debug saa apm through debug snmp sync

debug saa apm

Note Effective with Cisco IOS Release 12.3(14)T, the **debug saa apm**command is replaced by the **debug ip sla monitor apm**command. See the **debug ip sla monitor apm**command for more information.

To enable debugging output for Cisco IOS IP Service Level Agreements (SLAs) Application Performance Monitor (APM) operations, use the **debug saa apm** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug saa apm

no debug saa apm

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(2)T	This command was introduced.
12.3(14)T	This command was replaced by the **debug ip sla monitor apm**command.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

The following is sample output from the **debug saa apm** command:

```
Router# debug saa apm
Router# configure terminal
Router(config)# saa apm operation 123 start ftp://apm/config/iptv.cf
21:40:27: SAA-APM-123: downloading file (apm/config/iptv.cf) of size (534)
21:40:29: SAA-APM-123: downloading file (apm/scheduler/master.sch) of size (2500)
21:40:30: SAA-APM-123: downloading file (apm/scripts/iptv.scr) of size (1647)
21:40:32: SAA-APM-123: downloading file (apm/data/iptv.dat) of size (118)
21:40:32: SAA-APM-123: sending APM_CAPABILITIES_REQUEST message
21:40:32: sending control msg:
21:40:32: Ver: 1 ID: 29 Len: 48
21:40:32: SAA-APM-123: apm_engine version: major<1>, minor<0>
21:40:32: SAA-APM-123: sending APM_SCRIPT_DNLD message
21:40:32: sending control msg:
21:40:32: Ver: 1 ID: 30 Len: 148
21:40:37: SAA-APM-123: sending APM_SCRIPT_DNLD_STATUS message
21:40:37: sending control msg:
21:40:37: Ver: 1 ID: 31 Len: 148
21:40:38: SAA-APM-123: starting the operation
21:40:38: SAA-APM-123: sending APM_SCRIPT_START message
21:40:38: sending control msg:
21:40:38: Ver: 1 ID: 32 Len: 148
21:40:41: SAA-APM: 0,2144,0
```

```
.
.
.
21:49:42: SAA-APM-123: waiting for ageout timer to expire
21:55:13: SAA-APM-123: sending APM_SCRIPT_DONE message
21:55:13: sending control msg:
21:55:13: Ver: 1 ID: 42 Len: 148
21:55:13: SAA-APM-123: operation done
Router(config)# no saa apm
21:55:13: SAA-APM-123: sending APM_SCRIPT_DONE message
21:55:13: sending control msg:
21:55:13: Ver: 1 ID: 42 Len: 148
21:55:13: SAA-APM-123: operation done
```

debug saa slm

Note Effective with Cisco IOS Release 12.3(14)T, the **debug saa slm**command is replaced by the **debug ip sla monitor slm**command. See the **debug ip sla monitor slm**command for more information.

To enable debugging output of detailed event messages for Cisco IOS IP Service Level Agreements (SLAs) Service Level Monitoring (SLM) Asynchronous Transfer Mode (ATM) operations, use the **debug saa slm**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug saa slm

no debug saa slm

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(11)T	This command was introduced.
12.3(14)T	This command was replaced by the **debug ip sla monitor slm**command.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

IP SLAs SLM ATM performance statistics cannot be retrieved from Cisco IOS devices using Simple Network Management Protocol (SNMP). The IP SLAs SLM ATM feature was designed to provide data by responding to extensible markup language (XML) requests.

Note This command may generate a large number of debugging messages.

Examples

In the following example, debugging is enabled for the IP SLAs SLM ATM feature and the IP SLAs XML feature for the purposes of debugging the XML requests and responses:

```
debug saa slm
debug saa xml
```

Related Commands

Command	Description
debug saa xml	Enables debugging output of XML requests and responses for IP SLAs operations.

debug saa xml

Note Effective with Cisco IOS Release 12.3(14)T, the **debug saa xml**command is replaced by the **debug ip sla monitor xml**command. See the **debug ip sla monitor xml**command for more information.

To enable debugging output of eXtensible Markup Language (XML) requests and responses for Cisco IOS IP Service Level Agreements (SLAs) operations, use the **debug saa xml**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug saa xml

no debug saa xml

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(11)T	This command was introduced.
12.3(14)T	This command was replaced by the **debug ip sla monitor xml**command.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

In the following example, debugging is enabled for the IP SLAs SLM ATM feature and the IP SLAs eXtensible Markup Language (XML) feature for the purposes of debugging the XML requests and responses:

```
debug saa slm
debug saa xml
```

Related Commands

Command	Description
debug saa slm	Enables debugging output of detailed event messages for IP SLAs SLM ATM operations.

debug sampler

To enable debugging output for Flexible NetFlow samplers, use the **debug sampler** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sampler [**detailed**| **error**| **[name]** *sampler-name* [**detailed**| **error**| **sampling** *samples*]]

no debug sampler [**detailed**| **error**| **[name]** *sampler-name* [**detailed**| **error**| **sampling**]]

Syntax Description

detailed	(Optional) Enables detailed debugging for sampler elements.
error	(Optional) Enables debugging for sampler errors.
name	(Optional) Specifies the name of a sampler.
sampler-name	(Optional) Name of a sampler that was previously configured.
sampling *samples*	(Optional) Enables debugging for sampling and specifies the number of samples to debug.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(9)T	This command was introduced.
12.2(31)SB2	This command was integrated into Cisco IOS Release 12.2(31)SB2.
12.0(33)S	This command was implemented on the Cisco 12000 series routers.
12.2(33)SRC	Support for this command was added for Cisco 7200 series routers.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE for the Cisco 7300 Network Processing Engine (NPE) series routers.
12.2(50)SY	This command was integrated into Cisco IOS Release 12.2(50)SY.

Examples

The following sample output shows that the debug process has obtained the ID for the sampler named SAMPLER-1:

```
Router# debug sampler detailed
```

```
*Oct 28 04:14:30.883: Sampler: Sampler(SAMPLER-1: flow monitor FLOW-MONITOR-1 (ip,Et1/0,O)
 get ID succeeded:1
*Oct 28 04:14:30.971: Sampler: Sampler(SAMPLER-1: flow monitor FLOW-MONITOR-1 (ip,Et0/0,I)
 get ID succeeded:1
```

Related Commands

Command	Description
clear sampler	Clears the Flexible NetFlow sampler statistics.

debug satellite

To enable debugging output for the Cisco IP VSAT satellite WAN network module (NM-1VSAT-GILAT), use the **debug satellite** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug satellite {**all**| **errors**| **events**| **hsrp**| **rbcp**}

no debug satellite {**all**| **errors**| **events**| **hsrp**| **rbcp**}

Syntax Description

all	Displays all types of satellite debug information.
errors	Displays debug information for satellite error events.
events	Displays debug information for software events.
hsrp	Displays debug information for satellite Hot Standby Router Protocol (HSRP) events.
rbcp	Displays debug information for satellite Router Blade Control Protocol (RBCP) messages.

Command Default

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(14)T	This command was introduced.

Usage Guidelines

The **debug satellite errors** command is useful for catching unusual conditions when troubleshooting unexpected behavior. Because this command typically generates very little output, you can enter the **debug satellite errors** command every time you troubleshoot satellite network connectivity.

Examples

This section provides the following examples:

Examples

Every 2 minutes, the NM-1VSAT-GILAT network module sends the router an RBCP message requesting any updates to the routing table. The following example shows how to monitor the route-update messages:

```
Router# debug satellite rbcp
```

...
The NM-1VSAT-GILAT network module requests IP route information:

```
*May 16 09:18:54.475:Satellite1/0 RBCP Request  msg Recd:IPROUTE_REQ(0x22)
```

The Cisco IOS software acknowledges that it received the message from the NM-1VSAT-GILAT network module:

```
*May 16 09:18:54.475:Satellite1/0 RBCP Response msg Sent:IPROUTE_REQ(0x22)
```

The Cisco IOS software sends the IP route information to the NM-1VSAT-GILAT network module:

```
*May 16 09:18:54.475:Satellite1/0 RBCP Request  msg Sent:IPROUTE_UPD(0x23)
```

The NM-1VSAT-GILAT network module acknowledges that it received the routing update from the Cisco IOS software:

```
*May 16 09:18:54.475:Satellite1/0 RBCP Response msg Recd:IPROUTE_UPD(0x23)
```

Examples

The following example shows how to monitor the periodic heartbeats that the NM-1VSAT-GILAT network module sends to the Cisco IOS software:

```
Router# debug satellite events

satellite major software events debugging is on
.Dec 16 12:57:52.108:Satellite1/0 FSM transition LINK_UP-->LINK_UP, ev=got_heartbeat
.Dec 16 12:58:08.888:Satellite1/0 FSM transition LINK_UP-->LINK_UP, ev=got_heartbeat
.Dec 16 12:58:25.664:Satellite1/0 FSM transition LINK_UP-->LINK_UP, ev=got_heartbeat
.Dec 16 12:58:42.440:Satellite1/0 FSM transition LINK_UP-->LINK_UP, ev=got_heartbeat
```

Examples

The following example shows the **debug satellite hsrp** command messages that appear when the active router is forced to standby status because the HSRP-tracked satellite interface is shut down:

```
Router# configure terminal

Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# interface satellite 1/0

Router(config-if)# shutdown

Router(config-if)# end

Router#
01:03:48:%SYS-5-CONFIG_I:Configured from console by console
01:03:49:%LINK-5-CHANGED:Interface Satellite1/0, changed state to administratively down
01:03:50:%LINEPROTO-5-UPDOWN:Line protocol on Interface Satellite1/0, changed state to down
01:04:22:%HSRP-6-STATECHANGE:FastEthernet0/0 Grp 1 state Active -> Speak
01:04:22:HSRP-sat:IPred group grp-x update state ACTIVE --> SPEAK
01:04:22:Satellite1/0 HSRP-sat:fsm crank ACTIVE-->STANDBY
01:04:22:Satellite1/0 HSRP-sat:send standby msg STANDBY
01:04:32:HSRP-sat:IPred group grp-x update state SPEAK --> STANDBY
01:04:32:Satellite1/0 HSRP-sat:fsm crank STANDBY-->STANDBY
01:04:32:Satellite1/0 HSRP-sat:send standby msg STANDBY
01:04:42:Satellite1/0 HSRP-sat:send standby msg STANDBY
01:04:52:Satellite1/0 HSRP-sat:standby msg STANDBY deferred, not in operational state
01:05:02:Satellite1/0 HSRP-sat:standby msg STANDBY deferred, not in operational state
01:05:12:Satellite1/0 HSRP-sat:standby msg STANDBY deferred, not in operational state
01:05:22:Satellite1/0 HSRP-sat:standby msg STANDBY deferred, not in operational state
01:05:32:Satellite1/0 HSRP-sat:standby msg STANDBY not sent, already in state
01:06:47:%VSAT-5-STANDBY_MODE:Satellite1/0 module configured for standby mode
01:09:32:Satellite1/0 HSRP-sat:fsm crank STANDBY-->STANDBY-UP
```

Examples

The following example shows HSRP-related debug output for both the router and the NM-1VSAT-GILAT network module when the router goes from standby to active state because the HSRP-tracked satellite interface is reenabled:

```
Router# show debugging

SATCOM:
  satellite HSRP events debugging is on
HSRP:
  HSRP Errors debugging is on
  HSRP Events debugging is on
  HSRP Packets debugging is on
```

The satellite interface is reenabled:

```
Router# configure terminal

Router(config)# interface satellite 1/0

Router(config-if)# no shutdown

Router(config-if)# end

Router#
```

The effective HSRP priority of the router changes as the tracked satellite interface comes up:

```
02:14:37:HSRP:Fa0/0 Grp 1 Hello  in  10.123.96.2 Active  pri 90 vIP 10.123.96.100
02:14:39:HSRP:Fa0/0 API 10.1.0.6 is not an HSRP address
02:14:39:HSRP:Fa0/0 Grp 1 Hello  out 10.123.96.3 Standby pri 90 vIP 10.123.96.100
02:14:39:HSRP:Fa0/0 Grp 1 Track 1 object changed, state Down -> Up
02:14:39:HSRP:Fa0/0 Grp 1 Priority 90 -> 100
Router#
```

The router changes from standby to active state because its priority is now highest in the hot standby group, and preemption is enabled:

```
02:14:40:HSRP:Fa0/0 Grp 1 Hello  in  10.123.96.2 Active  pri 90 vIP 10.123.96.100
02:14:40:HSRP:Fa0/0 Grp 1 Standby:h/Hello rcvd from lower pri Active router (90/10.123.96.2)
02:14:40:HSRP:Fa0/0 Grp 1 Active router is local, was 10.123.96.2
02:14:40:HSRP:Fa0/0 Grp 1 Standby router is unknown, was local
02:14:40:HSRP:Fa0/0 Redirect adv out, Active, active 1 passive 3
02:14:40:HSRP:Fa0/0 Grp 1 Coup   out 10.123.96.3 Standby pri 100 vIP 10.123.96.100
02:14:40:HSRP:Fa0/0 Grp 1 Standby -> Active
02:14:40:%HSRP-6-STATECHANGE:FastEthernet0/0 Grp 1 state Standby -> Active
```

The HSRP status of the satellite interface also changes from standby to active state because the **service-module ip redundancy** command was previously entered to link the HSRP status of the satellite interface to the primary HSRP interface, Fast Ethernet 0/0.

```
02:14:40:HSRP:Fa0/0 Grp 1 Redundancy "grp-x" state Standby -> Active
02:14:40:HSRP-sat:IPred group grp-x update state STANDBY --> ACTIVE
02:14:40:Satellite1/0 HSRP-sat:fsm crank STANDBY-UP-->ACTIVE-COND
02:14:40:HSRP:Fa0/0 Redirect adv out, Active, active 1 passive 2
02:14:40:HSRP:Fa0/0 Grp 1 Hello  out 10.123.96.3 Active  pri 100 vIP 10.123.96.100
02:14:40:HSRP:Fa0/0 REDIRECT adv in, Passive, active 0, passive 2, from 10.123.96.2
02:14:40:HSRP:Fa0/0 REDIRECT adv in, Passive, active 0, passive 1, from 10.123.96.15
02:14:40:HSRP:Fa0/0 Grp 1 Hello  in  10.123.96.2 Speak   pri 90 vIP 10.123.96.100
```

Line protocols come up, and HSRP states become fully active:

```
02:14:41:%LINK-3-UPDOWN:Interface Satellite1/0, changed state to up
02:14:42:%LINEPROTO-5-UPDOWN:Line protocol on Interface Satellite1/0, changed state to up
02:14:43:HSRP:Fa0/0 Grp 1 Hello  out 10.123.96.3 Active  pri 100 vIP 10.123.96.100
02:14:43:HSRP:Fa0/0 Grp 1 Redundancy group grp-x state Active -> Active
02:14:43:HSRP-sat:IPred group grp-x update state ACTIVE --> ACTIVE
02:14:43:Satellite1/0 HSRP-sat:fsm crank ACTIVE-COND-->ACTIVE-COND
```

```
02:14:43:HSRP:Fa0/0 Grp 1 Hello  in  10.123.96.2 Speak   pri 90 vIP 10.123.96.100
02:14:46:HSRP:Fa0/0 Grp 1 Hello  out 10.123.96.3 Active  pri 100 vIP 10.123.96.100
02:14:46:HSRP:Fa0/0 Grp 1 Redundancy group grp-x state Active -> Active
02:14:46:HSRP-sat:IPred group grp-x update state ACTIVE --> ACTIVE
02:14:46:Satellite1/0 HSRP-sat:fsm crank ACTIVE-COND-->ACTIVE-COND
02:14:46:HSRP:Fa0/0 Grp 1 Hello  in  10.123.96.2 Speak   pri 90 vIP 10.123.96.100
02:14:49:HSRP:Fa0/0 Grp 1 Hello  out 10.123.96.3 Active  pri 100 vIP 10.123.96.100
02:14:49:HSRP:Fa0/0 Grp 1 Hello  in  10.123.96.2 Speak   pri 90 vIP 10.123.96.100
02:14:50:HSRP:Fa0/0 Grp 1 Hello  in  10.123.96.2 Standby pri 90 vIP 10.123.96.100
02:14:50:HSRP:Fa0/0 Grp 1 Standby router is 10.123.96.2
02:14:51:Satellite1/0 HSRP-sat:send standby msg ACTIVE
02:14:52:HSRP:Fa0/0 Grp 1 Hello  out 10.123.96.3 Active  pri 100 vIP 10.123.96.100
02:14:53:HSRP:Fa0/0 Grp 1 Hello  in  10.123.96.2 Standby pri 90 vIP 10.123.96.100
02:14:55:HSRP:Fa0/0 Grp 1 Hello  out 10.123.96.3 Active  pri 100 vIP 10.123.96.100
```

Related Commands

Command	Description
debug satellite firmware	Enables debugging output for the Cisco IP VSAT satellite WAN network module (NM-1VSAT-GILAT) firmware.
debug standby	Displays all HSRP errors, events, and packets.

debug satellite firmware

To enable debugging output for the Cisco IP VSAT satellite WAN network module (NM-1VSAT-GILAT) firmware, use the **debug satellite firmware**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug satellite firmware {**all**| **level** *number*| *option*}

no debug satellite firmware

Syntax Description

all	Displays all satellite firmware events.
level *number*	Satellite debug level. The debug level affects what information is displayed for subsequently entered **debug satellite firmware** commands. See the table below.
option	One of the following options. See the table below. • **bb** --Satellite backbone events • **buf** --Satellite buffer events • **en** --Satellite firmware encryption events • **ip** --Satellite IP events • **rbcp** --Satellite RBCP events • **rpa** --Satellite Remote Page Acceleration (RPA) events • **sat** --Satellite inbound and outbound packet statistics • **tcp** --Satellite TCP events • **trc** --Satellite backbone traces

Command Default

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(14)T	This command was introduced.

Usage Guidelines The output from this command is generally useful for diagnostic tasks performed by technical support.

The level number affects which debug messages the system displays for subsequently entered **debug satellite firmware** commands. The table below describes what each command option displays at each debug level.

Note Level 3 debugging produces significant amounts of output that may negatively impact the performance of both the NM-1VSAT-GILAT network module and the router. When you enter debug level 3, a warning message and confirmation prompt appear.

