CradlePoint 1855

Retail Technology

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Overview

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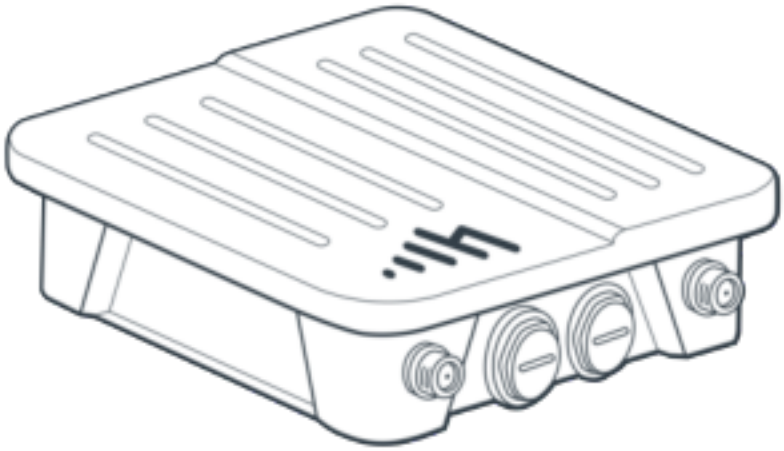
Contacts

NOC Support-1-877-611-5868 Option 9, then Option 1

- (Use for all check-ins and check-outs for cabling and retail technology technicians completing work in any T-Mobile store)
- ESOC (T-Mobile Enterprise Security Operations)-1-877-586-6762 (Anyone who needs emergency assistance at a T-Mobile store)

W1855 Series 5G Wideband Adapter Quick Start Guide



Introduction

This document provides a brief overview of the CradlePoint W1855 Series 5G Wideband Adapter, discusses what's inside the box, and provides basic set up and installation instructions.

> Note: Not every building is approved for a W1855 CradlePoint. Please contact the T-Mobile RT PM to ensure this site is approved.

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 CradlePoint W1855 Series 5G Wideband Adapter. 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 guide is intended only to provide best practices. Refer to the Cradlepoint Product Disclaimer and Limitation of Liability Disclaimer section for further information.

Before You Begin

Read the following before setting up your Cradlepoint W1855 Series 5G Wideband Adapter.

Note: Not every building is approved for a W1855 CradlePoint. Please contact the T-Mobile RT PM to ensure this site is approved.

External Device Components

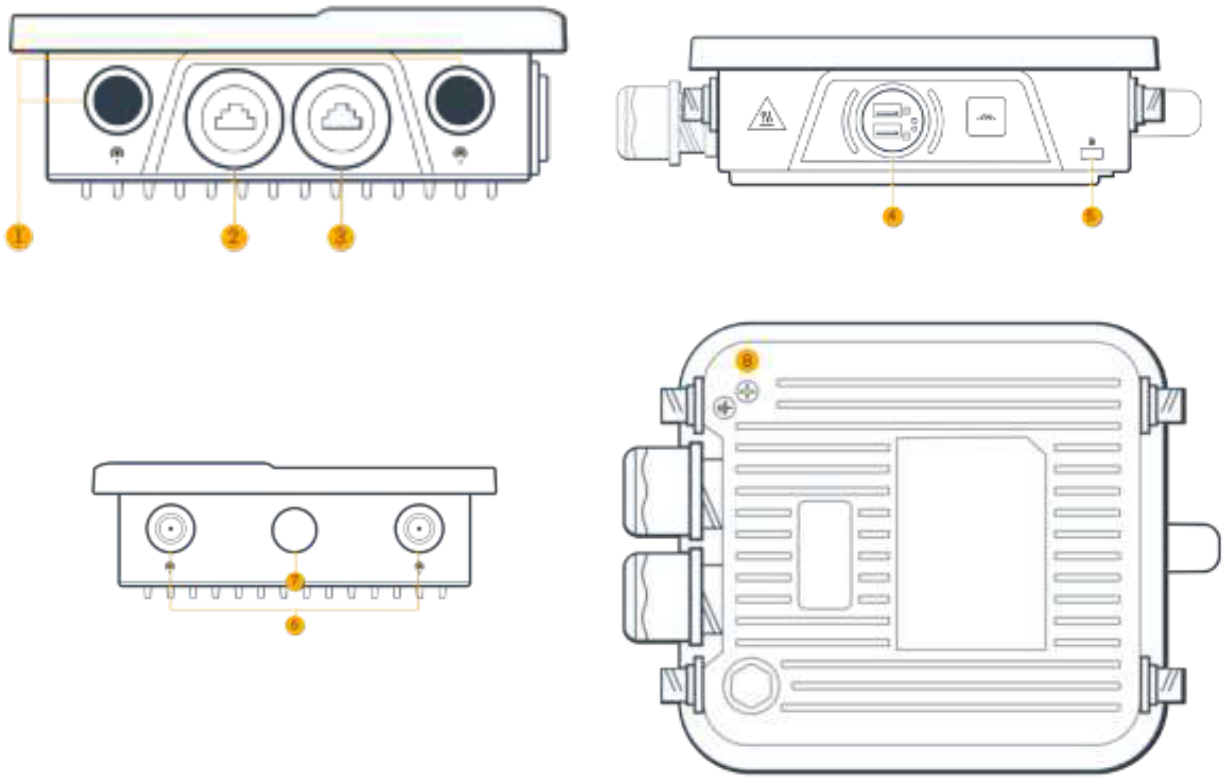


Figure 1-1 External Device Components

1. Cellular Antenna Connectors (N-type sockets) - shipping covers shown (2 of 4)
2. 2.5 GbE PoE Ethernet Port
3. 2.5 GbE Ethernet Port
4. SIM Slots (cover shown removed)
5. Kensington Lock Port
6. Cellular Antenna Connectors (N-type sockets) - covers not shown (2 of 4)
7. Bluetooth Antenna
8. Grounding Connector

Required Equipment

Installers will need to bring the following equipment for installation:

- Flat bladed screwdriver
- Socket set and driver
- Drill and drill bit - A ½" hole will fit tightly, but a ¾" hole may be preferable
- Mounting screws

  Note: the install kit includes wall anchors but if mounting to metal, sheet metal screws are preferable.
- Ground wire (14 to 16 guage) and lug
- 2 shielded cat6 ethernet cables
- 2 Shielded rj45s
- Silicone/duct seal to cover hole
- Inline outdoor lightning arresters/surge protectors for each ethernet cable

Location Considerations

The Cradlepoint W1855 Series 5G Wideband Adapter is purpose-built for exterior mounting and should be installed by a professional. The T-Mobile Retail Technology Project Manager (RT PM) will include the desired install location in the redline drawings. If there are any concerns that will prevent install, contact the RT PM immediately. The following includes considerations when identifying a location for mounting.

