How-To

Configure Local Provisioning on Blonder Tongue CMTS

PRELIMINARY

SUBJECT TO CHANGE

June 2022

Revision 1

Overview

This document is written for operators that wish to enable the local DHCP and TFTP services on the Blonder Tongue **CMTS Edge** family of CMTS for Cable Modems to receive an IP address and a DOCSIS configuration file and register with the CMTS for use.

Enable Global Config

1. Log into the CMTS using the user credentials (factory default is admin/admin) and navigate to the Advanced Menu.
2. Select the *Local Provision Management* tab from the Menu on the left of the web GUI. (Figure 1)
3. Under the *Local-Provision IPv4 Global Config* sub-tab, drop down the menu next to Global DHCP, and make sure it is selected **ON**.
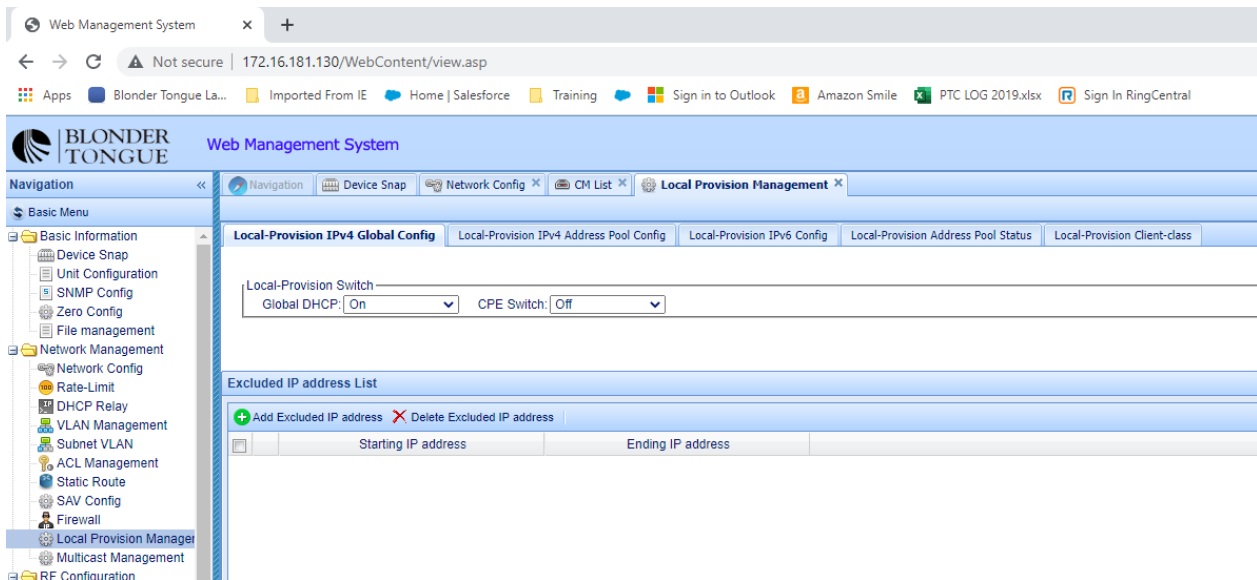4. Same sub-tab, *CPE Switch* should be **OFF** (see Supporting CPE Devices below for other options).

Figure 1 - Local Provision Management display.

Load CM Config File(s)

1. On the right side of the same page, find and click the **Load CM Config** button.
2. This brings up a dialog box to load CM config files. You can load 2 types of config files here for DOCSIS 3.0 or DOCSIS 2.0/1.0. (see Figure 2)
3. Select which type of CM config file you are loading, *cm.cfg* or *cm3.0.cfg*, in the drop down.
4. Click the *Browse* button and browse to the CM config file on your computer. Click the Open button once the CM config file is selected.
5. Click *Load* to upload the CM config file to the CMTS.
6. Repeat if necessary to upload a DOCSIS config file for the other type of modems. Depending on your configuration requirements, you may use the same configuration file for both modem types or use different configuration files.

