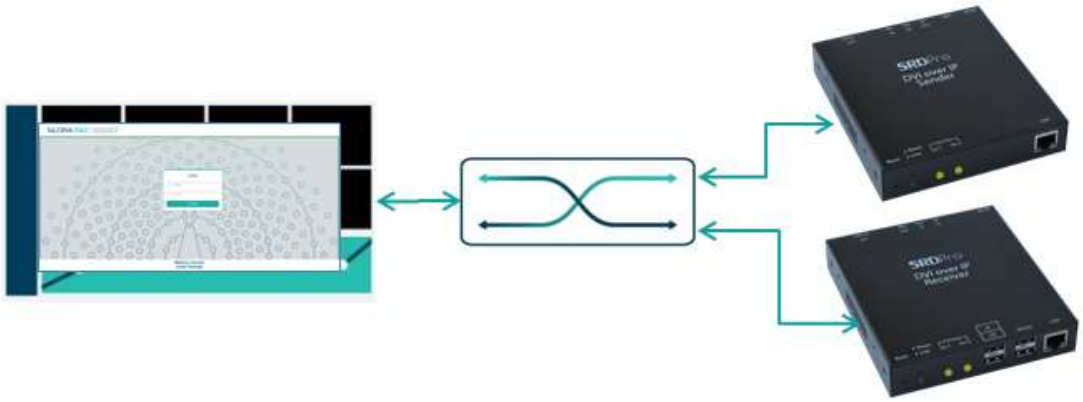
SILORA R&D
multimedia distribution & switching solutions

# SRD-IP 2K

## Advanced AV/KVM Matrix Over IP Secured System

## Administrator and User Guide



All rights reserved. Neither this documentation nor any part of it may be reproduced, stored in a retrieval system, translated into another language, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Silora R&D (A.C.S.) Ltd.

While every precaution has been taken in the preparation of this document, Silora R&D assumes no responsibility for errors or omissions; neither is any liability assumed for damages resulting from the use of the information contained herein. The information contained in this document is subject to change without notice. Silora R&D reserves the rights to make any such changes without obligation to notify any person of such revision or changes. Silora R&D makes no commitment to keep the information contained herein up to date.

Address: Kibbutz Kfar Masaryk, M.P. Ashrat, 2520800, Israel

Tel: +972-4-9954903

Fax: +972-4-9550115

Email: info@silrd.com

Website: www.silrd.com

© Copyright 2016 Silora R&D (A.C.S.) Ltd.

## Document Version Control

| Version | Date | Changes | Author |
|---|---|---|---|
| 0.1 | November 2016 | Initial version | Anne Lustig-Picus |
| 3 | 5 December 2016 | Add Yossi & Aml remarks | |
| 4 | 8 December 2016 | Add Yossi & Evgeny remarks | |

# Contents

Chapter 1. SRD-IP 2K Overview ..... 2
Key Features ..... 2
Kit Contents ..... 3
Traffic Modes ..... 3
Resolution and Audio ..... 4
FAQ ..... 4
Chapter 2. Switch Configuration ..... 6
Two Ethernet Switches ..... 6
Multiple Chain Switches ..... 7
Private WAN ..... 8
Chapter 3. Get Acquainted ..... 9
Logging In/Out ..... 9
Viewing All Units ..... 10
Software Version ..... 10
Automatic View Updates ..... 10
Total Units ..... 11
Scanning for Units ..... 11
Viewing Unit Details ..... 11
Changing the Routing ..... 12
Routing Rules ..... 12
Display Colors ..... 12
Chapter 4. System-Wide Configuration ..... 14
Monitor Refresh Rate ..... 14
General Parameters ..... 14
Network Parameters ..... 15
Upload Firmware ..... 15
MNGU Upgrade ..... 15
API Info ..... 15
Manage DB ..... 15
Log Management ..... 15
Port Limitation ..... 15
USB Status Display ..... 16
Delete/Reboot/Shutdown ..... 16
Hot Key Switches ..... 16

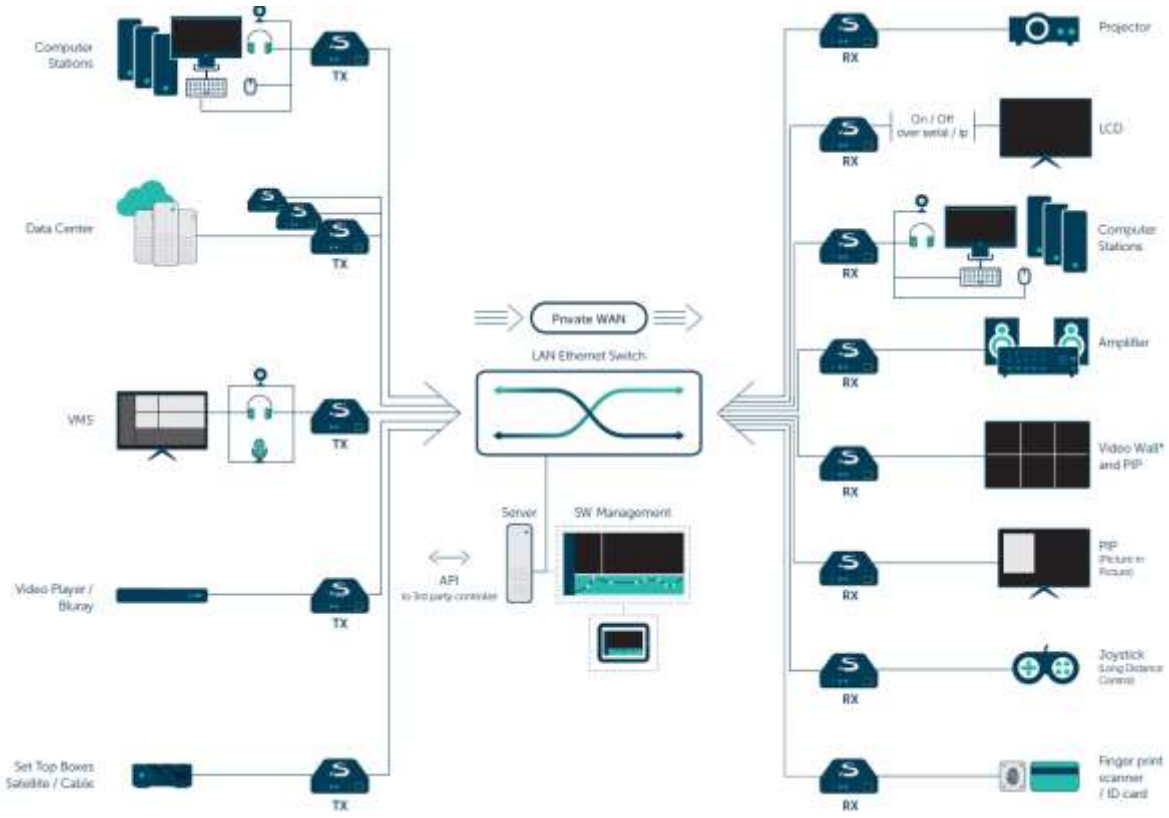
Select Sender from a List....16
Display Sender....16
Display Sender Name....17
Chapter 5. Unit Configuration....18
Connecting the Cables....18
Sender Unit Ports....18
Receiver Unit Ports....19
Configuring a Unit....20
Status Updates....20
Stopping/Starting/Deleting Units....21
Configuring Initial Settings....21
Finding a Specific Unit Port....21
Applying Multiple Settings....22
Copying Settings....22
Viewing Unit-specific Data Fields....23
Configuring Advanced Options....23
Changing USB per Unit....25
Defining Unit Groups....26
Creating a Group....27
Assigning Units to Groups....27
Assigning Users to Groups....27
Adding and Removing Permissions for Sender Groups....27
Editing Group Attributes....28
Deleting a Group....28
Chapter 6. User Configuration....29
Managing Users....29
Viewing Users....29
Adding a User....29
Editing User Attributes....30
Deleting a User....30
Defining Presets for Users....30
Creating a Preset....30
Editing a Preset....30
Deleting a Preset....31
Viewing/Activating Preset Information....31
Chapter 7. Network Monitor....32

