

STONESOFT



Appliance Installation Guide

StoneGate SG-1100

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Introduction

Thank you for choosing Stonesoft's StoneGate appliance. This guide provides instructions for the initial hardware installation and the maintenance of the SG-1100 appliances.

You must have a working Management Center on a separate server to bring the appliance(s) operational. The system architecture is explained on the next page. See the *StoneGate Installation Guide* for instructions on how to install the Management Center and configure the firewall.

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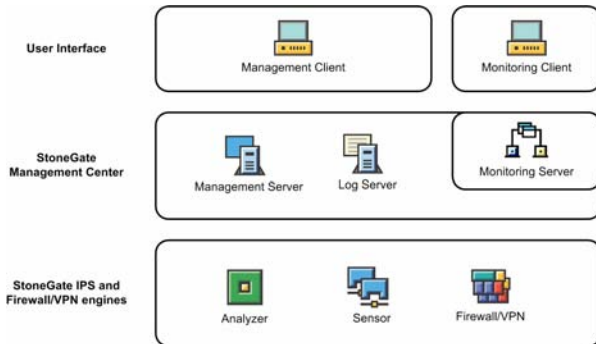


Caution – Never open the covers of the appliance! There are no user serviceable parts inside. Opening the covers may lead to serious injury and will void the warranty. Read the [Safety Precautions](#), on page 6 before you conduct any installation or maintenance operations on the appliance.

Getting Started

StoneGate System Components

Illustration 1 StoneGate Components



The illustration above shows all available StoneGate components. Out of these, you need the following components to have an operational Firewall/VPN system:

1. A **Management Server**, which stores the configuration of the system. In most environments, it is best to have just one common Management Server for all firewall and IPS engines.
2. At least one **Log Server** to handle and store logs and alerts (can be installed simultaneously on the same machine with the Management Server).
3. At least one **Management Client** that you use to connect to the Management Server to change settings and monitor the system.
4. The **Firewall Engines** that handle the actual traffic processing (in this case, the SG-1100 appliance).
5. **Licenses** for each component except the Management Client(s).

The **Monitoring Server** and the **Monitoring Client** are optional components that are available on separate order.

StoneGate IPS engines can be added to the same system for unified management and incident handling.

Installation Procedure

The appliance installation involves the following mandatory steps:

1. Configure the Firewall element in the Management Center (see the separate *StoneGate Installation Guide* or the online help of the Management Client).
2. Save the initial configuration to receive a one-time password for establishing trust between the appliance and the Management Server (see the separate *StoneGate Installation Guide*).
3. Install the appliance into a rack and connect the cables as instructed in this guide.
4. Perform the initial configuration and establish contact between the appliance and the Management Server (see [Initial Configuration](#), on page 15).

Product Documentation

The following documentation covers the StoneGate Firewall/VPN products:

- The *Installation Guide* explains how to install the Management Center and configure your firewalls' basic settings.
- The *online help system* of the Management Client contains the step-by-step instructions for the daily configuration and management of your system.
- The *Administrator's Guide* contains the same information as the online help system, but in PDF form.
- The *Reference Guide* contains background and reference information that helps you to plan and understand your system.

Finding the Documentation

Press F1 while in any Management Client window to view the online help.

All PDF guides are available:

- On the Management Center CD-ROM (in the Documentation folder)
- At the Stonesoft Website at my.stonesoft.com/download/doc

The *Installation Guide* and *Reference Guide* are delivered as printed books if so requested in your order.

Install the free Adobe Reader program to view the PDF documents (available at www.adobe.com/reader/).

Safety Precautions

The following safety information and procedures must be followed whenever working with the StoneGate Appliance. However, please be advised that StoneGate Appliances are not end-user serviceable, and you must never open the appliance chassis for any reason. Doing so may lead to serious injury and will void any hardware warranty that may be associated with your appliance.

Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the appliance from damage:

- Be aware of the locations of the power on/off switch as well as the room's emergency power-off switch, disconnection switch, or electrical outlet. If an electrical accident occurs, you can then quickly cut power to the system.
- Do not work alone when working with high voltage components.
- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.
- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- The power supply cord must include a grounding plug and must be plugged into a grounded electrical outlet.



Caution – Never open the appliance chassis! There are no user serviceable parts inside. Opening the chassis may lead to serious injury and will void the warranty.

General Safety Precautions

Follow these rules to ensure general safety:

- Keep the area around the appliance clean and free of clutter.
- The appliance weighs approximately 18 kg (40 lbs.) when fully loaded. When lifting the system, two people at either end should lift

slowly with their feet spread out to distribute the weight. Always keep your back straight and lift with your legs.

