



Plug and Play (PnP)

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Plug and Play (PnP)

Plug N Play Cloud Service is a Cisco hosted service for customers to configure devices shipped from Cisco. Configurations include specifying a Controller (APIC-EM) and a Configuration file. An option was added to the **bundle install** command:

bundle install <bundle_image_name> rom-autoboot

When this option is specified, the IOS system image to boot will NOT be written into the running-config. Instead, it will be set into the rommon BOOT variable (BOOT=<system_image>) ONLY.

After **bundle install <bundle_image_name> rom-autoboot** and **write erase** commands, when the device reloads it will automatically boot up the IOS image saved in rommon BOOT. This also ensures the device does not have any startup configuration when it boots up so it will allow PNP to start up.

PNP can be started either using Ethernet or cellular 4G. If connected to both, Ethernet will take precedence over Cellular 4G.

PNP using Ethernet

PNP using Ethernet can be done in three different ways:

1. Specifying OPTION 43 on DHCP ROUTER

Example: **option 43 ascii 5A1D;B2;K4;I<APIC-EM_IP_ADDRESS>;J80**

1. Specifying DNS on DHCP ROUTER

Example: **domain-name test.com**

```
#conf t
#ip host pnpserver.test.com <APIC-EM address>
```

1. Specifying CCO's address by configuring devicehelper.cisco.com on DHCP ROUTER

```
#conf t
#ip host devicehelper.cisco.com <CCO_address>
```

PNP using 4G cellular can be done by configuring the device information (Serial number, PID and controller profile-APIC-EM) on CCO.

Once PNP is completed, issue a **write mem** command to save the configuration. PNP pushes the configuration but does not save it. The configuration must be saved after PNP is successfully completed.

To verify if PNP is completed or not, verify with the **sh run** command. At the bottom of the command output, there should be a pnp profile and the APIC EM address. This means the device was redirected to APIC-EM and the initial PNP was successfully done. Now once the configuration file is pushed from APIC-EM, verify this using the **sh pnp task** command and verify the Config-Upgrade Task should have Result: Success.

Note: The device should not be interrupted until PNP is completed. If the device is interrupted, PNP will stop. If at any point something goes wrong, reload the router without saving the configuration and PNP will start once again. Once PNP is completed it is necessary to save the configuration by issuing the **write mem** command.

```
IR800#sh run | b pnp
pnp profile pnp-zero-touch
transport https ipv4 172.27.122.132 port 443
end
IR800#sh pnp task
----- show pnp tasks -----
Certificate-Install Task - Last Run ID:5, ST:7201, Result:Success,
LT:117562, ET:4 ms
Src:[-], Dst:[-]
Device-Auth Task - Never Run
Device-Info Task - Last Run ID:9, ST:5301, Result:Success, LT:200634, ET:1 ms Src:[udi],
Dst:[pnp-zero-touch]
Image-Install Task - Never Run
SMU Task - Never Run
Config-Upgrade Task - Last Run ID:10, ST:5202, Result:Success, LT:267420, ET:984 ms
Src:[https://192.168.1.1:443/api/v1/file/onetimedownload/1530b4e5-beb8-4db3-b4df-28dc016464fc],
Dst:[running]
CLI-Config Task - Never Run
Licensing Task - Never Run
File-Transfer Task - Never Run
Redirection Task - Never Run
CLI-Exec Task - Last Run ID:12, ST:5401, Result:Success, LT:279464, ET:1 ms
Src:[cli-exec request], Dst:[running-exec]
Script Task - Never Run
```