Scanner Appliance

User Guide

September 29, 2021

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Preface

This user guide introduces the Qualys Scanner Appliance. The Scanner Appliance offers Qualys users the ability to extend their use of the service to assess the security of internal network systems, devices and web applications.

Note: Your use of the Qualys Scanner Appliance is subject to the terms and conditions of the Qualys Service User Agreement.

About Qualys

Qualys, Inc. (NASDAQ: QLYS) is a pioneer and leading provider of cloud-based security and compliance solutions. The Qualys Cloud Platform and its integrated apps help businesses simplify security operations and lower the cost of compliance by delivering critical security intelligence on demand and automating the full spectrum of auditing, compliance and protection for IT systems and web applications.

Founded in 1999, Qualys has established strategic partnerships with leading managed service providers and consulting organizations including Accenture, BT, Cognizant Technology Solutions, Deutsche Telekom, Fujitsu, HCL, HP Enterprise, IBM, Infosys, NTT, Optiv, SecureWorks, Tata Communications, Verizon and Wipro. The company is also a founding member of the Cloud Security Alliance (CSA).

For more information, please visit www.qualys.com.

Contact Qualys Support

Qualys is committed to providing you with the most thorough support. Through online documentation, telephone help, and direct email support, Qualys ensures that your questions will be answered in the fastest time possible. We support you 7 days a week, 24 hours a day. Access support information at www.qualys.com/support/.

Get Started

Welcome to the Qualys Scanner Appliance, an option with the Qualys Cloud Platform from Qualys, Inc. With the Qualys Scanner Appliance, you can assess internal network devices, systems and web applications. The Scanner Appliance is a robust, scalable solution for scanning networks of all sizes including large distributed networks.

It's easy to set up a Scanner Appliance within your network. Let's get started!

Before you begin

Best Practices for internal scanning

Quick Start

Interested in Virtual Appliances?

Qualys Virtual Scanner Appliance is packaged and qualified for deployment on a variety of virtualization and cloud platforms. Please contact your TAM or Qualys Support if you're interested in adding Virtual Appliances to your license.

Desktop/Laptop: VMware Workstation, Player, Fusion, Oracle VirtualBox

Client/Server: VMware vCenter/vSphere, Citrix XenServer, Microsoft Hyper-V

Cloud: Amazon EC2 - Classic, Amazon EC2 - VPC, Microsoft Azure, Google GCE, OpenStack

Learn more

Qualys Virtual Appliance: Platform Qualification Matrix

Before you begin

Check package accessories

Your starter kit package should contain these components. If any components are missing or damaged, please contact Qualys Support.

Qualys Scanner Appliance User Guide
AC power cord
CAT6 cable
Rack screws (quantity 4) - 10-32 x 3/4", Phillips, black matte, with washer
USB-to-RS232 converter cable

Network requirements / configuration

Bandwidth	Minimum recommended bandwidth connection of 1.5 megabits per second (Mbps) to the Qualys Cloud Platform.
Outbound HTTPS Access	The local network must be configured to allow outbound HTTPS (port 443) access to the Internet, so that the Scanner Appliance can communicate with the Qualys Cloud Platform.
Appliance Access to Qualys Cloud Platform	The Scanner Appliance must be able to reach certain infrastructure located at the Qualys Cloud Platform where your Qualys account is located.
	Tip - Log into your account and go to Help > About to see the Qualys Cloud Platform URLs.
Appliance Access to Target Host IPs	The IP addresses for the hosts to be scanned must be accessible to the Scanner Appliance. The Appliance must be able to resolve external DNS for the hostnames to be scanned.
LAN Interface is Default	The LAN interface services both scanning traffic and management traffic to the Qualys Cloud Platform, unless split network configuration is defined for the Appliance. See Split Network Configuration.

VLAN Support	VLAN configuration options: 1) If you have connected the LAN interface to a 802.1q trunked port and need your Scanner Appliance to use VLAN tags on the LAN default network, enter the VLAN tag number using the Appliance console. 2) For any Appliance, you can choose option 1) and also configure more VLANs (to be used for scanning) using the Qualys user interface.
DHCP or Static IP	By default the Scanner Appliance is pre-configured with DHCP. If configured with a static IP address, be sure you have the IP address, netmask, default gateway, primary DNS and WINS server (if appropriate).
Proxy Support	The Scanner Appliance includes Proxy support with or without authentication — Basic or NTLM. Proxy-level termination (as implemented in SSL bridging, for example) is not supported. SOCKS proxies are not supported.
WINS Support	If your network is running Windows Internet Naming Service (WINS), the Scanner Appliance needs to use it for host name resolution during scanning. For an Appliance configured with DHCP, please be sure your WINS server IPs (primary and secondary) are added to your DHCP subnet configuration using "option netbios-name-servers WINS1, WINS2;". For an Appliance with a static IP address, the WINS servers are defined with the static IP settings using the Appliance console.
Network Time Protocol (NTP)	The Scanner Appliance syncs the time from the Qualys SOC (Security Operations Center) for your account/location automatically. For this reason, there is nothing you need to configure for NTP.

Best Practices for internal scanning

Here are our best practices related to internal scanning.

Avoid scanning through a firewall from the inside out

Problems can arise when scan traffic is routed through the firewall from the inside out, i.e. when the scanner Appliance is sitting in the protected network area and scans a target which is located on the other side of the firewall. We recommend placing scanner Appliances in your network topology in a way that scanning and mapping through a firewall from the inside out is avoided if possible.

> **Learn more**
>
> Scanning through a firewall

Check network access to scanners

Go to Help > About in the application. The Scanner Appliances section lists URLs at the SOC (Security Operations Center) for your account/location. Your Scanner Appliances must be able to contact these URLs on port 443. For Private Cloud Platform, the URLs displayed are appropriate to your local on-site SOC.

> **Learn more**
>
> How to check network access to scanners

Consult your network group for scanner placement

It's highly recommended that you work with your network group to determine where to place Scanner Appliances in an enterprise network environment. Some things to consider: place Scanner Appliances as close to target machines as possible, and make sure to monitor and identify any bandwidth restricted segments or weak points in the network infrastructure. Scanning through layer 3 devices (such as routers, firewalls and load balancers) could result in degraded performance so you may consider using our VLAN tagging feature (VLAN trunking) to circumvent layer 3 devices to avoid potential performance issues.

Quick Start

Once you complete the Quick Start you're ready to start scanning! It takes just a couple of minutes. It's important that you complete the steps in the order shown.

Step 1 - Connect the Scanner Appliance to the Network

Qualys strongly recommends the Scanner Appliance be plugged into a Managed Power Supply. On the rare occasion where the Scanner Appliance may need to be rebooted, utilizing the MPS will allow for remote rebooting in unmanned or high security areas.

Set Up Network Connection

The Scanner Appliance connects like any other computer to a switch on your network.

To set up the network connection, follow these steps:

- Connect one end of an Ethernet cable to the Ethernet LAN port on the Scanner Appliance (back panel).

- Connect the other end of the Ethernet cable to a 10BASE-T or 100BASE-TX or 1 Gigabit switch on your network.

Remote Console Interface Set Up (optional)

The Remote Console interface supports remote configuration and management of the Scanner Appliance using a VT100 terminal, such as Windows HyperTerminal.
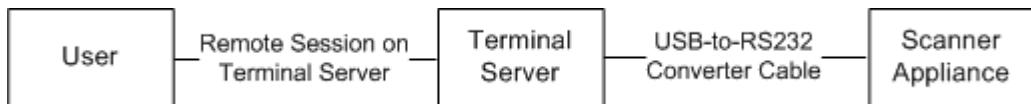
Figure 1-1. Set up for Remote Console Interface

A USB-to-RS232 converter cable allows you to connect to their terminal server via network cable. Qualys recommends the following USB-to-RS232 converter cable:

> IOGEAR USB-Serial Model GUC232A

Full specifications: http://www.iogear.com/product/GUC232A/

Keystroke File Not Supported: The Remote Console interface is not intended for uploading the whole scanner configuration by means of a pre-defined "keystroke file." Uploading such a file will result in lost characters and incorrect configuration.

To set up the Remote Console interface, follow these steps:

1 Be sure the terminal server is up and running. Also check the terminal server settings. The following settings are required. **Note - Stop Bits must be set to 2**.

Port Setting	Value
Bits per second (Baud rate)	9600
Data Bits	8
Parity	None
Stop Bits	**2**
Flow Control	None
Terminal Emulation	VT100

2 Connect one end of the USB-to-RS232 converter cable to a USB port on the Scanner Appliance (back panel).

3 Connect the other end of the USB-to-RS232 converter cable to your terminal server via network cable.

4 Connect the Scanner Appliance (see Step 2 - Power On the Scanner Appliance)

Note: In the case where the Scanner Appliance is already powered on, you must reboot the Scanner Appliance before taking the next step and making any configurations. To reboot, press the Down arrow on the LCD interface until the **SYSTEM REBOOT** message appears and then press ENTER. Please make sure that the Scanner Appliance has fully rebooted (this takes up to 3 minutes).

5 Press the ENTER key on the VT100 terminal's keyboard to display the Remote Console interface. You will notice the MAC address for the Scanner Appliance appears.

Step 2 - Power On the Scanner Appliance

To power on the Scanner Appliance, follow these steps:

1 Connect the AC power cord into the Power Supply Socket.

Note: Qualys strongly recommends the Scanner Appliance be plugged into a Managed Power Supply. On the rare occasion where the Scanner Appliance may need to be rebooted, utilizing the MPS will allow for remote rebooting in unmanned or high security areas.

2 Press the power button on the back panel. Be sure that the power button has a green backlight.

3 `Welcome to Qualys` appears in the Scanner Appliance interface followed by other informational messages during the boot process which takes approximately two minutes. These messages appear in the order shown:

```
Welcome to Qualys
Qualys Scanner is starting up...
Filesystem check in progress...
Qualys Scanner is coming up...
```

4 Once the Scanner Appliance makes a successful connection to the Qualys Cloud Platform you'll see the activation code message.

