exa**v**era
TECHNOLOGIES

Installation Guide:
VeraFi™ and VeraRelay™
PRELIMINARY CONTENT ONLY

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TECHNOLOGIES

Regulatory Compliance

All Exavera devices are designed to be compliant with rules and regulations in locations they are sold and will be labeled as required. Any changes or modifications to Exavera Technologies equipment, not expressly approved by Exavera Technologies, could void the user's authority to operate the equipment.

When Exavera's devices are professionally installed, the Radio Frequency Output Power will not exceed the maximum allowable limit for the country of operation.

Antennas: Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could cause damage and may violate regulations.

⚠ Country Approvals
Regulatory markings are applied to the device signifying the radio(s) are approved for use in the following countries: United States, Canada.

Operation of the device without regulatory approval is illegal.

⚠ Health and Safety Recommendations

Warnings for the use of Wireless Devices

Please observe all warning notices with regard to the usage of wireless devices

Potentially Hazardous Atmospheres

You are reminded to observe restrictions on the use of radio devices in fuel depots, chemical plants etc. and areas where the air contains chemicals or particles (such as grain, dust, or metal powders) and any other area where you would normally be advised to turn off your vehicle engine.

Safety in Hospitals

Wireless devices transmit radio frequency energy and may affect medical electrical equipment. When installed adjacent to other equipment, it is advised to verify that the adjacent equipment is not adversely affected.

FCC / EU RF Exposure Guidelines

Safety Information

The device complies with internationally recognized standards covering Specific Absorption Rate (SAR) related to human exposure to electromagnetic fields from radio devices.

Reducing RF Exposure—Use Properly

It is advisable to use the device only in the normal operating position.

Remote and Standalone Antenna Configurations

To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or operating near users at stand-alone desktop of similar configurations must operate with a minimum separation distance of 20 cm from all persons.

Power Supply

Use only an Exavera approved power supply

Operation in the US

The use on UNII (Unlicensed National Information Infrastructure) Band 1 5150-5250 MHz is restricted to indoor use only, any other use will make the operation of this device illegal.

The available channels for 802.11 b/g operation in the US are Channels 1 to 11. The range of channels is limited by firmware.

Radio Frequency Interference Requirements—FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Introduction

Audience and Objectives

This document has been created for individuals responsible for installing and configuring the VeraFi Access Reader and its related components, including the VeraRelay. The guide assumes that you are a qualified technician familiar with the basic installation procedures and safety precautions required to install network equipment.

Product Overview

Exavera's VeraFi Access Reading Point combines an 802.11 a/b/g access point with a long-range RFID reader. With countless applications, the VeraFi is a vital component in an Exavera solution that provides identification and location services, facilitates data delivery and automates business processes.

The VeraRelay is a smaller, plug-in RFID reader, which offers increased resolution within a flexible and cost-effective deployment model.

How to Get Help

To obtain Technical Assistance, you can contact Exavera's Customer Support as follows:
- **Phone:** (603) 570-*<to be provided>*
- **Email:** support@exavera.com
- **Customer Support Web Site:** *<to be provided>*

Please have the following information available when contacting customer support:
- List of hardware components with serial numbers and revision levels
- System Software version number and revision level
- Error and diagnostic messages with associated LED indications
- Details about recent configuration changes, if applicable

Safety

Before connecting power, review the following safety guidelines and precautions:
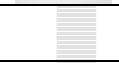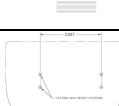
- Do not work alone when potentially hazardous conditions exist.

- Check the work area for potentially hazardous conditions (such as wet or moist floors) and correct the conditions before proceeding.

Installation

Unpack the System

Carefully unpack the system and compare the equipment contained in your shipment with the enclosed packing slip. Notify customer support if there are any discrepancies.

Each VeraFi (Part #: VF-2200) is shipped with the following materials.

