NETSCREEN-5GT WIRELESS

User's Guide

Version 5.0.0 P/N 093-XXXX-000 Rev. Beta

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Juniper Networks, Inc.
ATTN: General Counsel
1194 N. Mathilda Ave.
Sunnyvale, CA 94089-1206

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:□

FCC Radiation Exposure Statement:□

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Juniper declared that NS-5GT-WIRELESS is limited in CH1~11 from 2400 to 2483.5 MHz by specified firmware controlled in USA.

Industry Canada Statement

Operation is subject to the following two conditions:
1) this device may not cause interference and(2) this device must accept any interference, including interference that may cause undesired operation of the device

This device has been designed to operate with an antenna having a maximum gain of 6 dBi.
Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the EIRP is not more than required for successful communication.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding.Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Contents

Preface

The Juniper Networks NetScreen-5GT Wireless device provides IPSec VPN and firewall services for a branch office or a retail outlet that uses an integrated wireless 802.11b/g interface. The NetScreen-5GT Wireless device uses the same firewall, VPN, Antivirus, Deep Inspection, and traffic management technology as NetScreen's high-end central site products.

Juniper Networks offers three models of the NetScreen-5GT Wireless device:

- The Wireless only model.
- The Wireless with Annex A model supports ADSL over standard telephone lines (POTS).
- The Wireless with Annex B model supports ADSL over Integrated Services Digital Network (ISDN).

All models support up to four virtual Access Points (APs). Both ADSL models support ANSI TI.413 Issue 2, ITU G.992.1 (G.dmt), and ITU 992.2 (G.lite) standards.

Each model supports three versions of the device:

- The 10-user version supports up to 10 users.
- The Plus version supports an unrestricted number of users.
- The Extended version provides the same capabilities as the Plus version, with additional features: High Availability (NSRP Lite), the DMZ security zone, and additional sessions and tunnel capacity.

Organization

This manual has three chapters and one appendix.

Chapter 1, "Connecting the Device" describes how to connect the device to your network, connect the power, connect an antenna, and install the NetScreen-5GT Wireless device in a rack.

Chapter 2, "Configuring the Device" describes the default settings and operation of the NetScreen-5GT Wireless (ADSL) and the configuration required to use the device.

Chapter 3, "Hardware Descriptions" provides an overview of the NetScreen-5GT Wireless ports, LEDs, and power requirements.

Appendix A, "Specifications" provides a list of physical specifications about the NetScreen-5GT Wireless device.

WebUI Conventions

Throughout this book, a chevron (>) is used to indicate navigation through the WebUI by selecting menu options and links.

Example: Objects > Addresses > List > New

To access the new address configuration dialog box:

1. Click **Objects** in the menu column.

   The Objects menu option expands to reveal a subset of options for Objects.

2. (Applet menu[1]) Hover the mouse over **Addresses**.

   (DHTML menu) Click **Addresses**.

   The Addresses option expands to reveal a subset of options for Addresses.

3. Click **List**.

   The address book table appears.

4. Click the **New** link in the upper right corner.

   The new address configuration dialog box appears.

CLI Conventions

The following conventions are used when presenting the syntax of a command line interface (CLI) command:

- Anything inside square brackets [ ] is optional.
- Anything inside braces { } is required.
- If there is more than one choice, each choice is separated by a pipe (|). For example,

  ```
  set interface { ethernet1 | ethernet2 | ethernet3 }
  manage
  ```

  means “set the management options for the ethernet1, ethernet2, or ethernet3 interface”.

- Variables appear in *italic*. For example:

  set admin user *name1* **password** *xyz*

[1] You can choose either the applet or DHTML menu types by clicking the **Toggle Menu** option at the bottom of the menu column.

When a CLI command appears within the context of a sentence, it is in **bold** (except for variables, which are always in *italic*). For example: “Use the **get system** command to display the serial number of a NetScreen device.”

> *Note: When typing a keyword, you only have to type enough letters to identify the word uniquely. For example, typing* ***set adm u joe j12fmt54*** *is enough to enter the command* ***set admin user joe j12fmt54****. Although you can use this shortcut when entering commands, all the commands documented here are presented in their entirety.*

NetScreen Publications

To obtain technical documentation for any Juniper Networks NetScreen product, visit www.juniper.net/techpubs/.

For technical support, open a support case using the Case Manager link at http://www.juniper.net/support/ or call 1-888-314-JTAC (within the United States) or 1-408-745-9500 (outside the United States).

If you find any errors or omissions in the following content, please contact us at the e-mail address below:

techpubs-comments@juniper.net

1

Connecting the Device

This chapter describes how to connect the NetScreen-5GT Wireless device to the network, connect the power, and connect an antenna. If you are using the optional NetScreen-5GT Wireless rack mount kit, then use the rack mounting instructions that are included at the end of this chapter.

> ***Note:*** *For safety warnings and instructions, refer to the* NetScreen Safety Guide. *The instructions in this guide warn you about situations that could cause bodily injury. Before working on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.*

Connecting the NetScreen Device to Your Networks

The NetScreen device provides firewall and general security for your networks when it is placed between your internal networks and the Untrusted network. This section describes the physical connections.

Connecting the Device to an Untrusted Network

Depending upon which model of the NetScreen-5GT Wireless device you have, you can connect to the Untrusted network in one of the following ways:

- Through an ADSL connection from the ADSL port on the NetScreen device.
- Through an Ethernet connection from the Untrusted port on the NetScreen device.

Connecting the ADSL Port

Connect the provided ADSL cable from the ADSL port on the NetScreen-5GT Wireless ADSL device to your telephone outlet. The ADSL port on the Annex A version of the device uses an RJ-11 connector, while the Annex B version uses an RJ-45 connector. In the case of Annex B models, the cable you connect from the ADSL port to the telephone outlet is identical in appearance and wiring to a straight-through 10 Base-T Ethernet cable.

> ***Warning:*** *Make sure that you do not inadvertently connect the Console, Modem, or Ethernet ports on the NetScreen device to the telephone outlet.*

The ADSL line is your *primary* connection to an outside network. For a backup data link to an outside network, you can either connect an Ethernet cable from the Untrusted port on the NetScreen-5GT Wireless ADSL device to an external router, DSL modem, or cable modem, or connect a serial cable from the Modem port on the device to an external modem.

Warning: *You cannot connect* both *the Untrusted port and the Modem port on the device to an outside network at the same time.*

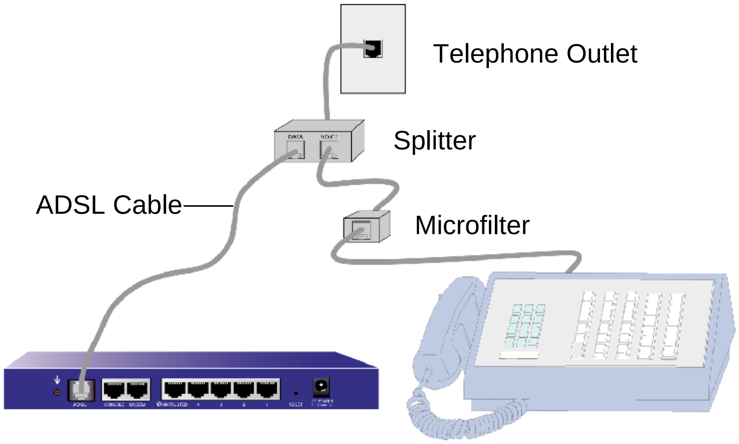
Connecting Splitters and Microfilters

A *signal splitter* divides the telephone signal into low-frequency voice signals for voice calls and high-frequency data signals for data traffic. Your service provider usually installs the splitter as part of the equipment that connects your site's telephone lines to the provider's network.