NOTE: The CMTS renames your configuration file to either **cm.cfg** or **cm3.0.cfg** during the Load process. These will be the default configurations given to modems unless you implement a **client-class** and assign modems to the class by their mac address.
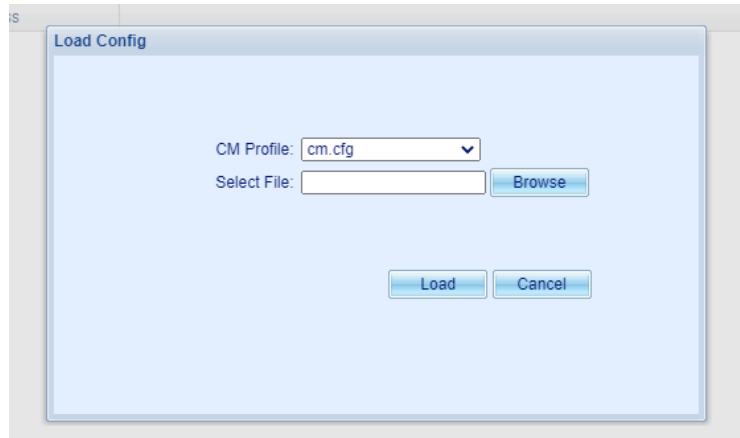

Figure 2 - Loading a DOCSIS configuration file using the Load Config screen.

Assign DHCP Address Pool

1. Click the sub-tab *Local-Provision IPv4 Address Pool Config* (see Figure 3)
2. If you are using DOCSIS 3.0 CMs, and have loaded a CM config file in the cm3.0.cfg, then set *Enable 3.0CM Profiles* to **ON**.
3. Set *DHCP Time Configuration* to suit your needs. A default of 10 days is acceptable.
4. Set *DNS Server Address Configuration* is not necessary to be filled out, as the CMs do not use DNS. This is only needed when also provisioning CPE.
5. Set *DHCP Address Pool Configuration*. This sets the range of IP addresses the CMTS gives out to CMs.
   a. The *Address Pool* address should be the x.x.x.0 network number related to the IP range you want to provide.
   b. The address pool **MUST** be in the same subnet as the Primary IP of the CMTS, for traffic to flow outside the CMTS (e.g., SNMP management systems).
   c. The *Subnet Mask* identifies the size of the pool.
      i. 255.255.255.0 supports 252 CM's maximum (the CMTS and upstream switch each use one in addition to this).
      ii. 255.255.254.0 supports 510 CM's maximum (the CMTS and upstream switch each use one in addition to this).
      iii. 255.255.252.0 supports 1020 CM's maximum (the CMTS and upstream switch each use one in addition to this).
   d. Set *Default Route*. This should be the IP address used as the Gateway as set on the *Network Config* tab – this is the IP address used in the upstream switch.
6. Set *Device Configuration*.

a. *Server Host MAC* address is the MAC address of the Primary interface of the CMTS and is automatically filled in.
b. *Server Host IP* is the IP address of the Primary interface of the CMTS and is automatically filled in.
c. *TFTP Server Address* is the same as the *Server Host IP* since the CMTS is distributing the CM config file via TFTP and is automatically filled in.
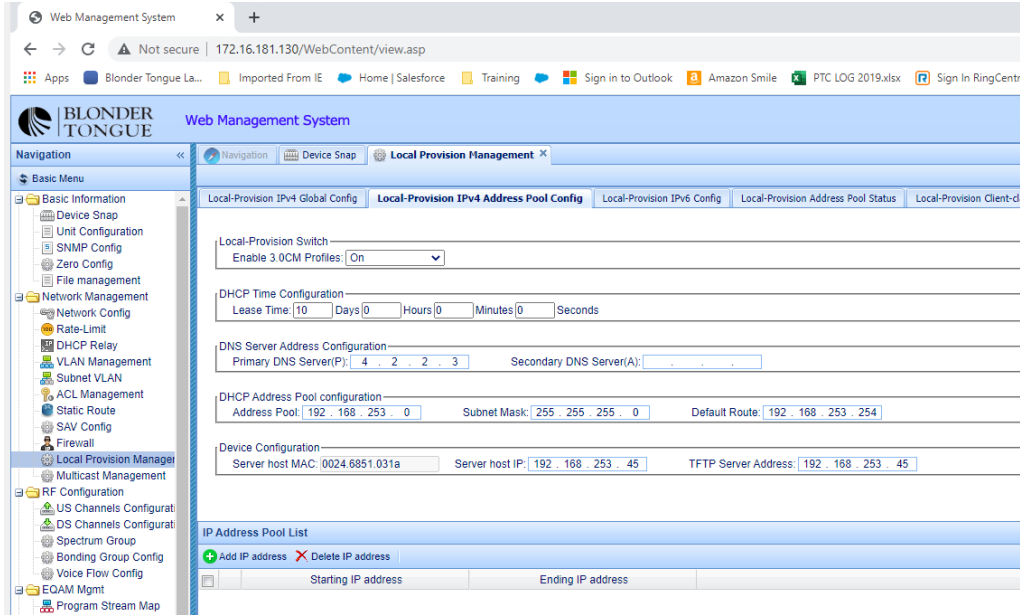

