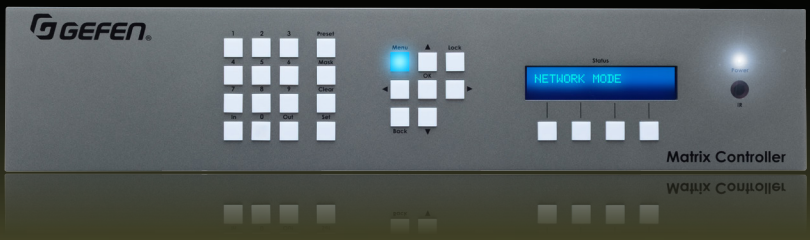
Matrix Controller

EXT-CU-LAN

User Manual



Release A3

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this product near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your hands are wet or damp. Do not expose this product to rain or moisture.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Batteries that may be included with this product and/or accessories should never be exposed to open flame or excessive heat. Always dispose of used batteries according to the instructions.

Warranty Information

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repah or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.
2. Customers outside the US are responsible for shipping charges to and from Gefen.
3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at www.gefen.com.

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Chatsworth, CA 91311

Product Registration

Register your product here: http://www.gefen.com/kvm/Registry/Registration.jsp

- You should have a managed gigabit switch with 8K (or greater) jumbo-frame capability.
- The Matrix Controller has been tested with both Cisco and NetGear switches. However, performance and results may vary between depending upon the switch that is used and your network.
- The “discovery” feature, used by the Matrix Controller, relies on a proprietary network broadcast protocol that is used for identification of Gefen KVM over IP products. Broadcast packets and access using ports 53334 and 53335 is required for this feature to work.
- The Gefen Video-over-IP product line is compatible with a wide variety of data switches:

  ► For simple installations, the **Netgear GS724T / GS748T / GS748TPS** (PoE version) are low-cost 24-port or 48-port Gigabit Smart Switches that meet all necessary requirements. They have two SFP ports that can be equipped with fiber SFP modules for greater distances.

  ► For cascaded or extended switch architecture, more than 1 Gigabit bandwidth may be required between switches. For these situations, the **Netgear PROSAFE GS728TXS Gigabit Stackable Smart Switch** offers four 10-Gigabit SFP uplink ports for expanded bandwidth between switches.

  ► Other Gigabit managed switches, such as the **Cisco Small Business SG300** or **SG500X** (“X” indicates 10G SFP uplink port) switches may also be used. However, the configuration will be up to the user.

- In order to properly manage the video traffic, both Jumbo Frames and IGMP Snooping must be *enabled*.

  Netgear GS7xxT-series switches:

  1. Login to the switch with a Web browser.
  2. Go to the **Switching** tab and select **Ports** > **Port Configuration**.
  3. Check the **All** checkbox, and set **Maximum Frame Size** to `9216`.
  4. Click **Apply** to save the settings.
  5. Go to **Multicast** > **IGMP Snooping** > **IGMP Snooping Configuration**.
  6. Enable **IGMP Snooping Status**.
  7. Disable **Validate IGMP IP Header**.
  8. Click **Apply** to save the settings.
  9. Go to **IGMP Snooping VLAN Configuration**.
  10. Enter `1` under **Vlan ID**.
  11. Enable **Fast Leave Admin Mode** and **Query Mode**.
  12. Click **Apply** to save the settings.

Cisco SG300 or **SG500**-series switches:

1. Login to the switch with a Web browser.
2. Go to **Admin** > **Port Management** > **Port Settings**.
3. Click **Enable Jumbo Frames**.
4. Click **Apply** to save the settings.
5. Click **Multicast** > **Properties**.
6. Enable **Bridge Multicast Filtering**.
7. Click **Apply** to save the settings.
8. Go to **Multicast** > **IGMP Snooping**.
9. Enable **IGMP Snooping**.
10. Click **Apply** to save the settings.

- The Gefen Syner-G Software Suite is a free downloadable application from Gefen that provides network configuration assistance and automatic download and installation firmware upgrades for this product. Always make sure that the Matrix Controller is running the latest firmware.

Matrix Controller is a trademark of Gefen, LLC.

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Gefen, LLC reserves the right to make changes in the hardware, packaging, and any accompanying documentation without prior written notice.

This product uses UL or CE listed power supplies.

Licensing

This product uses software that is subject to open source licenses, including one or more of the General Public License Version 2 and Version 2.1, Lesser General Public License Version 2.1 and Version 3, BSD, and BSD-style licenses. Distribution and use of this product is subject to the license terms and limitations of liability provided in those licenses. Specific license terms and Copyright Notifications are provided in the source code.
For three years from date of activation of this product, any party may request, and we will supply, for software covered by an applicable license (e.g. GPL or LGPL), a complete machine-readable copy of the corresponding open source code on a medium customarily used for software interchange. The following software and libraries are included with this product and subject to their respective open source licenses:

- Linux

Features

- Detects, configures, and controls all Gefen Video and KVM over IP products
- Built-in web server allows access from any web-enabled device, including phones, tablets, and PCs
- Two Ethernet ports with independent IP and MAC Addresses allow segregation of Video/KVM LAN and control LAN, and help provide separate security layers for administrators and end-users
- Seamless integration with Gefen Syner-G™ software allows for quick installation and configuration on a network
- Automatic assignment of IP addresses for all Gefen Video and KVM over IP devices on a network
- Front panel control push-buttons/display, handheld IR remote, and web server interface allow easy and convenient end-user operation
- Automation control system interface via Telnet and UDP
- POE (Power Over Ethernet) on LAN 1 port eliminates the need for an external power supply
- Password-protected independent user and administrative access
- Easy to read 2 line/20 characters per line Liquid Crystal Display
- System Configuration Upload/Download function
- Plug-and-Play installation with little to no set-up
- Locking power supply connector
- 2U tall rack-mountable enclosure, detachable rack ears included
- Slanted front panel for ergonomic push-button access and display visibility when placed on a table

Packing List

The Matrix Controller ships with the items listed below. If any of these items are not present in the box when you first open it, immediately contact your dealer or Gefen.

- 1 x Matrix Controller
- 1 x IR Remote Control Unit
- 1 x 5V DC Power Supply
- 1 x Rack Ears
- 6 x Rubber Feet
- 4 x Machine Screws
- 1 x Quick-Start Guide

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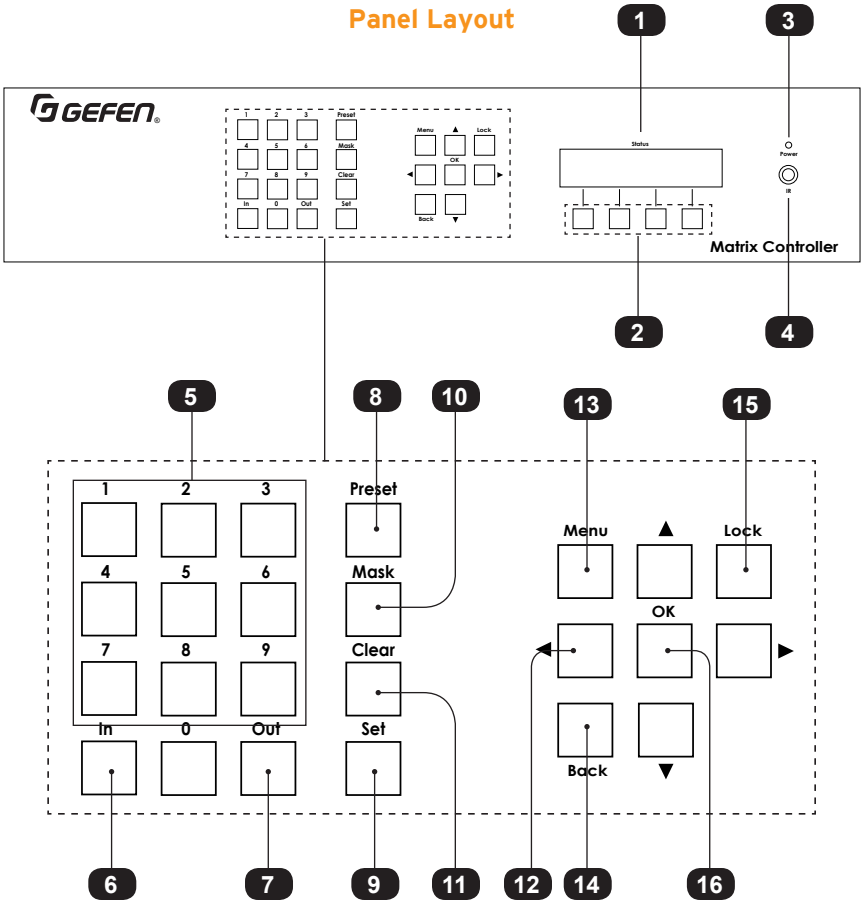
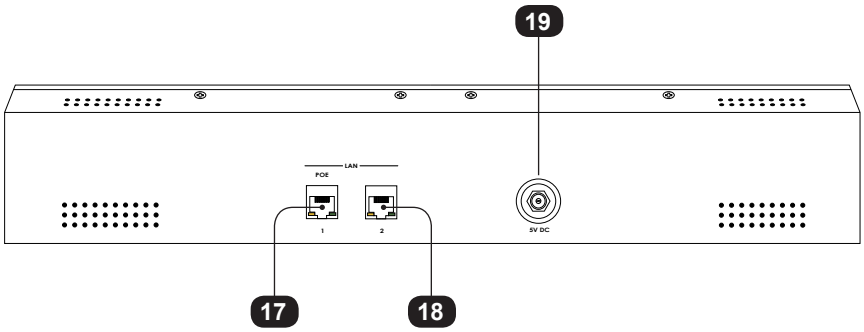
Matrix Controller

1 Getting Started

Panel Layout



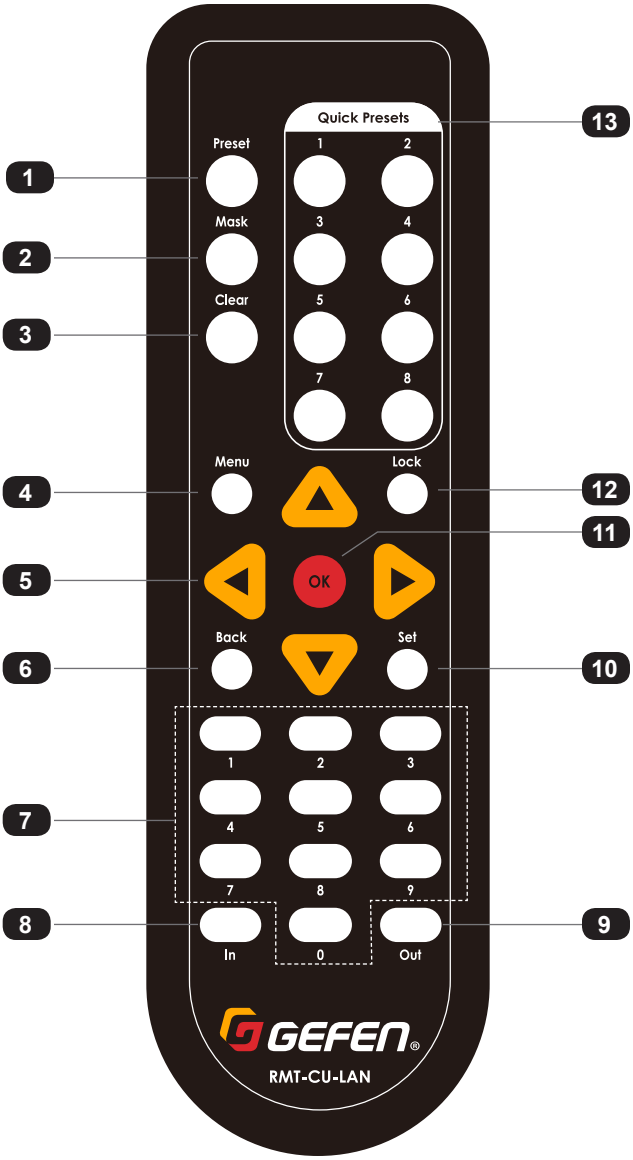


ID	Name	Description
1	LCM display	Provides feedback and status of the Matrix Controller during various operations.
2	Soft buttons	Each of these buttons will have a different function, depending upon the read-out in the LCM display.
3	Power	This LED indicator will glow solid blue when the Matrix Controller is powered.
4	IR sensor	This IR sensor receives signals from the included IR remote control.
5	Numeric keypad (0- 9)	Use this keypad to enter numerical values.
6	In	Press to select the desired input.
7	Out	Press to select the desired output.
8	Preset	Press this button to select the desired preset. Define presets in the Web interface. See Using Presets (page 47).
9	Set	Press this button to accept the current entry or setting within the LCM display. This button has the same function as the **OK** button.
10	Mask	*As of this writing, this button is not defined in the current version of firmware.*
11	Clear	Press this button to clear the current entry, when using the numerical keypad.
12	Arrow buttons	Press these buttons to move the cursor within each setting or to select the desired menu system.
13	Menu	Press this button to enter the Menu System. See Accessing the Menu System (page 54) for more information.
14	Back	Press this button to return to a previous screen in the LCM display.

ID	Name	Description
15	Lock	Press this button to lock the Matrix Controller. When the Matrix Controller is locked, the enter passcode screen will be shown in the LCM display.
16	OK	Press this button to accept the current entry or setting within the LCM display.
17	LAN 1 (POE)	Connect an Ethernet cable from this port to the LAN. See Combined Mode (page 9) and/or Separate Mode (page 13).
18	LAN 2	Connect an Ethernet cable from this port to a managed switch. This port is only used if the video devices are on a separate switch. See Separate Mode (page 13) for more information.
19	5V DC	Connect the included 5V DC power supply to this power receptacle. Connect the power cord to an available electrical outlet. **NOTE:** If the **LAN 1** port is connected to a PoE Switch (e.g Netgear ProSafe GS748TPS), then a separate power connection is not required.

IR Remote Control

Each of the buttons on the IR Remote Control are identical in functionality to those of the buttons on the front panel.



ID	Name	Description
1	Preset	Press this button to select a preset.
2	Mask	*As of this writing, this feature is not defined in the current version of firmware.*
3	Clear	Press this button to clear the current entry.
4	Menu	Press this button to access the menu system.
5	Arrow Buttons	Press these buttons to move the cursor within each setting or to select the desired menu system.
6	Back	Press this button to return to the previous screen.
7	Numeric Keypad (0 - 9)	Use these buttons to enter the desired values for each setting.
8	In	Press this button to specify an input.
9	Out	Press this button to specify an output.
10	Set	Press this button to accept the current value.
11	OK	Press this button to accept the current settings.
12	Lock	Press this button to lock the front panel.
13	Quick Presets	Press these buttons to instantly recall the desired preset.
14	IR Sensor (front of remote)	Point the IR sensor at the front panel of the Matrix Controller.

