EdgeMarc 4806, EdgeMarc 4808™ Session Border Controller

Hardware Installation Guide



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About This Guide

This guide provides an overview of the EdgeMarc™ 4806 and EdgeMarc™ 4808 hardware components, instructions for installing the device, and how to set up the EdgeMarc in your network for the first time. It also includes compliance and certification notices and hardware and software warranty information.

For instructions on using the EdgeMarc VoIP Operation System (VOS) web-based GUI to configure, deploy, and manage the EdgeMarc, refer to the *EdgeMarc User Guide* in the Edgewater Networks Knowledgebase: www.edgewaternetworks.com/kb

Typographic Conventions

User input is displayed in **boldface** type and can represent keyboard input, mouse selections in a browser window, and buttons on the GUI, depending on the context. For example, the notation **File** > **Open...** means that you first click the **File** menu and then select **Open...** from the sub-menu in the GUI.

Command Line Interface (CLI) text is shown in `courier font`.



Note

Notes highlight information that is important or that has special interest.



Tip

Tips provide additional information that is helpful in performing a particular task but is not mandatory to perform the task.



Caution

Cautions alert you of actions or events that may cause system damage or loss of data.



Warning

Warnings alert you of actions or events that may cause bodily harm.

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Document Organization

Item	Description
Chapter 1, *Product Overview*	Describes EdgeMarc 4808 and EdgeMarc 4806 hardware components.
Chapter 2, *Physical Installation*	Provides instructions for installing the EdgeMarc 4808 and EdgeMarc 4806 hardware.
Chapter 3, *Configuring Basic Network Settings*	Describes how to power on the EdgeMarc and access the graphical user interface (GUI) to configure basic network settings for the first time.
Safety, Compliance, and Certifications	Describes EdgeMarc 4808 and EdgeMarc 4806 specifications and certifications.
License and Warranty Information	License information related to the operation of EdgeMarc hardware and software.

Contact and Support Information

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1

Product Overview

The EdgeMarc 4806 and EdgeMarc 4808 Enterprise Session Border Controllers (ESBCs) provide voice and data features in an integrated easy to use ESBC PSTN Gateway. The EdgeMarc 4806 and EdgeMarc 4808 offer similar features. Refer to Supported Features.

- EdgeMarc 4808
- EdgeMarc 4806
- Supported Features
- Device Components
- Ethernet Port LEDs
- FXS Amphenol Cable
- EdgeMarc SD Card Specifications

EdgeMarc 4808

The EdgeMarc 4808 is a powerful, flexible platform that can be deployed initially as a performance price optimized access router which can be licensed through software for more advanced VoIP features and increased call performance. It is the ideal platform for service providers offering direct Internet access, hosted VoIP and managed security services or enterprises migrating to converged voice and data networks.

EdgeMarc 4806

The EdgeMarc 4806 Intelligent Edge is a cost and functionality reduced version of the EdgeMarc 4808. It is designed to satisfy the needs of service providers offering SIP to TDM trunking over integrated access circuits with bandwidth up to 100 Mbps. The EdgeMarc 4806 replaces the EdgeMarc 4601, which only supports integrated access circuits with bandwidth less than 20 Mbps.

The EdgeMarc 4806 Intelligent Edge is a future proof design enabling service providers to use the same device as a customer migrates from SIP to TDM trunking to SIP to SIP trunking or Hosted PBX. In these types of migrations, the EdgeMarc 4806 can be licensed to support up to 200 concurrent calls.

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Supported Features

The EdgeMarc 4806 and EdgeMarc 4808 provide the following:

WAN Networking

- 1000 Mbps interface speed with routing, NAT, Firewall and QoS
- VoIP enabled Firewall
- WAN (with copper or optical interfaces)
- Fractional T1 support
- On-board RJ-48 connector for easy direct connection

T1 Ports

- Integrated 2xT1 WAN ports with layer 2 protocol support for: HDLC, Cisco HDLC (cHDLC), PPP, MLPPP, MLPPPoFR, Frame Relay—Allows connectivity for PBX trunking and PSTN access.
- Timing—Internal or external (loop times from the network)
- Provides long haul CSU or short haul DSU signaling

Analog Voice

- EdgeMarc 4806—
  - 6 FXS ports for connecting analog and key system phones to the network.
  - 2 FXO ports to connect to the PSTN for failover.
- EdgeMarc 4808—
  - 22 FXS ports for connecting analog and key system phones to the network.
  - 2 FXO ports to connect to the PSTN for failover.

Security

A stateful packet inspection firewall is used in combination with a voice over IP (VoIP) application layer gateway to provide comprehensive “media-aware” security. The device also supports IPSec for secure site-to-site networking.

VoIP

Resolves NAT/FW traversal problems for SIP traffic. The device allows a single public IP address to be used for multiple VoIP clients. VoIP survivability is also provided so that local SIP PSTN gateways are available for inbound and outbound calling during WAN link failures.

Quality of Service

Maximizes WAN link utilization while optimizing voice quality using prioritization and shaping.

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Call Quality Monitoring

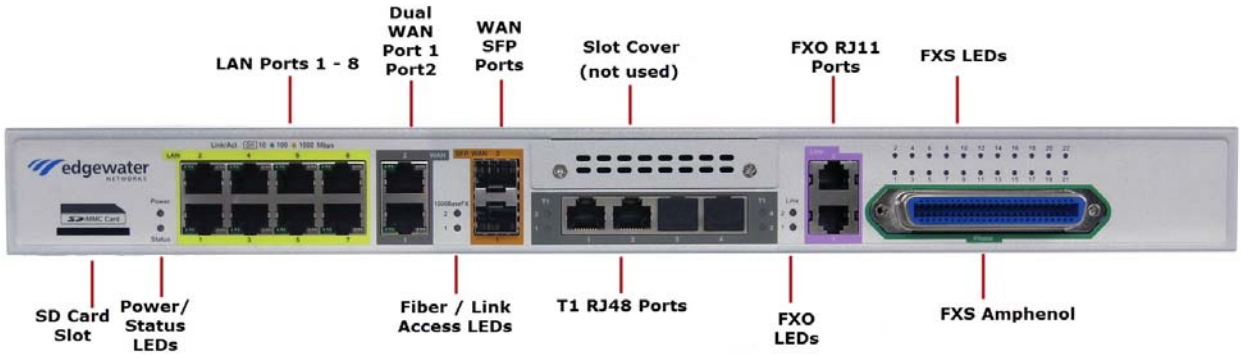
Passive call quality monitoring statistics for each VoIP call to enforce service-level agreements (SLAs) and resolve networking problems that negatively affect call quality.

