FortiMail™ Secure Messaging Platform

Version 4.0 Patch 1

Install Guide

FORTINET

FortiMail™ Secure Messaging Platform Install Guide

Version 4.0 Patch 1

Revision 2

8 February 2009

Trademarks

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Regulatory compliance

FCC Class A Part 15 CSA/CUS

Caution: Risk of explosion if battery is replaced by incorrect type.
Dispose of used batteries according to instructions.

Contents

Introduction

Welcome, and thank you for selecting Fortinet products for your network protection.

The FortiMail™ Secure Messaging Platform is an integrated hardware and software solution that provides powerful and flexible antispam, antivirus, email archiving and logging capabilities to incoming and outgoing email traffic. FortiMail units have reliable and high performance features for detecting and blocking spam messages and malicious attachments.

Built on the Fortinet award winning FortiOS™ and FortiASIC™ technology, the FortiMail antivirus technology extends full content inspection capabilities to detect the most advanced email threats.

To ensure up-to-date email protection, FortiMail relies on FortiGuard™ Antivirus and FortiGuard Antispam security subscription services that are powered by a worldwide 24x7 Global Threat Research Team. FortiMail provides bidirectional email routing, virtualization and archiving capabilities with a lower total cost of ownership.

This document will assist you in physically connecting and performing required configuration to achieve a basic FortiMail installation.

This chapter contains the following topics:

Registering your FortiMail unit

Before you begin, take a moment to register your Fortinet product at the Fortinet Technical Support web site, https://support.fortinet.com.

Many Fortinet customer services, such as firmware updates, technical support, and FortiGuard Antivirus and other FortiGuard services, require product registration.

For more information, see the Fortinet Knowledge Center article Registration Frequently Asked Questions.

Customer service and technical support

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

To learn about the technical support services that Fortinet provides, visit the Fortinet Technical Support web site at https://support.fortinet.com.

You can dramatically improve the time that it takes to resolve your technical support ticket by providing your configuration file, a network diagram, and other specific information. For a list of required information, see the Fortinet Knowledge Center article What does Fortinet Technical Support require in order to best assist the customer?

Training

Fortinet Training Services provides classes that orient you quickly to your new equipment, and certifications to verify your knowledge level. Fortinet provides a variety of training programs to serve the needs of our customers and partners world-wide.

To learn about the training services that Fortinet provides, visit the Fortinet Training Services web site at http://campus.training.fortinet.com, or email them at training@fortinet.com.

Documentation

The Fortinet Technical Documentation web site, http://docs.fortinet.com, provides the most up-to-date versions of Fortinet publications, as well as additional technical documentation such as technical notes.

In addition to the Fortinet Technical Documentation web site, you can find Fortinet technical documentation on the Fortinet Tools and Documentation CD, and on the Fortinet Knowledge Center.

Fortinet Tools and Documentation CD

Many Fortinet publications are available on the Fortinet Tools and Documentation CD shipped with your Fortinet product. The documents on this CD are current at shipping time. For current versions of Fortinet documentation, visit the Fortinet Technical Documentation web site, http://docs.fortinet.com.

Fortinet Knowledge Center

The Fortinet Knowledge Center provides additional Fortinet technical documentation, such as troubleshooting and how-to-articles, examples, FAQs, technical notes, a glossary, and more. Visit the Fortinet Knowledge Center at http://kc.fortinet.com.

Comments on FortiMail technical documentation

Please send information about any errors or omissions in this document to techdoc_fortimail@fortinet.com.

Scope

This document will assist you in physically connecting and using the web-based manager to perform required configuration to achieve a basic FortiMail installation.

After you have completed the instructions in this document:

- The FortiMail unit is integrated into your network, and you can connect to the web-based manager and/or command line interface (CLI).
- The operation mode has been configured.
- The Quick Start Wizard has been completed.
- Firmware, FortiGuard Antivirus and FortiGuard Antispam updates are completed.

- DNS records for your mail domains have been updated.
- If the FortiMail unit is operating in transparent or gateway mode, the network is configured so incoming and outgoing email passes through the FortiMail unit for examination.
- If the FortiMail unit is operating in server mode, the network is configured to allow the FortiMail unit access to and from other email servers, typically including external servers on the Internet, and from email users.
- Advanced features of the FortiMail unit may or may not be enabled. These features include email archiving, logging, reporting, and advanced antispam and antivirus configurations.

When you have completed that basic setup, you can use the *FortiMail Administration Guide* as a guide when configuring the advanced features, reconfiguring the basic features, or when performing periodic maintenance such as backups and firmware upgrades.

This document does ***not*** cover commands for the command line interface (CLI). For information on the CLI, see the *FortiMail CLI Reference*.

This document is intended for administrators, not end users. If you are an email user, please click the Help link in FortiMail webmail to see the webmail online help instead, or contact your administrator.

Conventions

Fortinet technical documentation uses the conventions described below.

IP addresses

To avoid publication of public IP addresses that belong to Fortinet or any other organization, the IP addresses used in Fortinet technical documentation are fictional and follow the documentation guidelines specific to Fortinet. The addresses used are from the private IP address ranges defined in RFC 1918: Address Allocation for Private Internets, available at http://ietf.org/rfc/rfc1918.txt?number-1918.

CLI constraints

CLI constraints, such as `<address_ipv4>`, indicate which data types or string patterns are acceptable input for a given parameter or variable value. CLI constraint conventions are described in the CLI Reference document for each product.

Notes, Tips and Cautions

Fortinet technical documentation uses the following guidance and styles for notes, tips and cautions.

Tip: Highlights useful additional information, often tailored to your workplace activity.

Note: Also presents useful information, but usually focused on an alternative, optional method, such as a shortcut, to perform a step.

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

Typographical conventions

Fortinet documentation uses the following typographical conventions:

Table 1: Typographical conventions in Fortinet technical documentation

Convention	Example
Button, menu, text box, field, or check box label	From *Minimum log level*, select *Notification*.

CLI input*	`config system dns`
	`  set primary <address_ipv4>`
	`end`

CLI output	`FGT-602803030703 # get system settings`
	`comments : (null)`
	`opmode : nat`

Emphasis	HTTP connections are ***not*** secure and can be intercepted by a third party.
File content	`<HTML><HEAD><TITLE>Firewall Authentication</TITLE></HEAD>` `<BODY><H4>You must authenticate to use this service.</H4>`
Hyperlink	Visit the Fortinet Technical Support web site, https://support.fortinet.com.
Keyboard entry	Type a name for the remote VPN peer or client, such as `Central_Office_1`.
Navigation	Go to *VPN* > *IPSEC* > *Auto Key (IKE)*.
Publication	*FortiGate Administration Guide*.

* For conventions used to represent command syntax, see the *FortiMail CLI Reference*.

Key concepts

This chapter defines basic email and FortiMail concepts and terms.

If you are new to FortiMail units, or new to email systems, this chapter can help you to quickly understand this document and your FortiMail unit.

This chapter contains the following sections:

Email protocols

There are multiple prevalent standard email protocols.

SMTP

Simple Mail Transfer Protocol (SMTP) is the standard protocol for sending email between:

- two mail transfer agents (MTA)
- a mail user agent (MUA) and an MTA

Note: For definitions of MTA and MUA, see "Client-server connections in SMTP" on page 14.

SMTP communications typically occur on TCP port number 25.

When an email user sends an email, their MUA uses SMTP to send the email to an MTA, which is often their email server. The MTA then uses SMTP to directly or indirectly deliver the email to the destination email server that hosts email for the recipient email user.

When an MTA connects to the destination email server, it determines whether the recipient exists on the destination email server. If the recipient email address is legitimate, then the MTA delivers the email to the email server, from which email users can then use a protocol such as POP3 or IMAP to retrieve the email. If the recipient email address does not exist, the MTA typically sends a separate email message to the sender, notifying them of delivery failure.

While the basic protocol of SMTP is simple, many SMTP servers support a number of protocol extensions for features such as authentication, encryption, multipart messages and attachments, and may be referred to as extended SMTP (ESMTP) servers.

FortiMail units can scan SMTP traffic for spam and viruses, and support several SMTP extensions. For details, see the Fortinet Knowledge Center article Supported SMTP-related RFCs.

POP3

Post Office Protocol version 3 (POP3) is a standard protocol used by email clients to retrieve email that has been delivered to and stored on an email server.

POP3 communications typically occur on TCP port number 110.

Unlike IMAP, after a POP3 client downloads an email to the email user's computer, a copy of the email usually does ***not*** remain on the email server's hard disk. The advantage of this is that it frees hard disk space on the server. The disadvantage of this is that downloaded email usually resides on only one personal computer. Unless all of their POP3 clients are always configured to leave copies of email on the server, email users who use multiple computers to view email, such as both a desktop and laptop, will not be able to view from one computer any of the email previously downloaded to another computer.

FortiMail units do not scan POP3 traffic for spam and viruses, but may use POP3 when operating in server mode, when an email user retrieves their email. For more information on server mode, see "FortiMail operation modes" on page 19.

IMAP

Internet Message Access Protocol (IMAP) is a standard protocol used by email clients to retrieve email that has been delivered to and stored on an email server.

IMAP communications typically occur on TCP port number 143.

Unless configured for offline availability, IMAP clients typically initially download only the message header. They download the message body and attachments only when the email user selects to read the email.

Unlike POP3, when an IMAP client downloads an email to the email user's computer, a copy of the email remains on the email server's hard disk. The advantage of this is that it enables email users to view email from more than one computer. This is especially useful in situations where more than one person may need to view an inbox, such where all members of a department monitor a collective inbox. The disadvantage of this is that, unless email users delete email, IMAP may more rapidly consume the server's hard disk space.

FortiMail units do not scan IMAP traffic for spam and viruses, but may use IMAP when operating in server mode, when an email user retrieves their email. For more information on server mode, see "FortiMail operation modes" on page 19.

HTTP and HTTPS

Secured and non-secured HyperText Transfer Protocols (HTTP/HTTPS), while not strictly for the transport of email, are often used by webmail applications to view email that is stored remotely.

HTTP communications typically occur on TCP port number 80; HTTPS communications typically occur on TCP port number 443.

FortiMail units do not scan HTTP or HTTPS traffic for spam or viruses, but use them to display quarantines and, if the FortiMail unit is operating in server mode, FortiMail webmail. For more information on server mode, see "FortiMail operation modes" on page 19.

Client-server connections in SMTP

Client-server connections and connection directionality in SMTP differ from how you may be familiar with them in other protocols.

For example, in the SMTP protocol, an SMTP client connects to an SMTP server. This seems consistent with the traditional client-server model of communications. However, due to the notion of relay in SMTP, the SMTP client may be either:

- an email application on a user's personal computer

- another SMTP server that acts as a delivery agent for the email user, relaying the email to its destination email server

The placement of clients and servers within your network topology may affect the operation mode you choose when installing a FortiMail unit. If your FortiMail unit will be operating in gateway mode or server mode, SMTP clients — including SMTP servers connecting as clients — must be configured to connect to the FortiMail unit.

Note: For more information on gateway mode and server mode, see "FortiMail operation modes" on page 19.

Terms such as MTA and MUA describe server and client relationships specific to email protocols.

MTA

A Mail Transfer Agent (MTA) is an SMTP server that relays email messages to another SMTP server.

FortiMail units operating in gateway mode function as an MTA. FortiMail units operating in server mode function as an MTA and full (SMTP, IMAP, POP3, webmail) email server.

In order to deliver email, unless the email is incoming and the email server has no domain name and is accessed by IP address only, MTAs must query a DNS server for the MX record and the corresponding A record. For more information, see "The role of DNS in email delivery" on page 16.

MUA

A Mail User Agent (MUA), or email client, is software such as Microsoft Outlook that enables users to send and receive email.

FortiMail units support SMTP connections for sending of email by a MUA.

FortiMail units operating in server mode support POP3 and IMAP connections for retrieval of email by a MUA. For email users that prefer to use their web browsers to send and retrieve email instead of a traditional MUA, FortiMail units operating in server mode also provide FortiMail webmail.

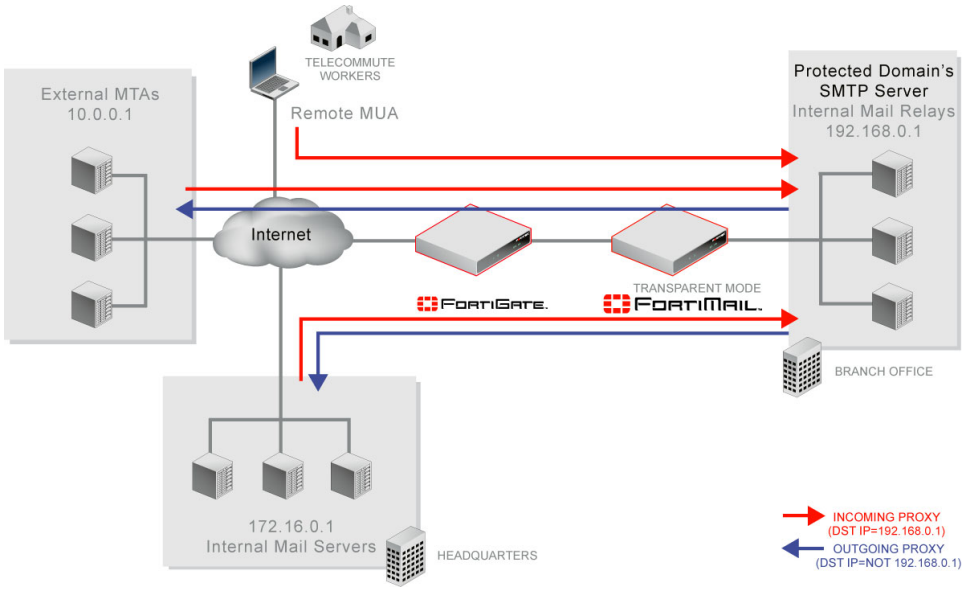
Incoming vs. outgoing directionality

Many FortiMail features such as proxies and policies act upon the directionality of an SMTP connection or email message. Rather than being based upon origin, incoming or outgoing directionality is determined by whether the destination is a protected domain.

Incoming connections consist of those destined for the SMTP servers that are protected domains of the FortiMail unit. For example, if the FortiMail unit is configured to protect the SMTP server whose IP address is 10.1.1.1, the FortiMail unit treats all SMTP connections destined for 10.1.1.1 as incoming.

Outgoing connections consist of those destined for SMTP servers that the FortiMail unit has not been configured to protect. For example, if the FortiMail unit is ***not*** configured to protect the SMTP server whose IP address is 192.168.1.1, all SMTP connections destined for 192.168.1.1 will be treated as outgoing, regardless of their origin.

Figure 1: Incoming vs. outgoing SMTP connections



Directionality at the connection level may be different than directionality at the level of email messages contained by the connection. It is possible that an incoming connection could contain an outgoing email message, and vice versa.

For example, in Figure 1 on page 16, connections from the internal mail relays to the internal mail servers are outgoing connections, but they contain incoming email messages. Conversely, connections from remote MUAs to the internal mail relays are incoming connections, but may contain outgoing email messages if the recipients' email addresses (`RCPT TO:`) are external.

Similarly to when determining the directionality of an SMTP connection, when determining the directionality of an email message, FortiMail units examine the domain to which the recipient belongs: if the domain to which the recipient email address belongs is a protected domain, the email message is considered to be incoming; if the domain to which the recipient email address belongs is ***not*** a protected domain, the email message is considered to be outgoing.

The role of DNS in email delivery

SMTP can be configured to operate without DNS, using IP addresses instead of domain names for SMTP clients, SMTP servers, and recipient email addresses. However, this configuration is rare.

SMTP as it is typically used relies upon DNS to determine the mail gateway server (MX) for a domain name, and to resolve domain names into IP addresses. As such, you usually must configure email servers and FortiMail units to be able to query a DNS server.

In addition, you may also be required to configure the DNS server with an MX record, an A record, and a reverse DNS record for protected domain names and for the domain name of the FortiMail unit itself.

MX record

Mail Exchanger (MX) records are configured on a DNS server. MX records for a domain name indicate designated email servers or email gateways that deliver email to that domain, and their order of preference. In their most simple form, MX records use the following format:

```
example.com IN MX 10 mail.example.com
```

where:

- `example.com` is the name of the domain
- `IN` indicates the Internet protocol class
- `MX` indicates that the DNS resource record is of the MX type
- `10` indicates the order of preference (greater values indicate lower preference)
- `mail.example.com` is the host name of an email server or gateway

When an email client sends an email, the sender's MTA queries a DNS server for the MX record of the domain name in the recipient's email address. To resolve the host name of the MTA referenced by the MX record, it then queries for the A record of the destination MTA. That A record provides the IP address of the email server or gateway. The sender's MTA then attempts to deliver the email to that IP address.

For example, if the recipient email address is user1@example.com, in order to deliver the email, the sender's MTA would query the MX and A records to determine the IP address of the email gateway of example.com.

Often, the domain name and/or IP address of the email domain is different from that of its email server or gateway. The fully qualified domain name (FQDN) of an email server or gateway may be a subdomain or another domain name entirely, such as that of the MTA of an Internet service provider (ISP). For example, the email gateways for the email domain example.com could be mail1.example.com and mail2.example.com, or mail.isp.example.net.

If your FortiMail unit will operate in transparent mode, and you will configure it be fully transparent at both the IP layer and in the SMTP envelope and message headers by enabling "Hide this box from the mail server" in the session profile, "Hide the transparent box" in the protected domain, and "Use client-specified SMTP server to send email" for the proxies, no MX record changes are required.

If your FortiMail unit will operate in gateway mode or server mode, or in transparent mode while not configured to be fully transparent, you must configure the public DNS server for your domain name with an MX record that refers to the FortiMail unit which will operate as the email gateway, such as:

```
example.com IN MX 10 fortimail.example.com
```

Caution: If your FortiMail unit will operate in gateway mode or server mode, or in transparent mode while not fully transparent, configure the MX record to refer to the FortiMail unit, and remove other MX records. If you do not configure the MX record to refer to the FortiMail unit, or if other MX records exist that do not refer to the FortiMail unit, external MTAs may not be able to deliver email to or through the FortiMail unit, or may be able to bypass the FortiMail unit. If you have configured secondary MX records for failover reasons, consider configuring FortiMail high availability (HA) instead. For details, see "FortiMail high availability modes" on page 19.

Note: For more information on gateway mode and server mode, see "FortiMail operation modes" on page 19.

Exceptions include if you are configuring a private DNS server for use with the *Use MX Record* option (see "Use MX Record" on page 83). In that case, rather than referencing the FortiMail unit as the mail gateway and being used by external SMTP servers to route mail, the MX record references the protected SMTP server and is used by the FortiMail unit to define the SMTP servers for the protected domain.

A record

A records are configured on a DNS server. A records indicate the IP address to which a host name resolves. In their most simple form, A records use the following format:

```
mail IN A 192.168.1.10
```

where:

- `mail` is the name of the host
- `IN` indicates the Internet protocol class
- `A` indicates that the DNS resource record is of the IPv4 address type
- `192.168.1.10` indicates the IP address that hosts the domain name

When an email client sends an email, the sender's MTA queries a DNS server for the MX record of the domain name in the recipient's email address. To resolve the host name of the MTA referenced by the MX record, it then queries for the A record of the destination MTA. That A record provides the IP address of the email server or gateway. The sender's MTA then attempts to deliver the email to that IP address.

You must configure the public DNS server for your host names with an A record to resolve the host names referenced in MX records, and the host name of the FortiMail unit, if any. For example, if an MX record is:

```
example.com IN MX 10 fortimail.example.com
```

the required A record in the example.com zone file might be:

```
fortimail IN A 192.168.1.15
```

Reverse DNS record

Because the SMTP protocol does not strictly require SMTP clients to use their own domain name during the SMTP greeting, it is possible to spoof the origin domain. In an attempt to bypass antispam measures against domain names known to be associated with spam, spammers often exploit that aspect of SMTP by pretending to send email from legitimate domains.

For example, the spammer spam.example.com might initiate an SMTP session with the command:

```
EHLO nonspam.example.edu
```

To prevent this form of attack, many SMTP servers query reverse DNS records to verify that the domain name provided in the SMTP greeting genuinely matches the IP address of the connecting SMTP client.

You should configure the public DNS server for your protected domain names with a reverse DNS record to resolve the IP addresses of your protected SMTP servers and/or FortiMail unit into domain names.

For example, if the outgoing MTA for example.com is the FortiMail unit, fortimail.example.com, and the public network IP address of the FortiMail unit is 10.10.10.1, a public DNS server's reverse DNS zone file for the 10.10.10.0/24 subnet might contain:

```
1 IN PTR fortimail.example.com.
```

where `fortimail.example.com` is the FQDN of the FortiMail unit.

Note: Reverse DNS records are required for FortiMail units operating in gateway mode or server mode. However, they are also required for FortiMail units operating in transparent mode, unless they have been configured to be completely transparent. For more information on transparency, see the *FortiMail Administration Guide*.

FortiMail web-based manager modes

The web-based manager has two modes: basic mode and advanced mode.

- **Basic mode**: Provides easy navigation using a simplified set of menu options that allow for many typical FortiMail unit configurations, and includes the Quick Start Wizard.
- **Advanced mode**: Provides the full set of menu options which allows you to achieve more complex configurations, but does not include the Quick Start Wizard.

Unless otherwise specified, this document describes setup of the FortiMail unit using the basic mode of the web-based manager.

For more information on basic mode, advanced mode, the Quick Start Wizard, or configuring your FortiMail unit using either mode of the web-based manager, see the *FortiMail Administration Guide*.

FortiMail operation modes

FortiMail units can run in one of three operation modes: gateway mode, transparent mode, and server mode.

- **Gateway mode**: The FortiMail unit acts as a mail transfer agent (MTA), or email gateway, relaying email to and from the email servers that it protects. It does not locally store email unless queued or quarantined.
- **Transparent mode**: The FortiMail unit transparently proxies or relays email traffic to and from the email servers that it protects. It does not locally store email unless queued or quarantined.
- **Server mode**: The FortiMail unit operates as a stand-alone email server and MTA. The FortiMail unit locally stores email for delivery to its email users. Email users can access their email using FortiMail webmail, POP3, or IMAP.

All operation modes can scan email traffic for viruses and spam, and can quarantine suspicious email and attachments.

For more information on the differences between operation modes and configuring the operation mode, see "Choosing the operation mode" on page 71.

FortiMail high availability modes

FortiMail units can be configured to operate in high availability (HA) clusters. FortiMail HA has two modes: active-passive and config-only.

- **Active-passive HA**: Two FortiMail units operate as an HA cluster, synchronizing both configuration and data, providing failover protection.
- **Config-only HA**: Up to 25 FortiMail units use an identical configuration, but do not synchronize data, and therefore operate as independent FortiMail units.

Fortinet recommends HA to achieve uninterrupted service.

For more information on HA, see the *FortiMail Administration Guide*.

Hardware installation

This chapter provides information on mounting and connecting a FortiMail unit (except for the FortiMail-2000B unit and FortiMail-5001A board) to your network. For information about installing the FortiMail-2000B unit, see "FortiMail-2000B hardware installation" on page 33. For information about installing the FortiMail-5001A board, see the "FortiMail-5001A hardware installation" on page 53.

This chapter includes the following topics:

Cautions and warnings

Review the following cautions before installing your FortiMail unit.

Grounding

- Ensure the FortiMail unit is connected and properly grounded to a lightning and surge protector. WAN or LAN connections that enter the premises from outside the building should be connected to an Ethernet CAT5 (10/100 Mb/s) surge protector.
- Shielded Twisted Pair (STP) Ethernet cables should be used whenever possible rather than Unshielded Twisted Pair (UTP).
- Do not connect or disconnect cables during lightning activity to avoid damage to the FortiMail unit or personal injury.

Rack mount instructions

- **Elevated Operating Ambient:** If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- **Reduced Air Flow:** Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical Loading:** Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit Overloading:** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable Earthing:** Reliable earthing of rack-mounted equipment should be maintained.

Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

If required to fit into a rack unit, remove the rubber feet from the bottom of the FortiMail unit.

Environmental specifications

- **Operating temperature:** 32 to 104°F (0 to 40°C)

  If you install the FortiMail unit in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, make sure to install the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature.
- **Storage temperature:** -13 to 158°F (-25 to 70°C)
- **Humidity:** 5 to 90% non-condensing
- **Air flow:** For rack installation, make sure that the amount of air flow required for safe operation of the equipment is not compromised.

  For free-standing installation, make sure that the FortiMail unit has sufficient clearance on each side to allow for adequate air flow and cooling.

Mounting the FortiMail unit

FortiMail-100 and FortiMail-100C

Adhere the rubber feet included in the package to the underside of the FortiMail unit, near the corners of the unit if not already attached.

Place the FortiMail unit on any flat, stable surface. Ensure the FortiMail unit has sufficient clearance on each side to ensure adequate airflow for cooling.

If you remove the rubber feet, you can alternatively mount the FortiMail unit in a 2U-tall space in any standard 19-inch rack unit.

FortiMail-400

The FortiMail unit can be placed on any flat surface, or mounted in a standard 19-inch rack unit.

When placing the FortiMail unit on any flat, stable surface, ensure the FortiMail unit has sufficient clearance on each side to ensure adequate airflow for cooling.

For rack mounting, use the mounting brackets and screws included with the FortiMail unit.

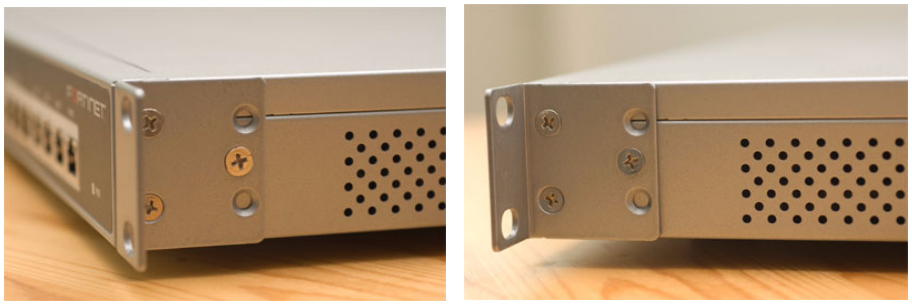
Caution: To avoid personal injury, you may require two or more people to mount the FortiMail unit in the rack.

To install the FortiMail unit into a rack

1 Attach the mounting brackets to the side to the unit so that the brackets are on the front portion of the FortiMail unit.

  The following photos illustrate how the brackets should be mounted. Note that the screw configuration may vary.

Figure 2: Installed mounting brackets



2 Position the FortiMail unit in the rack to allow for sufficient air flow.

3 Line up the mounting bracket holes to the holes on the rack, ensuring the FortiMail unit is level.

4 Finger tighten the screws to attach the FortiMail unit to the rack.

5 Once you verify the spacing of the FortiMail unit and that it is level, tighten the screws with a screwdriver.

Figure 3: Mounting in a rack

FortiMail-2000A and FortiMail-4000A

To mount the FortiMail unit on a 19-inch rack or cabinet, use the slide rails included with the product.

Caution: To avoid personal injury or damage to the FortiMail unit, it is highly recommended a minimum of two people perform this procedure.

Mounting requires three steps:

- disassembling the slide rail from the slide housing
- attaching the slide rail to the sides of the FortiMail unit
- mounting the FortiMail unit to the rack or cabinet

Disassembling the slide rail

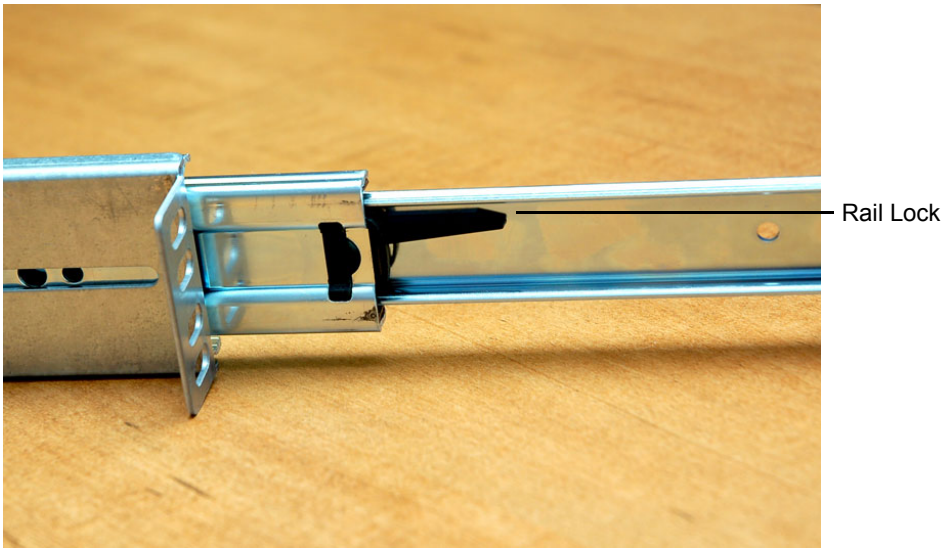
The slide rail assembly has two moving rails within the housing. You need to remove the innermost rail. This rail will attach to the sides of the FortiMail unit.

Figure 4: FortiMail side rail

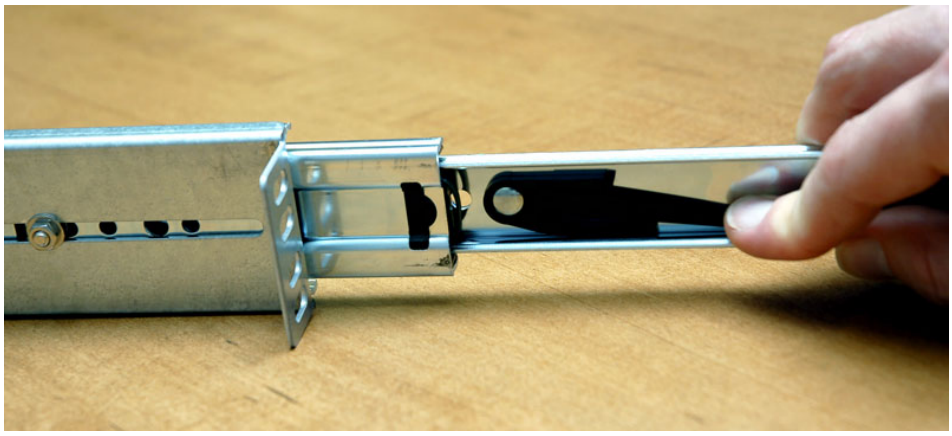
To remove the side rail

1 Open the slide rails package and remove the rails.

2 Extend the slide rail and locate the slide rail lock.



3 Push down on the lock while pulling the rail completely out of the slide rail assembly.



4 Repeat these steps for the other slide rail assembly.

You will attach this part to the side of the FortiMail unit.

Attaching the slide rail to the FortiMail unit

Attach the disconnected slide rails from the previous step to the sides of the FortiMail unit. Use the screws provided with the slide rail package, being sure to securely fasten the rail to the FortiMail chassis.

Mounting the FortiMail unit

Mounting the FortiMail-2000A or FortiMail-4000A is a two step process. First, you must attached the slide rail housing to the rack or cabinet, then insert the FortiMail unit.

To mount the FortiMail unit

1. Mount the slide rail housing to the rack or cabinet frame. Adjust the outside L-shaped brackets for a proper fit. Ensure that both housings are on the same level to ensure the FortiMail unit can easily glide into place and is level.
2. Use the screws and additional L-brackets if required to securely fasten the housing.
3. Position the FortiMail unit so that the back of the unit is facing the rack, and the slide rails affixed in the previous step line up with the slide rail housing.
4. Gently push the FortiMail unit into the rack or cabinet. You will hear a click when the slide rail lock has been engaged.
5. Push the FortiMail unit until it is fully inserted into the rack.

FortiMail-2000B

The FortiMail-2000B rack mounting and hard drive installation is described in the "FortiMail-2000B hardware installation" on page 33.

FortiMail-5001A

Before using the FortiMail-5001A board, it must be inserted into an Advanced Telecommunications Computing Architecture (ACTA) chassis such as the FortiGate-5140, FortiGate-5050, or FortiGate-5020 chassis.

For information about installing the FortiMail-5001A board, see the “FortiMail-5001A hardware installation” on page 53.

Powering on the FortiMail unit

FortiMail-100 and FortiMail-100C

The FortiMail-100 does not have a power switch.

To power on the FortiMail unit

1 Connect the AC adapter to the power connection at the back of the FortiMail unit.

2 Connect the AC adapter to the power cable.

3 Connect the power cable to a power outlet.

The FortiMail unit starts and the Power and Status LEDs light up. The Status LEDs flash while the FortiMail unit starts up, and remain lit when the system is running.

FortiMail-400

Use the following steps to connect the power supply to the FortiMail unit.

To power on the FortiMail unit

1 Ensure the power switch, located at the back of the FortiMail unit is in the off position, indicated by the “O”.

2 Connect the power cord at the back of the FortiMail unit.

3 Connect the power cable to a power outlet.

4 Set the power switch on the back left of the FortiMail unit to the on position indicated by the “I”.

After a few seconds, `SYSTEM STARTING` appears on the LCD. The main menu setting appears on the LCD when the system is running.

FortiMail-2000A and FortiMail-4000A

The FortiMail unit does not have an on/off switch.

To power on the FortiMail unit

1 Connect the two power cables to the power connections on the back of the FortiMail unit.

2 Connect the two power cables to power outlets.

Each power cable should be connected to a different power source. If one power source fails, the other may still be operative.

After a few seconds, `SYSTEM STARTING` appears on the LCD. The main menu setting appears on the LCD when the system is running.

The FortiMail unit starts and the Power and Status LEDs light up. The Status LEDs flash while the FortiMail unit starts up, and remain lit when the system is running.

Note: If only one power supply is connected, an audible alarm sounds to indicate a failed power supply. Press the red alarm cancel button on the rear panel next to the power supply to stop the alarm.

FortiMail-2000B

Use the following steps to connect the power supply to the FortiMail unit.

To power on the FortiMail unit

1 Connect the two power cables to the power connections on the back of the FortiMail unit.

2 Connect the two power cables to power outlets.

Each power cable should be connected to a different power source. If one power source fails, the other may still be operative.

3 Press the power switch on the front to turn on the unit.

FortiMail-5001A

To power on the FortiMail-5001A board, you must turn on the chassis power. For details, see the FortiGate 5000 series chassis guides at http://docs.fortinet.com.

Connecting to the network

Until the FortiMail unit is configured with an IP address and other settings in the Quick Start Wizard required to connect to your network, you may prefer to connect the FortiMail unit directly to your management computer, or through a switch, in a peer network that is isolated from your overall network. However, isolation is not required.

Note: If you will upgrade the FortiMail firmware and configure the FortiMail unit while it is isolated from your overall network, download the FortiMail firmware to your management computer before disconnecting it from your overall network. For details, see "Updating the firmware" on page 63.

Using the supplied Ethernet cable, connect one end of the cable to port1 on the FortiMail unit; connect the other end of the cable to the router, switch, or directly to your management computer.

Turning off the FortiMail unit

Always shut down the FortiMail unit properly before turning off the power switch to avoid potential hardware problems. This enables the hard drives to spin down and park correctly and avoid losing data.

To power off the FortiMail unit

1 From the web-based manager (see "Connecting to the web-based manager" on page 28), go to *Management* > *Status* > *Status* in the basic mode of the web-based manager, or *System* > *Status* > *Status* in the advanced mode of the web-based manager.

2 In the *System Command* widget, select *Shutdown*.

3 Turn off and/or disconnect the power cables from the power supply.

Powering off the FortiMail-5001A board

To avoid potential hardware problems or data loss, always shut down the board before powering down the chassis.

Note: Executing a shutdown command will shut down the board's operating system. The board itself will still receive power from the chassis and indicator lights on the board may remain lit after a successful shut down operation.

Powering off the FortiMail board using the web-based manager

1 To shut down the FortiMail board, go to **System > Status** in the advanced management mode or **Management > Status** in the basic management mode.
2 Select Shutdown under System Command.
3 Confirm the operation by selecting OK.
4 The FortiMail board is now shut down. Power to the chassis can be safely turned off.

Powering off the FortiMail board using the CLI commands

1 Connect to the FortiMail board and enter the shutdown command.

```
execute shutdown
```

2 Confirm the operation by pressing `y`.

You can now safely turn off power to the chassis.

Connecting to the web-based manager or CLI

To configure, maintain, and administer the FortiMail unit, you need to connect to it. There are three methods for these tasks:

- using the web-based manager, a graphical user interface (GUI), from within a current web browser
- using the command line interface (CLI), a command line interface similar to DOS or UNIX commands, from a Secure Shell (SSH) or Telnet terminal
- using the front panel's LCD display and control buttons on some models that are equipped with LCD displays and control buttons

If you are connecting for the first time, or if you have just reset the configuration to its default state, or have just restored the firmware, access to the CLI and/or web-based manager is not yet configured, and you must access it using the default settings.

In that case, you can use the following procedures to connect.

After you have connected, you can use the web-based manager or CLI to configure basic network settings and access to the CLI and/or web-based manager through your network.

Connecting to the web-based manager

To connect to the web-based manager using its default settings, you must have:

- a computer with an Ethernet port
- a web browser such as Microsoft Internet Explorer version 6.0 or greater, or a recent version of Mozilla Firefox, with Adobe Flash Player 10 or greater plug-in
- a crossover Ethernet cable

Table 2: Default settings for connecting to the web-based manager

Network Interface	port1
URL	https://192.168.1.99/admin
Administrator Account	admin
Password	(none)

To connect to the web-based manager

1 On your management computer, configure the Ethernet port with the static IP address 192.168.1.2 with a netmask of 255.255.255.0.

1 Using the Ethernet cable, connect your computer's Ethernet port to the FortiMail unit's port1.

2 Start your web browser and enter the URL https://192.168.1.99/admin. (Remember to include the "s" in https://.)

To support HTTPS authentication, the FortiMail unit ships with a self-signed security certificate, which it presents to clients whenever they initiate an HTTPS connection to the FortiMail unit. When you connect, depending on your web browser and prior access of the FortiMail unit, your browser might display two security warnings related to this certificate:

- The certificate is not automatically trusted because it is self-signed, rather than being signed by a valid certificate authority (CA). Self-signed certificates cannot be verified with a proper CA, and therefore might be fraudulent. You must manually indicate whether or not to trust the certificate.
- The certificate might belong to another web site. The common name (CN) field in the certificate, which usually contains the host name of the web site, does not exactly match the URL you requested. This could indicate server identity theft, but could also simply indicate that the certificate contains a domain name while you have entered an IP address. You must manually indicate whether this mismatch is normal or not.

Both warnings are normal for the default certificate.

3 Verify and accept the certificate, either permanently (the web browser will not display the self-signing warning again) or temporarily. You will not be able to log in until you have accepted the certificate.

For details on accepting the certificate, see the documentation for your web browser.

4 In the *Name* field, type `admin`, then select *Login*. (In its default state, there is no password for this account.)

Login credentials entered are encrypted before they are sent to the FortiMail unit. If your login is successful, the web-based manager is displayed. To continue, see "Updating the firmware" on page 63.