- Ensure that the mounting surface clear of any obstructions or objects that may interfere with the antennas, signal reception, or cables.
- Ensure that the mounting surface is out of the reach of foot traffic at least 8' above the ground and require a ladder for installation.
- Position the device for optimal signal reception.
- Ensure plenty of airflow for ventilation.
- Confirm with on site General Contractor that there is nothing hazardous in the way of installation.
- Ensure the distance between the mounting location and the router is not longer than 328'.
- Be prepared to drill into any wall surface including metal siding, brick, or stone.
- For more information refer to the Safety, Regulatory, and Warranty Guide insert that came with your device.

  IMPORTANT: The W1855 Series 5G Wideband Adapter requires increased separation distances in relation to other networking hardware. Therefore, Cradlepoint recommends that all 5G adapters be installed by a professional. For assistance with installation or in locating a professional installer, contact Cradlepoint Sales and Support.

Ethernet Cable Considerations

Cradlepoint recommends shielded twisted-pair (S/FTP) Ethernet network cabling and connectors (Cat6/Cat6a) for optimal wired network performance. Do not run cables down the side of the exterior wall.

Setup

The following steps provide general setup instructions.

Prepare tools and adapter for installation

WARNING: When connecting this equipment to devices that are mounted on the exterior of the building, it is recommended to include proper lightning protection (not included in box) to prevent damage to the equipment.

The following tools are required to complete the installation, depending on your selected installation site:

- Flat bladed screwdriver
- Socket set and driver
- Drill and drill bit (for exterior wall mounting)

Prepare the adapter for Ethernet cable connection by unscrewing and removing one or both Ethernet Port dust covers, depending on your planned installation. Choose the easiest time for you during the installation to attach the cable glands.

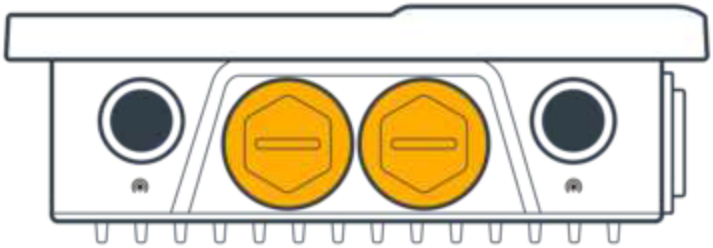


Figure 1-2 Ethernet Port Dust Covers

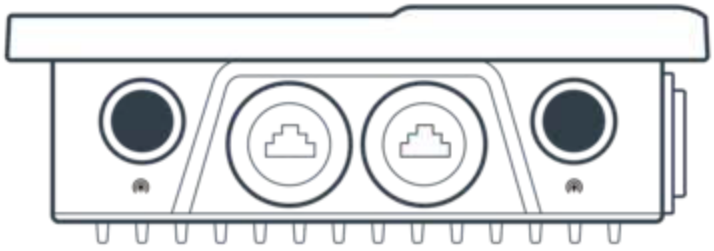


Figure 1-3 Ethernet Port (Uncovered)

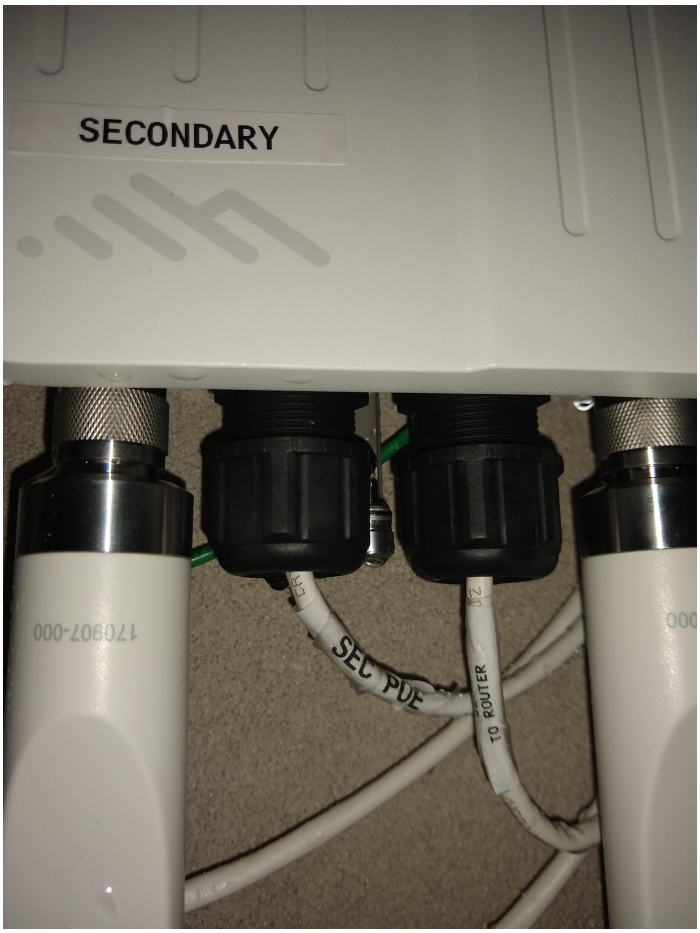


Figure 1-4 Router Cable Connection

Installing Cable Glands

Attach the cable glands to Ethernet cables without protective boots:

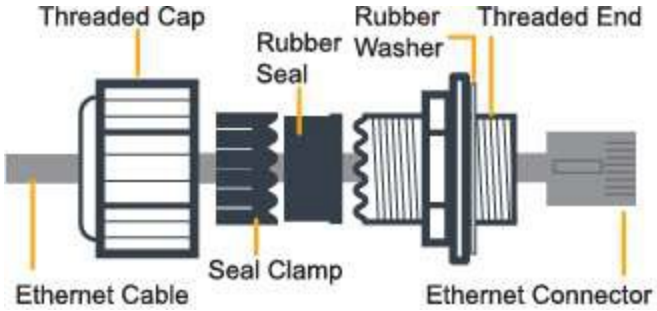


Figure 1-5 Cable Gland Diagram

1. Remove the threaded gland cap, rubber seal and seal clamp from the assembled cable gland.
2. Slide the threaded gland cap onto the Ethernet cable.