There are also splitters that you may be able to install yourself, depending upon your service provider equipment. If you are installing such a splitter yourself, then connect the ADSL cable from the NetScreen device and the telephone line to the appropriate connectors (for example, "data" or "voice") on the splitter. You connect the other end of the splitter to the telephone outlet.

You may need to install a *microfilter* on each telephone, fax machine, answering machine, or analog modem that connects to the ADSL line. The microfilter filters out high-frequency noise on the telephone line. You install the microfilter on the telephone line between the telephone, fax machine, answering machine, or analog modem and the voice connector on the splitter.

The following shows an example of a microfilter and a splitter that you install on your site. (You must obtain the appropriate microfilters or splitters from your service provider.)



Connecting the Untrusted Port

You can establish an internet connection to an external router, DSL modem, or cable modem, and provide firewall and general security for your network. To establish a high-speed connection, connect the provided Ethernet cable from the Untrusted interface on the NetScreen-5GT Wireless device to the external router or modem. The NetScreen-5GT Wireless device autosenses the correct speed, duplex, and polarity settings.

If you are using the NetScreen-5GT Wireless ADSL device, then refer to sections “Connecting the ADSL Port” on page 7 and “Connecting Splitters and Microfilters” on page 8 for ADSL connection instructions.

Connecting the Device to Your Internal Network or Workstations

You can connect your LAN or workstation using one or both of the following ways:

- Connecting through one or more of the Trusted Ethernet ports on the NetScreen device.
- Using a wireless interface on the NetScreen device.

Connecting Trusted Ethernet Ports

The NetScreen-5GT Wireless device contains four Trusted Ethernet ports. You can use one or more of these ports to connect to LANs via switches or hubs. You can also connect one or all of the ports directly to workstations, eliminating the need for a hub or switch. You can use either cross-over or straight-through cables to connect the Ethernet ports to other devices.

Using the Wireless Interface

If you are using the wireless interface, you need to connect the provided antennae on the device. If you have the standard 2dB omnidirectional antennae, then screw them onto the posts marked A and B at the back of the device. Antenna A is located next to the power cord connection. Bend the antennae at their elbows, making sure not to put pressure on the bulkhead connector.

If you are using the optional high-gain antenna, then follow the antenna’s connection instructions.

Connecting the Power

To connect the power to the NetScreen-5GT Wireless device:

1. Plug the DC connector end of the power cable into the DC power receptacle on the back of the device.
2. Plug the AC adapter end of the power cable into an AC power source.

> **Warning:** *NetScreen recommends using a surge protector for the power connection.*

Rack Mounting (Optional)

With a NetScreen-5GT Wireless rack-mount kit, you can mount one or two NetScreen-5GT Wireless devices in a standard 19-inch equipment rack. The NetScreen-5GT Wireless rack-mount kit includes installation instructions and a rack-mounting tray. The dimensions of the tray are as follows:

Width:	48.26 cm.	19 in.
Height:	4.013 cm.	1-5/8 in. (1 rack unit)
Depth:	33.655 cm.	13-1/4 in.

In addition to the NetScreen-5GT Wireless device(s), rack-mount kit, and equipment rack, you also need the following:

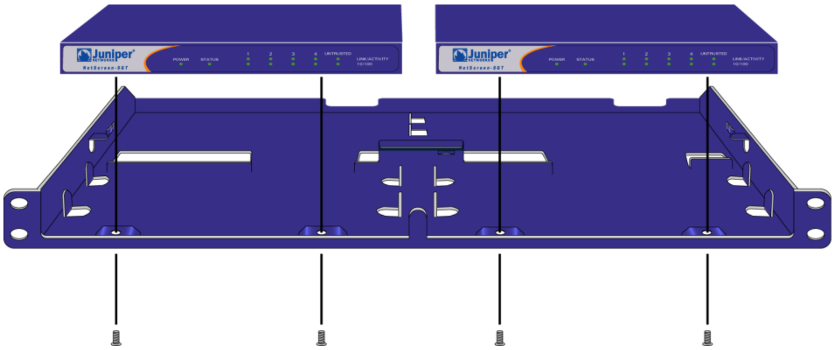
- Phillips-head screwdriver
- Four screws that match the thread size of the equipment rack

To mount the device in a rack:

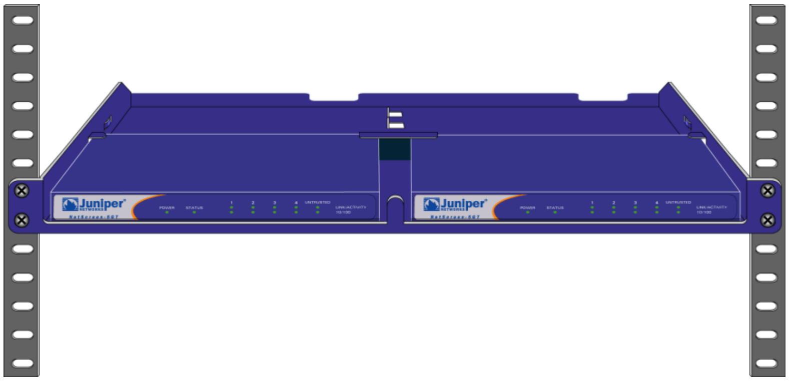
1. Use the Phillips-head screwdriver to remove the two screws from the underside of each NetScreen-5GT Wireless device that you intend to mount. The screws are located on the underside of the NetScreen-5GT Wireless near the front panel. (Keep the screws for use in the next step.)

Juniper
NetScreen-5GT
POWER
STATUS
1
2
3
4
UNTRUSTED
LINK/ACTIVITY
10/100

2. Insert the NetScreen-5GT Wireless devices on the rack-mount tray and screw them to the tray with the screws that you removed in step 1.



3. Screw the left and right tray plates to the equipment rack.



You can run power cords and Ethernet cables through the openings in the floor of the tray or out the depressions in the back wall. You can also use the space behind the devices to hold power supplies.

2

Configuring the Device

This chapter describes how to configure a NetScreen-5GT Wireless device after you have connected it. If you are accessing the device for the first time using the ScreenOS WebUI graphical interface, then you can use the Initial Configuration Wizard to guide you through the basic configuration. To use the Initial Configuration Wizard, refer to the *Juniper Networks NetScreen-5GT Wireless Getting Started Guide*.

