FortiBridge
Version 3.0

FORTINET™

www.fortinet.com

FortiBridge Administration Guide
Version 3.0
9 November 2006
09-30000-0163-20061109

Trademarks

ABACAS, APSecure, FortiASIC, FortiBIOS, FortiBridge, FortiClient, FortiGate, FortiGuard, FortiGuard-Antispam, FortiGuard-Antivirus, FortiGuard-Intrusion, FortiGuard-Web, FortiLog, FortiManager, Fortinet, FortiOS, FortiPartner, FortiProtect, FortiReporter, FortiResponse, FortiShield, FortiVoIP, and FortiWiFi are trademarks of Fortinet, Inc. in the United States and/or other countries. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.

Regulatory compliance

FCC Class A Part 15 CSA/CUS

Caution: If you install a battery that is not the correct type, it could explode. Dispose of used batteries according to local regulations.

Contents

Introduction 7

About FortiBridge 7

About this document 7

Fortinet documentation 8

Fortinet tools and documentation CD 8

Fortinet Knowledge Center 8

Comments on Fortinet technical documentation 8

Customer service and technical support 8

FortiBridge operating principles 9

Example FortiBridge application 9

Connecting the FortiBridge unit 10

Normal mode operation 11

How the FortiBridge unit monitors the FortiGate unit 11

Probes and FortiGate firewall policies 12

Enabling probes to detect FortiGate hardware failure 13

Enabling probes to detect FortiGate software failure 13

Probe interval and probe threshold 13

Bypass mode operation 14

FortiBridge power failure 14

Example FortiGate HA cluster FortiBridge application 15

Connecting the FortiBridge-1000 (copper gigabit ethernet) 15

Connecting the FortiBridge-1000F (fiber gigabit ethernet) 16

Example configuration with other FortiGate interfaces 16

Setting up FortiBridge units 19

FortiBridge unit basic information 19

FortiBridge-1000 Package contents 19

FortiBridge-1000F Package contents 20

Mounting instructions 20

Technical specifications 21

LED indicators 21

Connectors 22

Factory default configuration 22

Connecting and turning on the FortiBridge unit 23

Connecting and turning on the FortiBridge-1000 unit 23

Connecting and turning on the FortiBridge-1000F unit 24

Connecting to the command line interface (CLI) 25

Connecting to the FortiBridge console 25

Connecting to the FortiBridge CLI using Telnet 26

Completing the basic FortiBridge configuration **26**
Adding an administrator password 27
Changing the management IP address 27
Changing DNS server IP addresses 28
Adding static routes 28
Allowing management access to the EXT 1 interface 29
Changing the system time and date 29
Adding administrator accounts 29
Resetting to the factory default configuration **30**
Installing FortiBridge unit firmware **30**
Upgrading to a new firmware version 31
Reverting to a previous firmware version 32
Installing firmware from a system reboot 33
Configuration and operating procedures **35**
Example network settings **35**
Configuring FortiBridge probes **36**
Probe settings 37
Enabling probes 38
Verifying that probes are functioning 39
Tuning the failure threshold and probe interval 40
Configuring FortiBridge alerts **40**
FortiBridge alert email 41
FortiBridge syslog 41
FortiBridge SNMP 42
Recovering from a FortiGate failure **43**
Manually switching between FortiBridge operating modes **44**
Backing up and restoring the FortiBridge configuration **44**
Using the CLI **47**
CLI basics **47**
Connecting to the FortiBridge CLI using SSH or Telnet **47**
Setting administrative access for SSH or Telnet 47
Connecting to the FortiBridge CLI using SSH 48
config CLI commands **51**
alertemail setting **52**
log syslogd setting **54**
probe probe_list {ping | http | ftp | pop3 | smtp | imap} **55**
probe setting **56**
system accprofile **57**
system admin **59**

system console 61
system dns 62
get system status 63
system fail_close 64
system global 66
system interface {internal | external} 68
system manageip 69
system route 70
system snmp community 71
config hosts 71

execute CLI commands 73
backup 74
date 75
factoryreset 76
ping 77
reboot 78
restore 79
switch-mode 80
time 81

Index 83

Introduction

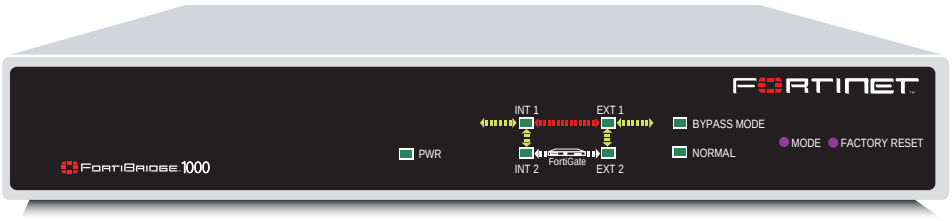
This chapter introduces you to the FortiBridge-1000 and FortiBridge-1000F products that provide fail open protection for FortiGate Antivirus Firewalls operating in transparent mode. Fail open protection keeps network traffic flowing in the event of a FortiGate unit failure. This chapter contains the following topics:

- About FortiBridge
- About this document
- Fortinet documentation
- Customer service and technical support

About FortiBridge

The FortiBridge products are a solution for enterprise organizations to provide fail open protection for FortiGate units deployed inline in transparent mode. The FortiBridge products use multiple probe protocols to detect failures in the FortiGate unit. FortiBridge zero power fail open technology means that the FortiBridge unit also fails open if a power failure occurs.

Figure 1: FortiBridge unit



A FortiBridge unit functions as a pass-through device when a FortiGate unit or FortiGate HA cluster operating in transparent mode fails or loses power. The FortiBridge unit bypasses the FortiGate unit to make sure that the network can continue processing traffic. The FortiBridge unit is not a firewall or antivirus device. FortiGate services are not applied when the FortiBridge unit bypasses traffic.

About this document

This document describes how to install, configure and maintain the FortiBridge-1000 and the FortiBridge-1000F products.

This document contains the following chapters:

- FortiBridge operating principles contains general information about how FortiBridge units work.
- Setting up FortiBridge units contains hardware reference and general installation procedures for FortiBridge units.
- Configuration and operating procedures contains procedures for connecting and configuring FortiBridge units.

- Using the CLI describes how to use the FortiBridge CLI.
- config CLI commands is the FortiBridge `config` CLI command reference.
- execute CLI commands is the FortiBridge `execute` CLI command reference.

Fortinet 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 FortiBridge product documentation is available:

- *FortiBridge QuickStart Guides*

  Provide basic information about connecting and installing a FortiBridge unit.
- *FortiBridge Administration Guide*

  Describes how to install, configure, and manage a FortiBridge unit.

Fortinet tools and documentation CD

All Fortinet documentation is available from the Fortinet Tools and Documentation CD shipped with your Fortinet product. The documents on this CD are current for your product at shipping time. For the latest versions of all Fortinet documentation see the Fortinet Technical Documentation web site at http://docs.forticare.com.

Fortinet Knowledge Center

Additional Fortinet technical documentation is available from the 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.

FortiBridge operating principles

This chapter describes a typical transparent mode FortiGate network and how to add a FortiBridge unit to this network to provide fail open protection. This chapter also contains detailed information about how FortiBridge units operate and concludes with descriptions of adding a FortiBridge unit to an HA cluster and connecting a FortiBridge unit other FortiGate interfaces.

This chapter contains the following sections:

- Example FortiBridge application
- Normal mode operation
- Bypass mode operation
- FortiBridge power failure
- Example FortiGate HA cluster FortiBridge application
- Example configuration with other FortiGate interfaces

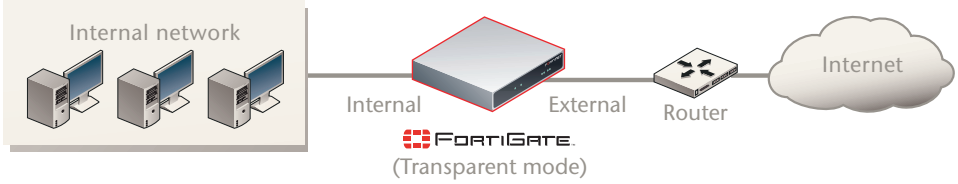
Example FortiBridge application

A typical application of a FortiGate unit operating in transparent mode is to insert the FortiGate unit into an internal network, between the network and the router that connects the network to the Internet. In this configuration, the FortiGate unit can provide security services for all traffic passing between the internal network and the internet. These security services can include:

- applying firewall policies and IPS attack prevention to all traffic,
- applying virus scanning to HTTP, FTP, POP3, SMTP, and IMAP traffic,
- applying web filtering to HTTP traffic,
- applying Spam filtering to POP3, SMTP, and IMAP traffic.

The internal network is connected to the FortiGate unit internal interface. The router is connected to the FortiGate unit external interface. The FortiGate unit can be added to the network without changing the configuration of the network (except to add the FortiGate management IP address).

Figure 2: Example transparent mode network



To allow users on the internal network to connect to resources on the Internet, add Internal -> External firewall policies to the FortiGate unit. Add protection profiles to the firewall policies to apply security services such as virus scanning, web filtering, spam filtering and IPS to the traffic that passes through the FortiGate unit.

The FortiGate unit acts as an extra layer of protection for your internal network. While it is operating, the FortiGate unit protects the internal network from threats originating on the Internet. All users on the internal network connect through the FortiGate unit to the Internet. This also means that if a failure or other interruption caused the FortiGate unit to stop functioning, users on the internal network would not be able to connect to the Internet.

You can install a FortiBridge unit to maintain internet connectivity for the internal network if the FortiGate unit stops functioning. The FortiBridge unit provides fail open protection for your network by bypassing the FortiGate unit if a failure occurs.

Connecting the FortiBridge unit

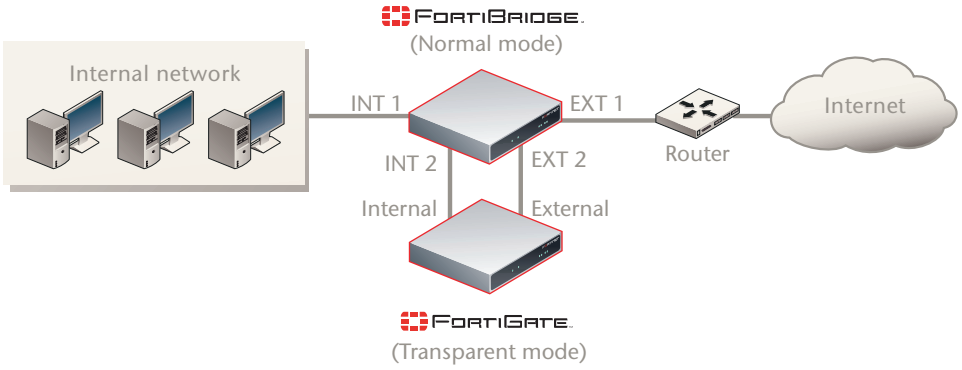
Operating in normal mode, the FortiBridge unit functions like a layer-2 bridge, passing all traffic to the FortiGate unit. The FortiGate unit processes the traffic, which then passes through the FortiBridge unit again and then to its final destination.

In most cases, you do not have to make changes to the FortiGate unit configuration or to the network to add a FortiBridge unit. The only network requirement for FortiBridge is the availability of a single management IP address for the FortiBridge unit. The FortiBridge management IP address is required in addition to the FortiGate management IP address.

The connection procedure is different depending on whether the FortiBridge unit uses copper gigabit ethernet network connections or fiber gigabit ethernet network connections. This section includes the following connection procedures:

- Connecting the FortiBridge-1000 (copper gigabit ethernet)
- Connecting the FortiBridge-1000F (fiber gigabit ethernet)

Figure 3: FortiBridge unit providing fail open protection



Connecting the FortiBridge-1000 (copper gigabit ethernet)

The FortiBridge-1000 unit contains 4 auto-sensing 10/100/1000 Ethernet interfaces that connect to the internal and external networks and to the FortiGate interfaces that were connected to these networks. Use the following steps to connect a FortiBridge-1000 unit to the network as shown in Figure 3.

Note: Normally, you would use straight-through ethernet cables to connect the FortiBridge-1000 unit to the FortiGate unit and to your networks. However, for some connections you may need a crossover ethernet cable (for example, for compatibility with network devices that do not support Auto MDI/MDIX).

1 Connect the FortiBridge-1000 INT 2 interface to the FortiGate internal interface.
2 Connect the FortiGate external interface to the FortiBridge-1000 EXT 2 interface.
3 Connect the internal network to the FortiBridge-1000 INT 1 interface.
4 Connect the FortiBridge-1000 EXT 1 interface to the router.

Connecting the FortiBridge-1000F (fiber gigabit ethernet)

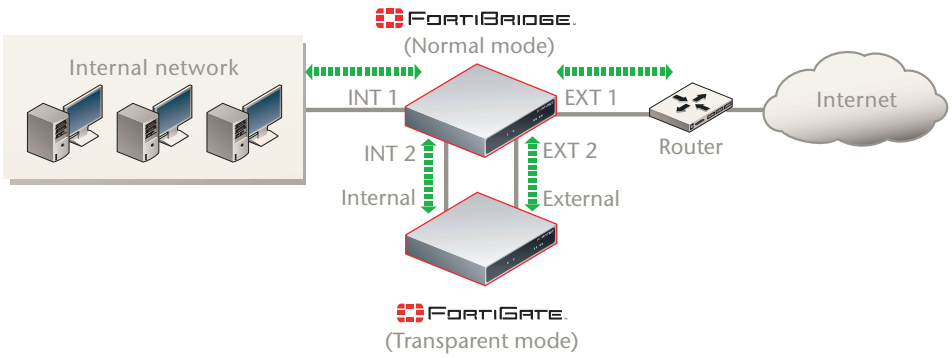
The FortiBridge-1000F unit contains 4 multimode fiber optic gigabit interfaces that connect to the internal and external networks and to the FortiGate interfaces that were connected to these networks. Use the following steps to connect a FortiBridge-1000F unit to the network as shown in Figure 3.

1 Connect the FortiBridge-1000F INT 2 interface to the FortiGate internal interface.
2 Connect the FortiGate external interface to the FortiBridge-1000F EXT 2 interface.
3 Connect the internal network to the FortiBridge-1000F INT 1 interface.
4 Connect the FortiBridge-1000F EXT 1 interface to the router.

