



Troubleshooting Commands

This module describes commands used for troubleshooting routers running Cisco IOS XR software.

The commands in this chapter with the cisco-support task ID are used in the *Cisco ASR 9000 Series Aggregation Services Router Feature Troubleshooting Module* as part of the troubleshooting process. For information about commands with the cisco-support task ID that are not documented in this chapter, please contact Cisco Technical Support.



Caution

These Cisco support commands are normally reserved for use by Cisco Technical Support personnel only. There is some risk that they may cause performance or other issues that impact products without proper usage, and we highly recommend that you contact Cisco Technical Support prior to using any of these commands.

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

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show im database

To display the information stored in the shared memory database of interface manager (IM), use the **show im database** command in EXEC mode.

```
show im database [{brief | detail | ifhandle | interface | summary | verbose | view}] interface-type
interface-instance location node-id
```

Syntax Description

brief	(Optional) Displays brief information about IM database.
detail	(Optional) Displays detailed information about IM database.
ifhandle	(Optional) Select a specific interface by handle.
interface	(Optional) Select a specific interface by name.
summary	(Optional) Displays IM database summary information.
verbose	(Optional) Displays verbose information about IM database.
view	(Optional) Specify a database view to filter the information based on the view
<i>interface-type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-instance</i>	<p>Either a physical interface instance or a virtual interface instance as follows:</p> <ul style="list-style-type: none"> Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> <i>rack</i>: Chassis number of the rack. <i>slot</i>: Physical slot number of the modular services card or line card. <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0. <i>port</i>: Physical port number of the interface. <p>Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0.</p> <ul style="list-style-type: none"> Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>
location <i>node-id</i>	Displays IM database information for a specified node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Command Default

No default behavior or values

Command Modes

EXEC mode

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operations
	cisco-support	read
	interface	read

Examples

The following example shows the output of the **show im database** command:

```
RP/0/RSP0/CPU0:router# show im database verbose interface null 0
Mon Nov  9 22:10:37.964 PST

View: OWN - Owner, L3P - Local 3rd Party, G3P - Global 3rd Party,
      LDP - Local Data Plane, GDP - Global Data Plane, RED - Redundancy

Node 0/RP0/CPU0 (0x201)

Interface Null0, ifh 0x00080030 (up, 1500)
  Interface flags:      0x00010097 (IFINDEX|VIRTUAL|CONFIG|VIS|DATA|CONTRO
  Encapsulation:      null
  Interface type:      IFT_NULL
  Views:               GDP|LDP|G3P|L3P|OWN
  Control location:    0/RP0/CPU0
  Owner Private:      92 bytes
    Flags:             <none>
    State Transitions: 1
    Dampening Config:  NO
    Shared Locks:      0
    MTU default:       1500
    MTU ovh for bc/subif: 0/0
    MTU min/max:       0/0
    MTU avail/child:   0/1500
    MTU actual/notified: 1500/1500
    State (constraint): UP (UP)
    Callback:          OWN GROUP OWNER - ID 17[-]
  Ctrl Flags:         CFG_RDY|RDY|DNLD|INTF
  Instance ID:        31
  Checkpoint:         48 bytes
  Resource in NetIO:  TRUE

Protocol      Caps (state, mtu)
-----
None          null (up, 1500)
  Views:      LDP|G3P|L3P|OWN
  Owner Private: 92 bytes
    Flags:     <none>
    MTU min/max: 0/0
    MTU avail/child: 1500/1500
    MTU actual/notified: 1500/1500
    State (constraint): UP (UP)
    Callback:   OWN GROUP OWNER - ID 17[-]
  Ctrl Flags: CFG_RDY|RDY|DNLD
  Instance ID: 31
```

```
Checkpoint:          20 bytes
Resource in NetIO:  TRUE
Demux limit:        0x00000000
```

This table describes the significant fields shown in the display.

Table 1: show im database Field Descriptions

Field	Description
nodeid	Identifier associated with the node.
Interface	Interface name.
Protocol	Protocol encapsulations associated with the interface.
Caps (state, mtu)	Capsulation names with associated state and MTU values.

The following example shows the output of the **show im database** command:

```
RP/0/RSP0/CPU0:router# show im database brief location 0/0/CPU0
```

```
View: OWN - Owner, L3P - Local 3rd Party, G3P - Global 3rd Party,
      LDP - Local Data Plane, GDP - Global Data Plane, RED - Redundancy
```

```
Node 0/0/CPU0 (0x1)
```

