



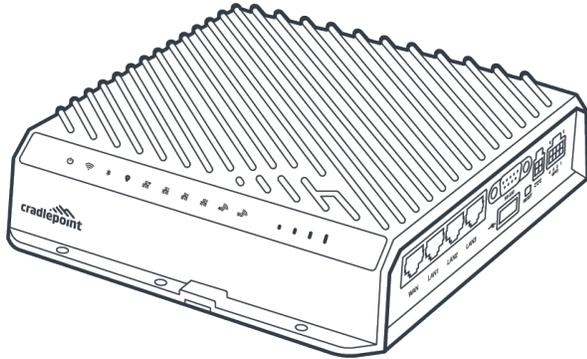
Search Technical Documentation [Q]

R1900 Series Router Quick Start Guide

Jan 26, 2022 · Knowledge

Content

R1900 Series Router Quick Start Guide



Introduction

This document provides a brief overview of the R1900 Series router, discusses what's inside the box, and provides basic setup and install instructions for the router.

If you find information in this guide that is incorrect, misleading, or incomplete, we would appreciate your comments and suggestions.

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 refer to our [Contact Us](https://cradlepoint.com/about-us/contact-us/) (<https://cradlepoint.com/about-us/contact-us/>) page.

Intended Audience

This article is intended for professional networking hardware installers. It provides basic knowledge and should be used only as a reference guide for installing the R1900 Series router. Due to the unique nature of each installation, potential for RF exposure, and enhanced separation requirements, customers must have a professional install their 5G hardware. This document is a reference guide and is intended only to provide best practices. Refer to the [Cradlepoint Product Disclaimer and Limitation of Liability](#) section for further information.

Navigation

Use the following links to quickly navigate through the document.

[R1900 Series Router Models](#)

[Before You Begin](#)

[Location Considerations](#)

[SIM Card for Wireless Connectivity](#)

[Router Communication and Data Usage](#)

[Required Tools for Setup](#)

Setup

[STEP 1: Check box for contents.](#)

[STEP 2: Remove the SIM door.](#)

[STEP 3: Insert an activated 4FF-sized SIM into the router.](#)

[STEP 4: Reinstall the SIM door.](#)

[STEP 5 \(OPTIONAL\): Connect to an RX30 managed accessory.](#)

[STEP 6: Attach the antennas.](#)

[STEP 7: Mount the router.](#)

[STEP 8 \(Optional\): Connect the Ethernet cable.](#)

[STEP 9: Power up the router.](#)

[STEP 10: Activate the router through NetCloud Manager.](#)

[Understanding LEDs](#)

[Troubleshooting](#)

[Help and Support](#)

[Resources](#)

[Terms of Service](#)

[Cradlepoint Product Disclaimer and Limitation of Liability](#)

[Disclaimer](#)

[Installer Responsibility](#)

[Limitation of Liability](#)

[Professional Installer Network](#)

R1900 Series Router Models

This document applies to the following R1900 series models:

CRADLEPOINT R1900-5GB MODEL S5A052A

Before You Begin

Read through the following before you set up your Cradlepoint R1900 series router.

Location Considerations

The R1900 is built for installation in a variety of environments. Cradlepoint recommends having a professional install the R1900 router to ensure proper signal reception and usage. The following are best practices for determining the location for the installation:

- 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 the weather.
- Ensure plenty of airflow for ventilation.
- Keep the device out of reach. It is required that the endpoint be installed behind a locked/gated enclosure to restrict unauthorized access. The R1900 is designed to work in elevated ambient temperatures which may cause the surface of the device to become too hot to safely touch.
- Mount in locations compliant with the Safety, Regulatory, and Warranty guide, included in the product shipping box.

For mobile installations, refer to the [Vehicle Installation Guide for Mobile Routers \(https://customer.cradlepoint.com/s/article/Vehicle-Installation-Guide-for-COR-Series-Mobile-Routers\)](https://customer.cradlepoint.com/s/article/Vehicle-Installation-Guide-for-COR-Series-Mobile-Routers) for more information.