Connecting to the CLI

Using its default settings, you can access the CLI from your management computer using either of these two ways:

- a local serial console connection
- an SSH connection, either local or through the network

To connect to the CLI using a local serial console connection, you must have:

- a computer with a serial communications (COM) port

- the RJ-45-to-DB-9 serial or null modem cable included in your FortiMail package
- terminal emulation software, such as HyperTerminal for Microsoft Windows

To connect to the CLI using an SSH connection, you must have:

- a computer with an Ethernet port
- a crossover Ethernet cable
- an SSH client, such as PuTTY

Table 3: Default settings for connecting to the CLI by SSH

Network Interface	port1
IP Address	192.168.1.99
SSH Port Number	22
Administrator Account	admin
Password	(none)

To connect to the CLI using a local serial console connection

Note: The following procedure uses Microsoft HyperTerminal. Steps may vary with other terminal emulators.

1 Using the RJ-45-to-DB-9 or null modem cable, connect your computer's serial communications (COM) port to the FortiMail unit's console port.

2 Verify that the FortiMail unit is powered on.

3 On your management computer, start HyperTerminal.

4 On *Connection Description*, enter a *Name* for the connection, and select *OK*.

5 On *Connect To*, from *Connect using*, select the communications (COM) port where you connected the FortiMail unit.

6 Select *OK*.

7 Select the following *Port* settings and select *OK*.

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

8 Press Enter.

The terminal emulator connects to the CLI, and the CLI displays a login prompt.

9 Type `admin` and press Enter twice. (In its default state, there is no password for this account.)

The CLI displays the following text:

```
Welcome!

Type ? for a list of commands.
```

You can now enter commands. To continue, see "Updating the firmware" on page 63. For information about how to use the CLI, including how to connect to the CLI using SSH or Telnet, see the *FortiMail CLI Reference*.

To connect to the CLI using an SSH connection

Note: The following procedure uses PuTTY. Steps may vary with other SSH clients.

1. On your management computer, configure the Ethernet port with the static IP address 192.168.1.2 with a netmask of 255.255.255.0.
2. Using the Ethernet cable, connect your computer's Ethernet port to the FortiMail unit's port1.
3. Verify that the FortiMail unit is powered on.
4. On your management computer, start your SSH client.
5. In *Host Name (or IP Address)*, type `192.168.1.99`.
6. In Port, type `22`.
7. From *Connection type*, select *SSH*.
8. Select *Open*.

   The SSH client connects to the FortiMail unit.

   The SSH client may display a warning if this is the first time you are connecting to the FortiMail unit and its SSH key is not yet recognized by your SSH client, or if you have previously connected to the FortiMail unit but it used a different IP address or SSH key. If your management computer is directly connected to the FortiMail unit with no network hosts between them, this is normal.
9. Click *Yes* to verify the fingerprint and accept the FortiMail unit's SSH key. You will not be able to log in until you have accepted the key.

   The CLI displays a login prompt.
10. Type `admin` and press Enter. (In its default state, there is no password for this account.)

    The CLI displays the following text:

    ```
    Type ? for a list of commands.
    ```

    You can now enter commands. To continue, see "Updating the firmware" on page 63. For information about how to use the CLI, including how to connect to the CLI using SSH or Telnet, see the *FortiMail CLI Reference*.

Using the front panel's control buttons and LCD display

On FortiMail-400 and FortiMail-2000 models, you can use the front panel's control buttons and LCD display to configure:

- IP addresses and netmasks for each of the network interfaces
- the default gateway
- the operating mode

You can also use the front panel to reset the FortiMail unit to the default settings for its firmware version.

Table 4: Control buttons on the front panel

Button	Description
Enter	Move into the currently selected menu area, or confirm your selected option.
Esc	Exit the current menu area.
Up	Select the previous option, or increase the number for an IP address, default gateway address, or netmask.
Down	Select the next option, or decrease the number for an IP address, default gateway address, or netmask.

After using the front panel to configure these basic settings, you must still connect to the web-based manager to complete additional setup. To continue, see “Connecting to the web-based manager” on page 28.

FortiMail-2000B hardware installation

This chapter describes:

Mounting the FortiMail unit

The FortiMail-2000B unit comes with a sliding rail kit. Use the instructions below to install the rails.

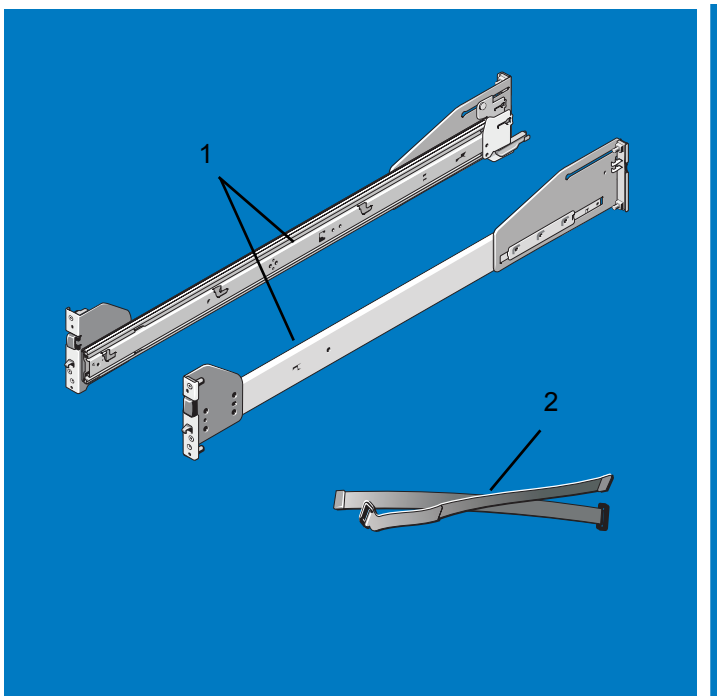
Caution: Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. Before you begin, review the safety instructions that came with the system.

Note: The illustrations in this document are not intended to represent a specific server.

To install the sliding rail kit

1 Locate the components for installing the rail kit assembly:
   - Two sliding rail assemblies (1)
   - Two Velcro straps (2)

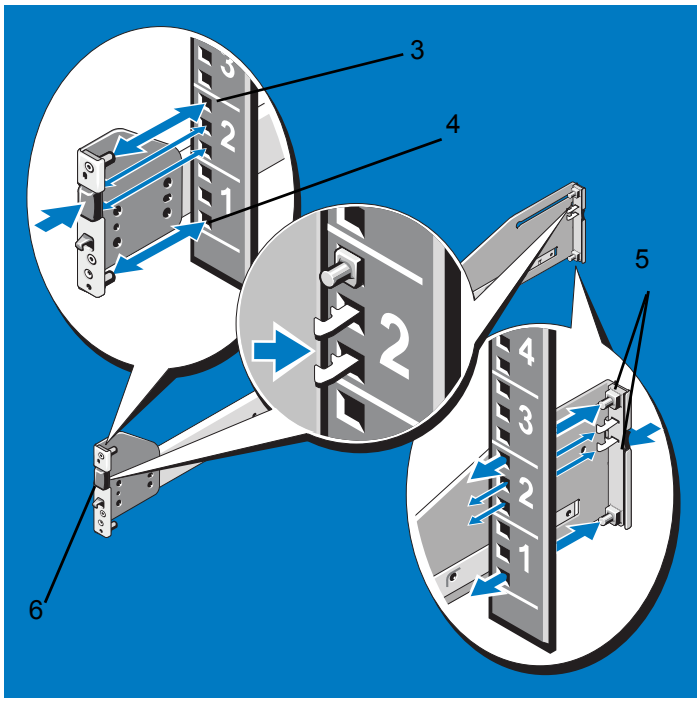
Figure 1: Rail kit contents



2 In square-hole racks, do the following:

- Position the left and right rail end pieces of the rail module labeled FRONT facing inward and orient each end piece to seat in the square holes on the front side of the vertical rack flanges (3).

Figure 2: Installing and removing the rails (square-hole racks)

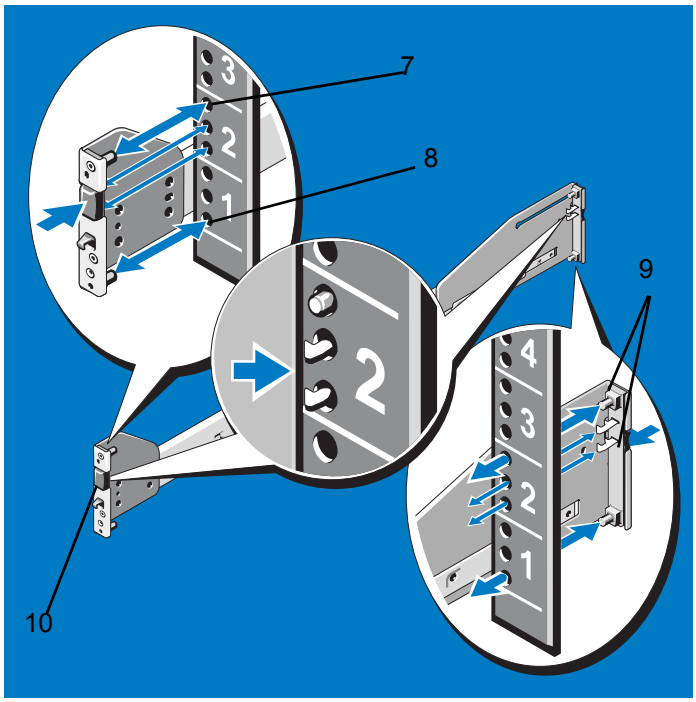


- Align each end piece to seat the pegs in the bottom hole of the first U and the top hole of the second U (4).
- Engage the back end of the rail until it fully seats on the vertical rack flange and the second “tooth” on the latch locks in place. Repeat these steps to position and seat the front end piece on the vertical flange (5).
- To remove the rails, pull on the latch release button on the end piece midpoint and unseat each rail (6).

3 In round-hole racks, do the following:

- Position the left and right rail end pieces of the rail module labeled FRONT facing inward and orient each end piece to seat in the round holes on the front side of the vertical rack flanges (7).

Figure 3: Installing and removing the rails (round-hole racks)

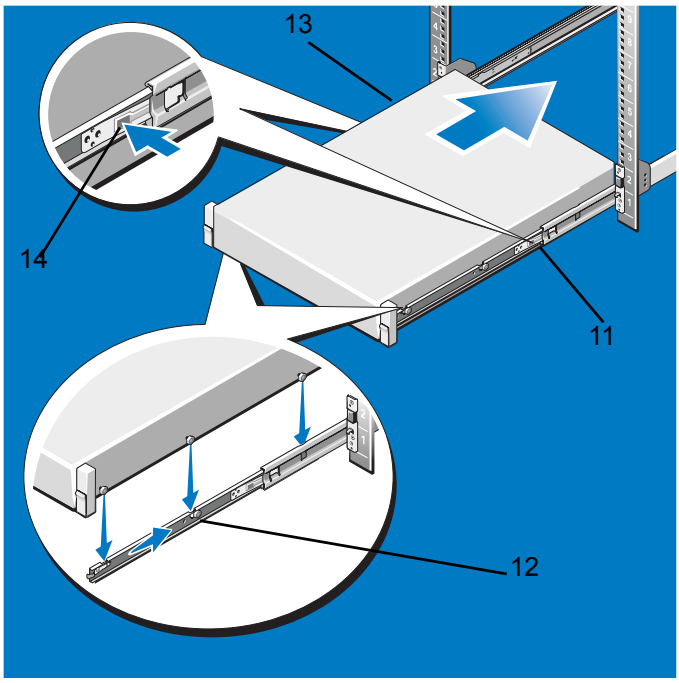


- Align each end piece to seat the pegs in the bottom hole of the first U and the top hole of the second U (8).
- Engage the back end of the rail until it fully seats on the vertical rack flange and the first “tooth” on the latch locks in place. Repeat these steps to position and seat the front end piece on the vertical flange (9).
- To remove the rails, pull on the latch release button on the end piece midpoint and unseat each rail (10).

4 To install the system into the rack, do the following:

- Pull the inner slide rails out of the rack until they lock into place (11).

Figure 4: Installing the system on the rack

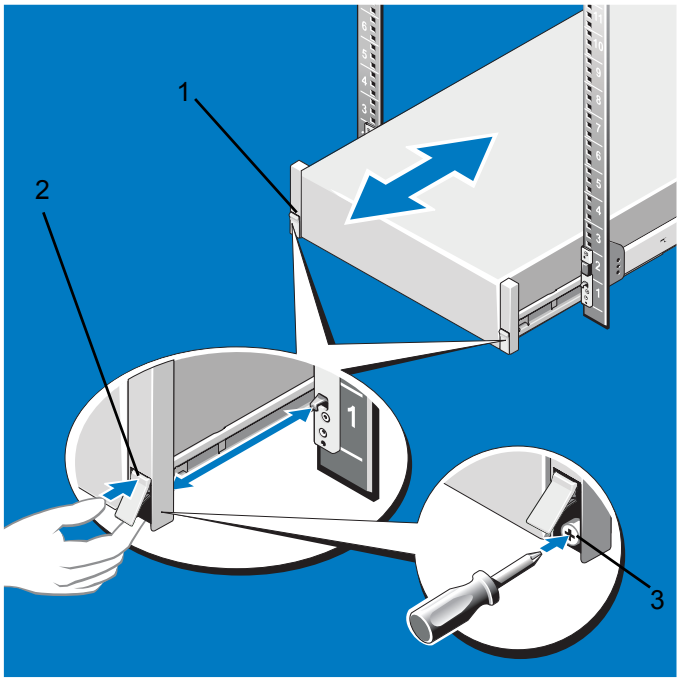


- Locate the three shoulder screws on one side of the system and lower them into the J-slots on the slide assembly (12).
- Seat the three screws on the other side, lowering the system until all shoulder screws engage in the J-slots (13).
- Push the system inward until the front release latch clicks into place. Press the slide-release lock buttons on both rails and slide the system into the rack (14).

5 To engage and release the slam latch, do the following:

- Facing the front, locate the slam latch on either side of the system (15).

Figure 5: Engaging and releasing the slam latch

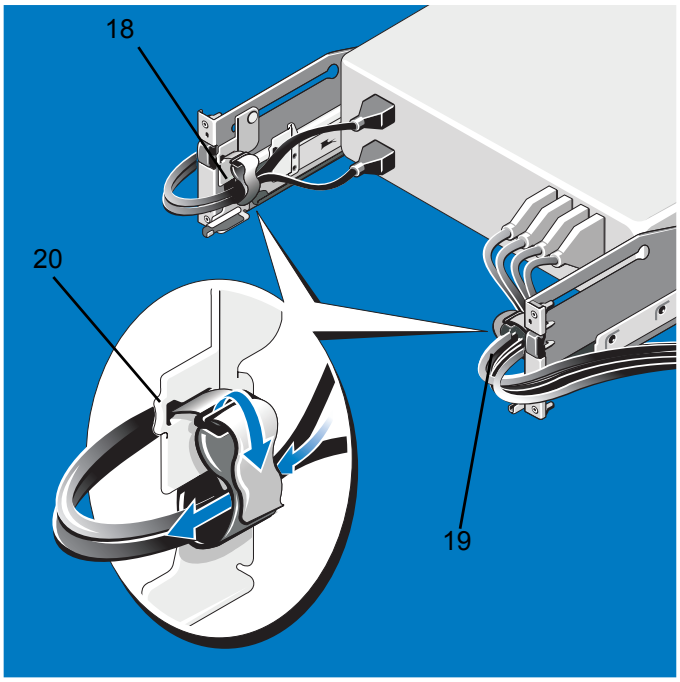


- The latches engage automatically as the system is pushed into the rack and are released by pulling up on the latches (16).
- To secure the system for shipment in the rack or for other unstable environments, locate the hard-mount screw under each latch and tighten each screw with a #2 Phillips screwdriver (17).

6 To route the cables, do the following:

- Locate the inner and outer CMA brackets on the interior sides of both rack flanges (18).

Figure 6: Routing the cables



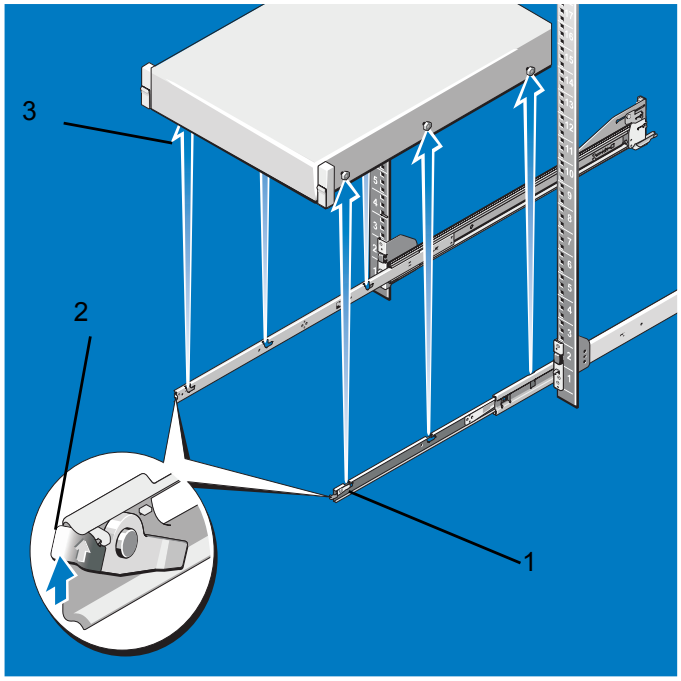
- Bundle the cables gently, pulling them clear of the system connectors to the left and right sides (19).
- Thread the Velcro straps through the tooled slots on the outer or inner CMA brackets on each side of the system to secure the cable bundles (20).

Removing the system from the rack

To remove the system from the rack

1 Locate the lock levers on the front ends of both inner rails (1).

Figure 7: Removing the system from the rack



2 Pull up on each lever into the release position to unlock (2).

3 Grasp the sides of the system firmly and pull forward and up to unseat the system from the J-slots. Lift the system up and away from the rack and place on a level surface (3).

Installing the cable management arm

The FortiMail-2000B unit comes with a cable management arm. Use the instructions below to install the arm.

Caution: Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. Before you begin, review the safety instructions that came with the system.

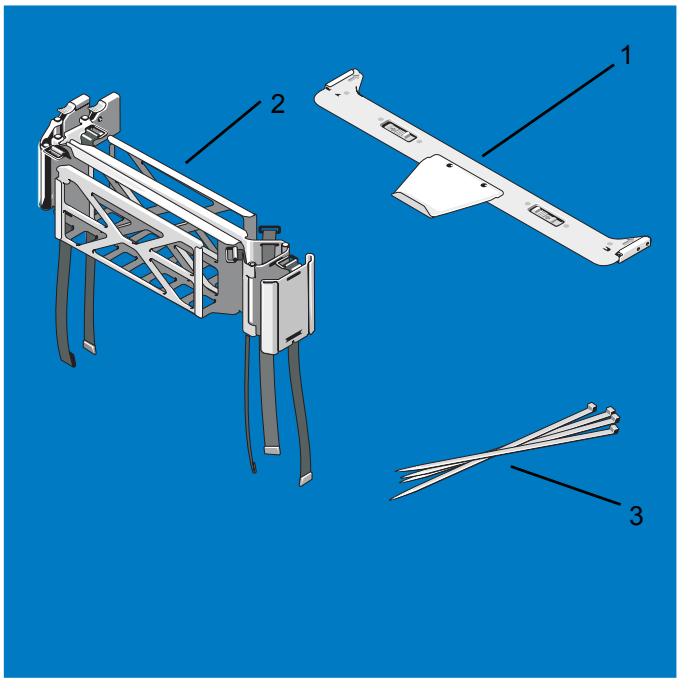
Note: The illustrations in this document are not intended to represent a specific server.

To install the cable management arm

1 Locate the components for installing the Cable Management Arm (CMA) assembly:

- Cable Management Arm tray (1)
- Cable Management Arm (2)
- Nylon cable tie wraps (3)

Figure 8: Cable Management Arm kit contents



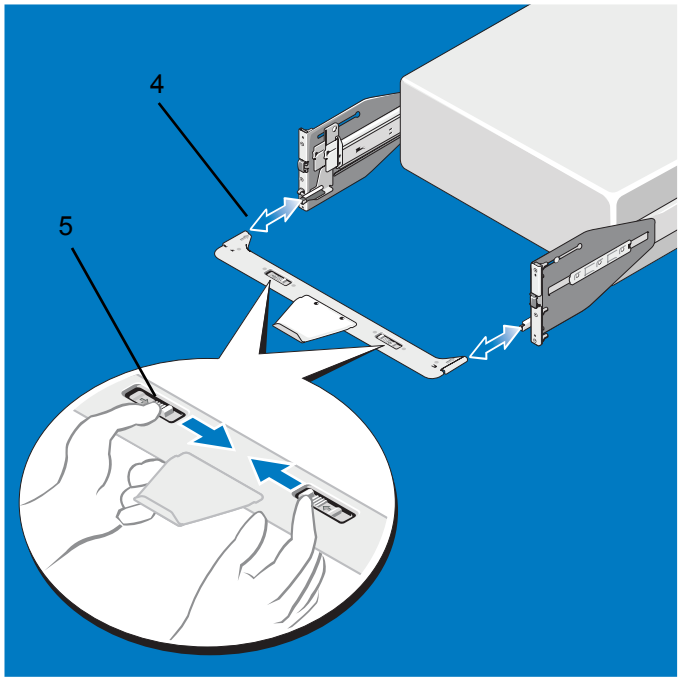
Note: To secure the CMA for shipment in the rack, loop the tie wraps around both baskets and tray and cinch them firmly. For larger CMAs, the tie wraps can be threaded through the inner and outer baskets and around the tray to secure them. Securing the CMA in this manner will also secure your system in unstable environments.

2 To install or remove the Cable Management Arm Tray, do the following:

Note: The CMA tray provides support and acts as a retainer for the CMA.

- Align and engage each side of the tray with the receiver brackets on the inner edges of the rails and push forward until the tray clicks into place (4).

Figure 9: Installing and removing the cable management arm tray



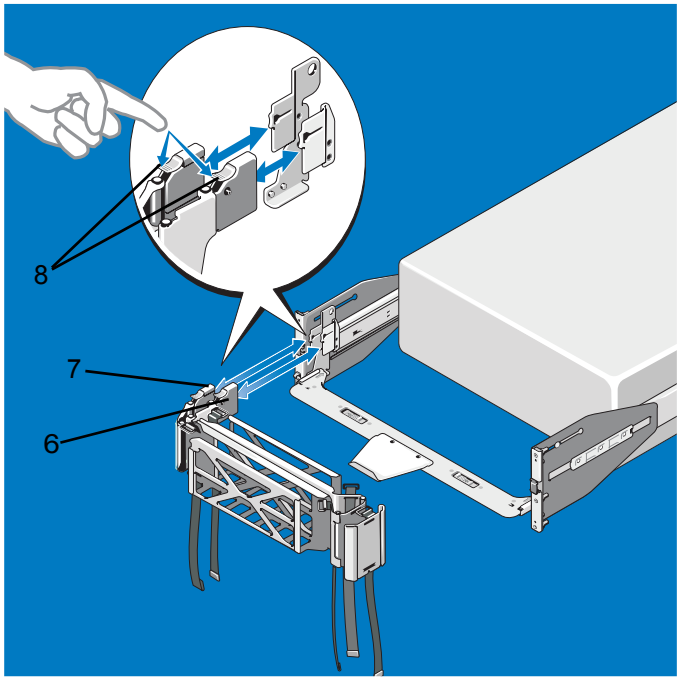
- To remove the tray, squeeze the latch-release buttons on both sides toward the center and pull the tray out of the receiver brackets (5).

3 To install and remove the CMA, do the following:

Note: You can attach the CMA to either the right or left mounting rail, depending on how you intend to route cables from the system. Mounting the CMA on the side opposite of the power supplies is recommended; otherwise, the CMA must be disconnected in order to remove the outer power supply. You ***must*** remove the tray before removing the power supplies.

- At the back of the system, fit the latch on the front end of the CMA on the innermost bracket of the slide assembly until the latch engages (6).

Figure 10: Installing and removing the cable management arm

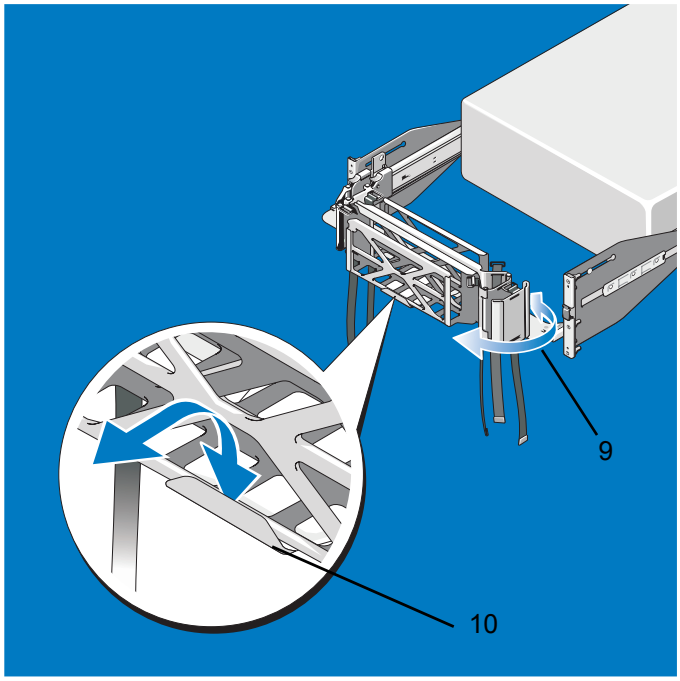


- Fit the other latch on the end of the outermost bracket until the latch engages (7).
- To remove the CMA, disengage both latches by pressing the CMA release buttons at the top of the inner and outer latch housings (8).

4 To move the CMA away from the CMA tray, do the following:

- The CMA can be pulled away from the system and extended away from the tray for access and service (9).

Figure 11: Moving the CMA away from the CMA tray



- At the hinged end, lift the CMA up and off of the tray to unseat it from the tray catch. Once it is unseated from the tray, swing the CMA away from the system (10).

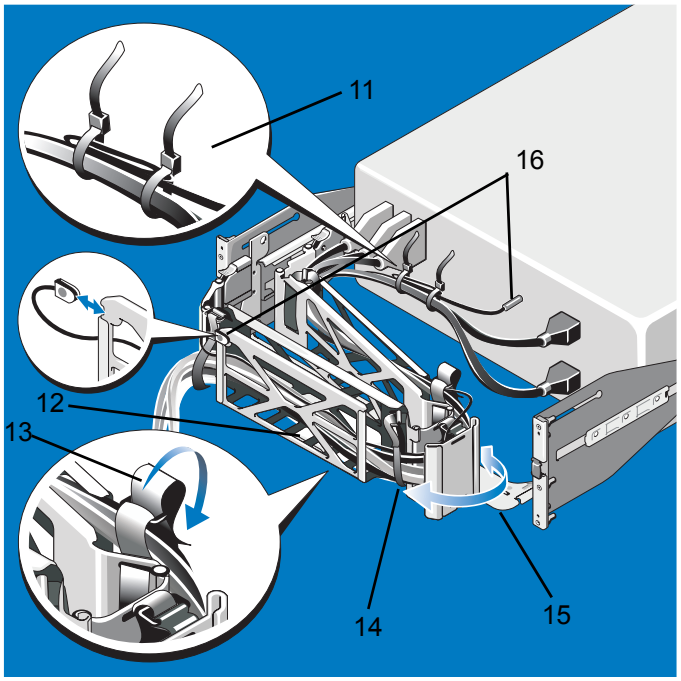
Note: You can also extend the CMA into the service position once it is cabled to access the back of the system.

5 To cable the system using the CMA, do the following:

Caution: To avoid potential damage from protruding cables, secure any slack in the status indicator cable before routing this cable through the CMA.

- Using the tie wraps provided, bundle the cables together as they enter and exit the baskets so they do not interfere with adjacent systems (11).

Figure 12: Cabling the system using the CMA



- With the CMA in the service position, route the cable bundle through the inner and outer baskets (12).
- Use the preinstalled Velcro straps on either end of the baskets to secure the cables (13).
- Adjust the cable slack as needed at the hinge position (14).
- Swing the CMA back into place on the tray (15).
- Install the status indicator cable at the back of the system and secure the cable by routing it through the CMA. Attach the other end of this cable to the corner of the outer CMA basket. (16).

Installing the hard drives

The FortiMail-2000B unit has six 3.5-inch drive bays. All chassis support hot-swappable SAS and SATA hard drives.

All drives are installed at the front of the system and connect to the system board through the SAS backplane. Hard drives are supplied in special hot-swappable hard-drive carriers that fit in the hard-drive bays.

Caution: Do not turn off or reboot your system while the drive is being formatted. Doing so can cause a drive failure

Note: Use only drives that have been tested and approved for use with the SAS backplane board.

When you format a hard drive, allow enough time for the formatting to be completed. Be aware that high-capacity hard drives can take a number of hours to format.

Mixed SAS/SATA hard-drive configurations

Mixed hard-drive configurations of SAS and SATA drives are allowed. In this configuration, two SAS drives must be installed in hard-drive slots 0 and 1 only. The remaining slots can have SATA drives installed.

Mixed 2.5-inch and 3.5-inch configurations of SAS and SATA drives are also supported in the 3.5-inch–bay chassis only. In this configuration, two 10,000-RPM 2.5-inch SAS drives installed in 3.5-inch adapters must be used in hard-drive slots 0 and 1 only. The remaining hard drives must be 3.5 inches in size and must be either all SAS or all SATA drives.

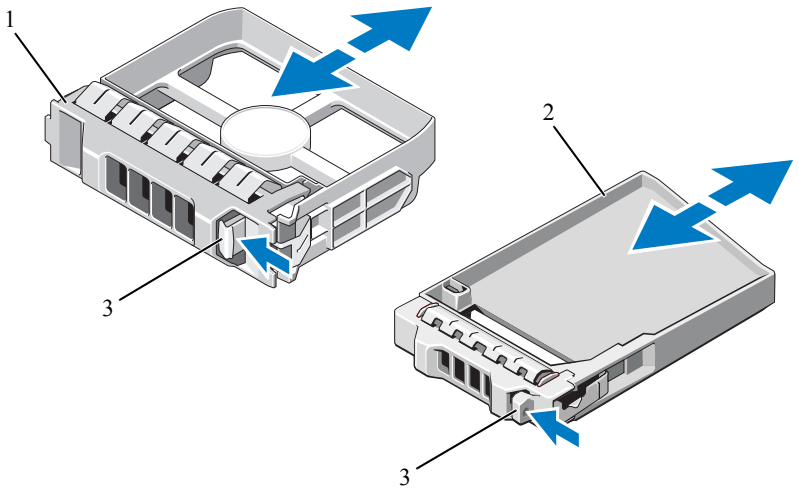
Removing a hard-drive blank

Caution: To maintain proper system cooling, all empty hard-drive bays must have drive blanks installed

1 Remove the front bezel. See “Installing the Bezel” on page 18.

2 Grasp the front of the hard-drive blank, press the release lever on the right side, and slide the blank out until it is free of the drive bay. See Figure 13.

Figure 13: Removing and Installing a Hard Drive Blank



1 3.5-in hard drive blank
2 2.5-in hard drive blank
3 release latch

Installing a hard-drive blank

Align the hard-drive blank with the drive bay and insert the blank into the drive bay until the release lever clicks into place.

Removing a hot-swap hard drive

Caution: Ensure that your operating system supports hot-swap drive removal and installation. See the documentation provided with your operating system for more information.

1 If present, remove the front bezel. See “Installing the Bezel” on page 18.

2 From the RAID management software, prepare the drive for removal. Wait until the hard-drive indicators on the drive carrier signal that the drive can be removed safely. See your SAS RAID controller documentation for information about hot-swap drive removal.

   If the drive has been online, the green activity/fault indicator will flash as the drive is powered down. When the drive indicators are off, the drive is ready for removal.

3 Press the button on the front of the drive carrier and open the drive carrier release handle to release the drive. See Figure 14.

4 Slide the hard drive out until it is free of the drive bay.

5 Insert a drive blank in the vacated drive bay. See “Installing a hard-drive blank” on page 46.

6 If applicable, install the bezel. See “Installing the Bezel” on page 18.

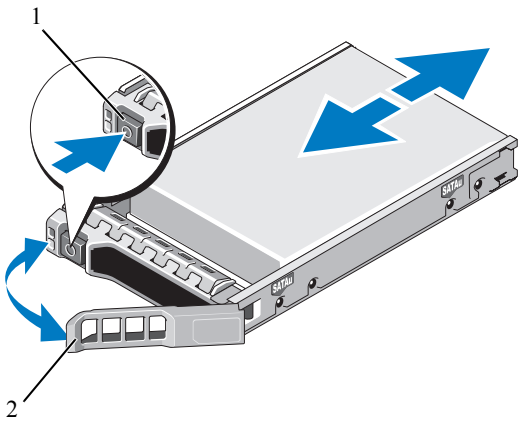
Installing a hot-swap hard drive

Caution: When installing a hard drive, ensure that the adjacent drives are fully installed. Inserting a hard-drive carrier and attempting to lock its handle next to a partially installed carrier can damage the partially installed carrier's shield spring and make it unusable.

1 If present, remove the front bezel. See “Installing the Bezel” on page 18.

2 If a drive blank is present in the bay, remove it. See “Removing a hard-drive blank” on page 46.

Figure 14: Installing a hot-swap hard drive



1 release button 2 hard drive carrier handle

3 Install the hot-swap hard drive.
   - Press the button on the front of the drive carrier and open the handle.
   - Insert the hard-drive carrier into the drive bay until the carrier contacts the backplane.
   - Close the handle to lock the drive in place.

4 If applicable, install the bezel. See “Installing the Bezel” on page 18.

Removing a hard drive from a hard-drive carrier

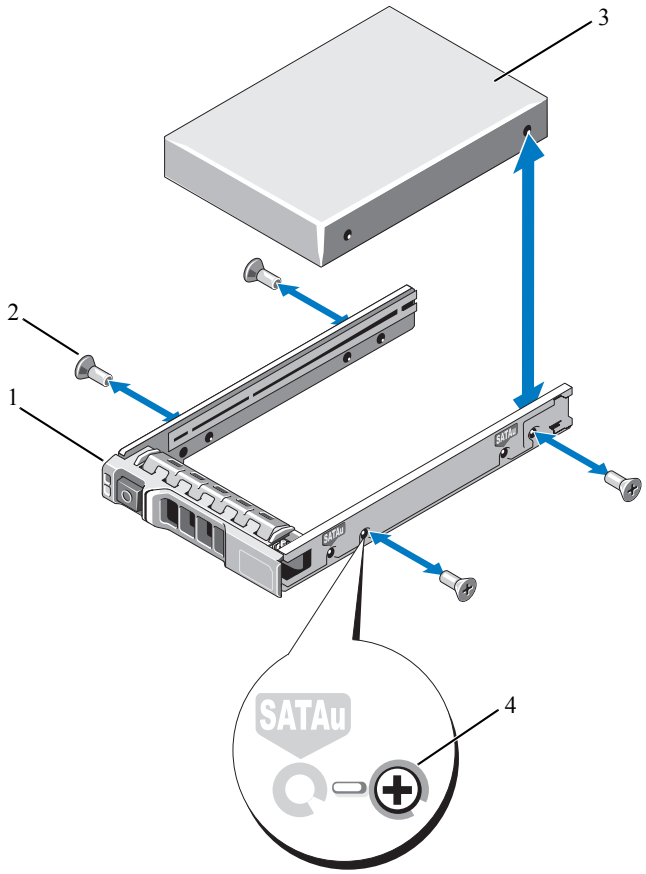
Remove the screws from the slide rails on the hard-drive carrier and separate the hard drive from the carrier. See Figure 15.

Installing a hard drive into a hard-drive carrier

1. Insert the hard drive into the hard-drive carrier with the connector end of the drive at the back. See Figure 15.
2. Align the screw holes on the hard drive with the back set of holes on the hard drive carrier.

   When aligned correctly, the back of the hard drive will be flush with the back of the hard-drive carrier.
3. Attach the four screws to secure the hard drive to the hard-drive carrier.

Figure 15: Installing a hard drive into a drive carrier



1	hard-drive carrier	2	screws (4)
3	hard drive	4	SAS screw hole

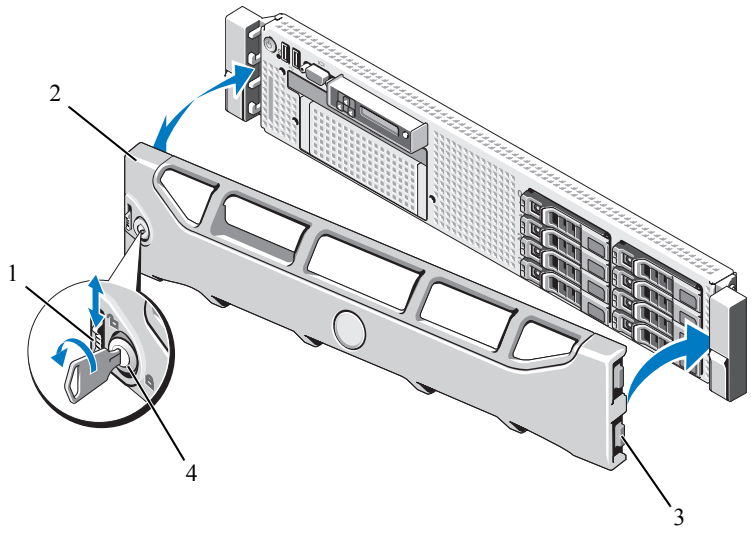
Installing the bezel

A lock on the bezel restricts access to the power button, optical drive, and hard drive(s). The LCD panel and navigation buttons are accessible through the front bezel.

To remove the front bezel

1. Using the system key, unlock the bezel.
2. Pull up on the release latch next to the key lock.
3. Rotate the left end of the bezel away from the system to release the right end of the bezel.
4. Pull the bezel away from the system. See Figure 16.

Figure 16: Removing the front bezel



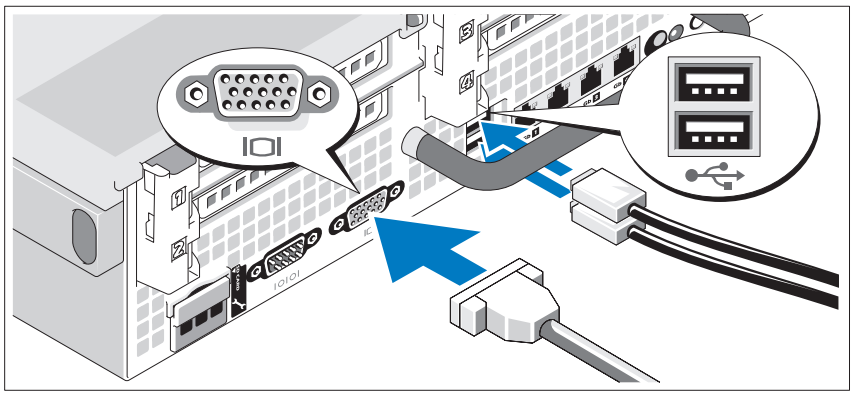
1	release latch	2	bezel
3	hinge tabs	4	key lock

To install the front bezel

1. Insert the hinge tab on the right of the bezel into the slot on the right side of the system front panel.
2. Rotate the left side of the bezel toward the system.
3. Press the bezel to the system to engage the latch.

