage Term Licenses (AIR-DNA-A):
    Description: DNA Advantage for Wireless
    Total reserved count: 20
    Enforcement type: NOT ENFORCED
    Term information:
      Active: PID:C9800-CL-K9,SN:93BBAH93MGS
        Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
        License type: TERM
        Start Date: 2020-OCT-14 UTC
        End Date: 2021-APR-12 UTC
        Term Count: 5
        Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
        License type: TERM

```

```
        Start Date: 2020-JUN-18 UTC
        End Date: 2020-DEC-15 UTC
        Term Count: 5
Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN
Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
License type: TERM
        Start Date: 2020-OCT-14 UTC
        End Date: 2021-APR-12 UTC
        Term Count: 10
AP Perpetual Networkstack Advantage (DNA_NWStack):
Description: AP Perpetual Network Stack entitled with DNA-A
Total reserved count: 20
Enforcement type: NOT ENFORCED
Term information:
  Active: PID:C9800-CL-K9,SN:93BBAH93MGS
    Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
    License type: TERM
    Start Date: 2020-OCT-14 UTC
    End Date: 2021-APR-12 UTC
    Term Count: 5
    Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
    License type: TERM
    Start Date: 2020-JUN-18 UTC
    End Date: 2020-DEC-15 UTC
    Term Count: 5
  Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN
    Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
    License type: TERM
    Start Date: 2020-OCT-14 UTC
    End Date: 2021-APR-12 UTC
    Term Count: 10

Purchased Licenses:
  No Purchase Information Available
```

# show license authorization

To display authorization-related information for (export-controlled and enforced) licenses, enter the **show license authorization** command in privileged EXEC mode.

## show license authorization

### Syntax Description

This command has no keywords or arguments

### Command Modes

Privileged EXEC

### Command History

Release	Modification
Cisco IOS XE Amsterdam 17.3.2a	This command was introduced.

### Usage Guidelines

Only export-controlled or enforced licenses require authorization before use.

While there are no export-controlled or enforced licenses on Cisco Catalyst Wireless Controllers, you can use this command to display migrated SLR authorization codes.

### Examples

See [Table 5: show license authorization Field Descriptions, on page 126](#) for information about fields shown in the display.

See [show license authorization Displaying Migrated Authorization Code, on page 128](#) for sample output.

Table 5: show license authorization Field Descriptions

Field	Description
Overall Status	<p>Header for UDI information for all product instances in the set-up, the type of authorization that is installed, and configuration errors, if any.</p> <p>In a High Availability set-up, all UDIs in the set-up are listed.</p>
Active: Status:	<p>The active product instance UDI, followed by the status of the authorization code installation for this UDI.</p> <p>If the status indicates that the authorization code is installed and there is a confirmation code, this is also displayed.</p>
Standby: Status:	<p>The standby product instance UDI, followed by the status of the authorization code installation for this UDI.</p> <p>If the status indicates that the authorization code is installed and there is a confirmation code, this is also displayed.</p>
Member: Status:	<p>The member product instance UDI, followed by the status of the authorization code installation for this UDI.</p> <p>If the status indicates that the authorization code is installed and there is a confirmation code, this is also displayed.</p>
ERROR:	<p>Configuration errors or discrepancies in the High Availability set-up, if any.</p>

Field	Description
Authorizations	<p>Header for detailed license authorization information. All licenses, their enforcement types, and validity durations are displayed. Errors are displayed for each product instance if its authorization or mode does not match what is installed on the active.</p> <p>This section is displayed only if the product instance is using a license with an authorization code.</p>
():	License name and a shortened form of the license name.
Description	License description.
Total available count:	<p>Total count of licenses that are available to consume.</p> <p>This includes licenses of all durations (perpetual and subscription), including expired subscription licenses, for all the product instances in a High Availability setup.</p>
Enforcement type	<p>Enforcement type for the license. This may be one of the following:</p> <ul style="list-style-type: none"> <li>• Enforced</li> <li>• Not enforced</li> <li>• Export-Controlled</li> </ul>
Term information:	

Field	Description												
	<p>Header providing license duration information. The following fields maybe included under this header:</p> <ul style="list-style-type: none"> <li>• Active: The active product instance UDI, followed by the status of the authorization code installation for this UDI.</li> <li>• Authorization type: Type of authorization code installed and date of installation. The type can be: SLAC, UNIVERSAL, SPECIFIED, PAK, RTU.</li> <li>• Start Date: Displays validity start date if the license is for a specific term or time period.</li> <li>• Start Date: Displays validity end date if the license is for a specific term or time period.</li> <li>• Term Count: License count.</li> <li>• Subscription ID: Displays ID if the license is for a specific term or time period.</li> <li>• License type: License duration. This can be: SUBSCRIPTION or PERPETUAL.</li> <li>• Standby: The standby product instance UDI, followed by the status of the authorization code installation for this UDI.</li> <li>• Member: The member product instance UDI, followed by the status of the authorization code installation for this UDI.</li> </ul> <p>For more information about the duration or term of a license's validity, see <a href="#">&lt;link tbd&gt;</a>.</p>												
Purchased Licenses	<p>Header for license purchase information.</p> <table border="1"> <tbody> <tr> <td>Active:</td> <td>The active product instance and its the UDI.</td> </tr> <tr> <td>Count:</td> <td>License count.</td> </tr> <tr> <td>Description:</td> <td>License description.</td> </tr> <tr> <td>License type:</td> <td>License duration. This can be: SUBSCRIPTION or PERPETUAL.</td> </tr> <tr> <td>Standby:</td> <td>The standby product instance UDI.</td> </tr> <tr> <td>Member:</td> <td>The member product instance UDI.</td> </tr> </tbody> </table>	Active:	The active product instance and its the UDI.	Count:	License count.	Description:	License description.	License type:	License duration. This can be: SUBSCRIPTION or PERPETUAL.	Standby:	The standby product instance UDI.	Member:	The member product instance UDI.
Active:	The active product instance and its the UDI.												
Count:	License count.												
Description:	License description.												
License type:	License duration. This can be: SUBSCRIPTION or PERPETUAL.												
Standby:	The standby product instance UDI.												
Member:	The member product instance UDI.												

### show license authorization Displaying Migrated Authorization Code

The following is sample output of the **show license authorization** command on a Cisco Catalyst 9800-CL Wireless Controller. The `Last Confirmation code:` shows that SLR authorization code is available after migration. Similar output is displayed on all supported Cisco Catalyst Wireless Controllers.



```
Device# show license authorization
Overall status:
  Active: PID:C9800-CL-K9,SN:93BBAH93MGS
    Status: SPECIFIC INSTALLED on Nov 02 03:16:01 2020 IST
    Last Confirmation code: 102fc949
  Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN
    Status: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
    Last Confirmation code: ad4382fe

Specified license reservations:
  Aironet DNA Advantage Term Licenses (AIR-DNA-A):
    Description: DNA Advantage for Wireless
    Total reserved count: 20
    Enforcement type: NOT ENFORCED
    Term information:
      Active: PID:C9800-CL-K9,SN:93BBAH93MGS
        Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
        License type: TERM
        Start Date: 2020-OCT-14 UTC
        End Date: 2021-APR-12 UTC
        Term Count: 5
        Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
        License type: TERM
        Start Date: 2020-JUN-18 UTC
        End Date: 2020-DEC-15 UTC
        Term Count: 5
      Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN
        Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
        License type: TERM
        Start Date: 2020-OCT-14 UTC
        End Date: 2021-APR-12 UTC
        Term Count: 10
  AP Perpetual Networkstack Advantage (DNA_NWStack):
    Description: AP Perpetual Network Stack entitled with DNA-A
    Total reserved count: 20
    Enforcement type: NOT ENFORCED
    Term information:
      Active: PID:C9800-CL-K9,SN:93BBAH93MGS
        Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
        License type: TERM
        Start Date: 2020-OCT-14 UTC
        End Date: 2021-APR-12 UTC
        Term Count: 5
        Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
        License type: TERM
        Start Date: 2020-JUN-18 UTC
        End Date: 2020-DEC-15 UTC
        Term Count: 5
      Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN
        Authorization type: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
        License type: TERM
        Start Date: 2020-OCT-14 UTC
        End Date: 2021-APR-12 UTC
        Term Count: 10

Purchased Licenses:
  No Purchase Information Available
```

# show license data conversion

To display license data conversion information, enter the **show license data** command in privileged EXEC mode.

**show license data conversion**

---

**Syntax Description** This command has no keywords or arguments

---

**Command Modes** Privileged EXEC (Device#)

---

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
	Cisco IOS XE Amsterdam 17.3.2a	This command continues to be available with the introduction of Smart Licensing Using Policy.

---

**Usage Guidelines** Although visible on the CLI, this command is not applicable to Cisco Catalyst Wireless Controllers.

# show license eventlog

To display event logs relating to Smart Licensing Using Policy, enter the **show license eventlog** command in privileged EXEC mode.

**show license eventlog** [ *days* ]

<b>Syntax Description</b>	<i>days</i> Enter the number of days for which you want to display event logs. The valid value range is from 0 to 2147483647.	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
	Cisco IOS XE Amsterdam 17.3.2a	Additional events were added with the introduction of Smart Licensing Using Policy: <ul style="list-style-type: none"> <li>• Installation and removal of a policy</li> <li>• Request, installation and removal of an authorization code.</li> <li>• Installation and removal of a trust code.</li> <li>• Addition of authorization source information for license usage.</li> </ul>
<b>Usage Guidelines</b>	<p><b>Smart Licensing Using Policy:</b> If the software version on the device (also referred to as a product instance) is Cisco IOS XE Amsterdam 17.3.2a or a later release, command output displays fields pertinent to Smart Licensing Using Policy.</p> <p><b>Smart Licensing:</b> If the software version on the device is Cisco IOS XE Amsterdam 17.3.1 or an earlier release, command output displays fields pertinent to Smart Licensing.</p>	

# show license history message

To display communication history between the product instance and CSSM or CSLU (as the case may be), enter the **show license history message** command in privileged EXEC mode. The output of this command is used by the technical support team, for troubleshooting.

## show license history message

### Syntax Description

This command has no keywords or arguments.

### Command Modes

Privileged EXEC

### Command History

Release	Modification
Cisco IOS XE Amsterdam 17.3.2a	This command was introduced.

### Usage Guidelines

When you encounter an error message that you are not able to resolve, along with a copy of the message that appears on the console or in the system log, provide your Cisco technical support representative with sample output of these commands: **show license tech support**, **show license history message**, and the **show platform software sl-infra** privileged EXEC commands.

# show license reservation

To display license reservation information, enter the **show license reservation** command in privileged EXEC mode.

**show license reservation**

---

<b>Syntax Description</b>	This command has no keywords or arguments
---------------------------	---

---

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
	Cisco IOS XE Amsterdam 17.3.2a	This command continues to be available with the introduction of Smart Licensing Using Policy.

---

<b>Usage Guidelines</b>	The command continues to be available on the CLI and corresponding output is displayed, but with the introduction of Smart Licensing Using Policy, the notion of reservation is not longer applicable. Use the <b>show license all</b> command in privileged EXEC mode, to display <i>migrated</i> SLR licenses instead (the SLR authorization code is migrated to Smart Licensing Using Policy).
-------------------------	---

## show license rum

To display information about Resource Utilization Measurement reports (RUM report) available on the product instance, including report IDs, the current processing state of a report, error information (if any), and to save the detailed or summarized view that is displayed, enter the **show license rum** command in privileged EXEC mode.

```
show license rum { feature { license_name | all } | id { rum_id | all } } [ detail ] [ save path ]
```

### Syntax Description

<b>feature</b> { <i>license_name</i>   <b>all</b> }	Displays RUM report information based on the license name.  Specify a particular license name to display all RUM reports for that license, or use the <b>all</b> keyword to display all RUM reports available on the product instance.
<b>id</b> { <i>rum_id</i>   <b>all</b> }	Displays RUM report information based on the RUM report ID.  Specify a report ID to display information for a single report, or use the <b>all</b> keyword to display all RUM reports available on the product instance.
<b>detail</b>	Displays detailed RUM report information.  You can use this to display detailed information by license name and detailed information by RUM report ID.
<b>save path</b>	Saves the information that is displayed. This can be the simplified or detailed version and depends on the preceding keywords you have entered.  Information about 200 RUM reports can be displayed. If there are more 200 RUM reports on the product instance, you can view information about all the RUM reports by saving it to a text (.txt) file.  <b>Note</b> This option saves the information <i>about</i> RUM reports and is not for reporting purposes. It does not save the RUM report, which is an XML file containing usage information.

### Command Modes

Privileged EXEC (Device#)

### Command History

Release	Modification
Cisco IOS XE Cupertino 17.7.1	This command was introduced.

### Usage Guidelines

A RUM report is a license usage report, which the product instance generates, to fulfil reporting requirements as specified by the policy. An acknowledgement (ACK) is a response from CSSM and provides information about the status of a RUM report. Once the ACK for a report is available on the product instance, it indicates

that the corresponding RUM report is no longer required and can be deleted. You can use the **show license rum** command to:

- Display information about the available RUM reports on the product instance - filtered by ID or license name.
- Display a short summary of the information or display a detailed view of the information.
- Track a RUM report throughout its lifecycle (from the time it is first generated until its acknowledgement from CSSM). By displaying the current processing state and condition of a report you can ascertain if and when there is a problem in the reporting workflow.
- Save the displayed information. The CLI displays information about up to 200 reports. If there are more than 200 reports on the product instance and you want to view information about all of them, save the displayed info in a .txt file and export to the desired location to view.

To display a statistical view of RUM report information (the total number of reports on the product instance, the number of reports that have a corresponding ACK, the number of reports waiting for an ACK etc.) refer to the `Usage Report Summary`: section of the **show license all** and **show license tech** privileged EXEC commands.

The **show license tech** command also provides RUM report related information that the Cisco technical support team can use to troubleshoot, if there are problems with RUM reporting.

### Examples

For information about fields shown in the display, see [#unique\\_589 unique\\_589\\_Connect\\_42\\_table\\_ytd\\_q4m\\_hrb](#) and [#unique\\_589 unique\\_589\\_Connect\\_42\\_table\\_gtn\\_q4m\\_hrb](#)

For sample output of the **show license rum** command, see:

- [#unique\\_589 unique\\_589\\_Connect\\_42\\_example\\_ugm\\_lsd\\_4rb](#)
- [#unique\\_589 unique\\_589\\_Connect\\_42\\_example\\_stg\\_msd\\_4rb](#)

**Table 6: show license rum (simplified view) Field Descriptions**

Field Name	Description
Report Id	A numeric field that identifies a RUM report. The product instance automatically assigns an ID to every RUM report it generates. An ID may be up to 20 characters long.

Field Name	Description
State	<p>This field displays the current processing state of a RUM report, and can be only one of the following:</p> <ul style="list-style-type: none"> <li>• OPEN: This means new measurements are been added into this report.</li> <li>• CLOSED: This means no new measurements can be added to this report, and the report is ready for communication to CSSM.</li> <li>• PENDING: This is a transitional status that you may see if you display a report while it is being transmitted.</li> <li>• UNACK: This means the report was transmitted and is waiting for confirmation from CSSM, that it is processed.</li> <li>• ACK: This means the report was processed or acknowledged by CSSM and is eligible for deletion.</li> </ul>
Flag	<p>Indicates the condition of the RUM report, and is displayed in the form of a character. Each character represents a specific condition, and can be only one of the following values:</p> <ul style="list-style-type: none"> <li>• N: Normal; This means no errors have been detected and the report is going through normal operation.</li> <li>• P: Purged; This means the report was removed due to system resource limitation, and can refer to a shortage of disk space or insufficient memory. If this flag is displayed, refer to the <code>State Change Reason</code> field in the detailed view for more information.</li> <li>• E: Error; This means an error was detected in the RUM report. If this flag is displayed, refer to the detailed view for more information. Possible workflow issues include and are not limited to the following: <ul style="list-style-type: none"> <li>• RUM report was dropped by CSSM. If this is the issue, the <code>State</code> field displays value <code>ACK</code>, but the <code>State Change Reason</code> does not change to <code>ACKED</code>.</li> <li>• RUM Report data is missing. If this is the issue, the <code>Storage State</code> field displays value <code>MISSING</code>.</li> <li>• Tracking information is missing. If this is the case the <code>State</code> field displays value <code>UNACK</code> and the <code>Transaction ID</code> field has no information.</li> </ul> </li> </ul> <p><b>Note</b> Occasional errors in RUM reports do not require any action from you and are not an indication of a problem. It is only if you see a large number of reports (greater than 10) with errors that you must contact the Cisco technical support team.</p>
Feature Name	The name of the license that the RUM report applies to.



Table 7: show license rum (detailed view) Field Descriptions

Field Name	Description
Report Id	A numeric field that identifies a RUM report. The product instance automatically assigns an ID to every RUM report it generates. An ID may be up to 20 characters long.
Metric Name:	Shows the type of data that is recorded. For a RUM report, the only possible value is ENTITLEMENT, and refers to measurement of license usage.
Feature Name:	The name of the license that the RUM report applies to.
Metric Value	A unique identifier for the data that is recorded. This is the same as the “Entitlement Tag” in the output of the <b>show license tech</b> command and it displays information about the license being tracked.
UDI	Composed of the Product ID (PID) and serial number of the product instance.
Previous Report Id:	ID of the previous RUM report that the product instance generated for a license.
Next Report Id:	The ID that the product instance will use for the next RUM report it generates for a license.
State:	Displays the current processing state of a RUM report. The value displayed here is always the same as the value displayed in the simplified view. For the list of possible values see <a href="#">#unique_589 unique_589_Connect_42_table_ytd_q4m_hrb</a> above.
State Change Reason:	Displays the reason for a RUM report state change. Not all state changes provide a reason. <ul style="list-style-type: none"> <li>• NONE: This means the RUM report is going through its normal lifecycle (for instance, from OPEN → CLOSED → ACK). This state change reason is usually accompanied by an N flag (meaning Normal) in the simplified view and requires no action from you.</li> <li>• ACKED: RUM report was processed normally by CSSM.</li> <li>• REMOVED: RUM report was received and requested to be removed by CSSM.</li> <li>• RELOAD: RUM report state was changed due to some type of device reload.</li> </ul>
Start Time:	Timestamps for measurement start and measurement end for a RUM report.
End Time:	Together, the start time and end time provide the time duration that the measurements cover.

Field Name	Description
Storage State:	<p>Displays current storage state of the RUM report and can be one of the following values:</p> <ul style="list-style-type: none"> <li>• <b>EXIST</b>: This means the data for the RUM report is located in storage.</li> <li>• <b>DELETED</b>: This means the data was intentionally deleted. Refer to the <code>Storage State Change Reason</code> in the output of the <b>show license tech</b> command for more information about this storage state.</li> <li>• <b>PURGED</b>: This means the data was deleted due to a system resource limitation. Refer to the <code>Storage State Change Reason</code> in the output of the <b>show license tech</b> command for more information about this storage state.</li> <li>• <b>MISSING</b>: This means data is missing from storage. If reports are identified as missing, there is no recovery process.</li> </ul>
Transaction ID:	Contains tracking information for the RUM report. This information can be either polling information or ACK import information.
Transaction Message:	<p>The Transaction Message contains the error message, if the product instance receives one when importing an ACK.</p> <p>The information in these fields is used by the Cisco technical support team when troubleshooting problems with RUM reports.</p>

### Example: show license rum feature: Simplified and Detailed View

The following is sample output of the **show license rum feature***license-name* and **show license rum feature***license-name***detail** commands on a Cisco Catalyst 9500 Series Switch. Similar output is displayed on all other Catalyst switches.

The output is filtered to display all RUM reports for the DNA Advantage license, followed by a detailed view of all RUM reports for the DNA Advantage license.

```
Device# show license rum feature air-dna-advantage
```

```
Smart Licensing Usage Report:
```

```
=====
```

```
Report Id,           State,    Flag,  Feature Name
1638055644          CLOSED   N      air-dna-advantage
1638055646          OPEN     N      air-dna-advantage
```

```
Device# show license rum feature air-dna-advantage detail
```

```
Smart Licensing Usage Report Detail:
```

```
=====
```

```
Report Id: 1638055644
Metric Name: ENTITLEMENT
Feature Name: air-dna-advantage
Metric Value: regid.2017-08.com.cisco.AIR-DNA-A,1.0_b6308627-3ab0-4a11-a3d9-586911a0d790
UDI: PID:C9800-CL-K9,SN:93SZ7RXN93Y
Previous Report Id: 0, Next Report Id: 1638055646
```

```
State: CLOSED,          State Change Reason: RELOAD
Start Time: Nov 28 12:02:09 2021 UTC,      End Time: Nov 30 22:02:13 2021 UTC
Storage State: EXIST
Transaction ID: 0
Transaction Message: <none>
```

```
Report Id: 1638055646
Metric Name: ENTITLEMENT
Feature Name: air-dna-advantage
Metric Value: regid.2017-08.com.cisco.AIR-DNA-A,1.0_b6308627-3ab0-4a11-a3d9-586911a0d790
UDI: PID:C9800-CL-K9,SN:93SZ7RXN93Y
Previous Report Id: 1638055644,      Next Report Id: 0
State: OPEN,           State Change Reason: None
Start Time: Nov 30 23:12:56 2021 UTC,      End Time: Dec 01 02:12:56 2021 UTC
Storage State: EXIST
Transaction ID: 0
Transaction Message: <none>
```

### Example: Saving a RUM Report View

The following example shows you how to save the information that is displayed.

By using the **feature** and **all** keywords, the output is filtered to display all RUM reports for all licenses being used on the product instance. It is then transferred to a TFTP location, from where it can be opened, to view the information.

```
Device# show license rum feature all save bootflash:all-rum-stats.txt
Device# copy tftp://10.8.0.6/bootflash:all-rum-stats.txt
```

# show license status

To display information about licensing settings such as data privacy, policy, transport, usage reporting and trust codes, enter the **show license status** command in privileged EXEC mode.

## show license status

<b>Syntax Description</b>	This command has no keywords or arguments	
<b>Command Modes</b>	Privileged EXEC (Device#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
	Cisco IOS XE Amsterdam 17.3.2a	Command output was updated to reflect new fields that are applicable to Smart Licensing Using Policy. This includes <code>Trust code installed:</code> , <code>Policy in use</code> , <code>Policy name:</code> , reporting requirements as in the policy ( <code>Attributes:</code> ), and fields related to usage reporting.  Command output no longer displays Smart Account and Virtual account information.
	Cisco IOS XE Cupertino 17.7.1	Command output was updated to display Smart Account and Virtual account information.

## Usage Guidelines

**Smart Licensing:** If the software version on the device is Cisco IOS XE Amsterdam 17.3.1 or an earlier release, command output displays fields pertinent to Smart Licensing.

**Smart Licensing Using Policy:** If the software version on the device (also referred to as a product instance) is Cisco IOS XE Amsterdam 17.3.2a or a later release, command output displays fields pertinent to Smart Licensing Using Policy.

### Account Information in the output

Starting with Cisco IOS XE Cupertino 17.7.1, every ACK includes the Smart Account and Virtual Account that was reported to, in CSSM. When it receives the ACK, the product instance securely stores only the latest version of this information - as determined by the timestamp in the ACK. The Smart Account and Virtual Account information that is displayed in the `Account Information` section of this command's output is therefore always as per the latest available ACK on the product instance.

If a product instance is moved from one Smart Account and Virtual Account to another, the next ACK after the move will have this updated information. The output of this command is updated once this ACK is available on the product instance.

The ACK may be received directly (where the product instance is connected to CSSM), or indirectly (where the product instance is connect to CSSM through CSLU, Cisco DNA Center, or SSM On-Prem), or by manually importing the ACK (where a product instance is in an air-gapped network).

## Examples

For information about the fields shown in the display, see [Table 8: show license status Field Descriptions for Smart Licensing Using Policy, on page 141](#).

For sample output, see:

- [show license status with Account Information \(Smart Licensing Using Policy\), on page 146](#)
- [show license status with Cisco Default Policy \(Smart Licensing Using Policy\), on page 147](#)
- [show license status with Custom Policy \(Smart Licensing Using Policy\), on page 148](#)

**Table 8: show license status Field Descriptions for Smart Licensing Using Policy**

Field	Description	
Utility	Header for utility settings that are configured on the product instance.	
	Status:	Status
	Utility report:	Last attempt:
	Customer Information:	The following fields are displayed: <ul style="list-style-type: none"> <li>• Id:</li> <li>• Name:</li> <li>• Street</li> <li>• City:</li> <li>• State:</li> <li>• Country:</li> <li>• Postal Code:</li> </ul>
Smart Licensing Using Policy:	Header for policy settings on the product instance.	
	Status:	Indicates if Smart Licensing Using Policy is enabled. Smart Licensing Using Policy is supported starting from Cisco IOS XE Amsterdam 17.3.2 and is always enabled on supported software images.

Field	Description
Data Privacy:	Header for privacy settings that are configured on the product instance.
Sending Hostname:	A <i>yes</i> or <i>no</i> value which shows if the hostname is sent in usage reports.
Callhome hostname privacy:	Indicates if the Call Home feature is configured as the mode of transport for reporting. If configured, one of these values is displayed: <ul style="list-style-type: none"> <li>• ENABLED</li> <li>• DISABLED</li> </ul>
Smart Licensing hostname privacy:	One of these values is displayed: <ul style="list-style-type: none"> <li>• ENABLED</li> <li>• DISABLED</li> </ul>
Version privacy:	One of these values is displayed: <ul style="list-style-type: none"> <li>• ENABLED</li> <li>• DISABLED</li> </ul>
Transport:	Header for transport settings that are configured on the product instance.
Type:	Mode of transport that is in use. Additional fields are displayed for certain transport modes. For example, if transport type is set to CSLU, the CSLU address is also displayed.

Field	Description
Policy:	Header for policy information that is applicable to the product instance.
Policy in use:	Policy that is applied  This can be one of the following: Cisco default, Product default, Permanent License Reservation, Specific License Reservation, PAK license, Installed on <date>, Controller.
Policy name:	Name of the policy
Reporting ACK required:	A <i>yes</i> or <i>no</i> value which specifies if the report for this product instance requires CSSM acknowledgement (ACK) or not. The default policy is always set to “yes”.
Unenforced/Non-Export Perpetual Attributes	Displays policy values for perpetual licenses. <ul style="list-style-type: none"> <li>• First report requirement (days): The maximum amount of time available before the first report must be sent, followed by policy name.</li> <li>• Reporting frequency (days): The maximum amount of time available before the subsequent report must be sent, followed by policy name.</li> <li>• Report on change (days): he maximum amount of time available to send a report in case of a change in license usage, followed by policy name</li> </ul>
Unenforced/Non-Export Subscription Attributes	Displays policy values for subscription licenses. <ul style="list-style-type: none"> <li>• First report requirement (days): The maximum amount of time available before the first report must be sent, followed by policy name.</li> <li>• Reporting frequency (days): The maximum amount of time available before the subsequent report must be sent, followed by policy name.</li> <li>• Report on change (days): he maximum amount of time available to send a report in case of a change in license usage, followed by policy name</li> </ul>
Enforced (Perpetual/Subscription) License Attributes	

Field		Description
		<p>Displays policy values for enforced licenses.</p> <ul style="list-style-type: none"> <li>• First report requirement (days): The maximum amount of time available before the first report must be sent, followed by policy name.</li> <li>• Reporting frequency (days): The maximum amount of time available before the subsequent report must be sent, followed by policy name.</li> <li>• Report on change (days): The maximum amount of time available to send a report in case of a change in license usage, followed by policy name</li> </ul>
	Export (Perpetual/Subscription) License Attributes	<p>Displays policy values for export-controlled licenses.</p> <ul style="list-style-type: none"> <li>• First report requirement (days): The maximum amount of time available before the first report must be sent, followed by policy name.</li> <li>• Reporting frequency (days): The maximum amount of time available before the subsequent report must be sent, followed by policy name.</li> <li>• Report on change (days): The maximum amount of time available to send a report in case of a change in license usage, followed by policy name</li> </ul>
Miscellaneous	Header for custom ID.	
	Custom Id:	ID



Field	Description
Usage Reporting:	Header for usage reporting (RUM reports) information.
Last ACK received:	Date and time of last ACK received, in the local time zone.
Next ACK deadline:	<p>Date and time for next ACK. If the policy states that an ACK is not required then this field displays <code>none</code>.</p> <p><b>Note</b> If an ACK is required and is not received by this deadline, a syslog is displayed.</p>
Reporting Interval:	<p>Reporting interval in days</p> <p>The value displayed here depends on what you configure in the <b>license smart usage interval</b><code>interval_in_days</code> and the policy value. For more information, see the corresponding Syntax Description: <a href="#">license smart (global config)</a>.</p>
Next ACK push check:	<p>Date and time when the product instance will submit the next polling request for an ACK. Date and time are in the local time zone.</p> <p>This applies only to product instance- initiated communication to CSSM or CSLU. If the reporting interval is zero, or if no ACK polling is pending, then this field displays <code>none</code>.</p>
Next report push:	Date and time when the product instance will send the next RUM report. Date and time are in the local time zone. If the reporting interval is zero, or if there are no pending RUM reports, then this field displays <code>none</code> .
Last report push:	Date and time for when the product instance sent the last RUM report. Date and time are in the local time zone.
Last report file write:	Date and time for when the product instance last saved an offline RUM report. Date and time are in the local time zone.
Last report pull:	Date and time for when usage reporting information was retrieved using data models. Date and time are in the local time zone.

Field	Description
Trust Code Installed:	Header for trust code-related information. Displays date and time if trust code is installed. Date and time are in the local time zone. If a trust code is not installed, then this field displays <i>none</i> .
Active:	Active product instance. In a High Availability set-up, the the UDIs of all product instances in the set-up, along with corresponding trust code installation dates and times are displayed.
Standby:	Standby product instance.
Member:	Member product instance

### show license status with Account Information (Smart Licensing Using Policy)

The following is sample output of the **show license status** command, on a product instance where the software version is Cisco IOS XE Cupertino 17.7.1:

```

Device# show license status
Utility:
  Status: DISABLED

Smart Licensing Using Policy:
  Status: ENABLED

Account Information:
  Smart Account: Eg-SA
  Virtual Account: Eg-VA

Data Privacy:
  Sending Hostname: yes
  Callhome hostname privacy: DISABLED
  Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Smart
  URL: https://smartreceiver.cisco.com/licservice/license
  Proxy:
    Not Configured
  VRF:
    Not Configured

Policy:
  Policy in use: Merged from multiple sources.
  Reporting ACK required: yes (CISCO default)
  Unenforced/Non-Export Perpetual Attributes:
    First report requirement (days): 365 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 90 (CISCO default)
  Unenforced/Non-Export Subscription Attributes:
    First report requirement (days): 90 (CISCO default)
    Reporting frequency (days): 90 (CISCO default)
    Report on change (days): 90 (CISCO default)
  Enforced (Perpetual/Subscription) License Attributes:

```

```

    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 0 (CISCO default)
Export (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 0 (CISCO default)

Miscellaneous:
    Custom Id: <empty>

Usage Reporting:
    Last ACK received: <none>
    Next ACK deadline: <none>
    Reporting push interval: 0 (no reporting)
    Next ACK push check: <none>
    Next report push: <none>
    Last report push: <none>
    Last report file write: <none>

Trust Code Installed: <none>

```

### show license status with Cisco Default Policy (Smart Licensing Using Policy)

The following is sample output of the **show license status** command; a default is policy applied here.

```

Device# show license status

Utility:
    Status: DISABLED

Smart Licensing Using Policy:
    Status: ENABLED

Data Privacy:
    Sending Hostname: yes
        Callhome hostname privacy: DISABLED
        Smart Licensing hostname privacy: DISABLED
    Version privacy: DISABLED

Transport:
    Type: Smart
    URL: https://smartreceiver.cisco.com/licservice/license
    Proxy:
        Not Configured

Policy:
    Policy in use: Merged from multiple sources.
    Reporting ACK required: yes (CISCO default)
    Unenforced/Non-Export Perpetual Attributes:
        First report requirement (days): 365 (CISCO default)
        Reporting frequency (days): 0 (CISCO default)
        Report on change (days): 90 (CISCO default)
    Unenforced/Non-Export Subscription Attributes:
        First report requirement (days): 90 (CISCO default)
        Reporting frequency (days): 90 (CISCO default)
        Report on change (days): 90 (CISCO default)
    Enforced (Perpetual/Subscription) License Attributes:
        First report requirement (days): 0 (CISCO default)
        Reporting frequency (days): 0 (CISCO default)
        Report on change (days): 0 (CISCO default)
    Export (Perpetual/Subscription) License Attributes:
        First report requirement (days): 0 (CISCO default)
        Reporting frequency (days): 0 (CISCO default)

```

```

    Report on change (days): 0 (CISCO default)

Miscellaneous:
  Custom Id: <empty>

Usage Reporting:
  Last ACK received: <none>
  Next ACK deadline: <none>
  Reporting push interval: 0 (no reporting)
  Next ACK push check: <none>
  Next report push: <none>
  Last report push: <none>
  Last report file write: <none>

Trust Code Installed: <none>

```

### show license status with Custom Policy (Smart Licensing Using Policy)

The following is sample output of the **show license status** command; a custom policy applied here.

```

Device# show license status
Utility:
  Status: DISABLED

Smart Licensing Using Policy:
  Status: ENABLED

Data Privacy:
  Sending Hostname: yes
  Callhome hostname privacy: DISABLED
  Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Smart
  URL: https://smartreceiver.cisco.com/licservice/license
  Proxy:
    Not Configured

Policy:
  Policy in use: Installed On Nov 02 05:09:31 2020 IST
  Policy name: SLE Policy
  Reporting ACK required: yes (Customer Policy)
  Unenforced/Non-Export Perpetual Attributes:
    First report requirement (days): 60 (Customer Policy)
    Reporting frequency (days): 60 (Customer Policy)
    Report on change (days): 60 (Customer Policy)
  Unenforced/Non-Export Subscription Attributes:
    First report requirement (days): 30 (Customer Policy)
    Reporting frequency (days): 30 (Customer Policy)
    Report on change (days): 30 (Customer Policy)
  Enforced (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 90 (Customer Policy)
    Report on change (days): 90 (Customer Policy)
  Export (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 90 (Customer Policy)
    Report on change (days): 90 (Customer Policy)

Miscellaneous:
  Custom Id: <empty>

```

## Usage Reporting:

Last ACK received: <none>  
Next ACK deadline: <none>  
Reporting push interval: 0 (no reporting)  
Next ACK push check: <none>  
Next report push: <none>  
Last report push: <none>  
Last report file write: <none>

## Trust Code Installed:

Active: PID:C9800-CL-K9,SN:93BBAH93MGS  
INSTALLED on Nov 02 05:09:31 2020 IST  
Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN  
INSTALLED on Nov 02 05:09:31 2020 IST

# show license summary

To display a brief summary of license usage, which includes information about licenses being used, the count, and status, enter the **show license summary** command in privileged EXEC mode.

## show license summary

<b>Syntax Description</b>	This command has no keywords or arguments	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
	Cisco IOS XE Amsterdam 17.3.2a	Command output was updated to reflect valid license status for Smart Licensing Using Policy. Valid license statuses include: <code>IN USE</code> , <code>NOT IN USE</code> , <code>NOT AUTHORIZED</code> .  Command output was also updated to remove registration and authorization information.  Command output no longer displays Smart Account and Virtual account information.
	Cisco IOS XE Cupertino 17.7.1	Command output was updated to display Smart Account and Virtual account information.

## Usage Guidelines

**Smart Licensing:** If the software version on the device is Cisco IOS XE Amsterdam 17.3.1 or an earlier release, command output displays fields pertinent to Smart Licensing.

**Smart Licensing Using Policy:** If the software version on the device (also referred to as a product instance) is Cisco IOS XE Amsterdam 17.3.2a or a later release, command output displays fields pertinent to Smart Licensing Using Policy.

The licenses on Cisco Catalyst Wireless Controllers are never `NOT AUTHORIZED`, because none of the available licenses are export-controlled or enforced (Only these licenses require authorization before use).

### Account Information in the output

Starting with Cisco IOS XE Cupertino 17.7.1, every `ACK` includes the Smart Account and Virtual Account that was reported to, in CSSM. When it receives the `ACK`, the product instance securely stores only the latest version of this information - as determined by the timestamp in the `ACK`. The Smart Account and Virtual Account information that is displayed in the `Account Information` section of this command's output is therefore always as per the latest available `ACK` on the product instance.

If a product instance is moved from one Smart Account and Virtual Account to another, the next `ACK` after the move will have this updated information. The output of this command is updated once this `ACK` is available on the product instance.

The `ACK` may be received directly (where the product instance is connected to CSSM), or indirectly (where the product instance is connect to CSSM through CSLU, Cisco DNA Center, or SSM On-Prem), or by manually importing the `ACK` (where a product instance is in an air-gapped network).

## Examples

See [Table 9: show license summary Field Descriptions, on page 151](#) for information about fields shown in the display.

[show license summary: IN USE \(Smart Licensing Using Policy\), on page 151](#)

[show license summary: NOT IN USE \(Smart Licensing Using Policy\), on page 151](#)

**Table 9: show license summary Field Descriptions**

Field	Description
Account Information: Smart Account: Virtual Account:	The Smart Account and Virtual Account that the product instance is part of. This information is always as per the latest available ACK on the product instance.  This field is displayed only if the software version on the product instance is Cisco IOS XE Cupertino 17.7.1 or a later release.
License	Name of the licenses in use
Entitlement Tag	Short name for license
Count	License count
Status	License status can be one of the following <ul style="list-style-type: none"> <li>• In-Use: Valid license, and in-use.</li> <li>• Not In-Use</li> <li>• Not Authorized: Means that the license requires installation of SLAC before use.</li> </ul>

### show license summary: IN USE (Smart Licensing Using Policy)

The following is sample output of the **show license summary** command, on a product instance where the software version is Cisco IOS XE Cupertino 17.7.1:

```
Devide# show license summary
```

```
Account Information:
  Smart Account: Eg-SA
  Virtual Account: Eg-VA
```

```
License Usage:
  License                Entitlement Tag                Count Status
  -----
  air-network-essentials (DNA_NWSTACK_E)                1 IN USE
  air-dna-essentials     (AIR-DNA-E)                    1 IN USE
```

### show license summary: NOT IN USE (Smart Licensing Using Policy)

The following is sample output of the **show license summary** command, where no APs have joined the controller. Current consumption (Count) is therefore zero, and the `Status` field shows that the licenses are NOT IN USE:

```
Device# show license summary
```

```
Device#show license summary
```

```
License Reservation is ENABLED
```

```
License Usage:
```

License	Entitlement Tag	Count	Status
-----			
Aironet DNA Advantag...	(AIR-DNA-A)	0	NOT IN USE
AP Perpetual Network...	(DNA_NWstack)	0	NOT IN USE



# show license tech

To display licensing information to help the technical support team to solve a problem, enter the **show license tech** command in privileged EXEC mode. The output for this command includes outputs of several other **show license** commands and more.

```
show license tech { data { conversion } | eventlog [{ days } ] | reservation | support }
```

```
show license tech { message | rum { feature { license_name | all } | id { rum_id | all } } [ detail ] [ save path ] | support }
```

## Syntax Description

**data { conversion }** Displays license data conversion information.

**eventlog [{ days } ]** Displays event logs related to Smart Licensing Using Policy.

For *days*, enter the number of days for which you want to display event logs. The valid value range is from 0 to 2147483647.

**reservation** Displays license reservation information.

**support** Displays licensing information that helps the technical support team to debug a problem.

## Syntax Description

**message** Displays messages concerning trust establishment, usage reporting, result polling, authorization code requests and returns, and trust synchronization. This is the same information as displayed in the output of the **show license history message** command.

**rum { feature { license\_name | all } | id { rum\_id | all } } [ detail ] [ save path ]** Displays information about Resource Utilization Measurement reports (RUM reports) on the product instance, including report IDs, the current processing state of a report, error information (if any), and an option save the displayed RUM report information.

**Note** This option saves the information *about* RUM reports and is not for reporting purposes. It does not save the RUM report, which is an XML file containing usage information.

**support** Displays licensing information that helps the technical support team to debug a problem.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
Cisco IOS XE Amsterdam 17.3.2a	Command output was updated to reflect new fields that are applicable to Smart Licensing Using Policy.

Release	Modification
Cisco IOS XE Cupertino 17.7.1	<p>The <b>rum</b> keyword and additional options under this keyword were added:</p> <pre>{ feature { license_name   all }   id { rum_id   all } }</pre> <p>The output of the <b>show license tech support</b> command was enhanced to display the following information:</p> <ul style="list-style-type: none"> <li>• RUM report information, in section <code>License Usage and Usage Report Summary</code>.</li> <li>• Smart Account and Virtual account information, in section <code>Account Information</code>.</li> </ul> <p>The <b>data conversion</b>, <b>eventlog</b> and <b>reservation</b> keywords were removed from this command. They continue to be available as separate show commands, that is, <b>show license data</b>, <b>show license eventlog</b>, and <b>show license reservation</b> respectively.</p>

## Usage Guidelines

**Smart Licensing:** If the software version on the device is Cisco IOS XE Amsterdam 17.3.1 or an earlier release, command output displays fields pertinent to Smart Licensing (whether smart licensing is enabled, all associated licensing certificates, compliance status, and so on).

**Smart Licensing Using Policy:** If the software version on the device (also referred to as a product instance) is Cisco IOS XE Amsterdam 17.3.2 or a later release, command output displays fields pertinent to Smart Licensing Using Policy. Note the following guidelines:

When you encounter an error message that you are not able to resolve, along with a copy of the message that appears on the console or in the system log, provide your Cisco technical support representative with sample output of these commands: **show license tech support**, **show license history message**, and the **show platform software sl-infra all** privileged EXEC commands.

- Troubleshooting with a Support Representative

When you encounter an error message that you are not able to resolve, along with a copy of the message that appears on the console or in the system log, provide your Cisco technical support representative with sample output of these commands: **show license tech support**, **show license history message**, and the **show platform software sl-infra all** privileged EXEC commands.

- RUM Report Information in the output
  - The output of the **show license tech support** command displays the following sections pertaining to RUM reports:

[Table 10: show license tech support: Field Descriptions for Header "License Usage", on page 155](#)

```
<output truncated>
License Usage
=====
Measurements:
  ENTITLEMENT:
    Interval: 00:15:00
    Current Value: 800
    Current Report: 1638055645      Previous: 0
<output truncated>
```

Table 11: show license tech support: Field Descriptions for Header "Usage Report Summary", on page 156

```
<output truncated>
Usage Report Summary:
=====
Total: 4, Purged: 0(0)
Total Acknowledged Received: 0, Waiting for Ack: 0(4)
Available to Report: 4 Collecting Data: 2
Maximum Display: 4 In Storage: 4, MIA: 0(0)
Report Module Status: Ready

<output truncated>
```

- The output of the **show license tech rum** command when used with the **detail** keyword, displays the following fields pertaining to RUM reports: [Table 12: show license tech rum: Field Descriptions for Header "Smart Licensing Usage Report Detail", on page 156.](#)

The options available under the **show license tech rum** keyword are the same as the options available with the **show license rum** privileged EXEC command. The sample output that is displayed in the *simplified view* is also the same. But if you use the **detail** keyword (for example if you enter **show license tech rum feature license\_name detail**), the detailed view is displayed and this has a few *additional* fields when compared to **show license rum**.

```
<output truncated>
Smart Licensing Usage Report Detail:
=====
Report Id: 1638055644
Metric Name: ENTITLEMENT
Feature Name: air-dna-advantage
Metric Value:
regid.2017-08.com.cisco.AIR-DNA-A,1.0_b6308627-3ab0-4a11-a3d9-586911a0d790
UDI: PID:C9800-CL-K9,SN:93SZ7RXN93Y
Previous Report Id: 0, Next Report Id: 1638055646
Version: 2.0
State: CLOSED, State Change Reason: RELOAD
Start Time: Nov 28 12:02:09 2021 UTC, End Time: Nov 30 22:02:13 2021 UTC
Storage State: EXIST, Storage State Change Reason: None
Transaction ID: 0
Transaction Message: <none>
Report Size: 54880(54987)
<output truncated>
```

Table 10: show license tech support: Field Descriptions for Header "License Usage"

Field Name	Description
Interval:	This is a fixed measurement duration and is always 15 minutes.
Current Value:	Information about the current license count.
Current Report:	ID of the currently OPEN report for the license.
Previous:	ID of the last OPEN report for the license. This report will have state CLOSED now.

Table 11: show license tech support: Field Descriptions for Header "Usage Report Summary"

Field Name	Description
Total:	Total number of reports that the product instance has ever generated.  <b>Note</b> This total does not refer to the total number of reports <i>currently available</i> on and being tracked by the product instance. For this you must sum up the <code>Total Acknowledged Received:</code> and <code>Available to Report</code> fields.
Purged:	The number of reports deleted due to a system resource limitation. This number includes RUM reports where the product instance no longer has tracking information.
Total Acknowledged Received:	The number of RUM reports acknowledged on this product instance.
Waiting for Ack:	The number of RUM reports waiting for an ACK. This is the total number of reports in an <code>UNACK</code> state, where the product instance still has tracking information.
Available to Report:	The number of RUM reports that are available to send to CSSM. This is the total number of reports in an <code>OPEN</code> or <code>CLOSED</code> state, where the product instance still has tracking information.
Collecting Data:	Number of reports where the product instance is currently collecting measurements.
Maximum Display:	Number of reports available for display in a <b>show</b> command's output.
In Storage:	Number of reports currently stored on the disk
MIA:	The number of reports missing.

Table 12: show license tech rum: Field Descriptions for Header "Smart Licensing Usage Report Detail"

Field Name	Description
Version:	Displays the format of the report during transmission.  Starting with Cisco IOS XE Cupertino 17.7.1, RUM reports are stored in a new format that reduces processing time. This field indicates if the product instance is using the old format or the new format.

Field Name	Description
Storage State:	Indicates if a given report is currently in storage.  In addition to the displaying the current storage state of the RUM report, with these possible values: EXIST, DELETED, PURGED, MISSING, if a "(1)" is displayed next to the label ( <code>Storage State (1)</code> ), this means the RUM report is in the older (pre-17.7.1 format) and will be processed accordingly. If the RUM report is in the new format, the field is displayed as <code>Storage State</code> - without any extra information.
Storage State Change Reason:	Displays the reason for the change in the storage state change. Not all state changes provide a reason. <ul style="list-style-type: none"> <li>• NONE: This means no reason was recorded for the the storage state change.</li> <li>• PROCESSED: This means the RUM report was deleted after CISCO has processed the data.</li> <li>• LIMIT_STORAGE: This means the RUM report was deleted because the product instance reached it's storage limit.</li> <li>• LIMIT_TIME: This means the RUM report was deleted because the report reached the persisted time limit.</li> </ul>
Transaction ID: Transaction Message:	If the transaction ID displays a correlation ID and an error status is displayed, the product instance displays the error code field in this section. If there are no errors, no data is displayed here.
Report Size	This field displays two numbers. The first number is the size of raw report for communication, in bytes. The second number is the disk space used for saving the report, also in bytes. The second number is displayed only if report is stored in the new format.

### show license tech support on Cisco Catalyst 9800-CL Wireless Controller

The following is sample output from the **show license tech support** command on a Cisco Catalyst 9800-CL Wireless Controller running software version Cisco IOS XE Cupertino 17.7.1:

```
Device# show license tech support
Smart Licensing Tech Support info

Smart Licensing Status
=====

Smart Licensing is ENABLED

Export Authorization Key:
  Features Authorized:
    <none>

Utility:
  Status: DISABLED
```

```

Smart Licensing Using Policy:
  Status: ENABLED

Account Information:
  Smart Account: <none>
  Virtual Account: <none>

Data Privacy:
  Sending Hostname: yes
  Callhome hostname privacy: DISABLED
  Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Smart
  URL: https://smartreceiver.cisco.com/licservice/license
  Proxy:
    Address: <empty>
    Port: <empty>
    Username: <empty>
    Password: <empty>
  Server Identity Check: True
  VRF: <empty>

Miscellaneous:
  Custom Id: <empty>

Policy:
  Policy in use: Merged from multiple sources.
  Reporting ACK required: yes (CISCO default)
  Unenforced/Non-Export Perpetual Attributes:
    First report requirement (days): 365 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 90 (CISCO default)
  Unenforced/Non-Export Subscription Attributes:
    First report requirement (days): 90 (CISCO default)
    Reporting frequency (days): 90 (CISCO default)
    Report on change (days): 90 (CISCO default)
  Enforced (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 0 (CISCO default)
  Export (Perpetual/Subscription) License Attributes:
    First report requirement (days): 0 (CISCO default)
    Reporting frequency (days): 0 (CISCO default)
    Report on change (days): 0 (CISCO default)

Usage Reporting:
  Last ACK received: <none>
  Next ACK deadline: <none>
  Reporting push interval: 0 (no reporting) State(1) InPolicy(0)
  Next ACK push check: <none>
  Next report push: <none>
  Last report push: <none>
  Last report file write: <none>

License Usage
=====
Handle: 1
  License: air-network-advantage
  Entitlement Tag:
  regid.2018-06.com.cisco.DNA_NWStack,1.0_e7244e71-3ad5-4608-8bf0-d12f67c80896
  Description: air-network-advantage
  Count: 0

```

```

Version: 1.0
Status: NOT IN USE(1)
Status time: Oct 05 22:24:24 2021 UTC
Request Time: None
Export status: NOT RESTRICTED
Feature Name: air-network-advantage
Feature Description: air-network-advantage
Enforcement type: NOT ENFORCED
License type: Perpetual
Measurements:
  ENTITLEMENT:
    Interval: 00:15:00
    Current Value: 0
    Current Report: 0          Previous: 0
  Soft Enforced: True

Handle: 2
License: air-dna-advantage
Entitlement Tag: regid.2017-08.com.cisco.AIR-DNA-A,1.0_b6308627-3ab0-4a11-a3d9-586911a0d790

Description: air-dna-advantage
Count: 0
Version: 1.0
Status: NOT IN USE(1)
Status time: Oct 05 22:24:24 2021 UTC
Request Time: None
Export status: NOT RESTRICTED
Feature Name: air-dna-advantage
Feature Description: air-dna-advantage
Enforcement type: NOT ENFORCED
License type: Subscription
Measurements:
  ENTITLEMENT:
    Interval: 00:15:00
    Current Value: 0
    Current Report: 0          Previous: 0
  Soft Enforced: True

Product Information
=====
UDI: PID:C9800-CL-K9,SN:9KGIXIDOXFE

HA UDI List:
  Active:PID:C9800-CL-K9,SN:9KGIXIDOXFE
  Standby:PID:C9800-CL-K9,SN:9UBKZU955E4

Agent Version
=====
Smart Agent for Licensing: 5.3.14_rel/47

Upcoming Scheduled Jobs
=====
Current time: Oct 06 00:38:46 2021 UTC
Daily: Oct 06 21:24:22 2021 UTC (20 hours, 45 minutes, 36 seconds remaining)
Authorization Renewal: Expired Not Rescheduled
Init Flag Check: Expired Not Rescheduled
Reservation configuration mismatch between nodes in HA mode: Expired Not Rescheduled
Start Utility Measurements: Oct 06 00:39:25 2021 UTC (39 seconds remaining)
Send Utility RUM reports: Oct 06 22:24:54 2021 UTC (21 hours, 46 minutes, 8 seconds remaining)
Save unreported RUM Reports: Oct 06 01:24:35 2021 UTC (45 minutes, 49 seconds remaining)
Data Synchronization: Expired Not Rescheduled
External Event: Expired Not Rescheduled
Operational Model: Expired Not Rescheduled

```

```

Communication Statistics:
=====
Communication Level Allowed: INDIRECT
Overall State: Insufficient trust for direct communication
Trust Establishment:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
  Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Trust Acknowledgement:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
  Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Usage Reporting:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
  Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Result Polling:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
  Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Authorization Request:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
  Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Authorization Confirmation:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
  Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Authorization Return:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
  Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Trust Sync:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
  Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>
Hello Message:
  Attempts: Total=0, Success=0, Fail=0  Ongoing Failure: Overall=0 Communication=0
  Last Response: <none>
  Failure Reason: <none>
  Last Success Time: <none>
  Last Failure Time: <none>

License Certificates
=====
Production Cert: False
Not registered. No certificates installed

```



```
HA Info
=====
RP Role: Active
Chassis Role: Active
Behavior Role: Active
RMF: True
CF: True
CF State: Stateless
Message Flow Allowed: False