Installing the Batteries

1. Remove the battery cover on the bottom of the IR remote control unit.
2. Make sure that the batteries are installed with the correct polarity, as shown in the illustration, below. Always use two 1.5V AAA-type batteries.
3. Replace the battery cover.

Warning!

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Setting the IR Channel

Information

In order for the IR remote control to function properly, both the Matrix Controller and the IR remote control must be set to the same IR channel.

1. Remove the battery cover on the bottom of the IR remote control unit.
2. Locate the DIP switches, below the battery compartment.
3. Use the table, below, to set the IR remote control to the desired IR channel.
4. Replace the battery cover.

IR channel	DIP switch setting
0	
1	
2	
3	

The Matrix Controller is designed to manage and control the Gefen family of Video and KVM over IP products in a virtual matrix environment. The Matrix Controller provides two methods of network control:

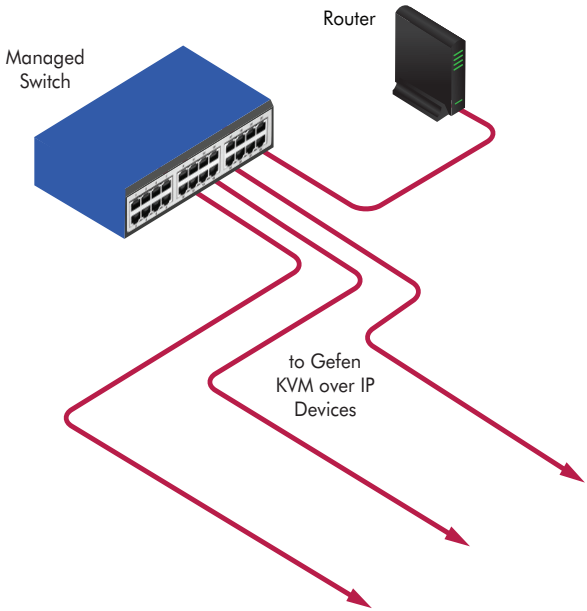
- **Combined mode**
  This mode is used when the Matrix Controller is connected to the same switch as the KVM over IP products. This is the default setting.

  When using *combined mode*, network performance will be degraded because of the large amount of bandwidth required to support video signals on the same switch. To solve this issue, *separate mode* can be used. To use *separate mode*, an independent managed switch must be installed to support the Gefen KVM over IP products. See Separate Mode (page 13) for more information.

- **Separate mode**
  This mode is used when the KVM over IP products are connected to a separate (dedicated) managed switch.

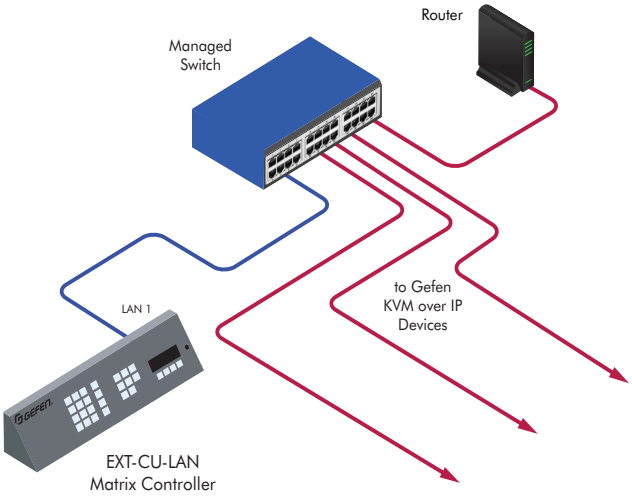
Combined Mode

1. Connect a shielded CAT-5e (or better) cable from each of the Gefen KVM over IP units to a managed switch. Refer to the User Manual(s) for the Gefen KVM over IP units to obtain the network requirements.

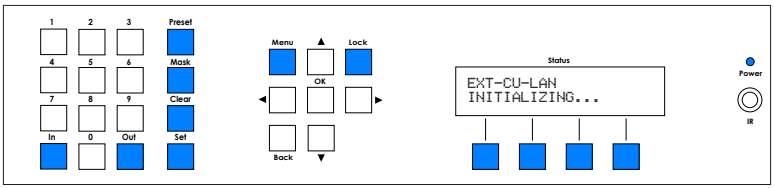


2. Connect a shielded CAT-5e (or better) cable from the **LAN 1** port on the Matrix Controller to the same network where the Gefen KVM over IP units are connected.

3. Connect the included power supply to the **5V DC** power receptacle on the rear panel of the Matrix Controller. Connect the power cord to an available electrical outlet.



4. The Matrix Controller will begin the initialization process. This may take several seconds.



After the Matrix Controller has completed the initialization process, the following message will appear in the LCM display on the front panel. The default passcode used to access the front panel is `123456`.

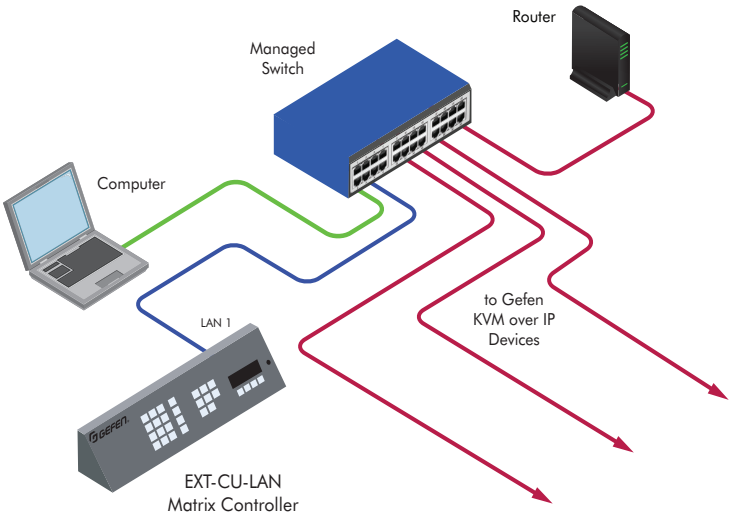
To change this passcode, see Editing Users (page 29).

```
ENTER PASSCODE:
_00000
```

Entering the correct passcode will allow us to control routing and other functions using the front panel. However, before we can use the front panel controls, we must configure the Matrix Controller through the built-in Web interface. The front panel controls will be covered in the section Accessing the Menu System (page 54).

6. Connect a computer to the same network as the Matrix Controller, as shown below. Set the computer's IP address to `192.168.1.xxx`, where `xxx` is a value between 1 and 254.

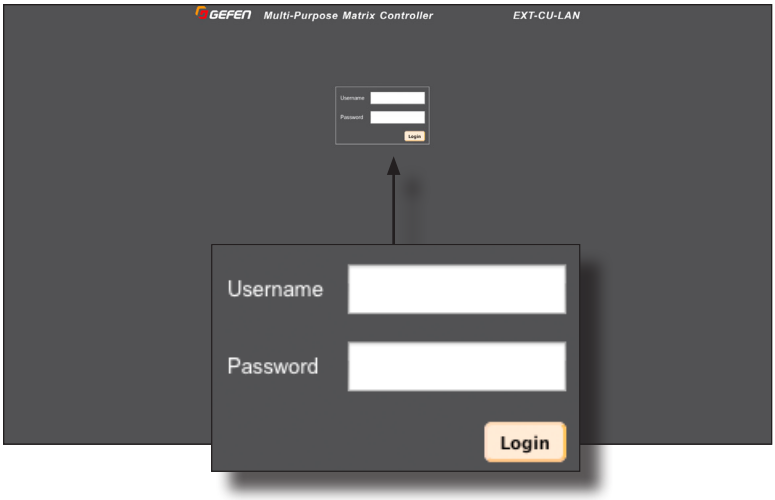
> **Important**
>
> Do not use the IP address 192.168.1.74 because this is the IP address of the Matrix Controller. If the current network configuration is already within this range, make sure that the IP address 192.168.1.74 is not assigned to another device in order to avoid conflicts.



7. Set the subnet mask to `255.255.255.0`.

8. Open a Web browser and enter the following address: `192.168.1.74`.

9. The login page to the Matrix Controller will be displayed.



10. Type `admin` (case-sensitive) in both the **Username** and **Password** fields, then click the **Login** button.

11. To continue, skip to Device Configuration (page 16).

Separate Mode

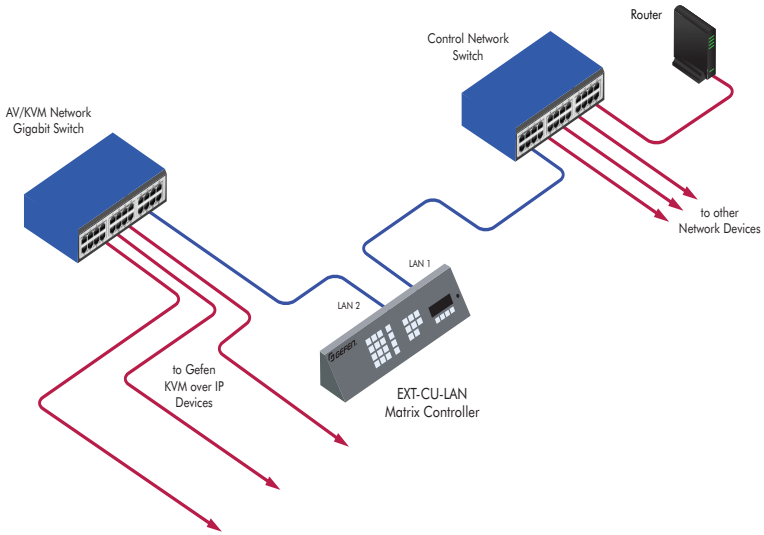
This mode is used when the KVM over IP products are connected to a separate (dedicated) managed switch. Two CAT-5e (or better) cables will be required to connect the Matrix Controller. If a single switch will be connecting Gefen KVM over IP products in addition to your other network devices, then refer to Combined Mode (page 9).

1. Connect a shielded CAT-5e (or better) cable from each of the Gefen KVM over IP units to a managed switch. Refer to the User Manual(s) for the Gefen KVM over IP units to obtain the network requirements..

> **Information**
>
> The Matrix Controller has been tested with both Cisco and NetGear switches. However, performance and results may vary between depending upon the switch that is used and your network.

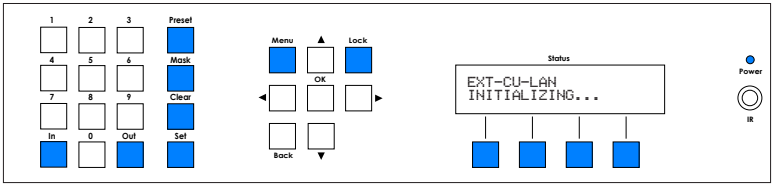
2. Connect a CAT-5e (or better) cable from the **LAN 1** port on the Matrix Controller to the network switch.

3. Connect a secondary CAT-5e (or better) cable from the **LAN 2** port on the Matrix Controller to the dedicated AV/KVM gigabit switch.



4. Connect the included power supply to the **5V DC** power receptacle on the rear panel of the Matrix Controller. Connect the power cord to an available electrical outlet.

5. The Matrix Controller will begin the initialization process. This may take several seconds.



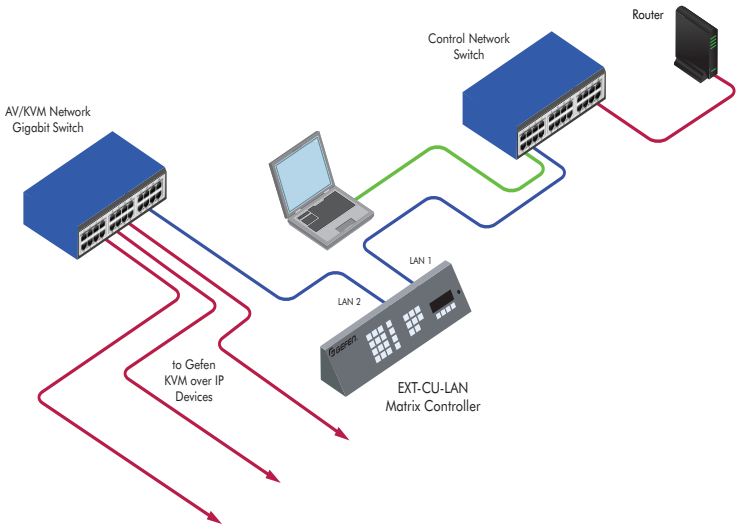
6. After the Matrix Controller has completed the initialization process, the following message will appear in the LCM display on the front panel. The default passcode used to access the front panel is `123456`.

   To change this passcode, see Editing Users (page 29).

```
ENTER PASSCODE:
_000000
```

   Entering the correct passcode will allow us to control routing and other functions using the front panel. Before we can use the front panel controls, we must configure the Matrix Controller through the built-in Web interface. The front panel controls will be covered in another section.

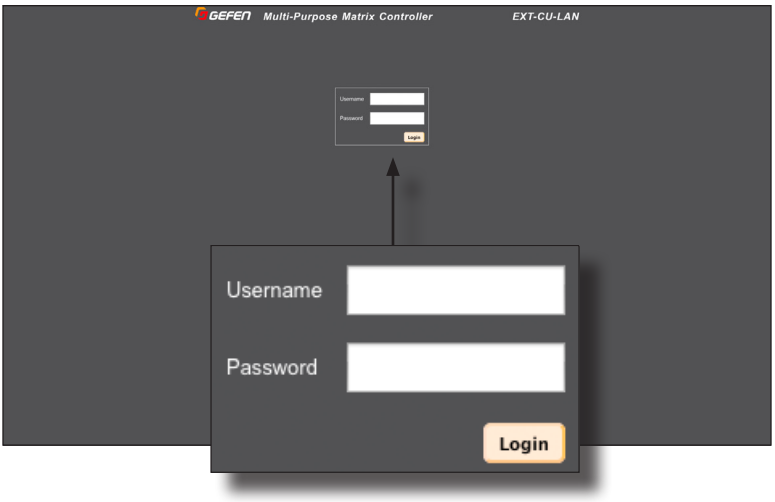
7. Connect a computer to the same network as the Matrix Controller, as shown below. Set the computer's IP address to `192.168.1.xxx`, where `xxx` is a value between 1 and 254.



Important

Do not use the IP address 192.168.1.74 because this is the IP address of the Matrix Controller. If the current network configuration is already within this range, make sure that the IP address 192.168.1.74 is not assigned to another device in order to avoid conflicts.

8. Set the subnet mask to `255.255.255.0`.
9. Open a Web browser and enter the following address: `192.168.1.74`.
10. The login page to the Matrix Controller will be displayed.