Connecting the keyboard, mouse, and monitor

Figure 17: Connecting the keyboard, mouse, and monitor

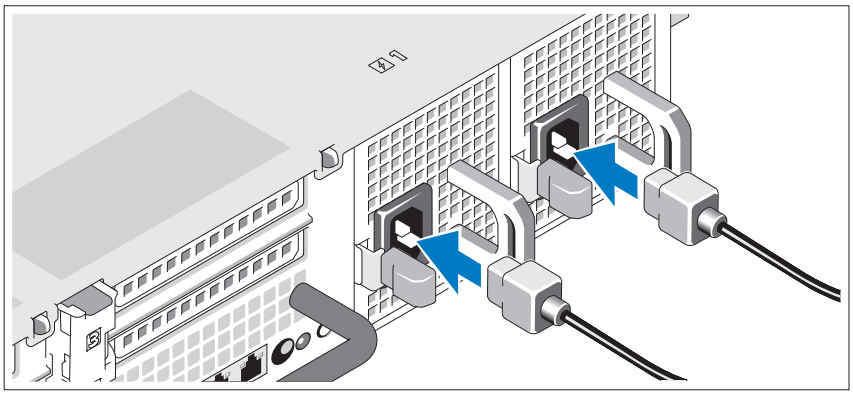


Connect the keyboard, mouse, and monitor (optional).

The connectors on the back of your system have icons indicating which cable to plug into each connector. Be sure to tighten the screws (if any) on the monitor's cable connector.

Connecting the power cables

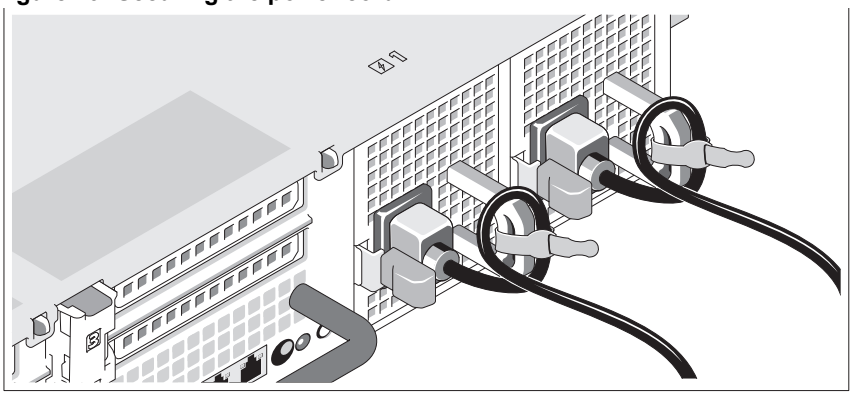
Figure 18: Connecting the power cables.



Connect the system’s power cable(s) to the system and, if a monitor is used, connect the monitor’s power cable to the monitor.

Securing the power cord

Figure 19: Securing the power cord



Bend the system power cable into a loop as shown in the illustration and secure the cable to the bracket using the provided strap.

Plug the other end of the power cables into a grounded electrical outlet or a separate power source such as an uninterruptible power supply (UPS) or a power distribution unit (PDU).

FortiMail-5001A hardware installation

Before use, the FortiMail board must be correctly inserted into an Advanced Telecommunications Computing Architecture (ACTA) chassis such as the FortiGate-5140, FortiGate-5050, or FortiGate-5020 chassis.

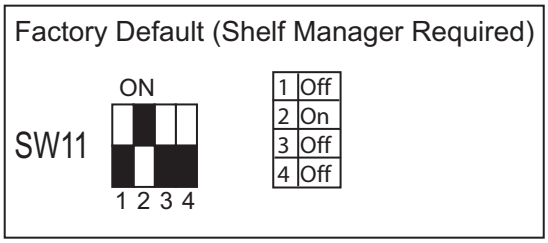
Before inserting the board into a chassis you should make sure the SW-11 switch is set correctly.

This section describes:

Changing FortiMail SW11 switch settings

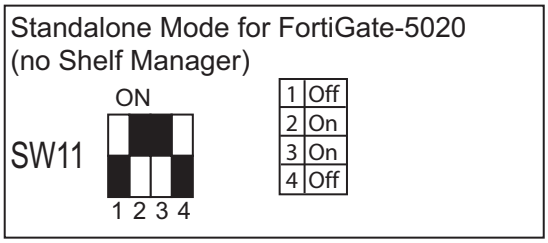
The SW11 switch on the FortiMail board is factory set by Fortinet to detect a shelf manager (Figure 20). This is the correct setting if you are installing the FortiMail board in a chassis that contains an operating shelf manager (such as the FortiGate-5140 or FortiGate-5050 chassis).

Figure 20: FortiGate-5140 and 5050 setting for SW11 (factory default shelf manager mode)



By default a FortiMail board will not start up if the board is installed in a chassis, such as a FortiGate-5020, that does not contain a shelf manager or that contains a shelf manager that is not operating. Before installing a FortiMail in a FortiGate-5020 chassis or a chassis that does not contain an operating shelf manager you must change the SW11 switch setting as shown in Figure 21.

Figure 21: FortiGate-5020 setting for SW11 (standalone mode)



In all cases you should confirm that you have the correct SW11 setting before installing the board in a chassis.**To change or verify the SW11 switch setting**

Table 1: FortiMail SW11 settings for different chassis

Chassis	Correct SW11 Setting		Result of wrong jumper setting
FortiGate-5140 or 5050 or any ACTA chassis with an operating shelf manager (factory default shelf manager mode).	**1**	**Off**	Shelf manager cannot find FortiMail board. No shelf manager information about the FortiMail board available.
	2	**On**	
	3	**Off**	
	4	**Off**	
FortiGate-5020 or any ACTA chassis without an operating shelf manager (standalone mode).	**1**	**Off**	FortiMail board will not start up.
	2	**On**	
	3	**On**	
	4	**Off**	

To complete this procedure, you need:

- A FortiMail board
- A tool for changing the SW11 switch setting (optional)

- An electrostatic discharge (ESD) preventive wrist strap with connection cord

Caution: FortiMail boards must be protected from static discharge and physical shock. Only handle or work with FortiMail boards at a static-free workstation. Always wear a grounded electrostatic discharge (ESD) preventive wrist strap when handling FortiMail boards.

1 Attach the ESD wrist strap to your wrist and to an available ESD socket or wrist strap terminal.

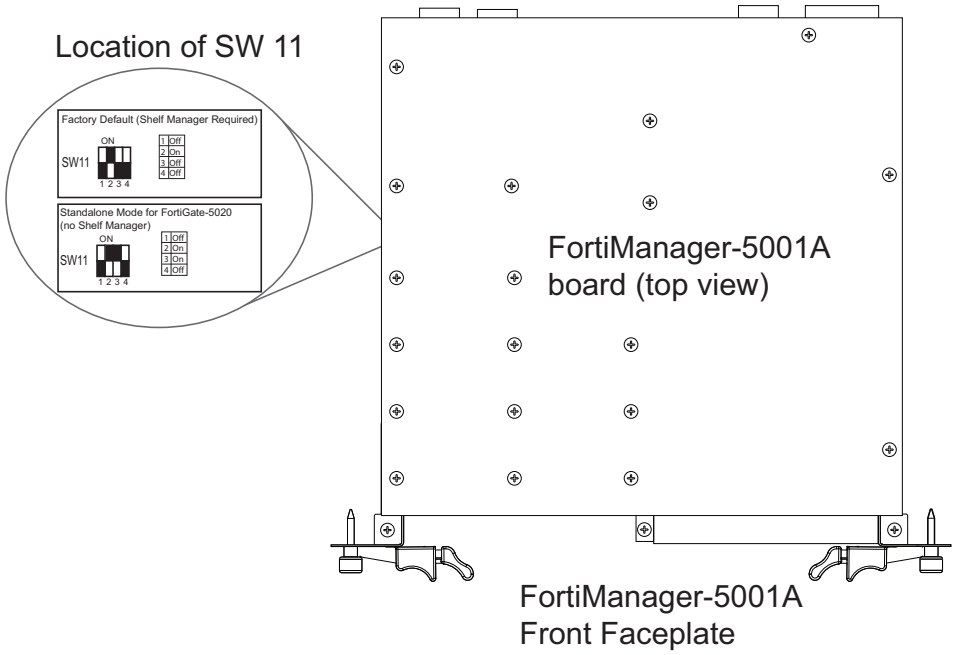
2 If you have installed the FortiMail board in a chassis, remove it.

For removal instructions, see “Removing a FortiMail board” on page 59.

3 Use Figure 22 to locate SW11 on the FortiMail board.

The top of the FortiMail board is covered with a copper heat sink. The printed circuit board is under the copper heat sink. SW11 is located on the printed circuit board and is accessible from the left side of the FortiMail board under the copper heat sink (see Figure 22).

Figure 22: Location of SW11 on the FortiMail board



4 If required, change SW11 to the correct setting.

5 Insert the FortiMail board into a chassis and verify that the board starts up and operates correctly.

For inserting instructions, see “Inserting a FortiMail board” on page 56.

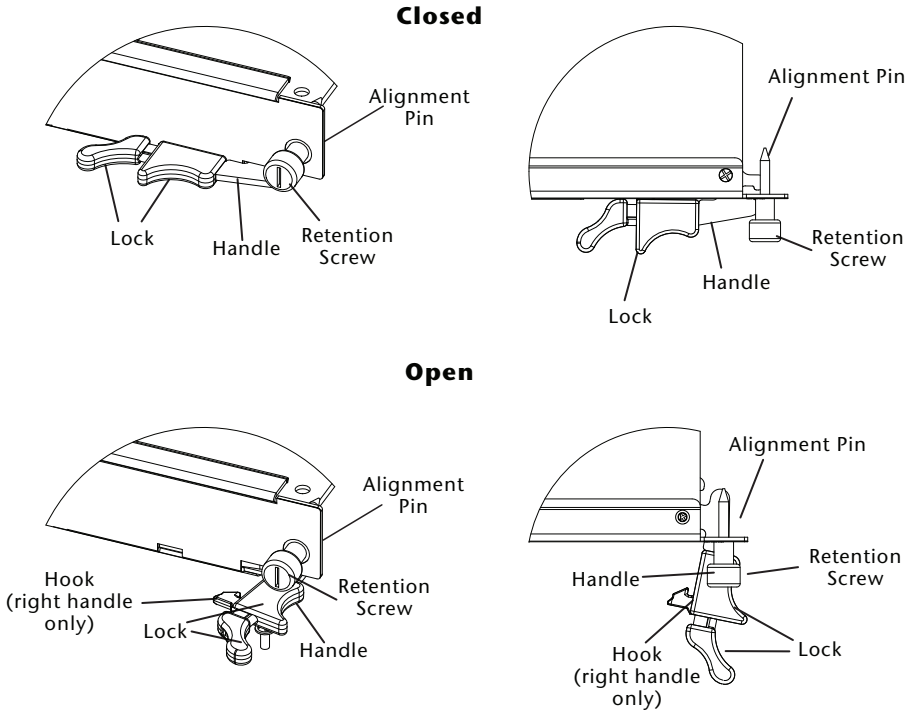
FortiMail mounting components

To install a FortiMail board you slide the board into an open slot in the front of an ATCA chassis and then use the mounting components to lock the board into place in the slot. When locked into place and positioned correctly the board front panel is flush with the chassis front panel. The board is also connected to the chassis backplane.

Note: FortiMail boards are horizontal when inserted into a FortiGate-5050 chassis and vertical when inserted into a FortiGate-5140 chassis. The inserting and removing procedures are the same in either case. For clarity the descriptions in this document refer to the left (top) and right (bottom) mounting components.

To position the board correctly you must use the mounting components shown in Figure 23 for the right (bottom) side of the front panel. The mounting components on the left (top) side of the FortiMail front panel are the same but reversed. The FortiMail mounting components align the board in the chassis slot and are used to insert and eject the board from the slot.

Figure 23: FortiMail right (bottom) mounting components



The FortiMail handles align the board in the chassis slot and are used to insert and eject the board from the slot. The right handle activates a microswitch that turns on or turns off power to the board. If the FortiMail board is installed in a FortiGate-5140 chassis this is the lower handle. When the right handle is open the microswitch is off and the board cannot receive power. When the right handle is fully closed the microswitch is on and if the board is fully inserted into a chassis slot the board can receive power. You can use the right handle to cycle the power and reset the board without removing the board from the chassis. See “Resetting a FortiMail board” on page 61.

Inserting a FortiMail board

The FortiMail board must be fully installed in a chassis slot, with the handles closed and locked and retention screws fully tightened for the FortiMail board to receive power and operate normally. If the FortiMail board is not receiving power, the IPM LED glows solid blue and all other LEDs remain off. For descriptions of the LEDs, see the FortiMail-5001A QuickStart Guide.

It is important to carefully seat the FortiMail board all the way into the chassis, to not use too much force on the handles, and to make sure that the handles are properly locked. Only then will the FortiMail board power-on and start up correctly.

FortiMail boards are hot swappable. The procedure for inserting a FortiMail board into a chassis slot is the same whether or not the chassis is powered on.

To insert a FortiMail board into a chassis slot

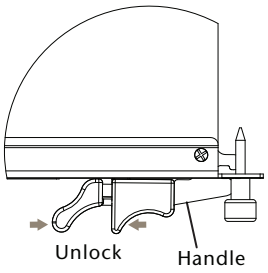
To complete this procedure, you need:

- A FortiMail board with either the correct AMC slot filler panel or a FortiGate AMC module installed in the front panel AMC opening
- An ATCA chassis with an empty slot
- An electrostatic discharge (ESD) preventive wrist strap with connection cord

Caution: FortiMail boards must be protected from static discharge and physical shock. Only handle or work with FortiMail boards at a static-free workstation. Always wear a grounded electrostatic discharge (ESD) preventive wrist strap when handling FortiMail boards.

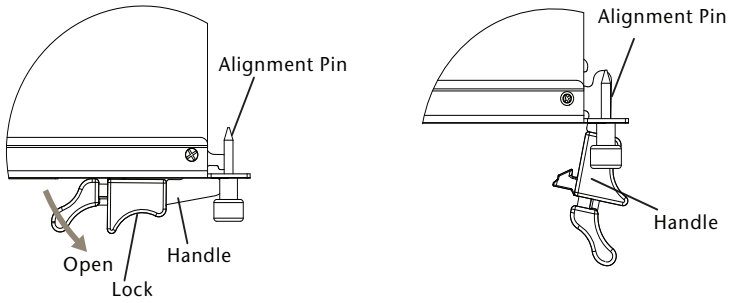
Caution: Do not carry the FortiMail board by holding the handles or retention screws. When inserting or removing the FortiMail board from a chassis slot, handle the board by the front panel. The handles are not designed for carrying the board. If the handles become bent or damaged the FortiMail board may not align correctly in the chassis slot.

1. Attach the ESD wrist strap to your wrist and to an available ESD socket or wrist strap terminal.
2. If required, remove the protective metal frame that the FortiMail board has been shipped in.
3. Insert the FortiMail board into the empty slot in the chassis.
4. Unlock the handles by squeezing the handle locks.



5. Open the handles to their fully open positions.

Caution: To avoid damaging the lock, make sure you squeeze the handles fully to unlock them before opening. The handles should pop easily out of the board front panel.



6 Insert the FortiMail board into the empty slot in the chassis.

7 Carefully guide the board into the chassis using the rails in the slot.

Insert the board by applying moderate force to the front faceplate (not the handles) to slide the board into the slot. The board should glide smoothly into the chassis slot. If you encounter any resistance while sliding the board in, the board could be aligned incorrectly. Pull the board back out and try inserting it again.

8 Slide the board in until the alignment pins are inserted half way into their sockets in the chassis.

9 Turn both handles to their fully-closed positions.

The handles should hook into the sides of the chassis slot. Closing the handles draws the FortiMail board into place in the chassis slot and into full contact with the chassis backplane. The FortiMail front panel should be in contact with the chassis front panel. Both handles lock into place.

As the handles close, power is supplied to the board. If the chassis is powered on the IPM LED starts flashing blue. If the board is aligned correctly, inserted all the way into the slot, and the handles are properly closed the IPM LED flashes blue for a few seconds. At the same time the STATUS LED flashes green, the interface LEDs flash amber, and the ACC LED starts flashing green. After a few seconds the IPM LED goes out and the FortiMail firmware starts up. During start up the STATUS LED may continue to flash green. Once the board has started up and is operating correctly, the front panel LEDs are lit as described in Table 2.

Table 2: FortiMail normal operating LEDs

LED	State
ACC	Off (Or flashing green when the system accesses the FortiMail flash disk.)
OOS (Out of Service)	Off
Power	Green
Status	Off
IPM	Off

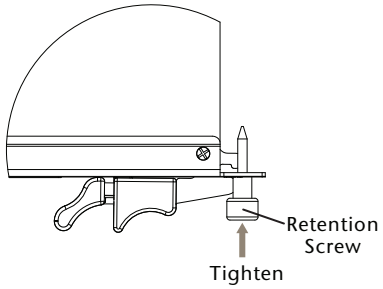
If you have installed an AMC module in the FortiMail board, the AMC LEDs are lit as described in Table 3.

Table 3: FortiGate AMC module normal operating LEDs

LED	State
HS	Off
OOS	Off
PWR	Amber
OT	Off

If the board has not been inserted properly the IPM LED changes to solid blue and all other LEDS turn off. If this occurs, open the handles, slide the board part way out, and repeat the insertion process.

10 Once the board is inserted correctly, fully tighten the retention screws to lock the FortiMail board into position in the chassis slot.



Removing a FortiMail board

The following procedure describes how to correctly use the FortiMail mounting components described in "FortiMail mounting components" on page 55 to remove a FortiMail board from an ATCA chassis slot.

FortiMail boards are hot swappable. The procedure for removing a FortiMail board from a chassis slot is the same whether or not the chassis is powered on.

To remove a FortiMail board from a chassis slot

To complete this procedure, you need:

- An ATCA chassis with a FortiMail board installed
- An electrostatic discharge (ESD) preventive wrist strap with connection cord

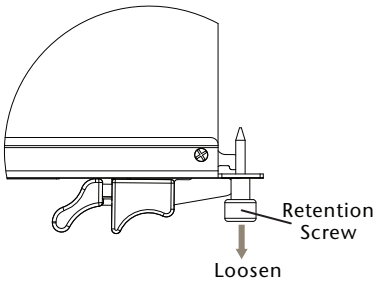
Caution: FortiMail boards must be protected from static discharge and physical shock. Only handle or work with FortiMail boards at a static-free workstation. Always wear a grounded electrostatic discharge (ESD) preventive wrist strap when handling FortiMail boards.

Caution: Do not carry the FortiMail board by holding the handles or retention screws. When inserting or removing the FortiMail board from a chassis slot, handle the board by the front panel. The handles are not designed for carrying the board. If the handles become bent or damaged the FortiMail board may not align correctly in the chassis slot.

1 Attach the ESD wrist strap to your wrist and to an available ESD socket or wrist strap terminal.

2 Disconnect all cables from the FortiMail board, including all network cables, the console cable, and any USB cables or keys.

3 Fully loosen the retention screws on the FortiMail front panel.

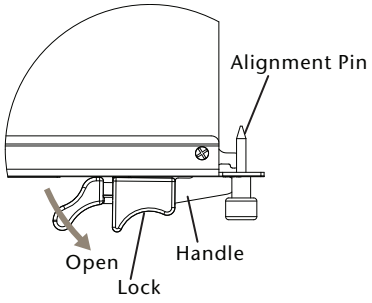


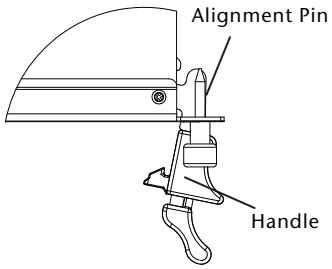
4 Unlock the handles by squeezing both handle locks.

5 Open the handles to their fully open positions.

Caution: To avoid damaging the lock, make sure you squeeze the handles fully to unlock them before opening. The handles should pop easily out of the board front panel.

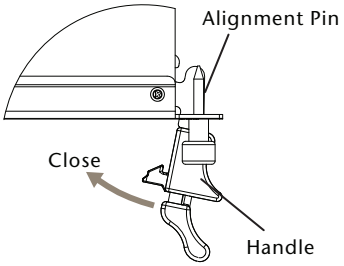
You need to open the handles with moderate pressure to eject the board from the chassis. Pivoting the handles turns off the microswitch, turns off all LEDs, and ejects the board from the chassis slot.

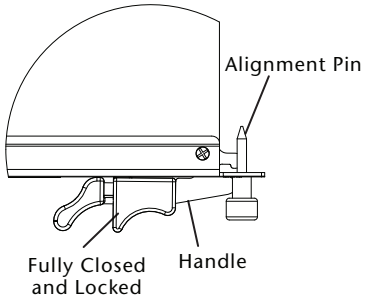




6 Pull the board about half way out.

7 Turn both handles to their fully-closed positions.When the FortiMail handles are fully-closed they lock into place.





8 Carefully slide the board completely out of the slot.

9 Re-attach the protective metal frame before shipping or storing the FortiMail board.

Resetting a FortiMail board

You must eject the FortiMail board from the chassis slot to cycle the power and reset the board. See "Removing a FortiMail board" on page 59 for information about how to eject a FortiMail board from a chassis.

Troubleshooting

This section describes the following troubleshooting topics:

- FortiMail system does not start up
- FortiMail status LED is flashing during system operation

FortiMail system does not start up

Shelf manager or firmware problems may prevent a FortiMail board from starting up correctly.

Chassis with a shelf manager: no communication with shelf manager

If the FortiMail board is receiving power and the handles are fully closed and the FortiMail still does not start up, the problem could be that the FortiMail cannot communicate with the chassis shelf manager. This problem can only occur in an ATCA chassis that contains a shelf manager (such as the FortiGate-5140 and FortiGate-5050).

To correct this problem power down and then restart the chassis. If you are operating a FortiGate-5000 series chassis you can power down and then restart the chassis without removing FortiGate-5000 series components.

All chassis: firmware problem

If the FortiMail board is receiving power and the handles are fully closed, and you have restarted the chassis and the FortiMail still does not start up, the problem could be with FortiOS. Connect to the FortiMail console and try cycling the power to the board. If the BIOS starts up, interrupt the BIOS startup and install a new firmware image. For details about installing a new firmware image in this way, see the *FortiGate-5000 Series Firmware and FortiUSB Guide*.

If this does not solve the problem, contact Fortinet Technical Support.

FortiMail status LED is flashing during system operation

Normally, the FortiMail Status LED  is off when the FortiMail board is operating normally. If this LED starts flashing while the board is operating, a fault condition may exist. At the same time the FortiMail may stop processing traffic.

To resolve the problem you can try removing and reinserting the FortiMail board in the chassis slot. Reloading the firmware may also help.

If this does not solve the problem there may have been a hardware failure or other problem. Contact Fortinet Technical Support for assistance.

Updating the firmware

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

Installing new firmware can introduce new features and overwrites antivirus and antispam packages using the versions of the packages that were current at the time that the firmware image was built. To avoid repeat configuration and updates, update the firmware ***before*** configuring the FortiMail unit and/or updating your FortiGuard Antivirus and FortiGuard Antispam packages.

For late-breaking information specific to the firmware release version, see the Release Notes available with that release.

Note: In addition to major releases that contain new features, Fortinet releases patch releases that resolve specific issues without containing new features and/or changes to existing features. It is recommended to download and install patch releases as soon as they are available.

This chapter includes the following topics:

Testing new firmware before installing it

You can test a new firmware image by temporarily running it from memory, without saving it to disk. By keeping your existing firmware on disk, if the evaluation fails, you do not have to re-install your previous firmware. Instead, you can quickly revert to your existing firmware by simply rebooting the FortiMail unit.

To test a new firmware image

1. Connect your management computer to the FortiMail console port using a RJ-45-to-DB-9 serial cable or a null-modem cable.
2. Initiate a connection from your management computer to the CLI of the FortiMail unit.

   For details, see “Connecting to the CLI” on page 29.
3. Connect port1 of the FortiMail unit directly or to the same subnet as a TFTP server.
4. Copy the new firmware image file to the root directory of the TFTP server.
5. Verify that the TFTP server is currently running, and that the FortiMail unit can reach the TFTP server.

   To use the FortiMail CLI to verify connectivity, enter the following command:

   ```
   execute ping 192.168.1.168
   ```

   where `192.168.1.168` is the IP address of the TFTP server.

6 Enter the following command to restart the FortiMail unit:

```
execute reboot
```

7 As the FortiMail units starts, a series of system startup messages are displayed.

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

8 Immediately press a key to interrupt the system startup.

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

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

```
[G]:  Get firmware image from TFTP server.
[F]:  Format boot device.
[B]:  Boot with backup firmware and set as default.
[I]:  Configuration and information.
[Q]:  Quit menu and continue to boot with default firmware.
[H]:  Display this list of options.

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

9 Type `G` to get the firmware image from the TFTP server.

The following message appears:

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

10 Type the IP address of the TFTP server and press Enter.

The following message appears:

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

11 Type a temporary IP address that can be used by the FortiMail unit to connect to the TFTP server.

The following message appears:

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

12 Type the firmware image file name and press Enter.

The FortiMail unit downloads the firmware image file from the TFTP server and displays a message similar to the following:

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

13 Type `R`.

The FortiMail image is loaded into memory and uses the current configuration, ***without*** saving the new firmware image to disk.

14 To verify that the new firmware image has been loaded, log in to the CLI and type:

```
get system status
```

15 Test the new firmware image.

- If the new firmware image operates successfully, you can install it to disk, overwriting the existing firmware, using the procedure "Installing firmware" on page 65.
- If the new firmware image does ***not*** operate successfully, reboot the FortiMail unit to discard the temporary firmware and resume operation using the existing firmware.

Installing firmware

You can use either the web-based manager or the CLI to upgrade or downgrade the firmware of the FortiMail unit.

Firmware changes are either:

- an upgrade to a newer version
- a reversion to an earlier version

The firmware version number is used to determine if you are upgrading or reverting your firmware image.

For example, if your current firmware version is `FortiMail-400 3.00,build288,080327`, changing to `FortiMail-400 3.00,build266,071209`, an earlier build number and date, indicates you are reverting.

Caution: Back up your configuration before beginning this procedure. Reverting to an earlier firmware version could reset the configuration, including the IP addresses of network interfaces. For information on reconnecting to a FortiMail unit whose network interface configuration has been reset, see “Connecting to the web-based manager or CLI” on page 28.

To install firmware using the web-based manager

1. Log in to the Fortinet Technical Support web site, https://support.fortinet.com/.
2. Download the firmware image file to your management computer.
3. Log in to the web-based manager as the “admin” administrator, or an administrator account whose domain is “system” and that has system configuration read and write privileges.
4. In the advanced management mode, go to *System* > *Status* > *Status*.

   If this menu option does not appear, first select *Advanced* >> to switch to the advanced mode of the web-based manager.
5. In the *System Information* widget, in the *Firmware Version* row, select *Update*.
6. Select *Browse* to locate and select the firmware file that you want to install, then select *OK*.
7. Select *OK*.

   Your management computer uploads the firmware image to the FortiMail unit. The FortiMail unit installs the firmware and restarts. Time required varies by the size of the file and the speed of your network connection.

   If you are downgrading the firmware to a previous version, the FortiMail unit reverts the configuration to default values for that version of the firmware. You must either reconfigure the FortiMail unit or restore the configuration file.
8. To verify that the firmware was successfully installed, log in to the web-based manager and go to *System* > *Status* > *Status*. Text appearing in the *Firmware Version* row indicates the currently installed firmware version.

To install firmware using the CLI

1. Log in to the Fortinet Technical Support web site, https://support.fortinet.com/.
2. Download the firmware image file to your management computer.
3. Connect your management computer to the FortiMail console port using a RJ-45-to-DB-9 serial cable or a null-modem cable.

4 Initiate a connection from your management computer to the CLI of the FortiMail unit, and log in as the “admin” administrator, or an administrator account whose domain is “system” and that has system configuration read and write privileges.

For details, see “Connecting to the CLI” on page 29.

5 Connect port1 of the FortiMail unit directly or to the same subnet as a TFTP server.

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

7 Verify that the TFTP server is currently running, and that the FortiMail unit can reach the TFTP server.

To use the FortiMail CLI to verify connectivity, enter the following command:

```
execute ping 192.168.1.168
```

where `192.168.1.168` is the IP address of the TFTP server.

8 Enter the following command to download the firmware image from the TFTP server to the FortiMail unit:

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

where `<name_str>` is the name of the firmware image file and `<tftp_ipv4>` is the IP address of the TFTP server. For example, if the firmware image file name is `image.out` and the IP address of the TFTP server is 192.168.1.168, enter:

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

One of the following message appears:

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

or:

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

9 Type `y`.

The FortiMail unit downloads the firmware image file from the TFTP server. The FortiMail unit installs the firmware and restarts. Time required varies by the size of the file and the speed of your network connection.

If you are downgrading the firmware to a previous version, the FortiMail unit reverts the configuration to default values for that version of the firmware. You must either reconfigure the FortiMail unit or restore the configuration file.

10 To verify that the firmware was successfully installed, log in to the CLI and type:

```
get system status
```

11 Update the FortiGuard Antivirus definitions.

Note: Installing firmware replaces the current antivirus definitions with those included with the firmware release that you are installing. After you install the new firmware, make sure that your FortiGuard Antivirus definitions are up-to-date. For more information, see “Configuring scheduled updates” on page 91.

Installing backup firmware

You can install backup firmware which can be loaded if the primary firmware fails.

To install backup firmware

1 Log in to the Fortinet Technical Support web site, https://support.fortinet.com/.

2 Download the firmware image file to your management computer.

3 Connect your management computer to the FortiMail console port using a RJ-45-to-DB-9 serial cable or a null-modem cable.

4 Initiate a connection from your management computer to the CLI of the FortiMail unit, and log in as the “admin” administrator, or an administrator account that has system configuration read and write privileges.

For details, see “Connecting to the CLI” on page 29.

5 Connect port1 of the FortiMail unit directly or to the same subnet as a TFTP server.

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

7 Verify that the TFTP server is currently running, and that the FortiMail unit can reach the TFTP server.

To use the FortiMail CLI to verify connectivity, enter the following command:

```
execute ping 192.168.1.168
```

where `192.168.1.168` is the IP address of the TFTP server.

8 Enter the following command to restart the FortiMail unit:

```
execute reboot
```

9 As the FortiMail units starts, a series of system startup messages are displayed.

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

10 Immediately press a key to interrupt the system startup.

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

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

```
[G]:  Get firmware image from TFTP server.
[F]:  Format boot device.
[B]:  Boot with backup firmware and set as default.
[I]:  Configuration and information.
[Q]:  Quit menu and continue to boot with default firmware.
[H]:  Display this list of options.

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

11 Type `G` to get the firmware image from the TFTP server.

The following message appears:

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

12 Type the IP address of the TFTP server and press Enter.

The following message appears:

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

13 Type a temporary IP address that can be used by the FortiMail unit to connect to the TFTP server.

The following message appears:

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

14 Type the firmware image file name and press Enter.

The FortiMail unit downloads the firmware image file from the TFTP server and displays a message similar to the following:

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

15 Type `B`.

The FortiMail unit saves the backup firmware image and restarts. When the FortiMail unit restarts, it is running the primary firmware.

To use backup firmware as the primary firmware

1 Connect your management computer to the FortiMail console port using a RJ-45-to-DB-9 serial cable or a null-modem cable.

2 Initiate a connection from your management computer to the CLI of the FortiMail unit, and log in as the “admin” administrator, or an administrator account that has system configuration read and write privileges.

For details, see “Connecting to the CLI” on page 29.

3 Enter the following command to restart the FortiMail unit:

```
execute reboot
```

4 As the FortiMail units starts, a series of system startup messages are displayed.

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

Immediately press a key to interrupt the system startup.

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

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

```
[G]:  Get firmware image from TFTP server.
[F]:  Format boot device.
[B]:  Boot with backup firmware and set as default.
[I]:  Configuration and information.
[Q]:  Quit menu and continue to boot with default firmware.
[H]:  Display this list of options.

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

5 Type `B` to reboot and use the backup firmware.

Restoring firmware

If you are unable to connect to the FortiMail unit using the web-based manager or the CLI, or if you want to install firmware ***without*** preserving any existing configuration, you can restore the firmware.

Caution: Back up your configuration before beginning this procedure, if possible. Restoring firmware resets the configuration, including the IP addresses of network interfaces. For information on reconnecting to a FortiMail unit whose network interface configuration has been reset, see “Connecting to the web-based manager or CLI” on page 28.

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

To restore the firmware

1 Connect your management computer to the FortiMail console port using a RJ-45-to-DB-9 serial cable or a null-modem cable.

2 Initiate a connection from your management computer to the CLI of the FortiMail unit, and log in as the “admin” administrator, or an administrator account that has system configuration read and write privileges.

For details, see “Connecting to the CLI” on page 29.

3 Connect port1 of the FortiMail unit directly or to the same subnet as a TFTP server.

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

5 Verify that the TFTP server is currently running, and that the FortiMail unit can reach the TFTP server.

To use the FortiMail CLI to verify connectivity, enter the following command:

```
execute ping 192.168.1.168
```

where `192.168.1.168` is the IP address of the TFTP server.

6 Enter the following command to restart the FortiMail unit:

```
execute reboot
```

7 As the FortiMail units starts, a series of system startup messages are displayed.

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

8 Immediately press a key to interrupt the system startup.

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

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

```
[G]:  Get firmware image from TFTP server.
[F]:  Format boot device.
[B]:  Boot with backup firmware and set as default.
[I]:  Configuration and information.
[Q]:  Quit menu and continue to boot with default firmware.
[H]:  Display this list of options.

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

9 Type `G` to get the firmware image from the TFTP server.

The following message appears:

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

10 Type the IP address of the TFTP server and press Enter.

The following message appears:

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

11 Type a temporary IP address that can be used by the FortiMail unit to connect to the TFTP server.

The following message appears:

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

12 Type the firmware image file name and press Enter.

The FortiMail unit downloads the firmware image file from the TFTP server and displays a message similar to the following:

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

13 Type `D`.

The FortiMail unit downloads the firmware image file from the TFTP server. The FortiMail unit installs the firmware and restarts. Time required varies by the size of the file and the speed of your network connection.

The FortiMail unit reverts the configuration to default values for that version of the firmware.

Note: Installing firmware replaces the current FortiGuard Antivirus definitions with the definitions included with the firmware release you are installing. After you install new firmware, update the antivirus definitions. For details, see “Configuring scheduled updates” on page 91.

Choosing the operation mode

Once the FortiMail unit is mounted and powered on, and you have connected to either the FortiMail unit's web-based manager or CLI, you can configure the operation mode of the FortiMail unit.

FortiMail units can run in one of three operation modes: gateway mode, transparent mode, and server mode. Requirements of each operation mode vary.

Table 4: Comparison of gateway, transparent, and server mode of operation

	Gateway	Transparent	Server
SMTP role	MTA/relay	Transparent proxy/relay	Server
FortiMail unit is hidden	No	Yes, if enabled	No
Email user accounts	Preferences and per-recipient quarantine only	Preferences and per-recipient quarantine only	Yes
Requires DNS record change	Yes	No, if hidden with no per-recipient quarantines or Bayesian scan	Yes
May require changes to SMTP client configurations or other infrastructure	Yes	No	Yes
Requires FortiMail unit located between external MTAs and protected email server(s)	No	Yes	N/A (FortiMail unit acts as email server)
Protected email server(s)	Separate	Separate	Integrated (FortiMail unit acts as email server)

In addition, some FortiMail features are specific to the operation mode. As a result, changing the operation mode may reset your FortiMail configuration.

You will usually choose the operation mode that is appropriate for your topology and requirements and configure the operation mode only ***once***, during installation, before using the Quick Start Wizard.

This section describes each operation mode, assisting you in choosing the operation mode that best suits your requirements.

This section contains the following topics:

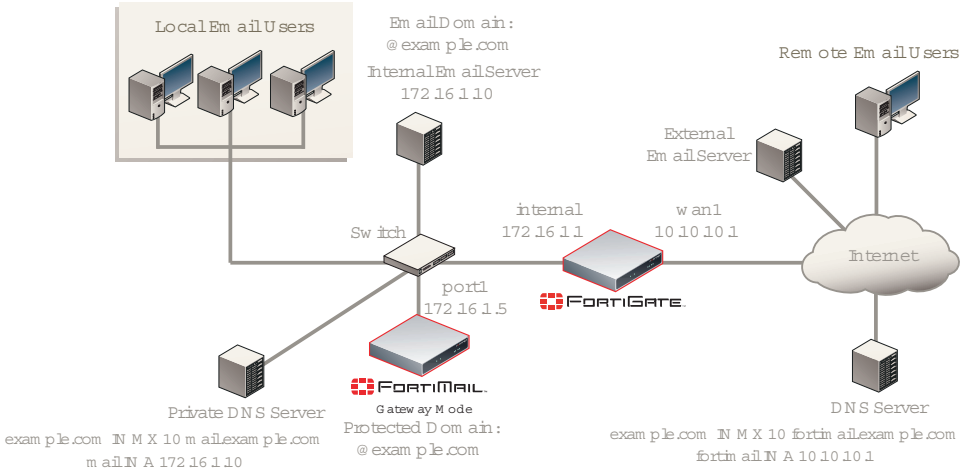
Characteristics of gateway mode

When operating in gateway mode, the FortiMail is a mail transfer agent (MTA), sometimes also known as an email gateway or relay. The FortiMail unit receives email messages, scans for viruses and spam, then relays email to its destination email server for delivery. External MTAs connect to the FortiMail unit, rather than directly to the protected email server.

FortiMail units operating in gateway mode provide a web-based user interface from which email users can access personal preferences and email quarantined to their per-recipient quarantine. However, FortiMail units operating in gateway mode do ***not*** locally host mailboxes such as each email user's inbox, which are instead stored on protected email servers.

Gateway mode requires some changes to an existing network. Requirements include MX records on public DNS servers for each protected domain, which must refer to the FortiMail unit instead of the protected email servers. You may also need to configure firewalls or routers to direct SMTP traffic to the FortiMail unit rather than your email servers.

Figure 24: Example gateway mode topology



For example, an Internet service provider (ISP) could deploy a FortiMail unit to protect their customers' email servers. For security reasons, customers do not want their email servers to be directly visible to external MTAs. Therefore, the ISP installs the FortiMail unit in gateway mode, and configures its network such that all email traffic must pass through the FortiMail unit before reaching customers' email servers.

For sample deployment scenarios, see "Gateway mode deployment" on page 95.

Characteristics of transparent mode

When operating in transparent mode, the FortiMail is either an implicit relay or a proxy. The FortiMail unit intercepts email messages, scans for viruses and spam, then transmits email to its destination email server for delivery. External MTAs connect through the FortiMail unit to the protected email server.