Handle	Name	State	MTU	#P	#C	Views
0x01080020	FI0/0/CPU0	up	8000	11	12	GDP LDP L3P OWN
0x01080060	Gi0/0/0/0	up	9212	3	3	GDP LDP L3P OWN
0x01080080	Gi0/0/0/1	up	1514	3	3	GDP LDP L3P OWN
0x010800a0	Gi0/0/0/2	up	1514	3	3	GDP LDP L3P OWN
0x010800c0	Gi0/0/0/3	down	1514	4	4	GDP LDP L3P OWN
0x010800e0	Gi0/0/0/4	up	1514	3	3	GDP LDP L3P OWN
0x01080100	Gi0/0/0/5	up	1514	3	3	GDP LDP L3P OWN
0x01080120	Gi0/0/0/6	up	1514	8	17	GDP LDP L3P OWN
0x01080140	Gi0/0/0/7	down	1514	6	9	GDP LDP L3P OWN
0x010801c0	Gi0/0/0/6.1	up	1518	4	5	GDP LDP L3P OWN
0x010801e0	Gi0/0/0/6.101	up	1518	5	13	GDP LDP L3P OWN
0x01080200	Gi0/0/0/6.102	up	1518	5	13	GDP LDP L3P OWN
0x01080220	Gi0/0/0/6.103	up	1518	5	13	GDP LDP L3P OWN
0x01080240	Gi0/0/0/6.104	up	1518	5	13	GDP LDP L3P OWN
0x01080260	Gi0/0/0/6.105	up	1518	4	12	GDP LDP L3P OWN
0x01080280	Gi0/0/0/6.106	up	1518	4	12	GDP LDP L3P OWN
0x010802a0	Gi0/0/0/6.107	up	1518	4	12	GDP LDP L3P OWN
0x010802c0	Gi0/0/0/6.108	up	1518	4	10	GDP LDP L3P OWN
0x010802e0	Gi0/0/0/6.109	up	1518	4	10	GDP LDP L3P OWN
0x01080300	Gi0/0/0/6.110	up	1518	4	10	GDP LDP L3P OWN
0x01080320	Gi0/0/0/6.111	up	1518	4	10	GDP LDP L3P OWN
0x01080340	Gi0/0/0/6.112	up	1518	4	10	GDP LDP L3P OWN
0x01080360	Gi0/0/0/6.113	up	1518	4	10	GDP LDP L3P OWN
0x01080380	Gi0/0/0/6.114	up	1518	4	10	GDP LDP L3P OWN
0x010803a0	Gi0/0/0/6.115	up	1518	4	10	GDP LDP L3P OWN
0x010803c0	Gi0/0/0/6.116	up	1518	4	10	GDP LDP L3P OWN
0x010803e0	Gi0/0/0/6.117	up	1518	4	10	GDP LDP L3P OWN
0x01080400	Gi0/0/0/6.118	up	1518	4	10	GDP LDP L3P OWN
0x01080420	Gi0/0/0/6.119	up	1518	4	10	GDP LDP L3P OWN
0x01080440	Gi0/0/0/6.120	up	1518	4	10	GDP LDP L3P OWN

0x01080460	Gi0/0/0/6.121	up	1518	4	6	GDP LDP L3P OWN
0x01080480	Gi0/0/0/6.122	up	1518	4	6	GDP LDP L3P OWN
0x010804a0	Gi0/0/0/6.123	up	1518	4	6	GDP LDP L3P OWN
0x010804c0	Gi0/0/0/6.124	up	1518	4	6	GDP LDP L3P OWN
0x010804e0	Gi0/0/0/6.125	up	1518	4	6	GDP LDP L3P OWN
0x01080500	Gi0/0/0/6.126	up	1518	4	6	GDP LDP L3P OWN
0x01080520	Gi0/0/0/6.127	up	1518	4	6	GDP LDP L3P OWN
0x01080540	Gi0/0/0/6.128	up	1518	4	6	GDP LDP L3P OWN
0x01080560	Gi0/0/0/6.129	up	1518	4	6	GDP LDP L3P OWN
0x01080580	Gi0/0/0/6.130	up	1518	4	6	GDP LDP L3P OWN
0x010805a0	Gi0/0/0/6.131	up	1518	4	6	GDP LDP L3P OWN
0x010805c0	Gi0/0/0/6.132	up	1518	4	6	GDP LDP L3P OWN
0x010805e0	Gi0/0/0/6.133	up	1518	4	6	GDP LDP L3P OWN
0x01080600	Gi0/0/0/6.134	up	1518	4	6	GDP LDP L3P OWN
0x01080620	Gi0/0/0/6.135	up	1518	4	6	GDP LDP L3P OWN
0x01080640	Gi0/0/0/6.136	up	1518	4	6	GDP LDP L3P OWN
0x01080660	Gi0/0/0/6.137	up	1518	4	6	GDP LDP L3P OWN
0x01080680	Gi0/0/0/6.138	up	1518	4	6	GDP LDP L3P OWN
0x010806a0	Gi0/0/0/6.139	up	1518	4	6	GDP LDP L3P OWN
0x010806c0	Gi0/0/0/6.140	up	1518	4	6	GDP LDP L3P OWN
0x010806e0	Gi0/0/0/6.141	up	1518	4	6	GDP LDP L3P OWN
0x01080700	Gi0/0/0/6.142	up	1518	4	6	GDP LDP L3P OWN
0x01080720	Gi0/0/0/6.143	up	1518	4	6	GDP LDP L3P OWN
0x01080740	Gi0/0/0/6.144	up	1518	4	6	GDP LDP L3P OWN
0x01080760	Gi0/0/0/6.145	up	1518	4	6	GDP LDP L3P OWN
0x01080780	Gi0/0/0/6.146	up	1518	4	6	GDP LDP L3P OWN
0x010807a0	Gi0/0/0/6.147	up	1518	4	6	GDP LDP L3P OWN
0x010807c0	Gi0/0/0/6.148	up	1518	4	6	GDP LDP L3P OWN
0x010807e0	Gi0/0/0/6.149	up	1518	4	6	GDP LDP L3P OWN
0x01080800	Gi0/0/0/6.150	up	1518	4	6	GDP LDP L3P OWN
0x01080820	Gi0/0/0/7.1	down	1518	2	5	GDP LDP L3P OWN
0x01080840	Gi0/0/0/7.2	down	1518	4	6	GDP LDP L3P OWN
0x01080860	Gi0/0/0/7.3	down	1518	3	4	GDP LDP L3P OWN
0x01080880	Gi0/0/0/7.4	down	1518	3	4	GDP LDP L3P OWN
0x010808a0	Gi0/0/0/7.5	down	1518	3	4	GDP LDP L3P OWN
0x010808c0	Gi0/0/0/7.6	down	1518	3	4	GDP LDP L3P OWN
0x010808e0	Gi0/0/0/7.7	down	1518	3	4	GDP LDP L3P OWN
0x01080900	Gi0/0/0/7.8	down	1518	3	4	GDP LDP L3P OWN
0x01080920	Gi0/0/0/7.9	down	1518	3	4	GDP LDP L3P OWN
0x01080940	Gi0/0/0/7.10	down	1518	3	4	GDP LDP L3P OWN
0x01080960	Gi0/0/0/7.11	down	1518	3	4	GDP LDP L3P OWN
0x01100020	Mg0/1/CPU1/0	N/A	-	0	0	GDP
0x01100040	FI0/1/CPU1	N/A	-	0	0	GDP
0x01180020	FI0/1/CPU0	N/A	-	0	0	GDP
0x01180040	Mg0/1/CPU0/0	N/A	-	0	0	GDP
0x01180030	Nu0	N/A	-	0	0	GDP
0x01180050	En0	N/A	-	2	2	GDP LDP
0x01180070	En6tunnel0	N/A	-	2	2	GDP LDP
0x01180090	Lo0	N/A	-	0	0	GDP
0x011800b0	Lo1	N/A	-	0	0	GDP
0x011800d0	Lo2	N/A	-	0	0	GDP
0x011800f0	Lo3	N/A	-	0	0	GDP
0x01180110	Lo5	N/A	-	0	0	GDP
0x01180130	Lo6	N/A	-	0	0	GDP
0x01180150	Lo7	N/A	-	0	0	GDP
0x01180170	BE102	N/A	-	0	0	GDP
0x01180190	BE1080	N/A	-	3	4	GDP LDP
0x011801b0	BE1083	N/A	-	3	4	GDP LDP
0x011801d0	BE1084	N/A	-	3	4	GDP LDP
0x011801f0	BE1085	N/A	-	5	12	GDP LDP
0x01180210	BE1085.1	N/A	-	4	6	GDP LDP
0x01180230	BE1085.102	N/A	-	4	7	GDP LDP