`ACTIVATION CODE` — The activation code for the Scanner Appliance is displayed. A unique code is assigned to each Appliance. Make a note of the activation code and then go to enter the activation code.

You might see an appliance configuration error instead. This will be reported if the Scanner Appliance did not make a successful connection to the Qualys Cloud Platform using its current network settings. The error must be resolved before you go to Step 3. Need help? See Troubleshooting.

Tip - If you've set up the Remote Console, it may be necessary to press the ENTER key on the VT100 terminal's keyboard to display the Remote Console interface.

Complete the Network Configuration

Enable the network configurations for the Scanner Appliance, as appropriate, in the order listed. One or more configurations may be required. Any error must be resolved before going to Step 3. Refer to Troubleshooting for help with resolving any errors.

Configuration Options	For information ...
A Static IP Address	See "Configure Static IP Address" on page 29
B Proxy Support	See "Proxy Configuration" on page 33
C Split Network Configuration using DHCP	See "Enable DHCP on the WAN Interface" on page 39 and "Enable DHCP on the WAN Interface" on page 39
D Split Network Configuration using a Static IP Address	See "Enable DHCP on the WAN Interface" on page 39 and "Enable Static IP on the WAN Interface" on page 39

Use the options chart below to determine the configurations needed.

	DHCP w/o Proxy	Static IP w/o Proxy	DHCP with Proxy	Static IP with Proxy
Standard Config	no action	A	B	A & B
Split Netw. Config: DHCP on WAN	C	A & C	B & C	A, B, & C
Split Netw. Config: Static IP on WAN	D	A & D	B & D	A, B, & D

The Scanner Appliance supports VLAN interface configuration (802.1Q). For information, see Configure VLANs and Static Routes.

You may see an appliance configuration error one or two more times, depending on how many configurations are needed. For example, if the Scanner Appliance is installed on a network with DHCP and a Proxy server, and you want split network configuration with DHCP, you enable options B and C. After you enable option B, you'll see another error prompting you to make another configuration.

Step 3 - Activate the Scanner Appliance

You will need a Qualys user account with the role of Manager or Unit Manger. Check to be sure that you have your account information.

1   Open a browser and go to the platform URL where your account is located. Please refer to your registration email containing your platform URL and login credentials. A Manager or Unit Manager account is required.

2   On the Qualys **LOGIN** page, enter your user name (login) and password, and then click **LOGIN**. You are prompted to review and accept the licensing agreement when you log into your account for the first time. Your Qualys Home page appears upon successful login.

3   Select VM from the application picker.

4   Go to Scans > Appliances.

5   Select New > Scanner Appliance and enter the activation code for the appliance (as it appears in the **ACTIVATION CODE** screen in your Appliance's user interface. Note: The activation code is shown only when the Appliance has not been activated yet.

6   (Unit Manager only) From the Add To menu, select an asset group that you want to add the Scanner Appliance to. This will make the Appliance available to users in your business unit.

7   Click Activate. Then the Scanner Appliance attempts to log in to the Qualys Cloud Platform.

Note: It may take a few minutes for the Scanner Appliance activation to occur. If you prefer not to wait, complete the activation manually by restarting the Scanner Appliance. Just press the Down arrow until the **SYSTEM REBOOT** screen appears and then press ENTER. When **REALLY REBOOT SYSTEM?** appears press ENTER.

8   The **SCANNER APPLIANCE NAME–IP ADDRESS** message appears after the Scanner Appliance makes a successful login to the Qualys Cloud Platform. Do you see another message instead? See Troubleshooting and we'll help you with this.

That's all there is to it!

You are ready to start scanning with your Qualys Scanner Appliance! You'll see the Scanner Appliance name and IP address in the interface (LCD or Remote Console), this indicates you have completed the Quick Start, the Scanner Appliance has been added to your subscription.

Tip - Before you launch scans using the Scanner Appliance, we recommend you log into the Qualys user interface and check the Appliance status on the appliances list.

Scanner Appliance Name and IP Address

The Scanner Appliance name and IP address appear as shown below.

Appliance Name *IP Address*	is_qualys_ez 194.55.109.12
Format	**Sample**
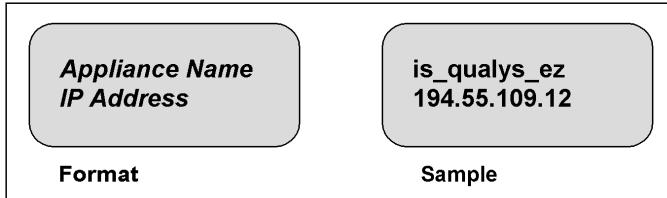
The Scanner Appliance name displayed is "is_*username*", where *username* is your Qualys user name. The name can be changed using the Qualys user interface.

The IP address is available for information purposes only. The Scanner Appliance is remote controlled by the Qualys Cloud Platform, and the Appliance does not allow incoming logins or connections from the network. If split network configuration is enabled, the IP address for the LAN interface is displayed.

The Qualys Cloud Platform indicator for your account appears in the lower right corner.

Proper Shutdown

Just go to the LCD display on the front panel. Press the down arrow until **SYSTEM SHUTDOWN** appears, and then press **ENTER**. When you see **REALLY SHUTDOWN SYSTEM?** press **ENTER**. You'll notice the Scanner Appliance lights and LEDs are turned off. Then you can safely disconnect the power supply.

Don't want to use the LCD interface? No problem, you can press the power button on the back panel instead.

We recommend one more thing

Check your Scanner Appliance status in Qualys portal. Go to Scans > Appliances and select your Appliance. You'll see details in the preview pane.

1) ⚡ tells you your Scanner Appliance is ready. Now you can start internal scans! Next to the status you'll see the busy icon is greyed out until you launch a scan, then it looks like this ⟳.

You might also check out:

2) ▭ tells you that your Scanner Appliance is a Physical Appliance and ☁ means it's a Virtual Appliance.

3) Latest software versions - these are installed automatically as part of the activation.

4) The available capacity will be 100% until you launch a scan. You can come back and check on this at any time.

Scanner Appliance Tour

This section gives you a tour of the Qualys Scanner Appliance, its features, basic operation and configuration options.

A Quick Look at the Appliance

Front Panel

You'll see **Welcome to Qualys** in the LCD display when you connect the Appliance to the network for the first time. After you've successfully completed the Quick Start steps for your Scanner Appliance, you'll see the Scanner Appliance name and IP address.

Use the keypad to enter information and respond to prompts.

- Left and Right arrow buttons move the cursor to left/right in an entry field.
- Up and Down arrow buttons scroll through menu options, and scroll through characters in an entry field.
- ENTER button, in the center, is used to confirm entries and move to the next screen.

Tell me about the LEDs.

- S1 tells you a Qualys scan is in progress on the Scanner Appliance.
- S2 tells you a software update to the Scanner Appliance is in progress.
- S3 is not used.

Back Panel

The Appliance's back panel includes: the power socket, the Ethernet LAN port, the Ethernet WAN port, two USB 2.0 ports and two USB 3.0 ports.

Power socket - Use to connect the power connector to the Appliance.

Power button - Use to power on the Appliance. A green light indicates the Appliance is turned on.

LAN/WAN ports - Use to connect the Appliance to a hub or switch on your network using a straight through CAT6 twisted pair Ethernet cable. The LAN port is required. The WAN port is only required if you choose the split network configuration option.

USB ports - Connect a USB-to-RS232 converter cable to a USB port if you want to use the optional Remote Console interface (any port may be used).

Appliance UI

The Scanner Appliance has a user interface for configuration and management. You can choose to use the LCD display and keypad on the front panel, or the optional Remote Console interface. Both the LCD display and Remote Console offer the same functionality and share the same menus and navigation (ENTER key and arrows) for a consistent user experience.

The Remote Console interface supports remote configuration and management of the Scanner Appliance using a VT100 terminal, such as Windows HyperTerminal. See Remote Console Interface Set Up (optional).

Navigating the Appliance UI

Main Menu

To access the Scanner Appliance main menu, press ENTER when the Scanner Appliance name and IP address are displayed. The first menu option displayed is **SETUP NETWORK**.
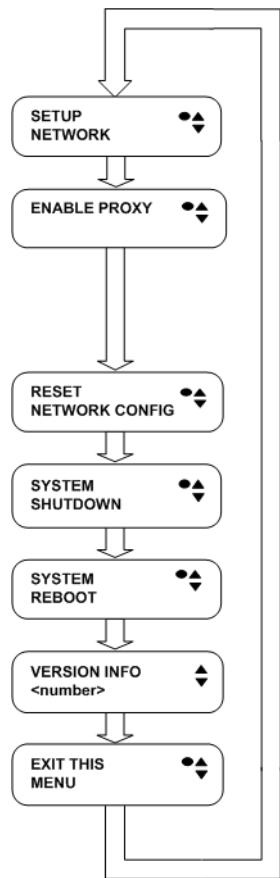
Figure 2-1. Scanner Appliance Main Menu

To move up through the menu options, press the Up arrow. To move down through the menu options, press the Down arrow. To select an option, press ENTER. To exit the main menu, press the down arrow button until the **EXIT THIS MENU** option appears, and then press ENTER.

Navigation Indicators

Each Scanner Appliance screen displays one or more indicators in the top right corner, indicating the navigation options available from the current screen.

LCD Button	Remote Console Key	Description
●	ENTER	Confirm a selection. After you press ENTER, another screen appears.
▶	RIGHT	Move the cursor to the right in an entry field.
◀	LEFT	Move the cursor to the left in an entry field.
▲	UP	Used to: — Increase the value in an entry field — Move up through menu options — Cancel a confirmation message
▼	DOWN	Used to: — Decrease the value in an entry field — Move down through menu options

Note these important guidelines for using buttons: 1) Press one button at a time, 2) Do not hold down an arrow button (except as noted in guideline 3), instead press the arrow multiple times, and 3) When entering a user name or password, you can hold down the Up and Down arrow buttons to scroll through characters quickly.