Chapter 8. API Interface ..... 33
Chapter 9. Maintenance ..... 34
Delete/Reboot/Shut Down ..... 34
Upgrading Unit Firmware ..... 34
Updating MNGU Software ..... 35
Managing Log Files ..... 35
Backing Up and Restoring Data ..... 35
Index ..... 36

# Chapter 1. SRD-IP 2K Overview

Congratulations on your purchase of Silora R&D's SRD-IP Advanced AV/KVM Matrix Over IP Secured System. SRD-IP 2K is an advanced central provisioning and management interface, allowing you to securely monitor and control all end sender and receiver units in real time. The system enables management of varied media such as audio, video, and USB, setting it up in a multicast/unicast matrix over IP.

This guide is intended for system IT management, including system administrators, integrators, and other authorized users.




## Key Features

- Latency less than 1.5 frames
- Bandwidth: At least one 1G standard off-the-shelf Ethernet switch. Video stream bandwidth up to 200 Mbps/channel
- Video resolution up to 1920 x 1200 pixels (2K)
- Two channel audio stereo
- Keyboard and mouse (KM) control

- IP to RS-232
- Hot key switching to  switch to another sender

# Kit Contents

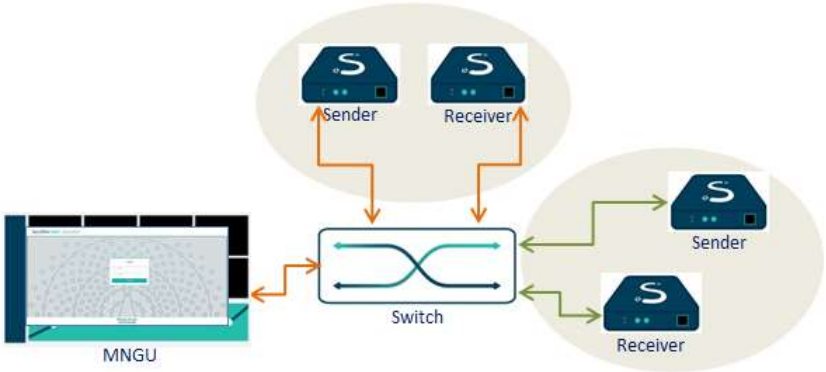
Silora R&D's SRD-IP 2K includes

- Sender and receiver units
- Web-based server management system application (MNGU)
- API for the enhanced version (for the customer-supplied GUI), described in a separate document

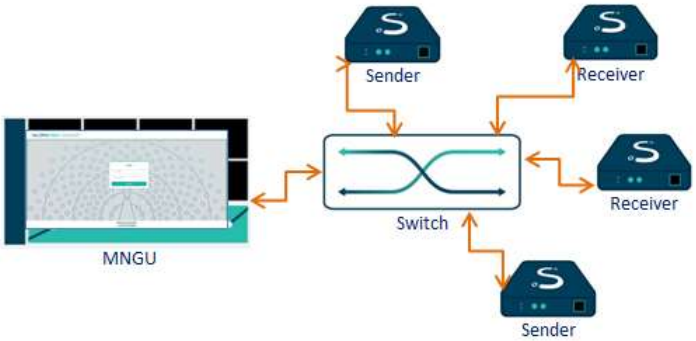
The system requires a third-party LAN/WAN switch.

# Traffic Modes

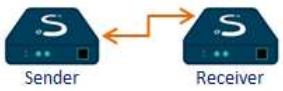
- Unicast mode = One-to-one. The web-based MNGU handles all the communications between units. One sender transmits to one receiver.




- Multicast mode = One-to-many, many-to-many. The web-based MNGU handles all the communications between units. One sender transmits to many receivers, i.e., the same picture is visible and USB is (optionally) active on more than one screen.



- Extended mode = Point-to-point. Allows communication between units without the MNGU. The IP addresses are defined internally by the system and no switch is needed.




A system can potentially contain some units in unicast mode and some units in multicast mode.

# Resolution and Audio

- Supported video input resolutions: Up to 1920 x 1200, 60 fps.
- Supported audio streams: Two channels: stereo analog or digital (in the HDMI).

# FAQ

To make your installation simpler, these answers may help you:

- Q: What is the expected latency between source and destination?

  A: Between 60 to 70 msc.

- Q: How long does it take to switch between two sources?

  A: Between 1.3 seconds to 2.0 seconds, depending on the USB configuration, MNGU parameters, and the video source.

- Q: Which video input resolutions does the system support?

  A: Up to 1920 x 1200, 60 fps.

- Q: Which audio streams does the system support?

  A: Two channels: stereo analog or digital (in the HDMI).

- Q: Does the system work with SNMP protocol?

  A: Yes, with v2 and v3.

- Q: What is the L2 switch video configuration?

  A: Set the switch to IGMP and MLD snooping. See the switch configuration section.

- Q: What video transition modes are supported?

A: Multicast (one-to-many, many-to-many) and unicast (one-to-one). For example, the routing rules can be one sender (Tx) to many receivers (Rxs).

- Q: Does the system support more than one network card (for two networks)?

  A: Yes. See the switch configuration section.

- Q: How does the system manage the unit parameters, server data, and control data?

  A: Using an SQL database and a flash chip.

- Q: In addition to AV, which other data protocols over IP are supported?

  A: USB 2.0, USB 1.1, RS-232, and GPIO.

- Q: Can the system connect to or be controlled by a third-party system?

  A: Yes, via APIs (described in a separate document).

# Chapter 2. Switch Configuration

Mandatory switch configuration:

- MTU 9000 or Jumbo frame for each port
- IGMP snooping and MLD enable
- LLDP support, no transmit LLDP (supports reception but not transmission)
- SNMP v2 and v3
- SSH access (recommended)
- Web GUI access as recommended
- If using chain switches, you must set spanning tree

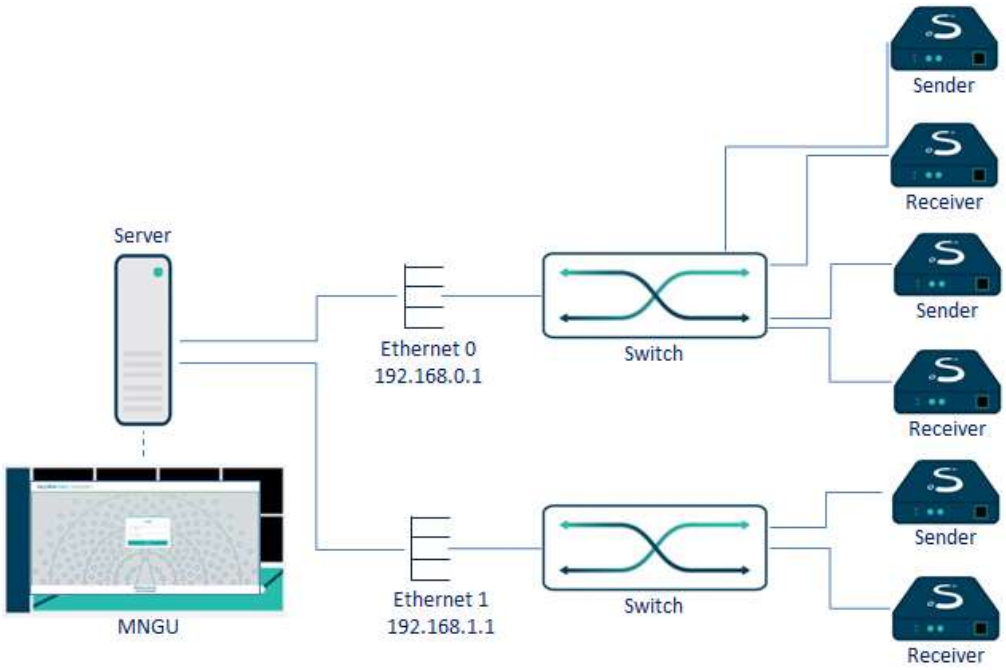
To specify the largest possibility for packet or frame size, see the MTU option.

