



**NetVanta 6410  
Session Border Controller  
Hardware Installation Guide**

17006410F1    NetVanta 6410 eSBC

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## Conventions

**NOTE**

*Notes provide additional useful information.*

**CAUTION**

*Cautions signify information that could prevent service interruption or damage to equipment.*

**WARNING**

*Warnings provide information that could prevent injury or endangerment to human life.*

## Safety Instructions

When using your telephone equipment, please follow these basic safety precautions to reduce the risk of fire, electrical shock, or personal injury:

1. Do not use this product near water, such as a bathtub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There is a remote risk of shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord, power supply, and batteries indicated in the manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for special disposal instructions.
5. The socket-outlet shall be installed near the equipment and shall be easily accessible.

If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your qualified service personnel:

1. The power cable, extension cable, or plug is damaged.
2. An object has fallen into the product.
3. The product has been exposed to water.
4. The product has been dropped or damaged.
5. The product does not operate correctly when you follow the operating instructions.



*These units contain no user-serviceable parts. They should only be serviced by qualified service personnel.*



*Additional safety guidelines, such as Waste Electrical and Electronic Equipment (WEEE), are given in the document [NetVanta Safety and Regulatory Information](https://supportforums.adtran.com) available at <https://supportforums.adtran.com>.*

**Save These Important Safety Instructions**

## **FCC Radio Frequency Interference Statement**

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 frequencies. 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.

## **Canadian Emissions Requirements**

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Class A prescrites dans la norme sur le matériel brouilleur: “Appareils Numériques,” NMB-003 édictée par le ministre des Communications.

## **Toll Fraud Liability**

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## Third-Party Software

The software included in this product contains copyrighted software that is licensed under the GNU General Public License (GPL). For a list of third-party software and their licenses, go to <http://www.adtran.com/software/EULA>. You can obtain the complete corresponding source code of such software components from ADTRAN for a period of three years after our last shipment of this product by sending a money order or check for \$5 to:

ADTRAN, Inc, P.O. Box 933638, Atlanta, GA 31193-3638

Please write **GPL Source for product NetVanta 6410** in the memo line of your payment.

This offer is valid to anyone in receipt of this information.

## Service and Warranty

For information on the service and warranty of ADTRAN products, visit the [Support](#) section of the ADTRAN website at <http://www.adtran.com>.

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## 1. INTRODUCTION

This hardware installation guide lists the NetVanta 6410 unit's physical characteristics and product specifications, introduces basic functionality, and provides installation instructions.

- *Physical Descriptions on page 14*
- *Unit Installation on page 17*

For additional information on mounting options and supplying power, refer to the following sections:

- *Mounting Options on page 17*
- *Supplying Power to the Unit on page 19*

For information on configuration for a specific application, refer to the configuration guides provided on the [ADTRAN Support Community](#). For details on the command line interface (CLI), refer to the *AOS Command Reference Guide*. All other related documents are also available online at <http://supportforums.adtran.com>.

## 2. PHYSICAL DESCRIPTIONS

### NetVanta 6410

The NetVanta 6410 is an Enterprise Session Border Controller (eSBC) designed for the medium to large business. To ease the need for extensive interoperability testing, Session Border Controllers (SBCs) provide the tools necessary to normalize, secure and troubleshoot SIP to SIP communication between a carrier network and the customer's SIP-compliant equipment.

SBCs provide the SIP interoperability required at the premises creating a service provider migration path to various services, from business trunking and hosted VoIP onto native SIP trunking.

