



POS Alarm Trigger Delay on the Cisco 7304 Router

Feature History

Release	Modification
12.1(12c)EX1	This feature was introduced on the Cisco 7304 router.
12.2(18)S	This feature was introduced on Cisco 7304 routers running Cisco IOS Release 12.2 S.
12.2(31)SB13 and 12.2(33)SB2	The treatment of B3 TCA alarms is modified. The following changes have been made regarding B3 TCA alarms: <ul style="list-style-type: none">• The B3 TCA alarms now bring down the line protocol (if configured).• B3 TCA alarms bring down the line protocol immediately if the pos delay path trigger command is configured. The delay value is not supported for B3 TCA alarms.

This feature module describes the POS Alarm Trigger Delay feature for the Cisco 7304 router and includes information on the benefits of the new feature, supported platforms, configuration tasks, and a command reference.

This document includes the following sections:

- [Feature Overview, page 1](#)
- [Supported Platforms, page 3](#)
- [Supported Standards, MIBs, and RFCs, page 4](#)
- [Prerequisites, page 4](#)
- [Configuration Tasks, page 4](#)
- [Configuration Examples, page 6](#)
- [Command Reference, page 7](#)
- [Glossary, page 9](#)

Feature Overview

A trigger is an alarm that, when asserted, causes the line protocol to go down.

When one or more triggers are asserted, the line protocol of the interface goes down. The POS Alarm Trigger Delay feature provides the option to delay triggering of the line protocol of the interface from going down when an alarm triggers the line protocol to go down. For instance, if you configure the POS alarm delay for 150 milliseconds (ms), the line protocol will not go down for 150 ms after receiving the trigger. If the trigger alarm stays up for more than 150 ms, the link is brought down as it is now. If the trigger alarm clears before 150 ms, the line protocol is not brought down.

By default, the following line and section alarms are triggers for the line protocol to go down:

- Section loss of signal
- Section loss of frame
- Line alarm indication signal

For line and section alarm triggers, the line protocol of the POS card is brought down immediately if a trigger is received and no POS alarm trigger delay is specified. The delay can be set anywhere from 50 to 10000 ms. If POS alarm triggering is configured but no ms value is entered, the POS alarm trigger delay is 100 ms.

The following path alarms are not triggers by default. These path alarms, however, can be configured as triggers:

- Path alarm indication signal
- Path remote defect indication
- B3 TCA alarms

The POS Alarm Trigger Delay feature can be used to configure path alarm indication signals and path remote defect indication as triggers, as well as to configure the exact POS alarm trigger delay for these triggers. The default delay values for path alarm indication signals and path remote defect indications, if no value is specified, is also 100 ms.

Beginning with Cisco IOS Release 12.(31)SB13, B3 TCA alarms will bring down the line protocol immediately regardless of the configured delay time if **pos delay trigger path** command is configured; the configured trigger delay time is not applicable to B3 TCA alarms. If **pos delay trigger path** command is not configured, B3 TCA alarms will not bring the line down. In releases prior to Cisco IOS Release 12.2(31)SB13, B3 TCA alarms are not triggers for the line protocol to go down by default.

Benefits

POS Line Card Uptime

The POS Alarm Trigger Delay feature delays the setting of the line protocol to down when trigger alarms are received. If the trigger alarm was sent because of an intermittent problem, the POS Alarm Trigger Delay can prevent the line protocol from going down when the line protocol was functional. Therefore, the POS Alarm Trigger Delay helps ensure uptime of POS line cards on the Cisco 7304 router by preventing intermittent problems from disabling the line protocol.

Restrictions

This command is invalid for interfaces that are configured as APS working or protected.

Related Features and Technologies

- OC3 POS line card for the Cisco 7304
- OC12 POS line card for the Cisco 7304
- OC48 POS line card for the Cisco 7304

Related Documents

- *Configuring SONET Delay Triggers* (This document covers the POS Alarm Trigger Delay feature on other platforms.)
- *Cisco IOS Interface Configuration Guide*, Release 12.1
- *Cisco IOS Interface Command Reference*, Release 12.1
- *OC3 Packet Over Sonet Line Card Installation and Configuration* document for the Cisco 7304
- *OC12 Packet Over Sonet Line Card Installation and Configuration* document for the Cisco 7304
- *OC48 Packet Over Sonet Line Card Installation and Configuration* document for the Cisco 7304

Supported Platforms

- Cisco 7304 router

This documentation only covers the POS Alarm Trigger Delay feature on the Cisco 7304 Router. See the *Configuring SONET Delay Triggers* document for information on configuring this feature on other platforms.

Determining Platform Support Through Feature Navigator

Cisco IOS software is packaged in feature sets that support specific platforms. To get updated information regarding platform support for this feature, access Feature Navigator. Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image.

To access Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions at <https://tools.cisco.com/RPF/register/register.do>.

Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Feature Navigator home page at the following URL:

<http://www.cisco.com/go/fn>

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

No new or modified MIBs are supported by this feature.