Part		Description	Quantity
	VeraFi Access Reading Point VF-2200	WLAN access point/RFID reader	1
	RP-SMA Antenna VF-W2DB	2 dBi tri-band antenna (included with VF-2200)	2
	Compact Flash Card Part #: VF-CFO256	256M Compact flash card for VeraFi (512M card part #: VF-CF0512)	1
	Installation Guide	Configuration and installation instructions	1
	Mounting Template	Template for wall mounting VeraFi	1
	Plastic Anchors #8-10x1"	Wallboard anchor	2
	Panhead Screws	#8-1.25" Panhead screws	2

Additional Optional Items

Part		Description	Quantity
	Antenna Part #: VF-P5DB	5 dBi tri-band antenna	2
	Power Supply Part #: VF-PWR-NA	Wall wart AC to DC power supply	1
	Console Cable Part #: VF-CONCABL	DB9 to 6 pin DIN	1

VeraRelays are shipped independently of the VeraFi Access Reading Points

Part		Description
	VeraRelay Part #: VR-320	Plug-in RF reader
	VeraRelay (pass-through) Part #: VR-310	Plug-in RF reader with pass-through outlet

Before You Start

Before you install the VeraFi, make sure the computer you are using is connected to the **same network** as the unit you are trying to configure. You should obtain the following information from your network administrator:

- Whether PoE or the power supply will be used.
- A static IP address for the VeraFi, if not connected to a DHCP server
- A default gateway address and subnet mask if needed.
- A system hostname for the access point.
- The case sensitive wireless service set identifier (SSID) for your wireless network.
- Security type (WEP, WPA, WPA2, etc.) and key(s) to secure your wireless network.
- WLAN type and channel assignment.

VeraFi Installation

1. Using the wall-mount template, mark the 2 mounting holes to be drilled.
2. With a 3/16" bit, drill the 2 marked holes.
3. Using a hammer gently tap the 2 plastic anchors into the holes.
4. Screw panhead screws into anchors (leaving ¼" of screw exposed) and gently slide VeraFi case onto screws.
5. Attach all necessary cabling to the ports on the VeraFi (see Figure 1 – NOTE: only one power source is required; if PoE is utilized, the Power jack will remain unused).
6. If using the external power supply, once the installation is complete, attach the power supply to the unit's power jack, then plug the unit in.

Figure 1

Console Port

Power

Uplink/PoE
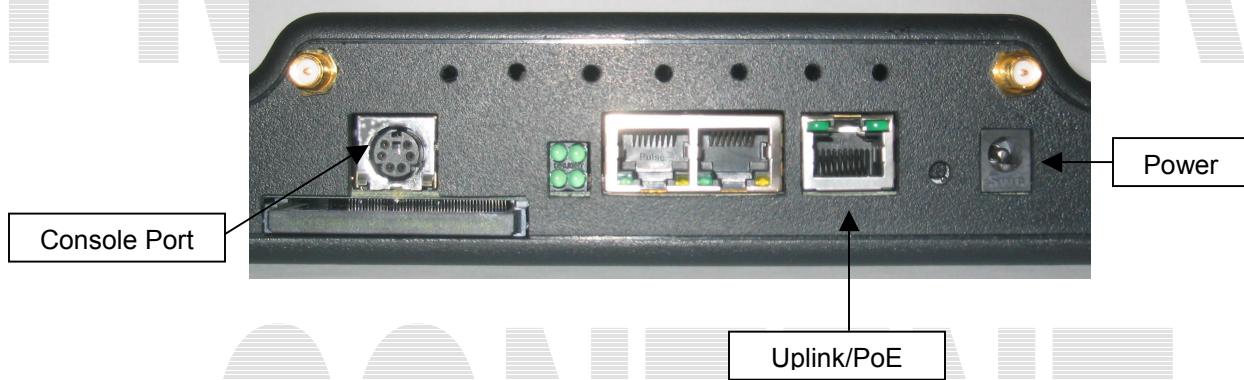
VeraRelay Installation

The VeraRelay plugs into any standard AC wall outlet, with placement based on a customized site survey and resulting deployment plan. As with any electrical appliance, care should be taken around electrical outlets.

VeraFi Set-up, Connection and Configuration

This chapter will describe how to setup the basic settings on the VeraFi for the first time. You are able to configure all settings using the Online Web GUI through a web browser.

