

Switch Alarms

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Information about switch alarms

The switch software monitors switch conditions on a per-port or a switch basis. If the conditions present on the switch or a port do not match the set parameters, the switch software triggers an alarm or a system message.

By default, the switch software sends the system messages to a system message logging facility, or a *syslog* facility. You can also configure the switch to send Simple Network Management Protocol (SNMP) traps to an SNMP server.

External alarms

The Cisco IE3500 Rugged Series Switches support two alarm inputs and one alarm output, while the Cisco IE3500H Heavy Duty Series Switches support one alarm input and one alarm output.

The alarm input circuit is designed to sense if a dry contact is open or closed relative to the Alarm-In reference pin. The Alarm_Out is a relay with Normally Open and Normally Closed contacts.

The switch software is configured to detect faults which are used to energize the relay coil and change the state on both of the relay contacts. Normally open contacts close and normally closed contacts open.

- **Open** means that the normal condition has current flowing through the contact (normally closed contact). The alarm is generated when the current stops flowing.
- **Closed** means that no current flows through the contact (normally open contact). The alarm is generated when current does flow.

Note Software can program the Alarm_In to trigger an alarm with either Open or Closed setting.

You can set the alarm severity to major, minor, or none. The severity is included in the alarm message and also sets the LED color when the alarm is triggered. The LED is red for a minor alarm and blinking red for a major alarm. If not set, the default alarm severity is minor.

For detailed information about the alarm connector, LEDs, alarm circuit and wiring installation, alarm ratings and ports, see the *Hardware Installation Guide*.

Power supply alarms

Cisco IE3500 Rugged Series Switches

The Cisco IE3500 Rugged Series Switches have two power supply slots that contain DC power supplies. One input is used for system operation, while the second input is optional for redundancy, and the system cannot share power between these two inputs. The switch LEDs display the status and type of power supplied to each slot. The DC-power supplies have two DC inputs (DC A and DC B).

The default power supply configuration is to have one power supply installed in slot 1 and the software configured for **no power-supply dual**. This suppresses any alarms triggered by not having two power supplies installed. When the switch is operating with two power supplies, we recommend you enter the **power-supply dual** global configuration command to trigger an alarm when one is missing or inoperable.

When the switch detects a power supply fault, it triggers an LED indicator and sends a system message. Power-supply alarm indications are sent when a power supply is missing, has no input, or has insufficient output. Some of these alarm conditions are configurable.

The Cisco IE3500H Heavy Duty Series Switches

The Cisco IE3500H Heavy Duty Series Switches support a single DC power inputs. The power supply operates within a voltage range of 85-264V AC or 20-110V DC, delivers a 54V DC output and provides 360W of total power at 70°C.

Note The Cisco IE3500H Heavy Duty Series Switches does not support power supply alarm.

Power-Supply-Missing Alarms

If you are operating the Cisco IE3500 Rugged Series Switch with a single power supply (DC), you can suppress any alarm conditions associated with a missing power supply. Entering the **no power-supply dual global** configuration command (the default) specifies that only one power supply is expected to be present. Then the switch does not generate an alarm that a power supply is missing. The **no power-supply dual** command

controls only the sending of messages about the absence of a second power supply or the absence of input to the second power supply. The software detects whether a power supply is present and if there is an input voltage. When there is input, the software can detect if there is output voltage.

If you operate the Cisco IE3500 Rugged Series Switches with two power supplies, enter the **power-supply dual** global configuration command to configure the switch to send a message when one power supply is missing.

Global status monitoring alarms

The switch processes alarms related to temperature and power supply conditions, referred to as global or facility alarms.

