Server

StreamHub Lite (AW-SH1)

StreamHub Standard (AW-SH2)

StreamHub Ultra (AW-SH3)

StreamHub Ultra (AW-SH4)

Manager (AW-MNG)

Configuration Guide

Document version: v 2.3

Software versions:
StreamHub from v4.0
Manager from v4.0
ISO installer from v4.0

HAIVISION

CONTENTS

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Scope of this document

This document covers the firmware installation and configuration required for HAIVISION servers (StreamHub or Manager).

StreamHub and Manager are explicitly mentioned only for specific actions.

Installing the Firmware

Preparing a bootable USB key

Once you downloaded the ISO file as indicated by the support team, you can create the bootable USB key that will be used for the installation.

1. Make sure that you have installed on a computer a utility software (such as Rufus) to create a bootable USB key (FAT32 format).
2. Insert the USB key (minimum capacity: 4Gb).
3. Open the utility software.
4. Choose the destination device.
5. Browse and select the provided ISO file.
6. Start flashing.

   The ISO file is copied on the USB key. You can now install the firmware.

During the bootable USB key creation, please make sure to select MBR partition mode. The use of UEFI mode is not supported.

Backup precautions

As this installation requires to use an ISO file, all current configuration and local files will be deleted.

Consequently, before installing the firmware, make sure that:

- You saved / exported the license settings.
- You exported the database (when upgrading Manager firmware).
- You exported the configuration (when upgrading StreamHub firmware).
- You saved the IP settings.

Additionally, you may save screenshots of various settings:

- In the case of a StreamHub installation, save screenshots of IP inputs, encoder profiles, FTP settings, physical outputs, streaming outputs ...
- In the case of a Manager installation, save screenshots of groups, receivers, booking settings, user accounts ...

Saving License details

Before installing a new firmware version, make sure you saved or exported the license settings applied.

Depending on the firmware version, you can visualize these settings either in the **admin** > **License** menu, or the **Settings** > **General** menu.

You can then save a screenshot that will remind you settings afterwards.

Exporting License Settings

From a StreamHub v3.x, you can export license settings from the Web User Interface of the server.

1. In the menu bar, click on **admin**.
2. Click on **License**.

Exporting the Database (when upgrading a Manager Firmware)

Prior migration, proceed to the database backup. You can export the Manager database as follows:

1. In the menu bar, click on **admin**.
2. Click on **Export database**.

   The Manager database is saved as an .awj file.

Exporting the Configuration (when upgrading a StreamHub Firmware)

- **Prior migration from a 3.x to a 4.x firmware version**, please contact the support team to obtain the procedure.

- **From 4.x firmware version**, proceed to the export of the StreamHub configuration as follows:
  1. In the menu bar, click on **Settings**.
  2. Click on **General**, Export Config.

     The StreamHub configuration is saved as a. json file.

Saving IP Settings

To save IP settings, you can either connect a VGA monitor and a USB keyboard to the Server, or connect a computer on the Ethernet port 2.

Accessing the Settings Menu by connecting a monitor and a keyboard

1. Plug a VGA display monitor to the server.
2. Plug a keyboard to an USB interface.
3. Power on the server.

   The server prompts you to log in to access the server's settings menu.
   Or you may have to press a key on the keyboard.

4. Login in to the server.

   Default password to access the server's settings menu:

Firmware Version	Prior v3.1	From v3.1	From 4.0
Login	user	config	config
Password	user	config	Password as defined during installation (*)

(*) **Note**: On a newly delivered unit, the password is defined by HAIVISION and provided in the plastic label available on the front panel of the server.

   The settings menu appears.

5. Use the numeric keypad to select **IP Settings** menu.
6. Select Interface 1.

   The **current IP Address** is displayed.

7. Take a picture of the screen indicating the network settings (local IP/ netmask / gateway).
8. Press R, then select **Interface 2**.
9. Take a picture of the screen indicating the network settings (local IP/ netmask / gateway).

Accessing the Settings Menu by connecting a computer

1. Plug a computer to the server on the Ethernet Port 2.
2. On your computer, go to the Ethernet Settings menu.
3. Enter the following static **IP Address**: 192.168.10.200
4. Open Putty or Tera Term on the computer or another ssh client application (MAC and Unix operating systems usually include an ssh terminal).

5. In the **Host** box, enter the static IP address of the server: 192.168.10.11
6. In the **Port** box, enter 5322.
7. For the connection type (or service), tick **ssh**.
8. Click the **Open** (or **OK**) button.
9. Login in to the server:

   Default password to access the server's settings menu:

Firmware Version	Prior v3.1	From v3.1	From 4.0
Login	user	config	config
Password	user	config	Password as defined during installation (*)

(*) **Note**: On a newly delivered unit, the password is defined by HAIVISION and provided in the plastic label available on the front panel of the server.

   The settings menu appears.

10. Use the numeric keypad to select **IP Settings** menu.
11. Select Interface 1.

    The **current IP Address** is displayed.