Device Components

- EdgeMarc 4808 Front Panel
- EdgeMarc 4808 Rear Panel
- EdgeMarc 4806 Front Panel
- EdgeMarc 4806 Rear Panel

EdgeMarc 4808 Front Panel

Figure 1-1 EdgeMarc 4808 Front Panel



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Table 1-1 EdgeMarc 4808 Front Panel Components

Physical Label / Type	Function	Description
SD Card Interface	Storage	Enhanced SD host controller (eSDHC). Allows the EdgeMarc to save configurations and other files to an SD High Capacity Version 2.0 card. Maximum storage capacity is 32 GB per SD card, 4 GB per file. SD card capabilities are configured with the web-based configuration menu and with command-line interface (CLI). Refer to EdgeMarc SD Card Specifications.
Front Panel Power/Status LEDs	Status	■ Off: Power is not supplied to the device or bootloader failed to load. ■ On: Solid Green—Power is supplied to the unit. VOS is ready. ■ Flashing Green—The device is loading the EdgeMarc VoIP Operation System (VOS). ■ Solid Amber—The device is running a self-test and is initializing. ■ Flashing Amber—The device is upgrading its software. ■ Red—The device is in the bootloader. The kernel will change the LED to solid amber once the kernel starts loading.
LAN Ports 1-8	LAN	8 x 10/100/1000 Mbps RJ-45 Ethernet ports for LAN network connectivity (copper). Default IP: 192.168.1.1
Dual WAN Ports 1-2	WAN	2 x 10/100/1000 Mbps RJ-45 Ethernet ports for WAN network connectivity (copper and modular optical). The EdgeMarc 4808 supports dual WAN port capability for added flexibility. Dual WAN port functionality is configured on the EdgeMarc 4808 Series WAN Port 1 and WAN Port 2.
WAN Fiber/Link Access LEDs	Status	Fiber port support 1Gb link: ■ Solid green LED indicates peer link is powered. ■ Blinking LED indicate fiber traffic activity.
WAN SFP Ports 1-2	WAN	Small Form-Factor Pluggable (SFP) for fiber and copper (RJ-45) Gigabit Ethernet connectivity. Either the SFP port (operating at 1000 Mbps) or the RJ-45 (operating at 10/100/1000 Mbps) port can be active at one time.
T1 LEDs	Status	Solid green—Phone is in the off-hook state. Off—Phone is in the on-hook state.
T1 RJ48 Ports 1-2	—	2 x T1 default system configuration. Two ports are available on the main board. Unused ports are covered with an RJ-45 cap.

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Table 1-1 EdgeMarc 4808 Front Panel Components (continued)

FXO LEDs	Status	Solid green—Phone is in the off-hook state. Off—Phone is in the on-hook state.
FXO RJ11 Ports 1-2	—	2 x RJ11 connector for 2 FXO channels.
FXS LEDs	Status	Solid green—Phone is in the off-hook state. Off—Phone is in the on-hook state.
FXS Amphenol 1-22	—	1x Amphenol connect for 22 FXS channels.

EdgeMarc 4808 Rear Panel

Figure 1-2 EdgeMarc 4808 Rear Panel

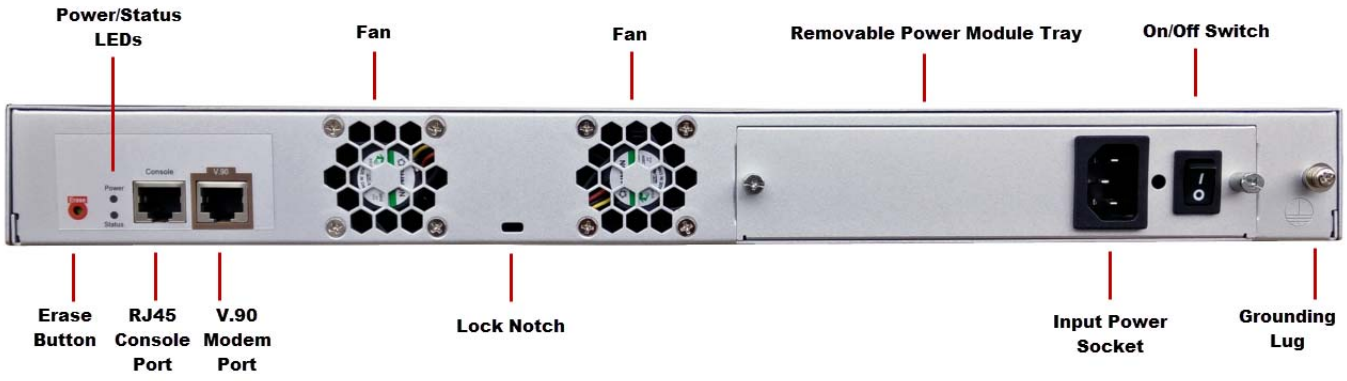


Table 1-2 EdgeMarc 4808 Rear Panel Components

Physical Label/Type	Function	Description
Erase	Erase button	Press the **Erase** button in quick succession to control the following: ■ One click—No action. ■ Two clicks—Resets the CLI and GUI password with no service interruption. ■ Three clicks—Restores to factory default settings and reboots the system. **Note:** When restored to factory default settings, the current configuration is lost, disconnecting all VoIP devices, Internet connectivity, and network access for computers until the system is reconfigured.