Table 1: debug satellite firmware Command Level Options

Option	Level 1 Output	Level 2 Output	Level 3 Output
bb	Backbone link information	Frame statistics for the backbone link to the hub	--
buf	Buffer information	Buffer owners	--
en	Satellite firmware-based encryption events	--	--
ip	IP statistics	--	Driver transmission statistics
rbcp	Number of transmitted and received RBCP messages	--	Satellite Control Protocol (SCP) message summaries
rpa	RPA statistics	Tunnel connect and disconnect events	--
tcp	TCP statistics	TCP connection information	TCP statistics and TCP connection information
sat	Inbound and outbound packet statistics	Inbound and outbound packet statistics	Inbound and outbound packet statistics
trc	--	--	Backbone receive and transmit traces

Examples This section provides the following sample output for the **debug satellite firmware**command:

Examples The following example shows all satellite firmware events and statistics:

```
Router# debug satellite firmware all

2d06h: Satellite2/0
```

```
buffers 4856 min 4486 list_str 683798 list_end 6885c8
emp 686030 fil 685de0 start 6885c8 end fb4fe8
2d06h: Satellite2/0
TCP stats: NetRXBytes=223 NetTXBytes=4775126 NetRxPkts=104213 ToIOSPkts=104166
2d06h: Satellite2/0
SAT stats: OUTbound_pkts=114131, INbound_pkts=182347
2d06h: Satellite2/0
RBCP statistics: TXcount=975 RXCount=975
2d06h: Satellite2/0
RPA stats: ToTunnel=0 FromTunnel=0
TunnelGets=0 TunnelNotGets=0
BlksUsed=0 BlksIn-Use=0 Max=300
2d06h: Satellite2/0
EN:
RX encrypted bytes received = 0
RX: compressed=0 -> Uncompressed=0
TX: compressed=0 -> Uncompressed=0
2d06h: Satellite2/0
BB 6 LINK state=INFO_STATE
     Status = 0x79,  LOW NOT READY,  HI PRI READY
     RSP Q free=230, Max HI=228, Max LOW=224, Max DG=232
     IN RA mode
     Curr DG BW=50000, HighDG BW=100000, Curr BW=98094
    MaxDG BW=1250000, Max BW=2500000
     PD Queue lengths:
        q_wtog=0, q_wtos=57,  q_wtos_high=0, q_defrag=d
     DG Queue lengths:
        q_dg_wtos=0, q_dg_wtos_hi=0, q_dg_defrag=0
     Congestion Levels:        TX LOCAL = 7, TX NET = 0
2d06h: Satellite2/0
IP stats: ToIOS_Pkts=234193, ToIOS_Bytes=183444492 FromIOS_Pkts=143 From_IOS_Bytes=12204
2d06h: Satellite2/0 NO Trace at levels 1 or 2
2d06h: Satellite2/0 NO Trace at levels 1 or 2
```

Examples

The following example shows backbone link information:

```
Router# debug satellite firmware level 1

Router# debug satellite firmware bb

satellite BackBone events debugging is on
Router#
2d06h: Satellite2/0
BB 6 LINK state=INFO_STATE
     Status = 0x79,  LOW NOT READY,  HI PRI READY
     RSP Q free=240, Max HI=228, Max LOW=224, Max DG=232
     IN RA mode
     Curr DG BW=50000, HighDG BW=100000, Curr BW=96188
    MaxDG BW=1250000, Max BW=2500000
     PD Queue lengths:
        q_wtog=0, q_wtos=95,  q_wtos_high=0, q_defrag=d
     DG Queue lengths:
        q_dg_wtos=0, q_dg_wtos_hi=0, q_dg_defrag=0
     Congestion Levels:        TX LOCAL = 7, TX NET = 0
2d06h: Satellite2/0
BB 6 LINK state=INFO_STATE
     Status = 0x7b,  LOW READY,  HI PRI READY
     RSP Q free=27, Max HI=228, Max LOW=224, Max DG=232
     IN RA mode
     Curr DG BW=50000, HighDG BW=100000, Curr BW=92376
    MaxDG BW=1250000, Max BW=2500000
     PD Queue lengths:
        q_wtog=0, q_wtos=24,  q_wtos_high=0, q_defrag=d
     DG Queue lengths:
        q_dg_wtos=0, q_dg_wtos_hi=0, q_dg_defrag=0
     Congestion Levels:        TX LOCAL = 4, TX NET = 0
```

Examples The following example shows frame statistics for the backbone link to the hub:

```
Router# debug satellite firmware level 2

Router# debug satellite firmware bb

satellite BackBone events debugging is on
Router#
2d06h: Satellite2/0 BB link statistics
    Frame Type          # Received      # Transmitted
  ------------          ----------      -------------
   INFORMATION           00096238          00184811
   UNNUMBERED            00000000          00000067
   RETRANSMITTED         00000000          00000000
   POLLS                 00000000          00000000
   ACKS                  00006640          00000455
   NAKS                  00000000          00000000
   PACKS                 00000000          00000000
   UA                    00000001          00000000
   SABME                 00000000          00000001
   DISC                  00000000          00000000
```

Examples The following example shows buffer information:

```
Router# debug satellite firmware level 1

Router# debug satellite firmware buf

*May 13 15:58:54.498:Satellite1/0
buffers 4951 min 4945 list_str 681858 list_end 686688
emp 683abc fil 6839e8 start 686688 end fb30a8
```

Examples The following example shows buffer owners:

```
Router# debug satellite firmware level 2

Router# debug satellite firmware buf

*May 13 15:59:13.438:Satellite1/0 inuse 49 free 4951
Trace byte  1
Trace byte = 0x169    Count =   49
Trace byte  2
Trace byte = 0x  0    Count =   49
   0 buffers with BB Rel only
   0 buffers with in lower layer set
   0 buffers with do not transmit set
   0 buffers on BB retransmit queues
```

Examples The following example shows IP statistics:

```
Router# debug satellite firmware level 1

Router# debug satellite firmware ip

*Nov  7 08:27:56.440: Satellite3/0
IP stats: ToIOS_Pkts=0, ToIOS_Bytes=0 FromIOS_Pkts=84751 From_IOS_Bytes=5941124
```

Examples The following example shows the number of RBCP messages transmitted and received since the most recent reset of the Cisco IOS software on the router or the VSAT software on the NM-1VSAT-GILAT network module:

```
Router# debug satellite firmware level 1

Router# debug satellite firmware rbcp

RBCP statistics:TXcount=301154 RXCount=301155
```

Examples The following example shows RPA statistics:

```
Router# debug satellite firmware level 1

Router# debug satellite firmware rpa

  *Nov  7 08:27:13.488:Satellite3/0
  RPA stats:ToTunnel=0 FromTunnel=0
  TunnelGets=0 TunnelNotGets=0
  BlksUsed=0 BlksIn-Use=0 Max=400
```

Examples The following example shows a tunnel being disconnected:

```
Router# debug satellite firmware level 2

Router# debug satellite firmware rpa

*May 13 18:27:59.779:Satellite1/0 RPA Tunnel DOWN
RPA:InitTunnelConn Successful locIP e000006 locPort 1090, RemIP c0a80186,
RemPort 9876
RPA Tunnel DOWN
RPA:InitTunnelConn Successful locIP e000006 locPort 1091, RemIP c0a80186,
RemPort 9876
RPA Tunnel DOWN
RPA:InitTunnelConn Successful locIP e000006 locPort 1092, RemIP c0a80186,
RemPort 9876
RPA Tunnel DOWN
RPA:InitTunnelConn Successful locIP e000006 locPort 1093, RemIP c0a80186,
RemPort 9876
RPA Tunnel DOWN
RPA:InitTunnelConn Successful locIP e000006 locPort 1094, RemIP c0a80186,
RemPort 9876
```

Examples The following example shows inbound and outbound packet statistics. Note that for all levels, the debug output is the same for the **sat** option.

```
Router# debug satellite firmware level 1

Router# debug satellite firmware sat

satellite related trace events debugging is on
Router#
1d16h: Satellite2/0
SAT stats: OUTbound_pkts=25660796, INbound_pkts=3235932
1d16h: Satellite2/0
SAT stats: OUTbound_pkts=25660800, INbound_pkts=3235934
1d16h: Satellite2/0
SAT stats: OUTbound_pkts=25660803, INbound_pkts=3235934
```

```
1d16h: Satellite2/0
SAT stats: OUTbound_pkts=25660803, INbound_pkts=3235934
```

Examples The following example shows TCP statistics:

```
Router# debug satellite firmware level 1

Router# debug satellite firmware tcp

satellite tcp events debugging is on
Router#
2d06h: Satellite2/0
TCP stats: NetRXBytes=631292 NetTXBytes=4009436 NetRxPkts=49244 ToIOSPkts=49246
2d06h: Satellite2/0
TCP stats: NetRXBytes=1154356 NetTXBytes=4086106 NetRxPkts=49621 ToIOSPkts=49629
```

Examples The following example shows the TCP connections:

```
Router# debug satellite firmware level 2

Router# debug satellite firmware tcp

satellite tcp events debugging is on
Router#
2d06h: Satellite2/0 TCP connections:
ID=48, locIP=192.168.107.2 remIP=172.25.1.2, locP=2962, remP=21 state=17 iosQ=0
ID=49, locIP=192.168.107.2 remIP=172.25.1.2, locP=2963, remP=20 state=17 iosQ=0
ID=58, locIP=192.168.107.2 remIP=172.25.1.28, locP=2972, remP=21 state=17 iosQ=0
ID=59, locIP=192.168.107.2 remIP=172.25.1.28, locP=2973, remP=20 state=17 iosQ=7
2d06h: Satellite2/0 TCP connections:
ID=48, locIP=192.168.107.2 remIP=172.25.1.2, locP=2962, remP=21 state=17 iosQ=0
ID=49, locIP=192.168.107.2 remIP=172.25.1.2, locP=2963, remP=20 state=7 iosQ=0
ID=60, locIP=192.168.107.2 remIP=172.25.1.28, locP=2974, remP=21 state=3 iosQ=0
```

Examples The following example shows TCP statistics and connections:

```
Router# debug satellite firmware level 3

Output may be extensive and affect performance. Continue? [yes]: yes

Router# debug satellite firmware tcp

satellite tcp events debugging is on
Router#
2d06h: Satellite2/0
TCP stats: NetRXBytes=279 NetTXBytes=9436111 NetRxPkts=64991 ToIOSPkts=64999
2d06h: Satellite2/0 TCP connections:
ID=48, locIP=192.168.107.2 remIP=172.25.1.2, locP=2962, remP=21 state=7 iosQ=0
ID=49, locIP=192.168.107.2 remIP=172.25.1.2, locP=2963, remP=20 state=7 iosQ=0
ID=62, locIP=192.168.107.2 remIP=172.25.1.28, locP=2976, remP=21 state=7 iosQ=0
2d06h: Satellite2/0
TCP stats: NetRXBytes=382 NetTXBytes=9582924 NetRxPkts=64993 ToIOSPkts=65001
2d06h: Satellite2/0 TCP connections:
ID=48, locIP=192.168.107.2 remIP=172.25.1.2, locP=2962, remP=21 state=17 iosQ=0
ID=49, locIP=192.168.107.2 remIP=172.25.1.2, locP=2963, remP=20 state=17 iosQ=0
ID=62, locIP=192.168.107.2 remIP=172.25.1.28, locP=2976, remP=21 state=7 iosQ=0
```

Examples The following example shows detailed receive and transmit traces for the backbone link:

```
Router# debug satellite firmware level 3

Output may be extensive and affect performance. Continue? [yes]: yes
```

```
Router# debug satellite firmware trc

satellite BackBone trace debugging is on
Router#
2d06h: Satellite2/0 strrec 0, rec 0, count 256, trc 1a6dd78, str 1a5c600, end 1a
74600
count 4096, emp 1a6dd78, fil 1a6d8b0, lnknum=6
   0 xmt  6 len  951  9 pd    con 0 PF  3 ns  169 nr   15  a c12 0   0.000
   1 xmt  6 len  951  9 pd    con 0 PF  3 ns  170 nr   15  a c12 0   0.010
   2 xmt  6 len  951  9 pd    con 0 PF  3 ns  171 nr   15  a c12 0   0.010
   3 xmt  6 len  951  9 pd    con 0 PF  3 ns  172 nr   15  a c12 0   0.010
   4 xmt  6 len  951  9 pd    con 0 PF  3 ns  173 nr   15  a c12 0   0.030
   5 xmt  6 len
2d06h: Satellite2/0  951
2d06h: Satellite2/0  9 pd    con 0 PF  3 ns  174 nr   15  a c12 0   0.010
   6 xmt  6 len  951  9 pd    con 0 PF  3 ns  175 nr   15  a c12 0   0.010
   7 xmt  6 len  951  9 pd    con 0 PF  3 ns  176 nr   15  a c12 0   0.010
   8 xmt  6 len  951  9 pd    con 0 PF  3 ns  177 nr   15  a c12 0   0.010
   9 xmt  6 len  951  9 pd    con 0 PF  3 ns  178 nr   15  a c12 0   0.010
  10 xmt  6 len  951  9 pd    con 0 PF  3 ns  179 nr   15  a c12 0   0.010
  11 xmt  6 len  951  9 pd    con 0 PF  3 ns  180 nr   15  a c12 0   0.010
```

Related Commands

Command	Description
debug satellite	Enables debugging output for the Cisco IP VSAT satellite WAN network module (NM-1VSAT-GILAT).

debug sccp

To display debugging information for Simple Client Control Protocol (SCCP) and its related applications (transcoding and conferencing), use the **debug sccp**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sccp {**all**| **errors**| **events**| **packets**| **parser**}

no debug sccp

Syntax Description

all	All SCCP debug-trace information.
errors	SCCP errors.
events	SCCP events.
packets	SCCP packets.
parser	SCCP parser and builder.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(5)YH	This command was introduced on the Cisco VG200.
12.2(13)T	This command was implemented on the Cisco 2600 series, Cisco 3620, Cisco 3640, Cisco 3660, and Cisco 3700 series.

Usage Guidelines

The router on which this command is used must be equipped with one or more digital T1/E1 packet voice trunk network modules (NM-HDVs) or high-density voice (HDV) transcoding and conferencing digital signal processor (DSP) farms (NM-HDV-FARMs) to provide DSP resources.

Debugging is turned on for all DSP farm service sessions. You can debug multiple sessions simultaneously, with different levels of debugging for each.