Entering Information

The Scanner Appliance user interface (LCD and Remote Console) allow users to enter information in the fields provided using arrow keys. The Left and Right arrows move the cursor to the left and right and the Up and Down arrows are used to scroll through characters. Some fields allow certain characters to be entered. The character restrictions are described below.

Up and Down Arrows

Using the LCD user interface use the Up and Down arrows to enter characters in a field. Using the Remote Console interface you have the option to use the Up and Down arrows or to use your keyboard to enter characters.

In numeric entry fields, you press the Up and Down arrows to select a value between 0 and 9. When a numeric entry field is first displayed, a default value appears.

In text entry fields where you enter a user name and password, you press the Up and Down arrows to select a character (numeric, alphabetic, space, underscore or special character). In these fields, you can hold the Up arrow or the Down arrow to scroll through the available characters. When a text entry field is first displayed, the text entry field is blank (filled with spaces).

Scrolling through Characters

Some fields allow you to select characters. Press the Up arrow to scroll through characters in ascending order. Starting from the space character, the characters appear in this order: lowercase letters (a to z), space, numbers (0 to 9), underscore, special characters (for Proxy user name and password only), uppercase letters (A to Z).
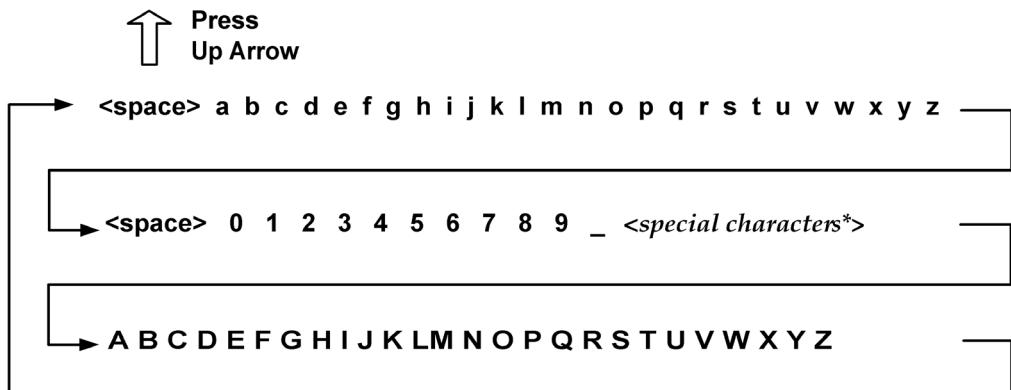
Figure 2-2. Scrolling characters in ascending order

Press the Down arrow to scroll through characters in descending order. Starting from the space character, the characters appear in this order: uppercase letters (Z to A), special characters (for Proxy user name and password only), underscore, numbers (9 to 0), space, lowercase letters (z to a).

**Press
Down Arrow**

<space> Z Y X W V U T S R Q P O N M L K J I H G F E D C B A

<special characters>* **_ 9 8 7 6 5 4 3 2 1 0 <space>**

z y x w v u t s r q p o n m l k j i h g f e d c b a
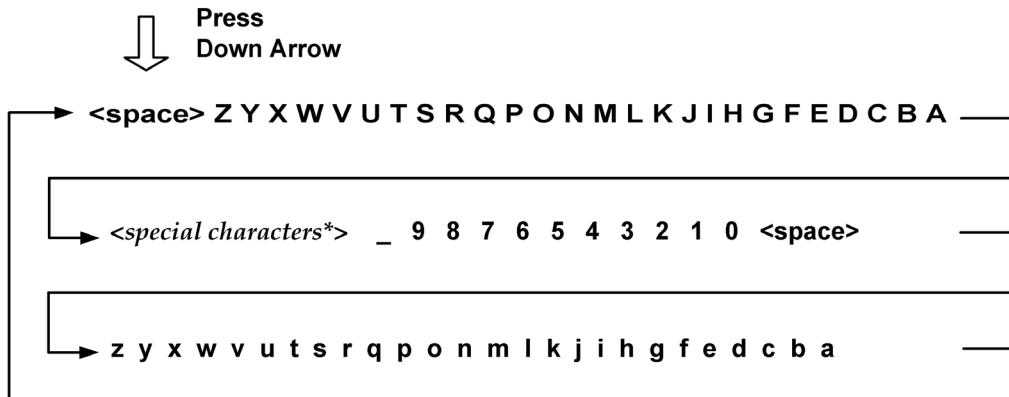
Figure 2-3. Scrolling characters in descending order

Space Character

When a text field entry contains fewer characters than the character positions on the interface screen, you must select the space character for the unused positions, before or after the field entry. Only the characters associated with the field entry and space characters may be included in a text field entry.

Embedded spaces are not permitted in text field entries.

The space character may be used to remove characters when editing text fields, except the Proxy password. To remove a character in an entry field using the LCD user interface, move the cursor on the character (using the Left and Right arrows), select the space character (using the Up and Down arrows) and then press ENTER. Any space characters entered appear in the interface screen until the next time you revisit the screen.

IP Addresses

Entry fields for IP addresses are pre-filled with values in this format: *nnn.nnn.nnn.nnn*

The IP address format displays values for each character position in all octets. When entering an IP address, you replace the three "n" digits for each octet as appropriate. If an octet has less than three digits, then the octet must include leading zeros. For example, to specify the IP address "194.55.176.2", you input the IP address as "194.055.176.002".

Windows Domain Name

The **WINS DOMAIN** field in the static IP address configuration allows you to enter the domain name (for example, mydomain.com). The domain name entry can have a maximum length of 32 characters. These characters are allowed: uppercase letters, numbers, underscore(_), and period (.).
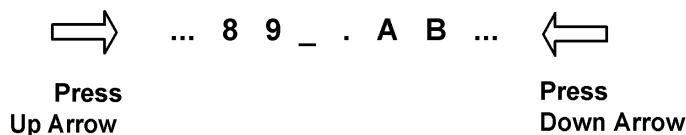
Figure 2-4. Special characters in the Windows domain field

The screen displays 16 characters of the **WINS DOMAIN** field entry and it scrolls left. For example, the first character of the domain name is hidden when the 17th character is entered. As each additional character is entered, the domain name scrolls left.

Tips - The space character may be used to remove characters when editing the domain name entry. There's a shortcut for clearing a domain name entry. Just press the Left arrow and Right arrow at the same time.

Proxy User Name

For the Proxy user name in the **PROXY USER** field you may enter a maximum of 32 characters including lower case letters, upper case letters, numbers, and underscore. These special characters can be used: underscore (_), dash (-), backslash (\), period (.), at sign (@).
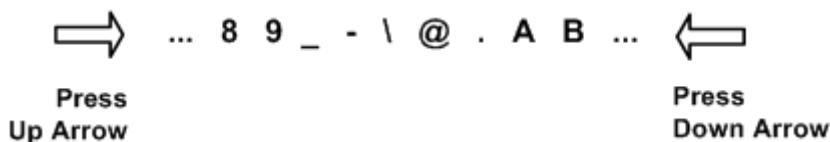
Figure 2-5. Special characters in the Proxy user field

The screen displays 16 characters of the **PROXY USER** field entry, and it scrolls left. For example, the first character of the Proxy user name is hidden when the 17th character is entered. As each additional character is entered, the Proxy user name scrolls left. The space character may be used to remove characters.

The format of a Proxy user entry is: "domain\user". If there is a backslash in the middle of the entry, the Appliance interprets the string before the backslash as the domain name. No double backslashes (\\) are needed in front of the "domain\user" format.

Proxy Password

The **PROXY PASSW** allows you to enter a maximum of 16 characters including lower case letters, upper case letters, numbers, and underscore. Many special characters are allowed. These characters are shown in ascending order in the table below. Using the LCD interface, to scroll through characters 1 to 30, press the Up arrow. To scroll through characters in descending order, press the Down arrow.

Special Characters in the PROXY PASSW field

Order (ascending)	Character	Name	Order (ascending)	Character	Name
1	_	underscore	16	+	plus
2	-	hyphen	17	=	equal
3	\	backslash	18	(	parenthesis left
4	/	slash	19	)	parenthesis right
5	|	bar	20	{	brace left
6	~	tilda	21	}	brace right
7	!	exclamation	22	[	bracket left
8	?	question	23	]	bracket right
9	@	at sign	24	<	less
10	#	number sign	25	>	greater
11	$	dollar	26	;	semicolon
12	%	percent	27	"	double quote
13	^	asciicircum	28	`	grave
14	&	ampersand	29	,	comma
15	*	asterisk	30	.	period

System Reboot and Shutdown

It is important to follow the proper system shutdown instructions described below. If you do not follow these instructions, file system corruption may occur.

How to reboot the system

1 With the Scanner Appliance name and IP address displayed, press ENTER.

2 When the **SETUP NETWORK** menu option appears, press the Down arrow to navigate through the menu options.

3 When the **SYSTEM REBOOT** menu option appears, press ENTER to select the option.

4 When the **REALLY REBOOT SYSTEM?** prompt appears, press ENTER to confirm.

Review the confirmation messages starting with **REBOOTING SYSTEM** message. The **SCANNER APPLIANCE NAME—IP ADDRESS** is displayed after the Scanner Appliance makes a successful connection to the Qualys Cloud Platform. This message indicates the Scanner Appliance is ready for scanning. If another message appears you need to activate the Scanner Appliance or troubleshoot the issue before scanning. See Troubleshooting for help with resolving any errors.

How to shutdown the system

You can power off the system using the shutdown button or using the Appliance UI.