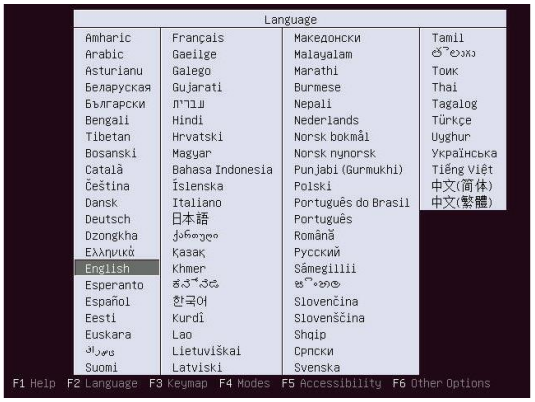
12. From the ssh interface, save a screenshot of the network settings (local IP/ netmask / gateway).
13. Press R, then select **Interface 2**.
14. The **current IP Address** is displayed.

Installing from the ISO

1. Insert the USB key.
2. Power the server on.
3. Press F11 to enter the BOOT menu.

4. Press Enter to start the procedure.

5. Select English as the installation language. And press enter.



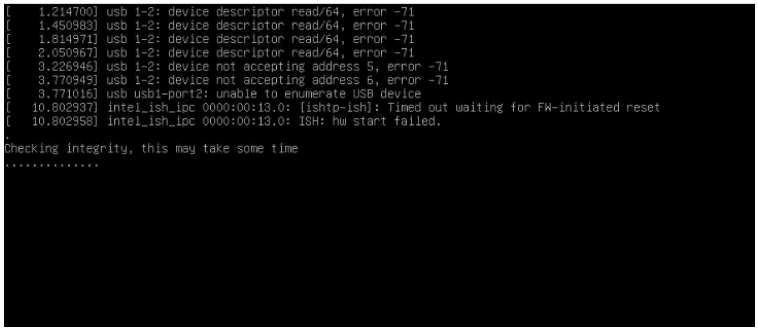
6. Select the type of server for which you're installing the firmware (StreamHub or Manager).

   And press ENTER.

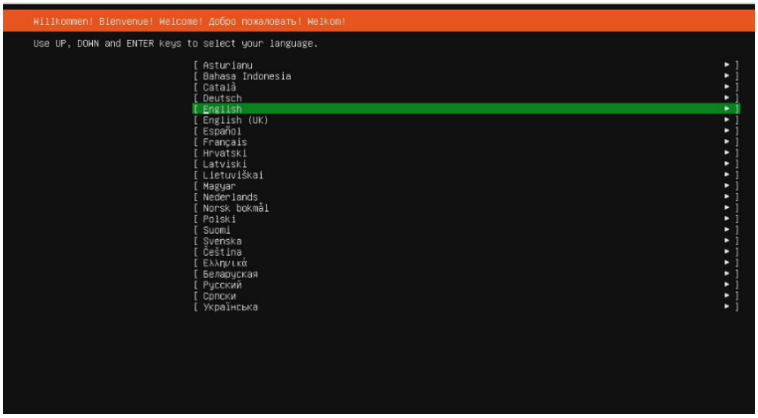
When setting a Manager redundancy, master and backup servers must be installed using the "**Manager Server Installation**" menu.

When installing the Arbiter service for Manager redundancy, select the “**Manager Redundancy Service Installation**” menu.

