



APPENDIX **A**

Command Reference for the ML-Series Card



Note

The terms "Unidirectional Path Switched Ring" and "UPSR" may appear in Cisco literature. These terms do not refer to using Cisco ONS 15xxx products in a unidirectional path switched ring configuration. Rather, these terms, as well as "Path Protected Mesh Network" and "PPMN," refer generally to Cisco's path protection feature, which may be used in any topological network configuration. Cisco does not recommend using its path protection feature in any particular topological network configuration.

This appendix provides a command reference for those Cisco IOS commands or those aspects of Cisco IOS commands that are unique to ML-Series cards. For information about the standard Cisco IOS Release 12.2 commands, refer to the Cisco IOS documentation set available at <http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/>.

[no] bridge *bridge-group-number* protocol {drpri-rstp | ieee | rstp}

[no] bridge *bridge-group-number* protocol {drpri-rstp | ieee | rstp}

To define the protocol employed by a bridge group, use the **bridge protocol** global configuration command. If no protocol will be employed by the bridge group, this command is not needed. To remove a protocol from the bridge group, use the no form of this command with the appropriate keywords and arguments.

Syntax Description

Parameter	Description
drpri-rstp	The protocol that enables the Dual Resilient Packet Ring Interconnect (DRPRI) feature of the ONS 15454 ML-Series cards. Do not configure an ONS 15310-CL or ONS 15310-MA ML-Series card with this option.
ieee	IEEE 802.1D Spanning Tree Protocol (RSTP).
rstp	IEEE 802.1W Rapid Spanning Tree Protocol (STP).
<i>bridge-group-number</i>	The identifying number of the bridge group being assigned a protocol.

Defaults

N/A

Command Modes

Global configuration

Usage Guidelines

The ONS 15310-CL or ONS 15310-MA ML-Series card implement RSTP or STP. DRPRI is not available.

Examples

The following example assigns STP to the bridge group with the bridge group number of 100.

```
Router(config)# bridge 100 protocol ieee
```

Related Commands

bridge-group

clear counters

Use the **clear counters** command to simultaneously clear Ethernet interface performance monitoring (PM) counters in Cisco Transport Controller (CTC), Transaction Language One (TL1), and the Cisco IOS CLI. Using Cisco IOS, you can clear counters on a per-interface basis for any except the 802.13 IEEE RPR interface; in that instance, you can only clear all counters for both spans.

The clear command can also be executed from CTC by means of a button, or from TL1 using a command on the interface. The CTC clearing function allows you to choose between clearing front-end or back-end interfaces. Cisco IOS and TL1 interface clear commands do not have this ability.

Syntax Description This command has no arguments or keywords.

Defaults The default is for PM counters not to be cleared.

Command Modes Privileged exec

Usage Guidelines This command is applicable to the ML100T-8 card on the ONS 15310-CL and ONS 15310-MA.

Examples

```
Router# clear counters
Clear "show interface" counters on all interfaces [confirm]
Router#
```

Related Commands show interface

[no] clock auto

Use the **clock auto** command to determine whether the system clock parameters are configured automatically from the node's timing. When enabled, both daylight savings time and time zone are automatically configured, and the system clock is periodically synchronized to the node's timing. Use the no form of the command to disable this feature.

Syntax Description This command has no arguments or keywords.

Defaults The default setting is clock auto.

Command Modes Global configuration

Usage Guidelines The no form of the command is required before any manual configuration of daylight savings time, time zone, or clock. The no form of the command is required if Network Time Protocol (NTP) is configured in Cisco IOS. The ONS 15310-CL and ONS 15310-MA are also configured through Cisco Transport Controller (CTC) to use an NTP or Simple Network Time Protocol (SNTP) server to set the date and time of the node.

Examples `ML_Series(config)# no clock auto`

Related Commands

- clock summertime
- clock timezone
- clock set

interface spr 1

Use this command to create a shared packet ring (SPR) interface on an ML-Series card for a resilient packet ring (RPR). If the interface has already been created, this command enters spr interface configuration mode. The only valid spr interface number is 1.