Reservation Info
=====
License reservation: DISABLED

Overall status:
  Active: PID:C9800-CL-K9,SN:9KGIXIDOXFE
    Reservation status: NOT INSTALLED
    Request code: <none>
    Last return code: <none>
    Last Confirmation code: <none>
    Reservation authorization code: <none>
  Standby: PID:C9800-CL-K9,SN:9UBKZU955E4
    Reservation status: NOT INSTALLED
    Request code: <none>
    Last return code: <none>
    Last Confirmation code: <none>
    Reservation authorization code: <none>

Specified license reservations:

Purchased Licenses:
  No Purchase Information Available

Usage Report Summary:
=====
Total: 0, Purged: 0(0)
Total Acknowledged Received: 0, Waiting for Ack: 0(0)
Available to Report: 0 Collecting Data: 0
Maximum Display: 0 In Storage: 0, MIA: 0(0)
Report Module Status: Ready

Other Info
=====
Software ID: regid.2018-05.com.cisco.WLC_9500C,1.0_85665885-b865-4e32-8184-5510412fcb54
Agent State: authorized
TS enable: True
Transport: Smart
  Default URL: https://smartreceiver.cisco.com/licservice/license
Locale: en_US.UTF-8
Debug flags: 0x7
Privacy Send Hostname: True
Privacy Send IP: True
Build type:: Production
sizeof(char) : 1
sizeof(int) : 4
sizeof(long) : 4
sizeof(char *) : 8
sizeof(time_t) : 4
sizeof(size_t) : 8
Endian: Big
Write Erase Occurred: False
XOS version: 0.12.0.0
Config Persist Received: False
Message Version: 1.3
```

```

connect_info.name: <empty>
connect_info.version: <empty>
connect_info.additional: <empty>
connect_info.prod: False
connect_info.capabilities: <empty>
agent.capabilities: UTILITY, DLC, AppHA, MULTITIER, EXPORT_2, OK_TRY_AGAIN
Check Point Interface: True
Config Management Interface: False
License Map Interface: True
HA Interface: True
Trusted Store Interface: True
Platform Data Interface: True
Crypto Version 2 Interface: False
SAPuginMgmtInterfaceMutex: True
SAPuginMgmtIPDomainName: True
SmartTransportVRFSupport: True
SmartAgentClientWaitForServer: 2000
SmartAgentCmRetrySend: True
SmartAgentClientIsUnified: True
SmartAgentCmClient: True
SmartAgentClientName: UnifiedClient
builtInEncryption: True
enableOnInit: True
routingReadyByEvent: True
systemInitByEvent: True
SmartTransportServerIdCheck: True
SmartTransportProxySupport: True
SmartAgentPolicyDisplayFormat: 0
SmartAgentReportOnUpgrade: False
SmartAgentIndividualRUMEncrypt: 2
SmartAgentMaxRumMemory: 2
SmartAgentConcurrentThreadMax: 10
SmartAgentPolicyControllerModel: False
SmartAgentPolicyModel: True
SmartAgentFederalLicense: True
SmartAgentMultiTenant: False
attr365DayEvalSyslog: True
checkPointWriteOnly: False
SmartAgentDelayCertValidation: False
enableByDefault: False
conversionAutomatic: True
conversionAllowed: False
storageEncryptDisable: False
storageLoadUnencryptedDisable: False
TSPluginDisable: False
bypassUDICheck: False
loggingAddTStamp: False
loggingAddTid: True
HighAvailabilityOverrideEvent: UnknownPlatformEvent
platformIndependentOverrideEvent: UnknownPlatformEvent
platformOverrideEvent: UnknownPlatformEvent
WaitForHaRole: False
standbyIsHot: True
chkPtType: 2
delayCommInit: False
roleByEvent: True
maxTraceLength: 150
traceAlwaysOn: True
debugFlags: 0
Event log max size: 5120 KB
Event log current size: 3 KB
P:C9800-CL-K9,S:9KGIXIDOXFE: No Trust Data
P:C9800-CL-K9,S:9UBKZU955E4: No Trust Data
Overall Trust: No ID

```

```

Clock sync-ed with NTP: True

Platform Provided Mapping Table
=====
C9800-CL-K9: Total licenses found: 5
Enforced Licenses:
  P:C9800-CL-K9,S:9KGIXIDOXFE:
    No PD enforced licenses
  P:C9800-CL-K9,S:9UBKZU955E4:
    No PD enforced licenses

```

### Example (Smart Licensing Using Policy)

The following is sample output from the **show license tech support** command.

```

Device# show license tech support

Smart Licensing Tech Support info

Smart Licensing Status
=====

Smart Licensing is ENABLED
License Reservation is ENABLED

Registration:
  Status: REGISTERED - SPECIFIC LICENSE RESERVATION
  Export-Controlled Functionality: ALLOWED
  Initial Registration: SUCCEEDED on Nov 02 03:16:01 2020 IST

License Authorization:
  Status: AUTHORIZED - RESERVED on Nov 02 03:16:01 2020 IST

Export Authorization Key:
  Features Authorized:
    <none>

Utility:
  Status: DISABLED

Data Privacy:
  Sending Hostname: yes
  Callhome hostname privacy: DISABLED
  Smart Licensing hostname privacy: DISABLED
  Version privacy: DISABLED

Transport:
  Type: Smart
  URL: https://smartreceiver.cisco.com/licservice/license

Evaluation Period:
  Evaluation Mode: Not In Use
  Evaluation Period Remaining: 89 days, 23 hours, 42 minutes, 47 seconds

License Usage
=====
Handle: 1
License: AP Perpetual Networkstack Advantage
Entitlement tag:
regid.2018-06.com.cisco.DNA_NWStack,1.0_e7244e71-3ad5-4608-8bf0-d12f67c80896
Description: AP Perpetual Network Stack entitled with DNA-A
Count: 1
Version: 1.0

```

```

Status: AUTHORIZED(3)
Status time: Nov 02 03:16:01 2020 IST
Request Time: Nov 02 02:55:34 2020 IST
Export status: NOT RESTRICTED
Soft Enforced: True

Handle: 2
License: Aironet DNA Advantage Term Licenses
Entitlement tag: regid.2017-08.com.cisco.AIR-DNA-A,1.0_b6308627-3ab0-4a11-a3d9-586911a0d790

Description: DNA Advantage for Wireless
Count: 1
Version: 1.0
Status: AUTHORIZED(3)
Status time: Nov 02 03:16:01 2020 IST
Request Time: Nov 02 02:55:34 2020 IST
Export status: NOT RESTRICTED
Soft Enforced: True

Product Information
=====
UDI: PID:C9800-CL-K9,SN:93BBAH93MGS

HA UDI List:
Active:PID:C9800-CL-K9,SN:93BBAH93MGS
Standby:PID:C9800-CL-K9,SN:9XECPSUU4XN

Agent Version
=====
Smart Agent for Licensing: 4.8.7_rel/52

Upcoming Scheduled Jobs
=====
Current time: Nov 02 03:17:23 2020 IST
Daily: Nov 03 02:47:04 2020 IST (23 hours, 29 minutes, 41 seconds remaining)
Certificate Renewal: Not Available
Certificate Expiration Check: Not Available
Authorization Renewal: Not Available
Authorization Expiration Check: Not Available
Init Flag Check: Not Available
Evaluation Expiration Check: Not Available
Ack Expiration Check: Not Available
Evaluation Expiration Warning: Not Available
IdCert Expiration Warning: Not Available
Reservation request in progress warning: Not Available
Reservation configuration mismatch between nodes in HA mode: Nov 09 03:16:30 2020 IST (6
days, 23 hours, 59 minutes, 7 seconds remaining)
Endpoint Report Request: Not Available

License Certificates
=====
Production Cert: True
Not registered. No certificates installed

HA Info
=====
RP Role: Active
Chassis Role: Active
Behavior Role: Active
RMF: True
CF: True
CF State: Stateless
Message Flow Allowed: False

```

```

Reservation Info
=====
License reservation: ENABLED

Overall status:
  Active: PID:C9800-CL-K9,SN:93BBAH93MGS
    Reservation status: SPECIFIC INSTALLED on Nov 02 03:16:01 2020 IST
    Export-Controlled Functionality: ALLOWED
    Request code: <none>
    Last return code: <none>
    Last Confirmation code: 102fc949
    Reservation authorization code:
    UTC</startDate><endDate>2021-Apr-12
    UTC</startDate><endDate>2021-Apr-12
  UTC</endDate><licenseType>TERM</licenseType><displayName>Aironet DNA Advantage Term
  Licenses</displayName><tagDescription>DNA Advantage for
  Wireless</tagDescription><subscriptionID><subscriptionID><title><title><tagid>21748</tagid><cnid>AIR-DNA-1063627-30411-89381679</cnid><tag><tag></tag></tag></tag></tag>
  UTC</startDate><endDate>2020-Dec-15
  UTC</startDate><endDate>2021-Apr-12
  UTC</endDate><licenseType>TERM</licenseType><displayName>Aironet DNA Advantage Term
  Licenses</displayName><tagDescription>DNA Advantage for
  Wireless</tagDescription><subscriptionID><subscriptionID><title><title><tagid>21748</tagid><cnid>AIR-DNA-1063627-30411-89381679</cnid><tag><tag></tag></tag></tag>
  UTC</startDate><endDate>2021-Apr-12
  UTC</endDate><licenseType>TERM</licenseType><displayName>AP Perpetual Networkstack
  Advantage</displayName><tagDescription>AP Perpetual Network Stack entitled with
  DNA</tagDescription><subscriptionID><subscriptionID><title><title><tagid>21748</tagid><cnid>AIR-DNA-1063627-30411-89381679</cnid><tag><tag></tag></tag></tag>
  UTC</startDate><endDate>2020-Dec-15
  UTC</startDate><endDate>2021-Apr-12
  UTC</endDate><licenseType>TERM</licenseType><displayName>AP Perpetual Networkstack
  Advantage</displayName><tagDescription>AP Perpetual Network Stack entitled with
  DNA</tagDescription><subscriptionID><subscriptionID><title><title><tagid>21748</tagid><cnid>AIR-DNA-1063627-30411-89381679</cnid><tag><tag></tag></tag></tag>
  Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN
    Reservation status: SPECIFIC INSTALLED on Nov 02 03:15:45 2020 IST
    Export-Controlled Functionality: ALLOWED
    Request code: <none>
    Last return code: <none>
    Last Confirmation code: ad4382fe
    Reservation authorization code:
    UTC</startDate><endDate>2021-Apr-12
    UTC</startDate><endDate>2021-Apr-12
  UTC</endDate><licenseType>TERM</licenseType><displayName>AP Perpetual Networkstack
  Advantage</displayName><tagDescription>AP Perpetual Network Stack entitled with
  DNA</tagDescription><subscriptionID><subscriptionID><title><title><tagid>21748</tagid><cnid>AIR-DNA-1063627-30411-89381679</cnid><tag><tag></tag></tag></tag>
  UTC</startDate><endDate>2021-Apr-12
  UTC</startDate><endDate>2021-Apr-12
  UTC</endDate><licenseType>TERM</licenseType><displayName>Aironet DNA Advantage Term
  Licenses</displayName><tagDescription>DNA Advantage for
  Wireless</tagDescription><subscriptionID><subscriptionID><title><title><tagid>21748</tagid><cnid>AIR-DNA-1063627-30411-89381679</cnid><tag><tag></tag></tag></tag>
Specified license reservations:
  Aironet DNA Advantage Term Licenses (AIR-DNA-A):
    Description: DNA Advantage for Wireless
    Total reserved count: 20
    Term information:
      Active: PID:C9800-CL-K9,SN:93BBAH93MGS
        License type: TERM
        Start Date: 2020-OCT-14 UTC
        End Date: 2021-APR-12 UTC
        Term Count: 5
        Subscription ID: <none>
      License type: TERM
        Start Date: 2020-JUN-18 UTC
        End Date: 2020-DEC-15 UTC
        Term Count: 5
        Subscription ID: <none>
    Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN

```

```

        License type: TERM
          Start Date: 2020-OCT-14 UTC
          End Date: 2021-APR-12 UTC
          Term Count: 10
          Subscription ID: <none>
AP Perpetual Networkstack Advantage (DNA_NWStack):
  Description: AP Perpetual Network Stack entitled with DNA-A
  Total reserved count: 20
  Term information:
    Active: PID:C9800-CL-K9,SN:93BBAH93MGS
      License type: TERM
        Start Date: 2020-OCT-14 UTC
        End Date: 2021-APR-12 UTC
        Term Count: 5
        Subscription ID: <none>
      License type: TERM
        Start Date: 2020-JUN-18 UTC
        End Date: 2020-DEC-15 UTC
        Term Count: 5
        Subscription ID: <none>
    Standby: PID:C9800-CL-K9,SN:9XECPSUU4XN
      License type: TERM
        Start Date: 2020-OCT-14 UTC
        End Date: 2021-APR-12 UTC
        Term Count: 10
        Subscription ID: <none>

Other Info
=====
Software ID: regid.2018-05.com.cisco.WLC_9500C,1.0_85665885-b865-4e32-8184-5510412fcb54
Agent State: authorized
TS enable: True
Transport: Smart
  Default URL: https://smartreceiver.cisco.com/licservice/license
Locale: en_US.UTF-8
Debug flags: 0x7
Privacy Send Hostname: True
Privacy Send IP: True
Build type:: Production
sizeof(char)   : 1
sizeof(int)    : 4
sizeof(long)   : 4
sizeof(char *) : 8
sizeof(time_t) : 4
sizeof(size_t) : 8
Endian: Big
Write Erase Occurred: False
XOS version: 0.12.0.0
Config Persist Received: False
Message Version: 1.3
connect_info.name: <empty>
connect_info.version: <empty>
connect_info.additional: <empty>
connect_info.prod: False
connect_info.capabilities: <empty>
agent.capabilities: UTILITY, DLC, AppHA, MULTITIER, EXPORT_2, OK_TRY_AGAIN
SmartAgentClientWaitForServer: 2000
SmartAgentCmReTrySend: True
SmartAgentClientIsUnified: True
SmartAgentCmClient: True
SmartAgentClientName: UnifiedClient
builtInEncryption: True
enableOnInit: True
routingReadyByEvent: True

```

```
systemInitByEvent: True
SmartAgentFederalLicense: True
SmartAgent_Crypto_Exit_CB: 0x55B353357A20
SmartAgent_Crypto_Start_CB: 0x55B353357A10
SmartAgentMultiTenant: False
attr365DayEvalSyslog: True
checkPointWriteOnly: False
SmartAgentDelayCertValidation: False
enableByDefault: False
conversionAutomatic: True
conversionAllowed: False
storageEncryptDisable: False
storageLoadUnencryptedDisable: False
TSPluginDisable: False
bypassUDICheck: False
loggingAddTStamp: False
loggingAddTid: True
platformOverrideEvent: UnknownPlatformEvent
WaitForHaRole: False
standbyIsHot: True
chkPtType: 2
delayCommInit: False
roleByEvent: True
maxTraceLength: 150
traceAlwaysOn: True
debugFlags: 0
Event log max size: 5120 KB
Event log current size: 21 KB

Platform Provided Mapping Table
=====
<empty>
```

# show license udi

To display Unique Device Identifier (UDI) information for a product instance, enter the **show license udi** command in privileged EXEC mode. In a High Availability set-up, the output displays UDI information for all connected product instances.

## show license udi

### Syntax Description

This command has no keywords or arguments

### Command Modes

Privileged EXEC

### Command History

#### Release

#### Modification

Cisco IOS XE Gibraltar 16.10.1 This command was introduced.

Cisco IOS XE Amsterdam 17.3.2a This command continues to be available with the introduction of Smart Licensing Using Policy.

### Usage Guidelines

**Smart Licensing Using Policy:** If the software version on the device (also referred to as a product instance) is Cisco IOS XE Amsterdam 17.3.2a or a later release, command output displays fields pertinent to Smart Licensing Using Policy.

**Smart Licensing:** If the software version on the device is Cisco IOS XE Amsterdam 17.3.1 or an earlier release, command output displays fields pertinent to Smart Licensing.

### Examples

[show license udi with Standalone Product Instance, on page 168](#)

[show license udi with Active and Standby, on page 168](#)

#### show license udi with Standalone Product Instance

The following is sample output from the **show license udi** command on a standalone product instance.

```
Device# show license udi
UDI: PID:C9800-L-F-K9,SN:FCW2323W016
```

#### show license udi with Active and Standby

The following is sample output from the **show license udi** command in a High Availability set-up where an active and a standby product instances exist. UDI information is displayed for both.

```
Device# show license udi
UDI: PID:C9800-CL-K9,SN:93BBAH93MGS
HA UDI List:
  Active:PID:C9800-CL-K9,SN:93BBAH93MGS
  Standby:PID:C9800-CL-K9,SN:9XECPSUU4XN
```



# show license usage

To display license usage information such as status, a count of licenses being used, and enforcement type, enter the **show license usage** command in privileged EXEC mode.

**show license usage**

<b>Syntax Description</b>	This command has no keywords or arguments
---------------------------	---

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	This command was introduced in a release earlier than Cisco IOS XE Amsterdam 17.3.2	This command was introduced.
	Cisco IOS XE Amsterdam 17.3.2a	Command output was updated to reflect new fields that are applicable to Smart Licensing Using Policy. This includes the <code>Status</code> , <code>Enforcement type</code> fields.  Command output was also updated to remove reservation related information, authorization status information, and export status information.

<b>Usage Guidelines</b>	<b>Smart Licensing Using Policy:</b> If the software version on the device (also referred to as a product instance) is Cisco IOS XE Amsterdam 17.3.2a or a later release, command output displays fields pertinent to Smart Licensing Using Policy.
-------------------------	---

**Smart Licensing:** If the software version on the device is Cisco IOS XE Amsterdam 17.3.1 or an earlier release, command output displays fields pertinent to Smart Licensing.

## Examples

See [Table 13: show license usage Field Descriptions, on page 169](#) for information about fields shown in the display.

[show license usage with unenforced licenses \(Smart Licensing Using Policy\), on page 170](#)

[show license usage with unenforced SLR licenses \(Smart Licensing Using Policy\), on page 171](#)

**Table 13: show license usage Field Descriptions**

<b>Field</b>	<b>Description</b>
License Authorization: Status:	Displays overall authorization status.
():	Name of the license as in CSSM.  If this license is one that requires an authorization code, the name of the license comes from the code.

Field	Description
Description	Description of the license as in CSSM.
Count	License count. If the license is not in-use, the count is reflected as zero.
Version	Version.
Status	License status can be one of the following <ul style="list-style-type: none"> <li>• In-Use: Valid license, and in-use.</li> <li>• Not In-Use</li> <li>• Not Authorized: Means that the license requires installation of SLAC before use. For more information, see</li> </ul>
Export Status:	Indicates if this license is export-controlled or not. Accordingly, one of the following statuses is displayed: <ul style="list-style-type: none"> <li>• RESTRICTED - ALLOWED</li> <li>• RESTRICTED - NOT ALLOWED</li> <li>• NOT RESTRICTED</li> </ul>
Feature name	Name of the feature that uses this license.
Feature Description:	Description of the feature that uses this license.
Utility Subscription id:	ID Not applicable, because the corresponding configuration option is not supported.
Enforcement type	Enforcement type status for the license. This may be one of the following: <ul style="list-style-type: none"> <li>• ENFORCED</li> <li>• NOT ENFORCED</li> <li>• EXPORT RESTRICTED - ALLOWED</li> <li>• EXPORT RESTRICTED - NOT ALLOWED</li> </ul> For more information about enforcement types, see <link tbd>

### show license usage with unenforced licenses (Smart Licensing Using Policy)

The following is sample output of the **show license usage** command. Unenforced licenses are in-use here.

```
Device# show license usage

License Authorization:
  Status: Not Applicable

air-network-essentials (DNA_NWSTACK_E):
  Description: air-network-essentials
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: air-network-essentials
  Feature Description: air-network-essentials
  Enforcement type: NOT ENFORCED
  License type: Perpetual

air-dna-essentials (AIR-DNA-E):
  Description: air-dna-essentials
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: air-dna-essentials
  Feature Description: air-dna-essentials
  Enforcement type: NOT ENFORCED
  License type: Perpetual
```

### show license usage with unenforced SLR licenses (Smart Licensing Using Policy)

The following is sample output of the **show license usage** command. Migrated SLR licenses are in-use here:

```
Device# show license usage

air-network-advantage (DNA_NWStack):
  Description: air-network-advantage
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: air-network-advantage
  Feature Description: air-network-advantage
  Enforcement type: NOT ENFORCED
  License type: Perpetual
  Reservation:
    Reservation status: SPECIFIC INSTALLED
    Total reserved count: 20

air-dna-advantage (AIR-DNA-A):
  Description: air-dna-advantage
  Count: 1
  Version: 1.0
  Status: IN USE
  Export status: NOT RESTRICTED
  Feature Name: air-dna-advantage
  Feature Description: air-dna-advantage
  Enforcement type: NOT ENFORCED
  License type: Perpetual
  Reservation:
    Reservation status: SPECIFIC INSTALLED
    Total reserved count: 20
```

## show platform software sl-infra

To display troubleshooting information and for debugging, enter the **show platform software sl-infra** command in privileged EXEC mode. The output of this command is used by the technical support team, for troubleshooting and debugging.

**show platform software sl-infra** { **all** | **current** | **debug** | **stored** }

Syntax Description	
<b>all</b>	Displays current, debugging, and stored information.
<b>current</b>	Displays current license-related information.
<b>debug</b>	Enables debugging
<b>stored</b>	Displays information that is stored on the product instance.

Command Modes	Privileged EXEC
---------------	-----------------

Command History	Release	Modification
	Cisco IOS XE Amsterdam 17.3.2a	This command was introduced.

Usage Guidelines	When you encounter an error message that you are not able to resolve, along with a copy of the message that appears on the console or in the system log, provide your Cisco technical support representative with sample output of these commands: <b>show license tech support</b> , <b>show license history message</b> , and the <b>show platform software sl-infra all</b> privileged EXEC commands.
------------------	--

# show platform software tls client summary

To view the TLS client summary details, use the **show platform software tls client summary** command.

**show platform software tls client summary**

---

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

---

---

<b>Command Modes</b>	Global configuration
----------------------	----------------------

---

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.6.1	This command was introduced.

---

---

**Examples** This example shows how to view the TLS client summary details:

```
Device # show platform software tls client summary
```

Name	ID	Gateway	Port	Auth	Trustpoint	DPD Time	Rekey Time	Retry Time
-----								
fqdn	0		8443	PSK	N/A	60	300	20

# show platform software client detail

To display a summary of TLS client session detail, session statistics, tunnel statistics, and DNS counters, use the **show platform software client detail** command.

## show platform software client detail

### Syntax Description

This command has no keywords or arguments.

### Command Modes

Global configuration

### Command History

Release	Modification
Cisco IOS XE Bengaluru 17.6.1	This command was introduced.

### Examples

This example shows how to view the TLS client summary details:

```

Device # show platform software client detail

TLS Client           : Session Detail
Session Name        : fqdn
FQDN resolved IP    : 10.194.234.149
ID                  : 0
Created             : 04/20/21 00:36:42
Updated            : 04/22/21 05:56:03
State               : Up (Rekey)
Up Time             : 04/21/21 20:30:21 ( 9 hours 25 minutes 45 seconds )
Down Time           : 04/21/21 20:30:01
Rekey Time          : 04/22/21 05:55:51 ( 15 seconds )

TLS Session Statistics

Up Notifications    : 3
Down Notifications  : 2
Rekey Notifications : 636
DP State Updates    : 0
DPD Cleanups        : 0

Packets From      Packets To  Packet Errors To  Bytes From      Bytes To
-----
BinOS              80           0                  0                0
IOSd               0           0                  0                0

TLS Client         0           0                  0                0

TLS Tunnel Statistics
Type              Tx Packets      Rx Packets
-----
Total             0                80
CSTP Ctrl        3836            3836
CSTP Data        80              0

Type              Requests        Responses
-----

```

```
CSTP Cfg          639          639
CSTP DPD          3197         3197

Invalid CSTP Rx      : 0
Injected Packet Success : 0
Injected Packet Failed : 0
Consumed Packets     : 0

TLS Tunnel DNS Counters
DNS Resolve Request Success Count : 641
DNS Resolve Request Failure Count  : 0
DNS Resolve Success Count          : 639
DNS Resolve Failure Count          : 2
```

# show platform software tls statistics

To view the TLS client global statistic details, use the **show platform software tls statistics** command.

## show platform software tls statistics

---

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

---

**Command Modes** Global configuration

---

**Command History**

Release	Modification
Cisco IOS XE Bengaluru 17.6.1	This command was introduced.

---

**Examples** This example shows how to view the TLS client summary details:

```
Device # show platform software tls statistics

TLS Client - Global Statistics
Session Statistics
Up/Down           : 5/2
Rekeys            : 636
DP Updates        : 0
DPD Cleanups      : 0

Packets From      Packets To      Packet Errors To  Bytes From      Bytes To
-----
BinOS              85                0                 0                0
IOSd 0             0                 0                 0                0
TLS Client 0       0                 0                 0                0

Tunnel Statistics
SSL Handshake Init/Done : 641/641
TCP Connection Req/Done : 641/641

Tunnel Packets
Rx/Tx                : 85/0
Injected / Failed    : 0/0
Consumed              : 0

CSTP Packets
Control Rx/Tx        : 3839 / 3839
Data Rx/Tx           : 0 / 85
Config Req/Resp      : 641 / 641
DPD Req/Resp         : 3198 / 3198
Invalid Rx           : 0

FQDN Counters
Req/Resp/Success     : 0/0/0

NAT Counters
Transalte In/Out     : 0/0
Ignore In/Out        : 0/0
Failed               : 0
Invalid              : 0
```



```
No Entry           : 0
Unsupported        : 0
```

## Internal Counters

Type	Allocated	Freed
EV	1299	1295
Tunnel	5	4
Conn	643	642
Sess	3	2

## Config Message Related Counters

Type	Success	Failed
Create	3	0
Delete	2	0

# show platform software tls session summary

To view the tls client session summary, use the **show platform software tls session summary** command.

## show platform software tls session summary

### Syntax Description

This command has no keywords or arguments.

### Command Modes

Global configuration

### Command History

Release	Modification
Cisco IOS XE Bengaluru 17.6.1	This command was introduced.

### Examples

This example shows how to view the TLS client summary details:

```
Device # show platform software tls session summary
```

```
TLS Client - Session Summary
```

Name	ID	Created	State	Since	Elapsed
fqdn	0	04/20/21 00:36:42	Up	04/21/21 20:30:21	9 hours 26 minutes 44 seconds

# show logging profile wireless end timestamp

To specify log filtering end location timestamp for filtering, use the **show logging profile wireless end timestamp** command.