SRD-IP 2K manages switches from several major vendors including Cisco, Juniper, and HP.

Apart from a single LAN Ethernet switch, the SRP-IP 2K system supports additional system communication alternatives, described in this section.

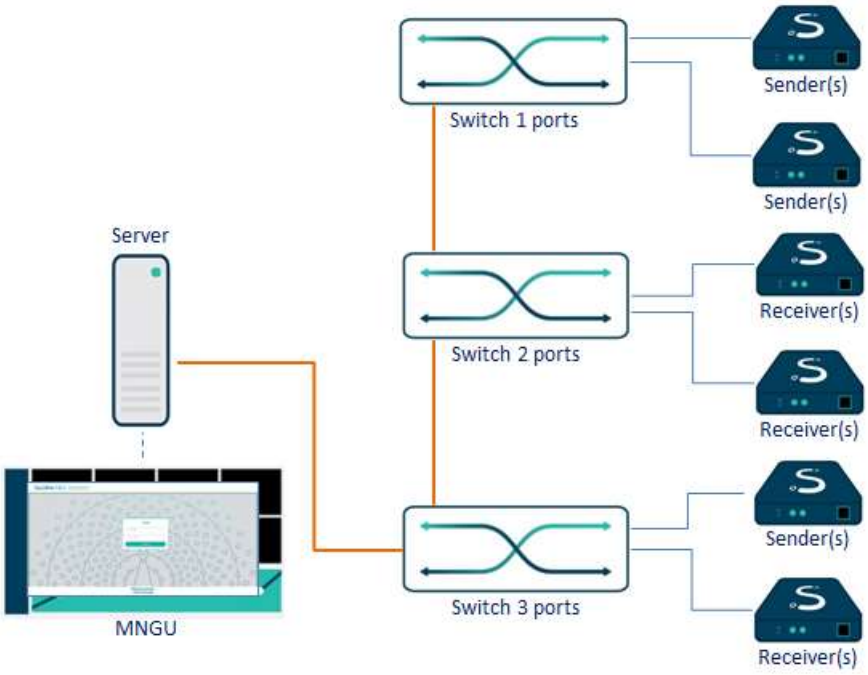
## Two Ethernet Switches

This alternative requires two (or more) network cards.



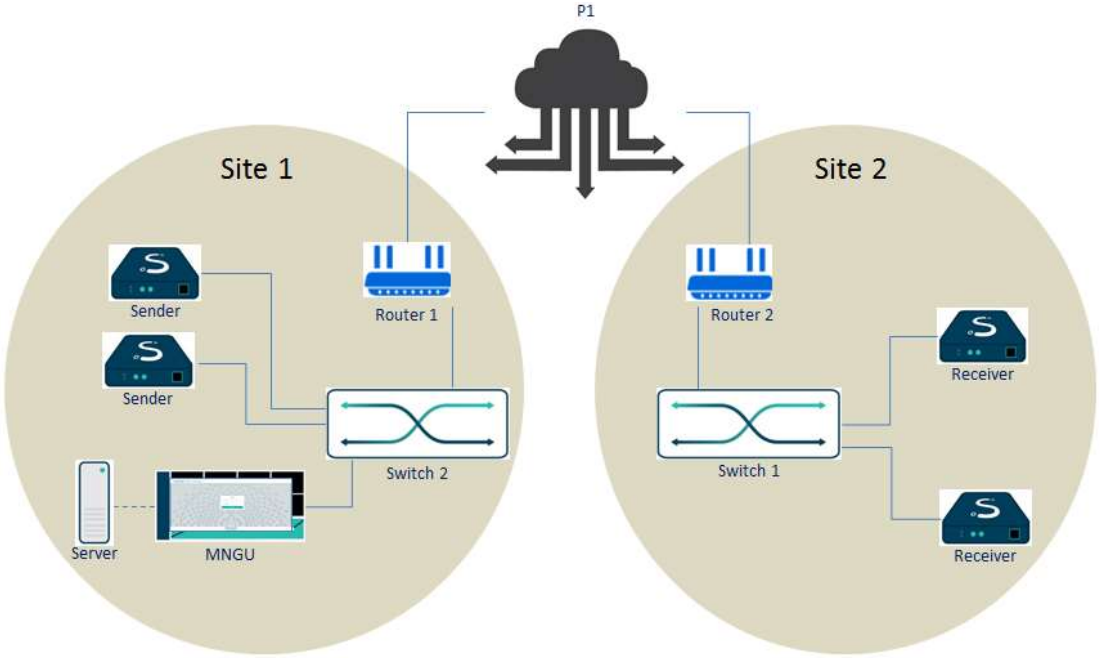
# Multiple Chain Switches

**TIP**: With the multiple chain switches alternative, make sure to define spanning tree and one VLAN for all.



# Private WAN

The private WAN alternative uses L2 switches and routers. MTU is limited to 1412.




To see how to connect new sender and receiver units to the system, see Chapter 5. Unit Configuration.

# Chapter 3. Get Acquainted

This section explains how to enter the MNGU and view the status of the units.

## Logging In/Out

To log in to the system:

1. In a web browser, type the IP address of the server. The login page opens:

2. Type the user name and password supplied to you by your system administrator and click the **Submit** button.

   If you encounter any problems, contact your system administrator.

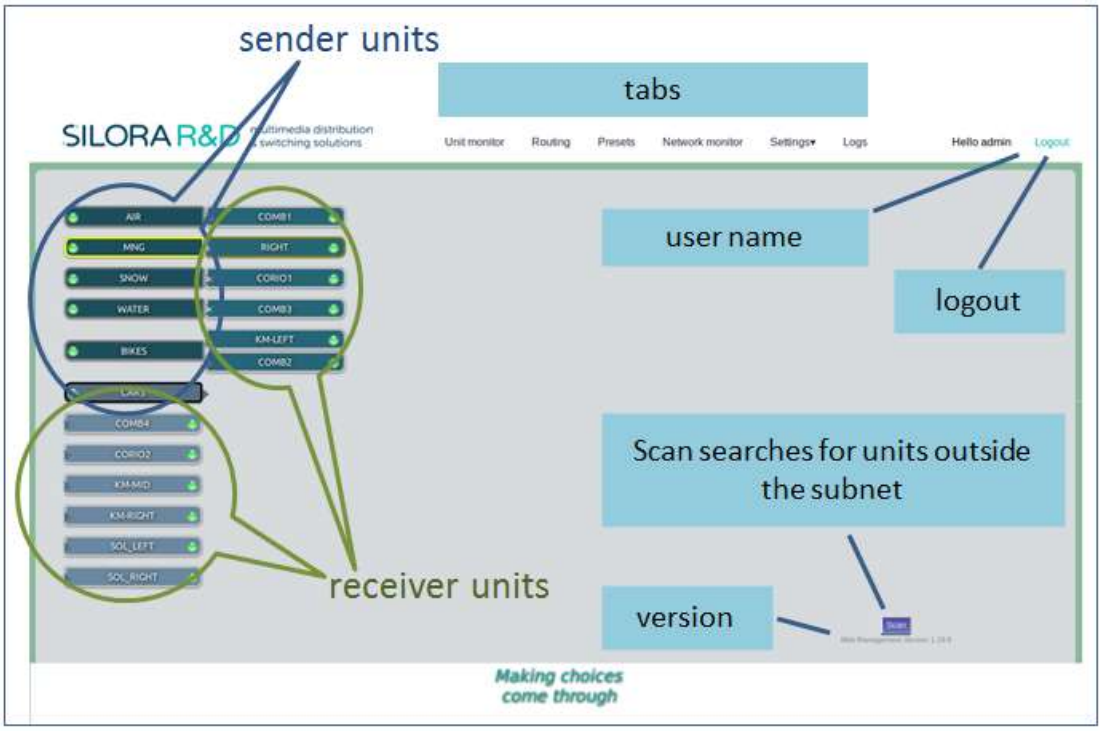
   **TIP**: System administrators can define users in the **Access management** screen, accessible from the **Settings** tab.