Table 1: Global status monitoring alarms

Alarm	Description
Power supply alarm	By default, the switch monitors a single power supply. If you configure a dual power supply, an alarm triggers if one power supply fails. You can configure the power supply alarm to be connected to the hardware relays. For more information, see the Configure power supply alarms, on page 8.
Temperature alarms	The switch contains one temperature sensor with a primary and secondary temperature setting. The sensor monitors the environmental conditions inside the switch. The primary and secondary temperature alarms can be set as follows: • The primary alarm is enabled automatically to trigger both at a low temperature, –4°F (–20°C) and a high temperature, 203°F (95°C). It cannot be disabled. By default, the primary temperature alarm is associated with the major relay. • The secondary alarm triggers when the system temperature is higher or lower than the configured high and low temperature thresholds. The secondary alarm is disabled by default. For more information, see the Configure switch temperature alarms, on page 10.
SD-Card	By default the alarm is disabled.

FCS error hysteresis threshold

The Ethernet standard calls for a maximum bit-error rate of 10^{-8}. The bit error-rate range is from 10^{-6} to 10^{-11}. The bit error-rate input to the switch is a positive exponent. If you want to configure the bit error-rate of 10^{-9}, enter the value 9 for the exponent. By default, the FCS bit error-rate is 10^{-8}.

You can set the FCS error hysteresis threshold to prevent the toggle of the alarm when the actual bit-error rate fluctuates near the configured rate. The hysteresis threshold is defined as the ratio between the alarm clear threshold to the alarm set threshold, expressed as a percentage value.

For example, if the FCS bit error-rate alarm value is configured to 10^{-8}, that value is the alarm set threshold. To set the alarm clear threshold at $5*10^{-10}$, the hysteresis, value *h*, is determined as follows:

h = alarm clear threshold / alarm set threshold

$h = 5*10^{-10} / 10^{-8} = 5*10^{-2} = 0.05 = 5$ percent

The FCS hysteresis threshold is applied to all ports on the switch. The allowable range is from 1 to 10 percent. The default value is 10 percent. For more information, see the Configure FCS error threshold, on page 13.

Port status monitoring alarms

The switch can also monitor the status of the Ethernet ports and generate alarm messages based on the alarms listed in port status monitoring alarms table. To save user time and effort, it supports changeable alarm configurations by using alarm profiles. You can create a number of profiles and assign one of these profiles to each Ethernet port.

Alarm profiles provide a mechanism for you to enable or disable alarm conditions for a port and associate the alarm conditions with one or both alarm relays. You can also use alarm profiles to set alarm conditions to send alarm traps to an SNMP server and system messages to a syslog server. The alarm profile defaultPort is applied to all interfaces in the factory configuration (by default).



Note You can associate multiple alarms to one relay or one alarm to both relays.

Port status monitoring alarms table given below lists the port status monitoring alarms and their descriptions and functions. Each fault condition is assigned a severity level based on the Cisco IOS System Error Message Severity Level.

Table 2: Port status monitoring alarms

Alarm List ID	Alarm	Description
1	Link Fault alarm	The switch generates a link fault alarm when problems with a port physical layer cause unreliable data transmission. A typical link fault condition is loss of signal or clock. The link fault alarm is cleared automatically when the link fault condition is cleared. The severity for this alarm is error condition, level 3.
2	Port not Forwarding alarm	The switch generates a port not-forwarding alarm when a port is not forwarding packets. This alarm is cleared automatically when the port begins to forward packets. The severity for this alarm is warning, level 4.
3	Port not Operating alarm	The switch generates a port not-operating alarm when a port fails during the startup self-test. When triggered, the port not-operating alarm is only cleared when the switch is restarted and the port is operational. The severity for this alarm is error condition, level 3.
4	FCS Bit Error Rate alarm	The switch generates an FCS bit error-rate alarm when the actual FCS bit error-rate is close to the configured rate. You can set the FCS bit error-rate by using the interface configuration CLI for each of the ports. For more information, see the Configure FCS error threshold, on page 13. The severity for this alarm is error condition, level 3.

Trigger alarm options

The switch supports these methods for triggering alarms:

- Configurable Relay

The switch is equipped with one independent alarm relay that can be triggered by alarms for global, port status and SD flash card conditions. You can configure the relay to send a fault signal to an external alarm device, such as a bell, light, or other signaling device. You can associate any alarm condition with the alarm relay. Each fault condition is assigned a severity level based on the Cisco IOS System Error Message Severity Level.