Topics explained in this chapter include:

- Accessing the Device
- Required Configuration
- Wireless Configuration
- ADSL Configuration
- Optional Configuration
- Verifying External Connectivity
- Resetting the Device to Factory Defaults

Note: *After you configure the NetScreen device and verify connectivity to the Internet, you must register your product at www.juniper.net/support/ so that certain ScreenOS services, such as internal antivirus or Deep Inspection Signature Service, can be activated on the device. After registering your product, use the WebUI to obtain the subscription for the service. For more information about registering your product and obtaining subscriptions for specific services, see the "System Parameters" chapter in the "Fundamentals" volume of the* NetScreen Concepts & Examples ScreenOS Reference Guide *for ScreenOS 5.0.0.*

Accessing the Device

This section describes how to access your NetScreen device using the WebUI, Telnet, or a Console connection.

Using the WebUI

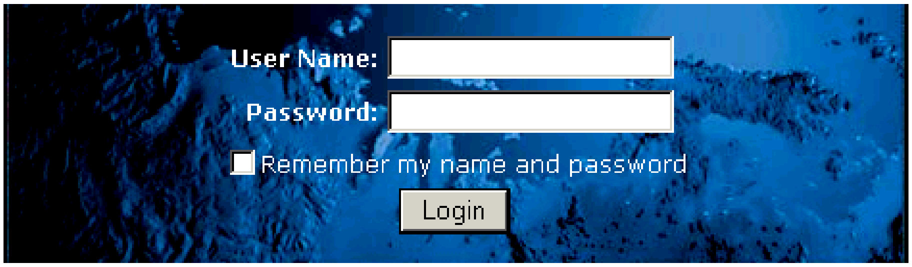
The ScreenOS WebUI is a graphical interface that is available through a web browser. To use the WebUI, you must be on the same subnetwork as the NetScreen device. To access the NetScreen-5GT Wireless device with the WebUI management application:

1. Connect your workstation (or your LAN hub) to Trust Ethernet port labeled 1.
2. Make sure that your workstation is on the same subnetwork as the NetScreen device. If there are no DHCP servers available on the LAN, then the NetScree-5GT Wireless device acts as a DHCP server. The NetScreen device provides addresses from 192.168.1.33 to 192.168.1.xx.

3. Launch your browser, enter the default IP address for the Trust interface in the URL field, and then press Enter. For example, enter the following in the URL field:

```
192.168.1.1
```

The NetScreen WebUI software displays the login prompt.



> ***Note:*** *If you choose to skip the Initial Configuration Wizard, then the WebUI login prompt automatically appears.*

4. If you have not yet changed the default user name and password, then enter **netscreen** in both the **User Name** and **Password** fields, and then click **Login**. (Use lowercase letters only. The User Name and Password fields are both case sensitive.)

Using Telnet

Telnet is an application that allows you to access devices through an IP network.

> ***Note:*** *You can also access NetScreen devices using Secure Shell (SSH) applications. Refer to the "Administration" chapter in the "Administration" volume of the* NetScreen Concepts & Examples ScreenOS Reference Guide *for ScreenOS 5.0.0 for more information.*

To configure the device using Telnet, enter ScreenOS Command Line Interface (CLI) commands in a Telnet session from your workstation.

1. Connect your workstation (or your LAN hub) to Trust Ethernet port labeled 1.
2. Start a Telnet client application to the default IP address for the Trust interface. For example, enter the following:

```
telnet 192.168.1.1
```

3. If you have not yet changed the default user name and password, then type **netscreen** in both the **login** and **password** prompts. (Use lowercase letters only. The login and password fields are both case sensitive.)

Using a Console Connection

The Console port on the NetScreen-5GT Wireless device allows you to access the device through a serial cable connected to your workstation or terminal. To configure the device using a console connection, enter ScreenOS CLI commands on your terminal or in a terminal emulation program on your workstation.

> ***Note:*** *For the console connection, use a serial cable with a male RJ-45 connector on one end and female DB-9 connector on the other end. See Appendix A, Specifications for the connector pinouts for the serial cable.*

To establish a console connection:

1. Plug the female DB-9 end of the serial cable into the serial port of your computer. (Be sure that the DB-9 connector is seated properly in the port.)
2. Plug the other end of the DB-9 connector into the RJ-45 DB-9 port. (Be sure that the DB-9 connector is seated properly in the RJ-45 DB-9 port.)
3. Plug the male RJ-45 end of the serial cable into the Console port of the NetScreen-5GT Wireless device. (Be sure that the RJ-45 connector is seated properly in the port.)
4. Launch a serial terminal emulation program. (A commonly-used terminal program is Hilgreave HyperTerminal.) The required settings to launch a console session with your NetScreen-5GT Wireless device are as follows:
   - Baud Rate: 9600
   - Parity: No
   - Data Bits: 8
   - Stop Bit: 1
   - Flow Control: None
5. If you have not yet changed the default user name and password, enter **netscreen** in both the **login** and **password** prompts. (Use lowercase letters only. The login and password fields are both case sensitive.)

Required Configuration

This section describes the configurations that you need to complete to use the NetScreen-5GT Wireless devices.

> ***Note:*** *If you have any problems completing a configuration and you need to restore the device to its default settings, see "Resetting the Device to Factory Defaults" on page 29.*

Changing the Admin Name and Password

Because all NetScreen products use the same default admin name and password (**netscreen**), it is highly advisable to change your admin name and password immediately. To change the administrator name and password from “netscreen” and “netscreen” to “darwin1” and “1240jes”:

WebUI

Configuration > Admin > Administrators > Edit (for the netscreen Administrator Name): Enter the following, and then click **OK**:

Administrator Name: darwin1

Old Password: netscreen

> ***Note:*** *Passwords do not display in the WebUI when you type them in.*

New Password: 1240jes

Confirm New Password: 1240jes

CLI

```
set admin name darwin1
set admin password 1240jes
save
```

For information on creating different levels of administrators, see the “Administration” chapter in the “Administration” volume of the *NetScreen Concepts & Examples ScreenOS Reference Guide* for ScreenOS 5.0.0.

Setting the Date and Time

The time set on the NetScreen device affects events such as the setup of VPN tunnels and the timing of schedules. The easiest way to set the date and time on the NetScreen device is to synchronize the system clock on the NetScreen device with the clock on your computer. To do this in the WebUI:

1. Configuration > Date/Time: Click the **Sync Clock with Client** button.

   A pop-up message prompts you to specify if you have enabled the daylight saving time option on your computer clock.

2. Click **Yes** to synchronize the system clock and adjust it according to daylight saving time or **No** to synchronize the system clock without adjusting it for daylight saving time.

