Configuring CAPWAP Preferred Mode

Information About Prefer Mode

Prefer-mode allows an administrator to configure CAPWAP L3 transport (IPv4 and IPv6) through which access points join the WLC (based on its primary/secondary/tertiary configuration).

There are two levels of prefer-mode

- AP Group specific
- Global Configuration

AP PnP

PnP solution provides staging parameters to the AP before it joins a WLC. Using this staging configuration, the AP gets the runtime configuration when it joins the WLC. PnP is supported only on AP recovery images and activated for the zero-day deployment alone. PnP is not initiated after the AP connects to the WLC for the first time.

The following AP scenario is supported:

- On-premise redirection—Customer hosting the PnP server in their network.

Guidelines for Configuring Preferred Mode

The following preferred mode configurations are available:

- AP-Group specific prefer-mode is pushed to an AP only when the prefer-mode of AP-Group is configured and the AP belongs to that group.

- Global prefer-mode is pushed to default-group APs and to those AP-Groups on which the prefer-mode is not configured.
- By-default, values of prefer-mode for AP-Group and Global is set to un-configured and IPv4 respectively.
- If an AP, with an configured prefer-mode, tries to join the controller and fails, then it will fall back to choose AP-manager of the other transport and joins the same controller. When both transports fail, AP will move to next discovery response.
- In such a scenario, Static IP configuration will take precedence over prefer mode. For example:
  - On the controller, the preferred mode is configured with an IPv4 address.
  - On the AP, Static IPv6 is configured using CLI or GUI.
  - The AP will join the controller using IPv6 transport mode.
- The controllers CLI provides an XML support of prefer-mode.

Configuring CAPWAP Preferred Mode (GUI)

Step 1 Choose **Controller** > **General** to open the Global Configuration page. Select the **CAPWAP Preferred Mode** list box and select either IPv4 or IPv6 as the global CAPWAP Preferred mode.

Note By default, the controller is configured with an CAPWAP Prefer Mode IPv4 address.

Step 2 Choose **WLAN** > **Advanced > APGroup > General Tab** and select the **CAPWAP Preferred Mode** checkbox to configure an AP-Group with an IPv4 or IPv6 CAPWAP Preferred Mode.

Step 3 Choose **Wireless** > **ALL APs** > **General Tab** to check the APs CAPWAP setting. Refer to the **IP Config** section to view if the AP's CAPWAP Preferred Mode is applied globally or for an AP-Group.

Step 4 Choose **Monitor** > **Statistics** > **Preferred Mode** to help users to check if the prefer mode command is pushed successfully to an AP.

- Prefer Mode of Global/AP Groups— The name of the AP that is configured with either IPv4, IPv6 or global.
- Total— The total count of APs configured with preferred mode.
- Success— Counts the number of times the AP was successfully configured with the preferred mode.
- Unsupported— AP's that are not capable of joining in with IPv6 CAPWAP.
- Already Configured— Counts the attempts made to configure an already configured AP.
- Per AP Group Configured— Preferred mode configured on per AP-Group.
- Failure— Counts the number of times the AP was failed to get configured with the preferred mode.

Configuring CAPWAP Preferred Mode (CLI)

Step 1 Use this command to configure prefer-mode of AP-Group and all APs. Global prefer-mode will not be applied on APs whose AP-Group prefer-mode is already configured. On successful configuration, the AP will restart CAPWAP and join with the configured prefer-mode after choosing a controller based on its primary/secondary/tertiary configuration.
config ap preferred-mode {IPv4|IPv6}*{ <apgroup>|<all>}*

Step 2 Use this command to disable (un-configure) the prefer-mode on the AP.
config ap preferred-mode disable *<apgroup>*
Note APs that belong to <apgroup> will restart CAPWAP and join back the controller with global prefer-mode.

Step 3 Use this command to view the statistics for prefer-mode configuration. The statistics are not cumulative but will be updated for last executed configuration CLI of prefer-mode.
show ap prefer-mode stats

Step 4 Use this command to view the prefer-mode configured for all AP-Groups.
show wlan apgroups

Step 5 Use this command to view the global prefer-mode configured.
show network summary

Step 6 Use this command to view to check if the prefer mode command is pushed to an AP from global configuration or from an AP-Group specific configuration.
show ap config general <Cisco AP>

```
(Cisco Controller) >show ap config general AP-3702E

Cisco AP Identifier.............................. 2
Cisco AP Name.................................... AP-3702E
Country code..................................... US  - United States
Regulatory Domain allowed by Country............. 802.11bg:-A     802.11a:-A
AP Country code.................................. US  - United States
AP Regulatory Domain............................. 802.11bg:-A    802.11a:-A
Switch Port Number .............................. 1
MAC Address...................................... bc:16:65:09:4e:fc
IPv6 Address Configuration....................... SLAAC
IPv6 Address..................................... 2001:9:2:35:be16:65ff:fe09:4efc
IPv6 Prefix Length............................... 64
Gateway IPv6 Addr................................ fe80::a2cf:5bff:fe51:c4ce
NAT External IP Address.......................... None
CAPWAP Path MTU.................................. 1473
Telnet State..................................... Globally Enabled
Ssh State........................................ Globally Enabled
Cisco AP Location................................ default location
Cisco AP Floor Label............................. 0
Cisco AP Group Name.............................. default-group
Primary Cisco Switch Name........................ amb
Primary Cisco Switch IP Address.................. 9.2.35.25
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Ethernet Port Speed.............................. Auto
AP Link Latency.................................. Disabled
Rogue Detection.................................. Enabled
AP TCP MSS Adjust................................ Disabled
IPv6 Capwap UDP Lite............................. Enabled
Capwap Prefer Mode............................... Ipv6 (Global Config)
Hotspot Venue Group.............................. Unspecified
Hotspot Venue Type............................... Unspecified
DNS server IP ..................... Not Available
```

Note Check for **Capwap Prefer Mode** in the command output.