10-Gigabit Ethernet WAN PHY Controller Commands

This module describes the commands to configure a 10-Gigabit Ethernet WAN PHY physical controller on the Cisco NCS 6000 Series Router.

For information on 10-Gigabit Ethernet (GE) interface commands see the *Ethernet Interface Commands* module.

clear controller wanphy

To clear the alarms counters for a specific 10-Gigabit Ethernet WAN PHY controller, use the **clear controller wanphy** command in XR EXECmode.

clear controller wanphy interface-id stats

Syntax Description

interface-id	Physical interface instance. Naming notation is *rack/slot/module/port* and a slash between values is required as part of the notation. • *rack*: Chassis number of the rack. • *slot*: Physical slot number of the line card. • *module*: Module number. A physical layer interface module (PLIM) is always 0. Shared port adapters (SPAs) are referenced by their subslot number. • *port*: Physical port number of the interface. For more information about the syntax for the router, use the question mark (?) online help function.
stats	Clears alarm counters for the specified 10-Gigabit Ethernet WAN PHY controller.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.1	This command was introduced.

Usage Guidelines

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

Task ID

Task ID	Operations
interface	read, write, execute

Examples

This example shows how to configure a 10-Gigabit Ethernet WAN PHY controller in Slot 6:

```
RP/0/RP0/CPU0:router # clear controller wanphy 0/6/0/0 stats
```

Related Commands

Command	Description
show controllers wanphy, on page 9	Displays alarms, registers, and module information for a 10-Gigabit Ethernet WAN PHY controller.
clear counters wanphy	Clears the alarms counters for a specific 10-Gigabit Ethernet WAN PHY interface.

controller wanphy

To enter WAN physical controller configuration mode in which you can configure a 10-Gigabit Ethernet WAN PHY controller, use the **controller wanphy** command in XR config mode. To return the 10-Gigabit Ethernet WAN PHY controller to its default WAN mode configuration, use the **no** form of this command.

controller wanphy interface-id

no controller wanphy interface-id

Syntax Description

interface-id	Physical interface instance. Naming notation is *rack/slot/module/port* and a slash between values is required as part of the notation. • *rack*: Chassis number of the rack. • *slot*: Physical slot number of the line card. • *module*: Module number. A physical layer interface module (PLIM) is always 0. Shared port adapters (SPAs) are referenced by their subslot number. • *port*: Physical port number of the interface. For more information about the syntax for the router, use the question mark (?) online help function.

Command Default

No default behavior or values

Command Modes

XR config

Command History

Release	Modification
Release 5.0.1	This command was introduced.

Usage Guidelines

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

Note After you use the **no controller wanphy** command to return a 10-Gigabit Ethernet WAN PHY controller to its default configuration, you need to cycle the power to the 10-Gigabit Ethernet SPA for the mode configuration changes to take effect.

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to enter WAN PHY controller configuration mode:

```
RP/0/RP0/CPU0:router # configure
RP/0/RP0/CPU0:router(config)# controller wanphy 0/6/0/0
RP/0/RP0/CPU0:router(config-wanphy)#
```

Related Commands

Command	Description
show controllers wanphy, on page 9	Displays alarms, registers, and module information for a 10-Gigabit Ethernet WAN PHY controller.

report sd-ber

To enable Signal Degrade (SD) Bit Error Rate (BER) reporting, use the **report sd-ber** command in wanphy configuration mode. To disable Signal Degrade (SD) Bit Error Rate (BER) reporting, use the no form of this command.

report sd-ber

no report sd-ber

Syntax Description

This command has no keywords or arguments.

Command Default

Signal Degrade (SD) Bit Error Rate (BER) reporting is disabled by default.

Command Modes

Wanphy configuration

Command History

Release	Modification
Release 5.0.1	This command was introduced.