Normal mode operation

If the FortiGate unit is operating normally, the FortiBridge unit operates in Normal mode. Traffic from the internal network enters the FortiBridge INT 1 interface then exits the INT 2 interface to the FortiGate unit. The traffic from the FortiBridge INT 2 interface enters the FortiGate internal interface. Firewall policies and protection profiles are applied to the traffic by the FortiGate unit. Accepted traffic then exits the FortiGate External interface and enters the FortiBridge EXT 2 interface. The traffic then exits the FortiBridge EXT 1 interface and goes to the external network. Traffic from the external network reverses this sequence.

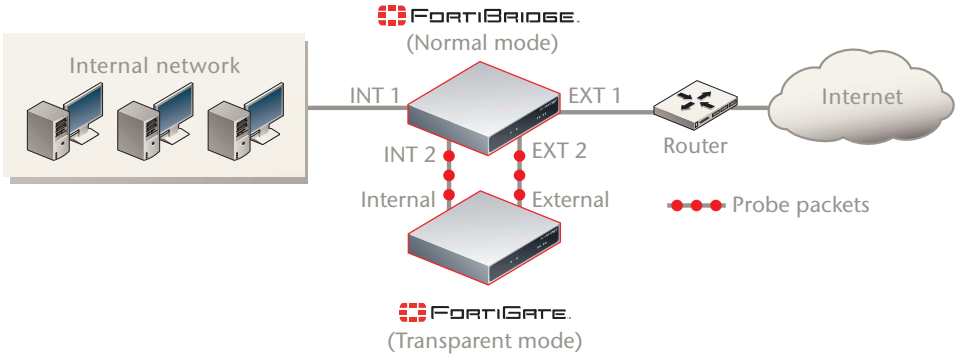
Figure 4: Normal mode traffic flow



How the FortiBridge unit monitors the FortiGate unit

To monitor the FortiGate unit for failure, you must enable probes on the FortiBridge unit. When you enable a probe, the FortiBridge unit sends packets from the FortiBridge INT 2 interface, through the FortiGate unit to the FortiBridge EXT 2 interface. If the EXT 2 interface receives the probe packets, the FortiGate unit is operating normally. If the EXT 2 interface does not receive probe packets the FortiBridge unit assumes that the FortiGate unit has failed.

Figure 5: FortiBridge unit operating in normal mode sending probe packets



You can enable ICMP (ping), HTTP, FTP, POP3, SMTP, and IMAP probes to test connectivity through the FortiGate unit for each of these protocols. The FortiBridge unit simultaneously tests connectivity through the FortiGate unit for each probe that is enabled.

The first probe that registers a failure causes the FortiBridge unit to stop sending all probe packets. The FortiBridge unit responds to the failure according to the action on failure that you configure. The action on failure can include fail open, send alert email, send a syslog message, and send an SNMP trap. You can enable any combination of these actions on failure. Fail open switches the FortiBridge unit to bypass mode. Other actions on failure alert system administrators that the FortiBridge has determined that a failure occurred.

Probes and FortiGate firewall policies

Probe packets are accepted and passed through the FortiGate unit by firewall policies added to the FortiGate unit. When enabling probes, you must make sure that the firewall policies added to the FortiGate unit can accept probe packets. For example, if your FortiGate unit does not accept FTP packets, you should not enable the FTP probe. Table 1 describes FortiGate firewall policy requirements for each FortiBridge probe.

Table 1: FortiBridge probes and FortiGate firewall policy requirements

Probe	Description	FortiGate Firewall policy	
		Direction	Service
Ping	ICMP packets are sent from the INT 2 interface to the EXT 2 interface. The EXT 2 interface responds to the ping.	Internal -> External	ICMP or ANY
HTTP	HTTP requests are sent from an HTTP client at the INT 2 interface to a web server at the EXT 2 interface. The web server sends a response from the EXT 2 interface to the INT 2 interface.	Internal -> External	HTTP or ANY
FTP	FTP requests are sent from an FTP client at the INT 2 interface to an FTP server at the EXT 2 interface. The FTP server sends a response from the EXT 2 interface to the INT 2 interface.	Internal -> External	FTP or ANY

Table 1: FortiBridge probes and FortiGate firewall policy requirements (Continued)

Probe	Description	FortiGate Firewall policy	
		Direction	Service
POP3	POP3 packets are sent from a POP3 client at the INT 2 interface to a POP3 server at the EXT 2 interface. The POP3 server sends a response from the EXT 2 interface to the INT 2 interface.	Internal -> External	POP3 or ANY
SMTP	SMTP packets are sent from an SMTP server at the INT 2 interface to an SMTP server at the EXT 2 interface. The SMTP server sends a response from the EXT 2 interface to the INT 2 interface.	Internal -> External	SMTP or ANY
IMAP	IMAP packets are sent from an IMAP client at the INT 2 interface to an IMAP server at the EXT 2 interface. The IMAP server sends a response from the EXT 2 interface to the INT 2 interface.	Internal -> External	IMAP or ANY

Enabling probes to detect FortiGate hardware failure

A FortiGate unit can stop processing network traffic because of a hardware failure such as the failure of a hardware component, a loss of power, or a loss of connectivity if a network cable is unplugged.

If a hardware failure occurs, the FortiGate unit stops processing all traffic. You can enable any FortiBridge probe for the FortiBridge unit to detect a FortiGate hardware failure.

Enabling probes to detect FortiGate software failure

A FortiGate unit can also stop processing network traffic because of a software failure. For example, a firmware issue could cause a specific software process to crash. Also, network traffic could increase to a point where the FortiGate unit cannot process all traffic. As a result, the FortiGate unit could stop processing some or all traffic without a hardware failure occurring.

To detect a FortiGate software failure, you can enable probes for FortiGate services that you want to provide fail open protection for. For example, if it is a high priority for your network to provide SMTP email services, you should enable the SMTP probe. If the SMTP probe detects a failure of SMTP traffic through the FortiGate unit, the FortiBridge unit switches to bypass mode to maintain SMTP traffic flow.

If you do not consider FTP traffic a high priority, you can leave the FTP probe disabled. In this configuration, if only FTP traffic fails, the FortiBridge does not switch to bypass mode.

Probe interval and probe threshold

For each probe, you set a probe interval and a probe threshold. The probe interval defines how often to test the connection. The probe threshold defines how many consecutive failed probes can occur before the FortiBridge considers the connection to have failed.

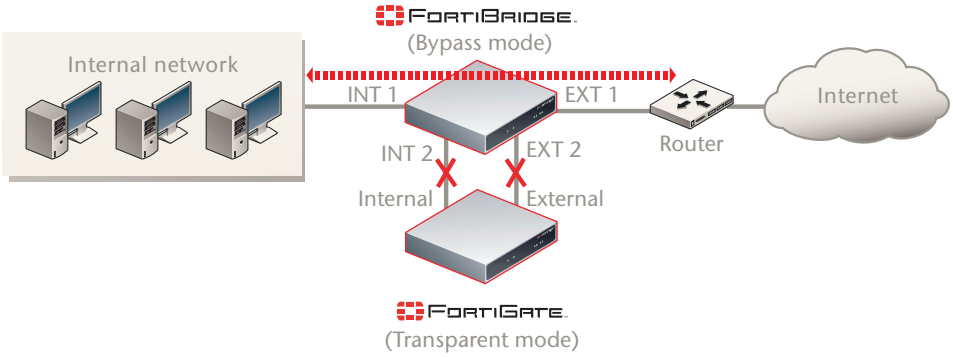
Bypass mode operation

When the FortiBridge unit operates in bypass mode, the FortiBridge INT 1 and EXT 1 interfaces are directly connected. All traffic between the internal and external network segments flows, whether or not the FortiGate unit is operating normally.

Because the INT 1 and EXT 1 interfaces are directly connected, you cannot use Telnet or SSH to connect to the FortiBridge CLI. Instead you must use a console connection.

The FortiBridge unit remains in bypass mode even if the FortiGate unit recovers. To restore the FortiGate unit, you must manually switch the FortiBridge unit back to normal mode. You can switch the FortiBridge unit to normal mode by pressing the mode switch on the FortiBridge front panel or by using a console connection to the CLI and entering the command `execute switch-mode`. You can also use the mode switch and the `execute switch-mode` command to manually switch the FortiBridge unit from normal mode to bypass mode.

Figure 6: FortiBridge unit operating in bypass mode



When the FortiBridge unit is operating in bypass mode you can still connect to the FortiBridge CLI and manage the FortiBridge unit (for example to switch the FortiBridge unit to normal mode). When the FortiBridge unit operates in bypass mode, you cannot connect to the FortiGate interfaces that are connected to the FortiBridge unit.

FortiBridge power failure

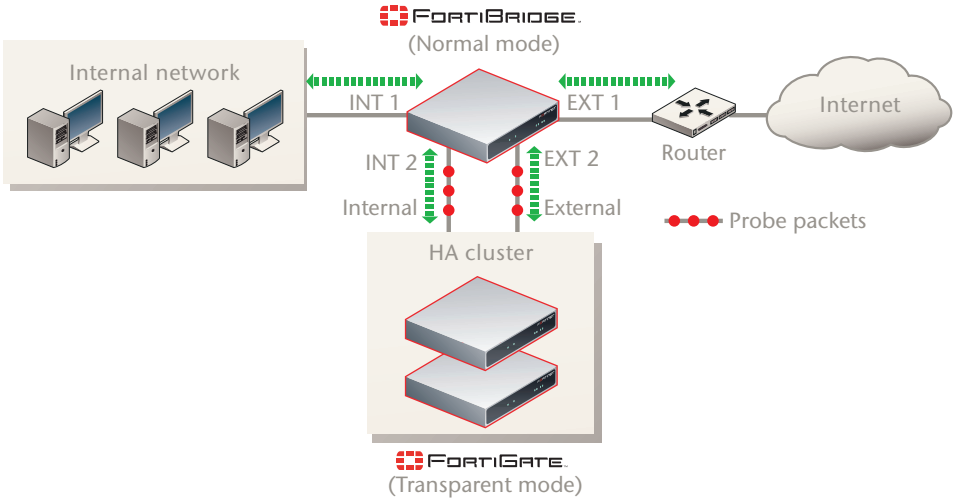
If a power failure occurs and the FortiBridge unit loses power, zero power fail open technology causes FortiBridge unit to fail open. The FortiBridge unit bypasses the FortiGate unit and all traffic passes between the FortiBridge INT 1 and EXT 1 interfaces. If power is restored to the FortiBridge unit, it starts up in bypass mode and then switches to normal mode when its start up sequence is complete, reconnecting the FortiGate unit to the network.

Note: The FortiBridge-1000F contains a battery to keep the fibers lit in fail open mode. If the FortiBridge-1000F unit loses power, the battery will power the fail open condition for approximately three hours. When power is restored, the battery requires approximately three hours to recharge if completely drained. The FortiBridge-1000 unit does not use a battery and can maintain a fail open condition indefinitely.

Example FortiGate HA cluster FortiBridge application

A FortiBridge unit can provide fail open protection for a FortiGate HA cluster operating in transparent mode in much the same way as for a standalone FortiGate unit. To provide fail open protection for an HA cluster, connect the FortiBridge unit to the switches that connect the internal and external interfaces of the cluster. Use the following steps to connect a FortiBridge unit to the HA cluster, as shown in Figure 7:

Figure 7: FortiBridge unit providing fail open protection for a FortiGate HA cluster



The network configuration and FortiBridge configuration are the same for a cluster and for a standalone FortiGate unit. In normal mode, packets pass through the FortiBridge unit and through the FortiGate HA cluster and back through the FortiBridge unit. For the cluster to process this traffic, you must add Internal -> External firewall policies to the cluster configuration. If a failure occurs and the cluster no longer processes traffic, the FortiBridge unit switches to bypass mode, bypassing the cluster.

The connection procedure is different depending on whether the FortiBridge unit uses copper gigabit ethernet network connections or fiber gigabit ethernet network connections. This section includes the following connection procedures:

- Connecting the FortiBridge-1000 (copper gigabit ethernet)
- Connecting the FortiBridge-1000F (fiber gigabit ethernet)

Connecting the FortiBridge-1000 (copper gigabit ethernet)

The FortiBridge-1000 unit contains 4 auto-sensing 10/100/1000 Ethernet interfaces that connect to the internal and external networks and to the cluster interfaces that were connected to these networks. Use the following steps to connect a FortiBridge-1000 unit to the network as shown in Figure 7.

Note: Normally, you would use straight-through ethernet cables to connect the FortiBridge-1000 unit to the FortiGate unit and to your networks. However, for some connections you may need a crossover ethernet cable (for example, for compatibility with network devices that do not support Auto MDI/MDIX).

1 Connect the FortiBridge-1000 INT 2 interface to the switch connected to the HA cluster internal interface.

2 Connect the switch connected to the HA cluster external interface to the FortiBridge-1000 EXT 2 interface.

3 Connect the internal network to the FortiBridge-1000 INT 1 interface.

4 Connect the FortiBridge-1000 EXT 1 interface to the router.

Connecting the FortiBridge-1000F (fiber gigabit ethernet)

The FortiBridge-1000F unit contains 4 multimode fiber optic gigabit interfaces that connect to the internal and external networks and to the FortiGate cluster interfaces that were connected to these networks. Use the following steps to connect a FortiBridge-1000F unit to the network as shown in Figure 3.

1 Connect the FortiBridge-1000F INT 2 interface to the switch connected to the HA cluster internal interface.

2 Connect the switch connected to the HA cluster external interface to the FortiBridge-1000F EXT 2 interface.

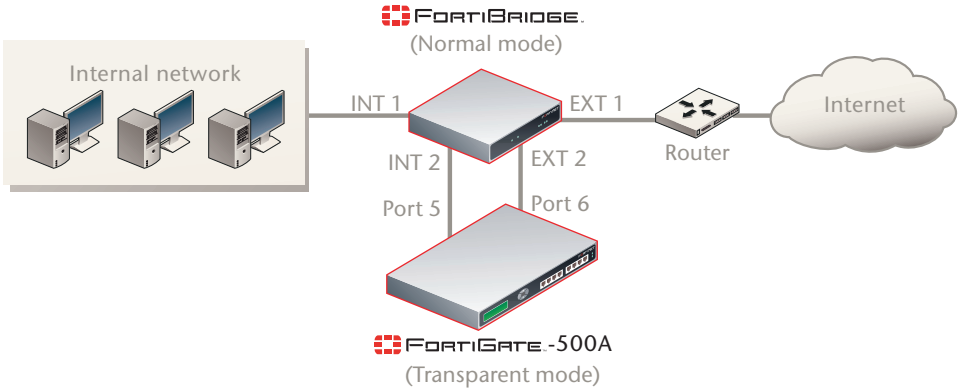
3 Connect the internal network to the FortiBridge-1000F INT 1 interface.

