Configuration for Edgewater EdgeMarc Series

6300-CX

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Overview

The Accelerated 6300-CX LTE Router provides a reliable, high-speed cellular connection that is compatible with existing wireline infrastructure. While its 4G LTE speeds are capable of operating as a primary WAN uplink, the 6300-CX can also be configured as a backup. This network redundancy solution delivers the ultimate flexibility to minimize expenses when it comes time for upgrading equipment to the latest wireless standards.

Business continuity depends on the seamless integration of failover-connectivity solutions to prevent service interruptions. Now more than ever, contingency networks play a strategic role in sustaining business operations. Unplanned outages can cost companies significant time and money, frustrating employees and clients alike, which creates a negative perception that is difficult to overcome.

Cellular data (4G LTE) bypasses wireline Internet service providers (ISPs) to facilitate the best redundancy possible. Additionally, in some situations it may be a challenge to acquire access to wired circuits or an event may call for temporary online access. For these reasons Edgewater Networks and Accelerated Concepts have teamed up to offer comprehensive control and flexibility for small businesses, retail, government, remote sites, and branch offices.

To optimize high-quality communications for scalable voice, video, and data traffic, Edgewater Networks enterprise session border controller (ESBC) can be introduced into the infrastructure though this functionality hinges upon an active WAN connection. An EdgeMarc ESBC paired with the Accelerated 6300-CX LTE Router will ensure your enterprise network remains robust and operational should its primary ISP go offline. Running a cellular backup via an Ethernet cable preserves the full QoS optimization of the EdgeMarc ESBC, which isn't the case for USB-connected Aircards.

For additional information, please refer to Edgewater Network's Knowledge Base.

Interoperability Matrix

This section covers interoperability information of the hardware tested for this solution. It includes the firmware versions of both devices as well as the date of testing.

Date	VOS Release	6300-CX Firmware

10/2016	14.1	16.3.15

Caveats

The delivery of wireless services varies depending on the carrier and may lead to differences in the area of coverage, type of service (3G, 4G, LTE, etc.), available bandwidth, and IP address designation (Private or Public) among other factors. The interoperability test designed for this solution guide included LTE service, maximum coverage availability, and a public IP address assigned to each device.

Using the 6300-CX as a secondary connection requires dual WAN ports on the EdgeMarc. Therefore, the service described herein is compatible with the following devices: EM-4700, EM-4750, EM-4800, EM-4806, EM-4808, and EM-7301.

Notice that some Wireless Service Providers may assign a private IP to the device and voice traffic may be behind NAT. Contact your VoIP Service Provider to verify if voice traffic from a private IP is accepted and/or the Wireless Service Provider to request a static public IP for your service. While a public IP address is not an absolute requirement for the LTE Modem, the address needs to be routable and not behind NAT.