Usage Guidelines

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to enable Signal Degrade (SD) Bit Error Rate (BER) reporting.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller wanphy 0/6/1/0
RP/0/RP0/CPU0:router(config-wanphy)# report sd-ber
RP/0/RP0/CPU0:router(config-wanphy)#
```

Related Commands

Command	Description
report sf-ber disable, on page 7	Disables SF BER reporting.
show controllers wanphy, on page 9	Displays alarms, registers, and module information for a 10-Gigabit Ethernet WAN PHY controller.
threshold sf-ber, on page 21	Configures the threshold of the SF BER that is used to trigger a link state change.

report sf-ber disable

To disable Signal Failure (SF) Bit Error Rate (BER) reporting, use the **report sf-ber disable** command in wanphy configuration mode. To disable Signal Failure (SF) Bit Error Rate (BER) reporting, use the no form of this command.

report sf-ber disable

no report sf-ber disable

Syntax Description

This command has no keywords or arguments.

Command Default

Signal Failure (SF) Bit Error Rate (BER) reporting is enabled by default.

Command Modes

Wanphy configuration

Command History

Release	Modification
Release 5.0.1	This command was introduced.

Usage Guidelines

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to disable Signal Failure (SF) Bit Error Rate (BER) reporting.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller wanphy 0/6/1/0
RP/0/RP0/CPU0:router(config-wanphy)# report sf-ber disable
RP/0/RP0/CPU0:router(config-wanphy)#
```

Related Commands

Command	Description
report sd-ber, on page 6	Enables Signal Degrade (SD) Bit Error Rate (BER) reporting.
show controllers wanphy, on page 9	Displays alarms, registers, and module information for a 10-Gigabit Ethernet WAN PHY controller.
threshold sf-ber, on page 21	Configures the threshold of the SF BER that is used to trigger a link state change.

signal sf-ber remote-fault

To configure the remote fault signaling of the Signal Failure (SF) Bit Error Rate (BER) that is used to trigger a signal failure, use the **signal sf-ber remote-fault**command in wanphy configuration mode.

signal sf-ber remote-fault *exponent*

Syntax Description

exponent	Value of 10 raised to the *n* power, where *n* is the exponent of 10, as in10-n. Valid values are 3 to 9, meaning 10-3 to 10-9.

Command Default

The default is 3, meaning (10-3).

Command Modes

Wanphy configuration

Command History

Release	Modification
Release 5.0.1	This command was introduced.

Usage Guidelines

Task ID

Task ID	Operation
interface	read, write

Examples

This example shows how to configure remote fault signaling of the Signal Failure (SF) Bit Error Rate (BER):

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller wanphy 0/6/1/0
RP/0/RP0/CPU0:router(config-wanphy)# signal sf-ber remote-fault
RP/0/RP0/CPU0:router(config-wanphy)#
```

show controllers wanphy

To display alarms, registers, and module information for a 10-Gigabit Ethernet WAN PHY controller, use the **show controllers wanphy** command in EXEC mode.

show controller wanphy *interface-id* [**alarms**| **all**| **registers**]

Syntax Description

interface-id	Physical interface instance. Naming notation is *rack/slot/module/port* and a slash between values is required as part of the notation. • *rack*: Chassis number of the rack. • *slot*: Physical slot number of the line card. • *module*: Module number. A physical layer interface module (PLIM) is always 0. Shared port adapters (SPAs) are referenced by their subslot number. • *port*: Physical port number of the interface. For more information about the syntax for the router, use the question mark (?) online help function.
alarms	Displays information about any alarms that are detected by the specified 10-Gigabit Ethernet WAN PHY controller.
all	Displays registers, alarms, and module information for the specified 10-Gigabit Ethernet WAN PHY controller.
registers	Displays registers for the specified 10-Gigabit Ethernet WAN PHY controller.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.1	This command was introduced.

Usage Guidelines

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

Task ID

Task ID	Operations
interface	read

Examples

This example shows sample output from the **show controllers wanphy** command with the **all** keyword:

```
RP/0/RP0/CPU0:router# show controllers wanphy 0/3/4/0 all

Interface: wanphy0_3_4_0
Configuration Mode: WAN Mode
SECTION
  LOF = 1, LOS = 1, BIP(B1) = 2912
LINE
  AIS = 1, RDI = 0, FEBE = 949, BIP(B2) = 48562
PATH
  AIS = 1, RDI = 0, FEBE = 0, BIP(B2) = 0
  LOP = 0, NEWPTR = 0, PSE = 0, NSE = 0
WIS ALARMS
  SER = 9, FELCDP = 0, FEAISP = 0
  WLOS = 1, PLCD = 0
  LFEBIP = 47260, PBEC = 949