Examples

The following is sample output from the **debug sccp events** command:

```
Router# debug sccp events

Skinny Client Control Protocol events debugging is on
*Mar  1 00:46:29: sccp_create_application: send keepalive msg, appl 6248F760, appl_type 1,
 count 0
*Mar  1 00:46:29: sccp_keepalive: send keepalive id 0, len 4
```

```
*Mar  1 00:46:29: sccp_process_mtp_pdu: appl - 6248F760, mbuf - 6248F7D4
*Mar  1 00:46:29: sccp_process_mtp_pdu: msg_ptr 6248F7DC, len 4, offset 12, msg_id 256
*Mar  1 00:46:30: sccp_create_application: send keepalive msg, appl 6248FC10, appl_type 2,
 count 0
*Mar  1 00:46:30: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:46:30: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:30: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 4, offset 12, msg_id 256
*Mar  1 00:46:37: sccp_create_application: send keepalive msg, appl 6248F760, appl_type 1,
 count 0
*Mar  1 00:46:37: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:46:37: sccp_process_mtp_pdu: appl - 6248F760, mbuf - 6248F7D4
*Mar  1 00:46:37: sccp_process_mtp_pdu: msg_ptr 6248F7DC, len 4, offset 12, msg_id 256
*Mar  1 00:46:37: sccp_create_application: send keepalive msg, appl 6248FC10, appl_type 2,
 count 0
*Mar  1 00:46:37: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:46:38: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:38: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 4, offset 12, msg_id 256
*Mar  1 00:46:43: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:43: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 28, offset 36, msg_id 261
*Mar  1 00:46:43: xapp_open_receive_chnl: SCCP orc_msg - 6248FC8C, appl - 6248FC10
*Mar  1 00:46:43: xapp_search_for_chnl_rec: sess_id 27, conn_id 2769
*Mar  1 00:46:43: xapp_add_chnl_rec: chnl 631142BC
*Mar  1 00:46:43: xapp_add_sess_rec: Add sess_rec (63114360) record
*Mar  1 00:46:43: xapp_open_receive_chnl: stat 0, eve 0, sid 27, cid 2769, codec 1, pkt-period
 20
*Mar  1 00:46:43: xapp_open_chnl_request: chnl_rec 631142BC
*Mar  1 00:46:43: xapp_open_chnl_request: chnl_rec 631142BC, sess_id 27, conn_id 2769,
cstate 0, nstate 1
*Mar  1 00:46:43: xapp_dequeue_and_process_dspf_events: chnl_rec 631142BC, state 1, eve_id
 1
*Mar  1 00:46:43: xapp_open_chnl_success: chnl_rec 631142BC
*Mar  1 00:46:43: xapp_open_chnl_success: chnl_rec 631142BC, sess_id 27, conn_id 2769,
cstate 1, nstate 2, lc_ipaddr 10.10.1.1, lport 21066
*Mar  1 00:46:43: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:43: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 28, offset 36, msg_id 261
*Mar  1 00:46:43: xapp_open_receive_chnl: SCCP orc_msg - 6248FC8C, appl - 6248FC10
*Mar  1 00:46:43: xapp_search_for_chnl_rec: sess_id 27, conn_id 2785
*Mar  1 00:46:43: xapp_add_chnl_rec: chnl 631142E4
*Mar  1 00:46:43: xapp_open_receive_chnl: stat 0, eve 0, sid 27, cid 2785, codec 1, pkt-period
 20
*Mar  1 00:46:43: xapp_open_chnl_request: chnl_rec 631142E4
*Mar  1 00:46:43: xapp_open_chnl_request: chnl_rec 631142E4, sess_id 27, conn_id 2785,
cstate 0, nstate 1
*Mar  1 00:46:43: xapp_dequeue_and_process_dspf_events: chnl_rec 631142E4, state 1, eve_id
 1
*Mar  1 00:46:43: xapp_open_chnl_success: chnl_rec 631142E4
*Mar  1 00:46:43: xapp_open_chnl_success: chnl_rec 631142E4, sess_id 27, conn_id 2785,
cstate 1, nstate 2, lc_ipaddr 10.10.1.1, lport 25706
*Mar  1 00:46:43: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:43: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 44, offset 52, msg_id 138
*Mar  1 00:46:43: xapp_start_media_transmission: SCCP stmt_msg - 6248FC8C, appl - 6248FC10
*Mar  1 00:46:43: xapp_search_for_chnl_rec: sess_id 27, conn_id 2769
*Mar  1 00:46:43: xapp_start_media_transmission: chnl_rec 631142BC, stat 2, sid 27, cid
2769, ripaddr 10.10.1.5, rport 32148, codec 1, pkt-period 20, pre 11, silen 16777500, mfpp
 1
*Mar  1 00:46:43: xapp_modify_chnl_request: chnl_rec 631142BC
*Mar  1 00:46:43: xapp_modify_chnl_request: chnl_rec 631142BC, sess_id 27, conn_id 2769,
cstate 2, nstate 2
*Mar  1 00:46:43: xapp_dequeue_and_process_dspf_events: chnl_rec 631142BC, state 2, eve_id
 4
*Mar  1 00:46:43: xapp_modify_chnl_success: chnl_rec 631142BC, sess_id 27, conn_id 2769,
cstate 2
*Mar  1 00:46:43: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:43: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 44, offset 52, msg_id 138
*Mar  1 00:46:43: xapp_start_media_transmission: SCCP stmt_msg - 6248FC8C, appl - 6248FC10
*Mar  1 00:46:43: xapp_search_for_chnl_rec: sess_id 27, conn_id 2785
*Mar  1 00:46:43: xapp_start_media_transmission: chnl_rec 631142E4, stat 2, sid 27, cid
2785, ripaddr 10.10.1.7, rport 16422, codec 1, pkt-period 20, pre 11, silen 16777501, mfpp
 1
*Mar  1 00:46:43: xapp_modify_chnl_request: chnl_rec 631142E4
*Mar  1 00:46:43: xapp_modify_chnl_request: chnl_rec 631142E4, sess_id 27, conn_id 2785,
cstate 2, nstate 2
*Mar  1 00:46:43: xapp_dequeue_and_process_dspf_events: chnl_rec 631142E4, state 2, eve_id
```

```
 4
*Mar  1 00:46:43: xapp_modify_chnl_success: chnl_rec 631142E4, sess_id 27, conn_id 2785,
cstate 2
*Mar  1 00:46:44: sccp_create_application: send keepalive msg, appl 6248F760, appl_type 1,
 count 0
*Mar  1 00:46:44: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:46:45: sccp_process_mtp_pdu: appl - 6248F760, mbuf - 6248F7D4
*Mar  1 00:46:45: sccp_process_mtp_pdu: msg_ptr 6248F7DC, len 4, offset 12, msg_id 256
*Mar  1 00:46:45: sccp_create_application: send keepalive msg, appl 6248FC10, appl_type 2,
 count 0
*Mar  1 00:46:45: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:46:46: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:46: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 4, offset 12, msg_id 256
*Mar  1 00:46:47: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:47: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 28, offset 36, msg_id 261
*Mar  1 00:46:47: xapp_open_receive_chnl: SCCP orc_msg - 6248FC8C, appl - 6248FC10
*Mar  1 00:46:47: xapp_search_for_chnl_rec: sess_id 27, conn_id 2817
*Mar  1 00:46:47: xapp_add_chnl_rec: chnl 6311430C
*Mar  1 00:46:47: xapp_open_receive_chnl: stat 0, eve 0, sid 27, cid 2817, codec 1, pkt-period
 20
*Mar  1 00:46:47: xapp_open_chnl_request: chnl_rec 6311430C
*Mar  1 00:46:47: xapp_open_chnl_request: chnl_rec 6311430C, sess_id 27, conn_id 2817,
cstate 0, nstate 1
*Mar  1 00:46:47: xapp_dequeue_and_process_dspf_events: chnl_rec 6311430C, state 1, eve_id
 1
*Mar  1 00:46:47: xapp_open_chnl_success: chnl_rec 6311430C
*Mar  1 00:46:47: xapp_open_chnl_success: chnl_rec 6311430C, sess_id 27, conn_id 2817,
cstate 1, nstate 2, lc_ipaddr 10.10.1.1, lport 16730
*Mar  1 00:46:47: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:47: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 44, offset 52, msg_id 138
*Mar  1 00:46:47: xapp_start_media_transmission: SCCP stmt_msg - 6248FC8C, appl - 6248FC10
*Mar  1 00:46:47: xapp_search_for_chnl_rec: sess_id 27, conn_id 2817
*Mar  1 00:46:47: xapp_start_media_transmission: chnl_rec 6311430C, stat 2, sid 27, cid
2817, ripaddr 10.10.1.6, rport 18160, codec 1, pkt-period 20, pre 11, silen 16777502, mfpp
 1
*Mar  1 00:46:47: xapp_modify_chnl_request: chnl_rec 6311430C
*Mar  1 00:46:47: xapp_modify_chnl_request: chnl_rec 6311430C, sess_id 27, conn_id 2817,
cstate 2, nstate 2
*Mar  1 00:46:47: xapp_dequeue_and_process_dspf_events: chnl_rec 6311430C, state 2, eve_id
 4
*Mar  1 00:46:47: xapp_modify_chnl_success: chnl_rec 6311430C, sess_id 27, conn_id 2817,
cstate 2
*Mar  1 00:46:52: sccp_create_application: send keepalive msg, appl 6248F760, appl_type 1,
 count 0
*Mar  1 00:46:52: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:46:52: sccp_process_mtp_pdu: appl - 6248F760, mbuf - 6248F7D4
*Mar  1 00:46:52: sccp_process_mtp_pdu: msg_ptr 6248F7DC, len 4, offset 12, msg_id 256
*Mar  1 00:46:53: sccp_create_application: send keepalive msg, appl 6248FC10, appl_type 2,
 count 0
*Mar  1 00:46:53: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:46:54: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:46:54: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 4, offset 12, msg_id 256
*Mar  1 00:46:59: sccp_create_application: send keepalive msg, appl 6248F760, appl_type 1,
 count 0
*Mar  1 00:46:59: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:00: sccp_process_mtp_pdu: appl - 6248F760, mbuf - 6248F7D4
*Mar  1 00:47:00: sccp_process_mtp_pdu: msg_ptr 6248F7DC, len 4, offset 12, msg_id 256
*Mar  1 00:47:01: sccp_create_application: send keepalive msg, appl 6248FC10, appl_type 2,
 count 0
*Mar  1 00:47:01: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:01: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:47:01: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 4, offset 12, msg_id 256
*Mar  1 00:47:07: sccp_create_application: send keepalive msg, appl 6248F760, appl_type 1,
 count 0
*Mar  1 00:47:07: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:07: sccp_process_mtp_pdu: appl - 6248F760, mbuf - 6248F7D4
*Mar  1 00:47:07: sccp_process_mtp_pdu: msg_ptr 6248F7DC, len 4, offset 12, msg_id 256
*Mar  1 00:47:08: sccp_create_application: send keepalive msg, appl 6248FC10, appl_type 2,
 count 0
*Mar  1 00:47:08: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:09: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:47:09: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 4, offset 12, msg_id 256
*Mar  1 00:47:14: sccp_create_application: send keepalive msg, appl 6248F760, appl_type 1,
```

```
 count 0
*Mar  1 00:47:14: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:15: sccp_process_mtp_pdu: appl - 6248F760, mbuf - 6248F7D4
*Mar  1 00:47:15: sccp_process_mtp_pdu: msg_ptr 6248F7DC, len 4, offset 12, msg_id 256
*Mar  1 00:47:16: sccp_create_application: send keepalive msg, appl 6248FC10, appl_type 2,
 count 0
*Mar  1 00:47:16: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:16: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:47:16: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 4, offset 12, msg_id 256
*Mar  1 00:47:22: sccp_create_application: send keepalive msg, appl 6248F760, appl_type 1,
 count 0
*Mar  1 00:47:22: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:22: sccp_process_mtp_pdu: appl - 6248F760, mbuf - 6248F7D4
*Mar  1 00:47:22: sccp_process_mtp_pdu: msg_ptr 6248F7DC, len 4, offset 12, msg_id 256
*Mar  1 00:47:23: sccp_create_application: send keepalive msg, appl 6248FC10, appl_type 2,
 count 0
*Mar  1 00:47:23: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:24: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:47:24: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 4, offset 12, msg_id 256
*Mar  1 00:47:29: sccp_create_application: send keepalive msg, appl 6248F760, appl_type 1,
 count 0
*Mar  1 00:47:29: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:30: sccp_process_mtp_pdu: appl - 6248F760, mbuf - 6248F7D4
*Mar  1 00:47:30: sccp_process_mtp_pdu: msg_ptr 6248F7DC, len 4, offset 12, msg_id 256
*Mar  1 00:47:31: sccp_create_application: send keepalive msg, appl 6248FC10, appl_type 2,
 count 0
*Mar  1 00:47:31: sccp_keepalive: send keepalive id 0, len 4
*Mar  1 00:47:31: sccp_process_mtp_pdu: appl - 6248FC10, mbuf - 6248FC84
*Mar  1 00:47:31: sccp_process_mtp_pdu: msg_ptr 6248FC8C, len 4, offset 12, msg_id 256
```

Related Commands

Command	Description
debug frame-relay vc-bundle	Sets debugging levels for the DSP-farm service.
dspfarm (DSP farm)	Enables DSP-farm service.
sccp	Enables SCCP and its associated transcoding and conferencing applications.
show sccp	Displays the SCCP configuration information and current status.

debug sccp config

To enable Skinny Client Control Protocol (SCCP) event debugging, use the **debug sccp config** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sccp config {**all**| **errors**| **events**| **parser**}

no debug sccp config {**all**| **errors**| **events**| **parser**}

Syntax Description

all	Displays all SCCP auto-config debug trace.
errors	Displays SCCP auto-config errors.
events	Displays SCCP auto-config events.
parser	Displays SCCP auto-config parser.

Command Default

Disabled

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(8)XY	This command was introduced on the Communication Media Module.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.
12.4(3)	This command was integrated into Cisco IOS Release 12.4(3).

Examples

The following example shows the **debug sccp config** command used to enable SCCP event debugging and to display SCCP auto-configuration events:

```
Router# debug sccp config events
...
Feb  8 02:17:31.119: mp_auto_cfg_request(req_id=2, prof=995, ccm_group_id=0)
Feb  8 02:17:31.123: mp_auto_cfg_is_up: SCCP auto-config is enabled & registered
...
```

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

Table 2: debug sccp config Field Descriptions

Field	Description
prof=995	Indicates the profile ID. If generated by media processor auto-configuration, profile IDs are preceded by 99.
SCCP auto-config is enabled & registered	Indicates the registration of sccp when auto-config is complete.

Related Commands

Command	Description
auto-config	Enables auto-configuration or enters auto-config application configuration mode for the SCCP application.
debug auto-config	Enables debugging for auto-configuration applications.
show auto-config	Displays the current status of auto-configuration applications.

debug qbm

To display debugging output for quality of service (QoS) bandwidth manager (QBM) options, use the **debug qbm** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug qbm {**api**| **events**}

no debug qbm {**api**| **events**}

Syntax Description

api	Displays information about QBM client requests and notifications. See the "Usage Guidelines" section for additional information.
events	Displays information about QBM pool events.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SRC	This command was introduced.
Cisco IOS XE Release 2.6	This command was integrated into Cisco IOS XE Release 2.6.

Usage Guidelines

Use the **debug qbm** command to troubleshoot QBM behavior.

Examples of client requests are when a client creates or destroys a bandwidth pool and when a client attempts to admit bandwidth into a pool. An example of a notification is when a client's previously admitted bandwidth gets preempted from a pool.

Examples

The following example shows how to enable the **debug qbm api**command:

```
Router# debug qbm api
QBM client requests and notifications debugging is on
```

The following example show how to enable the **debug qbm events**command:

```
Router# debug qbm events
QBM pool events debugging is on
```

The following example shows how to verify that QBM debugging is enabled:

```
Router# show debug
QoS Bandwidth Manager:
  QBM client requests and notifications debugging is on
  QBM pool events debugging is on
```

Related Commands

Command	Description
show qbm client	Displays registered QBM clients.
show qbm pool	Displays allocated QBM pools and associated objects.

debug sdlc

To display information on Synchronous Data Link Control (SDLC) frames received and sent by any router serial interface involved in supporting SDLC end station functions, use the **debug sdlc** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sdlc

no debug sdlc

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Usage Guidelines

Note Because the **debug sdlc** command can generate many messages and alter timing in the network node, use it only when instructed by authorized support personnel.

Examples

The following is sample output from the **debug sdlc** command:

```
Router# debug sdlc
SDLC: Sending RR at location 4
Serial3: SDLC O (12495952) C2 CONNECT (2) RR P/F 6
Serial3: SDLC I (12495964) [C2] CONNECT (2) RR P/F 0 (R) [VR: 6 VS: 0]
Serial3: SDLC T [C2] 12496064 CONNECT 12496064 0
SDLC: Sending RR at location 4
Serial3: SDLC O (12496064) C2 CONNECT (2) RR P/F 6
Serial3: SDLC I (12496076) [C2] CONNECT (2) RR P/F 0 (R) [VR: 6 VS: 0]
Serial3: SDLC T [C2] 12496176 CONNECT 12496176 0
```

The following line of output indicates that the router is sending a Receiver Ready packet at location 4 in the code:

```
SDLC: Sending RR at location 4
```

The following line of output describes a frame output event:

```
Serial1/0: SDLC O 04 CONNECT (285) IFRAME P/F 6
```

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

Table 3: debug sdlc Field Descriptions for a Frame Output Event

Field	Description
Serial1/0	Interface type and unit number reporting the frame event.
SDLC	Protocol providing the information.

Field	Description
O	Command mode of frame event. Possible values are as follows: • I--Frame input • O--Frame output • T--T1 timer expired
04	SDLC address of the SDLC connection.
CONNECT	State of the protocol when the frame event occurred. Possible values are as follows: • CONNECT • DISCONNECT • DISCSENT (disconnect sent) • ERROR (FRMR frame sent) • REJSENT (reject frame sent) • SNRMSENT (SNRM frame sent) • USBUSY • THEMBUSY • BOTHBUSY
(285)	Size of the frame (in bytes).
IFRAME	Frame type name. Possible values are as follows: • DISC--Disconnect • DM--Disconnect mode • FRMR--Frame reject • IFRAME--Information frame • REJ--Reject • RNR--Receiver not ready • RR--Receiver ready • SIM--Set Initialization mode command • SNRM--Set Normal Response Mode • TEST--Test frame • UA--Unnumbered acknowledgment • XID--EXchange ID

Field	Description
P/F	Poll/Final bit indicator. Possible values are as follows: • F--Final (printed for Response frames) • P--Poll (printed for Command frames) • P/F--Poll/Final (printed for RR, RNR, and REJ frames, which can be either Command or Response frames)
6	Receive count; range: 0 to 7.

The following line of output describes a frame input event:

```
Serial1/0: SDLC I 02 CONNECT (16) IFRAME P 7 0,[VR: 7 VS: 0]
```

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

Table 4: debug sdlc Field Descriptions for a Frame Input Event

Field	Description
02	SDLC address.
IFRAME	Traffic engineering type.
P	Poll bit P is on.
VR: 7	Receive count; range: 0 to 7.
VS: 0	Send count; range: 0 to 7.

The following line of output describes a frame timer event:

```
Serial1/0: SDLC T 02 CONNECT 0x9CB69E8 P 0
```

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

Table 5: debug sdlc Field Descriptions for a Timer Event

Field	Description
Serial1/0	Interface type and unit number reporting the frame event.
SDLC	Protocol providing the information.
T	Timer has expired.
02	SDLC address of this SDLC connection.

Field	Description
CONNECT	State of the protocol when the frame event occurred. Possible values are as follows: • BOTHBUSY • CONNECT • DISCONNECT • DISCSENT (disconnect sent) • ERROR (FRMR frame sent) • REJSENT (reject frame sent) • SNRMSENT (SNRM frame sent) • THEMBUSY • USBUSY
0x9CB69E8	Top timer.
0	Retry count; default: 0.

Related Commands

Command	Description
debug list	Filters debugging information on a per-interface or per-access list basis.

debug sdlc local-ack

To display information on the local acknowledgment feature, use the **debug sdlc local-ack** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sdlc local-ack [*number*]

no debug sdlc local-ack [*number*]

Syntax Description

number	(Optional) Frame-type that you want to monitor. See the "Usage Guidelines" section.

Command Modes

Privileged EXEC

Usage Guidelines

You can select the frame types you want to monitor; the frame types correspond to bit flags. You can select 1, 2, 4, or 7, which is the decimal value of the bit flag settings. If you select 1, the octet is set to 00000001. If you select 2, the octet is set to 0000010. If you select 4, the octet is set to 00000100. If you want to select all frame types, select 7; the octet is 00000111. The default is 7 for all events. The table below defines these bit flags.

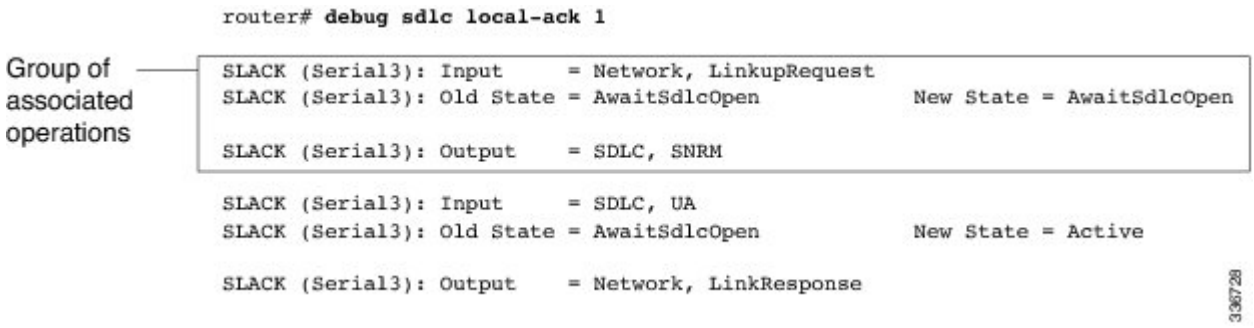
Table 6: debug sdlc local-ack Debugging Levels

Debug Command	Meaning
debug sdlc local-ack 1	Only U-Frame events
debug sdlc local-ack 2	Only I-Frame events
debug sdlc local-ack 4	Only S-Frame events
debug sdlc local-ack 7	All Synchronous Data Link Control (SDLC) Local-Ack events (default setting)

Caution Because using this command is processor intensive, it is best to use it after hours, rather than in a production environment. It is also best to use this command by itself, rather than in conjunction with other **debug**ging commands.

Examples

The following is sample output from the **debug sdlc local-ack** command:



The first line shows the input to the SDLC local acknowledgment state machine:

```
SLACK (Serial3): Input     = Network, LinkupRequest
```

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

Table 7: debug sdlc local-ack Field Descriptions

Field	Description
SLACK	SDLC local acknowledgment feature is providing the information.
(Serial3):	Interface type and unit number reporting the event.
Input = Network	Source of the input.
LinkupRequest	Op code. A LinkupRequest is an example of possible values.

The second line shows the change in the SDLC local acknowledgment state machine. In this case the AwaitSdlcOpen state is an internal state that has not changed while this display was captured.

```
SLACK (Serial3): Old State = AwaitSdlcOpen            New State = AwaitSdlcOpen
```

The third line shows the output from the SDLC local acknowledgment state machine:

```
SLACK (Serial3): Output     = SDLC, SNRM
```

debug sdlc packet

To display packet information on Synchronous Data Link Control (SDLC) frames received and sent by any router serial interface involved in supporting SDLC end station functions, use the **debug sdlc packet** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sdlc packet [*max-bytes*]

no debug sdlc packet [*max-bytes*]

Syntax Description

max-bytes	(Optional) Limits the number of bytes of data that are printed to the display.

Command Modes

Privileged EXEC

Usage Guidelines

This command requires intensive CPU processing; therefore, we recommend not using it when the router is expected to handle normal network loads, such as in a production environment. Instead, use this command when network response is noncritical. We also recommend that you use this command by itself, rather than in conjunction with other **debug** commands.

Examples

The following is sample output from the **debug sdlc packet** command with the packet display limited to 20 bytes of data:

```
Router# debug sdlc packet 20
 Serial3 SDLC Output
00000 C3842C00 02010010 019000C5 C5C5C5C5 Cd.........EEEEE
00010 C5C5C5C5                            EEEE
 Serial3 SDLC Output
00000 C3962C00 02010011 039020F2          Co.........2
 Serial3 SDLC Output
00000 C4962C00 0201000C 039020F2          Do.........2
 Serial3 SDLC Input
00000     C491                              Dj
```

debug serial interface

To display information on a serial connection failure, use the **debug serial interface** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug serial interface

no debug serial interface

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Usage Guidelines

If the **show interface serial** EXEC command shows that the line and protocol are down, you can use the **debug serial interface** command to isolate a timing problem as the cause of a connection failure. If the keepalive values in the mineseq, yourseen, and myseen fields are not incrementing in each subsequent line of output, there is a timing or line problem at one end of the connection.

Caution Although the **debug serial interface** command typically does not generate a substantial amount of output, nevertheless use it cautiously during production hours. When Switched Multimegabit Data Service (SMDS) is enabled, for example, it can generate considerable output.

The output of the **debug serial interface** command can vary, depending on the type of WAN configured for an interface: Frame Relay, High-Level Data Link Control (HDL) , High-Speed Serial Interface (HSSI), SMDS, or X.25. The output also can vary depending on the type of encapsulation configured for that interface. The hardware platform also can affect **debug serial interface** output.

Examples

The following sections show and describe sample **debug serial interface** output for various configurations.