4 Connect the FortiBridge-1000F EXT 1 interface to the router.

Example configuration with other FortiGate interfaces

All of the examples in this chapter describe using the FortiBridge unit to provide fail open protection for traffic passing between the FortiGate unit internal and external interfaces. You can actually use a FortiBridge unit to provide fail open protection for any two FortiGate unit interfaces. No limitation is implied by naming the FortiBridge interfaces INT and EXT. These names are used to simplify installation procedures. Figure 8 shows a FortiBridge-1000 unit providing fail open protection for network traffic between ports 5 and 6 of a FortiGate-500A unit.

Figure 8: FortiBridge unit providing fail open protection for a single FortiGate unit



To connect a FortiBridge-1000 unit to the network shown in Figure 8:

1 Connect the FortiBridge-1000 INT 2 interface to the FortiGate-500A port 5 interface.

2 Connect the FortiGate-500A port 6 interface to the FortiBridge-1000 EXT 2 interface.

3 Connect the internal network to the FortiBridge-1000 INT 1 interface.

4 Connect the FortiBridge-1000 EXT 1 interface to the router.

You must add port 5 -> port 6 firewall policies to the FortiGate-500A unit configuration.

Setting up FortiBridge units

This chapter contains the information you need to unpack, connect, and configure your FortiBridge unit:

- FortiBridge unit basic information
- Connecting and turning on the FortiBridge unit
- Connecting to the command line interface (CLI)
- Completing the basic FortiBridge configuration
- Resetting to the factory default configuration
- Installing FortiBridge unit firmware

When you complete the procedures in this chapter, the FortiBridge unit will be operating and connected to your network and to your FortiGate unit. See "Configuration and operating procedures" on page 35 to configure the FortiBridge unit to monitor the status of the FortiGate unit and to fail open if the FortiBridge unit detects that the FortiGate unit has failed.

FortiBridge unit basic information

This section describes the following basic information about the FortiBridge units:

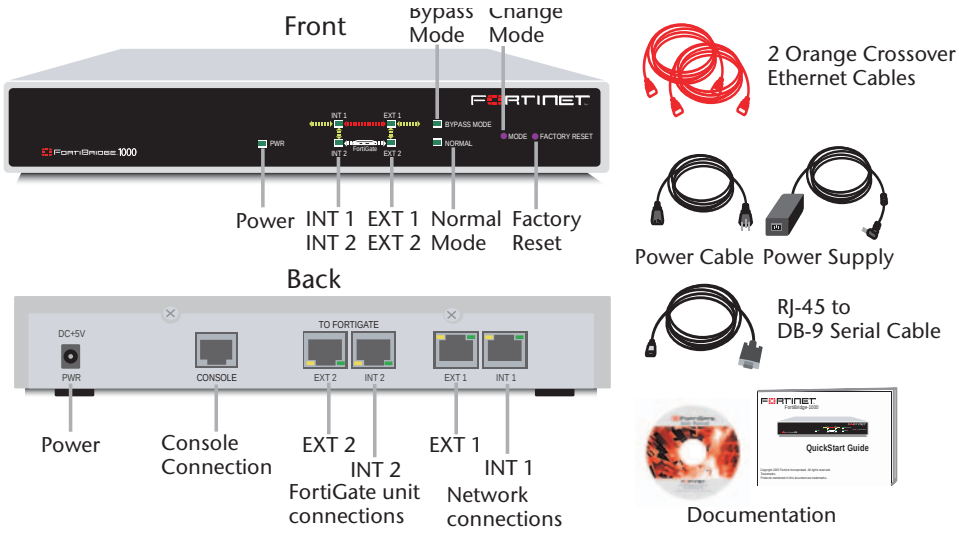
- FortiBridge-1000 Package contents
- Mounting instructions
- Technical specifications
- LED indicators
- Connectors
- Factory default configuration

FortiBridge-1000 Package contents

The FortiBridge-1000 package contains the following items:

- the FortiBridge-1000 unit
- two orange crossover Ethernet cables (Fortinet part number CC300248)
- one RJ-45 to DB-9 serial cable (Fortinet part number CC300302)
- *FortiBridge-1000 QuickStart Guide*
- CD containing the Fortinet user documentation
- one AC adapter

Figure 9: FortiBridge-1000 package contents

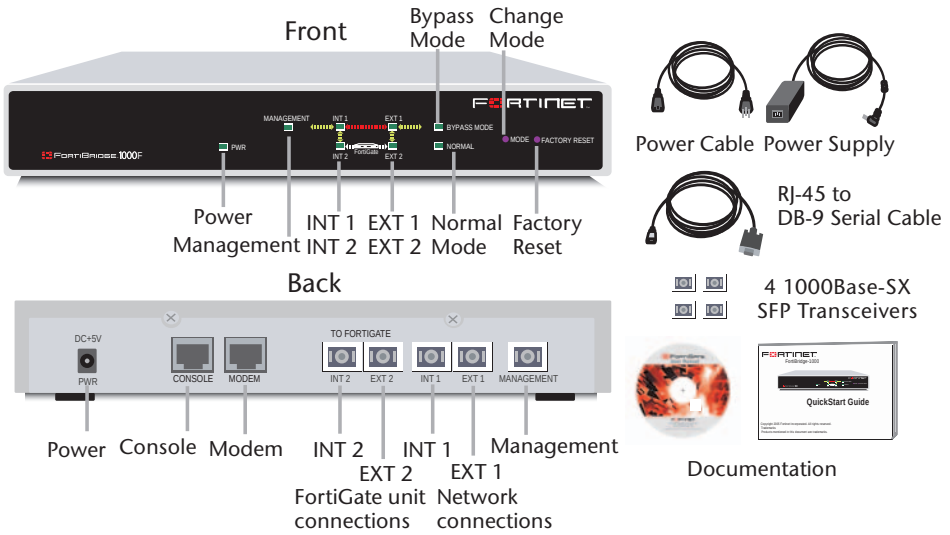


FortiBridge-1000F Package contents

The FortiBridge-1000F package contains the following items:

- the FortiBridge-1000F unit
- one RJ-45 to DB-9 serial cable (Fortinet part number CC300302)
- four 1000Base-SX SFP Transceivers
- *FortiBridge QuickStart Guide*
- CD containing the Fortinet user documentation
- one AC adapter

Figure 10: FortiBridge-1000F package contents



Mounting instructions

Install the FortiBridge unit on any stable surface. Make sure that the unit has at least 1.5 in. (3.75 cm) of clearance on each side to allow for adequate air flow and cooling.

Technical specifications

Table 2: FortiBridge-1000 and 1000F technical specifications

Dimensions	8.63 x 6.13 x 1.38 in. (21.9 x 15.6 x 3.5 cm)
Weight	1.5 lb. (0.68 kg)
Power Requirements	DC input voltage: 5 V DC input current: 5 A
Environmental specifications	Operating temperature: 32 to 104°F (0 to 40°C) Storage temperature: -13 to 158°F (-25 to 70°C) Humidity: 5 to 95% non-condensing

LED indicators

Table 3: FortiBridge-1000 LED indicators

LED	State	Description
PWR	Green	The FortiBridge unit is powered on.
	Off	The FortiBridge unit is powered off.
INT 1 INT 2 EXT 1 EXT 2	Green	The correct cable is in use and the connected equipment has power.
	Flashing Green	Network activity at this interface.
	Off	No link established or the interface has been turned off.
INT 1 INT 2 EXT 1 EXT 2 (back)	Green	The correct cable is in use, and the connected equipment has power.
	Flashing amber	Network activity at this interface.
	Off	No link established.

Table 4: FortiBridge-1000F LED indicators

LED	State	Description
PWR	Green	The FortiBridge unit is powered on.
	Off	The FortiBridge unit is powered off.
INT 1, INT 2, EXT 1, and EXT 2	Green	The correct optical fiber patch cable is connected to the gigabit fiber interface.
	Flashing	Network activity at the gigabit fiber interface.

Connectors

Table 5: FortiBridge-1000 connectors

Connector	Type	Speed	Protocol	Description
INT 1	RJ-45	10/100/1000 Base-T	Ethernet	Copper gigabit ethernet connection to the internal network.
EXT 1	RJ-45	10/100/1000 Base-T	Ethernet	Copper gigabit ethernet connection to the external network.
INT 2	RJ-45	10/100/1000 Base-T	Ethernet	Copper gigabit ethernet connection to the FortiGate unit internal interface.
EXT 2	RJ-45	10/100/1000 Base-T	Ethernet	Copper gigabit ethernet connection to the FortiGate unit external interface.
CONSOLE	RJ-45	9600 bps	RS-232 serial	Optional connection to the management computer. Provides access to the command line interface (CLI).

Table 6: FortiBridge-1000F connectors

Connector	Type	Speed	Protocol	Description
INT 1, INT 2, EXT 1, EXT 2, and management	LC SFP	1000Base-SX	Ethernet	Multimode fiber optic connections to gigabit optical networks. The FortiBridge-1000F is shipped with 4 1000Base-SX Small Formfactor Pluggable (SFP) transceivers that you must insert into the INT 1, INT 2, EXT 1, and EXT 2 sockets on the back panel. The management connection is optional.
CONSOLE	RJ-45	9600 bps	RS-232 serial	Console connection to the command line interface (CLI).

Factory default configuration

Table 7: FortiBridge-1000 and 1000F unit factory default network configuration

Administrator account	admin
Password	(none)
Management IP/Netmask	192.168.1.99/255.255.255.0
Management Access	Telnet, SSH and ping access to the INT 1 interface. No management access to the EXT 1 interface.
Routes	(none)
Primary DNS	65.39.139.53
Secondary DNS	65.39.139.63

Connecting and turning on the FortiBridge unit

In most cases, you can connect the FortiBridge unit without making any configuration changes to your network or your FortiGate unit. All that is required is to move and reconnect network cables.

Note: The default FortiBridge management IP address is 192.168.1.99. If this IP address conflicts with an IP address on your network, you can use the procedure "Changing the management IP address" on page 27 to change this IP address.

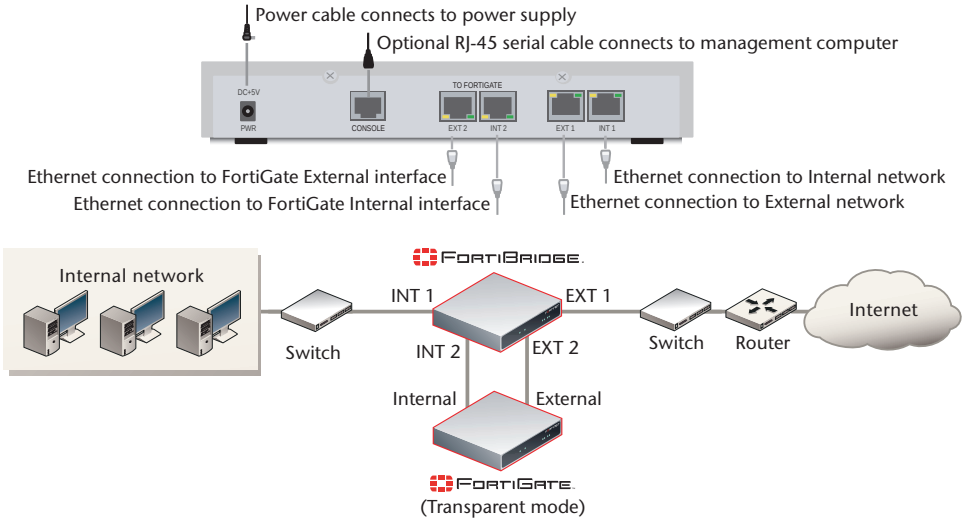
Right out of the box you can connect, power on, and configure the FortiBridge unit without interrupting network traffic (except for the interruption required to move and re-connect network cables). When connected and powered on, the FortiBridge unit operates in Normal mode. Probes are not configured. The FortiBridge unit does not provide fail open protection until probes are configured.

Connecting and turning on the FortiBridge-1000 unit

Note: This procedure describes how to connect a FortiBridge-1000 unit to provide fail open protection for network traffic passing between FortiGate unit internal and external interfaces. If the FortiBridge-1000 unit provides fail open protection for traffic between different FortiGate interfaces, you can use the same procedure but substitute FortiGate interface names as required.

The FortiBridge-1000 unit contains 4 auto-sensing 10/100/1000 Ethernet interfaces that connect to the internal and external networks and to the FortiGate interfaces that were connected to these networks. Use the following steps to connect a FortiBridge-1000 unit to the network as shown in Figure 11.

Figure 11: Connecting the FortiBridge-1000 unit



Note: Normally, you would use straight-through ethernet cables to connect the FortiBridge-1000 unit to the FortiGate unit and to your networks. However, for some connections you may need a crossover ethernet cable (for example, for compatibility with network devices that do not support Auto MDI/MDIX).

To connect and turn on the FortiBridge-1000 unit

1. Connect the FortiBridge-1000 INT 2 interface to the FortiGate unit internal interface.
2. Connect the FortiBridge-1000 EXT 2 interface to the FortiGate unit external interface.
3. Connect the FortiBridge-1000 INT 1 interface to the internal network.
4. Connect the FortiBridge-1000 EXT 1 interface to the external network.
5. Turn on the FortiGate unit and any network equipment that was turned off.
6. Connect the AC adapter to the power connection at the back of the FortiBridge-1000 unit and to a power outlet.

   The FortiBridge-1000 unit starts. The PWR and Bypass Mode LEDs turn on. After a short time, the FortiBridge unit switches to Normal mode. The Bypass LED goes out and the Normal LED turns on.

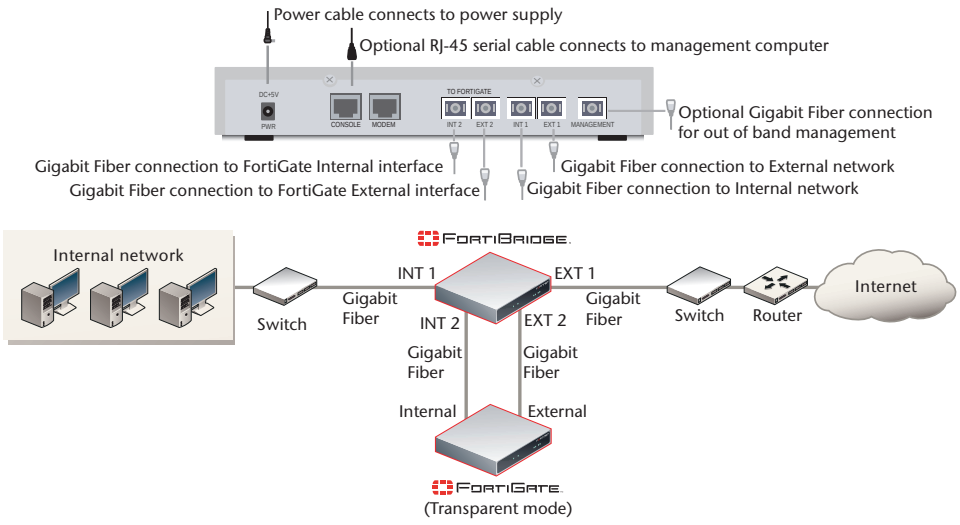
   If the FortiGate unit and connected network components are turned on the FortiBridge-1000 INT 1, INT 2, EXT 1, and EXT 2 LEDs are also on.