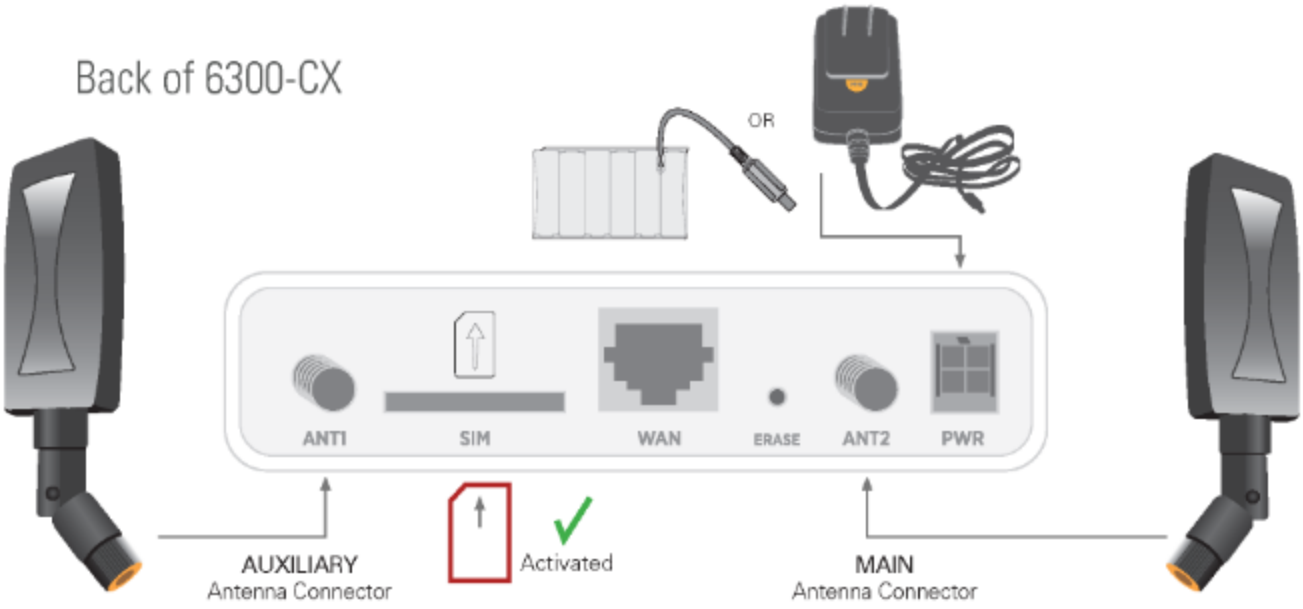
Accelerated 6300-CX LTE Router Setup

Initial Setup

Affix both antennas to the router and insert an activated SIM card before deploying the device. Be sure to select a location with optimal signal strength. For detailed instruction, refer to the tables that follow. Subsequent sections will outline site selection, powering options, and other device functionality.

Step-by-Step Guidance: Initial Setup

1. Insert the activated 2FF SIM card provided by your cellular network operator (putting the cut corner in first with metal contacts facing down). The card clicks into place when completely inserted.
2. Attach the two included antennas; both should be installed for optimal operation. Do this by gripping the metal connector section with your thumb and forefinger, tightening until secure. Do not tighten the antenna by holding any part of the plastic antenna housing.
3. To determine the optimal location for the 6300-CX, please see the “Site Survey” section.
4. Refer to the section(s) for Remote or Direct Power Installations when ready to connect the 6300-CX to the permanent power supply unit.
5. The 6300-CX uses DHCP with IP Passthrough by default, which satisfies the setup requirements for most environments. If required, please use Accelerated View™ or the 6300-CX local GUI to configure the 6300-CX for router mode.



Site Survey

If you are unsure of the available cellular signal strength, or are choosing between several locations, please follow the instructions to identify the ideal installation site.

Step-by-Step Guidance: Site Survey

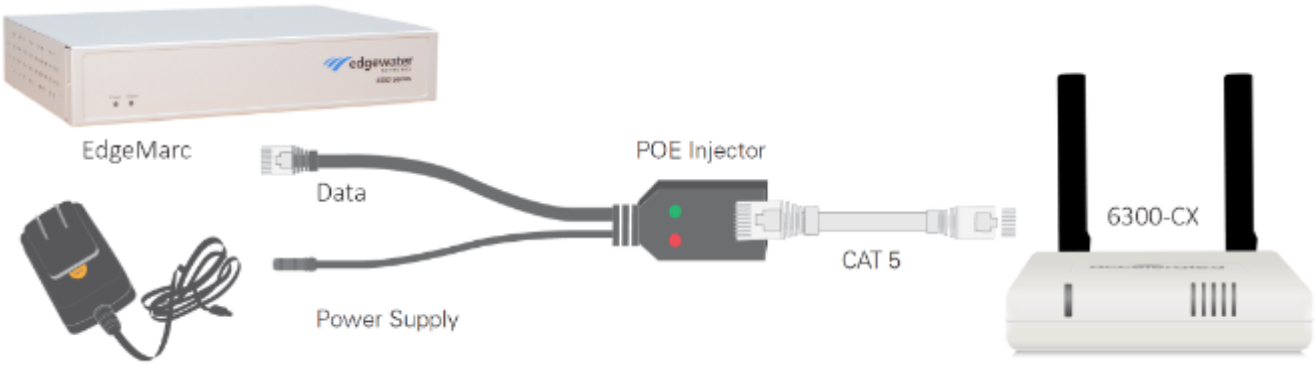
1. After following steps 1 and 2 in the “Initial Setup” section, connect the battery pack to temporarily power the Accelerated 6300-CX. The charge lasts two to four hours – it is not rechargeable and should be properly disposed of after use.
2. Move the 6300-CX to different locations within your site to determine the best compromise between signal strength and installation constraints. Since cellular signal strength may fluctuate, it is important to **wait at each location for 1 minute while observing the signal strength indicator** on the front of the device. Minimum cellular signal strength for operation is 2 bars (3+ is preferred).
3. After determining the optimal location, remove the battery pack and connect the main power supply unit or Ethernet cable connected to the PoE injector (per the power option outlined below).