```
show logging profile wireless end timestamp time-stamp
```

<b>Syntax Description</b>	<i>time-stamp</i> Time to end the filtering. For example, 2017/02/10 14:41:50.849.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

<b>Usage Guidelines</b>	Ensure that you enable internal keyword using the <b>show logging profile wireless internal</b> command to get the trace output.
-------------------------	--

## Example

The following example shows how to specify log filtering end location timestamp for filtering:

```
Device# show logging profile wireless end timestamp 2017/02/10 14:41:50.849
```

# show logging profile wireless filter

To specify filter for logs, use the **show logging profile wireless filter** command.

**show logging profile wireless filter** { **ipv4** | **mac** | **string** | **uuid** }

## Syntax Description

**ipv4** Selects logs with specific IP address app context.

**mac** Selects logs with specific MAC app context.

**string** Selects logs with specific string app context.

**uuid** Selects logs with specific Universally Unique Identifier (UUID) app context.

## Command Default

None

## Command Modes

Privileged EXEC (#)

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Usage Guidelines

Ensure that you enable **internal** keyword using the **show logging profile wireless internal** command to get the trace output.

Without the **internal** keyword, only customer curated logs are displayed.

## Example

The following example shows how to specify filter for logs:

```
Device# show logging profile wireless filter ipv4 10.10.11.1
```

# show logging profile wireless fru

To specify field-replaceable unit (FRU) specific commands, use the **show logging profile wireless fru** command.

```
show logging profile wireless fru {0 {reverse | to-file}| chassis} {0 {reverse | to-file} | chassis}
```

Syntax Description	
<b>0</b>	SPA-Inter-Processor slot 0.
<b>reverse</b>	Shows logs in reverse chronological order.
<b>to-file</b>	Decodes files stored in disk and write output to file.
<b>chassis</b>	Chassis name.

**Command Default** None

**Command Modes** Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

**Usage Guidelines** Ensure that you enable **internal** keyword using the **show logging profile wireless internal** command to get the trace output.

Without the **internal** keyword, only customer curated logs are displayed.

## Example

The following example shows how to specify FRU specific commands:

```
Device# show logging profile wireless fru 0
```

# show logging profile wireless internal

To select all the logs, use the **show logging profile wireless internal** command.

## show logging profile wireless internal

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

<b>Usage Guidelines</b>	Ensure that you enable <b>internal</b> keyword using the <b>show logging profile wireless internal</b> command to get the trace output.
-------------------------	---

Without the **internal** keyword, only customer curated logs are displayed.

### Example

The following example shows how to display all the logs:

```
Device# show logging profile wireless internal
```

# show logging profile wireless level

To select logs above a specific level, use the **show logging profile wireless level** command.

```
show logging profile wireless level { debug | emergency | error | info | noise | notice | verbose | warning
}
```

Syntax Description	Option	Description
	<b>debug</b>	Selects debug messages.
	<b>emergency</b>	Selects emergency possible messages.
	<b>error</b>	Selects error messages.
	<b>info</b>	Selects informational messages.
	<b>noise</b>	Selects maximum possible messages.
	<b>notice</b>	Selects notice messages.
	<b>verbose</b>	Selects verbose debug messages.
	<b>warning</b>	Selects warning messages.

**Command Default** None

**Command Modes** Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

**Usage Guidelines** Ensure that you enable **internal** keyword using the **show logging profile wireless internal** command to get the trace output.

Without the **internal** keyword, only customer curated logs are displayed.

## Example

The following example shows how to select logs above a specific level:

```
Device# show logging profile wireless level info
```

# show logging profile wireless module

To select logs for specific modules, use the **show logging profile wireless module** command.

**show logging profile wireless module** *module-name*

<b>Syntax Description</b>	<i>module-name</i> A comma or space separated list of module names. For example, dbal, tdllib or "dbal tdllib".				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.10.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.10.1	This command was introduced.				
<b>Usage Guidelines</b>	<p>Ensure that you enable <b>internal</b> keyword using the <b>show logging profile wireless internal</b> command to get the trace output.</p> <p>Without the <b>internal</b> keyword, only customer curated logs are displayed.</p>				

## Example

The following example shows how to select logs for specific modules:

```
Device# show logging profile wireless module dbal
```



# show logging profile wireless reverse

To view logs in reverse chronological order, use the **show logging profile wireless reverse** command.

**show logging profile wireless reverse**

---

**Syntax Description**

This command has no keywords or arguments.

---

---

**Command Default**

None

---

---

**Command Modes**

Privileged EXEC (#)

---

---

**Command History**

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

---

---

**Usage Guidelines**

Ensure that you enable **internal** keyword using the **show logging profile wireless internal** command to get the trace output.

Without the **internal** keyword, only customer curated logs are displayed.

**Example**

The following example shows how to view logs in reverse chronological order:

```
Device# show logging profile wireless reverse
```

# show logging profile wireless start

To specify log filtering start location, use the **show logging profile wireless start** command.

**show logging profile wireless start** { **marker** *marker* | **timestamp** *time-stamp* }

## Syntax Description

**marker** The marker to start filtering from. It must match with previously set marker.

**timestamp** The timestamp for filtering. for example, "2017/02/10 14:41:50.849".

## Command Default

None

## Command Modes

Privileged EXEC (#)

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Usage Guidelines

Ensure that you enable **internal** keyword using the **show logging profile wireless internal** command to get the trace output.

Without the **internal** keyword, only customer curated logs are displayed.

## Example

The following example shows how to specify log filtering start location:

```
Device# show logging profile wireless start timestamp 2017/02/10 14:41:50.849
```

# show logging profile wireless switch

To specify the switch to look for logs, use the **show logging profile wireless switch** command.

**show logging profile wireless switch** { *switch-num* | **active** | **standby** }

## Syntax Description

<b>active</b>	Selects the active instance.
<b>standby</b>	Selects the standby instance.

## Command Default

None

## Command Modes

Privileged EXEC (#)

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Usage Guidelines

Ensure that you enable **internal** keyword using the **show logging profile wireless internal** command to get the trace output.

Without the **internal** keyword, only customer curated logs are displayed.

## Example

The following example shows how to specify the number to look for logs:

```
Device# show logging profile wireless switch active
```

# show logging profile wireless to-file

To decode files stored in disk and write the output to a file, use the **show logging profile wireless to-file** command.

**show logging profile wireless to-file** *output-file-name*

---

<b>Syntax Description</b>	<i>output-file-name</i> Output file name. File with this name will be created in the flash memory.
---------------------------	--

---

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

---

<b>Usage Guidelines</b>	Ensure that you enable <b>internal</b> keyword using the <b>show logging profile wireless internal</b> command to get the trace output.
-------------------------	---

Without the **internal** keyword, only customer curated logs are displayed.

## Example

The following example shows how to decode files stored in disk and write the output to a file:

```
Device# show logging profile wireless to-file testfile
```

# show mdns-sd cache

To view mDNS cache details, use the **show mdns-sd cache** command.

```
show mdns-sd cache { ap-mac mac-address (H.H.H) | client-mac client-mac-address (H.H.H) |
detail | glan-id <1 - 5> | location-group <0 - 4096> | mdns-ap mdns-ap mac address (H.H.H)
| rlan-id <1 - 128> | statistics | type { A-AAAA | PTR | SRV | TXT } | udn
{ <1 - 4294967295> | shared } | wired | wlan-id <0 - 4096> }
```

Syntax Description		
<b>ap-mac</b>	<i>mac-address (H.H.H)</i>	Specifies the AP Ethernet MAC address.
<b>client-mac</b>	<i>client-mac-address (H.H.H)</i>	Specifies the client MAC address.
<b>detail</b>		Specifies the cache in detail.
<b>location-group</b>	<i>&lt;0 - 4096&gt;</i>	Specifies the location group. The value range is from 0 to 4096.
<b>mdns-ap</b>	<i>mdns-ap mac address (H.H.H)</i>	Specifies the cache learnt from a specific mDNS AP.
<b>rlan-id</b>	<i>&lt;1 - 128&gt;</i>	Specifies the remote LAN ID. The value range is from 1 - 128.
<b>statistics</b>		Specifies the mDNS cache statistics.
<b>type</b>		Specifies the mDNS record type. The record types are, A-AAAA, PTR, SRV, and TXT.
<b>udn</b>	<i>&lt;1 - 4294967295&gt;</i>	Specifies the UDN ID. The value range is from 1 to 4294967295.
<b>shared</b>		Specifies the UDN shared services.
<b>wired</b>		Specifies the mDNS services from wired clients.
<b>wlan-id</b>	<i>&lt;0 - 4096&gt;</i>	Specifies the WLAN ID. The value range is from 1 to 4096.

**Command Default** None

**Command Modes** Privileged EXEC mode

Command History	Release	Modification
	Cisco IOS XE Amsterdam 17.3.1	This command was introduced.

**Usage Guidelines** None

## Example

The following example shows how to view the mDNS cache details:

```
Device# show mdns-sd cache
```

# show mdns-sd cache detail

To view the multicast DNS (mDNS) cache details, use the **show mdns-sd cache detail** command.

## show mdns-sd cache detail

<b>Syntax Description</b>	This command has no keywords or arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.1.1s	This command was introduced.

## Example

The following is sample output from the **show mdns-sd cache detail** command:

```
Device# show mdns-sd cache detail
```

```
Name: _printer._tcp.local
Type: PTR
TTL: 4500
VLAN: 21
Client MAC: ace2.d3bc.047e
Remaining-Time: 4383
mDNS Service Policy: default-mdns-service-policy
Rdata: HP OfficeJet Pro 8720 [BC047E] (2)._printer._tcp.local
```

# show mdns-sd cache upn shared

To view the multicast DNS (mDNS) cache user personal network shared services details, use the **show mdns-sd cache upn shared** command.

## show mdns-sd cache upn shared

<b>Syntax Description</b>	This command has no keywords or arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.1.1s	This command was introduced.

### Example

The following is sample output from the **show mdns-sd cache upn shared** command that displays the mDNS cache UPN shared services details:

```
Device# show mdns-sd cache upn shared
----- PTR Records -----
RECORD-NAME                                TTL      TYPE      ID      CLIENT-MAC
RR-RECORD-DATA
-----
9.1.1.7.5.D.E.F.F.F.6.C.7.E.2.1.0.0.0.0.0.0.0.0  4500     WLAN     2       10e7.c6d5.7119
HP10E7C6D57119-2860.local
_services._dns-sd._udp.local                4500     WLAN     2       10e7.c6d5.7119
_ipps._tcp.local                             4500     WLAN     2       10e7.c6d5.7119
_universal._sub._ipps._tcp.local            4500     WLAN     2       10e7.c6d5.7119
HP DeskJet 5000 series [D57119] (3127)._ipps._tcp.
_print._sub._ipps._tcp.local                4500     WLAN     2       10e7.c6d5.7119
HP DeskJet 5000 series [D57119] (3127)._ipps._tcp.
_ePCL._sub._ipps._tcp.local                 4500     WLAN     2       10e7.c6d5.7119
HP DeskJet 5000 series [D57119] (3127)._ipps._tcp.
_ipps._tcp.local                             4500     WLAN     2       10e7.c6d5.7119
HP DeskJet 5000 series [D57119] (3127)._ipps._tcp.
_services._dns-sd._udp.local                4500     WLAN     2       10e7.c6d5.7119
_ipp._tcp.local                              4500     WLAN     2       10e7.c6d5.7119
_universal._sub._ipp._tcp.local              4500     WLAN     2       10e7.c6d5.7119
HP DeskJet 5000 series [D57119] (3127)._ipp._tcp.l
_print._sub._ipp._tcp.local                 4500     WLAN     2       10e7.c6d5.7119
HP DeskJet 5000 series [D57119] (3127)._ipp._tcp.l
_ePCL._sub._ipp._tcp.local                 4500     WLAN     2       10e7.c6d5.7119
HP DeskJet 5000 series [D57119] (3127)._ipp._tcp.l
.
.
.
----- SRV Records -----
RECORD-NAME                                TTL      TYPE      ID      CLIENT-MAC
```

show mdns-sd cache upn shared

RR-RECORD-DATA

HP DeskJet 5000 series [D57119] (3127)._ipp._	4500	WLAN	2	10e7.c6d5.7119	0
0 631 HP10E7C6D57119-2860.local					
HP DeskJet 5000 series [D57119] (3127)._http.	4500	WLAN	2	10e7.c6d5.7119	0
0 80 HP10E7C6D57119-2860.local					
HP DeskJet 5000 series [D57119] (3127)._ipps.	4500	WLAN	2	10e7.c6d5.7119	0
0 631 HP10E7C6D57119-2860.local					
HP DeskJet 5000 series [D57119] (3127)._uscan	4500	WLAN	2	10e7.c6d5.7119	0
0 8080 HP10E7C6D57119-2860.local					
HP DeskJet 5000 series [D57119] (3127)._prive	4500	WLAN	2	10e7.c6d5.7119	0
0 80 HP10E7C6D57119-2860.local					
HP DeskJet 5000 series [D57119] (3127)._uscan	4500	WLAN	2	10e7.c6d5.7119	0
0 443 HP10E7C6D57119-2860.local					
HP DeskJet 5000 series [D57119] (3127)._scann	4500	WLAN	2	10e7.c6d5.7119	0
0 8080 HP10E7C6D57119-2860.local					
HP DeskJet 5000 series [D57119] (3127)._pdl-d	4500	WLAN	2	10e7.c6d5.7119	0
0 9100 HP10E7C6D57119-2860.local					

----- A/AAAA Records

RECORD-NAME	TTL	TYPE	ID	CLIENT-MAC
RR-RECORD-DATA				
HP10E7C6D57119-2860.local	4500	WLAN	2	10e7.c6d5.7119
8.16.16.99				

----- TXT Records

RECORD-NAME	TTL	TYPE	ID	CLIENT-MAC
RR-RECORD-DATA				
HP DeskJet 5000 series [D57119] (3127)._ipp._	4500	WLAN	2	10e7.c6d5.7119
[502]'txtvers=1'adminurl=http://HP10E7C6D57119-28				
HP DeskJet 5000 series [D57119] (3127)._http.	4500	WLAN	2	10e7.c6d5.7119
[1]'				
HP DeskJet 5000 series [D57119] (3127)._ipps.	4500	WLAN	2	10e7.c6d5.7119
[502]'txtvers=1'adminurl=http://HP10E7C6D57119-28				
HP DeskJet 5000 series [D57119] (3127)._uscan	4500	WLAN	2	10e7.c6d5.7119
[280]'txtvers=1'adminurl=http://HP10E7C6D57119-28				
HP DeskJet 5000 series [D57119] (3127)._prive	4500	WLAN	2	10e7.c6d5.7119
[124]'txtvers=1'ty=HP DeskJet 5000 series [D57119				
HP DeskJet 5000 series [D57119] (3127)._uscan	4500	WLAN	2	10e7.c6d5.7119
[280]'txtvers=1'adminurl=http://HP10E7C6D57119-28				
HP DeskJet 5000 series [D57119] (3127)._scann	4500	WLAN	2	10e7.c6d5.7119
[177]'txtvers=1'adminurl=http://HP10E7C6D57119-28				
HP DeskJet 5000 series [D57119] (3127)._pdl-d	4500	WLAN	2	10e7.c6d5.7119
[211]'txtvers=1'rp='priority=40'UUID=9fe36149-9				



# show mdns-sd cache upn detail

To view the multicast DNS (mDNS) cache user personal network identifier details, use the **show mdns-sd cache upn detail** command.

## show mdns-sd cache upn *upn-id* detail

<b>Syntax Description</b>	<i>upn-id</i> User personal network identifier.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Amsterdam 17.1.1s</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Amsterdam 17.1.1s	This command was introduced.
Release	Modification				
Cisco IOS XE Amsterdam 17.1.1s	This command was introduced.				

## Example

The following is sample output from the **show mdns-sd cache upn detail** command that displays the mDNS cache UPN identifier details:

```
Device# show mdns-sd cache upn 777 detail
Name: _services._dns-sd._udp.local
Type: PTR
TTL: 4500
WLAN: 2
WLAN Name: mdns-psk
VLAN: 16
Client MAC: f4f9.51e2.a6a6
AP Ethernet MAC: 002a.1087.d68a
Remaining-Time: 4486
Site-Tag: default-site-tag
mDNS Service Policy: madhu-mDNS-Policy
Overriding mDNS Service Policy: NO
UPN-ID: 7777
UPN-Status: Enabled
Rdata: _airplay._tcp.local
```

# show mdns-sd flexconnect summary

To view the summary of the mDNS flexconnect sites, use the **show mdns-sd flexconnect summary** command.

**show mdns-sd flexconnect summary**

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC mode
----------------------	----------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.3.1	This command was introduced.

<b>Usage Guidelines</b>	None
-------------------------	------

## Example

The following example shows how to view the summary of mDNS flexconnect sites:

```
Device# show mdns-sd flexconnect summary
```

## show mdns-sd statistics

To view the mDNS statistics, use the **show mdns-sd statistics** command.

```
show mdns-sd statistics { debug | flexconnect | rlan-id <1 - 128> wired | wlan-id <1 - 4096>
}
```

Syntax Description	Option	Description
	<b>debug</b>	Specifies the mDNS debug statistics.
	<b>flexconnect</b>	Specifies the mDNS flexconnect statistics.
	<b>rlan-id</b> <1 - 128>	Specifies the remote LAN (RLAN) ID. The value range is from 1 to 128.
	<b>wired</b>	Specifies the mDNS wired statistics.
	<b>wlan-id</b> <1 - 4096>	Specifies the WLAN ID. The value range is from 1 to 4096.

**Command Default** None

**Command Modes** Privileged EXEC mode

Command History	Release	Modification
	Cisco IOS XE Amsterdam 17.3.1	This command was introduced.

**Usage Guidelines** None

### Example

The following example shows how to view the mDNS statistics:

```
Device# show mdns-sd statistics
```

# show mdns-sd summary

To view the summary of mDNS service discovery configuration, use the **show mdns-sd summary** command.

**show mdns-sd summary**

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC mode
----------------------	----------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.3.1	This command was introduced.

<b>Usage Guidelines</b>	None
-------------------------	------

## Example

The following example shows how to view the summary of mDNS service discovery configuration:

```
Device# show mdns-sd summary
```

## show mdns-sd sp-sdg statistics

To verify the Service-Peer SDG communication statistics, use the **show mdns-sd sp-sdg statistics** command.

**show mdns-sd sp-sdg statistics**

<b>Syntax Description</b>	This command has no keywords or arguments.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Bengaluru 17.5.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Bengaluru 17.5.1	This command was introduced.
Release	Modification				
Cisco IOS XE Bengaluru 17.5.1	This command was introduced.				

The following example shows how to verify the Service-Peer SDG communication statistics:

```
Device# show mdns-sd sp-sdg statistics
                          One min, 5 mins, 1 hour
Average Input rate (pps) :    0,          0,    0
Average Output rate (pps) :    0,          0,    0
Messages sent:
Query : 0
ANY query : 0
Advertisements : 0
Advertisement Withdraw : 0
Interface down : 0
Vlan down : 0
Service-peer ID change : 0
Service-peer cache clear : 0
Resync response : 0
Keep-Alive : 1
Messages received:
Query response : 0
ANY Query response : 0
Cache-sync : 0
Get service-instance : 0
Keep-Alive response : 1
```

# show nmosp

To display the Network Mobility Services Protocol (NMSP) configuration settings, use the **show nmosp** command.

```
show nmosp {attachment | {suppress interfaces} | capability | notification interval | statistics
{connection | summary} | status | subscription detail [ip-addr ] | summary}
```

Syntax Description		
<b>attachment suppress interfaces</b>		Displays attachment suppress interfaces.
<b>capability</b>		Displays NMSP capabilities.
<b>notification interval</b>		Displays the NMSP notification interval.
<b>statistics connection</b>		Displays all connection-specific counters.
<b>statistics summary</b>		Displays the NMSP counters.
<b>status</b>		Displays status of active NMSP connections.
<b>subscription detail ip-addr</b>		The details are only for the NMSP services subscribed to by a specific IP address.
<b>subscription summary</b>		Displays details for all of the NMSP services to which the controller is subscribed. The details are only for the NMSP services subscribed to by a specific IP address.

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

The following is sample output from the **show nmosp notification interval** command:

```
Device# show nmosp notification interval
NMSP Notification Intervals
-----

RSSI Interval:
  Client           : 2 sec
  RFID             : 2 sec
  Rogue AP         : 2 sec
  Rogue Client     : 2 sec
Attachment Interval : 30 sec
Location Interval  : 30 sec
```

## show nmsp cloud-services statistics

To see NMSP cloud-service statistics, use the **show nmsp cloud-services statistics** command.

```
show nmsp cloud-services statistics [chassis {chassis-number | active | standby} R0]
```

### Syntax Description

*chassis-number* Chassis number as either 1 or 2.

**active R0** Active instance of the active NMSP cloud services in Route-processor slot 0.

**standby R0** Standby instance of the active NMSP cloud services in Route-processor slot 0.

### Command Default

None

### Command Modes

Privileged EXEC

### Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

### Examples

This example shows how to see NMSP cloud-service statistics:

```
Device# show nmsp cloud-services statistics
```

# show nmosp cloud-services summary

To see a summary of information about NMSP cloud-services, use the **show nmosp cloud-services summary** command.

**show nmosp cloud-services summary** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

<b>Syntax Description</b>	<i>chassis-number</i> Chassis number as either 1 or 2.				
<b>active R0</b>	Active instance of the NMSP cloud services in Route-processor slot 0.				
<b>standby R0</b>	Standby instance of the active NMSP cloud services in Route-processor slot 0.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.10.1</td> <td>This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.
Release	Modification				
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.				

## Examples

This example shows how to see NMSP cloud-service summary information:

```
Device# show nmosp cloud-services summary
```



# show nmsp subscription group detail all

To display the mobility services group subscription details of all CMX connections, use the **show nmsp subscription group detail all** command.

**show nmsp subscription group detail all**

<b>Syntax Description</b>	This command has no keywords or arguments.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco IOS XE Gibraltar 16.10.1</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.10.1	This command was introduced.				

## Example

The following example shows how to display the mobility services group subscription details of all CMX connections:

```
Device# show nmsp subscription group detail all
```

# show nmsp subscription group detail ap-list

To display the AP MAC list subscribed for a group by a CMX connection, use the **show nmsp subscription group detail ap-list** command.

**show nmsp subscription group detail ap-list** *group-name cmx-IP-address*

<b>Syntax Description</b>	<i>group-name</i>	CMX AP group name.
	<i>cmx-IP-address</i>	CMX IP address.
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Example

The following example shows how to verify the AP MAC list subscribed for a group by a CMX connection.

```
Device# show nmsp subscription group detail ap-list Group1 127.0.0.1

CMX IP address: 127.0.0.1
CMX Group name: Group1
CMX Group AP MACs:
: 00:00:00:00:70:02 00:00:00:00:66:02 00:99:00:00:00:02 00:00:00:bb:00:02
  00:00:00:00:55:02 00:00:00:00:50:02 00:33:00:00:00:02 00:d0:00:00:00:02
  00:10:00:10:00:02 00:00:00:06:00:02 00:00:00:02:00:02 00:00:00:00:40:02
  00:00:00:99:00:02 00:00:00:00:a0:02 00:00:77:00:00:02 00:22:00:00:00:02
  00:00:00:00:00:92 00:00:00:00:00:82 00:00:00:00:03:02 aa:00:00:00:00:02
  00:00:00:50:00:42 00:00:0d:00:00:02 00:00:00:00:00:32 00:00:00:cc:00:02
  00:00:00:88:00:02 20:00:00:00:00:02 10:00:00:00:00:02 01:00:00:00:00:02
  00:00:00:00:00:02 00:00:00:00:00:01 00:00:00:00:00:00
```

# show nmsp subscription group detail services

To display the services subscribed for a group by a CMX connection, use the **show nmsp subscription group detail services** command.

**show nmsp subscription group detail services** *group-name cmx-IP-address*

<b>Syntax Description</b>	<i>group-name</i>	CMX AP group name.
	<i>cmx-IP-address</i>	CMX IP address.
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Example

The following example shows how to verify the services subscribed for a group by a CMX connection.

```
Device# show nmsp subscription group detail services Group1 127.0.0.1

CMX IP address: 127.0.0.1
CMX Group name: Group1
CMX Group filtered services:
Service          Subservice
-----
RSSI              Mobile Station,
Spectrum
Info
Statistics
```

# show nmsp subscription group summary

To display the mobility services group subscription summary of all CMX connections, use the **show nmsp subscription group summary** command.

## show nmsp subscription group summary

<b>Syntax Description</b>	This command has no keywords or arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Example

The following example shows how to verify the mobility services group subscription summary of all CMX connections.

