INSTALL GUIDE

FortiGate-800 and FortiGate-800F
FortiOS 3.0MR4

FORTINET

www.fortinet.com

FortiGate-800 and FortiGate-800F Install Guide
FortiOS 3.0MR4
15 February 2007
01-30004-0269-20070215

Trademarks

Regulatory compliance

FCC Class A Part 15 CSA/CUS

⚠ **Caution:** Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions.

Contents

Introduction

Welcome and thank you for selecting Fortinet products for your real-time network protection.

The FortiGate™ Unified Threat Management System improves network security, reduces network misuse and abuse, and helps you use communications resources more efficiently without compromising the performance of your network. FortiGate Unified Threat Management Systems are ICSA-certified for firewall, IPSec, and antivirus services.

The FortiGate Unified Threat Management Systemis a dedicated, easily managed security device that delivers a full suite of capabilities, which include:

- application-level services such as virus protection and content filtering
- network-level services such as firewall, intrusion detection, VPN and traffic shaping

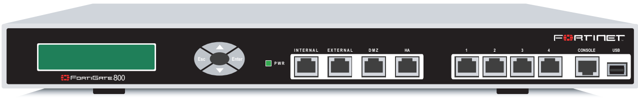
The FortiGate Unified Threat Management System uses Fortinet's Dynamic Threat Prevention System (DTPS™) technology, which leverages breakthroughs in chip design, networking, security and content analysis. The unique ASIC-based architecture analyzes content and behavior in real-time, enabling key applications to be deployed right at the network edge where they are most effective at protecting your networks.

About the FortiGate units

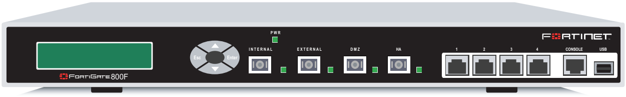
The FortiGate-800 and the FortiGate-800F provide the performance large enterprises demand from network security products. The flexibility, reliability and easy management enable both units to be considered a natural choice for large enterprises.

FortiGate-800

The FortiGate-800 provides high throughput, a total of eight network connections, (four of which are user-defined), VLAN support, and virtual domains. The FortiGate-800 also provides stateful failover HA, when you are configuring a cluster of FortiGate units. The FortiGate-800 is a natural choice for large enterprises, who demand top network security performance.



FortiGate-800F



The FortiGate-800F provides the same features as the FortiGate-800, using four fibre-optic Internal, External, DMZ and HA interfaces. The FortiGate-800F also provides stateful failover HA, and support for the RIP and OSPF routing protocols. The FortiGate-800F provides the flexibility, reliability and easy management large enterprises are looking for.

Register your FortiGate unit

Register the FortiGate unit by visiting http://support.fortinet.com and select Product Registration.

To register, enter your contact information and the serial numbers of the FortiGate units that you or your organization have purchased. You can register multiple FortiGate units in a single session without re-entering your contact information.

By registering your FortiGate unit, you will receive updates to threat detection and prevention databases (Antivirus, Intrusion Detection, etc.) and will also ensure your access to technical support.

Fortinet Family Products

Fortinet offers a family of products that includes both software and hardware appliances, for a complete network security solution including mail, logging, reporting, network management, and security along with FortiGate Unified Threat Management Systems. For more information on the Fortinet product family, visit the Fortinet web site at www.fortinet.com/products.

FortiGuard Subscription Services

FortiGuard Subscription Services are security services created, updated and managed by a global team of Fortinet security professionals. They ensure the latest attacks are detected and blocked before harming your corporate resources or infecting your end-user computing devices. These services are created with the latest security technology and designed to operate with the lowest possible operational costs.

FortiGuard Subscription Services includes:

- FortiGuard Antivirus Service
- FortiGuard Intrusion Prevention subscription services (IPS)
- FortiGuard Web Filtering
- FortiGuard Antispam Service
- FortiGuard Premier Service

An online virus scanner and virus encyclopedia is also available for your reference.

FortiClient

FortiClient™ Host Security software provides a secure computing environment for both desktop and laptop users running the most popular Microsoft Windows operating systems. FortiClient offers many features including:

- creating VPN connections to remote networks
- configuring real-time protection against viruses
- guarding against modification of the Windows registry
- virus scanning

FortiClient also offers a silent installation feature, enabling an administrator to efficiently distribute FortiClient to several users' computers with preconfigured settings.

FortiMail

FortiMail™ Secure Messaging Platform provides powerful, flexible heuristic scanning and reporting capabilities to incoming and outgoing email traffic. The FortiMail unit has reliable, high performance features for detecting and blocking malicious attachments such as Distributed Checksum Clearinghouse (DCC) scanning and Bayesian scanning. Built on Fortinet's award winning FortiOS and FortiASIC technology, FortiMail antivirus technology extends full content inspection capabilities to detect the most advanced email threats.

FortiAnalyzer

FortiAnalyzer™ provides network administrators with the information they need to enable the best protection and security for their networks against attacks and vulnerabilities. The FortiAnalyzer unit features include:

- collects logs from FortiGate devices and syslog devices
- generates hundreds of reports using collected log data
- scans and reports vulnerabilities
- stores files quarantined from a FortiGate unit

The FortiAnalyzer unit can also be configured as a network analyzer to capture real-time traffic on areas of your network where firewalls are not employed. You can also use the unit as a storage device where users can access and share files, including the reports and logs that are saved on the FortiAnalyzer hard disk.

FortiReporter

FortiReporter™ Security Analyzer software generates easy-to-understand reports and can collect logs from any FortiGate unit, as well as over 30 network and security devices from third-party vendors. FortiReporter reveals network abuse, manages bandwidth requirements, monitors web usage, and ensures employees are using the office network appropriately. FortiReporter allows IT administrators to identify and respond to attacks, including identifying ways to proactively secure their networks before security threats arise.

FortiBridge

FortiBridge™ products are designed to provide enterprise organizations with continuous network traffic flow in the event of a power outage or a FortiGate system failure. The FortiBridge unit bypasses the FortiGate unit to make sure that the network can continue processing traffic. FortiBridge products are easy to use and deploy, and you can customize the actions a FortiBridge unit takes when a power failure or a FortiGate system failure occurs.

FortiManager

The FortiManager™ system is designed to meet the needs of large enterprises (including managed security service providers) responsible for establishing and maintaining security policies across many dispersed FortiGate installations. With this system, you can configure multiple FortiGate devices and monitor their status. You can also view real-time and historical logs for the FortiGate devices, including updating firmware images of managed FortiGate devices. The FortiManager System emphasizes ease of use, including easy integration with third party systems.

About this document

This document explains how to install and configure your FortiGate unit onto your network. This document also includes how to install and upgrade new firmware versions on your FortiGate unit.

This document contains the following chapters:

- Installing the FortiGate unit – Describes setting up and powering on a FortiGate unit.
- Factory defaults – Provides the factory default settings for the FortiGate unit.
- Configuring the FortiGate unit – Provides an overview of the operating modes of the FortiGate unit and how to integrate the FortiGate unit into your network.
- FortiGate Firmware – Describes how to install, update, restore and test firmware for the FortiGate device.

Document conventions

The following document conventions are used in this guide:

- In the examples, private IP addresses are used for both private and public IP addresses.
- Notes and Cautions are used to provide important information:

Note: Highlights useful additional information.

Caution: Warns you about commands or procedures that could have unexpected or undesirable results including loss of data or damage to equipment.

Typographic conventions

FortiGate documentation uses the following typographical conventions:

Convention	Example
Keyboard input	In the Gateway Name field, type a name for the remote VPN peer or client (for example, `Central_Office_1`).

Code examples	`config sys global`
	`    set ips-open enable`
	`  end`

CLI command syntax	`config firewall policy`
	`  edit id_integer`
	`    set http_retry_count <retry_integer>`
	`    set natip <address_ipv4mask>`
	`  end`

Document names	*FortiGate Administration Guide*
Menu commands	Go to **VPN > IPSEC > Phase 1** and select Create New.
Program output	`Welcome!`
Variables	`<address_ipv4>`

FortiGate documentation

The most up-to-date publications and previous releases of Fortinet product documentation are available from the Fortinet Technical Documentation web site at http://docs.forticare.com.

The following FortiGate product documentation is available:

- *FortiGate QuickStart Guide*

  Provides basic information about connecting and installing a FortiGate unit.
- *FortiGate Install Guide*

  Describes how to install a FortiGate unit. Includes a hardware reference, default configuration information, installation procedures, connection procedures, and basic configuration procedures. Choose the guide for your product model number.
- *FortiGate Administration Guide*

  Provides basic information about how to configure a FortiGate unit, including how to define FortiGate protection profiles and firewall policies; how to apply intrusion prevention, antivirus protection, web content filtering, and spam filtering; and how to configure a VPN.
- *FortiGate online help*

  Provides a context-sensitive and searchable version of the *Administration Guide* in HTML format. You can access online help from the web-based manager as you work.
- *FortiGate CLI Reference*

  Describes how to use the FortiGate CLI and contains a reference to all FortiGate CLI commands.

- *FortiGate Log Message Reference*

  Available exclusively from the Fortinet Knowledge Center, the FortiGate Log Message Reference describes the structure of FortiGate log messages and provides information about the log messages that are generated by FortiGate units.
- *FortiGate High Availability User Guide*

  Contains in-depth information about the FortiGate high availability feature and the FortiGate clustering protocol.
- *FortiGate IPS User Guide*

  Describes how to configure the FortiGate Intrusion Prevention System settings and how the FortiGate IPS deals with some common attacks.
- *FortiGate IPSec VPN User Guide*

  Provides step-by-step instructions for configuring IPSec VPNs using the web-based manager.
- *FortiGate SSL VPN User Guide*

  Compares FortiGate IPSec VPN and FortiGate SSL VPN technology, and describes how to configure web-only mode and tunnel-mode SSL VPN access for remote users through the web-based manager.
- *FortiGate PPTP VPN User Guide*

  Explains how to configure a PPTP VPN using the web-based manager.
- *FortiGate Certificate Management User Guide*

  Contains procedures for managing digital certificates including generating certificate requests, installing signed certificates, importing CA root certificates and certificate revocation lists, and backing up and restoring installed certificates and private keys.
- *FortiGate VLANs and VDOMs User Guide*
- Describes how to configure VLANs and VDOMS in both NAT/Route and Transparent mode. Includes detailed examples.

Fortinet Knowledge Center

The knowledge center contains troubleshooting and how-to articles, FAQs, technical notes, and more. Visit the Fortinet Knowledge Center at http://kc.forticare.com.

Comments on Fortinet technical documentation

Please send information about any errors or omissions in this document, or any Fortinet technical documentation, to techdoc@fortinet.com.

Customer service and technical support

Fortinet Technical Support provides services designed to make sure that your Fortinet systems install quickly, configure easily, and operate reliably in your network.

Please visit the Fortinet Technical Support web site at http://support.fortinet.com to learn about the technical support services that Fortinet provides.

Installing the FortiGate unit

This section provides information on installing and setting up the FortiGate unit on your network. This section includes the following topics:

- Package Contents
- Air flow
- Mechanical loading
- Powering on the FortiGate unit
- Connecting to the FortiGate unit

Package Contents

Review the contents of your FortiGate package to ensure all components were included.