Remote Power Installation – Powering Option #1

The included Power-over-Ethernet (PoE) injector allows the device to be positioned away from power outlets to simplify its installation needs. The adaptor consolidates the DC power and Ethernet connections so that both can be run to the 6300-CX via a single Ethernet cable. Distances of 300 ft have been tested on CAT6 and 250 ft on CAT5e. Note that cable conditions and the number of splices will impact actual distance.

Step-by-Step Guidance: Remote Power Installation

1. Plug the 6300-CX's power supply unit (PSU) into an AC power outlet.
2. Connect the end of the PSU into the DC input (4 pin connector) of the PoE injector.
3. Insert the male RJ45 connector of the PoE injector cable into the EdgeMarc.
4. Connect an Ethernet cable from the RJ45 socket on the PoE injector cable to the Ethernet port of the 6300-CX. (See diagram.)

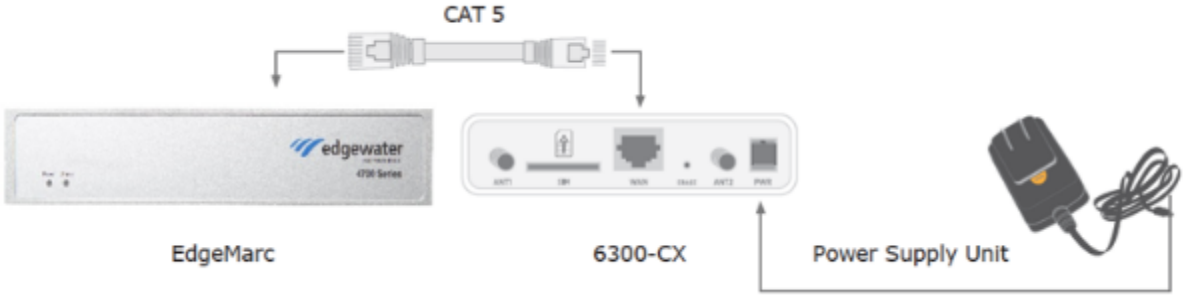


Direct Power Installation – Powering Option #2

If you plan to collocate the 6300-CX with the EdgeMarc device, you can directly power the 6300-CX without the PoE cable.