For more information on configuring the relay, see the Configure power supply alarms, on page 8.

- SNMP Traps

  SNMP is an application-layer protocol that provides a message format for communication between managers and agents. The SNMP system consists of an SNMP manager, an SNMP agent, and a management information base (MIB).

- The snmp-server enable traps command can be changed so that the user can send alarm traps to an SNMP server. You can use alarm profiles to set environmental or port status alarm conditions to send SNMP alarm traps. For more information, see the Enable SNMP traps, on page 16.

- Syslog Messages

  You can use alarm profiles to send system messages to a syslog server. For more information, see the Configure power supply alarms, on page 8.

Default switch alarm settings

Table 3: Default switch alarm settings

	Alarm	Default Setting
Global	Power supply alarm	Enabled in switch single power mode. No alarm. In dual-power supply mode, the default alarm notification is a system message to the console.
	Primary temperature alarm	Enabled for switch temperature range of 203°F (95°C) maximum to –4°F (–20°C) minimum. The primary switch temperature alarm is associated with the major relay.
	Secondary temperature alarm	Disabled.
	Output relay mode alarm	Normally deenergized. The alarm output has switched off or is in an off state.

	Alarm	Default Setting
Port	Link fault alarm	Disabled on all interfaces.
	Port not forwarding alarm	Disabled on all interfaces.
	Port not operating alarm	Enable on all interfaces.
	FCS bit error rate alarm	Disabled on all interfaces.

Configure switch alarms

Configure external alarms

Use this task to configure the alarms on Cisco IE3500 Series Switch



Note The Cisco IE3500H Heavy Duty Series Switches supports one alarm inputs and one alarm output.

Procedure

	Command or Action	Purpose
Step 1	Switch#**configure terminal**	Enter global configuration mode
Step 2	Switch(config)#**alarm contact** *contact-number* **description** *string* **Example:** `Switch(config)#alarm contact 1 description door sensor`	(Optional) Configures a description for the alarm contact number. • The *contact-number* value is from 1 to 4. • The description string is up to 80 alphanumeric characters in length and is included in any generated system messages.
Step 3	Switch(config)#**alarm contact** {**contact-number** | **all**} {**severity** {*major* / *minor* / *none*} | {*closed* / *open*}} **Example:** `Switch(config)#alarm contact 1 severity major`	Configures the trigger and severity for an alarm contact number or for all contact numbers. • Enter a contact number (1 to 4) or specify that you are configuring **all** alarms. • For severity, enter **major**, **minor** or **none**. If you do not configure a severity, the default is **minor**. • For trigger, enter **open** or **closed**. If you do not configure a trigger, the alarm is triggered when the circuit is **closed**.

	Command or Action	Purpose
Step 4	Switch(config)# **alarm relay-mode energized**	(Optional) Configures the output relay mode to energized.

Step 5	Switch#**show env alarm-contact**
	Example:
	• The given output of the **show env alarm-contact** command is from the Cisco IE3500 Rugged Series Switch.
	`Switch#show env alarm-contact`
	`ALARM CONTACT 1`
	`Status: not asserted`
	`Description: door sensor`
	`Severity: major`
	`Trigger: closed`
	`ALARM CONTACT 2`
	`Status: not asserted`
	`Description: external alarm contact 2`
	`Severity: minor`
	`Trigger: closed`
	• The given output of the **show env alarm-contact** command is from the Cisco IE3500H Heavy Duty Series Switch.
	`Switch#sh env alarm-contact`
	`Switch: 1`
	`ALARM CONTACT 1`
	`Status: not asserted`
	`Description: external alarm contact 1`
	`Severity: minor`
	`Trigger: closed`
		(Optional) Verifies the configured alarm contacts.

Step 6	Switch(config)#**copy running-config startup-config**	Saves your entries in the configuration file.

