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R500-PLTE Router Quick Start Guide

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R500-PLTE Router Quick Start Guide
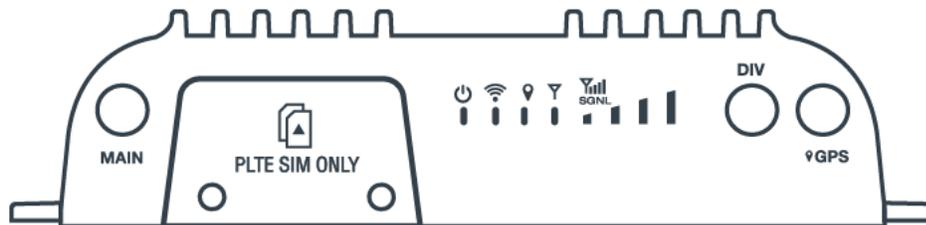
Introduction

This document provides a brief overview of the R500-PLTE router, discusses what is inside the box, and provides basic setup and install instructions for the router.

NOTE: The Verify app includes many of the same instructions with an alternate order. This document supports the Verify app instructions. Use the Navigation section below to locate the topics most applicable to troubleshooting your setup issues. For additional setup support, contact a professional installer or Cradlepoint Support (https://cradlepoint.com/support/).

Navigation

Use the following links to quickly navigate through this document.

R500-PLTE Router Models

This document applies to the CRADLEPOINT R500-PLTE-C7C MODEL: S5A102A.

Before You Begin

Read the following before setting up the R500-PLTE router.

Location Considerations

The R500-PLTE router is a ruggedized IoT router for Private LTE (PLTE) deployments using CBRS bands 42, 43 and 48. It may be mounted in a variety of environments, locations, and configurations. Therefore, it is recommended that a professional install the router. For assistance with installation or in locating a professional installer, contact Cradlepoint Sales and Support (https://cradlepoint.com/company/contact_us).

The following are recommended considerations for mounting best practices:

- Ensure that the mounting surface is flat and clear of any obstructions or objects that may interfere with the antennas, signal reception, or cables.

- Position the device for optimal cellular and Wi-Fi signal reception.

- Avoid mounting in direct sunlight or in locations where it may be exposed to extreme weather conditions.

- Ensure plenty of airflow for ventilation.

- Keep the device out of reach and ensure restricted access. The R500-PLTE router is designed to work in elevated ambient temperatures, which may cause the surface of the device to become too hot to safely touch.

- For more information refer to the Safety, Regulatory, and Warranty Guide insert that came with your device.

SIM Card for Wireless Connectivity

The R500-PLTE router does not require a broadband plan and does not support carrier SIMs. SIM-based connectivity is supported through CBSD vendors, such as Ericsson, Nokia, and Ruckus, for Private LTE only.

Router Communication and Data Usage

The factory default configuration of the router is set to communicate with Cradlepoint and other resources at regular intervals to access the latest NetCloud OS and modem updates, clock synchronization (NTP), and NetCloud Manager. Such communication may result in data usage and applicable charges regardless of whether the router uses a wired or wireless Internet connect. To avoid such data usage and potential charges, refer to Router Communication/Data Usage (https://customer.cradlepoint.com/s/article/router-communication-data-usage) for more information.

Required Tools for Setup

- #0 Philips-head screwdriver (for SIM cover screws)

- Mounting tools - Depending on the location of installation, additional mounting tools may be necessary. These tools may include, but are not limited to:

  - Screwdrivers

  - Drill and drill bits

  - Additional screws

  - Zip ties

Setup

The following instructions walk you through basic setup of the router. For more advanced setups, contact a professional installer.

STEP 1: Check box for content.

The contents of the box vary depending upon the Cradlepoint R500-PLTE router model purchased. Refer to the following to ensure you received all items included with your hardware:

- [1] Cradlepoint R500-PLTE Router

- [2] LTE cellular antennas

- [2] Wi-Fi antennas

- [1] 4-pin power supply

- [2] SIM door screws

- [1] Getting Started reference sheet

- [1] Safety, Regulatory, and Warranty guide

STEP 2: Remove the SIM door.