3. Slide the seal clamp over the Ethernet cable, and then press the Ethernet connector through the rubber seal. Ethernet cables that include protective boots will not work with this type of cable gland.
4. Slide the Ethernet cable through the threaded end of the cable gland.
5. Fit the rubber seal back into the seal clamp, and then slide the rubber seal and clamp into threaded end of the cable gland.
6. When ready, screw the threaded end of the cable gland into the threaded socket over the Ethernet Port. Tighten so that the rubber washer is firmly engaged against the outside of the W1855.
7. Slide the threaded cap over the assembly and tighten it to firmly clamp the rubber seal around the Ethernet cable and protect against the elements.

Figure 1-6 Ethernet Plugged into Router

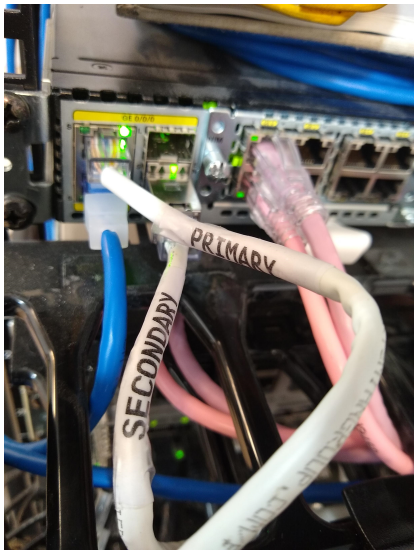


Figure 1-7 Ethernet Plugged into Router

Connecting the PoE Injector

Install the POE Injectorinside the building and make sure that the connections are protected against lightning. Connect a WAN cable to the PoE injector's IN Port, and run an Ethernet cable from the PoE injector's OUT Port to the adapter's installation site.

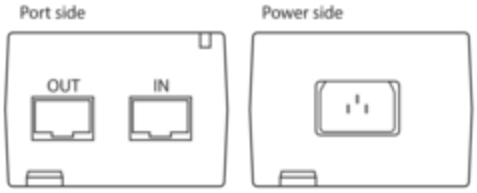


Figure 1-8 POE Injector Plugs

Figure 1-9 Primary POE and Secondary POE

When you are ready to power the PoE injector, attach the power cable and then plug the other end into a power source.

STEP 1: Check box contents

Check that the following was shipped in the box:
[1] Cradlepoint W1855 Series 5G Wideband Adapter
[4] Outdoor Sub 6 GHz 5G/LTE antennas
[1] Outdoor mounting backplate
[1] Outdoor mounting bracket
[2] Pole mount clamps (attached to mounting assembly)
[4] Backplate to adapter mounting screws
[4] Wall anchors and wall mount screws
[2] Cable glands
[2] Ethernet Port dust covers
[1] PoE injector and PoE injector power cable

[1] Grounding lug
[1] Safety, Regulatory, and Warranty guide
[1] Quick Start reference sheet

STEP 2: Insert an activated 4FF-sized SIM

1. Unscrew and remove the SIM cover of the W1855 Adapter.

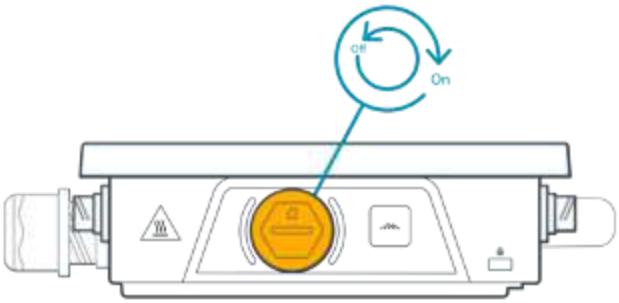


Figure 1-10 SIM Cover

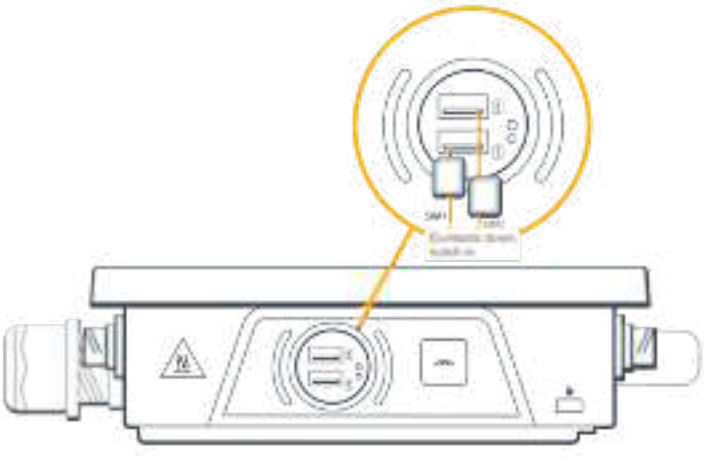


Figure 1-11 SIM Port (Uncovered)

2. Insert a 4FF-sized SIM into the slot marked with metal contacts down and notch in. Press the SIM in until it clicks into place. To remove it, depress the SIM until it clicks and slide out a short way, and then slide it out of the slot.

   NOTE: In rare circumstances, the RT PM may ask that a second SIM be placed in the second 4FF-sided SIM Slot. Normal installs will only require one SIM

3. Replace the SIM cover.

STEP 3: Attach Grounding Cable

IMPORTANT: Follow all local electrical codes when grounding the adapter. The grounding lug can accept a 14-gauge to 16-gauge grounding wire.

1. Find the grounding lug from the Small Accessories Kit.
2. Unscrew the clamping screw with a flat-bladed screwdriver.
3. Insert a short length of stripped grounding cable into the clamp hole on the grounding lug.
4. Tighten the clamping screw until it holds the grounding cable in place very securely.
5. Remove the ground connection screw from the adapter (using a Philips screwdriver) and then use it to connect the grounding lug to the adapter with the ground connection screw.
6. Make sure the other end of the grounding cable is securely connected to ground.