7. Wait until integrity is checked and initialization is over.

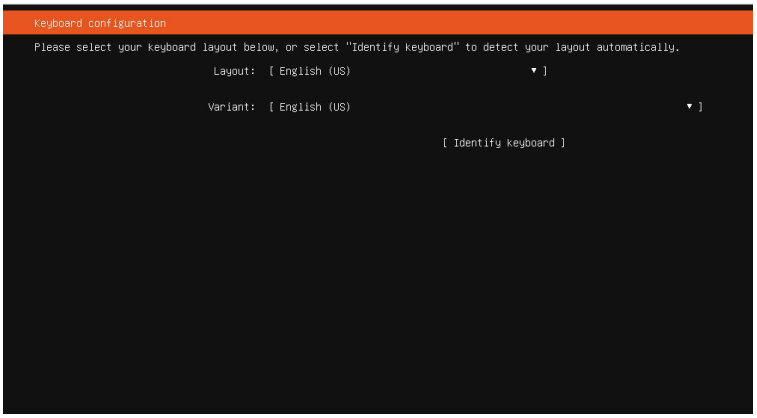


8. Select “English” as the operating language.

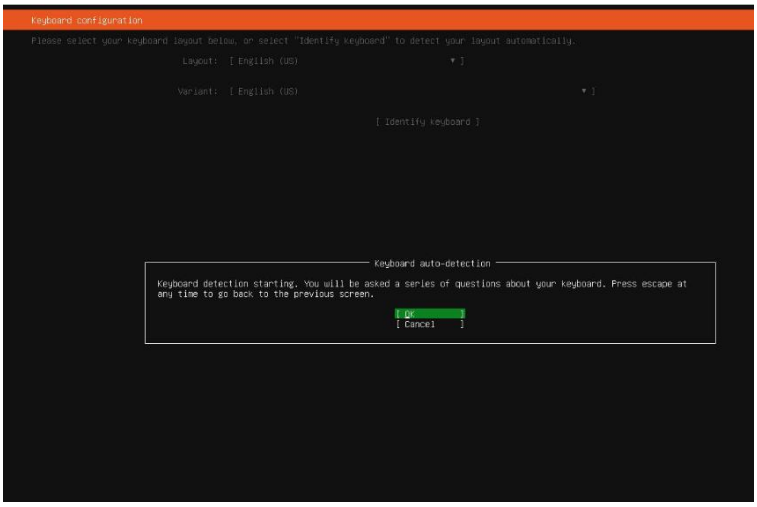


9. Use the arrow keys to select **Identify Keyboard**.

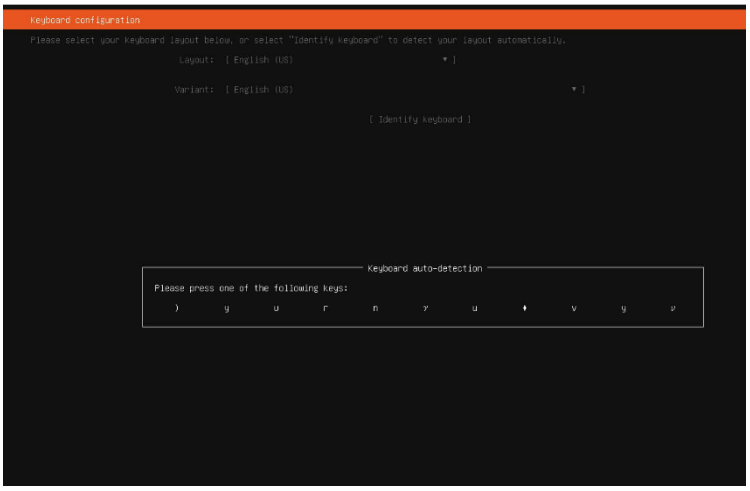
   And press ENTER.



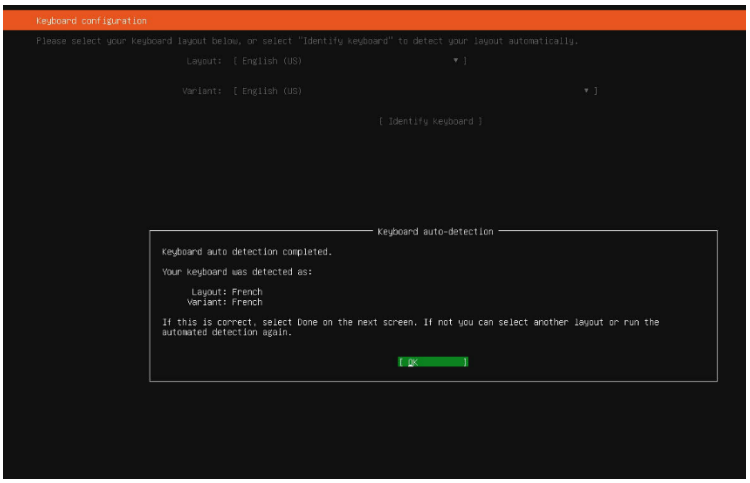
10. Select OK, and press ENTER to start keyboard identification.



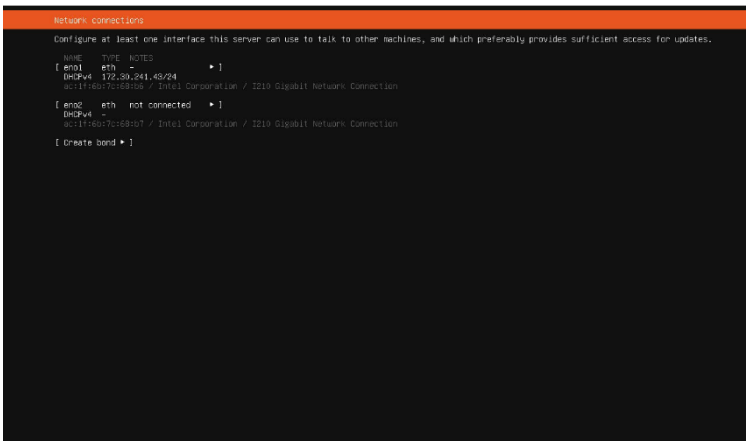
11. Press the keys as required.



12. Once the keyboard is properly detected, press ENTER to confirm.

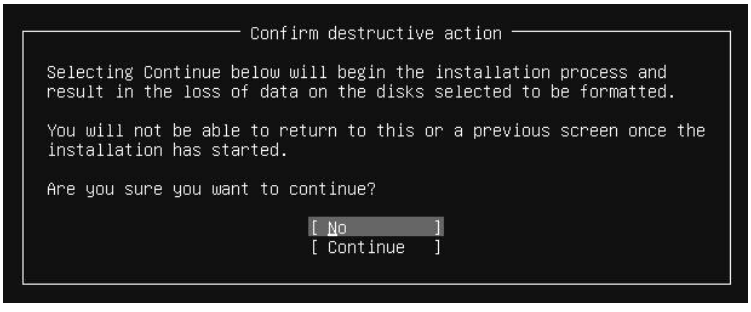


13. Press ENTER.

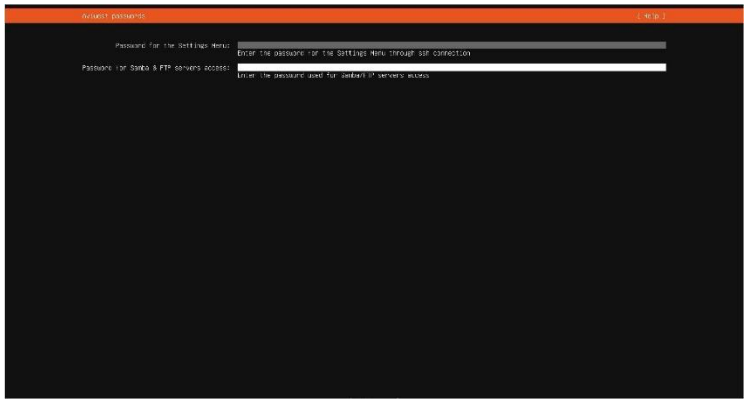


It is highly recommended to disconnect from public internet to ensure good operation.

