F-Secure Internet Gatekeeper

Version 5.10

Rev. 20140710

Administrator's Guide

F-Secure

About this Guide

This guide describes the installation, uninstallation, usage, and settings for F-Secure Internet Gatekeeper.
Please note that "F-Secure Internet Gatekeeper" is also referred to as "the product" and "Internet Gatekeeper" in this guide.

Symbols

Symbol	Description
⚡ Caution	Provides important information that you need to consider.
❗ Note	Provides additional information that you should consider.
➲	Indicates that related information on the topic is available in a different chapter or another document.

Fonts

Font	Description
Arial bold	Used to refer to menu names and commands, to buttons and other items in a dialog box.
Arial italics	Used to refer to chapters in the manual, and to book titles of other manuals.
Arial italics (black)	Used for file and folder names, for figure and table captions, and for directory names.
`Courier New`	Used for messages on your computer screen.
`Courier New bold`	Used for information that you must type.
SMALL CAPS (BLACK)	Used for a key or key combination on your keyboard.
Arial underlined	Used for user interface links.
Arial italics	Used for windows and dialog names.

Contents

1. Introduction

F-Secure Internet Gatekeeper is an Internet Gatekeeper solution designed to protect corporate networks, Internet Service Provider networks, and home networks against malware.

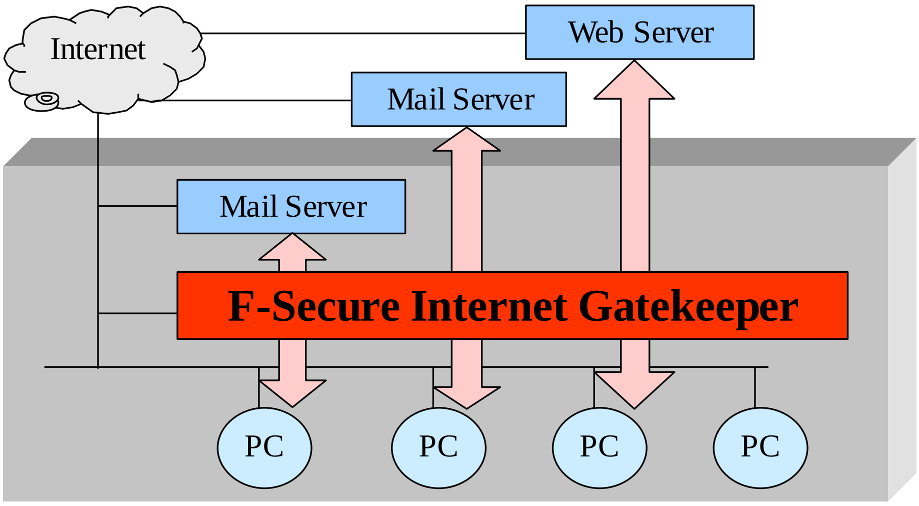
Computer viruses are one of the most harmful threats to the security of data on computers. Viruses have become even more widespread due to the trend in standardizing platforms and the continuous spread of the Internet. In addition to corrupting or falsifying data, viruses can also cause damage by using the Internet to leak confidential company data or personal information. Even if the leaked information is not important in itself, viruses can use the computer to spread their infection more, resulting in harm to others.

With F-Secure Internet Gatekeeper, you can scan for viruses centrally. You can monitor web site connections, and the sending and receiving of e-mails from all computers in a LAN (Local Area Network).

The product can scan communication that is based on HTTP, FTP, SMTP, and POP.
The ability to use the POP protocol means that you do not need to make any changes to the mail server to check e-mail for viruses. You can simply pass all inbound and outbound e-mail through F-Secure Internet Gatekeeper.

The product is very fast, being optimized for performance. This makes it suitable for large-scale networks, and for networks that support high-speed broadband. It also means that performance is adequate even when the product is run on less powerful computers.

The product also supports a transparent proxy, various authentication functions, and spam blocking.



2. Features

2.1 Overview

F-Secure Internet Gatekeeper:

- Protects a range of different networks against viruses:
  - Internal company networks
  - ISP networks
  - Home networks
- Uses a single computer to monitor the network access by all computers on the company, ISP, or home network.
- Does not use any resources from other computers on the network.
- Is easy to install and administer on an existing network.
- Can be used both on large and small networks. Adequate performance can be obtained also on less powerful computers.

2.2 List of Features

Monitor Web Browsing and E-mail Traffic

- HTTP
- FTP
- SMTP
- POP

Simple Installation

- Runs in almost all Linux environments
- Combines all functions in a single computer
- Can be installed as an rpm package. The rpm package complies with Linux Standard Base, which is used in Red Hat Linux and some other distributions.
- Can be installed as a .tar.gz package (for any Linux distribution)

Simple Configuration

- No configuration changes are required on your mail server
- No changes are required to your network configuration
- Minimal configuration changes for individual users
- All settings can be configured in the product configuration file.

Authentication Functions

- Supports POP-before-SMTP authentication
- Supports proxy authentication for various protocols
  (HTTP proxy authentication, SMTP authentication, POP/FTP user restrictions)
  → Proxy authentication operates via PAMs (Pluggable Authentication Modules) and can integrate with other authentication methods such as UNIX accounts, LDAP, NIS, and Radius.
- Access restrictions can be set for all protocols based on the IP address, host name, or domain name
- The SMTP receive domain can be restricted to prevent relaying through a third party
- Existing SMTP authentication function on a mail server can be used
- Existing APOP function on a mail server can be used

Virus Detection Notifications

- The notification text can be edited and customized freely
- UTF-8 characters (for example, Japanese) can be used in messages
- An e-mail can be sent to the administrator when a virus is detected
- The header and body of the notification e-mail are customizable

Flexible Configuration

- Can use a transparent proxy (HTTP, SMTP, POP, and FTP)
- Individual users can select POP servers independently
- Scans files that are sent by using the HTTP protocol for viruses. Supports POST and PUT methods.
- Supports sending and receiving from dedicated FTP clients
- Supports multi-level connections using parent proxy settings
- Can monitor all connections to designated web servers by using parent proxy settings (reverse proxy)
- Can connect to any mail server
- Can use any mail server running on the same computer
- SMTP reception and SMTP transmission can be configured independently

Anti-Virus

- Uses the award-winning and proven F-Secure engine
- Can handle practically all existing viruses
- Can handle viruses for Windows, DOS, Microsoft Office, VBS, Linux, and other environments
- Combined use of multiple engines (FS-Engine (Hydra) and Aquarius) allows for a quick response to new types of virus
- Low level of misdetection and false alarms
- Supports various file archive formats (ZIP, ARJ, LZH, CAB, RAR, TAR, GZIP, BZIP2 up to six levels of nesting)
- Virus definition files can be updated automatically

Spam Blocking

- Supports spam detection for both SMTP and POP
- Uses a prioritized black list and white list to scan designated headers and the e-mail body to detect spam by using customized conditions
- Uses the Spam detection engine
- Can use a RBL (Realtime Black List) to detect spam from the sender’s e-mail address
- Can use a SURBL (SPAM URL Realtime Black List) to detect spam that contains spam domain URLs in the e-mail body
- Adds a spam identification header (“X-Spam-Status: Yes”) to spam e-mail to allow easy sorting
- Adds predefined text (such as "[[SPAM]]") to the e-mail subject to allow easy sorting

Virus scanning ICAP service

- Support virus scanning ICAP service.
- The daemon fsicapd implements the ICAP protocol, as described in RFC 3507.
- The data is scanned using F-Secure technologies.
- It enables user to integrate virus scanning into third party HTTP proxy as long as the proxy can operate as an ICAP client and send the appropriate requests.

Other Features

- Can specify whether to block or allow files based on conditions such as the file extension, User-Agent, and file size
- Can block ActiveX and script (JavaScript or VBScript) content
- Can generate access statistics in a Squid compatible log
- Can output to external logs such as syslog
- Includes an HTTPS (encrypted HTTP) proxy function. However, because communication is encrypted, HTTPS (SSL) is not scanned for viruses.
- A virus identification header (X-Virus-Status: infected) can be added to virus detection notification e-mails to allow easy sorting

3. System Requirements

For the latest information on minimum and recommended system requirements, see the release notes of F-Secure Internet Gatekeeper.

4. Installing F-Secure Internet Gatekeeper

Use either the rpm package or tar.gz package to install F-Secure Internet Gatekeeper.

Note

- Use the rpm package for installation if possible.
- You can install updates by following the same steps. The existing configuration settings are not changed.

4.1 Installing an rpm Package

This section explains how to install F-Secure Internet Gatekeeper on a server, which runs one of the Red Hat family of Linux distributions.

Note

In a Red Hat distribution, you can easily install the software by using the rpm package. The Red Hat family of distributions include the following:

- Red Hat
- CentOS
- Turbolinux
- SUSE Linux
- MIRACLE LINUX / Asianux

* Please refer to the related installation guides for instructions on how to install each distribution.

You can install the package by double clicking the package, or executing the following command with root privileges:

```
# rpm -Uvh fsigk-XXX.i386.rpm
```

This installs the whole product.

➲ Next, see “*Typical Configurations*”.

4.2 Installing a tar.gz Package

If you cannot use the rpm package to install F-Secure Internet Gatekeeper, you can install it by using a tar.gz package.

Execute the following command with root privileges:

```
# tar -zxvf fsigk-XXX.tar.gz
# cd fsigk-XXX/
# make install
```

This installs the whole product.
To specify the installation options, see "*Using the Installation Command*".
➔ Next, see "*Typical Configurations*".

4.3 Using the Installation Command

When you use the tar.gz package to install the software, you can specify installation options during the installation. Run the installation command as described below. You can omit the options if needed.

```
        make [options]... target
```

Caution

> Although you can specify the installation options, we recommend that you use the "make install" command for installation.

Target

install
Install. We recommend that you specify this target.
In addition to installing the files, this also installs the startup script and PAM setup files.

Options

prefix=[dir]
Specifies the installation directory. We recommend that you install the product in the default installation directory (/opt/f-secure/fsigk).

suffix=[name]
Specifies a suffix. Use this option if you install multiple copies of the software on the same server.
Adds a suffix to the executable file and other command names (fsigk) to distinguish between each copy. The suffix must be less than two characters.

lang=[ja|en]
Specifies the language of the product. The available languages are "ja" (Japanese) and "en" (English). If no language is specified, the language is selected automatically. Automatic selection selects Japanese if the time zone is JST or the LANG environment variable starts with "ja". Otherwise, English is selected. This setting determines the default language for the default templates for virus detection messages.

adminport=[num]
Specifies a port number for the F-Secure Internet Gatekeeper web console. Use this option when you install multiple copies of the product on the same server. If you do not specify the port, the installation uses the default port (9012).

Command examples

To install the whole product, use this command:

```
        # make install
```

To install multiple copies of the software, use this command:

```
        # make prefix=/opt/f-secure/fsigk2 suffix=2 install
```

4.4 Upgrading the product

Depending on your previously installed product version, use one of the following methods to upgrade the product.

Upgrading Internet Gatekeeper, international version

To upgrade an international version of F-Secure Intenet Gatekeeper. follow the standard installation instructions.

If you are using Internet Gatekeeper version 4.06 or later, you do not need to uninstall the previous version before you upgrade the product. If you have an earlier version, uninstall it before you install the latest version.

Upgrading Internet Gatekeeper, Japanese version

If you are using a Japanese version of the product, follow these instructions to install the new, international product version.

Note

Run the following commands with root privileges.

Upgrade with an rpm package

Upgrade the product by using the rpm package in a distribution that belongs to the Red Hat family of Linux distributions.

To upgrade the product by using the rpm package:

1. Back up your current configuration.
   ```
   # cd /opt/f-secure/fsigk
   # tar zcvf conf-bak.tgz conf/
   # cp conf-bak.tgz <back up directory>
   ```
2. Uninstall the old product version.
   ```
   # rpm -e virusgw
   ```
3. Prepare the system for the new version.
   a. Create the installation directory.
      ```
      # mkdir -p /opt/f-secure/fsigk
      ```
      Note

      You must use the default installation directory when you install the product using an rpm package.

   b. Copy your old configuration to the installation directory.
      ```
      # cd /opt/f-secure/fsigk
      # cp <back up directory>/conf-bak.tgz /opt/f-secure/fsigk/
      # tar zxvf conf-bak.tgz
      ```
   c. Rename the configuration file.

```
# cd conf
# mv virusgw.ini fsigk.ini
```

4. Install the new version of the product.
   ```
   #rpm -Uvh fsigk-xxx.i386.rpm
   ```

Upgrade with a tar.gz package

Upgrade the product using the tar.gz package if you cannot use the rpm package.

To upgrade the product by using the tar.gz package:

1. Back up your current configuration.
   ```
   # cd /opt/f-secure/fsigk
   # tar zcvf conf-bak.tgz conf/
   # cp conf-bak.tgz <back up directory>
   ```
2. Uninstall the old product version.
   ```
   # cd <installation directory>
   # make uninstall
   # rm -rf <installation directory>
   ```
3. Prepare the system for the new version.
   a. Create the installation directory.
      ```
      # mkdir -p <installation directory>
      ```
   b. Copy your old configuration to the installation directory.
      ```
      # cd <installation directory>
      # cp <back up directory>/conf-bak.tgz <installation directory>
      # tar zxvf conf-bak.tgz
      ```
   c. Rename the configuration file.
      ```
      # cd conf
      # mv virusgw.ini fsigk.ini
      ```
4. Install the new version of the product.
   ```
   # tar zxvf fsigk-xxx.tar.gz
   # cd fsigk-xxx
   # make install prefix=<installation directory>
   ```

Note

> If you install the product to the default installation directory (/opt/f-secure/fsigk), you do not need to use the prefix option with the installation command.

4.5 Uninstalling F-Secure Internet Gatekeeper

Follow the steps below to uninstall the software. This removes the files installed on the system, deletes the configuration settings, and shuts down the service.

Execute the following command with root privileges:

```
        # cd /opt/f-secure/fsigk
        # make uninstall
        # rm -rf /opt/f-secure/fsigk
```

If you use the rpm package, execute the following command:

```
        # rpm -e fsigk
```

5. Typical Configurations

Once the installation has completed, locate the appropriate Internet Gatekeeper server and modify the settings as required. The next step is to configure client computers.

5.1 Configuration Overview

The following section describes how HTTP, SMTP, POP, and FTP connections operate in these cases:

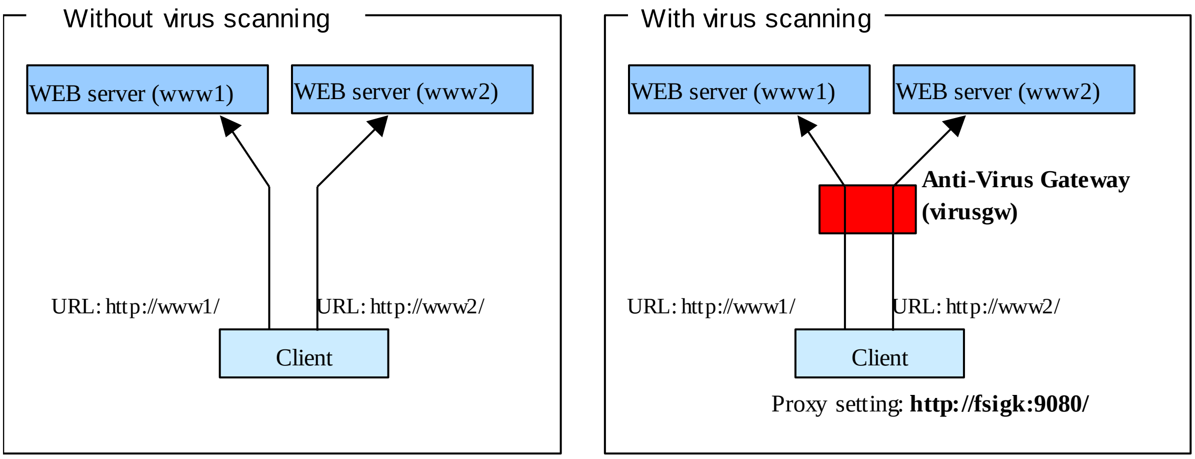
- virus scanning is not used
- Internet Gatekeeper performs virus scanning

5.1.1 HTTP Connection

- **Without virus scanning**
  The web browser connects to the web server directly and fetches the page.

- **With virus scanning**
  When virus scanning is used, Internet Gatekeeper stands between the web server and client and operates as a proxy server for the web browser. The web browser connects to the web server through Internet Gatekeeper. The web browser retrieves pages after they have been scanned for viruses. Internet Gatekeeper connects to the appropriate web server based on the URL that has been requested from the web browser.

HTTP Connection example

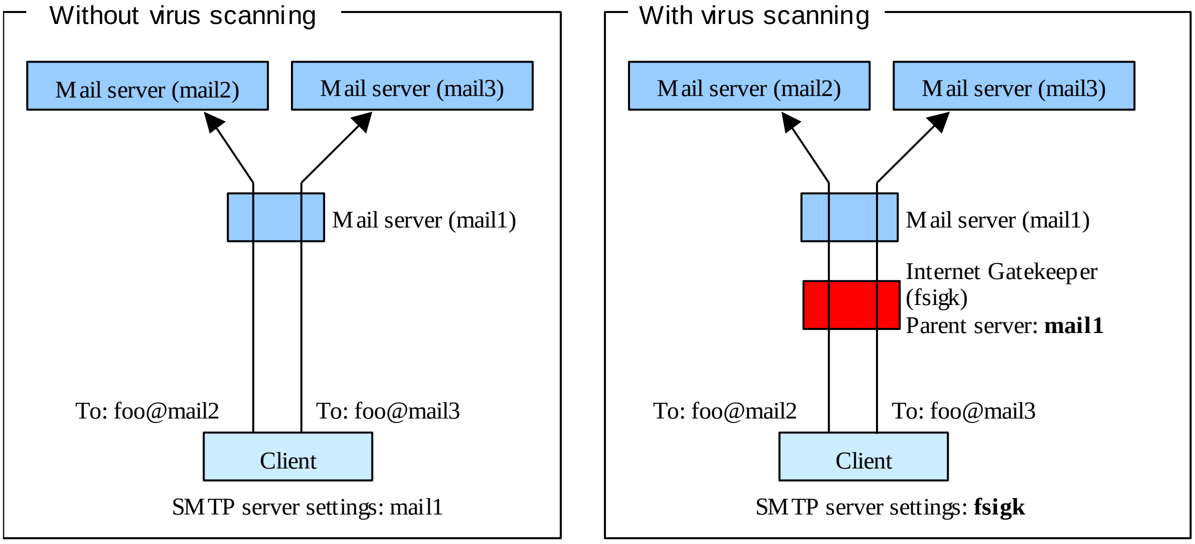


5.1.2 SMTP Connection

- **Without virus scanning**
  The e-mail client sends e-mail to mail servers on the Internet through an SMTP server for outbound e-mail.

- **With virus scanning**
  When virus scanning is used, Internet Gatekeeper stands between the client and mail server and operates as the SMTP server for the e-mail client. The client connects to the SMTP server through Internet Gatekeeper. The client sends outbound e-mail to mail servers on the Internet. Internet Gatekeeper forwards the mail through the outbound mail server.

SMTP Connection example

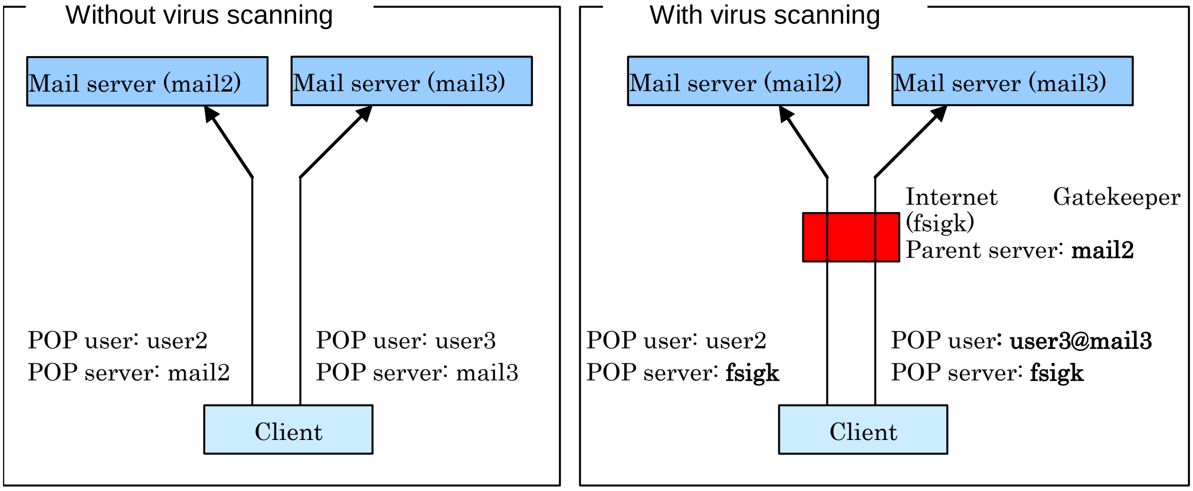


5.1.3 POP Connection

- **Without virus scanning**
  To retrieve e-mail, the e-mail client connects to the mail server directly by using the POP protocol.

- **With virus scanning**
  When virus scanning is used, Internet Gatekeeper stands between the client and mail server and operates as the POP server for the e-mail client. The client connects to the mail server through Internet Gatekeeper. The client retrieves e-mail that has been scanned for viruses. Although Internet Gatekeeper usually connects to the designated parent server, you can specify that the connection is created to any POP server. To do this, specify the POP user name in the format "<POP server user name>@<POP server name>".

POP Connection example

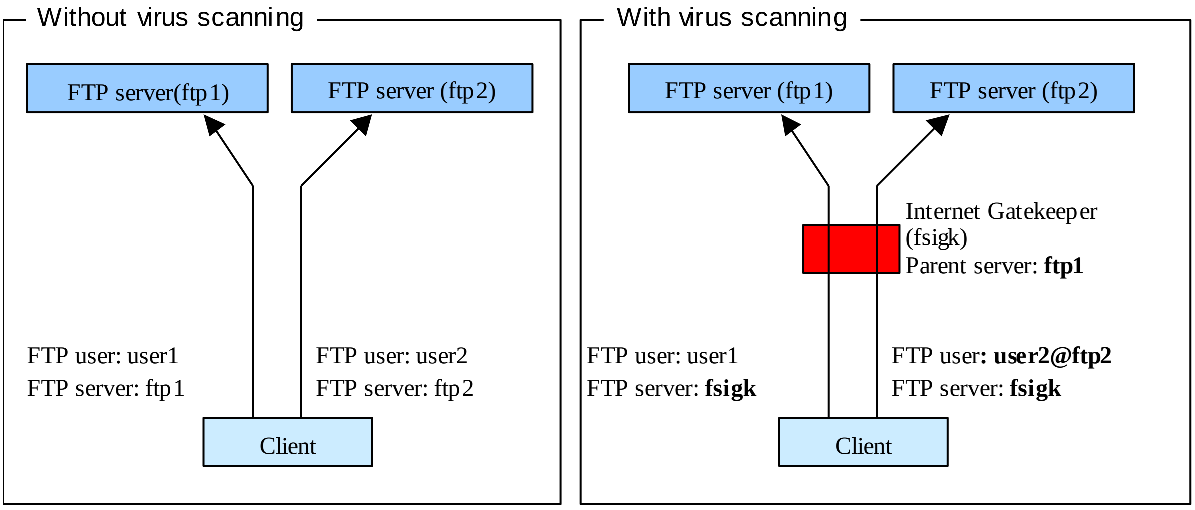


5.1.4 FTP Connection

- **Without virus scanning**
  To send and receive files, the FTP client connects to an FTP server directly by using the FTP protocol.

- **With virus scanning**
  When virus scanning is used, Internet Gatekeeper stands between the client and server and operates as a proxy server for the FTP client. The client connects to the FTP server through Internet Gatekeeper. The client sends and receives files that have been scanned for viruses. If the FTP client does not support a proxy server, Internet Gatekeeper usually connects to the designated parent server. However, you can specify that the connection is created to any FTP server. To do this, specify the FTP user name in the format "<FTP server user name>@<FTP server name>".

FTP Connection example

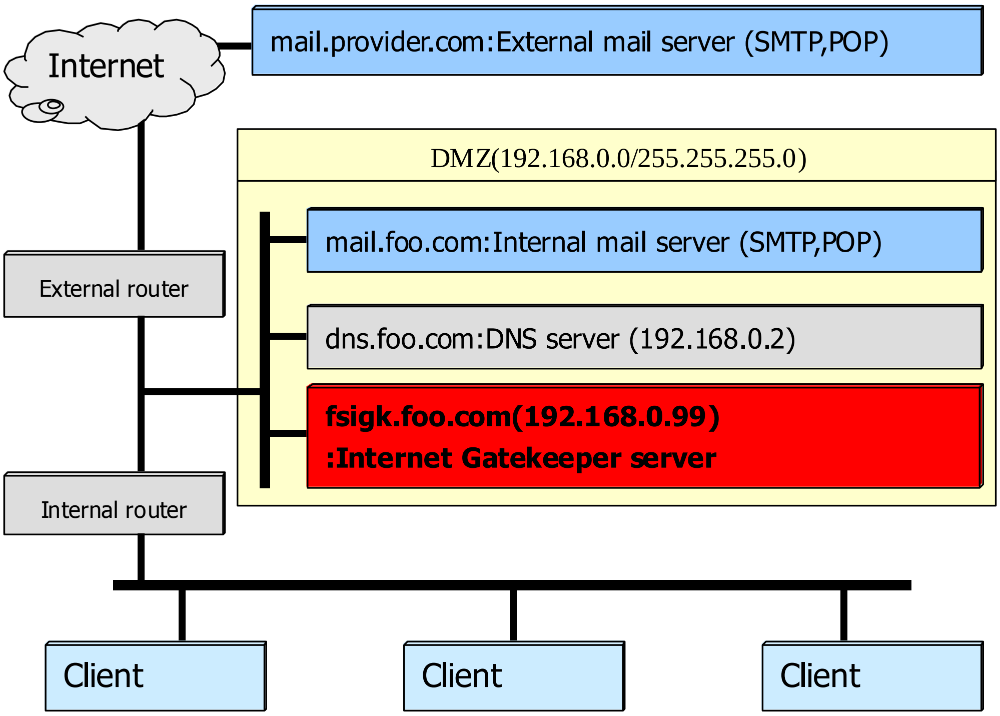


5.2 Network Configuration Examples

F-Secure Internet Gatekeeper operates as a proxy server, which is located between the client and the web and mail servers. The scenarios described here assume that Internet Gatekeeper is installed in a typical network configuration like the one shown below.

Note

The network configuration below shows that the gateway is located in a DMZ network. However, installation in a DMZ is not necessary if connections from the Internet are not required.


Internet
mail.provider.com:External mail server (SMTP,POP)
DMZ(192.168.0.0/255.255.255.0)
mail.foo.com:Internal mail server (SMTP,POP)
External router
dns.foo.com:DNS server (192.168.0.2)
fsigk.foo.com(192.168.0.99)
:Internet Gatekeeper server
Internal router
Client
Client
Client

Internet Gatekeeper Server Settings

To use F-Secure Internet Gatekeeper for virus scanning, configure the Internet Gatekeeper server in which the product is installed as follows.

Caution

Always specify the following settings in the product configuration file /opt/f-secure/fsigk/conf/fsigk.ini:

- {http,smtp,pop,ftp}_service=yes/no
  Use this setting to enable or disable the service.
- svcport number to use for each service
- Parent servers for SMTP and POP (parent_server_host, parent_server_port)
  Specify the [host name] and [port number] for your existing mail server.

5.2.1 Typical Settings

In a typical product setup, the following settings are specified in the configuration file /opt/f-secure/fsigk/conf/fsigk.ini.

Proxy Settings

After editing the settings, save the configuration file and restart the product **“See Restarting All Services”**. The enabled services are started and the changed settings are applied.

```
Proxy Settings
HTTP proxy
    http_service=yes
    svcport= 9080
SMTP proxy
    smtp_proxy=yes
    svcport=9025
    parent_server_host=mail.example.com
    parent_server_port=25
POP proxy
    pop_service=yes
    svcport=110
    parent_server_host=mail.example.com
    parent_server_port=110
FTP proxy
    ftp_service=yes
    svcport=9021
Common settings
    Settings to notify the administrator
        admin_mailaddr=fsigkadmin@example.com
        admin_mx_host=mail.example.com
        admin_mx_port=25
```

Other Settings

License

When you install the product, it is installed with an evaluation version license. To upgrade the product to full license version, follow these steps:

1. Edit the "license" field in the /opt/f-secure/fsigk/conf/fsigk.ini file..
2. Assign the purchased license key to the "license" field and save the file.
3. Run the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command to reload all product services.

After the restart, the product is fully licensed.

5.3 Client Settings

To use F-Secure Internet Gatekeeper for virus scanning, you need to change the proxy server setting in your web browser and the mail server setting in your e-mail client.

Web Browser Settings

Proxy server

Host name: **fsigk.example.com**
Port number: **9080**

Mail Client Settings

Internal mail box

SMTP server: **fsigk.example.com**
POP server: **fsigk.example.com**

External mail box

SMTP server: **fsigk.example.com**
POP server: **fsigk.example.com**
POP user name: **username@mail.provider.com**

5.4 Using HTTP proxy for services that require a network access

Several product features require an HTTP access to F-Secure services, including automatic updates (fsaua) and spam detection (fsasd) which can be configured in the /opt/f-secure/fsigk/conf/fsigk.ini file:

Configuration file:

/opt/f-secure/fsigk/conf/fsigk.ini

use_proxy=[yes|no]	Specifies whether a proxy is used or not
http_proxy_host=	Specifies the host name of the proxy server
http_proxy_port=	Specifies the port number of the proxy server
http_proxyauth=	Specifies whether proxy authorization is used or not
http_proxyauth_user=	Specifies the user name which is used for proxy authorization
http_proxyauth_pass=	Specifies the password which is used for proxy authorization

Note

Note that Real-time Protection Network (OrspService) uses a separate configuration option "orspservice_http_proxy" in /opt/f-secure/fsigk/conf/fsigk.ini.

6. Checking the Proxy Setup

After configuring the settings, follow the steps below to confirm that the software is working correctly.

Note

If the software is not working correctly, use one of the following methods to view the error log.

- From the command prompt
    - View the error log from the command line (/opt/f-secure/fsigk/log/{http,smtp,pop,ftp}/error.log).

Note

If you cannot connect to the Internet, run the “make eicar” command from the “/opt/f-secure/fsigk” directory to create a test virus file (eicar.com).

6.1 Checking the HTTP Proxy

Do the following and confirm that a virus detection warning appears:

Start your web browser and download the test virus (eicar) from the following location:

http://www.eicar.org/anti_virus_test_file.htm

6.2 Checking the SMTP Proxy

Do the following and confirm that the virus does not reach the e-mail recipient:

1 Start your web browser and download the test virus (eicar) from the following location:

http://www.eicar.org/anti_virus_test_file.htm

Caution

Clear the proxy setting in the browser. This prevents the test virus from being detected and deleted when it is downloaded.

2 Send an e-mail with eicar as an attachment.

6.3 Checking the POP Proxy

Do the following and confirm that the virus is detected:

1 Start your web browser and download the test virus (eicar) from the following location:

http://www.eicar.org/anti_virus_test_file.htm

Caution

> Clear the proxy setting in the browser. This prevents the test virus from being detected and deleted when it is downloaded.

2 Send an e-mail with eicar as an attachment.

Caution

> Set the e-mail client to send the e-mail directly rather than through the Internet Gatekeeper server. This prevents the test virus from being detected and deleted when it is sent.

3 Receive the e-mail.

6.4 Checking the FTP Proxy

Do the following and confirm that the virus is detected:

1 Start your web browser and download the test virus (eicar) from the following location:

http://www.eicar.org/anti_virus_test_file.htm

Caution

> Clear the proxy setting in the browser. This prevents the test virus from being detected and deleted when it is downloaded.

2 Use FTP to send and receive the eicar file.

7. Advanced Settings

7.1 Configuration file settings

You can use the configuration file /opt/f-secure/fsigk/conf/fsigk.ini to change the settings as required. The settings are described below.

Save the configuration file after modifying the settings and restart the specified service by running “/opt/f-secure/fsigk/rc.fsigk_{http,smtp,pop,ftp} restart” command.

7.1.1 Proxy Settings

Note

The name in parentheses ( ) is the item name in the settings file (conf/fsigk.ini).

Proxy settings

Proxy Settings

Specifies how the virus scanning proxy works.

7.1.1.1 HTTP Proxy

HTTP Proxy

HTTP Proxy (http_service)

Set http_service=yes/no to enable or disable the HTTP proxy service.

Proxy port

Proxy Port (svcport)

Specifies the port number used by the proxy service.

Note

- You can specify only one inbound port number. To listen for connections on more than one port, use the REDIRECT setting in the iptables function of Linux.
  For example, to listen for connections on both port 9080 and port 12345, set 9080 as the inbound port number. Use iptables to redirect port 12345 to port 9080. In this case, use the following command to set up iptables:
  ```
  # iptables -t nat -A PREROUTING -p tcp -dport 12345 -j REDIRECT -to-port 9080
  ```
  After specifying the setting, save the iptables configuration:
  ```
  # /etc/init.d/iptables save
  ```
- See your Linux distribution documentation for information about using and saving iptables on your system.

Parent server

Parent Server (self_proxy / parent_server_host / parent_server_port)

Set self_proxy=yes if Internet Gatekeeper HTTP proxy should connect directly to the web server. Otherwise, if HTTP proxy should connect via a parent proxy, set self_proxy=no and define the parent host (parent_server_host) and parent server port (parent_server_port) options. Setting self_proxy=yes ignores parent proxy even when the host and port are specified.

Virus scanning

Do Virus Check (virus_check)

Enables or disables virus scanning.
Set virus_check=yes/no to enable or disable virus scanning.
We recommend that you enable this setting.

Caution

Virus scanning is not performed for HTTPS (SSL) because communication is encrypted.

What to do when a virus is detected

Action on Viruses

Delete

Delete (action={pass,delete})

Specifies whether to delete viruses. The detection event is recorded in the log, and a notification is sent to the administrator even if the virus is not deleted.
We recommend that you enable this setting.

Notify the administrator by e-mail

Notify Admin (notify_admin)

Sends a notification to the administrator by e-mail.
Set notify_admin=yes/no to enable or disable notification to administrator.
Specify the e-mail address (admin_mailaddr) and mail server (admin_mx_host) in common settings in configuration file.
You can edit the notification message by editing the file
/opt/f-secure/fsigk/conf/template_admin.txt

Note

If you edit the notification message from command line, you need to restart the specified service afterwards.