FortiGate-800/800F

The FortiGate-800 and FortiGate-800F package contains the following items:

- FortiGate-800 or FortiGate-800F Unified Threat Management System
- one orange crossover Ethernet cable (Fortinet part number CC300248)
- one grey straight-through Ethernet cable (Fortinet part number CC300249)
- one RJ-45 to DB-9 serial cable (Fortinet part number CC300247)
- one power cable
- SFP transceivers (FortiGate-800F only)
- two 19-inch rack mount brackets
- FortiGate-800 QuickStart Guide or FortiGate-800F QuickStart Guide
- Fortinet Tools and Documentation CD

Figure 1: FortiGate-800 package contents

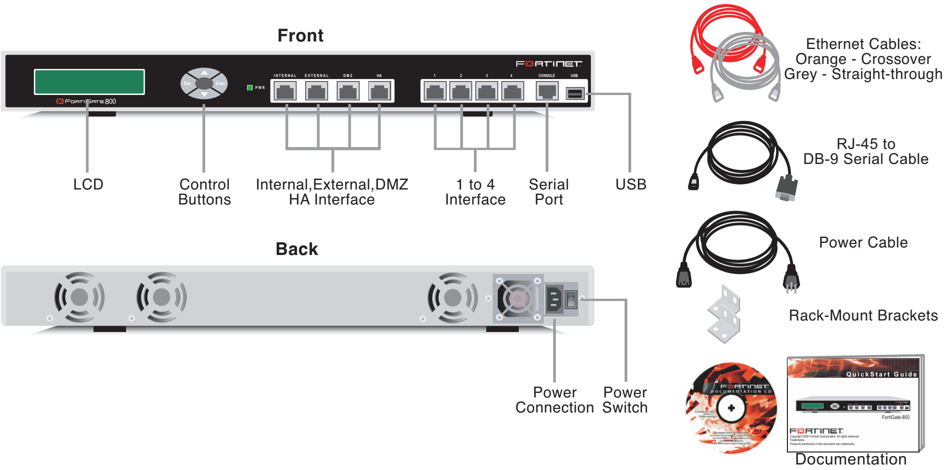
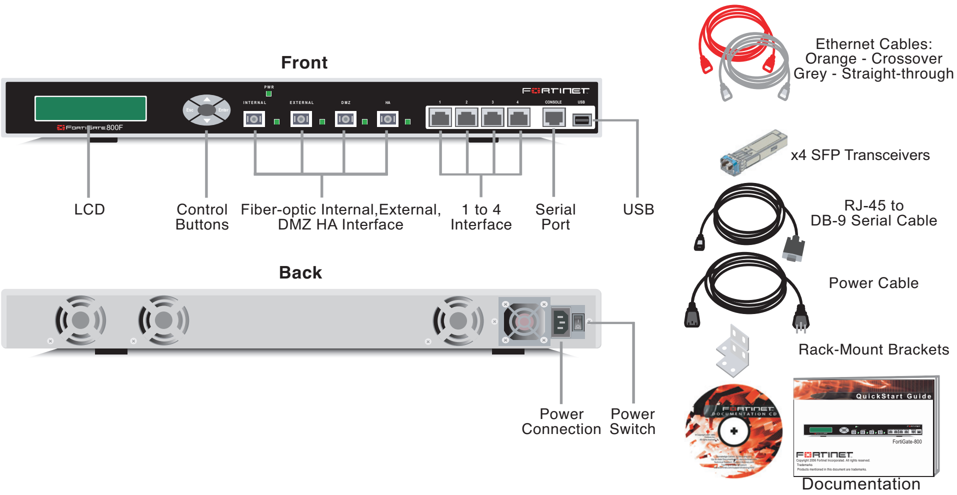


Figure 2: FortiGate-800F package contents



Mounting

The FortiGate-800 and FortiGate-800F units can be mounted in a standard 19-inch rack. Each requires 1U of vertical space in the rack. The FortiGate-800 and FortiGate-800F units can also be installed as a free-standing appliance on any stable surface.

Table 1: Technical Specifications for the FortiGate-800 and FortiGate-800F

Dimensions	16.75 x 12.5 x 1.75 in. (42.7 x 30.5 x 4.5 cm)
Weight	10 lb. (4.5 kg)
Power requirements	Power dissipation: 300W (max.) AC input voltage: 100 to 240 VAC AC input current: 6A Frequency: 50 to 60Hz • The FortiGate-800 and FortiGate-800F units may overload your supply circuit and impact your overcurrent protection and supply wiring. Use appropriate equipment nameplate ratings to address this concern. • Make sure the FortiGate-800 and FortiGate-800F units has reliable grounding. Fortinet recommends direct connection to the branch circuit.
Environmental Specifications	Operating temperature: 41 to 95 F (5 to 35 C) Storage temperature: -4 to 176 F (-20 to 80 C) Humidity: 10 to 95% non-condensing

Air flow

- For rack installation, make sure the amount of air flow required for safe operation of the FortiGate unit is not compromised.
- For free-standing installation, make sure the FortiGate unit has at least 1.5 in. (3.75 cm) of clearance on each side to allow for adequate air flow and cooling.
- If you install the FortiGate unit in a closed or multi-rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Make sure the operating ambient temperature does not exceed the manufacturer’s maximum rated ambient temperature.

Mechanical loading

For rack installation, make sure the mechanical loading of the FortiGate unit is evenly distributed to avoid a hazardous condition.

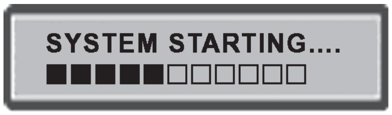
Powering on the FortiGate unit

The FortiGate unit has an on/off switch

To power on the FortiGate unit

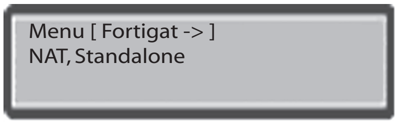
1. Make sure the power switch on the back of the FortiGate unit is turned off.
2. Connect the AC adapter to the power connection at the back of the FortiGate unit.
3. Connect the AC adapter to the power cable.
4. Connect the power cable to a power outlet.
5. Turn on the power switch.

   After a few seconds, SYSTEM STARTING appears on the LCD.



SYSTEM STARTING....
■■■■■□□□□□□

The main menu setting appears on the LCD when the system is running.



Menu [Fortigat ->]
NAT, Standalone

The FortiGate unit starts and the Power LEDs light up.

Table 2: FortiGate-800 and FortiGate-800F LED indicators

LED	Status	Description
Power	Green	The FortiGate unit is powered on.
	Off	The FortiGate unit is powered off.
Internal **External** **DMZ** **HA** **1 to 4**	Amber	The correct cable is in use and the connected equipment has power.
	Flashing amber	Network activity at this interface.
	Green	The interface is connected. Internal, External, DMZ, and HA connect at up to 1000 Mbps. Interfaces 1, 2, 3, and 4 connect at up to 100 Mbps.
	Off	No link established.

Powering off the FortiGate unit

Always shut down the FortiGate operating system properly before turning off the power switch to avoid potential hardware problems.

To power off the FortiGate unit

1. From the web-based manager, go to **System > Status**.
2. In the Unit Operation display, select Shutdown, or from the CLI enter:

   ```
   execute shutdown
   ```
3. Turn off the power switch.
4. Disconnect the power cable from the power supply.

Connecting to the FortiGate unit

There are three methods of connecting and configuring the basic FortiGate settings:

- the web-based manager
- the front control buttons and LCD
- the command line interface (CLI)

Web-based manager

You can configure and manage the FortiGate unit using HTTP or a secure HTTPS connection from any computer running Microsoft Internet Explorer 6.0 or recent browser. The web-based manager supports multiple languages.

You can use the web-based manager to configure most FortiGate settings, and monitor the status of the FortiGate unit.

Front control buttons and LCD

You can use the front control buttons and LCD on the FortiGate unit to configure IP addresses, default gateways and switch operating modes. The LCD shows you what mode you are in without having to go to the command line interface or the web-based manager. For more information on the front control buttons and LCD, see “LCD and front control buttons” on page 19.

Command line interface (CLI)

You can access the FortiGate command line interface (CLI) by connecting a management computer serial port to the FortiGate serial console connector. You can also use Telnet or a secure SSH connection to connect to the CLI from any network that is connected to the FortiGate unit, including the Internet.

Connecting to the web-based manager

Use the following procedure to connect to the web-based manager for the first time. Configuration changes made with the web-based manager are effective immediately, without resetting the firewall or interrupting service.

To connect to the web-based manager, you require:

- a computer with an Ethernet connection
- Microsoft Internet Explorer version 6.0 or higher or any recent version of the most popular web browser
- a crossover Ethernet cable or an Ethernet hub and two Ethernet cables

Note: Before starting Internet Explorer, (or any recent version of the most popular web browser), ping to your FortiGate unit to see if the connection between the computer and the FortiGate unit is working properly.

To connect to the web-based manager

1 Set the IP address of the computer with an Ethernet connection to the static IP address 192.168.1.2 with a netmask of 255.255.255.0

2 Using the crossover cable or the Ethernet hub and cables, connect the internal interface of the FortiGate unit to the computer Ethernet connection.

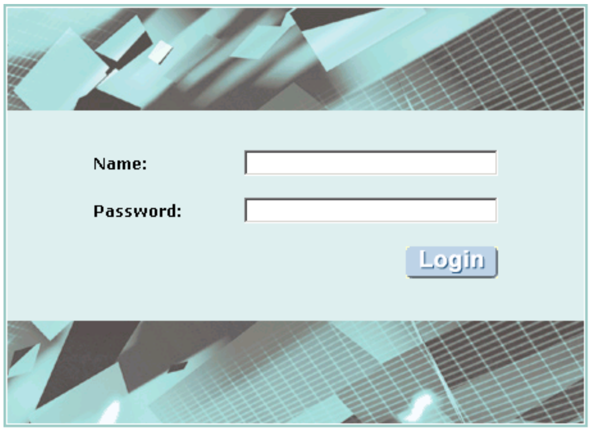
3 Start Internet Explorer and browse to the address https://192.168.1.99. (remember to include the “s” in https://).

To support a secure HTTPS authentication method, the FortiGate unit ships with a self-signed security certificate, which is offered to remote clients whenever they initiate a HTTPS connection to the FortiGate unit. When you connect, the FortiGate unit displays two security warnings in a browser.

The first warning prompts you to accept and optionally install the FortiGate unit’s self-signed security certificate. If you do not accept the certificate, the FortiGate unit refuses the connection. If you accept the certificate, the FortiGate login page appears. The credentials entered are encrypted before they are sent to the FortiGate unit. If you choose to accept the certificate permanently, the warning is not displayed again.

Just before the FortiGate login page is displayed, a second warning informs you that the FortiGate certificate distinguished name differs from the original request. This warning occurs because the FortiGate unit redirects the connection. This is an informational message. Select OK to continue logging in.

Figure 3: FortiGate login



4 Type `admin` in the Name field and select Login.

System Dashboard

After logging into the web-based manager, the web browser displays the system dashboard. The dashboard provides you with all system status information in one location. For details on the information displayed on the dashboard, see the *FortiGate Administration Guide*.

Connecting to the CLI

As an alternative to the web-based manager, you can install and configure the FortiGate unit using the CLI. Configuration changes made with the CLI are effective immediately, without resetting the firewall or interrupting service.