14. Select **Continue** and press ENTER.

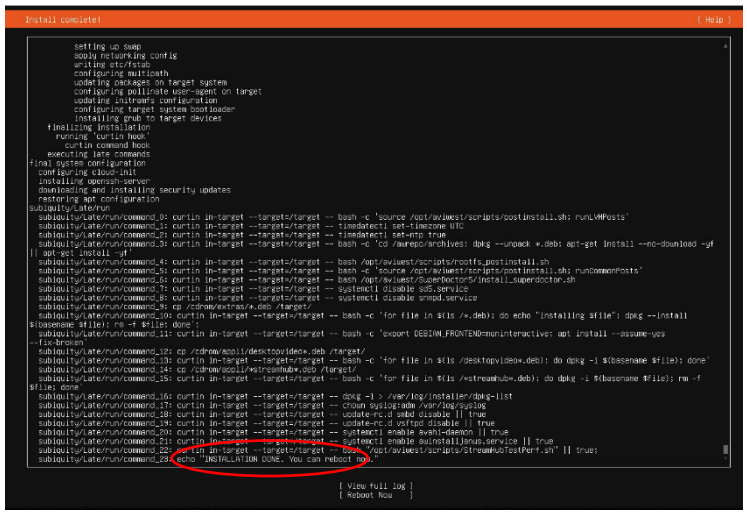


15. Define access passwords for the SSH settings menu and for FTP/Samba servers.
16. When new passwords are defined, keep them safely.

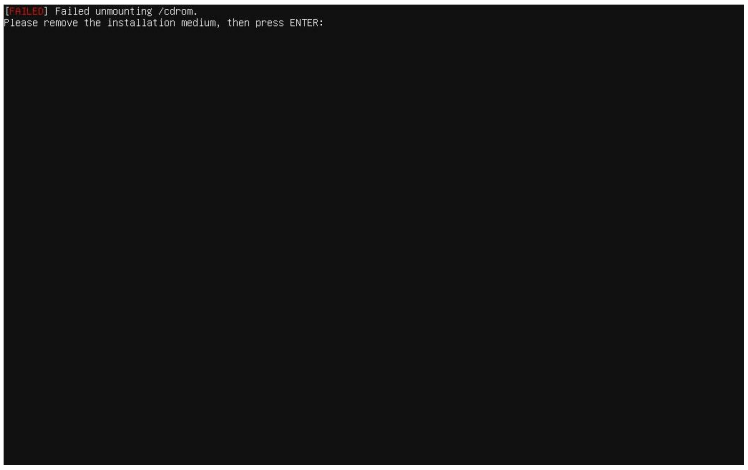


When losing the SSH settings password, you will need to contact HAIVISION support team, or to fully reinstall the application.

17. Wait until the message “**INSTALLATION DONE**” appears at the bottom of the screen.



18. Select **Reboot Now** and press ENTER.
19. Remove the installation key, then press ENTER.



20. Enter **“config”** as the login and your password as configured previously for the SSH Settings menu.
21. Configure IP Settings (as indicated in the chapter Configuring the Network Interfaces)

Importing Configuration (when installing a StreamHub Firmware)

When installing a new version of the StreamHub firmware, you can import back the configuration file that you exported and saved previously.

To import the StreamHub configuration, proceed as follows:

1. In the menu bar, click on **Settings**.
2. Click on General, Import Config.

Importing Database (when installing a Manager Firmware)

When installing a new version of the Manager firmware, you can import back the database that you saved previously.

1. From the Web interface, click on the **admin** menu.
2. Click on Import data.

Accessing the Settings Menu

You have two possibilities to access the Settings menu:

- Connecting a screen and a monitor to the server
- Using the SSH connection (provided that the service has been previously enabled in the Security Settings menu)

The table below indicates login and password to be entered in function of the server's version:

Firmware Version	Prior v3.1	From v3.1	From 4.0
Login	user	config	config
Password	user	config	Password as defined during installation (*)

(*) **Note:** On a newly delivered unit, the password is defined by HAIVISION and provided in the plastic label available on the front panel of the server.

Settings Menu using a monitor and a keyboard

1. Plug a VGA display monitor to the server.
2. Plug a keyboard to an USB interface.
3. Power on the server.
   The server prompts you to log in to access the server's settings menu. Or you may have to press a key on the keyboard.
4. Login in to the server.
   The settings menu appears.
5. Use the arrow keys to select **IP Settings** menu.

Settings Menu through ssh connection

Prior to this connection, make sure that the ssh service is enabled (please refer to Configuring Security Settings chapter).

To access the server's settings menu through ssh connection, you have two possibilities:

- Connecting the computer directly to the server using the Ethernet port 2. In this case, both the server and the computer have a static IP address.
- Connecting the computer and the server to the same LAN. In this case, the network interfaces of both the server and the computer are configured on DHCP (server's Ethernet 1 interface default configuration). You need to know the IP address of the server.

