Configure Global Green Ethernet Properties on a Switch through the Command Line Interface (CLI)

Objective

This article provides instructions on how to configure the global Green Ethernet properties on a switch through the Command Line Interface (CLI).

If you are interested in configuring using the graphical user interface (GUI), check out this article on Configure Global Green Ethernet Properties on a Switch.

Applicable Devices

- Sx300 Series
- Sx350 Series
- SG350X Series
- Sx500 Series
- Sx550X Series

Software Version

- 1.4.7.05 — Sx300, Sx500
- 2.2.8.4 — Sx350, SG350X, Sx550X

Introduction

Green Ethernet is a common name for a set of features that is designed to be environmentally friendly and reduce the power consumption of a device. Unlike Energy Efficient Ethernet (EEE), Green Ethernet energy-detection is enabled on all ports whereas only devices with gigabyte ports are enabled with EEE.

The Green Ethernet feature can reduce overall power usage in the following ways:

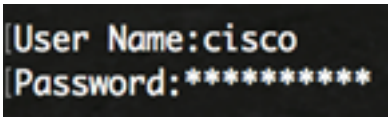
- Energy Detect Mode — On an inactive link, the port moves into inactive mode and saves power while keeping the Administrative status of the port Up. Recovery from this mode to full operational mode is fast, transparent, and no frames are lost. This mode is supported on both Gigabit Ethernet (GE) and Fast Ethernet (FE) ports. This mode is disabled by default.
- Short Reach Mode — This feature provides power savings on a short length of cable. After cable length is analyzed, the power usage is adjusted for various cable lengths. If the cable is shorter than 30 meters for Ten-Gigabit ports and 50 meters for other type of ports, the device uses less power to send frames over the cable, thus saving energy. This mode is only supported on RJ45 GE ports and does not apply to Combo ports. This mode is disabled by default.

Green Ethernet settings can be configured globally and/or per switch interface.

Configure Global Green Ethernet Properties on a Switch through the CLI

View Green Ethernet Properties on a Switch

Step 1. Log in to the switch console. The default username and password is cisco/cisco.



Note: The available commands or options may vary depending on the exact model of your device. In this example, the SG350X switch is accessed through Telnet.