Active Alarms[All defects]: lof,
Active Alarms[Highest Alarms]: lof
  Rx(K1/K2): N/A, Tx(K1/K2): N/A
  S1S0 = N/A, C2 = N/A
PATH TRACE BUFFER
Remote IP addr: 000.000.000.000
BER thresholds: N/A
TCA thresholds: N/A

REGISTERS
P_FEBE  : 949
L_FE_BIP: 47260
L_BIP   : 48562
P_BEC   : 949
S_BIP   : 2912
J1-Rx0  : 0x3136
J1-Rx1  : 0x352e
J1-Rx2  : 0x3234
J1-Rx3  : 0x332e
J1-Rx4  : 0x3132
J1-Rx5  : 0x3900
J1-Rx6  : 0x3138
J1-Rx7  : 0x372e
Internal Information
Operational Mode  : WAN Mode
Curent Alarms: 0x8
```

Table 1: show controllers wanphy Command Output Fields

Field	Description
Interface	Identifies the WAN physical interface, in the format *rack/slot/module/port*. • *rack*: Chassis number of the rack. • *slot*: Physical slot number of the line card. • *module*: Module number. A physical layer interface module (PLIM) is always 0. Shared port adapters (SPAs) are referenced by their subslot number. • *port*: Physical port number of the interface.
Configuration Mode	Current configuration mode running on this controller. Can be WAN mode or LAN mode.
SECTION	Displays the following section alarms: • LOF—Number of Loss of Framing (LOF) errors on this connection section. LOF alarms are critical because they indicate that the link associated with this section is down. • LOS—Number of loss of signal (LOS) errors on this connection section. LOS alarms are critical because they indicate that the link associated with this section is down. • BIP(B1)—Number of bit interleaved parity (BIP) B1 errors on this section that exceeded the specified threshold.

Field	Description
LINE	Displays the following line alarms: • AIS—Number of AIS errors on this line. AIS alarms are critical because they indicate that the line is down. • RDI—Remote defect indication. ◦ Line remote defect indication is reported by the downstream LTE when it detects LOF4, LOS5, or AIS6. ◦ Path remote defect indication is reported by the downstream PTE when it detects a defect on the incoming signal. • FEBE—Number of far-end block errors (FEBE) on this line. Line FEBE errors are accumulated from the M0 or M1 byte, and are reported when the downstream LTE detects BIP7 (B2) errors. • BIP(B2)—Number of bit interleaved parity (BIP) B2 errors on this line that exceeded the specified threshold.

Field	Description
PATH	Displays the following path alarms: • AIS—Number of AIS errors on this path. AIS alarms are critical because they indicate that the line associated with this path is down. • RDI—Number of RDI errors on this path. • FEBE—Number of FEBE errors on this path. Path FEBEs are accumulated from the G1 byte, and are reported when the downstream PTE detects BIP (B3) errors. • BIP(B2)—Number of bit interleaved parity (BIP) errors on this path that exceeded the specified threshold. • LOP—Number of loss of pointer (LOP) errors on this path. Path LOPs are reported as a result of an invalid pointer (H1, H2) or an excess number of new data flag enabled indications. • NEWPTR—Inexact count of the number of times the SONET framer has validated a new SONET pointer value (H1, H2). • PSE—Inexact count of the number of times the SONET framer has detected a positive stuff event (PSE) in the received pointer (H1, H2). • NSE—Inexact count of the number of times the SONET framer has detected a negative stuff event in the received pointer (H1, H2). **Note** For Cisco IOS XR software release 3.5.0, the following fields display no errors:RDIFEBEBIP(B2)NEWPTRPSENSE

Field	Description