Connecting the Computer Directly to the Server (static IP Address)

1. Plug an Ethernet cable from one of the **Ethernet** interface of the server configured with a static IP address to a computer.
2. Set the computer IP address to the IP 192.168.10.200.
3. Open Putty or Tera Term on the computer or another ssh client application (MAC and Unix operating systems usually include an ssh terminal).
4. In the **Host** box, enter the static IP address of the server: 192.168.10.11
5. In the **Port** box, enter 5322.
6. For the connection type (or service), tick **ssh**.
7. Click the **Open** (or **OK**) button.
8. Login in to the server:

   The server's settings menu is displayed.

Connecting the computer and the server to the same LAN (DHCP)

1. Open Putty or Tera Term on the computer or another ssh client application (MAC and Unix operating systems usually include an ssh terminal).
2. In the **Host** box, type the server IP address.
3. In the **Port** box, enter 5322.
4. For the connection type (or service), tick **ssh**.
5. Click the **Open** (or **OK**) button.
6. Login in to the server:

   The server's settings menu appears.

Configuring the Network Interfaces

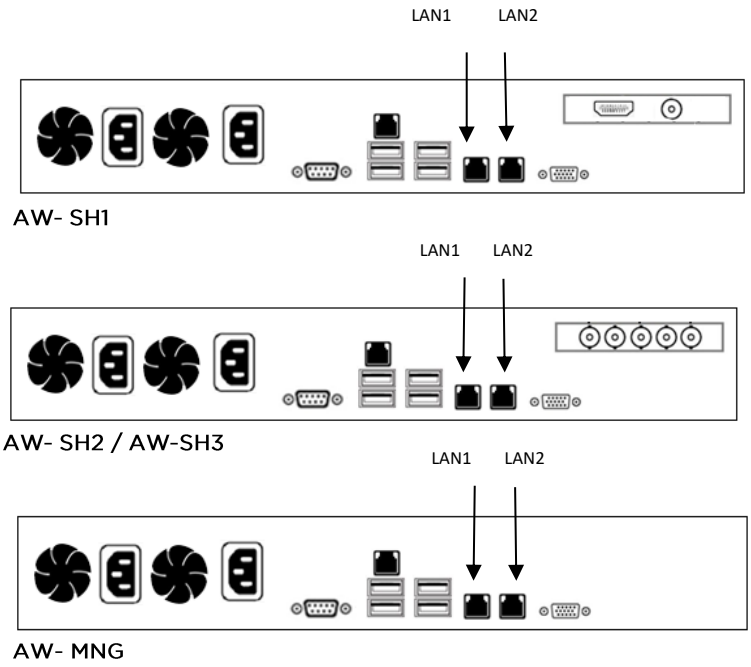
You have two possibilities to configure the server's network interfaces:

- using the default configuration
- configuring each Ethernet interface from the server's settings menu

Using the Default Configuration

The default configuration for the Ethernet interfaces of the server is:

- Interface 1 (LAN1): DHCP
- You can connect the Ethernet interface 1 of the server directly to a 1Gb router with a DHCP Server using an Ethernet cable (RJ45)
- Interface 2 (LAN 2): static
- Its default IP address is *192.168.10.11*



Once the server has an IP address, you can connect it to a router or firewall and configure the network settings, see StreamHub Network Settings, or Manager Network Settings.

Configuring an Ethernet Interface

From the server's settings menu, you can configure the IP settings of the Ethernet interfaces.

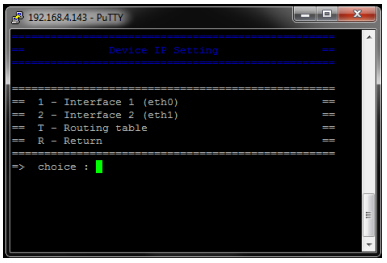
Important note:

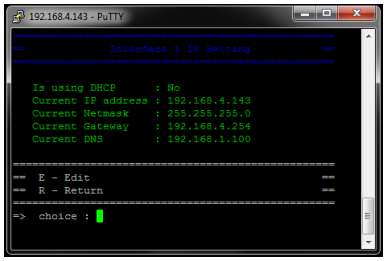
Make sure not to modify the configuration of the Ethernet interface used for the ssh connection.

1. Plug an Ethernet cable in the Ethernet interface 1 or 2 of the server, according to your needs, and connect it to a router.
2. Access the server's settings menu (see Accessing Settings Menu).
3. Press the number corresponding to **IP Settings** menu.
4. Press the key corresponding to the Ethernet interface that you want to configure.

   The command prompt shows the current configuration of the selected Ethernet interface.
5. Press **E** to edit the IP configuration of the selected Ethernet interface.

   A message prompts you if you want to use DHCP.





6. Select the configuration mode according to your needs:

- If you want to use a DHCP server for setting the IP address, press **Y** and **Enter**.
  Go to step 9.
- If you want to configure a static IP address, press **N** and **Enter**. You can then perform the following steps (⑤ to ⑩).

7. Type the local IP address and press **Enter**.
8. Type the netmask and press **Enter**.
9. Type the **gateway**.
   If a gateway is already configured on one of the Ethernet interfaces of the server, it is mentioned.
   If you don't need to use a gateway, skip this step.
10. Type the **DNS**.
    The default DNS is *8.8.8.8*.
11. Press **Enter** on your keyboard.

