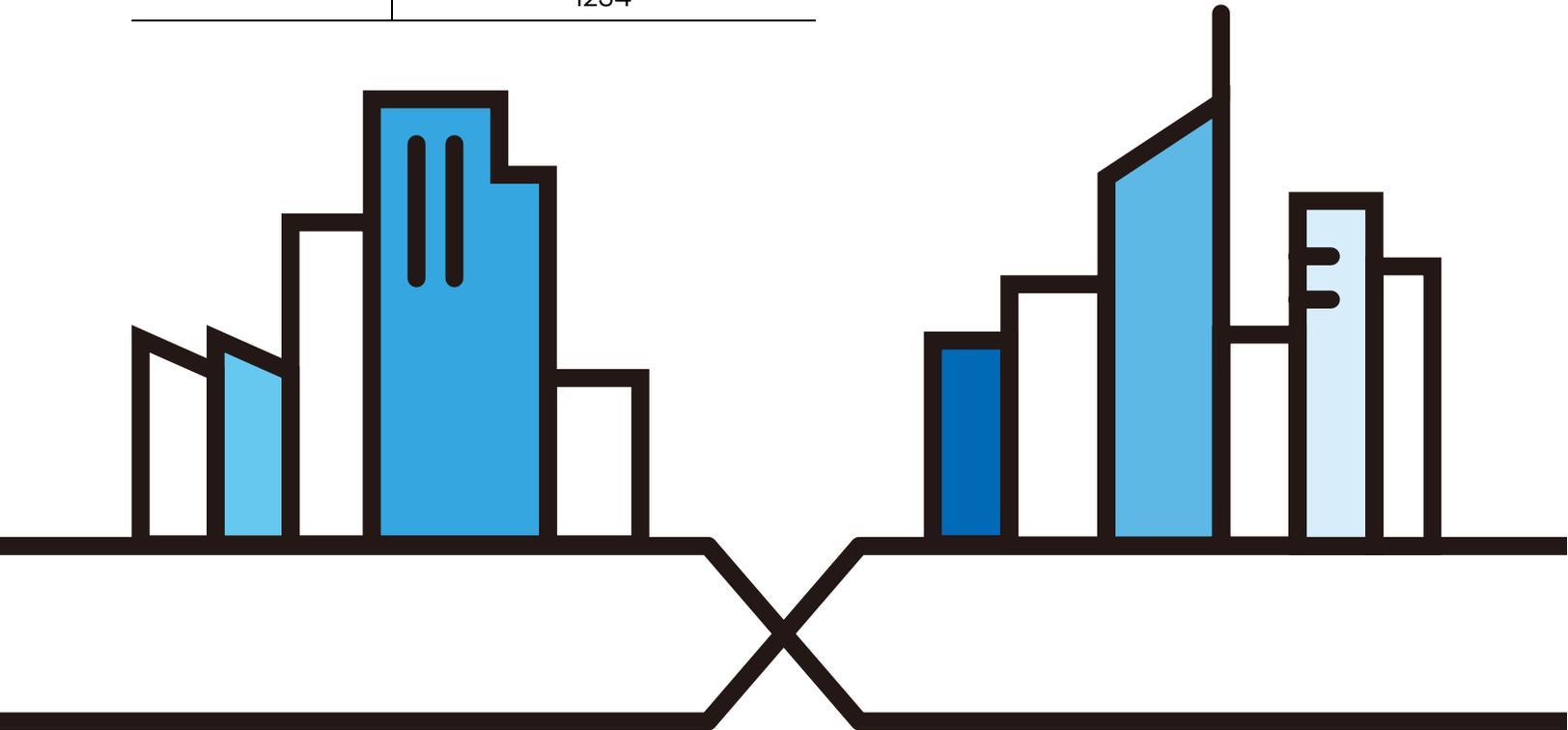# ZYXEL

Your Networking Ally

User's Guide

NSG Series

NSG50 / NSG100 / NSG200 / NSG300
Nebula Cloud-Management Security Gateway

Default Login Details	
LAN IP Address	https://(IP assigned by NCC) or https://192.168.1.1
User Name	admin
Password	Assigned by NCC or 1234

IMPORTANT!

READ CAREFULLY BEFORE USE.

KEEP THIS GUIDE FOR FUTURE REFERENCE.

This is a User's Guide for a series of products. Not all products support all firmware features. Screenshots and graphics in this book may differ slightly from your product due to differences in your product firmware or your computer operating system. Every effort has been made to ensure that the information in this manual is accurate.

Related Documentation

- Quick Start Guide

  The Quick Start Guide shows how to connect the NSG and access the Web Configurator.

- Web Configurator Online Help

  Click the help icon in any screen for help in configuring that screen and supplementary information.

- Nebula Control Center (NCC) User's Guide

  This User's Guide shows how to manage the NSG devices remotely. Most features of these devices can be managed through Nebula Control Center.

  Go to https://nebula.zyxel.com or support.zyxel.com to get this User's Guide on how to configure the Switch using Nebula.

- More Information

  Go to https://businessforum.zyxel.com for product discussions.

  Go to **support.zyxel.com** to find other information on the NSG.

Document Conventions

Warnings and Notes

These are how warnings and notes are shown in this guide.

Warnings tell you about things that could harm you or your device.

Note: Notes tell you other important information (for example, other things you may need to configure or helpful tips) or recommendations.

Syntax Conventions

- All models in this series may be referred to as the "NSG" in this guide.
- Product labels, screen names, field labels and field choices are all in **bold** font.

A right angle bracket (>) within a screen name denotes a mouse click. For example, **Maintenance > Diagnostics > Files** means you first click **Maintenance** in the navigation panel, then the **Diagnostics** sub menu, and finally **Files** to get to that screen.

Icons Used in Figures

Figures in this user guide may use the following generic icons. The NSG icon is not an exact representation of your device.
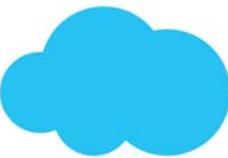
NSG	NAP	NSW
Router	WiFi	Server
Internet	Network Cloud	Laptop
Desktop Computer		

Table of Contents

CHAPTER 1
Introduction

1.1 Product Overview

This chapter introduces the main features and applications of the NSG. The NSG Series consists of the following models:

- NSG50
- NSG100
- NSG200
- NSG300

The NSG (Nebula Security Gateway) comes with one or two USB ports for storing packet capture files and/or diagnostic information in the connected USB storage devices.

The following is a hardware comparison table.

Table 1   The NSG Series Comparison Table

MODEL	NSG50	NSG100	NSG200	NSG300
Total Port Number	6	6	7	8
10/100/1000 Mbps Ethernet Ports (WAN/LAN)	5 (WAN: P2 LAN: P3-P6)	6 (WAN: P1-P2 LAN: P3-P6)	7 (WAN: P1-P2 LAN: P3-P7)	8 (WAN: P1-P2 LAN: P3-P8)
SFP Port	1 (P1)	-	-	-
USB Ports	1	2	2	2
Rack-mount	-	V	V	V
Wall-mount	V	-	-	-

Note: See the Quick Start Guide for how to mount the NSG on a wall or on a standard EIA rack.

1.2 Management

Use the Nebula Control Center (NCC)

The NSG is managed and provisioned automatically by the Nebula Control Center (NCC) when it is connected to the Internet and registered to a site and organization. Register the NSG by entering its MAC address and serial number. The serial number and MAC address can be found in the **Status** screen or the NSG's back.

If the NSG is registered to a site in the NCC and its firmware is not up-to-date, the NSG firmware will be upgraded according to the device-specific schedule or the site-wide schedule configured in the NCC.

Go to the NCC to configure the following settings:

- VPN
- Firewall
- IDP (Intrusion Detection and Protection)
- Content filtering
- Anti-virus
- Application patrol
- Bandwidth management
- NAT
- Port forwarding
- Policy routing
- DHCP server

Use the Web Configurator

This User's Guide shows you how to use the web configurator.

Access the NSG's built-in Web Configurator to:

- Check the Internet connection if the NSG can't be managed by the NCC
- Check the system status
- Configure WAN connection settings

- Collect diagnostic information

Note: The configuration settings of the NSG will be overwritten with what you have configured in the NCC.

The NSG's default static IP address is 192.168.1.1, but you need to use the console port or check the NCC's **Gateway > Configure > Interface addressing** screen for the NSG's current LAN IP address when the NSG is being managed or has been managed by the NCC.

See the Quick Start Guide for how to make hardware connections.

1.3 Ways to Manages the NSG

You can manage the NSG in the following ways.

NCC (Nebula Control Center)

With the NCC, you can remotely manage and monitor the NSG through a cloud-based network management system. See the NCC User's Guide for detailed information about how to access the NCC and manage your NSG via the NCC.

Web Configurator

The built-in Web Configurator allows basic NSG setup and monitoring using an Internet browser. This User's Guide provides information about the Web Configurator.

Figure 1   Managing the NSG: Web Configurator
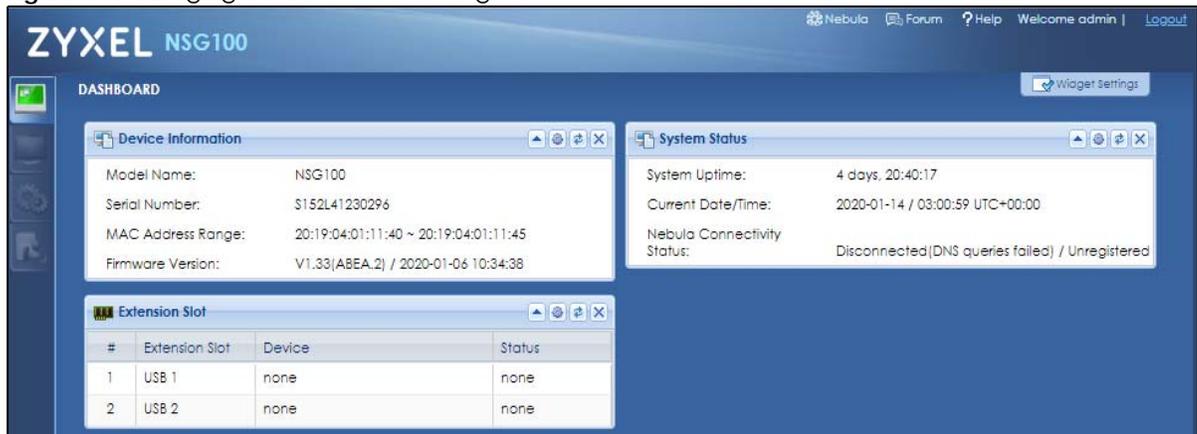
1.4 Good Habits for Managing the NSG

Do the following things to make the NSG more secure and to manage it more effectively.

- Change the NSG's system password through the NCC occasionally. Use a password that's not easy to guess and that consists of different types of characters, such as numbers and letters.

- Write down the password and put it in a safe place.

CHAPTER 2
Hardware Panels

This chapter describes the front panels and rear panels of the NSG and shows you how to make the hardware connections.

2.1 Front Panels

The figures below show the front panels of the NSG.

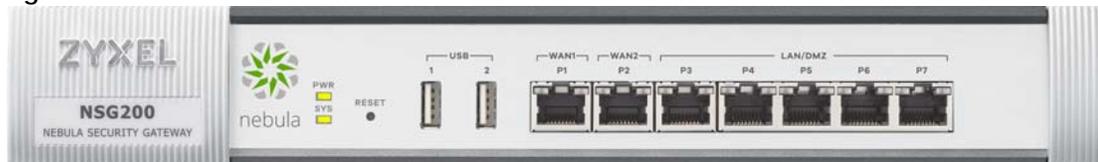**Figure 2** NSG50

Figure 3 NSG100

Figure 4 NSG200

Figure 5 NSG300

The following table describes the items on the front panels.