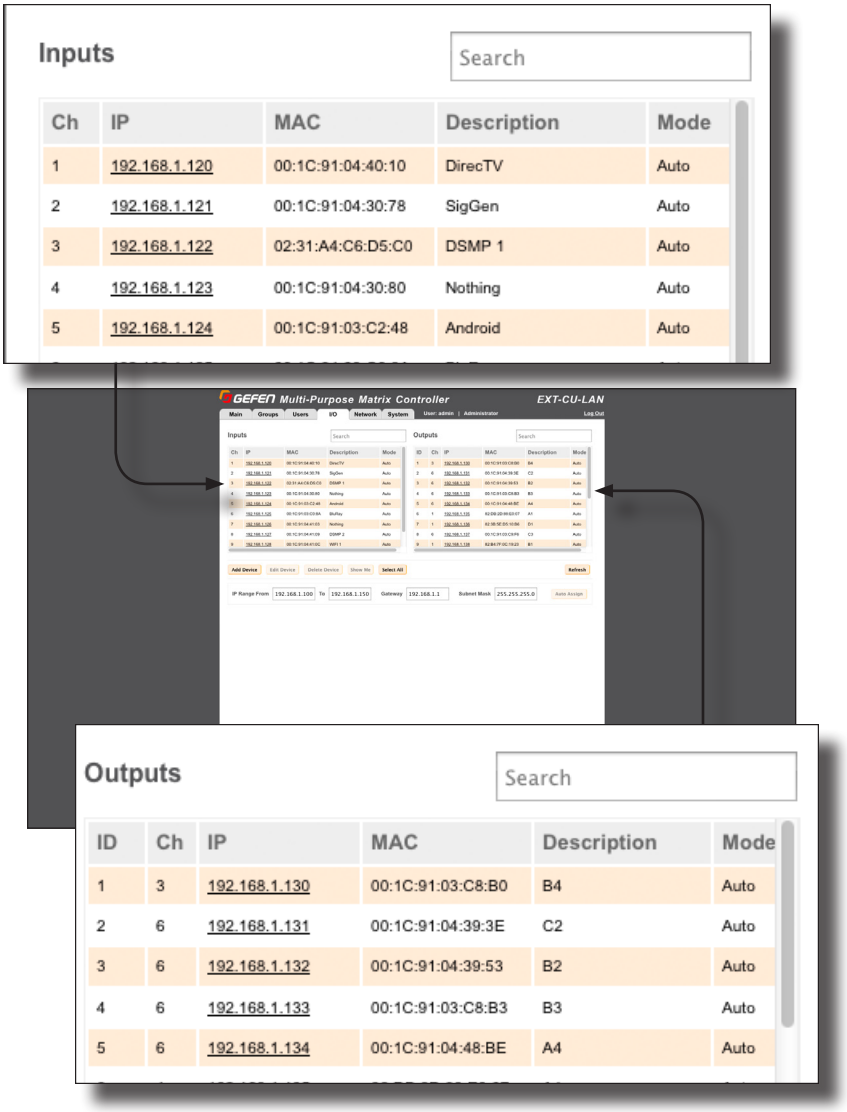


10. Type `admin` (case-sensitive) in both the **Username** and **Password** fields, then click the **Login** button.

This section will concentrate on the configuration of each KVM over IP device on the network. This process is handled through the Matrix Controller.

1. Click the **I/O** tab.

2. All Gefen KVM over IP products, that are connected to the network, will be displayed under the **Input** and **Output** lists, as shown below. The Matrix Controller automatically discovers all available Gefen KVM over IP products.

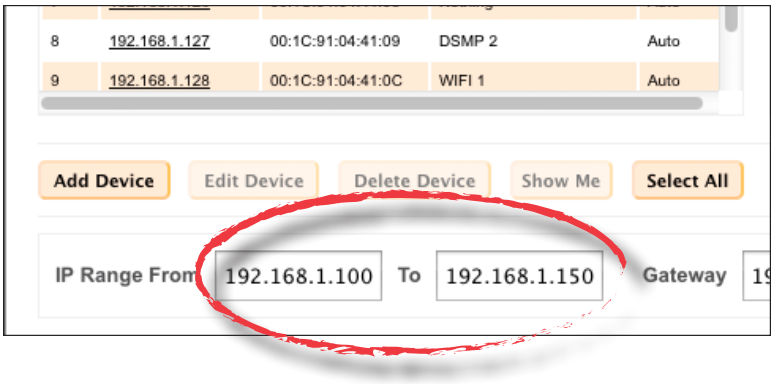


Important

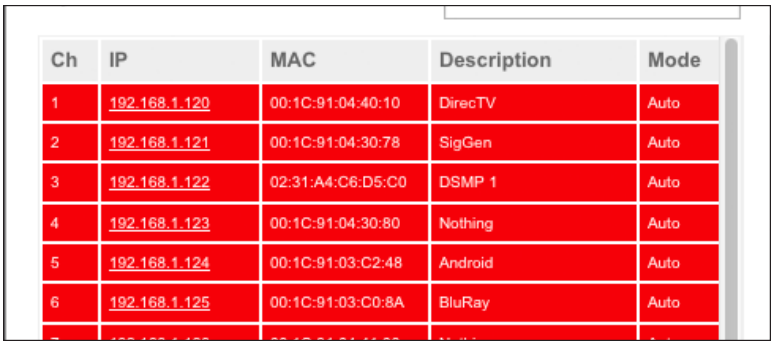
Before proceeding, contact your IT administrator for a valid range of consecutive IP addresses that can be applied to the Gefen KVM over IP products (e.g. 192.168.1.100 to 192.168.1.150).

3. Enter the provided IP addresses (from the IT administrator) in the IP Range From and To fields. The IP address range should meet the following requirements:

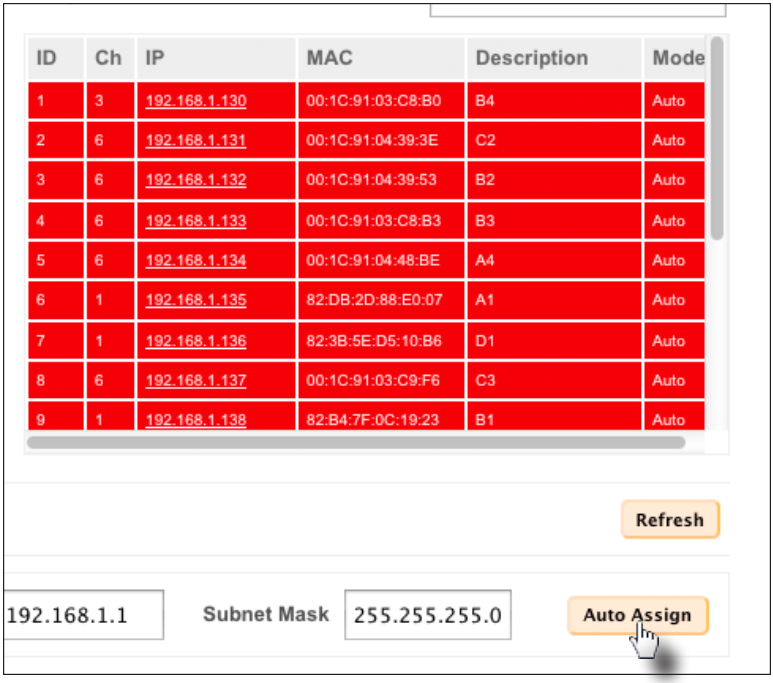
   - ► The range should be large enough to include all of the devices that will eventually be added to the network, with room for possible expansion.
   - ► The IP addresses should be outside of the assigned DHCP range assigned by the network router.
   - ► The IP addresses should not be assigned to any existing devices in this range (including devices such as laptop computers that may currently be disconnected, but which have previously been assigned addresses in this range.



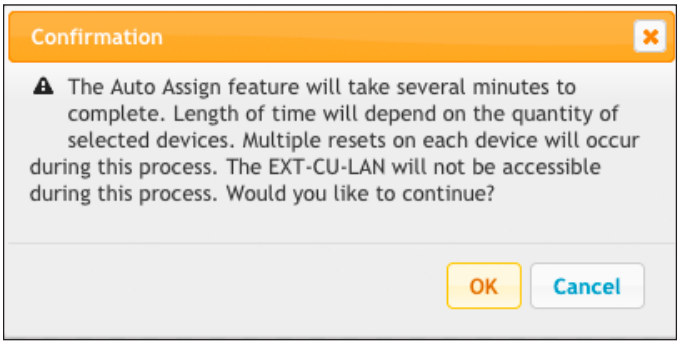
4. Click the **Select All** button to select all discovered devices under the **Input** and **Output** list. Any time a device is selected from either list, it will be highlighted in red.



5. Click the **Auto Assign** button on the right side of the screen, under the **Outputs** list.



6. The following message box will be displayed:

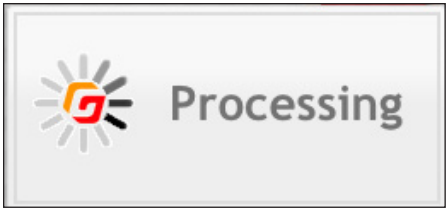


During the Auto Assign procedure, the Gefen KVM over IP products may reboot multiple times.

The Web interface will not be available during this process. DO NOT attempt to refresh the page during the process.

7. Click the **OK** button to continue.

8. The following message box will be displayed and will disappear when the process has completed:

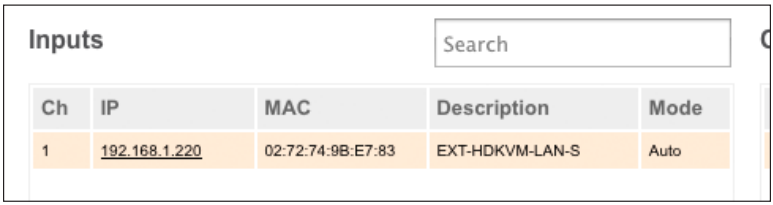


9. Provide a unique description for each input and output device. Make sure the descriptions are meaningful (e.g. “Blu-ray”, “Samsung 65”, etc.). This step is highly recommended and will provide easy management of devices, particularly in large-scale setups.

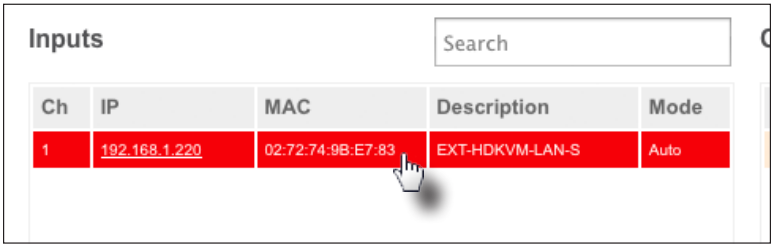
> **Important**
>
> Do not use special characters, such as double-quotes (“), asterisks (*), etc., in any text field. Only these special characters are supported: (space), underscore (_), hyphen (-), and period (.).

To change the description of an input or output unit, do the following:

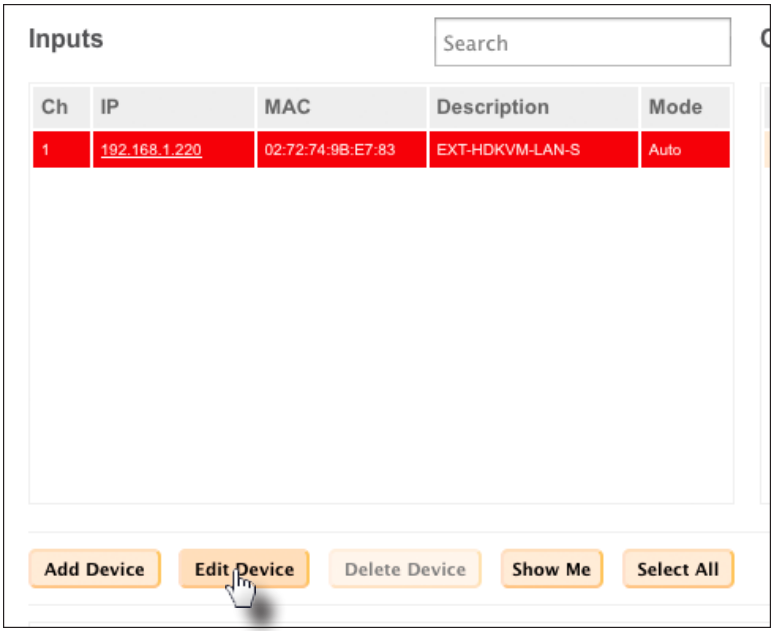
a. Click on the desired unit, from the Input or Output list, to select it. In this example, we will begin by selecting the input device. For clarity, we will be working with only one input and one output.



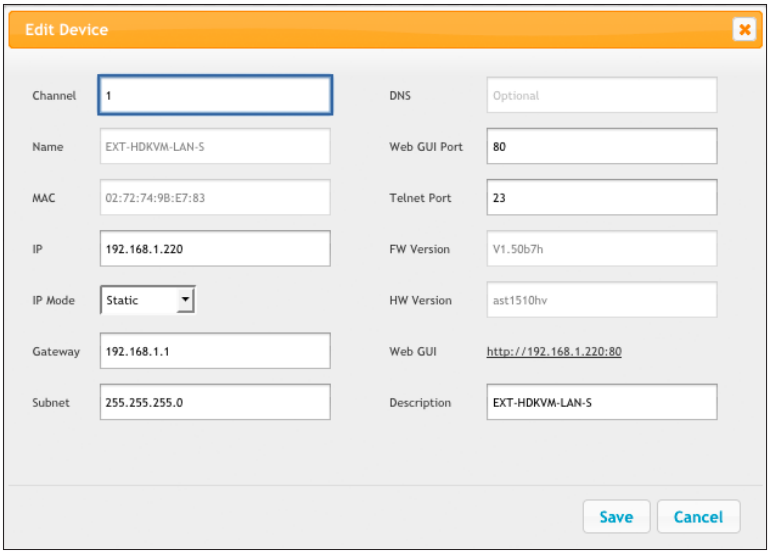
b. When selected, the device will be highlighted in red.



c. Click the **Edit Device** button. Note that only one device can be changed at a time. If more than one device is selected, then the **Edit Device** button will be disabled.

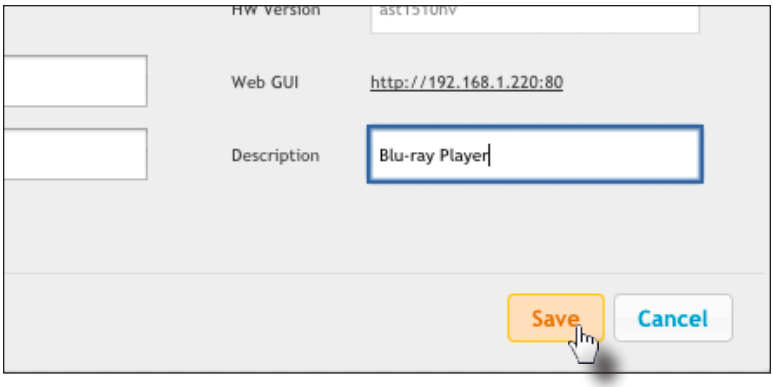


d. The **Edit Device** dialog box will be displayed.

