

StoneGate™



StoneGate™
IPS-1030 IPS-1060

Appliance Installation Guide

STONESOFT

Secure Information Flow

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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 IPS-1030 and IPS-1060 appliances. See *Product Documentation* (page 4) for information on other available documentation.

The use of the appliance is subject to the acceptance of the End User License Agreement, which can be found at the Stonesoft website.

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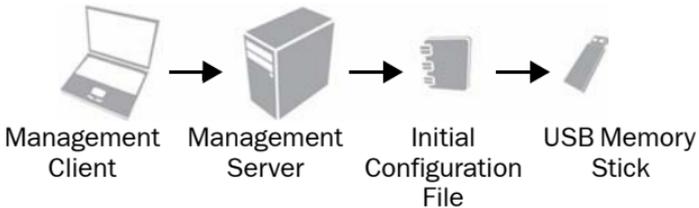
Caution – Never open the covers of the appliance! There are no user serviceable parts inside. Opening the covers may lead to serious injury and will void the warranty. Read the *Safety Precautions* (page 5) before you conduct any installation or maintenance operations on the appliance.

Installation Procedure

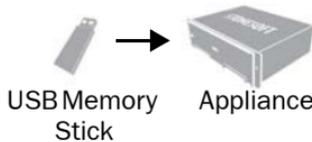
Note – You must have a working Management Center on a separate server to bring the appliance(s) operational. See the *StoneGate Management Center Installation Guide*.

▼ To install the appliance

1. Configure the IPS element in the Management Client, and save the initial configuration on a USB memory stick. See the *IPS Installation Guide*.



2. Install the appliance into a rack and connect the cables. See *Rack-Mounting* (page 9) and *Connecting the Cables* (page 13).
3. Insert the USB memory stick in a USB port on the appliance, and reboot the appliance to import the initial configuration. See *Initial Configuration* (page 15).



Product Documentation

Press **F1** 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 http://www.stonesoft.com/en/support/technical_support_and_documents/manuals/

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 should be followed whenever working with electronic equipment. However, please be advised that StoneGate Appliances are not end-user serviceable, and you should never open the appliance covers for any reason. Doing so 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 covers! There are no user serviceable parts inside. The covers must be in place to ensure proper cooling. Opening the covers will also void your warranty.

General Safety Precautions

Follow these rules to ensure general safety:

- Keep the area around the appliance clean and free of clutter.
- 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 interface 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 appliance cover is in place when the appliance is operating to ensure proper cooling. If this rule is not strictly followed, the warranty may become void.

Operating and Storage Temperatures

The allowed operating temperature of the appliance is 0...+40°C. The allowed storage temperature is -20...+70°C. Do not operate or store the appliance in temperatures outside these limits.

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.

For California:

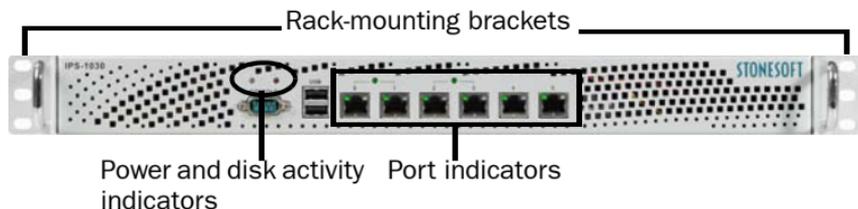
Perchlorate Material - special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate.

This notice is required by California Code of Regulations, Title 22, Division 4.5, Chapter 33: Best Management Practices for Perchlorate Materials. This product/part includes a battery that contains Perchlorate material.

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.

Front Panel



The connectors are explained in detail in *Connecting the Cables* (page 13). The front panel indicator lights are explained below.