Connecting and turning on the FortiBridge-1000F unit

Note: This procedure describes how to connect a FortiBridge-1000F unit to provide fail open protection for network traffic passing between FortiGate unit internal and external interfaces. If the FortiBridge-1000F unit provides fail open protection for traffic between different FortiGate interfaces, you can use the same procedure but substitute FortiGate interface names as required.

The FortiBridge-1000F unit contains 4 multimode fiber optic gigabit interfaces that connect to the internal and external networks and to the FortiGate interfaces that were connected to these networks. Use the following steps to connect a FortiBridge-1000F unit to the network as shown in Figure 12.

Figure 12: Connecting the FortiBridge-1000F unit



To connect and turn on the FortiBridge-1000F unit

1. Connect the FortiBridge-1000F INT 2 interface to the FortiGate internal interface.
2. Connect the FortiGate external interface to the FortiBridge-1000F EXT 2 interface.

3 Connect the internal network to the FortiBridge-1000F INT 1 interface.

4 Connect the FortiBridge-1000F EXT 1 interface to the router.

Connecting to the command line interface (CLI)

You configure and manage the FortiBridge unit from the FortiBridge command line interface (CLI). You can use a direct console connection, SSH, or Telnet to connect to the FortiBridge CLI. This section describes how to connect directly to the FortiBridge console and how to connect to the FortiBridge CLI across an ethernet network using Telnet. See also "Connecting to the FortiBridge CLI using Telnet" on page 26 for more information about connecting to the FortiBridge CLI.

Connecting to the FortiBridge console

You require:

- A computer with an available communications port,
- An RJ-45 to DB-9 serial cable,
- Terminal emulation software such as HyperTerminal for Windows.

Note: The following procedure describes how to connect to the FortiBridge CLI using Windows HyperTerminal software. You can use any terminal emulation software.

To connect to the FortiBridge console for the first time

1 Connect the FortiBridge console port to the available communications port on your computer.

2 Make sure the FortiBridge unit is powered on.

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

4 Configure HyperTerminal to connect directly to the communications port on the computer to which you have connected the FortiBridge console port.

5 Select OK.

6 Select the following port settings and select OK.

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

7 Press the escape key (Esc) to connect to the FortiBridge CLI.

A prompt similar to the following appears (shown for the FortiBridge-1000):

```
FortiBridge-1000 login:
```

8 Type a valid administrator name and press Enter.

The default administrator account is `admin`.

9 Type the password for this administrator and press Enter.

The default admin account does not require a password. For improved security, you should add a password for this account as soon as possible. Use the procedure “Adding an administrator password” on page 27 to add a password.

The following prompt appears:

```
Welcome !

FortiBridge-1000 #
```

You have connected to the FortiBridge CLI, and you can enter CLI commands.

Connecting to the FortiBridge CLI using Telnet

By default, you can use a Telnet client running on a management computer to connect to the FortiBridge CLI. The management computer must be connected to the same network as the FortiBridge INT 1 interface.

The default FortiBridge management IP address is 192.168.1.99. Your management PC should be configured to connect to this IP address. Alternatively, you can connect to the FortiBridge console and use the procedure “Changing the management IP address” on page 27 to change the management IP address.

Note: A maximum of 5 Telnet connections to the FortiBridge unit can be open at the same time.

To connect to the CLI using Telnet

1 On the management computer, Telnet to the IP address 192.168.1.99.

If you have changed the management IP address, Telnet to this address instead.

2 Type a valid administrator name and press Enter.

The default administrator account is `admin`.

3 Type the password for this administrator and press Enter.

The default admin account does not require a password. For improved security, you should add a password for this account as soon as possible. Use the procedure “Adding an administrator password” on page 27 to add a password.

The following prompt appears:

```
Welcome !

FortiBridge-1000 #
```

You have connected to the FortiBridge CLI, and you can enter CLI commands.

Completing the basic FortiBridge configuration

Now that you have connected the FortiBridge unit to your network and connected to the FortiBridge CLI, use the following procedures to complete the basic configuration of the FortiBridge unit.

Note: Not all of the following procedures are required to complete the basic FortiBridge unit configuration. Choose the procedures that apply to your installation.

- Adding an administrator password
- Changing the management IP address
- Changing DNS server IP addresses
- Adding static routes
- Allowing management access to the EXT 1 interface
- Changing the system time and date
- Adding administrator accounts

Adding an administrator password

Add an administrator password to the default admin administrator account to prevent unauthorized users from connecting to and managing the FortiBridge unit.

To add an administrator password

1 Log in to the CLI.

2 Change the admin administrator password. Enter:

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

For example:

```
config system admin
    edit admin
        set password passWORD
  end
```

Changing the management IP address

Change the FortiBridge unit management IP address so that you can connect to the FortiBridge CLI from your network (instead of being required to use a direct console connection). The management IP should be a valid IP address for your network.

To change the management IP address

1 Log in to the CLI.

2 Change management IP address. Enter:

```
config system manageip
    set ip <address_ipv4mask>
  end
```

For example:

```
config system manageip
    set ip 192.168.20.23/24
  end
```

Changing DNS server IP addresses

Change the FortiBridge DNS server IP addresses to the IP addresses of your DNS servers. The correct DNS server configuration is required for alert email.

To change DNS server IP addresses

1 Log in to the CLI.

2 Change the primary and secondary DNS server IP addresses. Enter:

```
config system dns
    set primary <address_ipv4>
    set secondary <address_ipv4>
  end
```

For example:

```
config system dns
    set primary 192.168.30.23
    set secondary 192.168.30.24
  end
```

Adding static routes

Add static routes if you need to route packets from the FortiBridge unit through a router to another network. For example, if alert email sends email messages from the internal network to an email server on the Internet, you should add a route to the Internet.

To add static routes

1 Log in to the CLI.

2 Add the default route. Enter:

```
config system route
    edit <sequence_integer>
        set gateway <gateway-address_ipv4>
  end
```

For example:

```
config system route
    edit 1
        set gateway 192.168.20.1
  end
```

3 If required for your network configuration, add a static route. Enter:

```
config system route
    edit <sequence_integer>
        set gateway <gateway-address_ipv4>
        set dst <destination-address_ipv4mask>
  end
```

For example:

```
config system route
    edit 2
        set gateway 192.168.20.3
        set dst 192.168.22.0 255.255.255.0
  end
```

Allowing management access to the EXT 1 interface

By default no management access is configured for the EXT 1 interface. Use the following procedure to add management access to this interface if required.

To allow management access to the EXT 1 interface

1. Log in to the CLI.
2. Allow Telnet and ping management access to the EXT 1 interface. Enter:

```
config system interface external
    set allowaccess telnet ping
  end
```

Changing the system time and date

Use the following procedure to change the system time and date.

To change the system time and date

1. Log in to the CLI.
2. Change the system time. Enter:

```
execute time <hh:mm:ss>
```

For example:

```
execute time 12:24:34
```

3. Change the system date. Enter:

```
execute date <mm/dd/yyyy>
```

For example:

```
execute date 04/26/2005
```

4. Change the FortiBridge system time zone. Enter:

```
config system global
    set timezone <timezone_integer>
  end
```

Enter the number corresponding to your time zone. Type ? to list time zones and their numbers. Choose the time zone from the list and enter the correct number.

For example, to set the time zone to Central time (time zone number 8), enter:

```
config system global
    set timezone 8
  end
```

For information about configuring other global settings, see “system global” on page 66.

Adding administrator accounts

The factory default FortiBridge configuration includes the admin administrator account. Use this procedure to add more administrator accounts.

To add administrator accounts

1. Log in to the CLI.
2. Add an administrator. Enter:

```
config system admin
    edit <admin_name_str>
        set password <password>
        set accprofile prof_admin
  end
```

For example:

```
config system admin
    edit new_admin
        set password p8ssw0rd
        set accprofile prof_admin
  end
```

For more information about configuring administrators see “system admin” on page 59.

Resetting to the factory default configuration

Use the following procedure to reset the FortiBridge unit to the factory default configuration. You might want to rest the FortiBridge to the factory default condition if the FortiBridge unit is not functioning as expected and you would like to re-start the configuration process. Resetting to the factory default configuration resets all configuration changes that you have made, including the management IP address. See “Factory default configuration” on page 22.

To reset to factory default configuration from the FortiBridge front panel

1 Press and release the Factory reset button.

Use a pen or other pointed object to press the button.

After a few seconds the FortiBridge unit restarts; reset to the factory default configuration. You can now re-configure the FortiBridge unit.

To reset to factory defaults from the FortiBridge CLI

1 Log into the CLI.

2 Enter the following command:

```
execute factoryreset
```

3 Type y and press Enter.

After a few seconds the FortiBridge unit restarts; reset to the factory default configuration. You can now re-configure the FortiBridge unit.

Installing FortiBridge unit firmware

Select a procedure from Table 8 to install FortiBridge unit firmware.

Before beginning any of the procedures in this section, you must have the FortiBridge firmware image file that you are going to install on the FortiBridge unit. During these procedures you are required to enter the name of the firmware image file.

Table 8: Firmware upgrade procedures

Procedure	Description
Upgrading to a new firmware version	Upgrade to a new FortiBridge firmware version or to a more recent build of the same firmware version.
Reverting to a previous firmware version	Revert to a previous firmware version. This procedure reverts the FortiBridge unit to its factory default configuration.
Installing firmware from a system reboot	Install a new firmware version or revert to a previous firmware version. To use this procedure you must connect to the CLI using the FortiBridge console port. This procedure reverts the FortiBridge unit to its factory default configuration.

Upgrading to a new firmware version

You cannot use this procedure to re-install the current firmware or to revert to an older version of the firmware. If you need to re-install the current firmware or revert to an older firmware version, see "Reverting to a previous firmware version" on page 32.

The following procedure requires a TFTP server that you can connect to from the FortiBridge unit.

To upgrade to a new firmware version

1. Make sure that the TFTP server is running.
2. Copy the new firmware image file to the root directory of your TFTP server.
3. Log into the CLI as an administrator with `sysshutdowngrp` access.

   Normally this would be the admin administrator. But you can use access profiles to control administrative access. See "system accprofile" on page 57 for more information.
4. Make sure the FortiBridge 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 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 FortiBridge unit:

   ```
   execute restore image <name_str> <tftp_ip>
   ```

   Where `<name_str>` is the name of the firmware image file on the TFTP server and `<tftp_ip>` is the IP address of the TFTP server. For example, if the firmware image file name is `FBG_1000-v10-build010-FORTINET.out` and the IP address of the TFTP server is `192.168.1.23`, enter:

   ```
   execute restore image FBG_1000-v10-build010-FORTINET.out
     192.168.1.168
   ```

   The FortiBridge unit uploads the firmware image file, upgrades to the new firmware version, and restarts. This process takes a few minutes.
6. Reconnect to the CLI.
7. To confirm that the new firmware image has been loaded, enter:

   ```
   get system status
   ```

Reverting to a previous firmware version

This procedure reverts the FortiBridge unit to a previous firmware version and rests the unit to its factory default configuration.

Before using this procedure you can backup the FortiBridge unit configuration using the command `execute backup config`.

To use the following procedure you must have a TFTP server that you can connect to from the FortiBridge unit.

To revert to a previous firmware version

1. Make sure that 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 as an administrator with `sysshutdowngrp` access.

   Normally this would be the admin administrator. But you can use access profiles to control administrative access. See "system accprofile" on page 57 for more information.
4. Make sure the FortiBridge 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 FortiBridge unit:

   ```
   execute restore image <name_str> <tftp_ip>
   ```

   Where `<name_str>` is the name of the firmware image file on the TFTP server and `<tftp_ip>` is the IP address of the TFTP server. For example, if the firmware image file name is `FBG_1000-v10-build010-FORTINET.out` and the IP address of the TFTP server is `192.168.1.23`, enter:

   ```
   execute restore image FBG_1000-v10-build010-FORTINET.out
     192.168.1.168
   ```

   The FortiBridge unit uploads the firmware image file. Once the file has been uploaded a message similar to the following is displayed:

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

   The FortiBridge unit reverts to the old firmware version, resets the configuration to factory defaults, and restarts. This process takes a few minutes.
7. Reconnect to the CLI.
8. To confirm that the older version of the firmware image has been loaded, enter:

   ```
   get system status
   ```

Installing firmware from a system reboot

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

To use this procedure you:

- access the CLI by connecting to the FortiBridge console port,
- install a TFTP server that you can connect to from the FortiBridge EXT 2 interface. The TFTP server should be on the same network as the EXT 2 interface. The FortiBridge unit cannot access the TFTP server if its behind a router.

During this procedure you will be asked to enter a local IP address for the FortiBridge unit. This is a temporary address used for downloading the firmware image.

This procedure reverts your FortiBridge unit to its factory default configuration. Before running this procedure you can backup the FortiBridge unit configuration using the command `execute backup config`.

To install firmware from a system reboot

1. Connect to the CLI using the FortiBridge 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 EXT 2 interface of the FortiBridge unit can connect to the TFTP server.
5. Enter the following command to restart the FortiBridge unit:

   ```
   execute reboot
   ```

   As the FortiBridge unit starts, a series of system startup messages are displayed. When the following messages appears:

   ```
   Hit any key to stop autoboot:
   ```

6. Immediately press any key to interrupt the system startup.

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

When you successfully interrupt the startup process, the => prompt appears:

7. Type `upgrade` and press Enter to get the new firmware image from the TFTP server.

   The following message appears:

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

8. Type the address of the TFTP server and press Enter.

   The following message appears:

   ```
   Enter local address [192.168.1.188]:
   ```

9. Type an IP address that the FortiBridge unit can use to connect to the TFTP server press Enter.

Note: The local IP address is a temporary address used to download the firmware image. The local IP address should be on the same subnet as the TFTP server IP address.

The following message appears:

```
Enter firmware image file [image.out]:
```

10 Type the firmware image file name and press Enter.

The TFTP server uploads the firmware image file to the FortiBridge unit and the FortiBridge unit installs the new firmware image, resets the configuration to factory defaults, and restarts. This process takes a few minutes.