To separate notifications from standard e-mails, "X-Admin-Notification-Id: [number]" is added to the header. This also prevents the notification from being detected as a virus. “Number” is a random number, which is set as admin_notification_id in the settings file during the installation.

Quarantine

Quarantine(keep) (quarantine)

Quarantines viruses.
Set quarantine=yes/no to enable or disable quarantine.
The viruses are quarantined in the directory that you can set in quarantine_dir option under common settings in the configuration file.
Specify this setting only if sufficient disk space is available.

HTTP proxy authentication

Proxy authentication (proxyauth_pam_auth)

Authenticates the proxy by using PAMs (Pluggable Authentication Modules).
Set proxyauth_pam_auth=yes/no to enable or disable http proxy authentication.
You can change the authentication method in the /etc/pam.d/fsigk_http file.
➲ For more information, see "*Proxy authentication using Internet Gatekeeper*".

Add or remove users

User DB

You can edit the database of users who are permitted to connect. You can add, delete, and modify users and passwords. Use the following commands using the files in /opt/f-secure/fsigk/conf/pam/ directory.

```
# echo –e username’/t’password >>
/opt/f-secure/fsigk/conf/pam/userdb_http.txt
# ./create_userdb userdb_http.db < userdb_http.txt
```

Maximum number of simultaneous connections

Maximum connections (pre_spawn)

Specifies the maximum number of simultaneous connections from clients. The specified number of processes listen for connections from clients.
You can check the number of connections in “Internal process ID” in the http access log (access.log).

Note

- If you increase the maximum number of connections, more connections are allowed, but it requires more memory. Approximately 500 KB of memory is used per process.
- A warning is output to the error log if the maximum number of connections is reached.
- We recommend that you set an initial value of approximately 200 and then monitor the performance. The value of the setting is usually less than 2000. (The setting itself permits values up to 9999.)

Access control

Access Control

From these hosts

From: (acl_from)

Set acl_from=yes/no to enable the setting.
Only accepts connections from the designated list of hosts.
If [DNS Reverse Lookup] is enabled, you can also specify <host name>.<domain name>.
➲ For examples, see “*Access Control*”

Note

If you enable this setting in the configuration file, then specify the list of hosts in the http_from field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configuration by running /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.

See man page hosts_access(5) for more information on the syntax used in the file.

To these hosts

To: (acl_to)

Set acl_to=yes/no to enable or disable the setting.

Only accepts connections to the designated list of hosts.

➲ For examples, see "Access Control"

Note

If you enable this setting in the configuration file, then specify the list of hosts in the http_from field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configuration by running /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.
See man page hosts_access(5) for more information on the syntax used in the file.

Exclude these targets from the virus scan

Skip scanning for:

User-Agent

User-Agent: (pass_user_agent, pass_user_agent_list)

Skips virus scanning for connections from clients with the specified User-Agent.

Set pass_user_agent=yes/no to enable or disable the setting.

Usually, all data is saved and transmitted to the client only after the virus scanning is completed. If you enable this setting, the data for connections from clients with the specified User-Agent is forwarded as soon as it is received. Use this setting for clients that use streaming or are at risk of timing out.

Separate each setting with a comma (","). The list is searched by using forward matching.

The setting is case sensitive.

The maximum length of the setting is 1999 bytes.

Caution

Regardless of this setting, the following User-Agents are not scanned for viruses.
User-Agents skipped by default:

- "Service Pack Setup" (service pack installer for Microsoft Windows)
- "Office Update" (update program for Microsoft Office)
- "Symantec LiveUpdate" (update program for Symantec definition files)
- "TMhtload" (update program for TrendMicro definition files)
- "BW-C" (update program for F-Secure definition files (AUA))
- "GETDBHTP" (update program for F-Secure definition files (getdbhtp))
- "RealPlayer" (Real Player)
- "RMA" (Real Player)
- "NSPlayer" (Microsoft Windows Media Player)
- " urlgrabber" (update program for Linux YUM package)
- "Microsoft BITS" (Microsoft Windows Update)
- "Windows-Update-Agent" (Microsoft Windows Update)
- "Adobe Update Manager" (update program for Adobe)
- "Mozilla/4.0 (compatible; Win32; Commtouch Http Client" (This product's Spam Detection Engine)

Host name

Hosts: (acl_pass_to)

Skips virus scanning for connections to the specified hosts.

Set acl_pass_to=yes/no to enable or disable the setting.

Usually, all data is saved and transmitted to the client only after the virus scanning has completed. If you enable this setting, the data for connections to the specified hosts is forwarded as soon as it is received.

➲ For examples, see “*Access Control*”

Note

If you enable this setting in the configuration file, then specify the list of hosts in the http_pass_to field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configuration by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.
See man page hosts_access(5) for more information on the syntax used in the file.

File name or extension

Files/Extensions: (pass_ext, pass_ext_list)

Skips virus scanning for files with the specified file names or extensions.

Set pass_ext=yes/no to enable or disable skipping virus scanning for files with specified names or extensions.

Usually, all data is saved and transmitted to the client only after virus scanning has completed. This setting specifies that the data in files with the specified file names or extensions is forwarded as soon as it is received.

Separate each name with a comma (",") by using backward matching (a file is skipped if the trailing characters of the file name match the specified file name or extension). The setting is not case sensitive.

The setting does not apply to files in archived files.

The maximum length of the setting is 1999 bytes.

File size

Filesize: (pass_filesize, pass_filesize_len)

Skips virus scanning for file data beyond the specified size.

Set pass_filesize=yes/no to enable or disable scanning of files beyond a specified size.

Usually, all data is saved and transmitted to the client only after the virus scanning has completed. This setting specifies that the data beyond the specified length in a file is forwarded as soon as it is received.

Caution

Note that this setting may cause that viruses in large files are not detected.

DNS reverse lookup

DNS Reverse Lookup (reverselookup)

Looks up the DNS entry for the source IP address.

Set reverselookup=yes/no to enable or disable DNS reverse lookup.

When DNS reverse lookup is enabled, you can use <host name>.<domain name> format to specify the [Access control]=[From these hosts] settings. Also, the host name of the accessing host is shown in the access log.

However, this setting reduces processing speed slightly.

Maximum scanning time

Maximum scanning time (vsd_scantimeout)

Sets a maximum time for scanning files.

If you use zero, scanning time is unlimited.

The default is 90 seconds.

Caution

> If scanning takes a long time, this setting terminates scanning after the specified time. Note, however, that if you set a shorter scanning time, it limits the extent to which archived and other large files can be scanned.

Scan files that have been sent by POST and PUT methods

Scan sending files by POST/PUT method (virus_check_post)

Performs virus scans when files are sent.

Set virus_check_post=yes/no to enable or disable the scanning of files sent by POST and PUT.

If you disable this setting, the product scans only incoming files. If you enable the setting, the product scans both incoming and outgoing files.

The product scans the following files: files contained in data that the POST method sends in including multipart/form-data, multipart/mixed and application/x-www-form-urlencoded formats, and files that the PUT method sends.

All data that the client sends in a POST or PUT operation is temporarily saved and scanned before the client connects to the server to forward the data. As a result, a delay may occur for POST/PUT sending and the speed may be somewhat slower.

The response line "HTTP/1.0 403 Forbidden" is returned if a virus is detected in a PUT operation.

This setting is ignored when virus scanning is disabled. (Virus scanning is not performed even if you enable this setting).

Riskware scanning

Scan riskware (riskware_check)

Enables riskware scanning.

Set riskware_check=yes/no to enable or disable riskware scanning.

This detects riskware as well as known viruses.

➲ For more information about riskware, see “*Riskware*”

Skip these targets

Skip scanning for riskware: (pass_riskware)

Excludes the specified riskware from detection.

Specify the riskware by using the format "Category.Platform.Family". You can use wildcards (*) in the Category, Platform, and Family names. For example, "Client-IRC.*.*" excludes all riskware in the Client-IRC category.

The maximum length of the setting is 1999 bytes.

➲ Separate each setting in the setup file with a semicolon (";").

Keep-alive connection

Keep-Alive connection (keepalive)

Uses a Keep-Alive connection (persistent connection).

Set keepalive=yes/no to enable or disable keepalive connections.

In practice, a Keep-Alive connection is only used if both the server and client support Keep-Alive and all the following conditions are met:

- Keep-Alive connection setting is enabled.
- The value of "Connection" in the response header of the HTTP/1.1 response is not "close". "Connection" or "Proxy-Connection" in the HTTP/1.0 response starts with "keep-alive".
- The Content-Length in the response header is 1 or more, and the response code is 304, 204, or 1xx.
- Content-Length does not appear more than once in the request header or response header.
- Not a virus detection response.
- The connection to the server was established successfully and no error occurred.
- Not FTP over HTTP.
- Not the CONNECT method.

Timeout

Timeout (keepalive_timeout)

Specifies a timeout (in seconds) for Keep-Alive connections of 1 second or more. After the HTTP response is complete, the session is disconnected once the specified time elapses. Leaving a Keep-Alive connection open monopolizes a proxy process. If you increase the timeout value, make sure that there is a sufficient margin in the maximum number of simultaneous connections.

Anonymous proxy

Anonymous Proxy (anonymous)

Disables the sending of information about the proxy or client (Via and X-Forwarded-For headers) to the server.

Set anonymous=yes/no to enable or disable the anonymous proxy.

Transparent proxy

Transparent Proxy mode (transparent)

Enables the transparent proxy mode.

Set transparent=yes/no to enable or disable transparent proxy mode.

If you use the HTTP proxy in transparent mode, you need to set the NAT redirection. To do this, use following method:

- Use the iptables command from the command line to specify the setting as follows. (The example shows the port number being set to 9800.)

```
        # iptables -t nat -A PREROUTING -i eth1 -p tcp --dport 80 ¥
            -j REDIRECT --to-port 9080
```

➲ For more information, see “*Transparent Proxy*”

Check file reputation using the Real Time Protection Network

ORSP file check (orsp_file_check)

Set orsp_file_check=yes to use F-Secure's Real Time Protection Network to check files against constantly updating white and blacklists. This can improve the reaction time against the new threats and decrease the load on system resources, which would be otherwise used to scan common files. By default, the value is “no”, which means that no information is transmitted to the Real Time Protection Network.

When using this feature, any information that is transmitted to F-Secure's servers is handled anonymously. For more information, see the real-time-protection-network-policy.txt file that is installed with the product.

File reputation check timeout

ORSP timeout (orsp_timeout)

If orsp_file_check is set to yes, this option sets the time (in milliseconds) that the product waits for response from the Real Time Protection Network servers before scanning the file locally. The default value is 5000 (5 seconds).

7.1.1.2 SMTP Proxy

SMTP proxy

SMTP Proxy (smtp_service)

Set smtp_service=yes/no to enable or disable the SMTP proxy service.

Proxy port

Proxy Port (svcport)

Specifies the port number used by the proxy service. The standard port number is 25.

Note

- You can specify only one inbound port number. To listen for connections on more than one port, use the REDIRECT setting in the iptables function of Linux.
  For example, to listen for connections on both the standard SMTP port (25) and the submission port (587), set 25 as the inbound port number and use iptables to redirect port 587 to port 25. In this case, use the following command to setup iptables:
  ```
  # iptables –t nat –A PREROUTING –p tcp –dport 587 –j REDIRECT –to-port 25
  ```
  After specifying the setting, save the iptables configuration:
  ```
  # /etc/init.d/iptables save
  ```
- Because SSL communications for protocols such as SMTPs (TCP/port number 465) are encrypted, communications cannot be received directly regardless of whether iptables redirection is enabled or not. If necessary, install F-Secure Internet Gatekeeper so that communications are first decrypted by an SSL proxy, SSL accelerator, or similar. After this, the communications pass through Internet Gateway.
  Available general-purpose SSL proxies include stunnel and stone.
  - stunnel
    http://www.stunnel.org/
    http://www.atmarkit.co.jp/fsecurity/rensai/securitytips/018stunnnel.html
  - stone
    http://www.gcd.org/sengoku/stone/Welcome.ja.html
    http://www.gcd.org/sengoku/stone/

Virus scanning

Do Virus Check (virus_check)

Set virus_check=yes/no to enable or disable virus scanning.

We recommend that you enable this setting.

When you enable both virus and spam scanning, the virus scan result is handled first.

Global settings

Global Settings

These settings apply to all connections not specified in the LAN settings.

Virus e-mails may use spoofed (fake) sender and recipient addresses. The recommended setting for incoming e-mail is to delete or notify the recipient, and for outgoing mail, to delete or block sending.

Parent server

Parent Server (parent_server_host / parent_server_port)

Specifies the host name and port number of the destination SMTP server.

The standard port number is 25.

This setting is ignored in transparent mode.

What to do when a virus is detected

Action on Viruses (action)

Pass

Pass (action=pass)

Allows e-mail to pass even if a virus is detected.

In this case, the detection is recorded in the log, the administrator is notified, and X-Virus-Status: is added to the header.

This setting is not usually used.

Block

Delete (action=deny)

Blocks sending of infected e-mails.

The SMTP session returns the following error to notify the mailer and mail server directly.

554 Infected by [virus name]

Delete

Delete (action=blackhole)

Deletes infected e-mails. Does not send a detection message.

Notify recipients after deleting the mail

Delete and send to receiver (action=delete)

Deletes the virus and sends a virus detection message to the recipient by e-mail.

This setting is not typically used for outbound e-mails, because the recipient of infected e-mails may be spoofed.

Caution

> If you choose to notify the recipient, it often means that the notification is sent to an unrelated third party.

Notify the sender by e-mail after deleting the mail

Delete and send back to sender (action=sendback)

Deletes the virus and sends a virus detection message to the sender by e-mail.

This setting is not typically used for inbound e-mails, because the sender of infected e-mails may be spoofed.

Caution

> If you choose to notify the sender, it often means that the notification is sent to an unrelated third party.

Notify the administrator by e-mail

Notify Admin (notify_admin)

Set notify_admin=yes/no to enable or disable sending notification to administrator. Specify the e-mail address (admin_mailaddr) and mail server (admin_mx_host) under common settings in configuration file.

To separate notifications from standard e-mails, "X-Admin-Notification-Id: [number]" is added to the header. This also prevents the notification message from being detected as a virus. “Number” is a random number, which is set as admin_notification_id in the settings file during the installation.

You can edit the notification message by editing the file /opt/f-secure/fsigk/conf/template_admin.txt.

Note

If you edit the notification message from command line, you need to restart the specified service afterwards.

Quarantine

Quarantine(keep) (quarantine)

Quarantines viruses.

Set quarantine=yes/no to enable or disable quarantine.

The viruses are quarantined in the directory that you can set in quarantine_dir setting under common settings in the configuration file. The viruses are stored in mailbox format. Specify this setting only if sufficient disk space is available.

Spam filtering

Do SPAM Check (spam_check)

Enables or disables spam filtering.

Set spam_check=yes/no to enable or disable spam filtering for emails.

Specify the spam detection settings under common settings section in the configuration file.

"X-Spam-Status:" is added to the header if spam is detected.

If you specify RBL or SURBL as the spam filtering method, a delay of up to several hundred milliseconds occurs while waiting for a response from the RBL or SURBL server.

Because the objective is to block incoming spam, enable the **Hosts and networks within LAN** setting. It excludes outgoing e-mails from hosts on the LAN from spam checking.

If you enable both virus and spam scanning, the virus scan result is handled first.

Log and notify

Pass (spam_action=pass)

Allows the spam to pass. If an e-mail is classified as spam, "X-Spam-Status:" is added to the header. You can use the sorting function on the client to classify e-mail, in which the value of "X-Spam-Status:" starts with "Yes" as spam. The spam detection is recorded in the log and the administrator is notified.

Modify the message subject

Change subject (spam_action=change_subject, spam_change_subject_prefix)

Modifies the Subject of an e-mail that is classified as spam. If you specify a character string, it is prefixed to the Subject. The maximum number of characters is 99.

We recommend that you specify the text string in English. Although you can specify other languages as well, the text is encoded as UTF-8. Accordingly, if the subject of the incoming e-mail is encoded by using some other character set, the text may not be shown correctly in Outlook and other e-mail clients.

Delete

Delete (spam_action=blackhole)

Deletes spam e-mail. To avoid deleting e-mails that are incorrectly classified as spam, do not delete the e-mails at the gateway. Instead, sort the e-mail at the e-mail client (mailer).

Notify the administrator by e-mail

Notify Admin (spam_notify_admin)

Set spam_notify_admin=yes/no to enable or disable spam notification to administrator.

Specify the e-mail address (admin_mailaddr) and mail server (admin_mx_host) under common settings in configuration file.

To separate notifications from standard e-mails, "X-Admin-Notification-Id: [number]" is added to the header. This also prevents the notification message from being detected as a virus. “Number” is a random number, which is set as admin_notification_id in the settings file during the installation.

You can edit the notification message by editing the file /opt/f-secure/fsigk/conf/template_admin.txt.

Note

> If you edit the notification message from command line, you need to restart the specified service afterwards.

Quarantine

Quarantine(keep) (spam_quarantine)

Quarantines spam.

Set spam_quarantine=yes/no to enable or disable spam quarantine.

Specify the directory, in which the viruses are quarantined, in quarantine_dir under common settings in the configuration file. The spam is stored in mailbox format.

Specify this setting only if sufficient disk space is available.

Restrict e-mail recipients

Restrict RCPT domains (acl_rcpt)

Set acl_rcpt=yes/no to enable or disable the setting.

Specifies a list of recipient domains. If a domain is not on this list, the e-mail that is sent to this domain is blocked.

Specify the domain names separated by comma (“,”).

The text after the first "@" character in the e-mail address is treated as the domain name. If you enable this setting, the addresses containing "!" and "%" are also blocked. E-mail addresses without a domain name are not blocked.

Even if you have enabled **SMTP authentication** or **POP-before-SMTP authentication**, e-mail to the specified domains can be sent without authentication.

➲ For examples, see “*Access Control*”

Note

> If you enable this setting in the configuration file, then specify the list of hosts in the smtp_rcpt field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configuration by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.
> See man page hosts_access(5) for more information on the syntax used in the file.

SMTP authentication

SMTP authentication (proxyauth_pam_auth)

Performs proxy authentication independently for each user.

Set proxyauth_pam_auth=yes/no to enable or disable

If you have enabled also the **POP-before-SMTP authentication** setting, the e-mail is sent if either SMTP authentication or POP-before-SMTP authentication is successful.

If you have enabled also the **Restrict e-mail recipients** setting, e-mail to the specified domains can be sent even without authentication.

Authentication is performed using PAMs (Pluggable Authentication Modules). You can change the authentication method in the /etc/pam.d/fsigk_smtp file.

➲ For more information, see "*Proxy authentication using Internet Gatekeeper*"

Add or remove users

User DB

You can edit the database of users who are permitted to connect. You can add, delete, and modify users and passwords. Use the following commands using the files in /opt/f-secure/fsigk/conf/pam/ directory:

```
# echo -e username’/t’password >>
/opt/f-secure/fsigk/conf/pam/userdb_smtp.txt
# ./create_userdb userdb_smtp.db < userdb_smtp.txt
```

POP-before-SMTP authentication

POP-before-SMTP Authentication (pbs)

Enables POP-before-SMTP authentication.

Set pbs=yes/no to enable or disable pop before smtp authentication.

If the SMTP proxy performs POP-before-SMTP authentication, run this together with the POP proxy. Client hosts (IP addresses) that are authenticated through the POP proxy are permitted to use the SMTP proxy for a fixed time period.

If you use SMTP authentication simultaneously on the Internet Gatekeeper and mail server, e-mail can be sent if either SMTP authentication or POP-before-SMTP authentication is successful.

If you have enabled also the **Restrict e-mail recipients** setting, e-mail to the specified domains can be sent even without authentication.

➲ For examples, see “*Access Control*”

Timeout

Expire (pbs_lifetime)

How long POP-before-SMTP authentication remains valid (minutes).

LAN access settings

LAN Access settings (lan)

With these settings, you can specify different operation for connections from specific hosts and networks.

Set lan=yes/no to enable or disable LAN access settings for SMTP proxy.

Hosts and networks within LAN

LAN Hosts (lan_hosts)

Specifies the list of hosts and networks to which the **LAN access settings** apply.

If you have enabled **DNS Reverse Lookup**, you can also specify <host name>.<domain name>.

Edit smtp_lan field in /opt/f-secure/fsigk/conf/hosts.allow file to specify the list of hosts and networks to which the LAN access settings apply.

➲ For examples, see “*Access Control*”

Note

> If you enable this setting in the configuration file, then specify the list of hosts in the smtp_lan field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configurations by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.

Parent server

Parent Server (lan_parent_server, lan_parent_server_host, lan_parent_server_port)

Sets parent SMTP server for connections specified in **Hosts and networks within LAN**.

This option overrides the SMTP proxy “Parent server” setting.

Set lan_parent_server=no/yes to enable or disable LAN parent server settings.

The standard port number is 25.

What to do when a virus is detected

Action on Viruses (action)

Virus e-mails often use spoofed (fake) sender and recipient addresses. The recommended setting for incoming e-mail is to delete or notify the recipient, and for outgoing mail, to delete or block sending.

Log and notify

Pass (action=pass)

Allows e-mail to pass even if a virus is detected.

In this case, the detection is recorded in the log, the administrator is notified, and X-Virus-Status: is added to the header.

This setting is not usually used.

Block and notify the sender

Delete (action=deny)

Blocks the sending of infected e-mails.

The SMTP session returns the following error to notify the mailer and mail server directly: 554 Infected by [virus name]

Delete

Delete (action=blackhole)

Deletes infected e-mails. Does not send a detection message.

Delete and notify recipients

Delete and send to receiver (action=delete)

Deletes the virus and sends a virus detection message to the recipient by e-mail.

This setting is not typically used for outbound e-mails, because the recipients of infected e-mails may be spoofed.

Caution

> If you choose to notify the recipient of an infected outbound e-mail, it often means that a notification e-mail is sent to an unrelated third party.

Delete and notify the sender

Delete and send back to sender (action=sendback)

Deletes the virus and sends a virus detection message to the sender by e-mail.

This setting is not typically used for inbound e-mail, because the sender of infected e-mails may be spoofed.

Caution

> If you choose to notify the sender of an infected inbound e-mail, it often means that a notification e-mail is sent to an unrelated third party.

Notify the administrator by e-mail

Notify Admin (notify_admin)

Sends a notification to the administrator by e-mail.

Set notify_admin=yes/no to enable or disable sending notification to administrator.

Specify the e-mail address (admin_mailaddr) and mail server (admin_mx_host) under common settings in the configuration file.

To separate notifications from standard e-mails, "X-Admin-Notification-Id: [number]" is added to the header. This also prevents the notification from being detected as a virus. “Number” is a random number, which is set as admin_notification_id in the settings file during the installation.

You can edit the notification message by editing the file /opt/f-secure/fsigk/conf/template_admin.txt.

Note

> If you edit the notification message from command line, you need to restart the specified service afterwards.

Quarantine

Quarantine(keep) (quarantine)

Quarantines viruses.

Set quarantine=yes/no to enable or disable quarantine.

The viruses are quarantined in the directory that you can set in quarantine_dir setting under common settings. The viruses are stored in mailbox format.

Specify this setting only if sufficient disk space is available.

Maximum number of simultaneous connections

Maximum connections (pre_spawn)

Specifies the maximum number of simultaneous connections from clients. The specified number of processes listen for connections from clients.

You can check the number of connections used in "Internal process ID" in the access log (access.log).

Note

- If you increase the value of this setting, the number of simultaneous connections is increased, but it requires more memory. Approximately 500 KB of memory is used per process.
- A warning is output to the error log if the maximum number of connections is reached.
- We recommend that you set an initial value of approximately 50 and then monitor the performance. The setting is usually set to a value of less than 200. (The setting itself permits values up to 9999.))

Access control

Access Control

From these hosts

From: (acl_from)

Set acl_from=yes/no to enable or disable the setting.

Only accepts connections from the designated list of hosts.

If you have enabled **DNS Reverse Lookup**, you can also specify <host name>.<domain name>.

➲ For examples, see "*Access Control*"

Note

If you enable this setting in the configuration file, then specify the list of hosts in the smtp_from field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configuration by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.
See man page hosts_access(5) for more information on the syntax used in the file.

To these hosts

To: (acl_to)

Set acl_to=yes/no to enable or disable the setting.

Only accepts connections to the designated list of hosts.

➲ For examples, see "*Access Control*".

Note

If you enable this setting in the configuration file, then specify the list of hosts in the smtp_to field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configuration by running /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.
See man page hosts_access(5) for more information on the syntax used in the file.

DNS reverse lookup

DNS Reverse Lookup (reverselookup)

Looks up the DNS entry for the source IP address.

Set reverselookup=yes/no to enable or disable DNS reverse lookup.

If you enable DNS reverse lookup, you can use <host name>.<domain name> format to specify the [Access control]=[From] and [Hosts and networks within LAN] settings. Also, the host name of the accessing host is shown in the access log.

However, this setting reduces processing speed slightly.

Blocked e-mail content

Block for:

ActiveX

ActiveX (block_activex)

Blocks HTML e-mail with embedded ActiveX content.

Set block_activex=yes/no to enable or disable blocking of HTML emails with embedded ActiveX content.

The detection name is "FSIGK/POLICY_BLOCK_ACTIVEX".

When ActiveX content is detected, it is handled in the same way as viruses. If you disable virus scanning, ActiveX content scanning is also disabled.

Scripts

Script (block_script)

Blocks HTML e-mail that contains scripts (JavaScript, VBScript, etc.).

Set block_script=yes/no to enable or disbable of HTML emails that contain scripts.

The detection name is "FSIGK/POLICY_BLOCK_SCRIPT".

When scripts are detected, they are handled in the same way as viruses. If you disable virus scanning, script scanning is also disabled.

Partial messages

Partial messages (block_partial_message)

Blocks divided e-mail messages. This blocks e-mail with a Content-Type field value of message/partial in the e-mail header.

Set block_partial_messge=yes/no to enable or disable blocking of divided e-mail messages.

The detection name is "FSIGK/POLICY_BLOCK_PARTIAL_MESSAGE".

When a partial message is detected, it is handled in the same way as viruses

Encrypted and archived files

Encrypted files (block_encrypted)

Blocks mail that contains encrypted and archived files (ZIP, RAR).

Set block_encrypted=yes/no to enable or disable blocking e-mails that contain encrypted and archived files.

The detection name is "FSIGK/POLICY_BLOCK_ENCRYPTED".

When an encrypted and archived file is detected, it is handled in the same way as viruses. If you disable virus scanning, the scanning for encrypted and archived files is also disabled.

File name or extension

Files/extensions (block_ext,block_ext_list)

Blocks e-mail with the specified file names or extensions.

Set block_ext=yes/no to enable or disable e-mail blocking based on file name or extension. Separate each name with a comma (",") by using backward matching (a file is blocked if the trailing characters of the file name match the specified file name or extension). The setting is not case sensitive.

If you specify "`ALL`", all e-mails with attached files are blocked.

The setting does not apply to files contained in archived files.

The maximum length of the setting is 1999 bytes.

When a specified file name or extension is detected, it is handled in the same way as viruses.

The detection name is "FSIGK/POLICY_BLOCK_EXT".

Example setting: .COM,.PIF,.EXE,.BAT

Exclude these targets from the virus scan

Skip scanning for:

File name or extension

Files/Extensions: (pass_ext, pass_ext_list)

Skips virus scanning for files with the specified file names or extensions.

Set pass_ext=yes/no to enable or disable skipping virus scanning for files with specified names or extensions.

Separate each name with a comma (",") by using backward matching (a file is skipped if the trailing characters of the file name match the specified file name or extension). The setting is not case sensitive.

The setting does not apply to files contained in archived files.

The maximum length of the setting is 1999 bytes.

Maximum scanning time

Maximum scanning time (vsd_scantimeout)

Sets a maximum time for scanning files.

If you set the value as zero, the scanning time is unlimited.

The default is 90 seconds.

> Caution
>
> If scanning takes a long time, this setting terminates the scanning after the specified time. Note, however, that if you set a shorter scanning time, it limits the extent to which archived and other large files can be scanned.

Riskware scanning

Scan riskware (riskware_check)

Enables riskware scanning.

Set riskware_check=yes/no to enable or disable riskware scanning.

This detects riskware as well as known viruses.

➲ For more information about riskware, see “*Riskware*”

Skip these targets

Skip scanning for riskware: (pass_riskware)

Excludes the specified riskware from detection.

Specify riskware by using the format "Category.Platform.Family". You can use wildcards (*) in the Category, Platform, and Family names. For example, "Client-IRC.*.*" excludes all riskware in the Client-IRC category.

The maximum length of the setting is 1999 bytes.

➲ Separate each setting in the setup file with a semicolon (";").

Scan the e-mail message body

Scan text body part (virus_check_text)

Scans the body of e-mail messages.

Set virus_check_text=yes/no to enable or disable scanning the body of e-mail messages. However, attached text-format files and HTML-format e-mail body text are scanned regardless of this setting.

If you enable this setting, harmless remains of viruses may also be detected. The operating speed may also be slightly reduced.

Because the text-format e-mail body is not executed, you do not usually need to enable this setting.

Scan the whole HTML content in the e-mail

Scan whole html part (virus_check_wholehtml)

Scans those parts of the HTML content of an e-mail that probably do not execute viruses (unlike parts such as ActiveX and scripts).

Set virus_check_wholehtml=yes/no to enable or disable scanning whole HTML part of e-mail.

If you enable this setting, some suspicious e-mail can also be detected (in addition to viruses). The suspicious e-mail can be, for example, phishing e-mails or virus fragments. Enabling the setting also reduces the operating speed slightly. Because viruses contained in HTML are detected regardless of this setting, you do not usually need to enable this setting.

Anonymous proxy

Anonymous Proxy (anonymous)

Set anonymous=yes/no to enable or disable anonymous proxy.

Do not add header information (Received header) in the proxy.

Transparent proxy

Transparent Proxy mode (transparent)

Enables transparent proxy mode.

Set transparent=yes/no to enable or disable transparent proxy mode.

A NAT redirection setting is required when the proxy operates as a transparent proxy. Use following method to specify the NAT redirection setting:

- Use the iptables command from the command line to specify the setting as follows. (The example shows the port number being set to 9025.)

```
# iptables -t nat -A PREROUTING -i eth1 -p tcp --dport 25 ¥
    -j REDIRECT --to-port 9025
```

➔ For more information, see “*Transparent Proxy*”

7.1.1.3 POP Proxy

POP Proxy

POP Proxy (pop_service)

Set pop_service=yes/no to enable or disable the POP proxy service.

Proxy port

Proxy Port (svcport)

Specifies the port number that the proxy service uses. The standard port number is 110.

Note

- You can specify only one inbound port number. To listen for connections on more than one port, use the REDIRECT setting in the iptables function of Linux.
  For example, to listen for connections on both the standard POP port (110) and 12345, set 110 as the inbound port number and use iptables to redirect port 12345 to port 110. In this case, use the following command to setup iptables:
  ```
  # iptables –t nat –A PREROUTING –p tcp –dport 12345 –j REDIRECT –to-port
  110
  ```
  After specifying the setting, save the iptables configuration:
  ```
  # /etc/init.d/iptables save
  ```
- Because SSL communications for protocols such as POPs (TCP/port number 995) are encrypted, communications cannot be received directly regardless of whether iptables redirection is enabled or not. If necessary, install F-Secure Internet Gatekeeper so that communications are first decrypted by an SSL proxy, SSL accelerator, or similar. After this, the communications pass through the gateway.
  Available general-purpose SSL proxies include stunnel and stone.
  - stunnel
    http://www.stunnel.org/
    http://www.atmarkit.co.jp/fsecurity/rensai/securitytips/018stunnnel.html
  - stone
    http://www.gcd.org/sengoku/stone/Welcome.ja.html
    http://www.gcd.org/sengoku/stone/

Parent server

Parent Server (parent_server_host / parent_server_port)

Specifies the host name and port number of the destination POP server.

The standard port number is 110.

This setting is ignored in transparent mode.

Virus scanning

Do Virus Check (virus_check)

Enables or disables virus scanning.

Set virus_check=yes/no to enable or disable virus scanning.

We recommend that you enable this setting.

When you enable both virus and spam scanning, the virus scan result is handled first.

What to do when a virus is detected

Action on Viruses

Delete

Delete (action={pass,delete})

Deletes viruses.

The e-mail that contains the virus is replaced with the information specified in the virus detection message.

The detection event is recorded in the log, a notification is sent to the administrator, and X-Virus-Status: is added to the header even if the virus is not deleted.

We recommend that you enable this setting.

Caution

> It is not possible to delete the e-mail completely or block it from being delivered to the user. This is based on the POP protocol specifications.

Notify the administrator by e-mail

Notify Admin (notify_admin)

Sends a notification to the administrator by e-mail.

Set notify_admin=yes/no to enable or disable notification to administrator.

Specify the e-mail address (admin_mailaddr) and mail server (admin_mx_host) under common settings in the configuration file.

To separate notifications from standard e-mails, "X-Admin-Notification-Id: [number]" is added to the header. This also prevents the notification from being detected as a virus. “Number” is a random number, which is set as admin_notification_id in the settings file during the installation.

You can edit the notification message by editing the file /opt/f-secure/fsigk/conf/template_admin.txt.

Note

> If you edit the notification message from command line, you need to restart the specified service afterwards.

Quarantine

Quarantine(keep) (quarantine)

Quarantines e-mails that contain viruses.

Set quarantine=yes/no to enable or disable quarantine.

The viruses are quarantined in the directory that you can set in quarantine_dir under common settings in the configuration file.

Specify this setting only if sufficient disk space is available.

Caution

> Even if you enable this setting, it is not possible to delete the e-mail completely or block it from being delivered to the user. This is based on the POP protocol specifications.

Spam filtering

Do SPAM Check (spam_check)

Enables or disables spam filtering.

Set spam_check=yes/no to enable or disable spam checking for e-mails

Specify the spam detection settings in the common settings section of the configuration file.

"X-Spam-Status:" is added to the header if spam is detected. When RBL or SURBL is used as the spam filtering method, a delay of up to several hundred milliseconds occurs while waiting for a response from the RBL or SURBL server.

When you enable both virus and spam scanning, the virus scan result is handled first.

Pass

Pass (spam_action=pass)

Allows the spam to pass. "X-Spam-Status:" is added to the header of e-mail that is classified as spam. You can use the sorting function on the client to classify e-mail in which the value of "X-Spam-Status:" starts with "Yes" as spam. The spam detection is recorded in the log and the administrator is notified.