STEP 4: Attach Outdoor Mounting Backplate

1. Lay the adapter on a work surface, with the back facing up.
2. Align the holes of Outdoor Mounting Backplate with the screw holes on the adapter. Make sure that the extender is toward the Ethernet Port side.
3. Attach the Outdoor Mounting Backplate with four screws.

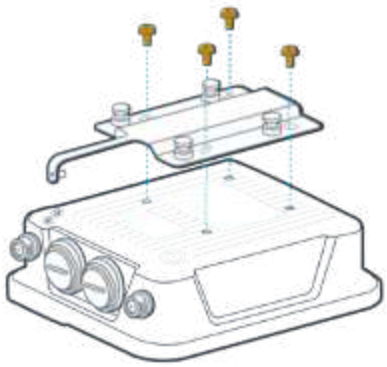


Figure 1-12 Outdoor Mounting Backplate

STEP 5: Install the Outdoor Mounting Bracket

Wall mounting

1. Remove the pole mounting clamps from the Outdoor Mounting Bracket, if needed.
2. Hold the Outdoor Mounting Bracket against an outdoor wall and mark the drill holes.

   NOTE: The Outdoor Mounting Bracket can be placed either horizontally or vertically.
3. Place the bracket aside, and then drill the holes with an appropriate drill bit.

   NOTE: Be prepared to drill through any wall surface including metal siding, brick, and stone. The hole penetrating the exterior should be no bigger than 2" in diameter.
4. Insert wall anchors.
5. Drive four wall mount screws into the anchors, but leave a short length of each screw protruding.
6. Hang the bracket on the screws and then slide the bracket so the narrow portion of the screw holes engage the mounting screws.
7. Tighten the wall mount screws the rest of the way.
8. IMPORTANT: You MUST place a weather-proof sealant around any holes made to the exterior of the building.

STEP 6: Attach antennas

1. Remove the four covers from the SMA connectors.
2. Remove the plastic port protectors from the antennas, and slide off the cardboard sleeves.
3. Attach the four Outdoor Sub 6 GHz 5G/LTE antennas to the four SMA connectors marked .

Figure 1-13 Antenna Attachment

The antennas screw onto the SMA connectors. Be sure that you align the antennas carefully to avoid cross- threading the connection. Tighten until finger tight.

STEP 7: Attach adapter to Outdoor Mounting Bracket

1. Align the studs on the Outdoor Backplate with the holes on Outdoor Mounting Bracket so the backplate and bracket extenders are aligned.
2. Fit the studs through the holes, and then slide the assembly so that it is locked into place. The two extenders should mate closely together. Antennas, cables, and cable glands not shown.

Figure 1-14 Mounted Cradlepoint

Figure 1-15 Mounted Cradlepoint

3. Connect the extenders with the captive thumbscrew by pressing it in and turning until it is tight.

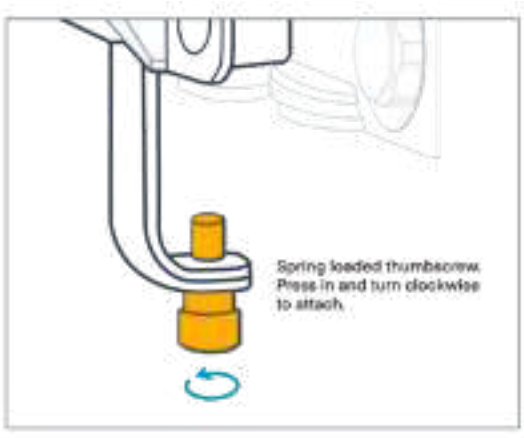


Figure 1-16 Thumbscrew Instruction

STEP 8: Call into NOC

1. Call NOC Support-1-877-611-5868 Option 9, then Option 1
2. Remain on phone with NOC for support during the remaining steps. They will verify that everything is functional.
3. Follow all NOC instructions including emailing photo portions of the installs.

STEP 9: Connect Cradlepoint Port Zero to POE Injector

1. Run the Ethernet cables going from the Cradlepoint to the LAN Rack. Do not run cables down the exterior of the building.
2. Connect the POE injector to the wall power.
3. Connect POE injector IN Port to Cisco Switch 2 Port 47. (If there is a second POE injector, connect the second IN Port to Cisco Switch 2 Port 48.)
4. Connect the POE injector OUT Port to CradlePoint Port Zero.
5. Wait 10 to 15 minutes for connections to initialize.
6. After confirming with NOC that CradlePoint has initialized, make the remaining Ethernet connection.
   - Standard procedure: For failover the LAN port on the CradlePoint connects to Cisco Router Port Ge0/0/1 and the POE injector IN Port connects to the Cisco Switch 1 Port 19. POE injector OUT Port still goes to CradlePoint POE Port.

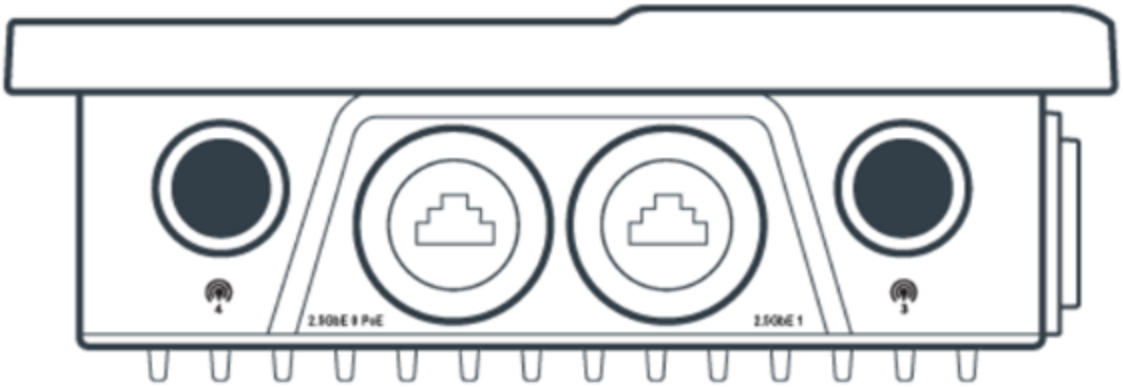


Figure 1-17 Cisco Router Ports

1. In special extenuating cases where broadband is not available, there will be an additional cradlepoint to connect. The connection into ports will be as follows:
   a. If the W1855 is acting as the primary circuit, the WAN Port One on the cradlepoint W1855 would connect to the Cisco 4331 router in Port Ge0/0/0.

b. If the W1855 is acting as the secondary circuit, the W1855 will connect to the Cisco 4331 router in Port Ge0/0/2.