show imds interface brief

To display interface information for the interface manager distribution server (IMDS), use the **show imds interface brief** command in EXEC mode.

show imds interface brief

Syntax Description This command has no keywords or arguments.

Command Default No default behavior or values

Command Modes EXEC mode

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines Use the **show imds interface brief** command to display IMDS interface information. Use the command output to determine if the state, encapsulation being used, maximum transmission unit (MTU), and interface handle (ifhandle) for each interface are as expected.

Task ID	Task ID	Operations
	cisco-support	read

Examples The following example shows the output of the **show imds interface brief** command:

```
RP/0/RSP0/CPU0:router show imds interface brief

IMDS BRIEF INTERFACE DATA (Node 0x201)
  handle          name          flags      state      mtu      encap
-----
0x00080000 FINT0/RP0/CPU0      0x0007 up        8000     91 (fint_base)
0x00080010 Null0                0x100ab up        1500     17 (null)
0x00080020 MgmtEth0/RP0/CPU0/0 0x1002f up        1514     30 (ether)
0x00080030 Loopback0          0x100ab up        1514     16 (loopback)
0x00080050 Bundle-POS24       0x104ab up        4474     14 (hdlc)
0x00080070 Bundle-Ether28     0x104ab up        1514     30 (ether)
0x00080090 Bundle-Ether28.1   0x10cab up        1500     107 (dot1q)
0x000800b0 Bundle-Ether28.2   0x10cab up        1500     107 (dot1q)
0x000800d0 Bundle-Ether28.3   0x10cab up        1500     107 (dot1q)
0x01180000 FINT0/1/CPU0       0x0007 up        8000     91 (fint_base)
0x01180020 GigabitEthernet0/1/5/0 0x1002f up        1514     30 (ether)
0x01180040 GigabitEthernet0/1/5/1 0x1002f up        1514     30 (ether)
0x01180060 GigabitEthernet0/1/5/2 0x1002f up        1514     30 (ether)
0x01180080 GigabitEthernet0/1/5/3 0x1002f admin-down 1514     30 (ether)
0x011800a0 GigabitEthernet0/1/5/4 0x1002f down        1514     30 (ether)
0x011800c0 GigabitEthernet0/1/5/5 0x1002f admin-down 1514     30 (ether)
.
.
.
0x01680480 SONET0/6/4/5      0x1006d up        10000    0 (Unknown)
```

```

0x016804a0 SonetPath0/6/4/5      0x10005 up          10000  0 (Unknown)
0x016804c0 POS0/6/4/5           0x1002f up          4474   14 (hdlc)
0x016804e0 SONEt0/6/4/6         0x1006d up          10000  0 (Unknown)
0x01680500 SonetPath0/6/4/6     0x10005 up          10000  0 (Unknown)
0x01680520 POS0/6/4/6           0x1002f up          4474   14 (hdlc)
0x01680540 SONEt0/6/4/7         0x1006d up          10000  0 (Unknown)
0x01680560 SonetPath0/6/4/7     0x10005 down        10000  0 (Unknown)
0x01680580 POS0/6/4/7           0x1002f admin-down  4474   14 (hdlc)
    
```

This table describes the significant fields shown in the display.

Table 2: show imds interface brief Field Descriptions

Field	Description
name	Interface name.
state	Interface state.
mtu	MTU associated with the interface.
encap	Base encapsulation associated with the interface.

show sysdb connections

To display the client connection information for the system database (SYSDB), use the **show sysdb connections** command in EXEC mode.

show sysdb connections [{**detail** | **job** | **path** | **location** | **shared-plane**}]

Syntax Description	Parameter	Description
	detail	(Optional) Displays the detailed client connection information.
	job <i>job-id</i>	(Optional) Specify a Job ID.
	path <i>path-filter</i>	(Optional) Specify a path filter.
	location <i>node-id</i>	(Optional) Specify a location. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
	shared-plane	(Optional) Displays the shared-plane data.