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Table 1-2 EdgeMarc 4808 Rear Panel Components (continued)

Rear Panel Power/Status LEDs	Status	**Power** ■ Off: Power is not supplied to the device or bootloader failed to load. ■ On: Solid Green—Power is supplied to the unit. VOS is ready. **Status** ■ Off—Power is not supplied to the device, or bootloader failed to load. ■ On: Solid Green—Power is supplied to the unit. VOS is ready. ■ Flashing Green—The device is loading the EdgeMarc VoIP Operation System (VOS). ■ Solid Amber—The device is running a self-test and is initializing. ■ Flashing Amber—The device is upgrading its software. ■ Red—The device is in the bootloader. The kernel will change the LED to solid amber once the kernel starts loading.
RJ45 Console Port	Management	1 RJ-45 serial craft console port for management. Baud: 9600 Data: 8 Parity: N Stop: 1 Flow Control: NONE
RJ-11 V.92 Modem Port	Management	1 x RJ11 for V92 modem access.
Lock Notch	Physical security	Kensington physical security notch.
Power Module Tray	Field replacement	Removable module tray for the 100W 12V DC power supply.
Hole for power cord strap	Safety	Secures the power supply cord.
Input Power Socket	Accepts 3-pin shroud female plug for input power.	Input Power Socket
On/Off Switch	Powers the system on and off.	On/Off Switch
Grounding Lug	Safety	Refer to Power Surge Protection and Grounding.

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EdgeMarc 4806 Front Panel

Figure 1-3 EdgeMarc 4806 Front Panel

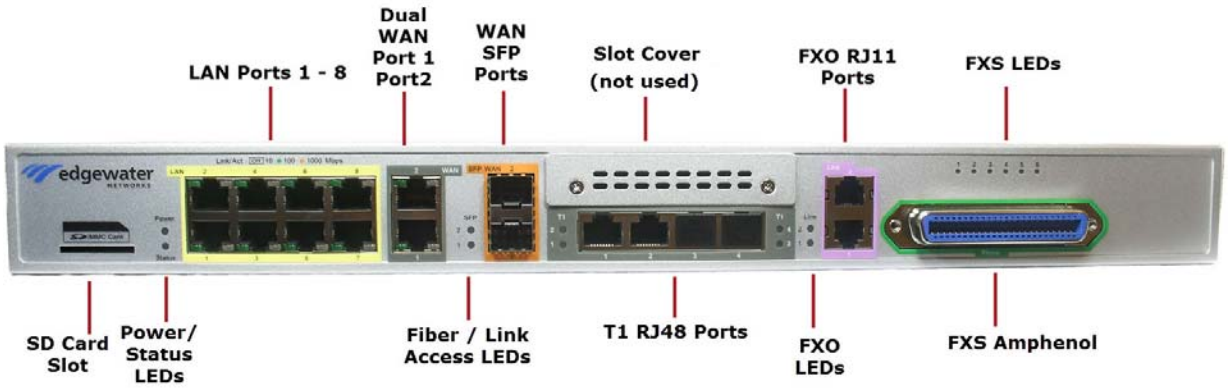


Table 1-3 EdgeMarc 4806 Front Panel Components

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SD Card Interface	Storage	Enhanced SD host controller (eSDHC). Allows the EdgeMarc to save configurations and other files to an SD High Capacity Version 2.0 card. Maximum storage capacity is 32 GB per SD card, 4 GB per file. SD card capabilities are configured with the web-based configuration menu and with command-line interface (CLI). Refer to EdgeMarc SD Card Specifications.
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LAN Ports 1-8	LAN	8 x 10/100/1000 Mbps RJ-45 Ethernet ports for LAN network connectivity (copper). Default IP: 192.168.1.1

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Table 1-3 EdgeMarc 4806 Front Panel Components (continued)

Dual WAN Ports 1-2	WAN	2 x 10/100/1000 Mbps RJ-45 Ethernet ports for WAN network connectivity (copper and modular optical). The EdgeMarc 4806 supports dual WAN port capability for added flexibility. Dual WAN port functionality is configured on the EdgeMarc 4808 Series WAN Port 1 and WAN Port 2.
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T1 RJ48 Ports 1-2	—	2 x T1 default system configuration. Two ports are available on the main board. Unused ports are covered with an RJ-45 cap.
FXO LEDs	Status	Solid green—Phone is in the off-hook state. Off—Phone is in the on-hook state.
FXO RJ11 Ports 1-2	—	2 x RJ11 connector for 2 FXO channels.
FXS LEDs	Status	Solid green—Phone is in the off-hook state. Off—Phone is in the on-hook state.
FXS Amphenol 1-6	—	1x Amphenol connect for 6 FXS channels.

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EdgeMarc 4806 Rear Panel

Figure 1-4 EdgeMarc 4806 Rear Panel

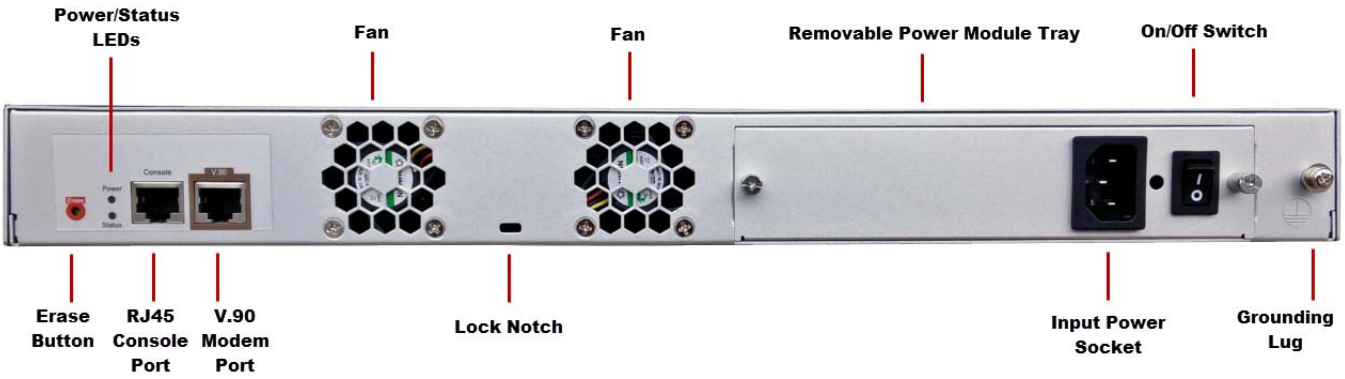


Table 1-4 EdgeMarc 4806 Rear Panel Components

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Erase	Erase button	Press the **Erase** button in quick succession to control the following: ■ One click—No action. ■ Two clicks—Resets the CLI and GUI password with no service interruption. ■ Three clicks—Restores to factory default settings and reboots the system. **Note:** When restored to factory default settings, the current configuration is lost, disconnecting all VoIP devices, Internet connectivity, and network access for computers until the system is reconfigured.