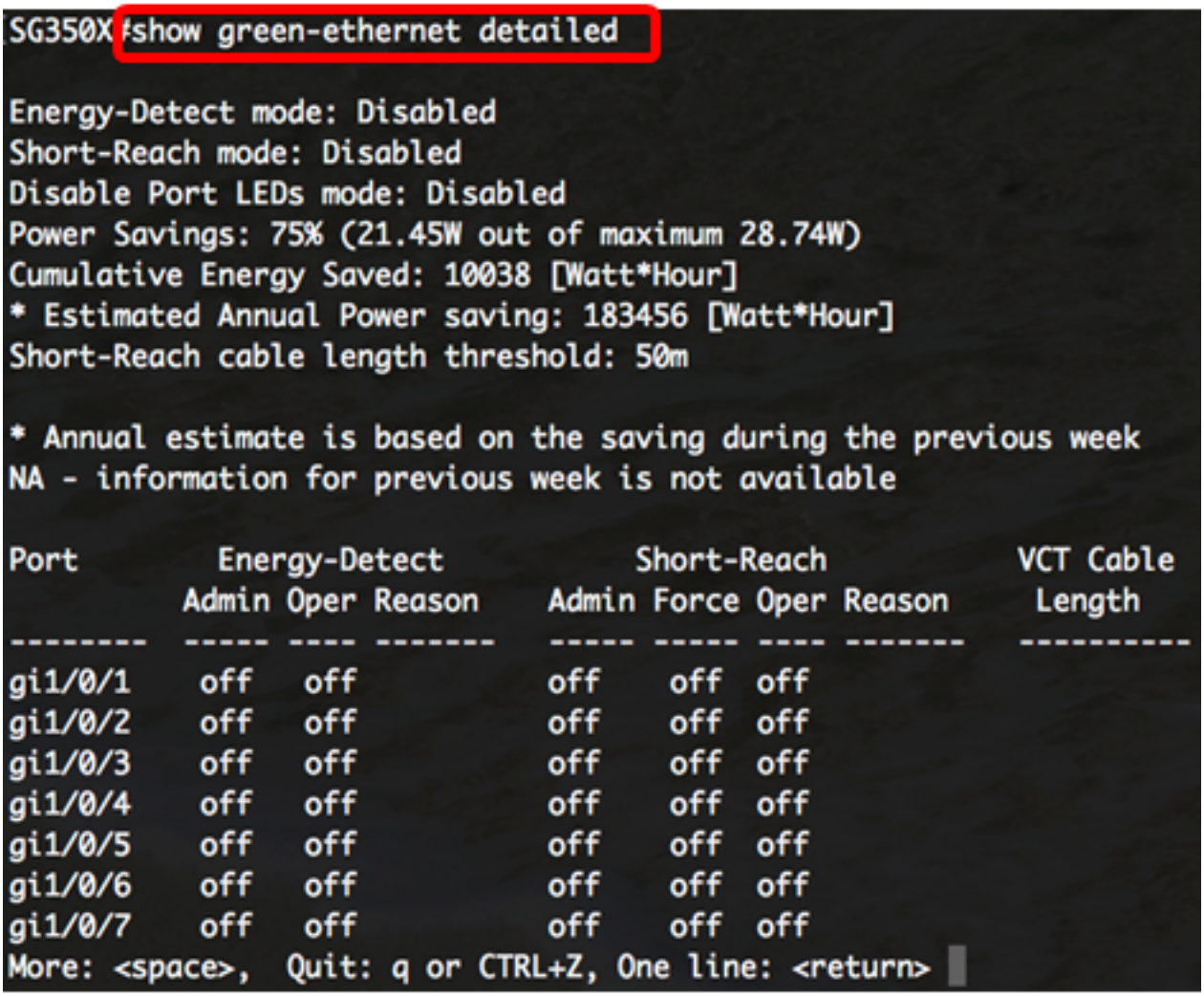
Step 2. To display the current Green Ethernet configuration and information on the switch, enter the following command in the Privileged EXEC mode:

```
SG350X#show green-ethernet [interface-id | detailed]
```

The options are:

- interface-id — (Optional) Displays the current Green Ethernet information on a specific Ethernet port.
- detailed — (Optional) Displays the current Green Ethernet information for the switch and its ports.

Note: In this example, show green-ethernet detailed command is used.



The Energy-Detect mode area displays current status of Energy Detect Mode in the switch. This is used to conserve power when the device is not connected to an active link partner.

The Short-Reach mode area displays current status of Short Reach in the switch. This allows you to run the links with less power than the link can normally handle.

The Disable Port LEDs mode area displays the current status of the Port Light-emitting Diodes (LEDs) in the switch. When this option is disabled, the LEDs do not display link status, activity, and so on. The Disable Port LEDs feature saves power consumed by device LEDs. Since the devices are often in an unoccupied room, having these LEDs lit is a waste of energy. The Green Ethernet feature allows you to disable the port LEDs for link, speed, and Power over Ethernet (PoE) when they are not required. It also allows you to enable the LEDs if they are needed for debugging, connecting additional devices, and so on. The default setting is Disabled.

The Power Savings area displays the amount of power saved when Green Ethernet and Short Reach modes are run. EEE power savings is not taken into account since it is dynamic and corresponds to port utilization.

The Cumulative Energy Saved area shows the amount of energy saved from the last switch reboot. This value is updated each time there is an event that affects power saving.