STEP 10: Verify connections with NOC

1. Verify with NOC that connections are made.
2. Verify that configurations are correct and visible to NOC.

STEP 11: Email photo checklist to nocretaildeloymentphotos@t-mobile.com

Item	Photo Taken
CradlePoints	**Take photos of all CradlePoints on-site including the 1850s. Take photos of CradlePoints fully installed with a close up pictue of device information.**
Port Lights (all devices)	**Take photos of all port lights.**
Network Rack	**Take close up photos of where the cables are connected.** **Take a photo of the full rack showing all equipment.**
POE Injector(s)	**Include photosof the device and the connection to/from the POE Injector**
Ports	**Take photos of which ports are connected.**

1. Take photos of all items on the above checklist .
2. Send the checklist and photos to nocretaildeloymentphotos@t-mobile.com with the subject line "SAP - 1855 Closeout Photos."

Cable Routing Reference Diagram

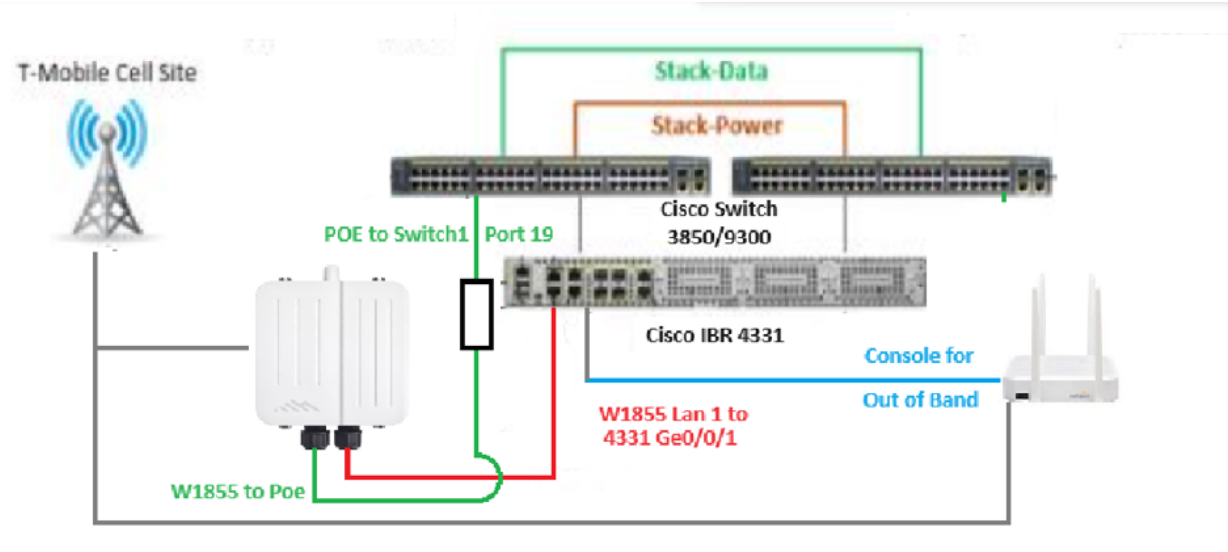


Figure 1-18 W1855 as Fail Over

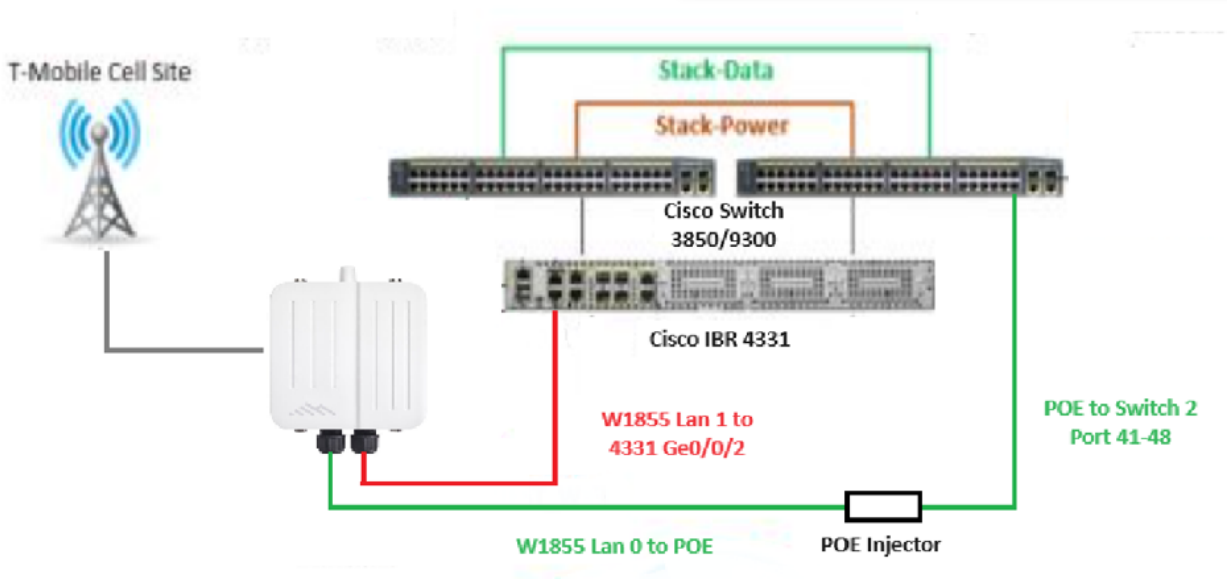


Figure 1-19 W1855 Setup as Temp Secondary Circuit

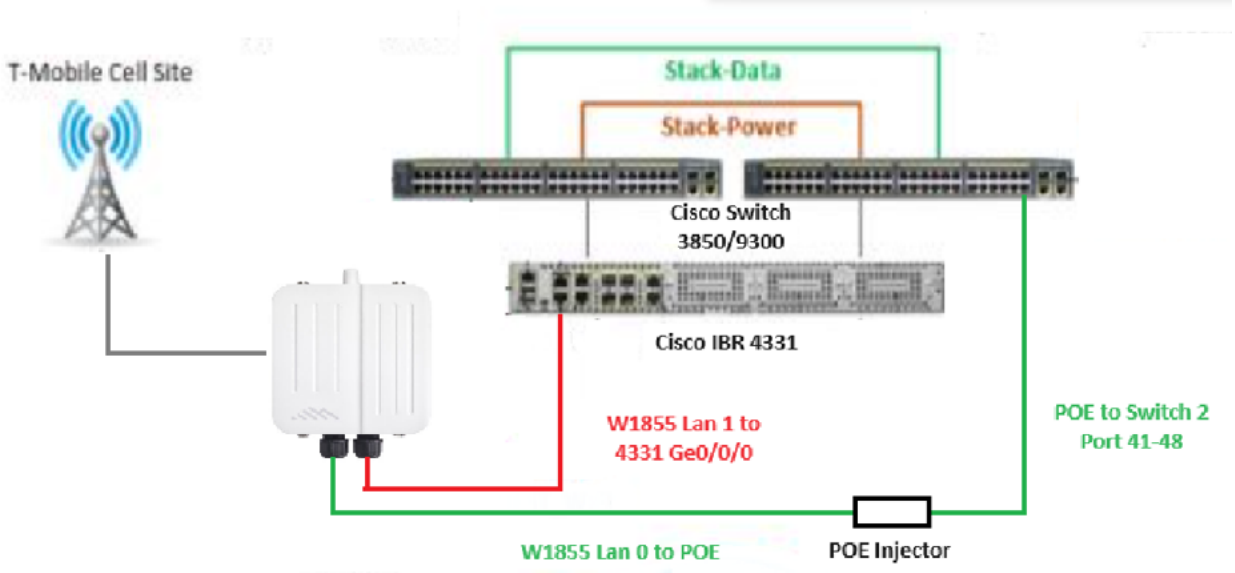


Figure 1-20 W1855 Setup as Temp Primary Circuit

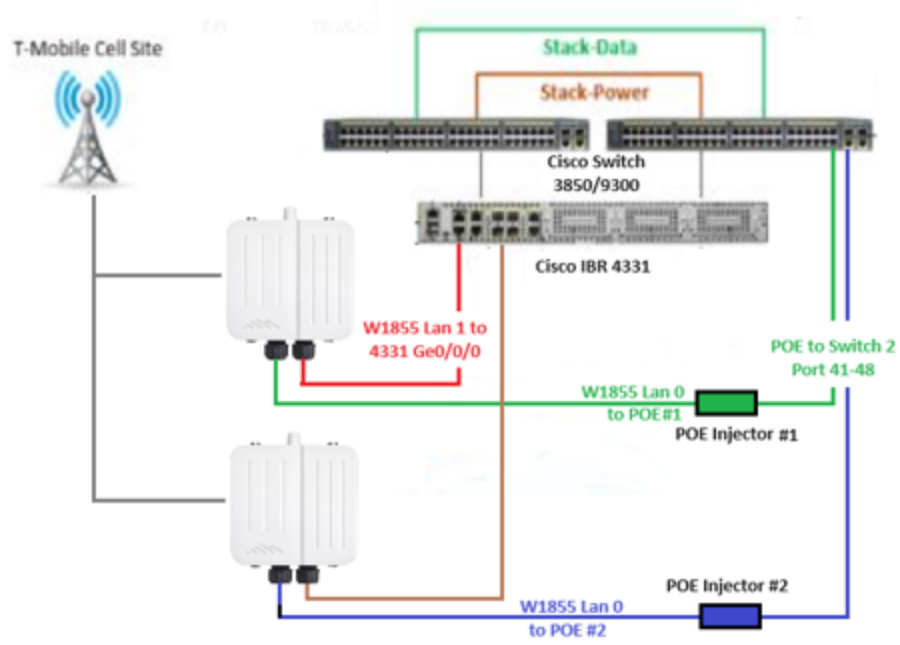


Figure 1-21 W1855 as Temp Primary and Secondary Circuits

Troubleshooting

Give Cradlepoint 10 to 15 minutes to initialize once everything is plugged in and powered on. If there are issues with initialization, go back to the guide and make sure everything is connected properly.

Additional Resources

W1855 Series 5G Wideband Adapter Webpage W1855 Series 5G Wideband Adapter Data Sheet

Help and Support

Cradlepoint Customer Connect Community Cradlepoint Support Services

Terms of Service

Cradlepoint Terms of Service & License Agreement Privacy Policy