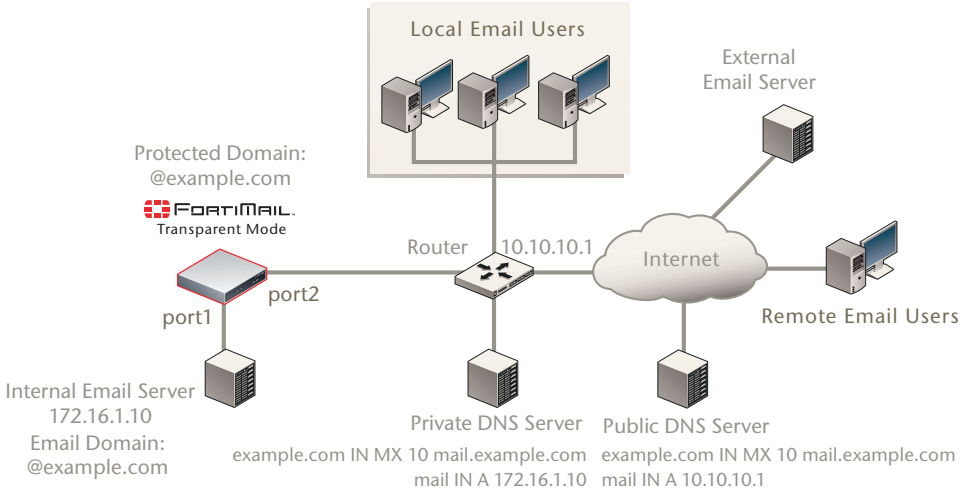
Transparency at both the network and application layers is configurable, but not required. When hiding, the FortiMail unit preserves the IP address and domain name of the SMTP client in IP headers and the SMTP envelope and message headers, rather than replacing them with its own.

FortiMail units operating in transparent mode provide a web-based user interface from which email users can access personal preferences and email quarantined to their per-recipient quarantine. However, FortiMail units operating in transparent mode do ***not*** locally host mailboxes such as each email user's inbox, which are instead stored on protected email servers.

By default, FortiMail units operating in transparent mode are configured as a bridge, with all network interfaces on the same subnet. You can configure out-of-bridge network interfaces if you require them, such as if you have some protected email servers that are not located on the same subnet.

Transparent mode usually requires no changes to an existing network. Requirements include that the FortiMail unit must be physically inline between the protected email server and all SMTP clients — unlike gateway mode, because FortiMail units operating in transparent mode are invisible, clients cannot be configured to route email directly to the FortiMail unit, and so it must be physically placed where it can intercept the connection.

Figure 25: Example transparent mode topology



Caution: Do not connect two ports to the same VLAN on a switch or the same hub. Some Layer 2 switches become unstable when they detect the same media access control (MAC) address originating on more than one network interface on the switch, or from more than one VLAN.

For example, a school might want to install a FortiMail unit to protect its mail server, but does not want to make any changes to its existing DNS and SMTP client configurations or other network topology. Therefore, the school installs the FortiMail unit in transparent mode.

For sample deployment scenarios, see the chapter "Transparent mode deployment" on page 119.

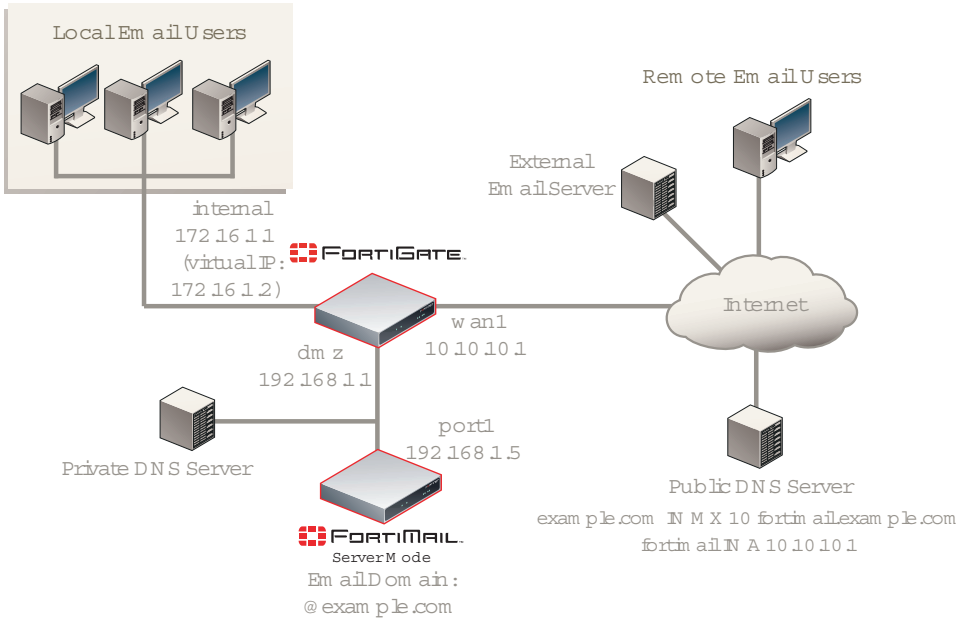
Characteristics of server mode

When operating in server mode, the FortiMail is a stand-alone email server. The FortiMail unit receives email messages, scans for viruses and spam, then delivers email to its email users' mailboxes. External MTAs connect to the FortiMail unit, which itself is also the protected email server.

FortiMail units operating in server mode provide a web-based user interface from which email users can access not only personal preferences and email quarantined to their per-recipient quarantine, but also their locally host mailboxes such as each email user's inbox. In addition, email users can retrieve email using POP3 or IMAP.

Server mode requires some changes to an existing network. Requirements include MX records on public DNS servers for each protected domain, which must refer to the FortiMail unit. You may also need to configure firewalls or routers to direct SMTP traffic to the FortiMail unit.

Figure 26: Example server mode topology



For example, a company might be creating a network, and does not have an existing email server. The company wants the convenience of managing both their email server and email security on one network device. Therefore, the company deploys the FortiMail unit in server mode.

For sample deployment scenarios, see the chapter "Server mode deployment" on page 139.

Configuring the operation mode

By default, FortiMail units operate in gateway mode. If you do not want your FortiMail unit to operate in gateway mode, before configuring the FortiMail unit or using the Quick Start Wizard, select the operation mode.

To select the operation mode

1 Go to *Management* > *Status* > *Status*.

If this menu path is not available, first select *Basic* >> to switch to the basic mode of the web-based manager.

2 In the *System Information* widget, in the *Operation Mode* row, select *Change*.

3 From *Operation Mode*, select either *Gateway*, *Server*, or *Transparent*.

4 Select *OK*.

A confirmation dialog appears, warning you that many settings will revert to their default value for the version of your FortiMail unit's firmware.

5 Select *OK*.

The FortiMail unit changes the operation mode and restarts. When it has completely restarted, reconnect to the web-based manager of the FortiMail unit to continue the installation.

Quick Start Wizard

The Quick Start Wizard leads you through required configuration steps, helping you to quickly set up your FortiMail unit.

All settings configured by the Quick Start Wizard can also be configured through the basic and advanced modes of the web-based manager. However, the Quick Start Wizard presents each setting in the necessary order, and contains descriptions to assist you in configuring each setting. These descriptions are not available in either the basic mode or advanced mode of the web-based manager.

In addition to required setup, the Quick Start Wizard creates two report profiles:

- `predefined_report_yesterday`
- `predefined_report_last_week`

These reports are not regularly scheduled reports, and will be generated only when you manually initiate them in *Log & Report* > *Reports* > *Config* by selecting *Run Now*.

Caution: Before running the Quick Start Wizard, select the operation mode of the FortiMail unit, such as gateway mode, transparent mode, or server mode. Failure to select the operation mode before running the Quick Start Wizard may require you to run the Quick Start Wizard again after changing the operation mode, as changing the operation mode may reset or change part of the configuration performed by the Quick Start Wizard. For more information on selecting the operation mode, see “Choosing the operation mode” on page 71.

To begin the Quick Start Wizard, go to *Quick Start* >>. If this menu path is not available, first select *Basic* >> to switch to the basic mode of the web-based manager.

The following topics describe steps when using in the Quick Start Wizard:

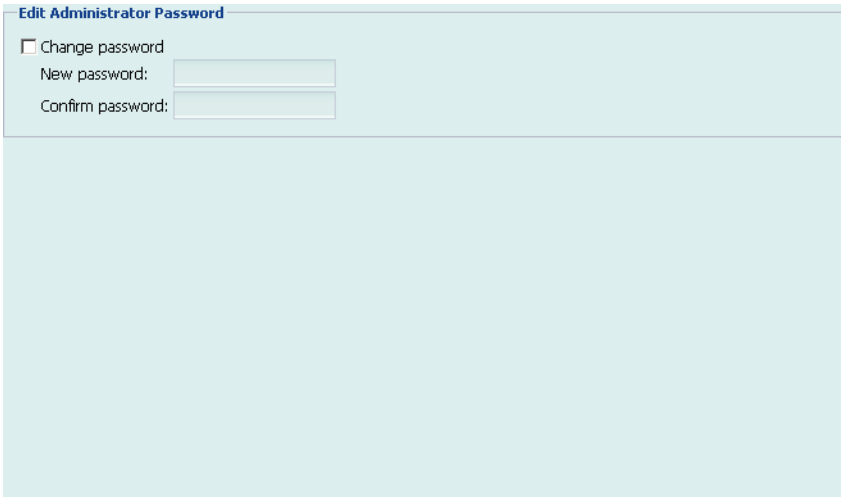
Step 1: Changing the “admin” password

Step 1 of the Quick Start Wizard configures the password of the default and most privileged administrator account, `admin`, which, by default, has no password. For security reasons, you should provide a password for the `admin` administrator account.

Caution: Failure to configure a strong administrator password could compromise the security of your FortiMail unit.

To proceed to Step 2: Configuring the network settings and system time, select *Next* >.

Figure 27: Quick Start Wizard: Step 1



Step 2: Configuring the network settings and system time

Step 2 of the Quick Start Wizard configures basic system time and network settings.

Available settings vary by whether or not the FortiMail unit is operating in transparent mode.

To proceed to Step 3: Configuring local host settings, select *Next* >.

Figure 28: Quick Start Wizard: Step 2 (gateway mode or server mode)

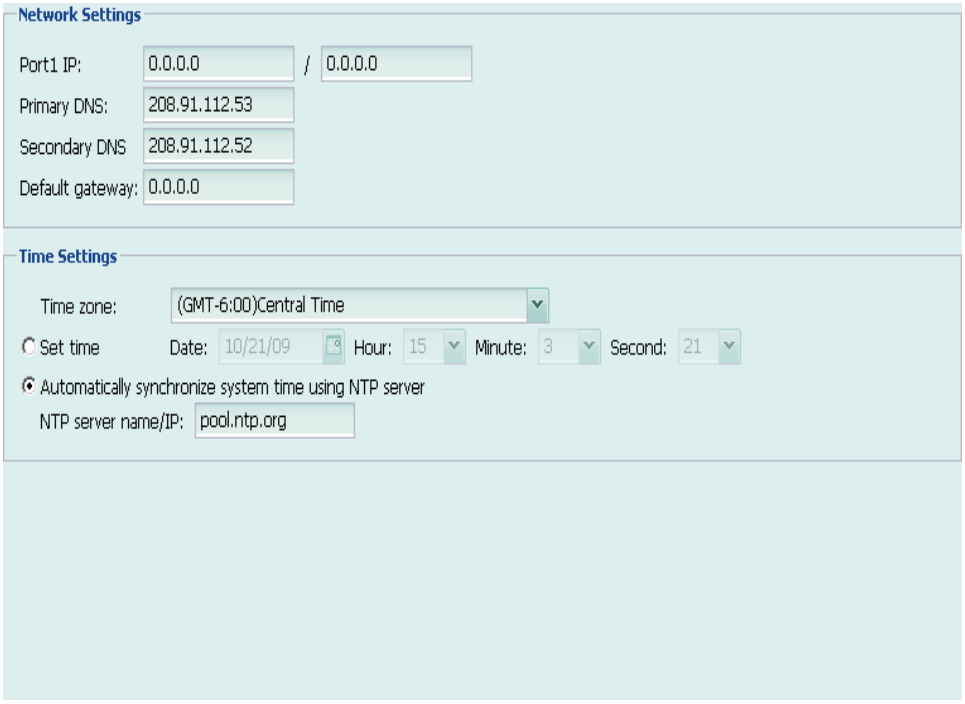
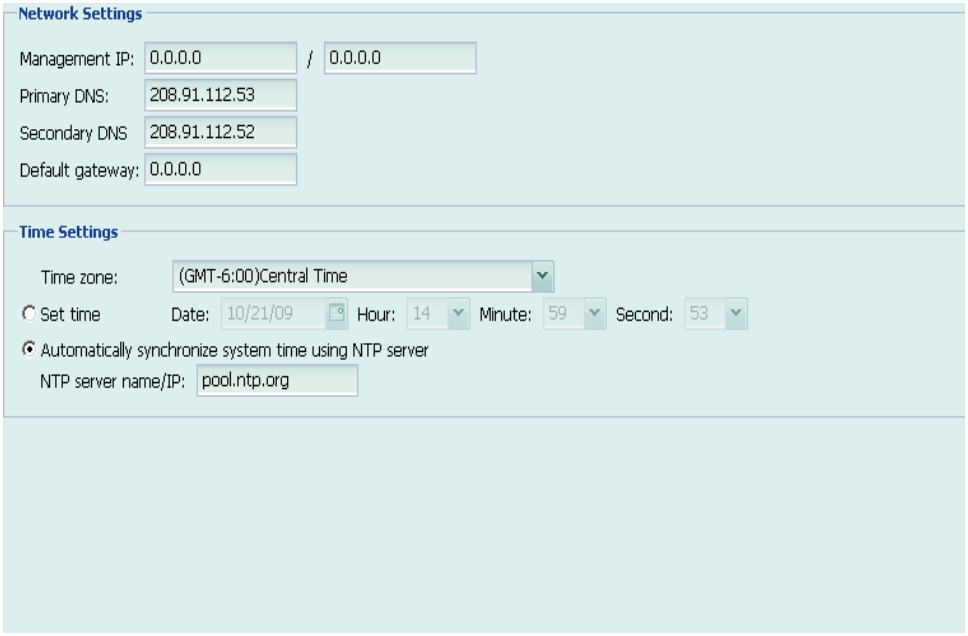


Figure 29: Quick Start Wizard: Step 2 (transparent mode)



Port1

IP Address	Enter the IP address of the port1 network interface, such as `192.168.1.99`. This option does not appear if the FortiMail unit is operating in transparent mode.
Netmask	Enter the netmask of the port1 network interface, such as `255.255.255.0`. This option does not appear if the FortiMail unit is operating in transparent mode.

Management IP

IP Address	Enter the IP address which FortiMail administrators will use to access the web-based manager and CLI through port1 and other bridging network interfaces, and which the FortiMail unit will use when connecting to the Fortinet Distribution Network (FDN), such as `192.168.1.99`. For details on the management IP, see the *FortiMail Administration Guide*. This option appears only if the FortiMail unit is operating in transparent mode.
Netmask	Enter the netmask of the management IP address, such as `255.255.255.0`. This option appears only if the FortiMail unit is operating in transparent mode.

DNS

Primary DNS	Enter the IP address of the primary server to which the FortiMail unit will make DNS queries. **Caution:** Verify connectivity with the DNS servers. Failure to verify connectivity could result in many issues, including the inability of the FortiMail unit to process email.

	Secondary DNS	Enter the IP address of the secondary server to which the FortiMail unit will make DNS queries.
Default Gateway		
	IP Address	Enter the IP address of the default gateway router.
Time Settings		
	Time Zone	Select the time zone of the FortiMail unit.
	Set Time	Select to manually set the system time, then select the: • **Second** • **Minute** • **Hour** • **Day** • **Month** • **Year**
	Automatically synchronize system time using the Network Time Protocol (NTP) server	Select to automatically set the system time by periodically synchronizing with an NTP server, then configure the *NTP Server Name/IP*.
	NTP Server Name/IP	If you have selected to automatically synchronize the system time with an NTP server, enter the domain name or IP address of an NTP server. For a list of public NTP servers, see http://www.ntp.org/. **Note:** Verify connectivity with the NTP server. Failure to set the correct time could result in issues such as inaccurate log message times and inability to make secure connections, including downloading FortiGuard Antivirus updates from the FDN.

Step 3: Configuring local host settings

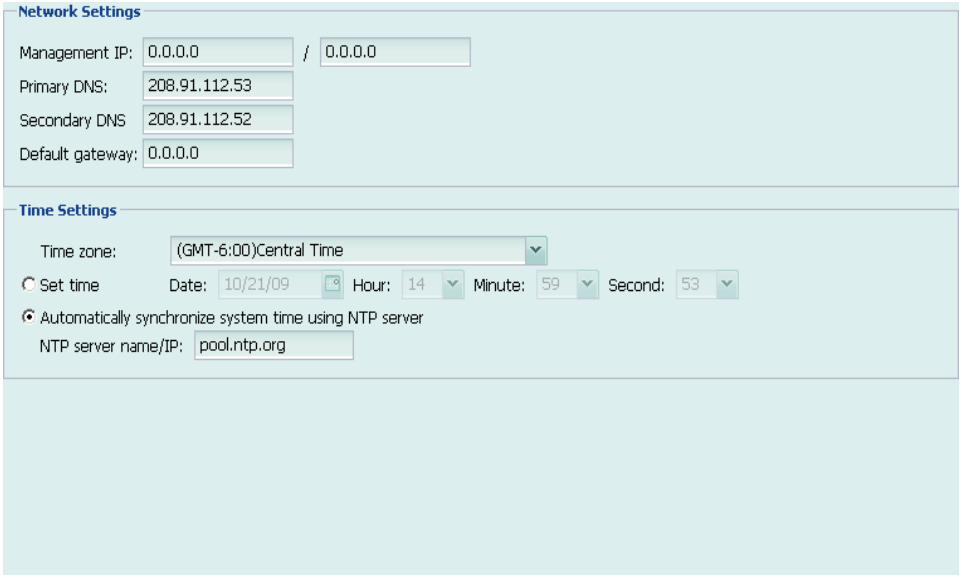
Step 3 of the Quick Start Wizard configures the fully qualified domain name (FQDN) of the FortiMail unit, its listening port numbers, and whether to use SSL/TLS with SMTP clients that request secure connections.

You usually should configure the FortiMail unit with a local domain name that is different from that of protected email servers, such as mail.example.com for the FortiMail unit and server.mail.example.com for the protected email server. The local domain name of the FortiMail unit will be used in many features such as email quarantine, Bayesian database training, spam report, and delivery status notification (DSN) email messages, and if the FortiMail unit uses the same domain name as your mail server, it may become difficult to distinguish email messages that originate from the FortiMail unit.

Note: The local domain name should be globally DNS-resolvable only if the FortiMail unit is used as a relay server for outgoing email.

To proceed to Step 4: Adding protected domains, select *Next* >.

Figure 30: Quick Start Wizard: Step 3



Local Host

Host Name

Enter the host name of the FortiMail unit.

You should use a different host name for each FortiMail unit, especially when you are managing multiple FortiMail units of the same model, or when configuring a FortiMail high availability (HA) cluster. This will enable you to distinguish between different members of the cluster. If the FortiMail unit is in HA mode:

- when you connect to the web-based manager, your web browser will display the host name of that cluster member in its status bar.
- the FortiMail unit will add the host name to the subject line of alert email messages.

Local Domain Name

Enter the local domain name to which the FortiMail unit belongs.The FortiMail unit's fully qualified domain name (FQDN) is in the format:

`<Host Name>.<Local Domain Name>`

This option does not appear if the FortiMail unit is operating in server mode.

Note: The Local Domain Name can be a subdomain of an internal domain if the MX record for the domain on the DNS server can direct the mail destined for the subdomain to the intended FortiMail unit.

POP3 Server Port Number

Enter the port number on which the FortiMail unit's POP3 server will listen for POP3 connections. The default port number is 110.

This option is available only if the FortiMail unit is operating in server mode.

SMTP Server Port Number

Enter the port number on which the FortiMail unit's SMTP server will listen for SMTP connections. The default port number is 25.

SMTP over SSL/TLS	Enable to allow SSL- and TLS-secured connections from servers and clients requesting SSL/TLS. When disabled, SMTP connections with the FortiMail unit's SMTP server will occur as clear text, unencrypted. This option must be enabled to use SMTPS.
SMTPS Server Port Number	Enter the port number on which the FortiMail unit's SMTP server listens for secure SMTP connections. The default port number is 465. This option is unavailable if SMTP over SSL/TLS is disabled.

Step 4: Adding protected domains

Step 4 of the Quick Start Wizard configures the protected domains.

Protected domains define connections and email messages for which the FortiMail unit can performs protective email processing by describing both:

- the IP address of an SMTP server
- the domain name portion (the portion which follows the "@" symbol) of recipient email addresses in the envelope

both of which the FortiMail unit compares to connections and email messages when looking for traffic that involves the protected domain.

For example, if you wanted to scan email fro email addresses such as user.one@example.com that are hosted on the SMTP server 10.10.10.10, you would configure a protected domain of `example.com` whose SMTP server is `10.10.10.10`.

You usually must configure at least one protected domain. FortiMail units can be configured to protect one or more email domains that are hosted on one or more email servers.

Exceptions include if you will not apply recipient-based policies or authentication profiles, such as in "Example 3: FortiMail unit for an ISP or carrier" on page 128.

To proceed to Step 5: Configuring incoming antispam and antivirus settings, select *Next >*.

Figure 31: Quick Start Wizard: Step 4 (gateway mode and transparent mode)

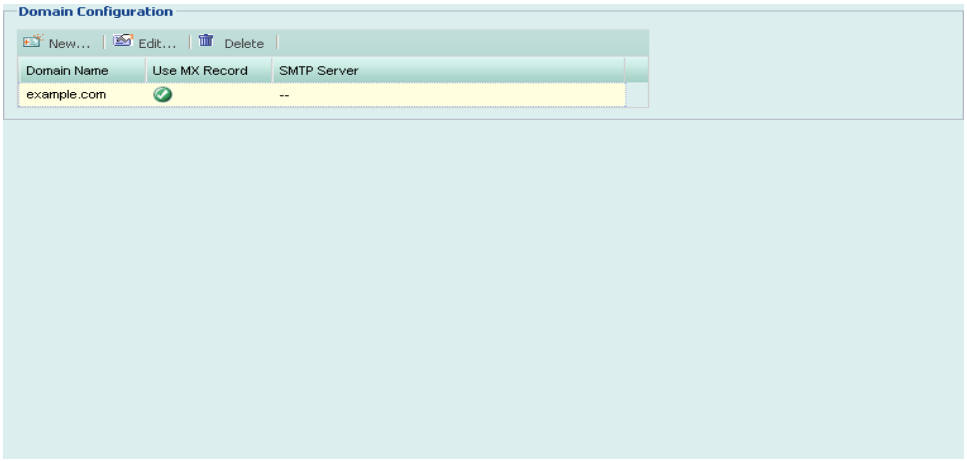
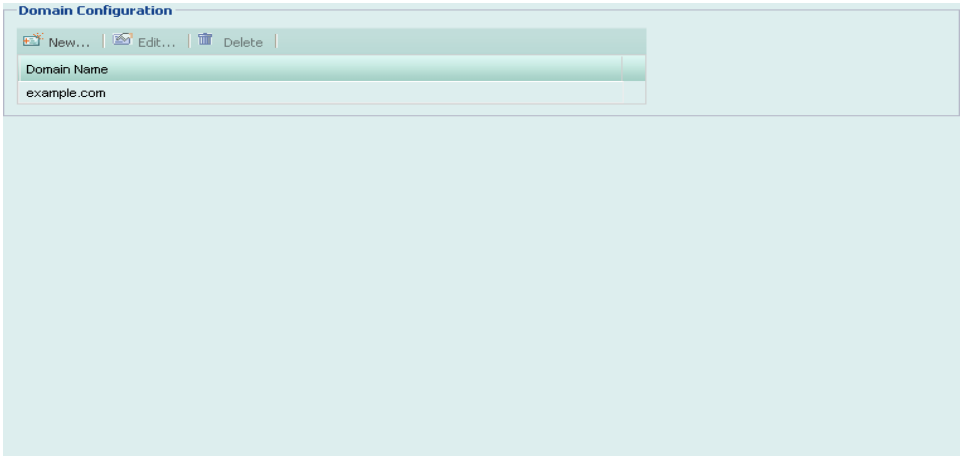


Figure 32: Quick Start Wizard: Step 4 (server mode)



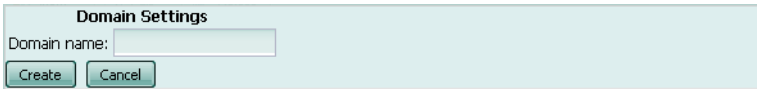
To add a protected domain

1 Select *Add Domain*.

A dialog appears that enables you to configure the protected domain. Its appearance varies by the operating mode of the FortiMail unit.

Figure 33: Quick Start Wizard: Step 4 dialog (gateway mode and transparent mode)

Figure 34: Quick Start Wizard: Step 4 dialog (server mode)



2 Configure the following, then select *OK*:

Domain FQDN	Enter the fully qualified domain name (FQDN) of the protected domain. For example, if you want to protect email addresses such as user1@example.com, you would enter the protected domain name `example.com`.
Use MX Record (transparent mode and gateway mode only)	Select to enable the FortiMail unit to query the DNS server's MX record for the FQDN or IP address of the SMTP server for this domain name, instead of manually defining the SMTP server in the fields *SMTP Server* and *Fallback MX Host*. **Note**: If enabled, you may also be required to configure the FortiMail unit to use a private DNS server whose MX and/or A records differ from that of a public DNS server. Requirements vary by the topology of your network and by the operating mode of the FortiMail unit. For details, see "Configuring DNS records" on page 95 (gateway mode) or "Configuring DNS records" on page 119 (transparent mode).

SMTP Server (transparent mode and gateway mode only)	Enter the fully qualified domain name (FQDN) or IP address of the primary SMTP server for this protected domain, then also configure *Use smtps* and *Port*. If you have an internal mail relay that is located on a physically separate server from your internal mail server, this could be your internal mail relay, instead of your internal mail server. Consider your network topology, directionality of the mail flow, and the operation mode of the FortiMail unit. For more information, see the *FortiMail Administration Guide*.
Port (transparent mode and gateway mode only)	Enter the port number on which the SMTP server listens. If you enable *Use smtps*, *Port* automatically changes to the default port number for SMTPS, but can still be customized. The default SMTP port number is 25; the default SMTPS port number is 465.
Use smtps (transparent mode and gateway mode only)	Select to enable SMTPS for connections originating from or destined for this protected domain.
Fallback MX Host (transparent mode and gateway mode only)	Enter the FQDN or IP address of the secondary SMTP server for this protected domain, then also configure *Use smtps* and *Port*. This SMTP server will be used if the primary SMTP server is unreachable.
Port (transparent mode and gateway mode only)	Enter the port number on which the failover SMTP server listens. If you enable *Use smtps*, *Port* automatically changes to the default port number for SMTPS, but can still be customized. The default SMTP port number is 25; the default SMTPS port number is 465.
Use smtps (transparent mode and gateway mode only)	Select to enable SMTPS for connections originating from or destined for this protected domain.

3 Repeat the previous step for each mail domain that the FortiMail unit will be configured to protect.

Step 5: Configuring incoming antispam and antivirus settings

Step 5 of the Quick Start Wizard enables or disables antivirus scanning and configures the intensity level of antispam scanning for email ***incoming*** to protected domains.

Each antispam level (*Off*, *Low*, *Medium*, and *High*) is a default antispam profile that groups settings for many antispam features. After completing the Quick Start Wizard, if you want to enable, disable, or differently configure those features, you can use the advanced mode of the web-based manager to create and/or modify the antispam profiles.

To proceed to Step 6: Configuring access control rules and outgoing antispam and antivirus settings, select *Next* >.

Figure 35: Quick Start Wizard: Step 5

Step 6: Configuring access control rules and outgoing antispam and antivirus settings

Step 6 of the Quick Start Wizard configures enables or disables antivirus scanning and configures the intensity level of antispam scanning for email ***outgoing*** from protected domains.

Each antispam level (*Off*, *Low*, *Medium*, and *High*) is a default antispam profile that groups settings for many antispam features. After completing the Quick Start Wizard, if you want to enable, disable, or differently configure those features, you can use the advanced mode of the web-based manager to create and/or modify the antispam profiles.

Step 6 also configures access control rules. Access control rules specify whether the FortiMail unit will process and relay, reject, or discard email messages for SMTP sessions that are initiated by SMTP clients.

Without any configured access control rules, the FortiMail unit's access control prevents SMTP clients from using your protected server or FortiMail unit as an open relay: senders can deliver email incoming to protected domains, but cannot deliver email outgoing to unprotected domains. For details, see the *FortiMail Administration Guide*.

Usually, you must configure at least one access control rule to allow SMTP clients such as your email users or email servers to send email to unprotected domains.

Exceptions include if you have not configured any protected domains, such as in "Example 3: FortiMail unit for an ISP or carrier" on page 128.

For example, if your protected domain, example.com, contains email addresses in the format of user1@example.com, user2@example.com, etc., and you want to allow those email addresses to send email to any external domain as long as they authenticate their identities, you might configure the following access control rule:

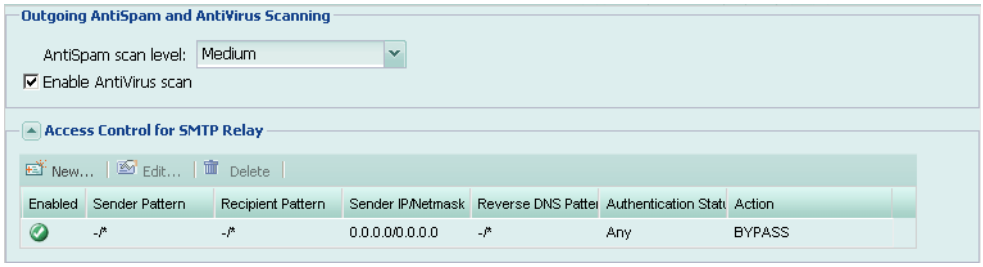
Table 5: Example access control rule

Sender Pattern	`user*@example.com`
Recipient Pattern	`*`
Sender IP/Netmask	`0.0.0.0/0`
Reverse DNS Pattern	`*`
Authentication Status	`authenticated`
Action	`RELAY`

Note: Access control rules can also match SMTP sessions based upon the use of TLS. To configure access control rules with TLS, after using the Quick Start Wizard, use the advanced mode of the web-based manager to create TLS profiles and select them in access control rules. For details, see the *FortiMail Administration Guide*.

To proceed to Step 7: Reviewing and saving the configuration, select *Next* >.

Figure 36: Quick Start Wizard: Step 6

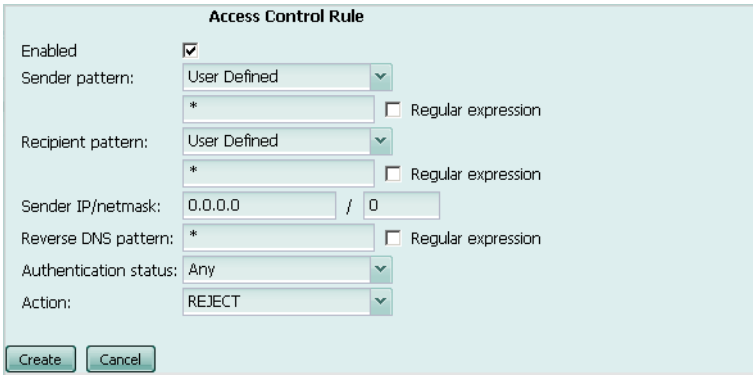


To add an access control rule

1 Select *Add Access*.

A dialog appears, enabling you to create an access control rule.

Figure 37: Quick Start Wizard: Step 6 dialog



2 Configure the following, then select *OK*:

Sender Pattern — Enter a complete or partial envelope sender (`MAIL FROM:`) email address to match.

Wildcard characters allow you to enter partial patterns that can match multiple sender email addresses. The asterisk (*) represents one or more characters and the question mark (?) represents any single character.

For example, the sender pattern `??@*.com` will match messages sent by any email user with a two letter email user name from any ".com" domain name.

Regular expression — Mark this check box to use regular expression syntax instead of wildcards to specify the sender pattern.

Recipient Pattern — Enter a complete or partial envelope recipient (`RCPT TO:`) email address to match.

Wildcard characters allow you to enter partial patterns that can match multiple recipient email addresses. The asterisk (`*`) represents one or more characters and the question mark (`?`) represents any single character.

For example, the recipient pattern `*@example.???` will match messages sent to any email user at example.com, example.net, example.org, or any other "example" domain ending with a three-letter top-level domain name.

Regular expression — Mark this check box to use regular expression syntax instead of wildcards to specify the recipient pattern.

Sender IP/Netmask	Enter the IP address and netmask of the SMTP client attempting to deliver the email message. Use the netmask, the portion after the slash (`/`), to specify the matching subnet. For example, enter `10.10.10.10/24` to match a 24-bit subnet, or all addresses starting with 10.10.10. This will appear as *10.10.10.0/24* in the access control rule table, with the `0` indicating that any value is matched in that position of the address. Similarly, `10.10.10.10/32` will appear as 10.10.10.10/32 and match only the 10.10.10.10 address. To match any address, enter `0.0.0.0/0`.
Reverse DNS Pattern	Enter a pattern to compare to the result of a reverse DNS look-up of the IP address of the SMTP client delivering the email message. Because domain names in the SMTP session are self-reported by the connecting SMTP server and easy to fake, the FortiMail unit does not trust the domain name that an SMTP server reports. Instead, the FortiMail does a DNS lookup using the SMTP server's IP address. The resulting domain name is compared to the reverse DNS pattern for a match. If the reverse DNS query fails, the access control rule match will also fail. If no other access control rule matches, the connection will be rejected with SMTP reply code 550 (`Relaying denied`). Wildcard characters allow you to enter partial patterns that can match multiple reverse DNS lookup results. An asterisk (`*`) represents one or more characters; a question mark (`?`) represents any single character. For example, the recipient pattern `mail*.com` will match messages delivered by an SMTP server whose domain name starts with "mail" and ends with ".com". **Note:** Reverse DNS queries for access control rules require that the domain name be a valid top level domain (TLD). For example, ".lab" is not a valid top level domain name, and thus the FortiMail unit cannot successfully perform a reverse DNS query for it.
Regular expression	Mark this check box to use regular expression syntax instead of wildcards to specify the reverse DNS pattern.
Authentication Status	Select whether or not to match this access control rule based upon client authentication. • **any**: Match or do not match this access control rule regardless of whether the client has authenticated with the FortiMail unit. • **authenticated**: Match this access control rule only for clients that have authenticated with the FortiMail unit.
Action	Select which action the FortiMail unit will perform for SMTP sessions matching this access control rule. • **BYPASS**:Relay or proxy and deliver the email, ***but***, if the sender or recipient belongs to a protected domain, bypass all antispam profile processing. Antivirus, content and other scans will still occur. • **DISCARD**: Accept the email, but silently delete it and do not deliver it. Do not inform the SMTP client. • **RELAY**: Relay or proxy, process, and deliver the email normally if it passes all configured scans. • **REJECT**: Reject delivery of the email and respond to the SMTP client with SMTP reply code 550 (`Relaying denied`).

3 Repeat the previous step for any additional access control rules.

The access control rule appears at the bottom of the list of access control rules. As a result, the FortiMail unit will evaluate it as a match for the SMTP session only if no previous access control rule matches. If you want your new rule to be evaluated before another rule, move your new access control rule to its intended position in the list. For details, see the *FortiMail Administration Guide*.

Step 7: Reviewing and saving the configuration

Review the configuration. If it is correct, select *OK*.

A dialog will appear, enabling you to download a backup copy of the current configuration before saving the settings that you configured during the Quick Start Wizard.

When saving the new configuration, the FortiMail unit displays a notice that the Quick Start Wizard is complete.

Continuing the installation

After using the Quick Start Wizard:

1. If you have multiple FortiMail units, and you want to configure them in high availability (HA) mode, configure the HA settings before physically connecting the FortiMail units to your network.

   For instructions on configuring HA, see the *FortiMail Administration Guide*.

2. If you have subscribed to FortiGuard Antivirus or FortiGuard Antispam services, connect the FortiMail unit to the Fortinet Distribution Network (FDN) to update related packages. For details, see “Connecting to FortiGuard services” on page 89.

3. You may need to configure additional features that may be specific to your operation mode and network topology, such as configuring your router or firewall, and records on your public DNS server. For instructions applicable to your operation mode, see:

   - “Gateway mode deployment” on page 95
   - “Transparent mode deployment” on page 119
   - “Server mode deployment” on page 139

4. Verify that email clients can connect to or through the FortiMail unit. For details, see “Testing the installation” on page 159.

Connecting to FortiGuard services

After the FortiMail unit is physically installed and configured to operate in your network, if you have subscribed to FortiGuard Antivirus and/or FortiGuard Antispam services, connect the FortiMail unit to the Fortinet Distribution Network (FDN).

Connecting your FortiMail unit to the FDN or override server ensures that your FortiMail unit can:

- download up-to-date FortiGuard Antivirus and FortiGuard Antispam definition and engine packages
- query the FDN for blacklisted servers and other real-time information during FortiGuard Antispam scans, if configured

in order to scan email using the most up-to-date protection.

The FDN is a world-wide network of Fortinet Distribution Servers (FDS). When a FortiMail unit connects to the FDN to download FortiGuard engine and definition updates, by default, it connects to the nearest FDS based on the current time zone setting. You can override the FDS to which the FortiMail unit connects.

Your FortiMail unit may be able to connect using the default settings. However, you should confirm this by verifying connectivity.

Note: FortiMail units use multiple connection types with the FDN. To completely verify connectivity, you should test each connection type by performing both of the following procedures.

Note: You must first register the FortiMail unit with the Fortinet Technical Support web site, https://support.fortinet.com/, to receive service from the FDN. The FortiMail unit must also have a valid Fortinet Technical Support contract which includes service subscriptions, and be able to connect to the FDN or the FDS that you will configure to override the default FDS addresses. For port numbers required for license validation and update connections, see the Fortinet Knowledge Center article FortiMail Traffic Types and TCP/UDP Ports.

To verify scheduled update connectivity

Before performing this procedure, if your FortiMail unit connects to the Internet using a proxy, use the CLI command `set system autoupdate tunneling` to enable the FortiMail unit to connect to the FDN through the proxy. For more information, see the *FortiMail CLI Reference*.

1. Go to *Maintenance* > *FortiGuard* > *Update* in the advanced mode of the web-based manager.
2. If you want your FortiMail unit to connect to a specific FDS other than the default for its time zone, enable *Use override server address*, and enter the fully qualified domain name (FQDN) or IP address of the FDS.
3. Select *Apply*.
4. Select *Refresh*.

   A dialog appears, notifying you that the process could take a few minutes.

5 Select *OK*.

The FortiMail unit tests the connection to the FDN and, if any, the override server. Time required varies by the speed of the FortiMail unit's network connection, and the number of timeouts that occur before the connection attempt is successful or the FortiMail unit determines that it cannot connect. When the connection test completes, the page refreshes. Test results are displayed in the *FortiGuard Distribution Network* field.

- **available**: The FortiMail unit successfully connected to the FDN or override server.
- **not available**: The FortiMail unit ***could not*** connect to the FDN or override server, and will not be able to download updates from it. For CLI commands that may be able to assist you in troubleshooting, see "To verify rating query connectivity" on page 90.