Figure 3 - Settings for the IP Pool used to provision DHCP.

Verify DHCP Relay is set to Snooping

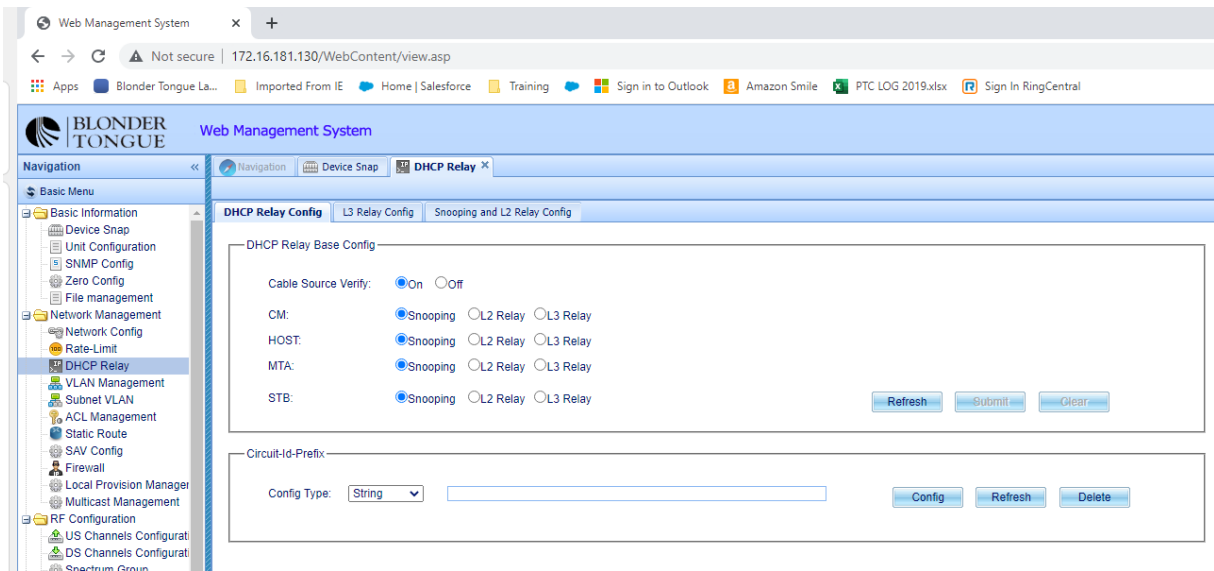1. Open *DHCP Relay* tab from the left menu (Figure 4)

Figure 4 - DHCP Relay screen for base options.

2. Verify that Cable Source Verify is ON and CM is set to Snooping (HOST, MTA and STB is not necessary to set to Snooping, as they will get their DHCP address externally, covered in another document)