Command Default No default behavior or values

Command Modes EXEC mode

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operations
	sysmgr	read
	cisco-support	read

Examples The following example shows the output of the **show sysdb connections** command.

```
RP/0/RSP0/CPU0:router# show sysdb connections detail location 0/1/CPU0
```

```
SysDB Connections:
"/debug/node/11/LR/sysdb/client/"
From:      shmwin_svr (jid 76, nid 0/1/CPU0, tid 1)
Connid:    00000001 Refcount: 0002 Options: 00000032
Connected: Y In trans: N Verf susp: N
Client connid: 00000000
Connected at: Jul 14 19:31:47.304
"/debug/node/11/LR/packet/"
From:      packet (jid 218, nid 0/1/CPU0, tid 1)
Connid:    00000002 Refcount: 0002 Options: 00000032
Connected: Y In trans: N Verf susp: N
Client connid: 00000000
Connected at: Jul 14 19:31:47.305
```



```
"/debug/node/11/LR/cdm/qsm/"
From:      qsm (jid 246, nid 0/1/CPU0, tid 4)
Connid:    00000003 Refcount: 0002 Options: 00000032
Connected: Y In trans:  N Verf susp:      N
Client connid: 00000000
Connected at: Jul 14 19:31:47.305
"/debug/node/11/LR/eem/"
From:      wdsysmon (jid 361, nid 0/1/CPU0, tid 5)
Connid:    00000005 Refcount: 0002 Options: 00000032
Connected: Y In trans:  N Verf susp:      N
Client connid: 00000000
Connected at: Jul 14 19:31:47.316
"/debug/node/11/LR/sysmgr/"
From:      sysmgr (jid 79, nid 0/1/CPU0, tid 7)
Connid:    00000013 Refcount: 0002 Options: 00000032
...
```

show sysdb trace verification location

To display trace verification information for the system database (SYSDB), use the **show sysdb trace verification location** command in EXEC mode.

show sysdb trace verification location *node-id*

Syntax Description	<i>node-id</i> Specific node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
---------------------------	---

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

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

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines Use the **show sysdb trace verification shared-plane location** command to display details of recent verification sysDB transactions and changes on local plane configurations. The command output allows you to confirm that configuration were verified and accepted.

Task ID	Task ID	Operations
	sysmgr	read
	cisco-support	read

Examples The following example shows the output of the **show sysdb trace verification shared-plane location** command. The output shows that changes to the SysDB local plane were verified and accepted.

```
RP/0/RSP0/CPU0:router# show sysdb trace verification location 0/3/CPU0

Timestamp          jid      tid  reg handle  connid  action
                    path
323 wrapping entries (4096 possible, 299 filtered, 622 total)
Jul  7 20:10:36.212    260      1    90      8782    apply reply
                    '---'
Jul  7 20:10:35.476    260      1    90      4912    Apply/abort called
                    'cfg/if/act/GigabitEthernet0_3_4_0.1/a/sub_vlan/0x2/_____/Gigab
itEthernet0_3_4_0/_____'
Jul  7 20:10:35.475    260      1    90      4912    verify reply: accep
t                    '---'
Jul  7 20:10:35.471    260      1    90      4912    Verify called
                    'cfg/if/act/GigabitEthernet0_3_4_0.1/a/sub_vlan/0x2/_____/Gigab
itEthernet0_3_4_0/_____'
Jul  7 20:10:35.471    144      1     4      8782    apply reply
                    '---'
Jul  7 20:10:35.471    144      1     4      8782    apply reply
                    '---'
Jul  7 20:10:35.471    144      1     4      8782    apply reply
                    '---'
```

```

Jul  7 20:10:35.471      144      1      4      8782      apply reply
                        '---'
Jul  7 20:10:35.471      144      1      4      8782      apply reply
                        '---'
Jul  7 20:10:35.471      144      1      4      8782      apply reply
                        '---'
Jul  7 20:10:35.471      144      1      4      8782      apply reply
                        '---'
Jul  7 20:10:35.471      144      1      4      8782      apply reply
                        '---'
Jul  7 20:10:35.470      144      1      4      474      Apply/abort batch e
nded
                        ''
Jul  7 20:10:35.470      144      1      4      474      Apply/abort called
                        'cfg/if/act/GigabitEthernet0_3_4_0/ord_x/im/shutdown'
Jul  7 20:10:35.470      144      1      4      474      Apply/abort called
                        'cfg/if/act/GigabitEthernet0_3_4_1/ord_x/im/shutdown'
Jul  7 20:10:35.470      144      1      4      474      Apply/abort called
                        'cfg/if/act/GigabitEthernet0_3_4_2/ord_x/im/shutdown'
Jul  7 20:10:35.470      144      1      4      474      Apply/abort called
                        'cfg/if/act/GigabitEthernet0_3_4_3/ord_x/im/shutdown'
Jul  7 20:10:35.470      144      1      4      474      Apply/abort called
                        'cfg/if/act/GigabitEthernet0_3_4_4/ord_x/im/shutdown'
Jul  7 20:10:35.469      144      1      4      474      Apply/abort called
                        'cfg/if/act/GigabitEthernet0_3_4_5/ord_x/im/shutdown'
Jul  7 20:10:35.469      144      1      4      474      Apply/abort called
                        'cfg/if/act/GigabitEthernet0_3_4_6/ord_x/im/shutdown'
Jul  7 20:10:35.469      144      1      4      474      Apply/abort called
                        'cfg/if/act/GigabitEthernet0_3_4_7/ord_x/im/shutdown'
Jul  7 20:10:35.469      144      1      4      474      Apply/abort batch s
tarted
                        ''
Jul  7 20:10:35.469      144      1      4      474      verify reply: accep
t
                        '---'
Jul  7 20:10:35.469      144      1      4      474      verify reply: accep
t
                        '---'
Jul  7 20:10:35.469      144      1      4      474      verify reply: accep
t
                        '---'
!
!
!

```

This table describes the significant fields shown in the display.

Table 3: show sysdb trace verification location Field Descriptions

Field	Description
Timestamp	Time of the verification.
jid	Job identifier of the verification.
tid	Thread identifier.
reg handle	Registration handle.
connid	Connection identifier.
action	Action occurring between the sysDB server and client.
apply reply	SysDB notification that the client that an apply action has occurred.
Apply/abort called	SysDB notification for the client that an apply or process termination has been initiated.

show sysdb trace verification location

Field	Description
verify reply: accept	Verifier has accepted the verification request.