When successful connectivity has been verified, continue by configuring the FortiMail unit to receive engine and definition updates from the FDN or override server using one or more of the following methods:

- scheduled updates (see "Configuring scheduled updates" on page 91)
- push updates (see "Configuring push updates" on page 92)
- manually initiated updates (see "Manually requesting updates" on page 94)

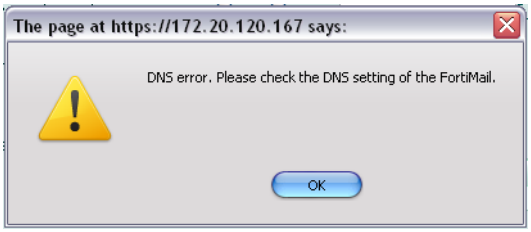
To verify rating query connectivity

1 Go to *AntiSpam* > *FortiGuard-AntiSpam* > *FortiGuard-AntiSpam* in the advanced management mode.

2 Verify that the *Enable Service* checkbox is selected. If it is not, mark it, then click *Apply*.

If the FortiMail unit can reach the DNS server, but cannot successfully resolve the domain name of the FDS, a message appears notifying you that a DNS error has occurred.

Figure 38: DNS error when resolving the FortiGuard Antispam domain name



Verify that the DNS servers contain A records to resolve antispam.fortigate.com and other FDN servers. You may be able to obtain additional insight into the cause of the query failure by manually performing a DNS query from the FortiMail unit using the following CLI command:

```
execute nslookup host antispam.fortigate.com
```

If the FortiMail unit cannot successfully connect, or if your FortiGuard Antispam license does not exist or is expired, a message appears notifying you that a connection error has occurred.

Figure 39: Connection error when verifying FortiGuard Antispam rating query connectivity

Verify that:

- your FortiGuard Antispam license is valid and currently active
- the default route (located in *System* > *Network* > *Routing*) is correctly configured
- the FortiMail unit can connect to the DNS servers you configured during the Quick Start Wizard (located in *System* > *Network* > *DNS*), and to the FDN servers
- firewalls between the FortiMail unit and the Internet or override server allow FDN traffic (For configuration examples specific to your operation mode, see "Gateway mode deployment" on page 95, "Transparent mode deployment" on page 119, or "Server mode deployment" on page 139.)

You may be able to obtain additional insight into the point of the connection failure by tracing the connection using the following CLI command:

```
execute traceroute <address_ipv4>
```

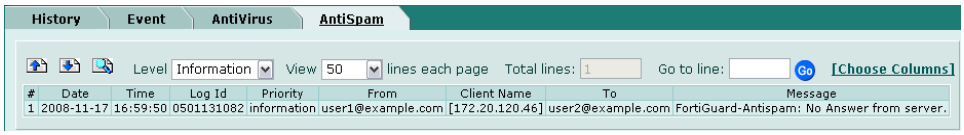
where `<address_ipv4>` is the IP address of the DNS server or FDN server.

When query connectivity is successful, antispam profiles can use the *FortiGuard-AntiSpam scan* option.

You can use the antispam log to monitor for subsequent query connectivity interruptions. When sending email through the FortiMail unit that matches a policy and profile where the *FortiGuard-AntiSpam scan* option is enabled, if the FortiMail cannot connect to the FDN and/or its license is not valid, and if Information-level logging is enabled, the FortiMail unit records a log message in the antispam log (located in *Log & Report* > *Logging* > *AntiSpam*) whose Message field is:

```
FortiGuard-Antispam: No Answer from server.
```

Figure 40: Antispam log when FortiGuard Antispam query fails



Verify that the FortiGuard Antispam license is still valid, and that network connectivity has not been disrupted for UDP port 8889 traffic from the FortiMail unit to the Internet.

Configuring scheduled updates

You can configure the FortiMail unit to periodically request FortiGuard Antivirus and FortiGuard Antispam engine and definition updates from the FDN or override server.

You can use push updates or manually initiate updates as alternatives or in conjunction with scheduled updates. If protection from the latest viral threats is a high priority, you could configure both scheduled updates and push updates, using scheduled updates as a failover method to increase the likelihood that the FortiMail unit will still periodically retrieve updates if connectivity is interrupted during a push notification. While using ***only*** scheduled updates could potentially leave your network vulnerable to a new virus, it minimizes short disruptions to antivirus scans that can occur if the FortiMail unit applies push updates during peak volume times. For additional/alternative update methods, see "Configuring push updates" on page 92 and "Manually requesting updates" on page 94.

For example, you might schedule updates every night at 2 AM or weekly on Sunday, when email traffic volume is light.

Before configuring scheduled updates, first verify that the FortiMail unit can connect to the FDN or override server. For details, see "To verify scheduled update connectivity" on page 89.

To configure scheduled updates

1 Go to *Maintenance* > *FortiGuard* > *Update* in the advanced mode of the web-based manager.

2 Enable *Scheduled Update*.

3 Select from one of the following:

Every	Select to request updates once per interval, then configure the number of hours and minutes between each request.
Daily	Select to request updates once a day, then configure the time of day.
Weekly	Select to request updates once a week, then configure the day of the week and the time of day.

Note: Updating FortiGuard Antivirus definitions can cause a short disruption in traffic currently being scanned while the FortiMail unit applies the new signature database. To minimize disruptions, update when traffic is light, such as during the night.

4 Select Apply.

The FortiMail unit starts the next scheduled update according to the configured update schedule. If you have enabled logging, when the FortiMail unit requests a scheduled update, the event is recorded in the event log.

Configuring push updates

You can configure the FortiMail unit to receive push updates from the FDN or override server.

When push updates are configured, the FortiMail unit first notifies the FDN of its IP address, or the IP address and port number override. (If your FortiMail unit's IP address changes, including if it is configured with DHCP, the FortiMail unit automatically notifies the FDN of the new IP address.) As soon as new FortiGuard Antivirus and FortiGuard Antispam packages become available, the FDN sends an update availability notification to that IP address and port number. Within 60 seconds, the FortiMail unit then requests the package update as if it were a scheduled or manually initiated update.

You can use scheduled updates or manually initiate updates as alternatives or in conjunction with push updates. If protection from the latest viral threats is a high priority, you could configure both scheduled updates and push updates, using scheduled updates as a failover method to increase the likelihood that the FortiMail unit will still periodically retrieve updates if connectivity is interrupted during a push notification. Using push updates, however, can potentially cause short disruptions to antivirus scans that can occur if the FortiMail unit applies push updates during peak volume times. For additional/alternative update methods, see "Configuring scheduled updates" on page 91 and "Manually requesting updates" on page 94.

Before configuring push updates, first verify that the FortiMail unit can connect to the FDN or override server. For details, see "To verify scheduled update connectivity" on page 89.

To configure push updates

1 Go to *Maintenance* > *FortiGuard* > *Update* in the advanced mode of the web-based manager.

2 Enable *Allow Push Update*.

3 If the FortiMail unit is behind a firewall or router performing NAT, enable *Use override push IP* and enter the external IP address and port number of the NAT device.

You must also configure the NAT device with port forwarding or a virtual IP to forward push notifications (UDP port 9443) to the FortiMail unit.

For example, if the FortiMail unit is behind a FortiGate unit, configure the FortiGate unit with a virtual IP that forwards push notifications from its external network interface to the private network IP address of the FortiMail unit. Then, on the FortiMail unit, configure *Use override push IP* with the IP address and port number of that virtual IP. For details on configuring virtual IPs and/or port forwarding, see the documentation for the NAT device.

Note: Push updates require that the external IP address of the NAT device is ***not*** dynamic (such as an IP address automatically configured using DHCP). If dynamic, when the IP address changes, the override push IP will become out-of-date, causing subsequent push updates to fail.

If you do not enable *Use override push IP*, the FDN will send push notifications to the IP address of the FortiMail unit, which must be a public network IP address routable from the Internet.

4 Click *Apply*.

The FortiMail unit notifies the FDN of its IP address or, if configured, the override push IP. When an update is available, the FDN will send push notifications to this IP address and port number.

5 Click *Refresh*.

A dialog appears, notifying you that the process could take a few minutes.

6 Click *OK*.

The FDN tests the connection to the FortiMail unit. Time required varies by the speed of the FortiMail unit's network connection, and the number of timeouts that occur before the connection attempt is successful or the FortiMail unit determines that it cannot connect. When the connection test completes, the page refreshes. Test results are displayed in the *Push Update* field.

- **available**: The FDN successfully connected to the FortiMail unit.
- **not available**: The FDN ***could not*** connect to the FortiMail unit, and will not be able to send push notifications to it. Verify that intermediary firewalls and routers do not block push notification traffic (UDP port 9443). If the FortiMail unit is behind a NAT device, verify that you have enabled and configured *Use override push IP*, and that the NAT device is configured to forward push notifications to the FortiMail unit.

Manually requesting updates

You can manually trigger the FortiMail unit to connect to the FDN or override server to request available updates for its FortiGuard Antivirus and FortiGuard Antispam packages.

You can manually initiate updates as an alternative or in addition to other update methods. For details, see "Configuring push updates" on page 92 and "Configuring scheduled updates" on page 91.

To manually request updates

Before manually initiating an update, first verify that the FortiMail unit can connect to the FDN or override server. For details, see "To verify scheduled update connectivity" on page 89.

1 Go to *Maintenance* > *FortiGuard* > *Update* in the advanced mode of the web-based manager.

2 Click *Update Now*.

Note: Updating FortiGuard Antivirus definitions can cause a short disruption in traffic currently being scanned while the FortiMail unit applies the new signature database. To minimize disruptions, update when traffic is light, such as during the night.

The web-based manager displays a message similar to the following:

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

3 Select *RETURN*.

4 After a few minutes, select the *Update* tab to refresh the page, or go to *Monitor* > *System Status* > *Status*.

If an update was available, new version numbers appear for the packages that were updated. If you have enabled logging, messages are recorded to the event log indicating whether the update was successful or not.

Gateway mode deployment

After completing the Quick Start Wizard, you may be required to configure some items that are specific to your network topology or the operation mode of your FortiMail unit.

This chapter contains examples of how to deploy a FortiMail unit operating in gateway mode.

This chapter includes the following sections:

Configuring DNS records

You must configure public DNS records for the protected domains and for the FortiMail unit itself.

For performance reasons, and to support some configuration options, you may also want to provide a private DNS server for use exclusively by the FortiMail unit.

This section includes the following:

Configuring DNS records for the protected domains

Regardless of your private network topology, in order for external MTAs to deliver email through the FortiMail unit, you must configure the public MX record for each protected domain to indicate that the FortiMail unit is its email gateway.

For example, if the fully qualified domain name (FQDN) of the FortiMail unit is fortimail.example.com, and example.com is a protected domain, the MX record for example.com would be:

```
example.com IN MX 10 fortimail.example.com
```

Caution: If your FortiMail unit will operate in gateway mode or server mode, configure the MX record to refer to the FortiMail unit, and remove other MX records. If you fail to do so, external MTAs may not be able to deliver email to or through the FortiMail unit, or may be able to bypass the FortiMail unit by using the other MX records. If you have configured secondary MX records for failover reasons, consider configuring FortiMail high availability (HA) instead. For details, see "FortiMail high availability modes" on page 19.

An A record must also exist to resolve the host name of the FortiMail unit into an IP address.

For example, if the MX record indicates that fortimail.example.com is the email gateway for a domain, you must also configure an A record in the example.com zone file to resolve fortimail.example.com into a public IP address:

```
fortimail IN A 10.10.10.1
```

where `10.10.10.1` is either the public IP address of the FortiMail unit, or a virtual IP address on a firewall or router that maps to the private IP address of the FortiMail unit.

Note: For more information on MX and A records, see "The role of DNS in email delivery" on page 16.

If your FortiMail unit will relay outgoing email, you should also configure the public reverse DNS record. The public IP address of the FortiMail unit, or the virtual IP address on a firewall or router that maps to the private IP address of the FortiMail unit, should be globally resolvable into the FortiMail unit's FQDN. If it is not, reverse DNS lookups by external SMTP servers will fail.

For example, if the public network IP address of the FortiMail unit is 10.10.10.1, a public DNS server's reverse DNS zone file for the 10.10.10.0/24 subnet might contain:

```
1 IN PTR fortimail.example.com.
```

where `fortimail.example.com` is the FQDN of the FortiMail unit.

Configuring DNS records for the FortiMail unit itself

In addition to that of protected domains, the FortiMail unit must be able to receive web connections, and send and receive email, for its own domain name. Dependent features include:

- delivery status notification (DSN) email
- spam reports
- email users' access to their per-recipient quarantines
- FortiMail administrators' access to the web-based manager by domain name
- alert email
- report generation notification email

For this reason, you should also configure public DNS records for the FortiMail unit itself.

Appropriate records vary by whether or not *Web Release Host Name/IP* (located in *AntiSpam* > *Quarantine* > *Spam Report* in the advanced mode of the web-based manager) is configured:

- Case 1: Web Release Host Name/IP is empty/default
- Case 2: Web Release Host Name/IP is configured

Case 1: Web Release Host Name/IP is empty/default

By default (that is, if *Web Release Host Name/IP* is unconfigured), the web release/delete links that appear in spam reports will use the fully qualified domain name (FQDN) of the FortiMail unit.

For example, if the FortiMail unit's host name is `fortimail`, and its local domain name is `example.net`, resulting in the FQDN `fortimail.example.net`, a spam report's default web release link might look like (FQDN highlighted in bold):

`https://`**`fortimail.example.net`**`/releasecontrol?release=0%3Auser2%40example.com%3AMTIyMDUzOTQzOC43NDJfNjc0MzE1LkZvcnRpTWFpbC00MDAsI0YjUyM2NTkjRSxVMzoyLA%3D%3D%3Abf3db63dab53a291ab53a291ab53a291`

In the DNS configuration to support this and the other DNS-dependent features, you would configure the following three records:

```
example.net IN MX 10 fortimail.example.net
fortimail IN A 10.10.10.1
```

```
1 IN PTR fortimail.example.net.
```

where:

- `example.net` is the local domain name to which the FortiMail unit belongs; in the MX record, it is the local domain for which the FortiMail is the mail gateway
- `fortimail.example.net` is the FQDN of the FortiMail unit
- `fortimail` is the host name of the FortiMail unit; in the A record of the zone file for example.net, it resolves to the IP address of the FortiMail unit for the purpose of administrators' access to the web-based manager, email users' access to their per-recipient quarantines, to resolve the FQDN referenced in the MX record when email users send Bayesian and quarantine control email to the FortiMail unit, and to resolve to the IP address of the FortiMail unit for the purpose of the web release/delete hyperlinks in the spam report
- `10.10.10.1` is the public IP address of the FortiMail unit

Case 2: Web Release Host Name/IP is configured

You could configure *Web Release Host Name/IP* to use an alternative fully qualified domain name (FQDN) such as `webrelease.example.info` instead of the configured FQDN, resulting in the following web release link (web release FQDN highlighted in bold):

`https://`**`webrelease.example.info`**`/releasecontrol?release=0%3Auser2%40example.com%3AMTIyMDUzOTQzOC43NDJfNjc0MzE1LkZvcnRpTWFpbC00MDAsI0YjUyM2NTkjRSxVMzoyLA%3D%3D%3Abf3db63dab53a291ab53a291ab53a291`

Then, in the DNS configuration to support this and the other DNS-dependent features, you would configure the following MX record, A records, and PTR record (unlike "Case 1: Web Release Host Name/IP is empty/default" on page 96, in this case, two A records are required; the difference is highlighted in bold):

```
example.net IN MX 10 fortimail.example.net
fortimail IN A 10.10.10.1
webrelease IN A 10.10.10.1
1 IN PTR fortimail.example.net.
```

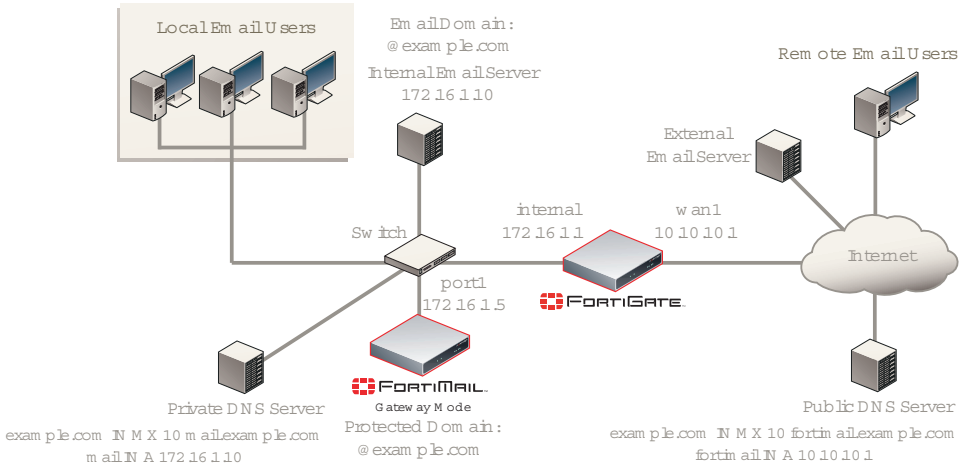
where:

- `example.net` is the local domain name to which the FortiMail unit belongs; in the MX record, it is the local domain for which the FortiMail is the mail gateway
- `fortimail.example.net` is the FQDN of the FortiMail unit
- `fortimail` is the host name of the FortiMail unit; in the A record of the zone file for example.net, it resolves to the IP address of the FortiMail unit for the purpose of administrators' access to the web-based manager and to resolve the FQDN referenced in the MX record when email users send Bayesian and quarantine control email to the FortiMail unit
- `webrelease` is the web release host name; in the A record of the zone file for example.info, it resolves to the IP address of the FortiMail unit for the purpose of the web release/delete hyperlinks in the spam report
- `10.10.10.1` is the public IP address of the FortiMail unit

Configuring a private DNS server

In addition to the public DNS server, consider providing a private DNS server on your local network to improve performance with features that use DNS queries.

Figure 41: Public and private DNS servers (gateway mode)



In some situations, a private DNS server may be required. A private DNS server is required if you enable the *Use MX Record* option (see "Use MX Record" on page 83). Because gateway mode requires that public DNS servers have an MX record that routes mail to the FortiMail unit, but *Use MX Record* requires an MX record that references the protected SMTP server, if you enable that option, you must configure the records of the private DNS server and public DNS server differently.

For example, if both a FortiMail unit (`fortimail.example.com`) operating in gateway mode and the SMTP server reside on your private network behind a router or firewall as illustrated in Figure 41 on page 98, and the *Use MX Record* option is enabled, Table 6 on page 98 illustrates differences between the public and private DNS servers for the authoritative DNS records of example.com.

Table 6: Public vs. private DNS records when "Use MX Record" is enabled

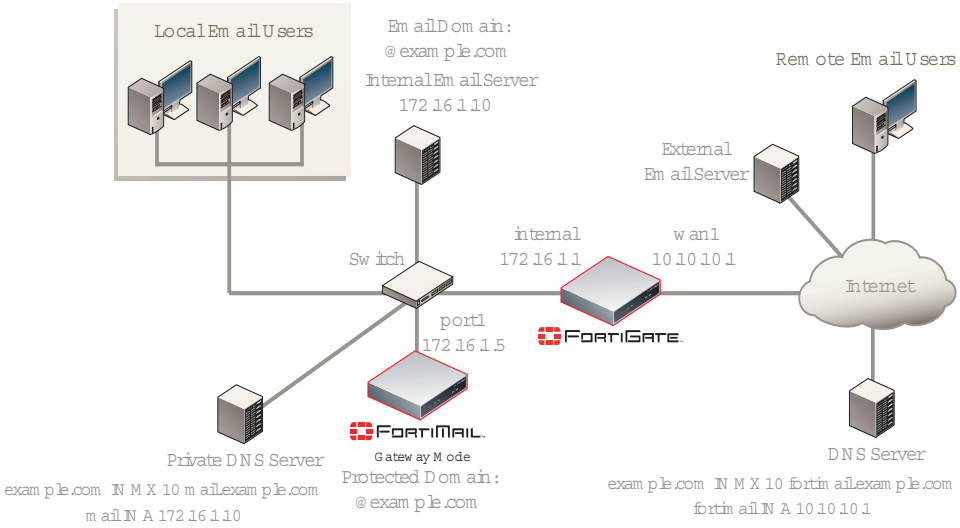
Private DNS server	Public DNS server
`example.com IN MX 10 mail.example.com`	`example.com IN MX 10 fortimail.example.com`
`mail IN A 172.16.1.10`	`fortimail IN A 10.10.10.1`
	`1 IN PTR fortimail.example.com`

If you choose to add a private DNS server, to configure the FortiMail unit to use it, go to *System* > *Network* > *DNS* in the advanced mode of the web-based manager.

Example 1: FortiMail unit behind a firewall

In this example, a FortiMail unit operating in gateway mode, a protected email server, a private DNS server, and email users' computers are all positioned within a private network, behind a firewall. Remote email users' computers and external email servers are located on the Internet, outside of the network protected by the firewall. The FortiMail unit protects accounts for email addresses ending in "@example.com", which are hosted on the local email server.

Figure 42: FortiMail unit behind a NAT device



The private DNS server has been configured to locally replicate records from public DNS servers for most domains, with the exception of records for protected domains, which instead have been configured differently locally in order to support the *Use MX Record* option.

The FortiMail unit has been configured to query the private DNS server, and also been configured with an access control rule that allows local and remote email users to send email to unprotected domains if they first authenticate:

Sender Pattern	`*@example.com`
Recipient Pattern	`*`
Sender IP/Netmask	`0.0.0.0/0`
Reverse DNS Pattern	`*`
Authentication Status	*authenticated*
TLS	*< none >*
Action	*RELAY*

To deploy the FortiMail unit behind a NAT device such as a firewall or router, you must complete the following:

- Configuring the firewall
- Configuring the MUAs
- Testing the installation

Note: This example assumes you have already completed the Quick Start Wizard and configured records on the DNS server for each protected domain. For details, see “Quick Start Wizard” on page 77 and “Configuring DNS records” on page 95.

Configuring the firewall

With the FortiMail unit behind a FortiGate unit, you must configure firewall policies to allow traffic between the internal network and the Internet.

To create the required policies, complete the following:

- Configuring the firewall address
- Configuring the service groups
- Configuring the virtual IPs
- Configuring the firewall policies

Note: The following procedures use a FortiGate unit running FortiOS v3.0 MR7. If you are using a different firewall appliance, consult the appliance's documentation for completing similar configurations.

Configuring the firewall address

In order to create the outgoing firewall policy that governs the IP address of the FortiMail unit, you must first define the IP address of the FortiMail unit by creating a firewall address entry.

To add a firewall address for the FortiMail unit

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `FortiMail_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `172.16.1.5`.
Interface	Select *internal*.

4 Select *OK*.

Configuring the service groups

In order to create firewall policies that govern only email and FortiMail-related traffic, you must first create groups of services that define protocols and port numbers used in that traffic.

Because FortiGuard-related services for FortiMail units are not predefined, you must define them before you can create a service group that contains those services.

Note: For more information on protocols and port numbers used by FortiMail units, see the Fortinet Knowledge Center article FortiMail Traffic Types and TCP/UDP Ports.

To add a custom service for FortiGuard Antivirus push updates

1 Go to *Firewall* > *Service* > *Custom*.

2 Select *Create New*.

3 Configure the following:

Name	Enter a name to identify the custom service entry, such as `FortiMail_antivirus_push_updates`.
Protocol Type	Select *TCP/UDP*.
Protocol	Select *UDP*.
Destination Port	

	Low	Enter `9443`.
	High	Enter `9443`.

4 Select *OK*.

To add a custom service for FortiGuard Antispam rating queries

1 Go to *Firewall* > *Service* > *Custom*.

2 Select *Create New*.

3 Configure the following:

Name		Enter a name to identify the custom service entry, such as `FortiMail_antispam_rating_queries`.
Protocol Type		Select *TCP/UDP*.
Protocol		Select *UDP*.
Destination Port		
	Low	Enter `8889`.
	High	Enter `8889`.

4 Select *OK*.

To add a service group for incoming FortiMail traffic

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `FortiMail_incoming_services`.

4 In the *Available Services* area, select *HTTP*, *HTTPS*, *SMTP*, and your custom service for FortiGuard Antivirus push updates, *FortiMail_antivirus_push_updates*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

To add a service group for outgoing FortiMail traffic

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `FortiMail_outgoing_services`.

4 In the *Available Services* area, select *DNS*, *NTP*, *HTTPS*, *SMTP*, and your custom service for FortiGuard Antispam rating queries, *FortiMail_antispam_rating_queries*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

To add a service group for email user traffic

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `PO3_IMAP_services`.

4 In the *Available Services* area, select *POP3* and *IMAP*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

Configuring the virtual IPs

In order to create the firewall policy that forwards email-related traffic to the FortiMail unit, you must first define a static NAT mapping from a public IP address on the FortiGate unit to the private IP address of the FortiMail unit by creating a virtual IP entry.

Similarly, in order to create the firewall policy that forwards POP3/IMAP-related traffic to the protected email server, you must first define a static NAT mapping from a public IP address on the FortiGate unit to the private IP address of the protected email server by creating a virtual IP entry.

Note: To add virtual IPs, the FortiGate unit must be operating in NAT mode. For more information, see the *FortiGate Administration Guide*.

To add a virtual IP for the FortiMail unit

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `FortiMail_VIP`.
External Interface	Select *wan1*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `10.10.10.1`.
Mapped IP Address/Range	Enter `172.16.1.5`.

4 Select *OK*.

To add a virtual IP for the protected email server

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `protected_email_server_VIP`.
External Interface	Select *wan1*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `10.10.10.1`.
Mapped IP Address/Range	Enter `172.16.1.10`.

4 Select *OK*.

Configuring the firewall policies

First, create a firewall policy that allows incoming FortiMail services that are received at the virtual IP address, then applies a static NAT when forwarding the traffic to the private network IP address of the FortiMail unit.

Second, create a firewall policy that allows outgoing email and other FortiMail connections from the FortiMail unit to the Internet.

Last, create a firewall policy that allows incoming POP3 and IMAP traffic that is received at the virtual IP address, then applies a static NAT when forwarding the traffic to the private network IP address of the protected email server.

To add the Internet-to-FortiMail policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *wan1*.
Source Address Name	Select *all*.
Destination Interface/zone	Select *internal*.
Destination Address Name	Select *FortiMail_VIP*.
Schedule	Select *ALWAYS*.
Service	Select *FortiMail_incoming_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the FortiMail-to-Internet policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *internal*.
Source Address Name	Select *FortiMail_address*.
Destination Interface/zone	Select *wan1*.
Destination Address Name	Select *all*.
Schedule	Select *ALWAYS*.
Service	Select *FortiMail_outgoing_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the Internet-to-email-server policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *wan1*.
Source Address Name	Select *all*.
Destination Interface/zone	Select *internal*.
Destination Address Name	Select *protected_email_server_VIP*.
Schedule	Select *ALWAYS*.
Service	Select *PO3_IMAP_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

Configuring the MUAs

Configure the email clients of local and remote email users to use the FortiMail unit as their outgoing mail (SMTP) server/MTA. For local email users, this is the private network IP address of the FortiMail unit, 172.16.1.5; for remote email users, this is the virtual IP on the FortiGate unit that maps to the FortiMail unit, 10.10.10.1 or fortimail.example.com.

If you do not configure the email clients to send email through the FortiMail unit, incoming email delivered to your protected email server can be scanned, but email outgoing from your email users cannot.

Also configure email clients to authenticate with the email user's user name and password for outgoing mail. The user name is the email user's entire email address, including the domain name portion, such as user1@example.com.

If you do not configure the email clients to authenticate, email destined for other email users in the protected domain may be accepted, but email outgoing to unprotected domains will be denied by the access control rule.

Testing the installation

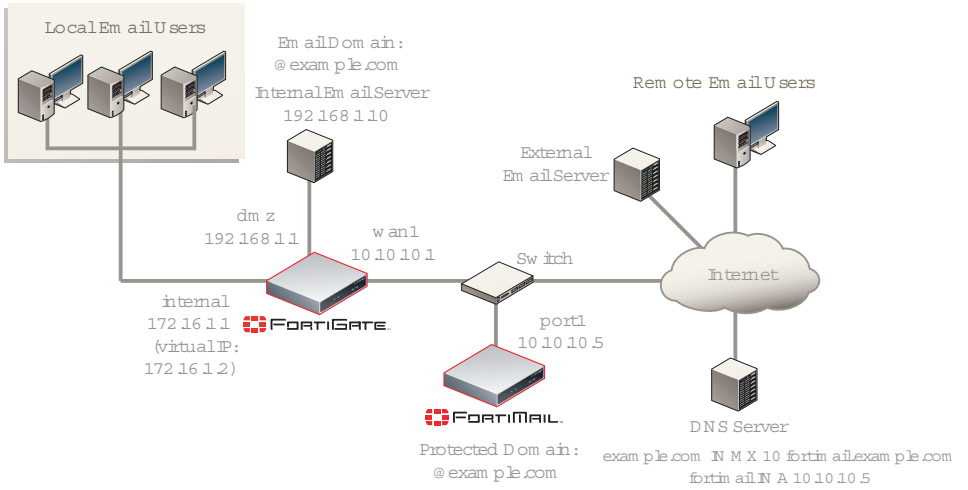
Basic configuration is now complete, and the installation may be tested. For testing instructions, see "Testing the installation" on page 159.

For information on configuring additional features, see the FortiMail Administration Guide.

Example 2: FortiMail unit in front of a firewall

In this example, a FortiMail unit operating in gateway mode within a private network, but is separated from the protected email server and local email users' computers by a firewall. The protected email server is located on the demilitarized zone (DMZ) of the firewall. The local email users are located on the internal network of the firewall. Remote email users' computers and external email servers are located on the Internet, outside of the private network. The FortiMail unit protects accounts for email addresses ending in "@example.com", which are hosted on the local email server.

Figure 43: FortiMail unit in front of a NAT device



The FortiMail unit has also been configured with an access control rule that allows local and remote email users to send email to unprotected domains if they first authenticate:

Sender Pattern	`*@example.com`
Recipient Pattern	`*`
Sender IP/Netmask	`0.0.0.0/0`
Reverse DNS Pattern	`*`
Authentication Status	*authenticated*
TLS	*< none >*
Action	*RELAY*

To deploy the FortiMail unit in front of a NAT device such as a firewall or router, you must complete the following:

- Configuring the firewall
- Configuring the MUAs
- Testing the installation

Note: This example assumes you have already completed the Quick Start Wizard and configured records on the DNS server for each protected domain. For details, see "Quick Start Wizard" on page 77 and "Configuring DNS records" on page 95.

Configuring the firewall

With the FortiMail unit in front of a FortiGate unit, the internal network located behind the FortiGate unit, and the protected email server located on the DMZ, you must configure firewall policies to allow traffic:

- between the internal network and the FortiMail unit
- between the internal network and protected email server
- between the protected email server and the FortiMail unit
- between the protected email server and the Internet

To create the required policies, complete the following:

- Configuring the firewall addresses
- Configuring the service groups
- Configuring the virtual IPs
- Configuring the firewall policies

Note: The following procedures use a FortiGate unit running FortiOS v3.0 MR7. If you are using a different firewall appliance, consult the appliance's documentation for completing similar configurations.

Configuring the firewall addresses

In order to create the firewall policies that governs traffic from the IP addresses of local email users, the protected email server, and the IP address of the FortiMail unit, you must first define the IP addresses of those hosts by creating firewall address entries.

To add a firewall address for local email users

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `local_email_users_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `172.16.1.0/24`.
Interface	Select *internal*.

4 Select *OK*.

To add a firewall address for the protected email server

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `protected_email_server_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `192.168.1.10/32`.
Interface	Select *dmz*.

4 Select *OK*.

To add a firewall address for the FortiMail unit

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `FortiMail_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `10.10.10.5/32`.
Interface	Select *wan1*.

4 Select *OK*.

Configuring the service groups

In order to create firewall policies that governs email and FortiMail-related traffic, you must first create service groups that contain services that define protocols and port numbers used in that traffic.

To add a service group for internal email user and protected server traffic to the FortiMail unit

1 Go to *Firewall* > *Service* > *Group*.
2 Select *Create New*.
3 In *Group Name*, enter a name to identify the service group entry, such as `SMTP_quar_services`.
4 In the *Available Services* area, select *HTTP*, *HTTPS*, and *SMTP*, then select the right arrow to move them to the *Members* area.
5 Select *OK*.

To add a service group for POP3 and IMAP traffic to the protected email server

1 Go to *Firewall* > *Service* > *Group*.
2 Select *Create New*.
3 In *Group Name*, enter a name to identify the service group entry, such as `PO3_IMAP_services`.
4 In the *Available Services* area, select *POP3* and *IMAP*, then select the right arrow to move them to the *Members* area.
5 Select *OK*.

Configuring the virtual IPs

In order to create the firewall policies that forward from the FortiMail unit and local and remote email users to the protected email server, you must first define static NAT mappings from a public IP address on the FortiGate unit to the IP address of the protected email server, and from an internal IP address on the FortiGate unit to the IP address of the protected email server, by creating virtual IP entries.

Note: To add virtual IPs, the FortiGate unit must be operating in NAT mode. For more information, see the *FortiGate Administration Guide*.

To add a wan1 virtual IP for the protected email server

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.
2 Select *Create New*.
3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `protected_email_server_VIP_wan1`.
External Interface	Select *wan1*.
Type	Select *Static NAT*.

External IP Address/Range	Enter `10.10.10.1`.
Mapped IP Address/Range	Enter `192.168.1.10`.

4 Select *OK*.

To add an internal virtual IP for the protected email server

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `protected_email_server_VIP_internal`.
External Interface	Select *internal*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `172.16.1.2`.
Mapped IP Address/Range	Enter `192.168.1.10`.

4 Select *OK*.

Configuring the firewall policies

Create the following firewall policies:

- Allow SMTP connections from the protected email server to the FortiMail unit.
- Allow SMTP_quar_services from the local email users to the FortiMail unit.
- allow SMTP connections that are received at the wan1 virtual IP address from the FortiMail unit, then apply a static NAT when forwarding the traffic to the private network IP address of the protected email server.
- Allow PO3_IMAP_services that are received at the internal virtual IP address, then apply a static NAT when forwarding the traffic to the private network IP address of the protected email server.
- Allow PO3_IMAP_services that are received at the wan1 virtual IP address, then apply a static NAT when forwarding the traffic to the private network IP address of the protected email server.

To add the email-server-to-FortiMail policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *dmz*.
Source Address Name	Select *protected_email_server_address*.
Destination Interface/zone	Select *wan1*.
Destination Address Name	Select *FortiMail_address*.
Schedule	Select *ALWAYS*.

Service	Select *SMTP*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the local-users-to-FortiMail policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *internal*.
Source Address Name	Select *local_email_users_address*.
Destination Interface/zone	Select *wan1*.
Destination Address Name	Select *FortiMail_address*.
Schedule	Select *ALWAYS*.
Service	Select *SMTP_quar_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the FortiMail-to-email-server policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *wan1*.
Source Address Name	Select *FortiMail_address*.
Destination Interface/zone	Select *wan1*.
Destination Address Name	Select *protected_email_server_VIP_wan1*.
Schedule	Select *ALWAYS*.
Service	Select *SMTP*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the local-users-to-email-server policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *internal*.
Source Address Name	Select *local_email_users_address*.
Destination Interface/zone	Select *internal*.
Destination Address Name	Select *protected_email_server_VIP_internal*.
Schedule	Select *ALWAYS*.
Service	Select *PO3_IMAP_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the remote-users-to-email-server policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *wan1*.
Source Address Name	Select *all*.
Destination Interface/zone	Select *dmz*.
Destination Address Name	Select *protected_email_server_VIP_wan1*.
Schedule	Select *ALWAYS*.
Service	Select *PO3_IMAP_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

Configuring the MUAs

Configure the email clients of local and remote email users to use the FortiMail unit as their outgoing mail (SMTP) server/MTA. For both local and remote email users, this is 10.10.10.5 or fortimail.example.com.

If you do not configure the email clients to send email through the FortiMail unit, incoming email delivered to your protected email server can be scanned, but email outgoing from your email users cannot.

Also configure email clients to authenticate with the email user's user name and password for outgoing mail. The user name is the email user's entire email address, including the domain name portion, such as user1@example.com.

If you do not configure the email clients to authenticate, email destined for other email users in the protected domain may be accepted, but email outgoing to unprotected domains will be denied by the access control rule.

Testing the installation

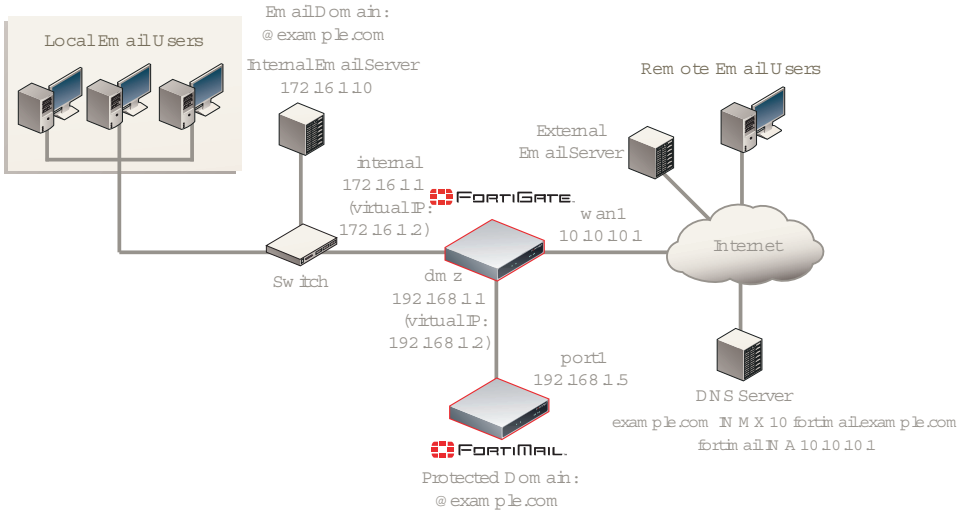
Basic configuration is now complete, and the installation may be tested. For testing instructions, see "Testing the installation" on page 159.

For information on configuring additional features, see the FortiMail Administration Guide.

Example 3: FortiMail unit in DMZ

In this example, a FortiMail unit operating in gateway mode, a protected email server, and email users' computers are all positioned within a private network, behind a firewall. However, the FortiMail unit is located in the demilitarized zone (DMZ) of the firewall, separated from the local email users and the protected email server, which are located on the internal network of the firewall. Remote email users' computers and external email servers are located on the Internet, outside of the network protected by the firewall. The FortiMail unit protects accounts for email addresses ending in "@example.com", which are hosted on the local email server.

Figure 44: FortiMail unit in DMZ



The FortiMail unit has also been configured with an access control rule that allows local and remote email users to send email to unprotected domains if they first authenticate:

Sender Pattern	`*@example.com`
Recipient Pattern	`*`
Sender IP/Netmask	`0.0.0.0/0`
Reverse DNS Pattern	`*`
Authentication Status	*authenticated*
TLS	*< none >*
Action	*RELAY*

To deploy the FortiMail unit in the DMZ of a firewall, you must complete the following:

- Configuring the firewall
- Configuring the MUAs
- Testing the installation

Note: This example assumes you have already completed the Quick Start Wizard and configured records on the DNS server for each protected domain. For details, see "Quick Start Wizard" on page 77 and "Configuring DNS records" on page 95.