GDPR Privacy Policy

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without notice.

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

Installer Responsibility

Cradlepoint hereby disclaims any liability for failure of the installer to install the hardware properly and for any other acts and omissions of the installer. By using this installation guide, you agree to indemnify and hold Cradlepoint harmless from and against any and all, liabilities, losses, damages, costs and expenses (including without limitation attorneys' fees and costs) incurred by Cradlepoint arising out of or in connection with any installation work that is done other than in accordance with the instructions in this installation guide.

Limitation of Liability

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT WILL CRADLEPOINT BE LIABLE TO YOU OR TO ANYONE CLAIMING THROUGH OR UNDER YOU FOR ANY LOST PROFITS, EQUIPMENT DOWNTIME, OR LOSS OF DATA OR BUSINESS OPPORTUNITY, OR FOR ANY INDIRECT, SPECIAL, EXEMPLARY, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, HOWEVER CAUSED AND UNDER ANY THEORY OF LIABILITY, ARISING IN ANY WAY IN CONNECTION WITH YOUR INSTALLATION ACTIVITIES, EVEN IF CRADLEPOINT HAS BEEN ADVISED OF THE POSSIBILITY O F SUCH DAMAGE. SOME JURISDICTIONS (SUCH AS THE STATE OF NEW JERSEY) DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN NO EVENT SHALL THE AGGREGATE LIABILITY OF CRADLEPOINT AND/OR ITS AFFILIATES ARISING UNDER OR IN CONNECTION WITH THE PRODUCT, HOWEVER ARISING, REGARDLESS OF THE NUMBER OF EVENTS, OCCURRENCES, OR CLAIMS GIVING RISE TO LIABILITY, EXCEED THE PRICE PAID BY THEORIGINAL PURCHASER OF THE PRODUCT. THE FOREGOING LIMITATIONS WILL APPLY EVEN IF THE ABOVE STATED REMEDY FAILS OF ITS ESSENTIAL PURPOSE.