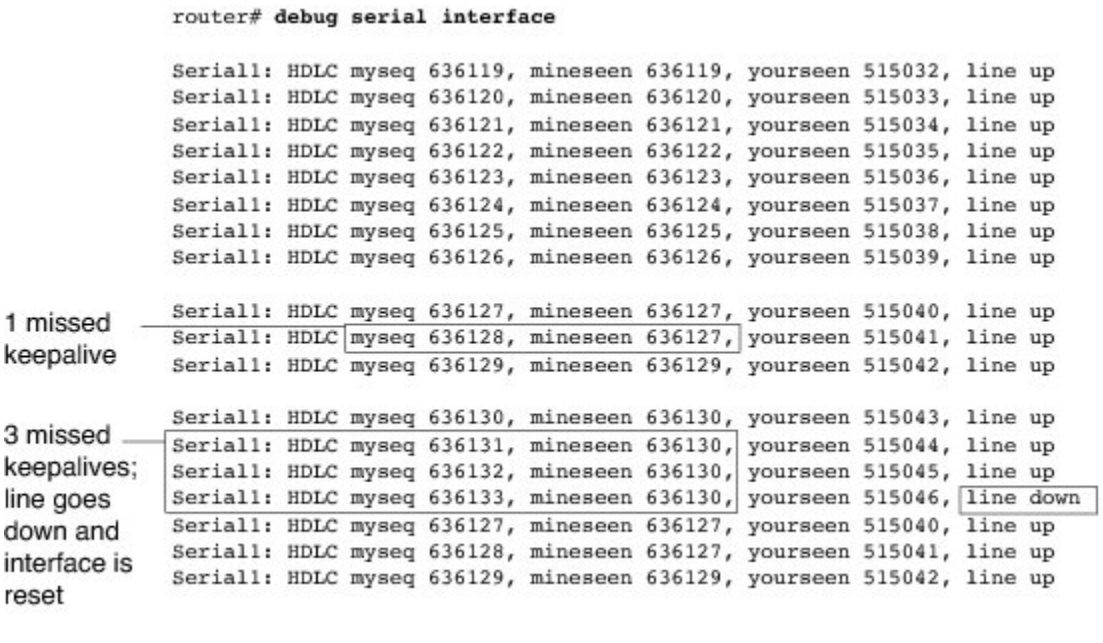
Examples

The following me ssage is displayed if the encapsulation for the interface is Frame Relay (or HDLC) and the router attempts to send a packet containing an unknown packet type:

```
Illegal serial link type code xxx
```

Examples

The following is sample output from the **debug serial interface** command for an HDLC connection when keepalives are enabled. This output shows that the remote router is not receiving all the keepalives the router is sending. When the difference in the values in the myseq and mineseen fields exceeds three, the line goes down and the interface is reset.



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

Table 8: debug serial interface Field Descriptions for HDLC

Field	Description
Serial 1	Interface through which the serial connection is taking place.
HDLC	Serial connection is an HDLC connection.
myseq 636119	Myseq counter increases by one each time the router sends a keepalive packet to the remote router.
mineseen 636119	Value of the mineseen counter reflects the last myseq sequence number the remote router has acknowledged receiving from the router. The remote router stores this value in its yourseen counter and sends that value in a keepalive packet to the router.
yourseen 515032	Yourseen counter reflects the value of the myseq sequence number the router has received in a keepalive packet from the remote router.
line up	Connection between the routers is maintained. Value changes to “line down” if the values of the myseq and myseen fields in a keepalive packet differ by more than three. Value returns to “line up” when the interface is reset. If the line is in loopback mode, (“looped”) appears after this field.

The table below describes additional error messages that the **debug serial interface** command can generate for HDLC.

Table 9: debug serial interface Error Messages for HDLC

Field	Description
Illegal serial link type code <*xxx*>, PC = 0x*nnnnnn*	Router attempted to send a packet containing an unknown packet type.
Illegal HDLC serial type code <*xxx*>, PC = 0x*nnnnn*	Unknown packet type is received.
Serial 0: attempting to restart	Interface is down. The hardware is then reset to correct the problem, if possible.
Serial 0: Received bridge packet sent to <*nnnnnnnnn*>	Bridge packet is received over a serial interface configured for HDLC, and bridging is not configured on that interface.

Examples

On an HSSI interface, the **debug serial interface** command can generate the following additional error message:

```
HSSI0: Reset from 0x
nnnnnnn
```

This message indicates that the HSSI hardware has been reset. The 0x*nnnnnnn* variable is the address of the routine requesting that the hardware be reset; this value is useful only to development engineers.

Examples

The table below describes error mes sages that the **debug serial interface** command can generate for ISDN Basic Rate.

Table 10: debug serial interface Error Messages for ISDN Basic Rate

Message	Description
BRI: D-chan collision	Collision on the ISDN D channel has occurred; the software will retry transmission.
Received SID Loss of Frame Alignment int.	ISDN hardware has lost frame alignment. This usually indicates a problem with the ISDN network.
Unexpected IMP int: ipr = 0x*nn*	ISDN hardware received an unexpected interrupt. The 0x*nn*variable indicates the value returned by the interrupt register.

Message	Description
BRI(d): RX Frame Length Violation. Length=*n* BRI(d): RX Nonoctet Aligned Frame BRI(d): RX Abort Sequence BRI(d): RX CRC Error BRI(d): RX Overrun Error BRI(d): RX Carrier Detect Lost	Any of these messages can be displayed when a receive error occurs on one of the ISDN channels. The (d) indicates which channel it is on. These messages can indicate a problem with the ISDN network connection.
BRI0: Reset from 0x*nnnnnnn*	BRI hardware has been reset. The 0x*nnnnnnn* variable is the address of the routine that requested that the hardware be reset; it is useful only to development engineers.
BRI(d): Bad state in SCMs scm1=*x*scm2=*x*scm3=*x* BRI(d): Bad state in SCONs scon1=*x* scon2 =*x*scon3=*x* BRI(d): Bad state ub SCR; SCR=*x*	Any of these messages can be displayed if the ISDN hardware is not in the proper state. The hardware is then reset. If the message is displayed constantly, it usually indicates a hardware problem.
BRI(d): Illegal packet encapsulation=*n*	Packet is received, but the encapsulation used for the packet is not recognized. The interface might be misconfigured.

Examples

The table below describes the additional error messa ges that the **debug serial interface** command can generate for an MK5025 device.

Table 11: debug serial interface Error Messages for an MK5025 Device

Message	Description
MK5(d): Reset from 0x*nnnnnnnn*	Hardware has been reset. The 0x*nnnnnnn* variable is the address of the routine that requested that the hardware be reset; it is useful only to development engineers.
MK5(d): Illegal packet encapsulation=*n*	Packet is received, but the encapsulation used for the packet is not recognized. Interface might be misconfigured.
MK5(d): No packet available for packet realignment	Serial driver attempted to get a buffer (memory) and was unable to do so.
MK5(d): Bad state in CSR0=(*x*)	This message is displayed if the hardware is not in the proper state. The hardware is reset. If this message is displayed constantly, it usually indicates a hardware problem.

Message	Description
MK5(d): New serial state=*n*	Hardware has interrupted the software. It displays the state that the hardware is reporting.
MK5(d): DCD is down. MK5(d): DCD is up.	If the interrupt indicates that the state of carrier has changed, one of these messages is displayed to indicate the current state of DCD.

Examples

When encapsulation is set to SMDS, the **debug serial interface** command dis plays SMDS packets that are sent and received, and any error messages resulting from SMDS packet transmission.

The error messages that the **debug serial interface** command can generate for SMDS follow.

The following message indicates that a new protocol requested SMDS to encapsulate the data for transmission. SMDS is not yet able to encapsulate the protocol.

```
SMDS: Error on Serial 0, encapsulation bad protocol =
x
```

The following message indicates that SMDS was asked to encapsulate a packet, but no corresponding destination E.164 SMDS address was found in any of the static SMDS tables or in the ARP tables:

```
SMDS send: Error in encapsulation, no hardware address, type =
x
```

The following message indicates that a protocol such as Connectionless Network Service (CLNS) or IP has been enabled on an SMDS interface, but the corresponding multicast addresses have not been configured. The *n* variable displays the link type for which encapsulation was requested.

```
SMDS: Send, Error in encapsulation, type=
n
```

The following messages can occur when a corrupted packet is received on an SMDS interface. The router expected *x*, but received *y*.

```
SMDS: Invalid packet, Reserved NOT ZERO,
x y
SMDS: Invalid packet, TAG mismatch
x y
SMDS: Invalid packet, Bad TRAILER length
x y
```

The following messages can indicate an invalid length for an SMDS packet:

```
SMDS: Invalid packet, Bad BA length
x
SMDS: Invalid packet, Bad header extension length
x
SMDS: Invalid packet, Bad header extension type
x
SMDS: Invalid packet, Bad header extension value
x
```

The following messages are displayed when the **debug serial interface** command is enabled:

```
Interface Serial 0 Sending SMDS L3 packet:
SMDS: dgsize:
x
 type:0
xn
 src:
```

```
y
 dst:
z
```

If the **debug serial interface** command is enabled, the following message can be displayed when a packet is received on an SMDS interface, but the destination SMDS address does not match any on that interface:

```
SMDS: Packet
n
, not addressed to us
```

debug serial lead-transition

To activate the leads status transition debug capability for all capable ports, use the **debug serial lead-transition**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug serial lead-transition

no debug serial lead-transition

Syntax Description

This command has no arguments or keywords.

Command Default

Debugging is not turned on.

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 12.2(15)ZJ	This command was introduced on the following platforms: Cisco 2610XM, Cisco 2611XM, Cisco 2620XM, Cisco 2621XM, Cisco 2650XM, Cisco 2651XM, Cisco 2691, Cisco 3631, Cisco 3660, Cisco 3725, and Cisco 3745 routers.
Release 12.3(2)T	This command was integrated into Cisco IOS Release 12.3(2)T.

Usage Guidelines

To control which port is to be reported and therefore reduce the risk of flooding the console screen with debug information, enter the **debug condition interface serial** *slot/port*command after using the **debug serial lead-transition** command to set the condition.

Caution To avoid having the debug message flood the console screen with debug information, use these commands only when traffic on the IP network is low, so other activity on the system is not adversely affected.

Examples

The following example shows the serial control leads reported for slot 1, port 1:

```
Router# debug serial lead-transition

Router# debug condition interface serial 1/1
*Mar  1 00:17:15.040:slot(1) Port(1):DSR/DTR is Deasserted
*Mar  1 00:17:15.040:slot(1) Port(1):CTS/RTS is Deasserted
*Mar  1 00:17:47.955:slot(1) Port(1):DCD/Local Loop is Deasserted
*Mar  1 00:17:47.955:slot(1) Port(1):DSR/DTR is Deasserted
*Mar  1 00:17:47.955:slot(1) Port(1):CTS/RTS is Deasserted
Router# no shut down serial 1/1
```

```
*Mar  1 00:16:52.298:slot(1) Port(1):DSR/DTR is Asserted
*Mar  1 00:16:52.298:slot(1) Port(1):CTS/RTS is Asserted
*Mar  1 00:16:31.648:slot(1) Port(1):DCD/Local Loop is Asserted
*Mar  1 00:16:31.648:slot(1) Port(1):DSR/DTR is Asserted
*Mar  1 00:16:31.648:slot(1) Port(1):CTS/RTS is Asserted
```

The table below describes significant fields shown in the displays.

Table 12: debug serial lead-transition Field Descriptions

Field	Description
DSR/DTR is Asserted/Deasserted	The DSR or DTE signal is activated or inactivated.
CTS/RTS is Asserted/Deasserted	The CTS or RTS signal is activated or inactivated.
DCD/Local Loop is Asserted/Deasserted	The DCD or Local Loopback signal is activated or inactivated.

Related Commands

Command	Description
debug condition interface serial	Enables conditional debugging on a serial interface.

debug serial packet

To display more detailed serial interface debugging information than you can obtain using the **debug serial interface** command, use the **debug serial packet**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug serial packet

no debug serial packet

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Usage Guidelines

The **debug serial packet** command generates output that is dependent on the type of serial interface and the encapsulation running on that interface. The hardware platform also can impact **debug serial packet** output.

The **debug serial packet** command displays output for only Switched Multimegabit Data Service (SMDS) encapsulations.

Examples

The following is sample output from the **debug serial packet** command when SM DS is enabled on the interface:

```
Router# debug serial packet
Interface Serial2 Sending SMDS L3 packet:
SMDS Header: Id: 00 RSVD: 00 BEtag: EC Basize: 0044
Dest:E18009999999FFFF Src:C12015804721FFFF Xh:040300000300010000000000000000000
SMDS LLC: AA AA 03 00 00 00 80 38
SMDS Data: E1 19 01 00 00 80 00 00 0C 00 38 1F 00 0A 00 80 00 00 0C 01 2B 71
SMDS Data: 06 01 01 0F 1E 24 00 EC 00 44 00 02 00 00 83 6C 7D 00 00 00 00 00
SMDS Trailer: RSVD: 00 BEtag: EC Length: 0044
```

As the output shows, when encapsulation is set to SMDS, the **debug serial packet** command displays the entire SMDS header (in hexadecimal notation), and some payload data on transmit or receive. This information is useful only when you have an understanding of the SMDS protocol. The first line of the output indicates either Sending or Receiving.

debug service-group

To enable debugging of service-group events and errors, use the **debug service-group** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug service-group {**all**| **error**| **feature**| **group**| **interface**| **ipc**| **member**| **qos**| **stats**}

no debug service-group {**all**| **error**| **feature**| **group**| **interface**| **ipc**| **member**| **qos**| **stats**}

Syntax Description

all	All service-group debugging.
error	Service-group errors.
feature	Service-group features.
group	Service-group events.
interface	Service-group interface events.
ipc	Service-group Inter-Process Communication (IPC) messaging.
member	Service-group member events.
qos	Service-group Quality of Service (QoS).
stats	Service-group statistics.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SRE	This command was introduced.

Examples

In the following example, service-group debugging for service-group member events has been enabled:

```
Router> enable
Router# debug service-group member
%Service Group membership debugging is on
```

debug service-module

To display debugging information that monitors the detection and clearing of network alarms on the integrated channel service unit/data service unit (CSU/DSU) modules, use the **debug service-module** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug service-module

no debug service-module

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Usage Guidelines

Use this command to enable and disable debug logging for the serial 0 and serial 1 interfaces when an integrated CSU/DSU is present. This command enables debugging on all interfaces.

Network alarm status can also be viewed through the use of the **show service-module** command.

Note The debug output varies depending on the type of service module installed in the router.

Examples

The following is sample output from the **debug service-module** command:

```
Router# debug service-module
SERVICE_MODULE(1): loss of signal ended after duration 00:05:36
SERVICE_MODULE(1): oos/oof ended after duration 01:05:14
SERVICE_MODULE(0): Unit has no clock
SERVICE_MODULE(0): detects loss of signal
SERVICE_MODULE(0): loss of signal ended after duration 00:00:33
```

debug sgbp dial-bids

To display large-scale dial-out negotiations between the primary network access server (NAS) and alternate NASs, use the **debug sgbp dial-bids** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sgbp dial-bids

no debug sgbp dial-bids

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Usage Guidelines

Use this command only when the **sgbp dial-bids** command has been configured.

Examples

The following is sample output from the **debug sgbp dial-bids**command:

```
Router# debug sgbp dial-bids
*Jan  1 00:25:03.643: SGBP-RES:  New bid add request: 4B0 8 2 1 DAC0 1 1
This indicates a new dialout bid has started
.
*Jan  1 00:25:03.643: SGBP-RES: Sent Discover message to ID 7B09B71E  49 bytes
The bid request has been sent
.
*Jan  1 00:25:03.647: SGBP-RES: Received Message of 49 length:

*Jan  1 00:25:03.647: SGBP-RES: header 5  30  0  31
2  0  0  2D  0  0  0  0  0  0  0  3  0  0  0  1  1E  AF  3A  41  7B  9  B7  1E  8  15  B
3  2  C  6  0  0  DA  C0  D  4  0  0  E  3  1  F  3  1
*Jan  1 00:25:03.647:
*Jan  1 00:25:03.647: SGBP RES: Scan: Message type: Offer
*Jan  1 00:25:03.647: SGBP RES: Scan: Len is 45
*Jan  1 00:25:03.647: SGBP RES: Scan: Transaction ID: 3
*Jan  1 00:25:03.647: SGBP RES: Scan: Message ID: 1
*Jan  1 00:25:03.647: SGBP RES: Scan: Client ID: 1EAF3A41
*Jan  1 00:25:03.651: SGBP RES: Scan: Server ID: 7B09B71E
*Jan  1 00:25:03.651: SGBP RES: Scan: Resource type 8  length 21
*Jan  1 00:25:03.651: SGBP RES: Scan: Phy-Port Media type: ISDN
*Jan  1 00:25:03.651: SGBP RES: Scan: Phy-Port Min BW: 56000
*Jan  1 00:25:03.651: SGBP RES: Scan: Phy-Port Num Links: 0
*Jan  1 00:25:03.651: SGBP RES: Scan: Phy-Port User class: 1
*Jan  1 00:25:03.651: SGBP RES: Scan: Phy-Port Priority: 1
*Jan  1 00:25:03.651: SGBP-RES: received 45 length Offer packet
*Jan  1 00:25:03.651: SGBP-RES: Offer from 7B09B71E for Transaction 3 accepted
*Jan  1 00:25:03.651: SGBP RES: Server is uncongested. Immediate win
An alternate network access server has responded and won the bid
.
*Jan  1 00:25:03.651: SGBP-RES: Bid Succeeded  handle 7B09B71E  Server-id 4B0
*Jan  1 00:25:03.651: SGBP-RES: Sent Dial-Req message to ID 7B09B71E  66 bytes
The primary network access server has asked the alternate server to dial.
*Jan  1 00:25:04.651: SGBP-RES: QScan: Purging entry
*Jan  1 00:25:04.651: SGBP-RES: deleting entry 6112E204 1EAF3A41 from list...
```

debug sgbp error

To display debugging messages about routing problems between members of a stack group, use the **debug sgbp error**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sgbp error

no debug sgbp error

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.2(9)	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Enter the **debug sgbp error**command to enable the display of debugging messages about routing problems between members of a stack group.

Note In unusual cases you may see debugging messages that are not documented on this command reference page. These debugging messages are intended for expert diagnostic interpretation by the Cisco Technical Assistance Center (TAC).

Examples

One common configuration error is setting a source IP address for a stack member that does not match the locally defined IP address for the same stack member. The following debugging output shows the error message that results from this misconfiguration:

```
Systema# debug sgbp error

%SGBP-7-DIFFERENT - systemb's addr 10.1.1.2 is different from hello's addr 10.3.4.5
```

This error means that the source IP address of the Stack Group Bidding Protocol (SGBP) hello message received from systemb does not match the IP address configured locally for systemb (through the **sgbp member** command). Correct this configuration error by going to systemb and checking for multiple interfaces by which the SGBP hello can send the message.

Another common error message is:

```
Systema# debug sgbp error

%SGBP-7-MISCONF, Possible misconfigured member routerk (10.1.1.6)
```

This error message means that routerk is not defined locally, but is defined on another stack member. Correct this configuration error by defining routerk across all members of the stack group using the **sgbp member**command.

The following error message indicates that an SGBP peer is leaving the stack group:

```
Systema# debug sgbp error

%SGBP-7-LEAVING:Member systemc leaving group stack1
```

This error message indicates that the peer systemc is leaving the stack group. Systemc could be leaving the stack group intentionally, or a connectivity problem may exist.

The following error message indicates that an SGBP event was detected from an unknown peer:

```
Systema# debug sgbp error

%SGBP-7-UNKNOWPEER:Event 0x10 from peer at 172.21.54.3
```

An SGBP event came from a network host that was not recognizable as an SGBP peer. Check to see if a network media error could have corrupted the address, or if peer equipment is malfunctioning to generate corrupted packets. Depending on the network topology and firewall of your network, SGBP packets from a nonpeer host could indicate probing and attempts to breach security.