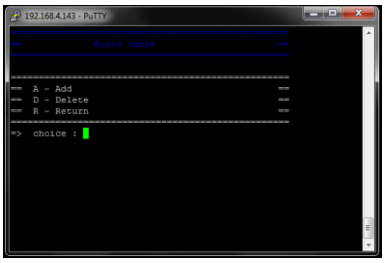
    A message prompts you to confirm your changes.
12. Press **Y** to confirm or **N** to cancel and press **Enter** on your keyboard.
13. Restart the server services (see Restarting the Server Services).

    Once the server has an IP address, you can connect it to a router or firewall and configure the network settings, see StreamHub Network Settings, or Manager Network Settings.

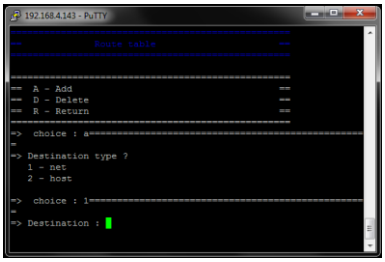
Configuring IP Routes

According to your network architecture; you may need to configure IP routes on the server.

1. Press the number corresponding to **IP Settings** menu.
2. Press **T** on your keyboard to access the **Route table** page.
3. Press **A** on your keyboard to add a new route.
4. According to the type of destination for which you want to add a route:



- Press **1** on your keyboard to configure a network route (**net**).
- Press **2** on your keyboard to configure a host route (**host**).

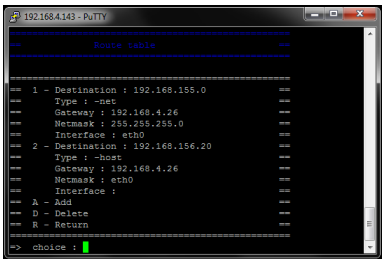


5. Type the destination IP address.
6. If the destination is a network, type the **netmask**.
7. Type the **gateway** (that must be on the same LAN as the server).
8. Press **1** or **2** on your keyboard to select the Ethernet interface for which you want to set this route.

Deleting IP Routes

1. Press the number corresponding to **IP Settings** menu.
2. Press **T** on your keyboard to access the **Route table** page.
3. Press **D** on your keyboard to delete a route.
4. Press on your keyboard the digit corresponding to the route to delete.

   A message prompts you to confirm.
5. Press **Y** to confirm or **N** to cancel and press **Enter**.



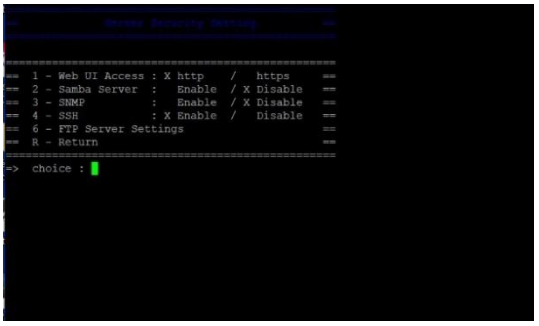
Configuring Security Settings

Accessing the Security Settings menu allows you to enable or disable the server's services.
It is recommended to disable all services that are not used.

1. Access the server's settings menu. (see Accessing Settings Menu).

2. Press the number corresponding to **Security Settings** menu.

3. Select the menu for the settings that you want to configure.



Configuring System Settings

If system settings (i.e. local time, network time or default keyboard) configured on your server do not match your needs, you can change them from the server's settings menu.

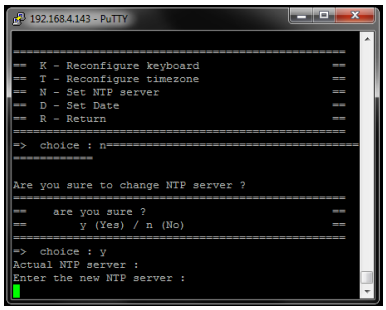
Setting an NTP Server

To set an NTP server:

1. Access the server's settings menu. (see Accessing the Settings Menu).
2. Press the number corresponding to System Settings menu.

3. Press **N** on your keyboard to set an NTP server.

   A message prompts you to confirm.



4. Press **Y** to confirm or **N** to cancel.

   If an NTP server is already configured, it is displayed.

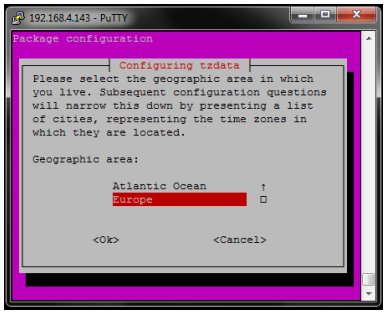
5. Type the new NTP server address (e.g. ntp.ubuntu.com) or let it blank to erase the NTP server currently set.
6. Press **Enter** on your keyboard.

Setting the Time zone

To change the time zone configured on your server:

1. Access the server's settings menu (see Accessing Settings Menu).
2. Press the number corresponding to **System Settings** menu.
3. Press **T** on your keyboard to reconfigure the time zone.

   A message prompts you to confirm.



4. Press **Y** to confirm, and press the **Enter** key.

   The current time zone is highlighted in red.