Table 2   Panel Ports and Buttons

LABEL	DESCRIPTION
Reset	Press the button to return the NSG to the factory defaults.
USB	Connect a USB storage device to the USB port to store the following: • Packet capture files • Diagnostic information • System logs

Table 2   Panel Ports and Buttons (continued)

LABEL	DESCRIPTION
WAN 1-2 P1-P2 (NSG100/ NSG200/ NSG300)	Connect an Ethernet cable to the Ethernet WAN port for Internet access.
LAN P3-P6 (NSG100) P3-P7 (NSG200) P3-P8 (NSG300)	Connect computers or other Ethernet devices to Ethernet ports for Internet access.
CONSOLE	Connect your computer to the **CONSOLE** port using an Ethernet or DB-9 cable to manage the NSG using CLI commands. You will be prompted to enter your user name and password.

2.1.1 LEDs (Lights)

The following are LED descriptions for the NSG series models.

Table 3   NSG50/100/200/300 LED Descriptions

LED	COLOR	STATUS	DESCRIPTION
PWR		Off	The NSG is turned off.
	Green	On	The NSG is turned on.
	Red	On	There is a hardware component failure. Shut down the device, wait for a few minutes and then restart the device. If the LED turns red again, then please contact your vendor.
SYS	Green	Off	The NSG is not ready or has failed.
		On	The NSG is ready and running.
		Blinking	The NSG is booting, connected to the NCC but not registered, or searching for (discovering) the NCC.
	Red	On	The NSG encountered an error or has failed.
P1, P2...	Green	Off	There is no traffic on this port.
		Blinking	The NSG is sending or receiving packets on this port.
	Orange	Off	There is no connection on this port.
		On	This port has a successful link.
USB	Green	Off	No device is connected to the NSG's USB port or the connected device is not supported by the NSG.
		On	A USB storage device is connected to the USB port.

2.2 Rear Panels

The figures below show the rear panels of the NSG.

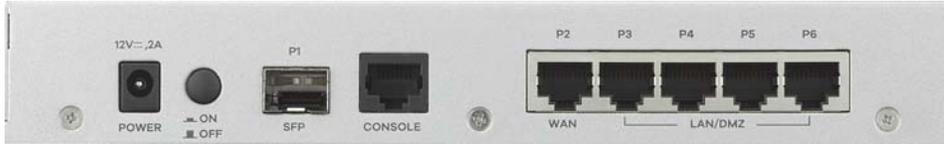**Figure 6** NSG50

Figure 7 NSG100

Figure 8 NSG200

Figure 9 NSG300

The following table describes the items on the rear panels.

Table 4   Panel Ports and Buttons

LABEL	DESCRIPTION
POWER	Connect the power cable and press the power button to start the NSG.
Power Button	Press the power button after the power cable is connected to start the NSG.
SFP P1/WAN 2 (NSG50)	This is an SFP (1G) port. These are compatible 1G transceiver modules (at the time of writing): • SFP-1000T • SFP-SX-D • SFP-LX-10-D • SFP-BX1310-10-D • SFP-BX1490-10-D • SFP-LHX1310-40-D • SFP-ZX-80-D
CONSOLE	Connect your computer to the **CONSOLE** port using an Ethernet or DB-9 cable to manage the NSG using CLI commands. You will be prompted to enter your user name and password.
P2/WAN 1 (NSG50)	Connect an Ethernet cable to the Ethernet WAN port for Internet access.
LAN P3-P6 (NSG50)	**LAN**: Connect computers or other Ethernet devices to Ethernet ports for Internet access.
Fan	The fans are for cooling the NSG. Make sure they are not obstructed to allow maximum ventilation.
Lock	Attach a lock-and-cable from the Kensington lock (the small, metal-reinforced, oval hole) to a permanent object, such as a pole, to secure the NSG in place.

CHAPTER 3
The Web Configurator

See Section 1.1 on page 6 to see when you need to use the Web Configurator.

In order to use the Web Configurator, you must:

- Use one of the following web browser versions or later: Internet Explorer 10.0 and later versions, Mozilla Firefox 36.0 and later versions, Safari 9.0 and later versions, or Google Chrome 38.0 and later versions
- Allow pop-up windows
- Enable JavaScripts, Java permissions, and cookies

The recommended screen resolution is 1024 x 768 pixels.

3.1 Web Configurator Access

1   Make sure your NSG hardware is properly connected. See the Quick Start Guide.

2   In your browser go to https://(IP assigned by NCC) or https://192.168.1.1. See Section 1.1 on page 6 for more information. By default, the NSG automatically routes this request to its HTTPS server, and it is recommended to keep this setting. The **Login** screen appears.


3   Type the user name (default: "admin") and password (default: "1234"). If the NSG is being managed or has been managed by the NCC, check the NCC's **Site-Wide** > **Configure** > **General setting** screen for the NSG's current password.

4   Click **Login**. After you log in for the first time using the default user name and password, you must change the default admin password in the **Update Admin Info** screen. Type a new password of up to 63 printable characters without spaces, then click **Apply**.

5 The **Login** screen appears after you click **Apply**.

3.2 Web Configurator Screens Overview

The Web Configurator screen is divided into these parts :
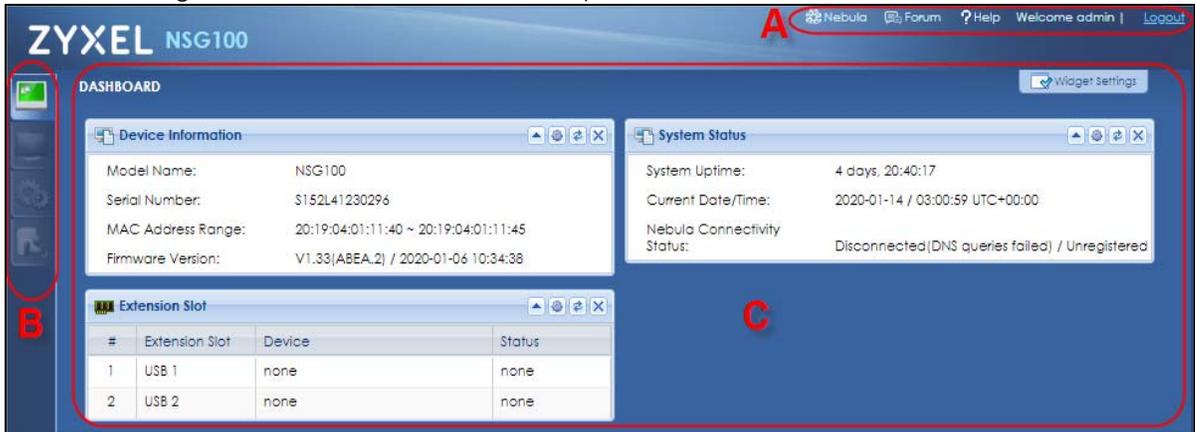
- **A** - title bar
- **B** - navigation panel
- **C** - main window

Title Bar

Figure 10 Title Bar

The title bar icons in the upper right corner provide the following functions.

Table 5   Title Bar: Web Configurator Icons

LABEL	DESCRIPTION
Nebula	Click this to go to the Nebula Control Center (NCC) login page.
Forum	Click this to open the business forum page for product discussions.

Table 5   Title Bar: Web Configurator Icons (continued)

LABEL	DESCRIPTION
Help	Click this to open the help page for the current screen.
Logout	Click this to log out of the Web Configurator.

Note: If you have a Nebula account, you can go to the Nebula page to check the information of your NSG, such as your logs.

Note: If you encounter problems, see Chapter 8 on page 40 or the screen's **Help** page. If problems continue, go to the **Forum** to see if the problem was discussed. If not, contact customer support.

3.2.1 Navigation Panel

Use the navigation panel menu items to open status and configuration screens. The following sections introduce the NSG's navigation panel menus and their screens.

Dashboard

The dashboard displays general device information, system status, and extension slot status in widgets that you can re-arrange to suit your needs. Extension slot shows whether there's a USB device connected to the NSG.

Monitor Menu

The monitor menu screens display status and information about the connected USB device.

Table 6   Monitor Menu Screens Summary

FOLDER OR LINK	TAB	FUNCTION
USB Storage	Storage Information	Displays details about a USB device connected to the NSG.

Configuration Menu

Use the configuration menu screens to configure the NSG's features.

Table 7   Configuration Menu Screens Summary

FOLDER OR LINK	TAB	FUNCTION
Interface	Ethernet	Manage Ethernet interfaces and virtual Ethernet interfaces.
SSH	SSH	Configure SSH server and SSH service settings.
User	User	Manage the user account "**admin**".
USB Storage	Settings	Configure the settings for a connected USB device.

Maintenance Menu

Use the maintenance menu screens to run diagnostics for troubleshooting, capture network traffic to identify network problems, and ping or traceroute an IP address.

Table 8   Maintenance Menu Screens Summary

FOLDER OR LINK	TAB	FUNCTION
Diagnostics	Diagnostics	Collect diagnostic information.
	Packet Capture	Capture packets for analysis.
	Network Tool	Identify problems with connections. You can use Ping or TraceRoute to help you identify problems.

3.2.2 Tables and Lists

Web Configurator tables and lists are flexible with several options for how to display their entries.

Click a column heading to sort the table's entries according to that column's criteria.

**Figure 11**   Sorting Table Entries by a Column's Criteria

Click the down arrow next to a column heading for more options about how to display the entries. The options available vary depending on the type of fields in the column. Here are some examples of what you can do:

• Sort in ascending or descending (reverse) alphabetical order
• Select which columns to display
• Group entries by field
• Show entries in groups
• Filter by mathematical operators (<, >, or =) or searching for text

Figure 12   Common Table Column Options
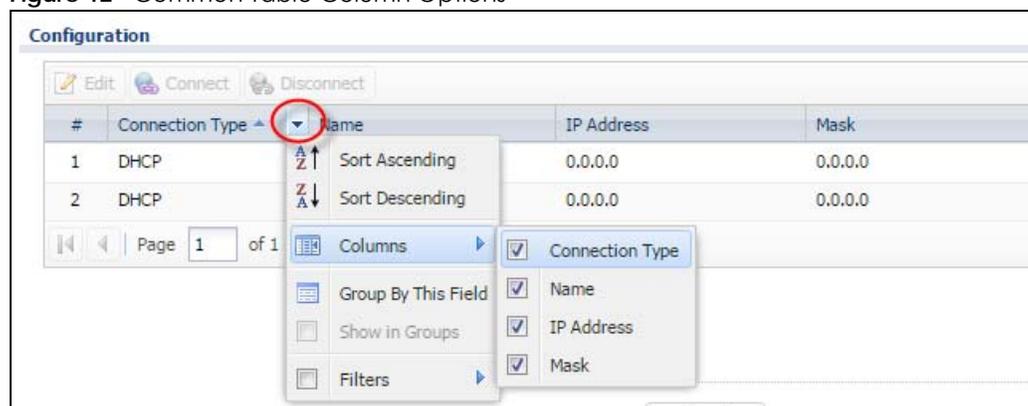
Select a column heading cell's right border and drag to re-size the column.