Unscrew and remove the SIM cover from the router.
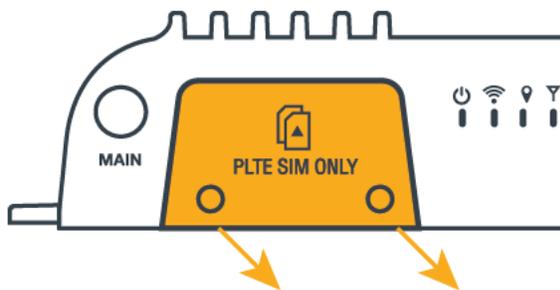
STEP 3: Insert a SIM card into SIM slot(s).

Insert an activated 2FF SIM card into the SIM1 slot (contacts down, notch in). The SIM card clicks into place.

Note: The R500-PLTE router includes a second slot for an additional SIM card. Only one SIM is active at a time.
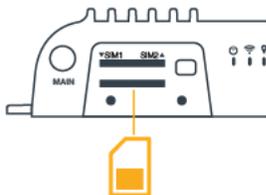

STEP 4: Reinstall the SIM door.

Replace the SIM cover and secure with the SIM door screws.
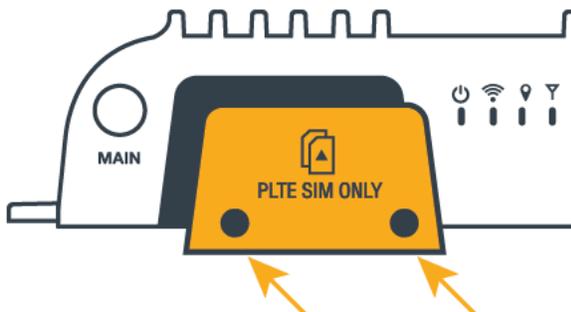
STEP 5: Attach LTE cellular antennas.

The R500-PLTE router includes two LTE cellular (paddle) antennas. Attach the antennas to the ports marked MAIN and DIV, as shown below.

- Hold the antenna straight and twist the base to thread onto the connector.

- Tighten with fingers only (maximum torque not to exceed 4 in-lbs/ .45Nm). Do not over-tighten.

- Once the router is mounted and powered on, angle the antennas for optimal signal reception.
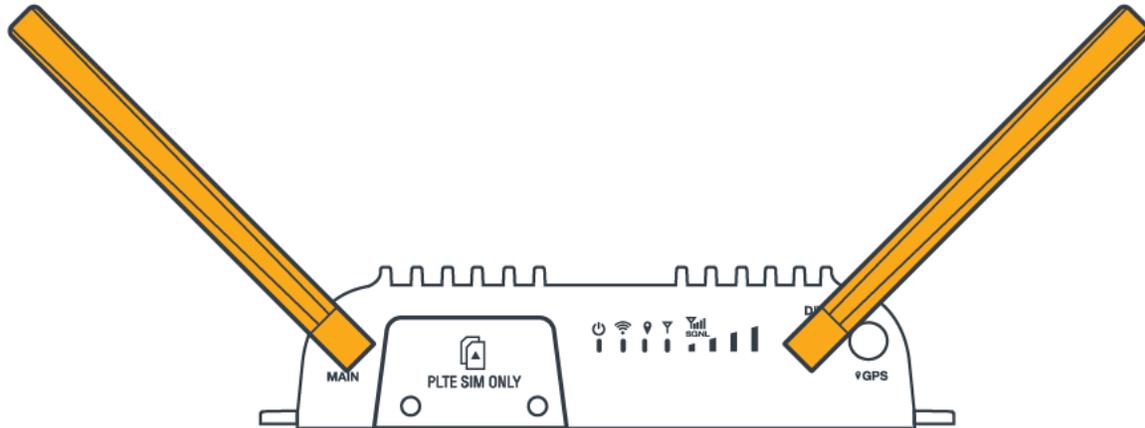

STEP 6: Attach the Wi-Fi antennas.

The R500-PLTE router includes two Wi-Fi (stick) antennas. Attach the antennas to the ports marked 2.4/5GHz, as shown below.

- Hold the antenna straight and twist the base to thread onto the connector.