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Table 1-4 EdgeMarc 4806 Rear Panel Components (continued)

Rear Panel Power/Status LEDs	Status	**Power** ■ Off: Power is not supplied to the device or bootloader failed to load. ■ On: Solid Green—Power is supplied to the unit. VOS is ready. **Status** ■ Off—Power is not supplied to the device, or bootloader failed to load. ■ On: Solid Green—Power is supplied to the unit. VOS is ready. ■ Flashing Green—The device is loading the EdgeMarc VoIP Operation System (VOS). ■ Solid Amber—The device is running a self-test and is initializing. ■ Flashing Amber—The device is upgrading its software. ■ Red—The device is in the bootloader. The kernel will change the LED to solid amber once the kernel starts loading.
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Hole for power cord strap	Safety	Secures the power supply cord.
Input Power Socket	Accepts 3-pin shroud female plug for input power.	Input Power Socket
On/Off Switch	Powers the system on and off.	On/Off Switch
Grounding Lug	Safety	Refer to Power Surge Protection and Grounding.

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Ethernet Port LEDs

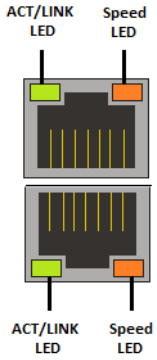


Table 1-5 Ethernet Port LEDs

Label	Indication	Status
Activity / Link		
Green	On	Powered device connected to the associated port.
	Off	The device is not powered, no cable connected, or no powered device connected to the associated port.
	Flashing	Activity is seen from the device associated with the port (traffic in the inbound or outbound direction on the associated port). **Note:** The flickering of the light should be synchronized to actual data traffic.
Speed		
Flickering Amber	On	ACK/LINK LED must be on. This LED shows the system operating at 1000 Mbps.
Solid Green	On	ACK/LINK LED must be on. This LED shows the system operating at 100 Mbps.
	Off	The device is not powered, no cable connected, or the port speed is set to 10 Mbps.

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FXS Amphenol Cable

The EdgeMarc 4808 and EdgeMarc 4806 use a single 100MHz rated 25-pair Amphenol type cable, as shown in Figure 1-5. This cable is not included in the box with the device.

Figure 1-5 FXS Amphenol Type Cable



EdgeMarc SD Card Specifications

The enhanced SD host controller (eSDHC) provides an interface between host system and SD/MMC cards. The secure digital (SD) card is specifically designed to meet the security, capacity, performance, and environmental requirements inherent in emerging audio and video consumer electronic devices.

Table 1-6 describes supported EdgeMarc 4808 and EdgeMarc 4806 SD card features.

For information about configuring SD card settings, see the *EdgeMarc VOS User Guide* in the Edgewater Networks Knowledgebase: www.edgewaternetworks.com/kb

Table 1-6 SD Card Features

Feature	Description
File format	MS-DOS File Allocation Table FAT32
SD card classes	Class 2, 4, 6, 10, and UHS-1 Recommended default is Class 10 or faster.
Capacity	Maximum storage capacity: 32 GB per SD card, 4 GB per file.

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Table 1-6 SD Card Features (continued)

Feature	Description
CLI	File Commands ■ delete = **rm** ■ copy = **cp** ■ rename = **mv** ■ edit = **vi** or **cat**
	Directory Commands ■ create = **mkdir** ■ delete = **rmdir** ■ rename = **mv**
	SD Card Commands ■ mount = **sdcard mount** ■ unmount = **sdcard umount** ■ format quick = **sdcard format** ■ name/rename SD card = **sdcard volume** *<volume name>* ■ status = **sdcard check**
EdgeMarc files	You can copy the following types of files to and from the SD card using the CLI: conf1, conf2, syslog, pcap, mand logs, sys_report output.
Boot device	When running the VOS recovery image, the VOS image that is stored on the SD card is automatically flashed on the system.
TFTP server	The TFTP file server is used for endpoint configuration file storage.
FTP server	The FTP file server is used for endpoint configuration file storage.
Remote access	SSH into the EdgeMarc 4808 via SCP for remote access to the SD card and files within the SD card.
System alerts for SD card insert/removal	A system alert is issued when an SD card is inserted or removed. The alert contains the timestamp of the event.

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2

Physical Installation

The following sections describe how to install the EdgeMarc 4808 hardware:

- Overview
- EdgeMarc Device Shipping Contents
- Required Tools and Materials
- Power Surge Protection and Grounding
- Installing the EdgeMarc on a Desktop, Shelf, or Tray
- Installing the EdgeMarc in a Rack
- Connecting the Power and Cables

Overview

The EdgeMarc 4808 and EdgeMarc 4806 devices are designed for desktop, shelf, tray, wall, or rack installation. Observe the following guidelines when installing the system:

- Always verify that the AC power cord is disconnected from a power source prior to installation.
- Do not stack multiple units on top of each other as this can cause overheating.
- Ensure that the installation site has adequate air circulation and meets the minimum operating conditions for the system as specified in Safety, Compliance, and Certifications.

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EdgeMarc Device Shipping Contents

The following items are shipped in the box with the device:

- Power cord
- AC power adapter
- Rack mount brackets
- Bag of 4 screws

Required Tools and Materials

You will need the following tools and materials to install the EdgeMarc:

- (1) Flat or Phillips Screwdriver—For shelf mounting.
- Ethernet cables—To connect the LAN ports to LAN switches or to individual VoIP devices.

Power Surge Protection and Grounding

EdgeMarc units are designed with a robust internal surge protection system. For surge protection to function during all events, the EdgeMarc supplemental ground (the AC power cord) must be connected with a low impedance conductor directly to the same ground point as the service providers' equipment.



Caution

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.



Caution

Under certain conditions, if the EdgeMarc is not properly earth-grounded using the AC power cord, you may experience various issues including electrostatic discharge problems, random EdgeMarc reboots, or damage to the EdgeMarc unit.



