Configure Dynamic Host Configuration Protocol (DHCP) Image Upgrade Settings on a Switch through the Command Line Interface (CLI)

Objective

The Dynamic Host Configuration Protocol (DHCP) image upgrade feature on a switch can be used to configure a DHCP server to download both a new image and a new configuration file to one or more switches in a network. Simultaneous image and configuration upgrade for all switches in the network helps ensure that each new switch added to a network are synchronous with the network.

The DHCP Image Upgrade on your switch works in two ways: DHCP Auto Configuration and Image Auto Update. Configuring these features could be very beneficial in managing more than one switch or stacked switches in the network.

- DHCP Autoconfiguration — The process by which the network device receives its configuration file from a Secured Copy Protocol (SCP) over Secure Shell (SSH) or Trivial File Transfer Protocol (TFTP) server identified by the DHCP server when it has provided or renewed the IP address on that device. This functions properly only when the DHCP server is configured to assign the host IP address dynamically. By default, the switch is enabled as a DHCP client when the Auto Configuration feature is enabled.
- DHCP Auto-Image Update — Used with DHCP Auto Configuration, this allows you to download both a configuration and a new image to one or more switches in the network. If Image Auto Update is enabled, the flash image is downloaded and updated. If the new configuration is downloaded to a switch that already has a configuration, the downloaded configuration is appended to the configuration file stored on the switch.

This article provides instructions on how to configure DHCP image upgrade on your switch in two ways: DHCP Auto Configuration and Image Auto Update.

Applicable Devices

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

Software Version

- 1.4.5.02 – Sx500
- 2.2.0.66 – Sx350, SG350X, Sx550X

Configure DHCP Image Upgrade Settings on a Switch

Important: Before you start the configuration, an active DHCP server must be set up in the network with the locations and names of the configuration file and firmware image of your devices. The devices in the network are configured as DHCP clients by default. When the devices are assigned their IP addresses by the DHCP server, they also receive information about the configuration file and firmware image.

Make sure your TFTP or SCP server is configured. If the configuration file and/or firmware image are different from the ones currently used on the device, the device reboots itself after downloading the file and/or image. Place a configuration file in the working directory. This file can be created by copying a configuration file from a device. When the device is booted, this becomes the Running Configuration file.

Configure DHCP Auto Configuration and Auto Update Settings

DHCP autoconfiguration downloads a configuration file to one or more switches in your network from a DHCP server. The downloaded configuration file becomes the running configuration of the switch. It does not overwrite the bootup configuration saved in the flash, until you reload the switch.

Note: The available commands may vary depending on the exact model of your device. In this example, SG350X-48MP switch is used.

Step 1. Log in to the switch console.

Note: In this example, the username and password used is cisco/cisco.

Step 2. Enter the Global Configuration mode of the switch by entering the following:

SG350X#**configure terminal**

Boot Host Auto-config

Step 3. Enter the boot host auto-update Global Configuration mode command to enable the support of auto update via DHCP.

SG350X#**boot host auto-config [tftp | scp | auto [extension]]**

The options are:

- tftp — Only TFTP is used by auto-configuration.
- scp — Only SCP is used by auto-configuration.
- auto — Auto-configuration uses TFTP or SCP depending on the configuration extension of the file. If this option is selected, the extension parameter may be specified or, if not, the default extension is used. This is the default setting.

  - extension — The SCP file extension. When no value is specified, scp is used. The range is 1 to 16 characters.

Note: In this example, boot tftp is used.

```
SG350X#configure terminal
SG350X(config)#boot host auto-config tftp
SG350X(config)#
```

Step 4. (Optional) Enter the no form of the boot host auto-config command to disable DHCP auto configuration.

```
SG350X#no boot host auto-config
```

Boot Host Auto-update

Step 5. Enter the boot host auto-update Global Configuration mode command to enable the support of auto update via DHCP.

```
SG350X#boot host auto-update [tftp | scp | auto [extension]]
```

The options are:

- tftp — Only TFTP is used by auto-update.
- scp — Only SCP is used by auto-update.
- auto — Auto-configuration uses TFTP or SCP depending on the Indirect image extension of the file. If this option is selected, the extension parameter may be specified or, if not, the default extension is used.