Figure 13 Resizing a Table Column

Select a column heading and drag and drop it to change the column order. A green check mark displays next to the column's title when you drag the column to a valid new location.
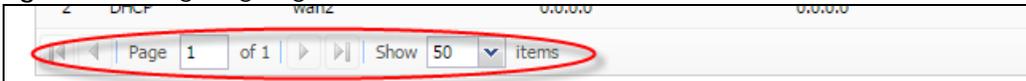
Figure 14 Moving Columns
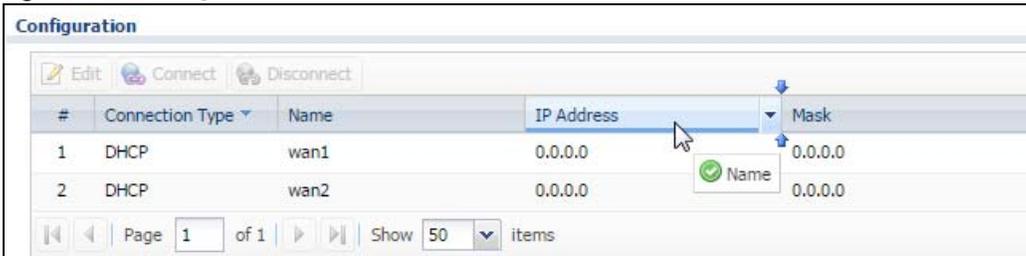
Use the icons and fields at the bottom of the table to navigate to different pages of entries and control how many entries display at a time.

Figure 15 Navigating Pages of Table Entries

The tables have icons for working with table entries. You can often use the [Shift] or [Ctrl] key to select multiple entries to remove, activate, or deactivate.

Figure 16 Table Icons

Working with Lists

When a list of available entries displays next to a list of selected entries, you can often just double-click an entry to move it from one list to the other. In some lists you can also use the [Shift] or [Ctrl] key to select multiple entries, and then use the arrow button to move them to the other list.

Figure 17   Working with Lists

CHAPTER 4
Dashboard

4.1 Overview

Use the **Dashboard** screens to check status information about the NSG.

4.1.1 What You Can Do in this Chapter

Use the main **Dashboard** screen to see the NSG's general device information, system status, and extension slot status. You can also display other status screens for more information.

4.2 Dashboard Screen

The **Dashboard** screen displays when you log into the NSG or click **Dashboard** in the navigation panel. The dashboard displays general device information, system status, and extension slot status in widgets that you can re-arrange to suit your needs. You can also collapse, refresh, and close individual widgets.

Figure 18 Dashboard
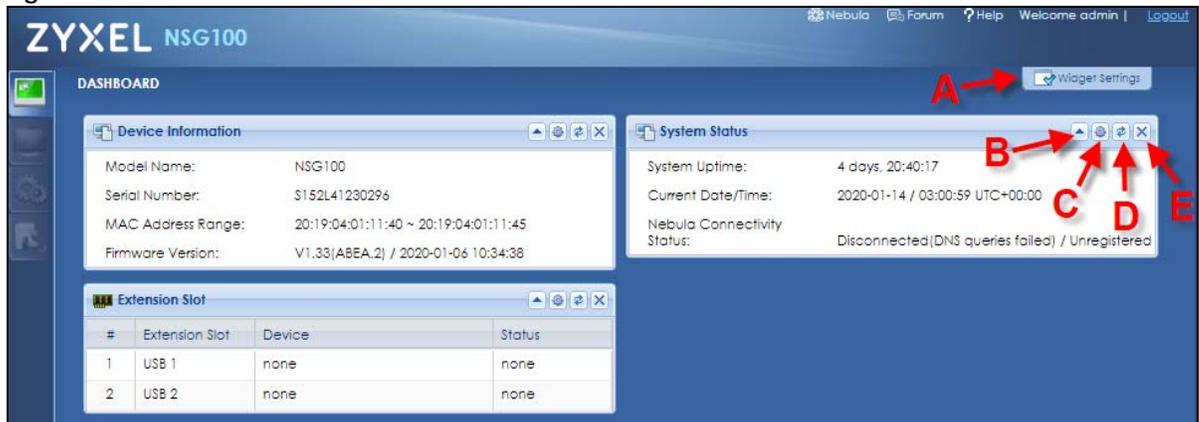
The following table describes the labels in this screen.

Table 9   Dashboard

LABEL	DESCRIPTION
Widget Settings (A)	Use this link to open or close widgets by selecting/clearing the associated checkbox.
Up Arrow (B)	Click this to collapse a widget. It then becomes a down arrow. Click it again to enlarge the widget again.
Refresh Time Setting (C)	Set the interval for refreshing the information displayed in the widget.
Refresh Now (D)	Click this to update the widget's information immediately.

Table 9   Dashboard (continued)

LABEL	DESCRIPTION
Close Widget (E)	Click this to close the widget. Use **Widget Settings** to re-open it.
Device Information	
Model Name	This field displays the model name of this NSG.
Serial Number	This field displays the serial number of this NSG. The serial number is used for device tracking and control.
MAC Address Range	This field displays the MAC addresses used by the NSG. Each physical port has one MAC address. The first MAC address is assigned to physical port 1, the second MAC address is assigned to physical port 2, and so on.
Firmware Version	This field displays the version number and date of the firmware the NSG is currently running.
System Status	
System Uptime	This field displays how long the NSG has been running since it last restarted or was turned on.
Current Date/Time	This field displays the current date and time in the NSG. The format is yyyy-mm-dd hh:mm:ss. Click on the link to see the **Date/Time** screen where you can make edits and changes to the date, time and time zone information.
Nebula Connectivity Status	This field displays whether the NSG is registered and can connect to the Zyxel Nebula Control Center (NCC) or the DNS queries status.
Extension Slot	
#	This field is a sequential value, and it is not associated with a specific entry.
Extension Slot	This field displays the name of each extension slot.
Device	This field displays the name of the device connected to the extension slot (or **none** if no device is detected). **USB Flash Drive** - Indicates a connected USB storage device and the drive's storage capacity.
Status	This field displays **none** if no device is detected. **Ready** - A USB storage device connected to the NSG is ready for the NSG to use. **Unused** - The NSG is unable to mount a USB storage device connected to the NSG.

CHAPTER 5
Monitor

5.1 Overview

Use the **Monitor** screens to check status and information about the connected USB device.

5.2 USB Storage Screen

This screen displays information about a connected USB storage device. Click **Monitor** > **USB Storage** to display this screen.

Figure 19 Monitor > USB Storage

The following table describes the labels in this screen.

Table 10   Monitor > USB Storage

LABEL	DESCRIPTION
Device Description	This is a basic description of the type of USB device.
Usage	This field displays how much of the USB storage device's capacity is currently being used out of its total capacity and what percentage that makes.
File System	This field displays what file system the USB storage device is formatted with. This field displays **Unknown** if the file system of the USB storage device is not supported by the NSG, such as NTFS. Use a USB storage device that supports the FAT16, FAT32, EXT2, or EXT3 file system.
Speed	This field displays the connection speed the USB storage device supports.

Table 10   Monitor > USB Storage (continued)

LABEL	DESCRIPTION
Status	**Ready** - you can have the NSG use the USB storage device. Click **Remove Now** to stop the NSG from using the USB storage device so you can remove it. **Unused** - the connected USB storage device was manually unmounted by using the **Remove Now** button or for some reason the NSG cannot mount it. Click **Use It** to have the NSG mount a connected USB storage device. This button is grayed out if the file system is not supported (unknown) by the NSG. **none** - no USB storage device is connected.
Detail	This field displays any other information the NSG retrieves from the USB storage device. • **Deactivated** - the use of a USB storage device is disabled (turned off) on the NSG. • **OutofSpace** - the available disk space is less than the disk space full threshold. • **Mounting** - the NSG is mounting the USB storage device. • **Removing** - the NSG is unmounting the USB storage device. • **none** - the USB device is not connected.

CHAPTER 6
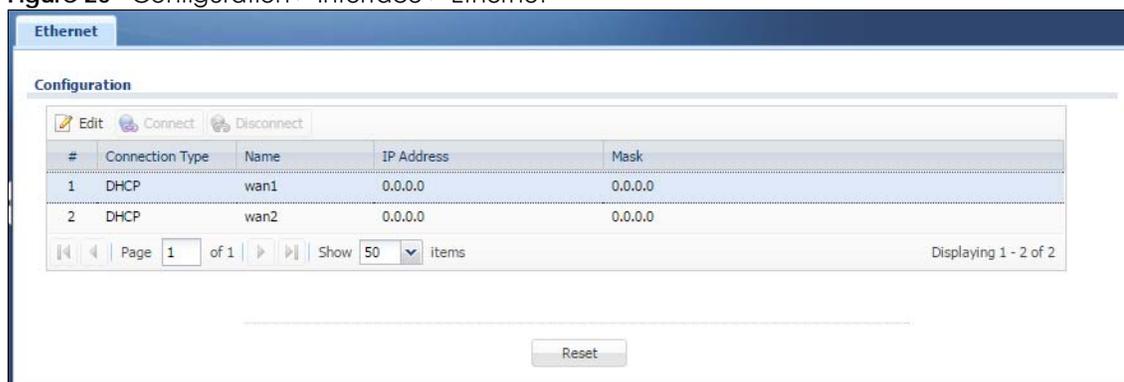# Configuration

6.1 Overview

Use the **Interface** screen to configure the NSG's WAN interfaces.

6.2 Ethernet

This screen lists the WAN Ethernet interfaces on the NSG. To access this screen, click **Configuration >
Interface > Ethernet**.

You cannot create new Ethernet interfaces nor can you delete any of them. Ethernet interfaces have
an IP address, subnet mask, and gateway used to make routing decisions.

Figure 20   Configuration > Interface > Ethernet

Each field is described in the following table.

Table 11   Configuration > Interface > Ethernet

LABEL	DESCRIPTION
Edit	Double-click an entry or select it and click **Edit** to open a screen where you can modify the entry's settings.
Connect	To connect an interface, select it and click **Connect**. You might use this in testing the interface or to manually establish the connection.
Disconnect	To disconnect an interface, select it and click **Disconnect**. You might use this in testing the interface.
#	This field is a sequential value, and it is not associated with any interface.
Connection Type	This field displays the connection type (**DHCP**, **Ethernet Fixed IP**, **PPPoE**) of the interface.
Name	This field displays the name of the interface.
IP Address	This field displays the current IP address of the interface. If the IP address is 0.0.0.0 (in the IPv4 network), the interface does not have an IP address yet.

Table 11   Configuration > Interface > Ethernet (continued)

| LABEL	DESCRIPTION
Mask	This field displays the interface's subnet mask in dot decimal notation.
Reset	Click **Reset** to return the screen to its last-saved settings.

6.2.1 Ethernet Edit

The **Ethernet Edit** screen lets you configure IP address assignment. To access this screen, select an interface and click its **Edit** icon in the **Ethernet** screen. (See Section 6.2 on page 23.)

The screen varies depending on the connection type (**DHCP**, **Ethernet Fixed IP**, **PPPoE**) you select.

Use VLAN

Create an external VLAN interface on the WAN port of your NSG if VLAN-tagged traffic is coming into the NSG.

Figure 21   Use VLAN Example
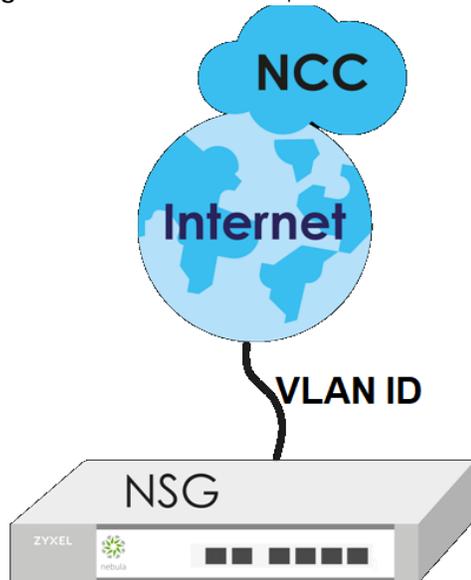
Incoming VLAN-tagged traffic must have the same VLAN ID you configure here to be forwarded through your NSG.