Note

The EdgeMarc 4808 and EdgeMarc 4806 appliance has an internal power supply with a grounded power cord that must be connected to a properly grounded power outlet.

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Grounding the EdgeMarc

Any ground source that is adequate for power circuits or lightning protection is sufficient for protection against static electricity. This system provides an electrically conductive pathway for static electricity to follow and safely dissipate into the ground. The grounding impedance to ground must not exceed 0.5 ohm. It is recommended that a minimum 14AWG be used to ground the unit. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available or the local applicable standard.

Installing the EdgeMarc on a Desktop, Shelf, or Tray

1. Remove the EdgeMarc device and accessories from the shipping container.
2. Place the device on a flat, dry surface such as a desktop, shelf, or tray.
3. Connect the EdgeMarc to ground. See Grounding the EdgeMarc.

Installing the EdgeMarc in a Rack

Install the EdgeMarc in a 19” rack using the rack mount kit supplied with the device.

Before You Begin

Before installing the EdgeMarc in a rack, take note of the following conditions:

Elevated Operating Ambient—If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

Reduced Air Flow—Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

Mechanical Loading—Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading—Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring.

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Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing—Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips). Refer to Power Surge Protection and Grounding.

How to Install the EdgeMarc in a Rack



Tip

The EdgeMarc 4808 and EdgeMarc 4806 feature two sets of four mounting holes on each side so the device can be reversibly mounted with either the front or the back facing out.

To install the EdgeMarc in a rack:

1. Remove the EdgeMarc device and accessories from the shipping container.
2. Attach the rack mount ears to both sides of the EdgeMarc chassis with the supplied screws.
3. Install the chassis in the rack with rack mount screws (not included).
4. Connect the EdgeMarc to ground. See Grounding the EdgeMarc.

Connecting the Power and Cables

The EdgeMarc 4808 and EdgeMarc 4806 come with an AC power cord for connecting the AC power adapter to an AC outlet.



Warning

Always connect the AC power cord to an AC outlet suitable for the power supply that came with the unit to reduce the risk of damage.



Caution

Secure the AC power cord to a cable management system using a power cord strap or tie wrap to insure the EdgeMarc does not hang from the AC outlet. The EdgeMarc has a hole built into the rear of the device to secure the power cord strap.

1. If connecting to an Internet router or Internet DMZ switch, connect the Ethernet cable to the WAN Interface port (Port 2) on the EdgeMarc and the other end to the WAN device.
2. Power on the system.

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Powering On the EdgeMarc

1. Turn on the EdgeMarc power switch.
2. Make sure that the power and status LEDs on the front panel are solid green after the EdgeMarc powers on. Refer to Product Overview for information about Power and Status LEDs.
3. Proceed to Chapter 3, *Configuring Basic Network Settings*.

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3

Configuring Basic Network Settings

This chapter explains how to connect to the EdgeMarc and access the graphical user interface (GUI) to configure basic network settings for the first time. Refer to the *EdgeMarc User Guide* for complete details on how to configure your EdgeMarc device for your network deployment.

- Connecting to the EdgeMarc for the First Time
- Deploying the EdgeMarc Session Border Controller

Connecting to the EdgeMarc for the First Time

The LAN interface ports are pre-configured with the IP address 192.168.1.1.

1. Connect a computer to the LAN interface port (LAN Port 1) using an Ethernet cable or connect to an Ethernet switch (using the IP address 192.168.1.2 and subnet mask 255.255.255.0).
2. Launch a web browser on your computer and enter the following URL: http://192.168.1.1.
3. Press **Return**. The EdgeMarc login screen is displayed.

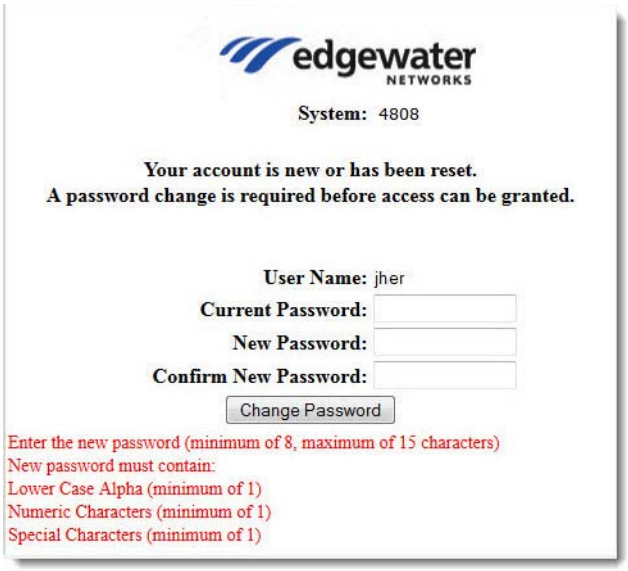


4. Enter your initial username in the field provided: **root**
5. Enter your initial password in the field provided: **default**
6. Click **OK**.

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7. After you have logged in to the system for the first time with the default credentials, you are directed to the Change Password page (Figure 3-6).