Configuring the firewall

With the FortiMail unit in front of a FortiGate unit, and local email users and protected email server located behind the FortiGate unit on its internal network, you must configure firewall policies to allow traffic:

- between the internal network and the FortiMail unit
- between the protected email server and the Internet
- between the FortiMail unit and the Internet

To create the required policies, complete the following:

- Configuring the firewall addresses
- Configuring the service groups
- Configuring the virtual IPs
- Configuring the firewall policies

Note: The following procedures use a FortiGate unit running FortiOS v3.0 MR7. If you are using a different firewall appliance, consult the appliance's documentation for completing similar configurations.

Configuring the firewall addresses

In order to create the firewall policies that governs traffic from the IP addresses of local email users and the protected email server, and the IP address of the FortiMail unit, you must first define the IP addresses of those hosts by creating firewall address entries.

To add a firewall address for local email users

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `local_email_users_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `172.16.1.0/24`.
Interface	Select *internal*.

4 Select *OK*.

To add a firewall address for the FortiMail unit

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `FortiMail_address`.
Type	Select *Subnet/IP Range*.

Subnet /IP Range	Enter `192.168.1.5/32`.
Interface	Select *dmz*.

4 Select *OK*.

Configuring the service groups

In order to create firewall policies that govern only email and FortiMail-related traffic, you must first create groups of services that define protocols and port numbers used in that traffic.

Because FortiGuard-related services for FortiMail units are not predefined, you must define them before you can create a service group that contains those services.

Note: For more information on protocols and port numbers used by FortiMail units, see the Fortinet Knowledge Center article FortiMail Traffic Types and TCP/UDP Ports.

To add a custom service for FortiGuard Antivirus push updates

1 Go to *Firewall* > *Service* > *Custom*.

2 Select *Create New*.

3 Configure the following:

Name		Enter a name to identify the custom service entry, such as `FortiMail_antivirus_push_updates`.
Protocol Type		Select *TCP/UDP*.
Protocol		Select *UDP*.
Destination Port		
	Low	Enter `9443`.
	High	Enter `9443`.

4 Select *OK*.

To add a custom service for FortiGuard Antispam rating queries

1 Go to *Firewall* > *Service* > *Custom*.

2 Select *Create New*.

3 Configure the following:

Name		Enter a name to identify the custom service entry, such as `FortiMail_antispam_rating_queries`.
Protocol Type		Select *TCP/UDP*.
Protocol		Select *UDP*.
Destination Port		
	Low	Enter `8889`.
	High	Enter `8889`.

4 Select *OK*.

To add a service group for remote incoming FortiMail traffic

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `FortiMail_incoming_services`.

4 In the *Available Services* area, select *HTTP*, *HTTPS*, *SMTP*, and your custom service for FortiGuard Antivirus push updates, *FortiMail_antivirus_push_updates*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

To add a service group for outgoing FortiMail traffic

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `FortiMail_outgoing_services`.

4 In the *Available Services* area, select *DNS*, *NTP*, *HTTPS*, *SMTP*, and your custom service for FortiGuard Antispam rating queries, *FortiMail_antispam_rating_queries*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

To add a service group for internal email user traffic to the FortiMail unit

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `SMTP_quar_services`.

4 In the *Available Services* area, select *HTTP*, *HTTPS*, and *SMTP*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

To add a service group for POP3 and IMAP traffic to the protected email server

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `PO3_IMAP_services`.

4 In the *Available Services* area, select *POP3* and *IMAP*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

Configuring the virtual IPs

In order to create the firewall policy that forwards email-related traffic to the FortiMail unit, you must first define a static NAT mapping from a public IP address on the FortiGate unit to the IP address of the FortiMail unit by creating a virtual IP entry.

You must also create virtual IPs to define static NAT mappings:

- from a public IP address on the FortiGate unit to the IP address of the protected email server
- from an IP address on the internal network of the FortiGate unit to the IP address of the FortiMail unit
- from an IP address on the DMZ of the FortiGate unit to the IP address of the protected email server

Note: To add virtual IPs, the FortiGate unit must be operating in NAT mode. For more information, see the *FortiGate Administration Guide*.

To add a wan1 virtual IP for the FortiMail unit

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `FortiMail_VIP_wan1`.
External Interface	Select *wan1*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `10.10.10.1`.
Mapped IP Address/Range	Enter `192.168.1.5`.

4 Select *OK*.

To add a wan1 virtual IP for the protected email server

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `protected_email_server_VIP_wan1`.
External Interface	Select *wan1*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `10.10.10.1`.
Mapped IP Address/Range	Enter `172.16.1.10`.

4 Select *OK*.

To add a internal virtual IP for the FortiMail unit

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `FortiMail_VIP_internal`.
External Interface	Select *internal*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `172.16.1.2`.
Mapped IP Address/Range	Enter `192.168.1.5`.

4 Select *OK*.

To add a dmz virtual IP for the protected email server

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `protected_email_server_VIP_dmz`.
External Interface	Select *dmz*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `192.168.1.2`.
Mapped IP Address/Range	Enter `172.16.1.10`.

4 Select *OK*.

Configuring the firewall policies

Create the following firewall policies:

- Allow SMTP_quar_services that are received at the internal virtual IP address, then apply a static NAT when forwarding the traffic to the private network IP address of the FortiMail unit.
- Allow FortiMail_incoming_services that are received at the wan1 virtual IP address that maps to the FortiMail unit, then apply a static NAT when forwarding the traffic to the private network IP address of the FortiMail unit.
- Allow FortiMail_outgoing_services from the FortiMail unit to the Internet.
- Allow SMTP traffic that is received at the DMZ virtual IP address, then apply a static NAT when forwarding the traffic to the private network IP address of the protected email server.
- Allow PO3_IMAP_services that are received at the wan1 virtual IP address that maps to the protected email server, then apply a static NAT when forwarding the traffic to the private network IP address of the protected email server.

To add the internal-to-FortiMail policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *internal*.
Source Address Name	Select *internal_address*.
Destination Interface/zone	Select *dmz*.
Destination Address Name	Select *FortiMail_VIP_internal*.
Schedule	Select *ALWAYS*.
Service	Select *SMTP_quar_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.
5 Select *OK*.

To add the Internet-to-FortiMail unit policy

1 Go to *Firewall* > *Policy* > *Policy*.
2 Select *Create New*.
3 Complete the following:

Source Interface/zone	Select *wan1*.
Source Address Name	Select *all*.
Destination Interface/zone	Select *dmz*.
Destination Address Name	Select *FortiMail_VIP_wan1*.
Schedule	Select *ALWAYS*.
Service	Select *FortiMail_incoming_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.
5 Select *OK*.

To add the FortiMail-to-Internet policy

1 Go to *Firewall* > *Policy* > *Policy*.
2 Select *Create New*.
3 Complete the following:

Source Interface/zone	Select *dmz*.
Source Address Name	Select *FortiMail_address*.
Destination Interface/zone	Select *wan1*.
Destination Address Name	Select *all*.
Schedule	Select *ALWAYS*.
Service	Select *FortiMail_outgoing_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.
5 Select *OK*.

To add the FortiMail-to-email-server policy

1 Go to *Firewall* > *Policy* > *Policy*.
2 Select *Create New*.
3 Complete the following:

Source Interface/zone	Select *dmz*.
Source Address Name	Select *FortiMail_address*.
Destination Interface/zone	Select *internal*.

Destination Address Name	Select *protected_email_server_VIP_dmz*.
Schedule	Select *ALWAYS*.
Service	Select *SMTP*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the remote-users-to-email-server policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *wan1*.
Source Address Name	Select *all*.
Destination Interface/zone	Select *internal*.
Destination Address Name	Select *protected_email_server_VIP_wan1*.
Schedule	Select *ALWAYS*.
Service	Select *PO3_IMAP_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

Configuring the MUAs

Configure the email clients of local and remote email users to use the FortiMail unit as their outgoing mail (SMTP) server/MTA. For local email users, this is 172.16.1.2, the virtual IP on the internal network interface of the FortiGate unit that is mapped to the IP address of the FortiMail unit; for remote email users, this is 10.10.10.1 or fortimail.example.com, the virtual IP on the wan1 network interface of the FortiGate unit that is mapped to the FortiMail unit.

If you do not configure the email clients to send email through the FortiMail unit, incoming email delivered to your protected email server can be scanned, but email outgoing from your email users cannot.

Also configure email clients to authenticate with the email user's user name and password for outgoing mail. The user name is the email user's entire email address, including the domain name portion, such as user1@example.com.

If you do not configure the email clients to authenticate, email destined for other email users in the protected domain may be accepted, but email outgoing to unprotected domains will be denied by the access control rule.

Testing the installation

Basic configuration is now complete, and the installation may be tested. For testing instructions, see "Testing the installation" on page 159.

For information on configuring additional features, see the FortiMail Administration Guide.

Transparent mode deployment

After completing the Quick Start Wizard, you may be required to configure some items that are specific to your network topology or the operation mode of your FortiMail unit.

This chapter contains examples of how to deploy a FortiMail unit that is operating in transparent mode.

This chapter includes the following:

Configuring DNS records

If the FortiMail unit is operating in transparent mode, in most cases, configuring DNS records for protected domain names is not required. Proper DNS records for your protected domain names are usually already in place. However, you usually must configure public DNS records for the FortiMail unit itself.

For performance reasons, and to support some configuration options, you may also want to provide a private DNS server for use exclusively by the FortiMail unit.

This section includes the following:

Configuring DNS records for the FortiMail unit itself

In addition to that of protected domains, the FortiMail unit must be able to receive web connections, and send and receive email, for its own domain name. Dependent features include:

- delivery status notification (DSN) email
- spam reports
- email users' access to their per-recipient quarantines
- FortiMail administrators' access to the web-based manager by domain name
- alert email
- report generation notification email

For this reason, you should also configure public DNS records for the FortiMail unit itself.

Appropriate records vary by whether or not *Web Release Host Name/IP* (located in *AntiSpam* > *Quarantine* > *Spam Report* in the advanced mode of the web-based manager) is configured:

Unless you have enabled both *Hide the transparent box* in each protected domain and *Hide this box from the mail server* in each session profile, the FortiMail unit is ***not*** fully transparent in SMTP sessions: the domain name and IP address of the FortiMail unit may be visible to SMTP servers, and they might perform reverse lookups. For this reason, public DNS records for the FortiMail unit usually should include reverse DNS (RDNS) records.

Case 1: Web Release Host Name/IP is empty/default

By default (that is, if *Web Release Host Name/IP* is unconfigured), the web release/delete links that appear in spam reports will use the fully qualified domain name (FQDN) of the FortiMail unit.

For example, if the FortiMail unit's host name is `fortimail`, and its local domain name is `example.net`, resulting in the FQDN `fortimail.example.net`, a spam report's default web release link might look like (FQDN highlighted in bold):

`https://`**`fortimail.example.net`**`/releasecontrol?release=0%3Auser2%40example.com%3AMTIyMDUzOTQzOC43NDJfNjc0MzE1LkZvcnRpTWFpbC00MDAsI0YjUyM2NTkjRSxVMzoyLA%3D%3D%3Abf3db63dab53a291ab53a291ab53a291`

In the DNS configuration to support this and the other DNS-dependent features, you would configure the following three records:

```
example.net IN MX 10 fortimail.example.net
fortimail IN A 10.10.10.1
1 IN PTR fortimail.example.net.
```

where:

- `example.net` is the local domain name to which the FortiMail unit belongs; in the MX record, it is the local domain for which the FortiMail is the mail gateway
- `fortimail.example.net` is the FQDN of the FortiMail unit
- `fortimail` is the host name of the FortiMail unit; in the A record of the zone file for example.net, it resolves to the IP address of the FortiMail unit for the purpose of administrators' access to the web-based manager, email users' access to their per-recipient quarantines, to resolve the FQDN referenced in the MX record when email users send Bayesian and quarantine control email to the FortiMail unit, and to resolve to the IP address of the FortiMail unit for the purpose of the web release/delete hyperlinks in the spam report
- `10.10.10.1` is the public IP address of the FortiMail unit

Case 2: Web Release Host Name/IP is configured

You could configure *Web Release Host Name/IP* to use an alternative fully qualified domain name (FQDN) such as `webrelease.example.info` instead of the configured FQDN, resulting in the following web release link (web release FQDN highlighted in bold):

`https://`**`webrelease.example.info`**`/releasecontrol?release=0%3Auser2%40example.com%3AMTIyMDUzOTQzOC43NDJfNjc0MzE1LkZvcnRpTWFpbC00MDAsI0YjUyM2NTkjRSxVMzoyLA%3D%3D%3Abf3db63dab53a291ab53a291ab53a291`

Then, in the DNS configuration to support this and the other DNS-dependent features, you would configure the following MX record, A records, and PTR record (unlike "Case 1: Web Release Host Name/IP is empty/default" on page 120, in this case, two A records are required; the difference is highlighted in bold):

```
example.net IN MX 10 fortimail.example.net
fortimail IN A 10.10.10.1
webrelease IN A 10.10.10.1
1 IN PTR fortimail.example.net.
```

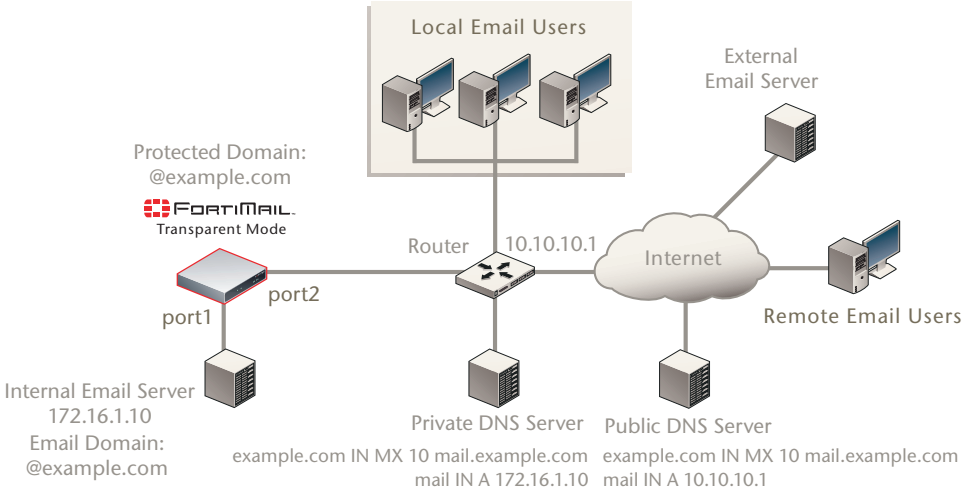
where:

- `example.net` is the local domain name to which the FortiMail unit belongs; in the MX record, it is the local domain for which the FortiMail is the mail gateway
- `fortimail.example.net` is the FQDN of the FortiMail unit
- `fortimail` is the host name of the FortiMail unit; in the A record of the zone file for example.net, it resolves to the IP address of the FortiMail unit for the purpose of administrators' access to the web-based manager and to resolve the FQDN referenced in the MX record when email users send Bayesian and quarantine control email to the FortiMail unit
- `webrelease` is the web release host name; in the A record of the zone file for example.info, it resolves to the IP address of the FortiMail unit for the purpose of the web release/delete hyperlinks in the spam report
- `10.10.10.1` is the public IP address of the FortiMail unit

Configuring a private DNS server

Consider providing a private DNS server on your local network to improve performance with features that use DNS queries.

Figure 45: Public and private DNS servers (transparent mode)



In some situations, a private DNS server may be required. If:

- you configure the FortiMail unit to use a private DNS server, and
- both the FortiMail unit and the protected SMTP server reside on the internal network, with private network IP addresses, and
- you enable the *Use MX Record* option (see "Use MX Record" on page 83)

you should configure the A records on the private DNS server and public DNS server differently: the private DNS server must resolve to the domain names of the SMTP servers into private IP addresses, while the public DNS server must resolve them into public IP addresses.

For example, if both a FortiMail unit (fortimail.example.com) operating in transparent mode and the SMTP server reside on your private network behind a router or firewall as illustrated in Figure 45 on page 121, and the *Use MX Record* option is enabled, Table 7 on page 122 illustrates differences between the public and private DNS servers for the authoritative DNS records of example.com.

Table 7: Public vs. private DNS records when "Use MX Record" is enabled

Private DNS server	Public DNS server
`example.com IN MX 10 mail.example.com`	`example.com IN MX 10 mail.example.com`
`mail IN A 172.16.1.10`	`mail IN A 10.10.10.1`
`10 IN PTR fortimail.example.com`	`1 IN PTR fortimail.example.com`

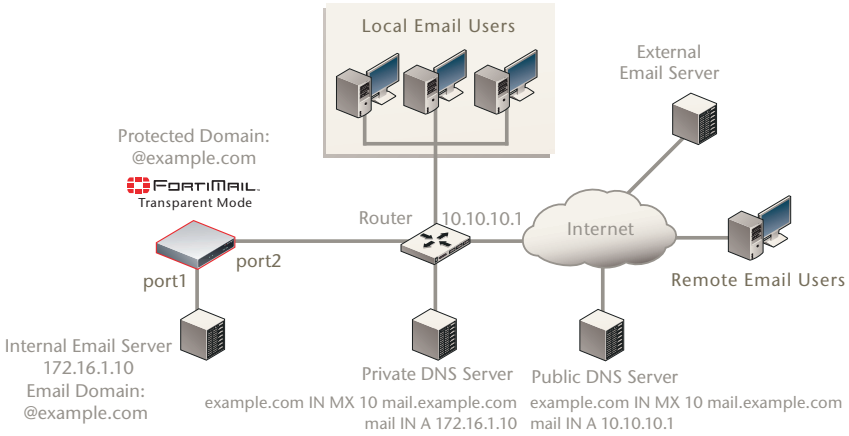
If you choose to add a private DNS server, to configure the FortiMail unit to use it, go to *System* > *Network* > *DNS* in the advanced mode of the web-based manager.

Example 1: FortiMail unit in front of an email server

In this example, a FortiMail unit operating in transparent mode is positioned in front of one email server.

Note: This example assumes that the FortiMail unit is protecting a single email server. If your FortiMail unit is protecting multiple email servers and they are not on the same subnet, you must first remove some network interfaces from the bridge and configure static routes. For an example of configuring out-of-bridge network interfaces, see "Removing the network interfaces from the bridge" on page 133.

Figure 46: Transparent mode deployment to protect an email server



The FortiMail unit has also been configured with an access control rule that allows local and remote email users to send email to unprotected domains if they first authenticate:

Sender Pattern	`*@example.com`
Recipient Pattern	`*`
Sender IP/Netmask	`0.0.0.0/0`
Reverse DNS Pattern	`*`
Authentication Status	*authenticated*
TLS	*< none >*
Action	*RELAY*

To deploy the FortiMail unit in front of an email server, you must complete the following:

- Configuring the protected domains and session profiles
- Configuring the proxies and implicit relay
- Testing the installation

Note: This example assumes you have already completed the Quick Start Wizard. For details, see "Quick Start Wizard" on page 77.

Configuring the protected domains and session profiles

When configuring the protected domain and session profiles, you can select transparent mode options to hide the existence of the FortiMail unit.

For information on additional protected domain and session profile options, see the *FortiMail Administration Guide*.

To configure the transparent mode options of the protected domain

1 Go to *Mail Settings* > *Domains* > *Domains* in the advanced mode of the web-based manager.

2 Select the domain and then click *Edit*.

3 Configure the following:

Transparent Mode Options

This server is on (transparent mode only)	Select the network interface (port) to which the protected SMTP server is connected. **Note:** Selecting the wrong network interface will result in the FortiMail sending email traffic to the wrong network interface.
Hide the transparent box (transparent mode only)	Enable to preserve the IP address or domain name of the SMTP client for incoming email messages in: • the SMTP greeting (`HELO`/`EHLO`) in the envelope and in the `Received:` message headers of email messages • the IP addresses in the IP header This masks the existence of the FortiMail unit to the protected SMTP server. Disable to replace the SMTP client's IP address or domain name with that of the FortiMail unit. **Note:** If the protected SMTP server applies rate limiting according to IP addresses, enabling this option can improve performance. The rate limit will then be separate for each client connecting to the protected SMTP server, rather than shared among all connections handled by the FortiMail unit. **Note:** Unless you have enabled *If this policy matches then don't check for a recipient match* in the IP-based policy, this option has precedence over the *Hide this box from the mail server* option in the session profile, and may prevent it from applying to incoming email messages.
Use this domain's SMTP server to deliver the mail (transparent mode only)	Enable to allow SMTP clients to send outgoing email directly through the protected SMTP server. Disable to, instead of allowing a direct connection, proxy the connection using the incoming proxy, which queues email messages that are not immediately deliverable.

4 Select *OK*.

To configure the transparent mode options of the session profile

1 Go to *Policy* > *Policies* > *IP Policies* in the advanced mode of the web-based manager.

2 In the *Session* column for an IP-based policy, select the name of the session profile to edit the profile.

3 Configure the following:

Connection Settings

Hide this box from the mail server (transparent mode only)	Enable to preserve the IP address or domain name of the SMTP client in: • the SMTP greeting (`HELO`/`EHLO`) and in the `Received:` message headers of email messages • the IP addresses in the IP header This masks the existence of the FortiMail unit. Disable to replace the IP addresses or domain names with that of the FortiMail unit. **Note:** Unless you have enabled *If this policy matches then don't check for a recipient match* in the IP-based policy, the *Hide the transparent box* option in the protected domain has precedence over this option, and may prevent it from applying to incoming email messages.

4 Select *OK*.

5 Repeat the previous three steps for each IP-based policy.

Configuring the proxies and implicit relay

When operating in transparent mode, the FortiMail unit can use either transparent proxies or an implicit relay to inspect SMTP connections. If connection pick-up is enabled for connections on that network interface, the FortiMail unit can scan and process the connection. If not enabled, the FortiMail unit can either block or permit the connection to pass through unmodified.

Exceptions to SMTP connections that can be proxied or relayed include SMTP connections destined for the FortiMail unit itself. For those local connections, such as email messages from email users requesting deletion or release of their quarantined email, you must choose to either allow or block the connection.

Proxy/relay pick-up is configured separately for incoming and outgoing connections.

Note: For information on determining directionality, see “Incoming vs. outgoing directionality” on page 15.

In this deployment example, incoming connections arriving on port2 must be scanned before traveling to the main email server, and therefore are configured to be *are proxied* — that is, picked up by the implicit relay.

Outgoing connections arriving on port1 will contain email that has already been scanned once, during SMTP clients’ relay to the main email server. Scanning outgoing connections again using either the outgoing proxy or the implicit relay would waste resources. Therefore outgoing connections will be passed through.

To configure SMTP proxy and implicit relay pick-up

1 Go to *Mail Settings* > *Proxies* in the advanced mode of the web-based manager.

2 Configure the following:

Port 1

Incoming SMTP connections	*are dropped*
Outgoing SMTP connections	*are passed through*

Local SMTP connections	*are allowed*
Port 2	
Incoming SMTP connections	*are proxied*
Outgoing SMTP connections	*are dropped*
Local SMTP connections	*are not allowed*

Note: If *Use client-specified SMTP server to deliver email* is disabled, and an SMTP client is configured to authenticate, you must configure and apply an authentication profile. Without the profile, authentication with the built-in MTA will fail. Also, the mail server must be explicitly configured to allow relay in this case

3 Select *Apply*.

Testing the installation

Basic configuration is now complete, and the installation may be tested. For testing instructions, see "Testing the installation" on page 159.

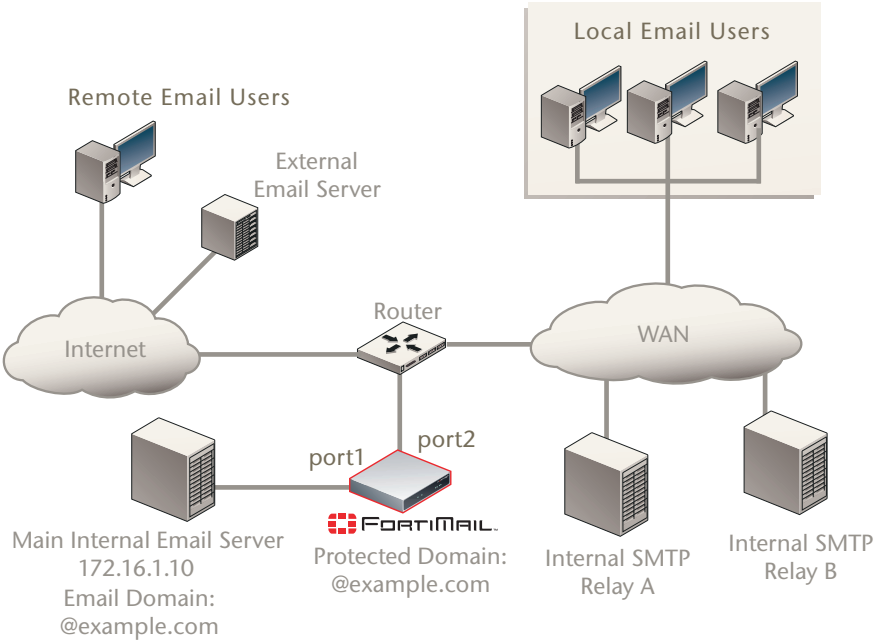
For information on configuring additional features, see the *FortiMail Administration Guide*.

Example 2: FortiMail unit in front of an email hub

In this example, a FortiMail unit operating in transparent mode is positioned between an email gateway and other internal email servers.

When sending email with external recipients, the email servers (Relay A and Relay B) in each WAN location are required to deliver through the main email server, which encrypts outgoing SMTP connections. The firewall will only allow SMTP traffic from the main email server.

Figure 47: Transparent mode deployment to protect an email hub



The FortiMail unit has also been configured with an access control rule that allows local and remote email users to send email to unprotected domains if they first authenticate:

Sender Pattern	`*@example.com`
Recipient Pattern	`*`
Sender IP/Netmask	`0.0.0.0/0`
Reverse DNS Pattern	`*`
Authentication Status	*authenticated*
TLS	*< none >*
Action	*RELAY*

To deploy the FortiMail unit in front of one or more email servers, you must complete the following:

- Configuring the protected domains and session profiles
- Configuring the proxies and implicit relay
- Testing the installation

Note: This example assumes you have already completed the Quick Start Wizard. For details, see "Quick Start Wizard" on page 77.

Configuring the protected domains and session profiles

When configuring the protected domain and session profiles, you can select transparent mode options to hide the existence of the FortiMail unit.

For information on additional protected domain and session profile options, see the *FortiMail Administration Guide*.

To configure the transparent mode options of the protected domain

1 Go to *Mail Settings* > *Domains* > *Domains* in the advanced mode of the web-based manager.

2 In the row corresponding to the protected domain, select *Edit*.

3 Configure the following:

Transparent Mode Options

This server is on (transparent mode only)	Select the network interface (port) to which the protected SMTP server is connected. **Note:** Selecting the wrong network interface will result in the FortiMail sending email traffic to the wrong network interface.

Hide the transparent box (transparent mode only)	Enable to preserve the IP address or domain name of the SMTP client for incoming email messages in: • the SMTP greeting (`HELO`/`EHLO`) in the envelope and in the `Received:` message headers of email messages • the IP addresses in the IP header This masks the existence of the FortiMail unit to the protected SMTP server. Disable to replace the SMTP client's IP address or domain name with that of the FortiMail unit. **Note:** If the protected SMTP server applies rate limiting according to IP addresses, enabling this option can improve performance. The rate limit will then be separate for each client connecting to the protected SMTP server, rather than shared among all connections handled by the FortiMail unit. **Note:** Unless you have enabled *If this policy matches then don't check for a recipient match* in the IP-based policy, this option has precedence over the *Hide this box from the mail server* option in the session profile, and may prevent it from applying to incoming email messages.
Use this domain's SMTP server to deliver the mail (transparent mode only)	Enable to allow SMTP clients to send outgoing email directly through the protected SMTP server. Disable to, instead of allowing a direct connection, proxy the connection using the incoming proxy, which queues email messages that are not immediately deliverable.

4 Select *OK*.

To configure the transparent mode options of the session profile

1 Go to *Policy* > *Policies* > *IP Policies* in the advanced mode of the web-based manager.

2 In the *Session* column for an IP-based policy, select the name of the session profile to edit the profile.

3 Configure the following:

Connection Settings

Hide this box from the mail server (transparent mode only)	Enable to preserve the IP address or domain name of the SMTP client in: • the SMTP greeting (`HELO`/`EHLO`) and in the `Received:` message headers of email messages • the IP addresses in the IP header This masks the existence of the FortiMail unit. Disable to replace the IP addresses or domain names with that of the FortiMail unit. **Note:** Unless you have enabled *If this policy matches then don't check for a recipient match* in the IP-based policy, the *Hide the transparent box* option in the protected domain has precedence over this option, and may prevent it from applying to incoming email messages.

4 Select *OK*.

5 Repeat the previous three steps for each IP-based policy.

Configuring the proxies and implicit relay

When operating in transparent mode, the FortiMail unit can use either transparent proxies or an implicit relay to inspect SMTP connections. If connection pick-up is enabled for connections on that network interface, the FortiMail unit can scan and process the connection. If not enabled, the FortiMail unit can either block or permit the connection to pass through unmodified.

Exceptions to SMTP connections that can be proxied or relayed include SMTP connections destined for the FortiMail unit itself. For those local connections, such as email messages from email users requesting deletion or release of their quarantined email, you must choose to either allow or block the connection.

Proxy/relay pick-up is configured separately for incoming and outgoing connections.

Note: For information on determining directionality, see "Incoming vs. outgoing directionality" on page 15.

In this deployment example, incoming connections arriving on port2 must be scanned before traveling to the main email server, and therefore are configured to be *are proxied* — that is, picked up by the implicit relay.

Outgoing connections arriving on port1 will contain email that has already been scanned once, during SMTP clients' relay to the main email server. In addition, outgoing connections by the main mail server will be encrypted using TLS. Encrypted connections cannot be scanned. Therefore outgoing connections will be passed through, and neither proxied nor implicitly relayed.

To configure SMTP proxy and implicit relay pick-up

1 Go to *Mail Settings* > *Proxies* > *SMTP* in the advanced mode of the web-based manager.

2 Configure the following:

Port 1

Incoming SMTP connections	*are dropped*
Outgoing SMTP connections	*are passed through*
Local SMTP connections	*are allowed*

Port 2

Incoming SMTP connections	*are proxied*
Outgoing SMTP connections	*are dropped*
Local SMTP connections	*are not allowed*

3 Select *Apply*.

Testing the installation

Basic configuration is now complete, and the installation may be tested. For testing instructions, see "Testing the installation" on page 159.

For information on configuring additional features, see the *FortiMail Administration Guide*.

Example 3: FortiMail unit for an ISP or carrier

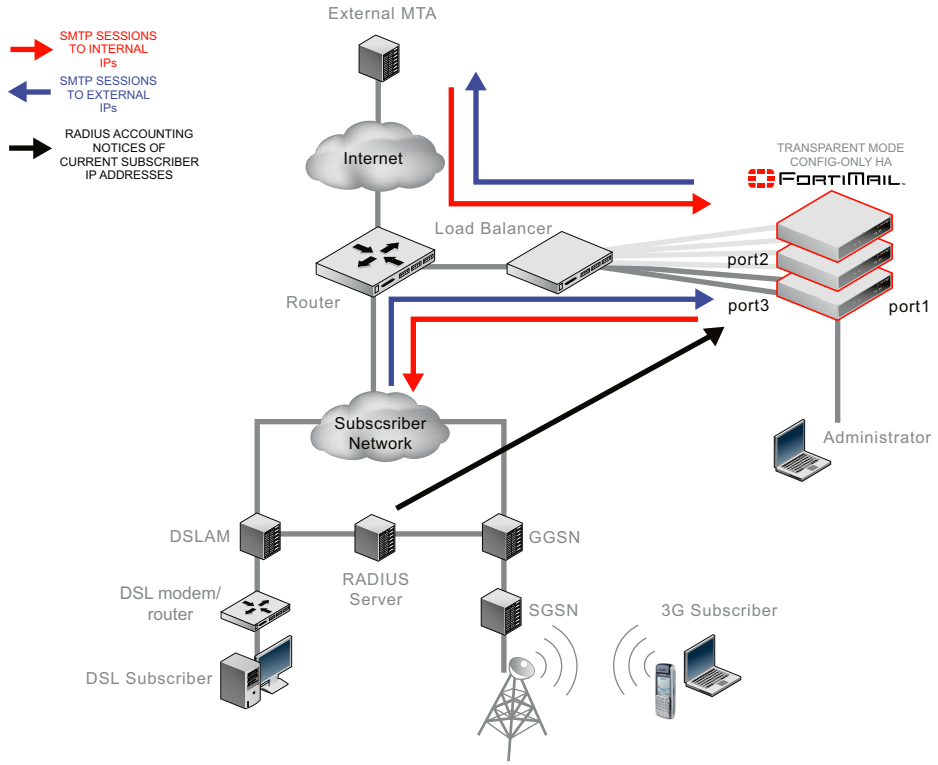
In this example, a FortiMail unit operating in transparent mode is positioned as an offshoot from the backbone or other primary traffic flow between the internal and external network. A router uses policy-based routes to redirect only SMTP connections to the FortiMail unit, which scans the traffic before allowing legitimate connections to return the overall flow. The FortiMail unit does ***not*** receive non-SMTP traffic. (This would result in unnecessary processing and resource usage.)

Note: For increased session-handling capacity, multiple FortiMail units could be clustered into a config-only HA group and deployed behind a load balancer that is attached to the router. Connections to the same source IP address would be handled by the same FortiMail unit to avoid sessions split among multiple units, and to maintain the accuracy of IP statistics. Otherwise, attach a single FortiMail unit to the router.

Service providers often fundamentally require transparent mode. Requiring subscribers to explicitly configure a mail relay can be problematic, and in the case of 3G mobile subscribers, impossible. Therefore gateway mode is not suitable. Transparent mode makes SMTP scanning possible without configuration by the subscriber.

A dual-arm attachment is used. This provides natural isolation of traffic before and after inspection, which can be useful if traffic requires further analysis such as packet traces by a sniffer. (If you use a load balancer and it does not support the same session on two different ports, deploy the FortiMail unit using a single-arm attachment instead. For example, Foundry IronServer has been known to require single-arm attachment.)

Figure 48: Transparent mode deployment at an ISP or carrier (with HA cluster)



Each network interface in the dual-arm attachment (port2 and port3) is removed from the Layer 2 bridge, and is configured with its own IP address. This reduces the possibility of Ethernet loops and improves compatibility with other filtering devices.

Because port1 cannot be removed from the bridge, and the management IP is accessible from any bridging network interface, port1 is reserved for direct connections from the administrator's computer. (If the administrator's computer is not directly connected but is instead part of a management LAN, a route must also be configured for port1.)

Network address translation (NAT) must ***not*** occur on any device between the FortiMail unit and SMTP clients, such as subscribers and external MTAs. Antispam scans involving the SMTP client's IP address, such as sender reputation, MSISDN reputation, session rate limits, and mail rate limits, require the ability to correctly identify each source of email by its unique IP address in order to operate correctly. NAT would interfere with this requirement.

Full transparency is configured. Popular email services such as Microsoft Hotmail may rate limit by an SMTP client's IP address in order to reduce spam. If the FortiMail unit were ***not*** transparent to those mail servers, all SMTP connections from your subscribers would appear to come from the FortiMail unit. The result is that external mail servers could throttle the connections of all subscribers behind the FortiMail unit. To prevent this, each individual SMTP client's IP address should be visible to external MTAs. NAT therefore would also interfere with the requirement of transparency.

Protected domains and access control rules (sometimes called access control lists or ACLs) are not configured. Instead, administrators will configure ACLs on their own internal or external MTAs.

Note: You could configure ACLs to reject SMTP connections from specific IP addresses if required by your security policy.However, in this example, because no protected domains are configured, ACLs are not required. For connections to unprotected SMTP servers, the implicit ACL permits the connection if no other ACL is configured.

To prevent SMTP clients' access to open relays, the outgoing proxy will require all connections to be authenticated using the SMTP `AUTH` command, but will not apply authentication profiles on behalf of the SMTP servers, as no protected domains are configured. It will also not interfere with command pipelining. However, the outgoing proxy will be configured to block TLS connections, whose encryption would prevent the FortiMail unit from being able to scan the connection.

The outgoing proxy is enabled. Unlike other transparent mode deployments, because no protected domains are defined, ***all*** connections will be considered to be outgoing — that is, destined for an SMTP server whose IP address is not configured in the *SMTP Server* field in a protected domain. As a result, all connections will be handled by the outgoing proxy. The built-in MTA will never be implicitly used, and the incoming proxy will never be used. If a destination SMTP server is unavailable, the outgoing proxy will refuse the connection. The FortiMail unit will not queue undeliverable mail. Instead, each SMTP client will be responsible for retrying its own delivery attempts.

Unlike other FortiMail deployments, because the ISP or carrier uses a RADIUS server to authenticate and/or track the currently assigned IP addresses of subscribers, the FortiMail unit can combat spam using the MSISDN reputation feature.

The FortiMail unit scans SMTP connections originating from ***both*** the internal and external network.

- Scanning connections from the ***external*** network protects subscribers from viruses and spam.
- Scanning connections from the ***internal*** network protects subscribers' service levels and reduces cost of operation to the ISP or carrier by preventing its public IP addresses from being added to DNS black list (DNSBL) servers.

Why should you scan email originating from the internal network?

Spammers often use a subscriber account to send spam, either by purchasing temporary Internet access or, increasingly, by infecting subscriber's computers or phones. Infected devices become part of a botnet that can be used to infect more devices, and to send spam.

Because many mail servers use DNSBL to combat spam, if a subscriber's IP address is added to a DNSBL, it can instantly cause email service interruption. If the subscriber's IP address is dynamic rather than static, when the spammer's IP address is reassigned to another subscriber, this can cause problems for an innocent subscriber. Even worse, if many subscribers on your network share a single public IP address, if that single IP address is blacklisted, all of your customers could be impacted.

Protecting the public range of IP addresses from being blacklisted is essential for service providers to be able to guarantee a service level to subscribers.

In addition to jeopardizing customer retention, spam originating from your internal network can also cost money and time. Spam consumes bandwidth and network resources. Tracking which in your block of IPs is currently blacklisted, and paying to have them de-listed, can be a significant recurring cost.

By scanning email destined for the Internet, you can thereby reduce your own costs and maximize customers' satisfaction with your service levels.

To deploy the FortiMail unit at an ISP or carrier, you must complete the following:

- Configuring the connection with the RADIUS server
- Removing the network interfaces from the bridge
- Configuring the session profiles
- Configuring the IP-based policies
- Configuring the outgoing proxy
- Testing the installation

Note: This example assumes you have already completed the Quick Start Wizard. For details, see "Quick Start Wizard" on page 77.

Configuring the connection with the RADIUS server

FortiMail units can use your RADIUS accounting records to combat spam and viruses. This reduces spam and viruses originating from your network, and reduces the likelihood that your public IP addresses will be blacklisted.

Unlike MTAs, computers in homes and small offices and mobile devices such as laptops and cellular phones that send email may not have a static IP address. Cellular phones' IP addresses especially may change very frequently. After a device leaves the network or changes its IP address, its dynamic IP address may be reused by another device. Because of this, a sender reputation score that is directly associated with an SMTP client's IP address may not function well. A device sending spam could start again with a clean sender reputation score simply by rejoining the network to get another IP address, and an innocent device could be accidentally blacklisted when it receives an IP address that was previously used by a spammer.