### *Features and Specifications*

- The NetVanta 6410 provides the following advanced features:
  - SIP Header Manipulation Rules (HMR) solves interoperability issues present in disparate networks
  - Media anchoring ensures traffic flows from a trusted network element, preventing media routing confusion and hiding the topology of the enterprise network
  - Packet Capture (PCap) allows for user-defined routing of packet information for troubleshooting and evaluation purposes
  - Voice Quality Monitoring (VQM) provides a sophisticated level of network performance visibility in an easy-to-use, graphical interface
  - High-Performance firewall identifies and protects voice networks against common Denial of Service (DoS) attacks
- Two integrated 10/100/1000Base-T Gigabit Ethernet ports (RJ-45) for LAN/WAN connectivity via copper or fiber
- Two type A USB 2.0 interfaces designed for 3G/4G backup and storage (future release)
- 3 GB Flash memory
- Supports up to 1000 simultaneous eSBC calls with media anchoring enabled and 100 percent voice quality management (VQM)
- Stateful inspection firewall
- AOS CLI
- SNMP management
- n-Command MSP network management
- Integrated RJ-45 configuration and management port
- Dimensions: 11.00-inch W x 1.75-inch H x 7.38-inch D
- Mountable in a 19-inch rack
- Power Supply: 100 to 240 VAC, 50/60 Hz, input
- Operating Temperature: 0°C to 50°C (32°F to 113°F)
- Relative Humidity: Up to 95 percent, noncondensing
- RoHS compliant

### *Shipping Contents*

Each NetVanta 6410 unit is shipped in its own cardboard shipping carton. Open each carton carefully, and avoid deep penetration into the carton with sharp objects.

After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer Service (refer to the *Support* page on the ADTRAN website at <http://www.adtran.com/support>).

### NetVanta 6410 Domestic Shipping Contents

Domestic shipments of the NetVanta 6410 include the following items:

- NetVanta 6410 base unit with attached mounting ears
- Quick start guide
- Console cable
- Detachable AC power cord

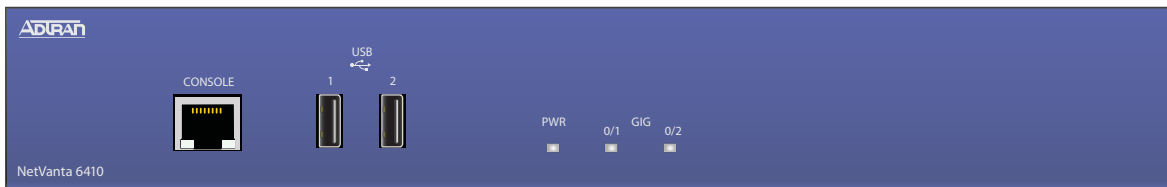
### NetVanta 6410 International Shipping Contents

International shipments of the NetVanta 6410 include the following items:

- NetVanta 6410 base unit with attached mounting ears
- Quick start guide
- Console cable
- All necessary power cords

## Front Panel Design

The NetVanta 6410 front panel is shown in *Figure 1*.



**Figure 1. NetVanta 6410 Front Panel Layout**

### CONSOLE Interface

The **CONSOLE** interface is an RJ-45, which provides for local management and configuration. *Table A-2 on page 21* shows the **CONSOLE** port pinouts.

### USB Interfaces (Future Release)

The **USB** interfaces, labeled **USB 1** and **USB 2**, are type A USB host connectors and are provided for use with 3G/4G modems or flash drives.

### Status LEDs

The following table describes the front panel LEDs.

LED	Color	Indication
<b>PWR</b>	Off	The unit is not receiving power.
	Green (solid)	The unit is powered and self-test passed.
<b>GIG 0/1, GIG 0/2</b>	Off	The port is administratively disabled or does not have a link.
	Green (solid)	The port is enabled and has a connection.
	Green (flashing)	The port has activity (transmit or receive).

## Rear Panel Design

[Figure 2](#) shows the NetVanta 6410 rear panel.



**Figure 2. NetVanta 6410 Rear Panel Layout**

### NetVanta 6410 Rear Panel Interfaces and LEDs

#### 10/100/1000Base-T Gigabit Ethernet Interfaces

The Gigabit Ethernet ports (**GIG 0/1**, **GIG 0/2**) provide two fixed RJ-45 connectors. The status LEDs, labeled **GIG 0/1** and **GIG 0/2**, are located on the front panel. See [Table A-1 on page 21](#) for the Ethernet port pinouts. The Ethernet ports provide the following:

- 10Base-T, 100Base-T, or 1000Base-T via RJ-45
- Auto-negotiation
- CSMA/CD
- IEEE 802.3 compatibility
- Auto MDIX

#### Power Supply

The NetVanta 6410 has an AC power supply with an IEC connector. The appropriate three-prong cable is included in the shipment. Please refer to [Supplying Power to the Unit on page 19](#) for connection details.