Using the Appliance UI:

1 With the Scanner Appliance name and IP address displayed, press ENTER.

2 When the **SETUP NETWORK** menu option appears, press the Down arrow to navigate through the menu options.

3 When the **SYSTEM SHUTDOWN** menu option appears, press ENTER.

4 When the **REALLY SHUTDOWN SYSTEM?** prompt appears, press ENTER to confirm.

5 **Important!** The Scanner Appliance should now power down within 60 seconds. When this message appears: "It's now safe to unplug the box", then you can safely unplug the Scanner Appliance.

What happens after restart?

When you restart the Scanner Appliance, several messages appear during the startup process, as described below:

1   When the system is restarted, informational messages appear in the screen during the boot process. These messages appear in the order shown below:

```
Welcome to Qualys
Qualys Scanner is starting up...
Filesystem check in progress...
Qualys Scanner is coming up...
```

2   The Appliance attempts to connect to the Qualys Cloud Platform using its configuration. During this phase, these messages appear in the order shown below:

```
CONTACTING QUALYS
Filesystem check in progress...
CONTACTING QUALYS
```

3   The **SCANNER APPLIANCE NAME—IP ADDRESS** is displayed after the Scanner Appliance makes a successful connection to the Qualys Cloud Platform. This means your the Scanner Appliance is ready to start scanning. If another message appears you need to take some action before you can start scanning:

- **ACTIVATION CODE** — The Scanner Appliance needs to be activated. Refer to the Quick Start for instructions.

- Appliance configuratin error — An error prevented the Scanner Appliance from making a connection to the Qualys Cloud Platform. This issue must be resolved before scanning. See Troubleshooting for help with resolving the issue.

Configure VLANs and Static Routes

The Scanner Appliance supports VLAN trunking on the LAN interface for scanning traffic. VLAN trunking on the WAN interface is not supported. One VLAN interface (802.1Q) may be configured using the Scanner Appliance user interface (LCD and Remote Console). Up to 4094 VLANs and static routes can be defined using the Qualys web application.

How it works - The Scanner Appliance adds VLAN tag(s) to all scanning packets following the 802.1Q tagging protocol.

Configure VLAN using the Appliance UI

A VLAN that is defined using the Scanner Appliance UI is saved on the Appliance and can't be edited using the Qualys UI.

Important! After making configuration changes, be sure to complete the entire network configuration so that your Scanner Appliance makes a successful connection to the Qualys Cloud Platform.

Configure VLAN

To configure the Scanner Appliance with a default VLAN interface on the LAN interface, follow these steps:

1 Go to the **SETUP NETWORK** menu option and press ENTER to continue.

2 Press the Down arrow one time. When the **ENABLE VLAN ON LAN** menu option appears, press ENTER to continue.

3 When the prompt **VLAN 0-4094** appears, specify the VLAN ID. The value "0000" appears in the screen by default. Specify the VLAN ID, and then press ENTER to continue.

Change VLAN

A default VLAN that you've added using the Scanner Appliance user interface (LCD and Remote Console) can be changed at any time. To do this, select the **CHANGE VLAN ON LAN** menu option from the **SETUP NETWORK** menu. Then enter another VLAN ID and press ENTER.

Disable VLAN

To disable a default VLAN, select the **CHANGE VLAN ON LAN** menu option from the **SETUP NETWORK** menu. Then enter the VLAN ID "0000" and press ENTER. After the configuration is disabled the **ENABLE DHCP ON LAN** menu option appears on the Scanner Appliance interface.

Configure VLANs / Static Routes using the Qualys UI

Configuring VLANs and static routes is supported using the Qualys UI. Just go to the appliances list (Scans > Appliances) and edit the Appliance settings. The VLANs and static routes you add are saved with your account information on the Qualys Cloud Platform.

You can add up to 4094 VLANs to devices with a serial number over 29000 and up to 99 VLANs to devices with a serial number under 29000. Add up to 99 static routes.

Don't see these settings? The VLAN trunking feature must be turned on for your account. Please contact Support or your Technical Account Representative if you'd like us to turn it on for you.

Configure Static IP Address

If DHCP is not on your network, you must enable the Scanner Appliance with a static IP address using the **ENABLE STATIC IP ON LAN** menu option. One of these configurations is required.

Entry fields for IP addresses used in the static IP address configuration are pre-filled with three digits for all octets, and you must enter a value for each digit. For example, to specify the IP address "176.34.20.5", you input the IP address as "176.034.020.005". See IP Addresses for details.

Tell me the steps

When enabling a static IP address on the LAN interface, you must enter network configuration settings for the Scanner Appliance so that the Appliance can communicate with the Qualys Cloud Platform. Also, you have the option to enter some network settings for informational purposes.

To enable a static IP address on the LAN interface for the Scanner Appliance, follow these steps:

1 Go to the **SETUP NETWORK** menu option and press ENTER to continue.

2 Press the Down arrow until the **ENABLE STATIC IP ON LAN** menu option appears. Then press ENTER to continue.

3 When the **CFG LAN STATIC NETWORK PARAMS?** prompt appears, press ENTER to continue. Or press the Up arrow to quit this procedure and return to the **SETUP NETWORK** menu option.

Entering parameters

The Scanner Appliance user interface (LCD and Remote Console) allows users to enter information in the fields provided using the arrow keys. Use the Left and Right arrows to move the cursor to the left and right, and use the Up and Down arrows to scroll through characters. With the Remote Console interface, you have the option to enter characters using the VT100 terminal's keyboard.

1 When the **LAN IP ADDR** prompt appears, enter the static IP address, and then press ENTER to continue.

2 When the **LAN NETMASK** prompt appears, use the Up and Down arrows to scroll to the desired netmask value. For information about netmask values, see Tell me about LAN Netmask. After selecting a netmask value, press ENTER to continue.

3 When the **LAN GATEWAY** prompt appears, enter the gateway IP address, and then press ENTER to continue.

4   When the **LAN DNS1** prompt appears, enter the IP address for the primary DNS server, and then press ENTER to continue.

5   When the **LAN DNS2** prompt appears, enter the IP address for the secondary DNS server. This entry is optional. Press ENTER to continue.

6   Next are three optional network settings, used for informational purposes only. These Appliance settings are not used to access the internal network for scanning or the Qualys Cloud Platform for software updates. To skip these settings, press ENTER three times.

   –   When the **LAN WINS1** prompt appears, enter the IP address for the primary WINS server, if any. Press ENTER to continue.

   –   When the **LAN WINS2** prompt appears, enter the IP address for the secondary WINS server, if any. Press ENTER to continue.

   –   When the **DOMAIN NAME** prompt appears, enter the domain name for the DNS server (for example, mydomain.com). Press ENTER to continue.

7   When the **REALLY SET LAN STATIC NETWORK?** prompt appears, press ENTER to continue. Or press the Up arrow to quit this procedure and return to the **SETUP NETWORK** menu option.

8   Review the confirmation messages. The Scanner Appliance attempts to make a connection to the Qualys Cloud Platform using the new configuration. Upon success the **SCANNER APPLIANCE NAME–IP ADDRESS** message appears and the static IP address is enabled.

Confirm the configuration

When you see **SCANNER APPLIANCE NAME–IP ADDRESS** this means you are ready to start scanning. This message appears if the Scanner Appliance made a successful connection to the Qualys Cloud Platform using the new configuration.

An appliance configuration error appears if the Scanner Appliance failed to make a connection to the Qualys Cloud Platform. A error may occur because the static IP parameters you entered are incorrect, or they do not match the static IP configuration on your network. See Troubleshooting for help with resolving the issue.

Tell me about LAN Netmask

When entering static network parameters, you will notice that the cursor does not appear after the **LAN NETMASK** prompt and you cannot enter characters in the entry field. At first, the netmask "255.255.255.000" appears. Use the Up and Down arrows to scroll through valid netmasks. When the appropriate netmask value appears, press ENTER to confirm.

Possible netmask values are listed below. If you press the Down arrow, the values appear in this order: "255.255.255.000", "255.255.254.000", "255.255.252.000"… If you press the Up arrow, the values appear in this order: "255.255.255.000", "255.255.255.128", "255.255.255.192"…

Scrolling netmask values in the Netmask field

Prefix	Netmask value	Prefix	Netmask value
/24	255.255.255.000	/9	255.128.000.000
/23	255.255.254.000	/8	255.000.000.000
/22	255.255.252.000	/7	254.000.000.000
/21	255.255.248.000	/6	252.000.000.000
/20	255.255.240.000	/5	248.000.000.000
/19	255.255.224.000	/4	255.000.000.000
/18	255.255.192.000	/3	224.000.000.000
/17	255.255.128.000	/2	192.000.000.000
/16	255.255.000.000	/1	128.000.000.000
/15	255.254.000.000	/30	255.255.255.252
/14	255.252.000.000	/29	255.255.255.248
/13	255.248.000.000	/28	255.255.255.240
/12	255.240.000.000	/27	255.255.255.224
/11	255.224.000.000	/26	255.255.255.192
/10	255.192.000.000	/25	255.255.255.128