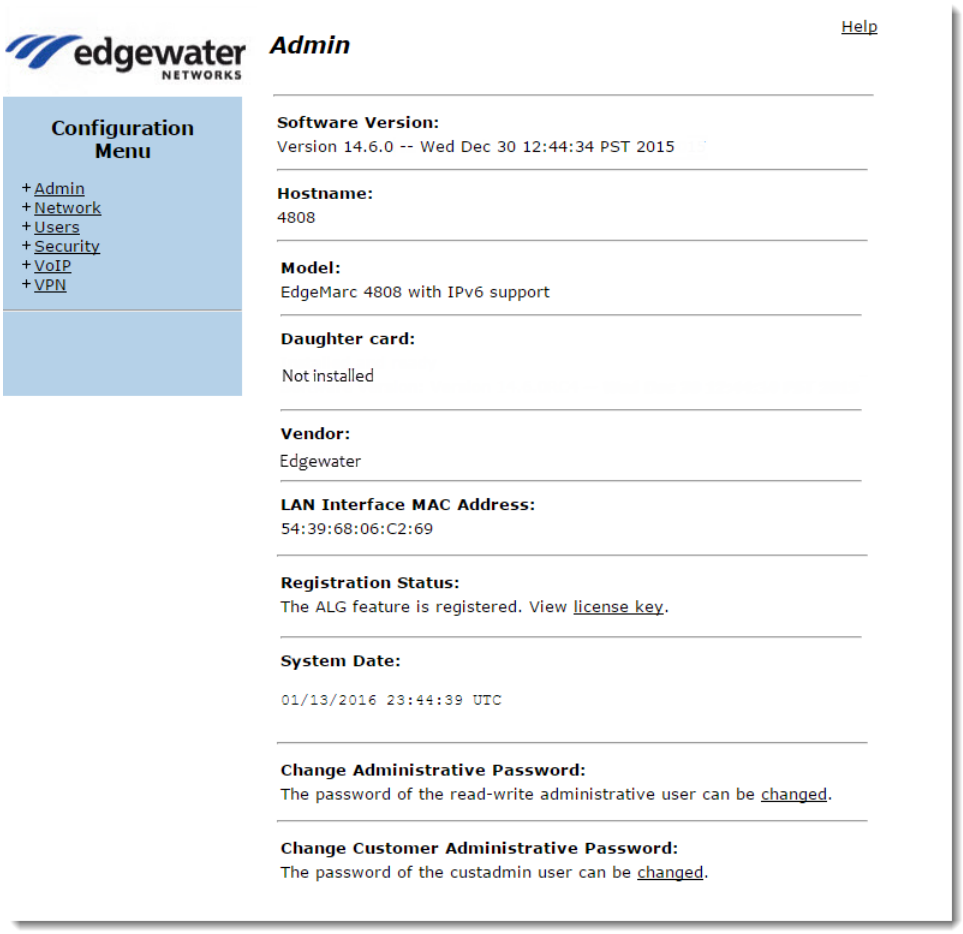
Figure 3-6 Change Password Page



8. Enter password information as described in red in the login window and follow system prompts to log in to the EdgeMarc Admin landing page (Figure 3-7).

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Figure 3-7 EdgeMarc Admin Landing Page



Deploying the EdgeMarc Session Border Controller

The EdgeMarc is deployed as a Session Border Controller on the network. For details about how to configure and deploy the EdgeMarc device in your network, refer to the EdgeMarc online help and the *EdgeMarc User Guide* available in the Edgewater Networks Knowledgebase: www.edgewaternetworks.com/kb

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A

Safety, Compliance, and Certifications

Specifications and Certifications

Item	Description
Specifications	
Dimensions	Height 43.18mm / 1.7” (1U) Width 431.8mm / 17.0” Depth 339.852mm / 13.38”
Weight	6.5 lbs/2.94835kg (system only)
Power	100W 12V DC open frame power module, field replaceable.
Processor	T1040 at 1.2GHz
Warranty	5 Years
Environmental Requirements	Operating Temperature: 32ºF to 95°F (0° to 35°C) Relative Humidity: 4% to 90%, non-condensing
Model 4808, 4806 Hardware	
RAM—2GB	
Fan	Yes, two at the rear of the chassis
Agency Label—4808, 4806	
Certifications	RoHS Compliant, WEEE Compliant
Safety	UL/cUL, LVD
Emissions	FCC Part 15 Class A, FCC Part 68, ICES-003, VCCI Class A, C-tick
Immunity	CE
MTBF	179,330 (hrs)

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USA and Canadian Notices



Warning

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Notice

Class A Digital Device or Peripheral

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

In accordance with Part 15 of the FCC rules, the user is cautioned that any changes or modifications not expressly approved by Edgewater Networks, Inc. could void the user's authority to operate this equipment.

The socket outlet to which this apparatus is connected must be installed near the equipment and must always be readily accessible.

Part 15 FCC Rules

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Industry Canada (IC)

This Class [A] digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la Classe [A] est conforme à la norme NMB-003 du Canada.

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s).

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The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.



Caution

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The Ringer Equivalence Number (REN) assigned to each relevant terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed 5.

The REN of this equipment is either marked on the unit or included in the new style USA FCC registration number. In the case that the REN is included in the FCC number, the user should use the following key to determine the value:

The FCC number is formatted as US:AAAEQ#TXXX.

is the Ringer Equivalence Number without a decimal point (e.g. REN of 1.0 will be shown as 10, REN of 0.3 will be shown as 03). In the case of a Z ringer, ZZ shall appear. In the case of approved equipment without a network interface or equipment not to be connected to circuits with analog ringing supplied, NA shall appear.

The REN is useful to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs of all devices that may be connected to a line, is determined by the total RENs, contact the local telephone company.

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Canadian Certification Requirements for Bilingual Safety, Warning and Caution Markings

Canadian Federal and Provincial/Territorial statutes and regulations, such as the Consumer Packaging and Labeling Regulation, require the use of bilingual product markings for products sold in Canada and in the province of Quebec, additionally regulated under "The Charter of the French Language." The bilingual requirements include the safety, warning and caution markings as defined by the Standard or ORD.

The UL Procedure contains the English language markings. It is the sole responsibility of the Applicant and Manufacturer to comply with the applicable Canadian Federal and Provincial/Territorial marking regulation(s) and law(s) in both official languages.

This document applies to all customers of ULs product certification services for the Canadian markets, for example, UL/C-UL/ULC Mark certifications.

View the Canadian Certification Requirements for Bilingual Safety, Warning and Caution Markings document and visit:

http://www.ul.com/global/eng/pages/offerings/services/globalfieldservices/fus/canadiancert/

Class A Statements

Japan

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

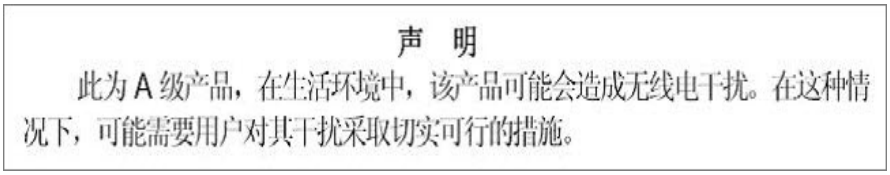
Korea

Class A ITE

기 종 별	사 용 자 안 내 문
A급 기기 (업무용 방송통신기기)	이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

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China


声 明
此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

EEA Regulatory Notices

CE Mark R & TTE Directive

This Edgewater EdgeMarc system has been marked with the CE mark. This mark indicates compliance with EEC Directives 89/336/EEC, 73/23/EEC 1999/5/EC.