Defaults N/A

Command Modes Global configuration

Usage Guidelines The command allows the user to create a virtual interface for the RPR/SPR. Commands such as **spr wrap** or **spr station-id** can then be applied to the RPR through SPR configuration command mode.

Examples The following example creates the shared packet ring interface:

```
ML_Series(config)# interface spr 1
```

Related Commands

- spr-intf-id
- spr station-id
- spr wrap

[no] pos mode gfp [fcs-disabled]

Sets the framing mode employed by the ONS Ethernet card for framing and encapsulating data packets onto the SONET transport layer. Valid framing modes are:

- HDLC—(High-level data link control) A common mechanism employed in framing data packets for SONET/SDH.
- GFP (default)—The ML-Series card supports the frame mapped version of generic framing procedure (GFP-F).



Note The GFP-F FCS is compliant with ITU-T G.7041/Y.1303.

Defaults

The default framing mode is GFP-F with a 32-bit frame check sequence (FCS) enabled.

Syntax Description

The optional `fcs-disabled` keyword disables the GFP-F FCS. The no form of the command sets the framing mode to Cisco HDLC. The `fcs-disabled` keyword is not available when setting the framing mode to Cisco HDLC.

Command Modes

Interface configuration mode (Packet-over-SONET [POS] only)

Usage Guidelines

This command can be used only when the ML-Series card's POS interface is in shutdown mode. The peer path terminating element (PTE) needs to be in the same framing mode as the POS interface.

Examples

```
ML_Series(config) # int pos0
ML_Series(config-if) # shutdown
ML_Series(config-if) # pos mode gfp fcs-disable
ML_Series(config-if) # no shutdown
```

Related Commands

shutdown

[no] pos pdi holdoff *time*

Use this command to specify the time, in milliseconds, to hold off sending the path defect indication (PDI) to the far-end when a VCAT member circuit is added to the virtual concatenation group (VCG). Use the no form of the command to use the default value.

Syntax Description	Parameter	Description
	<i>time</i>	delay time in milliseconds, 100 to 1000

Defaults The default value is 100 milliseconds.

Command Modes Interface configuration mode (POS only)

Usage Guidelines This value is normally configured to match the setting on the peer PTE. The time granularity for this command is 1 millisecond.

Examples

```
Gateway(config)# int pos0
Gateway(config-if)# pos pdi holdoff 500
```

Related Commands pos trigger defects

[no] pos report *alarm*

Use this command to specify which alarms/signals are logged to the console. This command has no effect on whether alarms are reported to the TCC2/TCC2P and CTC. These conditions are soaked and cleared per Telcordia GR-253. Use the no form of the command to disable reporting of a specific alarm/signal.

Syntax Description	Parameter	Description
	<i>alarm</i>	The SONET/SDH alarm that is logged to the console. The alarms are as follows: all —All link down alarm failures ber_sd_b3 —PBIP BER in excess of SD threshold failure ber_sf_b3 —PBIP BER in excess of SF threshold failure encap —Path signal label encapsulation mismatch failure pais —Path alarm indication signal failure plop —Path loss of pointer failure ppdi —Path payload defect indication failure pplm —Payload label mismatch path prdi —Path remote defect indication failure ptim —Path trace indicator mismatch failure puneq —Path label equivalent to zero failure

Defaults The default is to report all alarms.

Command Modes Interface configuration mode (POS only)

Usage Guidelines This value is normally configured to match the setting on the peer PTE.

Examples

```
Gateway(config)# int pos0

Gateway(config-if)# pos report all

Gateway(config-if)# pos flag c2 1
03:16:51: %SONET-4-ALARM: POS0: PPLM

Gateway(config-if)# pos flag c2 0x16
03:17:34: %SONET-4-ALARM: POS0: PPLM cleared
```

Related Commands pos trigger defects

[non] pos trigger defects *condition*

Use this command to specify which conditions cause the associated POS link state to change. These conditions are soaked/cleared using the delay specified in the **pos trigger delay** command. Use the no form of the command to disable triggering on a specific condition.