Interface - Enable Static IP on LAN

(*) One option may be enabled: **ENABLE VLAN ON LAN** or **ENABLE DHCP ON LAN**. After one option is enabled, the other option disappears from the **SETUP NETWORK** menu.
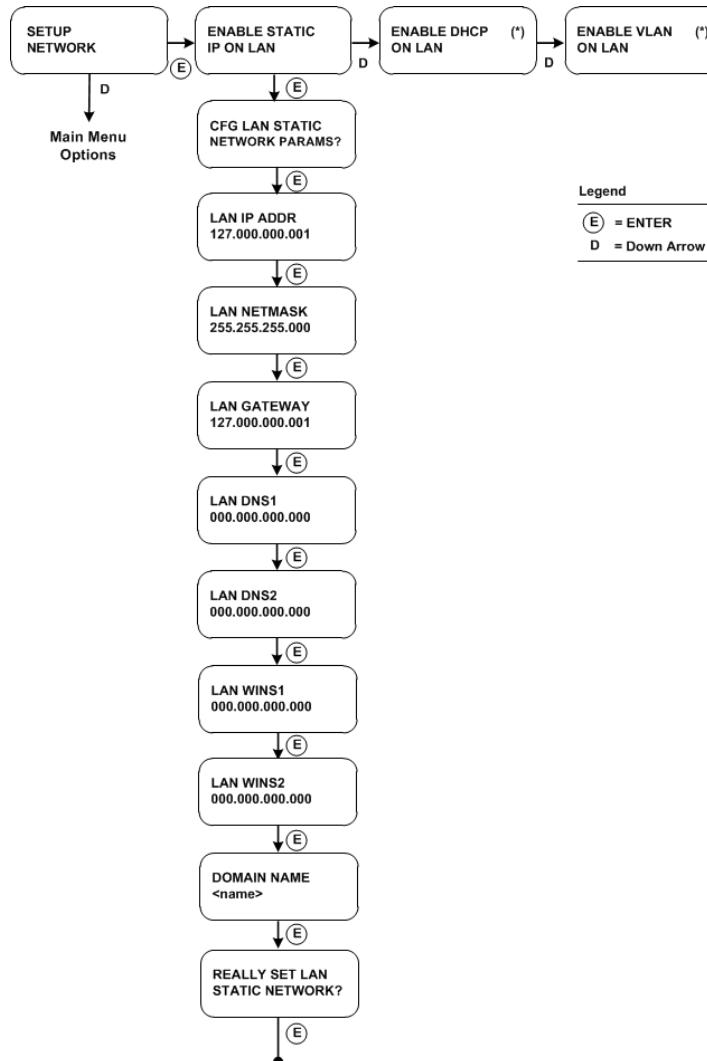

Figure 2-6. User Interface for Enable Static IP on LAN

We'll update menu options once you configure settings. Once you configure **ENABLE STATIC IP ON LAN** the option will change to **CHANGE STATIC IP ON LAN**. Once you configure **ENABLE DHCP ON LAN** the option will appear as **RENEW DHCP ON LAN**.

Configure IPv6 Address for Scanning

You have the option to configure the Scanner Appliance with an IPv6 address on the LAN interface - this will be used for scanning IPv6 hosts.

How it works - Once configured scanning traffic is routed through the LAN interface - LAN IPv4 for scanning IPv4 hosts, and LAN IPv6 for scanning IPv6 hosts. All management traffic (software updates, health checks, etc) is routed through the LAN IPv4 interface.

A few things to consider

- First go to the Appliance UI and complete the Quick Start. You must configure an IPv4 address on the LAN interface (using DHCP or a static IP).

- Be sure your Scanner Appliance has successfully connected to the Qualys Cloud Platform.

- The IPv6 Scanning feature must be enabled for your subscription.

Tell me the steps

1 Log in to the Qualys UI.

2 Go to Scans > Appliances and edit your Scanner Appliance. You'll see the Appliance wizard.

3 Under LAN settings select "Enable IPv6 for this scanner". You can choose "Automatically" and we'll do IP assignment through router advertisement, or choose "Static" and assign a static IP address.

   Don't see these settings? This means IPv6 Scanning is not turned on for your account. Please contact Support or your Technical Account Manager if you'd like us to turn it on for you.

4 Be sure to save the Appliance settings.

Proxy Configuration

If the Scanner Appliance is behind a Proxy server, you need to enable a Proxy configuration using the **ENABLE PROXY** menu option. Authentication (Basic or NTLM) of the Scanner Appliance connection to your Proxy server can be enabled by configuring the Proxy user and password fields.

The Scanner Appliance uses Secure Sockets Layer (SSL) protocol (HTTPS) to secure its connection to the Qualys web application, in a similar way that a web browser does to a secure web server. If the Qualys connection must pass through a Proxy server, then you must enable the Proxy option on the Scanner Appliance. This configuration re-directs Qualys outbound connections through the Proxy server.

Your Proxy server must be configured to tunnel or pass through the SSL session to the Qualys web application. This ensures a secured end-to-end connection. SSL bridging or tunnel termination must not be configured in your Proxy server when supporting the Scanner Appliance.

Tell me the steps

To configure the Scanner Appliance with Proxy support, follow these steps:

1 Go to the **SETUP NETWORK** menu option.

2 Press the Down arrow until the **ENABLE PROXY** menu option appears. Then press ENTER to continue.

3 When the **CONFIG PROXY PARAMETERS** prompt appears, press ENTER to continue. Or press the Up arrow two times to quit this procedure and return to the **SETUP NETWORK** menu option.

Entering parameters

Enter Proxy parameters using the Up and Down arrows to scroll through characters.

1 When the **PROXY HOST** prompt appears, enter the Proxy server's FQDN/IP address. The gateway IP address appears in the screen by default. Use the Scanner Appliance interface to enter an FQDN/IP address, and then press ENTER to continue.

IP addresses are allowed in dotted decimal format, e.g. 176.34.20.5

Supported characters for FQDN: Upper case letters, numbers, dot (.) and hyphen (-)

2 When the **PROXY PORT:** prompt appears, enter the port number assigned to the Proxy server. Port "0443" appears in the screen by default. Confirm that the port number shown is correct or enter a different one, if necessary. When the correct port number appears, press ENTER to continue.

Supported Characters: numbers only

3 When the **PROXY USER:** prompt appears, enter the user name for Proxy authentication. If authentication is not enabled at the Proxy level, leave the entry field blank. Press ENTER to continue.

Supported Characters: Lower case letters, upper case letters, numbers, and these special characters: _-\@. (including dot).

4 When the **PROXY PASSW** prompt appears, enter the password for Proxy authentication. If authentication is not enabled at the Proxy level, leave the entry field blank. Press ENTER to continue.

Supported Characters: Lower case letters, upper case letters, numbers, and these special characters: _-\/|~!?@#$%^&*+=(){}[]<>:;"`,. (including dot).

5   When the **REALLY ENABLE PROXY?** prompt appears, press ENTER to continue. Or press the Up arrow two times to quit this procedure and return to the **SETUP NETWORK** menu option.

6   Review the confirmation messages. The **ENABLING PROXY SUPPORT** message appears followed by other messages while the Scanner Appliance attempts to make a connection to the Qualys Cloud Platform using the new configuration.

Upon success the **SCANNER APPLIANCE NAME-IP ADDRESS** message appears and the configured proxy is now confirmed working and being used.

Interface - Enable Proxy

The Scanner Appliance user interface to enable Proxy support is shown below.
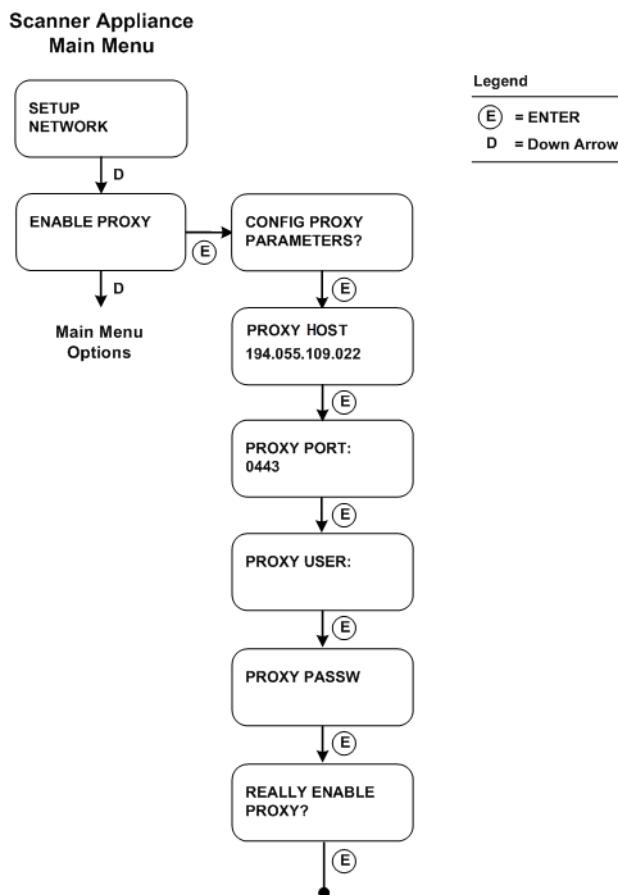
Figure 2-7. User Interface for Enable Proxy

Want to update proxy setting?

Once a Proxy configuration is enabled, the Proxy settings are stored on the Scanner Appliance. You can change or disable these settings at any time.

To change Proxy parameters, follow these steps:

1   Go to the **SETUP NETWORK** menu option.

2   Press the Down arrow until the **CHANGE PROXY PARAMS** menu option appears. Then press ENTER to continue.

3   Follow the prompts and messages in the Scanner Appliance interface to change the existing Proxy parameters. Existing parameters are displayed in each screen. Change and confirm each parameter. If a parameter has not changed, press ENTER to view the next parameter.

4   When the **REALLY ENABLE PROXY?** prompt appears, press ENTER to continue. Or press the Up arrow two times to quit this procedure and return to the **SETUP NETWORK** menu option.

5   Review the confirmation messages. The **ENABLING PROXY SUPPORT** message appears followed by others.

To disable Proxy parameters, follow these steps:

1   Go to the **SETUP NETWORK** menu option.

2   Press the Down arrow until the **DISABLE PROXY** menu option appears. Then press ENTER to continue.

3   When the **REALLY DISABLE PROXY?** prompt appears, press ENTER to continue. Or press the Up arrow two times to quit this procedure and return to the **SETUP NETWORK** menu option.