Change subject

Change subject (spam_action=change_subject, spam_change_subject_prefix)

Modifies the Subject of an e-mail that is classified as spam. If you specify a character string, it is prefixed to the Subject. The maximum number of characters is 99.
We recommend that you specify the text string in English.
Although you can use other languages as well, the text is encoded as UTF-8. Accordingly, if the subject of the incoming e-mail is encoded by using, for example, ISO-2022-JP, the text may not be shown correctly in Outlook or other e-mail clients.

Notify the administrator by e-mail

Notify Admin (spam_notify_admin)

Sends a notification to the administrator by e-mail.
Set spam_notify_admin=yes/no to enable or disable spam notification to administrator.
Specify the e-mail address (admin_mailaddr) and mail server (admin_mx_host) under common settings in the configuration file.
To separate notifications from standard e-mails, "X-Admin-Notification-Id: [number]" is added to the header. This also prevents the notification from being detected as a virus. “Number” is a random number, which is set as admin_notification_id in the settings file during the installation.
You can edit the notification message by editing the file /opt/f-secure/fsigk/conf/template_admin.txt.

Note

> If you edit the notification message from command line, you need to restart the specified service afterwards.

Quarantine

Quarantine(keep) (spam_quarantine)

Quarantines spam.
Set spam_quarantine=yes/no to enable or disable spam quarantine.
The spam is quarantined in the directory that you set in quarantine_dir under common settings in the configuration file.
Specify this setting only if sufficient disk space is available.

Caution

> Even if you enable this setting, it is not possible to delete the e-mail completely or block it from being delivered to the user. The reason for this are the specifications of the POP protocol.

Defining parent server by user

User Selective Parent (self_proxy)

Allows the client to select the POP server.
Set self_proxy=yes for connecting directly to the destination host. To use a parent proxy, set self_proxy=no and define the parent server in [...] and parent server port in [...]
The user can specify the POP server by specifying their mailer user name in the format <user name>@<POP server name> (or <user name>#<POP server name>).

POP user restriction

PAM-based Account verification (proxyauth_pam_account)

Restricts which users can connect.

Set proxyauth_pam_account=yes/no to enable or disable the setting.

Authentication is performed using PAMs (Pluggable Authentication Modules). You can change the authentication method in the /etc/pam.d/fsigk_pop file.

➲ For more information, see "*Proxy authentication using Internet Gatekeeper*"

Add or remove users

User DB

Edits the database of users who are permitted to connect. You can edit the database of users who are permitted to connect. You can add, delete, and modify users and passwords.

Use the following commands using the files in /opt/f-secure/fsigk/conf/pam/ directory:

```
# echo -e username'/t'password >> /opt/f-secure/fsigk/conf/pam/userdb_pop.txt
# ./create_userdb userdb_pop.db < userdb_pop.txt
```

Maximum number of simultaneous connections

Maximum connections (pre_spawn)

Specifies the maximum number of simultaneous connections from clients. The specified number of processes listen for connections from clients.

You can check the number of connections used in “Internal process ID” in the access log (access.log).

Note

- If you increase the value of this setting, the number of simultaneous connections is increased, but it requires more memory. Approximately 500 KB of memory is used per process.
- A warning is output to the error log if the maximum number of connections is reached.
- We recommend that you set an initial value of approximately 50 and then monitor the performance. The setting is usually set to a value of less than 200. (The setting itself permits values up to 9999.))

Access control

Access Control

From

From: (acl_from)

Set acl_from=yes/no to enable or disable the setting.

Only accepts connections from the designated list of hosts.

If you have enabled **DNS Reverse Lookup**, you can also specify <host name>.<domain name>.

➲ For examples, see “*Access Control*”

Note

If you enable this setting in the configuration file, then specify the list of hosts in the pop_from field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configuration by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.
See man page hosts_access(5) for more information on the syntax used in the file.

To

To: (acl_to)

Set acl_to=yes/no to enable or disable the setting

Only accepts connections to the designated list of hosts.

➲ For examples, see “*Access Control*”

Note

If you enable this setting in the configuration file, then specify the list of hosts in the pop_to field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configurations by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.
See man page hosts_access(5) for more information on the syntax used in the file.

DNS reverse lookup

DNS Reverse Lookup (reverselookup)

Looks up the DNS entry for the source IP address.

Set reverselookup=yes/no to enable or disable DNS reverse lookup.

When you enable DNS reverse lookup, you can use <host name>.<domain name> format to specify the [Access control]=[From these hosts] settings. The host name of the accessing host is also shown in the access log.

However, this setting reduces processing speed slightly.

Blocked e-mail content

Block for:

ActiveX

ActiveX (block_activex)

Blocks HTML e-mail with embedded ActiveX content.

Set block_activex=yes/no to enable or disable blocking of HTML emails with embedded ActiveX content.

The detection name is "FSIGK/POLICY_BLOCK_ACTIVEX".

When ActiveX content is detected, it is handled in the same way as viruses. If you disable virus scanning, ActiveX content scanning is also disabled.

Scripts

Script (block_script)

Blocks HTML e-mail that contains scripts (JavaScript, VBScript, etc.).

Set block_script=yes/no to enable or disbable of HTML emails that contain scripts.

The detection name is "FSIGK/POLICY_BLOCK_SCRIPT".

When scripts are detected, they are handled in the same way as viruses. If you disable virus scanning, script scanning is also disabled.

Partial messages

Partial messages (block_partial_message)

Blocks divided e-mail messages. This blocks e-mail with a Content-Type field value of message/partial in the e-mail header.

Set block_partial_messge=yes/no to enable or disable blocking of divided e-mail messages.

The detection name is "FSIGK/POLICY_BLOCK_PARTIAL_MESSAGE".

When a partial message is detected, it is handled in the same as viruses.

Encrypted archive files

Encrypted files (block_encrypted)

Blocks mail containing encrypted and archived files (ZIP, RAR).

Set block_encrypted=yes/no to enable or disable blocking e-mails that contain encrypted and archived files.

The detection name is "FSIGK/POLICY_BLOCK_ENCRYPTED".

When an encrypted and archived file is detected, it is handled in the same as viruses. If you disable virus scanning, the scanning for encrypted and archived files is also disabled.

File name or extension

Files/extensions (block_ext,block_ext_list)

Blocks e-mail with the specified file names or extensions.

Set block_ext=yes/no to enable or disable e-mail blocking based on file name or extension.

Separate each name with a comma (",") by using backward matching (a file is blocked if the trailing characters of the file name match the specified file name or extension). The setting is not case sensitive.

If you specify "`ALL`", all e-mails with attached files are blocked.

The setting does not apply to files contained in archived files.

The maximum length of the setting is 1999 bytes.

The detection name is "FSIGK/POLICY_BLOCK_EXT".

When a specified file name or extension is detected, it is handled in the same as viruses.

Example setting: .COM,.PIF,.EXE,.BAT

Exclude these targets from the virus scan

Skip scanning for:

File name or extension

Files/Extensions: (pass_ext, pass_ext_list)

Skips virus scanning for files with the specified file names or extensions.

Set pass_ext=yes/no to enable or disable skipping virus scanning for files with specified names or extensions.

Separate each name with a comma (",") by using backward matching (a file is skipped if the trailing characters of the file name match the specified file name or extension). The setting is not case sensitive.

The setting does not apply to files contained in archived files.

The maximum length of the setting is 1999 bytes.

Maximum scanning time

Maximum scanning time (vsd_scantimeout)

Set a maximum time for scanning files.

If you set the value as zero, the scanning time is unlimited.

The default is 90 seconds.

Caution

If scanning takes a long time, this setting terminates the scanning after the specified time. Note, however, that if you set a shorter scanning time, it limits the extent to which archived and other large files can be scanned.

Riskware scanning

Scan riskware (riskware_check)

Enables riskware scanning.

Set riskware_check=yes/no to enable or disable riskware scanning.

This detects riskware as well as known viruses.

➲ For more information about riskware, see “*Riskware*”

Skip these targets

Skip scanning for riskware: (pass_riskware)

Excludes the specified riskware from detection.

Specify riskware by using the format "Category.Platform.Family". You can use wildcards (*) in the Category, Platform, and Family names. For example, "Client-IRC.*.*" excludes all riskware in the Client-IRC category.

The maximum length of the setting is 1999 bytes.

➲ Separate each setting in the setup file with a semicolon (";").

Scan the e-mail message body

Scan text body part (virus_check_text)

Scans the body of e-mail messages.

Set virus_check_text=yes/no to enable or disable scanning the body of e-mail messages. However, attached text-format files and HTML-format e-mail body text are scanned regardless of this setting. If you enable this setting, it reduces the operating speed slightly.

Because the text-format e-mail body is not executed, usually you do not need to enable this setting.

Scan the whole HTML content in the e-mail

Scan whole html part (virus_check_wholehtml)

Scans those parts of the HTML content of an e-mail that probably do not execute viruses (unlike parts such as ActiveX and scripts).

Set virus_check_wholehtml=yes/no to enable or disable scanning whole HTML part of e-mail. If you enable this setting, some suspicious e-mail can also be detected (in addition to viruses). The suspicious e-mail can be, for example, phishing e-mails or virus fragments. Enabling the setting also reduces the operating speed slightly. Because viruses contained in HTML are detected regardless of this setting, you do not usually need to enable this setting.

Transparent proxy

Transparent Proxy mode (transparent)

Enables the transparent proxy mode.

Set transparent=yes/no to enable or disable transparent proxy mode.

A NAT redirection setting is required when the proxy operates as a transparent proxy. Use the following method to specify the NAT redirection setting:

- Use the iptables command from the command line to specify the setting as follows. (The example shows the port number being set to 9110.)

```
# iptables -t nat -A PREROUTING -i eth1 -p tcp --dport 110 ¥
    -j REDIRECT --to-port 9110
```

➲ For more information, see “*Transparent Proxy*”.

7.1.1.4 FTP Proxy

FTP proxy

FTP Proxy (ftp_service)

Set ftp_proxy=yes/no to enable or disable the FTP proxy service.

Proxy port

Proxy Port (svcport)

Specifies the port number which the proxy service uses. The standard port number is 21.

Note

- You can specify only one inbound port number. To listen for connections on more than one port, use the REDIRECT setting in the iptables function of Linux.
  For example, to listen for connections on both 21 and 12345, set 21 as the inbound port number and use iptables to redirect port 12345 to port 21. In this case, use the following command to set up iptables:
  ```
  # iptables –t nat –A PREROUTING –p tcp –dport 12345 –j REDIRECT –to-port 21
  ```
  After specifying the setting, save the iptables configuration:
  ```
  # /etc/init.d/iptables save
  ```

Parent server

Parent Server (parent_server_host / parent_server_port)

Specifies the host name and port number of the destination FTP server.

The standard port number is 21.

This setting is ignored in transparent mode.

Virus scanning

Do Virus Check (virus_check)

Enables or disables virus scanning.

Set virus_check=yes/no to enable or disable virus scanning.

We recommend that you enable this setting.

What to do when a virus is detected

Action on Viruses

Delete

Delete (action={pass,delete})

Deletes viruses. The detection event is recorded in the log and a notification is sent to the administrator even if the virus is not deleted.

We recommend that you enable this setting.

Notify the administrator by e-mail

Notify Admin (notify_admin)

Sends a notification to the administrator by e-mail.

Set notify_admin=yes/no to enable or disable notification to administrator.

Specify the e-mail address (admin_mailaddr) and mail server (admin_mx_host) under common settings in configuration file.

To separate notifications from standard e-mails, "X-Admin-Notification-Id: [number]" is added to the header. This also prevents the notification from being detected as a virus. “Number” is a random number, which is set as admin_notification_id in the settings file during the installation.

You can edit the notification message by editing the file /opt/f-secure/fsigk/conf/template_admin.txt.

Note

> If you edit the notification message from command line, you need to restart the specified service afterwards.

Quarantine

Quarantine(keep) (quarantine)

Quarantines viruses.

Set quarantine=yes/no to enable or disable quarantine.

The viruses are quarantined in the directory that you can set in quarantine_dir setting under common settings in the configuration file.

Specify this setting only if sufficient disk space is available.

Defining parent server by user

User Selective Parent (self_proxy)

Allows the client to select the FTP server.

Set self_proxy=no/yes to enable or disable parent server setting by user.

The user can specify the FTP server from the FTP client by specifying their user name in the format <user name>@<FTP server name> (or <user name>#<FTP server name>).

FTP user restriction

PAM-based Account verification (proxyauth_pam_account)

Restricts which users can connect.

Set proxyauth_pam_account=yes/no to enable or disable FTP user restriction.

Authentication is performed using PAMs (Pluggable Authentication Modules). You can change the authentication method in the /etc/pam.d/fsigk_ftp file.

➲ For more information, see "*Proxy authentication using Internet Gatekeeper*".

Add or remove users

User DB

Edits the database of users who are permitted to connect.

You can edit the database of users who are permitted to connect. You can add, delete, and modify users and passwords. Use the following commands using the files in /opt/f-secure/fsigk/conf/pam/ directory:

```
# echo −e username’/t’password >> /opt/f-secure/fsigk/conf/pam/userdb_ftp.txt
#  ./create_userdb userdb_ftp.db < userdb_ftp.txt
```

Maximum number of simultaneous connections

Maximum connections (pre_spawn)

Specifies the maximum number of simultaneous connections from clients. The specified number of processes listen for connections from clients.

You can check the number of connections used in "Internal process ID" in the access log (access.log).

Note

- If you increase the value of this setting, the number of simultaneous connections is increased, but it requires more memory. Approximately 500 KB of memory is used per process.
- A warning is output to the error log if the maximum number of connections is reached.
- We recommend that you set an initial value of approximately 10 and then monitor the performance. The setting is usually set to a value of less than 50. (The setting itself permits values up to 9999.))

Access control

Access Control

From these hosts

From: (acl_from)

Set acl_from=yes/no to enable or disable the setting.

Only accepts connections from the designated list of hosts.

If you have enabled **DNS Reverse Lookup**, you can also specify <host name>.<domain name>.

➲ For examples, see "*Access Control*".

Note

If you enable this setting in the configuration file, then specify the list of hosts in the ftp_from field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Add the ftp_from field in the ftp section in the file. Reload the configuration by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.
See man page hosts_access(5) for more information on the syntax used in the file.

To these hosts

To: (acl_to)

Set acl_to=yes/no to enable or disable the setting.

Only accepts connections to the designated list of hosts.

➲ For examples, see "*Access Control*".

Note

If you enable this setting in the configuration file, then specify the list of hosts in the ftp_to field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configuration by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.
See man page hosts_access(5) for more information on the syntax used in the file.

DNS reverse lookup

DNS Reverse Lookup (reverselookup)

Looks up the DNS entry for the source IP address.'

Set reverselookup=yes/no to enable or disable DNS reverse lookup.

When you enable DNS reverse lookup, you can use <host name>.<domain name> format to specify the [Access control]=[From these hosts] settings. The host name of the accessing host is also shown in the access log.

However, this setting reduces the processing speed of the system slightly.

Exclude these targets from the virus scan

Skip scanning for:

Host name

Hosts: (acl_pass_to)

Skips virus scanning for connections to the specified hosts.

Set acl_pass_to=yes/no to enable or disable the setting.

Usually, all data is saved and transmitted to the client only after the virus scanning has completed. If you enable this setting, the data for connections to the specified hosts is forwarded as soon as it is received.

➲ For examples, see "*Access Control*".

Note

> If you enable this setting in the configuration file, then specify the list of hosts in the ftp_pass_to field in the /opt/f-secure/fsigk/conf/fsigk.ini file. Reload the configuration by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.

File name or extension

Files/Extensions: (pass_ext, pass_ext_list)

Skips virus scanning for files with the specified file names or extensions.

Set pass_ext=yes/no to enable or disable skipping virus scanning for files with specified names or extensions.

Separate each name with a comma (",") by using backward matching (a file is skipped if the trailing characters of the file name match the specified file name or extension). The setting is not case sensitive.

The setting does not apply to files contained in archived files.

The maximum length of the setting is 1999 bytes.

File size

Filesize: (pass_filesize, pass_filesize_len)

Skips virus scanning for file data beyond the specified size.

Set pass_filesize=yes/no to enable or disable scanning of files beyond a specified size.

Usually, all data is saved and transmitted to the client only after the virus scanning has completed. If you enable this setting, the data beyond the specified length in a file is forwarded as soon as it is received.

Caution

> Note that this setting may cause that viruses contained in large files are not detected.

Maximum scanning time

Maximum scanning time (vsd_scantimeout)

Sets a maximum time for scanning files.

If you set the value as zero, the scanning time is unlimited.

The default is 90 seconds.

Caution

> If scanning takes a long time, this setting terminates scanning after the specified time. Note, however, that if you set a shorter scanning time, it limits the extent to which archived and other large files can be scanned.

Riskware scanning

Scan riskware (riskware_check)

Enables riskware scanning.

Set riskware_check=yes/no to enable or disable riskware scanning.

This detects riskware as well as known viruses.

➲ For more information about riskware, see “*Riskware*”

Skip these targets

Skip scanning for riskware: (pass_riskware)

Excludes the specified riskware from detection.

You can specify riskware by using the format "Category.Platform.Family". You can use wildcards (*) in the Category, Platform, and Family names. For example, "Client-IRC.*.*" excludes all riskware in the Client-IRC category.

The maximum length of the setting is 1999 bytes.

➲ Separate each setting in the setup file with a semicolon (";").

Transparent proxy

Transparent Proxy mode (transparent)

Enables the transparent proxy mode.

Set transparent=yes/no to enable or disable transparent proxy mode.

A NAT redirection setting is required when the proxy operates as a transparent proxy. Use the following method to specify the NAT redirection setting:

- Use the iptables command from the command line to specify the setting as follows. (The example shows the port number being set to 9021.)

```
# iptables -t nat -A PREROUTING -i eth1 -p tcp --dport 21 ¥
        -j REDIRECT --to-port 9021
```

➲ For more information, see “*Transparent Proxy*”.

7.1.1.5 Common Settings

Common settings

Common Settings

Admin notification settings

Admin notification settings

E-mail address

E-mail address (admin_mailaddr)

Specifies the administrator’s e-mail address.

If you have enabled the **Notify the administrator by e-mail** for a service, virus detection notifications are sent to this address. This address is also used in SMTP scanning as the sender address in notification e-mails sent back to senders.

You can specify multiple addresses, separated by commas (","). In this case, the first address in the list is used as the sender address.

The maximum length of the setting is 1999 bytes.

SMTP server

SMTP server (admin_mx_host/admin_mx_port)

Specifies the mail server which is used to send virus detection notifications to the administrator. The standard port number is 25.

Temporary directory

Temporary directory (tmpdir)

Specifies the work directory. The directory is used for temporarily storing files that are being scanned for viruses.

The default is /var/tmp/fsigk.

Quarantine directory

Quarantine directory (quarantine_dir)

Specifies the directory for storing detected viruses. The directory is used, if you have enabled the **Quarantine** option for a service. Enable this setting only if sufficient disk space is available.

The default is /var/tmp/quarantine.

Spam filtering method

SPAM detection method

Specifies the spam filtering method. The line "X-Spam-Status: Yes(<product name>) with [<detection name>]" is added to the e-mail header if the mail is classified as spam.

If an e-mail matches multiple conditions, scanning is performed in the sequence: custom rules, spam detection engine, RBL, SURBL.

Custom filtering rules

Custom filtering rules

Specifies individual rules for identifying spam.

The detection name for the custom rules is "FSIGK/SPAM_LIST/CUSTOM/(rule number)/(detected header field name)".

You can specify up to 100 custom rules. You can also specify multiple character strings to scan for in each rule.

To enable **Custom filtering rules**, add the line "CUSTOM <tab>custom.txt" to /opt/f-secure/fsigk/conf/spam/files.txt.

To disable the setting, comment out the line with a hash ("#") in front of the line.

By default, this setting is enabled.

Edit the custom filtering rules

Edit the custom filtering rules

Edit the list of spam filtering rules using the method described. An e-mail is classified as spam if it matches any of the specified conditions. Because the custom rules are applied first, before other filtering methods, the rules can be used as a black list and white list. The list of rules is checked starting from the top. The different conditions that can be specified are described below. Please restart the SMTP service after editing these settings by running "/opt/f-secure/fsigk/rc.fsigk_smtp restart" command.

You can add the custom filtering rules in the file /opt/f-secure/fsigk/conf/spam/custom.txt. The rules can be specified in the file one rule per line. The fields in a rule should be in following order: "Judgement", "Field name", "Compare method", "Search string" each separated by a tab.

Judgement

The Judgement setting is specified as "BLACK" (spam), "WHITE" (not spam), or "NONE" (no action).). Select one for applying to the messages that matches the custom rule.

Field name

Specifies where to apply the rule.
"Field name" contains either a field name or "FILENAME" (file name), "FILESIZE" (file size), "TEXTBODY" (text body), "HTMLBODY" (HTML body), "URLHOST" (link host name), "RELAYIP" (relay addresses), or "ALWAYS" (always).
The available settings are described below.

- **Designated header field**
  Applies the rule to specific header fields. It can be Subject, To, CC, From or Content-Type. If the field name you want to specify is not listed here, mention it in the file in place of the field name. You can enter up to 29 characters. The field name is not case sensitive.
- **File name (FILENAME)**
  Applies the rule to the name of attached files.
- **File size (FILESIZE)**
  Applies the rule to the size of attached files. The condition is specified as a number of bytes. This performs a character string comparison. It does not test whether the numerical value is larger or smaller.
- **Text body (TEXTBODY)**
  Applies the rule to character strings in the e-mail's text body.
- **HTML body (HTMLBODY)**
  Applies the rule to character strings in the e-mail's HTML body. Carriage returns are treated as space characters.
- **Linked host (URLHOST)**
  Applies the rule to the host name part of the URLs contained in the e-mail.
- **Relay address (RELAYIP)**
  Applies the rule to the IP addresses in the Received field. In SMTP scanning, the rule is applied also to the source IP address.
- **Always (ALWAYS)**
  Always treat as spam or not spam.

Search string

Scanning searches for the specified character string in the part specified by the field name. You can specify multiple character strings to scan for, separated by commas (",").
You can use languages other than English (UTF-8). Enter difficult characters that in hexadecimal by using the format "¥xFF". The "¥" character itself is specified as "¥¥".
You can specify up to 800 characters for each condition, and up to 199 characters for each comma-delimited character string. You can specify up to 800 conditions. The maximum combined size of all conditions is 7000 characters.

Caution

> When you specify e-mail addresses, do not use forward or backward matching.
> If you use them, the e-mail address is not recognized correctly. This is because the From, To, and other headers contain additional characters before and after the e-mail address (example: "Xxx Yyy <aaa@example.com>").

Caution

> If you use other language than English (for example, Japanese), the comparison is performed by using the UTF-8 codes. The Subject field and filename are converted to UTF-8 before being compared. The conversion is done for "encoded-word ("=?" charset "?" encoding "?" encoded-text "?=")" written in RFC-2047. To scan for

character sets other than UTF-8 (such as Shift-JIS or Unicode), specify the codes as hexadecimal values.

For example, specify the following to search for the text "完全無料" in Shift-JIS format:

```
    ¥x8a¥xae¥x91¥x53¥x96¥xb3¥x97¥xbf
```

You can use utilities such as the following to perform the kanji code conversion.

Linux:

Use the iconv command as follows:

```
    # echo -n '<search character string>' | iconv -f <character set currently used in Linux> -t <character set into which to convert> | od -t x 1
```

Example:

```
    # echo -n '完全無料' | iconv -f EUC-JP -t SJIS | od -t x1
    0000000 8a ae 91 53 96 b3 97 bf
    0000010
```

* Insert "¥x" in front of each hexadecimal value.

(Example: ¥x8a¥xae¥x91¥x53¥x96¥xb3¥x97¥xbf)

Windows:

The Cygwin environment provides iconv utility for Windows (http://www.cygwin.com)

Comparison method

Specifies how to compare text.

Case sensitive

Distinguish between upper and lower case characters when comparing. Specify "IGNORECASE" in the rule if you want to ignore case for search string value.

Prefix search

Compare whether the leading characters of the specified field match the character string.

In the text body, this checks whether the character string matches the leading characters of each line. Prefix search cannot be used for the HTML body. Specify "HEADMATCH" in the rule if you want to use prefix search method.

Backward search

Compare whether the trailing characters of the specified field match the character string.

In the text body, this checks whether the character string matches the trailing characters of each line. Backward matching cannot be used for the HTML body. Specify "TAILMATCH" in the rule if you want to use backward search method.

Not

The rule is satisfied if there is no match with the specified character string. Specify "NOT" in the rule if you want to use this method.

"AND" with previous rule

The rule is satisfied if both the specified rule and the previous rule are satisfied. In this case, the previous rule is typically set to "no action". Specify "AND" in the rule if you want to use this method.

“AND” with previous rule in the same MIME part

The rule is satisfied if both the specified rule and the previous rule are satisfied for the same MIME part. You can use this to specify a rule for both the Content-Type and file name of an attached file, for example.
In this case, the previous rule is typically set to "no action". Specify “AND_SAMEPART” in the rule if you want to use this method.

Caution

> When you specify e-mail addresses, do not use forward or backward matching.
> If you use them, the e-mail address is not recognized correctly. This is because the From, To, and other headers contain additional characters before and after the e-mail address (example: "Xxx Yyy <aaa@example.com>").

You can specify more than one method separated by comma (“,”) from the above list of methods in the filter rule

RBL

RBL (spam_rbl)

These settings enable or disable the use of RBLs (Realtime Black Lists) for spam checking and specify the RBL servers which are used when checking for spam.
Set spam_rbl=yes/no to enable or disable the use of Realtime Black Lists for spam checking.

Specify the servers separated by commas. Specify up to 199 characters.
E-mail is scanned by checking whether the source IP address (in the case of SMTP) and the IP addresses in the Received headers are registered in an RBL server. Although the RBL and SURBL servers are queried together, a delay of several hundred milliseconds occurs while waiting for the server replies. If no reply is received within one second, the operation times out and the e-mail is not identified as spam.

The maximum number of queries per e-mail is 32. Because three RBL servers are set by default, the number of addresses from the Received headers that can be checked is 9 or 10 (for SMTP, as the source address is also checked) or 10 or 11 (in the case of POP). Excluded addresses are not counted.
The detection name for RBL is "FSIGK/SPAM_RBL/(detected address)[(RBL server name):(RBL reply address)]".

Detected address	: Address registered in the RBL server
RBL server name	: Name of the RBL server in which the address was found
RBL reply address	: Reply address from the RBL server when spam is detected

SURBL querying is performed by looking up the name in the DNS. The DNS server to query is the first nameserver setting in /etc/resolv.conf.
By default, this setting is disabled.

Server

Server (spam_surbl_list)

Specifies the list of RBL servers. You can specify multiple servers, separated by commas (",").
(Initial setting: bl.spamcop.net, sbl-xbl.spamhaus.org)

Addresses to be excluded

Skip address

Disables RBL checking for the specified addresses.

(Initial setting: 127.0.0.1 10. 192.168. 172.16.0.0/255.240.0.0)

➲ For examples, see “*Access Control*”.

Note: You can edit the [Addresses to be excluded] setting by editing the spam_ rbl_ pass field in the global section of the /opt/f-secure/fsigk/conf/fsigk.ini file.

SURBL

SURBL (spam_surbl)

These settings enable or disable the use of SURBLs (SPAM URL Realtime Black Lists) for spam checking and specify the SURBL servers which are used when checking for spam. Set spam_surbl=yes/no to enable or disable the setting.

Specify the servers separated by commas. Specify up to 199 characters.
E-mail is scanned by checking whether the domain name part of the URLs contained in the text body or HTML body of the e-mail is registered in a SURBL server. Although the RBL and SURBL servers are queried together, a delay of several hundred milliseconds occurs while waiting for the server replies. If no reply is received within one second, the operation times out and the e-mail is not identified as spam. The maximum number of queries per e-mail is 32.

The detection name for SURBL is "FSIGK/SPAM_SURBL/(detected domain name)[(SURBL server name):(SURBL reply address)]".

When spam is detected by checking an SURBL:

Detected domain name : Domain name registered in the SURBL server
SURBL server name : Name of the SURBL server in which the name was found
SURBL reply address : Reply address from the SURBL server when spam is detected

SURBL querying is performed by looking up the name in the DNS. The DNS server to query is the first nameserver setting in /etc/resolv.conf.
By default, this setting is disabled.

Server

Server (spam_surbl_list)

Specifies the list of SURBL servers. You can specify multiple servers separated by commas (",").

(Initial setting: multi.surbl.org)

7.2 Virus scanning ICAP service settings

The ICAP daemon implements the REQMOD, RESPMOD and OPTIONS methods of the ICAP protocol. If a REQMOD or RESPMOD request contains an encapsulated HTTP body, it will be scanned for viruses. In case of an infection, the ICAP daemon will modify the content for the response by replacing it with a HTML page informing the user that the content has been blocked. You can edit this HTML page “Virus Detection Notification templates”.

The ICAP daemon recognizes the optional “Allow: 204” ICAP header, and when it is present, responds with the status code 204 if the requests needs no modification. It is recommended that the client proxy is configured to allow 204 responses when possible, to reduce network load and the amount of required disk space.

ICAP service requires that fsicapd daemon is running. You can change the settings mentioned in the following section by adding these to “[ICAP]” section of the product configuration file /opt/f-secure/fsigk/conf/fsigk.ini.

You need to restart the daemon using “/opt/f-secure/fsigk/rc.fsigk_fsicapd restart” command after modifying the settings.

7.2.1 ICAP daemon settings

Enable the ICAP service

fsicapd (fsicapd_service)

Set fsicapd_service=yes/no to enable or disable virus scanning ICAP service. By default fsicapd listens in port 1344 for ICAP requests. The proxy using the ICAP service should be configured to send requests to the daemon.

Note

Refer to the documentation of the proxy for information on how to set it up.

The following settings should appear in the [icap] section of the configuration file.

Bind address

Bind address (bind_addr)

Specify the network address or hostname to which daemon will bind.

The ICAP daemon will bind to this address for listening for ICAP connections. For security reasons the daemon will bind to local interface only (127.0.0.1) by default. A value of 0.0.0.0 can be used to bind to all available addresses.

Bind port

Bind port (bind_port)

Specify the port number for ICAP service for listening.

ICAP service will listen for connections in this port. By default the standard port 1344 will be used.

Maximum scan size

Maximum scan size (max_scan_size)

Specify the maximum size of content to scan.

This value limits the size of content to scan. If the ICAP request contains an HTTP body larger than this limit, the request is allowed without scanning. A value of -1 disables the limit.

It is recommended to have a scan size limit in place to prevent proxy delays caused by long scanning times, and limit the amount if temporary disk space the ICAP daemon uses. The default value is 2147483648 (2 GB).

Maximum scanning time

Scan timeout (scan_timeout)

Set a maximum time for scanning files.

If you set the value as zero, the scanning time is unlimited.

The default is 90 seconds.

Caution

> If scanning takes a long time, this setting terminates the scanning after the specified time. Note, however, that if you set a shorter scanning time, it limits the extent to which archived and other large files can be scanned.

Block content if scan times out

Scan timeout blocking (scan_timeout_block)

If the maximum scanning time is reached while scanning, treat the content as infected and block it. The default is “no”, which means that the content is not blocked if no infection is found within the allowed scanning time.

Connection timeout

Connection timeout (conn_timeout)

Specify a timeout value for the connection.

Close client connections if ICAP request has not completed before the timeout occurs. This protects the ICAP service from overload in case of misbehaving clients. The default value is 600 seconds.

Maximum connections

Maximum connections (max_conns)

Specify the number of maximum connections allowed.

Set the maximum number of simultaneous connections allowed by ICAP daemon. When this limit is reached, any new client will be immediately served an ICAP response with status code 503 indicating overload, until the number of clients falls below the limit again. The default value is 500.

Block scan timeout contents

(scan_timeout_block)

Set scan_timeout_block=yes/no to enable or disable the blocking of contents if the scan times out. If set to no, the product treats the contents as clean if the scan times out. By default, the setting is disabled.

Check file reputation using the Real Time Protection Network

(orsp_file_check)

When orsp_file_check is set to yes, files going through the proxy are checked against constantly updating white and blacklists by using F-Secure's Real Time Protection Network. This can decrease the consumption of system resources that are used to scan common files and improve the reaction time for new threats.

When using this feature, all information that is transmitted to F-Secure's servers is handled anonymously. For more information, see the real-time-protection-network-policy.txt file that is installed with the product.

The default value is “no”, which means that no information is transmitted to the Real Time Protection Network.

File reputation check timeout

(orsp_timeout)

If orsp_file_check is set to yes, this option sets the amount of time in milliseconds that the product waits for response from the Real Time Protection Network servers before scanning the file locally. The default value is 5000 (5 seconds).

Note

- The separate “Expert options” document installed with product may contain information of other ICAP daemon options.
- The options listed there should usually not be necessary and their availability and operation is more likely to change between versions, but they can be useful in some situations.

Enable email scanning

(enable_email_services)

Set enable_email_services=yes/no to enable or disable email scanning and spam checking via ICAP service. By default, the setting is on.

Anti-spam daemon library path

(fsasd_libpath)

Set the directory path where fsicapd searches for the fsasd library. fsicapd searches for directories that have the following format: <fsasd_libpath>.<timestamp>. It uses the latest directory based on the timestamp. The specified path must be an absolute path. Do not change the default path unless you move the database directory to a non-default location.

Anti-spam daemon socket path

(fsasd_sockpath)

Set the path of fsasd server socket. The specified path must be an absolute path. Do not change the default path unless you move the fsasd socket to a non-default location.

Block riskware

(block_riskware)

Set block_riskware=yes/no to enable or disable the riskware and grayware detection. By default, the setting is disabled.

Archive scanning

(scan_archives)

Set scan_archives=yes/no to enable or disable the scanning of files inside archives. If the archive scanning is disabled, ICAP service scans archive files but does not extract files inside the archive itself.

Block encrypted archives

(block_encrypted_archives)

Set block_encrypted_archives=yes/no to enable or disable blocking of encrypted archive files. If the setting is enabled and an archive cannot be scanned because it is encrypted, the product reports an infection with the name 'Encrypted_archive'. If the setting is disabled, the product reports the encrypted archive as clean if the scanning fails. This setting has effect only when the scan_archives setting is enabled.

Maximum archive nested level

(max_nested)

Set the number of maximum level of nested archives to be scanned. The product scans nested archives up to this depth. This setting has effect only if the scan_archives setting is enabled.

Block nested archive

(block_archive_max_nested)

Set block_archive_max_nested=yes/no to enable or disable blocking of archives that exceed the maximum nested level. If the setting is enabled and an archive cannot be scanned because it exceeds the maximum depth limit for nested archives (the max_nested value) the product reports an infection with the name 'Archive_max_nested'. This setting has effect only when the scan_archives setting is enabled.