Configure power supply alarms

Use this task to configure the power supply alarms on the Cisco IE3500 Rugged Series Switches.

Note The Cisco IE3500H Heavy Duty Series Switches does not support power supply alarm.

Procedure

	Command or Action	Purpose
Step 1	Switch(config)#**power-supply dual**	Configures dual power supplies.

	Command or Action	Purpose
Step 2	Switch(config)#**alarm facility power-supply disable**	Disables the power supply alarm.
Step 3	Switch(config)#**alarm facility power-supply relay major** **Example:** Switch(config)#**alarm contact 1 severity major**	(Optional) Associates the power supply alarm to the relay.
Step 4	Switch#**alarm facility power-supply notifies**	(Optional) Sends power supply alarm traps to an SNMP server.
Step 5	Switch#**alarm facility power-supply syslog**	(Optional) Sends power supply alarm traps to a syslog server.
Step 6	Switch#**show facility-alarm status** **Example:** Switch#**show env power** POWER SUPPLY A is DC OK POWER SUPPLY B is DC FAULTY <--	Displays the switch power status
Step 7	Switch#**show facility-alarm status** **Example:** Switch#**show facility-alarm status** Source Severity Description Relay Time Switch MAJOR 5 Redundant Pwr missing or failed NONE Mar 01 1993 00:23:52	Displays all generated alarms for the switch.
Step 8	Switch#**show alarm settings** **Example:** Switch#**show alarm settings** Alarm relay mode: De-energized Power Supply Alarm Enabled Relay Notifies Disabled Syslog Enabled Temperature-Primary Alarm Enabled Thresholds MAX: 95C MIN: -20C Relay MAJ Notifies Enabled Syslog Enabled Temperature-Secondary Alarm Disabled Threshold Relay Notifies Disabled Syslog Disabled SD-Card Alarm Disabled Relay Notifies Disabled	Verifies the configuration.

	Command or Action	Purpose
	Syslog Enabled Input-Alarm 1 Alarm Enabled Relay Notifies Disabled Syslog Enabled Input-Alarm 2 Alarm Enabled Relay Notifies Disabled Syslog Enabled	
Step 9	Switch(config)#**copy running-config startup-config**	(Optional) Saves your entries in the configuration file.

Configure switch temperature alarms

Use this task to configure the temperature alarms on Cisco IE3500 Series Switch.

Procedure

	Command or Action	Purpose
Step 1	Switch(config)#**alarm facility temperature** {**primary** | **secondary**} **high** *threshold* **Example:** `Switch(config)#alarm facility temperature secondary high 45`	Configures the high temperature threshold value. **Note** The threshold range is from –238°F (–150°C) to 572°F (300°C).
Step 2	Switch(config)#**alarm facility temperature primary low** *threshold* **Example:** `Switch(config)#alarm facility temperature primary low 10`	Configures the low temperature threshold value. **Note** The threshold range is from –328°F (–200°C) to 482°F (250°C).

Step 3	Switch# **show alarm settings**
	Example:
	The given output of the **show alarm settings** command is from the Cisco IE3500H Heavy Duty Series Switch.
	`Switch#show alarm settings`
	`Alarm relay mode: Positive`
	`Temperature-Primary`
	`Alarm Enabled`
	`Thresholds MAX: 80C MIN: 0C`
	`Relay MAJ`
	`Notifies Enabled`
	`Syslog Enabled`
		(Optional) Verifies the configuration.

	Command or Action	Purpose
	Temperature-Secondary Alarm Disabled Threshold Relay Notifies Disabled Syslog Disabled SD-Card Alarm Disabled Relay Notifies Disabled Syslog Enabled Input-Alarm 1 Alarm Enabled Relay Notifies Disabled Syslog Enabled PTP Alarm Disabled Relay Notifies Disabled Syslog Disabled HSR Alarm Disabled Relay Notifies Disabled Syslog Disabled DLR Alarm Disabled Relay Notifies Disabled Syslog Disabled	
Step 4	Switch(config)#**copy running-config startup-config**	Saves your entries in the configuration file.