4   Review the confirmation messages.

Interface - Change Proxy Parameters
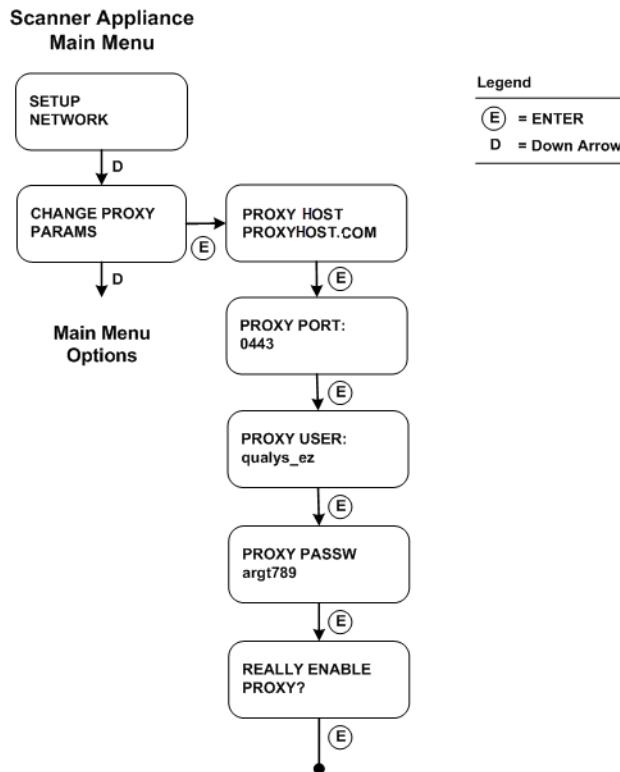
Figure 2-8. User Interface for Change Proxy Parameters

Confirm the configuration

When you see **SCANNER APPLIANCE NAME—IP ADDRESS** this means you are ready to start scanning. This message appears if the Scanner Appliance made a successful connection to the Qualys Cloud Platform using the new configuration.

The **USER LOGIN** prompt appears if the Scanner Appliance made a successful connection to the Qualys Cloud Platform, however the Appliance has not been activated. See Step 3 in the Quick Start and follow the instructions to activate the Scanner Appliance.

An appliance configuration error appears if the Scanner Appliance failed to make a connection to the Qualys Cloud Platform. An error may occur because the Proxy parameters you entered are incorrect, or they do not match the Proxy configuration on your network. See Troubleshooting for help with resolving this issue

Split Network Configuration

The Qualys Scanner Appliance provides two network traffic configurations: Standard and Split. The Standard configuration is enabled by default. You can choose to enable the Split network configuration. For a physical appliance, you'll do this using menu options on the `SETUP NETWORK` menu.

In the Standard network configuration, the LAN interface or LAN RJ45 Ethernet connector (for physical appliances) services scanning traffic and all management traffic (software updates, health checks, scan data upload) to the Qualys Cloud Platform over the Internet.
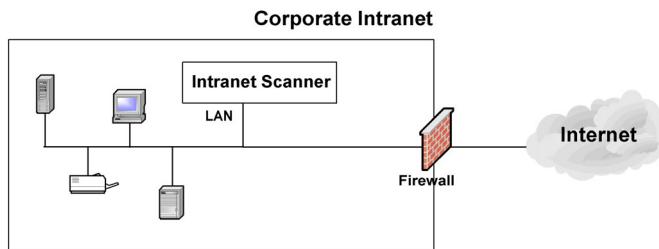
Figure 2-9. Standard network traffic configuration (default)

The Split network configuration allows users to split the scanning traffic from the management traffic. The WAN interface by default is only used to communicate with the Qualys Cloud Platform for Scanner Appliance management traffic like scan/map job pickup, scan/map data upload, software updates and health checks. The LAN interface is used for scanning traffic. This configuration enables customers to use Scanner Appliances to scan networks that do not have direct Internet access. Split network configuration also keeps scanned data and internal targets secure by isolating internal LAN traffic from Internet traffic by using the WAN interface. Once configured, no internal traffic is routed or bridged to the WAN interface and no management traffic is routed or bridged to the LAN interface.
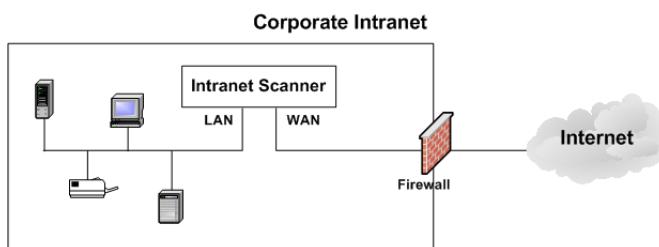
Figure 2-10. Split network traffic configuration

Note – LAN is expected to be used for all internal/scan traffic. In Split network configuration, WAN has special limited routes required for platform connections only. If WAN is needed to be used for scanning, then a static route is needed via WAN interface to the scan target host or network range.

The Scanner Appliance implements logical separation of scanning traffic and management traffic regardless of whether you configure the Standard or Split option.

A few things to consider

Please review these tips and best practices before you configure Split network configuration.

- Check to be sure that network connection to both the LAN and WAN interfaces have been set up properly.

- The Scanner Appliance must be configured with DHCP or a static IP address on the LAN interface first.

- Do not configure the LAN and WAN interfaces on the same subnet. This type of configuration is not supported.

Tell me the steps

Enable DHCP on the WAN Interface

To configure the WAN interface with DHCP, follow these steps:

1   Select **SETUP NETWORK**, press the Down arrow until the **ENABLE WAN INTERFACE** menu option appears. Then press ENTER to continue.

2   Go to the **ENABLE DHCP ON WAN** menu option and press ENTER to continue.

3   When the **REALLY ENABLE DHCP ON WAN?** prompt appears, press ENTER to continue. Or press the Up arrow two times to quit this procedure and return to the **SETUP NETWORK** menu option.

4   Review the confirmation message. When the **SCANNER APPLIANCE NAME-IP ADDRESS** appears you are ready to start scanning. If another message appears you need to complete the Quick Start or resolve the error indicated.

Enable Static IP on the WAN Interface

To configure the WAN interface with a static IP address, follow these steps:

1   Select **SETUP NETWORK**, press the Down arrow until the **ENABLE WAN INTERFACE** menu option appears. Then press ENTER to continue.

2   Go to the **ENABLE STATIC IP ON WAN** menu option and press ENTER to continue.

3 When the **CFG WAN STATIC NETWORK PARAMS?** prompt appears, press ENTER to continue. Or press the Up arrow to quit this procedure and return to the **SETUP NETWORK** menu option.

4 When the **WAN IP ADDR** prompt appears, enter the static IP address, and then press ENTER to continue.

5 When the **WAN NETMASK** prompt appears, use the Up and Down arrows to scroll to the desired netmask value. After selecting a netmask value, press ENTER to continue.

6 When the **WAN GATEWAY** prompt appears, enter the gateway IP address. Then press ENTER to continue.

7 When the **WAN DNS1** prompt appears, enter the IP address for the primary DNS. Then press ENTER to continue.

8 When the **WAN DNS2** prompt appears, enter the IP address for the secondary DNS. This entry is optional. Press ENTER to continue.

9 When the **REALLY SET WAN STATIC NETWORK?** prompt appears, press ENTER to continue. Or press the Up arrow to quit this procedure and return to the **SETUP NETWORK** menu option.

10 Review the confirmation message. When the **SCANNER APPLIANCE NAME—IP ADDRESS** message appears, you are ready to start scanning. If another message appears you need to complete the Quick Start or resolve the error indicated.

**Interface - Enable Static IP on WAN**
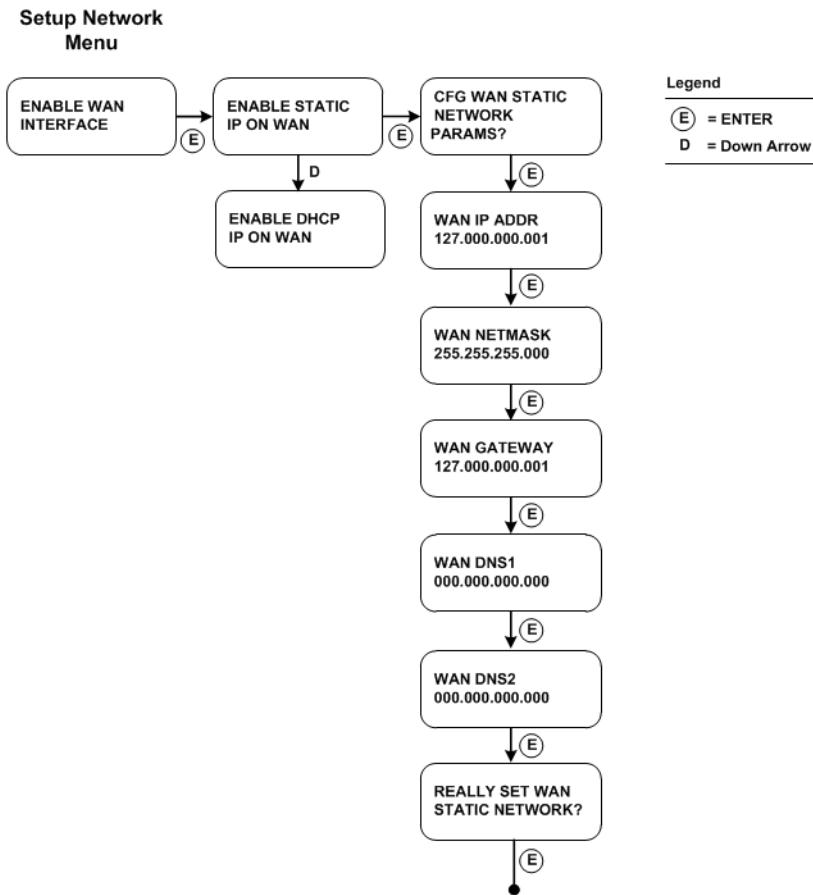
Figure 2-11. Enable Static IP Address on WAN Interface

We'll update menu options once you configure settings. Once you configure **ENABLE STATIC IP ON WAN** the option will change to **CHANGE STATIC IP ON WAN**. Once you configure **ENABLE DHCP ON WAN** the option will appear as **RENEW DHCP ON WAN**.

