CHAPTER **16**

PacketCable Provisioning

This chapter describes the provisioning flow in a Cisco Prime Cable Provisioning PacketCable deployment.

Automatic FQDN Generation

When configuring the PacketCable voice technology, a fully qualified domain name (FQDN) must reside in the Prime Cable Provisioning database for each voice device, because the KDC queries the registration server for that FQDN. The Prime Cable Provisioning automatic FQDN generation feature is not limited to any single voice technology; it can be used by any Prime Cable Provisioning technology.

Automatically Generated FQDN Format

Prime Cable Provisioning automatically generates FQDNs using the MAC address of a device or using the DHCP Unique Identifier (DUID) of an IPv6 device.

An automatically generated FQDN using a MAC address follows this format:

prefix{htype-hlen-aa-bb-cc-dd-ee-ff | 00:00:00:00:00:00:00:00}suffix.domain

- *prefix*, *suffix*, and *domain*—Identify the information that you set from the Prime Cable Provisioning administrator user interface or the provisioning API.

- *htype*, *hlen*, and aa-bb-cc-dd-ee-ff—Identify the device MAC address. For example, 1,6,aa-bb-cc-dd-ee-ff.

- 00:00:00:00:00:00:00:00—Identifies the DUID of an IPv6 device.

The entry of a prefix and suffix property is optional. If you do not specify these properties, and a hostname is not specified during PacketCable MTA provisioning and, if neither the prefix nor suffix property is defined in the Prime Cable Provisioning property hierarchy, the device MAC address or the device DUID followed by the domain name is used as the generated FQDN.

The FQDN format changes if you specify only the:

- Prefix and the device ID:

  prefix{htype-hlen-aa-bb-cc-dd-ee-ff | 00:00:00:00:00:00:00:00}.domain

- Suffix and the device ID:

  {htype-hlen-aa-bb-cc-dd-ee-ff | 00:00:00:00:00:00:00:00}suffix.domain

For example:

- A device with prefix **aaa**, suffix **bbb**, and MAC address **1,6,aa:bb:cc:dd:ee:ff** will have this FQDN generated:

  ```
  aaa1-6-aa-bb-cc-dd-ee-ffbbb.domain
  ```

- A device with only MAC address (**1,6,aa:bb:cc:dd:ee:ff**) will have this FQDN generated:

  ```
  1-6-aa-bb-cc-dd-ee-ff.domain
  ```

- A device with prefix **aaa**, suffix **bbb**, and DUID **00:00:00:00:00:00:00:00** will have this FQDN generated:

  ```
  aaa00-00-00-00-00-00-00-00bbb.domain
  ```

- A device with only DUID **00:00:00:00:00:00:00:00** will have this FQDN generated:

  ```
  00-00-00-00-00-00-00-00-00-aa.domain
  ```

- A device with prefix **aaa** and MAC address **1,6,aa:bb:cc:dd:ee:ff** will have this FQDN generated:

  ```
  aaa1-6-aa-bb-cc-dd-ee-ff.domain
  ```

- A device with suffix **bbb** and MAC address **1,6,aa:bb:cc:dd:ee:ff** will have this FQDN generated:

  ```
  1-6-aa-bb-cc-dd-ee-ffbbb.domain
  ```

When configuring for PacketCable and other technologies, the domain name property must also be configured. If you do not specify a domain name while provisioning a PacketCable MTA, the Prime Cable Provisioning property hierarchy is searched and, if it is not found, the MTA is not provisioned.

If you do specify the domain name during MTA provisioning, that domain name is used regardless of the domain name property that is specified in the Prime Cable Provisioning property hierarchy.

Properties for Automatically Generated FQDNs

Properties can be defined at any acceptable point in the Prime Cable Provisioning property hierarchy. You can use the System Defaults, Technology Defaults, DHCP Criteria, or Class of Service to accomplish this, and you can also do this at the device level.

FQDN Validation

There are a few things to consider when entering the information that is used to generate an FQDN. These include:

- Use only valid alphanumeric characters in the generated FQDN.
- Keep the length of each label (characters between the dots in the generated FQDN) to fewer than 63 characters.
- Do not allow the overall length of the generated FQDN to exceed 254 characters.

Note The FQDN supports host and domain names as per RFC1035.

Sample Automatic FQDN Generation

This section provides an example of creating an automatically generated FQDN.

Step 1   Choose the appropriate Class of Service, and set the */fqdn/domain* property value to the DNS domain for all devices using this Class of Service.For the purposes of this example, assume that the domain in use is example.com, and that you want to provision a set of PacketCable devices into that domain.

> **Note**   If you do not specify a domain, devices in the Class of Service will not receive a DHCP configuration from Prime Cable Provisioning.

Step 2   Click **Submit**.

In this example, a device with MAC address 1,6,aa:bb:cc:dd:ee:ff will yield an automatically generated FQDN of 1-6-aa-bb-cc-dd-ee-ff.example.com.

Additionally, enable the Automatic FQDN Generation radio button in the device's default configuration. See Chapter 11, "Configuring Defaults".