Note If there is a chance your network is under attack, obtain knowledgeable assistance from TAC.

Related Commands

Command	Description
debug sgbp hellos	Displays debugging messages for authentication between stack group members.
sgbp group	Defines a named stack group and makes this router a member of that stack group.
sgbp member	Specifies the hostname and IP address of a router or access server that is a peer member of a stack group.
show sgbp	Displays the status of the stack group members.
username	Establishes a username-based authentication system.

debug sgbp hellos

To display debugging messages for authentication between stack members, use the **debug sgbp hellos**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sgbp hellos

no debug sgbp hellos

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.2(9)	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Use the **debug sgbp hellos**command to enable the display of debugging messages for authentication between routers configured as members of a stack group.

Note In unusual cases you may see debugging messages that are not documented on this command reference page. These debugging messages are intended for expert diagnostic interpretation by the Cisco Technical Assistance Center (TAC).

Examples

The following output from the **debug sgbp hellos** command shows systema sending a successful Challenge Handshake Authentication Protocol (CHAP) challenge to and receiving a response from systemb. Similarly, systemb sends out a challenge and receives a response from systema.

```
systema# debug sgbp hellos

%SGBP-7-CHALLENGE: Send Hello Challenge to systemb group stack1
%SGBP-7-CHALLENGED: Hello Challenge message from member systemb (10.1.1.2)
%SGBP-7-RESPONSE: Send Hello Response to systemb group stack1
%SGBP-7-CHALLENGE: Send Hello Challenge to systemb group stack1
%SGBP-7-RESPONDED: Hello Response message from member systemb (10.1.1.2)
%SGBP-7-AUTHOK: Send Hello Authentication OK to member systemb (10.1.1.2)
%SGBP-7-INFO: Addr = 10.1.1.2 Reference = 0xC347DF7
%SGBP-5-ARRIVING: New peer event for member systemb
```

This debug output is self-explanatory.

If authentication fails, you may see one of the following messages in your debug output:

```
%SGBP-7-AUTHFAILED - Member systemb failed authentication
```

This error message means that the remote systemb password for the stack group does not match the password defined on systema. To correct this error, make sure that both systema and systemb have the same password defined using the **username** command.

```
%SGBP-7-NORESP -Fail to respond to systemb group stack1, may not have password.
```

This error message means that systema does not have a username or password defined. To correct this error, define a common group password across all stack members using the **username**command.

Related Commands

Command	Description
debug sgbp error	Displays debugging messages about routing problems between members of a stack group.
sgbp group	Defines a named stack group and makes this router a member of that stack group.
sgbp member	Specifies the hostname and IP address of a router or access server that is a peer member of a stack group.
show sgbp	Displays the status of the stack group members.
username	Establishes a username-based authentication system.

debug sgcp

To debug the Simple Gateway Control Protocol (SGCP), use the **debug sgcp**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sgcp {**errors**| **events**| **packet**}

no debug sgcp {**errors**| **events**| **packet**}

Syntax Description

errors	Displays debug information about SGCP errors.
events	Displays debug information about SGCP events.
packet	Displays debug information about SGCP packets.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable access router.

Examples

See the following examples to enable and disable debugging at the specified level:

```
Router# debug sgcp errors
Simple Gateway Control Protocol errors debugging is on
Router# no debug sgcp errors
Simple Gateway Control Protocol errors debugging is off
Router#
Router# debug sgcp events
Simple Gateway Control Protocol events debugging is on
Router# no debug sgcp events
Simple Gateway Control Protocol events debugging is off
Router#
Router# debug sgcp packet
Simple Gateway Control Protocol packets debugging is on
Router# no debug sgcp packet
Simple Gateway Control Protocol packets debugging is off
Router#
```

Related Commands

Command	Description
sgcp	Starts and allocates resources for the SCGP daemon.

debug sgcp errors

To debug Simple Gateway Control Protocol (SGCP) errors, use the **debug sgcp errors** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sgcp errors [**endpoint** *string*]

no debug sgcp errors

Syntax Description

endpoint *string*	(Optional) Specifies the endpoint string if you want to debug SGCP errors for a specific endpoint. On the Cisco MC3810 router, the endpoint string syntax takes the following forms: • DS1 endpoint: **DS1 -** *slot*/*port* • POTS endpoint: **aaln**/*slot*/*port* On the Cisco 3600 router, the endpoint string syntax takes the following forms: • DS1 endpoint: *slot*/*subunit*/**DS1 -** *ds1 number*/*ds0 number* • POTS endpoint: **aaln**/*slot*/*subunit*/*port*

Command Default

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced on the Cisco AS5300 access server in a private release that was not generally available.
12.0(7)XK	Support for this command was extended to the Cisco MC3810 and the Cisco 3600 series routers (except for the Cisco 3620). Also, the **endpoint** keyword was added.

Examples

The following example shows the debugging of SGCP errors being enabled:

```
Router# debug sgcp errors
```

```
Simple Gateway Control Protocol errors debugging is on
no errors since call went through successfully.
```

The following example shows a debug trace for SGCP errors on a specific endpoint:

```
Router# debug sgcp errors endpoint DS1-0/1
End point name for error debug:DS1-0/1 (1)
00:08:41:DS1 = 0, DS0 = 1
00:08:41:Call record found
00:08:41:Enable error end point debug for (DS1-0/1)
```

Related Commands

Command	Description
debug rtpspi all	Debugs all RTP SPI errors, sessions, and in/out functions.
debug rtpspi errors	Debugs RTP SPI errors.
debug rtpspi inout	Debugs RTP SPI in/out functions.
debug rtpspi send-nse	Triggers the RTP SPI to send a triple redundant NSE.
debug sgcp events	Debugs SGCP events.
debug sgcp packet	Debugs SGCP packets.
debug vtsp send-nse	Sends and debugs a triple redundant NSE from the DSP to a remote gateway.

debug sgcp events

To debug Simple Gateway Control Protocol (SGCP) events, use the **debug sgcp events** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sgcp events [**endpoint** *string*]

no debug sgcp events

Syntax Description

endpoint *string*	(Optional) Specifies the endpoint string if you want to debug SGCP errors for a specific endpoint. On the Cisco MC3810 router, the endpoint string syntax takes the following forms: • DS1 endpoint: **DS1 -** *slot*/*port* • POTS endpoint: **aaln**/*slot*/*port* On the Cisco 3600 router, the endpoint string syntax takes the following forms: • DS1 endpoint: *slot*/*subunit*/**DS1 -** *ds1 number*/*ds0 number* • POTS endpoint: **aaln**/*slot*/*subunit*/*port*

Command Default

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced on the Cisco AS5300 access server in a private release that was not generally available.
12.0(7)XK	Support for this command was extended to the Cisco MC3810 and the Cisco 3600 series routers (except for the Cisco 3620 router). Also, the **endpoint** keyword was added.

Examples

The following example shows a debug trace for SGCP events on a specific endpoint:

```
Router# debug sgcp events endpoint DS1-0/1
End point name for event debug:DS1-0/1 (1)
```

```
00:08:54:DS1 = 0, DS0 = 1
00:08:54:Call record found
00:08:54:Enable event end point debug for (DS1-0/1)
```

The following example shows a debug trace for all SGCP events on a gateway:

```
Router# debug sgcp events
*Mar  1 01:13:31.035:callp :19196BC, state :0, call ID :-1, event :23
*Mar  1 01:13:31.035:voice_if->call_agent_ipaddr used as Notify entityNotify entity available
 for Tx SGCP msg
NTFY send to ipaddr=1092E01 port=2427
*Mar  1 01:13:31.039:Push msg into SGCP wait ack queue* (1)[25]
*Mar  1 01:13:31.039:Timed Out interval [1]:(2000)
*Mar  1 01:13:31.039:Timed Out interval [1]:(2000)(0):E[25]
*Mar  1 01:13:31.075:Removing msg :
NTFY 25 ds1-1/13@mc1 SGCP 1.1
X:358258758
O:hd
*Mar  1 01:13:31.075:Unqueue msg from SGCP wait ack q** (0)[25]DS1 = 1, DS0 = 13
*Mar  1 01:13:31.091:callp :19196BC, vdbptr :1964EEC, state :1
*Mar  1 01:13:31.091:Checking ack (trans ID 237740140) :
*Mar  1 01:13:31.091:is_capability_ok:caps.codec=5, caps.pkt=10, caps.nt=8
*Mar  1 01:13:31.091:is_capability_ok:supported signal=0x426C079C, signal2=0x80003,
                        event=0x6003421F, event2=0x3FD
requested signal=0x0, signal2=0x0,
                        event=0x20000004, event2=0xC
*Mar  1 01:13:31.091:Same digit map is download (ds1-1/13@mc1)
*Mar  1 01:13:31.091:R:requested trans_id (237740140)
*Mar  1 01:13:31.091:process_signal_ev:seizure possible=1, signal mask=0x4, mask2=0x0
*Mar  1 01:13:32.405:SGCP Session Appl:ignore CCAPI event 10
*Mar  1 01:13:32.489:callp :19196BC, state :1, call ID :16, event :9
*Mar  1 01:13:32.610:SGCP Session Appl:ignore CCAPI event 10
*Mar  1 01:13:32.670:callp :19196BC, state :1, call ID :16, event :9
*Mar  1 01:13:32.766:SGCP Session Appl:ignore CCAPI event 10
*Mar  1 01:13:32.810:callp :19196BC, state :1, call ID :16, event :9
*Mar  1 01:13:32.931:SGCP Session Appl:ignore CCAPI event 10
*Mar  1 01:13:32.967:callp :19196BC, state :1, call ID :16, event :9
*Mar  1 01:13:33.087:SGCP Session Appl:ignore CCAPI event 10
*Mar  1 01:13:33.132:callp :19196BC, state :1, call ID :16, event :9
*Mar  1 01:13:33.240:SGCP Session Appl:ignore CCAPI event 10
*Mar  1 01:13:33.280:callp :19196BC, state :1, call ID :16, event :9
*Mar  1 01:13:33.389:SGCP Session Appl:ignore CCAPI event 10
*Mar  1 01:13:33.433:callp :19196BC, state :1, call ID :16, event :9
*Mar  1 01:13:33.537:SGCP Session Appl:ignore CCAPI event 10
*Mar  1 01:13:33.581:callp :19196BC, state :1, call ID :16, event :9
*Mar  1 01:13:33.702:SGCP Session Appl:ignore CCAPI event 10
*Mar  1 01:13:33.742:callp :19196BC, state :1, call ID :16, event :9
*Mar  1 01:13:33.742:voice_if->call_agent_ipaddr used as Notify entityNotify entity available
 for Tx SGCP msg
NTFY send to ipaddr=1092E01 port=2427
*Mar  1 01:13:33.742:Push msg into SGCP wait ack queue* (1)[26]
*Mar  1 01:13:33.742:Timed Out interval [1]:(2000)
*Mar  1 01:13:33.742:Timed Out interval [1]:(2000)(0):E[26]
*Mar  1 01:13:33.786:Removing msg :
NTFY 26 ds1-1/13@mc1 SGCP 1.1
X:440842371
O:k0, 4081037, s0
*Mar  1 01:13:33.786:Unqueue msg from SGCP wait ack q** (0)[26]DS1 = 1, DS0 = 13
*Mar  1 01:13:33.802:callp :19196BC, vdbptr :1964EEC, state :1
*Mar  1 01:13:33.802:Checking ack (trans ID 698549528) :
*Mar  1 01:13:33.802:is_capability_ok:caps.codec=5, caps.pkt=10, caps.nt=8
*Mar  1 01:13:33.802:is_capability_ok:supported signal=0x426C079C, signal2=0x80003,
                        event=0x6003421F, event2=0x3FD
requested signal=0x0, signal2=0x0,
                        event=0x4, event2=0x0
*Mar  1 01:13:33.802:R:requested trans_id (698549528)
*Mar  1 01:13:33.802:set_up_voip_call_leg:peer_addr=0, peer_port=0.
*Mar  1 01:13:33.806:call_setting_crcx:Enter CallProceeding state rc = 0, call_id=16
*Mar  1 01:13:33.806:callp :19196BC, state :4, call ID :16, event :31
*Mar  1 01:13:33.810:callp :1AF5798, state :2, call ID :17, event :8
call_pre_bridge!
*Mar  1 01:13:33.810:send_oc_create_ack:seizure_possiblle=1, ack-lready-sent=0, ack_send=0
*Mar  1 01:13:33.814:callp :1AF5798, state :4, call ID :17, event :28
```

```
*Mar  1 01:13:33.814:Call Connect:Raw Msg ptr=0x1995360, no-offhook=0; call-id=17
*Mar  1 01:13:33.814:SGCP Session Appl:ignore CCAPI event 37
*Mar  1 01:13:33.947:callp :19196BC, state :5, call ID :16, event :32
process_nse_on_orig
DS1 = 1, DS0 = 13
*Mar  1 01:13:34.007:callp :19196BC, vdbptr :1964EEC, state :5
*Mar  1 01:13:34.007:Checking ack (trans ID 123764791) :
*Mar  1 01:13:34.007:is_capability_ok:caps.codec=5, caps.pkt=10, caps.nt=8
*Mar  1 01:13:34.007:is_capability_ok:supported signal=0x426C079C, signal2=0x80003,
                        event=0x6003421F, event2=0x3FD
requested signal=0x0, signal2=0x0,
                        event=0x4, event2=0x0
*Mar  1 01:13:34.007:R:requested trans_id (123764791)
*Mar  1 01:13:34.007:process_signal_ev:seizure possible=1, signal mask=0x0, mask2=0x0
*Mar  1 01:13:34.007:modify_connection:echo_cancel=1.
*Mar  1 01:13:34.007:modify_connection:vad=0.
*Mar  1 01:13:34.007:modify_connection:peer_addr=6000001, peer_port=0->16500.
*Mar  1 01:13:34.007:modify_connection:conn_mode=2.
*Mar  1 01:13:34.011:callp :19196BC, state :5, call ID :16, event :31
*Mar  1 01:13:34.011:callp :1AF5798, state :5, call ID :17, event :31
process_nse_event
*Mar  1 01:13:34.051:callp :19196BC, state :5, call ID :16, event :39
*Mar  1 01:13:34.051:call_id=16, ignore_ccapi_ev:ignore 19 for state 5
DS1 = 1, DS0 = 13
*Mar  1 01:13:39.497:callp :19196BC, vdbptr :1964EEC, state :5
*Mar  1 01:13:39.497:Checking ack (trans ID 553892443) :
*Mar  1 01:13:39.497:is_capability_ok:caps.codec=5, caps.pkt=10, caps.nt=8
*Mar  1 01:13:39.497:is_capability_ok:supported signal=0x426C079C, signal2=0x80003,
                        event=0x6003421F, event2=0x3FD
requested signal=0x8, signal2=0x0,
                        event=0x4, event2=0x0
*Mar  1 01:13:39.497:R:requested trans_id (553892443)
*Mar  1 01:13:39.497:process_signal_ev:seizure possible=1, signal mask=0x0, mask2=0x0
*Mar  1 01:13:39.497:modify_connection:echo_cancel=1.
*Mar  1 01:13:39.497:modify_connection:vad=0.
*Mar  1 01:13:39.497:modify_connection:peer_addr=6000001, peer_port=16500->16500.
*Mar  1 01:13:39.497:modify_connection:conn_mode=3.
*Mar  1 01:13:39.497:callp :19196BC, state :5, call ID :16, event :31
*Mar  1 01:13:39.501:callp :1AF5798, state :5, call ID :17, event :31
*Mar  1 01:14:01.168:Removing ack (trans ID 237740140) :
 200 237740140 OK
*Mar  1 01:14:03.883:Removing ack (trans ID 698549528) :
 200 698549528 OK
I:7
v=0
c=IN IP4 5.0.0.1
m=audio 16400 RTP/AVP 0
*Mar  1 01:14:04.087:Removing ack (trans ID 123764791) :
 200 123764791 OK
I:7
v=0
c=IN IP4 5.0.0.1
m=audio 16400 RTP/AVP 0
*Mar  1 01:14:09.573:Removing ack (trans ID 553892443) :
 200 553892443 OK
I:7
v=0
c=IN IP4 5.0.0.1
m=audio 16400 RTP/AVP 0
*Mar  1 01:14:48.091:callp :19196BC, state :5, call ID :16, event :12
*Mar  1 01:14:48.091:voice_if->call_agent_ipaddr used as Notify entityNotify entity available
 for Tx SGCP msg
NTFY send to ipaddr=1092E01 port=2427
*Mar  1 01:14:48.091:Push msg into SGCP wait ack queue* (1)[27]
*Mar  1 01:14:48.091:Timed Out interval [1]:(2000)
*Mar  1 01:14:48.091:Timed Out interval [1]:(2000)(0):E[27]
*Mar  1 01:14:48.128:Removing msg :
NTFY 27 ds1-1/13@mc1 SGCP 1.1
X:97849341
O:hu
*Mar  1 01:14:48.128:Unqueue msg from SGCP wait ack q** (0)[27]DS1 = 1, DS0 = 13
*Mar  1 01:14:48.212:callp :19196BC, vdbptr :1964EEC, state :5
*Mar  1 01:14:48.212:Checking ack (trans ID 79307869) :
```

```
*Mar  1 01:14:48.212:is_capability_ok:caps.codec=5, caps.pkt=10, caps.nt=8
*Mar  1 01:14:48.212:is_capability_ok:supported signal=0x426C079C, signal2=0x80003,
                       event=0x6003421F, event2=0x3FD
requested signal=0x4, signal2=0x0,
                       event=0x0, event2=0x0
*Mar  1 01:14:48.212:delete_call:callp:19196BC, call ID:16
*Mar  1 01:14:48.212:sgcp delete_call:Setting disconnect_by_dlcx to 1
*Mar  1 01:14:48.216:callp :1AF5798, state :6, call ID :17, event :29
*Mar  1 01:14:48.216:Call disconnect:Raw Msg ptr = 0x0, call-id=17
*Mar  1 01:14:48.216:disconnect_call_leg O.K. call_id=17
*Mar  1 01:14:48.216:SGCP:Call disconnect:No need to send onhook
*Mar  1 01:14:48.216:Call disconnect:Raw Msg ptr = 0x19953B0, call-id=16
*Mar  1 01:14:48.216:disconnect_call_leg O.K. call_id=16
*Mar  1 01:14:48.220:callp :1AF5798, state :7, call ID :17, event :13
*Mar  1 01:14:48.220:Processing DLCX signal request :4, 0, 0
*Mar  1 01:14:48.220:call_disconnected:call_id=17, peer 16 is not idle yet.DS1 = 1, DS0 =
13
*Mar  1 01:14:48.272:callp :19196BC, vdbptr :1964EEC, state :7
*Mar  1 01:14:48.272:Checking ack (trans ID 75540355) :
*Mar  1 01:14:48.272:is_capability_ok:caps.codec=5, caps.pkt=10, caps.nt=8
*Mar  1 01:14:48.272:is_capability_ok:supported signal=0x426C079C, signal2=0x80003,
                       event=0x6003421F, event2=0x3FD
requested signal=0x0, signal2=0x0,
                       event=0x8, event2=0x0
*Mar  1 01:14:48.272:R:requested trans_id (75540355)
*Mar  1 01:14:48.272:process_signal_ev:seizure possible=1, signal mask=0x4, mask2=0x0
*Mar  1 01:14:49.043:callp :19196BC, state :7, call ID :16, event :27
*Mar  1 01:14:49.043:process_call_feature:Onhook event
*Mar  1 01:14:49.043:callp :19196BC, state :7, call ID :16, event :13
*Mar  1 01:15:18.288:Removing ack (trans ID 79307869) :
 250 79307869 OK
*Mar  1 01:15:18.344:Removing ack (trans ID 75540355) :
 200 75540355 OK
```

Related Commands

Command	Description
debug rtpspi all	Debugs all RTP SPI errors, sessions, and in/out functions.
debug rtpspi errors	Debugs RTP SPI errors.
debug rtpspi inout	Debugs RTP SPI in/out functions.
debug rtpspi send-nse	Triggers the RTP SPI to send a triple redundant NSE.
debug sgcp errors	Debugs SGCP errors.
debug sgcp packet	Debugs SGCP packets.
debug vtsp send-nse	Sends and debugs a triple redundant NSE from the DSP to a remote gateway.

debug sgcp packet

To debug the Simple Gateway Control Protocol (SGCP), use the **debug sgcp packet** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug sgcp packet [**endpoint** *string*]

no debug sgcp packet

Syntax Description

endpoint *string*	(Optional) Specifies the endpoint string if you want to debug SGCP errors for a specific endpoint. On the Cisco MC3810, the endpoint string syntax takes the following forms: • DS1 endpoint: **DS1 -***slot* /*port* • POTS endpoint: **aaln**/*slot* /*port* On the Cisco 3600, the endpoint string syntax takes the following forms: • DS1 endpoint: *slot* /*subunit* /**DS1 -***ds1number* /*ds0number* • POTS endpoint: **aaln**/*slot* /*subunit* /*port*

Command Default

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced on the Cisco AS5300 in a private release that was not generally available.
12.0(7)XK	Support for this command was extended to the Cisco MC3810 and the Cisco 3600 series routers (except for the Cisco 3620). Also, the **endpoint** keyword was added.