7.2.2 ICAP response headers

We recommend that ICAP clients use the 'Allow:204' ICAP header when possible. That way the server can respond to clean requests with a short response.

When an infection has been found, fsicapd responds with ICAP result code 200 (assuming that no error happened). Information of the infection is available in the following ICAP response headers:

Header	Description	Value	Note
X-Fsecure-Scan-Result	Reports the scanning result. This header is included in all REQMOD and RESPMOD responses	'clean', 'infected', 'suspected', 'grayware', 'spam’, or 'whitelisted'	If the message is both spam and malware, the malware detection takes precedence
X-Fsecure-Infection-Name	Reports the infection name	The infection name as a string	The header is not included if the scan result is clean
X-Fsecure-FSAV-Duration	Reports the actual time that scanning daemon fsavd took to scan the infection	The scan time as a number (in seconds)	The header is only included for the operations that were actually done to get the scan result
X-Fsecure-Transaction-Duration	Reports the total time used to process a single request. This is the number of	The total time as a number (in seconds)	

	seconds between the time the server finished receiving the ICAP request headers and the time the ICAP response headers were generated		
X-Fsecure-Spamcheck-Duration	Reports the scan time that spam scanning daemon fsasd took to scan for spam	The total time as a number (in seconds)	
X-Fsecure-Infected-Filename	Reports the name of the file that was detected as infected	The file name as a string	This header is not included if the name of the file is not known. The filename can be reported only if detection was caused by a file inside an archive or in a MIME email attachment. The file name is URL encoded so that it can contain non-ASCII characters

7.2.3 ICAP service daemon (fsicapd) temporary files

When fsicapd scans an HTTP request or response body, the encapsulated body is decoded from chunked encode format and written to a temporary file, which exists until the ICAP request is complete. The number and maximum size of such temporary files depend on fsicapd's settings and behavior of the ICAP client as follows:

- The total number of temporary files is at most the number of connected clients (max_conn). If an ICAP request contains the "Allow: 204" header, a limit for the scan size is set (max_scan_size) and the maximum size of the temporary file is this value.
- If ICAP request does not contain the "Allow: 204" header, or no size limit is set, the whole body will be stored. In this case, there is no upper limit for the size of the temporary file.

The administrator should allocate enough disk space and configure scan limits and maximum number of connections carefully to avoid running out of temporary disk space. If fsicapd fails to write to a temporary file while handling an ICAP request, the client will be served a response with error code 500. The proxy using the ICAP service should be configured to handle these appropriately to prevent it accidently passing through infected content.

7.2.4 ICAP Error and Status codes

The following table lists the ICAP status codes are implemented and returned by the ICAP service daemon when appropriate:

Code	Reason
200	ICAP server returns a possibly modified response or request. Also used for successful OPTIONS responses.
204	The HTTP request or response is clean. The proxy should use the original request or responses without modification
400	ICAP protocol error: failed to parse ICAP request from client
500	Internal error: ICAP daemon most likely out of disk space or memory
503	The allowed maximum number id connections already reached, service overloaded

Note

For a more thorough explanation of the ICAP protocol, refer to RFC 3507 and the documentation of the HTTP proxy that you intend to use as the ICAP client.

7.3 Access Control

You can use the proxy and other settings to control access based on the host and network. Specify the settings as described below.

Note

Access control uses tcpwrapper. For more information about tcpwrapper, run "man 5 hosts access" from the command line.

The examples below offers settings that you can specify in proxy service settings in the /opt/f-secure/fsigk/conf/fsigk.ini configuration file for following settings:

- From these hosts (acl_from)
- To these hosts (acl_to)
- Restrict e-mail recipients (acl_rcpt)
- Host name (acl_pass_to)
- Address to be excluded (spam_rbl_pass)

Setting examples:

123.456.789.123 999.999.999.999

Permit connections for the IP addresses "123.456.789.123" and "999.999.999.999".

host.domain.jp

Permit connections for the host name "host.domain.jp".
This does not permit connections for "xxx.host.domain.jp".

.domain.jp

Permit connections for host names that end in ".domain.jp".
This permits connections for "xxx.domain.jp", but not for "domain.jp".

domain.jp .domain.jp

Permit connections for "domain.jp" and domains that are part of "domain.jp".
This permits connections for both "xxx.domain.jp" and "domain.jp".

192.168.

192.168.0.0/255.255.0.0

Permit connections for networks in which the addresses are specified in the form 192.168.3.4. "255.255.255.255" cannot be specified as the netmask.

ALL

Permit connections from all hosts.

ALL EXCEPT 1.2.3.4 4.5.6.7

Permit connections from all IP addresses except 1.2.3.4 and 4.5.6.7.

ALL EXCEPT 192.168.0.0/255.255.0.0

Permit connections for networks other than 192.168.0.0/255.255.0.0.

.domain.jp EXCEPT 999.999.999.999 987.654.321.123

Permit connections for host names that end in ".domain.jp" unless the IP address is 999.999.999.999 or 987.654.321.123.

/etc/fsigk_allow_list.txt

Permit connections from addresses contained in the list file (/etc/fsigk_allow_list.txt). Specify each address in the list file on a separate line or delimited by spaces.

ALL EXCEPT /etc/fsigk_deny_list.txt

Block connections from addresses or hosts contained in the list file (/etc/fsigk_deny_list.txt) and permit all other connections. Specify each address in the list file on a separate line or delimited by spaces.

What to do if a line contains more than 2000 bytes

The Access control settings in the /opt/f-secure/fsigk/conf/fsigk.ini file permits a maximum of 2000 bytes per line. Use the following method if you want to specify lines longer than 2000 bytes.

1. Specify the list in a separate file
   Specify the host.domain list in a separate file (e.g. /etc/fsigk_smtp_rcpt_allow_list.txt) as follows:

   ```
   aaa.com
   bbb.com
   ccc.com
   ```

2. Then, specify the file (e.g. /etc/fsigk_smtp_rcpt_allow_list.txt) in the access control setting. You can use this method when you specify a list of hosts in the access control settings file (/opt/f-secure/fsigk/conf/fsigk.ini).

   ```
   smtp_rcpt: /etc/fsigk_smtp_rcpt_allow_list.txt
   ```

7.4 Notification Templates

You can edit all notification templates in /opt/f-secure/fsigk/conf/en(jp) directory in English or Japanese language.

Note

- If you edit the templates from the command line, you need to restart the respective service afterwards.

7.4.1 Admin Notification Template (template_admin.txt)

You can edit the admin detection notification template file “template_admin.txt” which the product use to notify administrator. You can specify a header in the top line of the detection notification template. When sending a notification e-mail to the sender or administrator from the SMTP service, you can specify "From: name@domain" in the initial part. This specifies the header's From line and the Envelope From ("MAIL FROM:" command address). However, you cannot change the Envelope From for notifications sent to recipients.
UTF-8 character set can be used in the "Subject:" and "From:" fields.
Note that you need to restart the service after editing the template.

Variables that can be used in virus detection messages

`${SERVICE_TYPE}`

Service type ("http" or "smtp" or "pop" or "ftp")

`${DETECTION_NAME}`

Virus or other detection name (W95/Klez.H@mm, etc.)

`${VIRUS_INFO_URL}`

URL for information about a virus

Example: "http://cgi.f-secure.com/cgi-bin/search.cgi?q=W32/NetSky.D@mm"

`${CLIENT_HOST}`

Client host name

Note

To show the host name, you must enable [DNS Reverse Lookup]

`${CLIENT_ADDR}`

Client IP address

`${SERVER_HOST}`

Server host name (the server which is connected to from the Internet Gatekeeper)

`${SERVER_ADDR}`

Server IP address (the server which is connected to from the Internet Gatekeeper)

`${STATUS}`

Response code (the same value as is shown in the access log)

`${METHOD}`

Request method

Note

For HTTP, this is the HTTP request method (GET, POST, etc.). For FTP, "PUT" indicates sending and "GET" indicates receiving. For other services, the method is always "GET".

`${URL}`

URL of the accessed site

`${CONTENT_TYPE}`

Value indicating the Content-Type (Example: text/html)

`${CONTENT_LENGTH}`

Size of the transferred file (number of bytes)

`${FILENAME}`

Name of the detected file

`${QUARANTINE_FILE}`

Name of the quarantined file

`${TIME}`

Access time (number of seconds since 1970/01/01)

`${TIME_STR}`

Access time in text format (Example: 'Tue May 7 16:16:17 2002')

`${HEADER}`

Content of the header

`${TEXT}`

Content of the text message

`${MAILFROM}`

SMTP sender address (the address passed to the "MAIL FROM:" command)

`${RCPTTO}`

SMTP recipient addresses (the addresses passed to the "RCPT TO:" command, separated by commas (","))

`${MESSAGE_ID}`

Value of the Message-Id field in the SMTP e-mail header

`${ERROR_STR}`

Error message (the same information as PROXY-ERROR in the access log)

`${ACTION}`

Action which is taken when a virus is detected (the same information that is recorded in the access log)

`${PATH_QUERY}`

Path and query part of the URL (only applies to the HTTP service)

7.4.2 Virus Detection Notification templates

You can edit the virus detection notification *templates “template_http.html, template_http_post.html, template_http_blocked.html, template_smtp.txt, template_smtp_lan.txt and template_pop.txt”* for HTTP, SMTP, POP proxies. The template files are in the conf directory, for example: */opt/f-secure/fsigk/conf/*.
You can also edit the ICAP detection notification template: */opt/f-secure/fsigk/fsicapd/templates/fsicapd_infected.html.*

Note

/opt/f-secure/fsigk/ is the default installation directory for the Internet Gatekeeper.

Templates contain the message that is shown when a virus is detected.
Enter the message by using the UTF-8 character set. The maximum length of the message is 900 bytes.

➲ For information on variables and options, see “Admin Notification Template”

7.4.3 Error Message template

You can edit the error message template "template_http_error.html"
The template contains the message that is shown when an error occurs.
Enter the message by using the UTF-8 character set. The maximum length of the message is 900 bytes.

➲ For information on variables and options, see "Admin Notification Template"

7.5 Expert Options

Reference Information for Expert Options

Usually, you do not need to specify any other settings than those available through the configuration file and described in this manual. However, a number of expert options are available for handling special cases or requirements. For more information, see the following file:

/opt/f-secure/fsigk/doc/expert-options-fsigk-EN.txt

Using Expert Options

The expert options include settings that are highly likely to change in future versions and are not settings that normally need to be specified. Because these options may be dependent on the particular system environment and may not work the way the user expects, please confirm that the options work correctly on your system before you use them.
If you need to use the expert options and set them on your system, please notify the support center. Based on the understanding of how the options are used in practice, we will investigate whether we can add them to the standard options.

8. Command-line Tools

You can operate F-Secure Internet Gatekeeper with command-line operation.

The proxy function of Internet Gatekeeper needs to be restarted manually when changes are made to its settings in the configuration file, or during system start-up via `/etc/rc.d/init.d/`. In such cases, the proxy auto-start command (`rc.fsigk_{http,smtp,pop,ftp}`) should be started first. The auto-start command initializes the proxy execution command (`fsigk`).

8.1 Auto-Start

Overview of operations:

Starts, stops, and restarts the proxy execution command (`fsigk`), Virus verification daemon (fsavd) and ICAP service daemon (fsicapd) when the computer is started with the auto-start command (initscript).
Launch the virus verification engine before you start each proxy service.

Command names:

`/opt/f-secure/fsigk/rc.fsigk_http`	http proxy auto-start command
`/opt/f-secure/fsigk/rc.fsigk_smtp`	smtp proxy auto-start command
`/opt/f-secure/fsigk/rc.fsigk_pop`	pop proxy auto-start command
`/opt/f-secure/fsigk/rc.fsigk_ftp`	ftp proxy auto-start command
`/opt/f-secure/fsigk/rc.fsigk_fsavd`	Virus verification engine
`/opt/f-secure/fsigk/rc.fsigk_fsicapd`	ICAP service auto-start command

Options:

`start`	Starts the service
`stop`	Stops the service
`restart`	Restarts the service
`status`	Displays the status of the service

Command examples:

Restart the http proxy

```
        # /opt/f-secure/fsigk/rc.fsigk_http restart
```

Configure the http proxy to auto-start

```
        # ln -s /opt/f-secure/fsigk/rc.fsigk_http /etc/init.d/fsigk_http
        # chkconfig --add fsigk_http
        # chkconfig fsigk_http on
```

8.2 Proxy Execution

Overview of operations:

Executes a proxy according to the set options in the configuration file.
Usually, you need to specify `/opt/f-secure/fsigk/conf/fsigk.ini` as the configuration file.

Command names:

```
cd /opt/f-secure/fsigk; ./fsigk
```

Caution

> fsigk command must be executed from the installation directory.

Options:

If you specify multiple options, the last option is prioritized:

`--http`	Uses the http protocol (default when started with “`fsigk_http`”)
`--smtp`	Uses the smtp protocol (default when started with “`fsigk_smtp`”)
`--pop`	Uses the pop protocol (default when started with “`fsigk_pop`”)
`--ftp`	Uses the ftp protocol (default when started with “`fsigk_ftp`”)
`-f <inifile>`	Reads the settings of “inifile” as the configuration file Usually, you need to specify /`opt/f-secure/fsigk/conf/fsigk.ini` as the configuration file. Specify the protocol before this option:
`--daemon`	Starts in the background
-q	Stops the detailed display
`-P <port>`	Listens to the specified port number
-h	Displays a list of options

Command examples:

Start a HTTP proxy (default)

```
# cd /opt/f-secure/fsigk; ./fsigk --daemon --http -f conf/fsigk.ini
```

Starting a HTTP proxy

- Start in the foreground

```
# cd /opt/f-secure/fsigk; ./fsigk --http -f conf/fsigk.ini
```

Starting a HTTP proxy

- Start in the foreground
- Display detailed information

```
# cd /opt/f-secure/fsigk; ./fsigk -v --http -f conf/fsigk.ini
```

Starting a HTTP proxy

- Start in the foreground
- Display detailed information
- Listen to port 9080

```
# cd /opt/f-secure/fsigk; ./fsigk -v --http -f conf/fsigk.ini -P 9080
```

8.3 Virus Definition Updates

Overview of operations:

Updates virus definition files.

Updating may take some time because virus definition files are downloaded from the Internet.

You can specify update proxy settings in the updates section of /opt/f-secure/fsigk/conf/fsigk.ini.

Update process

The dbupdate command retrieves files from http://fsbwserver.f-secure.com/ by using AUA (Automatic Update Agent, “fsaua” command) and temporarily saves the files in the update directory. The files are then copied to the “databases” directory.

Note

If the virus definition files fail to download, check if the files can be downloaded from the following URL:

http://fsbwserver.f-secure.com/

In addition, check the logs file (/opt/f-secure/fsigk/log/dbupdate.log, /opt/f-secure/fsigk/log/fsaua.log) for any problems.

Note

The configured proxy information is stored in /opt/f-secure/fsigk/conf/fsigk.ini with the following information:

use_proxy=[yes|no]	Specifies whether the proxy is used or not
http_proxy_host=	Specifies the host name of the proxy server
http_proxy_port=	Specifies the port number of the proxy server
http_proxyauth=	Specifies whether proxy authorization is used or not
http_proxyauth_user=	Specifies the user name which is used for proxy authorization
http_proxyauth_pass=	Specifies the password which is used for proxy authorization

Note

To download virus definition databases from Policy Manager, specify “updateurl= http://host name:port number/” in /opt/f-secure/fsigk/conf/fsigk.ini with the host name and port number used by Policy Manager.

Note

You can check the version number of virus definition database files with “cd /opt/f-secure/fsigk; make show-dbversion”.

The version number of database files for each engine (Aquarius,Hydra(FS-Engine)) corresponds to "[Version]... File_set_visible_version=YYYY-MM-DD_XX" in databases/aqulnx32/aquarius-linux-update.ini and databases/fse/FS@hydra.ini. The version number of the entire virus definition file is determined by the highest version number among all of the version numbers in each engine.

If you change proxy settings in the configuration file conf/fsigk.ini, reload the configuration by running the /opt/f-secure/fsigk/libexec/fsigk-reload.sh command.

Command names:

```
/opt/f-secure/fsigk/dbupdate
```

Options:

--help Displays a quick help which lists command-line options.

--auto Definition files are not downloaded synchronously. Instead, the definition files previously downloaded by F-Secure Automatic Update Agent are updated. This option is used to fully automate virus definition updates.

```
fsdbupdate.run
```

Definition files are not downloaded from the Internet. Instead, they are carried on by using specified databases (`fsdbupdate.run`). (Databases are imported)

Configuration file:

/opt/f-secure/fsigk/conf/fsigk.ini

use_proxy=[yes|no]	Specifies whether a proxy is used or not
http_proxy_host=	Specifies the host name of the proxy server
http_proxy_port=	Specifies the port number of the proxy server
http_proxyauth=	Specifies whether proxy authorization is used or not
http_proxyauth_user=	Specifies the user name which is used for proxy authorization
http_proxyauth_pass=	Specifies the password which is used for proxy authorization

updateurl=http://host name:port number/

Specifies the URL of Policy Manager in cases when the virus definitions are to be downloaded from Policy Manager

Command examples:

Update virus definitions.

```
        # cd /opt/f-secure/fsigk; ./dbupdate
```

Import from a specific definition file (fsdbupdate.run).

```
        # cd /opt/f-secure/fsigk; ./dbupdate fsdbupdate.run
```

Exit codes:

You can obtain the update results with the following exit codes.

Exit code	Description
0	There are no new updates. Nothing is updated.
1	The system failed to update databases. For details, see the program output and log files at /opt/f-secure/fsigk/log/ dbupdate.log and /opt/f-secure/fsigk/log/fsaua.log.
2	Virus definition databases were successfully updated.

Note

An exit code over 128 indicates a termination signal. For example, if the exit code is 143, 143-128=15(SIGTERM) is the signal.
You can check the Linux signal numbers with commands such as "`man 7 signal`".

Log files:

Update results are written to the following log files. When troubleshooting, refer to these files:

```
/opt/f-secure/fsigk/log/dbupdate.log
/opt/f-secure/fsigk/log/fsaua.log
```

8.4 Restarting All Services

Overview of operations:

Restarts all services (http, smtp, pop, ftp, admin) that are enabled.

Command names:

```
cd /opt/f-secure/fsigk; make restart
```

Command examples:

Restart all services that are enabled.

```
        # cd /opt/f-secure/fsigk; make restart
```

8.5 Creating Diagnostic Information

Overview of operations:

Create diagnostic information file (`diag.tar.gz`) in the `/opt/f-secure/fsigk directory`. The diagnostic information file contains configuration information about the product, system, and log files. The information is needed for troubleshooting.

Note

When contacting support, please send the diagnostic information file (diag.tar.gz) if possible.

Command names:

```
cd /opt/f-secure/fsigk; make diag
```

Command examples:

Create a diagnostic information file.

```
        # cd /opt/f-secure/fsigk; make diag
```

9. Logs

F-Secure Internet Gatekeeper records access status, virus detection status, and error occurrences to log files. The log files are saved in /opt/f-secure/fsigk/log/ directory and a directory is created for each service.

9.1 Log Files

9.1.1 Access Logs

All accesses to servers through the product are saved into access logs.
Logs are formatted in the following manner.

Note

You can use various log analyzing tools because the logs saved by the product are compatible with the Squid log format. For setting examples of Webalizer, see “*Log Analysis Tools*”.

Log format

Connection statuses are recorded one line at a time. Each item below is separated with a space.

- Time
  The access time from the client. Displays the number of seconds from epoch time (1970/01/01 00:00:00(UTC)) in milliseconds.
- Connection time
  Displays how long the client was connected in milliseconds.
- Client host
  Displays the host of the client. When reverse lookup is available, the host name is displayed. If not, the IP address is displayed.
- Processing results
  Returns [Cache status] / [HTTP status code].
  Cache status is not used. TCP_MISS is always used.
  The HTTP status code is the HTTP response status code (3 digit number) to be sent to the client. Status code 200 is returned for non-HTTP successful connections, 500 when an error occurs, and 000 in other cases (including when connections are terminated immediately after connecting without any data relay).
- File size
  The size of the file transferred.
- Request method
  The HTTP request method (GET, POST, etc.) when HTTP is used. PUT is applicable when FTP is used. In other cases, GET is used.

- URL
  Displays the URL accessed.
  When pop is used, the URL is "pop://POP user name@POP server name:port number".
  When smtp is used, the URL is "mail:destination".
- User name
  Displays the user name when proxy authentication is used.
  "-" is recorded if authentication is not used.
- Hierarchy code
  Returns "[Hierarchy string]/IP address of destination".
  [Hierarchy string] is not used. "DIRECT" is always used.
- Content-Type
  Displays the Content-Type of the file to be transferred. "-" is used when not available.
- Detection information
  "DETECT-STAT:[Detection results]:[Virus name]:[File name]:[Quarantined file name]::" is returned.

Detection results	Either INFECTED (Virus detected), SPAM (Spam detected), or CLEAN (No virus detected)
Virus name	Name of the virus
File name	Name of the file being transferred
Quarantined file name	The name of the file as it is stored in the quarantine directory This is set only if the quarantine of infected files is enabled.

- Action
  "ACTION:[Action]:" is returned.

Action	Either of the following actions are returned according to the detection results: ・ NONE Nothing is done (No detection) ・ PASS Detected but passed (logged) ・ DELETE Deleted (If SMTP is used, a notification is sent to the recipient after the file is deleted) ・ DENY Detected with SMTP and blocked ・ SENDBACK Notification sent to the sender with SMTP ・ BLACKHOLE Deleted with SMTP (no notification to the sender) ・ CHANGE_SUBJECT Spam detected with SMTP and the subject is changed

- Proxy information
  "PROXY-STAT:[Service type]:[Internal process ID]:[Process ID] :[IP address of host]:[Number of processed files]:[Number of checks]:[Detection time]:[Detection details]:" is returned.

Service type	Indicates the service type (http, smtp, pop, ftp)
Internal process ID	Indicates the internal process ID (identifier starts with 0) used for the process. In general, smaller numbers have higher priority. [internal process ID]+1) applies to the simultaneous number of connections during startup of the corresponding access.
Process ID	Indicates the process ID that is used for the process
IP Address of host	Indicates the IP Address of the host
Number of processed files	Indicates the number of requests processed in the same session. Starts with 1 and increments by 1 for each access log generated in the same session. For POP, 1 is always used.

Number of checks	The number of virus checks executed in one connection (the number applies to the number of times since the last time an access log was generated)
Detection time	The time (milliseconds) spent on virus checks executed in one connection (the time applies to the time elapsed since the last time an access log was generated)
Detection details	Displays the detection details with the following strings separated by a comma: ・ VSD_ENCRYPTED Encrypted file ・ VSD_MAXNESTED Maximum allowed nest value was reached ・ VSD_SCANTIMEOUT Scan time reached the timeout value ・ OVER_FILESIZE Size of the file is greater than the file size limit for scanning ・ PASS_TO Matches a host name excluded from scanning ・ PASS_USER_AGENT Matches a User-Agent excluded from scanning ・ PASS_EXT Matches a file name and extension excluded from scanning (HTTP and FTP only)

- Protocol information

  Logs the unique information of each protocol. Enabled for the HTTP/SMTP service only.

  SMTP service:

  "PROTOCOL-STAT:[sender address]:[Message-ID]:" is returned.

Sender address	SMTP sender address ("MAIL FROM:" Argument address of command) (Displayed with URL encode.)
Message-ID	Argument address of command) (Displayed with URL encode.)

  HTTP service:

  "PROTOCOL-STAT:[Protocol details]:[X-Forwarded-For]:" is returned.

KEEPALIVE	Displays the detection details with the following strings separated by a comma: ・ KEEPALIVE: Keep-Alive connection (Persistent-Connection) executed in the corresponding session。 ・ PROGRESS* A download progress dialog, which is displayed in the corresponding session (if the advanced option of "progress" is set). ・ TRICKLE: Before the download completes in the corresponding session, a transfer is started by using trickle (if the advanced option of "trickle" is set).
X-Forwarded-For	X-Forwarded-For Field of the request header (Displayed with URL encode.)

- Error information

  Displays error information occurring from a proxy process.

  "PROXY-ERROR:[Error information]:" is returned.

Error message	The following error message is displayed (Displayed with URL encode.) Common for all protocols ・CONNECT (Host name: Port number / Connection error message

	An error message listed in “*Connection error messages*” (168) appears. HTTP An error message listed in “HTTP Error Responses” appears. SMTP ・ SERVER/ERROR Reply(MAIL): buf=[XXX] Error response when the "MAIL FROM" command to the SMTP server is sent ・ SERVER/ERROR Reply(RCPT): buf=[XXX] Error response when the " RCPT TO " command to the SMTP server is sent ・ SERVER/ERROR Reply(AUTH): buf=[XXX] Error response when the " AUTH " command to the SMTP server is sent ・ PROXY/550 Relaying denied. Relaying denied by the Internet Gatekeeper. Displayed if the relaying is denied due to recipient domain restrictions or authentication. (If relays are accepted from clients, you must set the corresponding client address from the host within the LAN or enable the PbS/SMTP authentication. If relays are accepted externally, you must set the recipient domains.)

9.1.2 Virus and Spam Detection Logs

Logs are recorded if viruses or spam are detected during data transfer.

➲ The format of the logs is identical with those covered in “*Access Logs*”.

9.1.3 Error Logs

Logs are recorded when an error occurs. Refer to the error logs if the program is not working properly. Error logs are formatted in the following manner. The format and text of the messages may change in the future if necessary.

Error message format

Time (seconds)
Internal process ID
Log level
[Internal location information]
[Client address/Client port number/Client side file descriptor]
[Server address/Server port number/Server side file descriptor]
Error message

The time indicates the time when the error occurred. It is displayed counting from epoch time (1970/01/01 00:00:00(UTC)) in seconds and microseconds.
For errors relating with OS system calls, the following is inserted before the error message:

```
System call=Error message(Error code)
System call: the call that failed
Error message: error message for system calls
Error code: error code for system calls
```

For information on the error message content, see the F-Secure knowledge page:
http://community.f-secure.com/t5/E-mail-and-Web/Internet-Gatekeeper-error-logs/ta-p/17436

9.1.4 Information Logs

The information log (info.log) records any other general information.

Message format:

Time (seconds)
Internal process ID
Log level
[Internal location information]
[Client address/Client port number/Client side file descriptor]
[Server address/Server port number/Server side file descriptor]
Message

The date and time indicates the time when the error occurred. The first time displays the number of seconds from epoch time (1970/01/01 00:00:00(UTC)) in milliseconds.

Note

> The format and text of the messages may change in the future if necessary.

For information on the message content, see the F-Secure knowledge page:
http://community.f-secure.com/t5/E-mail-and-Web/Internet-Gatekeeper-information/ta-p/17438

9.2 Splitting/Rotating Log Files

Log files are saved as a single file by default and not split into multiple files. To split log files, use the `logrotate` command.

To set up a split rotation for log files by using the sample configuration file follow the steps:

1 Set the configuration file

Copy the Sample configuration file (/opt/f-secure/fsigk/misc/logrotate.fsigk) to /etc/logrotate.d/fsigk.

```
        # cp /opt/f-secure/fsigk/misc/logrotate.fsigk /etc/logrotate.d/fsigk
```

2 Edit the configuration file

Specify the rotation interval as needed.

3 Check that the logs are properly rotating

Run the following command to make sure that logs are rotated.

```
# logrotate -f /etc/logrotate.d/fsigk
```

9.3 Time Display Conversion Tool

Most logs display the time in seconds elapsed from epoch time. With the logconv tool, the date fields of year, month, date, hour, minute, and second can be added to the beginning of the date line in a log file.

You can run the logconv tool with the following command. The options may be omitted.

```
        # /opt/f-secure/fsigk/misc/logconv <Log file name>
```

(From Windows, you can run it from "/opt/f-secure/fsigk/misc/logconv.exe".)

Options

`--tail [num]`	Outputs the log entries corresponding to the last [num] lines from the end of the log.
`--tailsec [sec]`	The log entries recorded in the last [sec] seconds are output.
`--cgi`	Used when invoking with CGI.
`--today`	The logs recorded for the current day are output.
`--noconv`	Time conversion is not performed.
`-r`	Converts the converted data back to its original form.

The converted results appear in the standard output. If you add the --tail <num> option, log entries from the end of the log file are displayed according to the specified number.

9.4 Log Analysis Tools

The access logs used by the product are compatible with Squid format. This makes it possible to use various log analysis tools, such as Webalizer.

You can perform the daily access analysis with Webalizer by running the following command:

```
# touch /opt/f-secure/fsigk/log/{http,smtp,pop,ftp}/logtool/webalizer.conf
```

In addition, set crontab with the following commands:

```
0 1 * * * cd /opt/f-secure/fsigk/log/http/logtool/;
/usr/bin/webalizer ../access.log -F squid -o .
```

Log results are saved to the `/opt/f-secure/fsigk /log/http/logtool/` directory.

Note

A source patch (`misc/webalizer-xxx.detect-stat.patch-xxx`) that additionally displays virus information can be used if needed.

To apply the patch:

```
# tar -zxvf webalizer-2.xx-xx-src.tgz
# patch -p1 < webalizer-2.xx-xx.detect-stat.patch-x.xx
# ./configure
# make
# make install
```

You can also use commercial log analyzing tools such as Sawmill. Sawmill and other similar tools make it possible to perform a more detailed log analysis, which includes virus information. For information on Sawmill, see the following link:

http://www.sawmill.net/

9.5 External Output of Logs

Logs are saved as files by default. However, they can be output to other formats such as syslog. Use pipes in the external command to redirect the output. To set the external output, specify the configuration file (/opt/f-secure/fsigk/conf/fsigk.ini) in the following way:

```
access_log=|<External command> (For access logs)
detect_log=|<External command> (For virus logs)
info_log=|<External command>   (For information logs)
error_log=|<External command>  (For error logs)
```

For example, to output SMTP virus detection information and error information to the local0 facility and the err level of syslog, add the following setting to the "smtp" group in /opt/f-secure/fsigk/conf/fsigk.ini.

```
[smtp]
detect_log=|logger -t fsigk -p local0.err
error_log=|logger -t fsigk -p local0.err
```

To output files simultaneously, use the following settings:

```
[smtp]
detect_log=|tee -a log/smtp/detect.log | logger -t fsigk -p local0.err
error_log=|tee -a log/smtp/error.log | logger -t fsigk -p local0.err
```

After editing the configuration file, restart the service by running "/opt/f-secure/fsigk/rc.fsigk_{http,smtp,pop,ftp} restart" command.

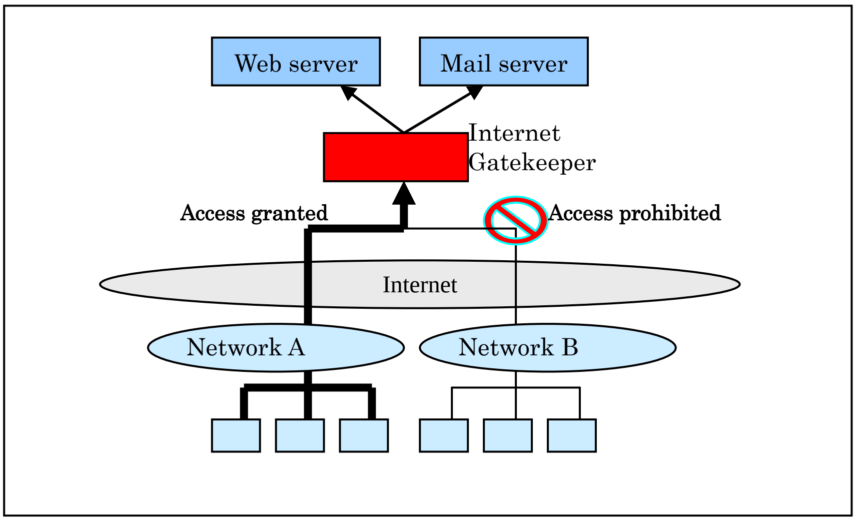
10. Other Settings

This chapter describes additional settings, which you can configure for the product. For most users, the settings described in "*Typical Configurations*" provide enough security. However, some users may require additional security. In this case, the examples in this chapter may be useful.

10.1 Access Authentication

To prevent unauthorized access to Internet Gatekeeper, you can define that hosts which access Internet Gatekeeper from the Internet are authenticated.
You can configure Access Authentication in the following way.

10.1.1 Host Authentication



If the host which accesses the gateway is fixed, you can use IP addresses and host names to set access control. In this case, you can set proxy settings in the configuration file. You can also use the IP filtering (iptables) setting of Linux to set access control.
The following example limits access to hosts which have the following IP address and subnet: 192.168.1.0/255.255.255.0.

Proxy Access Control

You can configure access control by using the **Access control** options. To apply restrictions which are based on host names, you must first enable “DNS Reverse Lookup”.

➲ For more information, see “*Access Control*”.

Proxy settings

Proxy settings

HTTP proxy

Access control

From these hosts (acl_from): **Enabled**

(Example: 192.168.1.0/255.255.255.0)

DNS reverse lookup (reverselookup): **Enable to restrict by host names**

SMTP proxy

Access control

From these hosts (acl_from): **Enabled**

(Example: 192.168.1.0/255.255.255.0)

DNS reverse lookup (reverselookup): **Enable to restrict by host names**

POP proxy

Access control

From these hosts (acl_from): **Enabled**

(Example: 192.168.1.0/255.255.255.0)

DNS reverse lookup (reverselookup): **Enable to restrict by host names**

FTP proxy

Access control

From these hosts (acl_from): **Enabled**

(Example: 192.168.1.0/255.255.255.0)

DNS reverse lookup (reverselookup): **Enable to restrict by host names**

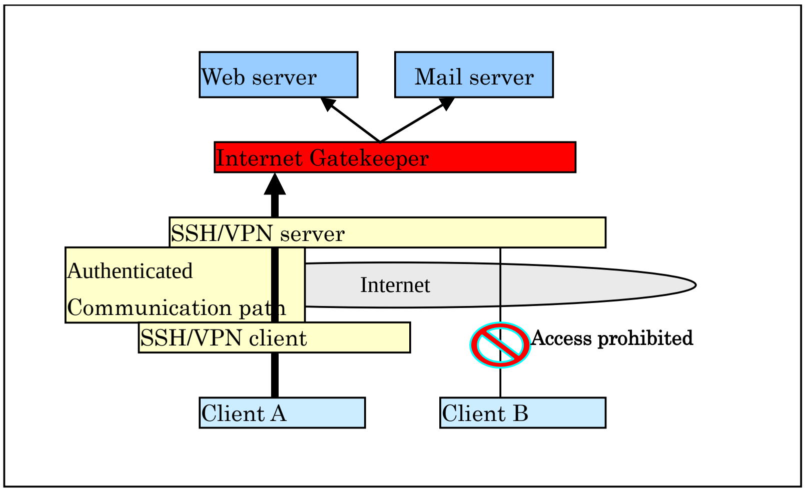
IP filtering (iptables)

You can configure access control which is based on IP addresses by using iptables. The following shows you a configuration example:

- iptables commands

```
# iptables -A INPUT -s 192.168.1.0/255.255.255.0 -j ACCEPT
# iptables -A INPUT -j DROP
```

10.1.2 Authentication using Virtual Networks



To set up authentication by using a virtual network, you must first set up a TCP/IP communication path between the client and Internet Gatekeeper by using a virtual network (SSH/VPN, etc.), which must be authenticated. The client connects to Internet Gatekeeper through the authenticated path. In addition, only authenticated client is able to connect to the gateway.
This section describes settings, which apply if you use SSH (openssh, TTSSH, etc.).