The Short-Reach cable length threshold area displays the minimum cable length for the Short Reach mode to function. The default setting is 50m.

```
Energy-Detect mode: Disabled
Short-Reach mode: Disabled
Disable Port LEDs mode: Disabled
Power Savings: 75% (21.45W out of maximum 28.74W)
Cumulative Energy Saved: 10038 [Watt*Hour]
* Estimated Annual Power saving: 183456 [Watt*Hour]
Short-Reach cable length threshold: 50m

* Annual estimate is based on the saving during the previous week
NA - information for previous week is not available
```

The Port Setting Table displays the following:

```
Port        Energy-Detect          Short-Reach          VCT Cable
          Admin Oper Reason    Admin Force Oper Reason    Length
--------  ----- ---- -------   ----- ----- ---- -------   ----------
gi1/0/1    off   off           off    off  off
gi1/0/2    off   off           off    off  off
gi1/0/3    off   off           off    off  off
gi1/0/4    off   off           off    off  off
gi1/0/5    off   off           off    off  off
gi1/0/6    off   off           off    off  off
gi1/0/7    off   off           off    off  off
More: <space>,  Quit: q or CTRL+Z, One line: <return>
```

- Port — The port number.
- Energy Detect — State of energy detect mode on the port.

- Admin — Shows whether energy detect mode is enabled or not.

- Oper — Shows whether energy detect mode is currently operational or not.

- Reason — The reason why energy detect mode is not operational. Possible values are Link Up (LU) and Link Down (LD).

- Short Reach — State of short reach mode on the port.

- Admin — Shows whether short reach mode is enabled or not.

- Force — Shows whether short reach force mode is enabled in the interface or not.

- Oper — Shows whether short reach mode is currently operational or not.

- Reason — The reason why short reach mode is not operational. Possible values are Link Up (LU) and Link Down (LD).

- VCT Cable Length — The Virtual Cable Tester (VCT) cable length in meters.

Note: To learn how to configure the Green Ethernet settings per port through the CLI, click here for instructions.

You should now have successfully viewed the Green Ethernet properties on your switch through the CLI.

Configure Green Ethernet Properties on a Switch

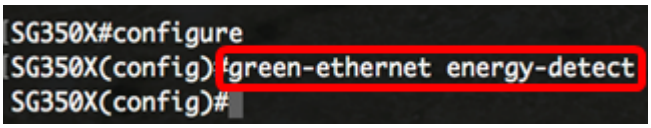
Step 1. Enter the Global Configuration mode of the switch by entering the following:

```
SG350X#configure
```

Step 2. (Optional) To enable Energy Detect mode on your switch, enter the following:

```
SG350X(config)#green-ethernet energy-detect
```

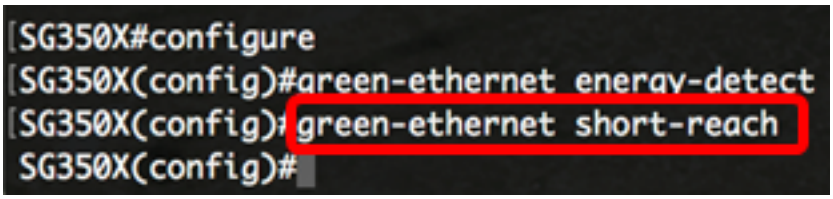
Note: In this example, Energy Detect mode is enabled. To disable this feature, enter the **no green-ethernet energy-detect** command.



Step 3. (Optional) To enable Short Reach mode on your switch, enter the following:

```
SG350X(config)#green-ethernet short-reach
```

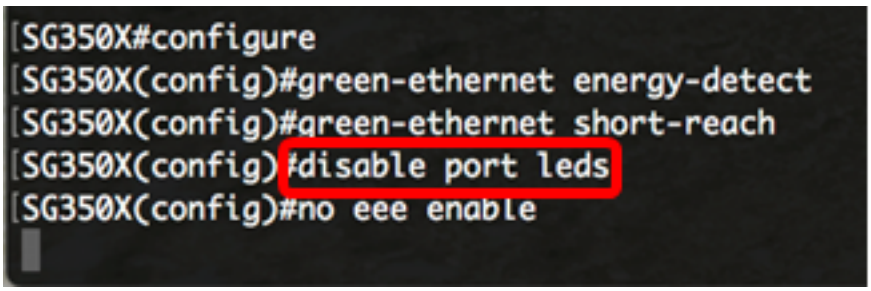
Note: In this example, Short Reach mode is enabled. To disable this feature, enter the **no green-ethernet short-reach** command.