IMPORTANT: The R1900 Series router requires increased separation distances between the Cradlepoint hardware and human beings. The recommended minimum separation distance is listed on the Safety, Regulatory, and Warranty guide included in the shipping box. Therefore, Cradlepoint requires that all 5G adapters be installed by a professional. For assistance with installation or in locating a professional installer, contact [Cradlepoint Sales and Support \(https://cradlepoint.com/about-us/contact-us/\)](https://cradlepoint.com/about-us/contact-us/).

SIM Card for Wireless Connectivity

A wireless broadband data plan must be added to your Cradlepoint R1900 for wireless broadband connectivity. The SIM must be provisioned by the carrier. Contact your carrier for details about selecting a data plan and about the process for provisioning your SIM. To configure the router for failover and failback functionality, refer to the article, [NCOS: Effectively utilizing 2-SIM modems \(/s/article/NCOS-Effectively-utilizing-2-SIM-modems\)](https://customer.cradlepoint.com/s/article/NCOS-Effectively-utilizing-2-SIM-modems).

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 \(/s/article/router-communication-data-usage\)](https://customer.cradlepoint.com/s/article/router-communication-data-usage) for more information.

Required Tools for Setup

Cradlepoint recommends that a professional install the R1900 in any environment. However, the following tools may be necessary for setup.

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

[Back to top](#)

Setup

Refer to the following for general setup instructions.

STEP 1: Check box for contents.

Prior to having the R1900 router installed, open the box and ensure that all items are present. You should have received the following:

- [1] R1900 series router
- [1] 3-meter (2x2) Power and GPIO cable
- [4] M4 screws, nuts, and washers
- [1] Mounting template
- [1] Quick Start Reference sheet
- [1] Safety, Warranty, and Regulatory guide

Accessories

To optimize the R1900 series router for Wireless WAN or with failover configuration, you will need at least one activated 4FF-sized SIM card, with an active cellular data plan.

Additional accessories to enhance your router capabilities include, but are not limited to:

- OBDII cable
- RX30 Series managed accessory
- Antennas
 - Refer to the [Cradlepoint Antenna \(https://cradlepoint.com/products/antennas/\)](https://cradlepoint.com/products/antennas/) webpage for assistance in locating a Cradlepoint Approved vendor.

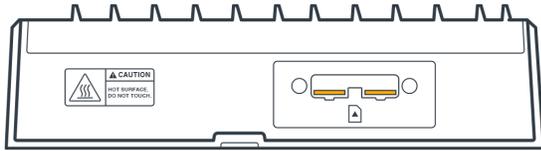
STEP 2: Remove the SIM door.

Unscrew and remove the SIM cover from the router.



STEP 3: Insert an activated 4FF-sized SIM into the router.

- Insert an activated 4FF SIM card into the SIM1 slot (contacts down, notch in). The SIM card will click into place.
- Optionally, insert an active 4FF SIM into the SIM2 slot with the same orientation.



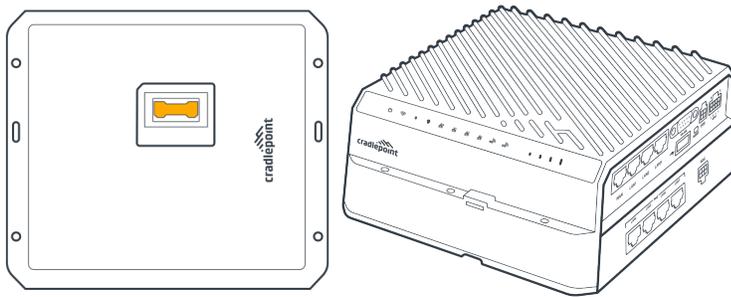
STEP 4: Reinstall the SIM door.

Replace the SIM cover and secure with the SIM door screws.



STEP 5 (OPTIONAL): Connect to an RX30 Series managed accessory.

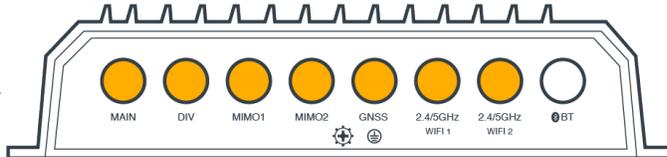
Refer to the installation instructions detailed in the RX30 Series Quick Start Guide and then continue to the next step when the managed accessory is attached.