1   Select the Use VLAN check box.

2   Enter the VLAN ID of incoming VLAN-tagged traffic.

Please note the following:

• You can use the NCC to configure the NSG's internal VLAN interface on the LAN ports.

• The external VLAN ID (on the WAN port) cannot be the same as the internal VLAN ID (on the LAN ports). The NSG knows its internal VLAN ID, as the NCC gets WAN information from the NSG periodically, so a warning will be issued if there is a conflict.

- Configurations that use the new NSG VLAN interface, such as WAN, policy route, will be automatically updated.

DHCP

Select **DHCP** to set this interface to act as a DHCP client and automatically get the WAN IP address, subnet mask, gateway address and DNS server information from a DHCP server.

Figure 22   Configuration > Interface > Ethernet > Edit (DHCP)

Ethernet Fixed IP

Select **Ethernet Fixed IP** if your ISP assigned you a fixed IP address and DNS server information. Specify the IP address, subnet mask, gateway and DNS server address manually.

Figure 23   Configuration > Network > Interface > Ethernet > Edit (Ethernet Fixed IP)


PPPoE

Select **PPPoE** if the interface is connecting to the Internet using a dial-up connection with a user name and password. This way, you do not have to install or manage PPPoE software on each computer in the network.

- Select an authentication protocol for outgoing connection requests. Options are:
  - **CHAP/PAP** - Your NSG accepts either CHAP or PAP when requested by the remote node.
  - **CHAP** - Your NSG accepts CHAP only.
  - **PAP** - Your NSG accepts PAP only.
  - **MSCHAP** - Your NSG accepts MSCHAP only.
  - **MSCHAP-V2** - Your NSG accepts MSCHAP-V2 only.
- Enter the user name and password given to you by your ISP.
- Select **Nailed-Up** if you do not want the connection to time out.

Figure 24 Configuration > Network > Interface > Ethernet > Edit (PPPoE)
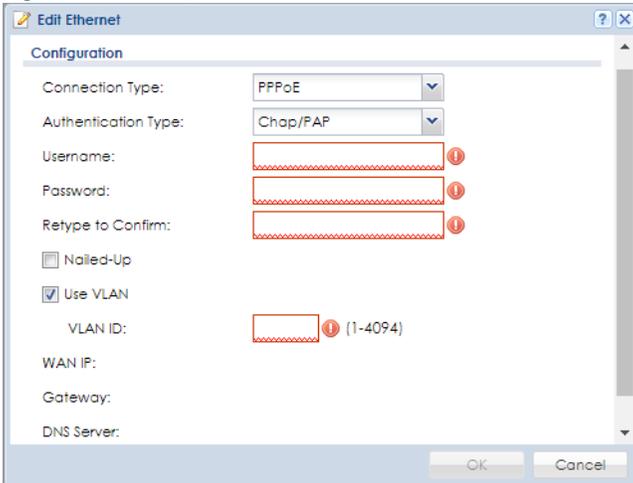
6.3 SSH

You can use SSH (Secure SHell) to securely access the NSG's command line interface. Specify which IP address are allowed to access the NSG.

SSH is a secure communication protocol that combines authentication and data encryption to provide secure encrypted communication between two hosts over an unsecured network. In the following figure, computer **A** on the Internet uses SSH to securely connect to the WAN port of the NSG for a management session.
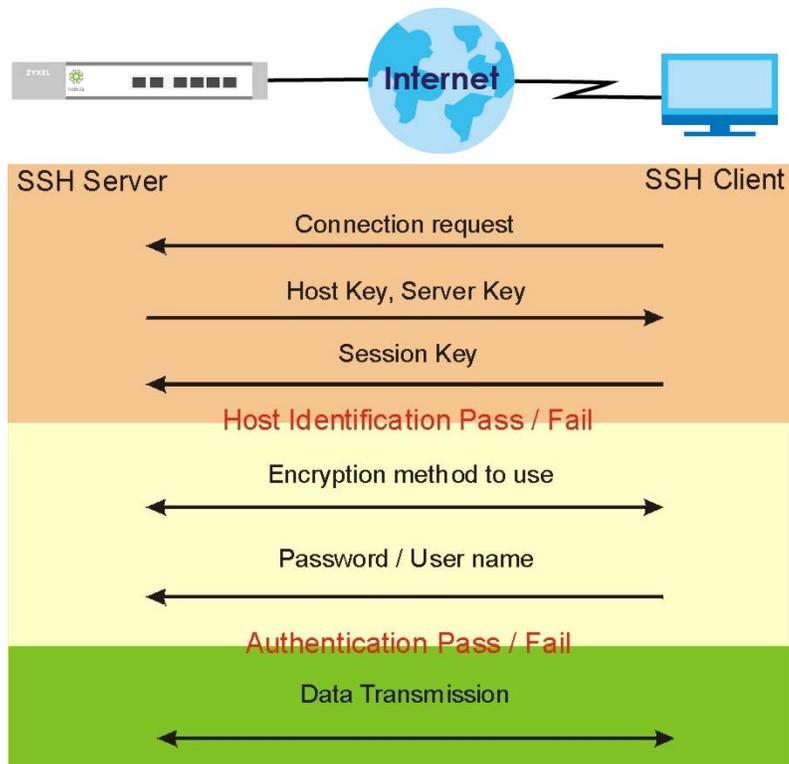
Figure 25 SSH Communication Over the WAN Example

6.3.1 How SSH Works

The following figure is an example of how a secure connection is established between two remote hosts using SSH v2.

Figure 26   How SSH v2 Works Example

1   Host Identification

The SSH client sends a connection request to the SSH server. The server identifies itself with a host key. The client encrypts a randomly generated session key with the host key and server key and sends the result back to the server.

The client automatically saves any new server public keys. In subsequent connections, the server public key is checked against the saved version on the client computer.

2   Encryption Method

Once the identification is verified, both the client and server must agree on the type of encryption method to use.

3   Authentication and Data Transmission

After the identification is verified and data encryption activated, a secure tunnel is established between the client and the server. The client then sends its authentication information (user name and password) to the server to log in to the server.

6.3.2 SSH Implementation on the NSG

Your NSG supports SSH version 2 using RSA authentication and four encryption methods (AES, 3DES, Archfour, and Blowfish). The SSH server is implemented on the NSG for management using port 22 (by default).
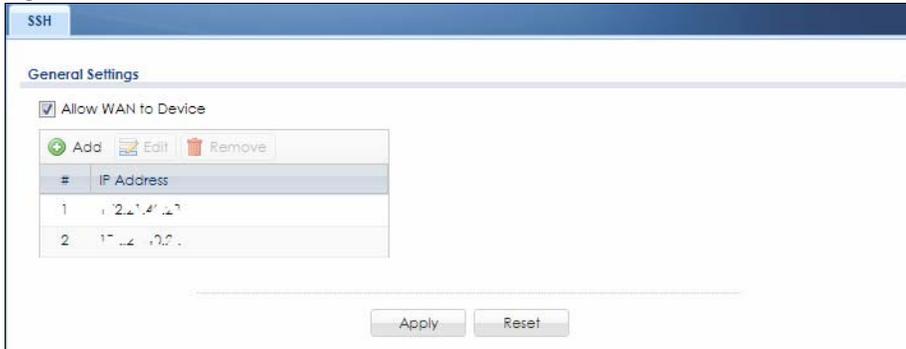
6.3.3 Requirements for Using SSH

You must install an SSH client program on the computer (Windows or Linux operating system) that is used to connect to the NSG over SSH.

6.3.4 Configuring SSH

Click **Configuration** > **SSH** to change your NSG's Secure Shell settings. Use this screen to specify which IP address are allowed to access the NSG using SSH.

Figure 27   Configuration > SSH

The following table describes the labels in this screen.

Table 12   Configuration > SSH

LABEL	DESCRIPTION
Allow WAN to Device	Select the check box to allow the computer with an IP address listed in the **Client IP Address** field to access the NSG CLI using SSH.
Client IP Address	Enter the IP address with which the computer is allowed to access. Note: Up to five IP addresses are allowed.
Apply	Click **Apply** to save your changes back to the NSG.
Reset	Click **Reset** to return the screen to its last-saved settings.

6.3.5 SSH Examples

This section shows two examples using a command interface and a graphical interface SSH client program to remotely access the NSG. The configuration and connection steps are similar for most SSH clients. Refer to your SSH client user's guide.

6.3.5.1 Example 1: Microsoft Windows

This section describes how to access the NSG using the Secure Shell Client program.

1   Launch the SSH client and specify the connection information (IP address, port number) for the NSG. You can also enter the command `ssh username@x.x.x.x` in the command line, where "x.x.x.x" is the NSG's WAN IP address. The default username is "admin".

2   A window displays prompting you to store the host key in you computer. Click **Yes** to continue.

Figure 28 SSH Example 1: Store Host Key

3 Enter the password to log in to the NSG. You can now enter CLI commands.

6.3.5.2 Example 2: Linux

This section describes how to access the NSG using the OpenSSH client program that comes with most Linux distributions.

1 Enter "`ssh x.x.x.x`", where "x.x.x.x" is the NSG's WAN IP address. If you are accessing the device remotely, use the remote IP address instead. If this is the first time you are connecting to the NSG using SSH, a message displays prompting you to save the host information of the NSG. Type "`yes`" and press [ENTER].

Then enter the password to log in to the NSG.

Figure 29 SSH Example 2: Log in

```
$ ssh <WAN IP address>
The authenticity of host '<WAN IP address> (<WAN IP address>)' can't be
established.
RSA1 key fingerprint is 21:6c:07:25:7e:f4:75:80:ec:af:bd:d4:3d:80:53:d1.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '<WAN IP address>' (RSA1) to the list of known
hosts.
Administrator@<WAN IP address>'s password:
```

2 You can now enter commands on the CLI.

6.4 User

Use this screen to change the password of the user account "**admin**". It is strongly recommended that you change your NSG's password. To access this screen, click **Configuration > User**.

Note: The NSG's login password is overwritten with what you configure in the NCC when the NSG is managed by the NCC.

Figure 30 Configuration > User

Each field is described in the following table.

Table 13   Configuration > User

LABEL	DESCRIPTION
Password	Type your new system password (up to 63 ASCII characters). Note that as you type a password, the screen displays a dot (.) for each character you type.
Retype	Retype your new password for confirmation.
Apply	Click **Apply** to save your changes back to the NSG.
Reset	Click **Reset** to return the screen to its last-saved settings.

6.5 USB Storage

The NSG can use a connected USB device to store packet capture files and diagnostic information. Use this screen to turn on this feature and set a disk full warning limit.

Note: Only connect one USB device. It must allow writing (it cannot be read-only) and use the FAT16, FAT32, EXT2, or EXT3 file system.

Click **Configuration** > **USB Storage** to open the screen as shown next.

Figure 31 Configuration > USB Storage

The following table describes the labels in this screen.

Table 14   Configuration > USB Storage

LABEL	DESCRIPTION
Activate USB storage service	Select this if you want to use the connected USB device(s).
Disk full warning when remaining space is less than	Set a number and select a unit (**MB** or **%**) to have the NSG send a warning message when the remaining USB storage space is less than the value you set here. If the USB storage device runs out of space, the NSG will stop storing the packet capture files and diagnostic information on the USB storage device.
Save traffic log data to USB storage	Select this to store traffic and system logs on the connected USB storage device.
Apply	Click **Apply** to save your changes back to the NSG.
Reset	Click **Reset** to return the screen to its last-saved settings.

CHAPTER 7
Maintenance

7.1 Diagnostics Overview

Use the diagnostics screens for troubleshooting.