11 Reconnect to the CLI.

12 To confirm that the firmware image has been loaded, enter:

```
get system status
```

Configuration and operating procedures

This chapter describes how to configure a FortiBridge unit to provide fail open protection for a FortiGate unit operating in transparent mode. This chapter also describes some commonly required FortiBridge operating procedures such as recovering from a fail open event, manually switching between FortiBridge operating modes and backing up and restoring the FortiBridge configuration.

The procedures in this chapter assume that you have connected the FortiBridge unit to your network and completed its basic configuration as described in “Setting up FortiBridge units” on page 19.

Note: The information in this chapter can be applied to any standalone FortiGate transparent mode network configuration. These procedures can also be applied to a FortiBridge unit providing fail open protection for a FortiGate HA cluster operating in transparent mode.

This chapter describes:

- Example network settings
- Configuring FortiBridge probes
- Configuring FortiBridge alerts
- Recovering from a FortiGate failure
- Manually switching between FortiBridge operating modes
- Backing up and restoring the FortiBridge configuration

Example network settings

The descriptions and procedures in this chapter assume that the FortiGate unit is installed between an internal network and the router that connects the internal network to the Internet as show in Figure 13. The FortiGate unit can provide the following security services for all traffic passing between the internal network and the internet:

- Internal -> External firewall policies for HTTP, FTP, POP3, SMTP, and IMAP connections from Internal network to the Internet.
- Virus scanning of HTTP, FTP, POP3, SMTP, and IMAP traffic,
- Web filtering of HTTP traffic,
- Spam filtering of POP3, SMTP, and IMAP traffic.

Figure 13: Example FortiBridge application

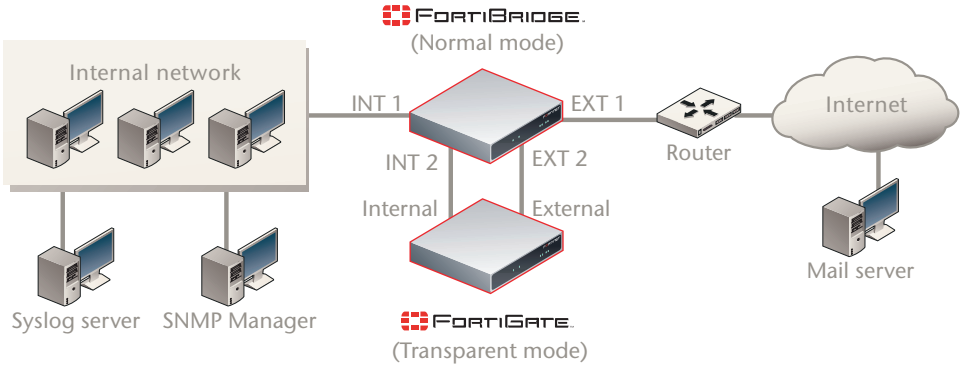


Table 9 lists the internal network configuration.

Table 9: Internal network configuration

FortiGate management IP address	172.20.120.10/24
Internal network subnet IP address	172.20.120.0/24
Router internal IP address	172.20.120.1/24
Internal network default route	172.20.120.1
Primary DNS server	172.20.120.2
Secondary DNS server	172.20.120.3
Syslog Server IP address	172.20.120.11
SNMP Manager IP address	172.20.120.12
Mail Server Name	mail.myorg.com

Table 10 lists the basic FortiBridge unit configuration settings.

Table 10: Basic FortiBridge unit configurations settings

Administrator password	passWORD
Management IP address	172.20.120.20/24
Default route	172.20.120.1
Primary DNS server	172.20.120.2
Secondary DNS server	172.20.120.3

Configuring FortiBridge probes

To monitor a FortiGate unit for failure, you configure the FortiBridge unit to send probe packets through the FortiGate unit. Using probe packets, the FortiBridge unit can confirm that the FortiGate unit can process ICMP (ping), HTTP, FTP, POP3, SMTP, and IMAP traffic. Until you configure probes, the FortiBridge unit cannot detect if the FortiGate unit has failed.

This section describes:

- Probe settings
- Enabling probes
- Verifying that probes are functioning
- Tuning the failure threshold and probe interval

Probe settings

Configure probe settings to control the response when a FortiBridge probe detects that the FortiGate unit has failed. Probe settings consist of:

Table 11: Probe settings

Probe Setting	Description	Default
Action on failure	Set the FortiBridge unit response when a probe detects that the FortiGate unit has failed. The FortiBridge unit can. • Send alertmail • Fail open • Send an SNMP trap • Send a message to a syslog server You can add up to four actions on failure. All of the configured actions on failure occur when the FortiBridge unit detects a failure.	fail open
Dynamic IP pattern	Configure the INT 2 and EXT 2 interfaces with dynamic probe IP addresses. The dynamic probe IP addresses should not conflict with IP addresses on the network that the FortiGate unit is connected to. These IP addresses are not visible from the outside network, but they should not conflict with IP addresses in packets passing through the FortiBridge unit. You cannot change the dynamic IP pattern if any probes are enabled.	(none)
FortiGate unit serial number	The serial number of the FortiGate unit that the FortiBridge unit is connected to. The serial number appears in FortiBridge alert mail, and syslog messages to identify the FortiGate unit.	(none)

To configure probe settings

This procedure shows how to configure the following probe settings:

- The FortiBridge unit responds to a FortiGate unit failure by failing open and by sending an alert email, a syslog message, and an SNMP trap
- The dynamic IP pattern is 2.2.2.*
- The FortiGate unit serial number is FGT8002803923050

Note: The FortiBridge unit does not have to fail open if the FortiGate unit fails. The FortiBridge unit can be configured just to send alerts if the FortiGate unit fails.

1 Log in to the FortiBridge CLI.

2 Configure probe settings. Enter:

```
config probe setting
    set action_on_failure alertmail failopen snmp syslog
    set dynamic_ip_pattern 2.2.2.*
    set fgt_serial FGT8002803923050
  end
```

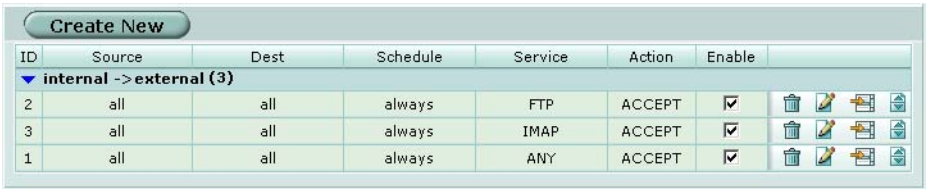
Enabling probes

Enable probes to control the protocols that the FortiBridge unit uses to confirm that the FortiGate unit is functioning normally. You can configure probes for ping (ICMP), HTTP, FTP, POP3, SMTP, and IMAP protocols. For all probes you can configure the probe interval (the time between consecutive probe packets), and the probe threshold (the number of probe packets lost before the FortiBridge unit registers a failure). For HTTP, FTP, POP3, SMTP, and IMAP probes you can also change the probe port. You would change the probe port for a protocol if the FortiGate unit uses a non-standard port for that protocol.

The FortiBridge unit simultaneously tests connectivity through the FortiGate unit for each probe that you have enabled. The first probe that registers a failure causes all probes to stop and the configured action on failure to occur.

Before you configure probes, the FortiGate unit must be configured to pass the probe traffic. A single Internal->External firewall policy that allows all traffic also allows all probe packets. You can also configure individual policies for each protocol. For example, you could add the policies shown in Figure 14 to the FortiGate unit.

Figure 14: Sample firewall policies



Policy 1 processes any network traffic. Policy 2 processes all FTP traffic. Policy 2 is above Policy 1 in the policy list, so FTP traffic is matched by policy 2. In the same way, Policy 3 processes all IMAP traffic.

FTP and IMAP probes would be processed by policies 2 and 3 respectively. All other probes would be processed by policy 1. This would include pings, SMTP traffic and so on.

To enable and configure FortiBridge probes

The following steps show examples for configuring ping, HTTP, FTP, POP3, SMTP, and IMAP probes. For a complete description of FortiBridge probes see “probe probe_list {ping | http | ftp | pop3 | smtp | imap}” on page 55.

1 Log into the FortiBridge CLI.

2 Enable the ping probe using the default ping probe parameters. Enter:

```
config probe probe_list ping
    set status enable
  end
```

3 Display ping probe settings, enter:

```
get probe probe_list ping
  name                : ping
  failure_threshold   : 3
  probe_interval      : 1
  status              : enable
```

4 Enable the FTP probe. Increase the failure threshold to 5 and the probe interval to 8.

```
config probe probe_list ftp
    set status enable
    set failure_threshold 8
    set probe_interval 5
  end
```

The FortiBridge unit sends an FTP probe every 5 seconds and fails open if 8 consecutive FTP probe packets are not received.

5 Display FTP probe settings. Enter:

```
get probe probe_list ftp
  name                : ftp
  failure_threshold   : 8
  probe_interval      : 5
  status              : enable
  test_port           : 21
```

6 Enable the IMAP probe. Enter:

```
config probe probe_list IMAP
    set status enable
  end
```

7 Enable the SMTP probe and change the port used by the probe from 25 to 26. Enter:

```
config probe probe_list SMTP
    set status enable
    set test_port 26
  end
```

Verifying that probes are functioning

You verify that the probes are functioning by viewing the sessions being processed by the FortiGate unit.

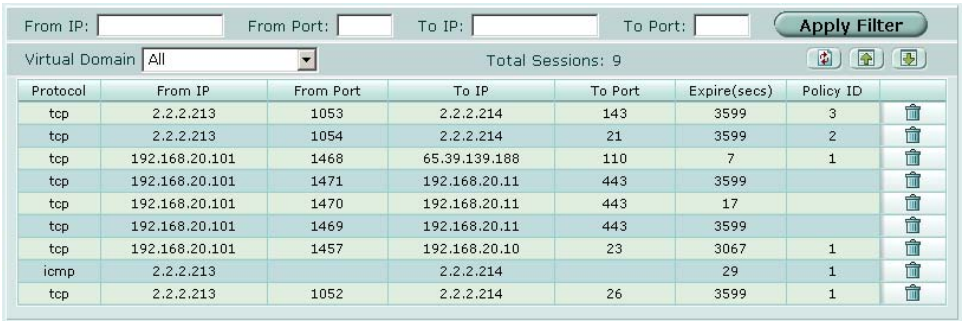
To verify that probes are functioning

1 Log into the FortiGate unit web-based manager.

2 Go to **System > Status > Session**.

3 View the sessions on the Session list.

Figure 15: FortiGate Session list showing FortiBridge probes



Protocol	From IP	From Port	To IP	To Port	Expire(secs)	Policy ID	
tcp	2.2.2.213	1053	2.2.2.214	143	3599	3	
tcp	2.2.2.213	1054	2.2.2.214	21	3599	2	
tcp	192.168.20.101	1468	65.39.139.188	110	7	1	
tcp	192.168.20.101	1471	192.168.20.11	443	3599		
tcp	192.168.20.101	1470	192.168.20.11	443	17		
tcp	192.168.20.101	1469	192.168.20.11	443	3599		
tcp	192.168.20.101	1457	192.168.20.10	23	3067	1	
icmp	2.2.2.213		2.2.2.214		29	1	
tcp	2.2.2.213	1052	2.2.2.214	26	3599	1	

This session list shows the following:

- The FortiBridge dynamic probe IP addresses are 2.2.2.213 and 2.2.2.214.
- IMAP probe packets (port 143) are processed by firewall policy 3.
- FTP probe packets (port 21) are processed by firewall policy 2.
- ping probe packets are processed by firewall policy 1.
- SMTP packets using port 26 are processed by firewall policy 1.

Tuning the failure threshold and probe interval

If you find the FortiBridge unit failing open when the FortiGate unit has not failed or if the FortiGate unit fails and there is an unacceptably long delay before the FortiBridge unit fails open, you should adjust the failure threshold and probe interval.

Failing open when the FortiGate unit has not failed indicates that you should increase the time the FortiBridge unit waits to fail open. During startup, if the FortiBridge unit begins sending probe packets before the FortiGate unit has completed its start up sequence the FortiBridge unit may detect a failure and switch to bypass mode. Also, if the FortiGate unit is processing high traffic volumes, a fail open could occur if the FortiGate unit delays FortiBridge probe packets. You can increase the fail open delay by increasing the failure threshold and probe interval.

An unacceptable delay before failing open means network traffic can be interrupted for the time period between when the FortiGate unit fails and the FortiBridge unit fails open. You can minimize the delay by reducing the failure threshold and probe interval.

Configuring FortiBridge alerts

Configure FortiBridge alerts so that the `alertemail`, `syslog`, and `snmp` actions on failure cause the FortiBridge unit to notify system administrators that the FortiGate unit has failed. Until you configure alert email, syslog, and SNMP alerts, the FortiBridge cannot notify system administrators of a FortiGate failure.

You can configure the following FortiBridge alerts:

- FortiBridge alert email
- FortiBridge syslog
- FortiBridge SNMP

FortiBridge alert email

If you set the probe action on failure to `alertmail`, you can configure alert email so that the FortiBridge unit sends an email message to up to three email addresses if the FortiBridge unit detects a failure. The alert email informs the recipient that a FortiGate unit has failed, includes the protocol for which the failure was detected, and includes the serial number of the FortiGate unit that failed.

Only the first probe to detect a failure triggers the actions on failure. So, even if multiple probes are configured, when a failure is detected, the FortiBridge unit sends one alert email.

Figure 16: Sample FortiBridge alert email message

```
FortiBridge detect FortiGate failure

Time: Tue Feb  1 19:58:46 2005
failed protocol: http
failed FortiGate serial number: FGT8002803923050
```

To configure alert email

Configuring FortiBridge alert email is similar to configuring FortiGate alert email.

1. Log into the CLI.
2. Configure alert email. Enter:

```
config alertemail setting
    set server mail.myorg.com
    set username user@company.com
    set password PassWORD
    set mailto1 user@company.com
    set mailto1 user2@company.co.uk
    set mailto1 user3@company.com
  end
```

FortiBridge syslog

If you set the probe action on failure to `syslog`, you can configure FortiBridge syslog so that the FortiBridge unit sends a syslog message to one syslog server if the FortiBridge unit detects a failure. The message informs the recipient that a FortiGate unit has failed, includes the protocol for which the failure was detected, and includes the serial number of the FortiGate unit that failed.

Only the first probe to detect a failure triggers the actions on failure. So, even if multiple probes are configured, when a failure is detected, the FortiBridge unit sends one message.