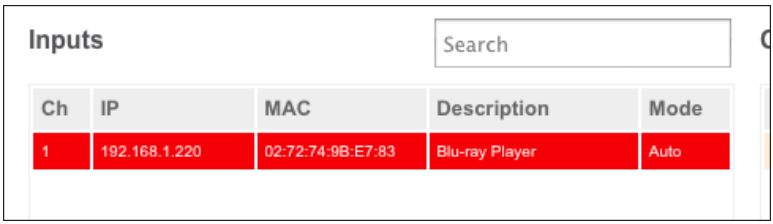


e. The default device name will be displayed in the **Description** field. Click in the **Description** field and change the name.

f. Click the **Save** button on the **Edit Device** dialog.



g. The *processing* message box will be displayed and after a few seconds, the device description will be updated.



h. Repeat steps a - g for each device under both the Input and Output list.

Important

Before continuing, verify that all units have an IP address that is within the specified range. Each input device should have a unique Channel number. Each output device should have a unique ID number.

Matrix Controller

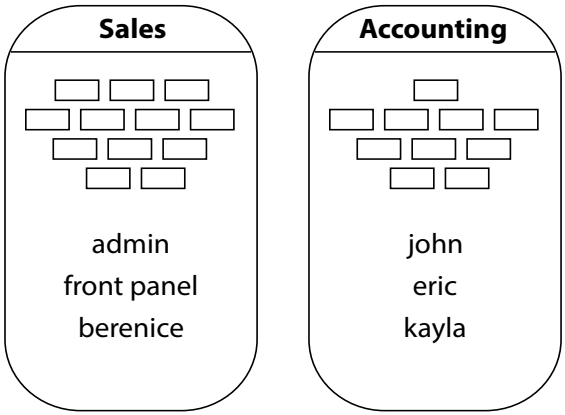
2 Basic Operation

In order to introduce a level of organization to how end-users interact with Matrix Controller, it is important to understand the concepts of *groups*, *users*, and *members*. Let's first define each of these terms:

- A *group* is a collection of both *members* and inputs/outputs. Groups are created under the **Groups** tab in the Web interface. See Creating Groups (page 31).
- A *user* is a name identifier that is created and assigned an administrator or operator *access level*. We'll discuss *access level* in the next section. Users are created under the **Users** tab in the Web interface. See Creating Users (page 26).
- A *member* is a *user* that has been assigned to a *group*. It is important to make the distinction between a *user* and a *member*. *Members* are managed under the **Groups** > **Members** tab in the Web interface. See Adding Members (page 40).

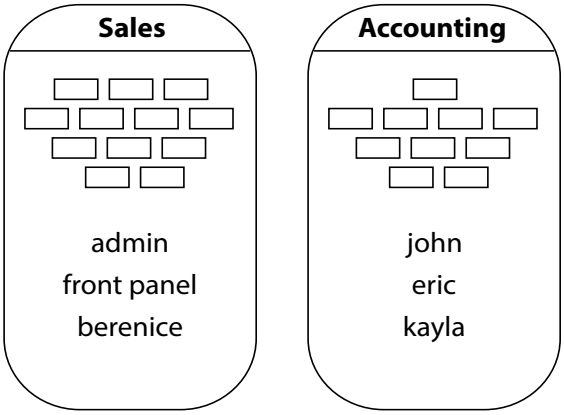
Now that we have defined each term, let's put them together in an illustration.

In the diagram, below, we have created two *groups:* **Sales** *and* **Accounting**. Each *group* contains three *members*. The small rectangles within each *group* represent an arbitrary number of inputs and outputs that are assigned to the *group*.

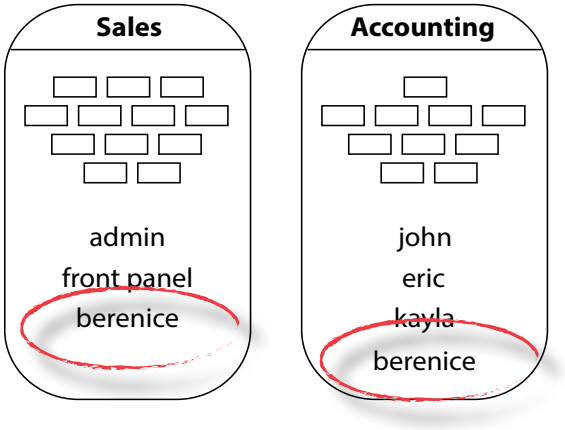


It should be noted that *users* only have routing access to the *group* (or groups) to which there are assigned. Let's look at an example

The *user* "berenice" is currently assigned to **Sales** and she will only be able to access the set of inputs and outputs that are within the **Sales** *group*. She cannot access the inputs and outputs in the **Accounting** *group* because she is not a *member* of that *group*.



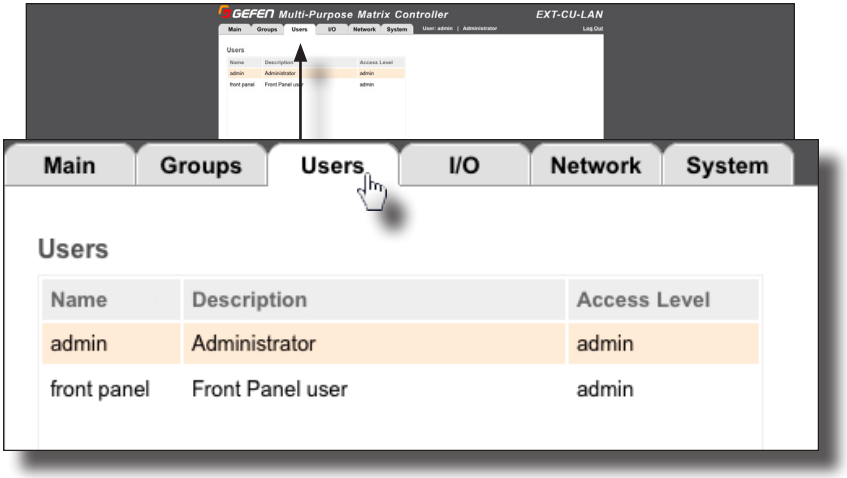
Now, let's add "berenice" to the **Accounting** *group*. When logging in to the Web interface, Berenice will now be able to access the inputs and outputs under both the **Sales** *group* and the **Accounting** *group*.



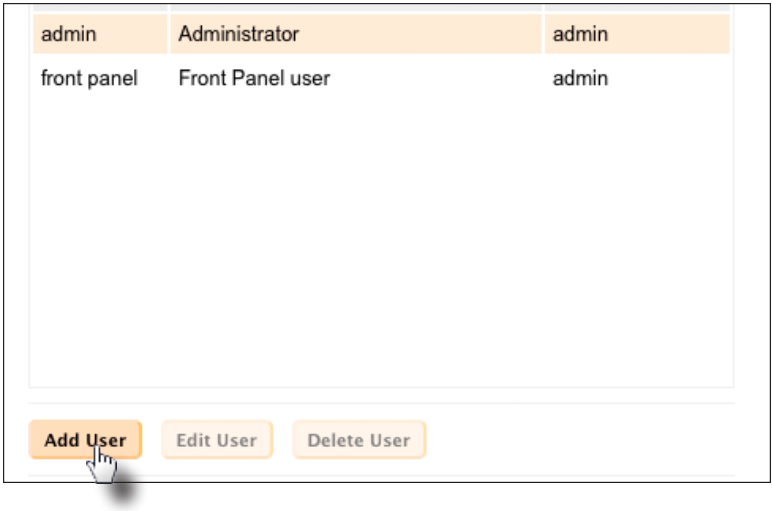
Creating Users

The Matrix Controller includes two *users*: `admin` and `front panel`. Each *user* can have one of the following *access levels*: Administrator or Operator. By default, both `admin` and `front panel` users have *administrator* access. Administrator access allows all options, within the Web interface, to be viewed and/or changed by a *user*. *Operator* access restricts a *user* to routing inputs and outputs.

1. Click the **Users** tab.



2. Click the **Add User** button.



3. The **Add User** dialog will be displayed.

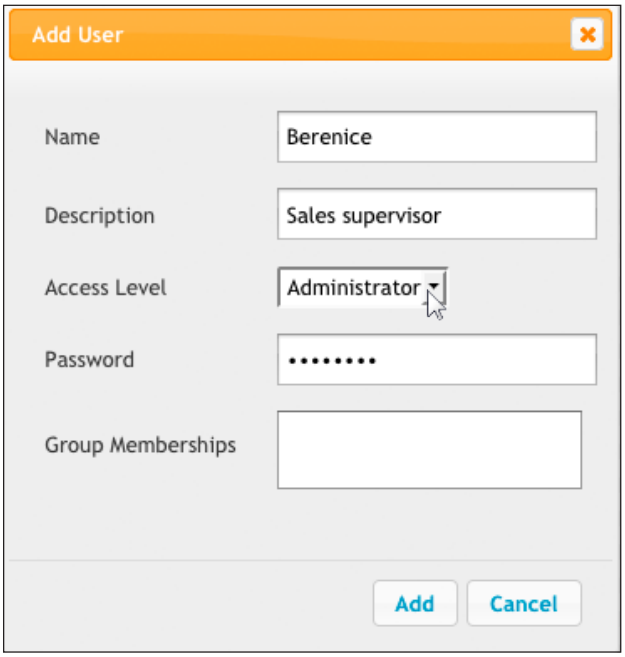
   d. Type the name of the *user* in the **Name** field.

   e. Enter a description for the *user* in the **Description** field.

   f. Click on the **Access Level** drop-down list to select the access for the *user*. Administrator access allows all options to be viewed and changed. Operator access restricts users to routing operations and prohibits access to system settings.

   g. Create a password for the *user*. The password will be masked.

   h. Click the **Add** button.



4. Repeat Steps 2 - 3 for each *user* that is created.

   Although you may create any *user* ID you wish, it is not recommended to create a *user* called “operator” or “administrator” as this can be confused with the *access level* of the *user*.

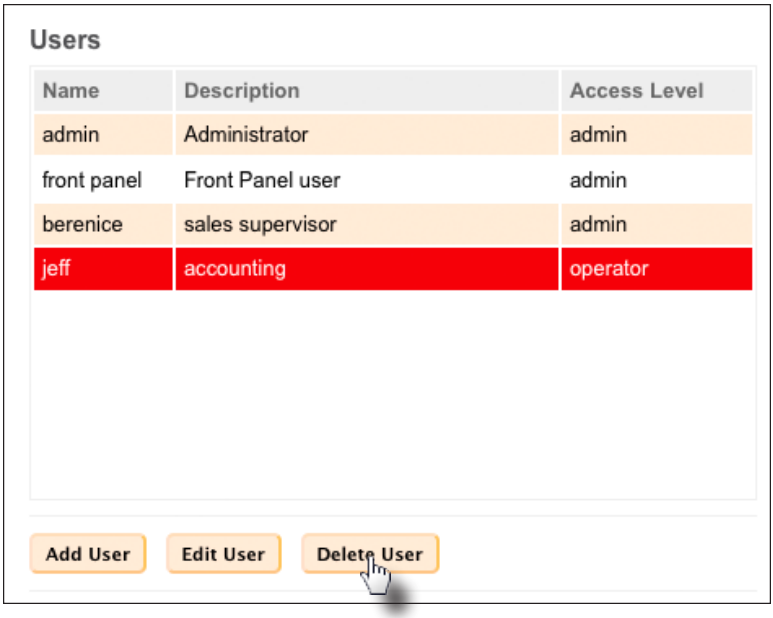
Important

If the user “front panel” is set to Operator access level, then the menu system cannot be accessed through the front panel.

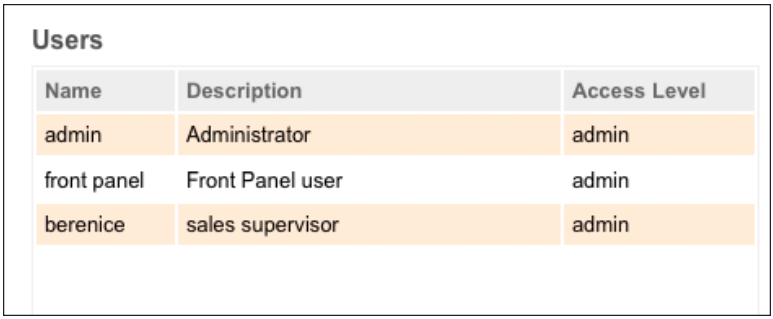
Deleting Users

Deleting a *user* will remove that *user* from the **Users** list. To remove a *user* from a *group*, without permanently deleting the *user* profile, see Removing Members (page 42).

1. Click the **Users** tab.
2. Click on the *user* to be deleted. In the example, below, we delete the *user* **jeff**.



3. Click the **Delete user** button.
4. The *user* will be deleted.

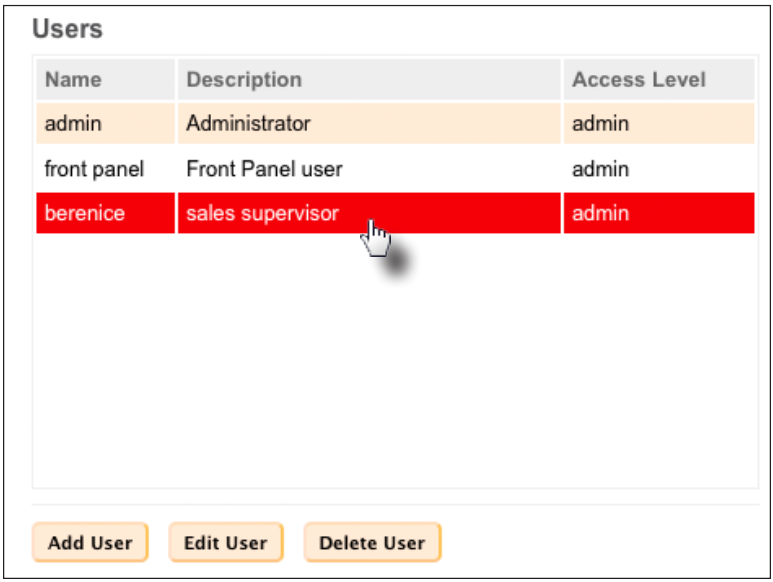


Editing Users

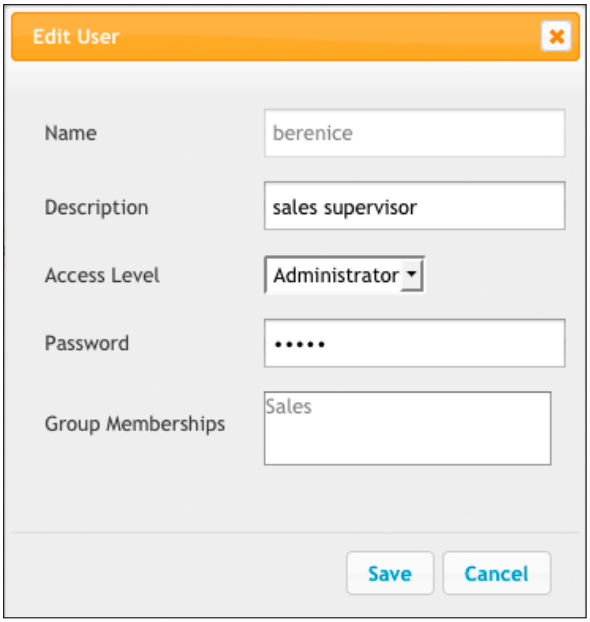
Editing a *user* allows you to change the **Description**, **Access Level**, and/or **Password** of any *user*. The two exceptions are: 1) The `admin` *user* can only have the password changed. 2). The `front panel` *user* can only have the *access level* and/or *passcode* changed.