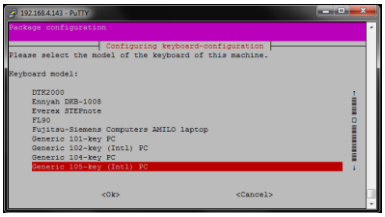
5. Press the up or down arrows on your keyboard to select a geographic area from the list.
6. Press the right arrow and then the **Enter** key on your keyboard to confirm **<Ok>** or to cancel **<cancel>** the selection.
7. Repeat steps 5 and 6 mentioned above on the following page to select the city or region.

Reconfiguring the Keyboard

If you want to connect a keyboard directly on the server in order to access the server's settings menu without using a computer, you may need to change the default keyboard settings.

1. Access the server's settings menu (see Accessing Settings Menu).
2. Press the number corresponding to **System Settings** menu.
3. Press **K** on your keyboard to select a keyboard type from the list.

A message prompts you to confirm.



4. Press **Y** to confirm or **N** to cancel.

   The keyboard currently configured on the server is highlighted in red.

5. Press the up or down arrows on your keyboard to select a keyboard from the list.
6. Press the right arrow and then the **Enter** key on your keyboard to confirm **<Ok>** or to cancel **<cancel>** the selection.
7. Repeat steps 5 and 6 mentioned above on the following 3 pages to select the country, the keyboard layout, and the use of the "AltGr" key.

   The keyboard is reconfigured.

Maintaining the Server Application

Restarting the Server Services

You may have to restart the server services for maintenance purposes.

Important note: This operation leads to disconnecting all the online field units from the server and stopping actions in progress on the field units and on the server (Live or Forward).

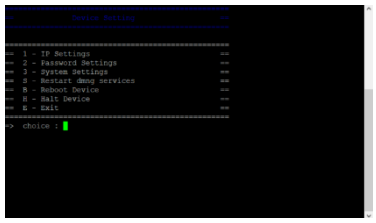
To restart the server services from the server's settings menu:

1. Access the server's settings menu (see Accessing Settings Menu).
2. Press **S** on your keyboard to restart the server services.
3. Press **Y** to confirm or **N** to cancel.
4. Press the **Enter** key on your keyboard.
   The Services stop and then restart.

Rebooting the Server

It is possible to reboot the server using the following steps:

1. Access the server's settings menu (see Accessing Settings Menu).
2. Press **B** on your keyboard to reboot the server.
3. Press **Y** to confirm or **N** to cancel.
4. Press the **Enter** key on your keyboard.
   The server reboots and the ssh connection is closed.



Monitoring the System Health

You can have access to a SNMP monitoring system to get information and health indicators.

Use the 8444 port to access the Web User Interface of this monitoring system.

Please refer to the Super Doctor 5 online user guide available on Supermicro website for more details concerning SuperDoctor functionnalities

Note: This function is available only on HAIVISION servers and needs to be activated before use.

Please contact HAIVISION's technical support team to obtain the configuration procedure as well as login and password.

StreamHub Network Port Requirements

To operate, the server uses specific UDP and TCP ports.

You need to add rules on your router or firewall to enable inbound and outbound rules on specific ports.

In the tables below, ports that must be accessible from the public internet are marked in green.

The other port ranges are generally used for communication on your LAN network.

HAIVISION recommends closing access to these ports from the outside.

Mandatory IP ports to open

Protocol	Destination Port	Traffic direction	Use
UDP	7900* - 79xx**	Inbound/Outbound	Connection of HAIVISION devices to the server's IP inputs. *This default setting can be changed in the **Base Port** field from the **Settings/Network** menu. **Here, you must open a port range starting from the base port (as defined above) and equal to the number of IP inputs (as defined by the license) + 1. For instance, if the server has 16 IP inputs, you must open the port range 7900 to 7916.

Protocol	Destination Port	Traffic direction	Use
TCP	7900*	Inbound/Outbound	Connection between the StreamHub and the Manager and connection initialization from other StreamHub servers (using SST IP outputs). *This default setting can be changed in the **Base Port** field from the **Settings/Network** menu.

Optional IP ports to open

Protocol	Destination Port	Traffic direction	Use
UDP	5000 – 5160*	Inbound	Video Return for MoJoPro. *This default setting can be changed in the **Settings/Network/Advanced** menu.
	5353	Inbound/Outbound	NDI Discovery protocol
	6960 – 69xx*	Inbound	NDI input streams. * Here, you must open a port range equal to the number of NDI inputs streams (as defined by the license).
	7690 – 79xx*	Outbound	NDI output streams. * Here, you must open a port range equal to the number of NDI outputs stream (as defined by the license).
	19302	Outbound	STUN server used for Live Guest
	20000 – 20100*	Inbound/Outbound	Live Guest video and audio streams. *This default setting can be changed in the **Settings/Network/Advanced** menu.
	20400* - 204xx**	Inbound/Outbound	SIP Intercom with MoJoPro (for StreamHub V3.5 and next versions). * This default setting can be changed in the **UDP Port Range** field in the **Settings/Intercom** menu. **Here, you must open a port range equal to twice the number of IP inputs (as defined by the license) + 1. For instance, if the server has 16 IP inputs, you must open the port range 20400 to 20432.