Power and Disk Activity



Table 1 Power and Disk Activity Indicators

| Indicator | Status | Explanation |
|---------------|--------|---|
| Power | Blue | Indicates power is being supplied to the system's power supply unit. This LED is illuminated when the system is operating normally. |
| Disk Activity | Red | Indicates hard drive activity when flashing. |

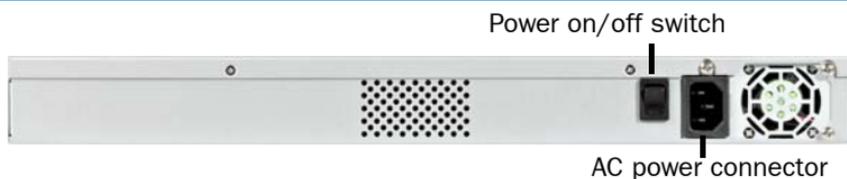
Motherboard Ports



Table 2 Port Indicators

| Indicator | Status | Explanation |
|-------------------------------------|--------|--------------------|
| Activity | Unlit | No link. |
| | Amber | Link ok. |
| Link | Unlit | Speed is 10 Mbps. |
| | Green | Speed is 100 Mbps. |
| | Orange | Speed is 1 Gbps. |
| LED above Bypass Port (0-1 and 2-3) | Yellow | Bypass mode. |

Back Panel



Rack-Mounting

This section provides information on installing the StoneGate appliance into a rack unit. You can install the appliance into a two-post or a four-post rack unit.



Caution – Read the *Safety Precautions* (page 5) before proceeding.

Preparing for Rack-Mounting

The appliance delivery includes four (4) screws for attaching the appliance into a rack unit.

Read the sections below before you begin the installation.

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, attach stabilizers to the rack.
- In multiple rack installations, couple the racks 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.

Appliance Precautions

- Determine the placement of each component in the rack before starting the installation.
- Install the heaviest 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 appliance 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 appliances closed when not servicing to maintain proper cooling.

Before Installing the Appliance Into a Rack

- Make sure that the rack is securely anchored onto an unmovable surface or structure before installing the appliance into the rack.
- Make sure that the system is adequately supported. Make sure that all the components are securely fastened to the appliance to prevent components falling off from the appliance.
- Be sure to install an AC power disconnect for the entire rack assembly. This power disconnect must be clearly marked.
- The rack assembly must be properly grounded to avoid electric shock.
- The rack assembly must provide sufficient airflow to the appliance for proper cooling.

Installing the Appliance Into a Rack

Note – Do not install the appliance upside down.

This section provides information on installing the appliance 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. If necessary, refer to the instructions that came with the rack unit you are using.

If you are installing the appliance into a Telco-type rack, follow the general directions below. The main difference in the installation procedure is whether you are installing the appliance into a four-post rack or a two-post rack. Proceed to one of the following:

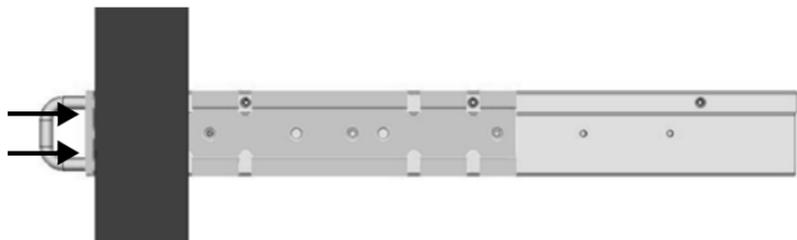
- *Installing the Appliance Into a Four-Post Telco Rack* (page 11)
- *Installing the Appliance Into a Two-Post Telco Rack* (page 12)

Installing the Appliance Into a Four-Post Telco Rack

If you are installing the appliance into a four-post Telco-type rack, the rack-mounting brackets on the appliance are in the right position for the installation. You only need to attach the rack-mounting brackets to the rack using the four (4) screws provided in the delivery package.

▼ To install the appliance into a four-post Telco rack

1. Attach a rack-mounting bracket to the rack with two screws through the holes in the front of the bracket: one screw through the top hole and another through the bottom hole in the bracket (see the front panel illustration for the location of the holes).



Caution – You must use two screws to attach each rack-mounting bracket to the rack. Using only a single screw for each bracket does not provide sufficient support and may cause damage to the appliance.

2. Repeat step 1 with the bracket on the other side of the appliance. Proceed to *Connecting the Cables* (page 13).

Installing the Appliance Into a Two-Post Telco Rack

If you are installing the appliance into a two-post Telco-type rack, you must move the rack-mounting brackets into the correct position on the side of the appliance before attaching the rack-mounting brackets to the rack.