```
Device# show nmsp subscription group summary
CMX IP address: 127.0.0.1
Groups subscribed by this CMX server:
Group name: Group1
```

# show platform conditions

To see information about conditional debugs, use the **show platform conditions** command.

**show platform conditions**

---

**Command Default**

None

---

**Command Modes**

Privileged EXEC

---

**Command History**

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

---

## Examples

The following example shows how to see information about conditional debugs:

```
Device# show platform conditions
```

# show platform software wlavc status cp-exporter

To view the wireless AVC information from the control plane exporter, use the **show platform software wlavc status cp-exporter** command.

**show platform software wlavc status cp-exporter**

<b>Syntax Description</b>	<b>wlavc</b>	Displays the wireless AVC information.
	<b>status</b>	Displays information about the AVC status.
	<b>cp-exporter</b>	Collects information from the Control Plane exporter.
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#) mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.2.1	This command was introduced.

## Example

This example shows how to display the wireless AVC information from the control plane exporter:

```
show platform software wlavc status cp-exporter
AVC FNF Exporter status
IP: 10.10.1.1
connection statistics
Sent bytes : 5672
Sent packets : 569
Received records : 564
Socket statistics
New sockets : 3
Closed sockets : 0
Library statistics AVC
cache errors : 0
Unexpected Flow Monitor ID : 0
Socket creation error : 0
Sent records : 240
Received packets : 800
```

# show platform hardware slot R0 ha\_port interface stats

To see the HA port interface setting status, use the **show platform hardware slot R0 ha\_port interface stats** command.

**show platform hardware slot R0 ha\_port interface stats**

<b>Syntax Description</b>	This command has no arguments or keywords.				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Bengaluru 17.5.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Bengaluru 17.5.1	This command was introduced.
Release	Modification				
Cisco IOS XE Bengaluru 17.5.1	This command was introduced.				

## Examples

This example shows how to see the HA port interface setting status:

```
Device# show platform hardware slot R0 ha_port interface stats
HA Port
ha_port  Link encap:Ethernet  HWaddr 70:18:a7:c8:80:70
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Memory:e0900000-e0920000
```

```
Settings for ha_port:
Supported ports:          [ TP ]
Supported link modes:    10baseT/Half 10baseT/Full
                        100baseT/Half 100baseT/Full
                        1000baseT/Full
Supported pause frame use: Symmetric
Supports auto-negotiation: Yes
Supported FEC modes:     Not reported
Advertised link modes:   10baseT/Half 10baseT/Full
                        100baseT/Half 100baseT/Full
                        1000baseT/Full
Advertised pause frame use: Symmetric
Advertised auto-negotiation: Yes
Advertised FEC modes:   Not reported
Speed:                  Unknown!
Duplex:                  Unknown! (255)
Port:                    Twisted Pair
PHYAD:                   1
Transceiver:             internal
Auto-negotiation:       on
MDI-X:                   off (auto)
Supports Wake-on:       pumbg
Wake-on:                 g
Current message level:   0x00000007 (7)
                        drv probe link
Link detected:          no
```

## show platform hardware slot R0 ha\_port interface stats

```

NIC statistics:
  rx_packets:          0
  tx_packets:          0
  rx_bytes:            0
  tx_bytes:            0
  rx_broadcast:        0
  tx_broadcast:        0
  rx_multicast:        0
  tx_multicast:        0
  multicast:           0
  collisions:          0
  rx_crc_errors:       0
  rx_no_buffer_count:  0
  rx_missed_errors:    0
  tx_aborted_errors:   0
  tx_carrier_errors:   0
  tx_window_errors:    0
  tx_abort_late_coll:  0
  tx_deferred_ok:      0
  tx_single_coll_ok:   0
  tx_multi_coll_ok:    0
  tx_timeout_count:    0
  rx_long_length_errors: 0
  rx_short_length_errors: 0
  rx_align_errors:     0
  tx_tcp_seg_good:     0
  tx_tcp_seg_failed:   0
  rx_flow_control_xon: 0
  rx_flow_control_xoff: 0
  tx_flow_control_xon: 0
  tx_flow_control_xoff: 0
  rx_long_byte_count:  0
  tx_dma_out_of_sync:  0
  tx_smbus:            0
  rx_smbus:            0
  dropped_smbus:       0
  os2bmc_rx_by_bmc:    0
  os2bmc_tx_by_bmc:    0
  os2bmc_tx_by_host:   0
  os2bmc_rx_by_host:   0
  tx_hwtstamp_timeouts: 0
  rx_hwtstamp_cleared: 0
  rx_errors:           0
  tx_errors:           0
  tx_dropped:          0
  rx_length_errors:    0
  rx_over_errors:      0
  rx_frame_errors:     0
  rx_fifo_errors:      0
  tx_fifo_errors:      0
  tx_heartbeat_errors: 0
  tx_queue_0_packets:  0
  tx_queue_0_bytes:    0
  tx_queue_0_restart:  0
  tx_queue_1_packets:  0
  tx_queue_1_bytes:    0
  tx_queue_1_restart:  0
  rx_queue_0_packets:  0
  rx_queue_0_bytes:    0
  rx_queue_0_drops:    0
  rx_queue_0_csum_err: 0
  rx_queue_0_alloc_failed: 0
  rx_queue_1_packets:  0

```



```
rx_queue_1_bytes:      0
rx_queue_1_drops:      0
rx_queue_1_csum_err:   0
rx_queue_1_alloc_failed:0
```

# show platform software system all

To check status of the current virtual machine and look for performance issues due to inadequate resources (or other issues with the hosting environment), use the **set platform software system all** command in privileged EXEC mode.

## show platform software system all

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Examples

This example shows how to check status of the current virtual machine and its resources:

```
Device# show platform software system all

Processor Details
=====
Number of Processors : 6
Processor : 1 - 6
vendor_id : GenuineIntel
cpu MHz : 2593.750
cache size : 35840 KB
Crypto Supported : Yes
model name : Intel(R) Xeon(R) CPU E5-2690 v4 @ 2.60GHz

Memory Details
=====
Physical Memory : 16363904KB

VNIC Details
=====
Name      Mac Address  Status Platform MTU
GigabitEthernet1 000c.2964.7126  UP 1500
GigabitEthernet2 000c.2964.7130  UP 1500

Hypervisor Details
=====
Hypervisor: VMWARE
Manufacturer: VMware, Inc.
Product Name: VMware Virtual Platform
Serial Number: VMware-56 4d e5 0a a7 dd 27 2b-0e 2f 36 6e 0f 64 71 26
UUID: 564DE50A-A7DD-272B-0E2F-366E0F647126
image_variant :

Boot Details
=====
Boot mode: BIOS
Bootloader version: 1.1
```

# show platform software trace filter-binary

To display the most recent trace information for a specific module, use the **show platform software trace filter-binary** command in privileged EXEC or user EXEC mode.

```
show platform software trace filter-binary modules [context mac-address]
```

<b>Syntax Description</b>	<b>context</b> <i>mac-address</i>	Represents the context used to filter. Additionally, you can filter based on module names and trace levels. The context keyword accepts either a MAC address or any other argument based on which a trace is tagged.
---------------------------	-----------------------------------	--

<b>Command Modes</b>	User EXEC (>) Privileged EXEC (#)
----------------------	--------------------------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

<b>Usage Guidelines</b>	This command collates and sorts all the logs present in the <code>/tmp/...</code> across all the processes relevant to the module. The trace logs of all the processes relevant to the specified module are printed to the console. This command also generates a file named <code>collated_log_{system time}</code> with the same content, in the <code>/crashinfo/tracelogs</code> directory.
-------------------------	---

<b>Examples</b>	This example shows how to display the trace information for a wireless module:
-----------------	--

```
Device# show platform software trace filter-binary wireless
```

## show platform software trace level

To view the trace levels for all the modules under a specific process, use the **show platform software trace level** command in privileged EXEC or user EXEC mode.

---

### Syntax Description

*process*

Process whose tracing level is being set. Options include:

- **chassis-manager**—The Chassis Manager process.
  - **cli-agent**—The CLI Agent process.
  - **cmm**—The CMM process.
  - **dbm**—The Database Manager process.
  - **emd**—The Environmental Monitoring process.
  - **fed**—The Forwarding Engine Driver process.
  - **forwarding-manager**—The Forwarding Manager process.
  - **geo**—The Geo Manager process.
  - **host-manager**—The Host Manager process.
  - **interface-manager**—The Interface Manager process.
  - **iomd**—The Input/Output Module daemon (IOMd) process.
  - **ios**—The IOS process.
  - **license-manager**—The License Manager process.
  - **logger**—The Logging Manager process.
  - **platform-mgr**—The Platform Manager process.
  - **pluggable-services**—The Pluggable Services process.
  - **replication-mgr**—The Replication Manager process.
  - **shell-manager**—The Shell Manager process.
  - **sif**—The Stack Interface (SIF) Manager process.
  - **smd**—The Session Manager process.
  - **stack-mgr**—The Stack Manager process.
  - **table-manager**—The Table Manager Server.
  - **thread-test**—The Multithread Manager process.
  - **virt-manager**—The Virtualization Manager process.
  - **wireless**—The wireless controller module process.
-

<i>slot</i>	<p>Hardware slot where the process for which the trace level is set, is running. Options include:</p> <ul style="list-style-type: none"> <li>• <i>number</i>—Number of the SIP slot of the hardware module where the trace level is set. For instance, if you want to specify the SIP in SIP slot 2 of the switch, enter 2.</li> <li>• <i>SIP-slot / SPA-bay</i>—Number of the SIP switch slot and the number of the shared port adapter (SPA) bay of that SIP. For instance, if you want to specify the SPA in bay 2 of the SIP in switch slot 3, enter 3/2.</li> <li>• <b>F0</b>—The Embedded Service Processor in slot 0.</li> <li>• <b>F1</b>—The Embedded Service Processor in slot 1.</li> <li>• <b>FP active</b>—The active Embedded Service Processor.</li> <li>• <b>R0</b>—The route processor in slot 0.</li> <li>• <b>RP active</b>—The active route processor.</li> <li>• <b>switch &lt;number&gt;</b> —The switch, with its number specified.</li> <li>• <b>switch active</b>—The active switch.</li> <li>• <b>switch standby</b>—The standby switch. <ul style="list-style-type: none"> <li>• <i>number</i>—Number of the SIP slot of the hardware module where the trace level is set. For instance, if you want to specify the SIP in SIP slot 2 of the switch, enter 2.</li> <li>• <i>SIP-slot / SPA-bay</i>—Number of the SIP switch slot and the number of the shared port adapter (SPA) bay of that SIP. For instance, if you want to specify the SPA in bay 2 of the SIP in switch slot 3, enter 3/2.</li> <li>• <b>F0</b>—The Embedded Service Processor in slot 0.</li> <li>• <b>FP active</b>—The active Embedded Service Processor.</li> <li>• <b>R0</b>—The route processor in slot 0.</li> <li>• <b>RP active</b>—The active route processor.</li> </ul> </li> </ul>
-------------	---

<b>Command Modes</b>	User EXEC (>) Privileged EXEC (#)
----------------------	--------------------------------------

<b>Command History</b>	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Release</th> <th style="text-align: left; border-bottom: 1px solid black;">Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.12.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.				

**Examples** This example shows how to view the trace level:

```
Device# show platform software trace level dbm chassis active R0
```

Module Name	Trace Level
-----	-----
binos	Notice
binos/brand	Notice
bipc	Notice
btrace	Notice
bump_ptr_alloc	Notice
cdllib	Notice
chasfs	Notice
dbal	Informational
dbm	Debug
evlib	Notice
evutil	Notice
file_alloc	Notice
green-be	Notice
ios-avl	Notice
klib	Debug
services	Notice
sw_wdog	Notice
syshw	Notice
tdl_cdlcore_message	Notice
tdl_dbal_root_message	Notice
tdl_dbal_root_type	Notice

# show platform software trace message

To display the trace messages for a process, use the **set platform software trace** command in privileged EXEC or user EXEC mode.

**show platform software trace message** *process* **chassis**{<1-2> | **active** | **standby**} **R0**

**Command Modes**

User EXEC (>)

Privileged EXEC (#)

**Command History**

Release	Modification
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

## Examples

This example shows how to display the trace messages for the Stack Manager and the Forwarding Engine Driver processes:

```
Device# show platform software trace message stack_mgr switch active R0
10/30 09:42:48.767 [btrace] [8974]: (note): Successfully registered module [97] [uiutil]
10/30 09:42:48.762 [btrace] [8974]: (note): Successfully registered module [98]
[tdl_cdlcore_message]
10/29 13:28:19.023 [stack_mgr] [8974]: (note): Examining peer state
10/29 13:28:19.023 [stack_mgr] [8974]: (note): no switch eligible for standby election
presently
10/29 13:28:19.022 [stack_mgr] [8974]: (note): Posting event
stack_fsm_event_wait_standby_elect_timer_expired, curstate stack_fsm_state_active_ready
10/29 13:28:19.022 [stack_mgr] [8974]: (note): Timer HDL - STACK_WAIT_STANDBY_ELECT_TIMER
expired
10/29 13:26:46.584 [btrace] [8974]: (note): Successfully registered module [99]
[tdl_ui_message]
10/29 13:26:46.582 [bipc] [8974]: (note): Pending connection to server 10.129.1.0
10/29 13:26:36.582 [evutil] [8974]: (ERR): Connection attempt for sman-ui-serv (uippeer
uplink to slot 1) failed, invoking disconnect
10/29 13:26:36.582 [evutil] [8974]: (ERR): Asynchronous connect failed for [uippeer uplink
to slot 1] (fd == -1)
10/29 13:26:36.581 [bipc] [8974]: (note): Pending connection to server 10.129.1.0
10/29 13:26:26.581 [evutil] [8974]: (ERR): Connection attempt for sman-ui-serv (uippeer
uplink to slot 1) failed, invoking disconnect
```

# show platform software trace message license-manager chassis active R0

To display the trace message for license-manager process of active route processor, use the **show platform software trace message license-manager chassis active R0** command in privileged EXEC mode.

```
show platform software trace message license-manager chassis {chassis-number
| active | standby}R0reverse
```

This command has no arguments or keywords.

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Example

This example shows how to display the trace messages for the Forwarding Engine Driver processes:

```
Device# show platform software trace message license-manager chassis active R0
.....
2018/06/25 07:16:53.121 {lman_R0-0}{1}: [btrace] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Decode of the file /tmp/rp/trace/lman_R0-0.21231_0.20180620075420.bin.copy completed in 35
msecs
/tmp/rp/trace/lman_R0-0.21231_0.20180620075420.bin.copy: DECODE(50:50:0:7)
2018/06/25 07:16:53.088 {lman_R0-0}{1}: [btrace] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Decode of file [/tmp/rp/trace/lman_R0-0.21231_0.20180620075420.bin.copy] returned [0]
2018/06/25 06:53:20.421 {lman_R0-0}{1}: [btrace] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Decode of the file /tmp/rp/trace/lman_R0-0.21231_0.20180620075420.bin.copy completed in 34
msecs
2018/06/25 06:53:20.389 {lman_R0-0}{1}: [btrace] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Decode of file [/tmp/rp/trace/lman_R0-0.21231_0.20180620075420.bin.copy] returned [0]
2018/06/20 07:55:10.540 {lman_R0-0}{1}: [trccfg] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Processing all-modules
2018/06/20 07:55:10.540 {lman_R0-0}{1}: [trccfg] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Empty trace conf file
2018/06/20 07:54:46.453 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Constructing domain iosd_lmrp for RP/0/0 to RP/0/0
2018/06/20 07:54:46.453 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Received registration msg from [IOS]
2018/06/20 07:54:46.449 {lman_R0-0}{1}: [bipc] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Received a connection from client for path /tmp/rp/lipc/license_mgr_socket
2018/06/20 07:54:45.557 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:44.556 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:43.556 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:42.555 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:41.554 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
```



```

2018/06/20 07:54:40.553 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:39.553 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:38.552 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:37.551 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:36.550 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:35.550 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:34.549 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:33.548 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:32.547 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:31.547 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:30.547 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:30.537 {lman_R0-0}{1}: [bipc] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Pending connection to server 10.0.1.0
2018/06/20 07:54:29.546 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:28.545 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:27.545 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:26.544 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:25.543 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:24.542 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:23.542 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:22.541 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:21.540 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): The
ipc information for IOS is invalid
2018/06/20 07:54:20.633 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (note): Peer
attach: from location R0:0 is successful
2018/06/20 07:54:20.633 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (note): Not
setting domain for cmand
2018/06/20 07:54:20.625 {lman_R0-0}{1}: [bipc] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Received a connection from client for path /tmp/rp/lipc/lman_lic_serv_socket
2018/06/20 07:54:20.624 {lman_R0-0}{1}: [tdllib] [21231]: UUID: 0, ra: 0, TID: 0 (note):
epoch file read /tmp/tdlresolve/epoch_dir//2018_06_20_07_54_2413.epoch
2018/06/20 07:54:20.624 {lman_R0-0}{1}: [tdllib] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Detect newly epoch file generated: new epoch:
/tmp/tdlresolve/epoch_dir//2018_06_20_07_54_2413.epoch
2018/06/20 07:54:20.624 {lman_R0-0}{1}: [tdllib] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Flag tdlh stale epoch for all tdl handles
2018/06/20 07:54:20.536 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Chasfs Watch on rp/0/0/rtu_licensing for platform to create RTU properties
2018/06/20 07:54:20.536 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (note): The
chassis product id: 'ISR4461/K9'
2018/06/20 07:54:20.536 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (note): The
chassis serial number: 'FDO2213A0GL'
2018/06/20 07:54:20.536 {lman_R0-0}{1}: [bcrdu] [21231]: UUID: 0, ra: 0, TID: 0 (note):
CRDU
/tmp/sw/mount/isr4400v2-mono-universalk9.ELD_V169_THROTTLE_LATEST_20180618_044856_V16_9_0_163.SSA.pkg/usr/binos/bin/lman

```

## show platform software trace message license-manager chassis active R0

```
proc path is /tmp/patch/CRDU/BPROC_LM_RP/
2018/06/20 07:54:20.536 {lman_R0-0}{1}: [bcrdu] [21231]: UUID: 0, ra: 0, TID: 0 (note):
CRDU
/tmp/sw/mount/isr4400v2-mono-universalk9.BLD_V169_THROTTLE_LATEST_20180618_044856_V16_9_0_163.SSA.pkg/usr/binos/bin/lman
procstr is BPROC_LM_RP
2018/06/20 07:54:20.533 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (note): No
licensing objects present in chasfs to delete
2018/06/20 07:54:20.533 {lman_R0-0}{1}: [lman] [21231]: UUID: 0, ra: 0, TID: 0 (note):
Deleting any existing licensing chasfs objects under [rp/0/0/licensing]
2018/06/20 07:54:20.532 {lman_R0-0}{1}: [syshw] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): syshw
build device: could not add register 7 dev:
/sys/bus/platform/devices/cpld/reg_rp_sku_register (No such file or directory) due to No
such file or directory
2018/06/20 07:54:20.532 {lman_R0-0}{1}: [syshw] [21231]: UUID: 0, ra: 0, TID: 0 (ERR): syshw
build device: could not add register 5 dev: /sys/bus/platform/devices/cpld/phys_slot_number
(No such file or directory) due to No such file or directory
```

Total messages : 49

# show policy-map

To display quality of service (QoS) policy maps, which define classification criteria for incoming traffic, use the **show policy-map** command in EXEC mode.

```
show policy-map [{policy-map-name | interface interface-id}]
```

```
show policy-map interface {Auto-template | Capwap | GigabitEthernet | GroupVI |  
InternalInterface | Loopback | Lspvif | Null | Port-channel | TenGigabitEthernet | Tunnel  
| Vlan | brief | class | input | output
```

```
show policy-map interface {ap name ap_name | client mac mac_address | radio type {24ghz |  
5ghz} ap name ap_name | ssid name ssid_name {ap name ap_name | radio type {24ghz | 5ghz}  
ap name ap_name }
```

## Syntax Description

<i>policy-map-name</i>	(Optional) Name of the policy-map.
<b>interface</b> <i>interface-id</i>	(Optional) Displays the statistics and the configurations of the input and output policies that are attached to the interface.
<b>ap name</b> <i>ap_name</i>	Displays SSID policy configuration of an access point.
<b>client mac</b> <i>mac_address</i>	Displays information about the policies for all the client targets.
<b>radio type</b> { <b>24ghz</b>   <b>5ghz</b> }	Displays policy configuration of the access point in the specified radio type.
<b>ssid name</b> <i>ssid_name</i>	Displays policy configuration of an SSID.

## Command Modes

User EXEC

Privileged EXEC

## Command History

Release	Modification
	This command was introduced.

## Usage Guidelines

Policy maps can include policers that specify the bandwidth limitations and the action to take if the limits are exceeded.



**Note** Though visible in the command-line help string, the **control-plane**, **session**, and **type** keywords are not supported, and the statistics shown in the display should be ignored.

To display classification counters for ternary content addressable memory (TCAM) (marking or policing) based policies, enter the interface ID. Classification counters have the following restrictions:

- Classification counters are supported only on wired ports (in the ingress and egress directions).
- Classification counters count packets instead of bytes.
- Only QoS configurations with marking or policing trigger the classification counter.
- As long as there is policing or marking action in the policy, the class-default will have classification counters.
- Classification counters are not port based. The counters are shared across targets sharing the same policy map. This means that the classification counter aggregates all packets belonging to the same class of the same policy which attach to different interfaces.

This is an example of output from the **show policy-map interface** command, where classification counters are displayed:

```
Device# show policy-map interface gigabitethernet1/0/1

GigabitEthernet1/0/1

Service-policy input: AutoQos-4.0-CiscoPhone-Input-Policy

Class-map: AutoQos-4.0-Voip-Data-CiscoPhone-Class (match-any)
  0 packets
  Match: cos 5
    0 packets, 0 bytes
    5 minute rate 0 bps
  QoS Set
    dscp ef
  police:
    cir 128000 bps, bc 8000 bytes
    conformed 0 bytes; actions:
      transmit
    exceeded 0 bytes; actions:
      set-dscp-transmit dscp table policed-dscp
    conformed 0000 bps, exceed 0000 bps

Class-map: AutoQos-4.0-Voip-Signal-CiscoPhone-Class (match-any)
  0 packets
  Match: cos 3
    0 packets, 0 bytes
    5 minute rate 0 bps
  QoS Set
    dscp cs3
  police:
    cir 32000 bps, bc 8000 bytes
    conformed 0 bytes; actions:
      transmit
    exceeded 0 bytes; actions:
      set-dscp-transmit dscp table policed-dscp
    conformed 0000 bps, exceed 0000 bps
```

```
Class-map: AutoQos-4.0-Default-Class (match-any)
  0 packets
  Match: access-group name AutoQos-4.0-Acl-Default
    0 packets, 0 bytes
    5 minute rate 0 bps
  QoS Set
    dscp default

Class-map: class-default (match-any)
  0 packets
  Match: any
    0 packets, 0 bytes
    5 minute rate 0 bps

Service-policy output: AutoQos-4.0-Output-Policy

queue stats for all priority classes:
  Queueing
  priority level 1

  (total drops) 0
  (bytes output) 0

Class-map: AutoQos-4.0-Output-Priority-Queue (match-any)
  0 packets
  Match: dscp cs4 (32) cs5 (40) ef (46)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 5
    0 packets, 0 bytes
    5 minute rate 0 bps
  Priority: 30% (300000 kbps), burst bytes 7500000,

  Priority Level: 1

Class-map: AutoQos-4.0-Output-Control-Mgmt-Queue (match-any)
  0 packets
  Match: dscp cs2 (16) cs3 (24) cs6 (48) cs7 (56)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 3
    0 packets, 0 bytes
    5 minute rate 0 bps
  Queueing
  queue-limit dscp 16 percent 80
  queue-limit dscp 24 percent 90
  queue-limit dscp 48 percent 100
  queue-limit dscp 56 percent 100

  (total drops) 0
  (bytes output) 0
  bandwidth remaining 10%

  queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Conf-Queue (match-any)
  0 packets
  Match: dscp af41 (34) af42 (36) af43 (38)
    0 packets, 0 bytes
    5 minute rate 0 bps
  Match: cos 4
    0 packets, 0 bytes
    5 minute rate 0 bps
  Queueing
```

```
(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Trans-Data-Queue (match-any)
 0 packets
Match: dscp af21 (18) af22 (20) af23 (22)
 0 packets, 0 bytes
 5 minute rate 0 bps
Match: cos 2
 0 packets, 0 bytes
 5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Bulk-Data-Queue (match-any)
 0 packets
Match: dscp af11 (10) af12 (12) af13 (14)
 0 packets, 0 bytes
 5 minute rate 0 bps
Match: cos 1
 0 packets, 0 bytes
 5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 4%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Scavenger-Queue (match-any)
 0 packets
Match: dscp cs1 (8)
 0 packets, 0 bytes
 5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 1%
queue-buffers ratio 10

Class-map: AutoQos-4.0-Output-Multimedia-Strm-Queue (match-any)
 0 packets
Match: dscp af31 (26) af32 (28) af33 (30)
 0 packets, 0 bytes
 5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 10%
queue-buffers ratio 10

Class-map: class-default (match-any)
 0 packets
Match: any
 0 packets, 0 bytes
```

```
    5 minute rate 0 bps
Queueing

(total drops) 0
(bytes output) 0
bandwidth remaining 25%
queue-buffers ratio 25
```

## show rate-limit client

To configure the rate-limit for a client on the AP, use the **show rate-limit client** command.

### show rate-limit client

#### Syntax Description

This command has no arguments.

#### Command Modes

Privileged EXEC (#)

#### Command History

Release	Modification
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

The following example shows how to configure the rate-limit for a client on the AP:

```
Device# show rate-limit client
Config:
mac vap rt_rate_out rt_rate_in rt_burst_out rt_burst_in nrt_rate_out nrt_rate_in nrt_burst_out
  nrt_burst_in
00:1C:F1:09:85:E7 0 8001 8002 8003 8004 8005 8006 8007 8008
Statistics:
name up down
Unshaped 0 0
Client RT pass 0 0
Client NRT pass 0 0
Client RT drops 0 0
Client NRT drops 0 0
Per client rate limit:
mac vap rate_out rate_in policy
```



# show ssh

To see the SSH connection status, use the **show ssh** command.