Figure 17: Sample FortiBridge syslog messages

```
02-01-2005 18:22:50 Local7.Alert 172.20.120.13 date=2005-02-
01 time=15:28:22 device_id= log_id=0100020001 type=event
subtype=system pri=alert msg="FortiBridge detect FortiGate
failure: [failed time: Tue Feb  1 15:28:22 2005][failed
protocol: http] [failed FortiGate serial number:
FGT8002803923050]"
```

```
02-01-2005 8:21:27 Local7.Alert 172.20.120.13 date=2005-02-
01 time=15:26:59 device_id= log_id=0100020001 type=event
subtype=system pri=alert msg="FortiBridge detect FortiGate
failure: [failed time: Tue Feb  1 15:26:59 2005][failed
protocol: ftp] [failed FortiGate serial number:
FGT8002803923050]"

02-01-2005 18:17:17 Local7.Alert 172.20.120.13 date=2005-02-
01 time=15:22:49 device_id= log_id=0100020001 type=event
subtype=system pri=alert msg="FortiBridge detect FortiGate
failure: [failed time: Tue Feb  1 15:22:49 2005][failed
protocol: ping] [failed FortiGate serial number:
FGT8002803923050]"

02-01-2005 8:13:43 Local7.Alert 172.20.120.13 date=2005-02-
01 time=15:19:15 device_id= log_id=0100020001 type=event
subtype=system pri=alert msg="FortiBridge detect FortiGate
failure: [failed time: Tue Feb  1 15:19:15 2005][failed
protocol: smtp] [failed FortiGate serial number:
FGT8002803923050]"
```

To configure FortiBridge syslog

In most cases you should only need to configure the IP address of the syslog server to receive FortiBridge syslog messages. See “log syslogd setting” on page 54 for more FortiBridge syslog options.

1 Log into the CLI.

2 Configure syslog settings. Enter:

```
config log syslogd setting
    set server 172.20.120.11
  end
```

FortiBridge SNMP

If you set the probe action on failure to `snmp`, you can configure FortiBridge SNMP settings so that the FortiBridge unit sends SNMP v1 and v2c compliant traps to SNMP v1 and v2c compliant SNMP managers if the FortiBridge unit detects a failure. The traps inform the recipient that a FortiGate unit has failed and include the protocol for which the failure was detected.

Only the first probe to detect a failure triggers the actions on failure. So, even if multiple probes are configured, when a failure is detected, the FortiBridge unit sends one v1 SNMP trap and one v2c SNMP trap.

Configure FortiBridge SNMP by adding and configuring an SNMP community. An SNMP community is a grouping of equipment for network administration purposes. You can add up to three SNMP communities. Each community can have a different configuration for SNMP traps. You can add the IP addresses of up to 8 SNMP managers to each community.

To add and enable an SNMP community

1 Log into the CLI.

2 Add the first SNMP community and name it `snmp1`. Enter:

```
config system snmp community
    edit 1
        set name snmp_1
  end
```

The new SNMP community is enabled by default. SNMP v1 and v2 traps are also enable by default. You can disable traps and change ports. See "system snmp community" on page 71 for more information.

3 Add the IP addresses of two SNMP managers that can receive traps. Enter

```
config system snmp community
    edit 1
        config hosts
            edit 1
                set ip 172.20.120.12
            next
            edit 2
                set ip 192.168.20.102
            end
  end
```

Recovering from a FortiGate failure

After the FortiBridge probe detects a FortiGate failure the FortiBridge unit stops sending probes. To restart probes you can restart the FortiBridge unit, connect to the FortiBridge CLI and enter the `execute switch-mode` command, or press the mode button on the FortiBridge unit front panel.

Normally, an action on failure causes the FortiBridge unit to fail open. When the FortiBridge unit fails open, it begins operating in Bypass mode. In bypass mode the INT 1 and EXT 1 interfaces are directly connected and you cannot use Telnet or SSH to connect to the FortiBridge CLI. Use the following procedure to recover from bypass mode after a FortiGate failure and resume normal operation.

To resume normal operation from bypass mode

When the FortiBridge unit is operating in bypass mode, you need to do the following to resume normal operation:

1 Review FortiBridge alerts and check the status of your FortiGate unit and network components to determine the source of the failure.

A network component or the FortiGate unit could have experienced a general hardware failure or a specific software failure.

2 Make the required changes to fix the problem.

Depending on the cause, this could mean re-connecting and restarting the FortiGate unit, or diagnosing a problem with the FortiGate unit or other network component.

If all network and FortiGate unit hardware and software is functioning normally, you may have to adjust FortiBridge probe settings. See "Tuning the failure threshold and probe interval" on page 40.

3 Manually switch the FortiBridge unit from bypass to normal mode.

Connect to the FortiBridge CLI using the console connection and enter the command:

```
execute switch-mode
```

Or press the Mode button on the FortiBridge unit front panel.

Or restart the FortiBridge unit by cycling the power or from the console using he `execute reboot` command. The FortiBridge unit always restarts on normal mode.

Manually switching between FortiBridge operating modes

You can manually switch between FortiBridge operating modes from the FortiBridge CLI or by pressing the Mode button on the FortiBridge front panel. To switch operating modes from the CLI enter:

```
execute switch-mode
```

Backing up and restoring the FortiBridge configuration

Use the following procedures to backup and restore your FortiBridge configuration. For both of these procedures, you must have a TFTP server that you can connect to from any FortiBridge unit interface. The FortiBridge unit must be operating in normal mode.

To back up the FortiBridge configuration

1 Make sure that the TFTP server is running.

2 Log into the FortiBridge CLI.

3 Backup the system configuration to a text file on the TFTP server. Enter:

```
execute backup config <filename_str> <tftp-server_ipv4>
```

The config file is copied to the TFTP server and saved with the specified file name.

To restore the FortiBridge configuration

1 Make sure that the TFTP server is running.

2 Log into the FortiBridge CLI.

3 Restore the system configuration from a text file on the TFTP server. Enter:

```
execute restore config <filename_str> <tftp-server_ipv4>
```

The config file is copied from the TFTP server to the FortiBridge unit. The FortiBridge unit reboots loading the new configuration. While the FortiBridge unit is rebooting, all network traffic passes directly from INT 1 and EXT 1 bypassing the FortiGate unit.

Using the CLI

This chapter explains how to connect to the command line interface (CLI) and contains some basic information about using the CLI. You use CLI commands to view all system information and to change all system configuration settings.

This chapter describes:

- CLI basics
- Connecting to the FortiBridge CLI using SSH or Telnet

CLI basics

The FortiBridge CLI functions the same as the FortiOS v2.80 CLI. For information about the CLI structure, how to get command help, how to use command completion, and other CLI features, see the FortiOS v2.80 *FortiGate CLI Reference Guide*.

Connecting to the FortiBridge CLI using SSH or Telnet

You can use a direct console connection, SSH, or Telnet to connect to the FortiBridge CLI.

- Setting administrative access for SSH or Telnet
- Connecting to the FortiBridge CLI using SSH

To connect to the FortiBridge CLI using Telnet, see "Connecting to the FortiBridge CLI using Telnet" on page 26.

Setting administrative access for SSH or Telnet

To configure the FortiBridge unit to accept SSH or Telnet connections, you must set administrative access to SSH or Telnet for the FortiBridge interface to which your management computer connects.

To use the CLI to configure SSH or Telnet access

1. Log into the CLI.
2. Use the following command to configure an interface to accept SSH connections:

```
config system interface
    edit <name_str>
        set allowaccess ssh
  end
```

Where `<name_str>` is the name of the FortiBridge interface to be configured to accept SSH connections. Internal means the FortiBridge INT 1 interface. External means the FortiBridge EXT 1 interface.

For example, to configure the internal interface to accept SSH connections, enter:

```
config system interface
    edit internal
        set allowaccess ssh
  end
```

3 Use the following command to configure an interface to accept Telnet connections:

```
config system interface
    edit <name_str>
        set allowaccess telnet
  end
```

Where `<name_str>` is the name of the FortiBridge interface to be configured to accept Telnet connections.

For example, to configure the internal interface to accept Telnet connections, enter:

```
config system interface
    edit internal
        set allowaccess telnet
  end
```

Note: Remember to press Enter at the end of each line in the command example. Also, type `end` and press Enter to commit the changes to the FortiBridge configuration.

4 To confirm that you have configured SSH or Telnet access correctly, enter the following command to view the access settings for the interface:

```
get system interface <name_str>
```

The CLI displays the settings, including the management access settings, for the named interface.

Other access methods

The procedure above shows how to allow access only for Telnet or only for SSH. If you want to allow both or any of the other management access types you must include all the options you want to apply. For example to allow ping, Telnet and SSH access to an interface, the set portion of the command is `set allowaccess ping telnet ssh`.

Connecting to the FortiBridge CLI using SSH

Secure Shell (SSH) provides strong secure authentication and secure communications to the FortiBridge CLI from your internal network or the internet. Once the FortiBridge unit is configured to accept SSH connections, you can run an SSH client on your management computer and use this client to connect to the FortiBridge CLI.

Note: A maximum of 5 SSH connections can be open at the same time.

To connect to the CLI using SSH

1. Install and start an SSH client.
2. Connect to a FortiBridge interface that is configured for SSH connections.
3. Type a valid administrator name and press Enter.
4. Type the password for this administrator and press Enter.

   The FortiBridge model name followed by a # is displayed.

   You have connected to the FortiBridge CLI, and you can enter CLI commands.

config CLI commands

alertemail setting
log syslogd setting
probe probe_list {ping | http | ftp | pop3 | smtp | imap}
probe setting
system accprofile
system admin
system console
system dns
get system status
system fail_close
system global
system interface {internal | external}
system manageip
system route
system snmp community

alertemail setting

Use this command to configure the FortiBridge unit to send alert email to up to three recipients when action on failure is set to send a alert email message.

Command syntax pattern

```
config alertemail setting
    set <keyword> <variable>
  end
config alertemail setting
    unset <keyword>
get alertemail setting
show alertemail setting
```

Keywords and variables	Description	Default
`authenticate {disable | enable}`	Enable SMTP authentication if the FortiBridge unit is required to authenticate to connect to the SMTP server.	`disable`
`mailto1 <email-address_str>`	Enter an email address. This is one of the email addresses to which the FortiBridge unit sends alert email.	No default.
`mailto2 <email-address_str>`	Enter an email address. This is one of the email addresses to which the FortiBridge unit sends alert email.	No default.
`mailto3 <email-address_str>`	Enter an email address. This is one of the email addresses to which the FortiBridge unit sends alert email.	No default.
`password <password_str>`	Enter the password that the FortiBridge unit needs to access the SMTP server.	No default.
`server {<name_str> | <address_ipv4>}`	Enter the name of the SMTP server, in the format `smtp.domain.com`, to which the FortiBridge unit should send email. The SMTP server can be located on any network connected to the FortiBridge unit.	No default.
`username <user-name_str>`	Enter a valid email address in the format `user@domain.com`. This address appears in the From header of the alert email.	No default.

Examples

This example shows how to configure the SMTP server and user name and password, enable authentication and add two email addresses.

```
config alertemail setting
    set server mail.ourcompany.com
    set username fortigate@ourcompany.com
    set authenticate enable
    set password pwd23
    set mailto1 admin1@ourcompany.com
    set mailto2 admin2@ourcompany.com
  end
```

This example shows how to display the alertemail settings.

```
get alertemail setting
```

This example shows how to display the configuration of the `alertemail setting` command.

```
show alertemail setting
```

Related Commands

- probe setting

log syslogd setting

Use this command to configure the FortiBridge unit to send a syslog message to a remote syslog server when action on failure is set to send a syslog message.

Command syntax pattern

```
config log syslogd setting
    set <keyword> <variable>
  end
config log syslogd setting
    unset <keyword>
get log syslogd setting
show log syslogd setting
```

Keywords and variables	Description	Default
csv {disable | enable}	Enable formatting log messages in Comma Separated Value (CSV) format. If you do not enable CSV format the FortiBridge unit produces plain text log messages.	disable
facility {alert | audit | auth | authpriv | clock | cron | daemon | ftp | kernel | local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7 | lpr | mail | news | ntp | syslog | user | uucp}	Enter the facility type, which identifies the source of the log message to the syslog server. You might want to change facility to distinguish log messages from different FortiBridge units.	local7
port <port_integer>	Enter the port number for communication with the syslog server.	514
server <address_ipv4>	Enter the IP address of the syslog server that stores the logs.	No default.
status {disable | enable}	Enter enable to enable logging to a remote syslog server.	disable

Example

This example shows how to enable logging to a remote syslog server, configure an IP address and port for the server, and enable logging in CSV format.

```
config log syslogd setting
    set status enable
    set server 220.210.200.190
    set port 601
    set csv enable
  end
```

This example shows how to display the log setting for logging to a remote syslog server.

```
get log syslogd setting
```

This example shows how to display the configuration for logging to a remote syslog server.

```
show log syslogd setting
```

If the show command returns you to the prompt, the settings are at default.

Related Commands

- probe setting

probe probe_list {ping | http | ftp | pop3 | smtp | imap}

Use this command to configure probes for ping, HTTP, FTP, POP3, SMTP, and IMAP traffic. Probes monitor different types of traffic. For each protocol you configure the time interval between probes (interval) and how many lost probes are required to register a failure (threshold). You can also enable each probe and in all cases except ping you can specify the port used by the probe.

Command syntax pattern

```
config probe probe_list {ping | http | ftp | pop3 | smtp | imap}
    set <keyword>
  end
config probe probe_list {ping | http | ftp | pop3 | smtp | imap}
    unset <keyword>
  end
get probe probe_list {ping | http | ftp | pop3 | smtp | imap}
show probe probe_list {ping | http | ftp | pop3 | smtp | imap}
```

Keywords and variables	Description	Default
`failure_threshold <threshold_integer>`	The number of probe packets that are lost before the FortiBridge unit determines that the FortiGate unit has failed.	`3`
`probe_interval <probe_integer>`	The number of seconds between probe packets.	`1`
`status {disable | enable}`	Enable or disable sending probe packets for the current probe protocol	`disable`

`test_port <port-number_integer>`	The port number on which the probe sends packets for a give protocol.	`ping (none)`
		`http 80`
		`ftp 21`
		`pop3 110`
		`smtp 25`
		`imap 143`

Example

Use the following command to enable HTTP probes and change the HTTP failure threshold to 5 and the probe interval to 3.

```
config probe probe_list http
    set status enable
    set failure_threshold 5
    set probe_interval 3
  end
```

This example shows how to display the settings for the `probe probe_list` command.

```
get probe probe_list
```

This example shows how to display the settings for the `http` probe.

```
get probe probe_list http
```

This example shows how to display the configuration for the `probe probe_list` command.

```
show probe probe_list
```

Related Commands

- probe setting

probe setting

Use this command to configure how the FortiBridge unit responds when a probe determines that the FortiGate unit has failed. You can also configure the dynamic IP pattern used by probes and add the FortiGate serial number, which is used in FortiBridge alert messages.