▼ To install the appliance into a two-post Telco rack

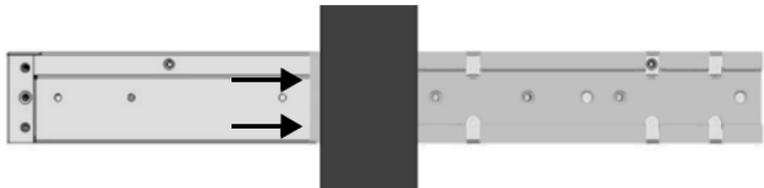
1. Remove the six (6) screws on the side of the appliance to detach the rack-mounting bracket from the appliance.
 - You can optionally also remove the lifting handle from the bracket by removing the screws that hold the handle to the bracket.



2. Move the rack-mounting bracket to the back of the appliance and re-attach the bracket with three of the screws. It is also recommended to re-attach the three remaining screws back to the front of the appliance.



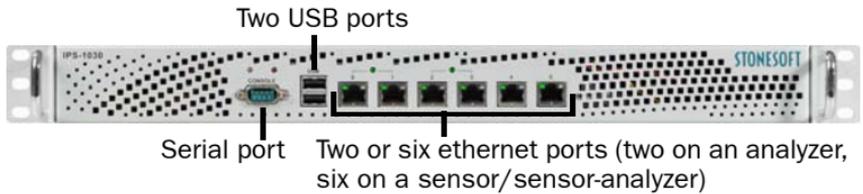
3. Repeat steps 1 and 2 with the bracket on the other side of the appliance.
4. Attach each bracket to the rack with two screws through the holes in the front of the bracket: one screw through the top hole and another through the bottom hole in the bracket (see the front panel illustration for the location of the holes).



Caution – You must use two screws to attach each rack-mounting bracket to the rack. Using only a single screw for each bracket does not provide sufficient support and may cause damage to the appliance.

Proceed to *Connecting the Cables* (page 13).

Connecting the Cables



Connecting the Network Cables

▼ To connect the network cables

- ➔ Connect network cables to the ethernet ports.
 - The ports are numbered 0-1 or 0-5 depending on the appliance model. The port numbers increase from left to right.
 - 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.
 - If you have an appliance with six ethernet ports, ports 0-1 and 2-3 are bypass pairs (fail-open ports) that are used as inline interfaces. For example, if traffic enters through interface 0, it exits through interface 1. Plug in the network cables accordingly.

Note – When the appliance is powered and you need to unplug it, always wait at least five (5) seconds before plugging in the appliance again. Otherwise, the appliance may not have time to clear properly and fails to start.

Cable Types

Always use standard cabling methods with inline IPS: use crossover cables to connect the appliance to hosts and straight cables to connect the appliance to switches/hubs. Make sure that the copper cables are correctly rated (CAT 5e or CAT 6 in gigabit networks). See the *IPS Reference Guide* for more information on cabling.

Speed/Duplex Settings

Network cards at both ends of each cable must have identical speed/duplex settings. This also applies to the automatic negotiation setting: if one end of the cable is set to autonegotiate, the other end must also be set to autonegotiate. Gigabit standards require interfaces to use autonegotiation—fixed settings are not allowed at gigabit speeds.

The speed/duplex settings of inline interfaces must be matched on both links within each inline interface pair (identical settings on all four interfaces) instead of just matching settings at both ends of each cable (two + two interfaces). If one of the links has a lower maximum speed than the other link, the higher-speed link must be set to use the lower speed.

Connecting the Appliance to the Power Supply

▼ To connect the appliance to the power supply

1. Connect the power cable to the AC power connector on the back of the appliance.
2. 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.

Note – Standby power is supplied to the system even when the appliance is turned off.

Initial Configuration

To start using the appliance, you must activate the network interfaces and establish a secure connection to the Management Server as outlined in the sections below.

To successfully complete this configuration, the following prerequisites must be met:

- The Sensor, Analyzer, or Sensor-Analyzer element must be defined in the Management Center.
- You must have the following engine-specific information from the Management Server: a one-time password or a saved initial configuration file on a USB stick.

See the *IPS Installation Guide* for details.

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

There are two ways to configure the engine software.

- You can configure the engine automatically with a USB stick. See *Configuring the Engine Automatically* below.
- If the automatic configuration is not possible or desired, you can configure the engine manually. See *Using the Engine Configuration Wizard* (page 16).