7.2 Diagnostics Screen

The **Diagnostics** screen provides an easy way for you to generate a file containing the NSG's configuration and diagnostic information. You may need to send this file to customer support for troubleshooting.

Click **Maintenance** > **Diagnostics** to open the **Diagnostic** screen.

Figure 32   Maintenance > Diagnostics
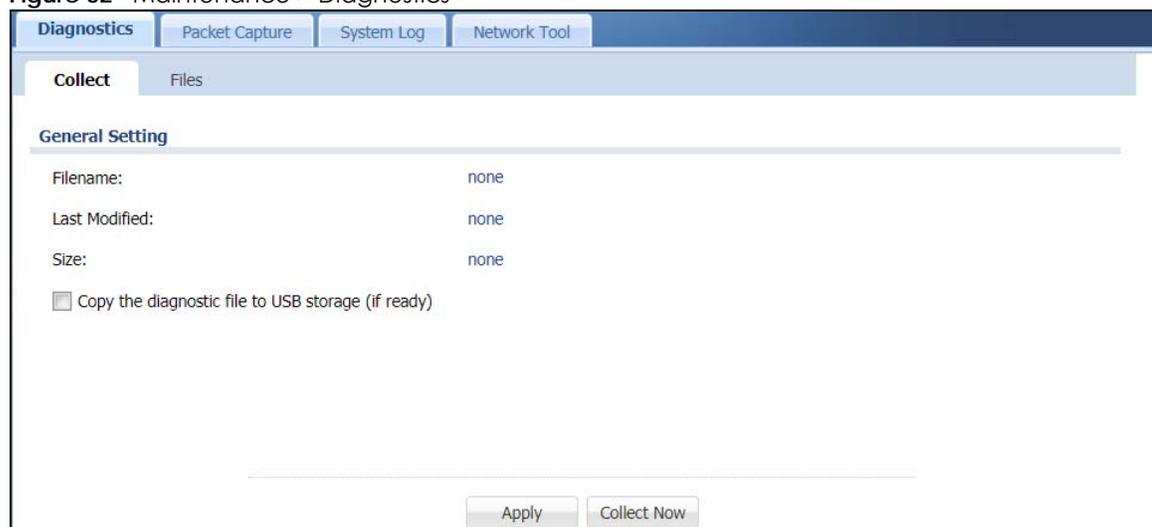
The following table describes the labels in this screen.

Table 15   Maintenance > Diagnostics

LABEL	DESCRIPTION
Filename	This is the name of the most recently created diagnostic file.
Last Modified	This is the date and time that the last diagnostic file was created. The format is yyyy-mm-dd hh:mm:ss.
Size	This is the size of the most recently created diagnostic file.
Copy the diagnostic file to USB storage (if ready)	Select this to have the NSG create an extra copy of the diagnostic file to a connected USB storage device.

Table 15   Maintenance > Diagnostics

LABEL	DESCRIPTION
Apply	Click **Apply** to save your changes.
Collect Now	Click this to have the NSG create a new diagnostic file. Wait while information is collected.
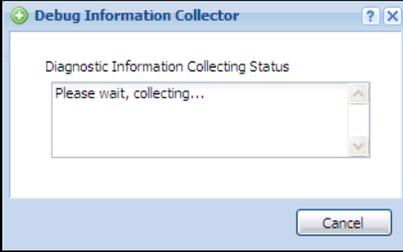
7.2.1 Diagnostics Files Screen

Click **Maintenance > Diagnostics > Files** to open the diagnostic files screen. This screen lists diagnostic information files that the NSG has collected and stored in the NSG or a connected USB storage device. You may need to send these files to customer support for troubleshooting.

Figure 33   Maintenance > Diagnostics > Files
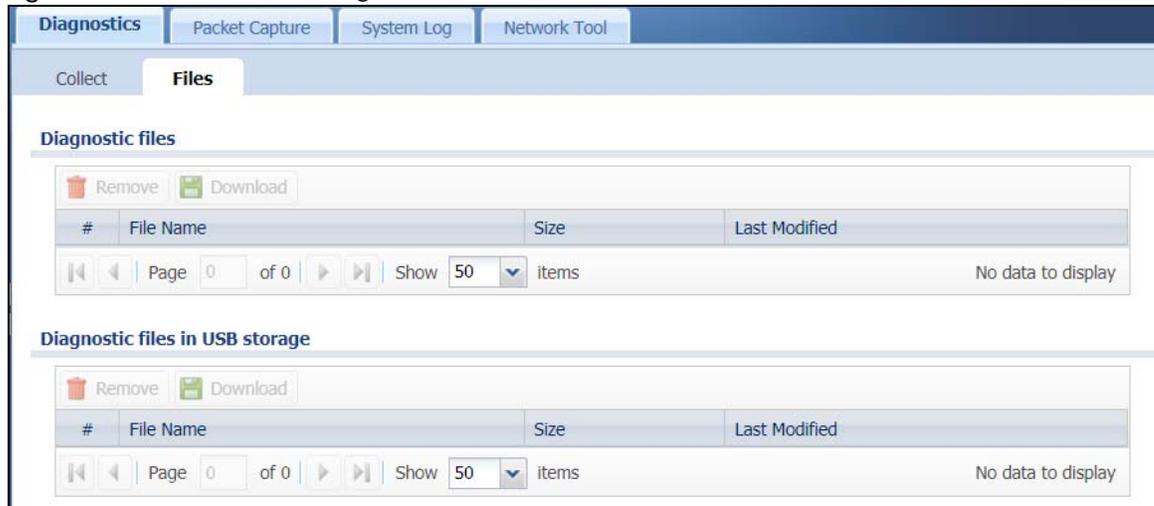

The following table describes the labels in this screen.

Table 16   Maintenance > Diagnostics > Files

LABEL	DESCRIPTION
Remove	Select files and click **Remove** to delete them from the NSG or the connected USB storage device. Use the [Shift] and/or [Ctrl] key to select multiple files. A pop-up window asks you to confirm that you want to delete.
Download	Click a file to select it and click **Download** to save it to your computer.
#	This column displays the number for each file entry. The total number of files that you can save depends on the file sizes and the available storage space.
File Name	This column displays the label that identifies the file.
Size	This column displays the size (in bytes) of a file.
Last Modified	This column displays the date and time that the individual files were saved.

7.3 Packet Capture Screen

Use this screen to capture network traffic going through the NSG's interfaces. Studying these packet captures may help you identify network problems. Click **Maintenance > Diagnostics > Packet Capture** to open the packet capture screen.

Note: New capture files overwrite existing files of the same name. Change the **File Suffix** field to avoid this.

Figure 34   Maintenance > Diagnostics > Packet Capture

The following table describes the labels in this screen.

Table 17   Maintenance > Diagnostics > Packet Capture

LABEL	DESCRIPTION
Interfaces	Enabled interfaces (except for virtual interfaces) appear under **Available Interfaces**. Select interfaces for which to capture packets and click the right arrow button to move them to the **Capture Interfaces** list. Use the [Shift] and/or [Ctrl] key to select multiple objects.
Filter	

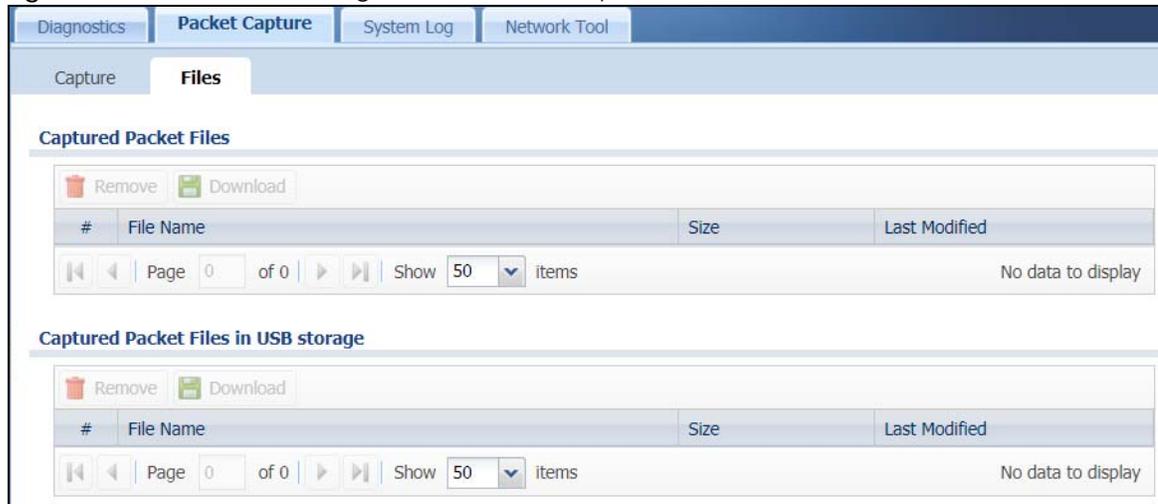Table 17   Maintenance > Diagnostics > Packet Capture (continued)

LABEL	DESCRIPTION
IP Version	Select the version of IP for which to capture packets. Select **any** to capture packets for all IP versions.
Protocol Type	Select the protocol of traffic for which to capture packets. Select **any** to capture packets for all types of traffic.
Host IP	Select a host IP address object for which to capture packets. Select **any** to capture packets for all hosts. Select **User Defined** to be able to enter an IP address.
Host Port	This field is configurable when you set the **IP Type** to **any**, **tcp**, or **udp**. Specify the port number of traffic to capture.
Misc setting	
Continuously capture and overwrite old ones	Select this to have the NSG keep capturing traffic and overwriting old packet capture entries when the available storage space runs out.
Captured Packet Files	When saving packet captures only to the NSG's onboard storage, specify a maximum limit in megabytes for the total combined size of all the capture files on the NSG. When saving packet captures to a connected USB storage device, specify a maximum limit in megabytes for each capture file. Note: If you have existing capture files and have not selected the **Continuously capture and overwrite old ones** option, you may need to set this size larger or delete existing capture files. The valid range depends on the available onboard/USB storage size. The NSG stops the capture and generates the capture file when either the file reaches this size or the time period specified in the **Duration** field expires.
Split threshold	Specify a maximum size limit in megabytes for individual packet capture files. After a packet capture file reaches this size, the NSG starts another packet capture file.
Duration	Set a time limit in seconds for the capture. The NSG stops the capture and generates the capture file when either this period of time has passed or the file reaches the size specified in the **File Size** field. 0 means there is no time limit.
File Suffix	Specify text to add to the end of the file name (before the dot and filename extension) to help you identify the packet capture files. Modifying the file suffix also avoids making new capture files that overwrite existing files of the same name. The file name format is "interface name-file suffix.cap", for example "vlan2-packet-capture.cap".
Number of Bytes to Capture (Per Packet)	Specify the maximum number of bytes to capture per packet. The NSG automatically truncates packets that exceed this size. As a result, when you view the packet capture files in a packet analyzer, the actual size of the packets may be larger than the size of captured packets.
Save data to onboard storage only	Select this to have the NSG only store packet capture entries on the NSG. The available storage size is displayed as well. Note: The NSG reserves some onboard storage space as a buffer.