Note

For example, the following software use SSH:

- Openssh
  http://www.openssh.com/
  Server/Client. SSH2 support. OS: mainly UNIX.
- Teraterm/TTSSH
  http://hp.vector.co.jp/authors/VA002416/
  Client. GUI. Japanese language support. OS: Windows.
- Putty
  http://www.chiark.greenend.org.uk/~sgtatham/putty/
  Client. SSH2 support. GUI. OS: Windows.
- PortForwarder
  http://toh.fuji-climb.org/pf/JP
  Client. GUI for port forwarding. OS: Windows.

Settings

1 Install an SSH server to the same server (or a computer on the network) as F-Secure Linux Internet Gatekeeper.

Note

For certain Linux distributions (such as Red Hat 7 and later versions), openssh is installed by default.

2 Install a SSH client to the client computer that accesses the SSH server.

3 Change the port forwarding setting of the SSH client so that Internet Gatekeeper becomes the localhost destination.
Set the Config file in the following way. In the example below, the SSH server host is "ssh-server", the SSH user name is "ssh-username", and the Internet Gatekeeper host is "fsigk".

```
Host ssh-server
    User ssh-username
    LocalForward 25 virus-gw:25
    LocalForward 110 virus-gw:110
    LocalForward 9080 virus-gw:9080
```

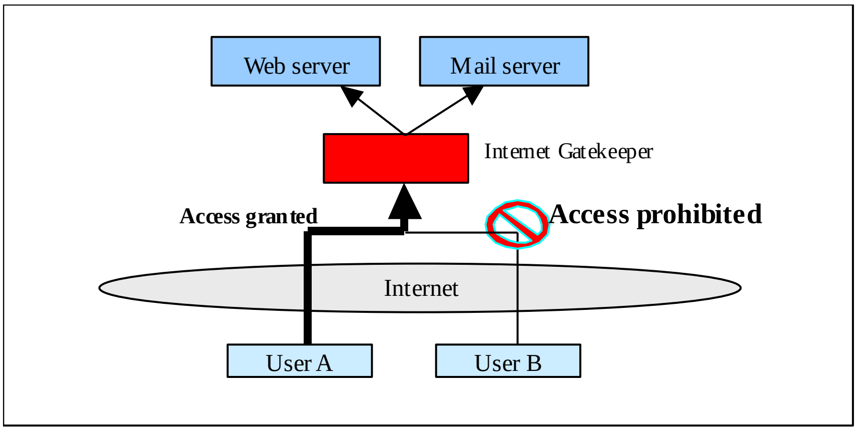
4 Connect the SSH client to the SSH server.

5 Change the web browser's proxy setting and the mail client settings as follows:
Web browser's proxy: **http://localhost:9080/**
Mail client:

SMTP server	: **localhost**
POP server	: **localhost**

6 Check that viruses are scanned while browsing the web and while sending and receiving e-mails.

10.1.3 Proxy Authentication using Internet Gatekeeper



F-Secure Internet Gatekeeper can authenticate each user with a password. The authentication method differs depending on the protocol; HTTP proxy authentication is used for HTTP services, SMTP authentication for SMTP services, POP user names for POP services, and FTP user names for FTP services.

User Authentication (PAM Authentication)

You can set authentication settings independently for each user.

You can add, delete, or edit users from the “User Database” using the method described in “***Add or remove users***” section in each proxy setting.

POP, FTP Service

For POP and FTP services, F-Secure Internet Gatekeeper checks whether a user name exists in the user database.

If multiple servers are used, specify “user name@server name” or “user name@server name”. To allow all users for a specific server, specify “@server name".

Note

- The user name is specified on the client side.
- The password is authenticated on the server side.

The settings are stored in userdb.txt in the `/opt/f-secure/fsigk/conf/pam/` directory.

If you edit the settings directly, update the userdb.db database file with the `create_userdb userdb.db < userdb.txt` command.

You can also edit the PAM configuration files (`/etc/pam.d/fsigk_{http,smtp,pop,ftp}`) and use external authentication methods such as UNIX account, NIS, LDAP, and Radius. These PAM configuration files are the symbolic links of `/opt/f-secure/fsigk/conf/pam/fsigk_{http,smtp,pop,ftp}.pam`. Do not edit the files at `/opt/f-secure/fsigk/conf/pam/fsigk_{http,smtp,pop,ftp}.pam` directly because they are overwritten when updated. If you edit the PAM settings, delete the symbolic links at `/etc/pam.d/fsigk_{http,smtp,pop,ftp}` and create copies of the `/opt/f-secure/fsigk/conf/pam/fsigk_{http,smtp,pop,ftp}.pam` files to be used for editing.

Caution

To prevent the files from being overwritten during updates, remove the symbolic links and create copies before editing the configuration files.

Proxy Settings

Proxy settings

HTTP proxy

HTTP proxy authentication (proxyauth_pam_auth)=**yes**

Add or remove users: Add, delete, or edit users on the “Add or remove users” setting.

SMTP proxy

Global settings

SMTP authentication (proxyauth_pam_auth)=**yes**

Add or remove users: Add, delete, or edit users on the “Add or remove users” setting.

POP proxy

POP user restriction (proxyauth_pam_account)=**yes**

Add or remove users: Add, delete, or edit users on the “Add or remove users” setting.

FTP proxy

FTP user restriction (proxyauth_pam_account)=**yes**

Add or remove users: Add, delete, or edit users on the “Add or remove users” setting.

SMTP Service

The following settings allow SMTP services without authentication to clients who are located within the LAN, and to senders from specific mail servers, addresses and networks.

Proxy settings

SMTP proxy

LAN access settings (lan)=**yes**

Hosts and networks within LAN: **Specify allowed clients**

(Clients within the LAN, mail servers, etc.)

Edit smtp_lan field in /opt/f-secure/fsigk/conf/fsigk.ini file to specify the list of hosts and networks to which the LAN access settings apply

Because e-mails from the Internet are delivered to mail servers through the product, the corresponding mail servers must be allowed to deliver without authentication. The following settings describe how you can configure this.

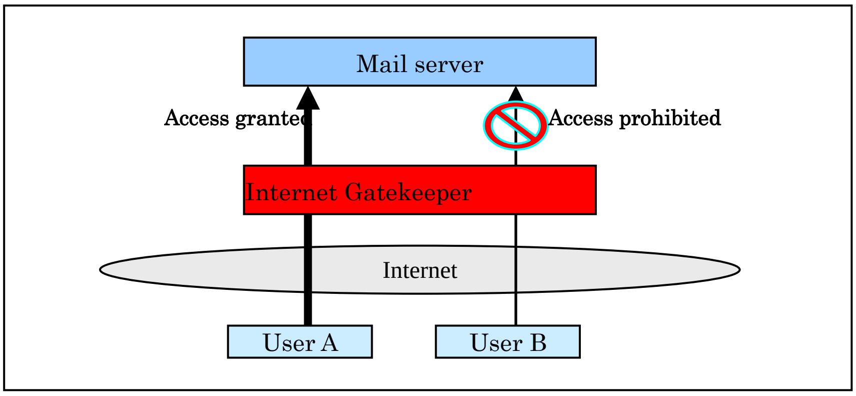
Proxy settings

SMTP proxy

Restrict e-mail recipients (acl_rcpt)=**yes / Specify mail server domains**

Edit smtp_rcpt field in /opt/f-secure/fsigk/conf/fsigk.ini file to specify the list of domains to which the settings apply.

10.1.4 Authentication by Mail Servers



F-Secure Internet Gatekeeper uses POP and SMTP authentication on the server side. The product works as a proxy to enable access from clients to the mail server. Therefore, user authenticating functions based on POP and SMTP authentication by mail servers can be used as is.

To use the SMTP authentication on the mail server, disable the SMTP authentication setting for F-Secure Linux Internet Gatekeeper. To disable SMTP authentication for the product:

- Open the configuration file /opt/f-secure/fsigk/conf/fsigk.ini from command line.
  SMTP proxy
    Set proxyauth_pam_auth=**no** to disable the SMTP authentication.

If you use APOP, disable the parent server setting of the product. To disable the parent server setting for POP proxy:

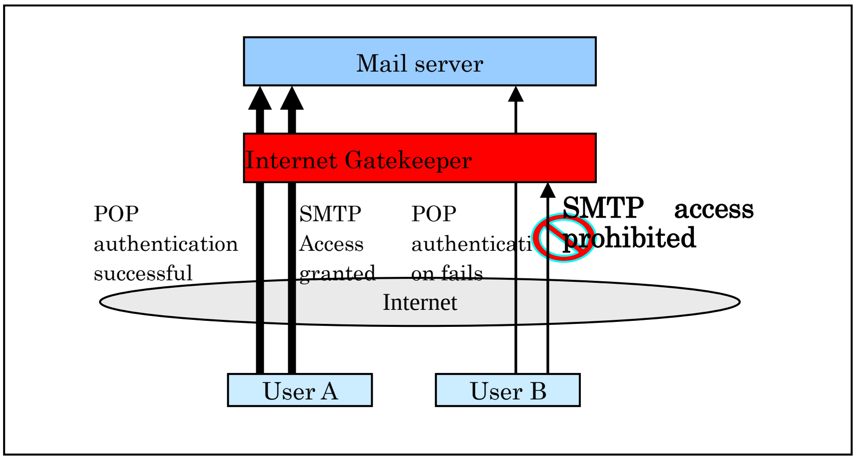
- Open the configuration file /opt/f-secure/fsigk/conf/fsigk.ini from command line
  POP proxy
    Set self_proxy=**no** to disable **Defining parent server by user** setting.

Note

Due to protocol specifications, you cannot use APOP if **Defining parent server by user** is enabled.
If you want to use APOP, make sure that you do either of the following:

- Turn off **Defining parent server by user**.
  Set self_proxy=**no** for POP proxy.
- Use a transparent proxy.
  For more information about using a transparent proxy, see "*Transparent Proxy*"

10.1.5 Authentication using POP-before-SMTP



SMTP services can be accessed using POP-before-SMTP. If POP-before-SMTP is used, user authentication for a POP connection is performed before a SMTP service is accessed. Access to the SMTP service is limited to IP addresses that have passed POP authentication within a specified time. In addition, POP-before-SMTP authentication is performed in F-Secure Internet Gatekeeper. This is because the IP address of the product is always assigned to the IP address of the sender's mail server.
To use POP-before-SMTP authentication, configure the SMTP and POP services in the following way.

Proxy Settings

Proxy settings
    SMTP proxy (smtp_service)=**yes**
        Global settings
            POP-before-SMTP authentication (pbs)=**yes**
                Timeout (pbs_lifetime): Specify the time in minutes during which the authentication is effective (Example: pbs_lifetime=2)
    POP proxy (pop_service)=**yes**

The following settings allow services without authentication to clients within the LAN and to senders from specific mail servers, addresses and networks:

Proxy settings
    SMTP proxy
        LAN access settings (lan)=**yes**
            Hosts and networks within LAN: **Specify allowed clients**
                (Clients within the LAN, mail servers, etc.)
            Edit smtp_lan field in /opt/f-secure/fsigk/conf/fsigk.ini file to specify the list of hosts and networks to which the LAN access settings apply

Because e-mails from the Internet are delivered to mail servers through the product, the corresponding mail servers must be allowed to deliver without authentication. The following describes how you can configure this:

Proxy settings
    SMTP proxy
        Restrict e-mail recipients (acl_rcpt)=**yes / Specify mail server domains**
        Edit smtp_rcpt field in /opt/f-secure/fsigk/conf/fsigk.ini file to specify the list of domains to which the settings apply.

The database file for POP-before-SMTP is stored in the following way:

Database format	: BerkeleyDB 1.85
Directory	: Temporary directory (Default: `/var/tmp/fsigk`)
File name	: `pbs.db`
Key	: Client IP address
Data	: POP authentication time (seconds elapsed from epoch time (1970/1/1 00:00:00))

Note

You can check information on the current database by running “`db1_dump -p pbs.db`” and other commands.

Caution

Every time a service is restarted, all the information in the database for POP-before-SMTP is deleted.

10.2 Transparent Proxy

F-Secure Internet Gatekeeper can work as a transparent proxy for each service (HTTP, FTP, SMTP, POP). In this way, you can perform virus scans for services without having to change settings for each user.

The following table displays which settings you need to change for the product to work as a transparent proxy. The settings apply when the host name of the mail server is assigned to the host name of Internet Gatekeeper (through proxy and DNS settings).

				Proxy mode		Transparent proxy mode	
				Install phase only	Mail server DNS change	Router	Bridge
Client settings	POP	User name	Specific server	○	○	○	○
			Any server	×	×	○	○
		Server host name	Specific server	×	○	○	○
			Any server	×	×	○	○
	SMTP	Server host name	Specific server	×	○	○	○
			Any server	N/A	N/A	○	○
	HTTP/FTP	Proxy server name		×	×	○	○
	Cancel a virus scan			Yes	Yes	N/A	N/A
Network settings	DNS			○	×	○	○
	Routing			○	○	×	○
Proxy Settings	Parent server setting			×	×	○	○
	IP address setting			×	×	×	×
	NAT (iptables) setting			○	○	×	×
	Kernel setting			○	○	○	×

Note

If a subnet exists under the network structure, apply routing settings as needed.

Note

FTP over HTTP is not supported in the transparent proxy mode.

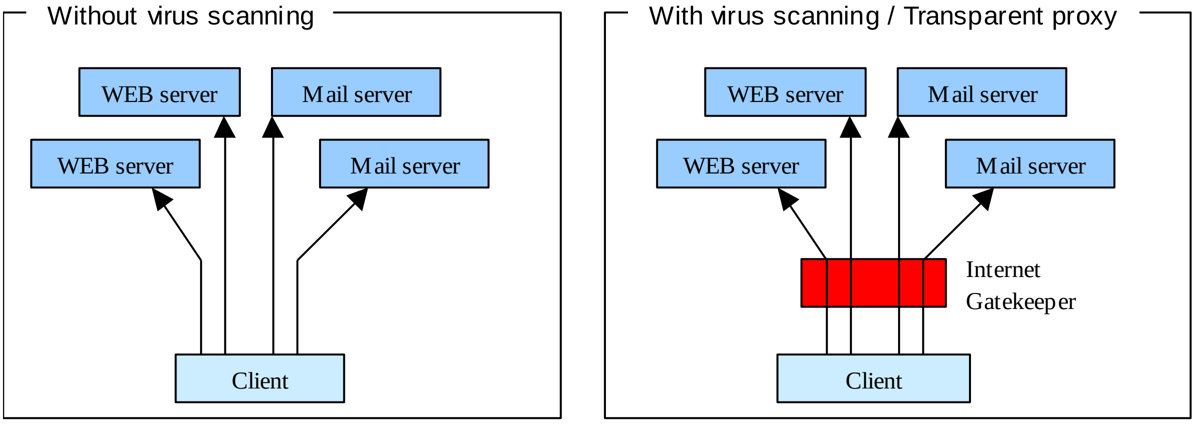
10.2.1 Transparent Proxy Details

Normally, clients access web servers and mail servers directly.

To use F-Secure Internet Gatekeeper as a transparent proxy, you must install it on the IP routing between clients and servers.

The product relays the access and performs a virus scan during the relay by capturing connections from clients to servers and by creating another connection to servers. In this way, clients can directly access servers, and clients' traffic is scanned, without having to change the client configuration.

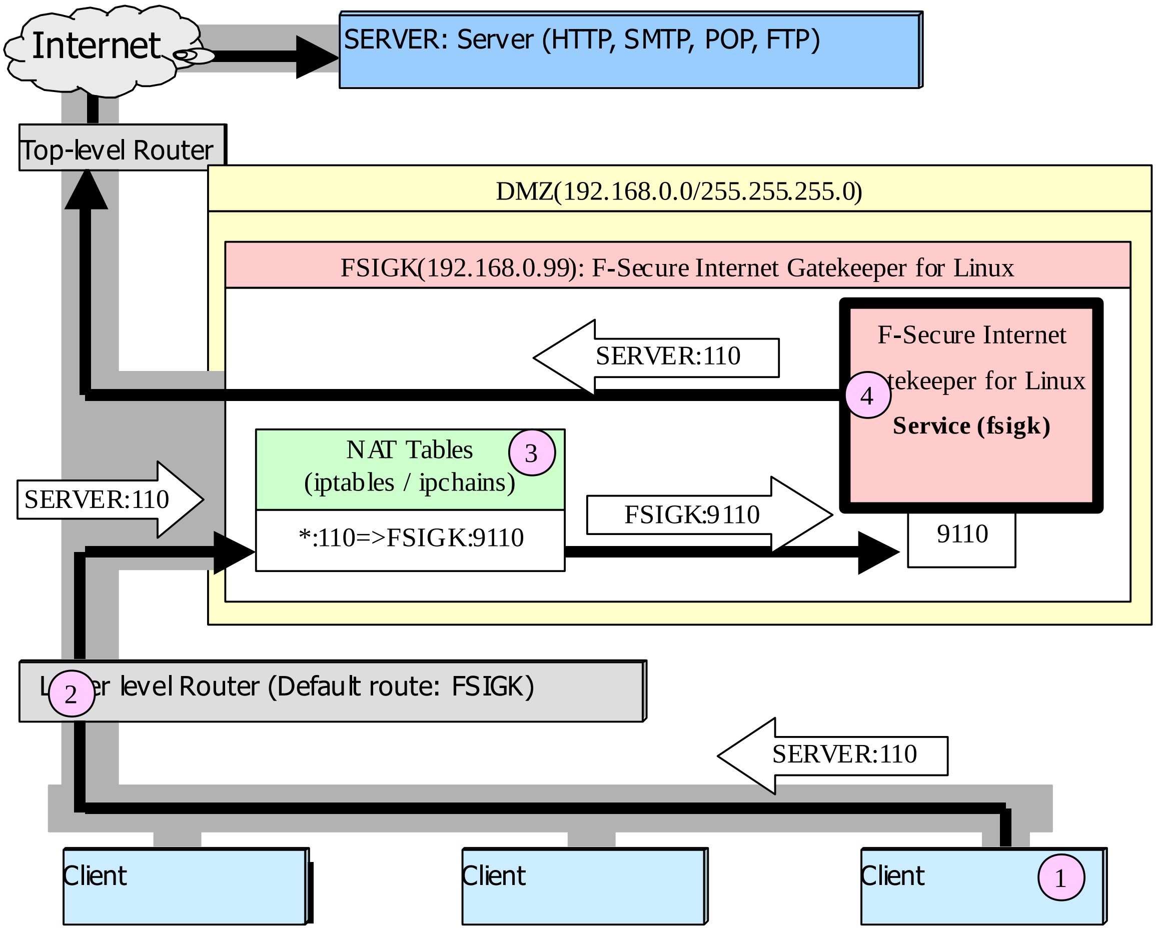
Setting Example



10.2.2 Transparent Proxy – Router Mode

To function as a transparent proxy in router mode, you must install Internet Gatekeeper on a computer, which acts as a router between the clients and the servers.

This diagram below illustrates how to set up the product as a transparent proxy in a DMZ network.



Overview of operations:

The following describes how clients connect to servers when F-Secure Internet Gatekeeper is set up as a transparent proxy:

1 The client starts a connection to a service port (example 110) of a server (SERVER).

2 The NAT (lower-level) router relays the access request from the client to F-Secure Internet Gatekeeper (FSIGK) that is set on the default route.

3 FSIGK redirects the access request from the client to FSIGK:9110 on the basis of the NAT setting in iptables, and stores the original access destination (SERVER:110).

4 FSIGK listens to the access at VIRUS:9110 and retrieves the access request replaced by iptables. Afterwards, Internet Gatekeeper retrieves the original destination (SERVER:110) which has been stored in iptables and sends the access request to the original destination (SERVER:110).

Settings

To use a transparent proxy in proxy mode, configure the network and server associated with F-Secure Internet Gatekeeper in the following way:

1 Open the configuration file /opt/f-secure/fsigk/conf/fsigk.ini and then start up each service in transparent proxy mode:

Proxy Settings

- Proxy settings
  - HTTP proxy (http_service)=**yes**
    - Port Number (svcport)=**9080**
    - Transparent proxy (transparent)=**yes**
  - SMTP proxy (smtp_service)=**yes**
    - Proxy port (svcport)=**9025**
    - Transparent proxy (transparent)=**yes**
  - POP proxy (pop_service)=**yes**
    - Proxy port (svcport)=**9110**
    - Transparent proxy (transparent)=**yes**
  - FTP proxy (ftp_service)=**yes**
    - Proxy port (svcport)=**9021**
    - Transparent proxy (transparent)=**yes**

After configuring the settings, check that the client can access the port of each service (9080, 9025, 9110, 9021) on Internet Gatekeeper.

2 Change the access destination of the client to FSIGK:9110 by changing iptables on Internet Gatekeeper.

- Configuring with the iptables command:
  Run the following commands to make sure that iptables is operating normally and unneeded ipchains are not working:

```
FSIGK# /etc/rc.d/init.d/ipchains stop
FSIGK# chkconfig ipchains off
FSIGK# /etc/rc.d/init.d/iptables restart
```

Next, run the following commands to redirect the server access to each service (http(80), smtp(25), pop(110), ftp(21)) to 9080, 9025, 9110, 9021 of FSIGK:

```
FSIGK# iptables -t nat -A PREROUTING ¥
          -p tcp --dport 80 -j REDIRECT --to-port 9080
FSIGK# iptables -t nat -A PREROUTING ¥
          -p tcp --dport 25 -j REDIRECT --to-port 9025
FSIGK# iptables -t nat -A PREROUTING ¥
          -p tcp --dport 110 -j REDIRECT --to-port 9110
FSIGK# iptables -t nat -A PREROUTING ¥
          -p tcp --dport 21 -j REDIRECT --to-port 9021
```

Save the settings by running the following command:

```
FSIGK# /etc/rc.d/init.d/iptables save
Note! See your Linux distribution documentation for information on how to store
and modify iptables.
```

Note

You can change the iptable settings also by running the following command:
`/opt/f-secure/fsigk/misc/rc.transparent`

After setting the iptables, check that Internet Gatekeeper that uses the converted port (FSIGK:9080, FSIGK:9025, FSIGK:9110, FSIGK:9021) can be accessed when a client accesses the pre-converted service (FSIGK:80, FSIGK:25, FSIGK:110, FSIGK:21).

3 Change the default route of the NAT (lower-level) router to FSIGK to let all data communication pass through FSIGK.
If the router is running Linux, run the following commands:

```
NAT-router# route del -net default
NAT-router# route add -net default gw 192.168.0.99
```

To apply the settings after restart, change the GATEWAY variables (`/etc/sysconfig/network`, `/etc/sysconfig/network-scripts/ifcfg-eth0`) in the NAT router. Save the settings.

Check that Internet Gatekeeper (FSIGK: 9080, FSIGK: 9025, FSIGK: 9110, FSIGK: 9021) can accept access from clients to all server services (http(80), smtp(25), pop(110), ftp(21)).

4 To enable communication (other than virus scans) for services (http, smtp, pop, ftp) on FSIGK, run the following command, which enables routing:

```
FSIGK# echo 1 > /proc/sys/net/ipv4/ip_forward
```

Make the following change to `/etc/sysctl.conf` in FSIGK to enable routing after restart.

```
net.ipv4.ip_forward = 1
```

Check that communication from clients is possible.

5 Check that virus scans can be performed when a client accesses a server.

Caution

When a service accesses a server from Internet Gatekeeper, the IP address of the product is normally assigned as the IP address of the service source.
For FTP data sessions, in Passive mode, the destination address from the client and the source address from Internet Gatekeeper to the server are usually assigned to the address of the product. In Active mode, the destination address from the server and the source address from Internet Gatekeeper to the client are usually assigned to the address of the product. If FTP communication cannot be used, check if it is denied by a firewall.
When accessing a server from Internet Gatekeeper or when an IP address needs to be retained during a FTP data session, the kernel needs to be patched with tproxy.
➔ For more information, see"*transparent_tproxy*" in the separate "*Expert options*" document.

Caution

Configure the settings so that the communication files and tasks used by the firewall settings of Linux (iptables) are not denied.
The following communication chains must be allowed:

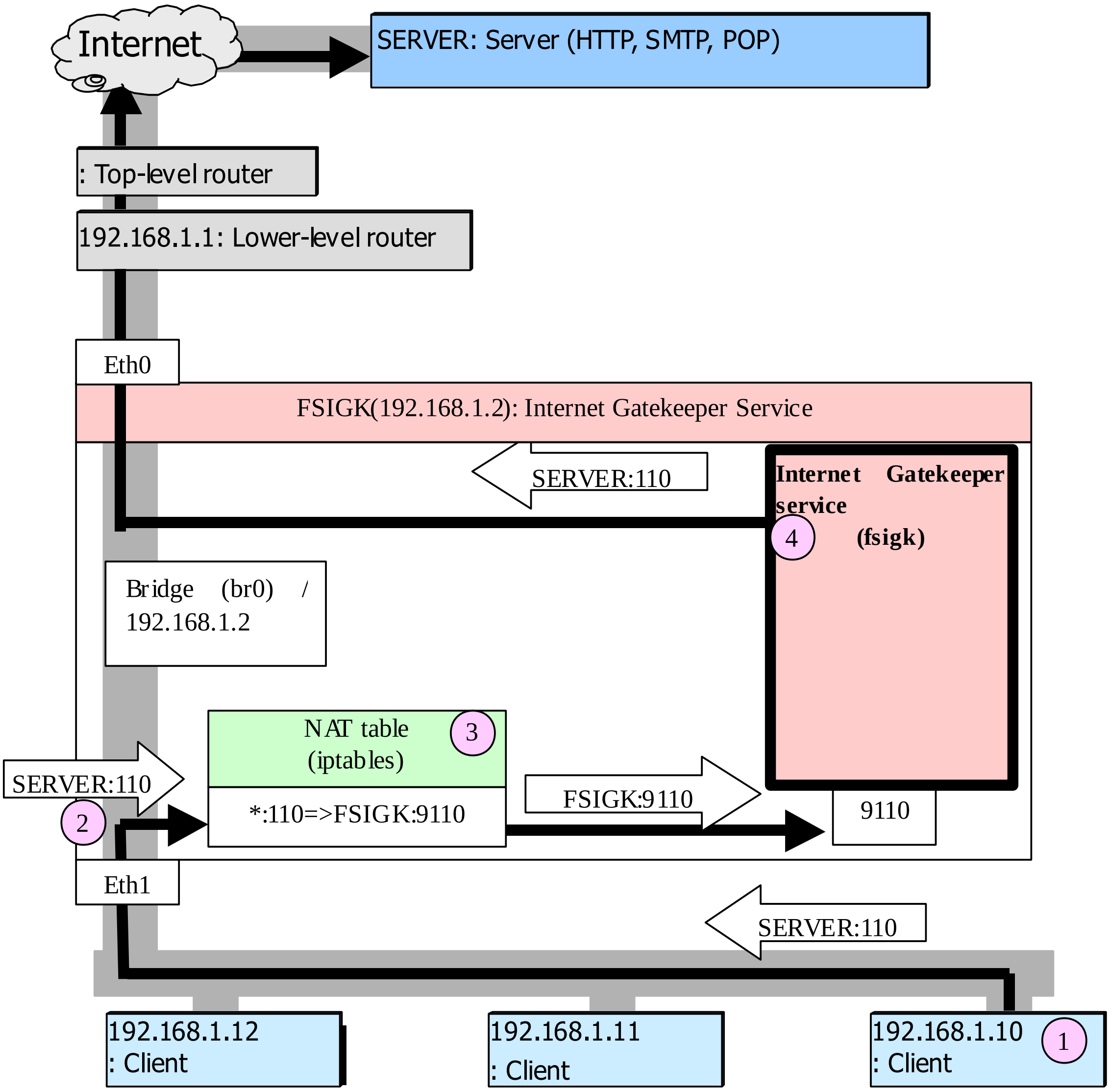
- All communication by the OUTPUT chain
- All communication by the FORWARD chain
- Communication to the listen ports used by Internet Gatekeeper (9080,9025,9110,9021) for the INPUT chain. Data session communication rules relating to FTP (if FTP is used)

If there are communication errors, disable the firewall and check the communication status.

10.2.3 Transparent Proxy – Bridge Mode

F-Secure Internet Gatekeeper can also operate as a bridge while acting as a transparent proxy. If you configure the product in bridge mode, virus scanning functions can be provided to clients without having to change any settings on clients and networks.

In order to set up a transparent proxy in bridge-mode, you need to set up an Internet Gatekeeper computer that has 2 or more interfaces and place it between clients and servers. You may need to recompile the Linux kernel if the bridging functionality is not enabled by default in your distribution. Because the product works as a bridge, both of the interfaces, while on different physical networks, are on the same logical IP network.



Overview of operations:

The following describes how clients connect to servers when F-Secure Internet Gatekeeper is set up as a transparent proxy:

1 The client starts a connection to a service port (example 110) of a server (SERVER).

2 Access requests from clients pass through F-Secure Internet Gatekeeper, which is placed as a bridge between clients and the NAT (lower-level) router.

3 FSIGK redirects the access request from the client to FSIGK:9110 based on the NAT setting in iptables and stores the original access destination (SERVER:110).

4 FSIGK listens to the access at VIRUS:9110 and retrieves the access request replaced by iptables. Afterwards, Internet Gatekeeper retrieves the original destination (SERVER:110), which is stored in iptables, and sends the access request to the original destination (SERVER:110).

Settings

To use a transparent proxy in bridge mode, configure the network and server associated with F-Secure Internet Gatekeeper in the following way:

1 Open the configuration file /opt/f-secure/fsigk/conf/fsigk.ini and start up each service in transparent proxy mode:

Proxy settings
- HTTP proxy (http_service)=**yes**
  - Proxy port (svcport)=**9080**
  - Transparent proxy (transparent)=**yes**
- SMTP proxy (smtp_service)=**yes**
  - Proxy port (svcport): **9025**
  - Transparent proxy (transparent)=**yes**
- POP proxy (pop_proxy)=**yes**
  - Proxy port (svcport)=**9110**
  - Transparent proxy (transparent)=**yes**
- FTP proxy (ftp_service)=**yes**
  - Proxy port (svcport)=**9021**
  - Transparent proxy (transparent)=**yes**

After configuring the settings, check that the client can access the port of each service (9080, 9025, 9110, 9021) on Internet Gatekeeper.

2 To set the bridge, change the IP address, netmask, default root, and interface name in `/opt/f-secure/fsigk/misc/rc.bridge` and launch the bridge as a startup script.
You need the brctl command to set the bridge. If it is not available, install a package which includes the brctl command (for example, the “bridge-utils” package).

```
# cp /opt/f-secure/fsigk/misc/rc.bridge /etc/rc.d/init.d/bridge
# /etc/rc.d/init.d/bridge start
# chkconfig --add bridge
```

Check that communication works between interfaces (eth0,eth1) on both sides.

3 Change the access destination of the client to FSIGK:9110. Do it on the server at the access destination by changing iptables on Internet Gatekeeper.
Next, run the following commands to redirect the server access to each service (http(80), smtp(25), pop(110), ftp(21)) to 9080, 9025, 9110, 9021 of FSIGK.

```
FSIGK# iptables -t nat -A PREROUTING ¥
            -p tcp --dport 80 -j REDIRECT --to-port 9080
FSIGK# iptables -t nat -A PREROUTING ¥
            -p tcp --dport 25 -j REDIRECT --to-port 9025
FSIGK# iptables -t nat -A PREROUTING ¥
            -p tcp --dport 110 -j REDIRECT --to-port 9110
FSIGK# iptables -t nat -A PREROUTING ¥
            -p tcp --dport 21 -j REDIRECT --to-port 9021
```

Save the settings by running the following command:

```
FSIGK# /etc/rc.d/init.d/iptables save
```

Note

You can make iptable setting changes also by running the following command:
`/opt/f-secure/fsigk/misc/rc.transparent`

4 Check that virus scans can be performed when a client accesses a server.

Caution

When a service accesses a server from Internet Gatekeeper, the IP address of the product is normally assigned as the IP address of the service source. For this reason, the IP address and routing settings must be applied to the Internet Gatekeeper server.
For FTP data sessions, in Passive mode, the destination address from the client and the source address from Internet Gatekeeper to the server are usually assigned to the address of the product. In Active mode, the destination address from the server and the source address from the Internet Gatekeeper to the client are usually assigned to the address of the product. If FTP communication cannot be used, check if it is denied by a firewall.
When Internet Gatekeeper accesses a server, or when an IP address needs to be retained during a FTP data session, the kernel needs to be patched with tproxy.
➔ For more information, see "*transparent_tproxy*" in the separate "*Expert options*" document.

Caution

Configure the settings so that the communication files and tasks used by the firewall settings of Linux (iptables) are not denied.
The following communication chains must be allowed:

- All communication by the OUTPUT chain
- All communication by the FORWARD chain
- Communication to the listen ports used by Internet Gatekeeper (9080, 9025, 9110, 9021) for the INPUT chain. Data session communication rules relating to FTP (if FTP is used)

If there are communication errors, disable the firewall and check the communication status.