- We recommend using a regulating uninterruptible power supply (UPS) to protect the appliance from power surges, voltage spikes and to keep your system operating in case of a power failure.

ESD Precautions

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. Use a grounded wrist strap designed to prevent static discharge.

Note – Use a UPS (Uninterruptible Power Supply) in critical environments with your StoneGate appliance. If after a brief power outage your StoneGate appliance only partially starts up (for example, the power light is on, but the NIC LEDs are off and the appliance does not connect) turn the appliance off for five seconds and then back on.

Operating Precautions

Care must be taken to assure that the chassis cover is in place when the appliance is operating to ensure proper cooling. Out of warranty damage to the appliance system can occur if this practice is not strictly followed.

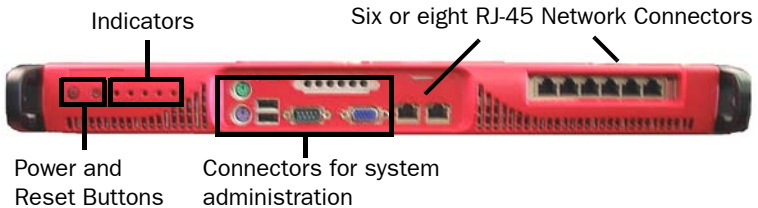
Lithium Battery Precautions



Caution – Do not change the battery; the battery must be replaced by authorized service personnel only. Danger of explosion if battery is incorrectly replaced. Replacement battery must be same or equivalent type recommended by the manufacturer. Used batteries must be discarded according to the manufacturer's instructions. Short-circuiting the battery may heat the battery and cause severe injuries.

Front Panel

Illustration 2 Front Panel of SG-1100



The illustration above shows an overview of the front panel of the SG-1100:

- The buttons and indicators are explained in detail below.
- The connectors are explained in detail in [Connecting the Cables](#), on page 14.

Front Panel Buttons

There are two buttons on the front of the appliance. These are (from left to right) a power button and a reset button. Do not press either of these buttons if the appliance is online (processing traffic) and operating normally.



- This is the main power button, which is used to turn on/off the main system power. Push this button to turn on/off system power. Turning off the appliance keeps standby power supplied to the system.



- This is the reset button, which reboots the system. Use the button only if it is not possible to reboot using either the Management Client or command line command.

Front Panel Indicators

The front panel has five LED indicators. These LEDs provide you with critical information related to different parts of the system. They are (from left to right):



- Indicates power is being supplied to the system's power supply unit. This LED is illuminated when the system is operating normally.



- Indicates hard drive activity when flashing.



- Indicates traffic on eth 0 (identically to the corresponding LED in the connector).



- Indicates traffic on eth 1 (identically to the corresponding LED in the connector).



- Indicates an overheat condition in the chassis. This may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm.

Unpacking the Appliance

Inspect the box the appliance was shipped in and note if it was damaged in any way. If the appliance itself shows damage, file a damage claim with the carrier who delivered it. Confirm that the Stonesoft anti-tamper tape on the appliance is intact.

Rack-Mounting

The appliance delivery includes two sets of rail assemblies, two sets of rail-mounting brackets and the mounting screws you will need to install the system into the rack. Follow the steps in the order given to complete the installation process in a minimum amount of time.

Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

Decide on a suitable location for the rack unit that will hold the appliance:

- The appliance must be situated in a clean, dust-free area that is well ventilated.
- Avoid areas where heat, electrical noise and electromagnetic fields are generated.
- Leave enough clearance in front of the rack to enable you to open the front door completely (~63 cm/25 inches).
- Leave enough clearance in the back of the rack to allow for sufficient airflow and ease in servicing (~76 cm/30 inches).

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- Extend only one component at a time—extending two or more simultaneously may cause the rack to become unstable.

Device Precautions



Caution – Never open the appliance chassis! There are no user serviceable parts inside. Opening the chassis may lead to serious injury and will void the warranty.

- Review the electrical and general safety precautions in [Safety Precautions](#), on page 6.
- Determine the placement of each component in the rack before you install the rails.
- Install the heaviest device components on the bottom of the rack first, and then work up.
- The appliance must be connected to a grounded power outlet.
- Use a regulating uninterruptible power supply (UPS) to protect the device from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Always keep the rack's front door and all panels and components on the devices closed when not servicing to maintain proper cooling.

