



# Using PowerOn Auto Provisioning

This chapter contains the following sections:

- [Guidelines and Limitations for POAP, on page 1](#)
- [Setting Up the Network Environment To Use POAP, on page 2](#)
- [Configuring a Switch Using POAP, on page 3](#)
- [Verifying the Device Configuration, on page 3](#)
- [Related Documents for POAP, on page 4](#)

## Guidelines and Limitations for POAP

- The Cisco Nexus switch software image must support POAP for this feature to function.
- POAP can be triggered even when the startup-config is present using the **boot poap enable** command.
- If a LACP Layer 3 port-channel is configured on an uplink device connected to the Cisco Nexus device that is being bootstrapped using POAP, the port-channel is not active because all the member links are in a suspended state. Therefore, the Cisco Nexus device that is being bootstrapped using POAP cannot reach the DHCP server or any other infrastructure device needed for POAP. To work around this issue, configure a static L3 port-channel on the uplink device connected to the Cisco Nexus device that is being bootstrapped using POAP.

- If you use POAP to bootstrap a Cisco Nexus device that is a part of a vPC pair using static port-channels on the VPC links, the Cisco Nexus device activates all of its links upon POAP startup. The dually connected device at the end of the VPC links might start sending some or all of its traffic to the port-channel member links connected to the Cisco Nexus device, and the traffic would be lost.

To work around this issue, you can configure LACP on the vPC links so that the links do not incorrectly start forwarding traffic to the Cisco Nexus device that is being bootstrapped using POAP.

- If you use POAP to bootstrap a Cisco Nexus device that is connected downstream to a Cisco Nexus Series 7000 device through a LACP port-channel, the Cisco Nexus 7000 Series device defaults to suspend its member port if it cannot bundle it as a part of a port-channel. To work around this issue, configure the Cisco Nexus 7000 Series device to not suspend its member ports using the `no lacp suspend-individual` command from interface configuration mode.
- Important POAP updates are logged in the syslog and are available from the serial console.

- Critical POAP errors are logged to the bootflash. The filename format is *date-time\_poap\_PID\_[init,1,2].log*, where *date-time* is in the YYYYMMDD\_hhmmss format and *PID* is the process ID.
- Script logs are saved in the bootflash directory. The filename format is *date-time\_poap\_PID\_script.log*, where *date-time* is in the YYYYMMDD\_hhmmss format and *PID* is the process ID.
- The Scheduler configuration cannot be replayed using POAP. The reason that the Scheduler configuration cannot be replayed is that it is associated with the user (for example "admin") that was logged in when the Scheduler configuration was created. Because the configuration replay using POAP is not associated with any specific user, the scheduler configuration cannot be replayed and fails.

Instead of configuring the Scheduler, configure the Embedded Event Manager (EEM). An EEM configuration can be downloaded and replayed using POAP.

- You can bypass password and basic POAP configuration by using the **skip** option at the POAP prompt.

When you use the **skip** option, no password will be configured for the **admin** user. The **copy running-config startup-config** command will be blocked until a valid password is set for the **admin** user.

- DHCP for NX-OS will be successful, if the DHCP response is set to IP address 255.255.255.255. Since not all the DHCP server including IOS DHCP server sends the DHCP responses to 255.255.255.255, NX-OS is unable to get an IP address as a result POAP does not succeed.

## Setting Up the Network Environment To Use POAP

### SUMMARY STEPS

1. Modify the basic configuration script provided by Cisco or create your own script. For information, see the *Python Scripting and API Configuration Guide*.
2. (Optional) Put the POAP configuration script and any other desired software image and switch configuration files on a USB device accessible to the switch.
3. Deploy a DHCP server and configure it with the interface, gateway, and TFTP server IP addresses and a bootfile with the path and name of the configuration script file. (This information is provided to the switch when it first boots.)
4. Deploy a TFTP or HTTP server to host the configuration script.
5. Deploy one or more servers to host the software images and configuration files.

### DETAILED STEPS

- 
- |               |   |
|---------------|---|
| <b>Step 1</b> | Modify the basic configuration script provided by Cisco or create your own script. For information, see the <i>Python Scripting and API Configuration Guide</i> .   |
| <b>Step 2</b> | (Optional) Put the POAP configuration script and any other desired software image and switch configuration files on a USB device accessible to the switch.  |
| <b>Step 3</b> | Deploy a DHCP server and configure it with the interface, gateway, and TFTP server IP addresses and a bootfile with the path and name of the configuration script file. (This information is provided to the switch when it first boots.) |

You do not need to deploy a DHCP server if all software image and switch configuration files are on the USB device.

- Step 4** Deploy a TFTP or HTTP server to host the configuration script.
- Step 5** Deploy one or more servers to host the software images and configuration files.
- 

## Configuring a Switch Using POAP

### Before you begin

Make sure that the network environment is set up to use POAP. For more information, refer to the "Setting up the Network Environment to use POAP" section immediately preceding this section.

### SUMMARY STEPS

1. Install the switch in the network.
2. Power on the switch.
3. (Optional) If you want to exit POAP mode and enter the normal interactive setup script, enter **y** (yes).

### DETAILED STEPS

---

**Step 1** Install the switch in the network.

**Step 2** Power on the switch.

If no configuration file is found, the switch boots in POAP mode and displays a prompt that asks if you want to abort POAP and continue with a normal setup.

No entry is required to continue to boot in POAP mode.

**Step 3** (Optional) If you want to exit POAP mode and enter the normal interactive setup script, enter **y** (yes).

The switch boots, and the POAP process begins. For more information, see the "POAP Process" section.

---

### What to do next

Verify the configuration.

## Verifying the Device Configuration

To verify the configuration after bootstrapping the device using POAP, use one of the following commands:

Command	Purpose
<b>show running-config</b>	Displays the running configuration.
<b>show startup-config</b>	Displays the startup configuration.

For detailed information about the fields in the output from these commands, see the Cisco Nexus command reference for your device.

## Related Documents for POAP

Related Topic	Document Title
Configuration Script	<i>Cisco Nexus 3000 Series NX-OS Python API Reference Guide</i>
DHCP Options and BOOTP Vendor Extensions	RFC2132— <a href="http://tools.ietf.org/html/rfc2132">http://tools.ietf.org/html/rfc2132</a>
TFTP Server Address Option for DHCPv4	RFC5859— <a href="http://tools.ietf.org/html/rfc5859">http://tools.ietf.org/html/rfc5859</a>