- Tighten with fingers only (maximum torque not to exceed 4 in-lbs/ .45Nm). Do not over-tighten. Once the router is mounted and powered on, angle the antennas for optimal signal reception.
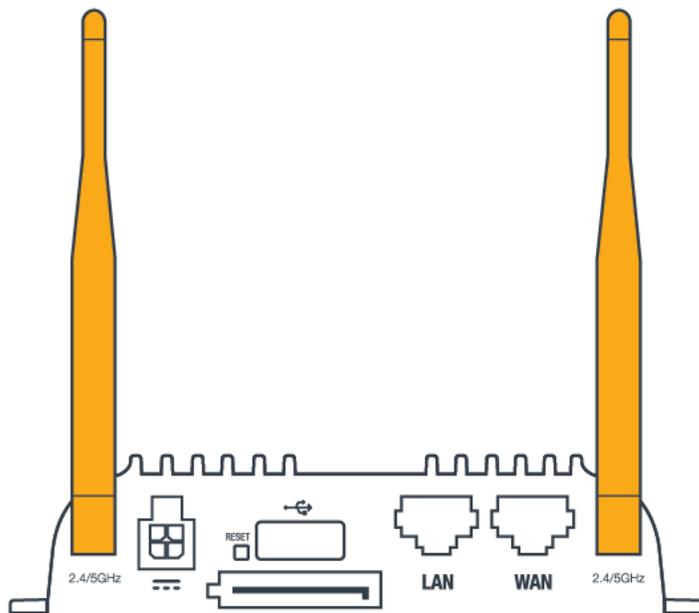
STEP 7: Mount the router.

The R500-PLTE Router may be mounted in several ways and should be completed by a professional installer. Refer to the following for best practices:

- Mark the desired mounting location on the ceiling, wall, kiosk, or vehicle using a pen or marker prior to drilling holes or attaching the endpoint with screws.

- Ensure the mounting location is away from RF interfering materials and objects such as reflective surfaces, brick and concrete, microwaves, and so on.

- Pre-drill holes for the mounting screws.

- Use anchors and other screw-securing accessories to ensure the device is securely mounted in place.

- Refer to the Location Considerations section of this document

STEP 8: Connect the Ethernet cable.

If you are using a wired, Ethernet WAN/LAN connection, connect the Ethernet cable to the WAN or LAN port on the back of the R500- PLTE. Connect the other end to your WAN/LAN source.
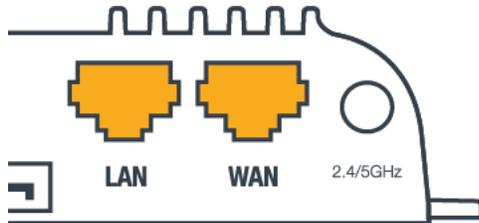
Note: If you are using a wireless WAN (using cellular connectivity), you will need to power up the router first, access your NetCloud Manager account, and then complete the setup.

STEP 9: Power up the router.

The power supply includes a 4-pin slot plugin to connect directly to the router. The purpose of this configuration is to allow for using a 4- wire/GPIO cable to hardwire power for DC connections or use GPIO. Refer to the image below for pin configuration.
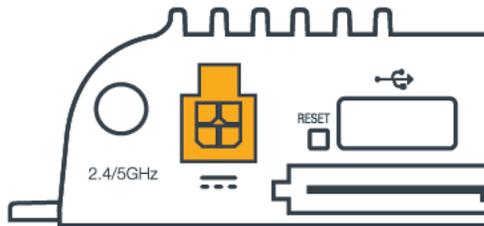

Note: The rated power for the R500-PLTE Router is 9-33 VDC.

- Insert the 4-pin end of the power source into the four-pin port on the router, ensuring appropriate alignment of pins as illustrated above.

- Plug the router into an electrical socket.

- Allow one minute for the router to run through its bootup sequence.

- Refer to the Understanding LEDs section of the guide for more information about LED indicator status.

STEP 10: Activate the router through NetCloud Manager.

Activate your R500-PLTE router through NetCloud Manager (NCM). Your router is packaged with NetCloud services and requires that you log into your NetCloud account to activate. Refer to Getting Started with NetCloud Manager (https://customer.cradlepoint.com/s/article/Getting-Started-with-NetCloud-Manager) for more information.