```
show ssh {connection-number | {vtty connection-number } }
```

---

**Syntax Description**

*connection-number* SSH connection number. Valid range is 0 to 530.

---

---

**Command Default**

None

---

**Command Modes**

Privileged EXEC

---

**Command History****Release****Modification**

---

Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.
--------------------------------	---

---

**Examples**

The following example shows how to see the SSH connection status:

```
Device# show ssh connection-number
```

# show stealthwatch-cloud connection

To view the connection details of Stealthwatch Cloud, use the **show stealthwatch-cloud connection** command.

## show stealthwatch-cloud connection

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC mode
----------------------	----------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.4.1	This command was introduced.

<b>Usage Guidelines</b>	None
-------------------------	------

### Example

The following example shows how to view the connection details of Stealthwatch Cloud:

```
Device# show stealthwatch-cloud connection
```

# show stealthwatch-cloud wireless-shim

To view the wireless-shim details of Stealthwatch Cloud, use the **show stealthwatch-cloud wireless-shim** command.

## **show stealthwatch-cloud wireless-shim**

---

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

---

---

<b>Command Default</b>	None
------------------------	------

---

---

<b>Command Modes</b>	Privileged EXEC mode
----------------------	----------------------

---

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.4.1	This command was introduced.

---

---

<b>Usage Guidelines</b>	None
-------------------------	------

---

## **Example**

The following example shows how to view the wireless-shim details of Stealthwatch Cloud:

```
Device# show stealthwatch-cloud wireless-shim
```

# show tech-support wireless

To display Cisco wireless LAN controller variables frequently requested by Cisco Technical Assistance Center (TAC), use the **show tech-support wireless** command in privileged EXEC mode.

## show tech-support wireless

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

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

The following is sample output from the **show tech-support wireless** command:

```
Device# show tech-support wireless
*** show ap capwap timers ***
```

```
Cisco AP CAPWAP timers
```

```
AP Discovery timer      : 10
AP Heart Beat timeout   : 30
Primary Discovery timer : 120
Primed Join timeout     : 0
Fast Heartbeat          : Disabled
Fast Heartbeat timeout  : 1
```

```
*** show ap capwap retransmit ***
```

```
Global control packet retransmit interval : 3
Global control packet retransmit count : 5
```

AP Name	Retransmit Interval	Retransmit Count
TSIM_AP-2	3	5
TSIM_AP-3	3	5

```
*** show ap dot11 24ghz cleanair air-quality summary ***
```

```
AQ = Air Quality
DFS = Dynamic Frequency Selection
```

```
*** show ap dot11 24ghz cleanair air-quality worst ***
```

```
AQ = Air Quality
DFS = Dynamic Frequency Selection
```

AP Name	Channel	Avg AQ	Min AQ	Interferers	DFS
	0	0	0	0	No

```
*** show ap dot11 24ghz cleanair config ***
```

```
Clean Air Solution..... : Disabled
Air Quality Settings:
  Air Quality Reporting..... : Disabled
  Air Quality Reporting Period (min)..... : 15
```

```

Air Quality Alarms..... : Enabled
Air Quality Alarm Threshold..... : 10
Interference Device Settings:
  Interference Device Reporting..... : Enabled
    Bluetooth Link..... : Enabled
    Microwave Oven..... : Enabled
    802.11 FH..... : Enabled
    Bluetooth Discovery..... : Enabled
    TDD Transmitter..... : Enabled
    Jammer..... : Enabled
    Continuous Transmitter..... : Enabled
    DECT-like Phone..... : Enabled
    Video Camera..... : Enabled
    802.15.4..... : Enabled
    WiFi Inverted..... : Enabled
    WiFi Invalid Channel..... : Enabled
    SuperAG..... : Enabled
    Canopy..... : Enabled
    Microsoft Device..... : Enabled
    WiMax Mobile..... : Enabled
    WiMax Fixed..... : Enabled
  Interference Device Types Triggering Alarms:
    Bluetooth Link..... : Disabled
    Microwave Oven..... : Disabled
    802.11 FH..... : Disabled
    Bluetooth Discovery..... : Disabled
    TDD Transmitter..... : Disabled
    Jammer..... : Disabled
    Continuous Transmitter..... : Disabled
    DECT-like Phone..... : Disabled
    Video Camera..... : Disabled
    802.15.4..... : Disabled
    WiFi Inverted..... : Enabled
    WiFi Invalid Channel..... : Enabled
    SuperAG..... : Disabled
    Canopy..... : Disabled
    Microsoft Device..... : Disabled
    WiMax Mobile..... : Disabled
    WiMax Fixed..... : Disabled
  Interference Device Alarms..... : Enabled
Additional Clean Air Settings:
  CleanAir Event-driven RRM State..... : Disabled
  CleanAir Driven RRM Sensitivity..... : LOW
  CleanAir Persistent Devices state..... : Disabled

```

# show tech-support wireless ap

To display specific information about the Cisco APs variables frequently requested by Cisco Technical Assistance Center (TAC), use the **show tech-support wireless ap** command in privileged EXEC mode.

## show tech-support wireless ap

<b>Syntax Description</b>	This command has no arguments or keywords.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

**Usage Guidelines** The output of the following commands are displayed as part of **show tech-support wireless ap** command:

- show ap session termination statistics
- show ap status
- show ap tag summary
- show platform software bssid chassis active F0 statistics
- show platform software bssid chassis active R0 statistics
- show platform software capwap chassis active F0 statistics
- show platform software capwap chassis active R0 statistics
- show platform software dtls chassis active F0 statistics
- show platform software dtls chassis active R0 statistics
- show platform software radio chassis active F0 statistics
- show platform software radio chassis active R0 statistics

### Example

The following is sample output from the **show tech-support wireless ap** command

```
Device# show tech-support wireless ap
----- show platform software dtls chassis active R0 statistics -----

DTLS Counters      (Success/Failure)
-----
Create              0/0
```

```

Delete                0/0

Switch 1:
OM Create             0/0
OM Delete             0/0
Ack Nack Notify      0/0
    
```

```

----- show platform software radio chassis active R0 statistics
-----
    
```

```

Switch 1:
NACK Notify          0/0
  Create Failure      0
  Delete Failure      0
    
```

```

----- show platform software bssid chassis active R0 statistics
-----
    
```

```

Switch 1:
NACK Notify          0/0
  Create Failure      0
  Delete Failure      0
    
```

```

----- show platform software capwap chassis active R0 statistics
-----
    
```

```

Capwap Counters      (Success/Failure)
-----
Create                0/0
Delete                0/0
Modify                0/0
    
```

```

Switch 1:
OM Create             0/0
OM Delete             0/0
ACK-NACK Notify      0/0
  Tunnel State        0/0
  Tunnel Create        0/0
  Tunnel Modify        0/0
  Tunnel Delete        0/0
    
```

```

----- show platform software dtls chassis active F0 statistics -----
    
```

```

DTLS Counters        (Success/Failure)
-----
Create                0/0
Delete                0/0
HW Create             0/0
HW Modify             0/0
HW Delete             0/0
Create Ack            0/0
Modify Ack            0/0
Delete Ack            0/0
Ack Ack Notify        0/0
    
```

```

Ack Nack Notify          0/0
Nack Notify              0/0
HA Seq GET               665/0
HA Seq SET               0/0
HA Seq Crypto GET       0/0
HA Seq Crypto SET       0/0
HA Seq Crypto Callback   0/0

HA Seq last Responded   0
HA Seq Pending          0
HA Seq Outstanding cb   0

```

```

----- show platform software radio chassis active F0 statistics
-----

```

```

Radio Counters      (Success/Failure)
-----
Create              0/0
Delete              0/0
HW Create           0/0
HW Modify           0/0
HW Delete           0/0
Create Ack          0/0
Modify Ack          0/0
Delete Ack          0/0
Nack Notify         0/0

```

```

----- show platform software bssid chassis active F0 statistics
-----

```

```

Bssid Counters      (Success/Failure)
-----
Create              0/0
Delete              0/0
HW Create           0/0
HW Modify           0/0
HW Delete           0/0
Create Ack          0/0
Modify Ack          0/0
Delete Ack          0/0
Nack Notify         0/0

```

```

----- show platform software capwap chassis active F0 statistics
-----

```

```

Capwap Counters      (Success/Failure)
-----
Create              0/0
Delete              0/0
HW Create           0/0
HW Modify           0/0
HW Delete           0/0
Create Ack          0/0
Modify Ack          0/0
Delete Ack          0/0
Ack Ack Notify     0/0
Ack Nack Notify    0/0
Nack Notify         0/0

```



```

----- show ap auto-rf dot11 24ghz -----

----- show ap auto-rf dot11 5ghz -----

----- show ap capwap retransmit -----

----- show ap config dot11 dual-band summary -----

----- show ap config general -----

----- show ap dot11 24ghz channel -----

```

```

Leader Automatic Channel Assignment
Channel Assignment Mode           : AUTO
Channel Update Interval          : 600 seconds
Anchor time (Hour of the day)    : 0
Channel Update Contribution
  Noise                           : Enable
  Interference                    : Enable
  Load                            : Disable
  Device Aware                    : Disable
CleanAir Event-driven RRM option : Disabled
Channel Assignment Leader        : ewlc-doc (9.12.32.10)
Last Run                         : 25 seconds ago

DCA Sensitivity Level            : MEDIUM : 10 dB
DCA Minimum Energy Limit        : -95 dBm
Channel Energy Levels
  Minimum                         : unknown
  Average                         : unknown
  Maximum                         : -128 dBm
Channel Dwell Times
  Minimum                         : unknown
  Average                         : unknown

```

```

----- show ap dot11 24ghz group -----

Radio RF Grouping

802.11b Group Mode               : AUTO
802.11b Group Update Interval   : 600 seconds
802.11b Group Leader            : ewlc-doc (9.12.32.10)
802.11b Last Run                : 26 seconds ago

```

```

RF Group Members

Controller name                  Controller IP

```

```
-----
ewlc-doc                               9.12.32.10
```

```
----- show ap dot11 24ghz load-info -----
```

```
----- show ap dot11 24ghz monitor -----
```

```
Default 802.11b AP monitoring
 802.11b Monitor Mode           : Enabled
 802.11b Monitor Channels       : Country channels
 802.11b RRM Neighbor Discover Type : Transparent
 802.11b AP Coverage Interval   : 180 seconds
 802.11b AP Load Interval      : 60 seconds
 802.11b AP Noise Interval     : 180 seconds
 802.11b AP Signal Strength Interval : 60 seconds
 802.11b NDP RSSI Normalization : Enabled
```

```
----- show ap dot11 24ghz network -----
```

```
802.11b Network           : Enabled
11gSupport                : Enabled
11nSupport                : Enabled
802.11b/g Operational Rates
 802.11b 1M               : Mandatory
 802.11b 2M               : Mandatory
 802.11b 5.5M             : Mandatory
 802.11b 11M              : Mandatory
 802.11g 6M               : Supported
 802.11g 9M               : Supported
 802.11g 12M              : Supported
 802.11g 18M              : Supported
 802.11g 24M              : Supported
 802.11g 36M              : Supported
 802.11g 48M              : Supported
 802.11g 54M              : Supported
802.11n MCS Settings:
MCS 0 : Supported
MCS 1 : Supported
MCS 2 : Supported
MCS 3 : Supported
```

```
----- show ap dot11 24ghz profile -----
```

```
Default 802.11b AP performance profiles
 802.11b Global Interference threshold : 10 %
 802.11b Global noise threshold       : -70 dBm
 802.11b Global RF utilization threshold : 80 %
 802.11b Global throughput threshold  : 1000000 bps
 802.11b Global clients threshold     : 12 clients
```

```
----- show ap dot11 24ghz summary -----
```

```
----- show ap dot11 24ghz txpower -----
```

Automatic Transmit Power Assignment

```

Transmit Power Assignment Mode      : AUTO
Transmit Power Update Interval      : 600 seconds
Transmit Power Threshold            : -70 dBm
Transmit Power Neighbor Count       : 3 APs
Min Transmit Power                  : -10 dBm
Max Transmit Power                  : 30 dBm
Update Contribution
  Noise                             : Enable
  Interference                       : Enable
  Load                               : Disable
  Device Aware                       : Disable
Transmit Power Assignment Leader    : ewlc-doc (9.12.32.10)
Last Run                            : 27 seconds ago

```

```
----- show ap dot11 5ghz channel -----
```

Leader Automatic Channel Assignment

```

Channel Assignment Mode              : AUTO
Channel Update Interval              : 600 seconds
Anchor time (Hour of the day)       : 0
Channel Update Contribution
  Noise                             : Enable
  Interference                       : Enable
  Load                               : Disable
  Device Aware                       : Disable
CleanAir Event-driven RRM option    : Disabled
Channel Assignment Leader            : ewlc-doc (9.12.32.10)
Last Run                            : 27 seconds ago

DCA Sensitivity Level                : MEDIUM : 15 dB
DCA 802.11n/ac Channel Width        : 20 MHz
DCA Minimum Energy Limit             : -95 dBm
Channel Energy Levels
  Minimum                           : unknown
  Average                           : unknown
  Maximum                           : -128 dBm
Channel Dwell Times
  Minimum                            : unknown

```

```
----- show ap dot11 5ghz group -----
```

Radio RF Grouping

```

802.11a Group Mode                  : AUTO
802.11a Group Update Interval      : 600 seconds
802.11a Group Leader                : ewlc-doc (9.12.32.10)
802.11a Last Run                   : 28 seconds ago

```

RF Group Members

```

Controller name                     Controller IP

```

```
-----
ewlc-doc                               9.12.32.10
```

```
----- show ap dot11 5ghz load-info -----
```

```
----- show ap dot11 5ghz monitor -----
```

```
Default 802.11a AP monitoring
 802.11a Monitor Mode           : Enabled
 802.11a Monitor Channels       : Country channels
 802.11a RRM Neighbor Discover Type : Transparent
 802.11a AP Coverage Interval   : 180 seconds
 802.11a AP Load Interval      : 60 seconds
 802.11a AP Noise Interval     : 180 seconds
 802.11a AP Signal Strength Interval : 60 seconds
 802.11a NDP RSSI Normalization : Enabled
```

```
----- show ap dot11 5ghz network -----
```

```
802.11a Network                 : Enabled
11nSupport                      : Enabled
 802.11a Low Band               : Enabled
 802.11a Mid Band               : Enabled
 802.11a High Band              : Enabled
802.11a Operational Rates
 802.11a 6M                    : Mandatory
 802.11a 9M                    : Supported
 802.11a 12M                   : Mandatory
 802.11a 18M                   : Supported
 802.11a 24M                   : Mandatory
 802.11a 36M                   : Supported
 802.11a 48M                   : Supported
 802.11a 54M                   : Supported
802.11n MCS Settings:
MCS 0 : Supported
MCS 1 : Supported
MCS 2 : Supported
MCS 3 : Supported
MCS 4 : Supported
MCS 5 : Supported
```

```
----- show ap dot11 5ghz profile -----
```

```
Default 802.11a AP performance profiles

 802.11a Global Interference threshold : 10 %
 802.11a Global noise threshold       : -70 dBm
 802.11a Global RF utilization threshold : 80 %
 802.11a Global throughput threshold  : 1000000 bps
 802.11a Global clients threshold     : 12 clients
```

```
----- show ap dot11 5ghz summary -----
```

----- show ap dot11 5ghz txpower -----

Automatic Transmit Power Assignment

```

Transmit Power Assignment Mode      : AUTO
Transmit Power Update Interval      : 600 seconds
Transmit Power Threshold            : -70 dBm
Transmit Power Neighbor Count       : 3 APs
Min Transmit Power                  : -10 dBm
Max Transmit Power                   : 30 dBm
Update Contribution
  Noise                             : Enable
  Interference                       : Enable
  Load                              : Disable
  Device Aware                       : Disable
Transmit Power Assignment Leader    : ewlc-doc (9.12.32.10)
Last Run                             : 28 seconds ago
    
```

----- show ap image -----

----- show wireless stats ap join summary -----

Number of APs: 0

Base MAC	Ethernet MAC	AP Name	IP Address	Status
Last Failure Type	Last Disconnect Reason			

----- show ap rf-profile summary -----

Number of RF-profiles: 6

RF Profile Name	Band	Description	State
Low_Client_Density_rf_5gh	5 GHz	pre configured Low Client Density rf	Up
High_Client_Density_rf_5gh	5 GHz	pre configured High Client Density r	Up
Low_Client_Density_rf_24gh	2.4 GHz	pre configured Low Client Density rf	Up
High_Client_Density_rf_24gh	2.4 GHz	pre configured High Client Density r	Up
Typical_Client_Density_rf_5gh	5 GHz	pre configured Typical Density rfpro	Up
Typical_Client_Density_rf_24gh	2.4 GHz	pre configured Typical Client Densit	Up

----- show ap slots -----

----- show ap summary -----

Number of APs: 0

```
----- show ap uptime -----
```

```
Number of APs: 0
```

```
----- show ap tag summary -----
```

```
Number of APs: 0
```

```
----- show ap status -----
```

```
----- show ap cdp neighbors -----
```

```
Number of neighbors: 0
```

```
----- show ap ap-join-profile summary -----
```

```
Number of AP Profiles: 1
```

AP Profile Name	Description
default-ap-profile	default ap profile

```
----- show ap link-encryption -----
```

```
----- show wireless stats ap session termination -----
```

```
----- show wireless loadbalance ap affinity wncd 0 -----
```

```
----- show wireless loadbalance ap affinity wncd 1 -----
```

```
----- show wireless loadbalance ap affinity wncd 2 -----
```

```
----- show wireless loadbalance ap affinity wncd 3 -----
```

```
----- show wireless loadbalance ap affinity wncd 4 -----
```

```
----- show wireless loadbalance ap affinity wncd 5 -----
```

```
----- show wireless loadbalance ap affinity wncd 6 -----
```

```
----- show wireless loadbalance ap affinity wncd 7 -----
```

# show tech-support wireless client

To print the data related to all clients or a particular client, use the **show tech-support wireless client** command in privileged EXEC mode.

## show tech-support wireless client

<b>Syntax Description</b>	<b>mac-address</b> Client MAC address.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

**Usage Guidelines** The output of the following commands are displayed as part of **show tech-support wireless client** command:

- show platform software wireless-client chassis active F0 statistics
- show platform software wireless-client chassis active R0 statistics
- show wireless client calls active
- show wireless client calls rejected
- show wireless client client-statistics summary
- show wireless client device summary
- show wireless client mac <mac-addr> details
- show wireless client probing
- show wireless client sleeping-client
- show wireless client statistic
- show wireless client steering
- show wireless client summary
- show wireless exclusionlist
- show wireless pmk-cache

### Example

The following is sample output from the **show tech-support wireless client** command



Device# show tech-support wireless client

----- show wireless stats client summary -----

Number of Local Clients : 0

MAC Address	AP Name	WLAN UpTime (secs)	Rx Pkts	Tx Pkts	RSSI	SNR
Data Retries						

----- show wireless client summary -----

Number of Local Clients: 0

Number of Excluded Clients: 0

----- show wireless client device summary -----

----- show wireless client steering -----

Client Steering Configuration Information

Macro to micro transition threshold	: -55 dBm
Micro to Macro transition threshold	: -65 dBm
Micro-Macro transition minimum client count	: 3
Micro-Macro transition client balancing window	: 3
Probe suppression mode	: Disabled
Probe suppression validity window	: 100 s
Probe suppression aggregate window	: 200 ms
Probe suppression transition aggressiveness	: 3
Probe suppression hysteresis	: -6 dBm

WLAN Configuration Information

----- show wireless client calls active -----

----- show wireless client calls rejected -----

----- show wireless client sleeping-client -----

Total number of sleeping-client entries: 0

----- show wireless client probing -----

----- show wireless client ap dot11 24ghz -----

```
----- show wireless client ap dot11 5ghz -----
```

```
----- show wireless pmk-cache -----
```

Number of PMK caches in total : 0

Type	Station	Entry Lifetime	VLAN Override	IP Override
Audit-Session-Id				

```
----- show wireless exclusionlist -----
```

```
----- show wireless country configured -----
```

```
Configured Country..... US - United States
Configured Country Codes
    US - United States          802.11a Indoor/ 802.11b Indoor/ 802.11g Indoor
```

```
----- show wireless tag rf summary -----
```

Number of RF Tags: 1

RF tag name	Description
default-rf-tag	default RF tag

```
----- show platform software wireless-client chassis active R0 statistics -----
```

Client Counters	(Success/Failure)
Create	0/0
Delete	0/0
Modify	0/0

Switch 1:	
OM Create	0/0
OM Delete	0/0
NACK Notify	0/0
Create Failure	0
Modify Failure	0
Delete Failure	0

```
----- show platform software wireless-client chassis active F0 statistics  
-----
```

```
Client Counters      (Success/Failure)  
-----  
Create                0/0  
Delete                0/0  
HW Create             0/0  
HW Modify             0/0  
HW Delete             0/0  
Create Ack            0/0  
Modify Ack            0/0  
Delete Ack            0/0  
NACK Notify           0/0
```

# show tech-support wireless radio

To print the data related to the radio, use the **show tech-support wireless radio** command in privileged EXEC mode.

## show tech-support wireless radio

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

<b>Usage Guidelines</b>	The output of the following commands are displayed as part of <b>show tech-support wireless radio</b> command:
-------------------------	--

- show ap auto-rf dot11 24ghz
- show ap auto-rf dot11 5ghz
- show ap config dot11 dual-band summary
- show ap config general
- show ap dot11 24ghz channel
- show ap dot11 24ghz coverage
- show ap dot11 24ghz group
- show ap dot11 24ghz high-density
- show ap dot11 24ghz load-info
- show ap dot11 24ghz monitor
- show ap dot11 24ghz network
- show ap dot11 24ghz summary
- show ap dot11 24ghz txpower
- show ap dot11 5ghz channel
- show ap dot11 5ghz coverage
- show ap dot11 5ghz group
- show ap dot11 5ghz high-density
- show ap dot11 5ghz load-info

- show ap dot11 5ghz monitor
- show ap dot11 5ghz network
- show ap dot11 5ghz summary
- show ap dot11 5ghz txpower
- show ap fra
- show ap rf-profile name Rf1 detail
- show ap rf-profile summary
- show ap summary
- show wireless band-select

### Example

The following is sample output from the **show tech-support wireless radio** command

```
Device# show tech-support wireless radio
----- show ap summary -----

Number of APs: 0

----- show ap dot11 24ghz summary -----

----- show ap dot11 5ghz summary -----

----- show ap config dot11 dual-band summary -----

----- show ap dot11 24ghz channel -----

Leader Automatic Channel Assignment
Channel Assignment Mode           : AUTO
Channel Update Interval          : 600 seconds
Anchor time (Hour of the day)    : 0
Channel Update Contribution
  Noise                           : Enable
  Interference                     : Enable
  Load                            : Disable
  Device Aware                    : Disable
CleanAir Event-driven RRM option  : Disabled
Channel Assignment Leader        : ewlc-doc (9.12.32.10)
Last Run                         : 550 seconds ago

DCA Sensitivity Level             : MEDIUM : 10 dB
DCA Minimum Energy Limit         : -95 dBm
Channel Energy Levels
```

```

Minimum                               : unknown
Average                               : unknown
Maximum                               : -128 dBm
Channel Dwell Times
  Minimum                             : unknown
  Average                             : unknown
  Maximum                             : unknown
802.11b 2.4 GHz Auto-RF Channel List
  Allowed Channel List                 : 1,6,11
  Unused Channel List                  : 2,3,4,5,7,8,9,10

```

```
----- show ap dot11 5ghz channel -----
```

```

Leader Automatic Channel Assignment
Channel Assignment Mode                : AUTO
Channel Update Interval                : 600 seconds
Anchor time (Hour of the day)         : 0
Channel Update Contribution
  Noise                               : Enable
  Interference                         : Enable
  Load                                : Disable
  Device Aware                         : Disable
CleanAir Event-driven RRM option       : Disabled
Channel Assignment Leader              : ewlc-doc (9.12.32.10)
Last Run                              : 552 seconds ago

DCA Sensitivity Level                  : MEDIUM : 15 dB
DCA 802.11n/ac Channel Width           : 20 MHz
DCA Minimum Energy Limit               : -95 dBm
Channel Energy Levels
  Minimum                             : unknown
  Average                             : unknown
  Maximum                             : -128 dBm
Channel Dwell Times
  Minimum                             : unknown
  Average                             : unknown
  Maximum                             : unknown
802.11a 5 GHz Auto-RF Channel List
  Allowed Channel List                 :
36,40,44,48,52,56,60,64,100,104,108,112,116,120,124,128,132,136,140,144,149,153,157,161
  Unused Channel List                  : 165

```

```
----- show ap dot11 24ghz coverage -----
```

```

Coverage Hole Detection
802.11b Coverage Hole Detection Mode   : Enabled
802.11b Coverage Voice Packet Count    : 100 packet(s)
802.11b Coverage Voice Packet Percentage : 50%
802.11b Coverage Voice RSSI Threshold  : -80 dBm
802.11b Coverage Data Packet Count     : 50 packet(s)
802.11b Coverage Data Packet Percentage : 50%
802.11b Coverage Data RSSI Threshold   : -80 dBm
802.11b Global coverage exception level : 25 %
802.11b Global client minimum exception level : 3 clients

```

```
----- show ap dot11 5ghz coverage -----
```

```
Coverage Hole Detection
```

```

802.11a Coverage Hole Detection Mode      : Enabled
802.11a Coverage Voice Packet Count     : 100 packet(s)
802.11a Coverage Voice Packet Percentage : 50 %
802.11a Coverage Voice RSSI Threshold   : -80dBm
802.11a Coverage Data Packet Count     : 50 packet(s)
802.11a Coverage Data Packet Percentage : 50 %
802.11a Coverage Data RSSI Threshold   : -80dBm
802.11a Global coverage exception level  : 25 %
802.11a Global client minimum exception level : 3 clients
    
```

----- show ap dot11 24ghz group -----

Radio RF Grouping

```

802.11b Group Mode          : AUTO
802.11b Group Update Interval : 600 seconds
802.11b Group Leader       : ewlc-doc (9.12.32.10)
802.11b Last Run           : 553 seconds ago
    
```

RF Group Members

Controller name	Controller IP
ewlc-doc	9.12.32.10

----- show ap dot11 5ghz group -----

Radio RF Grouping

```

802.11a Group Mode          : AUTO
802.11a Group Update Interval : 600 seconds
802.11a Group Leader       : ewlc-doc (9.12.32.10)
802.11a Last Run           : 553 seconds ago
    
```

RF Group Members

Controller name	Controller IP
ewlc-doc	9.12.32.10

----- show ap dot11 24ghz high-density -----

----- show ap dot11 5ghz high-density -----

----- show ap dot11 5ghz load-info -----

----- show ap dot11 24ghz load-info -----

```
----- show ap dot11 24ghz profile -----
```

```
Default 802.11b AP performance profiles
 802.11b Global Interference threshold      : 10 %
 802.11b Global noise threshold            : -70 dBm
 802.11b Global RF utilization threshold    : 80 %
 802.11b Global throughput threshold       : 1000000 bps
 802.11b Global clients threshold         : 12 clients
```

```
----- show ap dot11 5ghz profile -----
```

```
Default 802.11a AP performance profiles

 802.11a Global Interference threshold      : 10 %
 802.11a Global noise threshold            : -70 dBm
 802.11a Global RF utilization threshold    : 80 %
 802.11a Global throughput threshold       : 1000000 bps
 802.11a Global clients threshold         : 12 clients
```