Installing the Appliance into a Rack

This section provides information on installing the StoneGate SG-1100 into a rack unit. There are a variety of rack units on the market, so the assembly procedure may differ slightly from what is instructed. Refer to the instructions that came with the rack unit you are using.

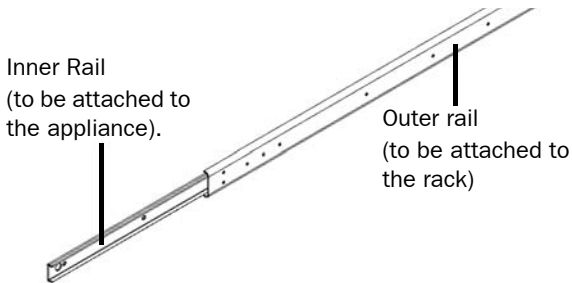
Installing the Appliance into a Telco Rack

If you are installing the appliance into a telco type rack, follow the general directions below. The only difference in the installation procedure will be the positioning of the rack brackets to the rack. Space them apart just enough to accommodate the width of the telco rack.

Identifying the Sections of the Rack Rails

You have received two rack rail assemblies with the appliance. Each of these assemblies consist of three sections: an inner fixed chassis rail that secures to the appliance and an outer fixed rack rail that secures directly to the rack itself. A sliding rail guide sandwiched between the two should remain attached to the fixed rack rail. (See [Illustration 3](#).) The inner and outer rails must be detached from each other to install.

Illustration 3 Identifying the Sections of the Rack Rails



▼ To detach the inner rails

1. Pull the inner rail out as far as possible. You should hear a "click" sound as a locking tab emerges from inside the rail assembly and locks the inner rail.
2. Depress the locking tab to pull the inner rail completely out.
3. Repeat for the other side's rack rail assembly.

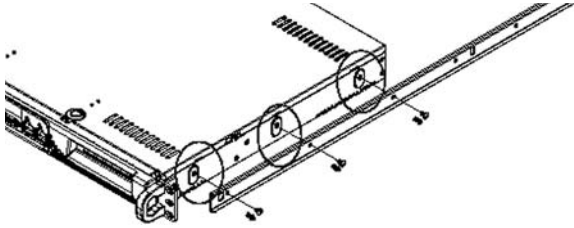
Locking Tabs: As you have seen, both chassis rails have a locking tab, which serves two functions.

- To lock the appliance into place when installed and pushed fully into the rack, which is its normal position.
- To lock the appliance in place when fully extended from the rack to prevent the appliance from coming completely out of the rack when you pull it out for servicing.

▼ To attach the inner rails to the appliance

1. Position the inner rail sections you just removed along the side of the appliance making sure the screw holes line up. Note that these two rails are left/right specific.

Illustration 4 Attaching the Inner Rail to the Chassis



2. Screw the rail securely to the side of the appliance with the supplied screws. Attach the rail brackets when installing into a telco rack.
3. Repeat the procedure for the other side of the appliance.

▼ To attach the outer rails to the rack

1. Determine where you want to place the appliance in the rack.
2. Position the fixed rack rail/sliding rail guide assemblies at the desired location in the rack, keeping the sliding rail guide facing the inside of the rack.
3. Screw the assembly securely to the rack using the brackets provided.
4. Attach the other assembly to the other side of the rack, making sure both are at the exact same height and with the rail guides facing inward.

You should now have rails attached to both the chassis and the rack unit. The next step is to install the appliance into the rack.

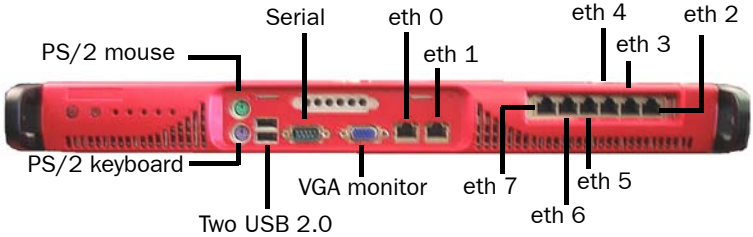
Note – Do not install the appliance upside down. The illustration on the next page displays the appliance in the correct position.

▼ To install the appliance into the rack

1. Line up the rear of the inner rails with the front of the outer rails.
2. Slide the inner rails into the outer rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). When the appliance has been pushed completely into the rack, you should hear the locking tabs "click".
3. Finish by inserting and tightening the thumbscrews that hold the front of the appliance to the rack.