Examples

The following example shows a debug trace for SGCP packets on a specific endpoint:

```
Router# debug sgcp packet endpoint DS1-0/1 End point name for packet debug:DS1-0/1 (1)
```

```
00:08:14:DS1 = 0, DS0 = 1
00:08:14:Enable packet end point debug for (DS1-0/1)
```

The following example shows a debug trace for all SGCP packets on a gateway:

```
Router# debug sgcp packet
*Mar  1 01:07:45.204:SUCCESS:Request ID string building is OK
*Mar  1 01:07:45.204:SUCCESS:Building SGCP Parameter lines is OK
*Mar  1 01:07:45.204:SUCCESS:SGCP message building OK
*Mar  1 01:07:45.204:SUCCESS:END of building
*Mar  1 01:07:45.204:SGCP Packet sent --->
NTFY 22 ds1-1/13@mc1 SGCP 1.1
X:550092018
O:hd
<---
*Mar  1 01:07:45.204:NTFY Packet sent successfully.
*Mar  1 01:07:45.240:Packet received -
200 22
*Mar  1 01:07:45.244:SUCCESS:SGCP Header parsing was OK
*Mar  1 01:07:45.244:SUCCESS:END of Parsing
*Mar  1 01:07:45.256:Packet received -
RQNT 180932866 ds1-1/13@mc1 SGCP 1.1
X:362716780
R:hu,k0(A),s0(N),[0-9T](A) (D)
D:(9xx|xxxxxxx)
*Mar  1 01:07:45.256:SUCCESS:SGCP Header parsing was OK
*Mar  1 01:07:45.256:SUCCESS:Request ID string(362716780) parsing is OK
*Mar  1 01:07:45.260:SUCCESS:Requested Event parsing is OK
*Mar  1 01:07:45.260:SUCCESS:Digit Map parsing is OK
*Mar  1 01:07:45.260:SUCCESS:END of Parsing
*Mar  1 01:07:45.260:SUCCESS:SGCP message building OK
*Mar  1 01:07:45.260:SUCCESS:END of building
*Mar  1 01:07:45.260:SGCP Packet sent --->
200 180932866 OK
<---
*Mar  1 01:07:47.915:SUCCESS:Request ID string building is OK
*Mar  1 01:07:47.915:SUCCESS:Building SGCP Parameter lines is OK
*Mar  1 01:07:47.919:SUCCESS:SGCP message building OK
*Mar  1 01:07:47.919:SUCCESS:END of building
*Mar  1 01:07:47.919:SGCP Packet sent --->
NTFY 23 ds1-1/13@mc1 SGCP 1.1
X:362716780
O:k0, 4081037, s0
<---
*Mar  1 01:07:47.919:NTFY Packet sent successfully.
*Mar  1 01:07:47.955:Packet received -
200 23
*Mar  1 01:07:47.955:SUCCESS:SGCP Header parsing was OK
*Mar  1 01:07:47.955:SUCCESS:END of Parsing
*Mar  1 01:07:47.971:Packet received -
CRCX 938694984 ds1-1/13@mc1 SGCP 1.1
M:recvonly
L:p:10,e:on,s:off, a:G.711u
R:hu
C:6
*Mar  1 01:07:47.971:SUCCESS:SGCP Header parsing was OK
*Mar  1 01:07:47.971:SUCCESS:Connection Mode parsing is OK
*Mar  1 01:07:47.971:SUCCESS:Packet period parsing is OK
*Mar  1 01:07:47.971:SUCCESS:Echo Cancellation parsing is OK
*Mar  1 01:07:47.971:SUCCESS:Silence Supression parsing is OK
*Mar  1 01:07:47.971:SUCCESS:CODEC strings parsing is OK
*Mar  1 01:07:47.971:SUCCESS:Local Connection option parsing is OK
*Mar  1 01:07:47.971:SUCCESS:Requested Event parsing is OK
*Mar  1 01:07:47.975:SUCCESS:Call ID string(6) parsing is OK
*Mar  1 01:07:47.975:SUCCESS:END of Parsing
*Mar  1 01:07:47.979:SUCCESS:Conn ID string building is OK
*Mar  1 01:07:47.979:SUCCESS:Building SGCP Parameter lines is OK
*Mar  1 01:07:47.979:SUCCESS:SGCP message building OK
*Mar  1 01:07:47.979:SUCCESS:END of building
*Mar  1 01:07:47.979:SGCP Packet sent --->
200 938694984 OK
I:6
v=0
```

```
c=IN IP4 5.0.0.1
m=audio 16538 RTP/AVP 0
<---
*Mar  1 01:07:48.188:Packet received -
MDCX 779665338 ds1-1/13@mc1 SGCP 1.1
I:6
M:recvonly
L:p:10,e:on,s:off,a:G.711u
R:hu
C:6
v=0
c=IN IP4 6.0.0.1
m=audio 16392 RTP/AVP 0
*Mar  1 01:07:48.188:SUCCESS:SGCP Header parsing was OK
*Mar  1 01:07:48.188:SUCCESS:Conn ID string(6) parsing is OK
*Mar  1 01:07:48.192:SUCCESS:Connection Mode parsing is OK
*Mar  1 01:07:48.192:SUCCESS:Packet period parsing is OK
*Mar  1 01:07:48.192:SUCCESS:Echo Cancellation parsing is OK
*Mar  1 01:07:48.192:SUCCESS:Silence Supression parsing is OK
*Mar  1 01:07:48.192:SUCCESS:CODEC strings parsing is OK
*Mar  1 01:07:48.192:SUCCESS:Local Connection option parsing is OK
*Mar  1 01:07:48.192:SUCCESS:Requested Event parsing is OK
*Mar  1 01:07:48.192:SUCCESS:Call ID string(6) parsing is OK
*Mar  1 01:07:48.192:SUCCESS:SDP Protocol version parsing OK
*Mar  1 01:07:48.192:SUCCESS:SDP Conn Data OK
*Mar  1 01:07:48.192:SUCCESS:END of Parsing
*Mar  1 01:07:48.200:SUCCESS:Conn ID string building is OK
*Mar  1 01:07:48.200:SUCCESS:Building SGCP Parameter lines is OK
*Mar  1 01:07:48.200:SUCCESS:SGCP message building OK
*Mar  1 01:07:48.200:SUCCESS:END of building
*Mar  1 01:07:48.200:SGCP Packet sent --->
200 779665338 OK
I:6
v=0
c=IN IP4 5.0.0.1
m=audio 16538 RTP/AVP 0
<---
*Mar  1 01:07:53.674:Packet received -
MDCX 177780432 ds1-1/13@mc1 SGCP 1.1
I:6
M:sendrecv
X:519556004
L:p:10,e:on, s:off,a:G.711u
C:6
R:hu
S:hd
v=0
c=IN IP4 6.0.0.1
m=audio 16392 RTP/AVP 0
*Mar  1 01:07:53.674:SUCCESS:SGCP Header parsing was OK
*Mar  1 01:07:53.674:SUCCESS:Conn ID string(6) parsing is OK
*Mar  1 01:07:53.674:SUCCESS:Connection Mode parsing is OK
*Mar  1 01:07:53.674:SUCCESS:Request ID string(519556004) parsing is OK
*Mar  1 01:07:53.678:SUCCESS:Packet period parsing is OK
*Mar  1 01:07:53.678:SUCCESS:Echo Cancellation parsing is OK
*Mar  1 01:07:53.678:SUCCESS:Silence Supression parsing is OK
*Mar  1 01:07:53.678:SUCCESS:CODEC strings parsing is OK
*Mar  1 01:07:53.678:SUCCESS:Local Connection option parsing is OK
*Mar  1 01:07:53.678:SUCCESS:Call ID string(6) parsing is OK
*Mar  1 01:07:53.678:SUCCESS:Requested Event parsing is OK
*Mar  1 01:07:53.678:SUCCESS:Signal Requests parsing is OK
*Mar  1 01:07:53.678:SUCCESS:SDP Protocol version parsing OK
*Mar  1 01:07:53.678:SUCCESS:SDP Conn Data OK
*Mar  1 01:07:53.678:SUCCESS:END of Parsing
*Mar  1 01:07:53.682:SUCCESS:Conn ID string building is OK
*Mar  1 01:07:53.682:SUCCESS:Building SGCP Parameter lines is OK
*Mar  1 01:07:53.682:SUCCESS:SGCP message building OK
*Mar  1 01:07:53.682:SUCCESS:END of building
*Mar  1 01:07:53.682:SGCP Packet sent --->
200 177780432 OK
I:6
v=0
c=IN IP4 5.0.0.1
```

```
m=audio 16538 RTP/AVP 0
<---
*Mar  1 01:09:02.401:SUCCESS:Request ID string building is OK
*Mar  1 01:09:02.401:SUCCESS:Building SGCP Parameter lines is OK
*Mar  1 01:09:02.401:SUCCESS:SGCP message building OK
*Mar  1 01:09:02.401:SUCCESS:END of building
*Mar  1 01:09:02.401:SGCP Packet sent --->
NTFY 24 ds1-1/13@mc1 SGCP 1.1
X:519556004
O:hu
<---
*Mar  1 01:09:02.401:NTFY Packet sent successfully.
*Mar  1 01:09:02.437:Packet received -
200 24
*Mar  1 01:09:02.441:SUCCESS:SGCP Header parsing was OK
*Mar  1 01:09:02.441:SUCCESS:END of Parsing
*Mar  1 01:09:02.541:Packet received -
DLCX 865375036 ds1-1/13@mc1 SGCP 1.1
C:6
S:hu
*Mar  1 01:09:02.541:SUCCESS:SGCP Header parsing was OK
*Mar  1 01:09:02.541:SUCCESS:Call ID string(6) parsing is OK
*Mar  1 01:09:02.541:SUCCESS:Signal Requests parsing is OK
*Mar  1 01:09:02.541:SUCCESS:END of Parsing
*Mar  1 01:09:02.545:SUCCESS:SGCP message building OK
*Mar  1 01:09:02.545:SUCCESS:END of building
*Mar  1 01:09:02.545:SGCP Packet sent --->
250 865375036 OK
<---
*Mar  1 01:09:02.577:Packet received -
RQNT 254959796 ds1-1/13@mc1 SGCP 1.1
X:358258758
R:hd
*Mar  1 01:09:02.577:SUCCESS:SGCP Header parsing was OK
*Mar  1 01:09:02.577:SUCCESS:Request ID string(358258758) parsing is OK
*Mar  1 01:09:02.577:SUCCESS:Requested Event parsing is OK
*Mar  1 01:09:02.581:SUCCESS:END of Parsing
*Mar  1 01:09:02.581:SUCCESS:SGCP message building OK
*Mar  1 01:09:02.581:SUCCESS:END of building
*Mar  1 01:09:02.581:SGCP Packet sent --->
200 254959796 OK
```

Related Commands

Command	Description
debug rtpspi all	Debugs all RTP SPI errors, sessions, and in/out functions.
debug rtpspi errors	Debugs RTP SPI errors.
debug rtpspi inout	Debugs RTP SPI in/out functions.
debug rtpspi send-nse	Triggers the RTP SPI to send a triple redundant NSE.
debug sgcp errors	Debugs SGCP errors.
debug sgcp events	Debugs SGCP events.
debug vtsp send-nse	Sends and debugs a triple redundant NSE from the DSP to a remote gateway.

debug shared-line

To display debugging information about SIP shared lines, use the **debug shared-line**command in privileged EXEC mode. To disable debugging messages, use the **no** form of this command.

debug shared-line {**all**| **errors**| **events**| **info**}

no debug shared-line {**all**| **errors**| **events**| **info**}

Syntax Description

all	Displays all shared-line debugging messages.
errors	Displays shared-line error messages.
events	Displays shared-line event messages.
info	Displays general information about shared lines.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(22)YB	This command was introduced.
12.4(24)T	This command was integrated into Cisco IOS Release 12.4(24)T.

Examples

The following example shows output from the **debug shared-line all** command:

```
Router# debug shared-line all

Aug 21 21:56:56.949: //Shared-Line/EVENT/shrl_validate_newcall_outgoing:Outgoing call
validation request from AFW for  user = 20143, usrContainer = 4A7CFBDC
.Aug 21 21:56:56.949: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20143'
.Aug 21 21:56:56.949: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry not found for dn '20143'
.Aug 21 21:56:56.949: //Shared-Line/INFO/shrl_find_ccb_by_demote_dn:Demoted dn: 20143
.Aug 21 21:56:56.949: //Shared-Line/INFO/shrl_validate_newcall_outgoing:User '20143' doesn't
 exist in Shared-Line table
.Aug 21 21:56:56.957: //Shared-Line/EVENT/shrl_validate_newcall_incoming:Incominging call
validation request from AFW for user = 20141
.Aug 21 21:56:56.957: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20141'
.Aug 21 21:56:56.957: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry found [ccb = 4742EAD4]
for dn '20141'
.Aug 21 21:56:56.957: //Shared-Line/INFO/shrl_validate_newcall_incoming:User '20141' found:
 ccb = 4742EAD4, mem_count = 2
.Aug 21 21:56:56.957: //Shared-Line/EVENT/shrl_validate_newcall_incoming:Obtained call
instance inst: 0 for incoming call, incoming leg (peer_callid): 5399)
.Aug 21 21:56:56.957: //Shared-Line/INFO/shrl_update_barge_calltype:Updating shared-line
call -1 with calltype = 1
```

```
.Aug 21 21:56:56.961: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20141'
.Aug 21 21:56:56.961: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry found [ccb = 4742EAD4]
for dn '20141'
.Aug 21 21:56:56.961: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20141'
.Aug 21 21:56:56.961: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry found [ccb = 4742EAD4]
for dn '20141'
.Aug 21 21:57:01.689: %IPPHONE-6-REG_ALARM: 24: Name=SEP00141C48E126 Load=8.0(5.0)
Last=Phone-Reg-Rej
.Aug 21 21:57:04.261: //Shared-Line/EVENT/shrl_app_event_notify_handler:Event notification
 received: event = 9, callID = 5401, dn = 20141
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20141'
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry found [ccb = 4742EAD4]
for dn '20141'
.Aug 21 21:57:04.261: //Shared-Line/EVENT/shrl_process_connect:called with state = 3, callID
 = 5401, peer callID = 5399, dn = 20141, usrContainer = 4A7CACA4
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_connect_upd_callinfo:Parsed To: 20141@15.6.0.2,
 to-tag: 2ed5b927-6ad6
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_connect_upd_callinfo:Parsed Contact:
20141@15.6.0.2 for sipCallId: E8583537-6F0211DD-96A69BA1-1228BEFB@15.10.0.1
.Aug 21 21:57:04.261: //Shared-Line/EVENT/shrl_connect_upd_callinfo:Obtained call instance
 inst: 0
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_connect_upd_callinfo:CONNECT from shared line
 for incoming shared-line call.
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_find_peer_by_ipaddr:Trying to match peer for
 member 20141@15.6.0.2
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_find_peer_by_ipaddr:Matching peer [40002]
session target parsed = 15.6.0.2
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_connect_upd_callinfo:Matching member found:
20141@15.6.0.2
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_update_remote_name:Updating shared-line call
 dialog info 5401

.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_process_connect:Updated callinfo for callid:
 5401, member: '20141@15.6.0.2', peer-tag: 40002
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_process_connect:Notify remote users about
CALL-CONNECT.
.Aug 21 21:57:04.261: //Shared-Line/EVENT/shrl_send_dialog_notify:Sending NOTIFY to remote
 user:  20141@15.6.0.1
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_send_dialog_notify:Sending NOTIFY to remote
user:  20141@15.6.0.1 about state 3 on incoming call from 20141@15.6.0.2 privacy OFF
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_send_dialog_notify:Dialog msg: dir: 1, orient:
 2, local_tag: 2ed5b927-6ad6, remote_tag: 89DCF0-139B, local_uri: 20141@15.6.0.2, remote_uri:
 20143@15.10.0.1
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_send_dialog_notify:Dialog notify sent
successfully
.Aug 21 21:57:04.261: //Shared-Line/INFO/shrl_process_connect:Shared-Line '20141':
Successfully sent notify for callid: 5401
.Aug 21 21:57:04.265: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20141'
.Aug 21 21:57:04.265: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry found [ccb = 4742EAD4]
for dn '20141'
.Aug 21 21:57:04.265: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20143'
.Aug 21 21:57:04.265: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry not found for dn '20143'
.Aug 21 21:57:04.269: //Shared-Line/INFO/shrl_find_ccb_by_demote_dn:Demoted dn: 20143
.Aug 21 21:57:04.269: //Shared-Line/INFO/shrl_update_totag:Shared-Line not enabled for
'20143'
.Aug 21 21:57:04.269: //Shared-Line/EVENT/shrl_app_event_notify_handler:Event notification
 received: event = 21, callID = 5401, dn = 20141
.Aug 21 21:57:04.269: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20141'
.Aug 21 21:57:04.269: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry found [ccb = 4742EAD4]
for dn '20141'
.Aug 21 21:57:04.269: //Shared-Line/EVENT/shrl_process_callerid_update:called with state =
 7, callID = 5401, peer callID = 5399, dn = 20141
.Aug 21 21:57:04.269: //Shared-Line/INFO/shrl_process_callerid_update:Updated callinfo for
 callid: 5401, member: '20141@15.6.0.2', peer-tag: 40002
.Aug 21 21:57:04.269: //Shared-Line/EVENT/shrl_is_outbound:Check for shared line call type
 callid 5401for user = 20141
.Aug 21 21:57:04.269: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
```

```
for dn '20141'
.Aug 21 21:57:04.269: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry found [ccb = 4742EAD4]
for dn '20141'
.Aug 21 21:57:04.269: //Shared-Line/EVENT/shrl_barge_type:Check for shared line call type
callid 5401for user = 20141
.Aug 21 21:57:04.269: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20141'
.Aug 21 21:57:04.269: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry found [ccb = 4742EAD4]
for dn '20141'
.Aug 21 21:57:04.273: //Shared-Line/INFO/shrl_find_ccb_by_dn:Searching Shared-Line table
for dn '20141'
.Aug 21 21:57:04.273: //Shared-Line/INFO/shrl_find_ccb_by_dn:Entry found [ccb = 4742EAD4]
for dn '20141'
.Aug 21 21:57:04.281: //Shared-Line/EVENT/shrl_notify_done_handler:NOTIFY_DONE received for
 subID: 5 respCode: 17
.Aug 21 21:57:04.281: //Shared-Line/INFO/shrl_find_ccb_by_subid:Search ccb for subid: 5
.Aug 21 21:57:04.281: //Shared-Line/INFO/shrl_find_ccb_by_subid:Found the entry ccb: 4742EAD4
 member: 20141@15.6.0.1
.Aug 21 21:57:04.281: //Shared-Line/INFO/shrl_free_spi_respinfo:Free ASNL resp info for
subID = 5
```

Related Commands

Command	Description
shared-line	Creates a directory number to be shared by multiple SIP phones.
show shared-line	Displays information about active calls using SIP shared lines.

debug smrp all

To display information about Simple Multicast Routing Protocol (SMRP) activity, use the **debug smrp all**privileged EXEC command. The **no** form of this command disables debugging output.

debug smrp all

no debug smrp all

Syntax Description

This command has no arguments or keywords.