To control spam from SMTP clients with dynamic IP addresses, you may be able to use the MSISDN reputation score method instead.

The MSISDN reputation score method does not directly use the IP address as the SMTP client's unique identifier. Instead, it uses the subscriber ID, login ID, MSISDN, or other identifier. (An MSISDN is the number associated with a mobile device, such as a SIM card on a cellular phone network.) The IP address is only temporarily associated with this identifier while the device is joined to the network.

When a device joins the network of its service provider, such as a cellular phone carrier or DSL provider, it may use a protocol such as PPPoE or PPPoA which supports authentication. The network access server (NAS) queries the remote authentication dial-in user (RADIUS) server for authentication and access authorization. If successful, the RADIUS server then creates a record which associates the device's MSISDN, subscriber ID, or other identifier with its current IP address.

The server, next acting as a RADIUS client, sends an accounting request with the mapping to the FortiMail unit. (The FortiMail unit acts as an auxiliary accounting server if the MSISDN reputation daemon is enabled.) The FortiMail unit then stores the mappings, and uses them for the MSISDN reputation feature.

When the device leaves the network or changes its IP address, the RADIUS server acting as a client requests that the FortiMail unit stop accounting (that is, remove its local record of the IP-to-MSISDN/subscriber ID mapping). The FortiMail unit keeps the reputation score associated with the MSISDN or subscriber ID, which will be re-mapped to the new IP address upon the next time that the mobile device joins the network.

The MSISDN reputation feature can be used with traditional email, but it can also be used with MMS text messages.

The multimedia messaging service (MMS) protocol transmits graphics, animations, audio, and video between mobile phones. There are eight interfaces defined for the MMS standard, referred to as MM1 through MM8. MM3 uses SMTP to transmit text messages to and from mobile phones. Because it can be used to transmit content, spammers can also use MMS to send spam.

You can blacklist MSISDNs or subscriber IDs to reduce MMS and email spam.

In addition to manually blacklisting or exempting MSISDNs and subscriber IDs, you can configure automatic blacklisting based upon MSISDN reputation score. If a carrier end point sends email or text messages that the FortiMail unit detects as spam, the MSISDN reputation score increases. You can configure session profiles to log or block, for a period of time, email and text messages from carrier end points whose MSISDN reputation score exceeds the threshold during the automatic blacklisting window.

FortiAnalyzer units that receive logs from FortiMail units can also produce extensive spam and virus reports for each subscriber's end point identifier.

To configure your RADIUS server

1. On your RADIUS server, configure the FortiMail unit as an auxiliary RADIUS server, to which it will send copies when its accounting records change.
2. Specify that it should send the `Calling-Station-Id` and `Framed-IP-Address` attributes to the FortiMail unit.

   The data type of the value of `Calling-Station-Id` may vary. For 3G subscribers, the RADIUS server typically uses `Calling-Station-Id` to contain an MSISDN. For ADSL subscribers, the RADIUS server typically uses to contain a login ID, such as an email address.
3. Determine whether your RADIUS server sends the `Framed-IP-Address` attribute's value in network order (e.g. 192.168.1.10) or host order (e.g. 10.1.168.192).
4. Verify that routing and firewall policies permit RADIUS accounting records to reach the FortiMail unit.

To enable the FortiMail unit to receive RADIUS records

1 Connect to the CLI.

This feature cannot be configured through the web-based manager. For instructions on how to connect to the CLI, see "Connecting to the CLI" on page 29.

2 Enter the following command to enable the FortiMail unit to receive RADIUS records by starting the MSISDN reputation daemon:

```
set log msisdn enable
```

3 Enter the following command to configure the RADIUS secret:

```
set log msisdn-radius secret <secret_str>
```

where `<secret_str>` is the secret configured on the RADIUS server.

4 Enter the following command to configure whether to enable or disable the FortiMail unit to validate RADIUS requests using the RADIUS secret:

```
set log msisdn-radius secret-request-validate {enable | disable}
```

where `{enable | disable}` indicates your choice.

5 Enter the following command to configure whether or not the FortiMail unit will acknowledge accounting records:

```
set log msisdn-radius response {enable | disable}
```

where `{enable | disable}` indicates your choice.

6 Enter the following command to indicate that the RADIUS server will send the value of the `Framed-IP-Address` attribute in network order:

```
set log msisdn-radius {host-order | network-order}
```

where `{host-order | network-order}` indicates your choice. (Most RADIUS servers use network order.)

Removing the network interfaces from the bridge

In transparent mode, by default, network interfaces are members of a Layer 2 bridge, and have no IP addresses of their own. To connect to the web-based manager, administrators connect to any network interface that is a member of the bridge, using the management IP.

In this deployment example, only port1 will remain a member of the bridge. Administrators will directly connect their computer to that network interface in order to access the web-based manager or CLI. The network interfaces through which SMTP traffic passes, port2 and port3, will have their own IP addresses, and will not act as a Layer 2 bridge. As a result, the management IP will not be accessible from port2 and port3. In addition, all administrative access protocols will be disabled on port2 and port3 to prevent unauthorized administrative access attempts from the subscriber and external networks.

Both port2 and port3 will be connected to the same router, and do not require additional static routes.

To remove port2 and port3 from the bridge

1 Go to *System* > *Network* > *Interface* in the advanced mode of the web-based manager.

2 Double-click on port 2 to edit it.

3 Select *Do not associate with management IP*.

The network interface will be removed from the bridge, and may be configured with its own IP address.

4 In *IP/Netmask*, type the IP address and netmask of the network interface.

5 In the *Access* area, disable ***all*** administrative access protocols, including *HTTPS*, *SSH*, and *PING*.

6 In the *Administrative Status* area, select *Up*.

7 Select *OK*.

Repeat this procedure for port3.

Configuring the session profiles

When configuring the protected domain and session profiles, you can select transparency, encryption, authentication, and antispam IP-based reputation settings that will be applied by an IP-based policy.

In this deployment example, two session profiles are configured:

- a profile for connections from subscribers
- a profile for connections from SMTP clients on the external network

Each profile will be applied in the IP-based policy that governs connections from either the subsurface or external network.

In both profiles, TLS-encrypted connections will not be allowed in order to prevent viruses from entering or leaving the subscriber network, since encrypted connections cannot be scanned. Authentication will also be required to prevent spammers from connecting to open relays. No protected domains are configured, and so transparency will be configured through the session profiles alone. This will hide the existence of the FortiMail unit to all SMTP clients.

Because subscribers use dynamic IP addresses, instead of sender reputation, MSISDN reputation is used in the subscribers' session profile to score their trustworthiness. MSISDN reputation scans use RADIUS accounting notices from your RADIUS server to map subscriber end point identifiers or MSISDNs to their current IP address. Subscribers who have a reputation for sending spam or viruses will be blocked, thereby reducing the risk that your public IP addresses could be blacklisted by DNS black list (DNSBL) services.

Sender reputation, which functions best with static IP addresses and does not require a RADIUS server, will be used in the external networks' session profile to score SMTP clients on external networks. This will help to prevent viruses and spam from reaching your subscribers.

Note: Many additional antispam and antivirus options are available. For details, see the *FortiMail Administration Guide*.

To configure the session profile for connections from external SMTP clients

1 Go to *Profile* > *Session* in the advanced mode of the web-based manager.

2 Select *New*.

3 In *Profile Name*, type a name for the session profile, such as `external_session_profile`.

4 Configure the following:

Connection Settings

Hide this box from the mail server (transparent mode only)	Enable to preserve the IP address or domain name of the SMTP client in: • the SMTP greeting (`HELO`/`EHLO`) and in the `Received:` message headers of email messages • the IP addresses in the IP header This masks the existence of the FortiMail unit.

Sender Reputation

Enable sender reputation checking	Enable to accept or reject email based upon sender reputation scores.
Throttle client at *n*	Enter a sender reputation score over which the FortiMail unit will rate limit the number of email messages that can be sent by this SMTP client. The enforced rate limit is either *Restrict number of emails per hour to n* or *Restrict email to n percent of the previous hour*, whichever value is greater.
Restrict number of emails per hour to *n*	Enter the maximum number of email messages per hour that the FortiMail unit will accept from a throttled SMTP client.
Restrict email to *n* percent of the previous hour	Enter the maximum number of email messages per hour that the FortiMail unit will accept from a throttled SMTP client, as a percentage of the number of email messages that the SMTP client sent during the previous hour.
Temporarily fail client at *n*	Enter a sender reputation score over which the FortiMail unit will return a temporary failure error when the SMTP client attempts to initiate a connection.
Reject client at *n*	Enter a sender reputation score over which the FortiMail unit will return a permanent rejection error when the SMTP client attempts to initiate a connection.

Session Settings

Prevent encryption of the session (transparent mode only)	Enable to block `STARTTLS`/MD5 commands so that email connections cannot be TLS-encrypted.

For Unauthenticated Sessions

Prevent open relaying (transparent mode only)	Enable to prevent clients from using open relays to send email by blocking sessions that are unauthenticated. (Unauthenticated sessions are assumed to be occurring to an open relay.) If you permit SMTP clients to use open relays to send email, email from their domain could be blacklisted by other SMTP servers.

5 Select *OK*.

To configure the session profile for connections from internal SMTP clients

1 Go to *Profile* > *Session* in the advanced mode of the web-based manager.

2 Select *New*.

3 In *Profile Name*, type a name for the session profile, such as `internal_session_profile`.

4 Configure the following:

Connection Settings

Hide this box from the mail server (transparent mode only)	Enable to preserve the IP address or domain name of the SMTP client in: • the SMTP greeting (`HELO`/`EHLO`) and in the `Received:` message headers of email messages • the IP addresses in the IP header This masks the existence of the FortiMail unit.
Do not let client connect to blacklisted SMTP servers (transparent mode only)	Enable to prevent clients from connecting to SMTP servers that have been blacklisted in antispam profiles or, if enabled, the FortiGuard AntiSpam service.

Endpoint Reputation

Enable Endpoint Reputation	Enable to accept, monitor, or reject email based upon endpoint reputation scores. This option is designed for use with SMTP clients with dynamic IP addresses. It requires that your RADIUS server provide mappings between dynamic IP addresses and MSISDNs/subscriber IDs to the FortiMail unit.
Action	Select either: • **Reject**: Reject email and MMS messages from MSISDNs/subscriber IDs whose endpoint reputation scores exceed *Auto blacklist score trigger value*. • **Monitor**: Log, but do not reject, email and MMS messages from MSISDNs/subscriber IDs whose endpoint reputation scores exceed *Auto blacklist score trigger value*. Log entries appear in the history log.
Auto blacklist score trigger value	Enter the endpoint reputation score over which the FortiMail unit will add the MSISDN/subscriber ID to the automatic blacklist. The trigger score is relative to the period of time configured as the automatic blacklist window. For more information on the automatic blacklist window, see the *FortiMail Administration Guide*.
Auto blacklist duration	Enter the number of minutes that an MSISDN/subscriber ID will be prevented from sending email or MMS messages after they have been automatically blacklisted.

Session Settings

Prevent encryption of the session (transparent mode only)	Enable to block `STARTTLS`/MD5 commands so that email connections cannot be TLS-encrypted.

Unauthenticated Session Settings

Prevent open relaying (transparent mode only)	Enable to prevent clients from using open relays to send email by blocking sessions that are unauthenticated. (Unauthenticated sessions are assumed to be occurring to an open relay.) If you permit SMTP clients to use open relays to send email, email from their domains could be blacklisted by other SMTP servers.

5 Select *OK*.

Configuring the IP-based policies

Session profiles are applied to IP-based policies governing SMTP client connections.

In this deployment example, two IP-based policies are configured. The first policy governs connections from the internal subscriber network. The second policy matches all other connections that did not match the first policy, and will therefore govern connections from the external network.

To configure the IP-based policy for connections from internal SMTP clients

1 Go to *Policy* > *Policies* > *IP Policies* in the advanced mode of the web-based manager.
2 Select *New*.
3 In *Match client against*, type the IP address and netmask of your subscriber network.
4 In *Match server against*, type `0.0.0.0/0` to match all SMTP server IP addresses.
5 From *Session*, select *internal_session_profile*.
6 From *AntiSpam*, select the name of an antispam profile. When this profile detects spam, it will affect the subscriber's MSISDN reputation score.
7 From *AntiVirus*, select the name of an antivirus profile. When this profile detects a virus, it will affect the subscriber's MSISDN reputation score.
8 Select *OK*.

   The internal network policy appears at the bottom of the list of IP-based policies. Policies are evaluated in order until a policy is found that matches the connection. Because the default IP-based policy (`0.0.0.0/0 --> 0.0.0.0/0`) matches all connections, and because it is first in the list, in order for connections to be able to match the new policy, you must move the new policy to an index number ***above*** the default policy.
9 Select *Move*.
10 In *To*, type `1`.
11 Select *OK*.

   The new policy for internal SMTP clients appears above the default policy, in the row whose index number is 1.

To configure the IP-based policy for connections from external SMTP clients

1 Go to *Policy* > *Policies* > *IP Policies* in the advanced mode of the web-based manager.
2 Select *Edit* for the default policy whose *Match* column contains `0.0.0.0/0 --> 0.0.0.0/0`.
3 From *Session*, select *external_session_profile*.
4 From *AntiSpam*, select the name of an antispam profile. When this profile detects spam, it will affect the SMTP client's sender reputation score.
5 From *AntiVirus*, select the name of an antivirus profile. When this profile detects a virus, it will affect the SMTP client's sender reputation score.
6 Select *OK*.

Configuring the outgoing proxy

When operating in transparent mode, the FortiMail unit can use either transparent proxies or an implicit relay to inspect SMTP connections. If connection pick-up is enabled for connections on that network interface, the FortiMail unit can scan and process the connection. If not enabled, the FortiMail unit can either block or permit the connection to pass through unmodified.

Exceptions to SMTP connections that can be proxied or relayed include SMTP connections destined for the FortiMail unit itself. For those local connections, such as email messages from email users requesting deletion or release of their quarantined email, you must choose to either allow or block the connection.

Proxy pick-up is configured separately for incoming and outgoing connections.

Note: For information on determining directionality, see "Incoming vs. outgoing directionality" on page 15.

In this deployment example, no protected domains have been configured. Therefore all connections are outgoing. In addition, per-domain and per-recipient Bayesian databases and per-recipient quarantines will not exist, and therefore the FortiMail unit does not need to receive local SMTP connections in order to train databases or delete or release a domain's recipient's quarantined email.

The FortiMail unit must not expend resources to queue undeliverable email, nor reroute connections, and therefore it must not implicitly use its built-in MTA. Instead, it must always use its outgoing proxy by enabling *Use client-specified SMTP server to send email*. Because port1 is used exclusively for administration, the outgoing proxy must be configure to pick up outgoing connections only on port2 and port3.

To configure outgoing proxy pick-up

1 Go to *Mail Settings* > *Proxies* in the advanced mode of the web-based manager.

2 Configure the following:

Use client-specified SMTP server to send email	enabled
Port 2	
Incoming SMTP connections	*are dropped*
Outgoing SMTP connections	*are proxied*
Local SMTP connections	*are not allowed*
Port 3	
Incoming SMTP connections	*are dropped*
Outgoing SMTP connections	*are proxied*
Local SMTP connections	*are not allowed*

3 Select *Apply*.

Testing the installation

Basic configuration is now complete, and the installation may be tested. For testing instructions, see "Testing the installation" on page 159.

Note: Unlike other deployments, this deployment requires that SMTP clients be configured to use the SMTP `AUTH` command, and not to use TLS. Before testing, you should verify that SMTP clients that will connect for themselves through the FortiMail unit meet those requirements. If some subscribers require TLS or do not use authentication, consider first making separate session profiles and IP-based policies for those subscribers.

For information on configuring additional features, see the *FortiMail Administration Guide*.

Server mode deployment

After completing the Quick Start Wizard, you may be required to configure some items that are specific to your network topology or the operation mode of your FortiMail unit.

This chapter contains examples of how to deploy a FortiMail unit that is operating in server mode.

This chapter includes the following:

Configuring DNS records

You must configure public DNS records for the protected domains and for the FortiMail unit itself.

For performance reasons, you may also want to provide a private DNS server for use exclusively by the FortiMail unit.

This section includes the following:

Configuring DNS records for protected domains

Regardless of your private network topology, in order for external MTAs to deliver email to the FortiMail unit, you must configure the public MX record for each protected domain to indicate that the FortiMail unit is its email server.

For example, if the fully qualified domain name (FQDN) of the FortiMail unit is fortimail.example.com, and example.com is a protected domain, the MX record for example.com would be:

```
example.com IN MX 10 fortimail.example.com
```

Caution: If your FortiMail unit will operate in gateway mode or server mode, configure the MX record to refer to the FortiMail unit, and remove other MX records. If you fail to do so, external MTAs may not be able to deliver email to or through the FortiMail unit, or may be able to bypass the FortiMail unit by using the other MX records. If you have configured secondary MX records for failover reasons, consider configuring FortiMail high availability (HA) instead. For details, see "FortiMail high availability modes" on page 19.

An A record must also exist to resolve the domain name of the FortiMail unit into an IP address.

For example, if the MX record indicates that fortimail.example.com is the email gateway for a domain, you must also configure an A record in the example.com zone file to resolve fortimail.example.com into a public IP address:

```
fortimail IN A 10.10.10.1
```

where `10.10.10.1` is either the public IP address of the FortiMail unit, or a virtual IP address on a firewall or router that maps to the private IP address of the FortiMail unit.

Note: For more information on MX and A records, see "The role of DNS in email delivery" on page 16.

If your FortiMail unit will relay outgoing email, you should also configure the public reverse DNS record. The public IP address of the FortiMail unit, or the virtual IP address on a firewall or router that maps to the private IP address of the FortiMail unit, should be globally resolvable into the FortiMail unit's FQDN. If it is not, reverse DNS lookups by external SMTP servers will fail.

For example, if the public network IP address of the FortiMail unit is 10.10.10.1, a public DNS server's reverse DNS zone file for the 10.10.10.0/24 subnet might contain:

```
1 IN PTR fortimail.example.com.
```

where `fortimail.example.com` is the FQDN of the FortiMail unit.

Configuring DNS records for the FortiMail unit itself

In addition to that of protected domains, the FortiMail unit must be able to receive web connections, and send and receive email, for its own domain name. Dependent features include:

- delivery status notification (DSN) email
- spam reports
- email users' access to their per-recipient quarantines
- FortiMail administrators' access to the web-based manager by domain name
- alert email
- report generation notification email

For this reason, you should also configure public DNS records for the FortiMail unit itself.

Appropriate records vary by whether or not *Web Release Host Name/IP* (located in *AntiSpam* > *Quarantine* > *Spam Report* in the advanced mode of the web-based manager) is configured:

- Case 1: Web Release Host Name/IP is empty/default
- Case 2: Web Release Host Name/IP is configured

Case 1: Web Release Host Name/IP is empty/default

By default (that is, if *Web Release Host Name/IP* is unconfigured), the web release/delete links that appear in spam reports will use the fully qualified domain name (FQDN) of the FortiMail unit.

For example, if the FortiMail unit's host name is `fortimail`, and its local domain name is `example.net`, resulting in the FQDN `fortimail.example.net`, a spam report's default web release link might look like (FQDN highlighted in bold):

`https://`**`fortimail.example.net`**`/releasecontrol?release=0%3Auser2%40example.com%3AMTIyMDUzOTQzOC43NDJfNjc0MzE1LkZvcnRpTWFpbC00MDAsI0YjUyM2NTkjRSxVMzoyLA%3D%3D%3Abf3db63dab53a291ab53a291ab53a291`

In the DNS configuration to support this and the other DNS-dependent features, you would configure the following three records:

```
example.net IN MX 10 fortimail.example.net
fortimail IN A 10.10.10.1
```

```
1 IN PTR fortimail.example.net.
```

where:

- `example.net` is the local domain name to which the FortiMail unit belongs; in the MX record, it is the local domain for which the FortiMail is the mail gateway
- `fortimail.example.net` is the FQDN of the FortiMail unit
- `fortimail` is the host name of the FortiMail unit; in the A record of the zone file for example.net, it resolves to the IP address of the FortiMail unit for the purpose of administrators' access to the web-based manager, email users' access to their per-recipient quarantines, to resolve the FQDN referenced in the MX record when email users send Bayesian and quarantine control email to the FortiMail unit, and to resolve to the IP address of the FortiMail unit for the purpose of the web release/delete hyperlinks in the spam report
- `10.10.10.1` is the public IP address of the FortiMail unit

Case 2: Web Release Host Name/IP is configured

You could configure *Web Release Host Name/IP* to use an alternative fully qualified domain name (FQDN) such as `webrelease.example.info` instead of the configured FQDN, resulting in the following web release link (web release FQDN highlighted in bold):

`https://`***`webrelease.example.info`***`/releasecontrol?release=0%3Auser2%40example.com%3AMTIyMDUzOTQzOC43NDJfNjc0MzE1LkZvcnRpTWFpbC00MDAsI0YjUyM2NTkjRSxVMzoyLA%3D%3D%3Abf3db63dab53a291ab53a291ab53a291`

Then, in the DNS configuration to support this and the other DNS-dependent features, you would configure the following MX record, A records, and PTR record (unlike "Case 1: Web Release Host Name/IP is empty/default" on page 140, in this case, two A records are required; the difference is highlighted in bold):

```
example.net IN MX 10 fortimail.example.net
fortimail IN A 10.10.10.1
webrelease IN A 10.10.10.1
1 IN PTR fortimail.example.net.
```

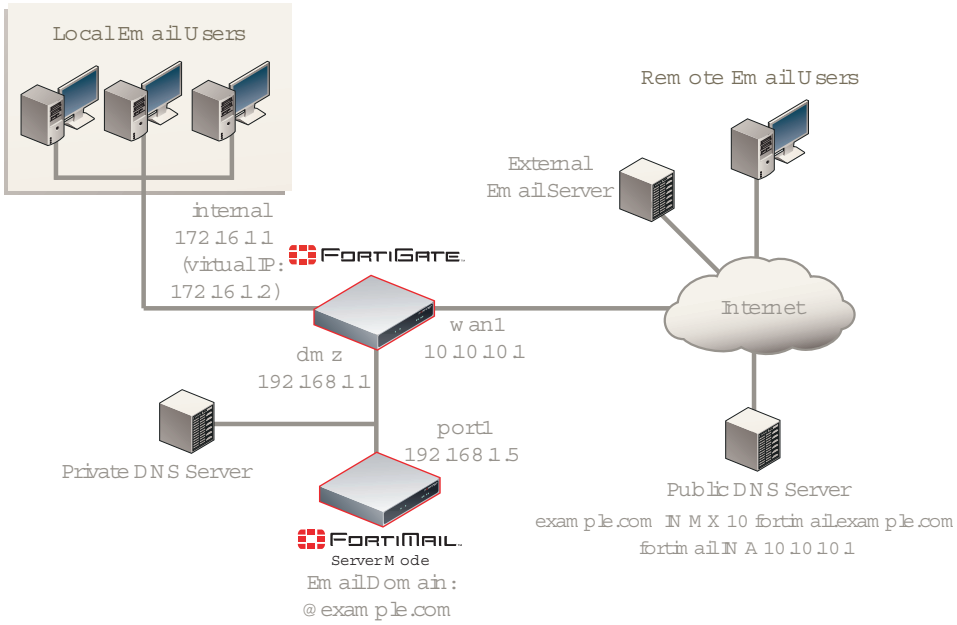
where:

- `example.net` is the local domain name to which the FortiMail unit belongs;in the MX record, it is the local domain for which the FortiMail is the mail gateway
- `fortimail.example.net` is the FQDN of the FortiMail unit
- `fortimail` is the host name of the FortiMail unit; in the A record of the zone file for example.net, it resolves to the IP address of the FortiMail unit for the purpose of administrators' access to the web-based manager and to resolve the FQDN referenced in the MX record when email users send Bayesian and quarantine control email to the FortiMail unit
- `webrelease` is the web release host name; in the A record of the zone file for example.info, it resolves to the IP address of the FortiMail unit for the purpose of the web release/delete hyperlinks in the spam report
- `10.10.10.1` is the public IP address of the FortiMail unit

Configuring a private DNS server

In addition to the public DNS server, consider providing a private DNS server on your local network to improve performance with features that use DNS queries.

Figure 49: Public and private DNS servers (server mode)



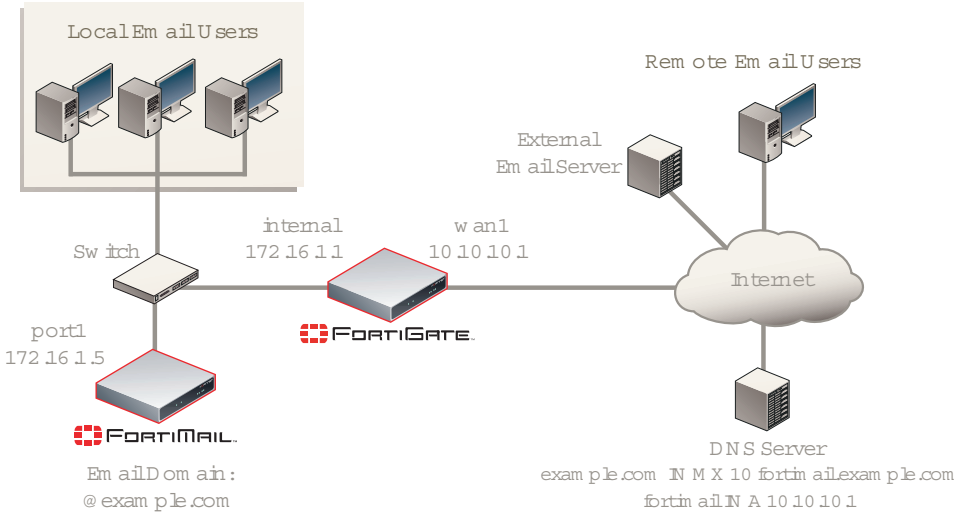
If the FortiMail unit is operating in server mode, the private DNS server should contain identical records to a public DNS server.

If you choose to add a private DNS server, to configure the FortiMail unit to use it, go to *System* > *Network* > *DNS* in the advanced mode of the web-based manager.

Example 1: FortiMail unit behind a firewall

In this example, a FortiMail unit operating in server mode and email users' computers are both positioned within a private network, behind a firewall. Remote email users' computers and external email servers are located on the Internet, outside of the network protected by the firewall. The FortiMail unit hosts and protects accounts for email addresses ending in "@example.com".

Figure 50: Server mode deployment behind a NAT device



The FortiMail unit has also been configured with an access control rule that allows local and remote email users to send email to unprotected domains if they first authenticate:

Sender Pattern	`*@example.com`
Recipient Pattern	`*`
Sender IP/Netmask	`0.0.0.0/0`
Reverse DNS Pattern	`*`
Authentication Status	*authenticated*
TLS	*< none >*
Action	*RELAY*

To deploy the FortiMail unit behind a NAT device such as a firewall or router, you must complete the following:

- Configuring the firewall
- Configuring the email user accounts
- Configuring the MUAs
- Testing the installation

Note: This example assumes you have already completed the Quick Start Wizard and configured records on the DNS server for each protected domain. For details, see "Quick Start Wizard" on page 77 and "Configuring DNS records" on page 139.

Configuring the firewall

With the FortiMail unit behind a FortiGate unit, you must configure policies to allow traffic:

- from the Internet to the FortiMail unit
- from the FortiMail unit to the Internet

To create the required policies, complete the following:

- Configuring the firewall address
- Configuring the service groups
- Configuring the virtual IPs
- Configuring the firewall policies

Note: The following procedures use a FortiGate unit running FortiOS v3.0 MR7. If you are using a different firewall appliance, consult the appliance's documentation for completing similar configurations.

Configuring the firewall address

In order to create the outgoing firewall policy that governs the IP address of the FortiMail unit, you must first define the IP address of the FortiMail unit by creating a firewall address entry.

To add a firewall address for the FortiMail unit

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `FortiMail_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `172.16.1.5`.
Interface	Select *internal*.

4 Select *OK*.

Configuring the service groups

In order to create firewall policies that govern only FortiMail-related traffic, you must first create groups of services that define protocols and port numbers used in that traffic.

Because FortiGuard-related services for FortiMail units are not predefined, you must define them before you can create a service group that contains those services.

Note: For more information on protocols and port numbers used by FortiMail units, see the Fortinet Knowledge Center article FortiMail Traffic Types and TCP/UDP Ports.

To add a custom service for FortiGuard Antivirus push updates

1 Go to *Firewall* > *Service* > *Custom*.

2 Select *Create New*.

3 Configure the following:

Name		Enter a name to identify the custom service entry, such as `FortiMail_antivirus_push_updates`.
Protocol Type		Select *TCP/UDP*.
Protocol		Select *UDP*.
Destination Port		
	Low	Enter `9443`.
	High	Enter `9443`.

4 Select *OK*.

To add a custom service for FortiGuard Antispam rating queries

1 Go to *Firewall* > *Service* > *Custom*.

2 Select *Create New*.

3 Configure the following:

Name		Enter a name to identify the custom service entry, such as `FortiMail_antispam_rating_queries`.
Protocol Type		Select *TCP/UDP*.
Protocol		Select *UDP*.
Destination Port		
	Low	Enter `8889`.
	High	Enter `8889`.

4 Select *OK*.

To add a service group for incoming FortiMail traffic

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `FortiMail_incoming_services`.

4 In the *Available Services* area, select *HTTP*, *HTTPS*, *SMTP*, *POP3*, *IMAP*, and your custom service for FortiGuard Antivirus push updates, *FortiMail_antivirus_push_updates*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

To add a service group for outgoing FortiMail traffic

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `FortiMail_outgoing_services`.

4 In the *Available Services* area, select *DNS*, *NTP*, *HTTPS*, *SMTP*, and your custom service for FortiGuard Antispam rating queries, *FortiMail_antispam_rating_queries*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

Configuring the virtual IPs

In order to create the firewall policy that forwards email-related traffic to the FortiMail unit, you must first define a static NAT mapping from a public IP address on the FortiGate unit to the IP address of the FortiMail unit by creating a virtual IP entry.

Note: To add virtual IPs, the FortiGate unit must be operating in NAT mode. For more information, see the *FortiGate Administration Guide*.

To add a virtual IP for the FortiMail unit

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `FortiMail_VIP`.
External Interface	Select *wan1*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `10.10.10.1`.
Mapped IP Address/Range	Enter `172.16.1.5`.

4 Select *OK*.

Configuring the firewall policies

First, create a firewall policy that allows incoming email and other FortiMail services that are received at the virtual IP address, then applies a static NAT when forwarding the traffic to the private network IP address of the FortiMail unit.

Second, create a firewall policy that allows outgoing email and other connections from the FortiMail unit to the Internet.

To add the Internet-to-FortiMail policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *wan1*.
Source Address Name	Select *all*.
Destination Interface/zone	Select *internal*.
Destination Address Name	Select *FortiMail_VIP*.
Schedule	Select *ALWAYS*.
Service	Select *FortiMail_incoming_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the FortiMail-to-Internet policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *internal*.
Source Address Name	Select *FortiMail_address*.
Destination Interface/zone	Select *wan1*.
Destination Address Name	Select *all*.
Schedule	Select *ALWAYS*.
Service	Select *FortiMail_outgoing_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

Configuring the email user accounts

Create email user accounts for each protected domain on the FortiMail unit.

You may choose to create additional email user accounts later, but you should create at least one email user account for each protected domain that you can use in order to verify connectivity for the domain.

To add an email user

1 Go to *Settings* > *User* > *User*.

If this menu path is not available, first select *Basic* >> to switch to the basic mode of the web-based manager.

2 From *Show Users Of Domain*, select *example.com*.

3 Select *Create New*.

4 In *User Name*, enter the user name portion, such as `user1`, of the email address that will be locally deliverable on the FortiMail unit (user1@example.com).

5 Select *Password*, then enter the password for this email account.

6 In *Display Name*, enter the name of the user as it should appear in a MUA, such as `"Test User 1"`.

7 Select *OK*.

Configuring the MUAs

Configure the email clients of local and remote email users to use the FortiMail unit as their outgoing mail server (SMTP)/MTA. For local email users, this is the private network IP address of the FortiMail unit, 172.16.1.5; for remote email users, this is the virtual IP on the FortiGate unit that maps to the FortiMail unit, 10.10.10.1 or fortimail.example.com.

If you do not configure the email clients to send email through the FortiMail unit, incoming email can be scanned, but outgoing email cannot.

Also configure email clients to authenticate with the email user's user name and password for outgoing mail. The user name is the email user's entire email address, including the domain name portion, such as user1@example.com.

If you do not configure the email clients to authenticate, email destined for other email users in the protected domain may be accepted, but email outgoing to unprotected domains will be denied by the access control rule.

Testing the installation

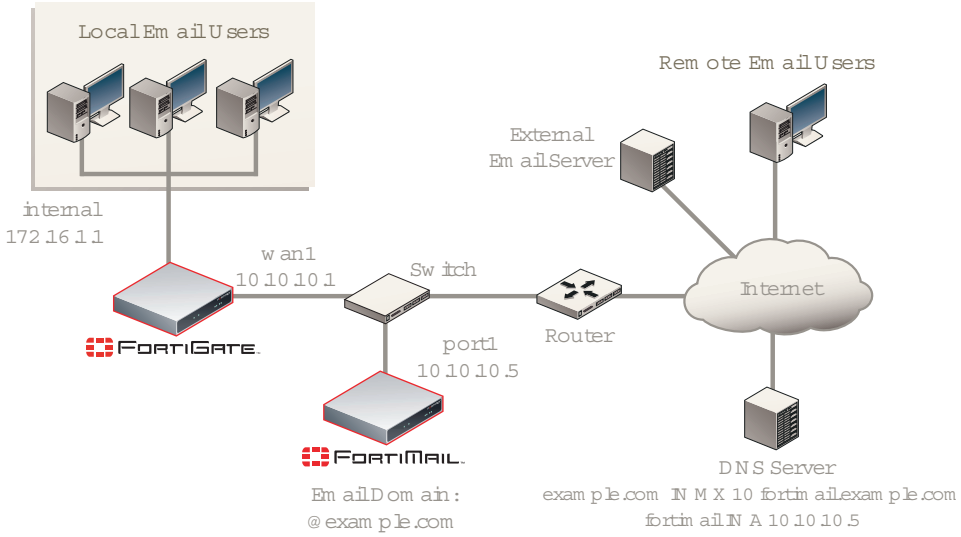
Basic configuration is now complete, and the installation may be tested. For testing instructions, see "Testing the installation" on page 159.

For information on configuring additional features, see the FortiMail Administration Guide.

Example 2: FortiMail unit in front of a firewall

In this example, a FortiMail unit operating in server mode within a private network, but is separated from local email users' computers by a firewall. Remote email users' computers and external email servers are located on the Internet, outside of the private network. The FortiMail unit hosts and protects accounts for email addresses ending in "@example.com".

Figure 51: Server mode deployment in front of a NAT device



The FortiMail unit has also been configured with an access control rule that allows local and remote email users to send email to unprotected domains if they first authenticate:

Sender Pattern	`*@example.com`
Recipient Pattern	`*`
Sender IP/Netmask	`0.0.0.0/0`
Reverse DNS Pattern	`*`
Authentication Status	*authenticated*
TLS	*< none >*
Action	*RELAY*

To deploy the FortiMail unit in front of a NAT device such as a firewall or router, you must complete the following:

- Configuring the firewall
- Configuring the email user accounts
- Configuring the MUAs
- Testing the installation

Note: This example assumes you have already completed the Quick Start Wizard and configured records on the DNS server for each protected domain. For details, see "Quick Start Wizard" on page 77 and "Configuring DNS records" on page 139.

Configuring the firewall

With the FortiMail unit in front of a FortiGate unit which is between the FortiMail unit and local email users, you must configure a policy to allow from local email users to the FortiMail unit.

To create the required policies, complete the following:

- Configuring the firewall addresses
- Configuring the service group

- Configuring the firewall policy

Note: The following procedures use a FortiGate unit running FortiOS v3.0 MR7. If you are using a different firewall appliance, consult the appliance's documentation for completing similar configurations.

Configuring the firewall addresses

In order to create the outgoing firewall policy that governs traffic from the IP addresses of local email users to the IP address of the FortiMail unit, you must first define the IP addresses of the local email users and the FortiMail unit by creating firewall address entries.

To add a firewall address for local email users

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `local_email_users_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `172.16.1.0/24`.
Interface	Select *internal*.

4 Select *OK*.

To add a firewall address for the FortiMail unit

1 Go to *Firewall* > *Address* > *Address***s**.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `FortiMail_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `10.10.10.5/32`.
Interface	Select *wan1*.

4 Select *OK*.

Configuring the service group

In order to create a firewall policy that governs only FortiMail-related traffic, you must first a create service group that contains services that define protocols and port numbers used in that traffic.

To add a service group for email user traffic to the FortiMail unit

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `local_email_users_services`.

4 In the *Available Services* area, select *HTTP*, *HTTPS*, *SMTP*, *POP3*, and *IMAP*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

Configuring the firewall policy

Create a firewall policy that allows outgoing email and other FortiMail connections from the local email users to the FortiMail unit.

To add the internal-to-FortiMail policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *internal*.
Source Address Name	Select *local_email_users_address*.
Destination Interface/zone	Select *wan1*.
Destination Address Name	Select *FortiMail_address*.
Schedule	Select *ALWAYS*.
Service	Select *local_email_users_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

Configuring the email user accounts

Create email user accounts for each protected domain on the FortiMail unit.

You may choose to create additional email user accounts later, but you should create at least one email user account for each protected domain in order to verify connectivity for the domain.

To add an email user

1 Go to *Settings* > *User* > *User*.

If this menu path is not available, first select *Basic* >> to switch to the basic mode of the web-based manager.

2 From *Show Users Of Domain*, select *example.com*.

3 Select *Create New*.

4 In *User Name*, enter the user name portion, such as `user1`, of the email address that will be locally deliverable on the FortiMail unit (user1@example.com).

5 Select *Password*, then enter the password for this email account.

6 In *Display Name*, enter the name of the user as it should appear in a MUA, such as `"Test User 1"`.

7 Select *OK*.

Configuring the MUAs

Configure the email clients of local and remote email users to use the FortiMail unit as their outgoing mail server (SMTP)/MTA. For local email users, this is the virtual IP address on the FortiGate unit that maps to the FortiMail unit, 172.16.1.2; for remote email users, this is the public IP address of the FortiMail unit, 10.10.10.5 or fortimail.example.com.

If you do not configure the email clients to send email through the FortiMail unit, incoming email can be scanned, but outgoing email cannot.

Also configure email clients to authenticate with the email user's user name and password for outgoing mail. The user name is the email user's entire email address, including the domain name portion, such as user1@example.com.

If you do not configure the email clients to authenticate, email destined for other email users in the protected domain may be accepted, but email outgoing to unprotected domains will be denied by the access control rule.

