# Pebble Installation Guide

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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 the following releases. See the Casa Systems - Release Notes for additional
information on new functionality not yet covered in this guide.

- 1.00.00 — March 2019; initial release, v4.3
- 1.01.00 — April 2019; revised version, v4.3
- 1.02.00 — May 2019; revised version, v4.5
- 1.03.00 — July 2019; revised version, v4.6
- 1.04.00 — October 2019; revised version, v4.6

Supported Software Releases

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

- 4.3 — April 2019
- 4.5 — May 2019
- 4.6/7 — October 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 (20 dBm) radio streams (4G) that is responsible for radio transmission and reception from UEIs in an 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 eNodeB.

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

- Ease of installation: No dedicated LTE Backhaul needed. Connects to home broadband network using Ethernet or Wi-Fi.
- 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* 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.

   ![GPS Port](image)

   **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 **WAN** (Ethernet) port on the Pebble unit (shown below).

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**

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 "Sprint-Pebble-XXXX".*

1. Connect the GPS antenna cord into the GPS port on the back of the unit.

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

3. Connect the power supply to the DCIN port on the Pebble and plug in.
Installing the Wi-Fi Connection using Sprint Set Up Assistant

1. Download the Sprint Set Up Assistant app from the App/Play store on your mobile device or tablet. Select Pebble from the three product options available then follow the prompts.

2. In the Set Up Assistant app, follow instructions to move to Settings and select the Pebble Wi-Fi connection (see below) click Continue.
Configure Pebble Wi-Fi

1. In your phone settings, connect to the Wi-Fi named “Sprint-Pebble-XXXX” and return to the Set Up Assistant app and follow prompts.

2. The app will pair with your Pebble and present the option to configure Wi-Fi backhaul using your home router. Click **Configure**.
3. Select your home Wi-Fi router (5Ghz preferred over 2.4Ghz) from the list.

4. Enter the password (case sensitive) for your home Wi-Fi router then click **Connect**.
5. When prompted, click **Continue** to setup Wi-Fi backhaul.

**Note:** This process will take 8 to 10 minutes to complete. The app will provide prompts to continue with the Wi-Fi configuration for the Pebble.
6. The app provides a progress bar to indicate the status of the Backhaul setup. Once the installation is complete click **Continue**.
Application Dashboard

1. Open the application and click **Dashboard**.

![Dashboard Image]

2. The Dashboard provides information for the Pebble units.

![Dashboard Image 2]
3. From the Dashboard, click **My Device** to display information on the Pebble model.

![Pebble My Device](image)

4. From the Dashboard, click **Network Settings** to display network details. Click Ethernet or Wi-Fi to display specific network details. Click **Change** to change network settings.

![Pebble Network Settings](image)
5. From the Dashboard, click **Device Status** and click **LTE** to display status information on the Pebble LTE settings.

![Device Status](image1.png)

6. From the Dashboard, click **Device Status** and click **GPS** to display status information on the GPS settings.

![Device Status](image2.png)
Resetting the Pebble

The manual 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

The Pebble can also be reset using the Set Up Assistant app functions from My Device on the Dashboard and following the prompts:
1. Select **Factory Data Reset** to clear all configuration of the Pebble.

![Pebble Reset screen](image1)

2. Select **Reset** to continue the process.

![Pebble Reset screen with Reset Confirmation](image2)

3. Wait while the device is resetting.

![Pebble Reset screen with Factory Data Reset progress](image3)
4. Press **OK** to complete the reset process.

![Pebble Reset Process](image)

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**Pebble Status & LED Behavior (Wi-Fi and Ethernet)**

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>