Associate temperature alarms to a relay

By default, the primary temperature alarm is associated to the relay.

You can use the **alarm facility temperature** global configuration command to associate the primary temperature alarm to an SNMP trap, or a syslog message, or to associate the secondary temperature alarm to the relay, an SNMP trap, or a syslog message.



Note The single relay on the switch is called the major relay.

Use this task to associate temperature alarms to a relay on Cisco IE3500 Series Switch.

Procedure

Step 1 Switch(config)#**alarm facility temperature** {**primary** | **secondary**} **relay major**

Associates the primary or secondary temperature alarm to the relay.

Step 2 Switch(config)#**alarm facility temperature** {**primary** | **secondary**} **notifies**

Sends primary or secondary temperature alarm traps to an SNMP server.

Step 3 Switch(config)#**alarm facility temperature** {**primary** | **secondary**} **syslog**

Sends primary or secondary temperature alarm traps to a syslog server.

(Optional) Use the **no alarm facility temperature secondary** command to disable the secondary temperature alarm.

Step 4 Switch#**show alarm settings**

Example:

The output of the **show env alarm-contact** command is from the Cisco IE3500 Rugged Series Switch.

```
Switch#show alarm settings
Alarm relay mode: De-energized
Power Supply
Alarm Enabled
Relay
Notifies Disabled
Syslog Enabled
Temperature-Primary
Alarm Enabled
Thresholds MAX: 95C MIN: -20C
Relay MAJ
Notifies Enabled
Syslog Enabled
Temperature-Secondary
Alarm Disabled
Threshold
Relay
Notifies Disabled
Syslog Disabled
SD-Card
Alarm Disabled
Relay
Notifies Disabled
Syslog Enabled
Input-Alarm 1
Alarm Enabled
Relay
Notifies Disabled
Syslog Enabled
Input-Alarm 2
Alarm Enabled
Relay
Notifies Disabled
Syslog Enabled
```

Verifies the configuration.

Step 5 Switch(config)#**copy running-config startup-config** to

(Optional) Saves your entries in the configuration file.

Configure FCS bit error rate alarm

Configure FCS error threshold

Use this task to set the FCS bit error-rate alarm when the actual rate is close to the configured rate on Cisco IE3500 Series Switch.

Procedure

	Command or Action	Purpose
Step 1	Switch(config)#**interface** *interface-id* **Example:** `Switch(config)#interface gigabitethernet1/1`	Enters the desired interface and switch to interface configuration mode.
Step 2	Switch(config)#**fcs-threshold** *value* **Example:** `Switch(config)#fcs-threshold 10`	Sets the FCS error rate For *value*, the range is 6 to 11 to set a maximum bit error rate of 10^{-6} to 10^{-11}. By default, the FCS bit error rate is 10^{-8}.

Step 3	Switch#**show env alarm-contact**
	Example:
	The output of the **show env alarm-contact** command is from the Cisco IE3500H Heavy Duty Series Switch.
	`Switch#show env alarm-contact`
	`ALARM CONTACT 1`
	`Status: not asserted`
	`Description: door sensor`
	`Severity: major`
	`Trigger: closed`
	`ALARM CONTACT 2`
	`Status: not asserted`
	`Description: external alarm contact 2`
	`Severity: minor`
	`Trigger: closed`
		(Optional) Verifies the configured alarm contacts.

Step 4	(Optional) Use the **copy running-config startup-config** to save your entries in the configuration file.	`Switch(config)#copy running-config startup-config`

Configure FCS error hysteresis threshold

The hysteresis setting prevents the toggle of an alarm when the actual bit error-rate fluctuates near the configured rate. The FCS hysteresis threshold is applied to all ports of a switch.

Use this task to set the error hysteresis threshold on Cisco IE3500 Series Switch.