Syntax Description	Parameter	Description
	<i>condition</i>	<p>The SONET/SDH condition that causes the link state change. The conditions are as follows:</p> <ul style="list-style-type: none"> all—All link down alarm failures (default) ber_sd_b3—PBIP BER in excess of SD threshold failure ber_sf_b3—PBIP BER in excess of SF threshold failure encap—Path signal label encapsulation mismatch failure pais—Path alarm indication signal failure plop—Path loss of pointer failure ppdi—Path payload defect indication failure pplm—Payload label mismatch path prdi—Path remote defect indication failure ptim—Path trace indicator mismatch failure puneq—Path label equivalent to zero failure

Defaults The default is to report **all** conditions except **ber_sd_b3**. For a list of all conditions, see the list in the above description.

Command Modes Interface configuration mode (POS only)

Usage Guidelines This value is normally configured to match the setting on the peer PTE.

Examples

```
Gateway(config)# int pos0
Gateway(config-if)# pos trigger defects all
```

Related Commands pos trigger delay

[no] pos trigger delay *time*

Use this command to specify which conditions cause the associated POS link state to change. The conditions specified in the **pos trigger defects** command are soaked/cleared using this delay. Use the no form of the command to use the default value.

Syntax Description	Parameter	Description
	<i>time</i>	delay time in milliseconds, 200 to 2000

Defaults The default value is 200 milliseconds.

Command Modes Interface configuration mode (POS only)

Usage Guidelines This value is normally configured to match the setting on the peer PTE. The time granularity for this command is 50 milliseconds.

Examples

```
Gateway(config)# int pos0
Gateway(config-if)# pos trigger delay 500
```

Related Commands pos trigger defects

[no] pos vcat defect {immediate | delayed}

Sets the virtual concatenated (VCAT) defect processing mode to either handle a defect state change the instant it is detected or wait for the time specified by **pos trigger delay**. Use the no form of the command to use the default value.

Syntax Description	Parameter	Description
	immediate	Handles a defect state change the instant it is detected.
	delayed	Handles the defect after the time specified by the command pos trigger delay . If delay is configured and the circuit is on RPR, then the RPR defect processing will also be delayed by the delay time.

Defaults The default setting is immediate.

Command Modes POS interface configuration

Usage Guidelines Immediate should be used if the VCAT circuit uses unprotected SONET circuits. Delayed should be run if the VCAT circuit uses SONET protected circuits, such as apath protection.

Examples The following example sets an ML-Series card to delayed:

```
ML_Series(config)# interface pos 1
ML_Series(config-if)# pos vcat defect delayed
```

Related Commands

```
interface spr 1
spr wrap
interface pos 1
pos trigger delay
```

show controller pos *interface-number* [details]

Use this command to display the status of the POS controller. Use the details argument to obtain certain additional information.

Syntax Description	Parameter	Description
	<i>interface-number</i>	Number of the POS interface (0–1)

Defaults N/A

Command Modes Privileged EXEC

Usage Guidelines This command can be used to help diagnose and isolate POS or SONET problems.