3. To log out from the system, click the **Logout** button (on the top right of the screen).

# Viewing All Units

Once you enter the system, you can see all the sender/receiver units.

The first screen is the **Unit monitor** tab, where you see an overall view of the units in the subnet.



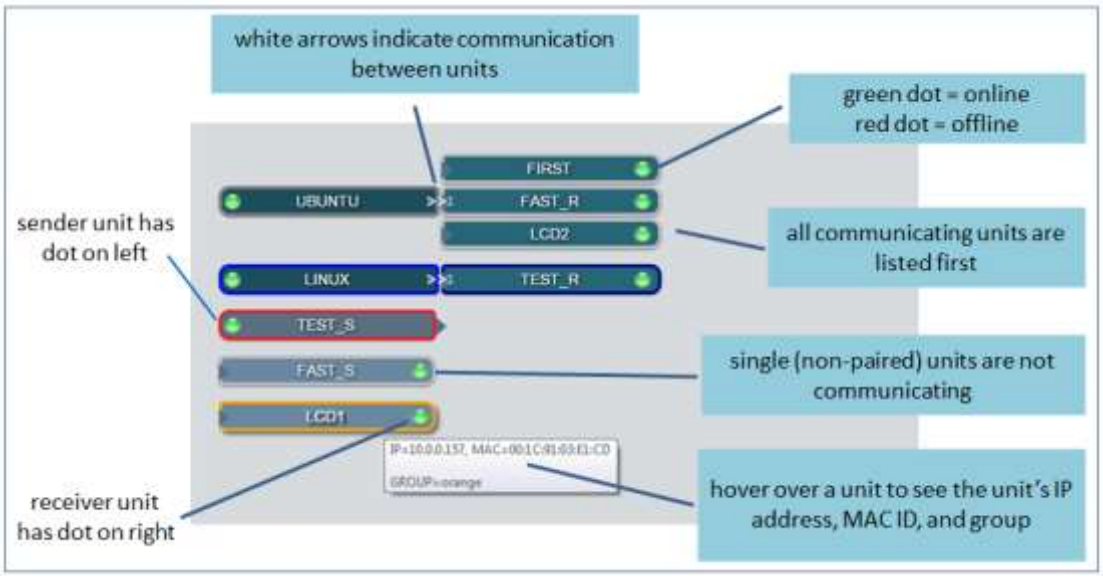

Regular users (who are not defined as admins or super users) cannot see all the tabs. They can only see **Unit monitor** and **Routing** tabs.

## Software Version

The version number is on the bottom right of the **Unit monitor** tab.

## Automatic View Updates

The overall view updates automatically when the status of a unit changes. The view might look something like this:




Colored outlines indicate unit groups. Each unit group has its own color; for example, blue, red, and yellow in the example above.

## Total Units

The number of units you can see is limited by the number of possible units, as shown in the **General Settings** tab, under Port Limitation.

## Scanning for Units

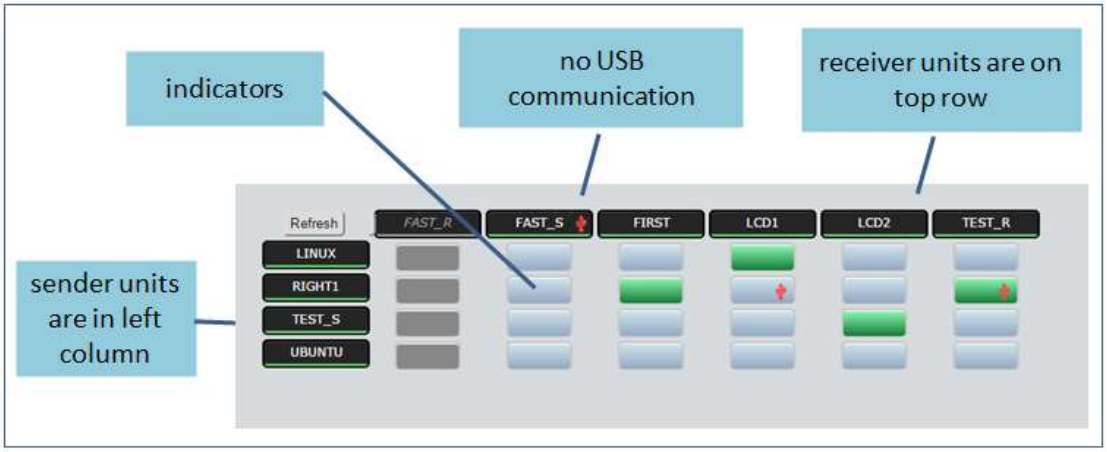
To search or broadcast for units that are outside the subnet, click the **Scan** button (on the bottom right of the screen).

## Viewing Unit Details

To see the configuration details of a particular unit, click it. The **Unit Settings** page opens. To return to the display of all units, click the **Unit monitor** tab.

# Changing the Routing

You can view the communication relationships between senders and receivers by clicking the **Routing** tab. You should see a matrix that looks something like this:




You can change the connections by clicking the indicators. To see your changes, click the **Reload page** icon .

In the matrix you may see USB markers such as this and this .

Below the routing matrix you may see preset information.

**TIP**: To switch to one specific sender unit (the others are in the drop down list), bypassing the MNGU, activate the hot key switch by clicking the Alt key twice.

## Routing Rules

Each receiver can only connect to one sender at a time.

Each sender can transmit to more than one receiver simultaneously (if the traffic mode is defined as multicast).