Related Commands

Command	Description
show sysdb connection path shared-plane	Displays system database client connection shared plane data for a specific path.

show sysdb trace verification shared-plane

To display trace verification information for the system database (SYSDB), use the **show sysdb trace verification shared-plane** command in EXEC mode.

```
show sysdb trace verification shared-plane [{file | hexdump | last | location | reverse | stats | tailf | unique | verbose | wrapping}]
```

Syntax Description	
file	(Optional) Specifies the name of a file.
hexdump	(Optional) Displays the packet contents in hexadecimal format.
last	(Optional) Specifies the last number of packets in the queue to display.
location	(Optional) Displays the card location.
reverse	(Optional) Specifies the new traces as they are added.
stats	(Optional) Displays trace statistics information.
tailf	(Optional) Displays new traces as they are added.
unique	(Optional) Displays a list of unique entries with counts.
verbose	(Optional) Displays internal debugging information.
wrapping	(Optional) Displays wrapping entries of all trace information.

Command Default No default behavior or values

Command Modes EXEC mode

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines Use the **show sysdb trace verification shared-plane** command to display details of recent verification sysDB transactions and changes on the shared plane. The command output allows you to confirm whether the configuration was verified correctly.

Specifying a path using the **include** keyword and *path* argument filters the data to display only the sysDB path for the router. Use the **describe** command to determine the path.

Task ID	Task ID	Operations
	sysmgr	read
	cisco-support	read

Examples

The following example shows the output of the **show sysdb trace verification shared-plane** command. The output shows that changes to the SysDB shared plane were verified and accepted.

```
RP/0/RSP0/CPU0:router# show sysdb trace verification shared-plane | include gl/a/hostname
May 18 19:16:17.143      340      3      210      962      Apply/abort called
                        'cfg/gl/a/hostname'
May 18 19:16:17.132      340      3      210      962      Verify called
                        'cfg/gl/a/hostname'
May 18 19:16:17.126      340      3      210      962      Apply/abort called
                        'cfg/gl/a/hostname'
May 18 19:16:17.109      340      3      210      962      Verify called
                        'cfg/gl/a/hostname'
May 18 18:43:16.065      340      3      210      962      register
                        'cfg/gl/a/hostname'
May 18 18:41:41.048      340      3      16       362      register
                        'cfg/gl/a/hostname'
```

This table describes the significant fields shown in the display.

Table 4: show sysdb trace verification shared-plane Field Descriptions

Field	Description
Apply/abort called	SysDB server has either applied or terminated the action requiring verification.
Verify called	Client has issued a verify request to the sysDB server.
register	Client has registered with sysDB server for verification.

Related Commands

Command	Description
show sysdb connection path shared-plane	Displays sysDB client connection shared plane data for a specific path.

show tbm hardware

To displays tree bitmap hardware-related information, use the **show tbm hardware** command in EXEC mode.

```
show tbm hardware {ipv4 | ipv6 | mpls | vpv4 | table-id | afi-all | sw-only | dual | egress | ingress}
{unicast | multicast | safi-all} {dual | egress | ingress | sw-only} {brief | detail | lookup | prefix
prefix-hex-string} location node-id
```

Syntax	Description
ipv4	Specifies IP Version 4 address prefixes.
ipv6	Specifies IP Version 6 address prefixes.
mpls	Specifies MPLS-related tree bitmap information.
vpv4	Specifies VPNv4-related tree bitmap information.
table-id	Specifies tree bitmap information for a specific table ID.
afi-all	Specifies IPv4 and IPv6 commands.
sw-only	Specifies software-only tree bitmap information.
dual	Specifies tree bitmap information for dual, ingress, and egress, modes.
egress	Specifies egress tree bitmap information.
ingress	Specifies ingress tree bitmap information.
unicast	Specifies unicast address prefixes.
multicast	Specifies multicast address prefixes. This option is supported for IPv4 address families.
safi-all	For subaddress family, specifies prefixes for all subaddress families. This option is supported for IPv4 address families.
dual	Specifies ingress and egress tree bitmap information.
brief	Displays brief information.
detail	Displays detailed information.
lookup	Displays key or address information to look up (longest match) in the table.
prefix	Displays prefix-related information.
location node-id	Displays tree bitmap hardware-related information for a specified node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Command Default No default behavior or values

Command Modes EXEC mode

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines Use the **show tbn hardware** command to display hardware-related ingress and egress information for the tree bitmap.

Task ID	Task ID	Operations
	cisco-support	read

Examples The following example shows the output of the **show tbn hardware** command:

```
RP/0/RSP0/CPU0:router# show tbn hardware ipv4 unicast dual detail location 0/6/cpu0

TBM Table Type: IPv4 Unicast
-----
TBM: number of pulses: 71
TBM: number of Err fix attempts: 0
      No current failures
Past failures: leaf(0), mem(0), mipc(0), flush_mipc(0)
               post_compact(0), pre_compact(0)

PLU Bucket Statistics:
-----
      Bucket 0: 44
      Bucket 1: 44
      Bucket 2: 327
      Bucket 3: 44
      Bucket 4: 44
      Bucket 5: 43
      Bucket 6: 43
      Bucket 7: 45

Ingress PLU Info
-----
      PLU: Num Writes : 3064
      PLU: Num Copies : 2197

      PLU Memory Channel Statistics:
      -----
      Number of compactions: 0
      FCRAM0 Chan:      110 (Pages: 5, 1% used)
      FCRAM1 Chan:      125 (Pages: 8, 0% used)
      FCRAM2 Chan:      127 (Pages: 8, 0% used)
      FCRAM3 Chan:      148 (Pages: 8, 0% used)
      FCRAM4 Chan:      124 (Pages: 8, 0% used)

Egress PLU Info
-----
      PLU: Num Writes : 3064
      PLU: Num Copies : 2197

      PLU Memory Channel Statistics:
      -----
      Number of compactions: 0
      FCRAM0 Chan:      110 (Pages: 5, 1% used)
      FCRAM1 Chan:      125 (Pages: 8, 0% used)
```



```
FCRAM2 Chan:      127 (Pages: 8, 0% used)
FCRAM3 Chan:      148 (Pages: 8, 0% used)
FCRAM4 Chan:      124 (Pages: 8, 0% used)
```

This table describes the significant fields shown in the display.