Note

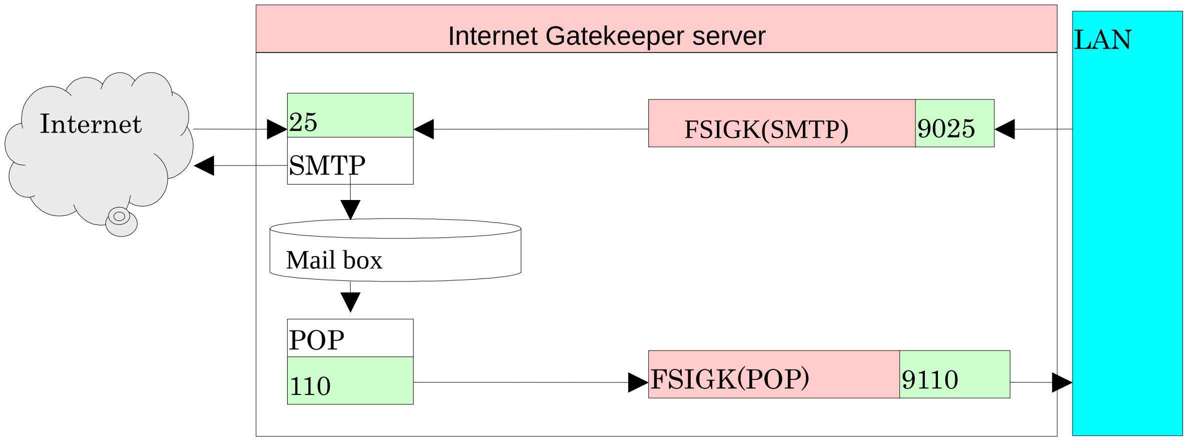
Reference URLs:

- Net:Bridge – The Linux Foundation
  http://www.linuxfoundation.org/collaborate/workgroups/networking/bridge

10.3 Coexisting with mail servers

F-Secure Internet Gatekeeper can operate in the same computer as the mail server. If the product is implemented in the same computer as a mail server, you must change the IP address or the normal port number (25 or 110) of either the mail server or the product. We recommend that you change the port number of Internet Gatekeeper instead of the mail server.

10.3.1 Changing the Port Number of Internet Gatekeeper



If you specify a different port number for Internet Gatekeeper, it is possible to use the product and a mail server in the same computer. The following example uses ports 9025 and 9110 for Internet Gatekeeper.

Settings for F-Secure Internet Gatekeeper

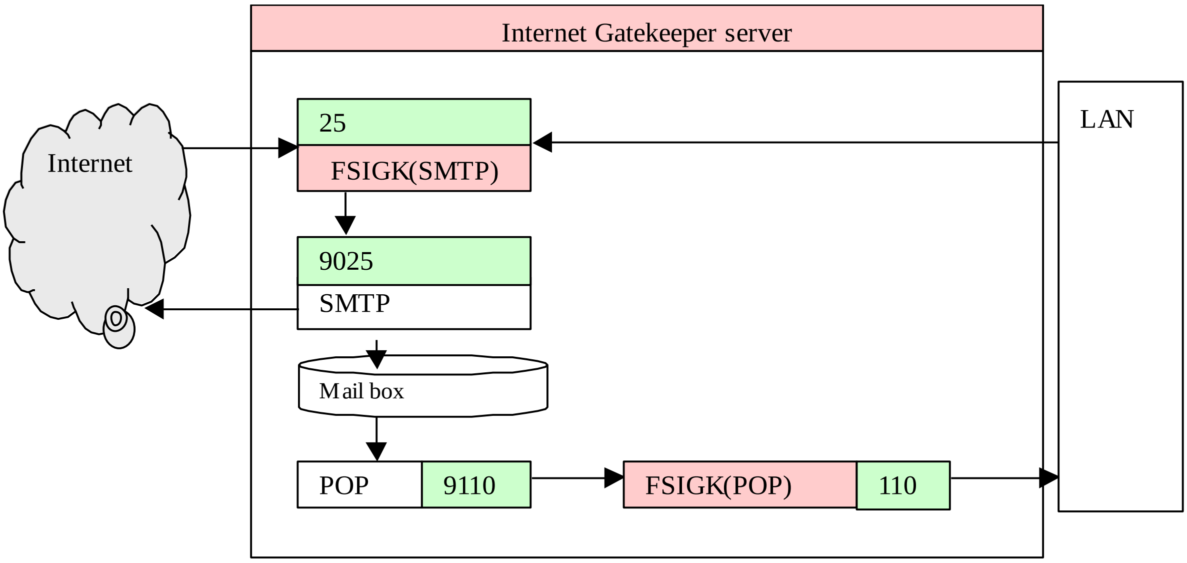
Set the port numbers used by the product to 9025 and 9110 in the configuration file /opt/f-secure/fsigk/conf/fsigk.ini:

Proxy settings
    SMTP proxy
        Proxy port (svcport)=**9025**
        Parent server: (parent_server_host=**localhost** , parent_server_port=**25**)
    POP proxy
        Proxy port (svcport)=**9110**
        Parent server: (parent_server_host=**localhost** , parent_server_port=**110**)

Client settings

Set the port numbers used by the SMTP and POP servers to 9025 and 9110.

10.3.2 Changing the Port Number of the Mail Server



If you specify a different port number for the mail server, it is possible to use the product and a mail server in the same computer. The following example uses ports 9025 and 9110 for the mail server. Because virus scans are performed using SMTP, Internet Gatekeeper does not need the POP settings, and they can be skipped.

Mail server settings

Change the SMTP server port to 9025, and the POP server port to 9110.

- **Using sendmail:**

  1 Make the following change in `/etc/sendmail.cf` or `/etc/mail/sendmail.cf`.

  ```
  O DaemonPortOptions=Port=9025
  ```

  2 Restart sendmail.

  ```
  # /etc/rc.d/init.d/sendmail restart
  ```

- **Using ipop3d + xinetd:**

  1 Make the following change in `/etc/xinetd.d/ipop3`.

  ```
  port = 9110
  ```

  2 Restart xinetd.

  ```
  # /etc/rc.d/init.d/xinetd restart
  ```

- **Using qmail+tcpserver:**

  Make the following change in `/var/qmail/rc`.

```
/usr/local/bin/tcpserver -R -x /etc/tcp.smtp.cdb -u qmaild -g qmail 0 9025 ¥
    /var/qmail/bin/qmail-smtpd | /var/qmail/bin/splogger smtpd 3 &
```

- **Using qmail-popup + xinetd:**

  1 Make the following change in `/etc/xinetd.d/qmail-popup`.

```
port = 9110
```

  2 Restart xinetd.

```
# /etc/rc.d/init.d/xinetd restart
```

- **Using postfix:**

  1 Set the smtpd service port in `/etc/postfix/master.cf` as follows:

```
9025 inet n - n - - smtpd
```

  2 Restart postfix.

```
# postfix reload
```

Settings for F-Secure Internet Gatekeeper

Set the port numbers of the parent server to 9025 and 9110 in the configuration file /opt/f-secure/fsigk/conf/fsigk.ini:

Proxy settings
SMTP proxy (smtp_service)=**yes**
Proxy port (svcport)=**25**
Global settings
Parent server
Host name (parent_server_host)=**localhost**
Port number (parent_server_port)=**9025**
POP proxy (pop_service)=**yes**
Proxy port (svcport)=**110**
Parent server:
Host name (parent_server_host)=**localhost**
Port number (parent_server_port)=**9110**

If e-mails are to be received from the outside, restrict the recipient domains to prevent third-party relays. The following example restricts mail to your_domain1.com and your_domain2.com.

Proxy settings
SMTP proxy
Global settings
Restrict e-mail recipients (acl_rcpt)=**yes**
Edit smtp_rcpt field in /opt/f-secure/fsigk/conf/fsigk.ini file to specify the list of domains to which the settings apply.

As outbound access is denied by restricting recipient domains, allow access from clients within the LAN. The following example enables IP addresses specified in 192.168.1.xxx and 192.168.2.xxx.

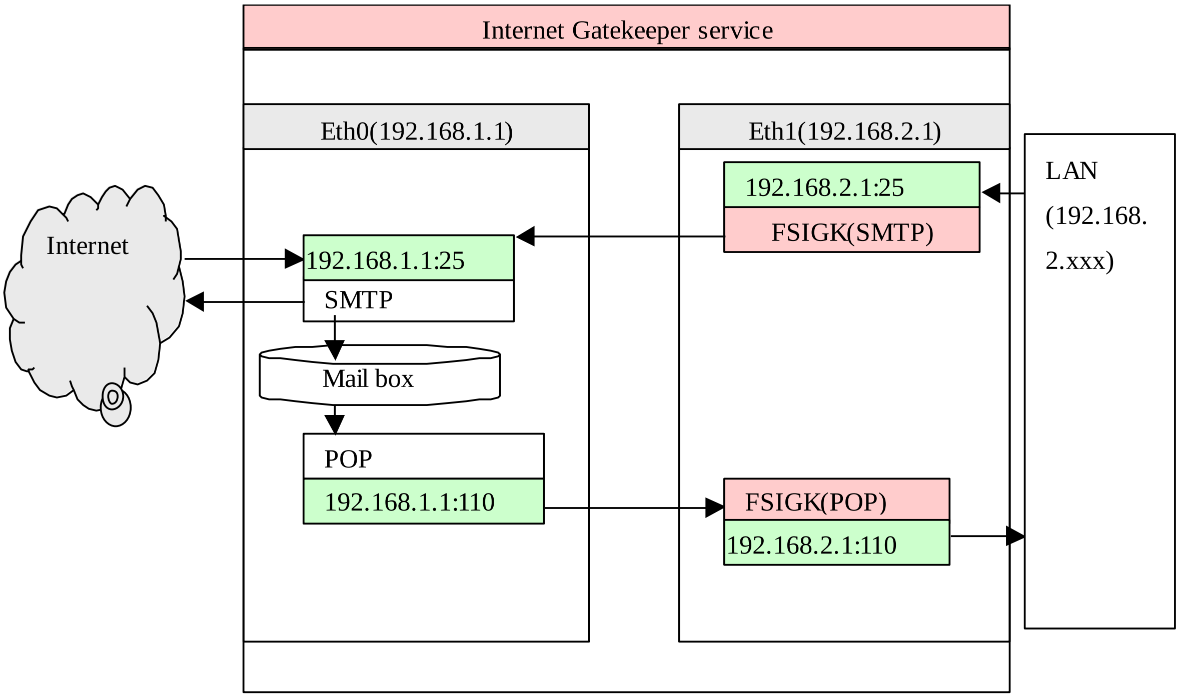
Proxy settings
SMTP proxy
LAN access settings (lan)=**yes**
Hosts and networks within LAN: **192.168.1.0/255.255.255.0 192.168.2.0/255.255.255.0**
Edit smtp_lan field in /opt/f-secure/fsigk/conf/fsigk.ini file to specify the list of hosts and networks to which the LAN access settings apply.

The following example uses POP-before-SMTP to enable data to be sent outside:

Proxy settings
SMTP proxy (smtp_service)=**yes**
Global settings
POP-before-SMTP authentication (pbs)=**yes**
POP proxy (pop_service)=**yes**

If the mail server performs SMTP authentication, you do not have to change any settings.

10.3.3 Changing the IP Address



If F-Secure Internet Gatekeeper and a mail server use a different interface (IP address), it is possible to use the product and a mail server in the same computer with the same port number. In the following example, the mail server listens to eth0 (192.168.1.1) and Internet Gatekeeper listens to eth1 (192.168.2.1).

If you only have one physical interface, you can generate a virtual interface with the IP Alias function. For example, the following command generates the virtual interface "eth0:1(192.168.1.2)":

```
# ifconfig eth0:1 192.168.1.2 netmask 255.255.255.0
```

Copy `/etc/sysconfig/network-scripts/ifcfg-eth0` to `ifcfg-eth0:1` and rewrite the file to `DEVICE="eth0:1"`. Set the IPADDR, NETMASK, NETWORK, and BROADCAST variables in the file.

Mail server settings

Set the listening interface of the mail server to `eth0(192.168.1.1)`.

- **Using sendmail:**

  1 Make the following change in `/etc/sendmail.cf` or `/etc/mail/sendmail.cf`.

```
O DaemonPortOptions=Port=smtp,Addr=192.168.1.1
```

  2 Restart sendmail.

```
# /etc/rc.d/init.d/sendmail restart
```

- **Using ipop3d + xinetd:**

  1 Make the following change in `/etc/xinetd.d/ipop3`.

  ```
  bind=192.168.1.1
  ```

  2 Restart xinetd.

  ```
  # /etc/rc.d/init.d/xinetd restart
  ```

- **Using qmail+tcpserver:**

  Make the following changes in `/var/qmail/rc`.

  ```
  /usr/local/bin/tcpserver -R -x /etc/tcp.smtp.cdb -u qmaild -g qmail 192.1.168.1.1 25 ¥
      /var/qmail/bin/qmail-smtpd | /var/qmail/bin/splogger smtpd 3 &
  ```

- **Using qmail-popup + xinetd:**

  1 Make the following change in `/etc/xinetd.d/qmail-popup`.

  ```
  bind=192.168.1.1
  ```

  2 Restart xinetd.

  ```
          # /etc/rc.d/init.d/xinetd restart
  ```

- **Using postfix:**

  1 Set the smtpd service address in `/etc/postfix/master.cf` as follows:

  ```
  192.168.1.1:25 inet n - n - - smtpd
  ```

  2 Restart postfix.

  ```
          # postfix reload
  ```

Settings for F-Secure Internet Gatekeeper

Set the port numbers of the parent server to 192.168.2.1.25 and 192.168.2.1.110. Specify the parent server to be the mail server (192.168.1.1:25, 192.168.1.1:110) in the configuration file /opt/f-secure/fsigk/conf/fsigk.ini.

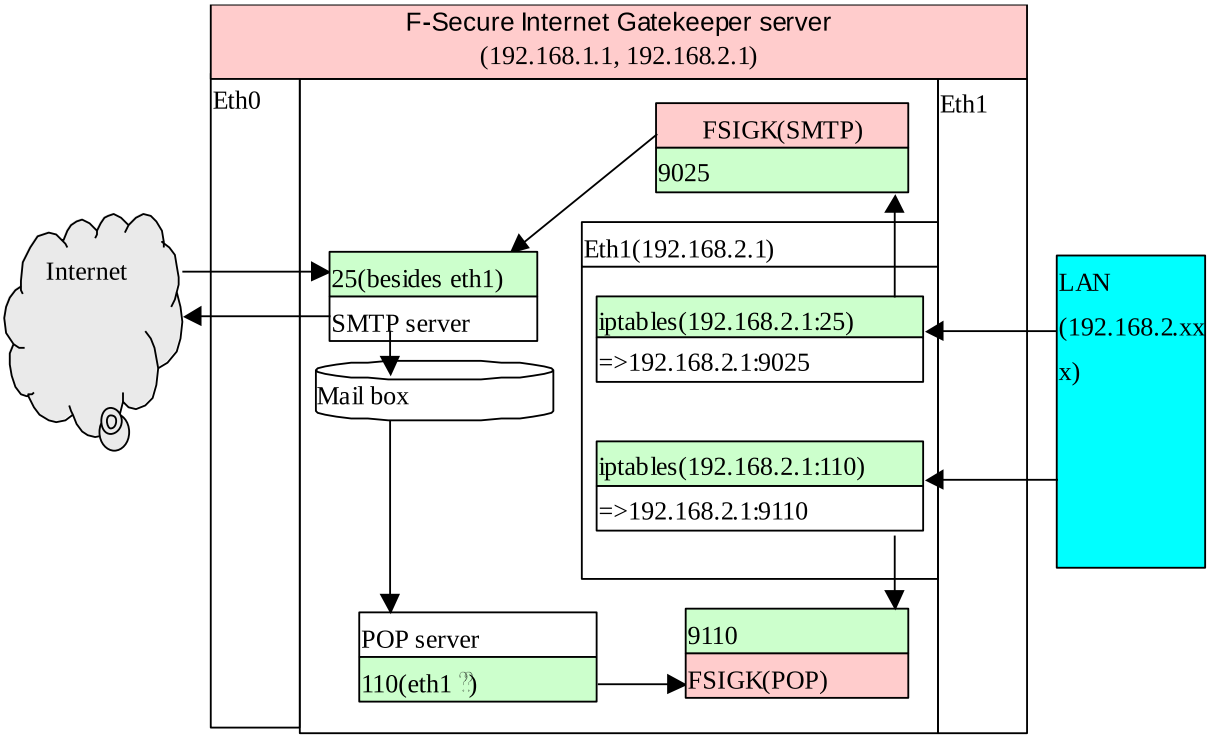
Proxy settings
  SMTP proxy (smtp_service)=**yes**
    Proxy port (svcport)=**192.168.2.1:25**
      Global settings
        Parent server:
          Host name (parent_server_host)=**192.168.1.1**
        Port number (parent_server_port)=**25**
  POP proxy (pop_proxy)=**yes**
    Proxy port (svcport)=**192.168.2.1:110**
    Parent server:
      Host name (parent_server_host)=**192.168.1.1**
      Port number (parent_server_port)=**110**

Client settings

Set the mail server to 192.168.2.1.

Make sure that the client can send and receive mails.

10.3.4 Changing IP Addresses with iptables



If F-Secure Internet Gatekeeper and a mail server use a different interface, it is possible to use the product and a mail server in the same computer with the same port number. You can redirect the access to default ports (25, 100) in specific interfaces to Anti-Virus (9025, 9110). You can do it with the NAT setting in the iptables.

The following example uses two interfaces, eth0 (192.168.1.1) and eth1 (192.168.2.1). Access from eth1 ports 25 and 110 is changed to ports 9025 and 9110. The eth1 interface is used for Internet Gatekeeper, and the eth0 interface (and localhost) is used for the mail server access.

If you have only one physical interface, you can generate a virtual interface with the IP Alias function. For example, the following command generates the virtual interface "eth0:1(192.168.1.2)":

```
        # ifconfig eth0:1 192.168.1.2 netmask 255.255.255.0
```

Copy `/etc/sysconfig/network-scripts/ifcfg-eth0` to `ifcfg-eth0:1` and rewrite the file to `DEVICE="eth0:1"`. Set the IPADDR, NETMASK, NETWORK, and BROADCAST variables in the file.

iptables setting for the Gateway server

Follow these instructions to redirect the access to ports 25 and 110 of eth1 (192.168.2.1) to 9025 and 9110.

- iptables – commands:

```
# iptables -t nat -A PREROUTING -d 192.168.2.1 -p tcp --dport 25 -j REDIRECT
¥
    --to-port 9025
# iptables -t nat -A PREROUTING -d 192.168.2.1 -p tcp --dport 110 -j REDIRECT
¥
    --to-port 9110
# /etc/rc.d/init.d/iptables save
```

Settings for F-Secure Internet Gatekeeper

Set the port numbers of the parent server to 9025 and 9110, and the parent server to be the mail server (localhost:25, localhost:110)) in the configuration file /opt/f-secure/fsigkconf/fsigk.ini.

Proxy settings

SMTP proxy (smtp_service)=**yes**

Proxy port (svcport)=**9025**

Global settings

Parent server

Host name (parent_server_host)=**localhost**

Port number (parent_server_port)=**25**

POP proxy (pop_service)=**yes**

Proxy port (svcport)=**9110**

Parent server:

Host name (parent_server_host)=**localhost**

Port number (parent_server_port)=**110**

Client settings

Set the mail server to 192.168.2.1.

Make sure that the client can send and receive mails.

10.4 Scanning Viruses Before Saving Mail to the Mail Server

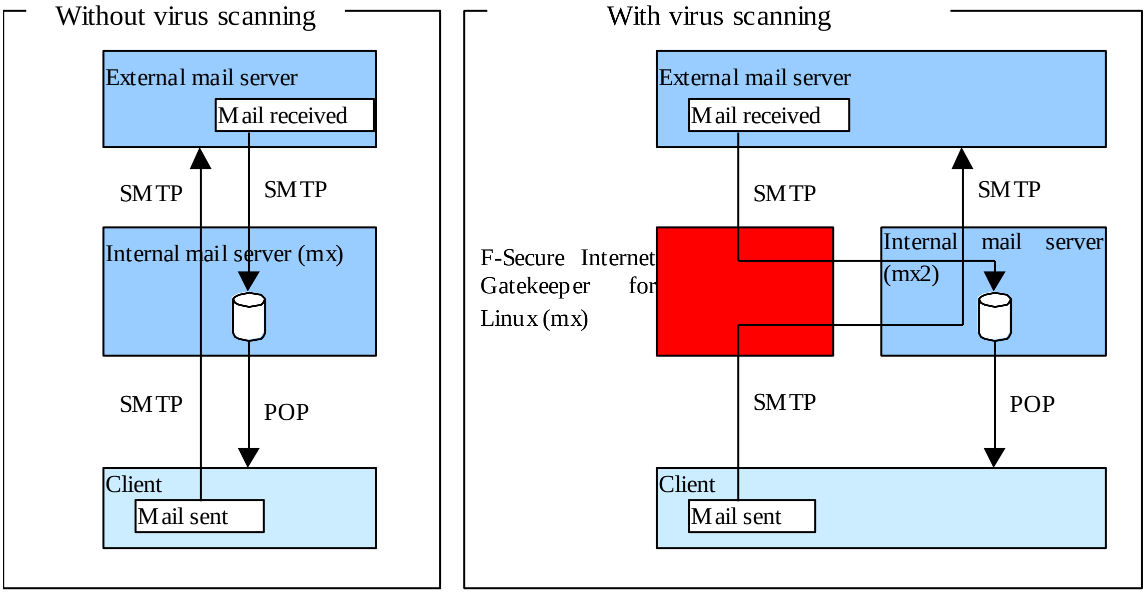
By default, virus scans are performed on all inbound e-mails that are sent to the mail server by using the specified POP protocol. For this reason, you do not need to make any changes to the mail server. It is also possible to check inbound e-mails in SMTP before they are saved to the mail server.
The following example uses a single F-Secure Internet Gatekeeper server to check both outbound and inbound e-mails for viruses.

Overview of operations:

- **Without virus scanning**
  If F-Secure Internet Gatekeeper is not implemented, outbound e-mails are transferred through an internal mail server to the destination mail server. Inbound e-mails are stored in an internal mail server, and users can retrieve them by using the POP protocol.

- **With virus scanning**
  If F-Secure Internet Gatekeeper is implemented, the product scans outbound e-mails for viruses. After that the e-mails are delivered to the destination mail server by using the internal mail server. After the product has scanned inbound e-mails for viruses, the e-mails are stored on an internal mail server. Users can retrieve them by using the POP protocol. In addition, restrictions are applied to outbound e-mails to prevent open relays (third-party relays) and e-mail abuse.

Setting Example



Settings

1 Set up F-Secure Internet Gatekeeper under a temporary host name (virus-gw) and apply the following proxy settings in the configuration file:

Proxy settings
SMTP proxy (smtp_service)=**yes**
Proxy port (svcport)=**25**
Global settings
Parent server:
Host name (parent_server_host)=**<IP address of internal mail server>**
Port number (parent_server_port)=**25**
Restrict e-mail recipients (acl_rcpt)=**yes**
Edit smtp_rcpt field in /opt/f-secure/fsigk/conf/fsigk.ini file to specify the list of domains to which the LAN access settings apply.

LAN access settings (lan)=**yes**
Hosts and networks within LAN=**<Hosts within LAN>**
(Example: 192.168.1.0/255.255.255.0
192.168.2.0/255.255.255.0)
Edit smtp_lan field in /opt/f-secure/fsigk/conf/fsigk.ini file to specify the list of hosts and networks to which the LAN access settings apply.

2 Configure the internal mail server so that e-mails from virus-gw can be sent to other mail servers.

- **Using sendmail:**

① Add the following line to `/etc/mail/access`:

```
<IP address of virus-gw (Example: 192.168.0.99)>   RELAY
```

② Run make at `/etc/mail`.

```
        # cd /etc/mail/ ; make
```

③ Restart sendmail.

```
        # /etc/rc.d/init.d/sendmail restart
```

- **Using qmail+tcpserver:**

① Make the following changes in `/var/qmail/rc`.

```
/usr/local/bin/tcpserver -R -x /etc/tcp.smtp.cdb -u qmaild -g qmail 0 smtp ¥
   /var/qmail/bin/qmail-smtpd | /var/qmail/bin/splogger smtpd 3 &
```

② Make the following changes in `/etc/tcp.smtp`.

```
<IP address of virus-gw (Example: 192.168.0.99)>:allow,RELAYCLIENT=""
<Network within LAN (Example: 192.168.1.)>:allow,RELAYCLIENT=""
:allow
```

③ Convert to cdb format with the following command:

```
# tcprules tcp.smtp.cdb tcp.smtp.tmp < tcp.smtp
```

- **Using postfix:**

① Add the following line to `/etc/postfix/main.cf`:

```
            mynetworks=<IP address of virus-gw (Example: 192.168.0.99)>,<Network
within LAN
                (Example: 192.168.1.0/24.)>
```

② Restart postfix.

```
         # postfix reload
```

3 Check that e-mails can be sent from the internal network to an external mail server by using virus-gw. Check also that outbound e-mails are limited to the specified domain.

4 Change the host name of the internal mail server to “”mx2” and the host name of Internet Gatekeeper to ”mx” in the DNS settings. Change the mail server (MX record of DNS) of the internal domain to “mx” (Internet Gatekeeper).

5 Check that e-mails can be sent from the internal network to an external mail server by using mx. Check also that outbound e-mails are limited to the specified domain.

6 After the DNS cache has expired, check that e-mails can be sent internally through external mail servers. In addition, check that inbound and outbound e-mails are scanned for viruses.

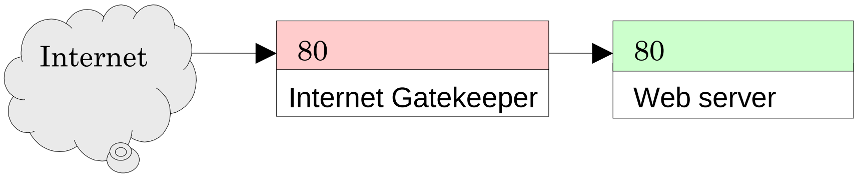
10.5 Reverse Proxy Settings

F-Secure Internet Gatekeeper can be set up as a reverse proxy to scan connections from a client to a specific web server.

It is also possible to implement the product as a transparent proxy, which makes it possible for a single Internet Gatekeeper to scan multiple web servers. To implement a transparent proxy, see “*Transparent Proxy*”.

10.5.1 Reverse Proxy – Typical Settings

If the product is implemented both on a web server and on a separate server, it must be placed in front of the web server for it to appear as a web server on the Internet. The following diagram illustrates the setting.



Internet Gatekeeper settings

In the configuration file /opt/f-secure/fsigk/conf/fsigk.ini, configure the proxy port and parent server port to 80:

Proxy settings
    HTTP proxy (http_service)=**yes**
        Proxy port (svcport)=**80**
        Parent server:
            Host name (parent_server_host)=**Web server**
            Port number (parentServer_port)=**80**

DNS/Web Server settings

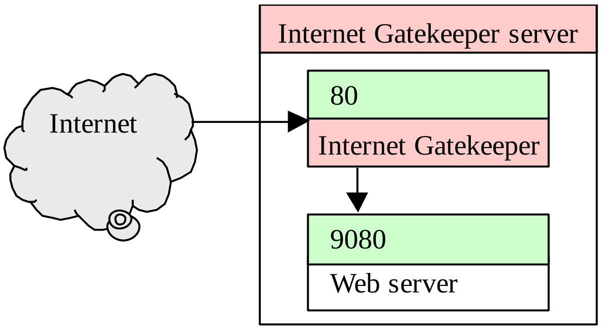
Set the IP address (as seen from the Internet) of the web server to the address of the Gateway. You can do this by using one of the methods below:

- **Method 1 – Change the IP address at the web server**
  Change the IP address of the previous web server. Set the previous IP address as the IP address of the product.

- **Method 2 – Change the IP address assigned to the web server by using the DNS server**
  Using the DNS settings, set the IP address (as seen from the Internet) of the web server as the address of Internet Gatekeeper.

10.5.2 Coexisting with Web Servers

F-Secure Internet Gatekeeper can operate in the same computer as a web server. By specifying a different port number for the web server, it is possible to use the product and a web server in the same computer. The following example uses ports 9080 for the web server.



Web Server settings

Change the HTTP server port to 9080.

- **Using Apache**

1 Make the following change in `/etc/httpd/conf/httpd.conf.`

```
Listen 9080
```

2 Restart Apache.

```
# /etc/rc.d/init.d/httpd restart
```

Internet Gatekeeper settings

In the configuration file /opt/f-secure/fsigk/conf/fsigk.ini, configure the proxy port and parent server port to 80.

Proxy settings
HTTP proxy (http_service)=**yes**
Proxy port (svcport)=**80**
Parent server:
Host name (parent_server_port)=**localhost**
Port number (parent_server_port)=**9080**

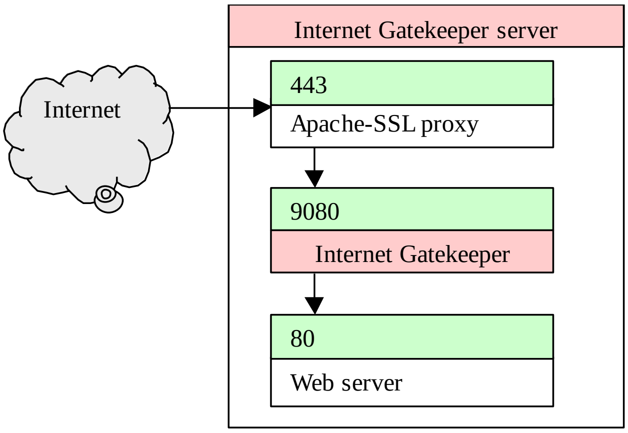
10.5.3 Implementing a HTTPS (SSL) Server

F-Secure Internet Gatekeeper cannot scan HTTPS (SSL) data because they are encrypted. To scan a connection from a specific HTTP (SSL) server, decrypt the data with a SSL proxy or SSL accelerator first, and then scan the data with the product.

For example, if you use Apache, set Apache to function as a SSL proxy and place F-Secure Internet Gatekeeper in the HTTP communication section.

The Apache-SSL proxy, Internet Gatekeeper, and the web server can be used on separate computers or on the same computer.

The following diagram illustrates the Apache configuration file when the product is used with a SSL proxy and a web server.



Apache-SSL settings

In the following example, port 443 is used first to listen to data. Afterwards, port 9080 is relayed to decrypt data.

Settings

```
# https access
Listen 443
<VirtualHost _default_:443>
    AddDefaultCharset Off
    ProxyPass / http://127.0.0.1:9080/
    ProxyPassReverse / http://127.0.0.1:9080/
    SSLEngine on
    SSLCertificateFile /etc/pki/tls/certs/localhost.crt
    SSLCertificateKeyFile /etc/pki/tls/private/localhost.key
#   SSLCertificateFile /etc/httpd/conf/ssl.crt/server.crt
#   SSLCertificateKeyFile /etc/httpd/conf/ssl.key/server.key
    SSLOptions +StdEnvVars
    SetEnvIf User-Agent ".*MSIE.*" nokeepalive ssl-unclean-shutdown
</VirtualHost>
```

Internet Gatekeeper settings

In the configuration file /opt/f-secure/fsigk/conf/fsigk.ini, configure the proxy port to 9080 and the parent server port to 80.

Proxy settings

- HTTP proxy (http_service)=**yes**
  - Proxy port (svcport)=**9080**
  - Parent server:
    - Host name (parent_server_host)=**localhost**
    - Port number (parent_server_port)=**80**

Web Server settings

The web server uses port 80.

11. Product Specifications

11.1 Product Specifications

The following describes the specifications for F-Secure Internet Gatekeeper.