Caution – The speed/duplex settings of a pair of inline interfaces must match the speed/duplex settings of both links within each inline interface pair (identical settings on all four interfaces). If the settings are not identical, use the configuration wizard to set the correct speed/duplex settings for the inline interfaces.

Configuring the Engine Automatically

The automatic configuration requires that you have a suitable configuration saved on a USB memory stick. See the *IPS Installation Guide* or the *Online Help* of the Management Client for details.

▼ To configure the engine from a USB memory stick

1. Insert the USB stick in one of the USB ports on the appliance.
2. Turn on the appliance using the power on/off switch. The appliance automatically imports the configuration from the USB stick and then tries to make the initial contact to the Management Server.

- If the connection is successful, the appliance automatically reboots itself and the engine configuration is finished.

If you configure the engine with a USB stick, you must set a password for the `root` account in the Management Client to enable command line access to the engine. If you want to allow remote access to the engine using SSH, enable the SSH daemon for the engine in the Management Client. See the *Administrator's Guide* for more information.

Proceed to *After Successful Management Server Contact* (page 23).

If the Automatic Configuration Fails

- If the automatic configuration fails, you can check for the reason in the log (`sg_autoconfig.log`) written on the USB stick.
- If you see a “connection refused” error message, ensure that the Management Server IP address is reachable from the engine and check the IP addresses you have defined in the Management Client.
- If the configuration with the USB stick still does not succeed, remove the USB stick from the USB port, and follow the instructions for the manual configuration, see *Using the Engine Configuration Wizard* (page 16).

Using the Engine Configuration Wizard

You can use the engine configuration wizard with all Management Center and IPS engine versions. If you have saved the initial configuration on a USB stick, you can import it in the configuration wizard to reduce typing.

▼ To start the configuration wizard

1. Connect appliance to a computer using the serial cable supplied with the appliance.
2. On the computer, open a terminal with settings 9600bps, 8 databits, 1 stopbit, no parity.
3. Turn on the appliance using the power on/off switch. The engine bootup process is shown in the console and, after some time, the engine configuration wizard starts.

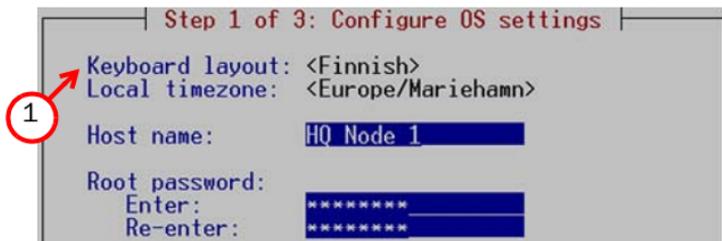
Note – You can (re)start the engine configuration wizard at any time using the `sg-reconfigure` command on the engine command line.

▼ To select the configuration method

1. Do one of the following:
 - To import a saved configuration, highlight **Import** using the arrow keys and press ENTER.
 - To skip the import, highlight **Next** and press ENTER.
2. If you selected the Import option, select the configuration file.

▼ To set the keyboard layout

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



2. Highlight the correct layout and press ENTER.

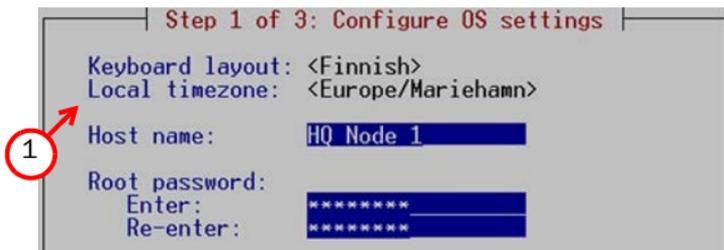
Tip: Type in the first letter to move forward more quickly in the list of keyboard layouts.



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

1. Highlight the entry field for **Local Timezone** using the arrow keys and press ENTER.



2. Select the correct timezone 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's clock.

▼ To set the rest of the OS settings

1. Type in the name of the engine.



2. Type in the password for the user `root`. This is the only account for engine command line access.

- (Optional) 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.