Command syntax pattern

```
config probe setting
    set <keyword>
  end
config probe setting
    unset <keyword>
  end
get probe setting
show probe setting
```

Keywords and variables	Description	Default
`action_on_failure {alertmail failopen snmp syslog}`	Set how the FortiBridge unit responds when a probe detects that the FortiGate unit has failed. You can enter one or more of the action types separated by spaces. Enter all of the action options required. If you want to remove an option from the list or add an option to the list, you must retype the list with the option removed or added.	`failopen`
`dynamic_ip_pattern <address_ipv4>.*`	Configure the INT 2 and EXT 2 interfaces with dynamic probe IP addresses. The dynamic probe IP addresses should not conflict with IP addresses on the network that the FortiGate unit is connected to. These IP addresses are not visible from the outside network, but they should not conflict with IP addresses in packets passing through the FortiBridge unit. You cannot change the dynamic IP pattern if any probes are enabled.	`none`
`fgt_serial <serial_string>`	The serial number of the FortiGate unit that the FortiBridge unit is connected to. This number is used in FortiBridge alert messages to identify the FortiGate unit.	`none`

Example

Use the following command to configure the FortiBridge unit to send alert email and fail open when a probe detects a failure, set the IP pattern to 2.2.2.* and add the FGT8002803923050 FortiGate serial number

```
config probe setting
    set action_on_failure alertmail failopen
    set dynamic_ip_pattern 2.2.2.*
    set fgt_serial FGT8002803923050
  end
```

Related Commands

- probe probe_list {ping | http | ftp | pop3 | smtp | imap}

system accprofile

Use this command to add access profiles that control administrator access to FortiBridge features. Each administrator account must include an access profile. You can create access profiles that deny access to or allow read only, write only, or both read and write access to FortiBridge features.

Command syntax pattern

```
config system accprofile
    edit <profile-name_str>
        set <keyword> <variable>
  end
config system accprofile
    edit <profile-name_str>
        unset <keyword>
  end
config system accprofile
    delete <profile-name_str>
  end
get system accprofile [<profile-name_str>]
show system accprofile [<profile-name_str>]
```

Keywords and variables	Description	Default
`admingrp {none | r | rw | w}`	Control administrator access to FortiBridge administrator accounts and access profiles. `none` deny access. `r` read only access. `rw` read write access. `w` write only access.	`none`
`loggrp {none | r | rw | w}`	Control administrator access to log and alert email settings. `none` deny access. `r` read only access. `rw` read write access. `w` write only access.	`none`
`sysgrp {none | r | rw | w}`	Control administrator access to system configuration settings. `none` deny access. `r` read only access. `rw` read write access. `w` write only access.	`none`
`sysshutdowngrp {none | r | rw | w}`	Control administrator access to system shutdown, system, reboot, and firmware upgrade functions. `none` deny access. `r` read only access. `rw` read write access. `w` write only access.	`none`

Example

Use the following commands to add a new access profile named `policy_profile` that allows read and write access system shutdown. An administrator account with this access profile can shutdown the system and upgrade firmware.

```
config system accprofile
    edit policy_profile
        set secgrp rw
  end
```

This example shows how to display the settings for the `system accprofile` command.

```
get system accprofile
```

This example shows how to display the settings for the `policy_profile` access profile.

```
get system accprofile policy_profile
```

This example shows how to display the configuration for the `system accprofile` command.

```
show system accprofile
```

This example shows how to display the configuration for the `policy_profile` access profile.

```
get system accprofile policy_profile
```

Related Commands

- system admin

system admin

Use this command to add, edit, and delete administrator accounts.

Use the admin account or an account with system configuration read and write privileges to add new administrator accounts and control their permission levels. Each administrator account must include an access profile. You cannot delete the admin administrator account. You cannot change the admin administrator account permissions.

Command syntax pattern

```
config system admin
    edit <name_str>
        set <keyword> <variable>
  end
config system admin
    edit <name_str>
        unset <keyword>
  end
config system admin
    delete <name_str>
  end
get system admin [<name_str>]
show system admin [<name_str>]
```

Keywords and variables	Description	Default
accprofile <profile-name_str>	Enter the name of the access profile to assign to this administrator account. Access profiles control administrator access to FortiBridge features.	No default.
password <password_str>	Enter a password for the administrator account. For improved security, the password should be at least 6 characters long.	No default.
trusthost1 <address_ipv4mask>	An IP address or subnet address and netmask from which the administrator can connect to the FortiBridge unit. If you want the administrator to be able to access the FortiBridge unit from any address, set one of the trusted hosts to 0.0.0.0 and the netmask to 0.0.0.0.	0.0.0.0/ 0.0.0.0
trusthost2 <address_ipv4mask>	An IP address or subnet address and netmask from which the administrator can connect to the FortiBridge unit. If you want the administrator to be able to access the FortiBridge unit from any address, set one of the trusted hosts to 0.0.0.0 and the netmask to 0.0.0.0.	0.0.0.0/ 0.0.0.0
trusthost3 <address_ipv4mask>	An IP address or subnet address and netmask from which the administrator can connect to the FortiBridge unit. If you want the administrator to be able to access the FortiBridge unit from any address, set one of the trusted hosts to 0.0.0.0 and the netmask to 0.0.0.0.	0.0.0.0/ 0.0.0.0

Example

Use the following commands to add a new administrator account named `new_admin` with the password set to `p8ssw0rd` and that includes an access profile named `policy_profile`. Administrators that log in to this account will have administrator access to the FortiBridge unit from any IP address.

```
config system admin
    edit new_admin
        set password p8ssw0rd
        set accprofile policy_profile
  end
```

This example shows how to display the settings for the `system admin` command.

```
get system admin
```

This example shows how to display the settings for the `new_admin` administrator account.

```
get system admin new_admin
```

This example shows how to display the configuration for the `system admin` command.

```
show system admin
```

Related Commands

- system accprofile

system console

Use this command to set the console command mode and output setting.

Command syntax pattern

```
config system console
    set <keyword> <variable>
  end
config system console
    unset <keyword>
  end
get system console
show system console
```

Keywords and variables	Description	Default
`mode {batch | line}`	Set the console mode to line or batch. Used for auto testing only.	`line`
`output {standard | more}`	Set console output to standard (no pause) or more (pause after each screen, resume on keypress).	`standard`

Example

This example shows how to set the number of lines per page to 25.

```
config system console
    set page 25
  end
```

This example shows how to display the settings for the `console` command.

```
get system console
```

This example shows how to display the configuration for the `console` command.

```
show system console
```

system dns

Use this command to set the DNS server addresses. Several FortiBridge functions, including sending email alerts and URL blocking, use DNS.

On models numbered 100 and lower, you can use this command to set up DNS forwarding.

Command syntax pattern

```
config system dns
    set <keyword> <variable>
  end
config system dns
    unset <keyword>
  end
get system dns
show system dns
```

Keywords and variables	Description	Default
`primary <address_ipv4>`	Enter the primary DNS server IP address.	`65.39.139.53`
`secondary <address_ipv4>`	Enter the secondary DNS IP server address.	`65.39.139.63`

Example

This example shows how to set the primary FortiBridge DNS server IP address to `45.37.121.76` and the secondary FortiBridge DNS server IP address to `45.37.121.77`.

```
config system dns
    set primary 45.37.121.76
    set secondary 45.37.121.77
  end
```

This example shows how to display the settings for the `system dns` command.

```
get system dns
```

This example shows how to display the configuration for the `system dns` command.

```
show system dns
```

get system status

Use this command to display system status information. This command displays:

- FortiBridge unit firmware version and build number
- FortiBridge unit host name
- FortiBridge unit operation mode (normal or bypass)
- FortiBridge unit serial number

Command syntax pattern

```
get system status
```

system fail_close

Use this command to configure the fail close feature.

Command syntax pattern

```
config system fail_close
    set <keyword> <variable>
  end
config system fail_close
    unset <keyword>
  end
get system fail_close
show system fail_close
```

Keywords and variables	Description	Default
`status {disable | fail_close | fail_bypass}`	*The `fail_bypass` option is only available on the FBG-1000F.* When the FortiBridge detects an upstream or downstream network disconnection (whether due to a cut/disconnected cable, failure of the connected device, or failure of the FortiBridge unit's own interface), it will bring down its own network interface after waiting the amount of time set for the `threshold` variable. If the fail close status is set to `fail_close` and a switch connected to EXT1 fails, the FortiBridge would bring down its own INT1. This way, the device connected to INT1 will be able to determine there is a problem Similarly, if a device connected to INT1 fails, the FortiBridge would bring down its own EXT1. When the problem is corrected, the FortiBridge will enable its own network interface after waiting the amount of time set for the `threshold` variable. Some early FBG-1000 units will return an *Not supported by this hardware* error when this command is invoked. This is normal as hardware support for `fail_close` was only added in later units. When using a FBG-1000F, some fiber-connected equipment doesn't properly detect the status of a FortiBridge interface brought down by the `fail_close` option. To prevent this problem, use `fail_bypass` instead. If a network problem is detected with `fail_bypass` set, the FortiBridge will switch to bypass mode. This way, the network devices can detect the problem directly through the FortiBridge. Note that `fail_bypass` causes the FortiBridge to remove itself from the network when a problem is detected so manual intervention is required to switch back to normal mode.	`disable`
`threshold <seconds_integer>`	Enter how long, in seconds, the FortiBridge will wait after detecting a network problem before activating the fail close feature. Except when `fail_bypass` is set, the FortiBridge will wait the specified time before deactivating the fail close feature when the problem is corrected.	3

Example

This example shows how to enable the FortiBridge fail_close feature, and set the threshold time to five seconds.

```
config system fail_close
    set status fail_close
    set threshold 5
  end
```

This example shows how to display the configuration for the `system fail_close` command.

```
show system fail_close
```

system global

Use this command to configure global settings that affect various FortiBridge systems and configurations.

Command syntax pattern

```
config system global
    set <keyword> <variable>
  end
config system global
    unset <keyword>
  end
get system global
show system global
```

Keywords and variables	Description	Default
`admintimeout <minutes_integer>`	Set the administrator idle timeout to control the amount of inactive time before the administrator must log in again. The maximum `admintimeout` is 480 minutes (8 hours). To improve security keep the idle timeout at the default value.	5
`dst {disable | enable}`	Enable or disable daylight saving time. If you enable daylight saving time, the FortiBridge unit adjusts the system time when the time zone changes to daylight saving time and back to standard time.	`disable`
`heartbeat {disable | enable }`	*For future use.*	`disable`
`hostname <name_str>`	Type a name for this FortiBridge unit.	FortiBridge model name.
`interface-speed {100full | 100half | 10full | 10half | auto }`	*This command is only available for the FBG-1000.* Set the network interface speed or allow each interface to auto-sense the correct speed. Set to `auto`, each FortiBridge network interface will autosense the correct speed and adjust accordingly. If the `interface-speed` command is used to specify a speed, all FortiBridge interfaces are locked to the selected speed. Although the FortiBridge supports 10/100/1000mbps speeds when set to auto, 1000half and 1000full are not available for manual selection. Some early units will return an *Not supported by this hardware* error when this command is invoked. This is normal as hardware support for `interface-speed` was only added in later units.	`auto`
`ntpserver {<name_str> | <address_ipv4>}`	Enter the domain name or IP address of a Network Time Protocol (NTP) server.	`132.246.168.148`
`ntpsync {disable | enable}`	Enable or disable automatically updating the system date and time by connecting to a Network Time Protocol (NTP) server. For more information about NTP and to find the IP address of an NTP server that you can use, see http://www.ntp.org.	`disable`

Keywords and variables	Description	Default
`syncinterval <minutes_integer>`	Enter how often, in minutes, the FortiGate unit should synchronize its time with the Network Time Protocol (NTP) server. The `syncinterval` number can be 1 to 1440; 0 disables time synchronization.	`60`
`timezone <timezone_integer>`	The number corresponding to your time zone. Press ? to list time zones and their numbers. Choose the time zone for the FortiBridge unit from the list and enter the correct number.	`00`

Example

This example shows how to set the FortiBridge system timezone, add the IP address of an NTP server, and enable synchronization with the NTP server. The IP address of the NTP server is 192.168.20.1.

```
config system global
    set timezone 16
    set ntpserver 192.168.20.1
    set ntpsync enable
  end
```

This example shows how to display the settings for the `system global` command.

```
get system global
```

This example shows how to display the configuration for the `system global` command.

```
show system global
```

system interface {internal | external}

Use this command to configure management access to the FortiBridge internal or external interface. The internal interface in the INT 1 interface. The external interface is the EXT 1 interface.

Command syntax pattern

Entering a name string for the `edit` keyword that is not the name of a physical interface adds a VLAN subinterface.

```
config system interface {internal | external}
    set <keyword> <variable>
  end
config system interface {internal | external}
    unset <keyword>
  end
get system interface <name_str>
show system interface <name_str>
```

Keywords and variables	Description	Default
`allowaccess {ping ssh telnet}`	Allow management access to the interface. You can enter one or more of the management access types separated by spaces. Enter all the management access options for the interface. Use a space to separate the options. If you want to remove an option from the list or add an option to the list, you must retype the list with the option removed or added.	INT 1 (internal) `ping, ssh, telnet` EXT 1 (external) none

Example

This example shows how to set management access for the INT 1 interface to `ping`, and `ssh`.

```
config system interface internal
    set allowaccess ping ssh
  end
```

This example shows how to display the settings for the INT 1interface.

```
get system interface internal
```

This example shows how to display the configuration for the INT 1interface.

```
show system interface internal
```

system manageip

Configure the FortiBridge management IP address. Use the management IP address for management access to the FortiBridge unit.

Command syntax pattern

```
config system manageip
    set <keyword> <variable>
  end
config system manageip
    unset <keyword>
  end
get system manageip
show system manageip
```

Keywords and variables	Description	Default
`ip <address_ipv4mask>`	Set the IP address and netmask of the FortiBridge management interface.	`192.168.1.99 255.255.255.0`

Example

This example shows how to set the management IP address to 192.168.2.80 and the netmask to 255.255.255.0.

```
config system manageip
    set ip 192.168.2.80 255.255.255.0
  end
```

This example shows how to display the settings for the `manageip` command.

```
get system manageip
```

This example shows how to display the configuration for the `manageip` command.

```
show system manageip
```

Related Commands

- system interface {internal | external}

system route

Use this command to add or edit FortiBridge static routes.