To connect to the FortiGate CLI you require:

- a computer with an available communications port
- the RJ-45 to DB-9 serial cable included in your FortiGate package
- terminal emulation software such as HyperTerminal for Microsoft Windows

Note: The following procedure uses Microsoft Windows HypterTerminal software. You can apply these steps to any terminal emulation program.

To connect to the CLI

1 Connect the RJ-45 to DB-9 serial cable to the communications port of your computer and to the FortiGate console port.

2 Start HyperTerminal, enter a name for the connection and select OK.

3 Configure HyperTerminal to connect directly to the communications port on your computer and select OK.

4 Select the following port settings and select OK

Bits per second	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

5 Press Enter to connect to the FortiGate CLI.

The login prompt appears.

6 Type admin and press Enter twice.

The following prompt is displayed:

```
Welcome!
```

Type ? to list available commands. For information about how to use the CLI, see the *FortiGate CLI Reference*.

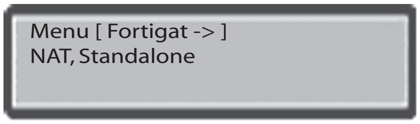
LCD and front control buttons

You can use the front control buttons and LCD to configure the basic settings on your FortiGate unit. This configuration method provides an easy and fast method to configure your FortiGate unit. You can configure:

- IP addresses
- netmasks
- default gateways
- operating modes
- restore factory default settings

The LCD enables you to see the mode the FortiGate unit is in, and if it is part of a High Availability (HA) cluster.

Figure 4: Default LCD main menu



```
Menu [ Fortigat -> ]
NAT, Standalone
```

Table 3: LCD main menu definitions

Menu	The menu the LCD currently displays.
[Fortigat ->]	The FortiGate unit's host name.
NAT	The operational mode the FortiGate unit is in.
Standalone	The FortiGate unit is not part of a HA cluster. For more information on standalone mode, see the *FortiGate Administration Guide*.

The front control buttons enable you to enter and exit the different menus for configuring the different interfaces. The front control buttons also enables you to configure IP addresses, default gateway addresses, and netmasks. The following table defines each button and what it does when configuring the basic settings of your FortiGate unit.

Table 4: Front control button definitions

Enter	Enables you to move forward through the configuration process.
Esc	Enables you to move backward, or exit out of the menu you are in.
Up	Allows you to increase the number for an IP address, default gateway address or netmask.
Down	Allows you to decrease the number for an IP address, default gateway address or netmask.

Using the front control buttons and LCD

When the main menu is displayed, you can begin to configure the IP addresses, netmasks, default gateways, and if required, change the operating mode. Use the following procedures as a guide when configuring your FortiGate unit in "Configuring the FortiGate unit" on page 27.

To enter an IP address

1 Press Enter to select the interfaces.

2 Press the up and down buttons to highlight the interface you want to configure an IP address for, and press Enter.

3 Press Enter for IP address.

4 Press the up and down buttons to increase or decrease the number.

5 Press Enter to select the next number.

6 Repeat steps 4 and 5 for all numbers of the IP address.

Use the above steps to configure netmasks and default gateways.

To change the operating mode

1 Make sure the LCD displays the main menu setting.

2 Press Enter to select the interfaces.

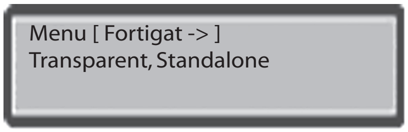
3 Press the up and down buttons to highlight the menu, To Bridge Mode.

4 Press Enter to change to Transparent mode.

The FortiGate unit changes to Transparent mode. This may take a few minutes.

5 The LCD should display the following:

Figure 5: LCD showing Transparent mode



```
Menu [ Fortigat -> ]
Transparent, Standalone
```

To reset to factory defaults

1 Make sure the LCD displays the main menu.

2 Press Enter to go to the interfaces.

3 Press the up and down arrows to highlight the menu Reset Defaults.

4 Press Enter.

The FortiGate unit resets to factory default settings. This takes a few minutes.

Factory defaults

The FortiGate unit ships with a factory default configuration. The default configuration allows you to connect to and use the FortiGate web-based manager to configure the FortiGate unit onto the network. To configure the FortiGate unit onto the network you add an administrator password, change the network interface IP addresses, add DNS server IP addresses, and, if required, configure basic routing.

If you plan to operate the FortiGate unit in Transparent mode, you can switch to Transparent mode from the factory default configuration and then configure the FortiGate unit on to the network in Transparent mode.

Once you complete the network configuration, you can perform additional configuration tasks such as setting system time, configuring virus and attack definition updates, and registering the FortiGate unit.

The factory default firewall configuration includes a single network address translation (NAT) policy that allows users on your internal network to connect to the external network and stops users on the external network from connecting to the internal network. You can add more firewall policies to provide more control of the network traffic passing through the FortiGate unit.

The factory default protection profiles can be used to apply different levels of antivirus protection, web content filtering, spam filtering, and IPS to the network traffic controlled by firewall policies.

The following topics are included in this section:

- Factory default NAT/Route mode network configuration
- Factory default Transparent mode network configuration
- Factory default firewall configuration
- Factory default protection profiles
- Restoring the default settings

Factory default NAT/Route mode network configuration

When the FortiGate unit is first powered on, it is running in NAT/Route mode and has the basic network configuration listed in Table 5 on page 22. This configuration allows you to connect to the FortiGate unit web-based manager and establish the configuration required to connect the FortiGate unit to the network. In Table 5 on page 22, HTTPS administrative access means you can connect to the web-based manager using HTTPS protocol through this interface. Ping administrative access means this interface responds to ping requests.

Table 5: Factory default NAT/Route mode network configuration

Administrator account	User name: Password:	admin (none)
Internal interface	IP: Netmask: Administrative Access:	192.168.1.99 255.255.255.0 HTTPS, Ping
External interface	IP: Netmask: Administrative Access:	192.168.100.99 255.255.255.0 Ping
DMZ interface	IP: Netmask: Administrative Access:	10.10.10.1 255.255.255.0 HTTPS, Ping
HA	IP: Netmask: Administrative Access:	0.0.0.0. 0.0.0.0. Ping
Port 1	IP: Netmask: Administrative Access:	0.0.0.0. 0.0.0.0. Ping
Port 2	IP: Netmask: Administrative Access:	0.0.0.0. 0.0.0.0. PIng
Port 3	IP: Netmask: Administrative Access:	0.0.0.0. 0.0.0.0. Ping
Port 4	IP: Netmask: Administrative Access:	0.0.0.0. 0.0.0.0. Ping
Network settings	Default Gateway (for default route)	192.168.100.1
	Default Route A default route consists of a default gateway and the name of the interface connected to the external network (usually the Internet). The default gateway directs all non-local traffic to this interface and to the external network.	
	Primary DNS Server:	65.39.139.53
	Secondary DNS Server:	65.39.139.53

Factory default Transparent mode network configuration

In Transparent mode, the FortiGate unit has the default network configuration listed in Table 6 on page 23.

Table 6: Factory default Transparent mode network configuration

Administrator account	User name:	admin
	Password:	(none)
Management IP	IP:	0.0.0.0
	Netmask:	0.0.0.0
DNS	Primary DNS Server:	65.39.139.53
	Secondary DNS Server:	65.39.139.63
Administrative access	Internal	HTTPS, Ping
	External	Ping
	DMZ	HTTPS, Ping
	Port 1	Ping
	Port 2	Ping
	Port 3	Ping
	Port 4	Ping

Factory default firewall configuration

FortiGate firewall policies control how all traffic is processed by the FortiGate unit. Until firewall policies are added, no traffic can be accepted by or pass through the FortiGate unit. To allow traffic through the FortiGate unit, you can add firewall policies. See the *FortiGate Administration Guide* for information about adding firewall policies.

The following firewall configuration settings are included in the default firewall configuration to make it easier to add firewall policies.

Table 7: Factory default firewall configuration

Configuration setting	Name	Description
Firewall address	All	Firewall address matches the source or destination address of any packet.
Pre-defined service	More than 50 predefined services	Select from any of the 50 pre-defined services to control traffic through the FortiGate unit that uses that service.
Recurring schedule	Always	The recurring schedule is valid at any time.
Protection Profiles	Strict, Scan, Web, Unfiltered	Control how the FortiGate unit applies virus scanning, web content filtering, spam filtering, and IPS.

Factory default protection profiles

Use protection profiles to apply different protection settings for traffic controlled by firewall policies. You can use protection profiles to:

- configure antivirus protection for HTTP, FTP, IMAP, POP3, and SMTP firewall policies
- configure Web filtering for HTTP firewall policies
- configure Web category filtering for HTTP firewall policies
- configure spam filtering for IMAP, POP3, and SMTP firewall policies
- enable the Intrusion Protection System (IPS) for all services
- enable content logging for HTTP, FTP, IMAP, POP3, and SMTP firewall policies

By using protection profiles, you can build protection configurations that can be applied to different types of firewall policies. This allows you to customize types and levels of protection for different firewall policies.

For example, while traffic between internal and external addresses might need strict protection, traffic between trusted internal addresses might need moderate protection. You can configure firewall policies for different traffic services to use the same or different protection profiles.

Protection profiles can be added to NAT/Route mode and Transparent mode firewall policies.

The FortiGate unit comes preconfigured with four protection profiles.

Strict To apply maximum protection to HTTP, FTP, IMAP, POP3, and SMTP traffic. You may not use the strict protection profile under normal circumstances but it is available if you have problems with viruses and require maximum screening.

Scan To apply antivirus scanning and file quarantining to HTTP, FTP, IMAP, POP3, and SMTP content traffic.

Web To apply antivirus scanning and web content blocking to HTTP content traffic. You can add this protection profile to firewall policies that control HTTP traffic.

Unfiltered To apply no scanning, blocking or IPS. Use if you do not want to apply content protection to content traffic. You can add this protection profile to firewall policies for connections between highly trusted or highly secure networks where content does not need to be protected.

Restoring the default settings

Should you need to start again, you can revert to the factory default settings if you change a network setting and are unable to recover from it.

Caution: This procedure deletes all changes you have made to the FortiGate configuration and reverses the system to its original configuration, including resetting interface addresses.

Restoring the default settings using the web-based manager

To reset the default settings

1 Go to **System > Status**.

2 In the Unit Information display, select Reset.

Restoring the default settings using the CLI

To reset the default settings, enter the following command:

```
execute factoryreset
```

Note: If you want to restore factory default settings using the front control buttons and LCD, see “LCD and front control buttons” on page 19.

Configuring the FortiGate unit

This section provides an overview of the operating modes of the FortiGate unit. Before beginning to configure the FortiGate unit, you need to plan how to integrate the unit into your network. Your configuration plan depends on the operating mode you select: NAT/Route mode or Transparent mode.

This section includes the following topics:

- Planning the FortiGate configuration
- Preventing the public FortiGate interface from responding to ping requests
- NAT/Route mode installation
- Transparent mode installation
- Next steps

Planning the FortiGate configuration

Before you configure the FortiGate unit, you need to plan how to integrate the unit into the network. Among other things, you must decide whether you want the unit to be visible to the network, which firewall functions you want it to provide, and how you want it to control the traffic flowing between its interfaces.

Your configuration plan depends on the operating mode you select. You can configure the FortiGate unit in one of two modes: NAT/Route mode (the default) or Transparent mode.

You can also configure the FortiGate unit and the network it protects using the default settings.