> **Information**
>
> The `front panel` *passcode* must consist of six numerical digits. Alphabetic characters are not permitted.

1. Click the **Users** tab.
2. Click on the *user* to be edited. In the example, below, we have selected **berenice**.



3. Click the **Edit User** button to display the **Edit User** dialog.



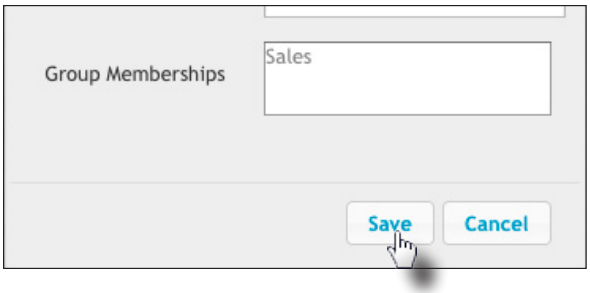
4. Make any desired changes to the **Description**, **Access Level**, and/or **Password** fields.

   The **Name** field cannot be changed. To change the *user* name, delete the *user* from the **Members** tab, then create the new *user* name. See Deleting Users (page 28) and Adding Members (page 40) for more information.

   If the *user* is already a *member* of a *group*, then the **Group Memberships** field will automatically be filled with the name of each *group*.

   Note that if the *user* is not a *member* of a *group*, then this field will be blank.

5. After the desired changes have been made, click the **Save** button.

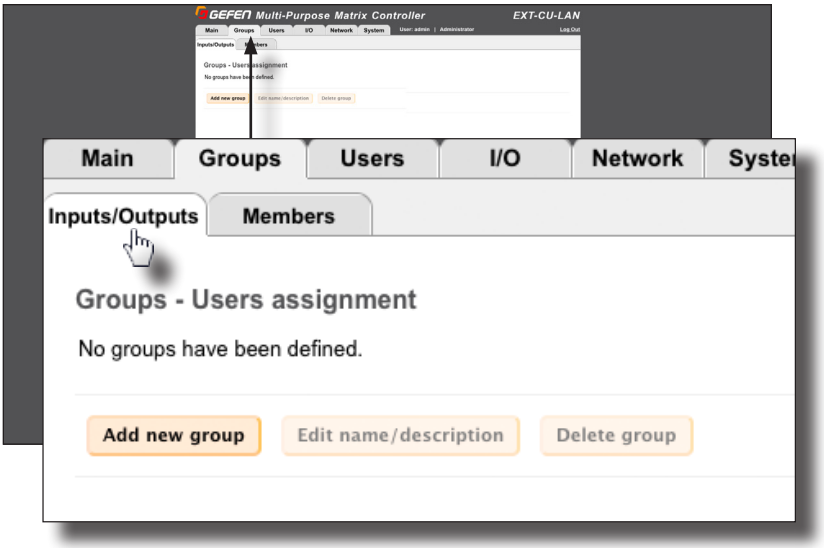


Creating Groups

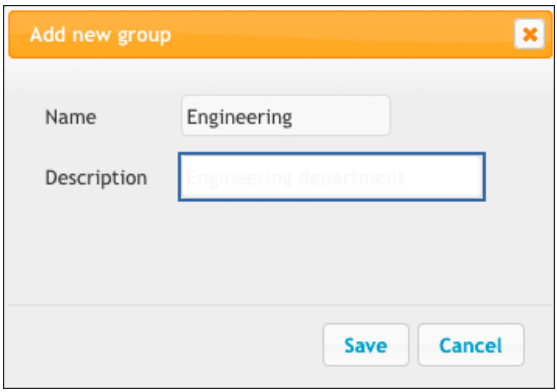
A *group* contains both a set of units (inputs and outputs) for routing and one or more users. Once a *group* is created, we can add the units and the users that will be able to access them. An unlimited number of groups can be created. See Groups, Users, and Members (page 24) for more information on groups.

1. Click the **Groups** tab.

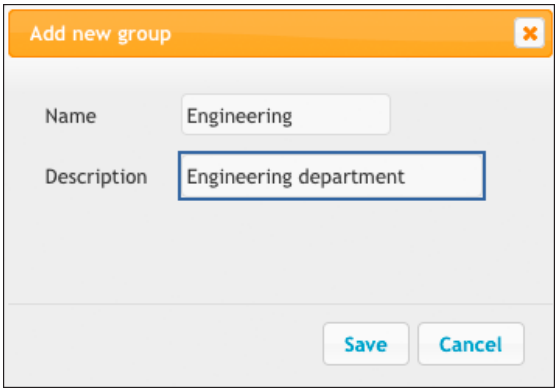
2. Under the **Input/Output** tab, click the **Add new group** button.



3. The **Add new group** dialog box will be displayed.

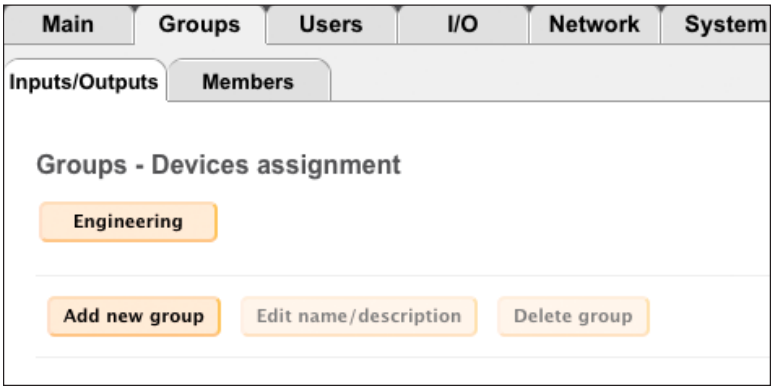


4. Enter the name of the *group* in the **Name** field. Enter the description for the *group* name in the **Description** field.



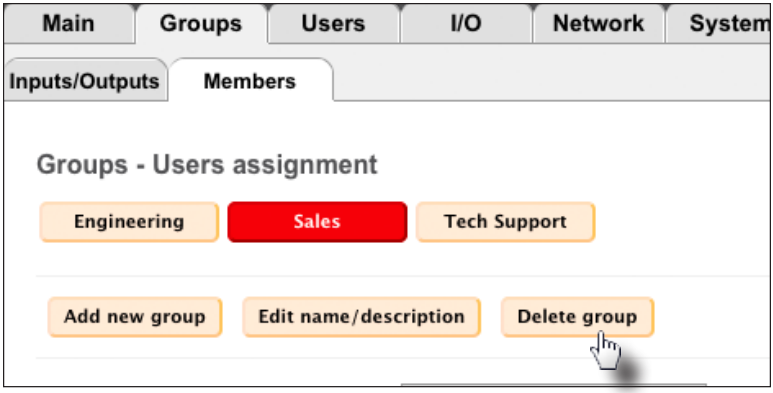
Grouping devices allows the administrator to restrict users to specified inputs or outputs. When using a large number of KVM over IP devices, it will be necessary to create and manage groups of devices for tracking, management, and ease-of-use.

5. Click the **Save** button to create the *group*. Each *group* that is created will appear as a button.

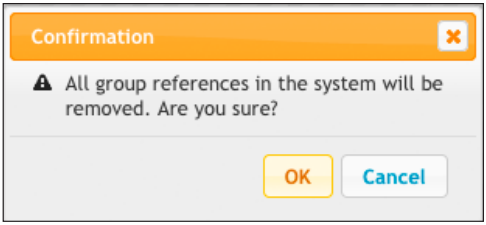


Deleting Groups

1. Click the **Groups** tab.
2. Click either the **Inputs/Outputs** or **Members** tab.
3. Click on the *group* to be deleted. In the example, below, we have selected the **Sales** *group*.
4. Click the **Delete group** button.



5. The following message box will be displayed.

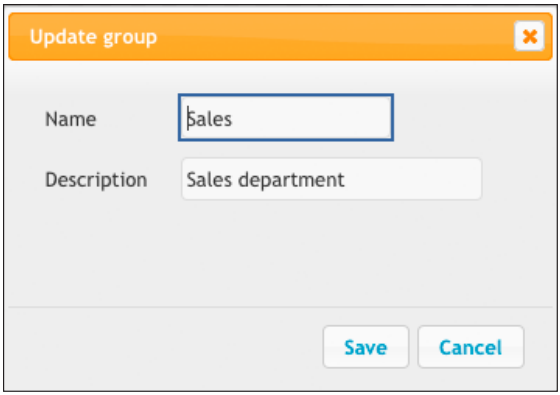


6. Click the **OK** button to delete the selected *group*. Click the **Cancel** button to cancel the procedure.

Editing Groups

1. Click the **Groups** tab.
2. Click either the **Inputs/Outputs** or **Members** tab.
3. Click on the desired *group*. In the example, below, we have selected the **Sales** *group*.
4. Click the **Edit name / description** button.

5. The following message box will be displayed.

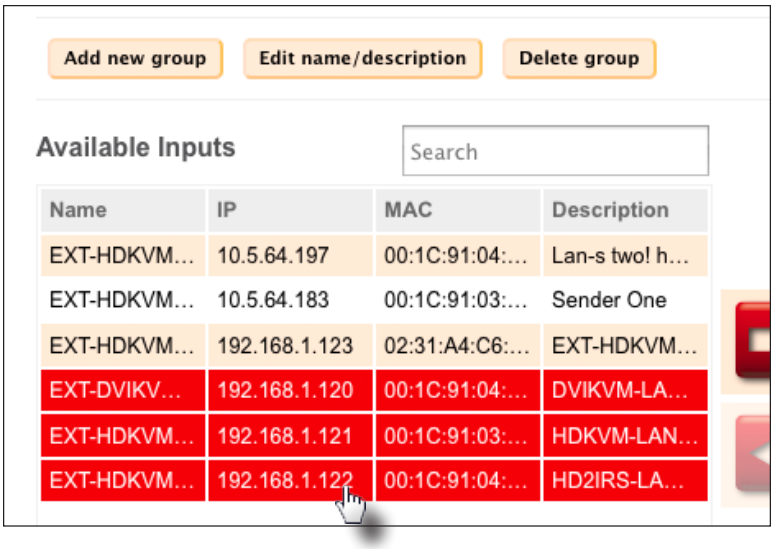


6. Change the **Name** and/or **Description** fields, as desired.
7. Click the **Save** button to accept the changes. Click the **Cancel** button to cancel the changes.

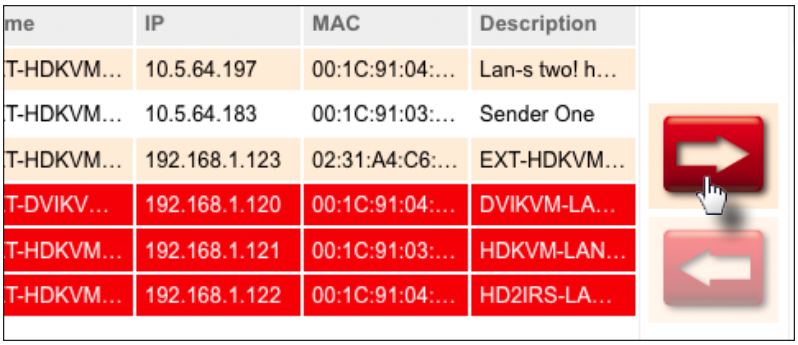
Adding Inputs and Outputs

Before we can route an input to one or more outputs, we must first define which inputs and outputs are available within the *group*. We do this by adding inputs and outputs to the **Associated Inputs** and **Associated Outputs** list.

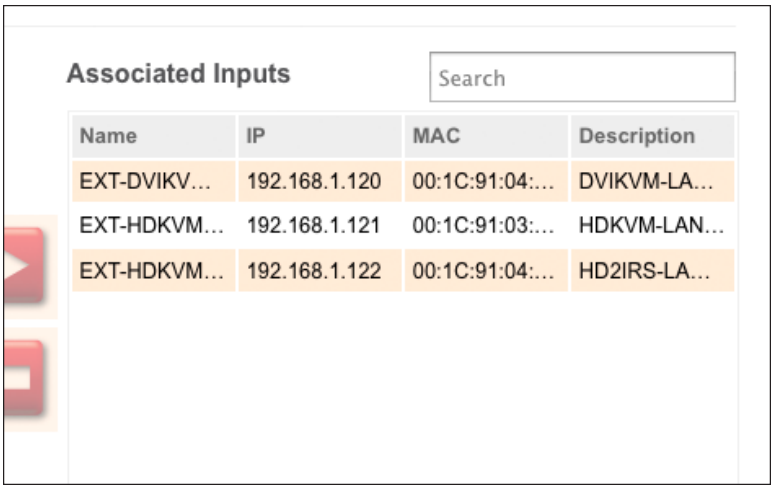
1. Click the **Groups** tab.
2. Click the **Inputs/Outputs** tab.
3. Click on the desired *group*.
4. Select the desired inputs, under the **Available Inputs** list. All available input devices, detected by the Matrix Controller, will be listed under the **Available Inputs** list.



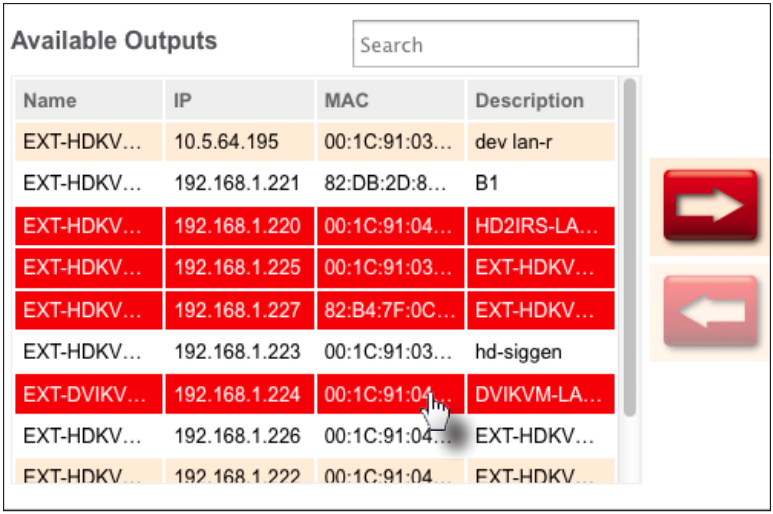
5. Click the arrow icon, pointing to the right.