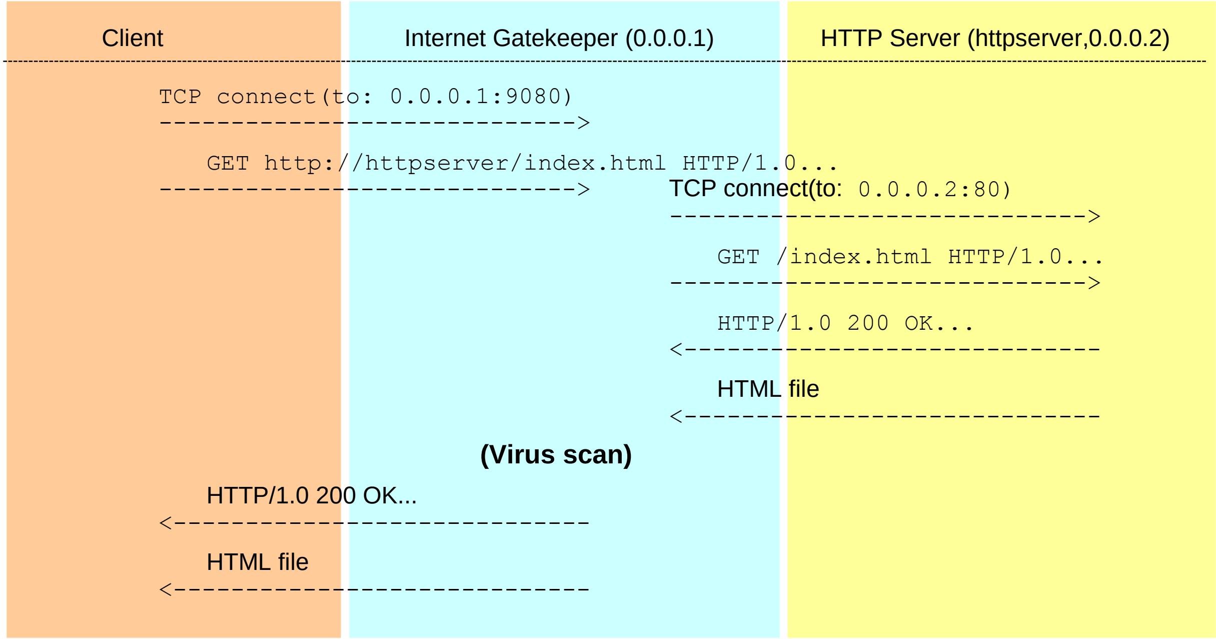
Installer	rpm, tar.gz
Supported network protocols	IPv4(RFC791) / TCP(RFC793)
Supported application protocols	HTTP, FTP, SMTP, POP, ICAP
Supported modes	Proxy, Transparent router, Bridge
HTTP methods that can be scanned	GET/POST/PUT
HTTP methods that can be used	GET/POST/PUT/HEAD/CONNECT/OPTIONS,/DELETE/TRACE/PROPFIND/PROPPATCH/COPY/MOVE/LOCK/UNLOCK, and other similar response methods * Virus scanning cannot be performed for CONNECT (SSL/HTTPS) because the data is encrypted
Supported HTTP proxy schemas	http://,ftp://
Supported HTTP protocol specifications	HTTP/1.0(RFC1945), HTTP/0.9(RFC1945), HTTP/1.1 (RFC2616), WEBDAV(RFC2518) (HTTP/1.1 responses are automatically converted to HTTP/1.0)
Supported HTTP authentication methods	HTTP proxy authentication (Basic)
Maximum HTTP transfer size	Limited by the amount of available disk space
Maximum HTTP URL length	2098 bytes
SMTP commands that can be scanned	DATA
SMTP commands that can be used	HELO/EHLO/MAIL/RCPT/DATA/RSET/VRFY/EXPN/HELP/NOOP/QUIT/XFORWARD/AUTH
Supported SMTP protocol specifications	SMTP(RFC 2821), SMTP Auth(RFC2554)
Supported SMTP authentication methods	SMTP Auth(PLAIN, LOGIN), POP-before-SMTP
Maximum SMTP mail size that can be transferred	2,000,000,000 bytes
POP commands that can be scanned	RETR/STOR
POP commands that can be used	USER/PASS/APOP/UIDL/TOP/STAT/LIST/RETR/DELE/NOOP/RSET/QUIT/ AUTH, and other similar response commands

	* APOP cannot be used if "Defining parent server by user" is enabled and the product is running as a proxy
Supported POP protocol specifications	POP3(RFC1939), POP3 Auth(RFC1734) * APOP cannot be used if "Defining parent server by user" is enabled and the product is running as a proxy
Supported POP authentication methods	User name (variable of the USER command)
Maximum POP transfer size	2,000,000,000 bytes
FTP commands that can be scanned	RETR/STOR/STOU/APPE
FTP commands that can be used	USER/PASS/RETR/LIST/NLST/STOR/STOU/APPE/QUIT/PORT/PASV, and similar response commands
Supported FTP protocol specifications	FTP (RFC959)
Supported FTP authentication methods	User name (argument of the USER command)
Maximum FTP transfer size	Limited by the amount of available disk space
Maximum file size that can be scanned	2GB (for archive files, 2GB is the limit before and after the files are extracted)
Archive files that can be scanned	ZIP, ARJ, LZH, CAB, RAR, TAR, GZIP, BZIP2 up to six levels of nesting
Semaphores used	Number of semaphores for each process (SEMMS): Under 250 Number of semaphore identifiers (SEMMNI): Limited to (Maximum number of simultaneous connections / 25) + 10 for each service (http, smtp, ftp, pop, admin)
Shared memory used	Number of shared memory identifiers (SHMMNI): Limited to 10 for each service (http, smtp, ftp, pop, admin) Memory size (SHMMAX): Limited to 1MB for each service (http, smtp, ftp, pop, admin)

11.2 HTTP Proxy Process

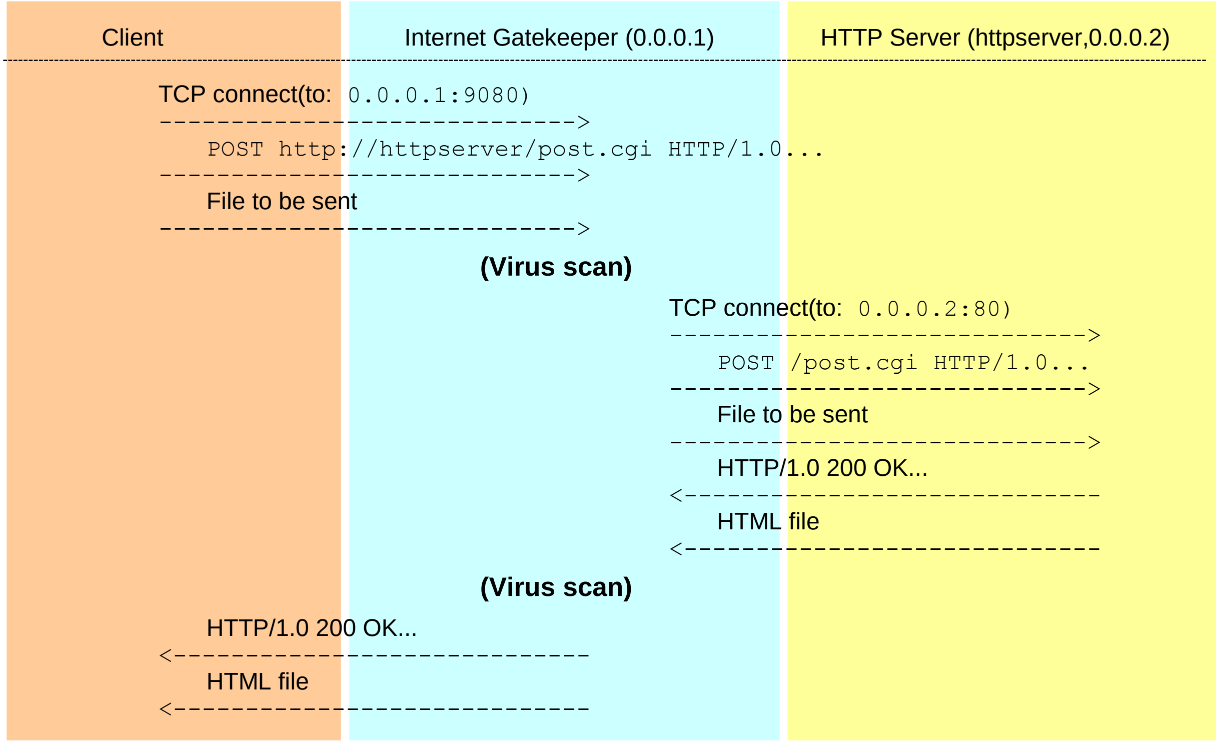
This section describes how common protocols are processed with the HTTP proxy.

Proxy mode, GET method



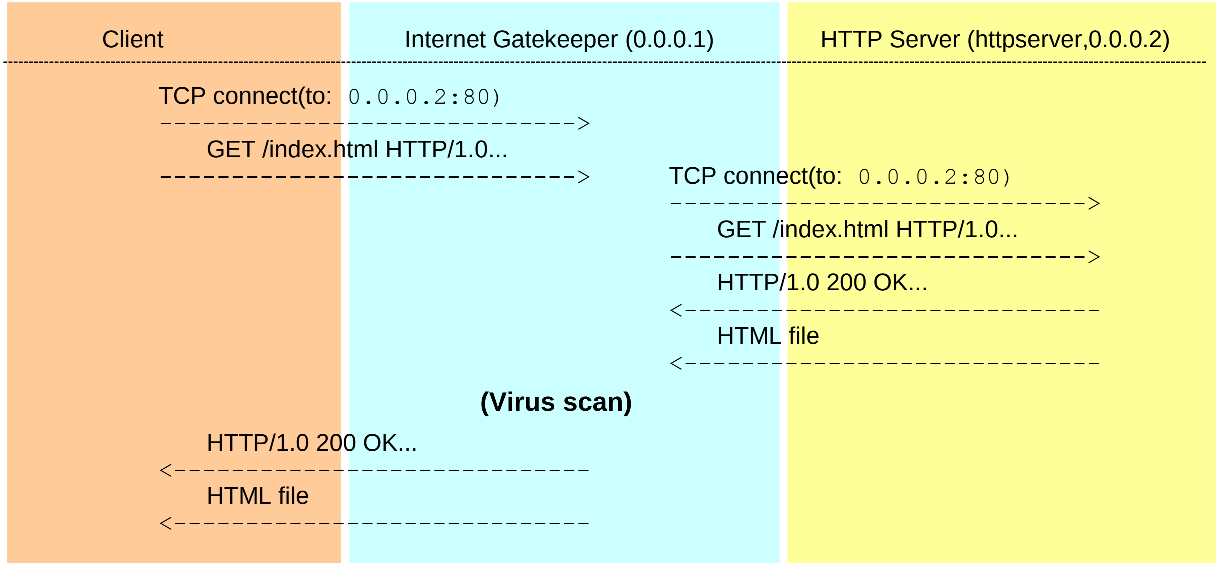
```
      Client            Internet Gatekeeper (0.0.0.1)       HTTP Server (httpserver,0.0.0.2)
------------------------------------------------------------------------------------------------
          TCP connect(to: 0.0.0.1:9080)
          ----------------------------->
             GET http://httpserver/index.html HTTP/1.0...
          ------------------------------>       TCP connect(to: 0.0.0.2:80)
                                                ------------------------------>
                                                   GET /index.html HTTP/1.0...
                                                ------------------------------>
                                                   HTTP/1.0 200 OK...
                                                <------------------------------
                                                   HTML file
                                                <------------------------------
                                 (Virus scan)
             HTTP/1.0 200 OK...
          <------------------------------
             HTML file
          <------------------------------
```

Proxy mode, POST method (scans files when they are sent)



```
      Client            Internet Gatekeeper (0.0.0.1)       HTTP Server (httpserver,0.0.0.2)
------------------------------------------------------------------------------------------------
          TCP connect(to: 0.0.0.1:9080)
          ----------------------------->
             POST http://httpserver/post.cgi HTTP/1.0...
          ----------------------------->
             File to be sent
          ----------------------------->
                                 (Virus scan)
                                                TCP connect(to: 0.0.0.2:80)
                                                ------------------------------>
                                                   POST /post.cgi HTTP/1.0...
                                                ------------------------------>
                                                   File to be sent
                                                ------------------------------>
                                                   HTTP/1.0 200 OK...
                                                <------------------------------
                                                   HTML file
                                                <------------------------------
                                 (Virus scan)
             HTTP/1.0 200 OK...
          <------------------------------
             HTML file
          <------------------------------
```

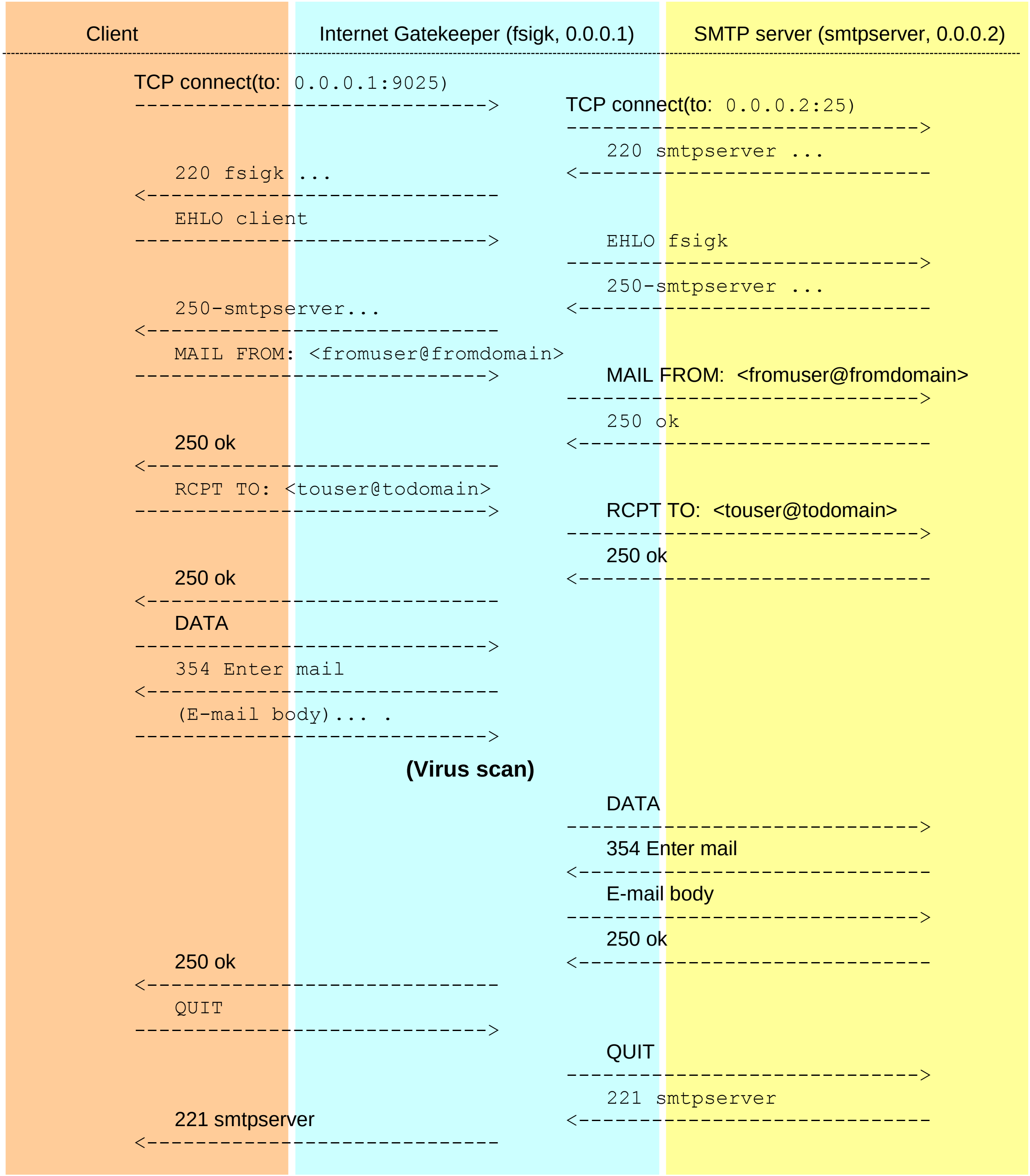
Transparent Proxy mode (Router or Bridge), GET method



11.3 SMTP Proxy Process

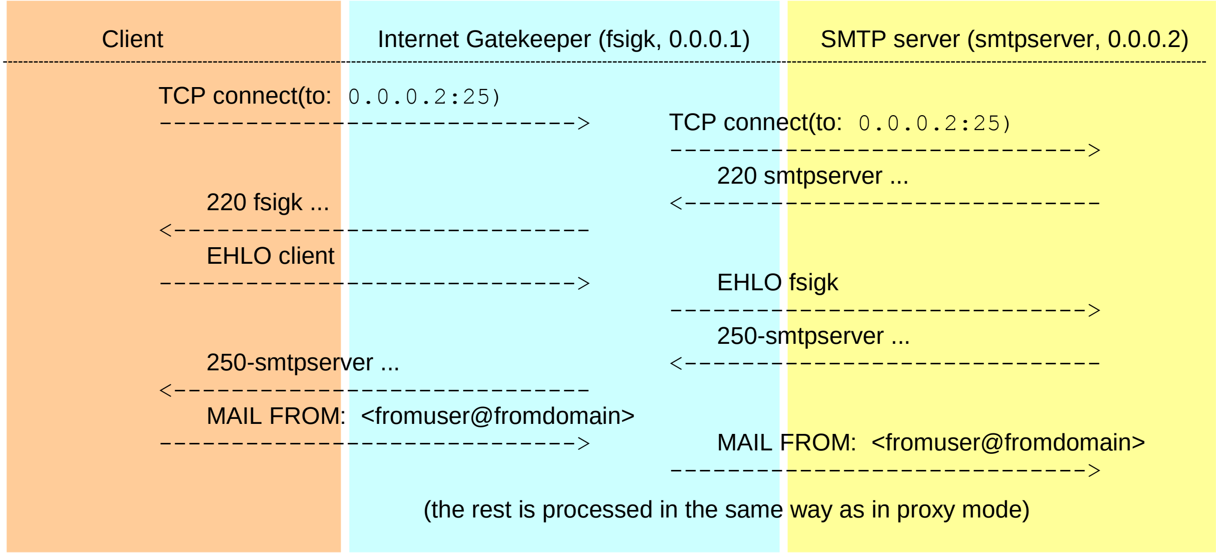
This section describes how common protocols are processed with the SMTP proxy.

Proxy mode



```
      Client           Internet Gatekeeper (fsigk, 0.0.0.1)     SMTP server (smtpserver, 0.0.0.2)
---------------------------------------------------------------------------------------------------
    TCP connect(to: 0.0.0.1:9025)
    ------------------------------>            TCP connect(to: 0.0.0.2:25)
                                               ------------------------------->
                                                   220 smtpserver ...
       220 fsigk ...                           <-------------------------------
    <------------------------------
       EHLO client
    ------------------------------>                EHLO fsigk
                                               ------------------------------->
                                                   250-smtpserver ...
       250-smtpserver...                       <-------------------------------
    <------------------------------
       MAIL FROM: <fromuser@fromdomain>
    ------------------------------>                MAIL FROM:  <fromuser@fromdomain>
                                               ------------------------------->
                                                   250 ok
       250 ok                                  <-------------------------------
    <------------------------------
       RCPT TO: <touser@todomain>
    ------------------------------>                RCPT TO:  <touser@todomain>
                                               ------------------------------->
                                                   250 ok
       250 ok                                  <-------------------------------
    <------------------------------
       DATA
    ------------------------------>
       354 Enter mail
    <------------------------------
       (E-mail body)... .
    ------------------------------>
                         (Virus scan)
                                                   DATA
                                               ------------------------------->
                                                   354 Enter mail
                                               <-------------------------------
                                                   E-mail body
                                               ------------------------------->
                                                   250 ok
       250 ok                                  <-------------------------------
    <------------------------------
       QUIT
    ------------------------------>
                                                   QUIT
                                               ------------------------------->
                                                   221 smtpserver
       221 smtpserver                          <-------------------------------
    <------------------------------
```

Transparent Proxy mode (Router or Bridge)



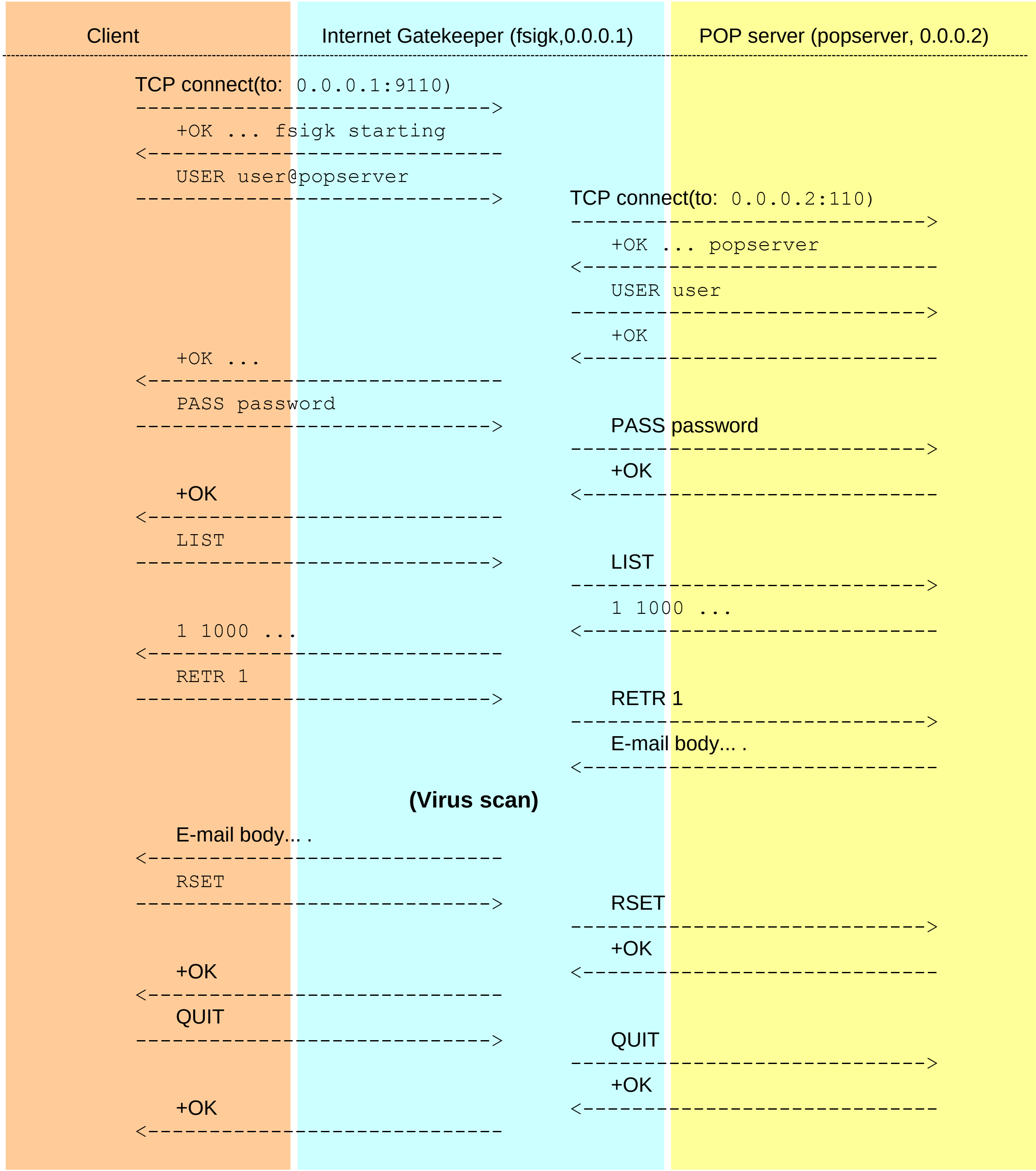
```
        Client                Internet Gatekeeper (fsigk, 0.0.0.1)        SMTP server (smtpserver, 0.0.0.2)
-------------------------------------------------------------------------------------------------------------
            TCP connect(to:  0.0.0.2:25)
            ------------------------------>          TCP connect(to:  0.0.0.2:25)
                                                     ------------------------------>
                                                         220 smtpserver ...
                220 fsigk ...                        <------------------------------
            <------------------------------
                EHLO client
            ------------------------------>              EHLO fsigk
                                                     ------------------------------>
                                                         250-smtpserver ...
                250-smtpserver ...                   <------------------------------
            <------------------------------
                MAIL FROM:  <fromuser@fromdomain>
            ------------------------------>              MAIL FROM:  <fromuser@fromdomain>
                                                     ------------------------------>

                           (the rest is processed in the same way as in proxy mode)
```

11.4 POP Proxy Process

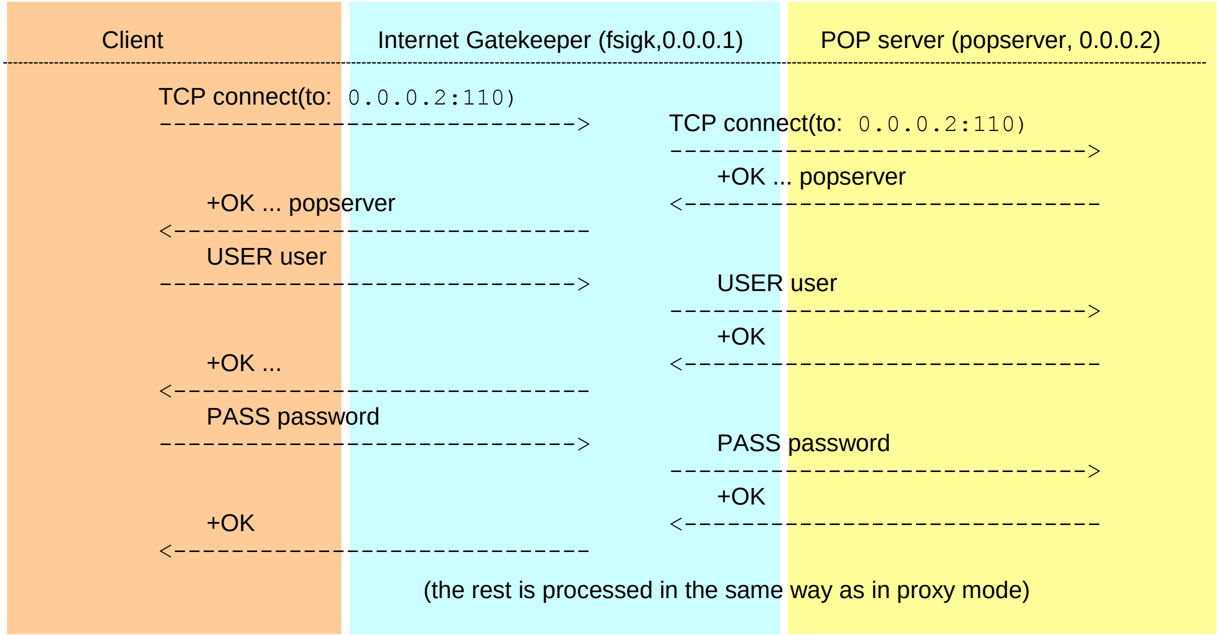
This section describes how common protocols are processed with the POP proxy.

Proxy mode



```
Client                  Internet Gatekeeper (fsigk,0.0.0.1)      POP server (popserver, 0.0.0.2)
----------------------------------------------------------------------------------------------------
TCP connect(to: 0.0.0.1:9110)
------------------------------->
    +OK ... fsigk starting
<-------------------------------
    USER user@popserver
------------------------------->    TCP connect(to: 0.0.0.2:110)
                                    ------------------------------->
                                        +OK ... popserver
                                    <-------------------------------
                                        USER user
                                    ------------------------------->
                                        +OK
    +OK ...                         <-------------------------------
<-------------------------------
    PASS password
------------------------------->        PASS password
                                    ------------------------------->
                                        +OK
    +OK                             <-------------------------------
<-------------------------------
    LIST
------------------------------->        LIST
                                    ------------------------------->
                                        1 1000 ...
    1 1000 ...                      <-------------------------------
<-------------------------------
    RETR 1
------------------------------->        RETR 1
                                    ------------------------------->
                                        E-mail body... .
                                    <-------------------------------
                  (Virus scan)
    E-mail body... .
<-------------------------------
    RSET
------------------------------->        RSET
                                    ------------------------------->
                                        +OK
    +OK                             <-------------------------------
<-------------------------------
    QUIT
------------------------------->        QUIT
                                    ------------------------------->
                                        +OK
    +OK                             <-------------------------------
<-------------------------------
```

Transparent mode (Router or Bridge)



```
        Client                  Internet Gatekeeper (fsigk,0.0.0.1)     POP server (popserver, 0.0.0.2)
----------------------------------------------------------------------------------------------------
              TCP connect(to: 0.0.0.2:110)
              ------------------------------>        TCP connect(to: 0.0.0.2:110)
                                                     ------------------------------>
                                                         +OK ... popserver
                  +OK ... popserver                  <------------------------------
              <------------------------------
                  USER user
              ------------------------------>            USER user
                                                     ------------------------------>
                                                         +OK
                  +OK ...                            <------------------------------
              <------------------------------
                  PASS password
              ------------------------------>            PASS password
                                                     ------------------------------>
                                                         +OK
                  +OK                                <------------------------------
              <------------------------------

                          (the rest is processed in the same way as in proxy mode)
```

11.5 FTP Proxy Process

The FTP service relays both the control session and data session. This section describes how common protocols are processed with the FTP proxy.

Proxy mode, Passive FTP

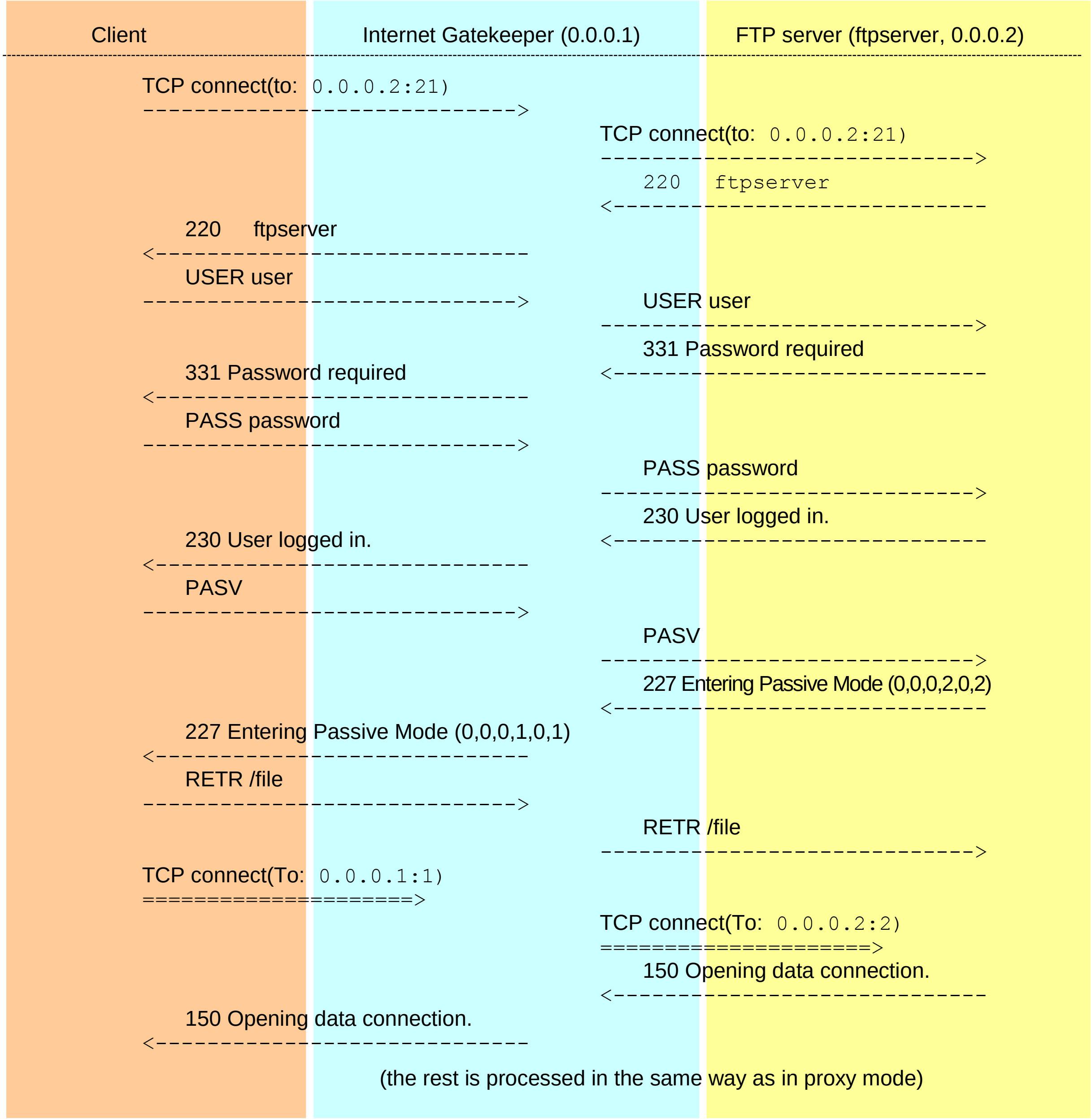
```
      Client               Internet Gatekeeper (fsigk, 0.0.0.1)   FTP server  (ftpserver, 0.0.0.2)
------------------------------------------------------------------------------------------------------
    TCP connect(to: 0.0.0.1:9021)
    ------------------------------>
       220 fsigk at fsigk
    <------------------------------
       USER user@ftpserver
    ------------------------------>     TCP connect(to: 0.0.0.2:21)
                                        ------------------------------>
                                           220 ftpserver
                                        <------------------------------
                                           USER user
                                        ------------------------------>
                                           331 Password required
       331 Password required            <------------------------------
    <------------------------------
       PASS password
    ------------------------------>
                                           PASS password
                                        ------------------------------>
                                           230 User logged in.
       230 User logged in.              <------------------------------
    <------------------------------
       PASV
    ------------------------------>
                                           PASV
                                        ------------------------------>
                                           227 Entering Passive Mode (0,0,0,2,0,2)
                                        <------------------------------
       227 Entering Passive Mode (0,0,0,1,0,1)
    <------------------------------
       RETR /file
    ------------------------------>
                                           RETR /file
                                        ------------------------------>
    TCP connect(To: 0.0.0.1:1)
    =====================>
                                        TCP connect(To: 0.0.0.2:2)
                                        =====================>
                                           150 Opening data connection.
                                        <------------------------------
       150 Opening data connection.
    <------------------------------
                                           File information
                                        <=====================
                                 (Virus scan)
       File information
    <=====================
                                           TCP close
       TCP close.                       <=====================
    <=====================
                                           226 Transfer complete.
       226 Transfer complete.           <------------------------------
    <------------------------------
       QUIT
    ------------------------------>        QUIT
                                        ------------------------------>
                                           221 Goodbye.
    221 Goodbye.                        <------------------------------
<------------------------------
```

Proxy mode, Active FTP

```
     Client (0.0.0.3)        Internet Gatekeeper (fsigk,0.0.0.1)        FTP server (ftpserver, 0.0.0.2)

TCP connect(to: 0.0.0.1:9021)
------------------------------>
    220 fsigk at fsigk
<------------------------------
    USER user@ftpserver
------------------------------>         TCP connect(to: 0.0.0.2:21)
                                        ------------------------------>
                                            220 ftpserver
                                        <------------------------------
                                            USER user
                                        ------------------------------>
                                            331 Password required
                                        <------------------------------
    331 Password required
<------------------------------
    PASS password
------------------------------>             PASS password
                                        ------------------------------>
                                            230 User logged in.
    230 User logged in.                 <------------------------------
<------------------------------
    PORT 0,0,0,3,0,3
------------------------------>             PORT 0,0,0,1,0,1
                                        ------------------------------>
                                            200 PORT command successful.
                                        <------------------------------
    200 PORT command successful.
<------------------------------
    RETR /file
------------------------------>             RETR /file
                                        ------------------------------>
                                        TCP connect
                                        (From: 0.0.0.2:20 To: 0.0.0.1:1)
                                        <=====================
TCP connect
(From: 0.0.0.1:20 To: 0.0.0.3:3)
<=====================
                                            150 Opening data connection.
                                        <------------------------------
    150 Opening data connection.
<------------------------------
                                            File information
                                        <=====================
                         (Virus scan)
    File information
<======================
                                            TCP close
    TCP close.                          <=====================
<======================
                                            226 Transfer complete.
                                        <------------------------------
    226 Transfer complete.
<------------------------------
    QUIT
------------------------------>             QUIT
                                        ------------------------------>
                                            221 Goodbye.
    221 Goodbye.                        <------------------------------
<------------------------------
```