```
----- show ap dot11 24ghz monitor -----
```

```
Default 802.11b AP monitoring
 802.11b Monitor Mode                      : Enabled
 802.11b Monitor Channels                  : Country channels
 802.11b RRM Neighbor Discover Type        : Transparent
 802.11b AP Coverage Interval              : 180 seconds
 802.11b AP Load Interval                  : 60 seconds
 802.11b AP Noise Interval                 : 180 seconds
 802.11b AP Signal Strength Interval       : 60 seconds
 802.11b NDP RSSI Normalization            : Enabled
```

```
----- show ap dot11 5ghz monitor -----
```

```
Default 802.11a AP monitoring
 802.11a Monitor Mode                      : Enabled
 802.11a Monitor Channels                  : Country channels
 802.11a RRM Neighbor Discover Type        : Transparent
 802.11a AP Coverage Interval              : 180 seconds
 802.11a AP Load Interval                  : 60 seconds
 802.11a AP Noise Interval                 : 180 seconds
 802.11a AP Signal Strength Interval       : 60 seconds
 802.11a NDP RSSI Normalization            : Enabled
```

```
----- show ap dot11 24ghz network -----
```

```
802.11b Network                          : Enabled
11gSupport                                : Enabled
11nSupport                                 : Enabled
802.11b/g Operational Rates
 802.11b 1M                               : Mandatory
```



```

802.11b 2M                : Mandatory
802.11b 5.5M             : Mandatory
802.11b 11M              : Mandatory
802.11g 6M               : Supported
802.11g 9M               : Supported
802.11g 12M              : Supported
802.11g 18M              : Supported
802.11g 24M              : Supported
802.11g 36M              : Supported
802.11g 48M              : Supported
802.11g 54M              : Supported
802.11n MCS Settings:
MCS 0 : Supported
MCS 1 : Supported
MCS 2 : Supported
MCS 3 : Supported
MCS 4 : Supported
MCS 5 : Supported
MCS 6 : Supported
MCS 7 : Supported
MCS 8 : Supported
MCS 9 : Supported
MCS 10 : Supported
MCS 11 : Supported
MCS 12 : Supported
MCS 13 : Supported
MCS 14 : Supported
MCS 15 : Supported
MCS 16 : Supported
MCS 17 : Supported
MCS 18 : Supported
MCS 19 : Supported
MCS 20 : Supported
MCS 21 : Supported
MCS 22 : Supported
MCS 23 : Supported
MCS 24 : Supported
MCS 25 : Supported
MCS 26 : Supported
MCS 27 : Supported
MCS 28 : Supported
MCS 29 : Supported
MCS 30 : Supported
MCS 31 : Supported
802.11n Status:
A-MPDU Tx:
  Priority 0                : Enabled
  Priority 1                : Disabled
  Priority 2                : Disabled
  Priority 3                : Disabled
  Priority 4                : Enabled
  Priority 5                : Enabled
  Priority 6                : Disabled
  Priority 7                : Disabled
  Aggregation scheduler    : Enabled
  Realtime timeout         : 10
A-MSDU Tx:
  Priority 0                : Enable
  Priority 1                : Enable
  Priority 2                : Enable
  Priority 3                : Enable
  Priority 4                : Enable
  Priority 5                : Enable
  Priority 6                : Disable

```

## show tech-support wireless radio

```

Priority 7 : Disable
Guard Interval : Any
Rifs Rx : Enabled
Beacon Interval : 100
CF Pollable mandatory : Disabled
CF Poll Request Mandatory : Disabled
CFP Period : 4
CFP Maximum Duration : 60
Default Channel : 1
Default Tx Power Level : 1
DTPC Status : Enabled
Call Admission Limit :
G711 CU Quantum :
ED Threshold : -50
Fragmentation Threshold : 2346
RSSI Low Check : Disabled
RSSI Threshold : -127 dbm
PBCC Mandatory : unknown
Pico-Cell-V2 Status : unknown
RTS Threshold : 2347
Short Preamble Mandatory : Enabled
Short Retry Limit : 7
Legacy Tx Beamforming setting : Disabled
Traffic Stream Metrics Status : Disabled
Expedited BW Request Status : Disabled
EDCA profile type check : default-wmm
Call Admission Control (CAC) configuration
Voice AC
Voice AC - Admission control (ACM) : Disabled
Voice Stream-Size : 84000
Voice Max-Streams : 2
Voice Max RF Bandwidth : 75
Voice Reserved Roaming Bandwidth : 6
Voice Load-Based CAC mode : Enabled
Voice tspec inactivity timeout : Enabled
CAC SIP-Voice configuration
SIP based CAC : Disabled
SIP call bandwidth : 64
SIP call bandwidth sample-size : 20
Maximum Number of Clients per AP Radio : 200

```

```
----- show ap dot11 5ghz network -----
```

```

802.11a Network : Enabled
11nSupport : Enabled
802.11a Low Band : Enabled
802.11a Mid Band : Enabled
802.11a High Band : Enabled
802.11a Operational Rates
802.11a 6M : Mandatory
802.11a 9M : Supported
802.11a 12M : Mandatory
802.11a 18M : Supported
802.11a 24M : Mandatory
802.11a 36M : Supported
802.11a 48M : Supported
802.11a 54M : Supported
802.11n MCS Settings:
MCS 0 : Supported
MCS 1 : Supported
MCS 2 : Supported

```

```

MCS 3 : Supported
MCS 4 : Supported
MCS 5 : Supported
MCS 6 : Supported
MCS 7 : Supported
MCS 8 : Supported
MCS 9 : Supported
MCS 10 : Supported
MCS 11 : Supported
MCS 12 : Supported
MCS 13 : Supported
MCS 14 : Supported
MCS 15 : Supported
MCS 16 : Supported
MCS 17 : Supported
MCS 18 : Supported
MCS 19 : Supported
MCS 20 : Supported
MCS 21 : Supported
MCS 22 : Supported
MCS 23 : Supported
MCS 24 : Supported
MCS 25 : Supported
MCS 26 : Supported
MCS 27 : Supported
MCS 28 : Supported
MCS 29 : Supported
MCS 30 : Supported
MCS 31 : Supported
802.11n Status:
A-MPDU Tx:
  Priority 0 : Enabled
  Priority 1 : Disabled
  Priority 2 : Disabled
  Priority 3 : Disabled
  Priority 4 : Enabled
  Priority 5 : Enabled
  Priority 6 : Disabled
  Priority 7 : Disabled
  Aggregation scheduler : Enabled
  Realtime timeout : 10
A-MSDU Tx:
  Priority 0 : Enable
  Priority 1 : Enable
  Priority 2 : Enable
  Priority 3 : Enable
  Priority 4 : Enable
  Priority 5 : Enable
  Priority 6 : Disable
  Priority 7 : Disable
  Guard Interval : Any
Rifs Rx : Enabled
802.11ac : Enabled
  Frame burst : Automatic
802.11ac MCS Settings:
Beacon Interval : 100
CF Pollable mandatory : Disabled
CF Poll Request Mandatory : Disabled
CFP Period : 4
CFP Maximum Duration : 60
Default Channel : 36
Default Tx Power Level : 1
DTPC Status : Enabled
Fragmentation Threshold : 2346

```

## show tech-support wireless radio

```

RSSI Low Check                : Disabled
RSSI Threshold                 : -127 dbm
Pico-Cell-V2 Status           : unknown
TI Threshold                   :
Legacy Tx Beamforming setting  : Disabled
Traffic Stream Metrics Status  : Disabled
Expedited BW Request Status    : Disabled
EDCA profile type check        : default-wmm
Call Admission Control (CAC) configuration
Voice AC
  Voice AC - Admission control (ACM) : Disabled
  Voice Stream-Size                : 84000
  Voice Max-Streams                : 2
  Voice Max RF Bandwidth           : 75
  Voice Reserved Roaming Bandwidth : 6
  Voice Load-Based CAC mode        : Enabled
  Voice tspec inactivity timeout   : Enabled
CAC SIP-Voice configuration
  SIP based CAC                   : Disabled
  SIP call bandwidth              : 64
  SIP call bandwidth sample-size   : 20
Maximum Number of Clients per AP Radio : 200

```

```
----- show ap dot11 24ghz txpower -----
```

## Automatic Transmit Power Assignment

```

Transmit Power Assignment Mode      : AUTO
Transmit Power Update Interval      : 600 seconds
Transmit Power Threshold            : -70 dBm
Transmit Power Neighbor Count       : 3 APs
Min Transmit Power                  : -10 dBm
Max Transmit Power                  : 30 dBm
Update Contribution
  Noise                             : Enable
  Interference                       : Enable
  Load                              : Disable
  Device Aware                       : Disable
Transmit Power Assignment Leader    : ewlc-doc (9.12.32.10)
Last Run                            : 558 seconds ago

```

```
----- show ap dot11 5ghz txpower -----
```

## Automatic Transmit Power Assignment

```

Transmit Power Assignment Mode      : AUTO
Transmit Power Update Interval      : 600 seconds
Transmit Power Threshold            : -70 dBm
Transmit Power Neighbor Count       : 3 APs
Min Transmit Power                  : -10 dBm
Max Transmit Power                  : 30 dBm
Update Contribution
  Noise                             : Enable
  Interference                       : Enable
  Load                              : Disable
  Device Aware                       : Disable
Transmit Power Assignment Leader    : ewlc-doc (9.12.32.10)
Last Run                            : 558 seconds ago

```

----- show ap auto-rf dot11 5ghz -----

----- show ap auto-rf dot11 24ghz -----

----- show ap config general -----

----- show ap dot11 5ghz optimized-roaming -----

802.11a OptimizedRoaming

```
Mode : Disabled
Reporting Interval : 90 seconds
Rate Threshold : Disabled
Hysteresis : 6 db
```

----- show ap rf-profile summary -----

Number of RF-profiles: 6

RF Profile Name	Band	Description	State
Low_Client_Density_rf_5gh	5 GHz	pre configured Low Client Density rf	Up
High_Client_Density_rf_5gh	5 GHz	pre configured High Client Density r	Up
Low_Client_Density_rf_24gh	2.4 GHz	pre configured Low Client Density rf	Up
High_Client_Density_rf_24gh	2.4 GHz	pre configured High Client Density r	Up
Typical_Client_Density_rf_5gh	5 GHz	pre configured Typical Density rfpro	Up
Typical_Client_Density_rf_24gh	2.4 GHz	pre configured Typical Client Densit	Up

----- show ap fra -----

```
FRA State : Disabled
FRA Sensitivity : medium (95%)
FRA Interval : 1 Hour(s)
  Last Run : 2299 seconds ago
  Last Run time : 0 seconds
```

AP Name	MAC Address	Slot ID	Current-Band	COF %	Suggested Mode
---------	-------------	---------	--------------	-------	----------------

COF : Coverage Overlap Factor

----- show wireless band-select -----

```
Band Select Probe Response : per WLAN enabling
Cycle Count : 2
Cycle Threshold (millisec) : 200
Age Out Suppression (sec) : 20
Age Out Dual Band (sec) : 60
Client RSSI (dBm) : -80
Client Mid RSSI (dBm) : -80
```

```
----- show wireless country configure -----
```

```
Configured Country..... US - United States
Configured Country Codes
    US - United States          802.11a Indoor/ 802.11b Indoor/ 802.11g Indoor
```

```
----- show wireless tag rf summary -----
```

```
Number of RF Tags: 1
```

```
RF tag name                Description
-----
default-rf-tag             default RF tag
```

```
----- show ap tag summary -----
```

```
Number of APs: 0
```

```
----- show ap status -----
```

```
----- show ap uptime -----
```

```
Number of APs: 0
```

# show tunnel eogre global-configuration

To display the Ethernet over GRE (EoGRE) global configuration, use the **show tunnel eogre global-configuration** command.

**show tunnel eogre global-configuration**

---

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

---

<b>Command Default</b>	None
------------------------	------

---

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.11.1	This command was introduced.

---

## Example

This example shows how to display the EoGRE global configuration:

```
Device# show tunnel eogre global-configuration
```

```
Heartbeat interval      : 60
Max Heartbeat skip count : 3
Source Interface       : (none)
```

# show tunnel eogre domain detailed

To display the detailed information of the Ethernet over GRE (EoGRE) tunnel domain, use the **show tunnel eogre domain detailed** command.

**show tunnel eogre domain detailed** *domain-name*

<b>Syntax Description</b>	<i>domain-name</i>	EoGRE domain name.
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.11.1	This command was introduced.

## Example

This example shows how to display the detailed information of the EoGRE tunnel domain:

```
Device# show tunnel eogre domain detailed eogre_domain
```

```
Domain Name      : eogre_domain
Primary GW       : Tunnel1
Secondary GW     : Tunnel2
Active GW        : Tunnel1
Redundancy       : Non-Revertive
```



# show tunnel eogre domain summary

To display the summary information of the Ethernet over GRE (EoGRE) tunnel domain, use the **show tunnel eogre domain summary** command.

**show tunnel eogre domain summary**

<b>Syntax Description</b>	This command has no keywords or arguments.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.11.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.11.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.11.1	This command was introduced.				

## Example

This example shows how to display the summary information of the EoGRE tunnel domain:

```
Device# show tunnel eogre domain summary
```

Domain Name	Primary GW	Secondary GW	Active GW	Redundancy
domain1	Tunnel1	Tunnel2	Tunnel1	Non-Revertive
eogre_domain	Tunnel1	Tunnel2	Tunnel1	Non-Revertive

# show tunnel eogre gateway summary

To display the summary information of the Ethernet over GRE (EoGRE) tunnel gateway, use the **show tunnel eogre gateway summary** command.

## show tunnel eogre gateway summary

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC (#)
----------------------	---------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.11.1	This command was introduced.

## Example

This example shows how to display the summary information of the EoGRE tunnel gateway:

```
Device# show tunnel eogre gateway summary
```

Name	Type	Address	AdminState	State	Clients
Tunnel1	IPv4	9.51.1.11	Up	Up	0
Tunnel2	IPv4	9.51.1.12	Up	Down	0
Tunnel10	IPv6	fd09:9:8:21::90	Down	Down	0
Tunnel11	IPv4	9.51.1.11	Up	Up	0
Tunnel12	IPv6	fd09:9:8:21::90	Up	Down	0
Tunnel100	IPv4	9.51.1.100	Up	Down	0

# show tunnel eogre gateway detailed

To display the detailed information of the Ethernet over GRE (EoGRE) tunnel domain, use the **show tunnel eogre gateway detailed** command.

**show tunnel eogre gateway detailed** *gateway-name*

<b>Syntax Description</b>	<i>gateway-name</i> EoGRE gateway name.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.11.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.11.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.11.1	This command was introduced.				

## Example

This example shows how to display the detailed information of the EoGRE tunnel gateway:

```
Device# show tunnel eogre domain detailed Tunnell

Gateway : Tunnell
Mode    : IPv4
IP      : 9.51.1.11
Source  : Vlan51 / 9.51.1.1
State   : Up
SLA ID  : 56
MTU     : 1480
Up Time: 4 minutes 45 seconds

Clients
  Total Number of Wireless Clients      : 0
Traffic
  Total Number of Received Packets      : 0
  Total Number of Received Bytes        : 0
  Total Number of Transmitted Packets   : 0
  Total Number of Transmitted Bytes     : 0
Keepalives
  Total Number of Lost Keepalives       : 0
  Total Number of Received Keepalives   : 5
  Total Number of Transmitted Keepalives: 5
Windows
  Transmitted Keepalives in last window : 2
  Received Keepalives in last window    : 2
```

# show tunnel eogre manager stats global

To display the global tunnel manager statistics, use the **show tunnel eogre manager stats global** command.

## show tunnel eogre manager stats global

<b>Syntax Description</b>	This command has no keywords or arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.11.1	This command was introduced.

### Example

This example shows how to display the global tunnel manager statistics:

```
Device# show tunnel eogre manager stats global

Tunnel Global Statistics
Last Updated                : 02/18/2019 23:50:35
EoGRE Objects
  Gateways                   : 6
  Domains                    : 2

EoGRE Flex Objects
  AP Gateways                : 2
  AP Domains                 : 1
  AP Gateways HA inconsistencies : 0
  AP Domains HA inconsistencies : 0

Config events
  IOS Tunnel updates        : 806
  IOS Domain updates       : 88
  Global updates           : 48
  Tunnel Profile updates   : 120
  Tunnel Rule updates      : 16
  AAA proxy key updates    : 0

AP events
  Flex AP Join              : 1
  Flex AP Leave             : 0
  Local AP Join             : 0
  Local AP leave           : 0
  Tunnel status (rx)       : 4
  Domain status (rx)       : 1
  IAPP stats msg (rx)     : 3
  Client count (rx)       : 6
  VAP Payload msg (tx)    : 4
  Domain config (tx)       : 1
  Global config (tx)      : 1
  Client delete (tx)      : 1
```

```

Client delete per domain (tx) : 3
DHCP option 82 (tx) : 4

Client events
Add-mobile : 2
Run-State : 3
Delete : 1
Cleanup : 0
Join : 2
Plumb : 0
Join Errors : 0
HandOff : 0
MsPayload : 2
FT Recover : 0
Zombie GW counter increase : 0
Zombie GW counter decrease : 0
Tunnel Profile reset : 88
Client deauth : 0
HA reconciliation : 0

Client Join Events
Generic Error : 0
MSPayload Fail : 0
Invalid VLAN : 0
Invalid Domain : 0
No GWs in Domain : 0
Domain Shut : 0
Invalid GWs : 0
GWs Down : 0
Rule Match Error : 0
AAA-override : 0
Flex No Active GW : 0
Open Auth join attempt : 2
Dotlx join attempt : 2
Mobility join attempt : 0
Tunnel Profile not valid : 2
Tunnel Profile valid : 2
No rule match : 0
Rule match : 2
AAA proxy : 0
AAA proxy accounting : 0
AAA eogre attributes : 0
Has aaa override : 0
Error in handoff payload : 0
Handoff AAA override : 0
Handoff no AAA override : 0
Handoff payload received : 0
Handoff payload sent : 0

SNMP Traps
Client : 0
Tunnel : 2
Domain : 0

IPC
IOSd TX messages : 0

Zombie Client
Entries : 0

```

# show tunnel eogre manager stats instance

To display the tunnel manager statistics for a specific WNCd instance, use the **show tunnel eogre manager stats instance** command.

**show tunnel eogre manager stats instance** *instance-number*

<b>Syntax Description</b>	<i>instance-number</i> WNCd instance number.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC (#)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.11.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.11.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.11.1	This command was introduced.				

## Example

This example shows how to display the tunnel manager statistics for a specific WNCd instance:

```
Device# show tunnel eogre manager stats instance 0

Tunnel Manager statistics for process instance : 0
Last Updated                               : 02/18/2019 23:50:35
EoGRE Objects
  Gateways                                  : 6
  Domains                                    : 2

EoGRE Flex Objects
  AP Gateways                               : 2
  AP Domains                                 : 1
  AP Gateways HA inconsistencies            : 0
  AP Domains HA inconsistencies            : 0

Config events
  IOS Tunnel updates                        : 102
  IOS Domain updates                        : 11
  Global updates                            : 6
  Tunnel Profile updates                    : 15
  Tunnel Rule updates                       : 2
  AAA proxy key updates                     : 0

AP events
  Flex AP Join                              : 1
  Flex AP Leave                             : 0
  Local AP Join                             : 0
  Local AP leave                            : 0
  Tunnel status (rx)                       : 4
  Domain status (rx)                       : 1
  IAPP stats msg (rx)                      : 3
  Client count (rx)                        : 6
  VAP Payload msg (tx)                     : 4
```

```

Domain config (tx)           : 1
Global config (tx)          : 1
Client delete (tx)           : 1
Client delete per domain (tx) : 3
DHCP option 82 (tx)         : 4

Client events
Add-mobile                   : 2
Run-State                    : 3
Delete                       : 1
Cleanup                      : 0
Join                         : 2
Plumb                        : 0
Join Errors                  : 0
HandOff                      : 0
MsPayload                    : 2
FT Recover                   : 0
Zombie GW counter increase  : 0
Zombie GW counter decrease  : 0
Tunnel Profile reset        : 11
Client deauth                : 0
HA reconciliation            : 0

Client Join Events
Generic Error                : 0
MSPayload Fail               : 0
Invalid VLAN                 : 0
Invalid Domain               : 0
No GWs in Domain             : 0
Domain Shut                  : 0
Invalid GWs                  : 0
GWs Down                     : 0
Rule Match Error             : 0
AAA-override                 : 0
Flex No Active GW            : 0
Open Auth join attempt       : 2
Dot1x join attempt           : 2
Mobility join attempt        : 0
Tunnel Profile not valid     : 2
Tunnel Profile valid         : 2
No rule match                : 0
Rule match                   : 2
AAA proxy                    : 0
AAA proxy accounting         : 0
AAA eogre attributes         : 0
Has aaa override             : 0
Error in handoff payload     : 0
Handoff AAA override         : 0
Handoff no AAA override      : 0
Handoff payload received     : 0
Handoff payload sent         : 0

SNMP Traps
Client                       : 0
Tunnel                       : 2
Domain                       : 0

IPC
IOSd TX messages             : 0

Zombie Client
Entries                       : 0

```

# show wireless stats ap history

To verify historical statistics of an AP, use the **show wireless stats ap history** command.

## show wireless stats ap history

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC#
----------------------	------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Cupertino 17.7.1	This command was introduced.

## Examples

This example shows how to verify the statistics of the access point history:

```
Device# show wireless stats ap history
AP Name          Radio MAC      Event      Time              Recent      Disconnect
Reason          Disconnect
Count
Time
Disconnect Reason
Time
```

APA023.9FD8.EA22	40ce.24bf.8ca0	Joined	06/26/21 10:11:52	NA	NA
NA					
APA023.9FD8.EA22	40ce.24bf.8ca0	Disjoined	06/26/21 10:05:18	NA	Heart beat
timer expiry 1					
APA023.9FD8.EA22	40ce.24bf.8ca0	Joined	06/22/21 17:00:39	NA	NA
NA					
APA023.9FD8.EA22	40ce.24bf.8ca0	Disjoined	06/22/21 16:54:54	NA	Heart beat
timer expiry 1					
APA023.9FD8.EA22	40ce.24bf.8ca0	Joined	06/21/21 23:01:17	NA	NA
NA					
APA023.9FD8.EA22	40ce.24bf.8ca0	Disjoined	06/21/21 22:56:21	NA	Image Download
Success 1					



# show wireless band-select

To display the status of the band-select configuration, use the **show wireless band-select** command in privileged EXEC mode.

**show wireless band-select**

<b>Syntax Description</b>	This command has no arguments or keywords.				
<b>Command Default</b>	No default behavior or values.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco IOS XE Gibraltar 16.12.1</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.				

The following is sample output from the **show wireless band-select** command:

```
Device# show wireless band-select
Band Select Probe Response      : per WLAN enabling
Cycle Count                     : 2
Cycle Threshold (millisec)     : 200
Age Out Suppression (sec)      : 20
Age Out Dual Band (sec)        : 60
Client RSSI (dBm)              : 80
```

# show wireless client

To see the summary of the classified devices, use the **show wireless client** command.

```
show wireless client device {cache | count | summary } | {steering} [{chassis}{chassis-number | active
| standby }}]R0
```

Syntax Description	device	Shows classified devices.
	steering	Wireless client steering information
	cache	Shows the cached classified device summary.
	count	Shows the wireless device count.
	summary	Shows the active classified device summary.
	<i>chassis-number</i>	Chassis number. Valid range is 1–2.
	active	Active instance.
	standby	Standby instance.
	R0	Route-Processor slot 0.

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the summary of the classified devices:

```
Device# show wireless client device summary
```

# show wireless client mac-address

To view detailed information of a client using its mac-address, use the **show wireless client mac-address detail** command.

**show wireless client mac-address *mac-address* detail** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

Syntax Description	
<i>mac-address</i>	Client MAC address.
<i>chassis-number</i>	Chassis number. Valid range is 1–2.
<b>active</b>	Active instance.
<b>standby</b>	Standby instance.
<b>R0</b>	Route-Processor slot 0.

**Command Default** None

**Command Modes** Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

**Usage Guidelines** The Client Scan Reports section in the output of the **show wireless client mac-address detail** is populated only for the following Apple devices:

- Any iPhone 7 and running iOS 11.0 or higher
- Any iPad after iPad Pro (1st gen, 12.9-inch, 2015) and running iOS 11.0 or higher

Other client devices, even if it supports 802.11k or is Wi-Fi Agile Multiband (MBO) certified, are not currently supported to populate the Client Scan Reports section.

Client ACLs shown under **show wireless client mac-address <mac address> detail** are ACLs applied on the client in Flexconnect local authentication case with MAB+Web authentication WLAN with AAA override enabled. This is applicable only for Express Wi-Fi by Facebook Policy on Controller. For more information about Facebook policy, see [Express Wi-Fi by Facebook](#).

From Cisco IOS XE Amsterdam 17.3.1 onwards, the controller retains client session for 10 seconds. This feature is applicable for clients in the RUN state and is supported on central authentication with local and flex mode.

In idle state, 10 sec represents idle state timeout and 09 sec represent remaining time out of 10 sec. An example is given below:

```
Idle state timeout : 10 sec (Remaining time: 09 sec)
```

### Examples

The following example shows how to see detailed client information using its MAC address:

```
Device# show wireless client mac-address 98-XX-7B-XX-EF-XX detail
```

## show wireless client mac-address (Call Control)

To view call control information related to clients, use the **show wireless client mac-address** command in privileged EXEC mode.

**show wireless client mac-address** *mac-address* **call-control call-info**

<b>Syntax Description</b>	<i>mac-address</i>	The client MAC address.
	<b>call-control call-info</b>	Displays the call control and IP-related information about a client.
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release Modification</b>	
	This command was introduced.	

This example shows how to display call control and IP-related information about a client:

```
Device# show wireless client mac-address 30e4.db41.6157 call-control call-info
Client MAC Address      : 30E4DB416157

Call 1 Statistics

Uplink IP Address      : 209.165.200.225
Downlink IP Address    : 209.165.200.226
Uplink Port            : 29052
Downlink Port          : 27538
Call ID                 : c40acb4d-3b3b0.3d27dale-356bed03
Called Party           : sip:1011
Calling Party          : sip:1012
Priority                : 6
Call On Hold           : false
Call Duration          : 30

Call 2 Statistics

No Active Call
```

## show wireless client mac-address (TCLAS)

To view information about TCLAS and user priority, use the **show wireless client mac-address** command in privileged EXEC mode.

**show wireless client mac-address** *mac-address* **tclas**

Syntax Description	
<i>mac-address</i>	The client MAC address.
<b>tclas</b>	Displays TCLAS and user priority-related information about a client.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

This example shows how to display the TCLAS and user priority-related information about a client:

```
Device# show wireless client mac-address 30e4.db41.6157 tclas
MAC Address      UP TID Mask Source IP Addr  Dest IP Addr  SrcPort DstPort Proto
-----
30e4.db41.6157   4  4  95 167838052      2164326668    5060     5060     6
30e4.db41.6157   6  1  31 0              2164326668     0      27538    17
```

# show wireless client summary

To display a summary of active clients associated with the controller, use the **show wireless client summary** command in privileged EXEC mode.

**show wireless client summary**

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

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

**Usage Guidelines** The following is sample output from the **show wireless client summary** command:  
Use the **show wireless exclusionlist** command to display clients on the exclusion list.