Examples The following example displays the ML-Series controller information for interface pos 0.

```

ML_Series# show controller pos 0
Interface POS0
Hardware is Packet Over SONET
Framing Mode: HDLC
Concatenation: CCAT
Alarms reportable to CLI: AIS-P LOP-P UNEQ-P TIM-P PLM-P ENCAP-MISMATCH RDI-P PDI-P SF-P
SD-P
Link state change defects: AIS LOP UNEQ TIM PLM ENCAP RDI PDI
Link state change time      : 200 (msec)
***** Path *****
Circuit Type: STS-1
Physical Channel Number: 0
Circuit ESM State: IS
STS Index 0
Active Alarms: None
B3 BER thresholds:
SFBER = 1e-4,   SDBER = 1e-7
    Path Trace Info.
Channel 0
  Received String Format : 64 Byte
  Transmit String Format : 64 Byte
  Provisioned Trace Mode : off
  Prov'd   : false   TIU-P   : FALSE   TIM-P   : FALSE
  State    : w4xcon   MatchCnt: 0   MisMatchCnt: 0
  Rec Flag : false   Exp Flag : false   Xmt Enab : true
2398983617 total input packets, 1913918056382 post-decap bytes
0 input short packets
67757 input CRCError packets , 0 input drop packets
63584 rx HDLC addr mismatches , 63599 rx HDLC ctrl mismatches
63630 rx HDLC sapi mismatches , 63599 rx HDLC ctrl mismatches
289 rx HDLC destuff errors , 68048 rx HDLC invalid frames
0 input abort packets
2093 input packets dropped by ucode
0 input packets congestion events
2398847783 input good packets (POS MAC tx)

```

```
1913918056382 input good octets (POS MAC tx)
2397888202 total output packets, 1913918056382 pre-encap bytes
Carrier delay is 200 msec
```

Related Commands

show interface pos
clear counters

show interface pos *interface-number*

Use this command to display the status of the POS interface.

Syntax Description	Parameter	Description
	<i>interface-number</i>	Number of the POS interface (0–1)

Defaults N/A

Command Modes Privileged EXEC

Usage Guidelines This command can be used to help diagnose and isolate POS or SONET problems.

Examples The following example displays the ML-Series interface information for interface pos 0.

```
ML_Series# show interfaces pos0
POS0 is up, line protocol is up
  Hardware is Packet Over SONET, address is 000c.9a9a.9a9a (bia 000c.9a9a.9a9a)
  MTU 1500 bytes, BW 48384 Kbit, DLY 100 usec,
    reliability 255/255, txload 157/255, rxload 157/255
Encapsulation: Cisco-EoS-LEX, loopback not set
Keepalive set (10 sec)
Scramble enabled
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:00, output never, output hang never
Last clearing of "show interface" counters 5d22h
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
 5 minute input rate 29797000 bits/sec, 4673 packets/sec
 5 minute output rate 29841000 bits/sec, 4670 packets/sec
 2399801434 packets input, 3309269642 bytes
  Received 799619391 broadcasts (0 IP multicast)
  0 runts, 0 giants, 0 throttles
    0 parity
 135834 input errors, 67757 CRC, 0 frame, 0 overrun, 0 ignored
 0 input packets with dribble condition detected
2398705102 packets output, 1211912638 bytes, 0 underruns
 0 output errors, 0 applique, 0 interface resets
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out
 0 carrier transitions
```

Related Commands show controller pos
clear counters

show ons alarm

Use this command to display all the active alarms on the card.

Syntax Description This command has no arguments or keywords.

Defaults N/A

Command Modes Privileged EXEC

Usage Guidelines This command can be used to help diagnose and isolate card problems.

Examples

```

ML_Series# show ons alarm
Equipment Alarms
Active: CONTBUS-IO-A CTNEQPT-PBWORK

Port Alarms
  POS0 Active: None
  POS1 Active: None
  FastEthernet0 Active: None
  FastEthernet1 Active: None
  FastEthernet2 Active: None
  FastEthernet3 Active: None
  FastEthernet4 Active: None
  FastEthernet5 Active: None
  FastEthernet6 Active: None
  FastEthernet7 Active: None
  FastEthernet8 Active: None
  FastEthernet9 Active: None
  FastEthernet10 Active: None
  FastEthernet11 Active: None

POS0

Active Alarms : None
Demoted Alarms: None

POS1 VCG State: VCG_NORMAL
VCAT Group
Active Alarms : None
Demoted Alarms: None

Member 0
Active Alarms : None
Demoted Alarms: None

Member 1
Active Alarms : None
Demoted Alarms: None

```

■ show ons alarm

Related Commands

show controller pos
show ons alarm defects
show ons alarm failures

show ons alarm defect {[eqpt | port [port-number] | sts [sts-number] | vcg [vcg-number] | vt]}

This command displays all defects for the ML-Series card with no keyword (default) or defects for the level specified by the keyword.