## Display Colors

The indicators in the matrix have different colored backgrounds, depending on their status:

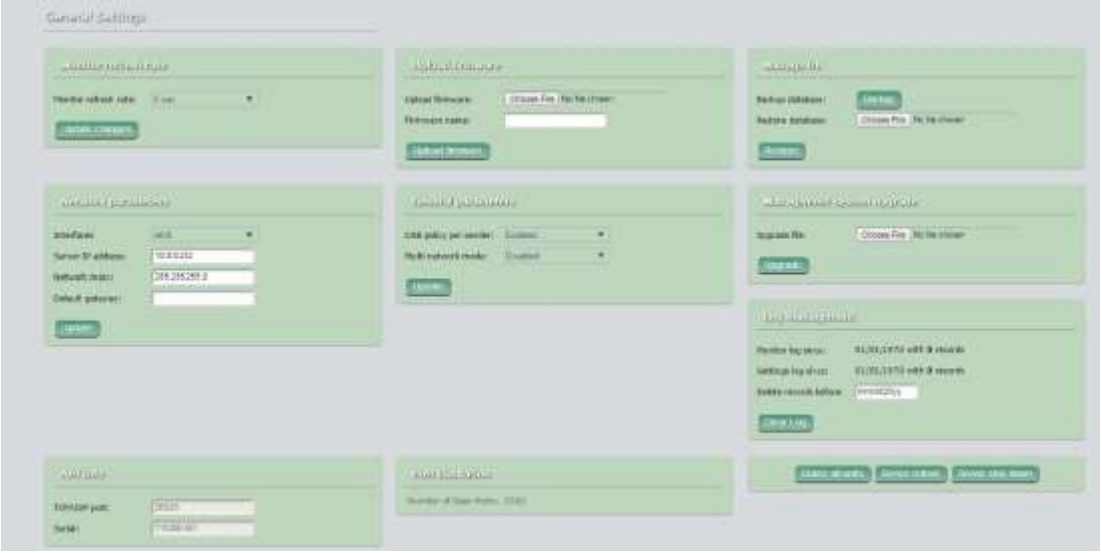
- Gray = not possible to connect
- Green = connected
- Yellow = trying to connect
- Light blue = connection possible

An underline under the server/receiver name indicates online/offline mode:

- green = the unit is connected to the MNGU
- gray = the unit is not connected

# Chapter 4. System-Wide Configuration

Changes you make to these settings apply to all units in the subnet. You can view and edit the settings in the **Settings** tab, **General settings**.



## Monitor Refresh Rate

Select a refresh rate from the drop down list and click **Update changes**. The default is 5 seconds.

## General Parameters

Clicking **Update** causes the MNGU to restart.

- **USB policy per sender** is explained in the USB section.
- **Multi-network mode**: When disabled, you cannot choose any other interface (first option in **General Parameters**).

# Network Parameters

- **Interfaces**: Select which network interface to use for this system. If you only see the one option, there are no other interface possibilities, or **Multi-network mode** (in **General Parameters**) is disabled.
- Change the **Server IP address**, **Network mask**, and **Default gateway** as required.

# Upload Firmware

Explained in the Upgrading Firmware section.

# MNGU Upgrade

Updates the software of the web MNGU. Explained in the Maintenance section.

# API Info

Explained in a separate document.

- **TCP/UDP port**: For information only (not editable)
- **Serial**: For information only (not editable)

# Manage DB

Make a copy of the database to a file saved on disk by clicking the **Backup** button. Restore the backup data by selecting a backup file and clicking the **Restore** button.

# Log Management

Controls what you see in the **Logs** tab. For more information, see the Managing Log Files section.

# Port Limitation

Indicates the number of ports available to the system. You can use the MNGU to handle up to this number of sender and receiver units.

To increase the number of ports, contact Silora R&D technical support.

# USB Status Display

To allow admin users to view and change USBs per connection in the routing tab:

1. In the **Settings** tab, under **General Settings**, set **USB policy per sender** to **Enabled**:

2. Click the **Update** button. The MNGU updates the routing screen.

# Delete/Reboot/Shutdown

Explained in the Maintenance section.

# Hot Key Switches

There are three hot key options for bypassing the MNGU.

## Select Sender from a List

Instead of connecting to all sender units, you can connect to a specific sender unit.

Show the list of senders by pressing the left Alt key twice, then select a sender unit from the drop down list.

## Display Sender

When a keyboard and mouse are connected to the receiver, to switch USB functionality to another receiver, press the left Alt key twice + Receiver #ID.

Receiver ID numbers are 11 through to 66 (11, 22, 33, 44, 55,and 66, with a maximum of six units.

KBM must be set for HID mode, for both sender and receiver units.

.

All receivers must be in the same group.

The receiver IDs are lower, according to IP address. You can switch receivers from lower to upper and vice versa.

Example:

> Receiver #1 is 192.168.1.100, and Receiver #2 is 192.168.1.101.
> To move to 192.168.1.101, press the left Alt key and 2 twice.
> To move to 192.168.1.100, press the left Alt key and 1 twice.

## Display Sender Name

To see the name of the sender unit (route) in the top left corner of the screen, press the right Alt key twice.

# Chapter 5. Unit Configuration

This section contains information on how to add or reconfigure a sender/receiver unit.

**TIP**: You can configure more than one (sender unit, sender unit group, receiver unit, or receiver selected units) at once. See the Copying/Duplicating Settings section.

## Connecting the Cables

### Sender Unit Ports

Front:

- Reset: do not use this button. To reset the unit, in the **Unit monitor** tab, click the unit and click **Restart Unit(s)**
- Power:
  - Stable red during normal operation
  - Blinks red when **Unit finder** is enabled or during firmware upgrades
  - Off means to check the power supply to DC 9V on the back of the unit
- Link:
  - Stable green when connected to network and routing (i.e., there is AV/USB transmission)
  - Blinks green continuously means to check the network connection
  - Blinks green twice, stops, then blinks again twice during firmware upgrades
- Function switch 1 and 2: not in use
- LAN = Network cable category 5 and higher, each port bandwidth 1 GB

Back:

- DC 9V = power supply
- USB: only relevant if USB is enabled for this unit
- Out IR: not in use
- PC MIC: not in use
- PC Spk: Line In cable from your AV source
- DVI Input = video cable for DVI or HDMI input (if HDMI, there is no need for PC Spk)

## Receiver Unit Ports

Front:

- Reset: do not use this button. To reset the unit, in the **Unit monitor** tab, click the unit and click **Restart Unit(s)**
- Power:
  - Stable red during normal operation
  - Blinks red when **Unit finder** is enabled or during firmware upgrades
  - Off means to check the power supply to DC 9V on the back of the unit
- Link:
  - Stable green when connected to network
  - Blinks green continuously means to check the network connection
  - Blinks green twice, stops, then blinks again twice during firmware upgrades
- Function switch 1 and 2: not in use
- M = mouse
- KB = keyboard
- Device: for USB. Can have up to four USBs. Recommended configuration: 2 x keyboard and 2 x mouse
- LAN = Network cable category 5 and higher, each port bandwidth 1 GB

Back:

- DC 9V = power supply
- In IR: not in use

- In MIC: not in use
- Out Spk: for headphones or speaker
- DVI Input = video cable for DVI or HDMI input (if HDMI, there is no need for Out Spk)

# Configuring a Unit

You can view and edit the unit settings in the **Unit Settings** page. You can get to this page:

- From the **Unit monitor** tab, by clicking any unit
- From the **Settings** tab, **Unit settings**: select one or more units (or select **Senders** or **Receivers**) and click the **Set up selected units** button.

**NOTE**: You cannot simultaneously change the settings for both sender and receiver units.

## Status Updates

The MNGU updates the status every time you make a change on this screen. It tries three times to connect. On success, **Last Update** displays **OK**. On failure, it displays **Timeout** in red. If you see the timeout error:

1. Check the physical connection.
2. Check the network configuration.
3. Contact Silora R&D technical support.

Any changes you make on the settings in this screen do not take effect until you press the **Update unit(s)** button. If you do not want to save your changes, press the **Cancel** button.

# Stopping/Starting/Deleting Units

To stop and start the unit, press the **Restart Unit(s)** button.

To delete the unit, click the **Delete** button. No information will be preserved in the database for this unit.

To delete all unit definitions, see the Maintenance section.

# Configuring Initial Settings

The MNGU adds new units automatically, identifying them when it scans the network subnet.

**NOTE**: You can ask the MNGU to scan for units outside the subnet.

Unless otherwise specified, these settings are found in the **Unit Settings** page.