NAT/Route mode

In NAT/Route mode, the FortiGate unit is visible to the network. Like a router, all its interfaces are on different subnets. The following interfaces are available in NAT/Route mode:

Table 8: NAT/Route mode network segments

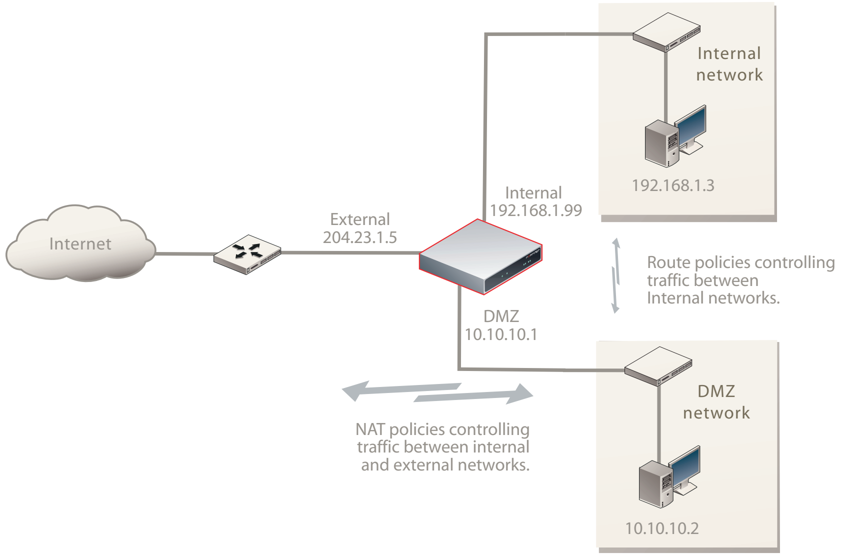
FortiGate Unit	Internal Interface	External Interface	Other
FortiGate-800	Internal	External	DMZ/HA Ports 1 to 4
FortiGate-800F	Internal	External	DMZ/HA Ports 1 to 4

You can add firewall policies to control whether communications through the FortiGate unit operate in NAT or Route mode. Firewall policies control the flow of traffic based on the source address, destination address, and service of each packet. In NAT mode, the FortiGate unit performs network address translation before it sends the packet to the destination network. In Route mode, there is no address translation.

You typically use NAT/Route mode when the FortiGate unit is operating as a gateway between private and public networks. In this configuration, you would create NAT mode firewall policies to control traffic flowing between the internal, private network and the external, public network (usually the Internet).

Note: If you have multiple internal networks, such as a DMZ network in addition to the internal, private network, you could create route mode firewall policies for traffic flowing between them.

Figure 6: Example NAT/Route mode network configuration.


Internal network
192.168.1.3
Internal
192.168.1.99
External
204.23.1.5
Internet
Route policies controlling traffic between Internal networks.
DMZ
10.10.10.1
DMZ network
NAT policies controlling traffic between internal and external networks.
10.10.10.2

NAT/Route mode with multiple external network connections

In NAT/Route mode, you can configure the FortiGate unit with multiple redundant connections to the external network (usually the Internet).

For example, you could create the following configuration:

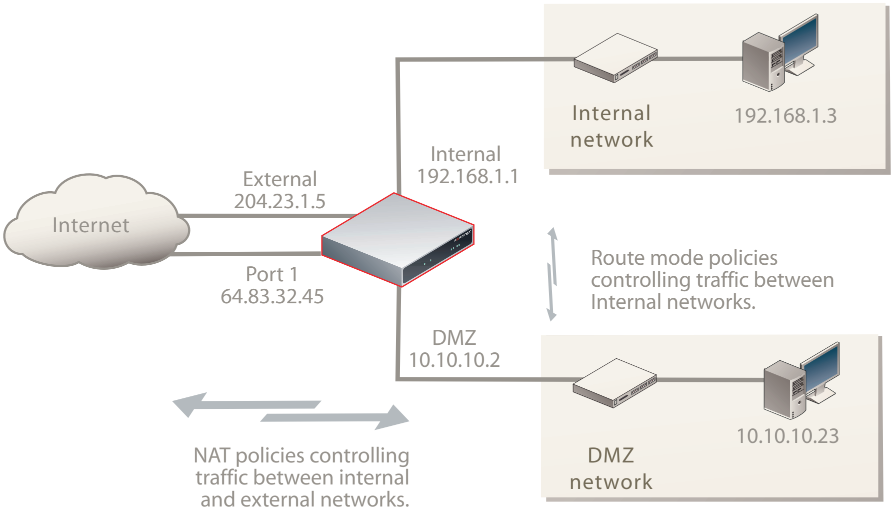
- External is the default interface to the external network (usually the Internet)
- Internal is the interface to the internal network
- DMZ is the interface for the DMZ network
- Port 1 is the redundant interface to the external network (usually the Internet)

You must configure routing to support redundant Internet connections. Routing can automatically redirect connections from an interface if its connection to the external network fails.

Otherwise, security policy configurations is similar to a NAT/Route mode configuration with a single Internet connection. You would create NAT mode firewall policies to control traffic following between the internal, private network and the external, public network (usually the Internet).

Note: If you have multiple networks, such as a DMZ network in addition to the internal private network, you could create route mode firewall policies for traffic flowing between them.

Figure 7:Example NAT/Route multiple internet connection configuration


Internal network
192.168.1.3
Internal
192.168.1.1
External
204.23.1.5
Internet
Port 1
64.83.32.45
Route mode policies controlling traffic between Internal networks.
DMZ
10.10.10.2
10.10.10.23
DMZ network
NAT policies controlling traffic between internal and external networks.

Transparent mode

In Transparent mode, the FortiGate unit is invisible to the network. Similar to a network bridge, all FortiGate interfaces must be on the same subnet. You only have to configure a management IP address to make configuration changes. The management IP address is also used for antivirus and attack definition updates.

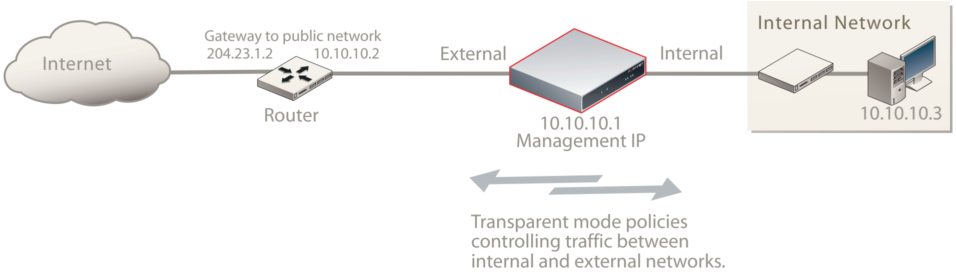
You typically use the FortiGate unit in Transparent mode on a private network behind an existing firewall or behind a router. The FortiGate unit performs firewall functions, IPSec VPN, virus scanning, IPS web filtering, and Spam filtering.

You can connect up to eight network segments to the FortiGate unit to control traffic between these network segments:

Table 9: Transparent mode network segments

FortiGate Unit	Internal Interface	External Interface	Other
FortiGate-800	Internal	External	DMZ/HA Ports 1 to 4
FortiGate-800F	Internal	External	DMZ/HA Ports 1 to 4

Figure 8: Example Transparent mode configuration.


Internet
Gateway to public network
204.23.1.2
10.10.10.2
Router
External
Internal
Internal Network
10.10.10.3
10.10.10.1
Management IP
Transparent mode policies controlling traffic between internal and external networks.

Preventing the public FortiGate interface from responding to ping requests

The factory default configuration of your FortiGate unit allows the default public interface to respond to ping requests. The default public interface is also called the default external interface, and is the interface of the FortiGate unit that is usually connected to the Internet.

For the most secure operation, you should change the configuration of the external interface so that it does not respond to ping requests. Not responding to ping requests makes it more difficult for a potential attacker to detect your FortiGate unit from the Internet.

The default public interface for the FortiGate-800/800F is the external interface.

A FortiGate unit responds to ping requests if ping administrative access is enabled for that interface. You can use the following procedures to disable ping access for the external interface of a FortiGate unit. You can use the same procedure for any FortiGate interface. You can also use the same procedure in NAT/Route or Transparent mode.

To disable ping administrative access from the web-based manager

1. Log into the FortiGate web-based manager.
2. Go to **System > Network > Interface**.
3. Choose the external interface and select Edit.
4. Clear the Ping Administrative Access check box.
5. Select OK to save the changes.

To disable ping administrative access from the FortiGate CLI

1. Log into the FortiGate CLI.
2. Disable administrative access to the external interface. Enter:

```
config system interface
    edit external
      unset allowaccess
  end
```

NAT/Route mode installation

This section describes how to install the FortiGate unit in NAT/Route mode. This section includes the following topics:

- Preparing to configure the FortiGate unit in NAT/Route mode
- DHCP or PPPoE configuration
- Using the web-based manager
- Using the front control buttons and LCD
- Using the command line interface
- Configuring the FortiGate unit to your network(s)
- Configuring the networks

Preparing to configure the FortiGate unit in NAT/Route mode

Use Table 10 on page 31 to gather the information you need to customize NAT/Route mode settings.

You can configure the FortiGate unit in several ways:

- The web-based manager GUI is a complete interface for configuring most settings. See "Using the web-based manager" on page 32.
- The front control buttons and LCD is an optional interface for configuring IP addresses, default gateways, and the operating mode. See "Using the front control buttons and LCD" on page 19.
- The command line interface (CLI) is a complete text-based interface for configuring all settings. See "Using the command line interface" on page 35.

The method you choose depends on the complexity of the configuration, access and equipment, and the type of interface you are most comfortable using.

Table 10: NAT/Route mode settings

Administrator Password:		
Internal	IP:	______ . ______ . ______ . ______
	Netmask:	______ . ______ . ______ . ______
External	IP:	______ . ______ . ______ . ______
	Netmask:	______ . ______ . ______ . ______
HA	IP:	______ . ______ . ______ . ______
	Netmask:	______ . ______ . ______ . ______
Port 1	IP:	______ . ______ . ______ . ______
	Netmask:	______ . ______ . ______ . ______
Port 2	IP:	______ . ______ . ______ . ______
	Netmask:	______ . ______ . ______ . ______
Port 3	IP:	______ . ______ . ______ . ______
	Netmask:	______ . ______ . ______ . ______
Port 4	IP:	______ . ______ . ______ . ______
	Netmask:	______ . ______ . ______ . ______
Network settings	Default Gateway:	______ . ______ . ______ . ______
	(Interface connected to external network)	
	A default route consists of a default gateway and the name of the interface connected to the external network (usually the Internet). The default gateway directs all non-local traffic to this interface and to the external network.	
	Primary DNS Server:	______ . ______ . ______ . ______
	Secondary DNS Server:	______ . ______ . ______ . ______

DHCP or PPPoE configuration

You can configure any FortiGate interface to acquire its IP address from a DHCP or PPPoE server. Your Internet Service Provider (ISP) may provide IP Addresses using one of these protocols.

To use the FortiGate DHCP server, you need to configure an IP address range and default route for the server. No configuration information is required for interfaces that are configured to use DHCP.

PPPoE requires you to supply a user name and password. In addition, PPPoE unnumbered configurations require you to supply an IP address. Use Table 11 to record the information you require for your PPPoE configuration.

Table 11: PPPoE settings

User name:	
Password:	

Using the web-based manager

Use the web-based manager for the initial configuration of the FortiGate unit for all FortiGate unit settings. For more information about connecting to the web-based manager, see "Connecting to the web-based manager" on page 16.