Command syntax pattern

```
config system route
    edit <sequence_integer>
        set <keyword> <variable>
  end
config router static
    unset <keyword>
get system route
show system route
```

Keywords and variables	Description	Default
distance <distance_integer>	The administrative distance for the route. Using administrative distance you can specify the relative priorities of different routes to the same destination. A lower administrative distance indicates a more preferred route. Distance can be an integer from 1-255.	10
dst <destination-address_ipv4mask>	The destination IP address and netmask for this route. Enter 0.0.0.0 0.0.0.0 for the destination IP address and netmask to add a default route.	0.0.0.0 0.0.0.0
gateway <gateway-address_ipv4>	The IP address of the first next hop router to which this route directs traffic.	No default.

Example

This example shows how to edit a FortiBridge static route.

```
config system route
    edit 2
       set dst 192.168.22.0 255.255.255.0
       set gateway 192.168.22.44
  end
```

This example shows how to display the list of static route numbers.

```
get system route
```

This example shows how to display the settings for static route 2.

```
get system route 2
```

This example shows how to display the static route configuration.

```
show system route
```

This example shows how to display the configuration for static route 2.

```
show system route 2
```

system snmp community

Use this command to configure SNMP communities. Add SNMP communities so that the FortiBridge unit can send SNMP v1 and v2c traps to SNMP managers when action on failure is set to send SNMP traps. You can add up to three SNMP communities. Each community can have a different configuration for SNMP traps. You can also the add IP addresses of up to 8 SNMP managers to each community.

Command syntax pattern

```
config system snmp community
    edit <id_integer>
        set <keyword> <variable>
  end
config system snmp community
    edit <id_integer>
        unset <keyword>
  end
config system snmp community
    delete <id_integer>
  end
get system snmp community [<id_integer>]
show system snmp community [<id_integer>]
```

The `config system snmp community` command has one subcommand.

`config hosts`

Keywords and variables	Description	Default
`name <name_str>`	The name of the SNMP community.	No default.
`status {disable | enable}`	Enable or disable the SNMP community.	`enable`
`trap_v1_lport <local-port_integer>`	SNMP v1 local port number used for sending traps to the SNMP managers added to this SNMP community.	`162`
`trap_v1_rport <remote-port_integer>`	SNMP v1 remote port number used for sending traps to the SNMP managers added to this SNMP community.	`162`
`trap_v1_status {disable | enable}`	Enable or disable SNMP v1 traps for this SNMP community.	`enable`
`trap_v2c_lport <local-port_integer>`	SNMP v2c local port number used for sending traps to the SNMP managers added to this SNMP community.	`162`
`trap_v2c_rport <remote-port_integer>`	SNMP v2c remote port number used for sending traps to the SNMP managers added to this SNMP community.	`162`
`trap_v2c_status {disable | enable}`	Enable or disable SNMP v2c traps for this SNMP community.	`enable`

config hosts

Access the `hosts` subcommand using the `snmp community` command. Use this command to add SNMP manager IP addresses to an SNMP community.

Command syntax pattern

```
config hosts
    edit <id_integer>
        set <keyword> <variable>
  end
config hosts
    edit <id_integer>
        unset <keyword>
  end
config hosts
    delete <id_integer>
  end
get system snmp community [<id_integer>]
show system snmp community [<id_integer>]
```

Keywords and variables	Description	Default
`ip <address_ipv4>`	The IP address of the SNMP manager.	0.0.0.0

Example

This example shows how to add a new SNMP community named SNMP_Com1. The default configuration can be used in most cases with only a few modifications. In the example below the community is added, given a name, and then because this community is for an SNMP manager that is SNMP v1 compatible, v2c functionality is disabled. After the community is configured the SNMP manager is added. The SNMP manager IP address is 192.168.20.34.

```
config system snmp community
    edit 1
        set name SNMP_Com1
        set trap_v2c_status disable
        config hosts
                edit 1
                    set ip 192.168.10.34
                end
end
```

This example shows how to display the settings for the `system snmp community` command.

```
get system snmp community
```

This example shows how to display the settings for the SNMP community with ID 1.

```
get system snmp community 1
```

This example shows how to display the configuration for the `snmp community` command.

```
show system snmp community
```

This example shows how to display the configuration for the SNMP community with ID 1.

```
show system snmp community 1
```

execute CLI commands

backup
date
factoryreset
ping
reboot
restore
switch-mode
time

backup

Backup the FortiBridge configuration to a file on a TFTP server.

Command syntax

```
execute backup config <filename_str> <tftp-server_ipv4>
```

Keywords and variables	Description
config	Back up the FortiBridge configuration.
<filename_str>	The name to give the file that is copied to the TFTP server.
<tftp-server_ipv4>	The TFTP server IP address.

Example

This example shows how to backup a system configuration file from the FortiBridge unit to a TFTP server. The name to give the configuration file on the TFTP server is `fbdg.cfg`. The IP address of the TFTP server is 192.168.1.23.

```
execute backup config fbdg.cfg 192.168.1.23
```

date

Get or set the system date.

Command syntax

```
execute date [<date_str>]
```

`date_str` has the form `mm/dd/yyyy`, where

- `mm` is the month and can be `01` to `12`
- `dd` is the day of the month and can be `01` to `31`
- `yyyy` is the year and can be `2001` to `2100`

If you do not specify a date, the command returns the current system date.

Example

This example sets the date to 17 September 2004:

```
execute date 09/17/2004
```

factoryreset

Reset the FortiBridge configuration to factory default settings.

Command syntax

```
execute factoryreset
```

Caution: This procedure deletes all changes that you have made to the FortiBridge configuration and reverts the system to its original configuration, including resetting the management IP address.

ping

Send five ICMP echo requests (pings) to test the network connection between the FortiBridge unit and another network device.

Command syntax

```
execute ping {<address_ipv4> | <host-name_str>}
```

Example

This example shows how to ping a host with the IP address 192.168.1.23.

```
execute ping 192.168.1.23
```

reboot

Restart the FortiBridge unit.

Command syntax

```
execute reboot
```

restore

Use this command to restore a backup configuration and to change the FortiBridge firmware.

Command syntax

```
execute restore config <filename_str> <tftp-server_ipv4>
execute restore image <filename_str> <tftp-server_ipv4>
```

Keywords and variables	Description
config	Restore a system configuration. The new configuration replaces the existing configuration, including administrator accounts and passwords.
image	Upload a firmware image from a TFTP server to the FortiBridge unit. The FortiBridge unit reboots, loading the new firmware.
<filename_str>	The name of file that is uploaded from the TFTP server.
<tftp-server_ipv4>	The TFTP server IP address.

Example

This example shows how to upload a configuration file from a TFTP server to the FortiBridge unit and restart the FortiBridge unit with this configuration. The name of the configuration file on the TFTP server is backupconfig. The IP address of the TFTP server is 192.168.1.23.

```
execute restore config backupconfig 192.168.1.23
```

switch-mode

Use this command to switch between bypass and normal mode.

Command syntax

```
execute switch-mode
```

time

Get or set the system time.

Command syntax

```
execute time [<time_str>]
```

`time_str` has the form `hh:mm:ss`, where

- `hh` is the hour and can be `00` to `23`
- `mm` is the minutes and can be `00` to `59`
- `ss` is the seconds and can be `00` to `59`

If you do not specify a time, the command returns the current system time.

Example

This example sets the system time to 15:31:03:

```
execute time 15:31:03
```

Index

A

accprofile 59
action on failure
  fail open 37
  probe 37
  send alertmail 37
  SNMP trap 37
  syslog 37
action_on_failure 56
admingrp 57
administrative access
  for SSH or Telnet 47
administrator
  adding a password 27
administrator accounts
  adding 29
admintimeout 66
alert email
  configuring 41
  sample message 41
alertemail setting 52
alertmail
  action on failure 37
  action_on_failure 56
alerts
  configuring 40
allowaccess {http https ping snmp ssh telnet} 68
authenticate {disable | enable} 52

B

backing up
  configuration 44
backup 74
basic configuration 26
basic information
  FortiBridge 19
basic settings 36
bypass mode 14
  connecting to the CLI 14
  resuming normal mode 43
  switching to normal mode 14

C

CLI
  basics 47
  config commands 51
  connecting to 25
  connecting to in bypass mode 14
  connecting to the console 25
  connecting using SSH or Telnet 47
  connecting using Telnet 26
  resetting to factory defaults 30
  using 47
cluster
  FortiBridge application 15
command line interface
  connecting to 25
community
  adding an SNMP 43
  SNMP 42
config 74, 79
  CLI commands 51
config hosts 71
configuration
  backing up and restoring 44
  basic FortiBridge 26
  factory default 22
  procedures 35
configuration example
  HA cluster 15
  other FortiGate interfaces 16
  standalone FortiGate unit 9
connect
  FortiBridge unit 10
  to the CLI 25
connecting
  FortiBridge unit 23
connectors
  FortiBridge-1000 22
  FortiBridge-1000F 22
console
  connecting to 25
csv {disable | enable} 54
customer service 8

D

date 75
  changing 29
default
  probe settings 37
  resetting to factory defaults 30
default configuration 22
distance 70
DNS server
  changing IP addresses 28
dst 70
dst {disable | enable} 66
dynamic IP pattern
  probe setting 37
dynamic_ip_pattern 56

E

email
  alert 41
example configuration 9

HA cluster 15
other FortiGate interfaces 16
execute
CLI commands 73
switch-mode 44
execute switch-mode 14
EXT 1
management access 29

F

facility 54
factory default
configuration 22
resetting 30
factoryreset 76
fail bypass 64
fail close 64
fail bypass 64
threshold 64
fail open 37
action_on_failure 56
recovering from 43
failure
recovering from 43
failure threshold
tuning 40
failure_threshold 55
fgt_serial 56
firewall policy
and probes 12
firmware
install from a system reboot 33
installing 30
reverting to a previous version 32
upgrading to a new version 31
FortiBridge
about 7
FortiBridge-1000 7
connecting 10, 23
connectors 22
LED indicators 21
package contents 19
turning on 23
FortiBridge-1000F 7
connecting 11, 24
connectors 22
LED indicators 21
package contents 20
turning on 24
FortiGate
session list showing probes 40
FortiGate HA cluster
FortiBridge application 15
FortiGate unit
serial number 37
Fortinet Knowledge Center 8
front panel
resetting to factory defaults 30
FTP
configuring probe 39
probe 12
ftp
probe_list 55

G

gateway 70
get system status 63

H

HA cluster
FortiBridge application 15
heartbeat 66
hostname 66
HTTP
probe 12
http
probe_list 55

I

image 79
IMAP
probe 13
probe list 39
imap
probe_list 55
installation 19
installing
FortiBridge unit firmware 30
interface speed 66
interval
probe 13
ip 69, 72
IP pattern
probe setting 37

L

layer-2 bridge 10
LED indicators
FortiBridge-1000 21
FortiBridge-1000F 21
log message 37
sample 41
log syslogd setting 54
logging 41
configuring 42
loggrp 57

M

mailto1 52
mailto2 52
mailto3 52
management access to the EXT 1 interface 29
management IP
FortiBridge 10
management IP address
changing 27
mode
switching between modes 14
mode {batch | line} 61

monitor
FortiGate unit 11
mounting instructions 20

N

name 71
new version
FortiBridge firmware 31
normal mode 10, 11
monitoring the FortiGate unit 11
probe 11
resuming from bypass mode 43
switching to 14
switching to bypass mode 14
traffic flow 11
ntpserver 66
ntpsync {disable | enable} 66

O

operating
procedures 35
operating modes
switching between 44
operating principles 9
output {standard | more} 61

P

package contents
FortiBridge-1000 19
FortiBridge-1000F 20
password 52, 59
adding 27
ping 77
enabling ping probes 38
probe 12
probe_list 55
POP3
probe 13
pop3
probe_list 55
port 54
power failure
FortiBridge 14
primary 62
probe 11
action on failure 37
and FortiGate firewall policies 12
configuring 36
configuring FortiGate unit 38
configuring FTP probe 39
configuring probe settings 37
default settings 37
dynamic IP pattern 37
enabling 38
enabling ping probes 38
enabling probes 38
fail open 37
FortiGate hardware failure 13
FortiGate session list 40
FortiGate software failure 13
FortiGate unit serial number 37
FTP 12
HTTP 12
IMAP 13, 39
interval 13
ping 12
POP3 13
settings 37
SMTP 13, 39
threshold 13
verifying 39
viewing probe configuration 39
probe interval
tuning 40
probe list
FTP 39
IMAP 39
ping 38
SMTP 39
probe probe_list 55
probe setting 56
probe_interval 55

R

reboot 78
installing firmware 33
recover
from a FortiGate failure 43
reset
factory default configuration 30
restore 79
restoring
configuration 44
revert
FortiBridge unit firmware 32
route
adding static routes 28

S

secondary 62
send alertmail 37
serial number
FortiGate 37
probe setting 37
server 52, 54
setting up
FortiBridge units 19
settings
configuring probe settings 37
SMTP
probe 13
probe list 39
smtp
probe_list 55
SNMP
adding communities 43
community 42
configuring 42
trap 37
traps 42
v1 42

v2c 42
snmp
action_on_failure 56
SSH
access to CLI 47
standalone FortiGate unit 9
static route
adding 28
status 54
status {disable | enable} 54, 55, 71
switch
switching between modes 14
switching
between operating modes 44
switch-mode 14, 80
execute 44
syncinterval 67
sysgrp 57
syslog 41
action_on_failure 56
configuring 42
sample message 41
syslog message 37
sysshutdowngrp 57
system accprofile 57
system admin 59
system console 61
system dns 62
system global 66
system interface {internal | external} 68
system manageip 69
system route 70
system snmp community 71

T

technical specifications 21
technical support 8
Telnet
access to CLI 47
connecting to the CLI 26
test_port 55
threshold
fail close 64
probe 13
time 81
changing 29
timezone 67
traffic flow
normal mode 11
transparent mode
example network 9
trap
SNMP 42
trap_v1_lport 71
trap_v1_rport 71
trap_v1_status {disable | enable} 71
trap_v2c_lport 71
trap_v2c_rport 71
trap_v2c_status {disable | enable} 71
trusthost1 59
trusthost2 59
trusthost3 59
turning on
FortiBridge unit 23

U

upgrading
FortiBridge firmware 31
username 52

V

verifying
probes 39

www.fortinet.com

www.fortinet.com