The CMTS should now be setup to deliver CM config files and IP addresses via DHCP to the CMs. You should be able to go to the *CM List* tab in the left menu and see CMs ONLINE, providing the RF network is correct. (see Figure 5)
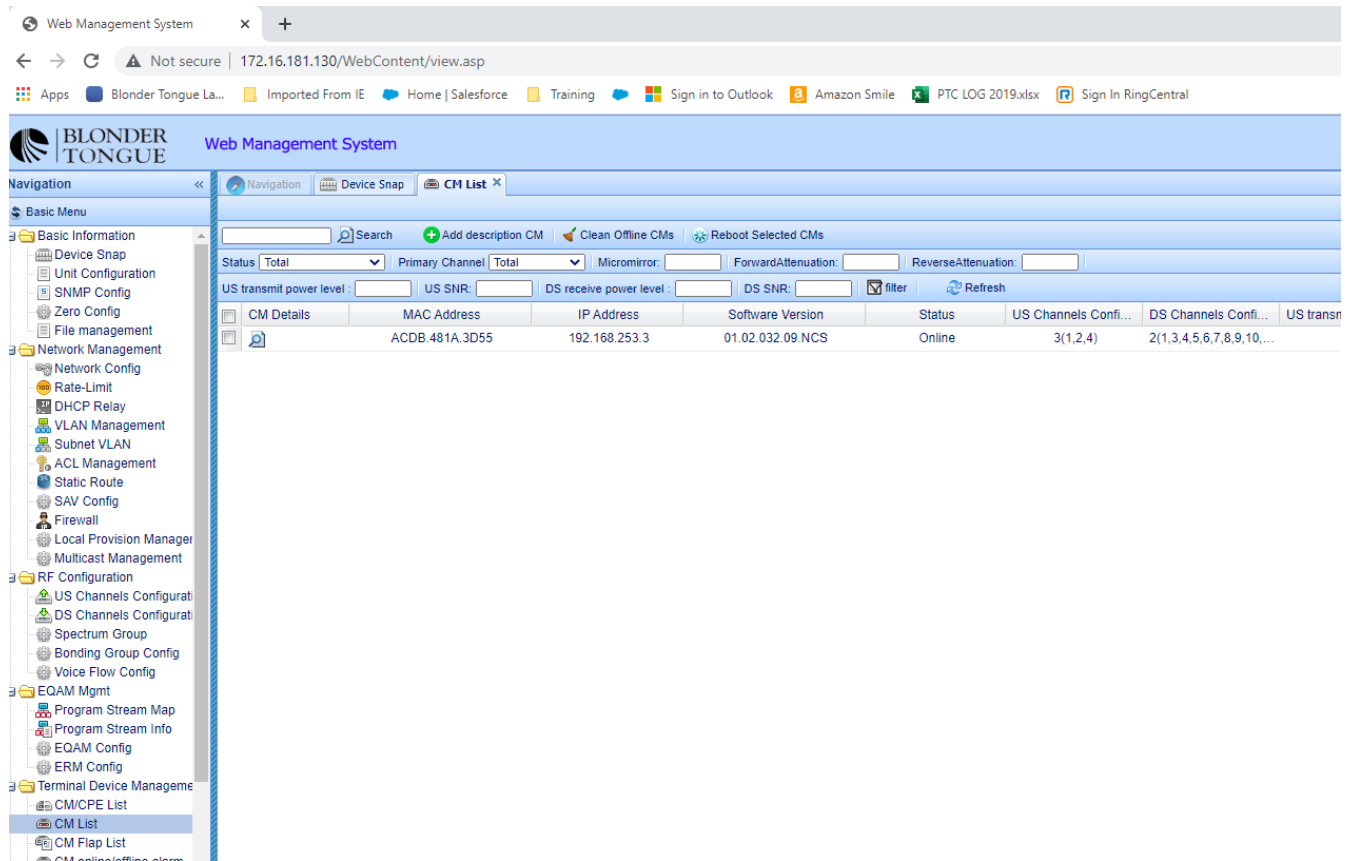

Figure 5 - CM List shows status of cable modems that are attempting to register with the CMTS. Modems must be able to transmit at a higher power level than the upstream path loss to be visible.

Supporting CPE Devices

The CMTS does allow an option for provisioning CPE or an embedded router of a cable gateway (eRouter). This will place the consumer on the same subnet as the cable modem management interfaces which may or may not be acceptable for your network design. In the Local Provision Manager area, under the IPv4 Global Config tab select the "ON" option for the CPE Switch and click the SUBMIT button at the right (see Figure 1). Be sure you have DNS service values in the DHCP IP Pool configuration (see Figure 3).