Syntax Description

Parameter	Description
eqpt	Specifies hardware-related.
port	Specifies the physical interface level. Optional <i>port-number</i> specifies a particular physical interface.
sts	Specifies the SONET circuit level. Optional <i>sts-number</i> specifies a particular SONET circuit.
vcg	Specifies the VCAT circuit group level. Optional <i>vcg-number</i> specifies a particular VCAT group.
vt	Not valid.

Defaults

Displays all defects

Command Modes

Privileged EXEC

Usage Guidelines

This command displays the set of active defects for the specified layer and the possible set of defects that can be set.

Examples

The following example shows the command and output for the ML-Series alarm defect information at the equipment level.

```
ML-Series# show ons alarm defect eqpt
Equipment Defects
Active: RUNCFG-SAVENEED
Reportable to SC/CLI: CONTBUS-IO-A CONTBUS-IO-B CTNEQPT-PBWORK CTNEQPT-PBPROT EQPT
RUNCFG-SAVENEED ERROR-CONFIG HIGH-TEMP PROVISION-ERROR
Port Defects
  POS0
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  POS1
  .....
```



Note

The output example is abbreviated because of length.

The following example shows the command and output for the ML-Series alarm defect information at the port level.

```
ML-Series# show ons alarm defect port
```

```
show ons alarm defect {[eqpt | port [port-number] | sts [sts-number] | vcg [vcg-number] | vt]}
```

```
Port Defects
  POS0
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  POS1
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  FastEthernet0
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  FastEthernet1
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  FastEthernet2
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  FastEthernet3
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  FastEthernet4
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  FastEthernet5
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  FastEthernet6
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
  FastEthernet7
  Active: None
  Reportable to SC: CARLOSS TPTFAIL GFP-LFD GFP-CSF GFP-UPI LPBK-TERMINAL LPBK-FACILITY
```

The following example shows the command and output for the ML-Series alarm defect information at the synchronous transport signal (STS) level.

```
ML_Series# show ons alarm defect sts
STS Defects
  STS 0
  Active: None
  STS 1
  Active: None
  STS 2
  Active: None
  STS 3
  Active: None
  STS 4
  Active: None
  STS 5
  Active: None
```

Related Commands

```
show controller pos
show ons alarm failures
```

show ons alarm failure {[eqpt | port [port-number] | sts [sts-number] | vcg [vcg-number] | vt]}

This command displays all failures for the ML-Series card with no keyword (default) or failures for the level specified by the keyword.

Syntax Description	Parameter	Description
	eqpt	Specifies hardware-related.
	port	Specifies the physical interface level. Optional <i>port-number</i> specifies a particular physical interface.
	sts	Specifies the SONET circuit level. Optional <i>sts-number</i> specifies a particular SONET circuit.
	vcg	Specifies the VCAT circuit group level. Optional <i>vcg-number</i> specifies a particular VCAT group.
	vt	Not valid.

Defaults N/A

Command Modes Privileged EXEC

Usage Guidelines This command displays the set of active failures for the specified layer and the possible set of failures that can be set.