Configuring basic settings

After connecting to the web-based manager, you can use the following procedures to complete the basic configuration of the FortiGate unit.

To add/change the administrator password

1. Go to **System > Admin > Administrators**.
2. Select the Change Password icon for the admin administrator.
3. Enter the new password and enter it again to confirm.
4. Select OK.

To configure interfaces

1. Go to **System > Network > Interface**.
2. Select the edit icon for an interface.
3. Set the addressing mode for the interface.

   Choose from manual, DHCP, or PPPoE.
4. Complete the addressing configuration.
   - For manual addressing, enter the IP address and netmask for the interface.
   - For DHCP addressing, select DHCP and any required settings.
   - For PPPoE addressing, select PPPoE, and enter the username and password and any other required settings.

For information about how to configure these and other interface settings, see the *FortiGate online help* or the *FortiGate Administration Guide*.

5 Select OK.

Repeat this procedure for each interface.

Note: If you change the IP address of the interface you are connecting to, you must connect through a web browser again using the new address. Browse to https:// followed by the new IP address of the interface. If the new IP address of the interface is on a different subnet, you may have to change the IP address of your computer to the same subnet.

To configure DNS server settings

1 Go to **System > Network > Options**.

2 Enter the IP address of the primary DNS server.

3 Enter the IP address of the secondary DNS server.

4 Select Apply.

Adding a default route

Add a default route to configure where the FortiGate unit sends traffic destined for an external network (usually the Internet). Adding the default route also defines which interface is connected to an external network. The default route is not required if the interface connected to the external network is configured using DHCP or PPPoE.

To add a default route

1 Go to **Router > Static**.

2 If the Static Route table contains a default route (IP and Mask set to 0.0.0.0), select the Delete icon to delete this route.

3 Select Create New.

4 Select Destination IP to 0.0.0.0.

5 Set Mask to 0.0.0.0.

6 Set Gateway to the default gateway IP address.

7 Set Device to the interface connected to the external network.

8 Select OK.

Verifying the web-based manager configuration

To verify access settings, go to the interface you want to verify and select the edit icon. The Administrative Access field should have check marks beside the settings you chose in the preceeding steps.

Verify connection

To verify your connection, try the following:

- browse to www.fortinet.com
- retrieve or send email from your email account

If you cannot browse the website or retrieve/send email from your account, review the previous steps to ensure all information was entered correctly and try again.

Using the front control buttons and LCD

Basic settings, including interface IP addresses, netmasks, default gateways, and the FortiGate operating mode can be configured using the LCD and front control buttons. Use the information you recorded in Table 10 on page 31 to complete the following procedure. Start when the main menu setting is displayed on the LCD.

Note: You cannot configure DHCP or PPPoE from the front control buttons and LCD. Instead you can use the web-based manager, or the CLI.

To change the IP address and netmask of an interface

1. Press Enter to display the interface list.
2. Use the up and down arrows to highlight the name of the interface to change and press Enter.
3. Press Enter for IP address.
4. Use the up and down arrow keys to increase or decrease the value of each IP address digit. Press Enter to move to the next digit. Press Esc to move to the previous digit.
5. After you set the last digit of the IP address, press Enter.
6. Use the down arrow to highlight Netmask.
7. Press Enter and change the Netmask.
8. After you set the last digit of the Netmask, press Enter.
9. Press Esc to return to the main menu setting.

Note: When you enter an IP address, the LCD always shows the three digits for each part of the address. For example, the IP address 192.168.100.1 appears on the LCD as 192.168.100.001. The IP address 192.168.23.45 appears as 192.168.023.045.

Adding a default gateway using the LCD

The default gateway is usually configured for the interface connected to the Internet.

To add a default gateway to an interface

1. Press Enter to display the interface list.
2. Use the down arrow key to highlight the name of the interface connected to the Internet and press Enter.
3. Use the down arrow to highlight Default Gateway.
4. Press Enter and set the default gateway.
5. After you set the last digit of the default gateway, press Enter.
6. Press Esc to return to the main menu setting.

You will have to configure the DNS server settings through either the web-based manager or the CLI. There is no option on the LCD to configure DNS server settings.

Verifying the front control buttons and LCD configuration

To verify the interface settings entered from the front control buttons and LCD, go to the web-based manager, **System > Network > Interface**. The interface IP addresses entered from the front control buttons and LCD should be displayed.

Verify connection

To verify your connection, try the following:

- browse to www.fortinet.com
- retrieve or send email from your email account

If you cannot browse the website or retrieve/send email from your account, review the previous steps to ensure all information was entered correctly and try again.

Using the command line interface

You can also configure the FortiGate unit using the command line interface (CLI). For information about connecting to the CLI, see "Connecting to the CLI" on page 18.

Configuring the FortiGate unit to operate in NAT/Route mode

Use the information you gathered in Table 10 on page 31 to complete the following procedures.

To add/change the administrator password

1 Log into the CLI.

2 Change the admin administrator password. Enter:

```
config system admin
    edit admin
        set password <psswrd>
  end
```

To configure interfaces

1 Log into the CLI.

Set the IP address and netmask of the internal interface to the internal IP address and netmask you recorded in Table 10 on page 31. Enter:

```
config system interface
    edit internal
        set mode static
        set ip <address_ip> <netmask>
  end
```

Example

```
config system interface
    edit internal
        set mode static
        set ip 192.168.120.99 255.255.255.0
  end
```

Set the IP address and netmask of the external interface to the external IP address and netmask you recorded in Table 10 on page 31.

```
config system interface
    edit external
       set mode static
       set ip <address_ip> <netmask>
  end
```

Example

```
config system interface
    edit external
       set mode static
       set ip 204.28.1.5 255.255.255.0
  end
```

To set the external interface to use DHCP

```
config system interface
    edit external
        set mode dhcp
  end
```

To set the external interface to use PPPoE

```
config system interface
    edit external
        set mode pppoe
        set connection enable
        set username <name_str>
        set password <psswrd>
  end
```

2 Use the same syntax to set the IP address of each FortiGate interface as required.

3 Confirm that the addresses are correct. Enter:

```
get system interface
```

The CLI lists the IP address, netmask, and other settings for each of the FortiGate interfaces.

To configure DNS server settings

Set the primary and secondary DNS server IP addresses. Enter:

```
config system dns
    set primary <address_ip>
    set secondary <address_ip>
  end
```

Example

```
config system dns
    set primary 293.44.75.21
    set secondary 293.44.75.22
  end
```

Adding a default route

Add a default route to configure where the FortiGate unit sends traffic destined for an external network (usually the Internet). Adding the default route also defines which interface is connected to an external network. The default route is not required if the interface connected to the external network is configured using DHCP or PPPoE.

To add a default route

Set the default route to the Default Gateway IP address. Enter:

```
config router static
    edit <seq_num>
        set dst <class_ip&net_netmask>
        set gateway <gateway_IP>
        set device <interface>
  end
```

Example

If the default gateway IP is 204.23.1.2 and this gateway is connected to Port 1, which is a user-defined external interface:

```
config router static
  edit 1
     set dst 0.0.0.0 0.0.0.0
     set gateway 204.23.1.2
     set device port1
  end
```

Verifying the CLI configuration

To verify access settings, enter the following CLI command:

```
show system interface
```

The terminal emulation program should show the interface, vdom, IP address, allow access, and type settings of the FortiGate unit, as in the following example:

```
edit internal
  set vdom “root”
  set ip 192.168.1.99 255.255.255.0
  set allowaccess ping https ssh snmp http
  set type physical
```

Verify the connection

To verify the connection, try the following:

- ping the FortiGate unit
- browse to the web-based manager GUI
- retrieve or send email from your email account

If you cannot browse to the web site or retrieve/send email from your account, review the previous steps to ensure all information was entered correctly and try again.

You are now finished the initial configuration of the FortiGate unit.

Configuring the FortiGate unit to your network(s)

When you complete the initial configuration, you can connect the FortiGate unit between your internal network and the Internet and connect an additional network to the DMZ interface.

The following network connections are available on the FortiGate unit:

- Internal for connecting your internal network
- External for connecting to the Internet
- DMZ for connecting to a DMZ network

To connect to the FortiGate unit

1 Connect to the Internal interface to the hub or switch connected to your internal network.

2 Connect the External interface to the Internet.

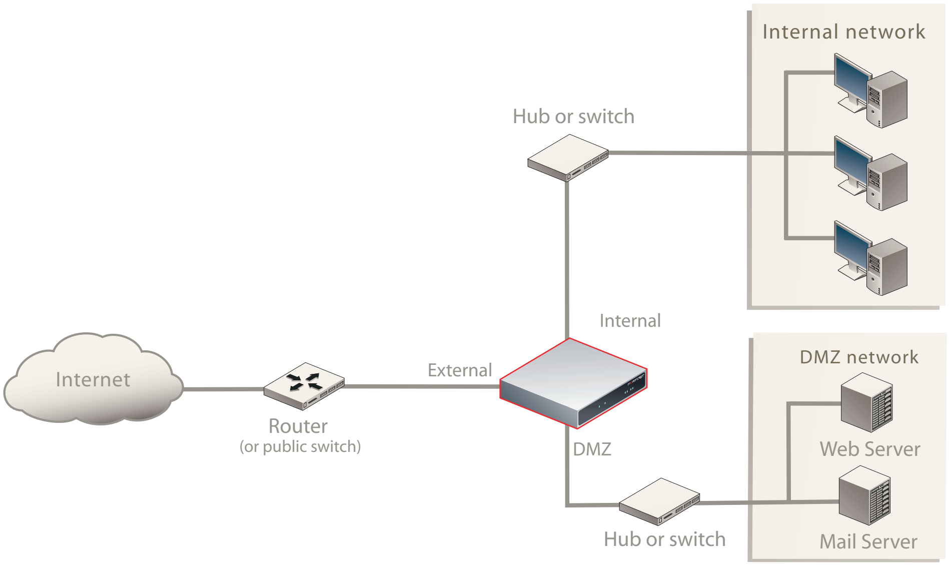
Connect to the public switch or router provided by your ISP. If you are a DSL or cable subscriber, connect the External interface to the internal or LAN connection of your DSL or cable modem.

3 Optionally connect the DMZ interface to the DMZ network.

You can use a DMZ network to provide access from the Internet to a web server or other server without installing the servers on your internal network.

In Figure 9 on page 38, the example shows an internal network connected to a user-defined internal interface and a user-defined external interface.

Figure 9: Example NAT/Route mode connections.



Configuring the networks

If you are running the FortiGate unit in NAT/Route mode, your networks must be configured to route all Internet traffic to the IP address of the interface where the networks are connected.

- For the internal network, change the default gateway address of all computers and routers connected directly to your internal network to the IP address of the FortiGate internal interface.
- For the external network, route all packets to the FortiGate external interface.
- For the DMZ network, change the default gateway address of all computers and routers connected directly to your DMZ network to the IP address of the FortiGate DMZ interface.

If you are using the FortiGate unit as the DHCP server for your internal network, configure the computers on your internal network for DHCP.

Make sure the connected FortiGate unit is functioning properly by connecting to the Internet from a computer on the internal network. You should be able to connect to any Internet address.