Protocol	Destination Port	Traffic direction	Use
TCP	20	Inbound	Access to the FTP server running on Streamhub, port used for FTP server command.
	21	Inbound	Access to the FTP server running on StreamHub, port used for FTP server data. FTP server used in active mode. (Metadata story centric workflow)

	21	Outbound	Default port for access to external FTP servers from the StreamHub. Used for FTP server data.
	53	Inbound/Outbound	DNS resolution
	80	Inbound/Outbound	Internet access for Databridge (when access to public internet is needed)
	443	Outbound	Connectivity to HAIVISION HUB. Get public IP address of the server
	443	Inbound	Access to the HTTPS web user interface.
	1935	Inbound/Outbound	RTMP inputs and outputs.
	5322	Inbound	SSH connection for secured remote access to the server (access to the system settings menu or access for HAIVISION support).
	5959 - 5960	Inbound/Outbound	NDI Discovery Protocols
	6960 – 69xx*	Inbound	NDI input streams. * Here, you must open a port range equal to the number of NDI inputs streams (as defined by the license).
	7901* - 79xx**	Inbound/Outbound	SIP Intercom for MoJoPro. * This default setting can be changed in the **Base Port** field from the **Settings/Network** menu. **Here, you must open a port range starting from the Base Port (as defined above) +1, and equal to the number of IP inputs (as defined by the license). For instance, if the server has 16 IP inputs and your Base Port is 7900, you must open the port range 7901 to 7916.
	7690 – 79xx*	Outbound	NDI output streams. * Here, you must open a port range equal to the number of NDI outputs stream (as defined by the license).
	8444	Inbound/Outbound	SNMP Web User Interface through HTTPS.

	8884*	Inbound	For field unit remote control from the Web UI through HTTPS. * This default setting can be changed in the SST **Tunnel Port** field in the **Settings/Network** menu.
	8885*	Inbound	For field unit remote control from the Web UI through HTTP. * This default setting can be changed in the SST **Tunnel Port** field in the **Settings/Network** menu.
	8888	Inbound	Access to the HTTP web user interface
	8891*	Inbound/Outbound	RTSP support *This default setting can be changed in the **Settings/Network/Advanced** menu.
	8893	Inbound/Outbound	RESTful API
	12000-12009	Inbound/Outbound	Access to the FTP server running on StreamHub, with FTP mode in passive mode

When using RTSP inputs, RTMP inputs/outputs, SST outputs, TS over IP inputs/outputs, or SRT inputs/outputs, some additional ports may need to be open. These ports will depend on the respective IP profiles configuration defined through the StreamHub.

Firewall consideration for LiveGuest operations

When using a StreamHub to receive LiveGuest connections, some considerations should be taken with the NAT (Network Address Translator) used between your StreamHub and the public internet. This is done to ensure connectivity from any guest using the LiveGuest solution.

Your NAT should be configured as a **Full Cone NAT** or **Address Restricted Cone NAT**, to allow proper connectivity from any remote guest.

Port Restricted Cone NAT and **Symmetric Cone NAT** may prevent proper connectivity of remote guests, depending on the Guest own network and NAT configuration.

More details on the NAT types may be found in the publicly available RFC 3489.

For more details concerning LiveGuest usage and configuration, please refer to the StreamHub User Guide.

Manager Network Port Requirements

To operate, the server uses specific UDP and TCP ports.

You need to add rules on your router or firewall to enable inbound and outbound rules on specific ports.

In the tables below, ports that must be accessible from the public internet are marked in green.

The other port ranges are generally used for communication on your LAN network.

HAIVISION recommends closing access to these ports from the outside.

Mandatory IP ports to open

Protocol	Destination Port	Traffic direction	Use
UDP	9000* - 9xxx**	Inbound/ Outbound	Connection of HAIVISION devices to the server's inputs. * This default setting can be changed in the **Base Port** field from the **Settings/Network** menu. **Here, you must open a port range starting from the base port (as defined above) and equal to the number of allowed devices (as defined by the license) + 1. For instance, if the server's license allows the connection of 50 devices, you must open the UDP ports range 9000 to 9050.

Protocol	Destination Port	Traffic direction	Use
TCP	7900	Outbound	Connection between the StreamHub and the Manager. This default setting can be changed in the **Manager port** as configured from the Streamhub **Settings/Network** menu).

Optional IP ports to open

Protocol	Destination Port	Traffic direction	Use
UDP	20001-20400*	Inbound/ Outbound	SIP Intercom with Manager. Here, you must open a port range at least equal to twice the number of maximum simultaneous SIP Intercom connections.

Protocol	Destination Port	Traffic direction	Use
TCP	20	Inbound	Access to the FTP server running on Manager, port used for FTP server command (Metadata story centric workflow).
	21	Inbound	Access to the FTP server running on Manager, port used for FTP server data. FTP server used in active mode. (Metadata story centric workflow)
	443	Outbound	Get the public IP address of the server
	443	Inbound	Access to the HTTPS web user interface
	5322	Inbound	SSH connection for secured remote access to the server (access to the system settings menu or access for HAIVISION support)
	8444	Inbound/ Outbound	SNMP Web User Interface through HTTPS.
	8886	Inbound/ Outbound	SIP Server (Intercom)
	8889	Inbound/ Outbound	RESTful API
	8890	Inbound	Access to the HTTP web user interface
	8894	Inbound	SIP server HTTPS web user interface (Intercom)
	8895	Inbound/ Outbound	Field Units remote control from the Web UI
	12000-12009	Outbound	Access to the FTP server running on Manager, with FTP mode in passive mode

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