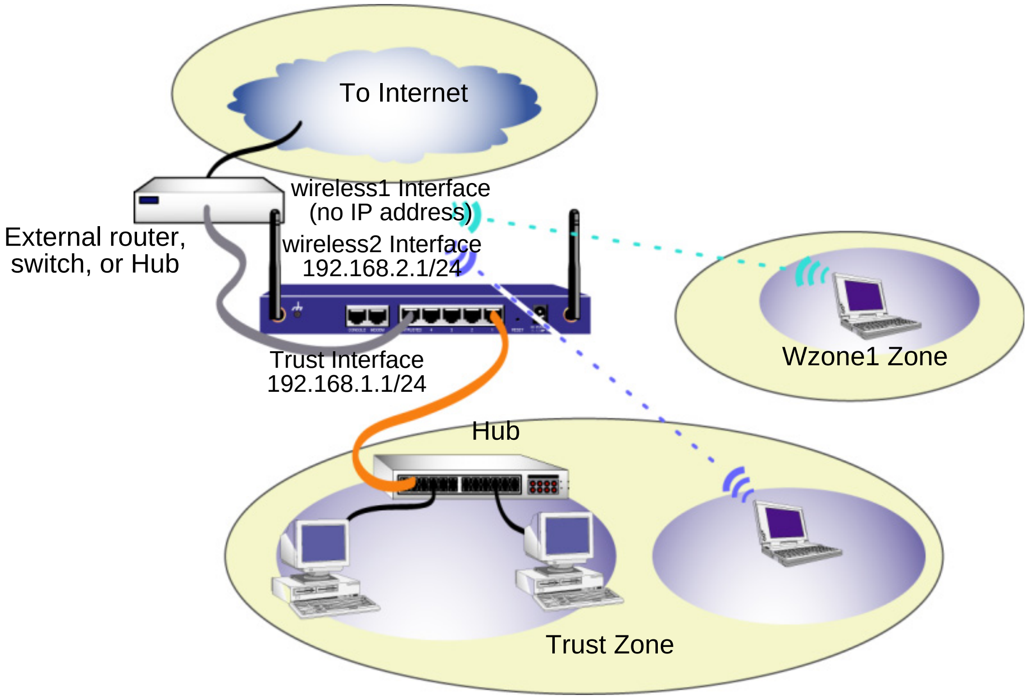
You can also use the CLI **set clock** command in a Telnet or Console session to manually enter the date and time.

Wireless Configuration

This section provides information for configuring the wireless interface on the NetScreen device. Depending on the type of license you have installed, you can configure up to four virtual Access Points on a NetScreen-5GT Wireless device. The interface to zone bindings are static, and there are no wireless interfaces assigned to the Untrust zone. You must configure at least one wireless interface on the NetScreen device to create a wireless LAN (WLAN).

***Note:** If you are operating the NetScreen-5GT Wireless device in a country other than the United States or Japan, then you must use the **set wlan country-code** command before a WLAN connection can be established. This command sets the selectable channel range and transmit power level.*

The figure below shows the default configuration for the NetScreen-5GT Wireless.



The default wireless interface has a predefined name “wireless2”. The Trust and wireless2 interfaces are bound to the Trust zone and are configured with the subnetwork addresses 192.168.1.1/24 and 192.168.2.1/24, respectively. This means that all devices that you connect to in the Trust zone must be in the same subnetwork as either the trust or wireless2 interface and have IP addresses in one of the two subnetworks. The NetScreen device is also configured to assign IP addresses for the 192.168.1.1/24 and 192.168.2.1/24 subnetworks to your devices. For more information, refer to “Changing the Trust Interface Address” on page 29.

By default, the wireless1 interface is bound to the Wzone1 zone and does not have an IP address assigned to it. If you want to use the wireless1 interface, then you must configure an IP address for it. Refer to the *NetScreen-5GT Wireless New Features Guide* for more information.

The NetScreen device allows any type of traffic to the Internet that originates from devices in your Trust zone, but does not allow any traffic that originates in the Internet to reach your network. You can configure additional restrictions; refer to "Configuring Additional Policies" on page 25.

Configuring the Wireless Network

Wireless networks consist of names referred to as Service Set Identifiers (SSIDs). Specifying an SSID allows you to have multiple wireless networks residing in the same location without interfering with each other. You can have a maximum of eight SSIDs configured on each device. Once the SSID name is set, you can configure SSID attributes.

To set the SSID name **netscreen open**, allow wireless network connectivity, and activate the wireless2 interface:

WebUI

Wireless > SSID > New: Enter the following, and then click **OK**:

SSID: "netscreen open"

Wireless Interface Binding: wireless2 (select)

Activate Changes > click the **Activate Changes** button

CLI

```
set ssid name "netscreen open"
set ssid "netscreen open" authentication open encryption
    none
set ssid "netscreen open" interface wireless2
exec wlan reactivate
```

Once you have set an SSID to the wireless2 interface, you can access the device using the default wireless2 interface IP address in the steps provided with "Accessing the Device" on page 13 to configure the device. Refer to the *NetScreen-5GT Wireless New Features Guide* for configuration examples, SSID attributes, and CLI commands relating to wireless security configurations.

Note: *You cannot use the wireless2 interface to access the Initial Configuration Wizard (ICW). The ICW can only be accessed with the physical Trust interface connection.*

ADSL Configuration

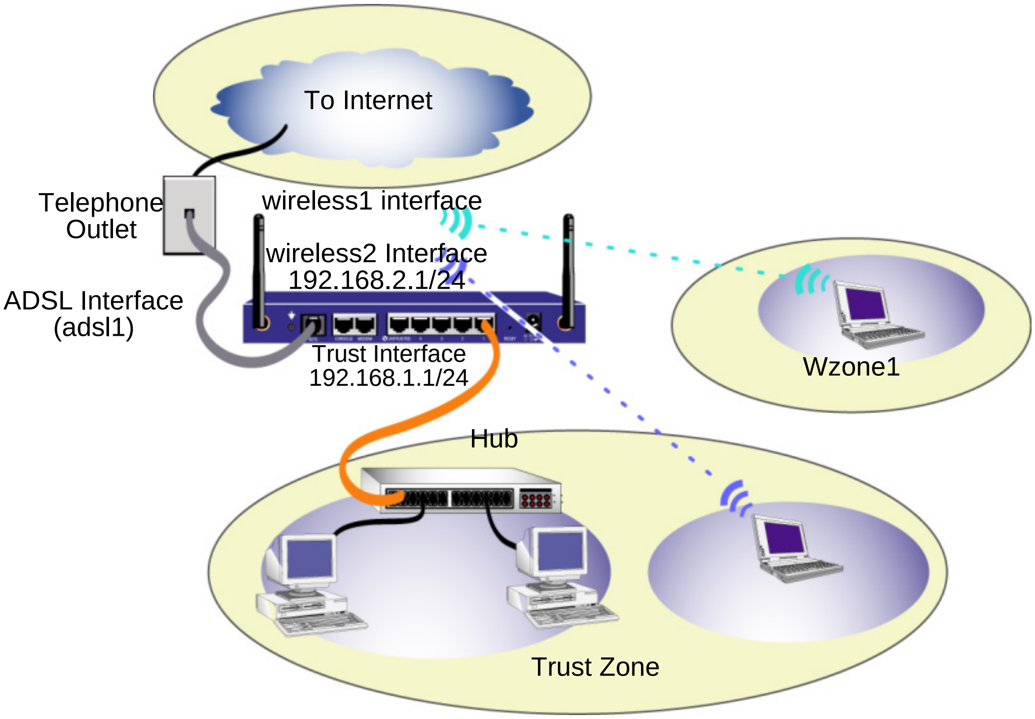
This section describes the default settings and operation of the NetScreen-5GT Wireless ADSL Annex A and B devices as they are shipped from the factory. These default settings are such that, in most cases, there are only a few items that you must configure.