STEP 6: Attach the antennas.

The R1900 series router does not include antennas. Antennas must be purchased separately or through a third-party vendor. Refer to the [Cradlepoint Antenna \(https://cradlepoint.com/products/antennas/\)](https://cradlepoint.com/products/antennas/) webpage for more information and options.

NOTE: Only use remote or cabled-out (x-in-1) antennas. Paddle antennas are not recommended for optimal performance



Refer to the [Vehicle Installation Guide for Mobile Routers \(https://customer.cradlepoint.com/s/article/Vehicle-Installation-Guide-for-COR-Series-Mobile-Routers\)](https://customer.cradlepoint.com/s/article/Vehicle-Installation-Guide-for-COR-Series-Mobile-Routers) for antenna setup best practices.

STEP 7: Mount the router.

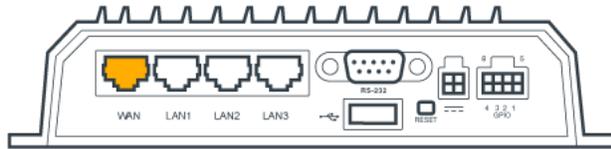
The R1900 series router may be mounted in a number of ways and should be completed by a professional installer. Refer to the following for best practices:

- Mark the desired mounting location on the ceiling, wall, kiosk, or vehicle using a pen or marker.
- 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 (Optional): Connect the Ethernet cable.

- If you are using a wired, Ethernet WAN connection, connect the Ethernet cable to the WAN port on the back of the R1900. Connect the other end to your WAN source.

- 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 4-pin GPIO cable is configured to allow for using a 4-wire/GPIO cable to hardwire power for DC connections, or for using GPIO. Refer to the following for pin configuration:

| | PIN | Wire Color | Definition | Details |
|--|-----|------------|------------|--------------------------------------|
| | 1 | Black | Ground | Ground to the vehicle chassis |
| | 2 | Red | Power | VDC battery constant |
| | 3 | Orange | Input | VDC ignition sensing accessory input |
| | 4 | Blue | Output | General purpose I/O (GPIO) |

- Insert the 4-pin end of the power adapter into the 4-pin port on the router, ensuring appropriate alignment of pins as illustrated above.
- Connect the wires on the other end to the appropriate fuse or power source.
- Allow 1 minute for the router to run through its bootup sequence.

The 8-pin GPIO socket is configured to allow for using an 8-wire/GPIO cable. This connector provides extensibility and the ability to connect a redundant power supply. Refer to the following for pin configuration:

| | PIN | Wire Color | Definition | Details |
|--|-----|------------|----------------|---|
| | 1 | Black | Ground | Ground to the vehicle chassis |
| | 2 | Brown | Analog Input | 0-5 V/0-36 V |
| | 3 | Red | Power | Redundant power supply |
| | 4 | Black | Ground | Ground to the vehicle chassis |
| | 5 | White | GPIO3 | LVTTTL compatible, protected to 36 VDC input |
| | 6 | Blue | GPIO2 | LVTTTL compatible, protected to 36 VDC input |
| | 7 | Yellow | GPIO1 | LVTTTL compatible, protected to 36 VDC input |
| | 8 | Orange | Ignition Sense | Provides option to power up on vehicle ignition |

STEP 10: Activate the router through NetCloud Manager.

Activate your R1900 series 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 \(https://customer.cradlepoint.com/s/article/Getting-Started-with-NetCloud-Manager\)](https://customer.cradlepoint.com/s/article/Getting-Started-with-NetCloud-Manager) for more information.