Step-by-Step Guidance: Direct Power Installation

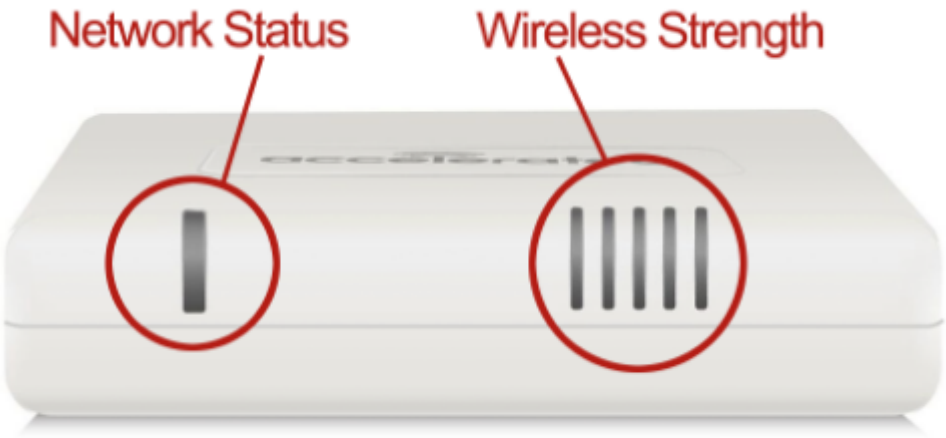
1. Use an Ethernet cable to connect the 6300-CX to the security appliance using port WAN 1 (to use the cellular network as the primary connection) or port WAN 2 (to configure a failover).
2. Plug the 6300-CX power supply unit (PSU) into an AC power outlet.
3. Connect the PSU into the 4-pin power connector of the 6300-CX. (See diagram.)



Understanding the 6300-CX LEDs

Once power has been established, your device will initialize and attempt to connect to the network. Device initialization may take 30-60 seconds. Indicator lights on the **Wireless Strength Indicator** show you the Cellular Network Signal Strength. The **Network Status Light** on the front left of the device displays connectivity information.

Please visit www.accelerated.com for additional information and trouble-shooting tips.



Network Status LED

Solid Yellow
Initializing or starting up.

Flashing Yellow
In the process of connecting to the cellular network and to a device on its Ethernet port.

Flashing White
Has an Ethernet connection and is in the process of connecting to the cellular network.

Flashing Green
Connected to 2G or 3G and is in the process of connecting to a device on its Ethernet port (or nothing is connected to the port).

Solid Green
Connected to 2G or 3G and also has an Ethernet connection.

Flashing Blue
Connected to 4G LTE and in the process of connecting to a device on its Ethernet port.

Solid Blue
Connected to 4G LTE and also has an Ethernet connection.

Alternating Red/ Yellow
Upgrading firmware. **WARNING: DO NOT POWER OFF DURING FIRMWARE UPGRADE.**

Wireless Strength LEDs

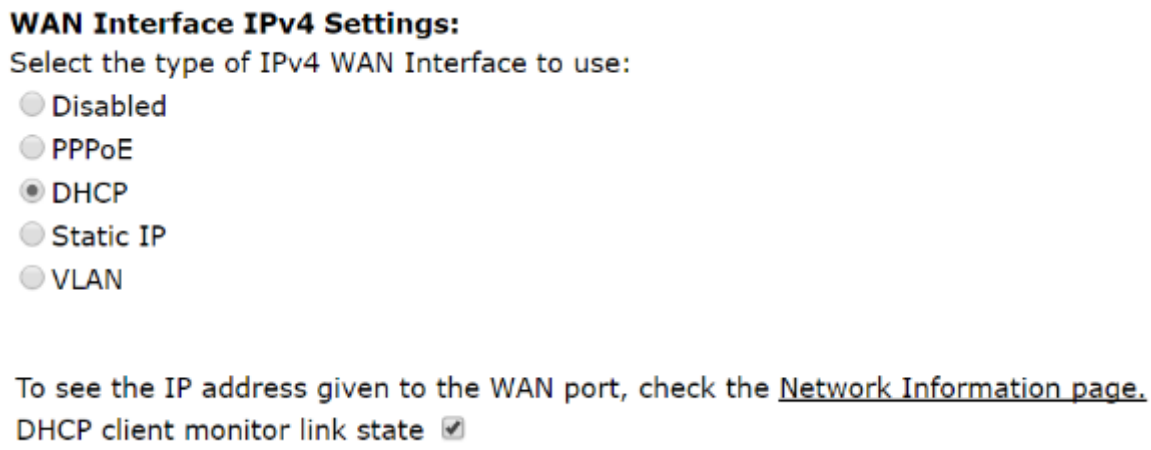
Signal Bars	Weighted dBm	Signal Strength %	Quality
	-113 to -99	0 - 23%	Bad
	-98 to -87	24 - 42%	Marginal
	-86 to -76	43 - 61%	OK
	-75 to -64	62 - 80%	Good
	-63 to -51	81 - 100%	Excellent