  - extension — The SCP file extension. When no value is specified, scp is used. The range is 1 to 16 characters.

Note: In this example, boot tftp is used.

```
SG350X#configure terminal
SG350X(config)#boot host auto-config tftp
SG350X(config)#boot host auto-update tftp
SG350X(config)#
```

Step 6. (Optional) Enter the no form of the boot host auto-update command to disable DHCP auto update.

```
SG350X#no boot host auto-update
```

Step 7. Exit the Global Configuration mode by entering the following command:

```
SG350X#exit
```

Show Boot

Step 8. Enter the show boot Privilege EXEC mode command to show the status of the IP DHCP Auto Config process.

```
SG350X#show boot
```

The boot host auto-config and auto-update settings should be displayed.

```
SG350X(config)#exit
SG350X#show boot
Auto Config
-----------
Config Download via DHCP: enabled
Download protocol: tftp
Next Boot Config Download via DHCP: default


Auto Update
-----------
Image Download via DHCP: enabled
Download protocol: tftp
SG350X#
```

You should now have successfully configured the DHCP auto-config and auto-update settings on your switch through the CLI.

Configure IP DHCP TFTP Server Settings

IP DHCP TFTP-Server IP Address

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

```
SG350X#configure terminal
```

Step 2. Enter the ip dhcp tftp-server ip address Global Configuration mode command to set the backup IP address of the server. This IP address serves as the default address used by a switch when it has not been received from the DHCP server.

```
SG350X#ip dhcp tftp-server ip address [ip-addr]
```

Note: For the ip-addr, you can use IPv4 address, IPv6 address, or Doman Name System (DNS) name of TFTP or SCP server.

```
SG350X#configure terminal
SG350X(config)#ip dhcp tftp-server ip address 192.168.1.102
SG350X(config)#
```

Note: In this example, the IP address used is 192.168.1.102.

Step 3. (Optional) Enter the no form of the ip dhcp tftp-server ip address command to revert the default settings.

```
SG350X#no ip dhcp tftp-server ip address
```

IP DHCP TFTP-Server File

Step 4. Enter the ip dhcp tftp-server file Global Configuration mode command to set the full file name of the configuration file to be downloaded from the backup server when it has not been received from the DHCP server.

SG350X# **ipdhcptftp-server file [file-path]**

Note: For the file-path, you can enter the file path and the name of the configuration file on the server.

```
SG350X# ip dhcp tftp-server file [file-path]
```

Note: In this example, TFTP/config is used.

Step 5. (Optional) Enter the no form of the ip dhcp tftp-server file command to revert the default settings.

```
SG350X#no ip dhcp tftp-server file
```

IP DHCP TFTP-Server Image File

Step 6. Enter the ip dhcp tftp-server image file Global Configuration mode command to set the indirect file name of the image file to be downloaded from the backup server when it has not been received from the DHCP server.

```
SG350X# ip dhcp tftp-server image file [file-path]
```

Note: For the file-path, you can enter the file path and the name of the image file on the server.

```
SG350X#configure terminal
SG350X(config)#ip dhcp tftp-server ip address 192.168.1.102
SG350X(config)#ip dhcp tftp-server file TFTP/config
SG350X(config)#ip dhcp tftp-server image file TFTP/image
SG350X(config)#
```

Note: In this example, TFTP/image is used.

Step 7. (Optional) Enter the no form of the ip dhcp tftp-server image file command to remove the file name.

```
SG350X#no ip dhcp tftp-server image file
```

Step 8. Exit the Global Configuration mode by entering the following command:

```
SG350X#exit
```

Show IP DHCP TFTP-Server

Step 9. Enter the show ip dhcp tftp-server EXEC mode command to display information about the backup server.

```
SG350X#show ip dhcp tftp-server
```

The IP DHCP TFTP Server settings should be displayed.

```
SG350X(config)#exit
SG350X#show ip dhcp tftp-server
server address
active
manual                192.168.1.102
file path on server
active
manual                TFTP/config
image indirect file path on server
manual                TFTP/image
SG350X#
```

You should now have configured the IP DHCP TFTP Server Settings on your switch through the CLI.