Default IP Address Behavior

The VeraFi you are configuring will boot with a default static IP address of 192.168.1.1. This known address will allow you to point a web browser to the access point and configure basic settings.

Accessing the VeraFi Online Web GUI For the First Time

To browse the VeraFi's configuration page:

1. Enter the default IP address (192.168.1.1) in the browser address line. You will be notified of a possibly untrustworthy certificate. Choose to accept the certificate. A password window will appear.
2. Enter the default username (admin) and the default password (admin).
3. The VeraFi Web GUI Home page appears showing a menu of seven configuration headings labeled:

   - Home
   - RFID Location
   - General Networking
   - Wireless Networking
   - System Settings
   - Utilities
   - User Access

4. Navigate to the "General Networking" page by clicking on its heading in the menu.
5. The "IP Assignment Source" defaults to "User Supplied." If you wish to use Static IP, keep this selection and fill in the IP Address, Subnet Mask, and Default Gateway fields.
6. If you would prefer to have the IP assigned dynamically, select "DHCP" for the assignment source, and optionally select a specific Lease Time and whether DNS information should be obtained from the DHCP server as well.
7. Click "Apply" to activate your selections.

NOTE: Any changes made in the Web GUI require that you click "Apply" at the bottom of the page for those changes to take effect. Once applied successfully, the changes will persist on the system even after a reboot or loss of power.

Connecting to the VeraFi Locally

If you need to connect to the VeraFi locally (without connecting the device to a wired LAN), you can connect a PC to its console port using a DB-9 to 6 pin DIN serial cable. The Exavera part number for this cable is: VF-CONCAB. Follow these steps to operate the CLI via the console port (see Figure 3):

1. Connect the DB-9 female end of the cable to a COM port on your pc.
2. Connect the 6 pin DIN to the port labeled "Console Port" (see Figure 1) on the VeraFi.
3. Set up a terminal emulator to communicate with the VeraFi. Use the following settings for the terminal emulator connection: 115,200 baud, 8 data bits, no parity, 1 stop bit, no flow control.

NOTE: Once you have finished making changes via the console cable you should remove the serial cable from the access point.

Assigning an IP Address From the Console Port

Once you have opened the terminal emulator and have successfully connected to the VeraFi you are now able to issue commands to configure the unit. To assign an IP address and Mask the following commands are used:

        cfg_net_ip_set "ip address"
        cfg_net_mask_set "subnet mask"

For example, to set the unit's IP address to 192.168.100.1/24, the commands would be:

        cfg_net_ip_set "192.168.100.1"
        cfg_net_mask_set "255.255.255.0"

NOTE: The use of quotation marks around the IP address parameter are required for the command to succeed.

Once set, use the Online Web GUI to verify and "Apply" these changes.

NOTE: Any changes made in the Web GUI require that you click "Apply" at the bottom of the page for those changes to take effect. Once applied successfully, the changes will persist on the system even after a reboot or loss of power.

Assigning Basic Settings

Once you have been able to browse the unit's web page successfully you have the ability to assign all settings via the web browser. The following list shows all of the settable options for the VeraFi from the web page.

1. RFID Location
   - Enable RFID
   - Location Server Hostname or IP Address

2. General Networking
   - Enable LAN Ports
   - Select IP Assignment Source
   - IP Address
   - IP Network Mask
   - Default Gateway
   - DHCP Lease Time
   - DHCP DNS Info

3. Wireless Networking
   - Enable WLAN
   - Configurable SSID (up to 32 characters)
   - Broadcast SSID
   - WLAN Radio Mode selection
   - WLAN Channel selection
   - WLAN Authentication Type (Open, Shared-key, PSK, 802.1X-EAP)
   - PSK/Passphrase
   - Radius Servers
   - Encryption (AES, TKIP, WEP104, WEP0)
   - WEP Keys
   - WLAN ACL MAC Address List
   - WLAN ACL Mode (Allow, Deny, Disabled)

4. System Settings
   - System Hostname
   - Primary Domain
   - DNS Servers
   - SysLog Server
   - SNMP Agent Enable
   - SNTP Servers
   - Time Zone
   - Tracking of Daylight Saving Time

5. Utilities
   - View/Download Saved Configuration
   - Revert to previous saved configuration
   - Configuration File Upload
   - System Software Installation
   - System Reboot

6. User Access
   - Username/Password Add and Remove

LED Display

The following list defines the LED's used on the VeraFi and what each color represents during normal activity.