This section describes the following configurations for the Untrust zone interface:

- Configuring the ADSL Interface
- VPI/VCI and Multiplexing Method
- PPPoE or PPPoA
- Annex B Mode
- Configuring a Backup Untrust Zone Interface
- Static IP Address and Netmask

Note: *If you have any problems completing a configuration and you need to restore the device to its default settings, see "Resetting the Device to Factory Defaults" on page 29.*

The figure below shows the default configuration for the NetScreen-5GT Wireless ADSL.



The ADSL interface has the predefined name "adsl1" and is the main connection from your network to the Internet. To allow the NetScreen device (and the devices on your network) to connect to the Internet, you must configure the adsl1 interface according to information obtained from your service provider. Refer to "Configuring the ADSL Interface" on page 20.

The NetScreen device allows any type of traffic to the Internet that originates from devices in your Trust zone, but does not allow any traffic that originates in the Internet to reach your network. You can configure additional restrictions; refer to "Configuring Additional Policies" on page 25.

Configuring the ADSL Interface

Your network uses the ADSL interface "adsl1" on the NetScreen device to connect to the service provider's network through an Asynchronous Transfer Mode (ATM) virtual circuit. You can configure additional virtual circuits by creating ADSL subinterfaces (see "Adding Virtual Circuits to an ADSL Interface" on page 20 for more information).

In the WebUI, navigate to the Network > Interfaces page to see a list of the current interfaces on the NetScreen device. If you are using a Telnet or Console session, enter the CLI command **get interface**. You should see that the adsl1 interface is bound to the Untrust zone. If you used the Initial Configuration Wizard to configure the device, then there may be an IP address and netmask already assigned to the adsl1 interface.

Note: *If you do not want to use the ADSL interface, then you can bind it to the Null zone with the* ***set interface adsl1 zone null*** *command. If you use the Initial Configuration Wizard to configure the device, you can choose to not use the ADSL interface as the default interface to the Untrust zone.*

You must configure the adsl1 interface to enable the NetScreen device to connect to the service provider's network. To do this, you must obtain the following information from your service provider:

- Virtual Path Identifier and Virtual Channel Identifier (VPI/VCI) values
- Asynchronous Transfer Mode (ATM) Adaptation Layer 5 (AAL5) multiplexing method, which can be one of the following:
  - Virtual Circuit (VC)-based multiplexing, in which each protocol is carried over a separate ATM virtual circuit
  - Logical Link Control (LLC) encapsulation, which allows several protocols to be carried on the same ATM virtual circuit (this is the default multiplexing method)
- User name and password assigned by the service provider for connection to the service provider's network using either the Point-to-Point Protocol over Ethernet (PPPoE) or Point-to-Point Protocol over ATM (PPPoA)
- Authentication method, if any, provided for the PPPoE or PPPoA connection
- Optionally, a static IP address and netmask value for your network

Adding Virtual Circuits to an ADSL Interface

To add virtual circuits, you create sub-interfaces to the ADSL interface. You can create up to ten ADSL subinterfaces. For example, to create a new subinterface adsl1.1 that is bound to the user-defined zone named "Corp1":

WebUI

Network > Interfaces > New ADSL Sub-IF: Enter the following, and then click **Apply**:

Interface Name: adsl1.1

VPI/VCI: 0/35

Zone Name: Corp1 (select)

CLI

```
set interface adsl1.1 pvc 0 35 zone corp1
save
```

You need to configure an ADSL subinterface in the same way as the main ADSL interface, including setting the VPI/VCI values, as described in "Configuring the ADSL Interface" on page 20. You configure an ADSL subinterface independently of the main ADSL interface, that is, you can configure a different multiplexing method, VPI/VCI, and PPP client on the subinterface than the main ADSL interface. You can also configure a static IP address on a subinterface, even if the main ADSL interface does not have a static IP address. Note that a subinterface and the main ADSL interface can use the same VPI/VCI values if one interface is configured for PPPoA and the other for PPPoE and they both use LLC multiplexing.

VPI/VCI and Multiplexing Method

Your service provider assigns a VPI/VCI pair for each virtual circuit connection. For example, you may receive the VPI/VCI pair 1/1, which means a VPI value of 1 and a VCI value of 1. These values must match the values that the service provider has configured on the subscriber's side of the digital subscriber line access multiplexer (DSLAM).

To configure the VPI/VCI pair 1/1 on the adsl1 interface:

WebUI

Network > Interfaces > Edit (for the adsl1 interface): Enter 1/1 in the VPI/VCI field, and then click **Apply**.

CLI

```
set interface adsl1 pvc 1 1
save
```

By default, the NetScreen-5GT Wireless ADSL device uses LLC-based multiplexing for each virtual circuit. To configure the VPI/VCI 1/1 on the adsl1 interface and use LLC encapsulation on the virtual circuit:

WebUI

Network > Interfaces > Edit (for the adsl1 interface): Enter the following, and then click **Apply**:

VPI/VCI: 1 / 2

Multiplexing Method: LLC (selected)

CLI

```
set interface adsl1 pvc 1 1 mux llc
save
```

PPPoE or PPPoA

The NetScreen device includes both PPPoE and PPPoA clients to connect to the service provider's network over the ADSL link. PPPoE is the most common form of ADSL encapsulation and is intended for termination on each host on your network. PPPoA is used primarily for business class service as PPP sessions can be terminated on the NetScreen device. To allow the NetScreen device to connect to the service provider's network, you need to configure the user name and password assigned by the service provider. The configuration for PPPoA is similar to the configuration for PPPoE.

Note: *The NetScreen device supports only one PPPoE session on each virtual circuit.*

To configure the user name "roswell" and password "area51" for PPPoE and bind the PPPoE configuration to the adsl1 interface:

WebUI

Network > PPPoE > New: Enter the following, and then click **OK**:

PPPoE Instance: poe1

Bound to Interface: adsl1 (select)

Username: roswell

Password: area51

CLI

```
set pppoe name poe1 username roswell password area51
set pppoe name poe1 interface adsl1
save
```

There are other PPPoE or PPPoA parameters that you can configure on the NetScreen device, including method of authentication (by default, the NetScreen device supports either Challenge Handshake Authentication Protocol or Password Authentication Protocol), idle timeout (default is 30 minutes), and so on. Ask your service provider if there are additional PPPoE or PPPoA parameters that you need to configure to enable proper communications with the service provider's server.

Annex B Mode

If you connect the Annex B model of the NetScreen-5GT Wireless ADSL device to a Deutsch Telecom ADSL line, then you must configure the physical interface on the ADSL port for operation with this equipment. To do this:

WebUI

Network > Interfaces > Edit (for the adsl1 interface): Select **DT** for the Annex B Mode, and then click **Apply**.

CLI

```
set interface adsl1 phy annex-b-mode dt
save
```

You do not need to configure this setting if you are using the Annex A model of the device or if you are connecting the device to non-Deutsch Telecom equipment.