## Setting the Unit Name

The **Unit name** can be up to 12 characters in length. It cannot contain spaces. You can change the unit name at any stage.

## Setting the Network Address

The **IP Address** is unique for each unit. If the **DHCP** setting for this unit is **Yes**, you cannot edit the **Server IP address**, **Network Mask**, and **Default gateway** fields.

It is recommended to use a static IP address (i.e., **DHCP** = **No**). For an explanation about each subnet, contact Silora R&D technical support.

If static, in the **Settings** tab, under **General Settings**, **Network Parameters** (click the **Update** button to apply the changes):

- **Server IP address**: Changes the IP address of the MNGU. Default setting: 192.168.0.253.
- **Network mask**: Changes the network mask of the MNGU and all units. Default setting: 255.255.0.0.
- **Default gateway**: Changes the gateway of the MNGU and all units.

# Finding a Specific Unit Port

If you are unsure which port you are viewing in the MNGU, get help from the **Unit finder:**

- **Show** = The unit blinks red and green when it is connected.
- **Stop** = Stops the unit from blinking.

# Applying Multiple Settings

To allow you to configure the same settings for many units at once, you can select more than one unit in the **Settings** tab, **Unit Settings**.

All the units for the combined action must be either senders or receivers. In the following graphic, note that only receiver units are selected:

All configuration settings except IP address and name can be changed in this way, as shown:

# Copying Settings

You can also copy settings from other units. In **Import settings from**, click the drop down list and select from which unit to copy the settings.

# Viewing Unit-specific Data Fields

Some data is displayed on the **Unit Settings** screen; you cannot change it.

## MAC Address

To view more data, click the **More info** button:

- **Model**
- **Serial number**
- **Firmware version**
- **Kernel version**

## Traffic Mode

As explained in the overview, the MNGU handles two traffic modes:

- Unicast = One sender transmits to one receiver.
- Multicast = One sender transmits to many receivers, i.e., the same picture is visible and USB (if permitted) is active on more than one screen.

Each unit must be configured for one of these modes. The system can handle units of both modes.

## DHCP

Options:

- **Yes** = The IP host gets the IP address, network mask, and default gateway from the network. You cannot edit these details. **NOTE**: DHCP server should exist.
- **No** = The IP address, network mask, and default gateway are static and can be changed. This is the recommended method.

# Configuring Advanced Options

These options are available when you click the **Advanced Settings** button in the **Unit settings** page. (To get to this page, in the **Settings** tab, **Unit settings**, select one or more units and click the **Setup selected units** button.)

The advanced options are different for senders and receivers.

| Senders | Receivers |
|---|---|

## Allow USB

Explained in the USB section.

## HID Mode

For Human Interface Devices (HIDs) such as a joystick, mouse, or keyboard.

To set the mode:

1. Make sure **Allow USB** = **Yes**.
2. Click the **Advanced Settings** button in the **Unit settings** page. (To get to this page, in the **Settings** tab, **Unit settings**, select one or more units and click the **Setup selected units** button.)
3. Select a mode:
   - **KBM**: Default, for emulation of keyboard and mouse. Does not support all device types such as the combiner (which can display data from a number of receivers on one screen).
   - **Raw**: Supports all device types. The sender is limited to handling a maximum of five USB devices connected to receivers.
4. Click the **Update** button.

## Auto Connect

Only relevant for receiver units.

When selected, the system remembers the sender it connected to previously. Therefore, when you restart this receiver (or it restarts after a power outage), it connects automatically to the same sender as before.

## EDID Method

Determines the source of the extended display identification data.

Options:

- **Local**: Video display settings are built into the receiver.

- **External**: Video display settings come from the screen that is connected to the receiver. This option takes few seconds (depending on your screen vendor) since EDID is read from the screen.

### Video Quality

Only relevant for sender units.

To change the quality of the video, select a value.

To apply your changes, click **Update**.

### HDCP

High-Bandwidth Digital Content Protection is a copy protection protocol to eliminate the possibility of intercepting digital data midstream between the source and the display.

Enable this protocol only if your video generation source supports it. You must enable it consistently for sender/receiver units; i.e., a sender unit enabled for HDCP can only send to a receiver unit enabled for HDCP.

Supported versions are 1.4 and 2.0.

### MTU

Only relevant for sender units.

A maximum transmission unit (MTU) is the largest size packet or frame that can be sent in a packet- or frame-based network. The unit of measure is specified in octets (eight-bit bytes).

If your switch configuration is LAN, specify 8000 (the default) or 9000. If private WAN, specify 1412 or 1500.

# Changing USB per Unit

If you cannot see the USB indicators and you are an admin user, enable **USB policy per sender**.

A red USB symbol in the **Routing** tab indicates that USB is disabled. Regular users cannot see or change the USB indicators.

When you hover over the indicators in the matrix, a black USB symbol indicates that a USB connection is available.

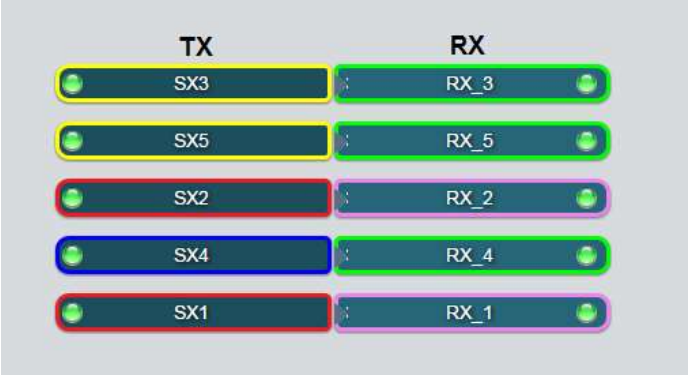
If you are an admin user, you can enable/disable USBs for specific connections. Do this by clicking the black and red USB symbols in the indicators.

The **Allow USB** option controls keyboard and mouse communication between the receiver and the server. To set USB per unit:

1. Click the **Advanced Settings** button in the **Unit settings** page. (To get to this page, in the **Settings** tab, **Unit settings**, select one or more units and click the **Setup selected units** button.)
2. Select an option:
   - **Yes**: Enables keyboard and mouse communication.
   - **No:** The USB is disconnected between the receiver and the sender.
3. Click the **Update** button.

# Defining Unit Groups

The graphic below shows groups of units.




Each unit is indicated by a different color:

- The yellow sender group is transmitting to the green receiver group.
- The red sender group is transmitting to the pink receiver group.

You can define groups of units, where each group can contain either senders or receivers. Then, you can define the permissions between groups of receivers and senders.

For example, a receiver in a particular group is only able to connect to a sender for which that group has permission.

Each group is identified by its name and its color. The color is visible on the **Unit monitor** tab (shown as a border around the unit) and in other places in the MNGU.

Notes:

- By default, each unit is initially assigned to the **General** group. You cannot change the "**General**" group name.
- There is one **General** group for senders and one **General** group for receivers.
- Each unit can belong to only one group.

- The group to which each unit belongs is indicated by colored outlines on the **Unit Settings** page. The default color for the **General** group is grey.
- Following are possible things you can do with groups.

## Creating a Group

Create a group of senders or receivers:

1. In the **Settings** tab, **Group settings**, click the **Advanced settings** button and **Add** on the **Receivers** side (left) or the **Senders** side (right).
2. Define colors for the group and font face, and type a new name.
3. Click the **Add group** icon .

## Assigning Units to Groups

Assign one or more units to a group:

1. In the **Settings** tab, **Unit Settings**, select one or more units (either senders or receivers), and click the **Setup selected units** button.
2. In the **Unit Settings** page, click the down arrow next to **In group**, select a group name from the list, and click the **Update unit(s)** button.