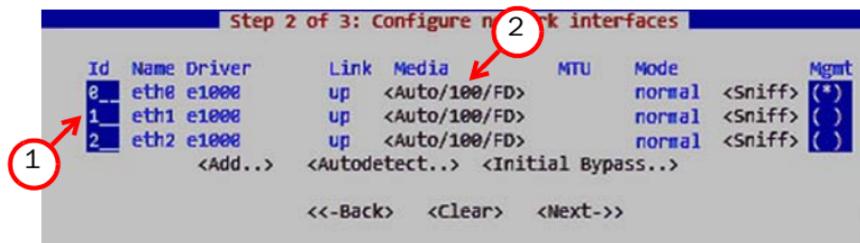
Note – It is not necessary to enable the SSH daemon now for ongoing management, as this option can also be set through the Management Client. We recommend that you enable the SSH access in the Management Client when needed and then disable the access again when you are done.

- Highlight **Next** and press Enter. The Configure Network Interfaces window is displayed.

Configuring the Network Interfaces

▼ To map the physical interfaces to Interface IDs

- Type in the Interface IDs to define how physical interfaces are mapped to the Interface IDs you defined in the engine element.



- Highlight the **Media** column and press ENTER to match the speed/duplex settings to those used in each network.
 - Make sure that the speed/duplex settings of network cards are identical at both ends of each cable. Also make sure that the speed/duplex settings of inline interfaces match the speed/duplex settings of both links within each inline interface pair.
- (Optional; only sensors and sensor-analyzers) You can set your sensor or sensor-analyzer temporarily to the initial bypass state that allows traffic to flow through one or more soft-bypass interface pairs. Highlight **Initial Bypass** and press ENTER to define the soft-

bypass interface pair(s). In the example below interface 1 is soft-bypassed with interface 2.

| Id | Name | Driver | Link | Pair Id |
|----|------|--------|------|---------|
| 1 | eth1 | e1000 | up | 2 |
| 2 | eth2 | e1000 | up | 1 |

<Cancel> <OK>

Note – Setting the appliance to the initial bypass state can be useful during IPS appliance deployment when bypass network interface pairs on the appliance are in the Normal mode. Initial bypass allows traffic to flow through the IPS appliance until the initial configuration is ready and an IPS policy is installed on the appliance. It is not necessary to set the initial bypass state when the bypass network interface pairs are in the Bypass mode.

4. 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 is configured as the Primary Control Interface for the corresponding engine element in the Management Center.

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

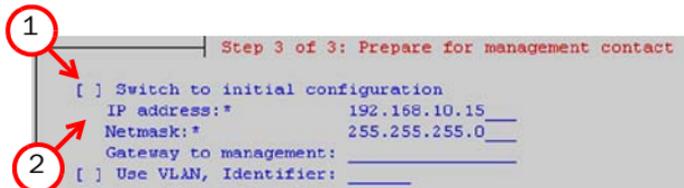
Contacting the Management Server

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

First, you activate an initial configuration on the engine. 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 an IPS Policy on this engine using the Management Client.

▼ To activate the Initial Configuration

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



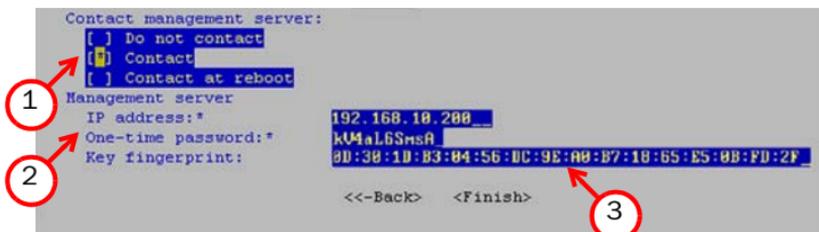
2. Fill in the IP Address, Netmask and Gateway to Management information according to your environment.
 - The information must match what you defined for the engine element (Primary Control IP Address). If the engine and the Management Server are on the same network, you can leave the **Gateway to Management**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

Note – The initial configuration does not contain any working IPS policy. You must install an IPS policy on the engine to make it operational.

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

▼ To fill in the Management Server information

1. Highlight **Contact** and press spacebar to select.



2. Fill in the Management Server IP address and the one-time password for this engine.
 - If you do not have a one-time password for this engine, see the *IPS Installation Guide* for instructions on how to save an initial configuration.
3. (Optional) Fill in the Key fingerprint (also shown when you saved the initial configuration). This increases the security of the communications.