Transparent mode installation

This section describes how to install the FortiGate unit in Transparent mode. This section includes the following topics:

- Preparing to configure Transparent mode
- Using the web-based manager
- Using the front control buttons and LCD
- Using the command line interface
- Connecting the FortiGate unit to your network

Preparing to configure Transparent mode

Use Table 12 on page 39 to gather the information you need to customize mode settings.

You can configure Transparent mode using one of the following three methods:

- the web-based manager GUI
- the front control buttons and LCD
- the command line interface (CLI)

The method you choose depends on the complexity of the configuration, access and equipment, and the type of interface you are most comfortable using.

Table 12: Transparent mode settings

Administrator Password:		
Management IP	IP:	______ . ______ . ______ . ______
	Netmask:	______ . ______ . ______ . ______
	Default Gateway:	______ . ______ . ______ . ______
	The management IP address and netmask must be valid for the network where you will manage the FortiGate unit. Add a default gateway if the FortiGate unit must connect to a router to reach the management computer.	
DNS Settings	Primary DNS Server:	______ . ______ . ______ . ______
	Secondary DNS Server:	______ . ______ . ______ . ______

Using the web-based manager

Use the web-based manager to complete the initial configuration of the FortiGate unit. You can continue to use the web-based manager for all FortiGate unit settings. For more information about connecting to the web-based manager, see "Connecting to the web-based manager" on page 16. The first time you connect to the FortiGate unit, it is configured to run in NAT/Route mode.

To switch to Transparent mode using the web-based manager

1 Go to **System > Status**.

2 Select Change beside the Operation Mode.

3 Select Transparent in the Operation Mode list.

Type the Management IP/Netmask address and the Default Gateway address you gathered in Table 12 on page 39.

4 Select Apply.

You do not have to reconnect to the web-based manager at this time. Once you select Apply, the changes are immediate, and you can go to the system dashboard to verify you have changed the FortiGate unit in Transparent mode.

To configure DNS server settings

1 Go to **System > Network > Options**.

2 Enter the IP address of the primary DNS server.

3 Enter the IP address of the secondary DNS server.

4 Select Apply.

Using the front control buttons and LCD

Use the information you recorded in Table 12 on page 39 to complete this procedure. Begin the following procedure when the main menu setting is displayed on the LCD.

To change the management IP address and netmask

1 Press Enter to display the option list.

2 Use the up and down arrows to highlight Manager interface.

3 Set the management interface IP address.

Use the up and down arrow keys to increase or decrease the value of each IP address digit. Press Enter to move to the next digit. Press Esc to move to the previous digit.

4 After you set the last digit of the IP address, press Enter.

5 Use the up and down arrows to highlight Netmask.

6 Press Enter and set the management IP Netmask.

7 After you set the last digit of the Netmask, press Enter.

8 Press Esc to return to the main menu setting.

Note: When you enter the IP address, the LCD always shows three digits for each part of the address. For example, the IP address 192.168.100.1 appears on the LCD as 192.168.100.001. The IP address 192.168.23.45 appears as 192.168.023.045.

Adding a default gateway using the front control buttons and LCD

The default gateway is usually configured for the interface connected to the Internet.

To add a default gateway

1. Press Enter to display the option list.
2. Use the down arrow to highlight Default Gateway.
3. Press Enter and set the default gateway.
4. After you set the last digit of the default gateway, press Enter.
5. Press Esc to return to the main menu setting.

Verifying the front control buttons and LCD configuration

To verify the interface settings entered from the front control buttons and LCD, go to the web-based manager, **System > Network > Interface**. The interface IP addresses entered from the front control buttons and LCD should be displayed.

Verify connection

To verify your connection, try the following:

- browse to www.fortinet.com
- retrieve or send email from your email account

If you cannot browse the website or retrieve/send email from your account, review the previous steps to ensure all information was entered correctly and try again.

Using the command line interface

As an alternative to the web-based manager, you can begin the initial configuration of the FortiGate unit using the command line interface (CLI). To connect to the CLI, see “Connecting to the CLI” on page 18. Use the information you gathered in Table 12 on page 39 to complete the following procedures.

To change to Transparent mode using the CLI

1. Make sure you are logged into the CLI.
2. Switch to Transparent mode. Enter:

```
config system settings
     set opmode transparent
     set manageip <address_ip> <netmask>
     set gateway <address_gateway>
  end
```

After a few seconds, the following prompt appears:

```
Changing to TP mode
```

3 When the login prompt appears, enter the following:

```
get system settings
```

The CLI displays the status of the FortiGate unit including the management IP address and netmask:

```
opmode          : transparent
manageip        : <address_ip><netmask>
```

You should verify the DNS server settings are correct. The DNS settings carry over from NAT/Route mode and may not be correct for your specific Transparent mode configuration.

To verify the DNS server settings

Enter the following commands to verify the FortiGate unit’s DNS server settings:

```
show system dns
```

The above CLI command should give you the following DNS server setting information:

```
config system dns
    set primary 293.44.75.21
    set secondary 293.44.75.22
    set fwdintf internal
  end
```

To configure DNS server settings

Set the primary and secondary DNS server IP addresses. Enter:

```
config system dns
    set primary <address_ip>
    set secondary <address_ip>
  end
```

Reconnecting to the web-based manager

When the FortiGate unit has switched to Transparent mode, reconnect to the web-based manager using the new IP address. Browse to https:// followed by the new IP address. If you connect to the management interface through a router, make sure that you have added a default gateway for that router to the management IP default gateway field.

Connecting the FortiGate unit to your network

When you complete the initial configuration, you can connect the FortiGate unit between your internal network and the Internet, and connect an additional network to the DMZ interface.

To connect the FortiGate unit running in Transparent mode

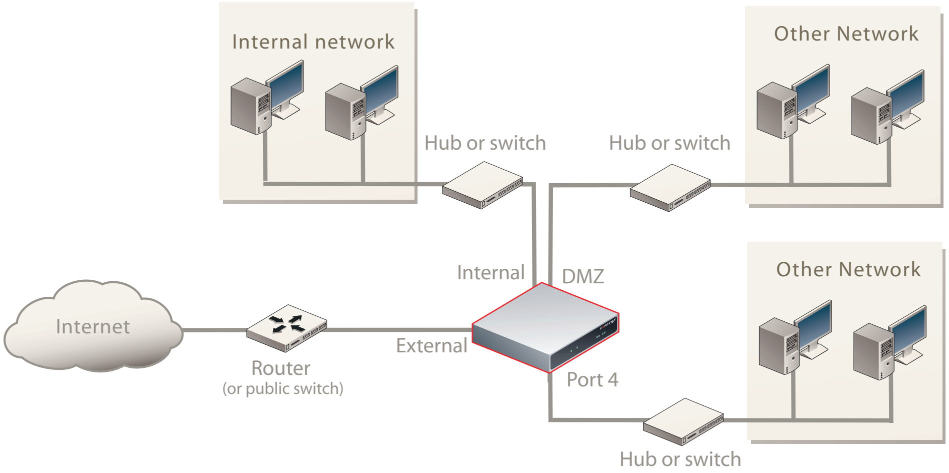
1 Connect the Internal interface to the hub or switch connected to your internal network.

2 Connect the External interface to the network segment connected to the external firewall or router.

Connect to the public switch or router provided by your ISP.

3 Optionally connect the DMZ and HA interfaces and interfaces 1 to 4 to hubs or switches connected to your other networks.

Figure 10: Example Transparent mode connections.



Verify the connection

To verify the connection, try the following:

- ping the FortiGate unit
- browse to the web-based manager GUI
- retrieve or send email from your email account

If you cannot browse to the web site or retrieve/send email from your account, review the previous steps to ensure all information was entered correctly and try again.

Next steps

Use the following information to configure FortiGate system time and antivirus and attack definition updates. Refer to the *FortiGate Administration Guide* for complete information on configuring, monitoring, and maintaining your FortiGate unit.

Set the date and time

For effective scheduling and logging, the FortiGate system date and time must be accurate. You can either manually set the system date and time or configure the FortiGate unit to automatically keep its time correct by synchronizing with a Network Time Protocol (NTP) server.

To set the date and time

1 Go to **System > Status**.

2 Under **System Information > System Time**, select Change.

3 Select Refresh to display the current FortiGate system date and time.

4. Select your Time Zone from the list.
5. Optionally, select Automatically adjust clock for daylight saving changes check box.
6. Select Set Time and set the FortiGate system date and time.
7. Set the hour, minute, second, month, day, and year as required.
8. Select OK.

Note: If you choose the option Automatically adjust clock for daylight saving changes, the system time must be manually adjusted after daylight savings time ends.

To use NTP to set the FortiGate date and time

1. Go to **System > Status**.
2. Under **System Information > System Time**, select Change.
3. Select Synchronize with NTP Server to configure the FortiGate unit to use NTP to automatically set the system time and date.
4. Enter the IP address or domain name of the NTP server that the FortiGate unit can use to set its time and date.
5. Specify how often the FortiGate unit should synchronize its time with the NTP server.
6. Select OK.

Updating antivirus and IPS signatures

Configure the FortiGate unit to connect to the FortiGuard Distribution Network (FDN) to update the antivirus (including grayware), antispam and IPS attack definitions.

The FDN is a world wide network of FortiGuard Distribution Servers (FDS). When the FortiGate unit connects to the FDN, it connects to the nearest FDS. To do this, all FortiGate units are programmed with a list of FDS addresses sorted by nearest time zone according to the time zone configured for the FortiGate unit.

You can update your antivirus and IPS signatures using the web-based manager or the CLI. Before you can begin receiving updates, you must register your FortiGate unit from the Fortinet web page. For information about registering your FortiGate unit, see “Register your FortiGate unit” on page 8.

Note: Update AV and IPS signatures on a regular basis. If you do not update AV and IPS signatures regularly, the FortiGate unit can become vulnerable to new viruses.

After registering your FortiGate unit, verify the FortiGate unit can connect to the FDN:

- Check that the FortiGate unit’s system time is correct.
- From the web-based manager, select refresh from the FortiGuard Center.

If you cannot connect to the FDN, follow the procedure for registering your FortiGate unit and try again or see “Adding an override server” on page 46.

Updating antivirus and IPS signatures from the web-based manager

After you have registered your FortiGate unit, you can update antivirus and IPS signatures using the web-based manager. The FortiGuard Center enables you to receive push updates, allow push update to a specific IP address, and schedule updates for daily, weekly, or hourly intervals.

To update antivirus definitions and IPS signatures

1 Go to **System > Maintenance > FortiGuard Center**.

2 Select the blue arrow for AntiVirus and IPS Downloads to expand the options.

3 Select Update Now to update the antivirus definitions.

If the connection to the FDN is successful, the web-based manager displays a message similar to the following:

```
Your update request has been sent. Your database will
be updated in a few minutes. Please check your update
page for the status of the update.
```

After a few minutes, if an update is available, the System FortiGuard Center page lists new version information for antivirus definitions. The System Status page also displays new dates and version numbers for the antivirus definitions. Messages are recorded to the event log indicating whether the update was successful or not.

Note: Updating antivirus definitions can cause a very short disruption in traffic currently being scanned while the FortiGate unit applies the new signature database. Schedule updates when traffic is light, for example overnight, to minimize any disruption.

Updating the IPS signatures from the CLI

Use the following procedure to update IPS signatures.

Note: You can only update antivirus definitions from the web-based manager.