Static IP Address and Netmask

If your ISP gave you a specific, fixed IP address and netmask for your network, then configure the IP address and netmask for the network and the IP address of the router port connected to the NetScreen device. You need to also specify that the device use the static IP address. (By default, the NetScreen device acts as a PPPoE or PPPoA client and receives an IP address for the ADSL interface through negotiations with the PPPoE or PPPoA server.)

To configure the static IP address 1.1.1.1/24 for the network:

WebUI

Network > Interfaces > Edit (for the adsl1 interface): Enter the following, and then click **Apply**:

IP Address/Netmask: 1.1.1.1/24

Static IP: (select)

> ***Note:*** *You need to configure a PPPoE or PPPoA instance and bind it to the adsl1 interface, as described in the previous section. Make sure that you select "Obtain IP using PPPoE" or "Obtain IP using PPPoA" and the name of the PPPoE or PPPoA instance.*

CLI

```
set interface adsl1 ip 1.1.1.1/24
set pppoe name poe1 static-ip
save
```

or

```
set interface adsl1 ip 1.1.1.1/24
set pppoa name poa1 static-ip
save
```

To use Domain Name System (DNS) for domain name and address resolution, the computers in your network need to have the IP address of at least one DNS server. If the NetScreen device receives an IP address for the ADSL interface through PPPoE or PPPoA, then it also automatically receives IP addresses for the DNS server(s). If the computers in your network obtain their IP addresses from the DHCP server on the NetScreen device, then the computers also obtain these DNS server address(es).

If you assign a static IP address to the ADSL interface, then the service provider must give you the IP address(es) of the DNS server(s). You can either configure the DNS server address on each computer in your network or configure the DHCP server on the Trust zone interface so that it provides the DNS server address to each computer.

To configure the DHCP server on the Trust interface to provide the DNS server address 1.1.1.152 to computers in your network:

WebUI

Network > DHCP > Edit (for the Trust interface) > DHCP Server: Enter 1.1.1.152 for DNS1, and then click **Apply**.

CLI

```
set interface trust dhcp server option dns1 1.1.1.152
save
```

Optional Configuration

This section describes the following features on the NetScreen-5GT Wireless devices that you may want to configure:

- Restricting Management
- Configuring Additional Policies
- Operational Mode
- Changing the Port Mode
- Configuring a Backup Untrust Zone Interface
- Changing the Trust Interface Address

> ***Note:*** *Not all of the optional configurations are described in detail in this manual. Refer to the appropriate chapters in the* NetScreen Concepts & Examples ScreenOS Reference Guide *for ScreenOS 5.0.0 for more information.*

Restricting Management

By default, anyone in your network can manage the NetScreen device if they know the login and password. You can configure the NetScreen device to be managed only from one or more specific hosts on your network. (And you can choose which services — for example, WebUI, Telnet, ping — you want enabled on the NetScreen device.) Refer to the “Administration” chapter in the “Administration” volume of the *NetScreen Concepts & Examples ScreenOS Reference Guide* for ScreenOS 5.0.0.

Configuring Additional Policies

The NetScreen-5GT Wireless devices are configured with a default policy that permits workstations in the Trust zone of your network to access any kind of service with outside computers, while outside computers are not allowed to access or start sessions with your workstations. You can configure policies that direct the NetScreen device to permit outside computers to start specific kinds of sessions with your computers. To create or modify policies, refer to the “Policies” chapter in the “Fundamentals” volume of the *NetScreen Concepts & Examples ScreenOS Reference Guide* for ScreenOS 5.0.0.

Operational Mode

The *operational mode* is the way an interface on a NetScreen device processes traffic between zones. By default, the NetScreen-5GT Wireless devices operates in Route mode with network address translation (NAT) enabled on the Trust interface. This means that when devices in the Trust zone send traffic to the Internet, the NetScreen device replaces the original source IP addresses with the IP address of the Untrust interface. While the NetScreen device assigns “private” IP addresses to the devices in your network, these addresses remain hidden to computers outside your network.

If all devices in your network have public IP addresses, then you can configure the NetScreen device for Route mode without NAT enabled. In Route mode without NAT enabled, the NetScreen device routes traffic by checking IP addresses. For more information about configuring the device for Route mode without NAT enabled, refer to the “Interface Modes” chapter in the “Fundamentals” volume of the *NetScreen Concepts & Examples ScreenOS Reference Guide* for ScreenOS 5.0.0.

Changing the Port Mode

The *port mode* is the binding of physical ports, logical interfaces, and zones.

Warning: *Changing the port mode removes any existing configurations on the NetScreen device. Therefore, change the port mode before configuring the device.*

The following table summarizes the port, interface, and zone bindings provided by the port modes that are available on the NetScreen-5GT Wireless devices:

Port Name[a]	Trust-Untrust Port Mode[b]		Home-Work Port Mode		Trust/Untrust/DMZ (Extended) Mode	
	Interface	**Zone**	**Interface**	**Zone**	**Interface**	**Zone**
1	trust	Trust	ethernet1	Work	ethernet1	Trust
2	trust	Trust	ethernet1	Work	ethernet1	Trust
3	trust	Trust	ethernet2	Home	ethernet2	DMZ
4	trust	Trust	ethernet2	Home	ethernet2	DMZ
Untrusted	untrust	Null[c]	ethernet4	Null[c]	ethernet4	Null[c]
Modem	serial	Null[c]	serial	Null[c]	serial	Null[c]
ADSL[d]	adsl1	Untrust or V1-Untrust	adsl1	Untrust	adsl1	Untrust
	wireless1	Wzone1	wireless1	Wzone1	wireless1	Wzone1
	wireless2	Trust or V1-Trust	wireless2	Work	wireless2	Trust
			wireless3	Home	wireless3	DMZ
					wireless4	Wzone2

a. As labeled on the NetScreen appliance chassis.

b. Default port mode.

c. You can configure a backup interface to the Untrust zone, using either the Untrusted Ethernet port or the Modem port. See "Configuring a Backup Untrust Zone Interface" on page 28.

d. Only available on the ADSL Annex A and B devices.

Port Name[a]	Dual Untrust[b] Port Mode		Combined[c] Port Mode	
	Interface	**Zone**	**Interface**	**Zone**
1	ethernet1	Trust	ethernet1	Work
2	ethernet1	Trust	ethernet2	Home
3	ethernet1	Trust	ethernet2	Home
4	ethernet2	Untrust	ethernet3	Untrust
Untrusted	ethernet3	Untrust	ethernet4	Untrust

Port Name[a]	Dual Untrust[b] Port Mode		Combined[c] Port Mode	
	Interface	Zone	Interface	Zone
Modem	serial	Null[c]	serial	Null[c]
ADSL[d]	adsl1	Untrust or V1-Untrust	adsl1	Untrust
	wireless1	Wzone1	wireless1	Wzone1
	wireless2	Trust or V1-Trust	wireless2	Work
			wireless3	Home

a. As labeled on the NetScreen appliance chassis.

b. Only available on the Wireless only device.

c. Only available on the Wireless only device.

d. Only available on the Wireless ADSL Annex A and B devices.

To change the NetScreen device to the Home-Work port mode:

WebUI

Configuration > Port Mode: Select Home-Work from the drop-down list, and then click **Apply**.