In the third part of the configuration, you select whether you want this engine to work as a Sensor, an Analyzer, or a combined Sensor-Analyzer (depending on the appliance you have purchased). The selection you make must correspond to the element you created for this engine in the Management Client.

▼ To select the engine type

1. Select the type of engine using the arrow keys and the spacebar.



2. Highlight **Finish** and press ENTER.

The engine now tries to contact the Management Server.

- 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 and that the IP address defined in the IPS element on the Management Server is also correct.

Note – When initial contact succeeds, the engine receives a certificate from the Management Center for identification. The one-time password is not needed anymore and automatically expires.

After Successful Management Server Contact

After you see a notification that Management Server contact has succeeded or the appliance has rebooted itself after automatic configuration with a USB stick, the IPS engine installation is complete and the engine is ready to receive a policy. In a while, the engine element'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 installing a security policy on the engine to replace the initial configuration you just activated with the working configuration you defined for the corresponding element on the Management Server. See the *IPS Installation Guide* for basic instructions or the *Online Help* 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.

Maintenance Operations

Connecting to the Engine Command Line

You may need to connect to the engine command line, for example, to undo a software upgrade.

▼ To connect to the engine command line

1. Connect the serial cable supplied with the appliance to the serial port on the appliance and to a computer.
2. On the computer, open a terminal with settings 9600bps, 8 databits, 1 stopbit, no parity.

Reverting to Previously Installed Software Version

This procedure allows you to undo a software upgrade.

The appliance has two working partitions. One is designated as active and the other as inactive. The inactive partition is used for upgrades and the status is switched between the partitions when the upgrade is ready to be activated. If the appliance does not start up with the new version, it automatically switches to the previous configuration at the next reboot. You can also switch back to the previously installed software version manually as instructed here whenever necessary.

▼ To switch back to the previously active version

1. Connect to the engine command line as described above in *Connecting to the Engine Command Line* (page 24).
2. (Re)start the appliance:
 - If the appliance is powered on, press `Enter`, log in as the user `root` with the password you have set for the appliance, and issue the command `reboot`.
3. Wait until a boot menu or a list of the appliance partitions is shown. Proceed to Step 5 if the boot menu is shown.
4. (If a list of partitions is shown) The currently active partition is highlighted in the list of partitions. Select the inactive partition and press `Enter`. A list of available commands opens.
5. Select **Switch to Previously Installed Software Version** <name of partition> or **Boot SG IPS** <name of partition> and press `Enter`. The appliance switches partitions and boots up.

6. Refresh the policy on the engine to synchronize the policy and other configuration data between components.

Note – If the certificate for system communications on the previously used partition is not valid anymore, see the *Troubleshooting* section in the Management Client's *Online Help* for renewal instructions.

If you want to undo this operation, repeat the steps exactly as above.

Resetting the Appliance to Factory Settings

Note – Perform a factory reset only if you have a specific need to do so. Consult Stonesoft Support before performing this operation if you are unsure of whether this operation is necessary or not.

▼ To reset to factory settings

1. Connect to the engine command line as described in *Connecting to the Engine Command Line* (page 24).
2. (Re)start the appliance:
 - If the appliance is powered on, press `Enter`, log in as the user `root` with the password you have set for the appliance, and issue the command `reboot`.
3. Wait until a boot menu or a list of partitions is shown. Proceed to Step 5 if the boot menu is shown.
4. (If a list of partitions is shown) The currently active partition is highlighted. Press `Enter`. A list of available commands opens.
5. Select **System Restore Options** and press `Enter`.
6. Type `1` and press `Enter` to clear the settings. A confirmation prompt is shown.
7. Type `YES` and press `Enter` to perform the reset. If you decide to cancel the operation, type `NO` and press `Enter`.



Caution – Do not unplug the power from the appliance or interrupt the reset in any way. If the reset is interrupted, the appliance may become unusable until serviced.

To use the appliance after a factory reset, you must configure it as explained in *Initial Configuration* (page 15).

Disposal Instructions

 Dispose of the appliance separately from household waste at an appropriate waste disposal facility at the end of its useful service life.

StoneGate Appliance Installation Guide

This booklet covers the initial installation and configuration tasks specific to your StoneGate Appliance.

For information on how to prepare the Management Center for a new engine installation, see the other available documentation. See inside for further details.

All documentation and our technical knowledge base is available at: www.stonesoft.com/support.

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