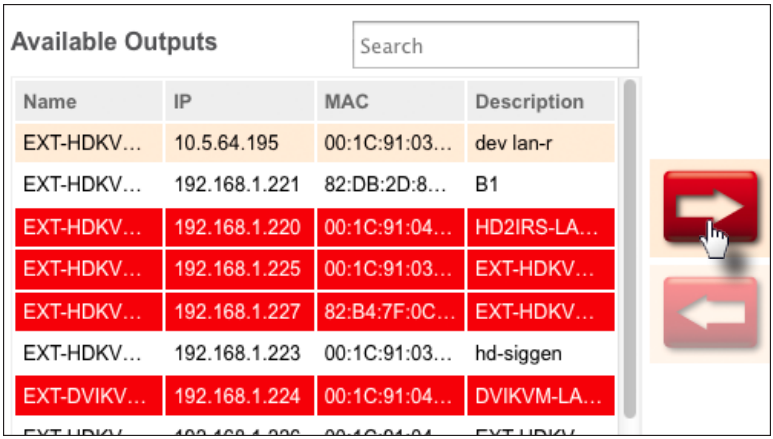
6. The selected inputs will appear under the **Associated Inputs** list.



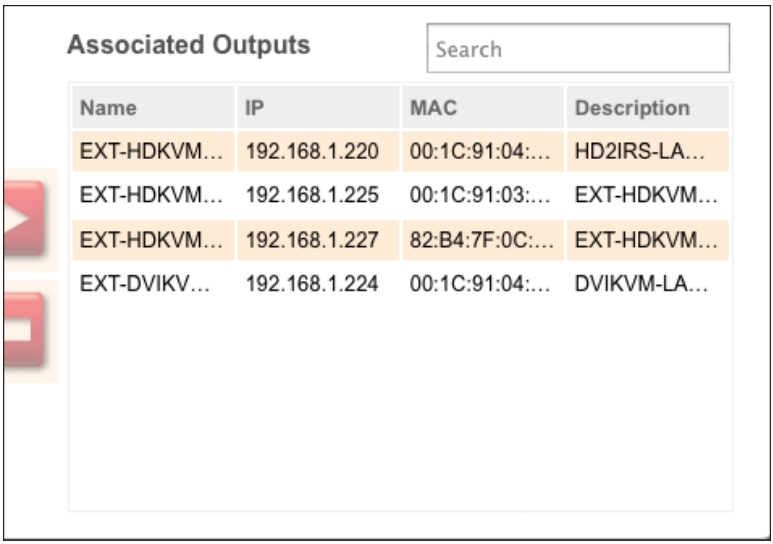
7. Select the desired outputs, under the **Available Outputs** list, to be associated with this *group*. All available output devices, detected by the Matrix Controller, will be listed under the **Available Outputs** list.



8. Press the arrow icon, pointing to the right, to move the selected outputs under the **Associated Outputs** list.



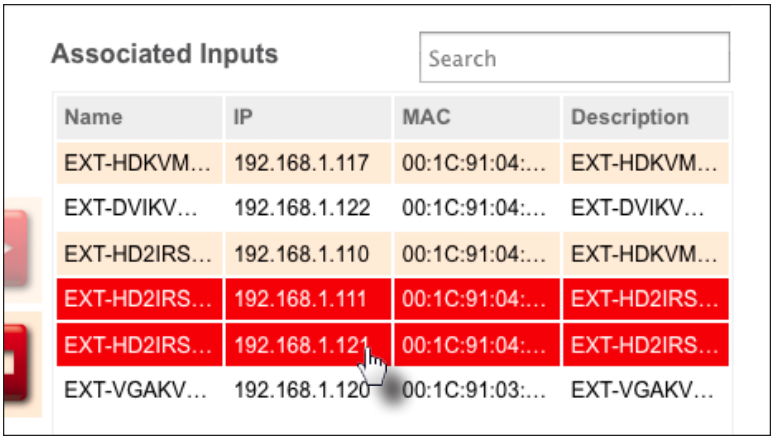
9. The selected outputs will appear under the **Associated Outputs** list.



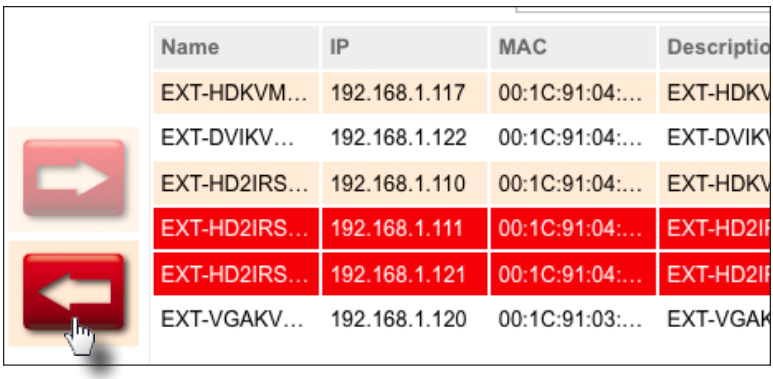
Removing Inputs and Outputs

Removing inputs and/or outputs is the opposite of adding them. Removing an input or output moves it to the **Available Inputs** or **Available Outputs** list, respectively, making it unavailable for routing.

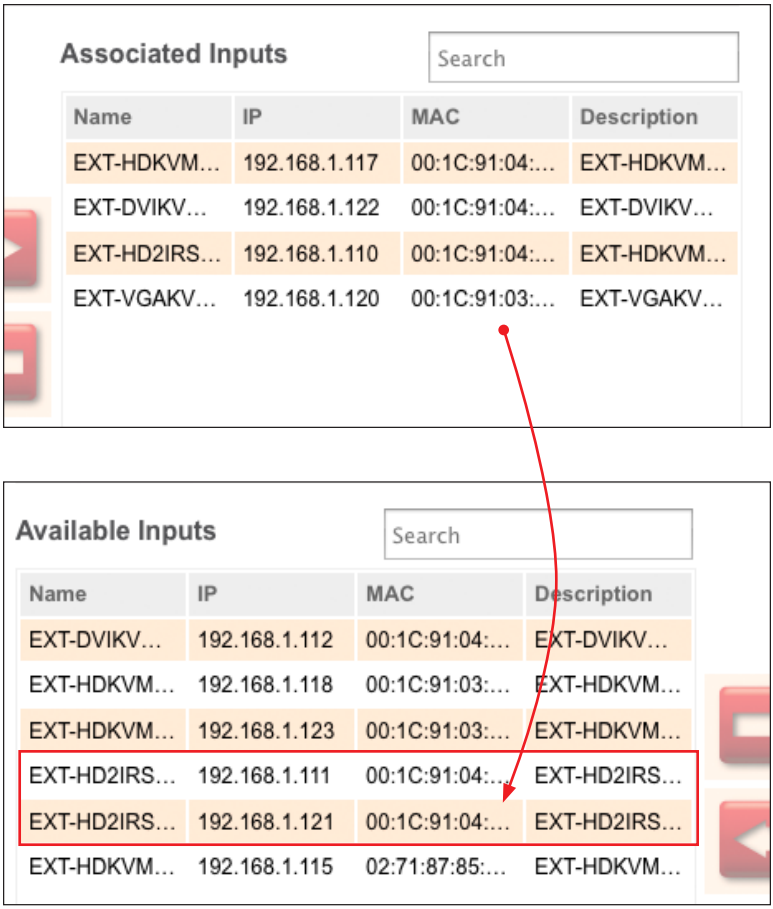
1. Click the **Groups** tab.
2. Click the **Inputs/Outputs** tab.
3. Click on the desired *group*.
4. Start with either the **Associated Inputs** or **Associated Outputs** list. The process for removing inputs or outputs is the same. In this example, we will remove two inputs.
5. Select the desired input(s).



6. Click the arrow icon, pointing to the left.



7. The selected inputs, under the **Associated Inputs** list will be moved under the **Available Inputs** list.



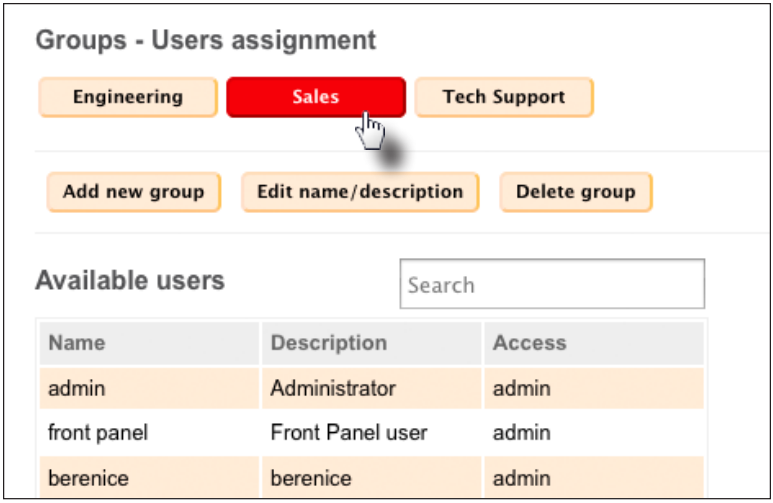
Now, when routing inputs to outputs (under the **Main** tab), this particular *group* will have four inputs instead of six.

8. an input or output does not “delete” the device from the system.

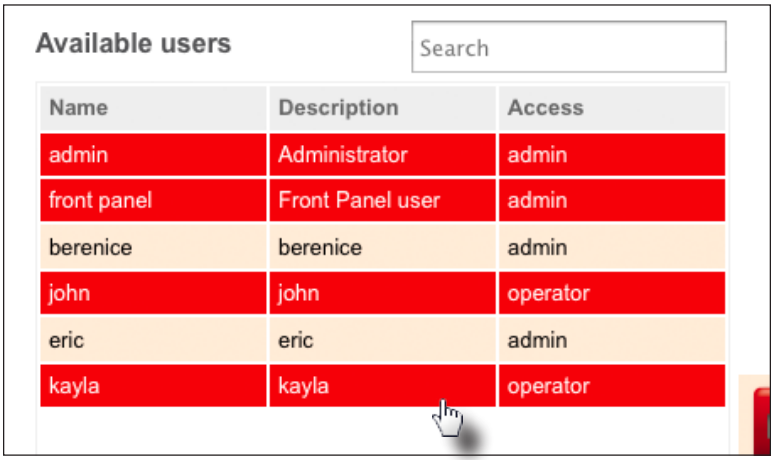
Adding Members

Next, we need to add users to each *group* that we created. When a *user* is added to a *group*, the *user* is referred to as a *member*.

1. Click the **Groups** tab.
2. Click the **Members** tab.
3. Click on the desired *group*.



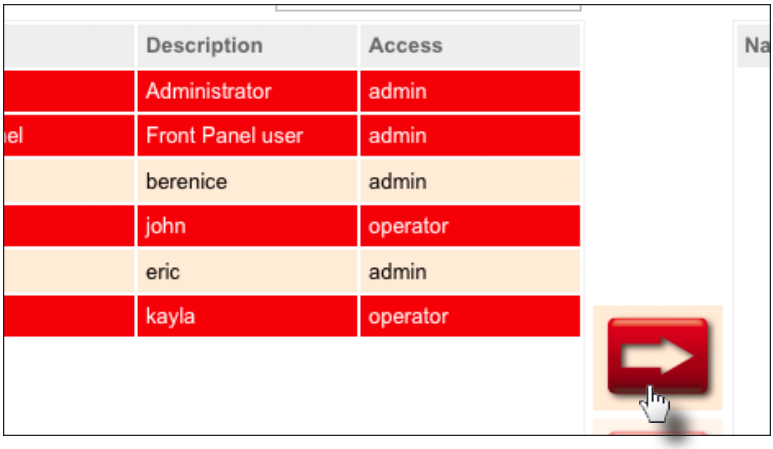
4. Select the desired *user*(s) for the *group*.



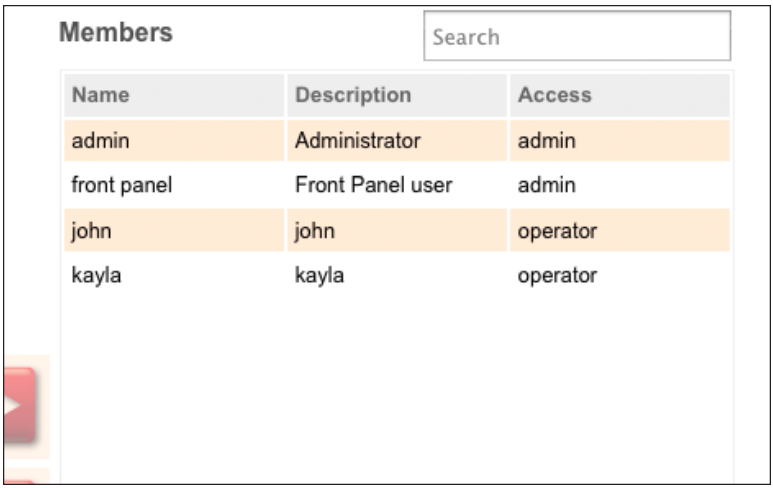
Important

The `admin` user must be added to the group in order for the group to appear under the **Main** tab. In addition, the `front panel` user must be added to a group in order to allow routing from the front panel of the Matrix Controller. See Routing (page 44) for more information on the **Main** tab.

5. Click the arrow icon, pointing to the right, to move the selected *user*(s) under the **Members** list. Users can belong to multiple groups.



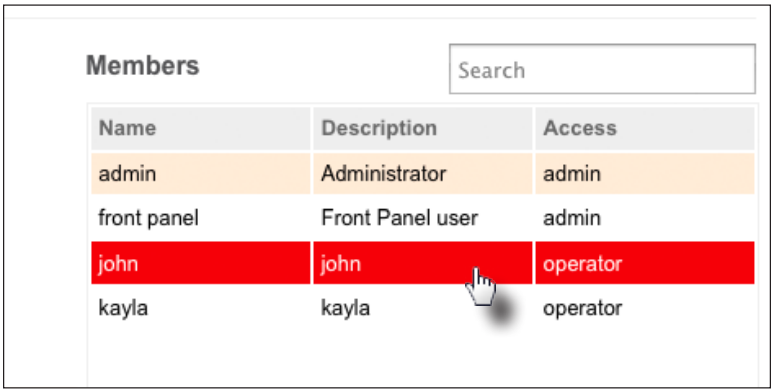
6. The selected *users* (admin, front panel, john, and kayla) are now *members* of this *group*.