Table 5: show tbm hardware Field Descriptions

Field	Description
Past failures	Number of times there was a failure in programming hardware.
PLU: Num Writes	Number of writes to the PLU portion of the hardware.
PLU: Num Copies	Number of copies to the PLU portion of the hardware.
PLU Memory Channel Statistics	Usage levels of each channel in the PLU memory.

show uidb data

To display index data information for the micro-interface descriptor block (uIDB), use the **show uidb data** command in EXEC mode.

show uidb data [**shadow**] [{**ingress** | **egress**}] [*interface-type interface-instance*] **location** *node-id*

Syntax Description	
shadow	(Optional) Displays uIDB data from shadow copy Route Skill Mapping (RSM) instead of Metro HW.
ingress	(Optional) Displays ingress PSE-related information.
egress	(Optional) Displays egress PSE-related information.
<i>interface-type</i>	(Optional) Interface type. For more information, use the question mark (?) online help function.
<i>interface-instance</i>	<p>Either a physical interface instance or a virtual interface instance as follows:</p> <ul style="list-style-type: none"> Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> <i>rack</i>: Chassis number of the rack. <i>slot</i>: Physical slot number of the modular services card or line card. <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0. <i>port</i>: Physical port number of the interface. <p>Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0.</p> <ul style="list-style-type: none"> Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>
location <i>node-id</i>	(Optional) Displays micro-IDB index data information for a specified node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Command Default No default behavior or values

Command Modes EXEC mode

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines

Use the **show uidb index** command to display micro-IDB index data information including, from a software perspective, features that are enabled on a selected interface.

Task ID

Task ID Operations

cisco-support read

Examples

The following example shows the output of the **show uidb data** command:

```
RP/0/RSP0/CPU0:router# show uidb data shadow ingress gigabitEthernet 0/2/4/4 loc 0/2/CPU0
-----
Location = 0/2/CPU0
Ifname/Ifhandle = GigabitEthernet0_2_4_4 / 0x12800a0
Index = 5
Pse direction = INGRESS
=====
*      (Not programmed in hardware)      *
-----
RSM STATUS: 0x7c000000
-> used: 0x1f
->dirty: 0x00
->badck: 0x00
-> prog: DONE
->count: 0
-----
BUNDLE IFHANDLE: 0
TUNNEL IFHANDLE: 0
L2 ENCAP: 3
=====

General 16 bytes:
-----
IFHANDLE: 0x12800a
STATUS: 1
ISSU State: 0
IPV4 ENABLE: 1
IPV6 ENABLE: 1
MPLS ENABLE: 0
STATS POINTER: 0x7ffd8
SPRAYER QUEUE: 36
IPV4 MULTICAST: 0
IPV6 MULTICAST: 0
USE TABLE ID IPV4: 0
USE TABLE ID IPV6: 0
USE TABLE ID MPLS: 0
TABLE ID: 0
QOS ENABLE: 0
QOS ID: 0
NETFLOW SAMPLING PERIOD: 0
L2 PKT DROP: 0
L2 QOS ENABLE: 0
SRC FWDING: 0
*[CHECKSUM]*: 0xff70f28c
```

This table describes the significant fields shown in the display.

Table 6: show uidb data Field Descriptions

Field	Description
Location	Node in system where the interface resides.
Ifname/Ifhandle	Name associated with the interface.
SPRAYER QUEUE LSB	Sprayer queue identifier.
ICMP PUNT FLAG	Flag indicating ICMP punts are enabled for the protocol.

The following example shows the output of the **show uidb data ingress loc 0/0/cpu0** command:

```
RP/0/RSP0/CPU0:router# show uidb data ingress loc 0/0/cpu0
-----
Wed May 13 21:01:23.757 UTC
Location = 0/0/CPU0
Index = 0
Pse direction = INGRESS
=====
*      (Not programmed in hardware)      *
-----
RSM STATUS: 0x4000000
-> used: 0x01
->dirty: 0x00
->badck: 0x00
-> prog: DONE
->count: 0
-----
=====

Global 16 bytes:
-----
ROUTER_ID: 185.127.121.191
MINIMUM MASK DESTINATION: 0 / 0
MINIMUM MASK SOURCE: 0 / 0
BYTES OF SNIFF PACKET: 0
SUPPRESS PUNT ACL: 0
MPLS PROPAGATE TTL FLAG: 1
LOAD BALANCING HASH: 7 tuple(1)
PARITY: 0
FABRIC QOS ENABLE FLAG: 0
GLOBAL LI ENABLE FLAG: 0
GLOBAL FRR FLAG: 0
GLOBAL L2TPV3 BISCUIT FLAG: 1
P2MP L3FIB RESET: 0
* [CHECKSUM]*: 0x46804630
-----
```

Related Commands

Command	Description
show uidb trace, on page 21	Displays UIDB trace data debugging information that helps in troubleshooting the problem.
show uidb data-dump	Displays UIDB data information in hexadecimal format.

show uidb trace

To display trace data information for the micro-interface descriptor block (IDB), use the **show uidb trace** command in EXEC mode.

```
show uidb trace {all | errors | events | init | rsm} [file file-name] [hexdump] [last entries] [reverse]
[stats] [tailf] [unique] [usec] [verbose] [wide] [wrapping] [location {node-id | all | mgmt-nodes}]
```