Important: If Short Reach Mode is enabled, the EEE mode must be disabled.

Step 4. (Optional) To enable Disable Port LEDs mode on your switch, enter the following:

```
SG350X(config)#disable port leds
```

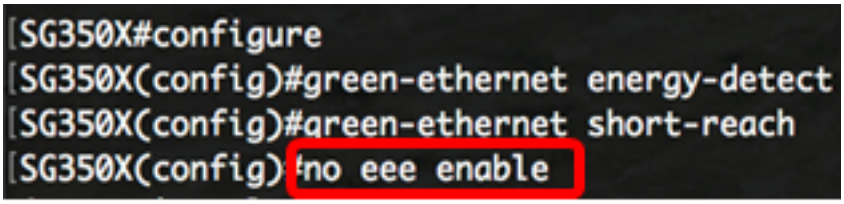


Note: In this example, port LEDs are disabled. To enable port LEDs, enter the **no disable port leds** command.

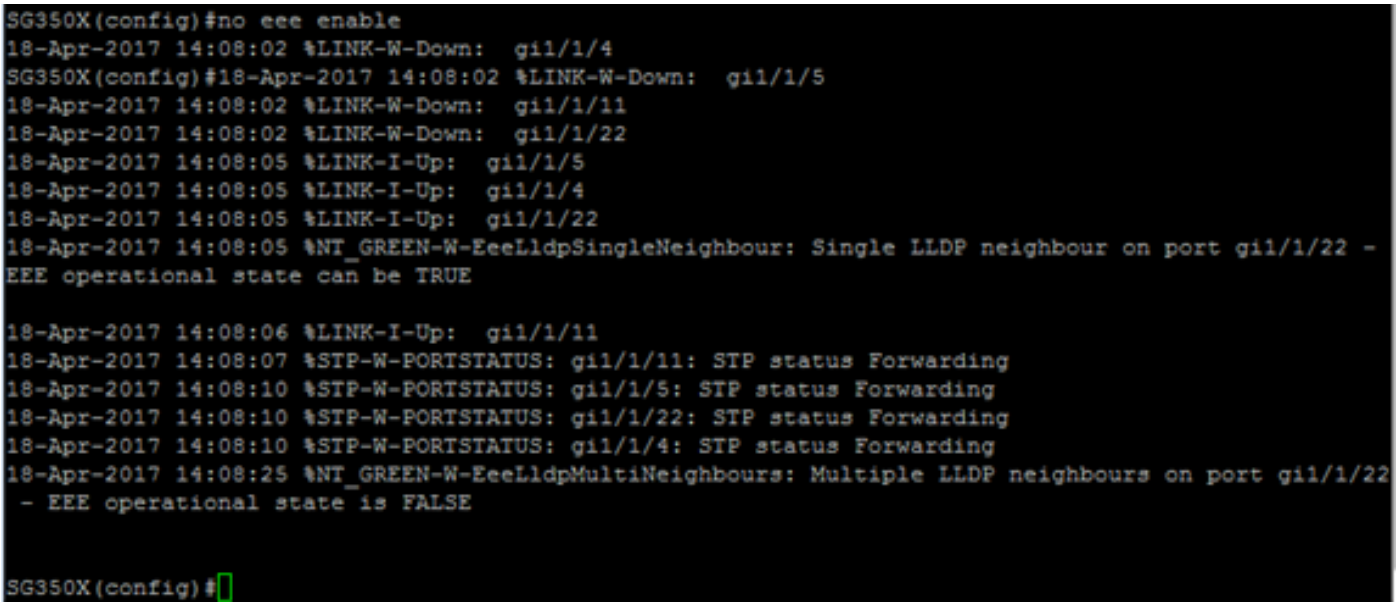
Step 5. (Optional) To disable EEE on your switch, enter the following:

```
SG350X(config)#no eee enable
```

Note: In this example, EEE is disabled. To enable this feature, enter the **eee enable** command.