Declaration of Conformity

English:	Hereby, Edgewater Networks, declares that this EdgeMarc 7301 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Česky [Czech]:	Edgewater Networks tímto prohlašuje, že tento EdgeMarc 7301 je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]:	Undertegnede Edgewater Networks erklærer herved, at følgende udstyr EdgeMarc 7301 overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]:	Hiermit erklärt Edgewater Networks, dass sich das Gerät EdgeMarc 7301 in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Eesti [Estonian]:	Käesolevaga kinnitab Edgewater Networks seadme EdgeMarc 7301 vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
Español [Spanish]:	Por medio de la presente Edgewater Networks declara que el EdgeMarc 7301 cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]:	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Edgewater Networks ΔΗΛΩΝΕΙ ΟΤΙ EdgeMarc 7301 ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Français [French]:	Par la présente Edgewater Networks déclare que l'appareil EdgeMarc 7301 est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.

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Italiano [Italian]:	Con la presente Edgewater Networks dichiara che questo EdgeMarc 7301 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]:	Ar šo Edgewater Networks deklarē, ka EdgeMarc 7301 atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]:	Šiuo Edgewater Networks deklaruoja, kad šis EdgeMarc 7301 atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch]:	Hierbij verklaart Edgewater Networks dat het toestel EdgeMarc 7301 in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]:	Hawnhekk, Edgewater Networks, jiddikjara li dan EdgeMarc 7301 jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]:	Alulírott, Edgewater Networks nyilatkozom, hogy a EdgeMarc 7301 megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Polski [Polish]:	Niniejszym Edgewater Networks oświadcza, że EdgeMarc 7301 jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC
Português [Portuguese]:	Edgewater Networks*]* declara que este EdgeMarc 7301 está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovensko [Slovenian]:	Edgewater Networks izjavlja, da je ta EdgeMarc 7301 v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]:	Edgewater Networks týmto vyhlasuje, že EdgeMarc 7301 spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]:	Edgewater Networks vakuuttaa täten että EdgeMarc 7301 tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]:	Härmed intygar Edgewater Networks att denna EdgeMarc 7301 står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Íslenska (Icelandic):	Hér með lýsir Edgewater Networks yfir því að EdgeMarc 7301 er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC
Norsk [Norwegian]:	Edgewater Networks erklærer herved at utstyret EdgeMarc 7301 er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF

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Restriction of Hazardous Substances Directive (RoHS)

Edgewater Networks products are RoHS compliant, which means we have eliminated or brought to within acceptable limits: Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated Biphenyls, and Polybrominated Diphenylethers. For more information please contact:

www.edgewaternetworks.com/support/online-case-management.html

Important Safety Instructions

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Do not use this product near water for example, near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

SAVE THESE INSTRUCTIONS



Warning

For continued protection against risk of fire, replace only with same type and rating of fuse.



Warning

Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions.



Warning

To reduce the risk of fire, use only No. 26 AWG or larger (for example, 24 AWG) UL Listed or CSA Certified Telecommunication Line Cord.

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Disconnect all power supply cords before servicing.

Disconnect TNV circuit connector before removing cover.

Rack Mount Instructions

The following or similar rack-mount instructions are included with the installation instructions:

1. Elevated Operating Ambient—If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (TMA) specified by the manufacturer.
2. Reduced Air Flow—Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
3. Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
4. Circuit Overloading—Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. Reliable Earthing—Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

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Importantes Instructions de Securite

En utilisant votre équipement téléphonique, veuillez respecter les précautions de sécurité de base pour réduire les risques d'incendie, de choc électrique et de blessure aux personnes, dont les suivantes:

- N'utilisez pas ce produit proche de l'eau, par exemple près d'une baignoire, d'un évier, d'un lavabo ou d'une machine à laver, dans un sous-sol humide ou près d'une piscine.
- Evitez d'utiliser un téléphone (autre qu'un sans fil) durant un orage. Il y a un risque de choc électrique à distance depuis un éclair.
- N'utilisez pas votre téléphone pour appeler en cas de fuite de gaz près de la source de la fuite.
- N'utilisez que le cordon électrique et les piles indiquées dans ce mode d'emploi. Ne jetez pas les piles dans un feu. Elles risquent d'exploser. Vérifiez les réglementations locales pour de possibles instructions spéciales pour le recyclage.

GARDEZ CES INSTRUCTIONS

ATTENTION: Pour une protection continue contre le risque d'incendie, ne changez les piles qu'avec un type et des spécifications identiques du fusible.

ATTENTION: Risque d'explosion si la pile est changée avec un type incorrect. Veuillez recycler les piles usages selon les Instructions.

ATTENTION: Pour réduire le risque d'incendie, n'utilisez qu'un cordon électrique pour les télécommunications certifié UL ou CSA No. 26 AWG ou plus grand (par exemple, 24 AWG).

Déconnectez tous les cordons électriques avant d'effectuer une réparation.

Déconnectez le connecteur de circuit TNV avant d'enlever le couvercle.

Instructions pour l'Assemblage dans un Casier

Les instructions suivantes pour l'assemblage dans un casier ou des instructions similaires sont incluses avec les instructions d'installation:

1. Température Ambiante Elevée—Si l'installation est effectuée dans un lieu clos ou un casier multiple, la température ambiante d'opération du casier risque d'être supérieure à la température ambiante de la pièce. De ce fait, veuillez faire attention en installant l'équipement dans un environnement compatible avec la température ambiante maximale (Tma) spécifiée par le fabriquant.

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2. Flux d'Air Réduit—L'installation de l'équipement dans un casier doit être telle que la quantité de flux d'air exigée pour une opération sécurisée de l'équipement ne soit pas compromise.
3. Charge Mécanique—L'assemblage de l'équipement dans le casier doit être tel qu'aucune condition dangereuse ne peut se produire en cas de charge mécanique inégale.
4. Surcharge du Circuit—Veuillez faire attention à la connexion de l'équipement sur le circuit électrique et aux effets que la surcharge du circuit électrique risque d'avoir sur la protection du courant et le coron électrique. Faites particulièrement attention aux spécifications électriques sur la plaque de l'équipement pour effectuer une bonne connexion.
5. Mise à Terre Sure—Une Mise à Terre Sure de l'équipement assemblé sur casier doit être effectuée. Faites particulièrement attention aux connexions électriques autres que les connexions directes sur les circuits annexes (par exemple, en utilisant une rallonge).