To obtain lists of supported MIBs by platform and Cisco IOS Release, and to download MIB modules, go to the Cisco MIB web site on cisco.com at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

RFCs

No new or modified RFCs are supported by this feature.

Prerequisites

None. This feature should work on all Cisco 7304 POS interfaces running Cisco IOS Release 12.1(12c)EX or later.

Configuration Tasks

See the following sections for configuration tasks for the POS Alarm Trigger Delay feature:

- [Setting POS Alarm Delay for Line Level Triggers, page 5](#)
- [Setting Path Level Triggers as Alarms and Enabling POS Alarm Delay for Path Level Triggers, page 5](#)
- [Verifying POS Alarm Trigger Delay Configuration, page 5](#)

Setting POS Alarm Delay for Line Level Triggers

The following procedure shows how to configure the delay time for a line level alarm to set the line card protocol to down. The following alarms are considered line level alarms that act as triggers: section loss of signal, section loss of frame, and line alarm indication signal.

Command	Purpose
Step 1 Router(config)# interface pos <i>interface-number</i>	Selects the POS interface to configure.
Step 2 Router(config-if)# pos delay triggers line <i><ms></i>	Specifies a delay for setting the line protocol to down when a line level trigger alarm is received. If no <i>ms</i> value is entered, the <i>ms</i> value is set at 100. The following alarms are considered line level triggers: section loss of signal, section loss of frame, and line alarm indication signal.

Setting Path Level Triggers as Alarms and Enabling POS Alarm Delay for Path Level Triggers

The following procedure shows how to enable path level alarms as triggers, and how to set the alarm trigger delay for path level triggers if a delay is desired.

Command	Purpose
Step 3 Router(config)# interface pos <i>interface-number</i>	Selects the POS interface to configure.
Step 4 Router(config-if)# pos delay triggers path <i><ms></i>	Specifies that path level alarms should act as triggers. After specifying that path level alarms should act as triggers, specifies a delay for setting the line protocol to down when a path level trigger alarm is received. If no <i>ms</i> value is entered, the default <i>ms</i> value of 100 is used. The following alarms are considered path level triggers: path alarm indication signal and path remote defect indication. These alarms are not triggers unless the pos delay triggers path command is entered.

Verifying POS Alarm Trigger Delay Configuration

The following commands can be used to verify if POS Alarm Trigger Delay is enabled:

Command	Purpose
Router# show controllers pos <i>slot/interface-number</i> detail	Shows the content of POS controllers, including the amount of delay for line triggers.

Configuration Examples

Setting the POS Line Level Triggers Delay

In the following configuration example, the POS line card will wait 50 ms after receiving a line level trigger before setting the line protocol to down. If the alarm that began the line level trigger clears during that 50 ms, the line protocol will remain up. If the alarm that began the line trigger remains after that 50 ms, the line protocol will go down.

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# interface pos 1/0
Router(config-if)# pos delay triggers line 50
```

Setting Path Level Triggers as Alarms and Configuring Path Level Trigger Delay

In the following configuration example, the POS line card will wait 110 ms after receiving a path trigger before setting the line protocol to down. If the alarm that began the path trigger clears during that 110 ms, the line protocol will remain up. If the alarm that began the path trigger remains after 110 ms, the line protocol will go down.

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# interface pos 1/0
Router(config-if)# pos delay triggers path 110
```

Verifying POS Alarm Trigger Delay

In the following example, the **show controllers pos slot/interface-number detail** command is used to verify the POS alarm trigger delay. In this particular example, the delay is 100 ms (italicized for emphasis below) for both line level triggers and path level triggers.

```
Router# show controllers pos 4/0 detail
POS4/0
SECTION
  LOF = 0          LOS = 0          BIP(B1) = 22
LINE
  AIS = 0          RDI = 0          FEBE = 21          BIP(B2) = 38
PATH
  AIS = 0          RDI = 1          FEBE = 25          BIP(B3) = 31
  PLM = 0          UNEQ = 0          TIM = 0           TIU = 0
  LOP = 0          NEWPTR = 4          PSE = 2           NSE = 3

Active Defects:None
Active Alarms: None
Alarm reporting enabled for:SF SLOS SLOF B1-TCA B2-TCA PLOP B3-TCA

Line triggers delayed 100 ms
Path triggers delayed 100 ms
...
```

Command Reference

This section documents the modified command introduced by this feature. All other commands used with this feature are documented in the Cisco IOS Release 12.1 Command Reference publications.