Examples The following example shows the command and output for the ML-Series alarm failure information at the equipment level.

```
ML_Series# show ons alarm failure eqpt
Equipment Alarms
Active: RUNCFG-SAVENEED
```

The following example shows the command and output for the ML-Series alarm failure information at the port level.

```
ML-Series# show ons alarm failure port
Port Alarms
  POS0 Active: None
  POS1 Active: None
  FastEthernet0 Active: None
  FastEthernet1 Active: None
  FastEthernet2 Active: None
  FastEthernet3 Active: None
  FastEthernet4 Active: None
  FastEthernet5 Active: None
  FastEthernet6 Active: None
  FastEthernet7 Active: None
```

```
show ons alarm failure {{eqpt | port [port-number] | sts [sts-number] | vcg [vcg-number] | vt}}
```

The following example shows the command and output for the ML-Series alarm failure information at the STS level.

```
ML_Series# show ons alarm failure sts
STS Defects
  STS 0
  Active: None
  STS 1
  Active: None
  STS 2
  Active: None
  STS 3
  Active: None
  STS 4
  Active: None
  STS 5
  Active: None
```

Related Commands

```
show ons alarm defect
show interface
show controller pos
```

spr-intf-id *shared-packet-ring-number*

Assigns the POS interface to the SPR interface.

Syntax Description	Parameter	Description
	<i>shared-packet-ring-number</i>	The only valid shared-packet-ring-number (SPR number) is 1.

Defaults N/A

Command Modes POS interface configuration

Usage Guidelines

- The SPR number must be 1, which is the same SPR number assigned to the SPR interface.
- The members of the SPR interface must be POS interfaces.
- An SPR interface is configured similarly to a EtherChannel (port-channel) interface. Instead of using the **channel-group** command to define the members, you use the **spr-intf-ID** command. Like port-channel, you then configure the SPR interfaces instead of the POS interface.

Examples

The following example assigns an ML-Series card POS interface to an SPR interface with a shared-packet-ring-number of 1:

```
ML_Series(config)# interface pos 0
ML_Series(config-if)# spr-intf-id 1
```

Related Commands

```
interface spr 1
spr station-id
spr wrap
```

■ `[no] spr load-balance { auto | port-based }`

[no] spr load-balance { auto | port-based }

Specifies the RPR load-balancing scheme for unicast packets.

Syntax Description	Parameter	Description
	auto	The default auto option balances the load based on the MAC addresses or the source and destination addresses of the IP packet.
	port-based	The port-based load balancing option maps unicast packets from even ports to the POS 0 interface and odd ports to the POS 1 interface.

Defaults The default setting is auto.

Command Modes SPR interface configuration

Examples The following example configures an SPR interface to use port-based load balancing:

```
ML_Series(config)# interface spr 1
ML_Series(config-if)# spr load-balance port-based
```

Related Commands interface spr 1

spr station-id *station-id-number*

Configures a station ID.

Syntax Description	Parameter	Description
	<i>station-id-number</i>	The user must configure a different number for each SPR interface that attaches to the RPR. Valid station ID numbers range from 1 to 254.

Defaults N/A

Command Modes SPR interface configuration

Usage Guidelines The different ML-Series cards attached to the RPR all have the same interface type and number, spr1. The station ID helps to differentiate the SPR interfaces.

Examples The following example sets an ML-Series card SPR station ID to 100:

```
ML_Series(config)# interface spr 1
ML_Series(config-if)# spr station-id 100
```

Related Commands

- interface spr 1
- spr-intf-id
- spr wrap

■ `spr wrap { immediate | delayed }`

spr wrap { immediate | delayed }

Sets the RPR wrap mode to either wrap traffic the instant it detects a link state change or to wrap traffic after the carrier delay, which gives the SONET protection time to register the defect and declare the link down.

Syntax Description	Parameter	Description
	immediate	Wraps RPR traffic the instant it detects a link state change.
	delayed	Wraps RPR traffic after the carrier delay time expires.

Defaults The default setting is immediate.

Command Modes SPR interface configuration

Usage Guidelines Immediate should be used if RPR is running over unprotected SONET circuits. Delayed should be run for SONET protected circuits (bidirectional line switched ring [BLSR] or path protection).

Examples The following example sets an ML-Series card to delayed:

```
ML_Series(config)# interface spr 1
ML_Series(config-if)# spr wrap delayed
```

Related Commands

- interface spr 1
- spr-intf-id
- spr station-id