[Back to top](#)

Understanding LEDs

Refer to the following table for information about LED indicators.

| Status Indicator | Behavior |
|------------------|---|
| POWER | The Cradlepoint R1900 must be powered using an approved 9-36 V DC power source. |

| | | |
|------------------------------|--|---|
| |  | No Light = Not receiving power. Check the power switch and source connection. |
| |  | Green = Powered ON. |
| |  | Yellow = Attention. Log into NCM and use the Remote Connect menu to access the router's NCOS to manage any alert. NOTE: Upon initial installation, the light will be yellow until the device is registered in NetCloud Manager (NCM). |
| SIGNAL STRENGTH | LED bars indicate the modem's signal strength. | |
| |  | 4 Solid Bars = Strongest signal |
| |  | 1 Blinking Bar = Weakest signal (A blinking bar indicates half of a bar) |
| |  | 4 Blinking Bars = SIM door is not installed, modem is off |
| |  | Sequence Flashing (1st bar, 2nd bar, 3rd bar, 4th bar, repeat) = Two possible causes: <ul style="list-style-type: none"> • User is holding the reset button (counts up to 10) • Router is booting up (counts up to four) |
| 4G LTE EMBEDDED MODEM | Indicates information about the embedded 4G LTE modem. | |
| |  | No Light = Modem not connected. NOTE: You will not be able to see the icon when the modem is not connected. |
| |  | Solid Green = Modem has established an active WAN connection. |
| |  | Flashing Green = Modem is connecting. |
| |  | Solid Yellow = Modem is not active. |
| |  | Flashing Yellow = Data connection error. No modem connection possible. |
| |  | Flashing Red = Modem is in the process of resetting. NOTE: Blinking Red with Signal Strength LEDs = SIM door is not installed, modem is off. |
| 5G CONNECTION | Indicates 5G WAN connectivity. | |
| |  | No Light = No 5G connection. |
| |  | Flashing Green = Modem has established an active LTE connection and the connected cell supports 5G NSA. |
| |  | Solid Green = Modem has established an active WAN Connection. |
| Wi-Fi BROADCAST | Indicates activity on the Wi-Fi broadcast for both 2.4 and 5 GHz bands. | |
| |  | No Light = Wi-Fi is not operating. |
| |  | Blue = Wi-Fi is on and operating normally |
| LAN ACTIVITY | Indicates an active LAN connection. NOTE: Only one LAN connection will be active at a time. | |
| |  | No Light = LAN is not connected or is not currently active. |
| |  | Flashing Green = Active LAN connection. |
| GPS | Indicates the status of the GPS connection. | |

| | |
|---|---|
|  | No Light = No GPS lock |
|  | Flashing Blue = GPS obtaining lock |
|  | Solid Blue = GPS locked |

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 \(https://customer.cradlepoint.com/s/article/NCOS-No-Internet-or-Connection-Issues\)](https://customer.cradlepoint.com/s/article/NCOS-No-Internet-or-Connection-Issues)
- [NCOS: How to Configure WAN Interfaces \(https://customer.cradlepoint.com/s/article/NCOS-How-to-configure-WAN-Interfaces\)](https://customer.cradlepoint.com/s/article/NCOS-How-to-configure-WAN-Interfaces)

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

- [Customer Support \(https://cradlepoint.com/support/\)](https://cradlepoint.com/support/)
- [Customer Community \(https://customer.cradlepoint.com/s\)](https://customer.cradlepoint.com/s)

Help and Support

- [Cradlepoint Customer Connect Community \(https://customer.cradlepoint.com/s/\)](https://customer.cradlepoint.com/s/)
- [Cradlepoint Support Services \(https://cradlepoint.com/support/\)](https://cradlepoint.com/support/)

Resources

- [R1900 Series Router Data Sheet \(https://cradlepoint.com/datasheet/r1900-series-5g-ruggedized-router/\)](https://cradlepoint.com/datasheet/r1900-series-5g-ruggedized-router/)
- [R1900 Series Webpage \(https://cradlepoint.com/product/endpoints/r1900-series\)](https://cradlepoint.com/product/endpoints/r1900-series)
- [RX30 Series Quick Start Guide \(https://customer.cradlepoint.com/s/article/RX30-Getting-Started\)](https://customer.cradlepoint.com/s/article/RX30-Getting-Started)
- [RX30-PoE Managed Accessory Webpage \(https://cradlepoint.com/product/accessories/rx30-poe-managed-accessory/\)](https://cradlepoint.com/product/accessories/rx30-poe-managed-accessory/)
- [RX30 Series Data Sheet \(https://cradlepoint.com/datasheet/rx30-series/\)](https://cradlepoint.com/datasheet/rx30-series/)

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[Back to top](#)

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R1900-Getting-Started

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