EdgeMarc Configuration with the Accelerated 6300-CX

WWAN as the Primary Interface

The back panel of the EdgeMarc ESBC features an array of LAN ports and two dedicated WAN interfaces. To utilize the 6300-CX's LTE Wireless WAN (WWAN) connectivity as the primary means of Internet access, connect the Accelerated LTE router to port WAN 1 on the EdgeMarc device using an Ethernet cable. A solid blue light on the 6300-CX confirms that its 4G LTE modem is online and an Ethernet connection has been established with another device. Similarly, a green light (blinking or solid) next to the ESBC's WAN port indicates that the EdgeMarc is connected to the LTE router.

Access the Edgewater admin portal at 192.168.1.1



Please refer to the EdgeMarc VOS User Guide for an in-depth walkthrough of the device's local GUI.

Step-by-Step Guidance: WWAN as the Primary Interface

***NOTE:** The Static IP radio button is selected by default.*

1. From the **Configuration Menu**, select **Network.**
2. Locate the **WAN Interface IPv4 Settings** and select **DHCP.**
3. Enable **DHCP client monitor link state** to display detailed network configuration information.
4. Click **Submit**.
5. Click the **OK** button to finalize any changes.

***NOTE:** A message will indicate that service will be temporarily interrupted as the new settings are established.*

WAN Link Redundancy (WLR) with WWAN Failover

The WAN Failover menu initializes WLR and further configures the interaction between primary and secondary WANs. Even with both WAN ports connected to an active Internet connection, the EdgeMarc ESBC is unable to utilize the secondary uplink until WAN Link Redundancy is enabled by selecting the corresponding check box. Additional settings may be engaged once the WLR status is updated.

Please refer to the EdgeMarc VOS User Guide for an in-depth walkthrough of the device's local GUI.

Step-by-Step Guidance: WAN Link Redundancy with WWAN Failover

1. From the **Configuration Menu**, select **Network**.
2. Navigate to the **WAN Failover** screen.
3. Select the **Enable WAN Link Redundancy**, **Enable Revertive Mode**, and **Enable Dual WAN Ports** checkboxes.
4. Click **Submit**. See Note (a)
5. Click the **OK** button to finalize any changes.
6. Once the page reloads, verify that both the primary and secondary links are listed under **WAN Link Redundancy Status**. See Note (b)
7. Under **WAN Failover**, select **Secondary WAN**.
8. Locate the **WAN Interface IPv4 Settings** and select **DHCP**.
9. Enable **DHCP client monitor link state** to display detailed network configuration information.
10. Click **Submit** and then **OK** (per steps 4 & 6) to finalize any changes.
11. Navigate back to the **WAN Failover** screen. There should now be an address listed for the **Secondary Link IPv4 Address**.
12. Designate the desired interface for **Data** and **Voice** using the corresponding pull-down menus.
13. The **Switchover Interfaces** establishes which systems (between data and voice) will be affected by the WLR settings, allowing for selective failover functionality.
14. Failback detection is customized via the **Advanced** menu, located under **WAN Failover**. See Note (c)

NOTE (a):*A message will indicate that service will be temporarily interrupted as the new settings are established.*
NOTE (b):*The* ***Secondary Link Status*** *will read* ***UNAVAILABLE*** *until DHCP is enabled for the failover interface (explained in the following steps).*
NOTE (c):*These fields come pre-populated by default.*