Testing the installation

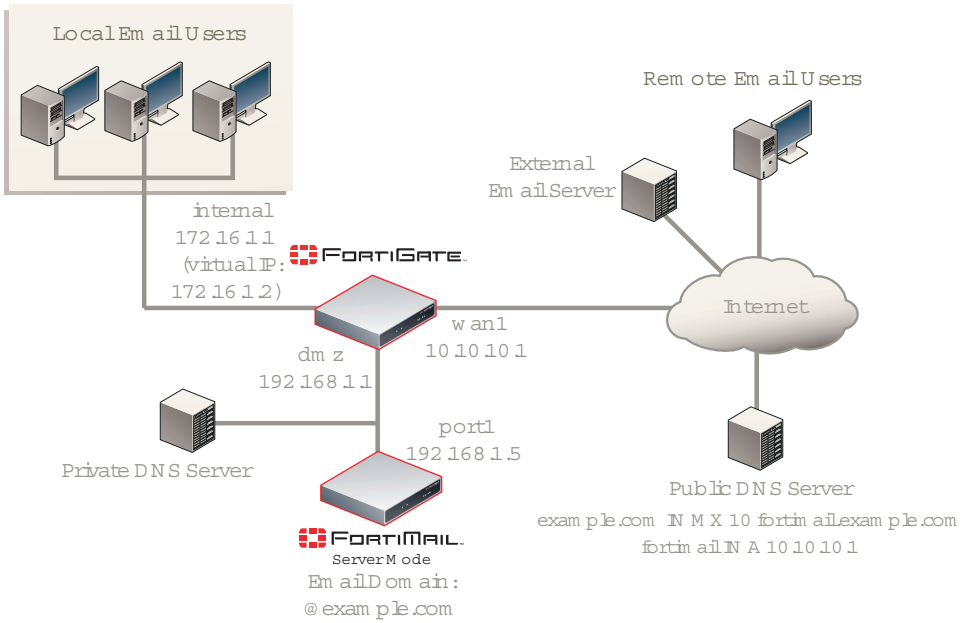
Basic configuration is now complete, and the installation may be tested. For testing instructions, see "Testing the installation" on page 159.

For information on configuring additional features, see the FortiMail Administration Guide.

Example 3: FortiMail unit in DMZ

In this example, a FortiMail unit operating in server mode within the demilitarized zone (DMZ), protected by a firewall but also separated from local email users' computers by it. Remote email users' computers and external email servers are located on the Internet, outside of the private network. The FortiMail unit hosts and protects accounts for email addresses ending in "@example.com".

Figure 52: Server mode deployment in a DMZ



The FortiMail unit has also been configured with an access control rule that allows local and remote email users to send email to unprotected domains if they first authenticate:

Sender Pattern	`*@example.com`
Recipient Pattern	`*`
Sender IP/Netmask	`0.0.0.0/0`
Reverse DNS Pattern	`*`
Authentication Status	*authenticated*
TLS	*< none >*
Action	*RELAY*

To deploy the FortiMail unit in the DMZ of a NAT device such as a firewall or router, you must complete the following:

- Configuring the firewall
- Configuring the email user accounts
- Configuring the MUAs
- Testing the installation

Note: This example assumes you have already completed the Quick Start Wizard and configured records on the DNS server for each protected domain. For details, see "Quick Start Wizard" on page 77 and "Configuring DNS records" on page 139.

Configuring the firewall

With the FortiMail unit located in the DMZ of a FortiGate unit which is between the FortiMail unit and local email users, you must configure policies to allow traffic:

- from local email users to the FortiMail unit
- from the FortiMail unit to the Internet
- from the Internet to the FortiMail unit

To create the required policies, complete the following:

- Configuring the firewall addresses
- Configuring the service groups
- Configuring the virtual IPs
- Configuring the firewall policies

Note: The following procedures use a FortiGate unit running FortiOS v3.0 MR7. If you are using a different firewall appliance, consult the appliance's documentation for completing similar configurations.

Configuring the firewall addresses

In order to create the firewall policies that govern traffic to and from the IP addresses of local email users and the IP address of the FortiMail unit, you must first define the IP addresses of the local email users and the IP address of the FortiMail unit by creating firewall address entries.

To add a firewall address for the FortiMail unit

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `FortiMail_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `192.168.1.5`.
Interface	Select *dmz*.

4 Select *OK*.

To add a firewall address for local email users

1 Go to *Firewall* > *Address* > *Address*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the firewall address entry, such as `local_email_users_address`.
Type	Select *Subnet/IP Range*.
Subnet /IP Range	Enter `172.168.1.0/24`.
Interface	Select *internal*.

4 Select *OK*.

Configuring the service groups

In order to create firewall policies that govern only FortiMail-related traffic, you must first create groups of services that define protocols and port numbers used in that traffic.

Because FortiGuard-related services for FortiMail units are not predefined, you must define them before you can create a service group that contains those services.

Note: For more information on protocols and port numbers used by FortiMail units, see the Fortinet Knowledge Center article FortiMail Traffic Types and TCP/UDP Ports.

To add a custom service for FortiGuard Antivirus push updates

1 Go to *Firewall* > *Service* > *Custom*.

2 Select *Create New*.

3 Configure the following:

Name		Enter a name to identify the custom service entry, such as `FortiMail_antivirus_push_updates`.
Protocol Type		Select *TCP/UDP*.
Protocol		Select *UDP*.
Destination Port		
	Low	Enter `9443`.
	High	Enter `9443`.

4 Select *OK*.

To add a custom service for FortiGuard Antispam rating queries

1 Go to *Firewall* > *Service* > *Custom*.

2 Select *Create New*.

3 Configure the following:

Name		Enter a name to identify the custom service entry, such as `FortiMail_antispam_rating_queries`.
Protocol Type		Select *TCP/UDP*.
Protocol		Select *UDP*.
Destination Port		
	Low	Enter `8889`.
	High	Enter `8889`.

4 Select *OK*.

To add a service group for incoming FortiMail traffic

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `FortiMail_incoming_services`.

4 In the *Available Services* area, select *HTTP*, *HTTPS*, *SMTP*, *POP3*, *IMAP*, and your custom service for FortiGuard Antivirus push updates, *FortiMail_antivirus_push_updates*, then select the right arrow to move them to the Members area.

5 Select *OK*.

To add a service group for outgoing FortiMail traffic

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `FortiMail_outgoing_services`.

4 In the Available Services area, select DNS, NTP, HTTPS, SMTP, and your custom service for FortiGuard Antispam rating queries, FortiMail_antispam_rating_queries, then select the right arrow to move them to the Members area.

5 Select *OK*.

To add a service group for email user traffic to the FortiMail unit

1 Go to *Firewall* > *Service* > *Group*.

2 Select *Create New*.

3 In *Group Name*, enter a name to identify the service group entry, such as `local_email_users_services`.

4 In the *Available Services* area, select *HTTP*, *HTTPS*, *SMTP*, *POP3*, and *IMAP*, then select the right arrow to move them to the *Members* area.

5 Select *OK*.

Configuring the virtual IPs

In order to create the firewall policies that forward email-related traffic to the FortiMail unit from the internal network and from the Internet, you must first define two static NAT mappings:

- from a public IP address on the FortiGate unit to the IP address of the FortiMail unit
- from a virtual IP address on the 172.16.1.* network to the IP address of the FortiMail unit

by creating a virtual IP entries.

To add a wan1 virtual IP for the FortiMail unit

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `FortiMail_VIP_wan1`.
External Interface	Select *wan1*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `10.10.10.1`.
Mapped IP Address/Range	Enter `192.168.1.5`.

4 Select *OK*.

To add an internal virtual IP for the FortiMail unit

1 Go to *Firewall* > *Virtual IP* > *Virtual IP*.

2 Select *Create New*.

3 Complete the following:

Name	Enter a name to identify the virtual IP entry, such as `FortiMail_VIP_internal`.
External Interface	Select *internal*.
Type	Select *Static NAT*.
External IP Address/Range	Enter `172.168.1.2`.
Mapped IP Address/Range	Enter `192.168.1.5`.

4 Select *OK*.

Configuring the firewall policies

First, create a firewall policy that allows incoming email and other FortiMail services that are received at the virtual IP address, then applies a static NAT when forwarding the traffic to the private network IP address of the FortiMail unit.

Second, create a firewall policy that allows outgoing email and other FortiMail connections from the FortiMail unit to the Internet.

Last, create a firewall policy that allows outgoing email and other FortiMail connections from the local email users to the FortiMail unit.

To add the Internet-to-FortiMail policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *wan1*.
Source Address Name	Select *all*.
Destination Interface/zone	Select *dmz*.
Destination Address Name	Select *FortiMail_VIP_wan1*.
Schedule	Select *ALWAYS*.
Service	Select *FortiMail_incoming_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the FortiMail-to-Internet policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *dmz*.
Source Address Name	Select *FortiMail_address*.
Destination Interface/zone	Select *wan1*.
Destination Address Name	Select *all*.
Schedule	Select *ALWAYS*.
Service	Select *FortiMail_outgoing_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

To add the internal-to-FortiMail policy

1 Go to *Firewall* > *Policy* > *Policy*.

2 Select *Create New*.

3 Complete the following:

Source Interface/zone	Select *internal*.
Source Address Name	Select *local_email_users_address*.
Destination Interface/zone	Select *dmz*.
Destination Address Name	Select *FortiMail_VIP_internal*.
Schedule	Select *ALWAYS*.

Service	Select *local_email_users_services*.
Action	Select *ACCEPT*.

4 Select *NAT*.

5 Select *OK*.

Configuring the email user accounts

Create email user accounts for each protected domain on the FortiMail unit.

You may choose to create additional email user accounts later, but you should create at least one email user account for each protected domain in order to verify connectivity for the domain.

To add an email user

1 Go to *Settings* > *User* > *User*.

If this menu path is not available, first select *Basic* >> to switch to the basic mode of the web-based manager.

2 From *Show Users Of Domain*, select *example.com*.

3 Select *Create New*.

4 In *User Name*, enter the user name portion, such as `user1`, of the email address that will be locally deliverable on the FortiMail unit (user1@example.com).

5 Select *Password*, then enter the password for this email account.

6 In *Display Name*, enter the name of the user as it should appear in a MUA, such as `"Test User 1"`.

7 Select *OK*.

Configuring the MUAs

Configure the email clients of local and remote email users to use the FortiMail unit as their outgoing mail server (SMTP)/MTA. For local email users, this is the virtual IP address on the internal network interface of the FortiGate unit that maps to the FortiMail unit, 172.16.1.2; for remote email users, this is the virtual IP address on the wan1 network interface of the FortiGate unit that maps to the FortiMail unit, 10.10.10.1 or fortimail.example.com.

If you do not configure the email clients to send email through the FortiMail unit, incoming email can be scanned, but outgoing email cannot.

Also configure email clients to authenticate with the email user's user name and password for outgoing mail. The user name is the email user's entire email address, including the domain name portion, such as user1@example.com.

If you do not configure the email clients to authenticate, email destined for other email users in the protected domain may be accepted, but email outgoing to unprotected domains will be denied by the access control rule.

Testing the installation

Basic configuration is now complete, and the installation may be tested. For testing instructions, see "Testing the installation" on page 159.

For information on configuring additional features, see the FortiMail Administration Guide.

Testing the installation

After completing the installation, test it by sending email between legitimate SMTP clients and servers at various points within your network topology, and by testing each email user's access to their per-recipient quarantine.

If the FortiMail unit is operating in gateway mode or transparent mode, you may also wish to test access of email users to their per-recipient quarantines.

If the FortiMail unit is operating in server mode, you may also wish to test access to FortiMail webmail, POP3, and/or IMAP.

Figure 53: Connection test paths (gateway mode)

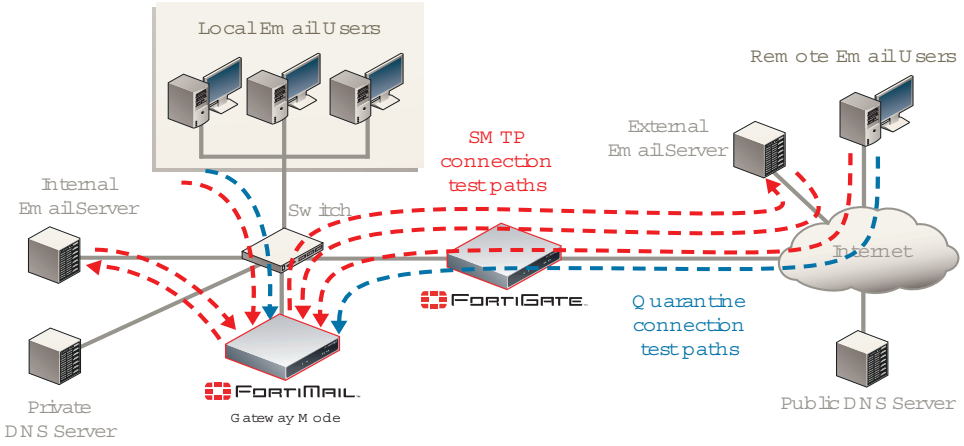


Figure 54: Connection test paths (transparent mode)

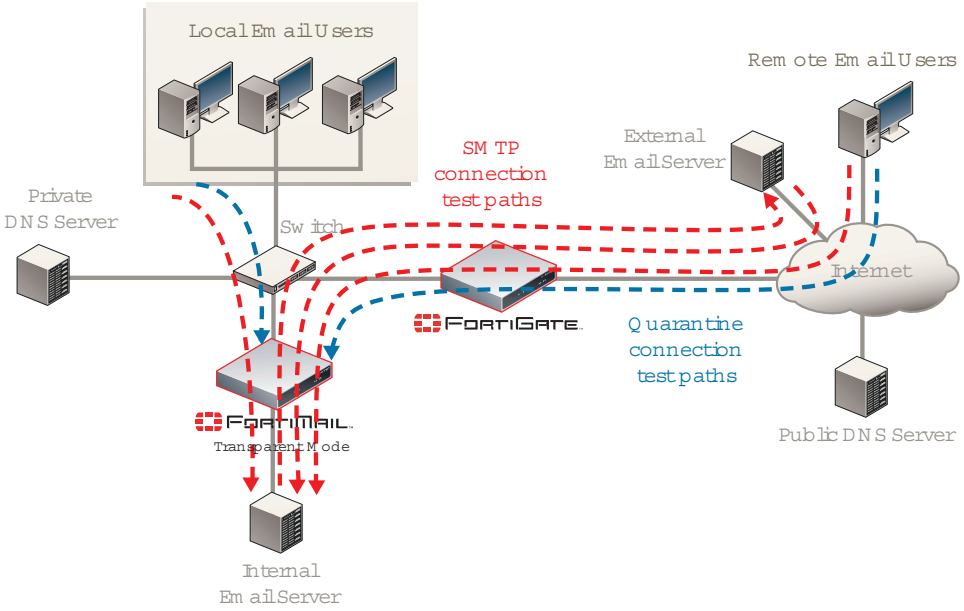
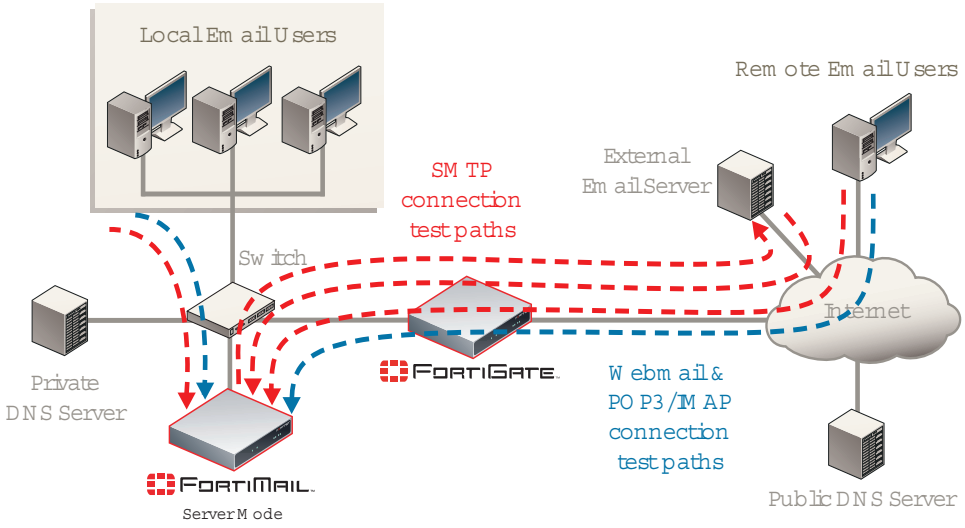


Figure 55: Connection test paths (server mode)



To verify all SMTP connections to and from your FortiMail unit, consider both internal and external recipient email addresses, as well as all possible internal and external SMTP clients and servers that will interact with your FortiMail unit, and send email messages that test the connections both to and from each of those clients and servers. For example:

1. Using an SMTP client on the ***local*** network whose MTA is the FortiMail unit or protected email server, send an email from an ***internal*** sender to an ***internal*** recipient.
2. Using an SMTP client on the ***local*** network whose MTA is the FortiMail unit or protected email server, send an email from an ***internal*** sender to an ***external*** recipient.
3. Send an email from an ***external*** sender to an ***internal*** recipient.
4. If you have remote SMTP clients such as mobile users or branch office SMTP servers, using an SMTP client on the ***remote*** network whose MTA is the FortiMail unit or protected email server, send an email from an ***internal*** sender to an ***internal*** recipient.
5. If you have remote SMTP clients such as mobile users or branch office SMTP servers, using an SMTP client on the ***remote*** network whose MTA is the FortiMail unit or protected email server, send an email from an ***internal*** sender to an ***external*** recipient.

If you cannot connect, receive error messages while establishing the connection, or the recipient does not receive the email message, verify your configuration, especially:

- routing and policy configuration of intermediary NAT devices such as firewalls or routers
- connectivity of the FortiMail unit with the Fortinet Distribution Network (FDN)
- external email servers' connectivity with and the configuration of the public DNS server that hosts the MX records, A records, and reverse DNS records for your domain names
- the FortiMail unit's connectivity with and the configuration of the local private DNS server (if any) that caches records for external domain names and, if the "Use MX Record" option is enabled, hosts private MX records that refer to your protected email servers
- access control rules on your FortiMail unit
- configuration of MUAs, including the IP address/domain name of the SMTP and POP3/IMAP server, authentication, and encryption (such as SSL or TLS)

For information on tools that you can use to troubleshoot, see "Troubleshooting tools" on page 161.

Troubleshooting tools

To locate network errors and other issues that may prevent email from passing to or through the FortiMail unit, FortiMail units feature several troubleshooting tools. You may also be able to perform additional tests from your management computer or the computers of SMTP clients and servers.

This section includes the following topics:

Ping and traceroute

If your FortiMail unit cannot connect to other hosts, you may be able to use ICMP ping and traceroute to determine if the host is reachable or locate the node of your network at which connectivity fails, such as when static routes are incorrectly configured. You can do this from the FortiMail unit using CLI commands.

For example, you might use ICMP ping to determine that 172.16.1.10 is reachable (commands that you would type are highlighted in bold; responses from the FortiMail unit are not bolded):

```
FortiMail-400 # execute ping 172.16.1.10
PING 172.16.1.10 (172.16.1.10): 56 data bytes
64 bytes from 172.16.1.10: icmp_seq=0 ttl=64 time=2.4 ms
64 bytes from 172.16.1.10: icmp_seq=1 ttl=64 time=1.4 ms
64 bytes from 172.16.1.10: icmp_seq=2 ttl=64 time=1.4 ms
64 bytes from 172.16.1.10: icmp_seq=3 ttl=64 time=0.8 ms
64 bytes from 172.16.1.10: icmp_seq=4 ttl=64 time=1.4 ms

--- 172.20.120.167 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.8/1.4/2.4 ms
```

or that 192.168.1.10 is ***not*** reachable:

```
FortiMail-400 # execute ping 192.168.1.10
PING 192.168.1.10 (192.168.1.10): 56 data bytes
Timeout ...
Timeout ...
Timeout ...
Timeout ...
Timeout ...

--- 192.168.1.10 ping statistics ---
5 packets transmitted, 0 packets received, 100% packet loss
```

Note: Both ping and traceroute require that network nodes respond to ICMP ping. If you have disabled responses to ICMP on your network, hosts may appear to be unreachable to ping and traceroute, even if connections using other protocols can succeed.

If the host is not reachable, you can use traceroute to determine the router hop or host at which the connection fails:

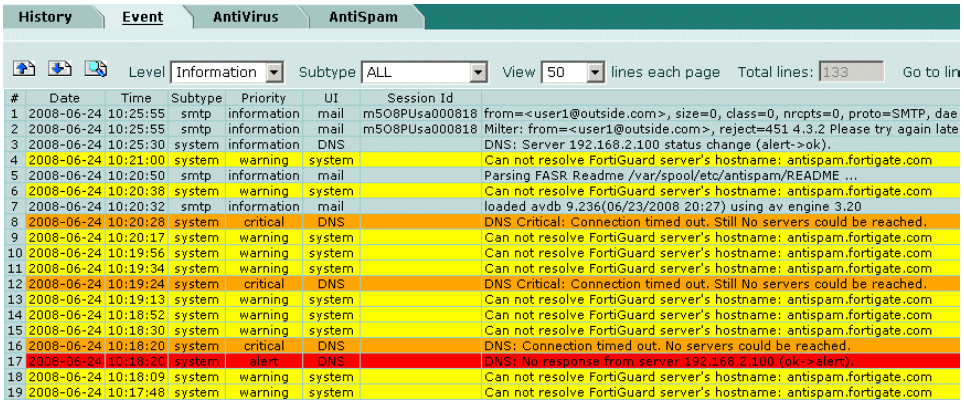
```
FortiMail-400 # execute traceroute 192.168.1.10
traceroute to 192.168.1.10 (192.168.1.10), 32 hops max, 72 byte
   packets
1  192.168.1.2 2 ms  0 ms  1 ms
2  * * *
```

For more information on CLI commands, see the *FortiMail CLI Reference*.

Nslookup

It is critical that FortiMail has good access to DNS services to properly handle SMTP sessions and apply antispam scans, including FortiGuard Antispam. If DNS queries fail, they will be recorded in the event log.

Figure 56: Event log when DNS queries fail



#	Date	Time	Subtype	Priority	UI	Session Id	
1	2008-06-24	10:25:55	smtp	information	mail	m5O8PUsa000818	from=<user1@outside.com>, size=0, class=0, nrcpts=0, proto=SMTP, dae
2	2008-06-24	10:25:55	smtp	information	mail	m5O8PUsa000818	Milter: from=<user1@outside.com>, reject=451 4.3.2 Please try again late
3	2008-06-24	10:25:30	system	information	DNS		DNS: Server 192.168.2.100 status change (alert->ok).
4	2008-06-24	10:21:00	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com
5	2008-06-24	10:20:50	smtp	information	mail		Parsing FASR Readme /var/spool/etc/antispam/README ...
6	2008-06-24	10:20:38	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com
7	2008-06-24	10:20:32	smtp	information	mail		loaded avdb 9.236(06/23/2008 20:27) using av engine 3.20
8	2008-06-24	10:20:28	system	critical	DNS		DNS Critical: Connection timed out. Still No servers could be reached.
9	2008-06-24	10:20:17	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com
10	2008-06-24	10:19:56	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com
11	2008-06-24	10:19:34	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com
12	2008-06-24	10:19:24	system	critical	DNS		DNS Critical: Connection timed out. Still No servers could be reached.
13	2008-06-24	10:19:13	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com
14	2008-06-24	10:18:52	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com
15	2008-06-24	10:18:30	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com
16	2008-06-24	10:18:20	system	critical	DNS		DNS: Connection timed out. No servers could be reached.
17	2008-06-24	10:18:20	system	alert	DNS		DNS: No response from server 192.168.2.100 (ok->alert).
18	2008-06-24	10:18:09	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com
19	2008-06-24	10:17:48	system	warning	system		Can not resolve FortiGuard server's hostname: antispam.fortigate.com

If a DNS query fails or resolves incorrectly, you may want to manually query your DNS server to verify that the records are correctly configured. You can do this from the FortiMail unit using CLI commands.

For example, you might query for the mail gateway of the domain example.com (commands that you would type are highlighted in bold; responses from the FortiMail unit are not bolded):

```
FortiMail-400 # execute nslookup mx example.com
example.com mail exchanger = 10 mail.example.com.
```

or query to resolve mail.example.com and antispam.fortigate.com (the domain name of a FortiGuard Distribution Network server) into IP addresses:

```
FortiMail-400 # execute nslookup host mail.example.com
Name: mail.example.com
Address: 192.168.1.10
FortiMail-400 # execute nslookup host antispam.fortigate.com
Name: antispam.fortigate.com
Address: 212.95.252.120
Name: antispam.fortigate.com
Address: 72.15.145.66
Name: antispam.fortigate.com
Address: 69.90.198.55
```

For more information on CLI commands, see the *FortiMail CLI Reference*.

Note: Like verifying DNS connectivity and configuration from the FortiMail unit, you may also be able to verify DNS connectivity and configuration from protected and external mail servers using similar commands. This can be necessary if the devices are configured to use different DNS servers. For details, see the documentation for those mail servers.

Telnet connections to the SMTP port number

Instead of using an SMTP client to verify SMTP connections, you can manually establish SMTP connections by using a Telnet client. Especially if your SMTP client or SMTP server is unable to establish a connection, manually attempting the connection may provide you with SMTP error codes or other insight into why the connection is failing.

Table 8: Some common SMTP error codes

SMTP error code number	Description
500	Syntax error, command unrecognized
501	Syntax error in parameters or arguments
502	Command not implemented (such as for ESMTP and other SMTP protocol extensions that are not enabled/installed on the SMTP server)
503	Bad sequence of commands

If extended SMTP error codes have been installed and enabled on the target SMTP server, a manual Telnet connection may enable you to view additional error descriptions. For example, the enhanced error code `4.3.2 Please Try Again Later` may notify you that a temporary condition exists preventing delivery, such as greylisting or service unavailability, and that the SMTP client should try delivery again later.

How you should establish the connection depends on the origin and destination of the SMTP connection that you want to test, either:

- from the FortiMail unit to an SMTP server
- to or through the FortiMail unit

From the FortiMail unit to an SMTP server

If you are not sure if the FortiMail unit can use SMTP to reach an SMTP server, you might use the `execute telnettest <fqdn_str>:<port_int>` CLI command.

For example, to test SMTP connectivity with mail.example.com on the standard SMTP port number, 25 (commands that you would type are highlighted in bold; responses from the FortiMail unit are not bolded):

```
FortiMail-400 # execute telnettest mail.example.com:25
Connecting to remote host succeeded.
```

To or through the FortiMail unit

If you are not sure if a MUA can use SMTP to reach a FortiMail unit that is operating in gateway mode or server mode, or not sure which SMTP commands the FortiMail unit has been configured to accept, from the email user's computer or an external SMTP server, you might open a command prompt and use the command line Telnet client.

For example, to send a test email message (commands that you would type are highlighted in bold; responses from the FortiMail unit are not bolded):

```
$ telnet fortimail.example.com 25
Trying fortimail.example.com...
Connected to fortimail.example.com.
Escape character is '^]'.
```

```
220 fortimail.example.com ESMTP Smtpd; Mon, 6 Oct 2008 14:47:32
   -0400
EHLO mail.example.com
250-fortimail.example.com Hello [172.16.1.10], pleased to meet
   you
250-ENHANCEDSTATUSCODES
250-PIPELINING
250-8BITMIME
250-SIZE 10485760
250-DSN
250-AUTH LOGIN PLAIN DIGEST-MD5 CRAM-MD5
250-DELIVERBY
250 HELP
MAIL FROM: user1@internal.example.com
250 2.1.0 user1@example.com... Sender ok
RCPT TO: user2@external.example.net
250 2.1.5 user2@example.com... Recipient ok
DATA
354 Enter mail, end with "." on a line by itself
Subject: TEST
This is a test email message.
.
250 2.0.0 m96IlWkF001390 Message accepted for delivery
QUIT
221 2.0.0 fortimail.example.com closing connection
Connection closed by foreign host.
$
```

where:

- `fortimail.example.com` is the fully qualified domain name (FQDN) of your FortiMail unit
- the FortiMail unit is listening for SMTP connections on the default SMTP port number, `25`
- `mail.example.com` is the fully qualified domain name (FQDN) of a protected email server from which you are connecting, whose domain name resolves to the IP address `172.16.1.10`
- `user1@internal.example.com` is a email address of an sender that is internal to your protected domain, internal.example.com
- `user2@external.example.net` is a email address of an recipient that is external to your protected domain

Log messages

Log messages often contain clues that can aid you in determining the cause of a problem. FortiMail units can record log messages when errors occur that cause failures, upon significant changes, and upon processing events.

Depending on the type, log messages may appear in either the history, event, antivirus, or antispam logs. For example, to determine when and why an email was quarantined, you might examine the *Classifier* and *Disposition* fields in the history log; to determine if a *FortiGuard-AntiSpam scan* query was able to reach the FDN, you might examine the Message field in the antispam log.

During troubleshooting, you may find it useful to reduce the logging severity threshold for more verbose logs, to include more information on less severe events.

For example, when the FortiMail unit cannot reach the FDN or override server for FortiGuard Antispam queries, the associated log message in the antispam log has a severity level of *Notification*. If your severity threshold is currently greater than *Notification* (such as *Warning* or *Error*), the FortiMail unit will not record that log message, and you will not be notified of the error. Often this error might occur due to temporary connectivity problems, and is not critical. However, if you are frequently encountering this issue, you may want to lower the severity threshold to determine how often the issue is occurring and whether the cause of the problem is persistent.

Similar to how the FortiMail unit will not record log messages below the severity threshold, if the FortiMail unit is not enabled to record event, history, antivirus, and antispam log messages, you will not be able to analyze the log messages for events of that type. During troubleshooting, be sure that log messages are enabled for the type of event that you want to analyze.

To configure the severity threshold, go to *Log & Report* > *Log Setting* > *Log Setting*. To enable logging of different types of events, select *Config Policy* on that page.

Note: If this menu path is not available, first select *Advanced* >> to switch to the advanced mode of the web-based manager.

Greylist and sender reputation displays

If an SMTP client is unable to send email despite being able to initiate SMTP connections to or through the FortiMail unit, and is receiving SMTP error codes that indicate temporary failure or permanent rejection, verify that the SMTP client has not been temporarily blocked by the greylist or sender reputation features.

To view the lists of SMTP clients and their statuses with those features, go to *AntiSpam* > *Greylist* > *Display* and *AntiSpam* > *Sender Reputation* > *Display*, respectively.

Note: If these menu paths are not available, first select *Advanced* >> to switch to the advanced mode of the web-based manager.

Mail queues and quarantines

If email has not successfully passed to or through the FortiMail unit, but you have been able to successfully initiate the SMTP connection and send the email and have not received any SMTP error codes, verify that delivery has not been delayed and that the email message has not been quarantined.

To view the mail queues, go to *Mail Settings* > *Mail Queue*, then select a mail queue tab. To view the per-recipient or system quarantine, go to *AntiSpam* > *Quarantine*, then select either the *Recipients* or *System Quarantine* tab.

Note: If these menu paths are not available, first select *Advanced* >> to switch to the advanced mode of the web-based manager.

Packet capture

Packet capture, also known as sniffing, records some or all of the packets seen by a network interface. By recording packets, you can trace connection states to the exact point at which they fail, which may help you to diagnose some types of problems that are otherwise difficult to detect.

FortiMail units have a built-in sniffer. Packet capture on FortiMail units is similar to that of FortiGate units. To use the built-in sniffer, connect to the CLI and enter the following command:

```
diagnose sniffer interfaces <interface_str> '<filter_str>'
   verbose <verboselevel_int>
```

where:

- `<interface_str>` is the name of a network interface, such as `port1`
- `'<filter_str>'` is the sniffer filter that specifies which protocols and port numbers that you do or do not want to capture, such as `'tcp port 25'`
- `<verboselevel_int>` is an integer indicating the depth of packet headers and payloads to display: `1` for header only, `2` for IP header and payload, or `3` for Ethernet header and payload

This command prints packet capture output to your CLI display until you stop it by pressing Ctrl + C.

Note: Packet capture can be very resource intensive. To minimize the performance impact on your FortiMail unit, use packet capture only during periods of minimal traffic, with a serial console CLI connection rather than a Telnet or SSH CLI connection, and be sure to stop the command when you are finished.

For example, you might selectively capture packets for FortiGuard Antispam queries occurring through port1 (commands that you would type are highlighted in bold; responses from the FortiMail unit are not bolded):

```
FortiMail-400 # diag sniffer int port1 'udp port 8889' verbose 3
2.685841 172.16.1.10.47319 -> 212.95.252.120.8889: udp 64
0x0000 0009 0f84 27fe 0009 0f15 02e8 0800 4500....'.........E.
0x0010 005c 0000 4000 4011 44ff ac14 78a5 d45f.\..@.@.D...x..._
0x0020 fc78 b8d7 22b9 0048 9232 6968 726a b3c5.x.."..H.2ihrj..
0x0030 776c 2d2f 5a5f 545e 4555 5b5f 425b 545fwl-/Z_T^EU[_B[T_
0x0040 4559 6b6a 776b 646e 776c 6b6a 772b 646eEYkjwkdnwlkjw+dn
0x0050 776c 6b6a 776b 646e 776c 6b6a 776b 86a9wlkjwkdnwlkjwk..
0x0060 db73 21e1 5622 c618 7d6c                .s!.V"..}l
```

Instead of reading packet capture output directly in your CLI display, you usually should save the output to a plain text file using your CLI client. Saving the output provides several advantages. Packets can arrive more rapidly than you may be able to read them in the buffer of your CLI display, and many protocols transfer data using encodings other than US-ASCII. It is usually preferable to analyze the output by loading it into in a network protocol analyzer application such as Wireshark (http://www.wireshark.org/).

For example, you could use Microsoft HyperTerminal or PuTTY to save the sniffer output. Methods may vary. See the documentation for your CLI client.

To view sniffer output using HyperTerminal and Wireshark

1 Type the sniffer CLI command, such as:

```
diag sniffer int port1 'tcp port 143' verbose 3
```

2 After you type the sniffer command but ***before*** you press Enter, go to *Transfer* > *Capture Text...*.

3 Select the name and location of the output file, such as `C:\Documents and Settings\username\fortimail_sniff.txt`.

4 Press Enter to send the CLI command to the FortiMail unit, beginning packet capture.

5 When you have captured all packets that you want to analyze, press Ctrl + C to stop the capture.

6 Go to *Transfer* > *Capture Text* > *Stop* to stop and save the file.

7 Convert this plain text file to a format recognizable by your network protocol analyzer application.

You can convert the plain text file to a format (.pcap) recognizable by Wireshark (formerly called Ethereal) using the fgt2eth.pl Perl script. To download fgt2eth.pl, see the Fortinet Knowledge Center article Using the FortiOS built-in packet sniffer.

Note: The fgt2eth.pl script is provided as-is, without any implied warranty or technical support, and requires that you first install a Perl module compatible with your operating system, such as ActivePerl (http://www.activestate.com/Products/activeperl/index.mhtml).

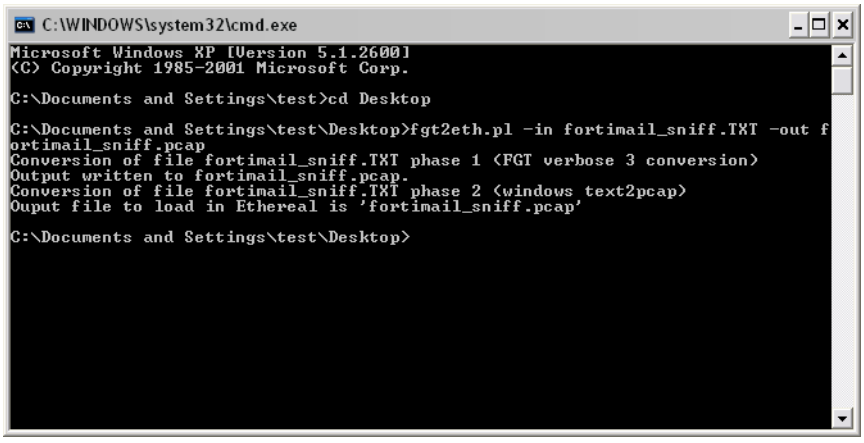
To use fgt2eth.pl on Windows XP, go to *Start* > *Run* and enter `cmd` to open a DOS prompt, then enter a command such as the following:

```
fgt2eth.pl -in fortimail_sniff.txt -out fortimail_sniff.pcap
```

where:

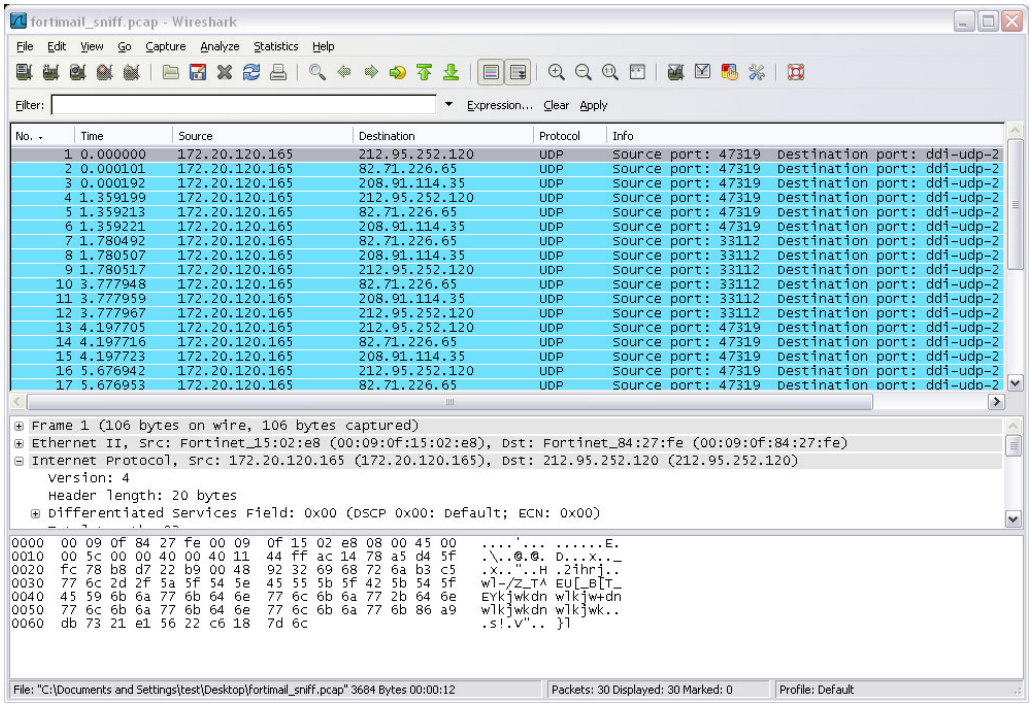
- `fgt2eth.pl` is the name of the conversion script; include the path relative to the current directory, which is indicated by the command prompt
- `FortiMail_sniff.txt` is the name of the packet capture's output file; include the directory path relative to your current directory
- `FortiMail_sniff.pcap` is the name of the conversion script's output file; include the directory path relative to your current directory where you want the converted output to be saved

Figure 57: Converting sniffer output to .pcap format



8 Open the converted file in your network protocol analyzer application. For further instructions, see the documentation for that application.

Figure 58: Viewing sniffer output in Wireshark



For additional information on packet capture, see the Fortinet Knowledge Center article Using the FortiOS built-in packet sniffer.

For more information on CLI commands, see the *FortiMail CLI Reference*.

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