Command History

10.0	This command was introduced.
12.2(13)T	This command is no longer supported in Cisco IOS Mainline releases or in Technology-based (T-train) releases. It might continue to appear in 12.2S-family releases.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

Because the **debug smrp all** command displays all SMRP debugging output, it is processor intensive and should not be enabled when memory is scarce or in very high traffic situations.

For general debugging, use the **debug smrp all** command and turn off excessive transactions with the **no debug smrp transaction** command. This combination of commands will display various state changes and events without displaying every transaction packet. For debugging a specific feature such as a routing problem, use the **debug smrp route** and **debug smrp transaction** commandsto learn if packets are sent and received and which specific routes are affected. The **show smrp traffic** EXEC command is highly recommended as a troubleshooting method because it displays the SMRP counters.

For examples of the type of output you may see, refer to each of the commands listed in the “Related Commands” section.

Related Commands

Command	Description
debug smrp group	Displays information about SMRP group activity.
debug smrp mcache	Displays information about SMRP multicast fast-switching cache entries.
debug smrp neighbor	Displays information about SMRP neighbor activity.
debug smrp port	Displays information about SMRP port activity.

Command	Description
debug smrp route	Displays information about SMRP routing activity.
debug smrp transaction	Displays information about SMRP transactions.

debug smrp group

To display information about SMRP group activity, use the **debug smrp group**privileged EXEC command. The **no** form of this command disables debugging output.

debug smrp group

no debug smrp group

Syntax Description

This command has no arguments or keywords.

Command History

10.0	This command was introduced.
12.2(13)T	This command is no longer supported in Cisco IOS Mainline releases or in Technology-based (T-train) releases. It might continue to appear in 12.2S-family releases.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

The **debug smrp group**command displays information when a group is created or deleted and when a forwarding entry for a group is created, changed, or deleted. For more information, refer to the **show smrp group** command described in the *Cisco IOS AppleTalk and Novell IPX Command Reference.*

Examples

The following is sample output from the **debug smrp group**command showing a port being created and deleted on group AT 20.34. (AT signifies that this is an AppleTalk network group.)

```
Router#
debug smrp group
SMRP: Group AT 20.34, created on port 20.1 by 20.2
SMRP: Group AT 20.34, deleted on port 20.1
```

The table below lists the messages that may be generated with the **debug smrp group** command concerning the forwarding table.

Table 13: debug smrp group Message Descriptions

Messages	Descriptions
Group <*address*>, deleted on port <*address*>	Group entry was deleted from the group table for the specified port.
Group <*address*>, forward state changed from *state* to *state*	State of the group changed. States are join, forward, and leave.

Messages	Descriptions
Group <*address*>, deleted forward entry	Group was deleted from the forwarding table.
Group <*address*>, created on port <*address*> by <*address*>	Group entry was created in the table for the specified port.
Group <*address*>, added by <*address*> to the group	Secondary router has added this group to its group table.
Group <*address*>, discard join request from <*address*>, not responsible	Discard Join Group request if the router is not the primary router on the local connected network or if it is not the port parent of the route.
Group <*address*>, join request from <*address*>	Request to join the group was received.
Group <*address*>, forward is found	Forward entry for the group was found in the forwarding table.
Group <*address*>, forward state is already joining, ignored	Request to join the group is in progress, so the second request was discarded.
Group <*address*>, no forward found	Forward entry for the group was not found in the forwarding table.
Group <*address*>, join request discarded, fw discarded, fwd parent port not operational	Request to join the group was discarded because the parent port is not available.
Group <*address*>, created forward entry - parent <*address*> child <*address*>	Forward entry was created in the forwarding table for the parent and child address.
Group <*address*>, creator no longer up on <*address*>	Group creator has not been heard from for a specified time and is deemed no longer available.
Group <*address*>, pruning duplicate path on <*address*>	Duplicate path was removed. If we are forwarding and we are a child port, and our port parent address is not pointing to our own port address, we are in a duplicate path.
Group <*address*>, member no longer up on <*address*>	Group member has not been heard from for a specified time and is deemed no longer available.
Group <*address*>, no more child ports in forward entry	Forward entry for group no longer has any child ports. As a result, the forward entry is no longer necessary.

Related Commands

Command	Description
debug sgbp dial-bids	Displays large-scale dial-out negotiations between the primary NAS and alternate NASs.

debug smrp mcache

To display information about SMRP multicast fast-switching cache entries, use the **debug smrp mcache**privileged EXEC command. The **no** form of this command disables debugging output.

debug smrp mcache

no debug smrp mcache

Syntax Description

This command has no arguments or keywords.

Command History

10.0	This command was introduced.
12.2(13)T	This command is no longer supported in Cisco IOS Mainline releases or in Technology-based (T-train) releases. It might continue to appear in 12.2S-family releases.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

Use the **show smrp mcache** EXEC command (described in the Cisco IOS AppleTalk and Novell IPX Command Reference to display the entries in the SMRP multicast cache, and use the **debug smrp mcache** command to learn whether the cache is being populated and invalidated.

Examples

The following is sample output from the **debug smrp mcache**command. In this example, the cache is created and populated for group AT 11.124. (AT signifies that this is an AppleTalk network group.)

```
Router#
debug smrp mcache
SMRP: Cache created
SMRP: Cache populated for group AT 11.124
        mac - 090007400b7c00000c1740d9
        net - 001fef7500000014ff020a0a0a
SMRP: Forward cache entry created for group AT 11.124
SMRP: Forward cache entry validated for group AT 11.124
SMRP: Forward cache entry invalidated for group AT 11.124
SMRP: Forward cache entry deleted for group AT 11.124
```

The table below lists all the messages that can be generated with the **debug smrp mcache** command concerning the multicast cache.

Table 14: debug smrp mcache Message Descriptions

Messages	Descriptions
Cache populated for group <*address*>	SMRP packet was received on a parent port that has fast switching enabled. As a result, the cache was created and the MAC and network headers were stored for all child ports that have fast switching enabled. Use the **show smrp port appletalk** EXEC command with the optional interface type and number to display the switching path.
Cache memory allocated	Memory was allocated for the multicast cache.
Forward cache entry created/deleted for group <*address*>	Forward cache entry for the group was added to or deleted from the cache.
Forward cache entry validated for group <*address*>	Forward cache entry is validated and is now ready for fast switching.
Forward cache entry invalidated for group <*address*>	Cache entry is invalidated because some change (such as port was shut down) occurred to one of the ports.

Related Commands

Command	Description
debug sgbp dial-bids	Displays large-scale dial-out negotiations between the primary NAS and alternate NASs.

debug smrp neighbor

To display information about SMRP neighbor activity, use the **debug smrp neighbor**privileged EXEC command. The **no** form of this command disables debugging output.

debug smrp neighbor

no debug smrp neighbor

Syntax Description

This command has no arguments or keywords.

Command History

10.0	This command was introduced.
12.2(13)T	This command is no longer supported in Cisco IOS Mainline releases or in Technology-based (T-train) releases. It might continue to appear in 12.2S-family releases.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

The **debug smrp neighbor**command displays information when a neighbor operating state changes. A neighbor is an adjacent router. For more information, refer to the **show smrp neighbor** EXEC command described in the *Cisco IOS AppleTalk and Novell IPX Command Reference.*

Examples

The following is sample output from the **debug smrp neighbor**command. In this example, the neighbor on port 30.02 has changed state from normal operation to secondary operation.

```
Router#
debug smrp neighbor
SMRP: Neighbor 30.2, state changed from “normal op” to “secondary op”
```

The table below lists all the messages that can be generated with the **debug smrp neighbor**command concerning the neighbor table.

Table 15: debug smrp neighbor Message Descriptions

Messages	Descriptions
Neighbor <*address*>, state changed from *state* to *state*	State of the neighbor changed. States are primary operation, secondary operation, normal operation, primary negotiation, secondary negotiation, and down.
Neighbor <*address*>, neighbor added/deleted	Neighbor was added to or removed from the neighbor table.

Messages	Descriptions
SMRP neighbor up/down	Neighbor is available for service or unavailable.
Neighbor <*address*>, no longer up	Neighbor is unavailable because it has not been heard from for a specified duration.

Related Commands

Command	Description
debug sgbp dial-bids	Displays large-scale dial-out negotiations between the primary NAS and alternate NASs.

debug smrp port

To display information about SMRP port activity, use the **debug smrp port**privileged EXEC command. The **no** form of this command disables debugging output.

debug smrp port

no debug smrp port

Syntax Description

This command has no arguments or keywords.

Command History

10.0	This command was introduced.
12.2(13)T	This command is no longer supported in Cisco IOS Mainline releases or in Technology-based (T-train) releases. It might continue to appear in 12.2S-family releases.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

The **debug smrp port**command displays information when a port operating state changes. For more information, refer to the **show smrp port** command described in the *Cisco IOS AppleTalk and Novell IPX Command Reference*.

Examples

The following is sample output from the **debug smrp port**command. In this example, port 30.1 has changed state from secondary negative to secondary operation to primary negative:

```
Router#
debug smrp port
SMRP: Port 30.1, state changed from "secondary neg" to "secondary op"
SMRP: Port 30.1, secondary router changed from 0.0 to 30.1
SMRP: Port 30.1, state changed from "secondary op" to "primary neg"
```

The table below lists all the messages that can be generated with the **debug smrp port**command concerning the port table.

Table 16: debug smrp port Message Descriptions

Messages	Descriptions
Port <*address*>, port created/deleted	Port entry was added to or removed from the port table.
Port <*address*>, line protocol changed to *state*	Line protocol for the port is up or down.

Messages	Descriptions
Port <*address*>, state changed from *state* to *state*	State of the port changed. States are primary operation, secondary operation, normal operation, primary negotiation, secondary negotiation, and down.
Port <*address*>, primary/secondary router changed from <*address*>to <*address*>	Primary or secondary port address of the router changed.

Related Commands

Command	Description
debug sgbp dial-bids	Displays large-scale dial-out negotiations between the primary NAS and alternate NASs.

debug smrp route

To display information about SMRP routing activity, use the **debug smrp route**privileged EXEC command. The **no** form of this command disables debugging output.

debug smrp route

no debug smrp route

Syntax Description

This command has no arguments or keywords.

Command History

10.0	This command was introduced.
12.2(13)T	This command is no longer supported in Cisco IOS Mainline releases or in Technology-based (T-train) releases. It might continue to appear in 12.2S-family releases.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

For more information, refer to the **show smrp route** EXEC command described in the *Cisco IOS AppleTalk and Novell IPX Command Reference.*

Examples

The following is sample output from the **debug smrp route**command. In this example, poison notification is received from port 30.2. Poison notification is the receipt of a poisoned route on a nonparent port.

```
Router#
debug smrp route
SMRP: Route AT 20-20, poison notification from 30.2
SMRP: Route AT 30-30, poison notification from 30.2
```

The table below lists all the messages that can be generated with the **debug smrp route**command concerning the routing table. In the table, the term *route* does not refer to an address but rather to a network range.

Table 17: debug smrp route Message Descriptions

Messages	Descriptions
Route address, deleted/created as local network	Route entry was removed from or added to the routing table.
Route address, from address has invalid distance value	Route entry from the specified address has an incorrect distance value and was ignored.

Messages	Descriptions
Route address, unknown route poisoned by address ignored	Route entry received from the specified address is bad and was ignored.
Route address, created via address - hop number tunnel number	New route entry added to the routing table with the specified number of hops and tunnels.
Route address, from address - overlaps existing route	Route entry received from the specified address overlaps an existing route and was ignored.
Route address, poisoned by address	Route entry has been poisoned by neighbor. Poisoned routes have distance of 255.
Route address, poison notification from address	Poisoned route is received from a nonparent port.
Route address, worsened by parent address	Distance to the route has worsened (become higher), received from the parent neighbor.
Route address, improved via address - number -> number hop, number-> number tunnel	Distance to the route has improved (become lower), received from a neighbor.
Route address, switched to address - higher address than address	Tie condition exists, and because this router had the highest network address, it was used to forward the packet.
Route address, parent port changed address -> address	Parent port address change occurred. The parent port address of a physical network segment determines which router should handle Join Group and Leave Group requests.
SMRP bad distance vector	Packet has an invalid distance vector and was ignored.
Route address, has been poisoned	Route has been poisoned. Poisoned routes are purged from the routing table after a specified time.

Related Commands

Command	Description
debug sgbp dial-bids	Displays large-scale dial-out negotiations between the primary NAS and alternate NASs.

debug smrp transaction

To display information about SMRP transactions, use the **debug smrp transaction**privileged EXEC command. The **no** form of this command disables debugging output.

debug smrp transaction

no debug smrp transaction

Syntax Description

This command has no arguments or keywords.

Examples

The following is sample output from the **debug smrp transaction**command. In this example, a secondary node request is sent out to all routers on port 30.1.

```
Router#
debug smrp transaction
SMRP: Transaction for port 30.1, secondary node request (seq 8435) sent to all routers
SMRP: Transaction for port 30.1, secondary node request (seq 8435) sent to all routers
SMRP: Transaction for port 30.1, secondary node request (seq 8435) sent to all routers
SMRP: Transaction for port 30.1, secondary node request (seq 8435) sent to all routers
```

The table below lists all the messages that can be generated with the **debug smrp route**command.

Table 18: debug smrp Transaction Message Descriptions

Messages	Descriptions
Transaction for port address, packet-type command-type (grp/sec number) sent to/received from address	Port message concerning a packet or command was sent to or received from the specified address.
Transaction for group address on port address, (seq number) sent to/received from address	Group message for a specified port was sent to or received from the specified address.
Unrecognized transaction for port address	Unrecognized message was received and ignored by the port.
Discarded incomplete request	Incomplete message was received and ignored.
Response in wrong state in HandleRequest	Message was received with the wrong state and was ignored.
SMRP bad packet type	SMRP packet was received with a bad packet type and was ignored.
Packet discarded, Bad Port ID	Packet was received with a bad port ID and was ignored.
Packet discarded, Check Packet failed	Packet was received with a failed check packet and was ignored.

Related Commands

Command	Description
debug sgbp dial-bids	Displays large-scale dial-out negotiations between the primary NAS and alternate NASs.

debug snasw dlc

To display frame information entering and leaving the Systems Network Architecture (SNA) switch in real time to the console, use the **debug snasw dlc** command in privileged EXEC mode.

debug snasw dlc detail

Syntax Description

detail	Indicates that in addition to a one-line description of the frame being displayed, an entire hexadecimal dump of the frame will follow.

Command Default

By default, a one-line description of the frame is displayed.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(6)T	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelin

Caution The **debug snasw dlc** command displays the same trace information available via the **snasw dlctrace** command. The **snasw dlctrace** command is the preferred method for gathering this trace information because it is written to a capture buffer instead of directly to the console. The **debug snasw dlc** command should only be used when it is certain that the output will not cause excessive data to be output to the console.

Examples

The following shows sample output from the **debug snasw dlc** command:

```
Router# debug snasw dlc
Sequence
Number              Size of ISR/
      Link          SNA BTU HPR  Description of frame
343   MVSD     In  sz:134  ISR fmh5 DLUR Rq ActPU NETA.APPNRA29
344   MVSD     Out sz:12   ISR +Rsp IPM     slctd nws:0008
345   @I000002 Out sz:18   ISR Rq ActPU
346   MVSD     Out sz:273  ISR fmh5 TOPOLOGY UPDATE
347   @I000002 In  sz:9    ISR +Rsp Data
348   @I000002 In  sz:12   ISR +Rsp IPM     slctd nws:0002
349   @I000002 In  sz:29   ISR +Rsp ActPU
350   MVSD     Out sz:115  ISR fmh5 DLUR +Rsp ActPU
```

```
351    MVSD     In  sz:12   ISR +Rsp IPM     slctd nws:0007
352    MVSD     In  sz:88   ISR fmh5 DLUR Rq ActLU NETA.MARTLU1
353    MVSD     Out sz:108  ISR fmh5 REGISTER
354    @I000002 Out sz:27   ISR Rq ActLU NETA.MARTLU1
```

Related Commands

Command	Description
snasw dlcfilter	Filters frames traced by the **snasw dlctrace** or **debug snasw dlc** command.
snasw dlctrace	Captures trace frames entering and leaving the SNA Switching Services feature.

debug snasw ips

To display internal signal information between the Systems Network Architecture (SNA) switch and the console in real time, use the **debug snasw ips**command in privileged EXEC mode.

debug snasw dlc

Syntax Description

This command has no arguments or keywords.

Command Default

By default, a one-line description of the interprocess signal is displayed.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(6)T	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelin

Caution The **debug snasw ips**command displays the same trace information available via the **snasw ipstrace** command. Output from this **debug** command can be large. The **snasw ipstrace**command is the preferred method for gathering this trace information because it is written to a capture buffer instead of directly to the console. The **debug snasw ips** command should only be used when it is certain that the output will not cause excessive data to be output to the console. The **debug snasw dlc** command displays the same trace information available via the **snasw dlctrace** command.

Examples

The following is an example of the **debug snasw ips** command output:

```
Router# debug snasw ips
Sequence
Number                 Sending     Receiving
       Signal Name     Process     Process    Queue
11257 : DEALLOCATE_RCB : --(0) -> RM(2130000) Q 4
11258 : RCB_DEALLOCATED : RM(2130000) -> PS(22E0000) Q 2
11259 : RCB_DEALLOCATED : --(0) -> PS(22E0000) Q 2
11260 : VERB_SIGNAL : PS(22E0000) -> DR(20F0000) Q 2
11261 : FREE_SESSION : --(0) -> RM(2130000) Q 2
11262 : BRACKET_FREED : RM(2130000) -> HS(22FB0001) Q 2
11263 : BRACKET_FREED : --(0) -> HS(22FB0001) Q 2
11264 : VERB_SIGNAL : --(0) -> DR(20F0000) Q 2
11265 : DLC_MU : DLC(2340000) -> PC(22DD0001) Q 2
11266 : DLC_MU : --(0) -> PC(22DD0001) Q 2
```

Related Commands

Command	Description
snasw ipstrace	Captures interprocess signal information between Switching Services components.

debug snmp bulkstat

To enable debugging messages for the Simple Network Management Protocol (SNMP) bulk statistics, use the **debug snmp bulkstat** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug snmp bulkstat

no debug snmp bulkstat

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.0(24)S	This command was introduced.
12.3(2)T	This command was integrated into Cisco IOS Release 12.3(2)T.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB.
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS Release XE 2.1.