Procedure

	Command or Action	Purpose
Step 1	Switch(config)#**alarm facility fcs-hysteresis** *percentage* **Example:** `Switch(config)#alarm facility fcs-hysteresis 10`	Sets the hysteresis percentage for the Cisco IE3500 Series Switch. For percentage, the range is 1 to 10. The default value is 10 percent

Step 2	Switch#**show env alarm-contact**
	Example:
	The output of the **show env alarm-contact** command is from the Cisco IE3500H Heavy Duty Series Switch.
	`Switch#show env alarm-contact`
	`ALARM CONTACT 1`
	`Status: not asserted`
	`Description: door sensor`
	`Severity: major`
	`Trigger: closed`
	`ALARM CONTACT 2`
	`Status: not asserted`
	`Description: external alarm contact 2`
	`Severity: minor`
	`Trigger: closed`
		(Optional) Verifies the configured alarm contacts.

Step 3	Switch(config)#**copy running-config startup-config**	(Optional) Saves your entries in the configuration file.

Configure alarm profiles

Use this task to create alarms profile on Cisco IE3500 Series Switch.

Procedure

	Command or Action	Purpose
Step 1	Switch(config)#**alarm-profile** *name* **Example:** `Switch(config)#alarm-profile fastE`	Creates the new profile or identifies an existing profile, and enter alarm profile configuration mode.

	Command or Action	Purpose
		When you create a new alarm profile, none of the alarms are enabled. **Note** The only alarm enabled in the *defaultPort* profile is the Port not operating alarm.
Step 2	Switch(config-alarm-profile)#**alarm** {**fcs-error** | **link-fault** | **not-forwarding** | **not-operating** **Example:** `Switch(config-alarm-profile)#alarm fcs-error`	(Optional) Adds or modifies alarm parameters for a specific alarm.
Step 3	Switch(config-alarm-profile)#**notifies** {**fcs-error** | **link-fault** | **not-forwarding** | **not-operating** **Example:** `Switch(config-alarm-profile)#notifies not-forwarding`	(Optional) Configures the alarm to send an SNMP trap to an SNMP server.
Step 4	Switch(config-alarm-profile)#**relay-major** {**fcs-error** | **link-fault** | **not-forwarding** | **not-operating** **Example:** `Switch(config-alarm-profile)#relay major link-fault`	(Optional) Configures the alarm to send an alarm trap to the relay.
Step 5	Switch(config-alarm-profile)#**syslog** {**fcs-error** | **link-fault** | **not-forwarding** | **not-operating** **Example:** `Switch(config-alarm-profile)#syslog not-forwarding`	(Optional) Configures the alarm to send an alarm trap to a syslog server.

Step 6	Switch#**show env alarm-contact**
	Example:
	The output of the **show env alarm-contact** command is from the Cisco IE3500H Heavy Duty Series Switch.
	`Switch#show env alarm-contact`
	`ALARM CONTACT 1`
	`Status: not asserted`
	`Description: door sensor`
	`Severity: major`
	`Trigger: closed`
	`ALARM CONTACT 2`
	`Status: not asserted`
	`Description: external alarm contact 2`
	`Severity: minor`
	`Trigger: closed`
		(Optional) Verifies the configured alarm contacts.

	Command or Action	Purpose
Step 7	Switch(config)#**copy running-config startup-config**	(Optional) Saves your entries in the configuration file.

Attach alarm profile to a specific port

Use this task to attach alarm profile to a specific port on Cisco IE3500 Series Switch.

Procedure

	Command or Action	Purpose
Step 1	Switch(config)#**interface** *port-interface*	Enters interface configuration mode.
Step 2	Switch(config)#**alarm-profile** *name* **Example:** `Switch(config)#alarm profile fastE`	Attaches the specified profile to the interface.

Step 3	Switch#**show env alarm-contact**
	Example:
	The output of the **show env alarm-contact** command is from the Cisco IE3500H Heavy Duty Series Switch.
	`Switch#show env alarm-contact`
	`ALARM CONTACT 1`
	`Status: not asserted`
	`Description: door sensor`
	`Severity: major`
	`Trigger: closed`
	`ALARM CONTACT 2`
	`Status: not asserted`
	`Description: external alarm contact 2`
	`Severity: minor`
	`Trigger: closed`
		(Optional) Verifies the configured alarm contacts.