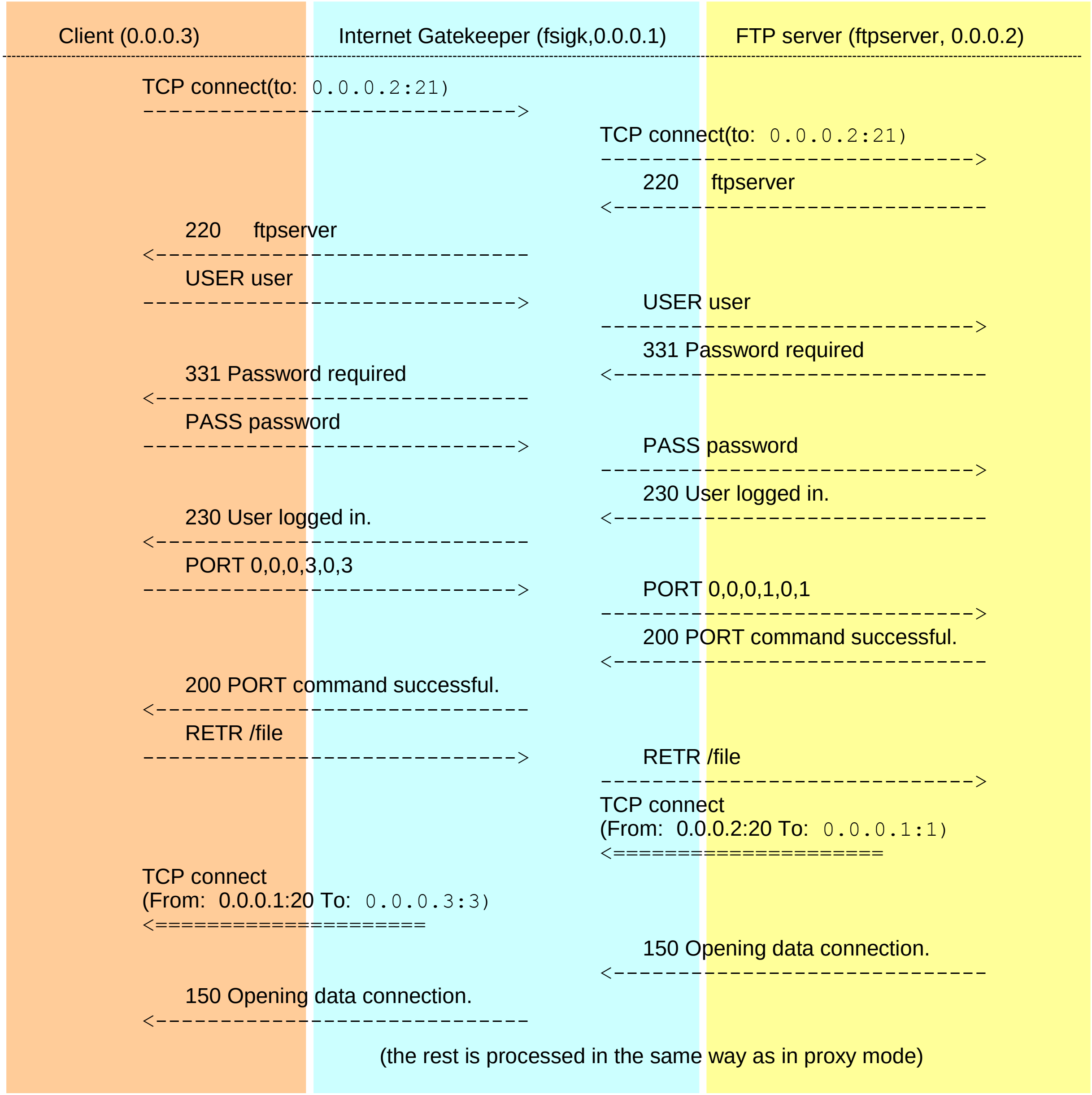
Transparent mode (Router or Bridge), Passive FTP



```
      Client              Internet Gatekeeper (0.0.0.1)       FTP server (ftpserver, 0.0.0.2)
---------------------------------------------------------------------------------------------
TCP connect(to: 0.0.0.2:21)
------------------------------->
                                      TCP connect(to: 0.0.0.2:21)
                                      ------------------------------->
                                         220   ftpserver
                                      <-------------------------------
   220     ftpserver
<-------------------------------
   USER user
------------------------------->
                                         USER user
                                      ------------------------------->
                                         331 Password required
   331 Password required              <-------------------------------
<-------------------------------
   PASS password
------------------------------->
                                         PASS password
                                      ------------------------------->
                                         230 User logged in.
   230 User logged in.                <-------------------------------
<-------------------------------
   PASV
------------------------------->
                                         PASV
                                      ------------------------------->
                                         227 Entering Passive Mode (0,0,0,2,0,2)
                                      <-------------------------------
   227 Entering Passive Mode (0,0,0,1,0,1)
<-------------------------------
   RETR /file
------------------------------->
                                         RETR /file
                                      ------------------------------->
TCP connect(To: 0.0.0.1:1)
=====================>
                                      TCP connect(To: 0.0.0.2:2)
                                      =====================>
                                         150 Opening data connection.
                                      <-------------------------------
   150 Opening data connection.
<-------------------------------

              (the rest is processed in the same way as in proxy mode)
```

Transparent mode (Router or Bridge), Active FTP



```
Client (0.0.0.3)      Internet Gatekeeper (fsigk,0.0.0.1)      FTP server (ftpserver, 0.0.0.2)
----------------------------------------------------------------------------------------------
      TCP connect(to: 0.0.0.2:21)
      ------------------------------>
                                         TCP connect(to: 0.0.0.2:21)
                                         ------------------------------>
                                            220    ftpserver
                                         <------------------------------
         220    ftpserver
      <------------------------------
         USER user
      ------------------------------>       USER user
                                         ------------------------------>
                                            331 Password required
         331 Password required           <------------------------------
      <------------------------------
         PASS password
      ------------------------------>       PASS password
                                         ------------------------------>
                                            230 User logged in.
         230 User logged in.             <------------------------------
      <------------------------------
         PORT 0,0,0,3,0,3
      ------------------------------>       PORT 0,0,0,1,0,1
                                         ------------------------------>
                                            200 PORT command successful.
                                         <------------------------------
         200 PORT command successful.
      <------------------------------
         RETR /file
      ------------------------------>       RETR /file
                                         ------------------------------>
                                         TCP connect
                                         (From:  0.0.0.2:20 To:  0.0.0.1:1)
                                         <======================
      TCP connect
      (From:  0.0.0.1:20 To:  0.0.0.3:3)
      <=====================
                                            150 Opening data connection.
                                         <------------------------------
         150 Opening data connection.
      <------------------------------

             (the rest is processed in the same way as in proxy mode)
```

11.6 HTTP Error Responses

The section describes errors that occur during the HTTP access. You can change the messages which are shown to the clients. You can do this by editing the error message template file (`/opt/f-secure/fsigk/conf/template_http_error.html`).

Server connection error

Description	Access to the server failed
Response code	503
Reason	Service Unavailable
Message	Connection error message. ➲ For connection error messages, see “*Connection Error Messages* ”.

Request method length error

Description	The length of the request method exceeds the limit (98 bytes)
Response code	400
Reason	Bad Request
Message	Too long Request Method

Request method character error

Description	The request method contains an invalid character (the character is under the character code 0x20)
Response code	400
Reason	Bad Request
Message	Illegal method character.

Request URL length error

Description	The length of the request URL exceeds the limit (2098 bytes)
Response code	414
Reason	Request-URI Too Long
Message	Request-URI Too Long

Request URL character error

Description	The request URL contains an invalid character (the character is under the character code 0x20)
Response code	400
Reason	Bad Request
Message	Illegal URL character.

Request URL format error

Description	The request URL has an invalid format
Response code	400
Reason	Bad Request
Message	Invalid URL format

Request version length error

Description	The HTTP version of the request exceeds the limit (98 bytes)
Response code	400
Reason	Bad Request
Message	Too long Request Version

Request version error

Description	The request HTTP version specified is a version other than "HTTP/1.0", "HTTP/1.1" or "(HTTP/0.9)"
Response code	505
Reason	HTTP Version Not Supported
Message	Only support HTTP/0.9, HTTP/1.0, HTTP/1.1

Proxy authentication error

Description	Proxy authentication failed
Response code	407
Reason	Proxy Authentication Required
Message	Proxy Authentication Required
Additional header	Proxy-Authenticate: Basic realm="input proxy user/pass"

11.7 HTTP Request and Response Headers

HTTP request and response headers are not changed for the most part but the following headers are changed by the product.

Request header:

- Request line

  If the request version is "HTTP/1.1", it is changed to "HTTP/1.0"

  If a parent server or transparent proxy is not set up, the part in front of the pass name of the URL is removed

  (Example: http://xxx:yyy/aaa/iii/uuu => /aaa/iii/uuu)

- Connection

  The Connection header is removed.
  If the connection is Keep-Alive, Connection: Add Keep-Alive.

- Proxy-Connection

  The Proxy-Connection header is removed.

- Via

  If an anonymous proxy is used, the header is not changed.
  Otherwise, the following change is made:

  Via : 1.0 Host name: Port (Product name)

  If a Via header exists, it is added to the end with a ",".

- X-Forwarded-For

  If an anonymous proxy is used, the header is not changed.
  Otherwise, the IP address of the connecting source is added as follows:

  X-Forwarded-For: IP Address of connecting source

  If an X-Forwarded-For header exists, it is added to the end with a ",".

- Keep-Alive
  The current Keep-Alive header is removed

- Trailer
  The current Trailer header is removed

- Proxy-Authorization
  If Proxy authentication is enabled, it is removed

Response header:

- Response line

  If the response header version is “HTTP/1.1”, it is changed to “HTTP/1.0”

- Connection
  The current Connection header is removed

  If the connection is Keep-Alive, the following is added.

  Connection: Keep-Alive

- Proxy-Connection
  The current Proxy-Connection header is removed

- Proxy-Support

  If a "WWW-Authenticate" header exists and the proxy has no parent server and is not transparent, the following information is added:

  Proxy-Support Session-Based-Authentication

  ("Proxy-Support: Session-Based-Authentication " is needed if a proxy uses NTLM authentication and other authentication methods. See RFC-4559 for more details.)

11.8 SMTP Command Responses

Usually, server responses are relayed to clients during SMTP connections. However, sometimes they can be generated by F-Secure Internet Gatekeeper. The product generates the following messages:

[Response message] (Product name)

(Example: 500 Unknown Command: "TEST" (F-Secure/fsigk_smtp/230/gwdev.gw.f-secure.co.jp))

DATA command response

Message	354 Enter mail
Reason	Starts to receive e-mail data that is being transferred.

Message	250 Message accepted for delivery
Reason	Indicates that the e-mail data has been received.

Message	554 SENDBACK:smtp error[COMMAND] (Server Reply: XXX)
Reason	Indicates that an error response (XXX) was returned for the sendback command (COMMAND) used to notify the sender. COMMAND can be either RSET/MAIL or FROM/RCPT TO.

Message	250 Message accepted for delivery
Reason	Indicates that the e-mail data has been received.

Message	554 Too long message
Reason	The data size has exceeded the maximum. The maximum size is 2 GB, or the value specified at block_messagesize/block_message_len in the expert options.

Message	554 Infected by [Detection name]
Reason	This message appears when a virus is detected and if "Deny" is selected as the action when viruses are detected.

Connection responses

Message	421 server open error (Host port) errmsg=[XXX]
Reason	Access to the specified host and port failed. ERRMSG displays the contents covered in "*Connection Error Messages*".

Message	421 Cannot get correct greeting message from mail server (Host port). return code=DDD
Reason	The greeting message after connecting to the SMTP server is invalid. Is displayed if the response code from the SMTP server is not 220.

Other command responses

Message	500 Too long line
Reason	The length of the command line exceeds 9999 bytes.

Responses from commands other than HELO, EHLO, AUTH, QUIT, RSET

Message	500 Authentication Required"
Reason	The authentication for sending e-mails is not complete. Is displayed in the following cases: - If POP-before-SMTP or SMTP authentication is enabled - Authentication is not successful - The connection is not from the LAN - Recipient domain restrictions are not applied

HELO/EHLO command responses

Message	421 (COMMAND) disconnected from (Host: Port)
Reason	The server was disconnected when COMMAND was executed. The COMMAND can be either HELO or EHLO.

MAIL command responses

Message	501 Syntax error ("MAIL FROM:").
Reason	The MAIL command is invalid (FROM is missing).

RCPT command responses

Message	500 RCPT command must begin with "RCPT TO:.
Reason	The RCPT command is invalid (TO is missing).

Message	250 Recipient ok"
Reason	The relay was denied. Is displayed when recipient domains are restricted and authentication is not completed.

AUTH command responses

Message	504 this mechanism not available
Reason	Authentication methods other than PLAIN and LOGIN are not supported.

Message	235 ok authed
Reason	Authentication is successful. Is displayed only when SMTP authentication is performed by F-Secure Internet Gatekeeper. If authentication is done on the SMTP server side, the SMTP server response is relayed.

Message	535 authorization failed
Reason	Authentication failed. Is displayed only when SMTP authentication is performed by F-Secure Internet

	Gatekeeper. If authentication is done on the SMTP server side, the SMTP server response is relayed.

Message	500 disconnected from server(AUTH).
Reason	The server disconnected during authentication.

Unknown commands

Message	500 Unknown Command: "COMMAND"
Reason	The specified command (COMMAND) is not supported.

11.9 SMTP Commands – Operations

During SMTP connections, commands executed from clients are operated in the following way.

Note

The [Product name] is by default "F-Secure/fsigk_smtp/Version/Host name".
You can change the product name by editing "product_name=" (see expert options for details).

Client connections

1 Connects to the server.

2 If the server access fails:

① The following is sent to the client: 421 server open error([Server host]:[Server port]) errmsg=[connection error message]

➜ For connection error messages, see "*Connection Error Messages*

②The session ends.

3 Receives a response from the server.

4 If the response code is other than 220, the connection is terminated.

5 The following is sent to the client: 200 [Host name] [Product name]

Command-lines

1 If a line is greater than 9998 bytes:

① The following is sent to the client: 500 Too long line ([Product name])

② The connection is terminated.

2 If the following conditions are met, and a command other than `HELO`, `EHLO`, `AUTH`, `QUIT`, `RSET` is received:

- POP-before-SMTP or SMTP authentication is enabled
- Authentication is not successful
- The connection is not from the LAN
- Recipient domain restrictions are not applied

① The following is sent to the client: 500 Authentication Required ([Product name])

3 If 1 and 2 above do not apply, the command is executed.

HELO command

1 The following is sent to the server: HELO [Host name]

2 Receives a response from the server.

3 The following is sent to the client: [Server response information]

EHLO command

1 The following is sent to the server: EHLO [Host name]

2 Receives a response from the server.

3 The following option lines are deleted from the response information.
`CHUNKING`, `BINARYMIME`, `PIPELINING`, `STARTTLS`

4 Set the response and maximum message size to the smallest value (default: 2,000,000,000) from the server in the SIZE option.

5 If proxy authentication is enabled, add the following option line to the response information.

```
250-AUTH PLAIN LOGIN
```

6 The following is sent to the client: [Response information]

MAIL command

1 If the syntax of the command is invalid:
① The following is sent to the client: 501 Syntax error (MAIL FROM:) ([Product name])

2 The following is sent to the server: [Client response information]

3 Receives a response from the server.

4 The following is sent to the client: [Server response information]

RCPT command

1 If the syntax of the command is invalid:
① The following is sent to the client: 500 RCPT command must begin with "RCPT TO:" ([Product name])

2 If recipient domains are restricted and authentication is not complete
(Recipient (RCPT) domain restrictions are enabled and PbS (POP-before-SMTP)/SMTP authentication is not complete (destination domains and domain connections from the LAN are not related))
① The following is sent to the client: 550 Relaying denied. ([Product name])

3 The following is sent to the server: [Client response information]

4 Receives a response from the server.

5 The following is sent to the client: [Server response information]

6 If the response code is other than 250:
① The session ends.

AUTH command

1 If SMTP authentication is enabled:
① If authentication passes:
1) The following is sent to the client: 235 ok authed ([Product name])
② If authentication fails:
1) The following is sent to the client: 535 authorization failed ([Product name])
③ If the authentication method is other than PLAIN or LOGIN:
1) The following is sent to the client: 504 this mechanism not available ([Product name])

2 If SMTP authentication is disabled:
① The authentication request and response are transferred between the server and client.

DATA command

1 The following is sent to the client: 354 Enter mail ([Product name])

2 Mail data is received.

3 Mail data is scanned for viruses or spam.

4 If a virus or spam is detected:
① Virus logs are recorded.
② A notification is sent to the administrator (if notification sending is enabled).

5 If the e-mail size is greater than the maximum message size:
① The following is sent to the client: 554 Too long message ([Product name])

6 If a virus or spam is detected and action on detection is set to "Clean", "Do nothing" or "Change subject":
① If "Deny" is set as the action:
1) The following is sent to the server: RSET
2) Receives a response from the server.
3) If the response code is other than 250, the session ends.
4) The following is sent to the client: 554 Infected by [Detection name] ([Product name])
② If "Notify the sender" is set as the action
1) The following is sent to the server: RSET
2) If the response code is other than 250:
a) The following is sent to the client: 554 :SENDBACK:smtp error[RSET]: (Server Reply: [Server response information]) ([Product name])
3) The following is sent to the server: MAIL FROM: [Template sender or administrator address]
4) If the response code is other than 250:
a) The following is sent to the client: 554 SENDBACK:smtp error[MAIL FROM] (Server Reply: [Server response information]) ([Product name])
5) The following is sent to the server: RCPT TO: <Sender address>
6) If the response code other than 250:
a) The following is sent to the client: 554 SENDBACK:smtp error[RCPT TO] (Server Reply: [Server response information]) ([Product name])
③ If the action on detection is set to "Notify the sender" or "Notify the recipient":
1) The following is sent to the server: DATA
2) If the response code other than 354:
a) The command terminates.
3) The following is sent to the server:
Received: from [Client host name] ([Client IP address])
by [Host name] (Product name]) ;
[Current time (RFC822 format)]
4) If spam is detected:
a) The following is sent to the server: X-Spam-Status: Yes(Product name) with [Detection name]
5) If a virus is detected:
a) The following is sent to the server: X-Virus-Status: infected(Product name) with [Detection name]
6) The following is sent to the server: Data: [Date field information of the e-mail received]
7) If "Notify the sender" is set as the action:
a) The following is sent to the server: To: [Sender address of the e-mail received]
8) If "Notify the recipients" is set as the action:

a) The following is sent to the server: To: [Recipient address of the e-mail received]

b) The following is sent to the server: CC: [CC address of the e-mail received]

9) If the From field is not included in the infected e-mail notification template:

a) The following is sent to the server: From: [Administrator’s e-mail address]

10) The following is sent to the server: Content-Transfer-Encoding: 7bit

11) The information of the detection notification message is sent.

12) The following is sent to the server: "¥r¥n.¥r¥n"

13) The following is sent to the client: Server response information

14) If the response code is other than 250:

a) The session ends.

④ If “Delete” is set as the action:

1) The following is sent to the server: RSET

2) If the response code is other than 250:

a) The session ends.

3) The following is sent to the client: 250 Message accepted for delivery ([Product name])

7 If (6) above does not apply:

① The following is sent to the server: DATA

② If the response code is other than 354:

1) The following is sent to the client: [Server response information]

2) The command terminates.

③ If anonymous proxy mode is not enabled:

1) The following is sent to the server:

Received: from [Client host name] ([Client IP address])
by [Host name] (Product name]) ;
[Current time (RFC822 format)]

2) If spam is detected:

a) The following is sent to the server: X-Spam-Status: Yes([Product name]) with [Detection name]

3) If a virus is cleaned:

a) The following is sent to the server: X-Virus-Status: disinfected([Product name]) from [Detection name]

4) If infected by a virus:

a) The following is sent to the server: X-Virus-Status: infected([Product name]) with [Detection name]

5) If viruses or spam are not detected:

a) The following is sent to the server: X-Virus-Status: clean([Product name])

④ The following is sent to the server: E-mail information

⑤ The following is sent to the client: Server response information

8 Access log is recorded.

RSET/XFORWARD/NOOP/EXPN command

1 The following is sent to the server: [Client response information]

2 Receives a response from the server.

3 The following is sent to the client: [Server response information]

Unknown commands

1 The following is sent to the server: 500 Unknown Command: "[Command received]" ([Product name])

11.10 POP Commands – Operations

During POP connections, commands executed from clients are operated in the following way.

> Note
>
> The [Product name] is by default "F-Secure/fsigk_pop/Version/Host name".
> You can change the product name by editing "product_name=" (see expert options for details).

Client connections

1 If “Defining parent server by user” is disabled or transparent mode is enabled:

① The server is accessed.

② If access fails:

1) The following is sent to the client: -ERR Can't Connect to (Server host: Server port) errmsg=[Connection error message]

➔ For connection error messages, see “*Connection Error Messages*

2) The session ends.

③ Receives a response from the server.

④ The following is sent to the client: [Server response information]

2 If (2) above does not apply:

① The following is sent to the client: +OK [Product name] starting.

Command lines

1 If a line is greater than 998 bytes:

① The following is sent to the client: -ERR Too long line

2 If not connected to a server and a command other than USER/QUIT is sent:

① The following is sent to the client: -ERR please use USER command at first.

3 If 1 and 2 above do not apply, the command is executed.

USER command

1 If “Defining parent server by user” is disabled or transparent mode is enabled:

① The following is sent to the server: Client response information

2 If (1) above does not apply:

① If user authentication is enabled:

1) If the user is not added:

a) The following is sent to the client: -ERR Invalid Account Auth.

② If the user name contains “@” or “#”:

1) The server specified by the last “@” or “#” is accessed.

③ If (2) above does not apply:

1) If the parent server is empty:

a) The following is sent to the client: -ERR USER format is USER username@hostname or username#hostname

b) The command terminates.

2) Connects to the parent server.

④ If the connection fails:

1) The following is sent to the client: -ERR Can't Connect to (Server host: Server port) errmsg=[Connection error message]

➲ For connection error messages, see "*Connection Error Messages*

⑤The following is sent to the server: USER [User name]

⑥ Receives a response from the server.

⑦ The following is sent to the client: [Server response information]

QUIT command

1 If connected to a server:

① The following is sent to the server: [Client request information]

② Receives a response from the server.

③ The following is sent to the client: [Server response information]

2 If (1) above does not apply:

① The following is sent to the client: +OK Quit

PASS/APOP/AUTH commands

1 If user restriction with the APOP command is enabled:

① If the user is not added:

1) The following is sent to the client: -ERR Invalid Account Auth.

2 The following is sent to the server: Client response information

3 Receives a response from the server.

4 If the server response is successful:

① Add the client IP address to the POP-before-SMTP database.

RETR command

1 The following is sent to the server: Client response information

2 Mail is received.

3 Mail is scanned for viruses and spam.

4 If a virus or spam is detected:

① Virus logs are recorded.

② A notification is sent to the administrator (if enabled).

5 If a virus is detected and the action on detection is "Delete":

① The following is sent to the client:

```
Received from FSIGK: Current time(RFC822 format)
X-Virus-Status: infected([Product name]) with [Detection name]
Date: [Date of header] (If it exists)
To: [To of header] (If it exists)
Cc: [Cc of header] (If it exists)
[Information of the detection notification message]
```

6 If (5) above does not apply:

① If a virus or spam is detected:

1) The following is sent to the client: Received: from FSIGK: Current time(RFC822 format)

② If spam is detected:

1) The following is sent to the client: X-Spam-Status: Yes(Product name) with [Detection name]

③ If a virus is detected:

1) The following is sent to the client: X-Virus-Status: disinfected(%s) from [Detection name]

④ If a virus is detected:

1) The following is sent to the client: X-Virus-Status: infected(%s) with [Detection name]

⑤ The following is sent to the client: E-mail information

Other commands

1 The following is sent to the server: [Client response information]

2 Receives a response from the server.

3 The following is sent to the client: [Server response information]

11.11 FTP Commands – Operations

During FTP connections, commands executed from clients are operated in the following way.

Note

The [Product name] is by default "F-Secure/fsigk_ftp/Version/Host name".
You can change the product name by editing "product_name=" in the expert options.

Client connections

1 If “Defining parent server by user” is disabled or transparent mode is enabled:

① The server is accessed.

② If access fails:

1) The following is sent to the client: -500 Can't Connect to (Server host: Server port) errmsg=[Connection error message]

➲ For connection error messages, see “*Connection Error Messages*

2) The session ends.

③ Receives a response from the server.

④ The following is sent to the client: [Server response information]

2 If (1) above does not apply:

① The following is sent to the client: 220 [Product name] at Host name starting.

Command lines

1 If a line is greater than 998 bytes:

① The following is sent to the client: 500 Too long line

2 If not connected to a server and a command other than USER/QUIT is sent:

① The following is sent to the client: 530 please use USER command at first.

3 If 1 and 2 above do not apply, the command is executed.

USER command

1 If “Defining parent server by user” is disabled or transparent mode is enabled:

① The following is sent to the server: Client response information

2 If (1) above does not apply:

① If user authentication is enabled:

1) If the user is not added:

a) The following is sent to the client: 500 Invalid Account Auth.

② If the user name contains “@” or “#”:

1) The server specified by the last “@” or “#” is accessed.

③ If (2) above does not apply:

1) If the parent server is empty:

a) The following is sent to the client: 500 USER format is USER username@hostname or username#hostname

b) The command terminates.

2) Connects to the parent server.

④ If the connection fails:

1) The following is sent to the client: -500 Can't Connect to (Server host: Server port) errmsg=[Connection error message]

➲ For connection error messages, see “*Connection Error Messages*

⑤ The following is sent to the server: USER [User name]

⑥ Receives a response from the server.

⑦ The following is sent to the client: [Server response information]

QUIT command

1 If connected to a server:

① The following is sent to the server: [Client response information]

② Receives a response from the server.

③ The following is sent to the client: [Server response information]

2 If (2) above does not apply:

① The following is sent to the client: 221 Quit

PASV command

1 The following is sent to the server: PASV

2 Receives a response from the server.

3 The following is sent to the client: 227 Entering Passive Mode (xx,xx,xx,xx,yy,yy) (xx is the IP address of the proxy and yy is the proxy port)

PORT command

1 The following is sent to the client: PORT (xx,xx,xx,xx,yy,yy) (xx is the IP address of the proxy and yy is the proxy port)

2 Receives a response from the server.

3 The following is sent to the client: [Server response information]

RETR/LIST/NLST/STOR/STOU/APPE commands

1 If PASV/PORT commands are not executed:

① The following is sent to the client: 530 please use PORT/PASV command at first.

② The command terminates.

2 If the mode is PASV:

①Waits for a data session to connect.

②If the source of the data session and control session are different:

1) The following is sent to the client: 530 Invalid Connection Source.

2) The command terminates.

③Connects to the server with the data session.

④Receives a response from the server.

⑤The following is sent to the client: Server response information

⑥If the response code is other than 1xx:

1) The command terminates.

3 If the mode is Active:

①Receives a response from the server.

②If the response code is other than 1xx:

1) The command terminates.

③Connects to the client with the data session.

④If the client connection fails:

1) Information of the detection notification message: 530 Cannot connect client

2) The session ends.

4 The file is received.

5 If the command is other than LIST/NLST:

6 If a virus is detected:

①The following is sent to the client: 530 Infected by [Detection name]

②The command ends.

7 The file is transferred.

Other commands

1 The following is sent to the server: [Client response information]

2 Receives a response from the server.

3 The following is sent to the client: [Server response information]

11.12 Connection Error Messages

This section describes error messages that appear when a connection to a server fails.

```
CONNECT(Host: Port)/connect: [Connection error details]
```

Connect request to the IP address of a server failed.

Connections are performed using the connect() system call of Linux. The "Connection error details" contains the error message of connect() system call which in most cases will be one of the following:

Connection refused	: The server denied the connection.
Connection timed out	: A timeout occurred while trying to access the server.
Network is unreachable	: The network on the server could not be reached.

```
CONNECT(Host: Port)/connect timeout(>$1 sec)
```

A timeout occurred because the connection could not be established within the specified time ($1). This error is displayed only when the server connect timeout setting in the expert options is enabled.

`CONNECT(Host: Port)/connect cancelled`

Is displayed when the connection was canceled by the client.

`CONNECT(Host: Port)/hostname lookup error: [Host name lookup error details]`

Failed to lookup the host name.
Host name lookups are performed using the getaddrinfo() function of Linux (glibc). The error details contain the human-readable string reported by gai_strerror().

`CONNECT(Host: Port)/Access Inhibited by Proxy(FSIGK)`

Connection was denied due to access control settings on the destination.

11.13 Service Process List

F-Secure Linux Internet Gatekeeper uses the following processes to provide its services.

`fsigk_http`

Process used to provide HTTP service.
It makes HTTP communication between clients and servers possible.
To process sessions, the specified maximum number of simultaneous connections is used for processing, and another single process is used for administration.
In addition, the process also communicates with the scanning engine process (fsavd) as needed.
Communication is processed by using the UNIX domain socket (fsavd-socket-0 in the install directory).
Up to 500 KB of memory cannot be shared per process.

`fsigk_smtp`

Process used to provide SMTP service.
It makes SMTP communication between clients and servers possible.
To process sessions, the specified maximum number of simultaneous connections is used for processing, and another single process is used for administration.
In addition, the process also communicates with the scanning engine process (fsavd) as needed.
Communication is processed by using the UNIX domain socket (fsavd-socket-0 in the install directory).
Up to 500 KB of memory cannot be shared per process.

`fsigk_pop`

Process used to provide POP service.
It makes POP communication between clients and servers possible.
To process sessions, the specified maximum number of simultaneous connections is used for processing, and another single process is used for administration.
In addition, the process also communicates with the scanning engine process (fsavd) as needed.
Communication is processed by using the UNIX domain socket (fsavd-socket-0 in the install directory).
Up to 500 KB of memory cannot be shared per process.

`fsigk_ftp`

Process used to provide FTP service.
It makes FTP communication between clients and servers possible.
To process sessions, the specified maximum number of simultaneous connections is used for processing, and another single process is used for administration.
In addition, the process also communicates with the scanning engine process (fsavd) as needed.
Communication is processed by using the UNIX domain socket (fsavd-socket-0 in the install directory).
Up to 500 KB of memory cannot be shared per process.

`fsavd`

Handles the scanning engine process.

The number of fsavd processes is configured in the file /opt/f-secure/fsigk/fssp/etc/fssp.conf with option daemonMaxScanProcesses. The default value is 40. The service is controlled by the /etc/init.d/fsigk_fsavd script.
Up to 50 MB of memory cannot be shared per process.

`fsicapd_service`

Process used to provide ICAP virus scanning service.
It makes ICAP service available for HTTP proxy proxy.
To process sessions, the specified maximum number of simultaneous connections is used for processing.

11.14 Detection Names

If F-Secure Internet Gatekeeper detects a virus, the virus name is recorded in a log. Detailed information on viruses can be found on the following web page:

http://www.f-secure.com/en/web/labs_global/threats/descriptions

If you specify certain conditions, the product can detect other information besides viruses. These detection names begin with "FSIGK/" and they are listed below:

FSIGK/POLICY_FORMAT_MIME_BOUNDARY
Invalid character in the boundary section of the mail header
(Invalid character: "", codes below 0x1f, codes above 0x7f)

FSIGK/POLICY_FORMAT_MIME_FILENAME
Invalid character in the file name section of the mail header
(Invalid character: Codes below 0x1f (not including 0x1b))

FSIGK/POLICY_BLOCK_ENCRYPTED
Encrypted file (if encrypted files are denied)

FSIGK/POLICY_BLOCK_SCRIPT
HTML file including scripts (if scripts are denied)

FSIGK/POLICY_BLOCK_ACTIVEX
HTML file including ActiveX (if ActiveX is denied)

FSIGK/POLICY_BLOCK_PARTIAL_MESSAGE
Partial message (if partial messages are denied)

FSIGK/POLICY_BLOCK_MAXNESTED
Archive file that contains more than the allowed nest levels
(if the maximum nest level of archive files is denied in block_maxnested=yes)

FSIGK/POLICY_BLOCK_SCANTIMEOUT
Scan times out
(if scans are denied if they reach the maximum allowed time which is set in block_scantimeout=yes)

FSIGK/POLICY_BLOCK_MESSAGESIZE

Mail size is greater than the maximum size allowed
(if the mail size is set or if a mail is greater than 2 GB (block_messagesize_len=xxx))

FSIGK/POLICY_BLOCK_FILESIZE

File size is greater than the maximum size allowed
(If the file size limit is set in block_filesize=yes)

FSIGK/SPAM_LIST/CUSTOM/(Condition number)/(Header field name)

Spam detected by a specific condition.
The condition number indicates the number of lines detected in the database file.

FSIGK/SPAM_LIST/UCE/([Condition number])/(Header field))

Spam detected by a database (Unsolicited advertisements).
The condition number indicates the number of lines detected in the database file.

FSIGK/SPAM_LIST/ADVERTISEMENT/(Condition number)/ (Header field name)

Spam detected by a database (general advertisements).
The condition number indicates the number of lines detected in the database file.

FSIGK/SPAM_LIST/HTMLMAIL/(Condition number)/ (Header field name)

Spam detected by a database (HTML-based e-mails).
The condition number indicates the number of lines detected in the database file.

FSIGK/SPAM_LIST/VIRUSERROR /(Condition number)/ (Header field name)

Spam detected through a database (Virus and spam notification e-mails).
The condition number indicates the number of lines detected in the database file.

FSIGK/SPAM_LIST/ERROR/(Condition)/ (Header field name)

Spam detected by a database (Error mail).
The condition number indicates the number of lines detected in the database file.

FSIGK/SPAM_RBL/(Detected address)[(RBL server name): (RBL response address)]

Spam detected by RBL inspection:

Detected address	: Address registered in the RBL server
RBL server name	: Name of the RBL server in which the address was found
RBL reply address	: Reply address from the RBL server when spam was detected

FSIGK/SPAM_SURBL/(Detected domain name)[(SURBL server name): (SURBL response address)]

When spam is detected by SURBL inspection:

Detected domain name	: Domain name registered on the SURBL server
SURBL server name	: Name of the SURBL server in which the name was found
SURBL reply address	: Reply address from the SURBL server when spam was detected

11.15 Riskware

Riskware is not malware. Riskware is not designed specifically to harm the computer, but it has security-critical functions that may harm the computer if misused. These programs perform some useful but potentially dangerous functions.

Examples of such programs are:

- Remote administration programs (Example: VNC)
- Instant messaging programs (Example: IRC)

Programs for transferring files over the internet from one computer to another

- Internet phone programs (VoIP)

If a program is identified as riskware but it is explicitly installed and correctly set up and used, it is less likely to be harmful.

Riskware detected by F-Secure Internet Gatekeeper are given the detection name of "Catagoriy.Platform.Family".

Riskware categories:

Adware
AVTool
Client-IRC
Client-SMTP
CrackTool
Dialer
Downloader
Effect
FalseAlarm
Joke
Monitor
NetTool
Porn-Dialer
Porn-Downloader
Porn-Tool
Proxy
PSWTool
RemoteAdmin
RiskTool
Server-FTP
Server-Proxy
Server-Telnet
Server-Web
Tool

Riskware platforms:

Apropos
BAT
Casino
ClearSearch
DOS
DrWeb
Dudu
ESafe
HTML
Java
JS
Linux
Lop
Macro
Maxifiles
NAI
NaviPromo
NewDotNet
Palm
Perl
PHP
Searcher
Solomon
Symantec
TrendMicro
UNIX
VBA
VBS
Win16
Win32
Wintol
ZenoSearch