### 3. UNIT INSTALLATION

The instructions and guidelines provided in this section cover hardware installation topics, such as wall mounting/rack mounting and powering the unit. These instructions are presented as follows:

- [Mounting Options on page 17](#)
- [Supplying Power to the Unit on page 19](#)

For information on configuration for a specific application, refer to the configuration guides provided on the [ADTRAN Support Community](#). For details on the command line interface (CLI), refer to the [AOS Command Reference Guide](#). All other related documents are also available online at <http://supportforums.adtran.com>.

#### **WARNING**

*To prevent electrical shock, do not install equipment in a wet location or during an electrical storm.*



*Ethernet cables are intended for intrabuilding use only. Connecting an ADTRAN unit directly to Ethernet cables that run outside the building in which the unit is housed will void the user's warranty and could create a fire or shock hazard. To connect an ADTRAN unit to Ethernet cables that run outside the building, ADTRAN's Ethernet Port Protection Device (EPPD) (P/N 1700502G1) must be connected between the unit and the outside plant cable. Use of any Ethernet protector other than ADTRAN's for this purpose will void the user's warranty.*

#### **Tools Required**

The following customer-provided tools are required for the hardware installation of the NetVanta 6410:

- Ethernet cable
- Phillips-head screwdriver (rack mounted applications only)




*To access the CLI of the NetVanta, you will also need a PC with terminal emulation software and a console port cable. Instructions on how to access the CLI are available in the quick start guide shipped with your unit or online on the [ADTRAN Support Community](#).*

#### **Mounting Options**

The NetVanta 6410 can be installed in a tabletop, wallmount, or 19-inch rackmount configuration. The following sections provide step-by-step instructions for rack mounting and wall mounting.

### Rack Mounting


The NetVanta 6410 units are housed in a 1U-high, rack-mountable chassis that can be installed into 19-inch equipment racks. Follow these steps to mount the NetVanta 6410 in a rack:

 <p><b>CAUTION</b></p>	<ul style="list-style-type: none"> <li>• <i>If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.</i></li> <li>• <i>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.</i></li> <li>• <i>Be careful not to compromise the stability of the equipment mounting rack when installing this product.</i></li> <li>• <i>Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading the circuit might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.</i></li> <li>• <i>Reliable grounding of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).</i></li> </ul>
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Instructions for Rack Mounting the NetVanta	
Step	Action
1	To allow proper grounding, scrape the paint from the rack around the mounting holes where the NetVanta will be positioned.
2	Position the NetVanta in a stationary equipment rack. This unit occupies 1U of space.
3	Have an assistant hold the unit in position as you install two mounting bolts through the unit's brackets and into the equipment rack using a #2 Phillips-head screwdriver.
4	Proceed to the steps given in <a href="#">Supplying Power to the Unit on page 19</a> .

### Wall Mounting

By following these instructions exactly, the NetVanta can be safely mounted to the wall.

 <p><b>CAUTION</b></p>	<ul style="list-style-type: none"> <li>• <i>To avoid damaging the unit, use only the screws included in the shipment when attaching mounting ears to the chassis.</i></li> <li>• <i>When wall mounting the NetVanta, care must be taken not to damage the power cord. Do not attach the power cord to the building surface or run it through walls, ceilings, floors, or openings in the building structure.</i></li> <li>• <i>The socket-outlet must be installed near the equipment and must be easily accessible.</i></li> </ul>
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Instructions for Wall Mounting the NetVanta	
Step	Action
1	Remove the mounting ears from the NetVanta. Rotate them 90° so that the portion of the bracket with the mounting holes is flush with the bottom of the chassis. Reattach them to the chassis (see <a href="#">Figure 3 on page 19</a> ).
2	Decide on a location. All NetVanta 6410 units are mounted with the front panel facing either left or right. Keep in mind that the unit needs to be mounted at or below eye level so that the LEDs are visible.
3	Prepare the mounting surface by attaching a board (typically plywood, 3/4-inch to 1-inch thick) to a wall stud using #6 to #10 (2.5-inch or greater in length) wood screws. <b>Important!</b> Mounting to a stud ensures stability. Using sheetrock anchors may not provide sufficient long-term stability.
4	Have an assistant hold the unit in position as you install two #6 to #10 wood screws through the unit's brackets and into the mounted board.
5	Proceed to the steps given in <a href="#">Supplying Power to the Unit on page 19</a> .