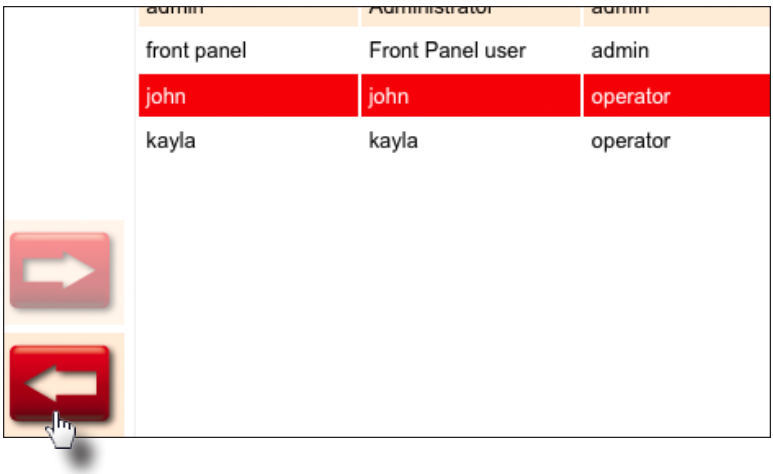
Removing Members

As with removing inputs and/or outputs, removing a *member* from a *group* does not delete the *member*. Removing a *member* from a *group* simply prevents that *user* from accessing the *group*. To permanently delete a *member* / *user*, see Deleting Users (page 28).

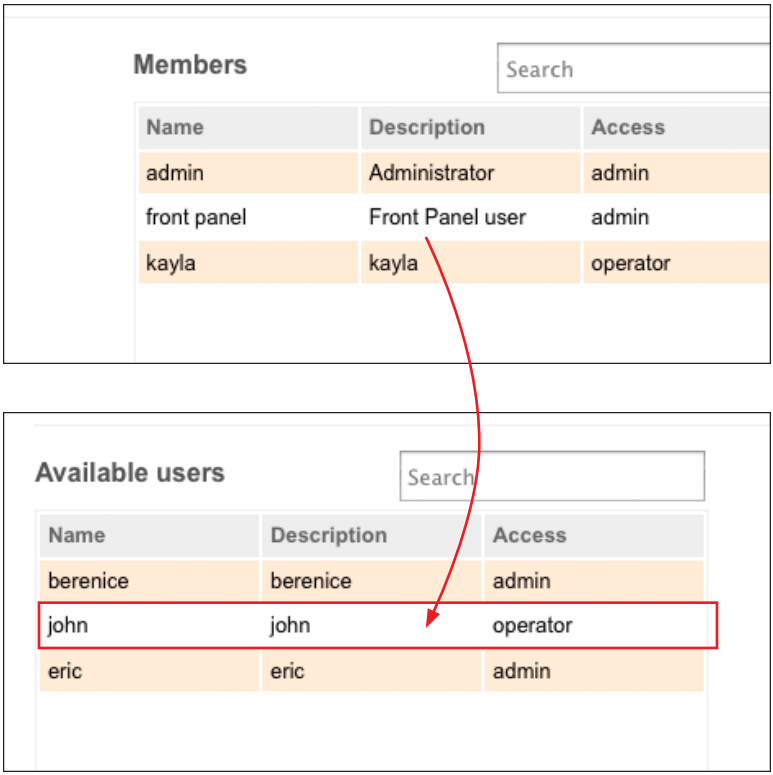
1. Click the **Groups** tab.
2. Click the **Members** tab.
3. Click on the desired *group*.
4. Click the desired *user* under the **Members** list. In this example, we will select **John**.



5. Click the arrow icon, pointing to the left.

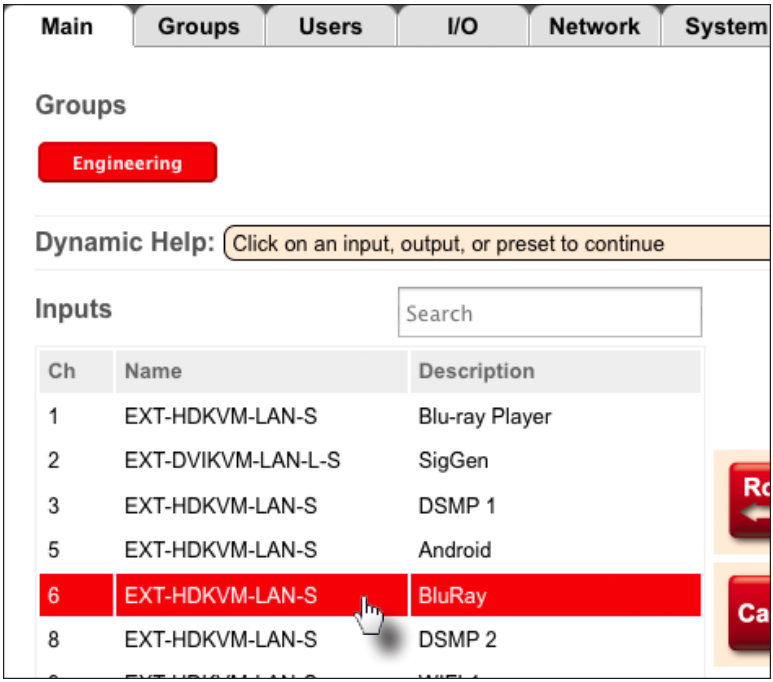


6. The selected *member* is now moved under the **Available users** list.

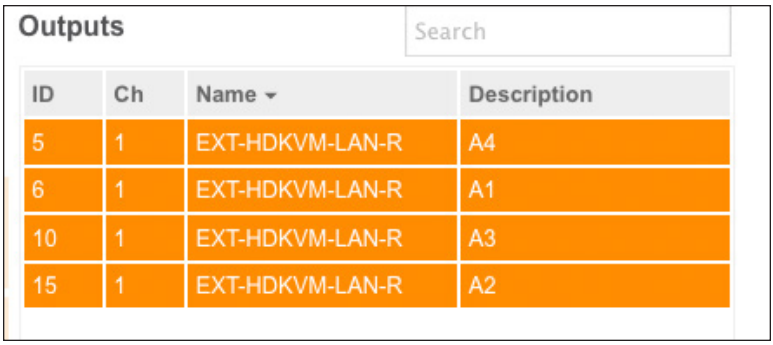


Inputs to Outputs

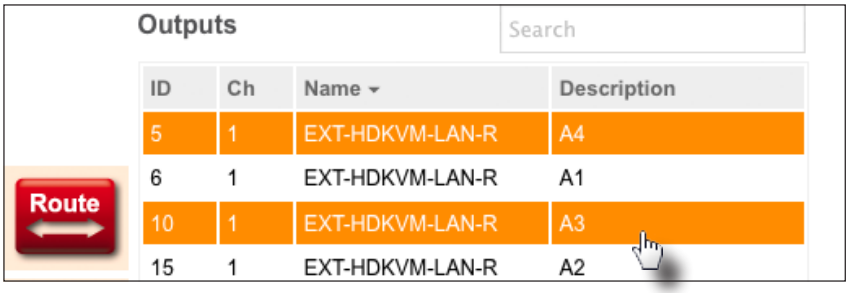
1. Click **Main** tab.
2. Click the desired *group* button.



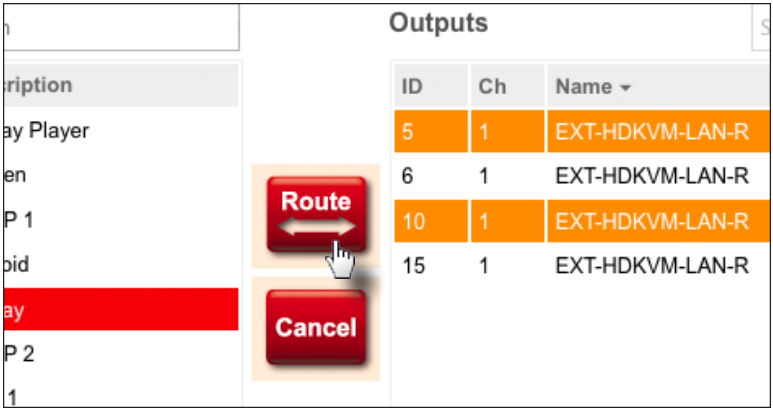
3. Click to select an input from the **Inputs** list. Only one input can be selected at a time. If the input is already routed to one or more outputs, the outputs will be highlighted in orange, as shown below:



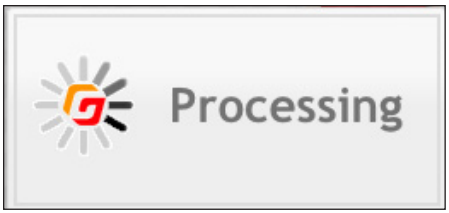
4. Click to select the desired outputs, under the **Outputs** list.



5. Click the **Route** button.

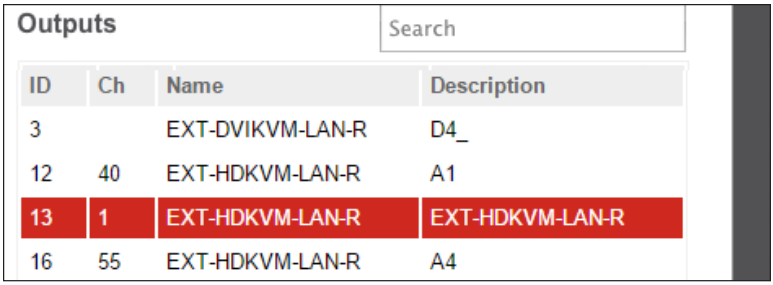


6. The processing message box will be displayed, while the new routing process takes effect. This message box will disappear when the routing process is complete.

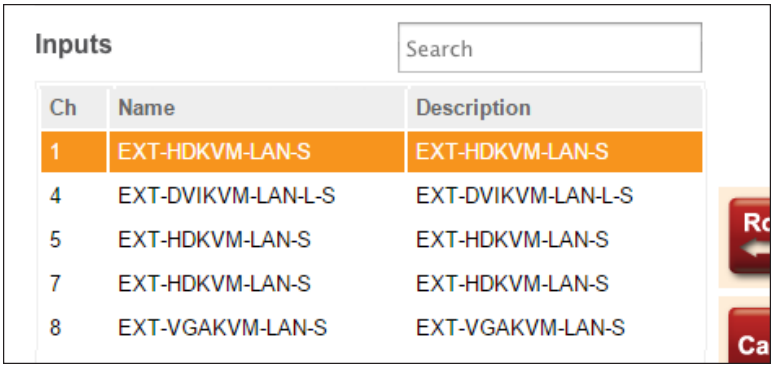


Outputs to Inputs

1. Click the desired output from the **Output** list. The input that is currently routed to the selected output will be highlighted in orange, under the **Input** list.

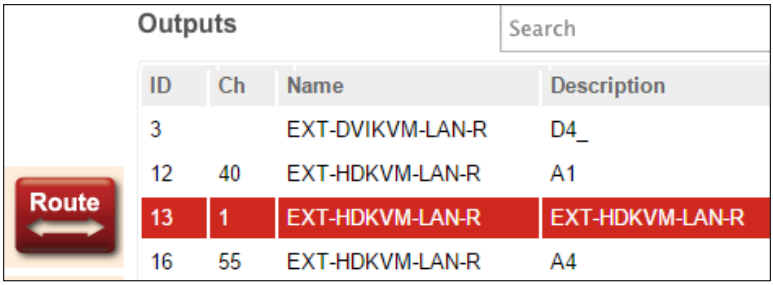


2. Select the desired input, from the **Inputs** list. Only one input can be selected at a time.



3. Select additional outputs, from under the **Outputs** list, as desired.

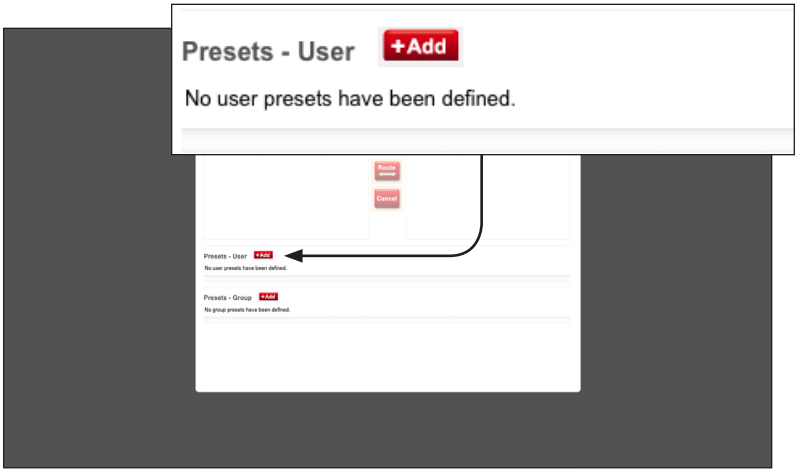
4. Click the **Route** button.



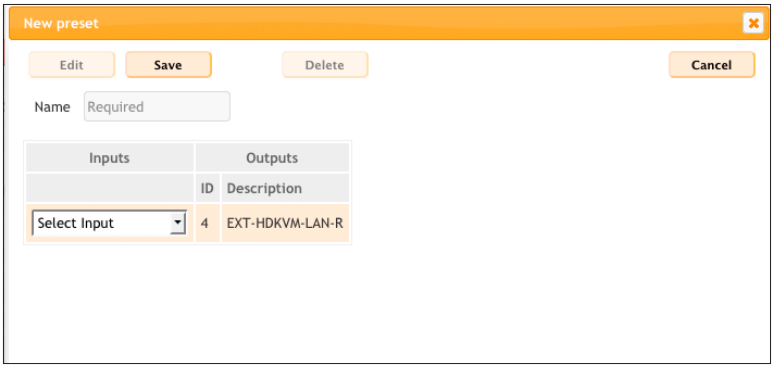
The Matrix Controller provides two types of presets: **User** and **Group**. When a *user preset* is created, it will only be available to the *user* for which it was created. When a *group preset* is created, it will be available to all users. In the examples, below, we will illustrate the creation of both a *user preset* and a *group preset*.

Creating User Presets

1. Click the **Main** tab.
2. Click the desired *group* button.
3. Near the bottom of the screen, click the **+Add** button, next to **Presets - User**.



4. The **New preset** dialog will be displayed.



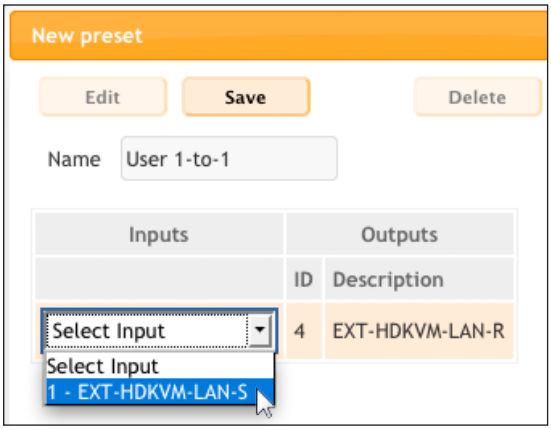
5. Enter the name of the preset in the **Name** field. This is required.