Connecting the Cables

Illustration 5 Front Panel of SG-1100



▼ To connect the cables

1. Choose one of the following:
 - Connect a monitor to the VGA port and a keyboard to the PS/2 keyboard port.
 - Or connect a monitor to the VGA port and a keyboard to either of the two USB ports.
 - Or connect the supplied null-modem cable to the serial port and to another computer that you will use for a terminal connection.
2. Connect the power cable to the AC power connector on the back of the appliance.
3. Connect network cables to the ethernet ports (eth 0 - eth 7 in the illustration above). The number of ports you have may be different from the illustration depending on the appliance model, but the numbering follows the same scheme.
 - You are free to choose which ethernet ports you connect to which network. The ethernet ports are mapped to Interface IDs during the initial configuration.

Connecting the Appliance to the Power Supply

Plug the power cord into a grounded, high-quality power strip that offers protection from electrical noise and power surges. We highly recommend using an uninterruptible power supply (UPS) to ensure continuous operation and minimize the risk of damage to the appliance in case of sudden loss of power.

Initial Configuration

Your StoneGate appliance comes pre-loaded with StoneGate engine software. However, before a security policy can be loaded on the appliance, you must configure the engine software. To successfully complete the configuration:

- The Firewall element must be defined in the Management Center
- You must have created a one-time password for this engine. See the *StoneGate Installation Guide* for details.

Note – The appliance must contact the Management Server before it can be operational.

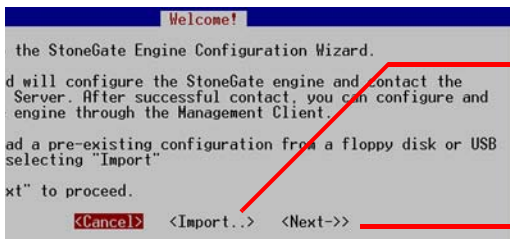
▼ To start the appliance

1. Make sure you have a physical connection to the appliance using a monitor and keyboard or a serial cable (see [Connecting the Cables](#), on page 14).
 - When using a serial line connection, use the terminal settings 9600bps, 8 databits, 1 stopbit, no parity.
2. Turn on the power using the power on/off button. The engine bootup process is shown in the console and, after some time, the engine configuration wizard starts.
 - You can return to the engine configuration wizard at any time using the `sg-reconfigure` command on the engine command line.

Configuring the Firewall

▼ To select the configuration method

Illustration 6 Welcome



To import a saved configuration, highlight **Import** using the arrow keys and press ENTER.

To skip the import, highlight **Next** and press ENTER.

▼ To set the keyboard layout

Illustration 7 Configure OS Settings

Highlight the entry field for **Keyboard Layout** using the arrow keys and press ENTER. The Select Keyboard Layout dialog opens.



Illustration 8 Select Keyboard Layout

Highlight the correct layout and press ENTER.

Tip: Type in the first letter to move forward more quickly.



Note – If the desired keyboard layout is not available, use the best-matching available layout, or select US_English.

▼ To set the engine's timezone

Illustration 9 Configure OS Settings

1. Highlight the entry field for **Local Timezone** using the arrow keys and press ENTER.
2. Select the correct Keyboard Layout in the dialog that opens.



Note – The timezone setting affects only the way the time is displayed on the engine command line. The actual operation always uses UTC time.

Note – The appliance’s clock is automatically synchronized with the Management Server clock.

▼ To set the rest of the OS settings

Illustration 10 Configure OS Settings

1. Type in the name of the firewall.
2. Type in the password for the user `root`. This is the only account for engine command line access.
3. Highlight **Enable SSH Daemon** and press the spacebar on your keyboard to select the option and allow remote access to engine command line using SSH.



4. Highlight **Next** and press `ENTER`. The Configure Network Interfaces window is displayed.

Configuring the Network Interfaces

The configuration utility can automatically detect which network cards are in use. You can also add interfaces manually, if necessary.

▼ To add the network interfaces

Illustration 11 Configure Network Interfaces



Highlight **Autodetect** and press `ENTER`.

Check that the automatically detected drivers are correct and that all interfaces have been detected. To add interfaces manually, click **Add** and select a device driver.

▼ To map the physical interfaces to interface IDs

Illustration 12 Assigning Network Interfaces

1. Type in the IDs to define how physical interfaces are mapped to the Interface IDs you defined in the Firewall element. Ethernet ports are detailed in [Illustration 5](#) in [Connecting the Cables](#), on page 14.