Understanding LEDs
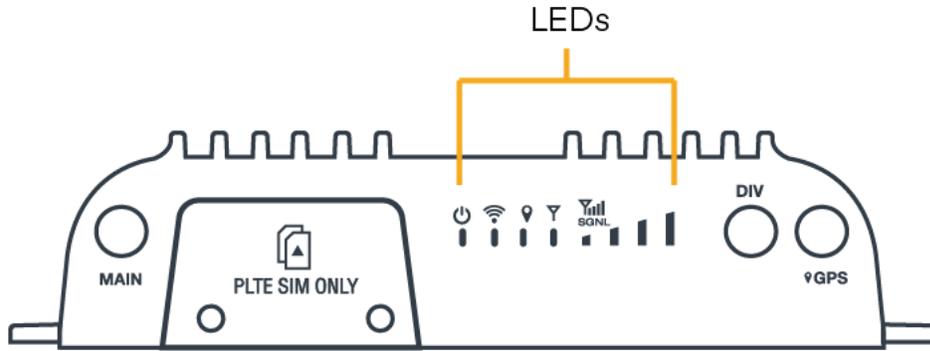
The R500-PLTE router uses LED lights to communicate various status conditions. Use the chart below to verify the status of your router after the boot up cycle.

INDICATOR	BEHAVIOR
	POWER: The Cradlepoint R500-PLTE Router must be powered using a 4-pin power source.
	No Light = Not receiving power. Check the power switch and the power source connection.
	Blue = Powered On
	WI-FI BROADCAST: Indicates Wi-Fi activity.
	No Light = Wi-Fi is not connected.
	Green = Wi-Fi is on and operating normally.
	Yellow = Attention–Log into NCM to troubleshoot. NOTE: Upon initial installation, the light will be yellow until the device is registered in NetCloud Manager (NCM).
	EMBEDDED MODEM: Indicates the status of the embedded LTE modem.
	No Light = Modem not connected.
	Solid Green = Modem has established an active connection.

INDICATOR	BEHAVIOR
	Blinking Green = Modem is connecting.
	Solid Yellow = Modem is not active.
	Blinking Yellow = Data connection error. No modem connection possible.
	Blinking Red = Modem is in the process of resetting. **Blinking Red with Signal Strength LEDs** = SIM door is not installed, modem is off.
SGNL	**SIGNAL STRENGTH**: Blue LED bars indicate the active modem's signal strength.
	Four Solid Bars = Strongest Signal.
	One Blinking Bar = Weakest Signal.
GPS	**GPS**: Indicates the status of the GPS connection
	No Light = Off/no lock
	Solid Blue = GPS on/locked
	Blinking Blue = Obtaining lock

INDICATOR	BEHAVIOR
OTHER	**Additional LED Indications**:
	Several LEDs blink when the factory reset button is detected. The embedded modem and signal strength LEDs blink red in unison for 10 seconds when there is an error during an NCOS upgrade.

Troubleshooting

If the device takes longer than 5 minutes to connect to the Internet, you may need to log into the local UI of the device to make configuration changes or start the troubleshooting process. You must be physically co-located with the device to do this. If there is no Internet connection, refer to the following:

No Internet or Connection Issues (https://customer.cradlepoint.com/s/article/NCOS-No-Internet-or-Connection-Issues)

NCOS: How to Configure WAN Interfaces (https://customer.cradlepoint.com/s/article/NCOS-How-to-configure-WAN-Interfaces)

Once the router connects to the Internet, ensure that desired functionality is working appropriately through NCM.

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Privacy Policy (https://cradlepoint.com/privacy-policy/)

GDPR Privacy Policy (https://cradlepoint.com/about-us/gdpr-privacy-policy/)

Resources

R500-PLTE Router Webpage (https://cradlepoint.com/product/endpoints/r500-plte/)

R500 PLTE Router Data Sheet (https://resources.cradlepoint.com/product-resources/r500-plte-data-sheet)

The R500-PLTE router supports CBRS bands 42, 43, and 48. For a list of the frequency range of each supported band, refer to Modem Carrier Aggregations (https://customer.cradlepoint.com/s/article/Modem-Carrier-Aggregations).

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