## Assigning Users to Groups

To assign users to groups:

1. In the **Settings** tab, **Access management**, click the **Edit user** icon next to the user you want to assign to a group.
2. Click under **Receiver Groups allowed**.
3. Add a group from the drop down list.
4. Click **OK**.
5. Click the **Save Changes** icon .

## Adding and Removing Permissions for Sender Groups

When you select a group of receivers, you can see the current permission between that group and other groups of senders. You can then add or remove permissions for groups of senders:

1. For receivers only: In the **Settings** tab, select **Group settings**.
2. In the left column, select a group of receivers.

3. In the right column:
    a. Add permissions for groups of senders by clicking the down arrow next to **Select sender groups** and clicking one or more groups. (Groups already selected are greyed out.)
    b. Remove permissions for a group of senders by clicking the **remove** button next to the name of the group.
4. Click the **Save** button.

## Editing Group Attributes

Change the name, color of a group, or font color:

1. In the **Settings** tab, **Group settings**, click the **Advanced settings** button.
2. Next to the group you want to change, click the **Edit group** icon .
3. Select colors for the group or font face, or type a new name.
4. Click the **Save changes** icon .

## Deleting a Group

Delete a group:

1. In the **Settings** tab, **Group settings**, click the **Advanced settings** button and click the **Delete group** icon .
2. Confirm the deletion.

# Chapter 6. User Configuration

In this section is information on how to add users to the system, create groups of users, and change user configurations.

## Managing Users

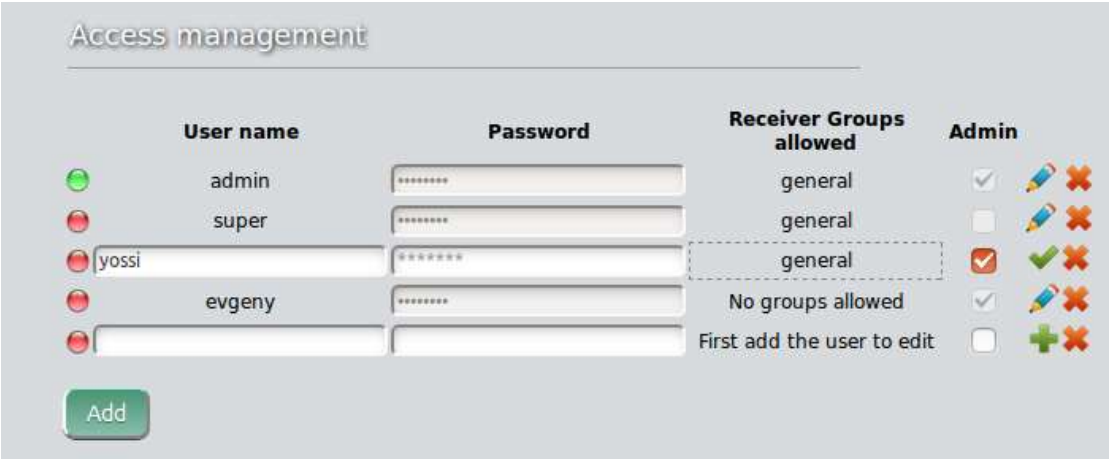
You can define users for the system, specifying if they are regular, admin, or super users.

Users can connect to groups of receiver units.

**NOTE**: Regular users can only see the **Unit monitor** and **Routing** tabs.

### Viewing Users

You can see a list of all users in the **Settings** tab, **Access management**.




### Adding a User

Create a user:

1. In the **Settings** tab, **Access management**, click the **Add** button.
2. Type a unique name.
3. Type a password.
4. Click the **Add user** icon .
5. Optionally select one or more receiver groups from the drop down list by clicking the edit user icon .
6. Click the **Save changes** icon .

## Editing User Attributes

Change any user attributes:

1. In the **Settings** tab, click **Access management**.
2. Next to the user you want to change, click the **Edit user** icon .
3. Make your changes.
4. Click the **Save changes** icon .

## Deleting a User

Delete a  user:

1. In the **Settings** tab, click **Access management**.
2. Next to the user you want to delete, click the **Delete  user** icon .
3. Confirm the deletion.

# Defining Presets for Users

Admin users can define specific routing configurations for different users and save them as presets. Then the user can activate a particular preset configuration without needing to recall many details.

The presets are saved per user.

## Creating a Preset

To create a preset:

1. In the **Presets** tab, select a user.
2. Click the **Create preset** button.
3. Type a name for the preset. The name can contain letters, numbers, and spaces.
4. Click the **Create** button. You will see a confirmation message in green.
5. Select the new preset from the drop down list.
6. In the matrix, click the desired routing configuration. (You can only see the senders and receivers that are allowed for this user.)
7. Click **Save**. You will see a confirmation message in green.

## Editing a Preset

You cannot change the name of a preset. You can change the routing configuration:

1. In the **Presets** tab, select a user.
2. Select a preset.
3. Make your changes in the routing matrix.
4. Click **Save**.

## Deleting a Preset

To delete a preset:

1. In the **Presets** tab, select a user.
2. Select a preset.
3. Click **Delete**.
4. Confirm the deletion.

## Viewing/Activating Preset Information

When the user logs in to the MNGU, the user might see this type of information in the **Routing** tab, below the routing matrix:

Each button represents a different routing configuration.

To activate a preset, click the relevant button.

**NOTES**:

- Admin users cannot activate presets.
- Presets cannot be configured for admin users.

# Chapter 7. Network Monitor

This section describes the **Network monitor** tab.

All data displayed in this tab comes via the SNMP protocol.

1. Click the **Network monitor** tab.
2. Click **Edit**. Each line represents a switch in the network configuration.
3. Add switches, or edit and delete existing switches.
    - **Device name** can be any text.
    - **IP address** should be correct.
    - **Community key** should be **public**.
    - **Number of ports** should reflect the actual number of ports available on the switch.

    It may take a few moments for the system to update the data displayed. The switch configuration is saved in the MNGU database. There is no limit to the number of switches you can define.

4. To allow more room on the screen for displaying the switches, click **Hide**.
5. Examine the graphic display of one of the switches. The number of ports you see corresponds to the number of ports you defined for this switch. Colors:
    - Green indicates that there is data transfer.
    - Black indicates that this port is not connected.
6. Hover over the switch. For each port, you can see all the data about the communication via this port.

# Chapter 8. API Interface

The API functionality is for third-party appliances, allowing the SRD-IP 2K system to work without the management system GUI. Instead, the system is controlled by the customer via devices such as tablets, and MNGU is not active.

The API functionality is enabled whenever the MNGU is connected to the power line and the network.

Choose one of these communication methods to access the API:

- Via TCP protocol (port 26026)
- Via UDP protocol (port 26026)
- Serial connection (115200 8n1)

There is no need to set up specific configuration. The appropriate channel activates automatically upon receiving a message from the client (user).

The API protocol supports the **Check, Connect**, **Preset, Serial**, **Status,** and other functions, as described in a separate document.

# Chapter 9. Maintenance

This section contains explanations on deleting unit definitions, rebooting and shutting down the server, upgrading firmware and the MNGU, managing log files, and data backup and restore.

## Delete/Reboot/Shut Down

**WARNING! Only click these buttons if you are sure you understand the implications.**

In the **Settings** tab, **General Settings**, first make a backup by clicking the **Backup** button in the **Manage DB** section and saving the file to disk. Then you have these options**:**

- **Delete all**: Deletes all unit definitions from the database.
- **Server reboot**: The server shuts down and restarts. All log information is deleted from the MNGU. Unit definitions are retained.
- **Server shut down**: All log information is deleted from the MNGU. Unit definitions are retained.

