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Preface

About this guide

The *Casa Systems – Pebble Installation Guide* is intended for system administrators, support engineers, and operators who are responsible for basic installation and configuration of the Pebble units. Users who perform these tasks should be familiar with the Apex hardware and software capabilities, as well as have experience with both 3G and 4G technologies.

Revision history

This guide supports Release v4.6.2. See the *Casa Systems - ReleaseNotes* for additional information on new functionality not yet covered in this guide.

- 1.00.00 — March 2019; released version, v4.3.1
- 1.01.00 — April 2019; revised version, v4.3.7
- 1.02.00 — May 2019; revised version, v4.5.3
- 1.03.00 — July 2019; revised version, v4.6.2

Supported software releases

The following Casa software release(s) are supported in this latest revision:

- 4.3.1 — March 2019
- 4.3.7 — April 2019
- 4.5.3 — May 2019
- 4.6.2 — July 2019

Corporate facility

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Technical documentation
Casa Systems provides the following documentation set in PDF format, viewable using current versions of Adobe Reader©. The latest documentation and revisions are uploaded on a continued basis for Casa customers.

Contact Casa Technical Support or a Casa Sales Representative for assistance with downloading selected Casa documentation PDFs.

Administrative and configuration guides

- *Casa Systems – Pebble Reference Guide*
- *Casa Systems – AeMS MIBs and Traps Reference*
- *Casa Systems – Apex Small Cell OM Counters Reference Guide*
- *Casa Systems – Apex Small Cell Parameters Reference Guide*
- *Casa Systems – Axyom Element Management System (AeMS) Administration Guide*
Overview

The Pebble unit is a low-power RF emitting eNodeB for LTE RAN. The Pebble unit supports one LTE radio sector with two 50 MW (17 dBm) radio streams (4G) that is responsible for radio transmission and reception from UEs in a LTE network.

The Pebble unit provides radio coverage for LTE enabled devices and or handsets within a residential or enterprise coverage area. The Pebble unit incorporates all the capabilities and functions of a standard eNode B.

Casa Systems’ Pebble unit is designed to provides the following:

- **Ease of installation:** No dedicated LTE Backhaul needed. Connects to home broadband network using Ethernet.
- **Easy integration:** Uses X.509 digital certificates to authenticate with the service provider’s core network. Uses TR-069 over IPsec tunnel for integration with back-end management systems.
- **Cost effectiveness:** Supports Plug-and-Play provisioning, does not require a dedicated installation, and uses existing infrastructure with minimal intervention.
- **Designed to provide home or small office coverage in low RF coverage areas.**

The Axyom Element Management System (AeMS) provides management for the Pebble unit and real-time SON functions that reduce operational costs, speed time to market, and optimize the customer experience.
Network Connection Options

The Pebble unit can be connected to the network via an Ethernet or Wi-Fi connection. The Ethernet connection is plug-and-play. The Wi-Fi connection requires setup, refer to Wi-Fi connection (for the first time) in this manual for instructions.

Ethernet connection

1. Connect the GPS antenna cable to the GPS port on the Pebble unit (shown below).

2. Position the GPS antenna puck near a window so it provides a clear and open view of the sky.

Warning: The Pebble unit will not connect to the LTE network if the GPS antenna fails to lock on its location.
3. Connect the Ethernet cable to the **LAN** (Ethernet) port on the Pebble unit (shown below).

![Image of Ethernet port](image)

4. Connect the other end of the Ethernet cable to a LAN port on the home router or connect it to the Ethernet outlet that has service.

5. Plug in the Pebble unit power supply.
Wi-Fi connection (for the first time)

The Pebble unit ships with the ability to use Wi-Fi to connect to the Sprint network. The Pebble unit can use both 2.4 GHz and 5GHz Wi-Fi access from your Wi-Fi router.

Note: The default SSID is "SprintPebble_2.4G_XXXX" and “SprintPebble_5G_XXXX”.

1. Plug in the power, from a phone or PC, under Choose a Network, select the Pebble unit as shown below.

   **Phone**

   ![Phone Network Selection](image)

   **PC**

   ![PC Network Selection](image)

2. Connect to this Wi-Fi network.

3. If using a PC, open a web browser, and enter the following URL: casawifi.com.
4. When logging in to the Pebble unit for the first time login, click **Immediate experience**.

