Redundant Root Access Point (RAP) Ethernet Daisy Chaining

Overview of Redundant RAP Ethernet Daisy Chaining

The Root Access Point (RAP) Ethernet Daisy Chaining is a feature where RAPs are chained using wired Ethernet to avoid latency in backhaul link failure recovery.

This feature proposes a redundancy in the daisy chain, wherein, two switches act as a redundant Designated Port (DP), each connected to either end of the daisy chain. In case of a link failure, the link direction is reversed using a new STP root.

A redundant RAP ethernet daisy chain has similiar capabilities to the existing mesh daisy chain feature. In a redundant RAP ethernet daisy chain topology, the packet is encapsulated with CAPWAP header and forwarded to the controller from its wireless client for each AP. The packet is bridged to its primary ethernet interface from its secondary ethernet interface including the other AP's wireless client CAPWAP packets. Both 2.4G and 5G radio are used for client access.

Note The daisy chain strict RAP configuration is applicable to Cisco IOS access points only.

Redundant RAP ethernet daisy chain is supported on the IW6300 AP model.

In case of ethernet daisy chain topology, if a CAPWAP loss occurs on the first RAP connected to switch, the entire chain loses its uplink. This takes a long time to recover. Thereby, if the RAP ethernet daisy chain is enabled, the CAPWAP data keepalive is extended to three times.

Note Only wired uplink configuration is valid, if you configure an AP as Bridge or Flex Bridge mode Root AP.

Prerequisites for Redundant RAP Ethernet Daisy Chaining Support

- Ethernet bridging on should be enabled.
- Strict-wired-uplink feature should be enabled.

Configuring Redundant RAP Ethernet Daisy Chaining Support (CLI)

Follow the procedure given below to enable redundant RAP ethernet daisy chaining on a mesh profile:

Procedure

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**wireless profile mesh** *profile-name* **Example:** `Device(config)# wireless profile mesh default-mesh-profile`	Configures a mesh profile and enters mesh profile configuration mode.
Step 3	**daisychain-stp-redundancy** **Example:** `Device(config-wireless-mesh-profile)# daisychain-stp-redundancy`	Configures daisy chain STP redundancy.

Verifying Daisy Chain Redundancy (CLI)

To verify the ethernet daisy chain summary, use the following command:

```
Device# show wireless mesh ethernet daisy-chain summary

AP Name      BVI MAC          BGN     Backhaul      Ethernet         STP Red
-----------------------------------------------------------------------------------------------------
RAP4         683b.78bf.15f0    IOT     Ethernet0     Up  Up  Dn  Dn   Enabled
RAP3         683b.78bf.1634    IOT     Ethernet0     Up  Up  Dn  Dn   Enabled
RAP1         6c8b.d383.b4d4    IOT     Ethernet0     Up  Up  Dn  Dn   Enabled
RAP2         6c8b.d383.b4e8    IOT     Ethernet0     Up  Up  Up  Dn   Enabled
```

To verify the ethernet daisy chain Bridge Group Name (BGN) details, use the following command:

```
Device# show wireless mesh ethernet daisy-chain bgn <IOT>
```

```
AP Name   BVI MAC          BGN    Backhaul    Ethernet          STP Red
-------------------------------------------------------------------------------------------------
RAP4     683b.78bf.15f0    IOT    Ethernet0   Up  Up  Dn  Dn   Enabled
RAP3     683b.78bf.1634    IOT    Ethernet0   Up  Up  Dn  Dn   Enabled
RAP1     6c8b.d383.b4d4    IOT    Ethernet0   Up  Up  Dn  Dn   Enabled
RAP2     6c8b.d383.b4e8    IOT    Ethernet0   Up  Up  Up  Dn   Enabled
```

To verify the mesh profile, use the following command:

```
Device# show wireless profile mesh detailed default-mesh-profile

Mesh Profile Name : default-mesh-profile
-------------------------------------------------
Description : default mesh profile
Bridge Group Name : IOT
Strict match BGN : ENABLED
Amsdu : ENABLED
Background Scan : ENABLED
Channel Change Notification : ENABLED
Backhaul client access : ENABLED
Ethernet Bridging : ENABLED
Ethernet Vlan Transparent : DISABLED
Daisy Chain STP Redundancy : ENABLED
Full Sector DFS : ENABLED
IDS : ENABLED
Multicast Mode : In-Out
Range in feet : 12000
Security Mode : EAP
Convergence Method : Standard
LSC only Authentication : DISABLED
Battery State : ENABLED
Authorization Method : eap_methods
Authentication Method : eap_methods
Backhaul tx rate(802.11bg) : auto
Backhaul tx rate(802.11a) : auto
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```