QUAD LEDs

Quad Position	LED/Label	Description
Lower right	PWR	Green when unit is powered
Upper right	WLAN	Blinking green when enabled
Upper left	OPT	Blink green when Compact Flash is accessed
Lower left	RAD	Blinking green when enabled

JACK LEDs

Diagram label	LED/Label	Description
A B	UPLINK	Solid green for link blinking for 100mbit activity
C D	LAN1	Green/blinking for 100mbit link/activity Yellow/blinking for 10mbit link/activity
E F	LAN2	Green/blinking for 100mbit link/activity Yellow/blinking for 10mbit link/activity
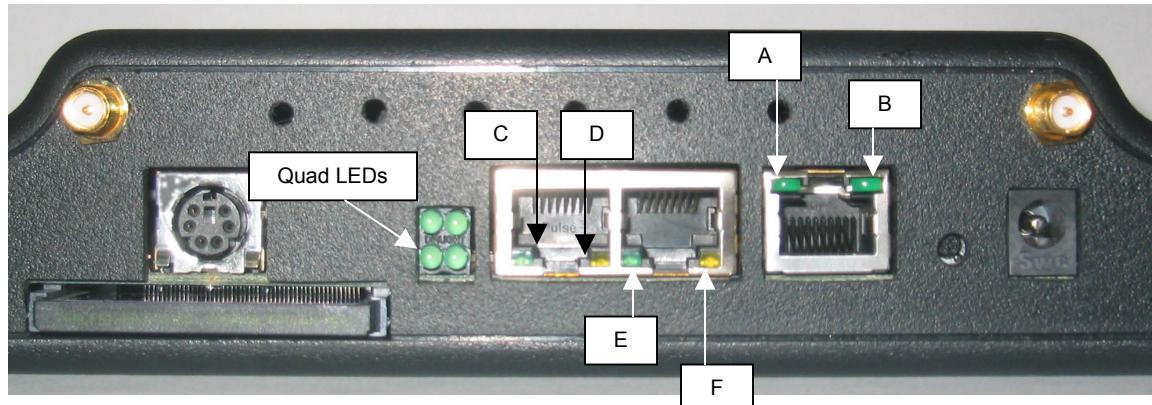
Technical Specifications

VeraFi

Specification	Description
Power	Estimated maximum power consumption: 12.95W It can be sourced from either of two possible power inputs: PoE - Patriots is an IEEE 802.3af compliant Class 0 PD (Powered Device). The voltage range is 44-57Vdc on this interface (although it can operated as low as 37V). The approx. numbers from IEEE 802.3af are: 57Vdc@230mA, 44Vdc@300mA, and 37Vdc@350mA. Power Jack Connector- 24Vdc@540mA (Use only part VF-PWR-NA)
Environmental Operating Ranges	Operating temperature: 0° to 40^oC (32° to 105^oF) Non-operating temperature: -40° to 70^oC (-40° to 158^oF) Humidity: 0 to 90% non-condensing
Dimensions	Height: 127.83 mm (5.03 in) Width: 192.02 mm (7.56 in) Depth: 44.7 mm (1.77 in) Weight: 428.08 g (15.1 oz)

VeraRelay

Specification	Description	
Power	Standard AC outlet	
Dimensions	Standard Enclosure	Pass-through Enclosure
	Height: 103.77mm (4.06 in) Width: 55.83mm (2.2 in) Depth: 36.24mm (1.43 in) Weight: 130.41g (4.6 oz)	Height: 102.53mm (4.04 in) Width: 55.60mm (2.2 in) Depth: 64.26mm (2.5 in) Weight: 175.77g (6.2 oz)