Ethernet Port Configuration

The Scanner Appliance uses Ethernet auto negotiation on scanning and management ports. Most network devices have auto negotiation enabled. Locked-down port policies with auto negotiation disabled, such as forcing speed, duplex, and link capabilities, are outdated. This is due to the maturity of the auto negotiation technology as well as the rate of adoption by product vendors and consumers over many years.

In the rare and unusual case where auto negotiation is disabled, Ethernet port configuration on the Scanner Appliance is necessary to ensure that link syncing occurs between the Scanner Appliance and its link partners. The Ethernet port links on the Appliance may be set to full-duplex 1GbaseT, 100baseT or 10baseT, or half-duplex 100baseT or 10baseT. The LAN and WAN port links (for split network configuration) may be set. The port link configuration on the Scanner Appliance must match the same configuration on the link partners. For example, if you have 100baseT full-duplex forced on devices, the same configuration must be enabled on the Appliance.

In the absence of auto negotiation, link syncing between link partners may not occur and the link may not come up. Consequently, the Scanner Appliance data transmission may be slow and there may be high packet loss, leading to unreliable scan results.

Tell me the steps

1   Select the **SETUP NETWORK** menu option

2   Press the Down arrow to advance through the menu options. When the **ETHERNET PORT SETTINGS** menu option appears, press ENTER.

3   The **LAN PORT LINK** option is displayed along with the LAN port link setting in effect. Press the Right arrow to advance through the available port link settings.

Tips - Use the Left arrow to advance through the settings in reverse order. To quit this procedure and return to **SETUP NETWORK**, press the Up arrow two times.

Setting	Description
AUTO	Auto negotiation
1GbaseT/Full	1GbaseT (1 gigabit) full-duplex data transmission
100baseT/Full	100baseT full-duplex data transmission
100baseT/Half	100baseT half-duplex data transmission
10baseT/Full	10baseT full-duplex data transmission
10baseT/Half	10baseT half-duplex data transmission

4   When the desired LAN port link setting is displayed, press ENTER to store the confirm the configuration setting.

5   When the **`REALLY SET LAN TO <value>`** prompt appears, press ENTER to store the configuration setting. Go to Step 9 unless WAN port configuration is necessary for split network configuration.

Split Network Configuration: When the Scanner Appliance has a split network configuration, you have the option to configure the WAN port link setting. To do this, follow the steps below.

6   Press the Down arrow one time. The **`WAN PORT LINK`** option is displayed along with the WAN port link setting in effect.

7   Press the Right arrow to advance through the available port link settings.

Tips - Use the Left arrow to advance through the settings in reverse order. To quit this procedure and return to **`SETUP NETWORK`**, press the Up arrow two times.

Setting	Description
AUTO	Auto negotiation
1GbaseT/Full	1GbaseT (1 gigabit) full-duplex data transmission
100baseT/Full	100baseT full-duplex data transmission
100baseT/Half	100baseT half-duplex data transmission
10baseT/Full	10baseT full-duplex data transmission
10baseT/Half	10baseT half-duplex data transmission

8   When the desired WAN port link setting is displayed, press ENTER to confirm the configuration setting.

9   When the **`REALLY SET WAN TO <value>`** prompt appears, press ENTER to store the configuration setting.

10   Return to **`SETUP NETWORK`**.

A change to an Ethernet port setting takes effect right away.

Reset the Network Configuration

You have the option to reset the network configuration to the factory default using the **RESET NETWORK CONFIG** menu option on the Scanner Appliance user interface. For example, you may wish to reset the network configuration for troubleshooting purposes when setting up the Scanner Appliance. This is useful if you need to quickly set up the Scanner Appliance in a different location.

Important! When you reset the network configuration the service resets the network settings to the factory default. Any existing network settings that were customized by the user are removed. These include settings entered using the Scanner Appliance interface such as static IP address, Proxy support, the WAN interface configuration, Ethernet port configuration, and user/password store. After the reset, you must manually re-enter any required network configuration settings using the Scanner Appliance interface and ensure that the Scanner Appliance can connect to the Qualys Cloud Platform. Without proper configuration, the Scanner Appliance cannot perform scans.

To reset the network configuration, follow these steps:

1 Go to the **SETUP NETWORK** menu option and press ENTER.

2 Press the Down arrow to advance through the menu options. When the **RESET NETWORK CONFIG** menu option appears, press ENTER.

3 When the **REALLY RESET NETWORK CONFIG?** prompt appears, press ENTER to continue. Or press the Up arrow to quit this procedure and return to the **SETUP NETWORK** menu.

4 Review the confirmation messages.

The Scanner Appliance attempts to connect to the Qualys Cloud Platform using the default network configuration (DHCP enabled, no VLAN configuration, no Proxy configuration, no split network configuration, and Ethernet auto negotiation enabled).

In a case where the Scanner Appliance network configuration was customized (not identical to the default configuration provided by Qualys) before the reset, further network configuration is necessary in order for the Scanner Appliance to connect to the Qualys Cloud Platform and perform scans. Need help? See the Quick Start.

Changing the Network Configuration

When the Scanner Appliance has successfully connected to the network, the Appliance stores the network configuration settings. These settings will appear as default parameters in the Scanner Appliance user interface. You can make updates to the network configuration at any time using the Scanner Appliance interface.

For example, to change from DHCP on the LAN interface to a static IP address on the LAN interface, go to the **SETUP NETWORK** menu option and then press ENTER. Press the Down arrow until the **ENABLE STATIC IP ON LAN** menu option appears. Follow the prompts and enter the static IP configuration.

Some network configuration settings have confirmation prompts. Be sure to confirm new configuration settings at these prompts. For example, if you are updating from DHCP on the LAN interface to a static IP on the LAN interface, enter the appropriate configuration settings following the prompts. At the **REALLY SET LAN STATIC NETWORK?** prompt, press ENTER to confirm the change.

Want to reset the network configuration to the factory default? See Reset the Network Configuration.

When a scan is in progress at the time of the configuration change, the scan task is cancelled and the message **CANCELING THE ONGOING SCAN** appears in the Scanner Appliance interface. This message is a reminder that a scan in progress will not complete, although partial scan results may be available. To avoid this situation check the "scan in progress" indicator (S1 LED) on the front panel prior to making changes to network settings.

An appliance configuration error indicates that the Scanner Appliance was not able to make a connection to the Qualys platform using the new appliance configuration. See Troubleshooting for help with resolving the issue.

Troubleshooting

This appendix describes troubleshooting techniques you can use to respond to errors and performance conditions when using the Scanner Appliance.

How can I test network connectivity?

Communication Failure message

Appliance Network Errors

Network Errors using older appliance model

Where can I find the model number and serial number?

How can I test network connectivity?

Use a Laptop. It is recommended that you test network connectivity to the Qualys Cloud Platform using your laptop (or other device):

1) Take the laptop to the location where the Scanner Appliance will be installed and connect the laptop to the network, using the same network cable and port that will be used for the Appliance.

2) Configure the laptop with the same network configuration that the Scanner Appliance will use (IP address, gateway, DNS server, etc.).

3) If the connection to the Qualys Cloud Platform must pass through a proxy server, configure the laptop's web browser with proxy information.

4) Open a browser and try to log into your Qualys account. You'll see the Qualys **Log In** page after a successful connection is made to the Qualys Cloud Platform.

Test DNS Name Resolution. You can test DNS name resolution from any machine connected to the same network as your Scanner Appliance. If DNS name resolution is working properly, server information is returned including the server name and IP address. (Note that "nslookup" is not available on all systems.)

Communication Failure message

You'll see a **COMMUNICATION FAILURE** message if there is a network communications breakdown between the Scanner Appliance and the Qualys Cloud Platform.

Why does it happen?

The communication failure may be due to one of these reasons: the network cable was unplugged from the Scanner Appliance, the local network goes down, or any of the network devices between the Scanner Appliance and the Qualys Cloud Platform goes down.

When does the message appear?

If there are no scans running on the Appliance - The next time the Appliance sends a polling request to the Qualys Cloud Platform, the polling request fails, and then the **COMMUNICATION FAILURE** message appears.

If there are scans running on the Appliance - The **COMMUNICATION FAILURE** message appears after the running scans time out. Usually the S1 LED turns off after the scans time out. If this message appears, it is recommended that you use the Qualys user interface to cancel any running scans and restart them to ensure that results are accurate.

How do I know the issue is resolved?

After the root cause is resolved, you'll see the **COMMUNICATION FAILURE** message until the next time the Appliance makes a successful polling request to the Qualys Cloud Platform. Then you'll see the Appliance's IP address - friendly name and you can start scanning using your Appliance.

Note - The **COMMUNICATION FAILURE** message may not disappear right away. There may be a lag time after the network is restored and before the Appliance is back online, depending on when the next polling request is scheduled. Additional time is necessary for communications to be processed by a Proxy server if the Appliance has a Proxy configuration.

Appliance Network Errors

An appliance network error indicates the Scanner Appliance attempted to connect to the Qualys Cloud Platform and failed.

Important! The Scanner Appliance is not functional until the error is resolved. Make sure to resolve the error.

Error	Solution
LAN/WAN Errors	
no CARRIER on LAN interface	This error appears when attempting to configure proxy or personalization while the LAN network cable/port is disconnected. Check that the LAN port is connected.
no CARRIER on WAN interface	This error appears when attempting to configure proxy or personalization while the WAN network cable/port is disconnected. Check that the WAN port is connected.
LAN has no IPv4 address	Check that the LAN cable/port is connected. If configuring LAN for DHCP-IP assignment, make sure the DHCP server is accessible and functional.
WAN has no IPv4 address	Check that the WAN cable/port is connected. If configuring WAN for DHCP-IP assignment, make sure the DHCP server is accessible and functional.
LAN has no DNS servers	Check that the LAN interface has valid DNS servers configured.
WAN has no DNS servers	Check that the WAN interface has valid DNS servers configured.
LAN DNS can't resolve QG URL	Ensure the LAN's configured DNS servers can resolve the Qualys Platform URL. See www.qualys.com/platform-identification/ for platform URLs.