To update IPS signatures using the CLI

1 Log into the CLI.

2 Enter the following CLI command:

```
configure system autoupdate ips
  set accept-recommended-settings enable
  end
```

Scheduling antivirus and IPS updates

You can schedule regular, automatic updates of antivirus and IPS signatures, either from the web-based manager or the CLI.

To enable schedule updates from the web-based manager

1 Go to **System > Maintenance > FortiGuard Center**.

2 Select the blue arrow for AntiVirus and IPS Downloads to expand the options.

3 Select the Scheduled Update check box.

4 Select one of the following to check for and download updates.

Every	Once every 1 to 23 hours. Select the number of hours and minutes between each update request.
Daily	Once a day. You can specify the time of day to check for updates.
Weekly	Once a week. You can specify the day of the week and time of day to check for updates.

5 Select Apply.

The FortiGate unit starts the next scheduled update according to the new update schedule. Whenever the FortiGate unit runs a scheduled update, the event is recorded in the FortiGate event log.

To enable schedule updates from the CLI

1 Log into the CLI.

2 Enter the following command:

```
config system autoupdate schedule
     set day
     set frequency
     set status
     set time
  end
```

Example

```
config system autoupdate schedule
     set update every Sunday
     set frequency weekly
     set status enable
     set time 16:45
  end
```

Adding an override server

If you cannot connect to the FDN, or if your organization provides updates using their own FortiGuard server, add the IP address of an override FortiGuard server in either the web-based manager or the CLI.

To add an override server from the web-based manager

1 Go to **System > Maintenance > FortiGuard Center**.

2 Select the blue arrow for AntiVirus and IPS Downloads to expand the options.

3 Select the Use override server address check box.

4 Type the fully qualified domain name or IP address of a FortiGuard server.

5 Select Apply.

The FortiGate unit tests the connection to the override server.

If the FDN setting changes to available, the FortiGate unit has successfully connected to the override server.

If the FDN stays set to not available, the FortiGate unit cannot connect to the override server. Check the FortiGate configuration and network configuration for settings that would prevent the FortiGate unit from connecting to the override FortiGuard server.

To add an override server using the CLI

1 Log into the CLI.

2 Enter the following command:

```
config system autoupdate override
     set address
     set status
  end
```

FortiGate Firmware

Fortinet periodically updates the FortiGate firmware to include enhancements and address issues. After you have registered your FortiGate unit, FortiGate firmware is available for download at the support web site, http://support.fortinet.com.

Only FortiGate administrators (whose access profiles contain system read and write privileges) and the FortiGate admin user can change the FortiGate firmware.

This section includes the following topics:

- Upgrading to a new firmware version
- Reverting to a previous firmware version
- Testing a new firmware image before installing it
- Installing firmware images from a system reboot using the CLI
- Testing a new firmware image before installing it

Note: If you have an earlier version of the FortiOS firmware, for example FortiOS v2.50, upgrade to FortiOS v2.80MR11 before upgrading to FortiOS v3.0.

Upgrading to a new firmware version

Use the web-based manager or CLI procedure to upgrade to a new FortiOS firmware version or to a more recent build of the same firmware version.

Upgrading the firmware using the web-based manager

Use the following procedures to upgrade the FortiGate unit to a new firmware version.

Note: Installing firmware replaces your current antivirus and attack definitions, along with the definitions included with the firmware release you are installing. After you install new firmware, make sure that antivirus and attack definitions are up to date. For details, see the *FortiGate Administration Guide*.

Note: To use this procedure, you must log in using the admin administrator account, or an administrator account that has system configuration read and write privileges.

To upgrade the firmware using the web-based manager

1. Copy the firmware image file to your management computer.
2. Log into the web-based manager as the admin administrative user.
3. Go to **System > Status**.
4. Under **System Information > Firmware Version**, select Update.
5. Type the path and filename of the firmware image file, or select Browse and locate the file.

6 Select OK.

The FortiGate unit uploads the firmware image file, upgrades to the new firmware version, restarts, and displays the FortiGate login. This process takes a few minutes.

7 Log into the web-based manager.

8 Go to **System > Status** and check the Firmware Version to confirm the firmware upgrade is successfully installed.

9 Update antivirus and attack definitions. For information about updating antivirus and attack definitions, see the *FortiGate Administration Guide*.

Upgrading the firmware using the CLI

To use the following procedure, you must have a TFTP server the FortiGate unit can connect to.

Note: Installing firmware replaces your current antivirus and attack definitions, along with the definitions included with the firmware release you are installing. After you install new firmware, make sure that antivirus and attack definitions are up to date. You can also use the CLI command `execute update-now` to update the antivirus and attack definitions. For details, see the *FortiGate Administration Guide*.

Note: To use this procedure, you must log in using the admin administrator account, or an administrator account that has system configuration read and write privileges.

To upgrade the firmware using the CLI

1 Make sure the TFTP server is running.

2 Copy the new firmware image file to the root directory of the TFTP server.

3 Log into the CLI.

4 Make sure the FortiGate unit can connect to the TFTP server.

You can use the following command to ping the computer running the TFTP server. For example, if the IP address of the TFTP server is 192.168.1.168:

```
execute ping 192.168.1.168
```

5 Enter the following command to copy the firmware image from the TFTP server to the FortiGate unit:

```
execute restore image <name_str> <tftp_ip4>
```

Where `<name_str>` is the name of the firmware image file and `<tftp_ip>` is the IP address of the TFTP server. For example, if the firmware image file name is `image.out` and the IP address of the TFTP server is 192.168.1.168, enter:

```
execute restore image.out 192.168.1.168
```

The FortiGate unit responds with the message:

```
This operation will replace the current firmware version!
Do you want to continue? (y/n)
```

6 Type `y`.

The FortiGate unit uploads the firmware image file, upgrades to the new firmware version, and restarts. This process takes a few minutes.

7 Reconnect to the CLI.

8 To confirm the firmware image is successfully installed, enter:

```
get system status
```

9 Update antivirus and attack definitions (see the *FortiGate Administration Guide*), or from the CLI, enter:

```
execute update-now
```

Reverting to a previous firmware version

Use the web-based manager or CLI procedure to revert to a previous firmware version.

Reverting to a previous firmware version using the web-based manager

The following procedures revert the FortiGate unit to its factory default configuration and deletes IPS custom signatures, web content lists, email filtering lists, and changes to replacement messages.

Before beginning this procedure, it is recommended that you:

- back up the FortiGate unit configuration
- back up the IPS custom signatures
- back up web content and email filtering lists

For more information, see the *FortiGate Administration Guide*.

If you are reverting to a previous FortiOS version (for example, reverting from FortiOS v3.0 to FortiOS v2.80), you might not be able to restore the previous configuration from the backup configuration file.

Note: Installing firmware replaces the current antivirus and attack definitions, along with the definitions included with the firmware release you are installing. After you install new firmware, make sure that antivirus and attack definitions are up to date. For details, see the *FortiGate Administration Guide*.

Note: To use this procedure, you must log in using the admin administrator account, or an administrator account that has system configuration read and write privileges.

To revert to a previous firmware version using the web-based manager

1 Copy the firmware image file to the management computer.

2 Log into the FortiGate web-based manager.

3 Go to **System > Status**.

4 Under **System Information > Firmware Version**, select Update.

5 Type the path and filename of the firmware image file, or select Browse and locate the file.

6 Select OK.

The FortiGate unit uploads the firmware image file, reverts to the old firmware version, resets the configuration, restarts, and displays the FortiGate login. This process takes a few minutes.

7 Log into the web-based manager.

8 Go to **System > Status** and check the Firmware Version to confirm the firmware is successfully installed.

9 Restore your configuration.

For information about restoring your configuration see the *FortiGate Administration Guide*.

10 Update antivirus and attack definitions.

For information about antivirus and attack definitions, see the *FortiGate Administration Guide*.

Reverting to a previous firmware version using the CLI

This procedure reverts the FortiGate unit to its factory default configuration and deletes IPS custom signatures, web content lists, email filtering lists, and changes to replacement messages.

Before beginning this procedure, it is recommended that you:

- back up the FortiGate unit system configuration using the command `execute backup config`
- back up the IPS custom signatures using the command `execute backup ipsuserdefsig`
- back up web content and email filtering lists

For more information, see the *FortiGate Administration Guide*.

If you are reverting to a previous FortiOS version (for example, reverting from FortiOS v3.0 to FortiOS v2.80), you might not be able to restore the previous configuration from the backup configuration file

Note: Installing firmware replaces your current antivirus and attack definitions, along with the definitions included with the firmware release you are installing. After you install new firmware, make sure that antivirus and attack definitions are up to date. For details, see the *FortiGate Administration Guide*. You can also use the CLI command `execute update-now` to update the antivirus and attack definitions.

Note: To use this procedure, you must log in using the admin administrator account, or an administrator account that has system configuration read and write privileges.

To revert to a previous firmware version using the CLI

1 Make sure the TFTP server is running

2 Copy the firmware image file to the root directory of the TFTP server.

3 Log into the FortiGate CLI.

4 Make sure the FortiGate unit can connect to the TFTP server.

You can use the following command to ping the computer running the TFTP server. For example, if the TFTP server's IP address is 192.168.1.168:

```
execute ping 192.168.1.168
```

5 Enter the following command to copy the firmware image from the TFTP server to the FortiGate unit:

```
execute restore image <name_str> <tftp_ipv4>
```

Where `<name_str>` is the name of the firmware image file and `<tftp_ip>` is the IP address of the TFTP server. For example, if the firmware image file name is `v2.80image.out` and the IP address of the TFTP server is 192168.1.68, enter:

```
execute restore v2.80image.out 192.168.1.168
```

The FortiGate unit responds with this message:

```
This operation will replace the current firmware version!
Do you want to continue? (y/n)
```

6 Type `y`.

The FortiGate unit uploads the firmware image file. After the file uploads, a message similar to the following is displayed:

```
Get image from tftp server OK.
Check image OK.
This operation will downgrade the current firmware version!
Do you want to continue? (y/n)
```

7 Type `y`.

The FortiGate unit reverts to the old firmware version, resets the configuration to factory defaults, and restarts. This process takes a few minutes.

8 Reconnect to the CLI.

9 To confirm the new firmware image has been loaded, enter:

```
get system status
```

10 To restore your previous configuration, if needed, use the command:

```
execute restore config <name_str> <tftp_ip4>
```

11 Update antivirus and attack definitions.

For information, see the *FortiGate Administration Guide*, or from the CLI, enter:

```
execute update-now.
```

Installing firmware images from a system reboot using the CLI

This procedure installs a specified firmware image and resets the FortiGate unit to default settings. You can use this procedure to upgrade to a new firmware version, revert to an older firmware version, or re-install the current firmware version.

To use this procedure, you must connect to the CLI using the FortiGate console port and a RJ-45 to DB-9 serial cable.

Note: This procedure varies for different FortiGate BIOS versions. These variations are explained in the procedure steps that are affected. The version of the BIOS running on the FortiGate unit is displayed when you restart the FortiGate unit using the CLI through a console connection.

For this procedure you:

- Access the CLI by connecting to the FortiGate console port using a RJ-45 to DB-9 serial cable.
- Install a TFTP server that you can connect to from the FortiGate internal interface. The TFTP server should be on the same subnet as the internal interface.

Before beginning this procedure, it is recommended that you:

- back up the FortiGate unit configuration
- back up the IPS custom signatures
- back up web content and email filtering

For more information, see the *FortiGate Administration Guide*.