Id	Name	Driver	Link	Media	Mgmt
0	eth0	e1000	ok	<Auto/10/HD>	<Sniff>
1	eth1	e1000	down	<Auto>	<Sniff>
2	eth2	e1000	ok	<Auto/10/HD>	<Sniff>

2. Highlight and press ENTER to match the speed/duplex settings to those used in each network.

3. Highlight the **Mgmt** column and press the spacebar on your keyboard to select the correct interface for contact with the Management Server.

Note – The Management interface must be the same that you configured as the Primary Control Interface for the corresponding Firewall element in the Management Center.

Highlight **Next** and press ENTER to continue.

Contacting the Management Server

The Prepare for Management Contact window opens. If the initial configuration was imported, most of this information is filled in.

This task has two parts. First, you activate an initial configuration on the firewall.

- The initial configuration contains the information that the engine needs to connect to the Management Server for the first time.
- The initial configuration is replaced with a working configuration when you install a Firewall Policy from the Management Server on this engine using the Management Client.

▼ To activate the initial configuration

Illustration 13 Prepare for Management Contact - Upper part

1. Highlight **Switch Firewall Node to Initial Configuration** and press spacebar to activate.

```
Step 3 of 3: Prepare for management contact
Enter data for switching to the initial configuration at
the management server. Applicable fields marked with *

[*] Switch firewall node to initial configuration
[ ] Obtain node IP address from a DHCP server
[*] Enter node IP address manually
IP address:*          192.168.10.21
Netmask:*            255.255.255.0
Gateway to management:
[ ] Use VLAN, Identifier: _____
```

2. Fill in according to your environment. The information must match to what you defined for the Firewall element (Primary Control IP Address). If the engine and the Management Server are on the same network, you can leave the **Gateway to management** field empty.

The initial configuration contains a simple firewall policy that allows only administration-related connections and blocks everything else.

▼ To fill in the Management Server information

In the second part of the configuration, you define the information needed for establishing a trust relationship between the engine and the Management Server.

If you do not have a one-time password for this firewall, see the *Installation Guide* for instructions on how to save an initial configuration.

Illustration 14 Prepare for Management Contact - Lower Part

1. Highlight **Contact Management Server** and press spacebar to activate.

2. Fill in the Management Server IP address and the one-time password that was created for this engine when you saved the initial configuration.

```
[*] Contact management server
Management server
IP address:*          192.168.10.200
One-time password:*  kU4aL6SmsA
Key fingerprint:     8D:38:1D:B3:04:56:DC:9E:A0:B7:1

<<-Back> <Finish>
```

3. (Optional) Fill in the Key fingerprint (also shown when you saved the initial configuration). Filling it in increases the security of the communications.

4. Highlight **Finish** and press ENTER

Note – Once initial contact has been made, the engine receives a certificate from the Management Center for identification. If the certificate is deleted or expires, you must repeat the initial contact using a new one-time password.

The engine now tries to make initial Management Server contact.

- If you see a “connection refused” error message, ensure that the one-time password is correct and the Management Server IP address is reachable from the node. Save a new initial configuration if unsure about the password.
- If the engine is unable to contact the Management Server, make sure there are no networking problems, that all information defined in the Firewall element corresponds to what you entered in the Configuration wizard and, if NAT is in use, that you have configured contact addresses for NAT as explained in the *Installation Guide*.

After Successful Management Server Contact

After you see a notification that Management Server contact has succeeded, the firewall engine installation is complete and the firewall is ready to receive a policy. In a while, the firewall’s status changes in the Management Client from **Unknown** to **No Policy Installed**, and the connection state is **Connected** indicating that the Management Server can connect to the node.

The next step is creating a security policy and installing it on the engine. Please see the *Installation Guide* for basic instructions or the online help system of the Management Client for detailed instructions.



Caution – When using the command prompt, use the `reboot` command to reboot and `halt` command to shut down the node. Do not use the `init` command. You can also reboot the node using the Management Client.

Stonesoft Experience

Stonesoft Corporation (HEX: SFT1V) is an innovative provider of integrated network security and business continuity. Stonesoft is a global company focused on enterprise level customers requiring advanced network security and always-on business connectivity with low TCO, best price-to-performance ratio, and highest ROI.

StoneGate™ Security Platform unifies firewall, VPN and IPS, blending network security, end-to-end availability and award-winning load balancing into a unified and centrally managed system for distributed enterprises.

Founded in 1990, Stonesoft Corporation has corporate headquarters in Helsinki, Finland and Americas headquarters in Atlanta, Georgia.

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