```
Device# show wireless client summary
```

```
Number of Clients: 1
```

MAC Address	AP Name	Type ID	State	Protocol	Method	Role
6c40.0899.0466	9115i-r4-sw2-te1-0-37	WLAN 7	Run	11ac	None	Local

# show wireless client timers

To display 802.11 system timers, use the **show wireless client timers** command in privileged EXEC mode.

**show wireless client timers**

---

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

---

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

---

**Command Modes** Privileged EXEC

---

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

---

The following is sample output from the **show wireless client timers** command:

```
Device# show wireless client timers
Authentication Response Timeout (seconds)      : 10
```



# show wireless country

To display the configured country and the radio types supported, use the **show wireless country** command in privileged EXEC mode.

**show wireless country** {channels | configured | supported [tx-power]}

<b>Syntax Description</b>	<b>channels</b>	Displays the list of possible channels for each band, and the list of channels allowed in the configured countries.
	<b>configured</b>	Display configured countries.
	<b>supported tx-power</b>	Displays the list of allowed Tx powers in each supported country.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

The following is sample output from the **show wireless country channels** command:

```

Device# show wireless country channels
  Configured Country.....: US - United States
  KEY: * = Channel is legal in this country and may be configured manually.
       A = Channel is the Auto-RF default in this country.
       . = Channel is not legal in this country.
       C = Channel has been configured for use by Auto-RF.
       x = Channel is available to be configured for use by Auto-RF.
       (-,-) = (indoor, outdoor) regulatory domain allowed by this country.
-----:+++++-----
      802.11bg      :
      Channels      :          1 1 1 1 1
                    : 1 2 3 4 5 6 7 8 9 0 1 2 3 4
-----:+++++-----
(-A , -AB ) US   : A * * * * A * * * * A . . .
Auto-RF          : . . . . .
-----:+++++-----
      802.11a      :
      Channels      :          1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
                    : 3 3 3 4 4 4 4 4 4 5 5 6 6 0 0 0 1 1 2 2 3 3 4 4 5 5 6 6
                    : 4 6 8 0 2 4 6 8 2 6 0 4 0 4 8 2 6 0 4 8 2 6 0 9 3 7 1 5
-----:+++++-----
(-A , -AB ) US   : . A . A . A . A A A A A * * * * * . . . * * * A A A A *
Auto-RF          : . . . . .
-----:+++++-----
      4.9GHz 802.11a :
      Channels      :          1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
                    : 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
-----:+++++-----
US (-A , -AB ) : * * * * * * * * * * * * * * * A * * * * * A
Auto-RF        : . . . . .
-----:+++++-----

```



```

(-I , -I ) ILO : . . . 20 20 20 20 20 20 20 20 20 20 20 20 .
(-A , -AN ) IN : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-E , -E ) IQ : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) IS : 20 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) IT : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-JPU , -JPU ) J2 : 23 23 23 23 23 23 23 23 23 23 23 23 23 23
(-JPU , -JPU ) J3 : 23 23 23 23 23 23 23 23 23 23 23 23 23 23
(-JPQU , -PQ ) J4 : 23 23 23 23 23 23 23 23 23 23 23 23 23 23
(-E , - ) JO : 20 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-JPU , -JPU ) JP : 23 23 23 23 23 23 23 23 23 23 23 23 23 23
(-ACE , -ACEK) KE : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) KN : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-ACE , -ACEK) KR : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) KW : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) KZ : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) LB : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) LI : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , - ) LK : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) LT : 20 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) LU : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) LV : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) MC : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) ME : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) MK : 20 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , - ) MO : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) MT : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-A , -NA ) MX : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-ACE , -AEC ) MY : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) NL : 20 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) NO : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-A , -NA ) NZ : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-E , -E ) OM : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-A , -AR ) PA : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-A , -AR ) PE : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-A , -ABN ) PH : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-A , -ABN ) PH2 : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-E , -E ) PK : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) PL : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-A , -A ) PR : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-E , -E ) PT : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-A , -A ) PY : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-E , -E ) QA : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) RO : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) RS : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-AER , -ER ) RU : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-AE , -AE ) SA : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) SE : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -SE ) SG : 20 20 20 20 20 20 20 20 20 20 20 20 20 20
(-E , -E ) SI : 20 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) SK : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -ER ) TH : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) TN : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-EI , -E ) TR : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-A , -ANT ) TW : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-E , -E ) UA : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-A , -AB ) US : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-A , -AB ) US2 : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-A , -AB ) USL : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-A , - ) USX : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-A , -A ) UY : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-A , -AR ) VE : 27 27 27 27 27 27 27 27 27 27 27 . . .
(-E , -E ) VN : 20 20 20 20 20 20 20 20 20 20 20 20 20 .
(-E , -E ) ZA : 20 20 20 20 20 20 20 20 20 20 20 20 20 .

```

# show wireless detail

To display the details of the wireless parameters configured, use the **show wireless detail** command in privileged EXEC mode.

## show wireless detail

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

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

**Usage Guidelines** The following parameters are displayed:

- The wireless user idle timeout
- The controller configured RF group name
- Fast SSID change

The following is sample output from the **show wireless detail** command:

```
Device# show wireless detail
User Timeout           : 300
RF network              : default
Fast SSID              : Disabled
```

# show wireless dhcp relay statistics

To configure the wireless DHCP relay on the AP, use the **show wireless dhcp relay statistic** command.

**show wireless dhcp relay statistic**

<b>Syntax Description</b>	<i>A.B.C.D</i> Indicates the target IPv4 address.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 17.3.1	This command was introduced.

## Examples

The following example shows how to configure the wireless DHCP relay on the AP:

```
Device# show wireless dhcp relay statistics ip-address 10.1.1.1
```

# show wireless dot11h

To see 802.11h configuration details, use the **show wireless dot11h** command.

**show wireless dot11h** [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

## Syntax Description

*chassis-number* Chassis number. Valid range is 1–2.

**active** Active instance.

**standby** Standby instance.

**R0** Route-Processor slot 0.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the 802.11h configuration details:

```
Device# show wireless dot11h
```

# show wireless dtls connections

To display the Datagram Transport Layer Security (DTLS) server status, use the **show wireless dtls connections** command in privileged EXEC mode.

## show wireless dtls connections

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

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

The following is sample output from the **show wireless dtls connections** command:

```
Device# show wireless dtls connections
AP Name      Local Port  Peer IP     Peer Port  Ciphersuite
-----
AP-2         Capwap_Ctrl 10.0.0.16   52346     TLS_RSA_WITH_AES_128_CBC_SHA
AP-3         Capwap_Ctrl 10.0.0.17   52347     TLS_RSA_WITH_AES_128_CBC_SHA
```

# show wireless exclusionlist

To see the wireless exclusion list, use the **show wireless exclusionlist** command.

**show wireless exclusionlist** [{**client mac-address** *client-mac-addr* **detail** }] [**chassis** {*chassis-number* | **active** | **standby**} **R0**]

Syntax Description	
	<i>client-mac-addr</i> Client MAC address.
	<i>chassis-number</i> Enter the chassis number as either 1 or 2.
<b>active R0</b>	Active instance of the configuration in Route-processor slot 0.
<b>standby R0</b>	Standby instance of the configuration in Route-processor slot 0.

**Command Default** None

**Command Modes** Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the wireless exclusion list:

```
Device# show wireless exclusionlist
```

```
Excluded Clients
```

MAC Address	Description	Exclusion Reason	Time Remaining
10da.4320.cce9		Client Policy failure	59



# show wireless load-balancing

To display the status of the load-balancing feature, use the **show wireless load-balancing** command in privileged EXEC mode.

**show wireless load-balancing**

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

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

The following is sample output from the **show wireless load-balancing** command:

```
> show wireless load-balancing
Aggressive Load Balancing.....: per WLAN enabling
Aggressive Load Balancing Window (clients).....: 5
Aggressive Load Balancing Denial Count.....: 3

Statistics
Total Denied Count (clients).....: 0
Total Denial Sent (messages).....: 0
Exceeded Denial Max Limit Count (times).....: 0
None 5G Candidate Count (times).....: 0
None 2.4G Candidate Count (times).....: 0
```

# show wireless ewc-ap ap summary

To view the embedded wireless controller AP summary, use the **show wireless ewc-ap ap summary** command.

**show wireless ewc-ap ap summary** [**chassis** {*chassis\_number* | **active** | **standby**} {**R0**}]

Syntax	Description
<b>ewc-ap</b>	Configures the embedded wireless controller parameters.
<b>ap summary</b>	Displays the embedded wireless controller AP, AP summary.
<b>chassis</b>	Indicates the details of the chassis.
<i>chassis-number</i>	Indicates the chassis number, which is either 1 or 2..
<b>R0</b>	Indicates Route Processor slot 0.
<b>Active</b>	Indicates the active operational mode of the AP chassis.
<b>Standby</b>	Indicates the standby operational mode of the AP chassis.

**Command Default** None

**Command Modes** Privileged EXEC mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

## Example

The following example shows how to view the embedded wireless controller, AP summary:

```
Device#show wireless ewc-ap ap summary
```

# show wireless ewc-ap ap config-sync

To view the embedded wireless controller AP configuration synchronization information or summary, use the **show wireless ewc-ap ap config-sync** command.

**show wireless ewc-ap ap config-sync summary** [**chassis** {*chassis\_number* | **active** | **standby**} {**R0**}]

<b>Syntax Description</b>	<b>config-sync</b> Configures the embedded wireless controller parameters.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC mode
----------------------	----------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

## Example

The following example shows how to view the embedded wireless controller AP configuration synchronization information or summary:

```
Device#show wireless ewc-ap ap config-sync summary
```

# show wireless ewc-ap ap image predownload status

To view the AP image predownload statistics, use the **show wireless ewc-ap ap image predownload status** command.

**show wireless ewc-ap ap image predownload status**

<b>Syntax Description</b>	This command has no keywords or arguments.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC mode
----------------------	----------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.3.1	This command was introduced.

<b>Usage Guidelines</b>	None
-------------------------	------

## Example

The following example shows how to view the AP image predownload statistics:

```
Device#show wireless ewc-ap ap image predownload status
```

## show wireless ewc-ap country-code

To view the default country codes and the supported country codes of the embedded wireless controller AP, use the **show wireless ewc-ap country-code** command.

```
show wireless ewc-ap country-code [ chassis { chassis_number | active | standby } { R0 } ]
```

<b>Syntax Description</b>	<b>country-code</b> Indicates the default country codes and the supported country codes.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC mode				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.12.2s</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.				

### Example

The following example shows how to view the default and supported country codes of embedded wireless controller AP:

```
Device#show wireless ewc-ap country-codes
```

# show wireless ewc-ap image-master

To view the image maser information, use the **show wireless ewc-ap image-master** command.

**show wireless ewc-ap image-master** [**chassis** {*chassis\_number* | **active** | **standby**} {**R0**}]

<b>Syntax Description</b>	<b>image-master</b> Indicates the image master information.
---------------------------	---

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC mode
----------------------	----------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

## Example

The following example shows how to view the image master information:

```
Device#show wireless ewc-ap image-master
```

# show wireless ewc-ap invalid-image-master

To view the details of the invalid image master, use the **show wireless ewc-ap invalid-image-master** command.

```
show wireless ewc-ap invalid-image-master [chassis {chassis_number | active | standby} {R0}]
```

<b>Syntax Description</b>	<b>invalid-image-master</b> Indicates the invalid image master information.
---------------------------	---

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC mode
----------------------	----------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.

## Example

The following example shows how to view the invalid image master information:

```
Device#show wireless ewc-ap invalid-image-master
```

# show wireless ewc-ap predownload

To view the image predownload information, use the **show wireless ewc-ap predownload** command.

```
show wireless ewc-ap predownload { count | status } [ chassis { chassis_number | active | standby }
{ R0 } ]
```

<b>Syntax Description</b>	<b>predownload</b> Indicates the image predownload information.				
	<b>count</b> Indicates the image predownload count.				
	<b>status</b> Indicates the image predownload status.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Privileged EXEC mode				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.12.2s</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.2s	This command was introduced.				

## Example

The following example shows how to view the image predownload count and status:

```
Device#show wireless ewc-ap predownload
```



# show wireless ewc-ap redundancy summary

To view the HA redundancy summary, use the **show wireless ewc-ap redundancy summary** command.

**show wireless ewc-ap redundancy summary** [**chassis** {*chassis\_number* | **active** | **standby**} {**R0**}]

Syntax Description	
<b>redundancy</b>	Indicates the HA redundancy information.
<b>summary</b>	Indicates the summary of HA redundancy.

**Command Default** None

**Command Modes** Privileged EXEC mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

## Example

The following example shows how to view the default and supported country codes of embedded wireless controller AP:

```
Device#show wireless ewc-ap redundancy summary
```

# show wireless ewc-ap redundancy peers

To view the HA redundancy peers, use the **show wireless ewc-ap redundancy peers** command.

**show wireless ewc-ap redundancy peers** [**chassis** {*chassis\_number* | **active** | **standby**} {**R0**}]

Syntax Description	
<b>redundancy</b>	Indicates the HA redundancy information.
<b>peers</b>	Indicates the peers of HA redundancy.

**Command Default** None

**Command Modes** Privileged EXEC mode

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

## Example

The following example shows how to view the default and supported country codes of embedded wireless controller AP:

```
Device#show wireless ewc-ap redundancy peers
```

# show wireless mesh ethernet daisy-chain summary

To verify the ethernet daisy chain summary, use the **show wireless mesh ethernet daisy-chain summary** command.

## show wireless mesh ethernet daisy-chain summary

<b>Syntax Description</b>	This command has no keywords or arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privileged EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.4.1	This command was introduced.

The following example shows how to verify the ethernet daisy chain summary:

Device# **show wireless mesh ethernet daisy-chain summary**

AP Name	BVI	MAC	BGN	Backhaul	Ethernet	STP	Red	
RAP4	683b.78bf.15f0	IOT	Ethernet0	Up	Up	Dn	Dn	Enabled
RAP3	683b.78bf.1634	IOT	Ethernet0	Up	Up	Dn	Dn	Enabled
RAP1	6c8b.d383.b4d4	IOT	Ethernet0	Up	Up	Dn	Dn	Enabled
RAP2	6c8b.d383.b4e8	IOT	Ethernet0	Up	Up	Up	Dn	Enabled

# show wireless mesh ethernet daisy-chain bgn

To verify the ethernet daisy chain Bridge Group Name (BGN) details, use the **show wireless mesh ethernet daisy-chain bgn** command.

**show wireless mesh ethernet daisy-chain bgn** *bridge-group-name*

<b>Syntax Description</b>	<i>bridge-group-name</i> Enter the bridge group name.
---------------------------	---

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Privileged EXEC
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Bengaluru 17.4.1	This command was introduced.

The following example shows how to verify the ethernet daisy chain Bridge Group Name (BGN) details:

Device# **show wireless mesh ethernet daisy-chain bgn <IOT>**

AP Name	BVI MAC	BGN	Backhaul	Ethernet	STP Red
RAP4	683b.78bf.15f0	IOT	Ethernet0	Up Up Dn Dn	Enabled
RAP3	683b.78bf.1634	IOT	Ethernet0	Up Up Dn Dn	Enabled
RAP1	6c8b.d383.b4d4	IOT	Ethernet0	Up Up Dn Dn	Enabled
RAP2	6c8b.d383.b4e8	IOT	Ethernet0	Up Up Up Dn	Enabled

# show wireless pmk-cache

To display information about the pairwise master key (PMK) cache, use the **show wireless pmk-cache** command in privileged EXEC mode.

```
show wireless pmk-cache[mac-address mac-addr]
```

<b>Syntax Description</b>	<b>mac-address <i>mac-addr</i></b> (Optional) Information about a single entry in the PMK cache.				
<b>Command Default</b>	No default behavior or values.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco IOS XE Gibraltar 16.12.1</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.				

The following is sample output from the **show wireless pmk-cache mac-address** command:

```
Device# show wireless pmk-cache mac-address H.H.H  
Number of PMK caches in total : 0
```

# show wireless profile flex

To see the flex parameters of an wireless profile, use the **show wireless profile flex** command.

```
show wireless profile flex { detailed flex-profile-name chassis {chassis-number | active | standby } R0
} | summary chassis {chassis-number | active | standby} R0}
```

Syntax Description		
<b>detailed</b>	Shows the flex-profile detailed parameters	
<b>summary</b>	Show the flex-profile summary.	
<i>chassis-number</i>	Chassis number. Valid range is 1–2.	
<b>active</b>	Active instance.	
<b>standby</b>	Standby instance.	
<b>R0</b>	Route-Processor slot 0.	

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the flex parameter's summary of the wireless profile:

```
Device# show wireless profile flex summary
```

# show wireless profile policy detailed

To display the wireless policy profile details, use the **show wireless profile policy detailed** command.

**show wireless profile policy detailed** *policy-profile-name*

<b>Syntax Description</b>	This command has no keywords or arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Privilege EXEC (#)	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Amsterdam 17.2.1	This command was introduced.

## Example

This example displays the wireless policy profile details:

```
Device#show wireless profile policy detailed policy-profile-name
```

# show wireless rfid

To display RFID tag information, use the **show wireless rfid** command in privileged EXEC mode.

**show wireless rfid** { **client** | **detail** *rfid-mac-address* | **stats** | **summary** }

Syntax Description		
<b>client</b>		Displays the summary of RFID tags that are clients.
<b>detail</b>		Displays information about a particular RFID tag.
<b>stats</b>		Displays RFID statistics.
<b>summary</b>		Displays summary information for all known RFID tags.
<i>rfid-mac-address</i>		RFID MAC address.

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Example

This example shows how to view RFID information:

```
Device# show wireless rfid summary
```

```
Total RFID entries: : 16
Total Unique RFID entries : 16
RFID ID VENDOR Closet AP RSSI Time Since Last Heard
0012.b80a.c791 Cisco 7069.5a63.0520 -31 1 minute 40 seconds ago
0012.b80a.c953 Cisco 7069.5a63.0460 -33 2 minutes 15 seconds ago
0012.b80b.806c Cisco 7069.5a63.0260 -45 22 seconds ago
0012.b80d.e9f9 Cisco 7069.5a63.0460 -38 2 minutes 37 seconds ago
0012.b80d.ea03 Cisco 7069.5a63.0520 -43 2 minutes 38 seconds ago
0012.b80d.ea6b Cisco 7069.5a63.0460 -39 2 minutes 35 seconds ago
0012.b80d.ebe8 Cisco 7069.5a63.0520 -43 1 minute 31 seconds ago
0012.b80d.ebeb Cisco 7069.5a63.0520 -43 2 minutes 37 seconds ago
0012.b80d.ec48 Cisco 7069.5a63.0460 -42 2 minutes 16 seconds ago
0012.b80d.ec55 Cisco 7069.5a63.0520 -41 1 second ago
```



# show wireless summary

To display the number of access points, radios and wireless clients known to the controller, use the **show wireless summary** command in privileged EXEC mode.

**show wireless summary**

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

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

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

```
Device# show wireless summary

Access Point Summary

                Total    Up    Down
-----
802.11a/n        2     2     0
802.11b/g/n      2     2     0
All APs          2     2     0

Client Summary

Current Clients : 1
Excluded Clients: 0
Disabled Clients: 0
```

# show wireless tag rf

To display the details of wireless RF tag, use the **show wireless tag rf** command.

**show wireless tag rf** { **summary** | **detailed** *rf-tag-name*

Syntax Description	
<b>summary</b>	Disaplys the summary of all RF tags.
<b>detailed</b>	Disaplys details of an RF tag.
<i>rf-tag-name</i>	RF tag name.

**Command Default** None

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

## Example

The following example shows the sample output of **show wireless tag rf summary** command:

```
Device# show wireless tag rf summary
```

```
Number of RF Tags: 1
```

```
RF tag name           Description
-----
default-rf-tag       default RF tag
```

# show wireless urlfilter details

To view the details of a specified wireless URL filter, use the **show wireless urlfilter details** command.

**show wireless urlfilter details** *list-name*

<b>Syntax Description</b>	This command has no arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Global configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

This example shows how to view the details of a specified wireless URL filter:

```
Device# show wireless urlfilter details urllist_flex_preauth
List Name..... : urllist_flex_preauth
Filter ID..... : 1
Filter Type..... : PRE-AUTH
Action..... : PERMIT
Redirect server ipv4..... : 8.8.8.8
Redirect server ipv6..... : 2001:0300:0008:0000:0000:0000:0000:0081
Configured List of URLs
  URL..... : url1.dns.com
```

# show wireless urlfilter summary

To view the summary of all wireless URL filters, use the **show wireless urlfilter summary** command.

**show wireless urlfilter summary**

<b>Syntax Description</b>	This command has no arguments.	
<b>Command Default</b>	None	
<b>Command Modes</b>	Global configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced.

This example shows how to view the summary of all wireless URL filters:

```
Device# show wireless urlfilter summary
Black-list      - DENY
White-list      - PERMIT
Filter-Type     - Specific to Local Mode

URL-List              ID  Filter-Type  Action  Redirect-ipv4  Redirect-ipv6
-----
urllist_flex_preauth    1  PRE-AUTH    PERMIT   8.8.8.8
2001:0300:0008:0000:0000:0000:0000:0081
```

# show wireless vlan details

To see the VLAN details, use the **show wireless vlan details** command.

```
show wireless vlan details [chassis {chassis-number | active | standby} R0]
```

---

**Command Default** None

---

**Command Modes** Privileged EXEC

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

---

## Examples

The following example shows how to see the VLAN details:

```
Device# show wireless vlan details chassis active r0
```

# show wireless wgb mac-address

To view all the clients of the wireless workgroup bridge (WGB) using its MAC address, use the **show wireless wgb mac-address** command.

**show wireless wgb mac-address** *mac-address* **detail**

<b>Syntax Description</b>	<i>mac-address</i> MAC address of the WGB.
<b>detail</b>	View clients of the wireless WGB.

**Command Default** None

**Command Modes** Privileged EXEC

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

## Examples

The following example shows how to see the clients of the wireless WGB:

```
Device# show wireless wgb mac-address 98-C7-7B-09-EF-ED detail
```

# show wireless wgb summary

To see the active workgroup bridges (WGB), use the **show wireless wgb summary** command.

**show wireless wgb summary**

---

**Command Default** None

---

**Command Modes** Privileged EXEC

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1	This command was introduced in a release earlier than Cisco IOS XE Gibraltar 16.10.1.

---

## Examples

The following example shows how to see the active workgroup bridges (WGB):

```
Device# show wireless wgb summary
```

# show wireless wps rogue ap summary

To display a list of all rogue access points detected by the device, use the **show wireless wps rogue ap summary** command.

**show wireless wps rogue ap summary**

**Command Default** None.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

**Usage Guidelines** None.

This example shows how to display a list of all rogue access points detected by the device:

```
Device# show wireless wps rogue ap summary
Rogue Location Discovery Protocol      : Disabled
Rogue on wire Auto-Contain             : Disabled
Rogue using our SSID Auto-Contain     : Disabled
Valid client on rogue AP Auto-Contain : Disabled
Rogue AP timeout                       : 1200
Rogue Detection Report Interval       : 10
Rogue AP minimum RSSI                 : -128
Rogue AP minimum transient time       : 0
```

Number of rogue APs detected : 624

MAC Address	Classification	# APs	# Clients	Last Heard
0018.e78d.250a	Unclassified	1	0	Thu Jul 25 05:04:01 2013
0019.0705.d5bc	Unclassified	1	0	Thu Jul 25 05:16:26 2013
0019.0705.d5bd	Unclassified	1	0	Thu Jul 25 05:10:28 2013
0019.0705.d5bf	Unclassified	1	0	Thu Jul 25 05:16:26 2013



# show wireless wps rogue client detailed

To view the detailed information of a specific rogue client, use the **show wireless wps rogue client detailed** *client-mac* command.

**show wireless wps rogue client detailed** *client-mac*

<b>Syntax Description</b>	<i>client-mac</i> MAC address of the rogue client.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS XE Gibraltar 16.12.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.
Release	Modification				
Cisco IOS XE Gibraltar 16.12.1	This command was introduced.				
<b>Usage Guidelines</b>	None.				

This example shows how to display the detailed information for a specific rogue client:

```
Device# show wireless wps rogue client detail 0024.d7f1.2558
Rogue BSSID                : 64d8.146f.379f
Rogue Radio Type           : 802.11n - 5GHz
State                       : Alert
First Time Rogue was Reported : Wed Aug  7 12:51:43 2013
Last Time Rogue was Reported  : Wed Aug  7 12:51:43 2013
Reported by
  AP 2
    MAC Address              : 3cce.7309.0370
    Name                     : AP3502-talwar-ccie
    Radio Type               : 802.11a
    RSSI                     : -42 dBm
    SNR                      : 47 dB
    Channel                  : 52
    Last reported by this AP  : Wed Aug  7 12:51:43 2013
```

# show wireless wps rogue client summary

To display summary of WPS rogue clients, use the **show wireless wps rogue client summary** command.

**show wireless wps rogue client summary**

---

**Command Default**      None

---

**Command Modes**      Privileged EXEC

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.12.1	This command was introduced.

---



---

## Usage Guidelines

### Example

The following displays the output of the **show wireless wps rogue client summary** command:

```
Device# show wireless wps rogue client summary
Validate rogue clients against AAA : Disabled
Validate rogue clients against MSE : Enabled
Number of rogue clients detected : 0
```