Table 17   Maintenance > Diagnostics > Packet Capture (continued)

LABEL	DESCRIPTION
Save data to USB storage	Select this to have the NSG store packet capture entries only on a USB storage device connected to the NSG if the NSG allows this. Status: **Unused** - the connected USB storage device was manually unmounted by using the **Remove Now** button or for some reason the NSG cannot mount it. **none** - no USB storage device is connected. **service deactivated** - USB storage feature is disabled (in **Configuration** > **Object** > **USB Storag**e), so the NSG cannot use a connected USB device to store system logs and other diagnostic information. **available** - you can have the NSG use the USB storage device. The available storage capacity also displays. Note: The NSG reserves some USB storage space as a buffer.
Capture	Click this button to have the NSG capture packets according to the settings configured in this screen. You can configure the NSG while a packet capture is in progress although you cannot modify the packet capture settings. The NSG's throughput or performance may be affected while a packet capture is in progress. After the NSG finishes the capture it saves a separate capture file for each selected interface. The total number of packet capture files that you can save depends on the file sizes and the available flash storage space. Once the flash storage space is full, adding more packet captures will fail.
Stop	Click this button to stop a currently running packet capture and generate a separate capture file for each selected interface.
Reset	Click this button to return the screen to its last-saved settings.

7.3.1 Packet Capture Files Screen

Click **Maintenance** > **Diagnostics** > **Packet Capture** > **Files** to open the packet capture files screen. This screen lists the files of packet captures stored on the NSG or a connected USB storage device. You can download the files to your computer where you can study them using a packet analyzer (also known as a network or protocol analyzer) such as Wireshark.

Figure 35   Maintenance > Diagnostics > Packet Capture > Files

The following table describes the labels in this screen.

Table 18   Maintenance > Diagnostics > Packet Capture > Files

LABEL	DESCRIPTION
Remove	Select files and click **Remove** to delete them from the NSG or the connected USB storage device. Use the [Shift] and/or [Ctrl] key to select multiple files. A pop-up window asks you to confirm that you want to delete.
Download	Click a file to select it and click **Download** to save it to your computer.
#	This column displays the number for each packet capture file entry. The total number of packet capture files that you can save depends on the file sizes and the available flash storage space.
File Name	This column displays the label that identifies the file. The file name format is interface name-file suffix.cap.
Size	This column displays the size (in bytes) of a configuration file.
Last Modified	This column displays the date and time that the individual files were saved.

7.4 System Log Screen

Click **Maintenance** > **Diagnostics** > **System Log** to display this screen.

This screen lists the files of NSG system logs stored on a connected USB storage device. The files are in comma separated value (csv) format. You can download them to your computer and open them in a tool like Microsoft's Excel.

Figure 36   Maintenance > Diagnostics > System Log
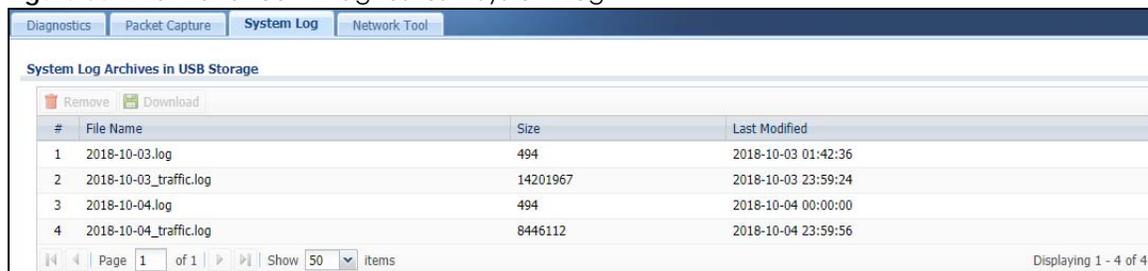
The following table describes the labels in this screen.

Table 19   Maintenance > Diagnostics > System Log

LABEL	DESCRIPTION
Remove	Select files and click **Remove** to delete them from the NSG. Use the [Shift] and/or [Ctrl] key to select multiple files. A pop-up window asks you to confirm that you want to delete.
Download	Click a file to select it and click **Download** to save it to your computer.
#	This column displays the number for each file entry. The total number of files that you can save depends on the file sizes and the available storage space.
File Name	This column displays the label that identifies the file.
Size	This column displays the size (in bytes) of a file.
Last Modified	This column displays the date and time that the individual files were saved.

7.5 Network Tool Screen

Use this screen to ping or traceroute an IP address.

Click **Maintenance** > **Diagnostics** > **Network Tool** to display this screen.

Figure 37   Maintenance > Diagnostics > Network Tool

The following table describes the labels in this screen.

Table 20   Maintenance > Diagnostics > Network Tool

LABEL	DESCRIPTION
Network Tool	Select **PING IPv4** to ping the IP address that you entered. Select **TRACEROUTE IPv4** to perform the traceroute function. This determines the path a packet takes to the specified computer.
Domain Name or IP Address	Type the IPv4 address of a computer that you want to perform ping or traceroute in order to test a connection.
Interface	Select an interface through which the packet is transmitted.
Extension Option	Enter the extended option if you want to use an extended ping or traceroute command. For example, enter "$-c$ $count$" (where $count$ is the number of ping requests) to set how many times the NSG pings the destination IP address, or enter "$-w$ $waittime$" (where $waittime$ is a time period in seconds) to set how long the NSG waits for a response to a probe before running another traceroute.
Test	Click this button to start to ping or run a traceroute.
Stop	Click this button to terminate the current ping operation or traceroute.
Reset	Click this button to return the screen to its last-saved settings.

CHAPTER 8
Troubleshooting

This chapter offers some suggestions to solve problems you might encounter.

None of the LEDs turn on.

Make sure that you have the power cord connected to the NSG and plugged in to an appropriate power source. Make sure you have the NSG turned on. Check all cable connections.

If the LEDs still do not turn on, you may have a hardware problem. In this case, you should contact your local vendor.

Cannot access the NSG from the LAN.

- Check the cable connection between the NSG and your computer or switch.
- Ping the NSG from a LAN computer. Make sure your computer's Ethernet card is installed and functioning properly. Also make sure that its IP address is in the same subnet as the NSG's.
- In the computer, click **Start**, **(All) Programs**, **Accessories** and then **Command Prompt**. In the **Command Prompt** window, type "ping" followed by the NSG's LAN IP address (192.168.1.1 is the default) and then press [ENTER]. The NSG should reply.
- If you've forgotten the NSG's password, use the **RESET** button. Press the button in for about 5 seconds (or until the **SYS** LED starts to blink), then release it. It returns the NSG to the factory defaults (password is 1234, LAN IP address 192.168.1.1 etc).
- If the NCC has managed the NSG, check the NCC's **Site-Wide** > **Configure** > **General setting** screen for the NSG's current password and the NCC's **Gateway** > **Configure** > **Interface addressing** screen for the NSG's current LAN IP address.
- If you've forgotten the NSG's IP address, you can use the commands through the console port to check it. Connect your computer to the **CONSOLE** port using a console cable. Your computer should have a terminal emulation communications program (such as HyperTerminal) set to VT100 terminal emulation, no parity, 8 data bits, 1 stop bit, no flow control and 115200 bps port speed.

I cannot access the Internet.

- Check the NSG's connection to the Ethernet jack with Internet access. Make sure the Internet gateway device (such as a DSL modem) is working properly.
- Make sure that you enter the correct settings in the **Configuration** > **Interface** > **Ethernet** screen. Use the same case as provided by your ISP.

My packet capture captured less than I wanted or failed.

The packet capture screen's **File Size** sets a maximum size limit for the total combined size of all the capture files on the NSG, including any existing capture files and any new capture files you generate. If you have existing capture files you may need to set this size larger or delete existing capture files.

The NSG stops the capture and generates the capture file when either the capture files reach the **File Size** or the time period specified in the **Duration** field expires.

My earlier packet capture files are missing.

New capture files overwrite existing files of the same name. Change the **File Suffix** field's setting to avoid this.

I cannot access the NCC portal.

- Check that you are using the correct URL:
  - NCC: https://nebula.zyxel.com/
- Make sure your computer's Ethernet card is installed and functioning properly.
- Check that you have Internet access. In your computer, click **Start**, **(All) Programs**, **Accessories** and then **Command Prompt**. In the **Command Prompt** window, type 'ping' followed by a website such as 'zyxel.com'. If you get a reply try to ping 'nebula.zyxel.com'.
- If your **Nebula Connectivity Status** on the **Dashboard** shows **Disconnected (Server unavailable),** check your Internet connection.
- If your **Nebula Connectivity Status** on the **Dashboard** shows **Disconnected (DNS queries fail)**, check your DNS configuration.
- Make sure you are using the correct web browser. Browsers supported are:
  - Firefox 21 or later
  - Chrome 26.0 or later
  - IE 10 or later
  - Internet Explorer 9.0 or later
  - Safari 6.0 or later

I cannot log into the NCC portal.

- Open your web browser and go to *https://portal.myzyxel.com*. Sign in with the correct email and password. Click **Not a Member Yet** if you don't have a myZyxel.com account and create an account.
- Then go to *https://nebula.zyxel.com* using a supported web browser.

The NSG can't be managed by the NCC.

- Make sure you have registered the NSG to a site and an organization in the NCC at https://nebula.zyxel.com.
  Register the NSG by entering its MAC address and serial number. The serial number and MAC address can be found in the **Status** screen or the device back label on the NSG.
- Check that you have Internet access. In your computer, click **Start**, **(All) Programs**, **Accessories** and then **Command Prompt**. In the **Command Prompt** window, type 'ping' followed by a website such as 'zyxel.com'. If you get a reply try to ping 'nebula.zyxel.com'.

8.1 Resetting the NSG

If you cannot access the NSG by any method, try restarting it by turning the power off and then on again. If you still cannot access the NSG by any method or you forget the administrator password(s), you can reset the NSG to its factory-default settings. Any configuration files or shell scripts that you saved on the NSG should still be available afterwards.

Use the following procedure to reset the NSG to its factory-default settings. This overwrites the settings in the startup-config.conf file with the settings in the system-default.conf file.

Note: This procedure removes the current configuration.

1   Make sure the **SYS** LED is on and not blinking.

2   Press the **RESET** button and hold it until the **SYS** LED begins to blink. (This usually takes about five seconds.)

3   Release the **RESET** button, and wait for the NSG to restart.

You should be able to access the NSG using the default settings.

8.2 Getting More Troubleshooting Help

Search for support information for your model at www.zyxel.com for more troubleshooting suggestions.

APPENDIX A
Customer Support

In the event of problems that cannot be solved by using this manual, you should contact your vendor. If you cannot contact your vendor, then contact a Zyxel office for the region in which you bought the device.

See *https://www.zyxel.com/homepage.shtml* and also *https://www.zyxel.com/about_zyxel/zyxel_worldwide.shtml* for the latest information.

Please have the following information ready when you contact an office.

Required Information

- Product model and serial number.
- Warranty Information.
- Date that you received your device.
- Brief description of the problem and the steps you took to solve it.