End of Life Products

Edgewater Networks encourages you to recycle your end-of-life Edgewater Networks products in an environmentally considerate way. In accordance with the requirements of the European Waste Electronic and Electrical Equipment (WEEE) Directive, all Edgewater Networks products are marked as recyclable and should not be disposed of in the household or general waste stream.

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B

License and Warranty Information

This section provides a link to the license information related to the operation of EdgeMarc hardware and software as well as the EdgeMarc hardware warranty.

EdgeMarc Limited Hardware Warranty

For a period of five (5) years from the date Edgewater Networks ships the Product to Purchaser ("Warranty Period"), Edgewater Networks warrants that such Hardware will be (i) free of defects in material and workmanship under normal authorized use consistent with the Hardware Installation Guide instructions and will (ii) substantially conform to Edgewater Networks' published specifications for such Hardware as of the date of Purchaser's order. Purchaser shall notify Edgewater Networks of any nonconformance during the Warranty Period. Purchaser's sole and exclusive remedy and Edgewater Networks' entire liability under this limited warranty shall be for Edgewater Networks, at is sole option, to either repair or advance replace such nonconforming Hardware as set forth in this limited warranty. In case of repair, Purchaser must obtain return authorization verification from Edgewater Networks and return the nonconforming Hardware to a designated repair facility, freight prepaid, with a statement describing the nonconformity. Nonconforming Products must be returned to Edgewater Networks within fourteen (14) business days. If Purchaser fails to return the Product within the specified time frame, Edgewater Networks will charge Purchaser for the cost of new Product purchase. Edgewater Networks may repair such nonconforming Hardware with either new or refurbished equipment. Edgewater Networks will use commercially reasonable efforts to ship replacement Hardware within fifteen (15) business days after receipt of the returned Product to a designated repair facility. In case of advance replacement, if Edgewater Networks in its sole determination and approval deems that advance replacement units are necessary, advance replacement units will be shipped on the same business day for next-day delivery (within the Continental US) if Edgewater Networks receives and acknowledges Purchaser's notification by 1:00 PST. If Edgewater Networks, in its sole and independent determination, deems the Hardware to be allegedly defective or malfunctioning, then Edgewater Networks may refund the purchase price paid by the Purchaser.

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EdgeMarc Standard Limited Software Warranty

To obtain more information on Edgewater Networks' Limited Standard Software Warranty, visit www.edgewaternetworks.com/licenses

Exclusions

This limited warranty shall not apply if Purchaser (or someone acting under Purchaser's control) has (i) altered or modified the Product against the Hardware Installation Guide instructions, (ii) not followed Edgewater Networks instructions for installation, operation, maintenance or repair of the Hardware or Software, (iii) subjected the Hardware or Software to extreme temperatures, electrical stress, misuse, negligence, omissions, physical abuse or accident, (iv) engaged in unauthorized services using the Hardware or Software, and (v) been a victim of an act of God, third-party misconduct, accident, fire, lightning, power surges, outages, or other hazards.

Disclaimer

THE REMEDIES LISTED IN THIS SECTION ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, TERMS OR CONDITIONS WHETHER EXPRESS OR IMPLIED. EXCEPT AS EXPRESSLY SET FORTH ABOVE, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, EDGEWAER NETWORKS DISCLAIMS ALL OTHER WARRANTIES AND REPRESENTATIONS TO PURCHASER OR TO ANY OTHER PARTY REGARDING ANY PRODUCTS OR SERVICES PROVIDED BY EDGEWATER NETWORKS WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR NON-INFRINGEMENT, AND ANY WARRANTIES ARISING OUT OF COURSE OF DEALING OR USAGE OF TRADE. EDGEWATER NETWORKS DOES NOT WARRANT THAT THE SOFTWARE IS ERROR FREE OR THAT THE SOFTWARE WIL BE WITHOUT INTERRUPTIONS, BUGS OR OTHER OPERATIONAL PROBLEMS. END USERS MAY HAVE OTHER STATUTORY RIGHTS. HOWEVER, TO THE FULLEST EXTENT PERMITTED BY LAW, THE DURATION OF SATUTORILY REQUIRED WARRANTIES, IF ANY, SHALL BE LIMITED TO THE LIMITED WARRANTY PERIOD SET FORTH ABOVE.

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Limitation of Liability

IN NO EVENT SHALL EDGEWATER NETWORKS OR ITS THIRD-PARTY SUPPLIERS BE LIABLE FOR ANY LOSS OF USE, LOST DATA, FAILURE OF SECURITY MECHANISMS, INTERRUPTION OF BUSINESS, OR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING LOST PROFITS), REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF EDGEWATER NETWORKS OR ITS THIRD-PARTY SUPPLIERS WERE INFORMED OF THE POSSIBILITY OF SUCH DAMAGES IN ADVANCE, AND WHETHER OR NOT ANY LIMITED REMEDY PROVIDED IS FOUND TO HAVE FAILED ITS ESSENTIAL PURPOSE. EDGEWATER NETWORKS' ENTIRE LIABILITY UNDER THIS AGREEMENT SHALL NOT EXCEED THE AMOUNT ACUTALLY PAID BY PURCHASER TO EDGEWATER NETWORKS. FURTHERMORE, EDGEWATER NETWORKS SHALL NOT BE LIABILE FOR PURCHASER'S OR ANY THIRD PARTY'S SOFTWARE, FIRMWARE, INFORMATION, OR MEMORY DATA CONTAINED IN OR INTEGRATED WITH ANY EDGEWATER NETWORK HARWARE PRODUCT, WHETHER UNDER WARRANTY OR NOT.

Support and Services Agreements

Product support and Services are covered under a separate services agreement. For more information about support and service agreements applicable to this Product, go to www.edgewaternetworks.com

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