If necessary, you can restore the database data from the backup file by clicking the **Restore** button.

## Upgrading Unit Firmware

To upgrade the firmware, you need a file from Silora R&D technical support.

You can upgrade sender units, receiver units, groups of sender units, or groups of receiver units.

When Silora R&D technical support directs you to upgrade the firmware:

1. In the **Settings** tab, **General settings**:
   - Next to **Upload firmware**, click **Choose File** and locate the firmware file, or
   - Type the file name into **Firmware name**.
2. Click the **Upload firmware** button.
3. In the **Settings** tab, **Unit Settings**, click the particular unit(s) or group(s) and click the **Setup selected units** button.
4. Click the down arrow under **Upgrade Firmware**, and choose the upgrade file from the drop down list.

5. Click **Update unit(s)**.

   The unit changes to offline mode (indicated by red in the **Unit monitor** tab).

**TIP:** To upgrade the firmware for all units, you must select all receiver units and upgrade, and then all sender units and upgrade (or vice versa).

# Updating MNGU Software

To view the current software version, in the **Unit monitor** tab, look in the bottom right corner.

To update the MNGU:

1. In the **Settings** tab, click **General Settings**.
2. Under **MNGU upgrade**, click **Choose File** and locate the software file. Only accepts files with a **.tar.gz** extension.
3. Click the **Upgrade** button.

# Managing Log Files

To see logged data of errors, warnings, and other messages, click the **Logs** tab. Errors are shown in red.

Access the logs via the **Settings** tab, **General Settings**, **Log management** section:

- View how many records have been stored in the **Monitor** log and the **Settings** log, and from which date.
- Save data to file, sorting by date and category.
- Delete old logged information by specifying a date in **Delete records before** and clicking the **Clear Log** button. Otherwise, log data is stored and only deleted when you reboot the MNGU.

# Backing Up and Restoring Data

At any stage you can back up the settings. In the **Settings** tab, in **General settings**, **Manage DB**, click the **Backup** button. A file will be saved with today's date.

To restore saved settings, browse for the file and click the **Restore** button.

# Index

access management ..... 30
Access management ..... 9
adding units ..... 18
admin ..... 16, 25
admins ..... 10
advanced options ..... 23
advanced settings ..... 26
allow USB ..... 24, 26
Alt key ..... 12
API ..... 3, 5, 15, 33
audio ..... 2
audio streams ..... 4
auto connect ..... 24
AV protocol ..... 5
backing up settings ..... 35
backup ..... 15, 34
bandwidth ..... 2, 18
broadcast ..... 11
bypass ..... 12, 16
chain switches ..... 6, 7
channels ..... 4
Cisco ..... 6
color ..... 11, 26
combiner ..... 24
community key ..... 32
configuring units ..... 18
connected ..... 12
connecting the cables ..... 18
connections ..... 12
control data ..... 5
copy protection protocol ..... 25
data protocols ..... 5
database ..... 5, 15, 21, 34
DC 9V ..... 18
default gateway ..... 15, 21, 23
delete ..... 34
delete units ..... 21
device ..... 19
device name ..... 32
DHCP ..... 23
digital ..... 4
display settings ..... 24
DVI ..... 18, 20
DVI Input ..... 18, 20
EDID method ..... 24
emulation ..... 24
enhanced ..... 3
Ethernet ..... 6
extended ..... 4
extended display identification data ..... 24
external ..... 25
features ..... 2
finding units ..... 21
firmware upgrade ..... 34
firmware upload ..... 15
firmware version ..... 23
flash chip ..... 5
font color ..... 28
fps ..... 4
frame ..... 25
function switch ..... 18
gateway ..... 15
general group ..... 26
general settings ..... 14
GPIO ..... 5
groups ..... 26
GUI access ..... 6
HDCP ..... 25
HDMI ..... 4, 18, 20
HID mode ..... 24
High-Bandwidth Digital Content Protection ..... 25
hot key switching ..... 3, 12, 16
Human Interface Devices ..... 24
IGMP ..... 4, 6
importing settings ..... 22
interfaces ..... 15
internal ..... 24
IP address ..... 9, 21, 23, 32
IP host ..... 23
joystick ..... 24
Jumbo ..... 6
Juniper ..... 6
KBM ..... 16, 24
kernel version ..... 23
keyboard ..... 24, 26

L2 switch ..... 4, 8
LAN ..... 3, 18, 19
LAN Ethernet ..... 6
last update ..... 20
latency ..... 2, 4
limitation ..... 15
link ..... 18, 19
LLDP ..... 6
log in ..... 9
logs ..... 15, 34, 35
MAC address ..... 23
manage DB ..... 15
many-to-many ..... 3
matrix ..... 2
maximum transmission unit ..... 25
MLD ..... 4, 6
MNGU ..... 3, 4
MNGU upgrade ..... 15
model ..... 23
mouse ..... 24, 26
msc ..... 4
MTU ..... 6, 8, 25
multicast ..... 3, 4, 5, 12, 23
multi-network mode ..... 15
multiple chain switches ..... 7
network address ..... 21
network cable category ..... 18
network cards ..... 5, 6
network configuration ..... 20
network interface ..... 15
network mask ..... 15, 21, 23
network monitor ..... 32
no transmit LLDP ..... 6
number of ports ..... 32
number of switches ..... 32
number of units ..... 11
one-to-many ..... 3
one-to-one ..... 3, 4
Out Spk ..... 20
packet ..... 25
password ..... 29
PC Spk ..... 18
permissions ..... 26, 27
pixels ..... 2
port bandwidth ..... 18
port limitation ..... 11, 15
power ..... 18, 19
preset ..... 12, 30, 31
private WAN ..... 8, 25
protocols ..... 5
provisioning ..... 2
public ..... 32
quality ..... 25
Raw ..... 24
reboot ..... 34
refresh rate ..... 14
regular user ..... 29
regular users ..... 10
reload page ..... 12
remove permissions ..... 28
reset ..... 18, 19
resolution ..... 2
restart ..... 21, 24
restore ..... 15
restoring settings ..... 35
routers ..... 8
routing ..... 12
routing configurations ..... 30
RS-232 ..... 3, 5
rules ..... 12
search ..... 11
serial ..... 15
serial connection ..... 33
serial number ..... 23
server data ..... 5
server IP address ..... 15
server management system ..... 3
server reboot ..... 34
server shut down ..... 34
set up selected units ..... 20
settings ..... 35
shut down ..... 34
size packet ..... 6
SNMP ..... 4, 6, 32
snooping ..... 4, 6
software updates ..... 35
software upgrade ..... 15
software version ..... 10, 35
source ..... 24
spanning tree ..... 6, 7
SQL database ..... 5
SSH ..... 6
status ..... 20
stereo analog ..... 4

subnet.....10, 11, 21
super users .....10, 29
switch .....6
system administrator .....9
TCP.....33
TCP/UDP port .....15
third-party .....5, 33
timeout.....20
traffic modes .....3, 12, 23
transition modes .....4
UDP.....33
unicast .....3, 4, 5, 23
unit configuration.....18
unit finder.....21
Unit monitor.....10
unit name .....21
updating software .....15, 35
upgrading firmware.....34
upload firmware.....15
USB.....5, 12, 16, 18, 23, 24, 25, 26
USB policy ..... 25
USB policy per sender..... 14
user configurations..... 29
users..... 10
vendors ..... 6
version ..... 10, 35
video configuration..... 4
video display settings..... 24
video input..... 4
video quality ..... 25
video resolution..... 2
video source..... 4
video transition modes..... 4
viewing all units ..... 10
viewing one sender unit ..... 12
WAN..... 3, 8
Web GUI access ..... 6