Usage Guidelines

This command is intended primarily for Cisco support personnel. Debugging output for the Periodic MIB Data Collection and Transfer Mechanism (Bulk Statistics feature) includes messages for data collection, local file generation, and transfer attempts.

Examples

In the following example, debugging command output is enabled for the Periodic MIB Data Collection and Transfer Mechanism (Bulk Statistics feature). Note that the references to a VFile indicate a local bulk statistics file, usually followed by the filename. The filename uses the format *specified-filename _device-name* _date_time-stamp.

```
Router# debug snmp
00:17:38:BULKSTAT-DC:Poll timer fired for ifmib
00:17:38:BULKSTAT-DC:In pollDataGroup
00:17:38:BULKSTAT-DC:creating new file
vfile:IfMIB_objects_ios108_030307_101119739
00:17:38:BULKSTAT-DC:Too small state buffer for ifmib
102
```

```
00:17:38:BULKSTAT-DC:Increased buffer state to 1024
00:17:38:BULKSTAT-DC:Interface type data group
00:17:38:BULKSTAT-DC:polling done
00:18:38:BULKSTAT-DC:Poll timer fired for ifmib
00:18:38:BULKSTAT-DC:In pollDataGroup
00:18:38:BULKSTAT-DC:Interface type data group
00:18:38:BULKSTAT-DC:polling done
00:19:26:
BULKSTAT-DC:Collection timer fired for IfMIB_objects
00:19:26:BULKSTAT-TP:Transfer request for
vfile:IfMIB_objects_ios108_030307_101119739
00:19:30:BULKSTAT-TP:written vfile
IfMIB_objects_ios108_030307_101119739
00:19:30:BULKSTAT-TP:retained vfile
vfile:IfMIB_objects_ios108_030307_101119739
00:19:38:BULKSTAT-DC:Poll timer fired for ifmib
00:19:38:BULKSTAT-DC:In pollDataGroup
00:19:38:BULKSTAT-DC:creating new file
vfile:IfMIB_objects_ios108_030307_101319739
00:19:38:BULKSTAT-DC:Interface type data group
00:19:38:BULKSTAT-DC:polling done
00:20:38:BULKSTAT-DC:Poll timer fired for ifmib
00:20:38:BULKSTAT-DC:In pollDataGroup
00:20:38:BULKSTAT-DC:Interface type data group
00:20:38:BULKSTAT-DC:polling done
00:21:38:BULKSTAT-DC:Poll timer fired for ifmib
00:21:38:BULKSTAT-DC:In pollDataGroup
00:21:38:BULKSTAT-DC:Interface type data group
00:21:38:BULKSTAT-DC:polling done
00:22:26:
BULKSTAT-DC:Collection timer fired for IfMIB_objects
00:22:26:BULKSTAT-TP:Transfer request for
vfile:IfMIB_objects_ios108_030307_101319739
00:22:26:BULKSTAT-TP:written vfile
IfMIB_objects_ios108_030307_101319739
00:22:26:BULKSTAT-TP:retained vfile
vfile:IfMIB_objects_ios108_030307_101319739
00:22:38:BULKSTAT-DC:Poll timer fired for ifmib
00:22:38:BULKSTAT-DC:In pollDataGroup
00:22:38:BULKSTAT-DC:creating new file
vfile:IfMIB_objects_ios108_030307_101619739
00:22:38:BULKSTAT-DC:Interface type data group
00:22:38:BULKSTAT-DC:polling done
00:23:38:BULKSTAT-DC:Poll timer fired for ifmib
00:23:38:BULKSTAT-DC:In pollDataGroup
00:23:38:BULKSTAT-DC:Interface type data group
00:23:38:BULKSTAT-DC:polling done
00:24:38:BULKSTAT-DC:Poll timer fired for ifmib
00:24:38:BULKSTAT-DC:In pollDataGroup
00:24:38:BULKSTAT-DC:Interface type data group
00:24:38:BULKSTAT-DC:polling done
00:25:26:
BULKSTAT-DC:Collection timer fired for IfMIB_objects
00:25:26:BULKSTAT-TP:Transfer request for
vfile:IfMIB_objects_ios108_030307_101619739
00:25:26:BULKSTAT-TP:written vfile
IfMIB_objects_ios108_030307_101619739
00:25:26:BULKSTAT-TP:retained vfile
vfile:IfMIB_objects_ios108_030307_101619739
00:25:38:BULKSTAT-DC:Poll timer fired for ifmib
00:25:38:BULKSTAT-DC:In pollDataGroup
00:25:38:BULKSTAT-DC:creating new file
vfile:IfMIB_objects_ios108_030307_101919739
00:25:38:BULKSTAT-DC:Interface type data group
00:25:38:BULKSTAT-DC:polling done
00:26:38:BULKSTAT-DC:Poll timer fired for ifmib
00:26:38:BULKSTAT-DC:In pollDataGroup
00:26:38:BULKSTAT-DC:Interface type data group
00:26:38:BULKSTAT-DC:polling done
```

Related Commands

Command	Description
show snmp mib bulkstat transfer	Displays the transfer status of files generated by the Periodic MIB Data Collection and Transfer Mechanism.
snmp mib bulkstat transfer	Names a bulk statistics transfer configuration and enters Bulk Statistics Transfer configuration mode.

debug snmp detail

To display the Simple Network Management Protocol (SNMP) debug messages, use the **debug snmp detail**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug snmp detail

no debug snmp detail

Syntax Description

This command has no arguments or keywords.

Command Default

SNMP debug messages are not displayed.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(20)T	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.

Usage Guidelines

Before running the **debug snmp detail**command, connect the device to the Network Management System (NMS). The command output displays the debug messages for errors occurred during SNMP operations. The debug messages help in identifying and debugging errors.

Examples

The following is sample output from the **debug snmp detail**command:

```
Router# debug snmp detail

SNMP Detail Debugs debugging is on
process_mgmt_req_int: UDP packet being de-queued
findContextInfo: Authentication failure, bad community string
SrDoSnmp: Bad Community name.
process_mgmt_req_int: UDP packet being de-queued
SrParseV3SnmpMessage: No matching Engine ID.
SrParseV3SnmpMessage: Failed.
SrDoSnmp: authentication failure, Unknown Engine ID
process_mgmt_req_int: UDP packet being de-queued
ParseSequence, Unexpected type: 4
SrParseV3SnmpMessage: ParseSequence:
SrParseV3SnmpMessage: Failed.
SrDoSnmp: authentication failure, Unsupported security modelQ:
```

Related Commands

Command	Description
debug snmp packet	Displays information about every SNMP packet sent or received by the router.

debug snmp mib nhrp

To display messages about Simple Network Management Protocol (SNMP) Next Hop Resolution Protocol (NHRP) MIB, use the **debug snmp mib nhrp**command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug snmp mib nhrp {**error**| **events**| **internal**| **notif [detail]**}

no debug snmp mib nhrp {**error**| **events**| **internal**| **notif [detail]**}

Syntax Description

error	Displays messages about SNMP NHRP MIB error events, including error information about packet processing or MIB special events.
events	Displays messages about SNMP NHRP MIB events, from the NHRP MIB tree data-structures and SNMP query-related events.
internal	Displays messages about SNMP NHRP MIB engineering events.
notif	Displays debug messages related to SNMP NHRP MIB notification events.
detail	(Optional) Displays detailed messages related to SNMP NHRP MIB notification events.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(20)T	This command was introduced.
15.0(1)M	This command was modified. The **notif** and **detail** keywords were added.

Usage Guidelines

The debug snmp mib nhrp internal command can generate many output messages. Due to the increased command processing and its effect on system usage, the use of this command is not advisable under normal circumstances.

Examples

The following is sample output from the **debug snmp mib nhrp notif**command:

```
*May 10 12:52:01.245: NHRP_SNMP-NOTIF[1488]: Retrieved values from instrumentation
*May 10 12:52:01.245: NHRP_SNMP-NOTIF[1646]: Varbind list created
*May 10 12:52:01.245: NHRP_SNMP-NOTIF[1665]: NHRP trap queued: cneNotifNextHopRegClientUp
```

The following is sample output from the **debug snmp mib nhrp notif detail**command:

```
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[695]: Address parameters'
extraction for local and remote endpoints successful
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1488]: Retrieved values from instrumentation
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1589]: Instance OIDs populated
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1608]: Value types  and values populated
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1625]: Varbind created for
nhrpServerInternetworkAddrType
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerInternetworkAddr
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerNbmaAddrType
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerNbmaAddr
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerNbmaSubaddr
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for
nhrpServerNhcInternetworkAddrType
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerNhcInternetworkAddr
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerNhcNbmaAddrType
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerNhcNbmaAddr
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerNhcNbmaSubaddr
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerNhcPrefixLength
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerNhcInUse
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1643]: Varbind created for nhrpServerCacheUniqueness
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1646]: Varbind list created
*May 10 12:52:44.461: NHRP_SNMP-NOTIF[1665]: NHRP trap queued: cneNotifNextHopRegClientUp
```

The following is sample output from the **debug snmp mib nhrp events**command:

```
Router# debug snmp mib nhrp events
*Apr 10 13:34:46.175: NHRP_SNMP-EVE[2097]: In Get nhrpClientEntry for VRFID [0] ClientIndex
 [0]  NHS [0] Req [1]
*Apr 10 13:34:46.175: NHRP_SNMP-EVE[2148]: In here as expected.
*Apr 10 13:34:46.175: NHRP_SNMP-EVE[1050]: In Extract Client Entry Info
*Apr 10 13:34:46.223: NHRP_SNMP-EVE[2097]: In Get nhrpClientEntry for VRFID [0] ClientIndex
 [2]  NHS [0] Req [1]
*Apr 10 13:34:46.223: NHRP_SNMP-EVE[2140]: Could not find the Node
*Apr 10 13:34:46.223: NHRP_SNMP-EVE[2097]: In Get nhrpClientEntry for VRFID [0] ClientIndex
 [0]  NHS [0] Req [1]
*Apr 10 13:34:46.223: NHRP_SNMP-EVE[2148]: In here as expected.
*Apr 10 13:34:46.223: NHRP_SNMP-EVE[1050]: In Extract Client Entry Info
```

The following is sample output from the **debug snmp mib nhrp internal**command:

```
Router# debug snmp mib nhrp internal
*Apr 10 13:36:33.267: NHRP_SNMP-INTR[2089]: In nhrpClientEntry
*Apr 10 13:36:33.323: NHRP_SNMP-INTR[2089]: In nhrpClientEntry
*Apr 10 13:36:33.323: NHRP_SNMP-INTR[2089]: In nhrpClientEntry
```

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

Table 19: debug snmp mib nhrp Field Descriptions

Field	Description
NHRP_SNMP-ERR[ ]	Indicates output from the **debug snmp mib nhrp error command.**
NHRP_SNMP-EVE[2097]	Indicates output from the **debug snmp mib nhrp events**command.

Field	Description
NHRP_SNMP-INTR[2089]	Indicates output from the **debug snmp mib nhrp internal command.**
NHRP_SNMP-NOTIF[1488]	Indicates output from the **debug snmp mib nhrp notif command.**

Related Commands

Command	Description
show snmp mib nhrp status	Indicates the status of the NHRP MIB and whether the NHRP MIB is enabled or disabled.

debug snmp overhead

To display the list of Simple Network Management Protocol (SNMP) MIBs that take more than the threshold time to perform an SNMP get or get-next operation, use the **debug snmp overhead**command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug snmp overhead

no debug snmp overhead

Syntax Description

This command has no arguments or keywords.

Command Default

SNMP debug messages are not displayed.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SRE	This command was introduced.

Examples

The following is sample output from the **debug snmp overhead** command:

```
Router# debug snmp overhead
SNMP overhead debugging is on
*Nov 11 16:35:02.579 PDT:  Process exceeds 1000ms threshold (200ms IOS quantum)
*Nov 11 16:35:02.579 PDT:  GETNEXT of ciscoFlashFileEntry.2.1.1.1--result
ciscoFlashFileEntry.2.1.1.2
```

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

Table 20: debug snmp overhead Field Descriptions

Field	Description
Process exceeds 1000ms threshold	Processing time for the SNMP get-next operation is more than 1000 milliseconds.
200ms IOS quantum	Threshold time in milliseconds.
GETNEXT of ciscoFlashFileEntry.2.1.1.1	The OID ciscoFlashFileEntry.2.1.1.1 is queried using the get-next operation.
result ciscoFlashFileEntry.2.1.1.2	The result of the get-next operation is ciscoFlashFileEntry.2.1.1.2, which is the next value of the OID being queried.

debug snmp packet

To display information about every Simple Network Management Protocol (SNMP) packet sent or received by the router, use the **debug snmp packet** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug snmp packet

no debug snmp packet

Syntax Description

This command has no arguments or keywords.

Command Default

The command is disabled by default.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.0(24)S	This command was introduced.
12.3(2)T	This command was integrated into Cisco IOS Release 12.3(2)T.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB.
Cisco IOS XE Release 2.5	This command was implemented on Cisco ASR 1000 series routers.

Examples

The following is sample output from the **debug snmp packet**command. In this example, the router receives a get-next request from the host at 192.10.2.10 and responds with the requested information.

```
Router# debug snmp packet
SNMP: Packet received via UDP from 192.10.2.10 on Ethernet0
SNMP: Get-next request, reqid 23584, errstat 0, erridx 0
 sysUpTime = NULL TYPE/VALUE
 system.1 = NULL TYPE/VALUE
 system.6 = NULL TYPE/VALUE
SNMP: Response, reqid 23584, errstat 0, erridx 0
 sysUpTime.0 = 2217027
 system.1.0 = Cisco Internetwork Operating System Software
 system.6.0 =
SNMP: Packet sent via UDP to 192.10.2.10
```

Based on the kind of packet sent or received, the output may vary. For get-bulk requests, a line similar to the following is displayed:

```
SNMP: Get-bulk request, reqid 23584, nonrptr 10, maxreps 20
```

For traps, a line similar to the following is displayed:

```
SNMP: V1 Trap, ent 1.3.6.1.4.1.9.1.13, gentrap 3, spectrap 0
```

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

Table 21: debug snmp packet Field Descriptions

Field	Description
Get-next request	Indicates what type of SNMP protocol data unit (PDU) the packet is. Possible types are as follows: • Get request • Get-next request • Response • Set request • V1 Trap • Get-bulk request • Inform request • V2 Trap Depending on the type of PDU, the rest of this line displays different fields. The indented lines following this line list the MIB object names and corresponding values.
reqid	Request identification number. This number is used by the SNMP manager to match responses with requests.
errstat	Error status. All PDU types other than response will have an errstat of 0. If the agent encounters an error while processing the request, it will set errstat in the response PDU to indicate the type of error.
erridx	Error index. This value will always be 0 in all PDUs other than responses. If the agent encounters an error, the erridx will be set to indicate which varbind in the request caused the error. For example, if the agent had an error on the second varbind in the request PDU, the response PDU will have an erridx equal to 2.

Field	Description
nonrptr	Nonrepeater value. This value and the maximum repetition value are used to determine how many varbinds are returned. Refer to RFC 1905 for details.
maxreps	Maximum repetition value. This value and the nonrepeater value are used to determine how many varbinds are returned. Refer to RFC 1905 for details.
ent	Enterprise object identifier. Refer to RFC 1215 for details.
gentrap	Generic trap value. Refer to RFC 1215 for details.
spectrap	Specific trap value. Refer to RFC 1215 for details.

debug snmp requests

To display information about every Simple Network Management Protocol (SNMP) request made by the SNMP manager, use the **debug snmp requests** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug snmp requests

no debug snmp requests

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Examples

The following is sample output from the **debug snmp requests**command:

```
Router# debug snmp requests
SNMP Manager API: request
  dest: 171.69.58.33.161, community: public
  retries: 3, timeout: 30, mult: 2, use session rtt
  userdata: 0x0
```

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

Table 22: debug snmp requests Field Descriptions

Field	Description
SNMP Manager API	Indicates that the router sent an SNMP request.
dest	Destination of the request.
community	Community string sent with the request.
retries	Number of times the request has been re-sent.
timeout	Request timeout, or how long the router will wait before resending the request.
mult	Timeout multiplier. The timeout for a re-sent request will be equal to the previous timeout multiplied by the timeout multiplier.
use session rtt	Indicates that the average round-trip time of the session should be used in calculating the timeout value.
userdata	Internal Cisco IOS software data.

debug snmp sync

To debug Simple Network Management Protocol (SNMP) synchronization and faults in synchronization, use the **d ebug snmp sync** command in privileged EXEC mode. To disable the display of debugging output, use the **no** form of this command.

debug snmp sync

no debug snmp sync

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(22)S	This command was introduced.
12.2(18)S	This command was integrated into Cisco IOS Release 12.2(18)S.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(31)SB2	This command was integrated into Cisco IOS Release 12.2(31)SB2.

Usage Guidelines

The **debug snmp sync** command can be used to debug SNMP synchronization and faults in synchronization. The standby Route Processor (RP) may sometimes reset as a result of synchronization faults. If the fault occurs when SNMP activities such as SNMP sets are in progress, enter the **debug snmp sync** command to identify whether a synchronization fault caused the reset.

SNMP synchronizations (dynamic and bulk) are performed only if the router is configured to be in stateful switchover (SSO) mode.

Examples

The following example enables debugging of SNMP synchronization activity:

```
Router# debug snmp sync
```

Related Commands

Command	Description
debug snmp packets	Displays information about every SNMP packet sent or received by the networking device.

Command	Description
mode	Configures the redundancy mode of operation.

debug snmp tunnel-mib

To enable the debugging for configuring the IP Tunnel Management Information Base (MIB) through Simple Network Management Protocol (SNMP), use the **debug snmp tunnel-mib** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug snmp tunnel-mib

no debug snmp tunnel-mib

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SRB	This command was introduced.
12.4(15)T	This command was integrated into Cisco IOS Release 12.4(15)T.
12.2(33)SB1	This command was integrated into Cisco IOS Release 12.2(33)SB1.
12.2(44)SG	This command was integrated into Cisco IOS Release 12.2(44)SG.
Cisco IOS Release XE 2.1	This command was integrated into Cisco IOS Release XE 2.1.

Usage Guidelines

Use the **debug snmp tunnel-mib** command to verify whether a tunnel is created or deleted.

Examples

The following is sample output from the **debug snmp tunnel-mib** command. The output shows that a tunnel is created through SNMP.

```
Router# debug snmp tunnel-mib
SNMP TUNNEL-MIB debugging is on
k_tunnelInetConfigEntry_get: Entering
k_tunnelInetConfigEntry_get: Exact search
tim_client_tunnel_endpoint_data_get: Entering
tim_client_tunnel_endpoint_data_get: Exact search
tim_client_tunnel_endpoint_data_get: No element found
k_tunnelInetConfigEntry_get: Client service failed
k_tunnelInetConfigEntry_test: Entering
k_tunnelInetConfigEntry_test: Completed
k_tunnelInetConfigEntry_set: Entering
tim_client_tunnel_endpoint_data_get: Entering
tim_client_tunnel_endpoint_data_get: Exact search
tim_client_tunnel_endpoint_data_get: No element found
k_tunnelInetConfigEntry_set: Calling tunnel create
tim_client_tunnel_create: Entering
tim_client_tunnel_create: Completed
```