   ![Image](image.png)

   **Note:** If you do not see the page shown above, go to Logging into the Pebble unit after the.

5. On the **Set Admin login password** screen, create a Login password for the Pebble unit using the 12-digit device number found on the Pebble label.

6. Enter the password here: 

   **Note:** **DO NOT BYPASS THIS STEP.**

7. Click **Apply**.

   ![Image](image.png)
8. Under band selection, if possible, always try to select **5G** to select 5GHz Wi-Fi band.

9. Select the 5G wireless network router (SSID). If your Wi-Fi network does not support 5G Wi-Fi, select 2.4G.

![Band selection: 2.4G 5G](image1)

10. Enter the password for the Wi-Fi network router (SSID).

![Choose the wireless network you need to expand](image2)

*Note: This password is NOT the Admin password for the Pebble unit that you created in step 5. This is the password for the Wi-Fi router.*
11. Set the device’s wireless name and password as follows:

- Check the box “Synchronize the wireless name and password of the target”.

- Click **Complete**.
12. The configuration is complete. The Pebble unit will reboot. After the reboot is complete, you can disconnect and move the Pebble unit close to a window and connect the GPS antenna.

**Configuration is completed**

Wireless is restarting, and the wireless name after restarting is:

- TP-Link_D8E2_5G_2GEXT
- TP-Link_D8E2_5G_5GEXT

The current domain name for the current device is:

- casawifi.com

You can manage the device by accessing the domain name.

13. The PnP process will start after the GPS is connected. The LED will light solid green when the PnP is complete and service is ready.
Logging into the Pebble unit after the initial setup

1. From a PC or phone, select the SSID of the Pebble unit Wi-Fi (Example: TP-Link_D8E2_5G_5GEXT in this example).

2. Connect to this Wi-Fi network.

3. Open a browser and enter the following url: casawifi.com.
4. Enter the web access password in the textbox shown below.

This password was set earlier in this document (see Wi-Fi connection (for the first time), step 5).

5. Turn off the unused Wi-Fi radio. For example, if you are using 5G Wi-Fi, turn off the 2.4G Wi-Fi radio on the Pebble unit. Click Wireless, then click the blue button as shown below to turn off the 2.4G Wi-Fi radio.
6. After the radio is turned off, the page will look like this:

![Wireless function on/off switch](image)

7. If you want to change the login password, go to *Changing the login password* for more information.

8. If you want to use another Wi-Fi router (for example, you move the Pebble unit to a new location), you can issue a factory reset and start over to select the new Wi-Fi router, go to *Factory Reset Pebble Wi-Fi* for more information.

9. Now you will log in to the Wi-Fi module.
Changing the login password

1. If you want to change the login password, once you are logged in, from the Extend other networks screen, click More as shown below.

2. Under Network Settings, click System management as shown below.
3. On the **Modify login password** screen, enter the current password then enter a new password, then click **Save**.

4. If you want to change the Wi-Fi SSID and Wi-Fi password after logging in, click **Wireless** highlighted in red below.
5. In the following dialog, enter the 2.4G/5.0G Wi-Fi SSID (Wireless name) and Wi-Fi password, then click **Save**.

**Manually Reset the Pebble**

The Pebble reset button (shown below) supports the following reset behavior:

- 1 second short-press reset to reboot both Wi-Fi and LTE
- 10 second long-press reset to factory reset both Wi-Fi and LTE
Factory Reset Pebble Wi-Fi

1. After logging to Pebble unit Wi-Fi, click **More** on the top bar, then click **System management** on the left side, then select **Reboot and factory reset**.

2. Click **Restore the factory settings**.
3. Once you confirm the factory reset, the Restore the factory settings window displays.

4. Click **Restore setting directly** and wait. The Pebble unit Wi-Fi reboots itself after one minute.
Pebble Status & LED Behavior

The following table lists the behavior of the Pebble and the associated LED activity.

<table>
<thead>
<tr>
<th>Pebble Status</th>
<th>LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Startup</td>
<td>fixed red</td>
</tr>
<tr>
<td>Device Activating</td>
<td>blinking blue</td>
</tr>
<tr>
<td>Activation Complete</td>
<td>fixed green</td>
</tr>
<tr>
<td>Device in Use</td>
<td>blinking green</td>
</tr>
<tr>
<td>Error Condition (check that the GPS puck is near a window)</td>
<td>blinking red</td>
</tr>
</tbody>
</table>