Syntax Description

all	Displays all UIDB trace information.
errors	Displays information related to UIDB errors trace.
events	Displays information related to UIDB events trace.
init	Displays information related to UIDB init trace.
rsm	Displays information related to UIDB rsm trace.
file	(Optional) Displays a specific file.
<i>filename</i>	Name of a specific file.
hexdump	(Optional) Displays traces in hexadecimal format.
last	(Optional) Displays trace information for a specific number of entries
<i>entries</i>	Number of entries. Replace entries with the number of entries you want to display. For example, if you enter 5, the display shows the last 5 entries in the trace data. The range is from 1 to 65536.
reverse	(Optional) Displays the latest traces first.
stats	(Optional) Displays the statistics in the command output.
tailf	(Optional) Displays the new traces as they are added in the command output.
usec	(Optional) Displays timestamp w/usec detail.
wide	(Optional) Do not display buffer name, node name, and thread-id.
unique	(Optional) Displays the unique entries with counts in the command output.
verbose	(Optional) Displays the information for internal debugging in the command output.
wrapping	(Optional) Displays the wrapping entries in the command output.
location node-id	(Optional) Specifies a node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
location all	(Optional) Specifies all locations.
location mgmt-nodes	(Optional) Specifies all management nodes.

show uidb trace

Command Default No default behavior or values

Command Modes EXEC mode

Command History

Release	Modification
Release 3.7.2	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
cisco-support	read

Examples The following example shows the sample output from the **show uidb trace** command:

```
RP/0/RSP0/CPU0:router sh uidb trace init loc 0/6/CPU0
-----
28 wrapping entries (512 possible, 0 filtered, 28 total)
Mar 31 02:27:35.368 uidb_svr/initlog 0/6/CPU0 t1 Entering : Event manager init
Mar 31 02:27:36.641 uidb_svr/initlog 0/6/CPU0 t1 Successful : Event manager int
Mar 31 02:27:36.641 uidb_svr/initlog 0/6/CPU0 t1 Entering : Debug init
Mar 31 02:27:36.816 uidb_svr/initlog 0/6/CPU0 t1 Successful : Debug init
Mar 31 02:27:36.816 uidb_svr/initlog 0/6/CPU0 t1 Entering : MIPC bund
Mar 31 02:27:51.695 uidb_svr/initlog 0/6/CPU0 t1 Successful : MIPC bind
Mar 31 02:27:51.695 uidb_svr/initlog 0/6/CPU0 t1 PSE RSM : Init - main() : (50s
Mar 31 02:27:51.803 uidb_svr/initlog 0/6/CPU0 t1 Successful : PSE RSM Init succ
Mar 31 02:27:51.803 uidb_svr/initlog 0/6/CPU0 t1 Entering : Metro bind
Mar 31 02:27:51.828 uidb_svr/initlog 0/6/CPU0 t1 Successful : Metro bind
Mar 31 02:27:51.828 uidb_svr/initlog 0/6/CPU0 t1 Entering : PLIM ASIC register
Mar 31 02:27:51.922 uidb_svr/initlog 0/6/CPU0 t1 Successful : PLIM ASIC registr
Mar 31 02:27:51.922 uidb_svr/initlog 0/6/CPU0 t1 Entering : UIDB checkpoint int
Mar 31 02:27:51.944 uidb_svr/initlog 0/6/CPU0 t1 Successful : UIDB checkpoint t
Mar 31 02:27:51.944 uidb_svr/initlog 0/6/CPU0 t1 Entering : UIDB shadow memoryt
Mar 31 02:27:51.944 uidb_svr/initlog 0/6/CPU0 t1 Successful : UIDB shadow memot
Mar 31 02:27:51.944 uidb_svr/initlog 0/6/CPU0 t1 Entering : UIDB EDM init
Mar 31 02:27:51.951 uidb_svr/initlog 0/6/CPU0 t1 Successful : UIDB EDM init
Mar 31 02:27:51.951 uidb_svr/initlog 0/6/CPU0 t1 Entering : Checkpoint ingresse
Mar 31 02:27:51.951 uidb_svr/initlog 0/6/CPU0 t1 Successful : Checkpoint ingree
Mar 31 02:27:51.951 uidb_svr/initlog 0/6/CPU0 t1 Entering : Checkpoint egress e
```

Mar 31 02:27:51.951 uidb_svr/initlog 0/6/CPU0 t1 Successful : Checkpoint egress e

Related Commands

Command	Description
show uidb data, on page 18	Displays UIDB index data information.
show uidb data-dump	Displays UIDB data information in hexadecimal format.

show uidb index

To display micro-interface descriptor block (IDB) index information, use the **show uidb index** command in EXEC mode.

show uidb index [*interface-type interface-instance*] **location** *node-id*

Syntax Description	<p><i>interface-type</i> (Optional) Interface type. For more information, use the question mark (?) online help function.</p> <hr/> <p><i>interface-instance</i> Either a physical interface instance or a virtual interface instance as follows:</p> <ul style="list-style-type: none"> • Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> • <i>rack</i>: Chassis number of the rack. • <i>slot</i>: Physical slot number of the modular services card or line card. • <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0. • <i>port</i>: Physical port number of the interface. <p>Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0.</p> <ul style="list-style-type: none"> • Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p> <hr/> <p>location <i>node-id</i> Displays UIDB index information for a specified node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.</p>
---------------------------	---

Command Default No default behavior or values

Command Modes EXEC mode

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines Use the **show uidb index** command to display the micro-IDB index assigned by the software.