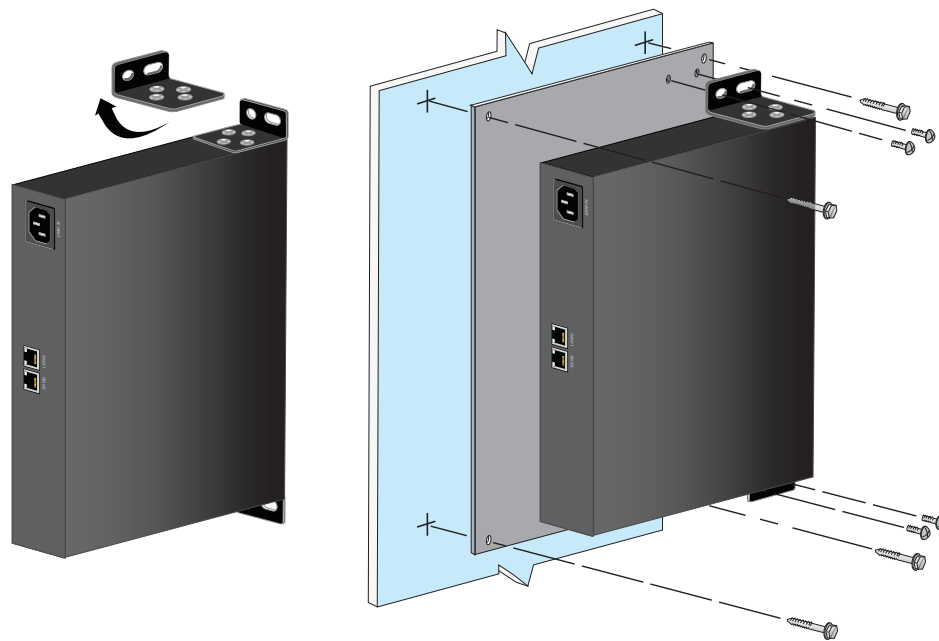


Figure 3. Wall Mounting the Unit

### Supplying Power to the Unit

NetVanta 6410 units come equipped with an 100 to 240 VAC, 50/60 Hz power supply. All appropriate power cords are included in the shipment of the units. To power these units, connect the power cable to an appropriately grounded power source.

<p><b>CAUTION</b></p>	<ul style="list-style-type: none"> <li>• Install unit in accordance with Article 400 and 364.8 of NEC NFPA 70.</li> <li>• Maximum recommended ambient operating temperature is 50°C.</li> </ul>
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Your NetVanta unit is now ready to be configured and connected to the network. For information on configuration for a specific application, refer to the configuration guides provided on the [ADTRAN Support Community](#). For details on the command line interface (CLI), refer to the *AOS Command Reference Guide*. All other related documents are also available online at <http://supportforums.adtran.com>.

## APPENDIX A. CONNECTOR PIN DEFINITIONS

The following tables provide the pin assignments for the base unit.

### Base Unit Pinouts

**Table A-1. 1000Base-T Gigabit Ethernet Port Pinouts**

Pin	Name	Description
1	TRD0+	Transmit/Receive Positive
2	TRD0-	Transmit/Receive Negative
3	TRD1+	Transmit/Receive Positive
4	TRD2+	Transmit/Receive Positive
5	TRD2-	Transmit/Receive Negative
6	TRD1-	Transmit/Receive Negative
7	TRD3+	Transmit/Receive Positive
8	TRD3-	Transmit/Receive Negative

**Table A-2. CONSOLE Port Pinouts**

RJ-45 Pins	DB-9 Pins	Name	Description
1	8	CTS	Clear to Send (output)
2	—	—	Unused
3	2	RD	Receive Data (output)
4	5	SG	Signal Ground
5	5	SG	Signal Ground
6	3	TD	Transmit Data (input)
7	—	—	Unused
8	7	RTS	Request to Send (input)