Overview

This document includes detailed field installation instructions for the Cradlepoint W-1850-5G to emulate a Secondary Circuit at a T-Mobile Retail Store. This is the incorrect document if you're installing a Cradlepoint W-1850-5G for the purposes of a failover solution to support the Unified Network Design for OBM (Out of Band Management).

This document should only be used when the Cradlepoint W-1850-5G is approved as a temporary solution to open a Store without a functioning Secondary circuit. Please note that this solution needs to be removed immediately once the Secondary circuit is delivered

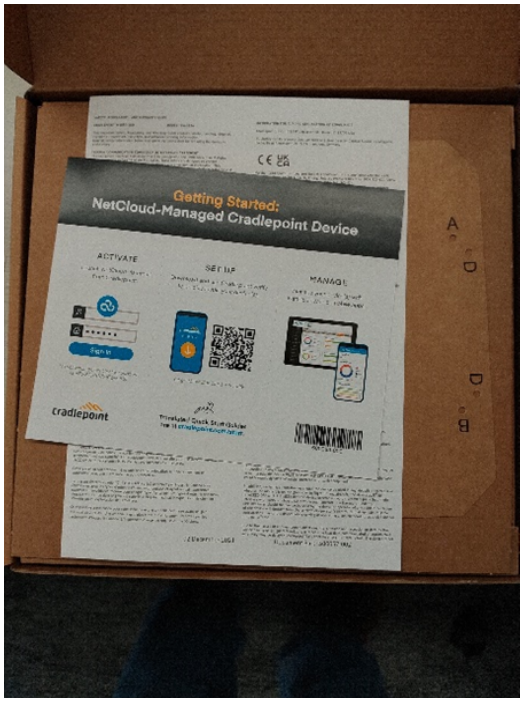
and operational. Since this is only a temporary installation, it is important to keep all product packaging so it can be shipped back for future use at another store. All parts and pieces should be included when returned.

Once installed, the tech will need to contact the NRD at 877-611-5868, opt 9, opt 1 to verify connectivity, confirm configuration and make sure the device is operating properly.

Check Box Contents

The following should be included in the box:

- [1] W1850 adapter with embedded 5G modem
- [4] Universal multi-band antennas
- [1] 12VDC / 1.5 A power adapter
- [1] Ethernet cable
- [1] SIM door screw
- [1] Mounting hardware packet
- [1] Safety, Regulatory, and Warranty Guide



Choose a Location to Mount the Adapter

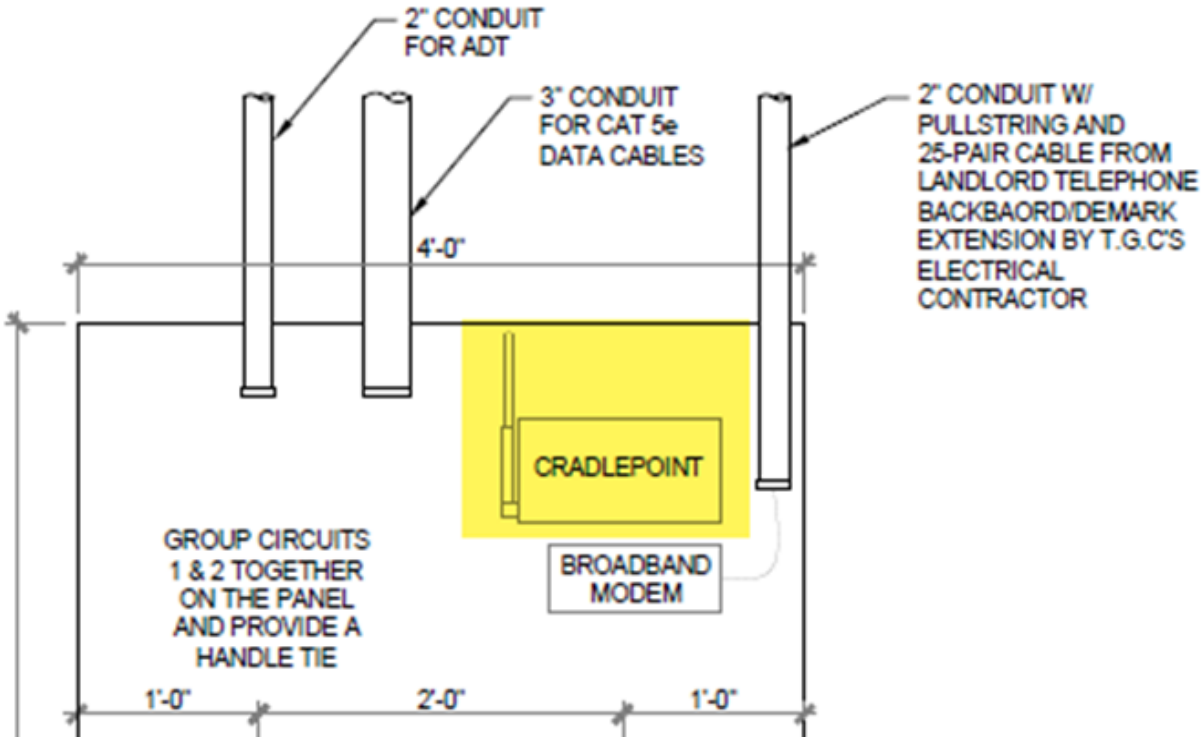


Figure 1-22 Back board with Cradlepoint Location

This device needs to be mounted high on the Wall Board and not behind any equipment

Each mounting is unique and should be completed by a professional installer. Wait to install antennas and cables until you have mounted the adapter. This will make it easier to safely mount the adapter, antennae, and plan cable routing. 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, or microwaves.
- Pre-drill holes for the mounting screws, if needed.
- Use anchors and other screw-securing accessories to ensure the endpoint is securely mounted in place.