Error	Solution
WAN DNS can't resolve QG URL	Ensure the WAN's configured DNS servers can resolve the Qualys Platform URL. See www.qualys.com/platform-identification/ for platform URLs.
Invalid LAN IP configuration	Ensure a valid IP address is assigned to the LAN interface.
Invalid WAN IP configuration	Ensure a valid IP address is assigned to the WAN interface.
LAN DNS can't resolve proxy	Ensure LAN DNS server(s) can resolve the scanner's configured proxy hostname.
WAN DNS can't resolve proxy	Ensure WAN DNS server(s) can resolve the scanner's configured proxy hostname.
LAN DHCP lease has no gateway	Ensure DHCP server is assigning a valid gateway for LAN interface.
WAN DHCP lease has no gateway	Ensure DHCP server is assigning a valid gateway for WAN interface.
Duplicate LAN and WAN config	LAN and WAN must be on different subnets.
LAN DNS server not reachable	Ensure LAN interface has network connectivity to its configured DNS servers.
WAN DNS server not reachable	Ensure WAN interface has network connectivity to its configured DNS servers.
LAN and WAN same gateway	LAN and WAN must be configured with different subnets and gateway addresses.
Duplicate IP detected	Ensure LAN/WAN is configured with an IP address that is not already in use by another host on the network.
Proxy Errors	
Invalid proxy IP	Ensure proxy configuration on the scanner is configured with a valid IP address for the proxy.
Invalid proxy auth config	Ensure proxy configuration on the scanner is configured with valid proxy username and password.
unexpected proxy HTTP/403	Ensure configured proxy user on the scanner has authorization to connect to the Qualys Platform.
unexpected proxy HTTP/407	Ensure the scanner is configured with valid proxy username and password.
unexpected proxy HTTP/503	Ensure the proxy server can connect to the Qualys Platform.

Error	Solution
Qualys Platform Connectivity Errors	
Error connect to server (07)	With Proxy Configuration: Ensure proxy configuration on the scanner is configured with valid host and port. Ensure the proxy port is accessible from the scanner's LAN or WAN interface. Without Proxy Configuration: Ensure the scanner's LAN (single-network) or WAN (split-network) interface can connect to the Qualys Platform and is not blocked by any firewall rules.
Timeout was reached (28)	With Proxy Configuration: Ensure the proxy can connect to the Qualys Platform within 30 seconds and is not blocked by any firewall rules. Without Proxy Configuration: Ensure the scanner's LAN (single-network) or WAN (split-network) interface can connect to the Qualys Platform within 30 seconds and is not blocked by any firewall rules.
Failed sending peer data (55)	With Proxy Configuration: Failure while sending network data to proxy. Ensure the scanner can communicate with the configured proxy server. Without Proxy Configuration: Failure while sending network data. Ensure the scanner's LAN (single-network) or WAN (split-network) interface can connect to the Qualys Platform and is not blocked by any firewall rules or network access control devices.
Failed receiving peer data (56)	With Proxy Configuration: Failure while receiving network data from proxy. Ensure the scanner can communicate with the configured proxy server. Without Proxy Configuration: Failure while receiving network data. Ensure the scanner's LAN (single-network) or WAN (split-network) interface can connect to the Qualys Platform and is not blocked by any firewall rules or network access control devices.
SSL peer cert was not OK	This issue may occur when there is a proxy or intercepting device interfering with the certificate exchange process between the scanner and Qualys Platform. Please contact Qualys Support.
Unexpected QG HTTP/401	Please report this error to Qualys Support and include all configuration details.
Unexpected QG HTTP/500	Please report this error to Qualys Support and include all configuration details.

Error	Solution
This scan_id does not exist	The scanner is not registered with Qualys. Please contact Qualys Support.
This Scanner is disabled	Please report this error to Qualys Support.
Account expired	Please report this error to Qualys Support.
Filesystem Mount Errors	
EFS fsck fatal errors	Please report this error to Qualys Support.
EFS mount fatal error	Please report this error to Qualys Support.

For more on troubleshooting, please visit Scanner Appliance Troubleshooting and FAQs.

Network Errors using older appliance model

Have an older appliance model? Errors are reported differently using older appliance models. You might want to check out our Quick Start Guide (prior version)

https://www.qualys.com/docs/qualys-scanner-appliance-quick-start-guide-3120-a1.pdf

Important! The Scanner Appliance is not functional until the error is resolved.

Please refer to the description provided to help you resolve the issue. If you still need help, please identify the error code when you contact Qualys Support.

Error	Description
E00 E01	Internal error (NTLM Proxy error)
E02	Internal error (Proxy error)
E03	Proxy configuration error
E04	No connectivity after the Proxy was disabled
E05	DNS lookup of the Qualys server failed (maybe network connectivity problem)
E06	Cannot reach the Qualys server via HTTPS
E07	Invalid LAN IP address or LAN gateway address
E08	Invalid WAN IP address or WAN gateway address
E09	LAN IP address or LAN gateway address cannot be 127.0.0.1
E10	Could not configure the LAN interface
E11	WAN IP address or WAN gateway address cannot be 127.0.0.1

Error	Description
E12	Could not configure the WAN interface
E13	DNS lookup of the Qualys server failed due to a network connectivity problem
E14	DNS lookup of the Qualys server failed during scanner activation due to a network connectivity problem

More general error codes may be overwritten by more specific ones. For example, the appliance may return the error code E04 (No connectivity after the Proxy was disabled). After trying to connect for a while, the error code may be overwritten by E13 (DNS lookup of the Qualys server failed). When troubleshooting the error, it's useful to be at the appliance to watch these error codes scroll by.

Where can I find the model number and serial number?

You'll find the model number and serial number for your scanner appliance on a sticker on the bottom of the appliance.
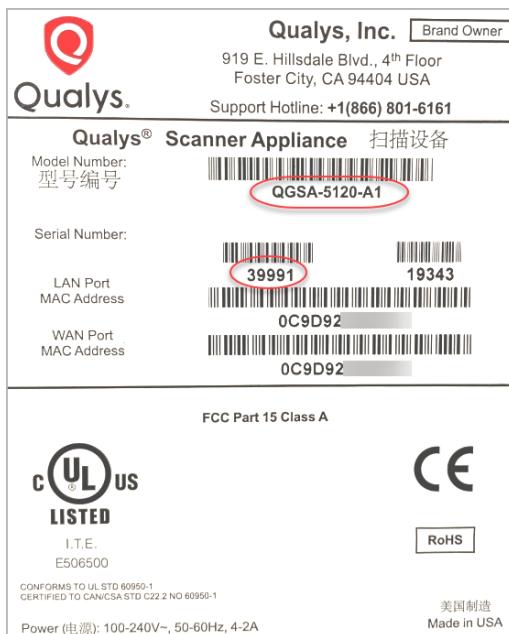
Troubleshooting
Where can I find the model number and serial number?

Appendix A - Product Specifications

Configuration	
CPU	Intel Xeon® Quad-Core 3.8GHz, 8MB Cache
Memory	16GB DDR4-2400
Storage	480GB, M.2 SSD
Ethernet	Two GbE ports
USB	Two USB 2.0 ports + two USB 3.0 ports
Power Input	100-240 VAC, 50-60Hz, 4A Single phase
Power Consumption	Max: 91W (310 BTU/hr); Typical: 80W (273 BTU/hr)
Dimension	1.73 (H) x 17 (W) x 14 (D) inches
Weight	11.40 lbs.
Environment	
Acoustic Noise	~45 dBA acoustic noise level at 23°C
Operating Conditions	0°C to 35°C, from 0 to 5,000 feet; 20% to 90% RH
Storage Conditions	-10°C to 70°C; 10% to 85% R.H. (non-condensing)
Operating Vibration	0.3 Grms, 10 to 500 Hz, 5 minutes per axis
In-Package Shock	In accordance with ISTA 2A
Regulatory	UL (conforms to UL 60950-1/CSA C22.2 No. 60950/EN 60950-1, 2nd ed.
EMC	FCC Part 15 Class A/ICES-003/EN 55032/EN 55024, CISPR 32
Environmental	RoHS
Other certifications	Per specific requirements

Appendix B - Software Credits

Portions of the software embedded in the Qualys Scanner Appliance were developed by third parties and are governed by the terms and conditions detailed in the following Qualys document

Qualys Scanner Appliance Software Credits
https://www.qualys.com/docs/qualys-software-credits-scanner-appliance.pdf

Appendix C - Safety Notices

Elevated Operating Ambient — The ambient temperature of an operating rack environment will be greater than the room's ambient temperature. The unit must be installed in a rack where its operating ambient temperature does not exceed the unit's maximum ambient temperature.

Reduced Air Flow — The unit must be installed in a rack which enables adequate air flow for the proper cooling of the unit.

Adequate Power — The rack must be set up to ensure that an appropriate level and amount of power is available to the unit. The overall connection of the rack equipment to the supply circuit and the effect that overloading the supply circuit might have on overcurrent protection and supply wiring should also be considered.

Reliable Grounding — Reliable grounding of rack equipment must be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

Mechanical Loading — The unit should be installed in a rack in a manner that does not create a hazardous condition due to uneven mechanical overloading.

Cautionary Notices

The socket-outlet shall be installed near the equipment and shall be easily accessible.

Le socle de prise de courant doit être installé à proximité du matériel et doit être aisément accessible.

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

ATTENTION: IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

WARNING

Hazardous moving parts
Keep away from moving fan blades