Corporate Headquarters (Worldwide)

Taiwan

- Zyxel Communications Corporation
- https://www.zyxel.com

Asia

China

- Zyxel Communications (Shanghai) Corp.
  Zyxel Communications (Beijing) Corp.
  Zyxel Communications (Tianjin) Corp.
- https://www.zyxel.com/cn/zh/

India

- Zyxel Technology India Pvt Ltd
- https://www.zyxel.com/in/en/

Kazakhstan

- Zyxel Kazakhstan
- https://www.zyxel.kz

Korea

- Zyxel Korea Corp.
- http://www.zyxel.kr

Malaysia

- Zyxel Malaysia Sdn Bhd.
- http://www.zyxel.com.my

Pakistan

- Zyxel Pakistan (Pvt.) Ltd.
- http://www.zyxel.com.pk

Philippines

- Zyxel Philippines
- http://www.zyxel.com.ph

Singapore

- Zyxel Singapore Pte Ltd.
- http://www.zyxel.com.sg

Taiwan

- Zyxel Communications Corporation
- https://www.zyxel.com/tw/zh/

Thailand

- Zyxel Thailand Co., Ltd
- https://www.zyxel.com/th/th/

Vietnam

- Zyxel Communications Corporation-Vietnam Office
- https://www.zyxel.com/vn/vi

Europe

Belarus

- Zyxel BY
- https://www.zyxel.by

Belgium

- Zyxel Communications B.V.
- https://www.zyxel.com/be/nl/

- https://www.zyxel.com/be/fr/

Bulgaria

- Zyxel България
- https://www.zyxel.com/bg/bg/

Czech Republic

- Zyxel Communications Czech s.r.o
- https://www.zyxel.com/cz/cs/

Denmark

- Zyxel Communications A/S
- https://www.zyxel.com/dk/da/

Estonia

- Zyxel Estonia
- https://www.zyxel.com/ee/et/

Finland

- Zyxel Communications
- https://www.zyxel.com/fi/fi/

France

- Zyxel France
- https://www.zyxel.fr

Germany

- Zyxel Deutschland GmbH
- https://www.zyxel.com/de/de/

Hungary

- Zyxel Hungary & SEE
- https://www.zyxel.com/hu/hu/

Italy

- Zyxel Communications Italy
- https://www.zyxel.com/it/it/

Latvia

- Zyxel Latvia
- https://www.zyxel.com/lv/lv/

Lithuania

- Zyxel Lithuania
- https://www.zyxel.com/lt/lt/

Netherlands

- Zyxel Benelux
- https://www.zyxel.com/nl/nl/

Norway

- Zyxel Communications
- https://www.zyxel.com/no/no/

Poland

- Zyxel Communications Poland
- https://www.zyxel.com/pl/pl/

Romania

- Zyxel Romania
- https://www.zyxel.com/ro/ro

Russia

- Zyxel Russia
- https://www.zyxel.com/ru/ru/

Slovakia

- Zyxel Communications Czech s.r.o. organizacna zlozka
- https://www.zyxel.com/sk/sk/

Spain

- Zyxel Communications ES Ltd
- https://www.zyxel.com/es/es/

Sweden

- Zyxel Communications
- https://www.zyxel.com/se/sv/

Switzerland

- Studerus AG
- https://www.zyxel.ch/de
- https://www.zyxel.ch/fr

Turkey

- Zyxel Turkey A.S.
- https://www.zyxel.com/tr/tr/

UK

- Zyxel Communications UK Ltd.
- https://www.zyxel.com/uk/en/

Ukraine

- Zyxel Ukraine
- http://www.ua.zyxel.com

South America

Argentina

- Zyxel Communications Corporation
- https://www.zyxel.com/co/es/

Brazil

- Zyxel Communications Brasil Ltda.
- https://www.zyxel.com/br/pt/

Colombia

- Zyxel Communications Corporation
- https://www.zyxel.com/co/es/

Ecuador

- Zyxel Communications Corporation
- https://www.zyxel.com/co/es/

South America

- Zyxel Communications Corporation
- https://www.zyxel.com/co/es/

Middle East

Israel

- Zyxel Communications Corporation
- http://il.zyxel.com/

Middle East

- Zyxel Communications Corporation
- https://www.zyxel.com/me/en/

North America

USA

- Zyxel Communications, Inc. - North America Headquarters
- https://www.zyxel.com/us/en/

Oceania

Australia

- Zyxel Communications Corporation
- https://www.zyxel.com/au/en/

Africa

South Africa

- Nology (Pty) Ltd.
- https://www.zyxel.com/za/en/

APPENDIX B
Legal Information

Copyright

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Regulatory Notice and Statement (Class A)

Model List: NSG200 & NSG300

UNITED STATES of AMERICA

The following information applies if you use the product within USA area.

FCC EMC Statement

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

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CANADA

The following information applies if you use the product within Canada area

Innovation, Science and Economic Development Canada ICES Statement

CAN ICES-3 (A)/NMB-3(A)

EUROPEAN UNION

The following information applies if you use the product within the European Union.

CE EMC statement

WARNING: This equipment is compliant with Class A of EN55032. In a residential environment this equipment may cause radio interference.

List of national codes

COUNTRY	ISO 3166 2 LETTER CODE	COUNTRY	ISO 3166 2 LETTER CODE
Austria	AT	Liechtenstein	LI
Belgium	BE	Lithuania	LT
Bulgaria	BG	Luxembourg	LU
Croatia	HR	Malta	MT
Cyprus	CY	Netherlands	NL
Czech Republic	CZ	Norway	NO
Denmark	DK	Poland	PL
Estonia	EE	Portugal	PT
Finland	FI	Romania	RO
France	FR	Serbia	RS
Germany	DE	Slovakia	SK
Greece	GR	Slovenia	SI
Hungary	HU	Spain	ES
Iceland	IS	Switzerland	CH
Ireland	IE	Sweden	SE
Italy	IT	Turkey	TR
Latvia	LV	United Kingdom	GB

Safety Warnings

- Do NOT use this product near water, for example, in a wet basement or near a swimming pool.
- Do NOT expose your device to dampness, dust or corrosive liquids.
- Do NOT store things on the device.
- Do not obstruct the device ventillation slots as insufficient airflow may harm your device. For example, do not place the device in an enclosed space such as a box or on a very soft surface such as a bed or sofa.
- Do NOT install, use, or service this device during a thunderstorm. There is a remote risk of electric shock from lightning.
- Connect ONLY suitable accessories to the device.
- Do NOT open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks. ONLY qualified service personnel should service or disassemble this device. Please contact your vendor for further information.
- Make sure to connect the cables to the correct ports.
- Place connecting cables carefully so that no one will step on them or stumble over them.
- Always disconnect all cables from this device before servicing or disassembling.
- Use ONLY an appropriate power adaptor or cord for your device. Connect it to the right supply voltage (for example, 110V AC in North America or 230V AC in Europe).
- DO NOT remove the plug and connect it to a power outlet by itself; always attach the plug to the power adaptor first before connecting it to a power outlet.
- Do NOT allow anything to rest on the power adaptor or cord and do NOT place the product where anyone can walk on the power adaptor or cord.
- Do NOT use the device if the power adaptor or cord is damaged as it might cause electrocution.
- If the power adaptor or cord is damaged, remove it from the device and the power source.
- Do NOT attempt to repair the power adaptor or cord. Contact your local vendor to order a new one.
- DO NOT use the device outside, and make sure all the connections are indoors. There is a remote risk of electric shock from lightning.
- CAUTION: RISK OF EXPLOSION IF BATTERY (on the motherboard) IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS. Dispose them at the applicable collection point for the recycling of electrical and electronic equipment. For detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the store where you purchased the product.
- Use ONLY power wires of the appropriate wire gauge for your device. Connect it to a power supply of the correct voltage.
- Fuse Warning! Replace a fuse only with a fuse of the same type and rating.
- The POE (Power over Ethernet) devices that supply or receive power and their connected Ethernet cables must all be completely indoors.
- This equipment must be grounded by qualified service personnel. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.
- When connecting or disconnecting power to hot-pluggable power supplies, if offered with your system, observe the following guidelines:

  - Install the power supply before connecting the power cable to the power supply.

  - Unplug the power cable before removing the power supply.

  - If the system has multiple sources of power, disconnect power from the system by unplugging all power cables from the power supply.

- The following warning statements apply, where the disconnect device is not incorporated in the equipment or where the plug on the power supply cord is intended to serve as the disconnect device,

  - For PERMANENTLY CONNECTED EQUIPMENT, a readily accessible disconnect device shall be incorporated external to the equipment;

  - For PLUGGABLE EQUIPMENT, the socket-outlet shall be installed near the equipment and shall be easily accessible.

- CLASS 1 LASER PRODUCT
- APPAREIL À LASER DE CLASS 1
- PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11.
- PRODUIT CONFORME SELON 21 CFR 1040.10 ET 1040.11.

Environment Statement

European Union - Disposal and Recycling Information

The symbol below means that according to local regulations your product and/or its battery shall be disposed of separately from domestic waste. If this product is end of life, take it to a recycling station designated by local authorities. At the time of disposal, the separate collection of your product and/or its battery will help save natural resources and ensure that the environment is sustainable development.

Die folgende Symbol bedeutet, dass Ihr Produkt und/oder seine Batterie gemäß den örtlichen Bestimmungen getrennt vom Hausmüll entsorgt werden muss. Wenden Sie sich an eine Recyclingstation, wenn dieses Produkt das Ende seiner Lebensdauer erreicht hat. Zum Zeitpunkt der Entsorgung wird die getrennte Sammlung von Produkt und/oder seiner Batterie dazu beitragen, natürliche Ressourcen zu sparen und die Umwelt und die menschliche Gesundheit zu schützen.

El símbolo de abajo indica que según las regulaciones locales, su producto y/o su batería deberán depositarse como basura separada de la doméstica. Cuando este producto alcance el final de su vida útil, llévelo a un punto limpio. Cuando llegue el momento de desechar el producto, la recogida por separado éste y/o su batería ayudará a salvar los recursos naturales y a proteger la salud humana y medioambiental.

Le symbole ci-dessous signifie que selon les réglementations locales votre produit et/ou sa batterie doivent être éliminés séparément des ordures ménagères. Lorsque ce produit atteint sa fin de vie, amenez-le à un centre de recyclage. Au moment de la mise au rebut, la collecte séparée de votre produit et/ou de sa batterie aidera à économiser les ressources naturelles et protéger l'environnement et la santé humaine.

Il simbolo sotto significa che secondo i regolamenti locali il vostro prodotto e/o batteria deve essere smaltito separatamente dai rifiuti domestici. Quando questo prodotto raggiunge la fine della vita di servizio portarlo a una stazione di riciclaggio. Al momento dello smaltimento, la raccolta separata del vostro prodotto e/o della sua batteria aiuta a risparmiare risorse naturali e a proteggere l'ambiente e la salute umana.

Symbolen innebär att enligt lokal lagstiftning ska produkten och/eller dess batteri kastas separat från hushållsavfallet. När den här produkten når slutet av sin livslängd ska du ta den till en återvinningsstation. Vid tiden för kasseringen bidrar du till en bättre miljö och mänsklig hälsa genom att göra dig av med den på ett återvinningsställe.

台灣

以下訊息僅適用於產品銷售至台灣地區

- 這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

安全警告
為了您的安全，請先閱讀以下警告及指示：
- 請勿將此產品接近水、火焰或放置在高溫的環境。
- 避免設備接觸

  任何液體 - 切勿讓設備接觸水、雨水、高濕度、污水腐蝕性的液體或其他水份。

  灰塵及污物 - 切勿接觸灰塵、污物、沙土、食物或其他不合適的材料。
- 雷雨天氣時，不要安裝，使用或維修此設備。有遭受電擊的風險。
- 切勿重摔或撞擊設備，並勿使用不正確的電源變壓器。
- 若接上不正確的電源變壓器會有爆炸的風險。。
- 請勿隨意更換產品內的電池。
- 如果更換不正確之電池型式，會有爆炸的風險，請依製造商說明書處理使用過之電池。
- 請將廢電池丟棄在適當的電器或電子設備回收處。
- 請勿將設備解體。
- 請勿阻礙設備的散熱孔，空氣對流不足將會造成設備損害。
- 請插在正確的電壓供給插座 (如：北美 / 台灣電壓 110V AC，歐洲是 230V AC)。
- 假若電源變壓器或電源變壓器的纜線損壞，請從插座拔除，若您還繼續插電使用，會有觸電死亡的風險。
- 請勿試圖修理電源變壓器或電源變壓器的纜線，若有毀損，請直接聯絡您購買的店家，購買一個新的電源變壓器。
- 請勿將此設備安裝於室外，此設備僅適合放置於室內。
- 請勿隨一般垃圾丟棄。
- 請參閱產品背貼上的設備額定功率。
- 請參考產品型錄或是彩盒上的作業溫度。

- 設備必須接地，接地導線不允許被破壞或沒有適當安裝接地導線，如果不確定接地方式是否符合要求可聯繫相應的電氣檢驗機構檢驗。
- 如果您提供的系統中有提供熱插拔電源，連接或斷開電源請遵循以下指導原則
  - 先連接電源線至設備連，再連接電源。
  - 先斷開電源再拔除連接至設備的電源線。
  - 如果系統有多個電源，需拔除所有連接至電源的電源線再關閉設備電源。
- 產品沒有斷電裝置或者採用電源線的插頭視為斷電裝置的一部分，以下警語將適用：
  - 對永久連接之設備，在設備外部須安裝可觸及之斷電裝置；
  - 對插接式之設備，插座必須接近安裝之地點而且是易於觸及的。

About the Symbols

Various symbols are used in this product to ensure correct usage, to prevent danger to the user and others, and to prevent property damage. The meaning of these symbols are described below. It is important that you read these descriptions thoroughly and fully understand the contents.