WIS ALARMS	Displays the following WAN Interconnect Sublayer (WIS) layer alarms: • SER—Number of Severely Errored Seconds (SER) errors • FELCDP—Number of Far End - Loss of Code-group Delineation - Path (FELCDP) errors • FEAISP—Number of Far End - AIS - Path (FEAISP) errors • WLOS—Number of WIS LOS (WLOS) errors. • PLCD—Number of Path Loss of Code-group Delineation (PLCD) errors • LFEBIP—Number of Line - Far End - BIP (LFEBI) errors • PBEC—Number of Path - Block Error Counter (PBEC) errors **Note** Alarms are applicable only when the controller is configured in WAN-PHY mode.
Active Alarms[All defects]	Total number of currently active alarms on this interface. **Note** Alarms are applicable only when the controller is configured in WAN-PHY mode.
Active Alarms[Highest Alarms]	Total number of the most significant active alarms on this interface. These alarms are likely causing all other alarms on the interface. **Note** Alarms are applicable only when the controller is configured in WAN-PHY mode.
Rx(K1/K2)	Total number of errored K1/K2 bytes from the Line OverHead (LOH) of the SONET frame that were received by this interface.
Tx(K1/K2)	Total number of errored K1/K2 bytes from the Line OverHead (LOH) of the SONET frame that were transmitted by this interface.
S1S0	Number of errored payload pointer bytes on this interface.
C2	Number of errored STS identifier (C1) bytes on this interface.

Field	Description
PATH TRACE BUFFER	Rx J1 trace buffer received from the far end. If the received data is valid it will be shown below the PATH TRACE BUFFER field.
Remote IP addr	Byte string containing the IP address of the remote end of this connection. If the received data is invalid, this field displays no IP address.
BER thresholds	BER threshold values of the specified alarms for a the 10-Gigabit Ethernet controller.
TCA thresholds	TCA threshold values of the specified alarms for a the 10-Gigabit Ethernet controller.

Field	Description
REGISTERS	Displays output from the following registers in hexadecimal format: • P_FEBE—Total number of Far End Block Errors (FEBEs) that occurred on the path that is associated with this interface. • L_FE_BIP—Total number of far end BIP errors that occurred on this interface. • L_BIP—Total number of local BIP errors that occurred on this interface. • P_BEC—Total BIP error count (BEC) that occurred on the path that is associated with this interface. • S_BIP—Total number of far end BIP errors that occurred on the current section. • J1-Rx0—Characters from far end IPV4 address string. • J1-Rx1—Characters from far end IPV4 address string. • J1-Rx2—Characters from far end IPV4 address string. • J1-Rx3—Characters from far end IPV4 address string. • J1-Rx4—Characters from far end IPV4 address string. • J1-Rx5—Characters from far end IPV4 address string. • J1-Rx6—Characters from far end IPV4 address string. • J1-Rx7—Characters from far end IPV4 address string. **Note** The following Serdes-WIS HW registers are used to debug counters and can be cleared only by power cycling the hardware:P_FEBEL_FE_BIPL_BIPP_BECS_BIPThe J1-Rx registers (J1-Rx0 through J1-Rx7) comprise the raw 16 bytes of data received from the Rx J1 Path Trace Buffer, and are used to debug IPV4 address sent from far end.

Field	Description
Internal Information	Displays the following internal information for the interface: • Operational Mode—Current operation mode for this controller. Can be WAN mode or LAN mode. • Current Alarms—Bit map of all currently active alarms on this controller. Use this information for debugging purposes. **Note** Alarms are applicable only when the controller is configured in WAN-PHY mode.

The following example shows sample output from the **show controllers wanphy** command with the **alarms** keyword:

```
RP/0/RP0/CPU0:router# show controllers wanphy 0/3/4/0 alarms

Interface: wanphy0_3_4_0
Configuration Mode: WAN Mode
SECTION
  LOF = 1, LOS = 1, BIP(B1) = 2912
LINE
  AIS = 1, RDI = 0, FEBE = 949, BIP(B2) = 48562
PATH
  AIS = 1, RDI = 0, FEBE = 0, BIP(B2) = 0
  LOP = 0, NEWPTR = 0, PSE = 0, NSE = 0
WIS ALARMS
  SER = 9, FELCDP = 0, FEAISP = 0
  WLOS = 1, PLCD = 0
  LFEBIP = 47260, PBEC = 949

Active Alarms[All defects]:
Active Alarms[Highest Alarms]:
  Rx(K1/K2): N/A, Tx(K1/K2): N/A
  S1S0 = N/A, C2 = N/A
PATH TRACE BUFFER
Remote IP addr: 981.761.542.321
BER thresholds: N/A
TCA thresholds: N/A
```

The alarm information displayed in the **show controllers wanphy** *interface-id* **alarms** command output are described in Table 1: show controllers wanphy Command Output Fields, on page 11.

The following example shows sample output from the **show controllers wanphy** command with the **registers** keyword:

```
RP/0/RP0/CPU0:router# show controllers wanphy 0/3/4/0 registers
Interface: wanphy0_3_4_0

Configuration Mode: WAN Mode
REGISTERS
P_FEBE  : 949
L_FE_BIP: 47260
L_BIP   : 48562
P_BEC   : 949
S_BIP   : 2912
J1-Rx0  : 0x3136
J1-Rx1  : 0x352e
```

```
J1-Rx2  : 0x3234
J1-Rx3  : 0x332e
J1-Rx4  : 0x3132
J1-Rx5  : 0x3900
J1-Rx6  : 0x3138
J1-Rx7  : 0x372e
Internal Information
Operational Mode  : WAN Mode
Curent Alarms: 0x0
```

The registers displayed in the **show controllers wanphy** *interface-id* **registers** command output are described in Table 1: show controllers wanphy Command Output Fields, on page 11.

Related Commands

Command	Description
clear controller wanphy, on page 2	Clears the alarms counters for a specific 10-Gigabit Ethernet WAN PHY controller.

threshold sd-ber

To configure the threshold of the Signal Degrade (SD) Bit Error Rate (BER) that is used to trigger a signal degrade alarm, use the **threshold sd-ber** command in wanphy configuration mode. To return the Signal Degrade (SD) Bit Error Rate (BER) to the default value, use the no form of this command.

threshold sd-ber *exponent*

no threshold sd-ber *exponent*

Syntax Description

exponent	Value of 10 raised to the *n* power, where *n* is the exponent of 10, as in10-n. Valid values are 3 to 9, meaning 10-3 to 10-9.

Command Default

The default is 6, meaning (10-6).

Command Modes

Wanphy configuration

Command History

Release	Modification
Release 5.0.1	This command was introduced.

Usage Guidelines

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to configure sd-ber threshold:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller wanphy 0/6/1/0
RP/0/RP0/CPU0:router(config-wanphy)# threshold sd-ber 9
RP/0/RP0/CPU0:router(config-wanphy)#
```

Related Commands

Command	Description
report sd-ber, on page 6	Enables Signal Degrade (SD) Bit Error Rate (BER) reporting.

Command	Description
report sf-ber disable, on page 7	Disables SF BER reporting.
threshold sf-ber, on page 21	Configures the threshold of the SF BER that is used to trigger a link state change.

threshold sf-ber

To configure the threshold of the Signal Failure (SF) Bit Error Rate (BER) that is used to trigger a link state change, use the **threshold sf-ber** command in wanphy configuration mode. To return the Signal Failure (SF) Bit Error Rate (BER) to the default value, use the no form of this command.

threshold sf-ber *exponenet*

no threshold sf-ber *exponenet*

Syntax Description

exponent	Value of 10 raised to the *n* power, where *n* is the exponent of 10, as in10-n. Valid values are 3 to 9, meaning 10-3 to 10-9.

Command Default

The default is 3, meaning (10-3).

Command Modes

Wanphy configuration

Command History

Release	Modification
Release 5.0.1	This command was introduced.

Usage Guidelines

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to configure the threshold of the Signal Failure (SF) Bit Error Rate (BER):

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller wanphy 0/6/1/0
RP/0/RP0/CPU0:router(config-wanphy)# threshold sf-ber 9
RP/0/RP0/CPU0:router(config-wanphy)#
```

Related Commands

Command	Description
report sd-ber, on page 6	Enables Signal Degrade (SD) Bit Error Rate (BER) reporting.

Command	Description
report sf-ber disable, on page 7	Disables SF BER reporting.
show controllers wanphy, on page 9	Displays alarms, registers, and module information for a 10-Gigabit Ethernet WAN PHY controller.