- [pos delay triggers](#)

pos delay triggers

To enable a POS alarm trigger delay, or to enable path level alarms as triggers to bring the POS line card protocol to down, use the **pos delay triggers** POS interface configuration command. To disable POS alarm trigger delays, use the **no** form of this command.

pos delay triggers [**line** *ms* | **path** {*ms*}]

no pos delay triggers [**line** *ms* | **path** {*ms*}]

Syntax Description	line	path	ms
	Specifies the delay for SONET line level triggers. The following alarms are considered line level triggers: section loss of signal, section loss of frame, line alarm indication signal. SONET line level triggers bring the line protocol down by default	Specifies that SONET path level alarms should trigger the line protocol to go down.	Specifies the time, in milliseconds, that POS trigger should wait before setting the line protocol to down. If no <i>ms</i> value is entered, the default value of 100 ms is used.

Defaults

POS line level alarm triggers are enabled by default. If a POS line level alarm trigger occurs and no configuration changes have been made using the **pos delay triggers line** *ms* command, the line protocol is set to down immediately with no delay.

POS path level alarm triggers are disabled by default. A path level alarm will not set the line protocol to down unless the **pos delay triggers path** command has been entered.

If no *ms* value is entered but **pos delay triggers line** command is configured, the default *ms* value for line level triggers is 100 ms.

If no *ms* value is entered and **pos delay triggers path** is enabled, the default *ms* value is set at 100 ms for path level triggers.

Command Modes POS Interface configuration

Command History	Release	Modification
	12.1(12c)EX1	This command was introduced for Cisco 7304 routers.
	12.2(18)S	This command was introduced on Cisco 7304 routers running Cisco IOS Release 12.2 S.

Usage Guidelines

A trigger is an alarm that, when asserted, causes the line protocol to go down.

When one or more triggers are asserted, the line protocol of the interface goes down. The POS Alarm Trigger Delay feature provides the option to delay triggering of the line protocol of the interface from going down when an alarm triggers the line protocol to go down. For instance, if you configure the POS alarm delay for 150 ms, the line protocol will not go down for 150 ms after receiving the trigger. If the trigger alarm stays up for more than 150 ms, the link is brought down as it is now. If the trigger alarm clears before 150 ms, the line protocol is not brought down.

By default, the following line and section alarms are triggers for the line protocol to go down:

- Section loss of signal
- Section loss of frame
- Line alarm indication signal

For line and section alarm triggers, the line protocol of the POS card is brought down immediately if a trigger is received and no POS alarm trigger delay is specified. The delay can be set anywhere from 50 to 10000 ms. If POS alarm triggering is configured but no *ms* value is entered, the POS alarm trigger delay is 100 ms.

The following path alarms are not triggers by default. These path alarms, however, can be configured as triggers:

- Path alarm indication signal
- Path remote defect indication
- B3 TCA alarms

The POS Alarm Trigger Delay feature can be used to configure path alarm indication signals and path remote defect indication as triggers, as well as to configure the exact POS alarm trigger delay for these triggers. The default delay values for path alarm indication signals and path remote defect indications, if no value is specified, is also 100 ms.

Beginning with Cisco IOS Release 12.(31)SB13, B3 TCA alarms will bring down the line protocol immediately regardless of the configured delay time if **pos delay trigger path** command is configured; the configured trigger delay time is not applicable to B3 TCA alarms. If **pos delay trigger path** command is not configured, B3 TCA alarms will not bring the line down. In releases prior to Cisco IOS Release 12.2(31)SB13, B3 TCA alarms are not triggers for the line protocol to go down by default.

Examples

In the following configuration example, the POS line card will wait 50 ms after receiving a line level trigger before setting the line protocol to down. If the alarm that began the line level trigger clears during that 50 ms, the line protocol will remain up. If the alarm that began the line trigger remains after that 50 ms, the line protocol will go down.

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# interface pos 1/0
Router(config-if)# pos delay triggers line 50
```

In the following configuration example, the POS line card will not wait for 110 ms before setting the line protocol to down for a B3 TCA alarm.

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# interface pos 1/0
Router(config-if)# pos delay triggers path 110
```

In the following example, the **show controllers pos slot/interface-number detail** command is used to verify the POS alarm trigger delay. In this particular example, the delay is 100 ms (italicized for emphasis below) for both line level triggers and path level triggers.

```
Router# show controllers pos 4/0 detail
POS4/0
SECTION
  LOF = 0          LOS = 0          BIP(B1) = 22
LINE
  AIS = 0          RDI = 0          FEBE = 21          BIP(B2) = 38
PATH
  AIS = 0          RDI = 1          FEBE = 25          BIP(B3) = 31
  PLM = 0          UNEQ = 0         TIM = 0           TIU = 0
  LOP = 0          NEWPTR = 4        PSE = 2           NSE = 3

Active Defects:None
Active Alarms: None
Alarm reporting enabled for:SF SLOS SLOF B1-TCA B2-TCA PLOP B3-TCA

Line triggers delayed 100 ms
Path triggers delayed 100 ms
...
```

Related Commands

Command	Description
show controllers pos slot/interface-number detail	Shows the content of POS controllers, including the amount of delay for line triggers.

Glossary

alarm—A notification that a rising or falling threshold has been crossed.

trigger—An alarm that, when asserted, causes the line protocol to go down.