Task ID	Task ID	Operations
	cisco-support	read

Examples

The following example shows the output of the **show uiddb index** command:

RP/0/RSP0/CPU0:router# **show uiddb index**

Location	Interface-name	Interface-Type	Ingress-index	Egress-index
0/1/CPU0	0		0	0
0/1/CPU0	GigabitEthernet0_1_5_0	Main interface	1	
1				
0/1/CPU0	GigabitEthernet0_1_5_1	Main interface	2	
2				
0/1/CPU0	GigabitEthernet0_1_5_2	Main interface	3	
3				
0/1/CPU0	GigabitEthernet0_1_5_3	Main interface	4	
4				
0/1/CPU0	GigabitEthernet0_1_5_4	Main interface	5	
5				
0/1/CPU0	GigabitEthernet0_1_5_5	Main interface	6	
6				
0/1/CPU0	GigabitEthernet0_1_5_6	Main interface	7	
7				
0/1/CPU0	GigabitEthernet0_1_5_7	Main interface	8	
8				
0/1/CPU0	POS0_1_0_0	Main interface	9	9
0/1/CPU0	POS0_1_4_0	Main interface	10	10
0/1/CPU0	POS0_1_0_1	Main interface	11	11
0/1/CPU0	POS0_1_4_1	Main interface	12	12
0/1/CPU0	POS0_1_0_2	Main interface	13	13
0/1/CPU0	POS0_1_4_2	Main interface	14	14
0/1/CPU0	POS0_1_0_3	Main interface	15	15
0/1/CPU0	POS0_1_4_3	Main interface	16	16
0/1/CPU0	Bundle-POS24	Bundle Interface	17	17
0/1/CPU0	Bundle-Ether28	Bundle Interface	18	18
0/1/CPU0	Bundle-Ether28.1	Sub-interface	19	19
0/1/CPU0	Bundle-Ether28.2	Sub-interface	20	20
0/1/CPU0	Bundle-Ether28.3	Sub-interface	21	21
0/6/CPU0	0		0	0
0/6/CPU0	GigabitEthernet0_6_5_0	Main interface	1	
1				
0/6/CPU0	GigabitEthernet0_6_5_1	Main interface	2	
2				
0/6/CPU0	GigabitEthernet0_6_5_2	Main interface	3	
3				
0/6/CPU0	GigabitEthernet0_6_5_3	Main interface	4	
4				
0/6/CPU0	GigabitEthernet0_6_5_4	Main interface	5	
5				
0/6/CPU0	GigabitEthernet0_6_5_5	Main interface	6	
6				
0/6/CPU0	GigabitEthernet0_6_5_6	Main interface	7	
7				
0/6/CPU0	GigabitEthernet0_6_5_7	Main interface	8	
8				
0/6/CPU0	POS0_6_0_0	Main interface	9	9
0/6/CPU0	POS0_6_4_0	Main interface	10	10
0/6/CPU0	POS0_6_0_1	Main interface	11	11
0/6/CPU0	POS0_6_4_1	Main interface	12	12
0/6/CPU0	POS0_6_0_2	Main interface	13	13
0/6/CPU0	POS0_6_4_2	Main interface	14	14
0/6/CPU0	POS0_6_0_3	Main interface	15	15
0/6/CPU0	POS0_6_4_3	Main interface	16	16
0/6/CPU0	POS0_6_4_4	Main interface	17	17

0/6/CPU0	POS0_6_4_5	Main interface	18	18
0/6/CPU0	POS0_6_4_6	Main interface	19	19
0/6/CPU0	POS0_6_4_7	Main interface	20	20

This table describes the significant fields shown in the display.

Table 7: show uidb index Field Descriptions

Field	Description
Location	Node where index is located.
Interface-name	Name of the interface.
Interface-Type	Type of interface.
Ingress-index	Value associated with ingress processing on the interface.
Egress-index	Value associated with egress processing on the interface.

Related Commands

Command	Description
show uidb data, on page 18	Displays micro-interface descriptor block index data information.
show uidb data-dump	Displays micro-interface descriptor block data information in hexadecimal format.

watchdog threshold memory

To configure the value of memory available for each alarm threshold, use the **watchdog threshold memory** command in global configuration or interface configuration mode. To revert to the default threshold memory, use the **no** form of this command.

watchdog memory threshold [**location** *node-id*] **minor** *percentage-memory-available* **severe** *percentage-memory-available* **critical** *percentage-memory-available*
no watchdog memory threshold [**location** *node-id*] **minor** *percentage-memory-available* **severe** *percentage-memory-available* **critical** *percentage-memory-available*

Syntax Description	Parameter	Description
	location <i>node-id</i>	Configures the threshold memory for a specified node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
	minor	Specifies the threshold for the minor state.
	<i>percentage-memory- available</i>	Memory consumption percentage. Range is from 5 to 40.
	severe	Specifies the threshold for the severe state.
	critical	Specifies the threshold for the critical state.

Command Default None

Command Modes Global configuration
 Interface configuration

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines Use the **watchdog threshold memory** command to configure the memory thresholds. Threshold values can be applied to all nodes or a specific node using the **location** *node-id* keyword and argument. If the local threshold settings are removed, the local settings return to those set globally. In addition, you can view default and configured thresholds.

This table lists the recommended memory threshold value calculations if the minor threshold is set to 20 percent, the severe threshold is set to 10 percent, and the critical threshold is set to 5 percent.

Table 8: Recommended Memory Threshold Values

Total Available Memory (MB)	Minor Threshold (20 percent of available memory)	Severe Threshold (10 percent of available memory)	Critical Threshold (5 percent of available memory)
128	25.6	12.8	6.4
256	51.2	25.6	12.8

Total Available Memory (MB)	Minor Threshold (20 percent of available memory)	Severe Threshold (10 percent of available memory)	Critical Threshold (5 percent of available memory)
512	102.4	51.2	25.6
1024	204.8	102.4	51.2
2048	409.6	204.8	102.4
4096	819.2	409.6	204.8

Task ID	Task ID	Operations
	cisco-support	read, write

Examples

The following example shows how to configure the memory available for each alarm threshold:

```
RP/0/RSP0/CPU0:router #configure
RP/0/RSP0/CPU0:router (config)# watchdog threshold memory location 0/RP0/CPU0 minor 30 severe
20 critical 10
```