At the following prompt, click **OK**:

Operational mode change will erase current configuration and reset the device, continue?

CLI

```
exec port-mode home-work
```

At the following prompt, enter **y** (for yes):

```
Change port mode from <trust-untrust> to <home-work> will
erase system configuration and reboot box
Are you sure y/[n]? y
```

Configuring a Backup Untrust Zone Interface

By default, on NetScreen-5GT Wireless ADSL device, the adsl1 interface is the primary connection to an outside network. Each port mode available on the NetScreen-5GT Wireless ADSL device allows you the option of connecting either the Untrusted Ethernet port or the Modem port as a backup connection to the outside network (see "Changing the Port Mode" on page 26). You must bind the backup interface to the Untrust zone and configure the interface appropriately.

> ***Note:*** *You can configure only one backup interface, using either the Untrusted Ethernet port or Modem port connection. If you use the Untrusted port for the backup connection, then configure the Untrust interface in Trust-Untrust port mode or the ethernet3 interface for other port modes. If you use the Modem port for the backup connection, then configure the serial interface for all port modes.*

For example, to bind the Untrust interface to the Untrust zone:

WebUI

Network > Interfaces > Edit (for the untrust interface): Select Untrust from the Zone Name drop-down list, and then click **OK**.

CLI

```
set interface untrust zone untrust
save
```

You also need to set a static IP address for the Untrust interface, or specify whether the IP address for the interface is obtained via either DHCP or PPPoE. See the "Interfaces" chapter in the "Fundamentals" volume of the *NetScreen Concepts & Examples ScreenOS Reference Guide* for ScreenOS 5.0.0 for more information about configuring interface parameters.

When the adsl1 interface and either the Ethernet interface (named untrust or ethernet3, depending upon the port mode) or the serial interface is bound to the Untrust zone, interface failover is automatically configured. That is, if the adsl1 interface becomes unavailable, the NetScreen device automatically sends traffic to the backup interface. The device automatically sends traffic to the adsl1 interface when the adsl1 interface is again available.

> ***Note:*** *Only the adsl1 interface is affected by failover. That is, if you have also configured ADSL subinterfaces, the subinterfaces do not fail over to the backup interface.*

You can also manually force failover and failback on the adsl1 interface. For more information, see the "Interface Redundancy" chapter in the "High Availability" volume of the *NetScreen Concepts & Examples ScreenOS Reference Guide* for ScreenOS 5.0.0.

Changing the Trust Interface Address

You can change the IP address and netmask of the Trust and wireless interfaces if necessary. (Remember that when the Trust interface is in NAT mode, the IP addresses of devices in your network are never seen by computers outside your network; outside computers see only the IP address of the Untrust interface.) For example, you might need to change the Trust interface to match the IP addresses that already exist on your network. If you change the IP address and netmask of the Trust interface, then you also need to change either the range of addresses that the NetScreen device assigns via DHCP to devices in the network or disable the DHCP server on the Trust interface.

If the computers in your network obtain their IP addresses from the DHCP server on the NetScreen device, then the computers also obtain their default gateway from the NetScreen device. If a computer has a statically assigned IP address, then you must manually set its default gateway to the IP address of the Trust interface on the NetScreen device.

To assign a different IP address and netmask to the Trust interface, refer to the “Interfaces” chapter in the “Fundamentals” volume of the *NetScreen Concepts & Examples ScreenOS Reference Guide* for ScreenOS 5.0.0.

To change the DHCP settings for the NetScreen device, refer to the “System Parameters” chapter in the “Fundamentals” volume of the *NetScreen Concepts & Examples ScreenOS Reference Guide* for ScreenOS 5.0.0.

Verifying External Connectivity

To verify that workstations in your network can access resources on the Internet, start a Web browser from any workstation in the network and enter the following URL: www.juniper.net.

Resetting the Device to Factory Defaults

If you lose the admin password, you can reset the NetScreen device to its default settings. This destroys any existing configurations, but restores access to the device.

Warning: *Resetting the device deletes all existing configuration settings and renders existing firewall and VPN service inoperative.*

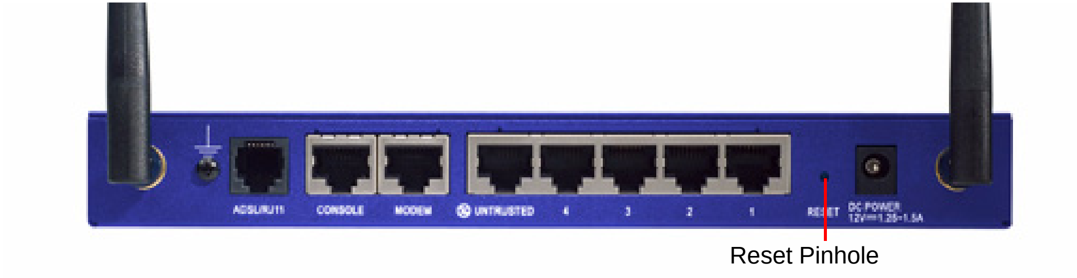
You can restore the device to its default settings in one of the following ways:

- Using a Console connection. For further information, see the “Administration” chapter in the “Administration” volume of the *NetScreen Concepts & Examples ScreenOS Reference Guide* for ScreenOS 5.0.0.
- Using the reset pinhole on the rear panel of the device, as described in the next section.

Using the Reset Pinhole

You can reset the device and restore the factory default settings by pressing the reset pinhole. To perform this operation, you need to either view the device status LEDs on the front panel or have a Console session as described in "Using a Console Connection" on page 15.

1. Locate the reset pinhole on the rear panel. Using a thin, firm wire (such as a paper clip), push the pinhole for four to six seconds and then release.

   The Status LED blinks amber. A message on the Console states that erasure of the configuration has started and the system sends an SNMP/SYSLOG alert.

2. Wait for one to two seconds.

   After the first reset, the Status LED blinks green; the device is now waiting for the second reset. The Console message now states that the device is waiting for a second confirmation.

3. Push the reset pinhole again for four to six seconds.

   The Console message verifies the second confirmation. The Status LED lights amber for one-half second and then returns to the blinking green state.

   The device then resets to its original factory settings. When the device resets, the Status LED turns amber for one-half second and then glows green. The Console displays device bootup messages. The system generates SNMP and SYSLOG alerts to configured SYSLOG or SNMP trap hosts.

   After the device has rebooted, the Console displays the login prompt for the device. The status LED now blinks green.

If you do not follow the complete sequence, the reset process cancels without any configuration change and the console message states that the erasure of the configuration is aborted. The Status LED returns to blinking green. If the device did not reset, an SNMP alert is sent to confirm the failure.