Explanation of the Symbols

SYMBOL	EXPLANATION
∿	Alternating current (AC): AC is an electric current in which the flow of electric charge periodically reverses direction.
⎓	Direct current (DC): DC if the unidirectional flow or movement of electric charge carriers.
⏚	Earth; ground: A wiring terminal intended for connection of a Protective Earthing Conductor.
▣	Class II equipment: The method of protection against electric shock in the case of class II equipment is either double insulation or reinforced insulation.

Viewing Certifications

Go to http://www.zyxel.com to view this product's documentation and certifications.

Zyxel Limited Warranty

Zyxel warrants to the original end user (purchaser) that this product is free from any defects in material or workmanship for a specific period (the Warranty Period) from the date of purchase. The Warranty Period varies by region. Check with your vendor and/or the authorized Zyxel local distributor for details about the Warranty Period of this product. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, Zyxel will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal or higher value, and will be solely at the discretion of Zyxel. This warranty shall not apply if the product has been modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions.

Note

Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. Zyxel shall in no event be held liable for indirect or consequential damages of any kind to the purchaser.

To obtain the services of this warranty, contact your vendor. You may also refer to the warranty policy for the region in which you bought the device at http://www.zyxel.com/web/support_warranty_info.php.

Registration

Register your product online to receive e-mail notices of firmware upgrades and information at www.zyxel.com for global products, or at www.us.zyxel.com for North American products.

Open Source Licenses

This product contains in part some free software distributed under GPL license terms and/or GPL like licenses. Open source licenses are provided with the firmware package. You can download the latest firmware at www.zyxel.com. To obtain the source code covered under those Licenses, please contact support@zyxel.com.tw to get it.

Regulatory Notice and Statement (Class B)

Model List: NSG50 & NSG100

UNITED STATES of AMERICA

The following information applies if you use the product within USA area.

FCC EMC Statement

- The device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.
- This product has been tested and complies with the specifications 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 device generates, uses, and can radiate radio frequency energy and, if not installed and used according to 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 device does cause harmful interference to radio or television reception, which is found by turning the device 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 devices
    - Connect the equipment to an outlet other than the receiver's
    - Consult a dealer or an experienced radio/TV technician for assistance

CANADA

The following information applies if you use the product within Canada area

Innovation, Science and Economic Development Canada ICES Statement

CAN ICES-3 (B)/NMB-3(B)

EUROPEAN UNION

The following information applies if you use the product within the European Union.

List of national codes

COUNTRY	ISO 3166 2 LETTER CODE	COUNTRY	ISO 3166 2 LETTER CODE
Austria	AT	Liechtenstein	LI
Belgium	BE	Lithuania	LT
Bulgaria	BG	Luxembourg	LU
Croatia	HR	Malta	MT
Cyprus	CY	Netherlands	NL
Czech Republic	CZ	Norway	NO
Denmark	DK	Poland	PL
Estonia	EE	Portugal	PT
Finland	FI	Romania	RO
France	FR	Serbia	RS
Germany	DE	Slovakia	SK
Greece	GR	Slovenia	SI
Hungary	HU	Spain	ES
Iceland	IS	Switzerland	CH
Ireland	IE	Sweden	SE
Italy	IT	Turkey	TR
Latvia	LV	United Kingdom	GB

Safety Warnings

- Do not use this product near water, for example, in a wet basement or near a swimming pool.
- Do not expose your device to dampness, dust or corrosive liquids.
- Do not store things on the device.
- Do not obstruct the device ventilation slots as insufficient airflow may harm your device. For example, do not place the device in an enclosed space such as a box or on a very soft surface such as a bed or sofa.
- Do not install, use, or service this device during a thunderstorm. There is a remote risk of electric shock from lightning.
- Connect ONLY suitable accessories to the device.
- Do not open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks.
- Only qualified service personnel should service or disassemble this device. Please contact your vendor for further information.
- Make sure to connect the cables to the correct ports.
- Place connecting cables carefully so that no one will step on them or stumble over them.
- Always disconnect all cables from this device before servicing or disassembling.
- Do not remove the plug and connect it to a power outlet by itself; always attach the plug to the power adaptor first before connecting it to a power outlet.
- Do not allow anything to rest on the power adaptor or cord and do NOT place the product where anyone can walk on the power adaptor or cord.
- Please use the provided or designated connection cables/power cables/ adaptors. Connect it to the right supply voltage (for example, 110V AC in North America or 230V AC in Europe). If the power adaptor or cord is damaged, it might cause electrocution. Remove it from the device and the power source, repairing the power adapter or cord is prohibited. Contact your local vendor to order a new one.
- Do not use the device outside, and make sure all the connections are indoors. There is a remote risk of electric shock from lightning.
- CAUTION: Risk of explosion if battery is replaced by an incorrect type, dispose of used batteries according to the instruction. Dispose them at the applicable collection point for the recycling of electrical and electronic devices. For detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the store where you purchased the product.
- The following warning statements apply, where the disconnect device is not incorporated in the device or where the plug on the power supply cord is intended to serve as the disconnect device,

  - For permanently connected devices, a readily accessible disconnect device shall be incorporated external to the device;

  - For pluggable devices, the socket-outlet shall be installed near the device and shall be easily accessible.

- CLASS 1 LASER PRODUCT
- APPAREIL À LASER DE CLASS 1
- PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11.
- PRODUIT CONFORME SELON 21 CFR 1040.10 ET 1040.11.

Environment Statement

ErP (Energy-related Products)

Zyxel products put on the EU market in compliance with the requirement of the European Parliament and the Council published Directive 2009/125/EC establishing a framework for the setting of ecodesign requirements for energy-related products (recast), so called as "ErP Directive (Energy-related Products directive) as well as ecodesign requirement laid down in applicable implementing measures, power consumption has satisfied regulation requirements which are:

- Network standby power consumption < 8W, and/or
- Off mode power consumption < 0.5W, and/or
- Standby mode power consumption < 0.5W.

European Union - Disposal and Recycling Information

The symbol below means that according to local regulations your product and/or its battery shall be disposed of separately from domestic waste. If this product is end of life, take it to a recycling station designated by local authorities. At the time of disposal, the separate collection of your product and/or its battery will help save natural resources and ensure that the environment is sustainable development.

Die folgende Symbol bedeutet, dass Ihr Produkt und/oder seine Batterie gemäß den örtlichen Bestimmungen getrennt vom Hausmüll entsorgt werden muss. Wenden Sie sich an eine Recyclingstation, wenn dieses Produkt das Ende seiner Lebensdauer erreicht hat. Zum Zeitpunkt der Entsorgung wird die getrennte Sammlung von Produkt und/oder seiner Batterie dazu beitragen, natürliche Ressourcen zu sparen und die Umwelt und die menschliche Gesundheit zu schützen.

El símbolo de abajo indica que según las regulaciones locales, su producto y/o su batería deberán depositarse como basura separada de la doméstica. Cuando este producto alcance el final de su vida útil, llévelo a un punto limpio. Cuando llegue el momento de desechar el producto, la recogida por separado éste y/o su batería ayudará a salvar los recursos naturales y a proteger la salud humana y medioambiental.

Le symbole ci-dessous signifie que selon les réglementations locales votre produit et/ou sa batterie doivent être éliminés séparément des ordures ménagères. Lorsque ce produit atteint sa fin de vie, amenez-le à un centre de recyclage. Au moment de la mise au rebut, la collecte séparée de votre produit et/ou de sa batterie aidera à économiser les ressources naturelles et protéger l'environnement et la santé humaine.

Il simbolo sotto significa che secondo i regolamenti locali il vostro prodotto e/o batteria deve essere smaltito separatamente dai rifiuti domestici. Quando questo prodotto raggiunge la fine della vita di servizio portarlo a una stazione di riciclaggio. Al momento dello smaltimento, la raccolta separata del vostro prodotto e/o della sua batteria aiuta a risparmiare risorse naturali e a proteggere l'ambiente e la salute umana.

Symbolen innebär att enligt lokal lagstiftning ska produkten och/eller dess batteri kastas separat från hushållsavfallet. När den här produkten når slutet av sin livslängd ska du ta den till en återvinningsstation. Vid tiden för kasseringen bidrar du till en bättre miljö och mänsklig hälsa genom att göra dig av med den på ett återvinningsställe.

台灣

安全警告 – 為了您的安全，請先閱讀以下警告及指示：
· 請勿將此產品接近水、火焰或放置在高溫的環境。
· 避免設備接觸
  - 任何液體 – 切切讓設備接觸水、雨水、高濕度、污水腐蝕性的液體或其他水份。
  - 灰塵及污物 – 切勿接觸灰塵、污物、沙土、食物或其他不合適的材料。
· 雷雨天氣時，不要安裝，使用或維修此設備。有遭受電擊的風險。
· 切勿重摔或撞擊設備，並勿使用不正確的電源變壓器。
· 若接上不正確的電源變壓器會有爆炸的風險。
· 請勿隨意更換產品內的電池。
· 如果更換不正確之電池型式，會有爆炸的風險，請依製造商說明書處理使用過之電池。
· 請將廢電池丟棄在適當的電器或電子設備回收處。
· 請勿將設備解體。
· 請勿阻礙設備的散熱孔，空氣對流不足將會造成設備損害。
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· 假若電源變壓器或電源變壓器的纜線損壞，請從插座拔除，若您還繼續插電使用，會有觸電死亡的風險。
· 請勿試圖修理電源變壓器或電源變壓器的纜線，若有毀損，請直接聯絡您購買的店家，購買一個新的電源變壓器。
· 請勿將此設備安裝於室外，此設備僅適合放置於室內。
· 請勿隨一般垃圾丟棄。
· 請參閱產品背貼上的設備額定功率。
· 請參考產品型錄或是彩盒上的作業溫度。
· 產品沒有斷電裝置或者採用電源線的插頭視為斷電裝置的一部分，以下警語將適用：
  - 對永久連接之設備，在設備外部須安裝可觸及之斷電裝置；
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Note

Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. Zyxel shall in no event be held liable for indirect or consequential damages of any kind to the purchaser.

To obtain the services of this warranty, contact your vendor. You may also refer to the warranty policy for the region in which you bought the device at http://www.zyxel.com/web/support_warranty_info.php.

Registration

Register your product online to receive e-mail notices of firmware upgrades and information at www.zyxel.com for global products, or at www.us.zyxel.com for North American products.

Open Source Licenses

This product contains in part some free software distributed under GPL license terms and/or GPL like licenses. Open source licenses are provided with the firmware package. You can download the latest firmware at www.zyxel.com. To obtain the source code covered under those Licenses, please contact support@zyxel.com.tw to get it.

Index