If you are reverting to a previous FortiOS version (for example, reverting from FortiOS v3.0 to FortiOS v2.80), you might not be able to restore the previous configuration from the backup configuration file.

Note: Installing firmware replaces your current antivirus and attack definitions, along with the definitions included with the firmware release you are installing. After you install new firmware, make sure that antivirus and attack definitions are up to date. For details, see the *FortiGate Administration Guide*.

To install firmware from a system reboot

1. Connect to the CLI using the RJ-45 to DB-9 serial cable port and FortiGate console port.
2. Make sure the TFTP server is running.
3. Copy the new firmware image file to the root directory of the TFTP server.
4. Make sure the internal interface is connected to the same network as the TFTP server.
5. To confirm the FortiGate unit can connect to the TFTP server, use the following command to ping the computer running the TFTP server. For example, if the IP address of the TFTP server is 192.168.1.168:

   ```
   execute ping 192.168.1.168
   ```

6. Enter the following command to restart the FortiGate unit.

   ```
   execute reboot
   ```

   The FortiGate unit responds with the following message:

   ```
   This operation will reboot the system!
   Do you want to continue? (y/n)
   ```

7. Type `y`.

   As the FortiGate unit starts, a series of system startup messages is displayed. When one of the following messages appears:

   - FortiGate unit running v2.x BIOS

     ```
     Press Any Key To Download Boot Image....
     ```

   - FortiGate unit running v3.x BIOS

     ```
     Press any key to display configuration menu.......
     ```

   Immediately press any key to interrupt the system startup.

Note: You have only 3 seconds to press any key. If you do not press a key soon enough, the FortiGate unit reboots and you must log in and repeat the `execute reboot` command.

If you successfully interrupt the startup process, one of the following messages appears:

- FortiGate unit running v2.x BIOS

  ```
  Enter TFTP Server Address [192.168.1.168]:
  ```

  Go to step 9.

- FortiGate unit running v3.x BIOS

  ```
  [G]: Get firmware image from TFTP server.
  [F]: Format boot device.
  [Q]: Quit menu and continue to boot with default
  firmware.
  [H]: Display this list of options.


  Enter G, F, Q, or H:
  ```

8 Type G to get to the new firmware image form the TFTP server.

The following message appears:

```
Enter TFTP server address [192.168.1.168]:
```

9 Type the address of the TFTP server and press Enter:

The following message appears:

```
Enter Local Address [192.168.1.188]:
```

10 Type an IP address the FortiGate unit can use to connect to the TFTP server. The IP address can be any IP address that is valid for the network the interface is connected to. Make sure you do not enter the IP address of another device on this network.

The following message appears:

```
Enter File Name [image.out]:
```

11 Enter the firmware image filename and press Enter.

The TFTP server uploads the firmware image file to the FortiGate unit and messages similar to the following are displayed:

- FortiGate unit running v2.x BIOS

  ```
  Do You Want To Save The Image? [Y/n]
  ```

  Type `Y`.

- FortiGate unit running v3.x BIOS

  ```
  Save as Default firmware/Run image without saving:[D/R]
  ```

  or

  ```
  Save as Default firmware/Backup firmware/Run image without
  saving: [D/B/R]
  ```

12 Type `D`.

The FortiGate unit installs the new firmware image and restarts. The installation might take a few minutes to complete.

Restoring the previous configuration

Change the internal interface address, if required. You can do this from the CLI using the following command:

```
config system interface
    edit internal
        set ip <address_ip4mask>
        set allowaccess {ping https ssh telnet http}
    end
```

After changing the interface address, you can access the FortiGate unit from the web-based manager and restore the configuration.

For more information, see the *FortiGate Administration Guide*.

If you are reverting to a previous FortiOS version (for example, reverting from FortiOS v3.0 to FortiOS v2.80), you might not be able to restore the previous configuration from the backup configuration file.

The FortiUSB key

The FortiUSB key provides flexibility and control when backing up and restoring configuration files. The FortiUSB key also enables you to have a single, secure location for storing configuration files.

Use the FortiUSB key with the USB Auto-Install feature, automatically installing a configuration file and a firmware image file on a system reboot. The USB Auto-Install feature uses a configuration file and a firmware image file that is on the FortiUSB key, and on a system reboot, checks if these files need to be installed. If so, the FortiGate unit installs the configuration file and firmware image file directly from the key to the unit.

Note: The FortiUSB key is purchased separately. The FortiGate unit only supports the FortiUSB key available from Fortinet.

Backup and Restore from the FortiUSB key

Use the FortiUSB key to either backup a configuration file or restore a configuration file. You should always make sure the FortiUSB key is properly install before proceeding since the FortiGate unit must recognize that the key is installed in its USB port.

Note: You can only save VPN certificates if you encrypt the file. Make sure the configuration encryption is enabled so you can save the VPN certificates with the configuration file. However, an encrypted file is ineffective if selected for the USB Auto-Install feature.

To backup configuration using the web-based manager

1. Go to **System > Maintenance > Backup and Restore**.
2. Select USB Disk from the backup configuration to list.
3. Enter a filename for the configuration file.
4. Select Backup.

To restore configuration web-based manager

1. Go to **System > Maintenance > Backup and Restore**.
2. Select USB Disk from the restore configuration from list.
3. Select a backup configuration file from the list.
4. Select Restore.

To backup configuration using the CLI

1. Log into the CLI.
2. Enter the following command to backup the configuration files:

   ```
   exec backup config usb <filename>
   ```
3. Enter the following command to check the configuration files are on the key:

   ```
   exec usb-disk list
   ```

To restore configuration using the CLI

1. Log into the CLI.
2. Enter the following command to restore the configuration files:

   ```
   exec restore image usb <filename>
   ```

   The FortiGate unit responds with the following message:

   ```
   This operation will replace the current firmware version!
   Do you want to continue? (y/n)
   ```
3. Type `y`.

Using the USB Auto-Install feature

The USB Auto-Install feature automatically updates the FortiGate configuration file and image file on a system reboot. Also, this feature provides you with an additional backup if you are unable to save your system settings before shutting down or rebooting your FortiGate unit.

The following procedures use both the web-based manager and the CLI. However, it is recommended you use the CLI since the login screen may appear before the installation is complete. The FortiGate unit may reboot twice if installing the firmware image and configuration file.

Note: You need an unencrypted configuration file for this feature. Also the default files, image.out and fgt_system.conf, must be in the root directory.

Note: Make sure at least FortiOS v3.0MR1 is installed on the FortiGate unit before installing.

To configure the USB Auto-Install using the web-based manager

1. Go to **System > Maintenance > Backup and Restore**.
2. Select the blue arrow to expand the Advanced options.

3. Select the following:
   - On system restart, automatically update FortiGate configuration file if default file name is available on the USB disk.
   - On system restart, automatically update FortiGate firmware image if default image is available on the USB disk.
4. Enter the configuration and image filenames or use the default configuration filename (system.conf) and default image name (image.out).
5. The default configuration filename should show in the Default configuration file name field.
6. Select Apply.

To configure the USB Auto-Install using the CLI

1. Log into the CLI.
2. Enter the following command:

```
config system auto-install
   set default-config-file <filename>
   set auto-intall-config {enable | disable}
   set default-image-file <filename>
   set auto-install-image {enable | disable}
end
```

3. Enter the following command to see the new firmware installation settings:

```
get system status
```

Additional CLI Commands for the FortiUSB key

Use the following CLI commands when you want to delete a file from the FortiUSB key, list what files are on the key, including formatting the key or renaming a file:

- `exec usb-disk list`
- `exec usb-disk delete <filename>`
- `exec usb-disk format`
- `exec usb-disk rename <old_filename1> <old_filename2>`

Note: If you are trying to delete a configuration file from the CLI command interface, and the filename contains spaces, you will need quotations around the filename before you can delete the file from the FortiUSB key.

Testing a new firmware image before installing it

Test a new firmware image by installing the firmware image from a system reboot and saving it to system memory. After completing this procedure, the FortiGate unit operates using the new firmware image with the current configuration. This new firmware image is not permanently installed. The next time the FortiGate unit restarts, it operates with the originally installed firmware image using the current configuration. If the new firmware image operates successfully, you can install it permanently using the procedure "Upgrading to a new firmware version" on page 49.

To use this procedure, you must connect to the CLI using the FortiGate console port and a RJ-45 to DB-9 serial cable. This procedure temporarily installs a new firmware image using your current configuration.

For this procedure you:

- Access the CLI by connecting to the FortiGate console port using a RJ-45 to DB-9 serial cable.
- Install a TFTP server that you can connect to from the FortiGate internal interface. The TFTP server should be on the same subnet as the internal interface.

To test the new firmware image

1 Connect to the CLI using a RJ-45 to DB-9 serial cable and FortiGate console port.

2 Make sure the TFTP server is running.

3 Copy the new firmware image file to the root directory of the TFTP server.

4 Make sure the internal interface is connected to the same integer as the TFTP server.

You can use the following command to ping the computer running the TFTP server. For example, if the TFTP server's IP address is 192.168.1.168:

```
execute ping 192.168.1.168
```

5 Enter the following command to restart the FortiGate unit:

```
execute reboot
```

6 As the FortiGate unit reboots, press any key to interrupt the system startup. As the FortiGate unit starts, a series of system startup messages are displayed.
When one of the following messages appears:

- FortiGate unit running v2.x BIOS

```
Press Any Key To Download Boot Image.
...
```

- FortiGate unit running v3.x BIOS

```
Press any key to display configuration menu....
```

7 Immediately press any key to interrupt the system startup.

Note: You have only 3 seconds to press any key. If you do not press a key soon enough, the FortiGate unit reboots and you must log in and repeat the `execute reboot` command.

If you successfully interrupt the startup process, one of the following messages appears:

- FortiGate unit running v2.x BIOS

```
Enter TFTP Server Address: [192.168.1.168]:
```

Go to step 9.

- FortiGate unit running v3.x BIOS

  ```
  [G]: Get firmware image from TFTP server.
  [F]: Format boot device.
  [Q]: Quit menu and continue to boot with default
  firmware.
  [H]: Display this list of options.

  Enter G, F, Q, or H:
  ```

8 Type G to get the new firmware image from the TFTP server.

The following message appears:

```
Enter TFTP server address [192.168.1.168]:
```

9 Type the address of the TFTP server and press Enter:

The following message appears:

```
Enter Local Address [192.168.1.188]:
```

10 Type an IP address that can be used by the FortiGate unit to connect to the TFTP server.

The IP address must be on the same network as the TFTP server, but make sure you do not use the IP address of another device on the network.

The following message appears:

```
Enter File Name [image.out]:
```

11 Enter the firmware image file name and press Enter.

The TFTP server uploads the firmware image file to the FortiGate unit and messages similar to the following appear.

- FortiGate unit running v2.x BIOS

  ```
  Do You Want To Save The Image? [Y/n]
  ```

  Type `n`.

- FortiGate unit running v3.x BIOS

  ```
  Save as Default firmware/Run image without saving: [D/R]
  ```

  or

  ```
  Save as Default firmware/Backup firmware/Run image without
  saving: [D/B/R]
  ```

12 Type `R`.

The FortiGate image is installed to system memory and the FortiGate unit starts running the new firmware image, but with its current configuration.

13 You can log into the CLI or the web-based manager using any administrative account.

14 To confirm the new firmware image has been loaded from the CLI, enter:

```
get system status
```

You can test the new firmware image as required.

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