Step 4	Switch(config)#**copy running-config startup-config**	(Optional) Saves your entries in the configuration file.

Enable SNMP traps

Use this task to enable SNMP traps on Cisco IE3500 Series Switch.

Procedure

	Command or Action	Purpose
Step 1	Switch(config)#**snmp-server enable traps alarms**	Enables the switch to send SNMP traps.

Step 2	Switch#**show env alarm-contact**
	Example:
	The output of the **show env alarm-contact** command is from the Cisco IE3500 Rugged Series Switch.
	`Switch#show env alarm-contact`
	`ALARM CONTACT 1`
	`Status: not asserted`
	`Description: door sensor`
	`Severity: major`
	`Trigger: closed`
	`ALARM CONTACT 2`
	`Status: not asserted`
	`Description: external alarm contact 2`
	`Severity: minor`
	`Trigger: closed`
		(Optional) Verifies the configured alarm contacts.

Step 3	Switch(config)#**copy running-config startup-config**	(Optional) Saves your entries in the configuration file.

Monitor and maintain switch alarms status

Use the show commands as required to display the switch alarms status.

- Use the **show alarm profile** *[name]* to display all alarm profiles in the system or a specified profile.
- Use the **show alarm settings** to display all global alarm settings on the switch.
  - The given output of the **show alarm settings** command is from the Cisco IE3500 Rugged Series Switch.

```
Switch#show alarm settings
Alarm relay mode: De-energized
Power Supply
         Alarm                    Enabled
         Relay
         Notifies                 Disabled
         Syslog                   Enabled
Temperature-Primary
         Alarm                    Enabled
         Thresholds               MAX: 95C                MIN:  -20C
         Relay                    MAJ
         Notifies                 Enabled
         Syslog                   Enabled
Temperature-Secondary
         Alarm                    Disabled
         Threshold
         Relay
         Notifies                 Disabled
```

```
         Syslog                  Disabled
SD-Card
         Alarm                   Disabled
         Relay
         Notifies                Disabled
         Syslog                  Enabled
Input-Alarm 1
         Alarm                   Enabled
         Relay
         Notifies                Disabled
         Syslog                  Enabled
Input-Alarm 2
         Alarm                   Enabled
         Relay
         Notifies                Disabled
         Syslog                  Enabled
```

- The given output of the **show alarm settings** command is from the Cisco IE3500H Heavy Duty Series Switch.

```
Switch#show alarm settings
Alarm relay mode: Positive
Temperature-Primary
         Alarm                   Enabled
         Thresholds              MAX: 80C                MIN:  0C
         Relay                   MAJ
         Notifies                Enabled
         Syslog                  Enabled
Temperature-Secondary
         Alarm                   Disabled
         Threshold
         Relay
         Notifies                Disabled
         Syslog                  Disabled
SD-Card
         Alarm                   Disabled
         Relay
         Notifies                Disabled
         Syslog                  Enabled
Input-Alarm 1
         Alarm                   Enabled
         Relay
         Notifies                Disabled
         Syslog                  Enabled
PTP
         Alarm                   Disabled
         Relay
         Notifies                Disabled
         Syslog                  Disabled
```

- Use the **show env** {**alarm-contact** | **all** | **power** | **temperature**} to display the status of environmental facilities on the switch.

  The output of the **show env power** command is from the Cisco IE3500 Rugged Series Switch.

```
Switch#show env power
POWER SUPPLY A is DC OK
POWER SUPPLY B is DC FAULTY <--
Switch# show hard led
SWITCH: 1
SYSTEM: GREEN
ALARM : ALT_RED_BLACK <--
```

- Use the **show facility-alarm status** {**critical** | **info** | **major** | **minor**} to display generated alarms on the switch.