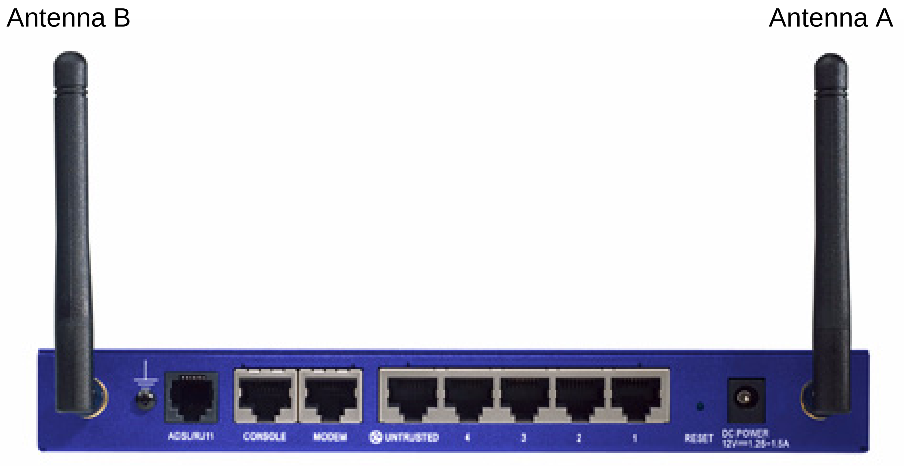
3

Hardware Descriptions

This chapter provides detailed descriptions of the NetScreen-5GT Wireless chassis.

Port and Power Connectors

The rear panel of the NetScreen-5GT Wireless device contains port and power connectors.



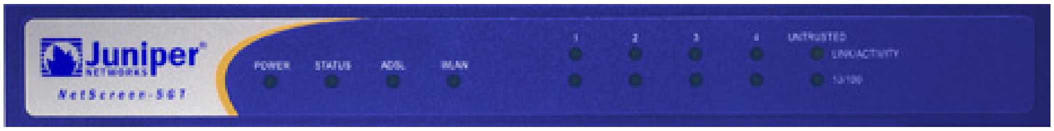
The DC power receptacle is for connecting power to the NetScreen-5GT Wireless. The Reset pinhole allows you to reset the device and restore its factory default settings. The NetScreen-5GT Wireless device includes the following ports:

Port	Description	Connector	Speed/Protocol
ADSL	When applicable, enables an Internet connection through an ADSL data link.	RJ-11 (Annex A) RJ-45 (Annex B)	ANSI T1.413 Issue 2 ITU G.992.1 (G.dmt) ITU 992.2 (G.lite)
Console	Enables a serial connection with the system. Used for launching Command Line Interface (CLI) sessions.	RJ-45	9600 bps/ RS-232
Modem	Enables a dial backup serial Internet connection through an external modem.	RJ-45	9600 bps-115 Kbps/ RS-232
Untrusted	Enables a primary or backup Internet or untrusted network connection through an external router, DSL modem, or cable modem.	RJ-45	10/100 Mbps/ Ethernet Autosensing duplex and polarity
Ports 1-4	Enables direct connections to workstations or a LAN connection through a switch or hub. This connection also allows you to manage the device through a Telnet session or the WebUI management application.	RJ-45	10/100 Mbps/ Ethernet Autosensing duplex and polarity
Antenna A & B	Enables direct connection to workstations in vicinity of a wireless radio connection. This connection allows you to manage the device through a Telnet session or the WebUI management application.	RPSMA	802.11b 802.11g

Warning: *Do not connect a phone line or ISDN line directly to the Modem port on the NetScreen-5GT Wireless device. You must first connect the device to a modem, using an RS-232 port, and then connect the modem to the line.*

STATUS LEDS

The front panel of the NetScreen-5GT Wireless device has power and status LEDs for the device and port status LEDs for the interfaces.



Main Status LEDs for the Device

The device status LEDs indicate whether the device is operating properly. The following table describes the status for each LED.

LED	Status	Meaning
POWER	**green**	Indicates the system is receiving power.
	off	Indicates the system is not receiving power.
STATUS	**blinking green**	Indicates the system is functioning.
	green	Indicates the system is starting up.
	red	Indicates a diagnostics or system initialization error.
	off	Indicates the system is not operational.
ADSL (on the Wireless ADSL only)	**green**	Indicates the ADSL loop is up.
	off	Indicates the ADSL loop is down.
WLAN	**slow blinking green**	Indicates that a Wireless connection is established, but there is no link activity.
	fast blinking green	Indicates that a Wireless connection is established. The blink rate is proportional to the link activity.
	off	Indicates there is no Wireless connection established.

Port Status LEDs

The port status LEDs indicate whether the ports on the device are operating properly. The following table describes the possible status for the ports.

LED	LED Color	Meaning of the LED
Link/Activity	**blinking green**	Indicates the device detects Ethernet traffic for the port.
	off	Indicates the port has not established a link with another device.
	green	Indicates the port has established a link with another device.
10/100	**green**	Indicates the port is connected to a 100 Base-T device.
	off	Indicates the port is connected to a 10 Base-T device.

A

Specifications

This appendix provides general system specifications for the NetScreen-5GT Wireless device.

Attributes		
Height	2.93 centimeters	1.15 inches
Depth	18.45 centimeters	7.26 inches
Width	20.8 centimeters	8.19 inches
Weight	.9 kilograms	1.98 pounds
Electrical		
Switching Regulator	AC voltage: 100-240 VAC +/- 10% 50/60 Hz AC Watts: 12 Watts DC voltage: 12 Volts	
Environmental		
Normal altitude	0°-40° C, 32-105°F	
Relative humidity	10-90%	
Non-condensing	10-90%	
The maximum normal altitude is 3,657.6 meters (12,000 feet)		
Certifications		
Safety	UL, CUL, CE, CB, A-Tick	
EMI	FCC Part 15 class B, VCCI	
Ethernet Connectors		
Standard	100Base-TX	
Media Type	Category 5 and higher Unshielded Twisted Pair (UTP) Cable	
Maximum Distance	100 meters (328.08 feet)	
The RJ-45 twisted-pair ports are compatible with the IEEE 802.3 Type 10/100 Base-T standard		
ADSL Connector		
Types	6-pin RJ-11 connector for Annex A RJ-45 connector for Annex B	
Media Type	Standard telephone cable	

Console and Modem Adapter Connections

The following table lists the RJ-45 connector definitions. To employ a standard UART port, both the console and the modem ports use this configuration.

RJ-45	Signal	Abbreviation	DCE
1	Request To Send	RTS	In
2	Data Terminal Ready	DTR	In
3	Transmitted Data	TD	In
4, 5	Signal Ground	SGND	N/A
6	Received Data	RD	Out
7	Not Connected		
8	Clear To Send	CTS	Out

The table below lists the RJ-45 to DB-9 adapter connection definitions. To employ a standard UART port, both the console and the modem ports must use this configuration.

DB9	Signal	Abbreviation	DTE	DCE	RJ45
1	Data Carrier Detect	DCD	In	Out	NC
2	Received Data	RD	In	Out	3
3	Transmitted Data	TD	Out	In	6
4	Data Terminal Ready	DTR	Out	In	7
5	Signal Ground	SGND	N/A	N/A	4
6	Data Set Ready	DSR	In	Out	2
7	Request To Send	RTS	Out	In	8
8	Clear To Send	CTS	In	Out	1
9	Ring Indicator	RI	In	Out	NC

Note: *If you use the Console cable that is provided with the NetScreen device to connect to a modem, then you need to obtain and install a null modem adapter on the modem connector.*