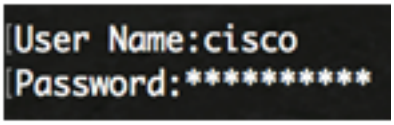
Important: If you are remotely connected to the switch through Secure Shell (SSH) or Telnet, you will be logged out of the console so you have to log in again to continue. If you are directly connected through the serial port of the switch, you will receive notifications of the activities in the switch.



You should now have successfully configured the Green Ethernet properties on your switch through the CLI.

Verify the Green Ethernet Settings on a Switch

Step 1. Log back in to the switch console.



Alternatively, if you are directly connected to the switch, you can enter the exit command to go back to the Privileged EXEC mode:

```
SG350X(config)#exit
```

Step 2. In the Privileged EXEC mode, verify the configured Green Ethernet properties by entering the following:

```
SG350X#show green-ethernet
```

```
SG350X#show green-ethernet

Energy-Detect mode: Enabled
Short-Reach mode: Enabled
Disable Port LEDs mode: Enabled
Power Savings: 78% (22.50W out of maximum 28.74W)
Cumulative Energy Saved: 10081 [Watt*Hour]
* Estimated Annual Power saving: 183456 [Watt*Hour]
Short-Reach cable length threshold: 50m

* Annual estimate is based on the saving during the previous week
NA - information for previous week is not available

Port        Energy-Detect          Short-Reach          VCT Cable
          Admin Oper Reason    Admin Force Oper Reason    Length
--------  ----- ---- -------   ----- ----- ---- -------   ----------
gi1/0/1    off   off           off    off  off
gi1/0/2    off   off           off    off  off
gi1/0/3    off   off           off    off  off
gi1/0/4    off   off           off    off  off
gi1/0/5    off   off           off    off  off
gi1/0/6    off   off           off    off  off
gi1/0/7    off   off           off    off  off
More: <space>,  Quit: q or CTRL+Z, One line: <return>
```

Step 3. Verify the configured EEE settings by entering the following:

```
SG350X#show eee
```

```
SG350X#show eee

EEE globally disabled

EEE Administrate status is enabled on ports: gi1/0/1-48,te1/0/1-4,gi2/0/1-48,te2/0/1-4,g
i3/0/1-48,te3/0/1-4,gi4/0/1-48,te4/0/1-4
EEE Operational status is enabled on ports:
EEE LLDP Administrate status is enabled on ports: gi1/0/1-48,te1/0/1-4,gi2/0/1-48,te2/0/
1-4,gi3/0/1-48,te3/0/1-4,gi4/0/1-48,te4/0/1-4
EEE LLDP Operational status is enabled on ports:
```

Step 4. (Optional) To save the configured settings to the startup configuration file, enter the following:

```
SG350X#copy running-config startup-config
```

```
SG350X#copy running-config startup-config
Overwrite file [startup-config].... (Y/N)[N] ?
```

Step 5. (Optional) Press **Y** for Yes or **N** for No on your keyboard once the Overwrite file [startup-config]… prompt appears.

```
SG350X#copy running-config startup-config
Overwrite file [startup-config].... (Y/N)[N] ?Y
18-Apr-2017 06:28:29 %COPY-I-FILECPY: Files Copy - source URL running-config destination
 URL flash://system/configuration/startup-config
18-Apr-2017 06:28:31 %COPY-N-TRAP: The copy operation was completed successfully

SG350X#
```

Note: In this example, Y is pressed.

You should now have successfully verified the Green Ethernet settings on your switch through the CLI.