Attach Antennas

1. Attach the four (4) modem antennas to the ports marked MAIN and DIV.
2. Hold the antenna straight and twist the base to thread onto the device. Tighten with fingers only (maximum torque not to exceed 4 in-lbs/.45 Nm). Do not over-tighten.
3. Angle the antennas as shown in the following image:

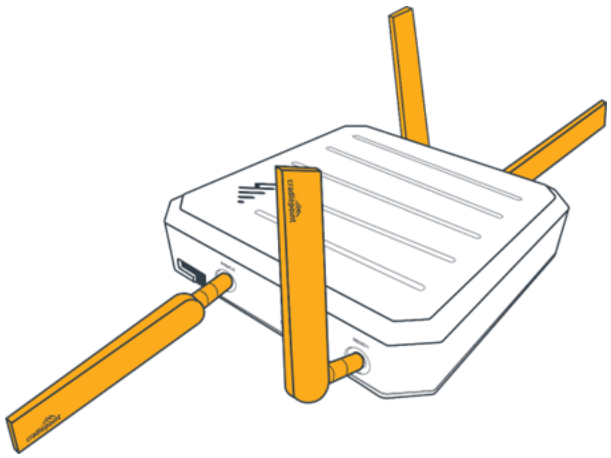


Figure 1-23 Antenna Angles

Ensure that the antennas are not near metal or other radio frequency (RF) reflective surfaces.

Connect LAN Sources

LAN1 is for local management of the adapter.

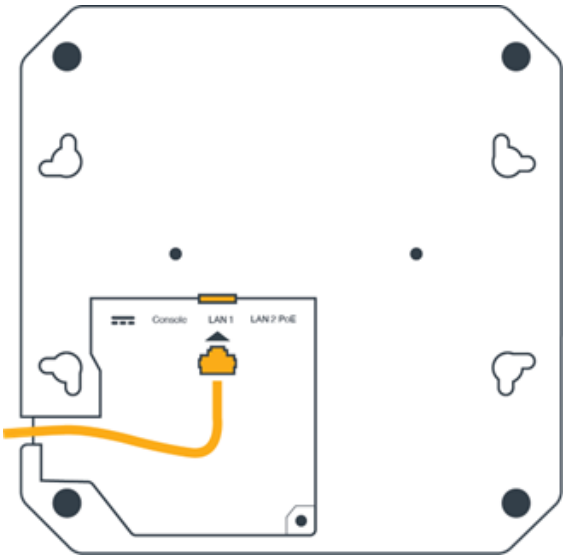


Figure 1-24 Connect to LAN1

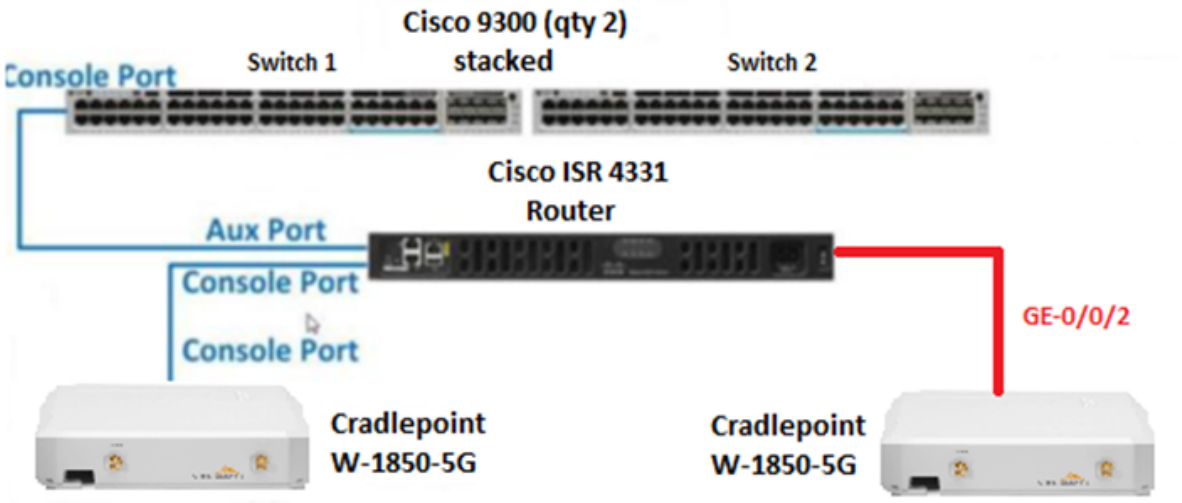


Figure 1-25 Connect LAN1 Cable to the Cisco ISR 4331 Router

Plug the LAN1 cable into the Cisco ISR 4331 Router at **port GE-0/0/2**

Connect Power

Connect the power supply adapter to the adapter and plug into a power outlet.

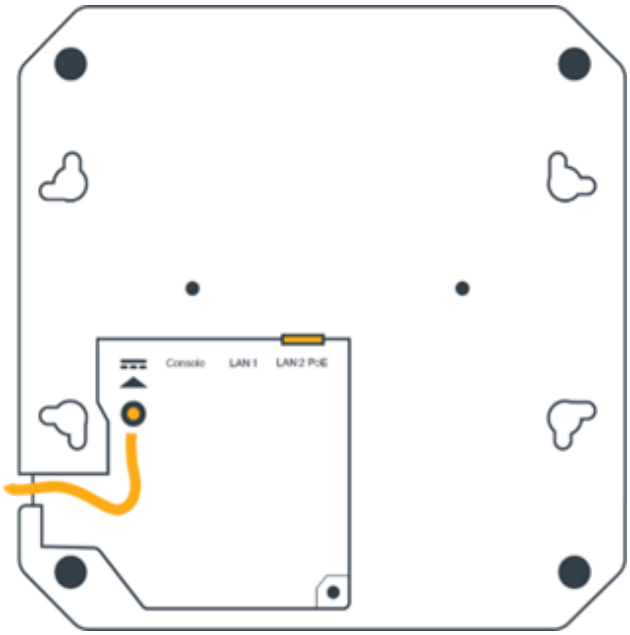


Figure 1-26 Power Adapter plug

LED Troubleshooting

	Indicates modem status based on color. **NOTE**: The adapter must be powered using an approved 12VDC power source.
	No Light = Powered off.
	Blinking White = WAN online and not connected to NCM.
	Solid White = Connected to NCM.
	Blinking Green = Modem is connecting.
	Blinking Yellow = Modem is in the process of resetting.
	Solid Red = Offline.
	Blinking Red = Data connection error. No modem connection possible.
	Solid Blue = Carrier reject.
	Blinking Blue = No SIM/SIM door open.
	Blinking Cyan = Factory reset.