6. Click the drop-down list, under the **Inputs** column.

7. The drop-down list will display all available inputs. The **Outputs** column will list all available outputs.

   In this example, for simplicity, we only have one Sender unit and Receiver unit.

8. Select the desired input from the drop-down list, for each output that is listed.



For demonstration purposes, our *group* only contains one input and one output. The input(s) and output(s) that are displayed in this dialog box will be determined by the devices which have been assigned to the **Associated Inputs** and **Associated Outputs** column under the **Group** menu.

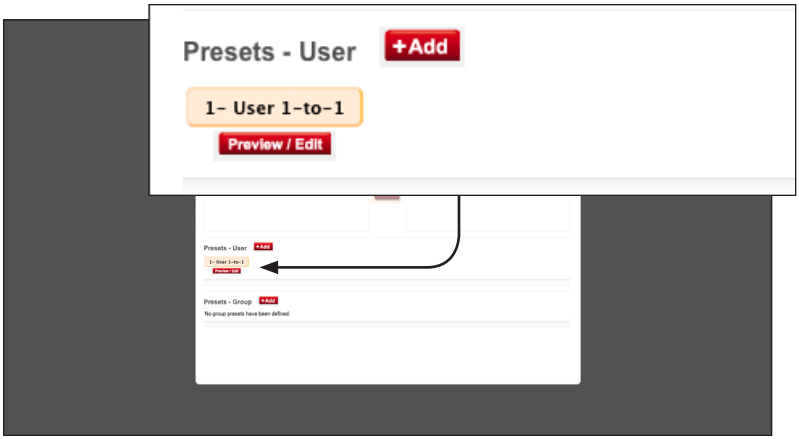
When creating *user* presets, only one input can be selected for each output that is listed. Only inputs can be selected. Outputs cannot be selected when creating a preset. If you wish to change the availability of an output, under the **Outputs** column, go the **Groups** menu and change the list of **Associated Outputs**, as desired.

See Creating Groups (page 31) for more information.

9. Click the **Save** button to save the changes to the preset.

10. Click the **Cancel** button to close the **New preset** dialog box.

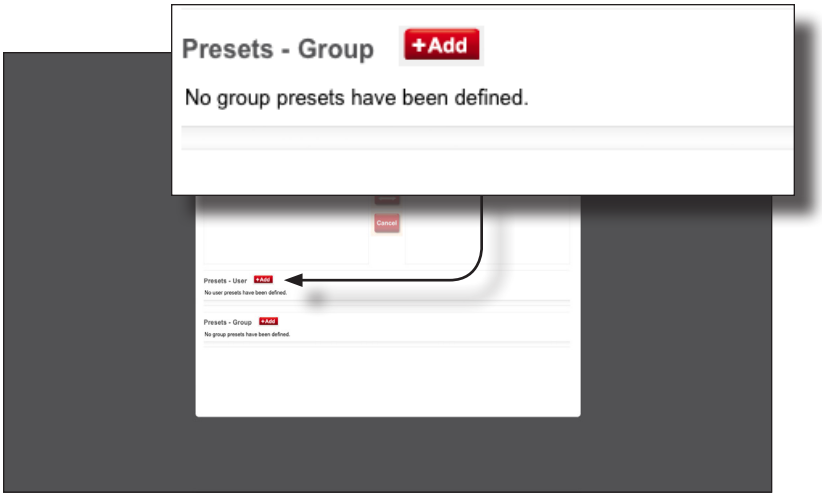
11. After the preset has been saved, a button will appear (with the provided name), under the **Presets - User** column, near the bottom of the page.



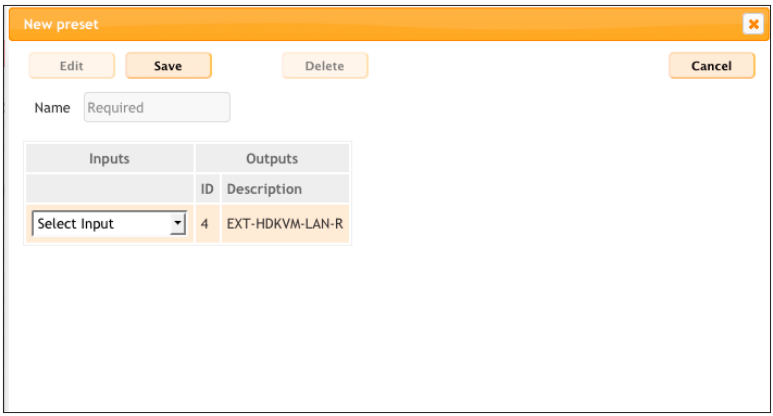
Creating Group Presets

When a *group preset* is created, it will be available to all groups. If you wish to create presets that are dependent upon the *user*, refer to Creating User Presets (page 47).

1. Click the **Main** tab.
2. Click the *group* button ("My Setup") to display the available inputs and outputs.
3. Near the bottom of the screen, click the **+Add** button, next to **Presets - Groups**.

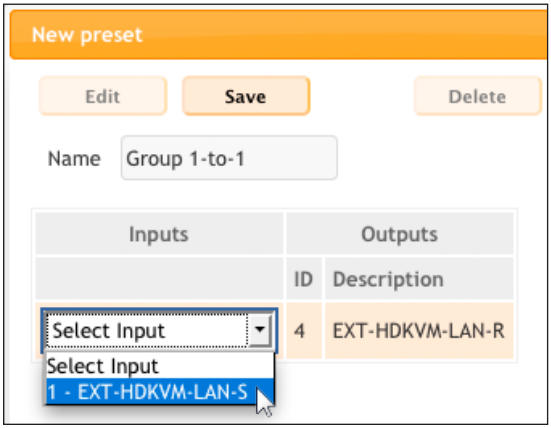


4. The **New preset** dialog will be displayed.



5. Enter the name of the preset in the **Name** field. This is required.

6. Click the drop-down list, under the **Inputs** column, and select the desired input. Only one input can be selected. In this example, we only have one Sender unit connected and we will select it.



For demonstration purposes, our *group* only contains one input and one output. The input(s) and output(s) that are displayed in this dialog box will be determined by the devices which have been assigned to the **Associated Inputs** and **Associated Outputs** column under the **Group** menu.

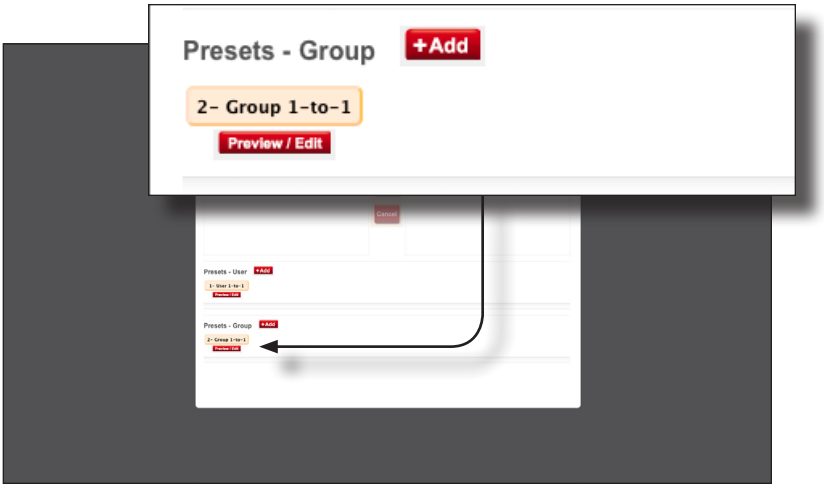
When creating *user* presets, only one input can be selected for each output that is listed. Only inputs can be selected. Outputs cannot be selected when creating a preset. If you wish to change the availability of an output, under the **Outputs** column, go the **Groups** menu and change the list of **Associated Outputs**, as desired.

See Creating Groups (page 31) for more information.

7. Click the **Save** button to save the changes to the preset.

8. Click the **Cancel** button to close the **New preset** dialog box.

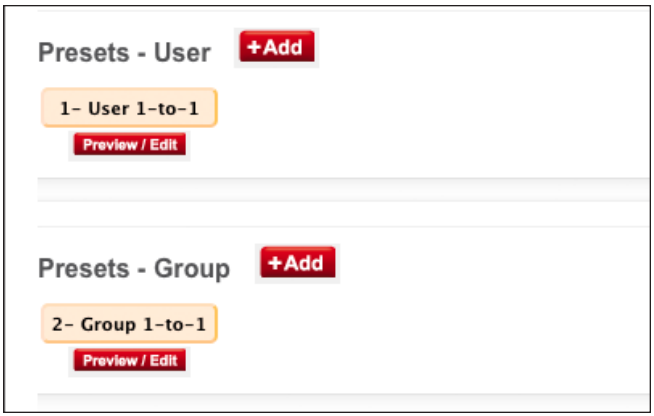
9. After the preset has been saved, a button will appear (with the provided name), under the **Presets - User** column, near the bottom of the page.



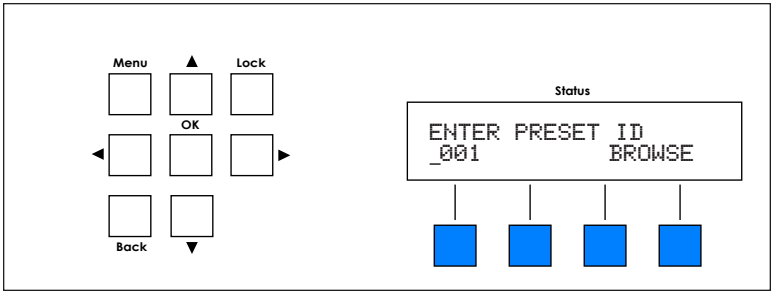
10. In the example, below, we've created both a *user preset* and a *group preset*. See Creating User Presets (page 47) for more information on User Presets.

    Note that when creating presets, that a prefix number is automatically assigned to the preset. The next number in sequence will depend upon how many presets currently exist.

    In this example, since a *user* preset was created first, it is assigned the number "1". The second preset was a *group* preset and was assigned the number "2". The next preset that is created, either a *user* preset or *group* preset, will be assigned the number "3".



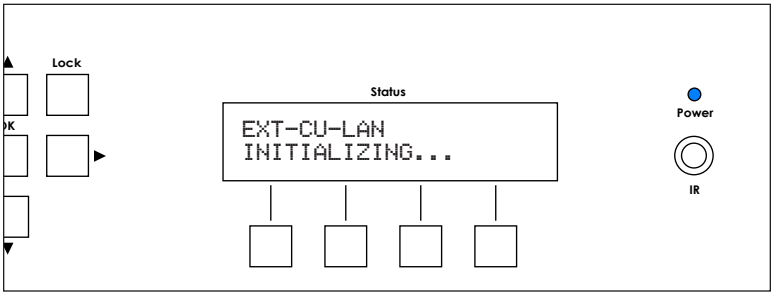
These prefix numbers are primarily used by the front panel display to identify presets:



See Selecting Presets (page 70) for more information on selecting presets using the front panel.

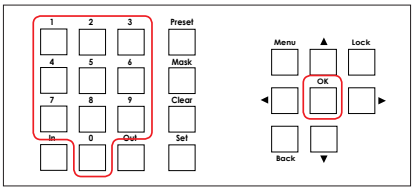
Accessing the Menu System

1. After connecting power to the Matrix Controller, the following message will appear in the **Status** window:

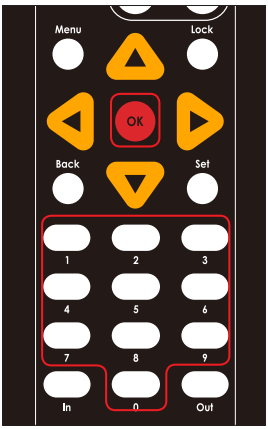


2. After a few moments, the passcode screen will be displayed. This screen is also displayed after about 1 minute of inactivity, for security purposes.

3. Use the numerical keypad to enter the passcode. The default passcode is `123456`. To change the passcode, refer to Creating Groups (page 31).



OR



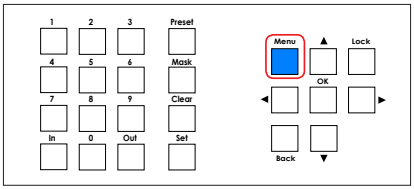
4. Press the **OK** button.

5. The *standby screen* will be displayed:

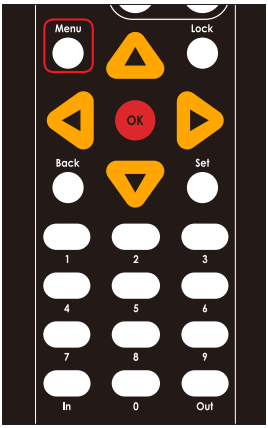
```
PRESS ANY KEY
TO START
```

6. Press the **Menu** button.

7. The **Menu** button, on the front panel, will glow solid blue and the **Network** menu will be displayed.

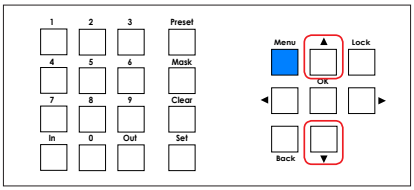


OR

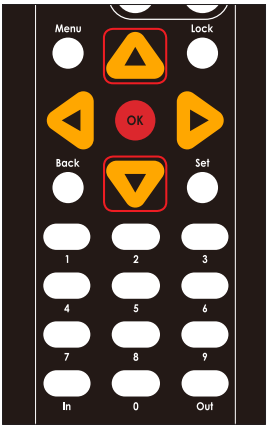



```
NETWORK
```

8. The menu system contains two menus: **Network** and **System**. Press the ▲ or ▼ buttons to select either menu system.

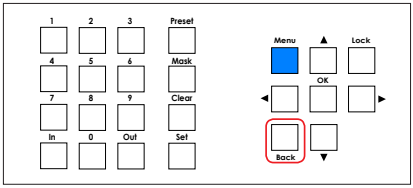


OR

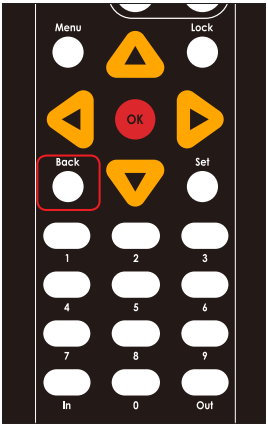


9. Once the desired menu is selected, press the **OK** button to enter the menu system. Refer to the following pages for details on each menu system option.

10. To return to the *standby screen*, press the **Back** button.



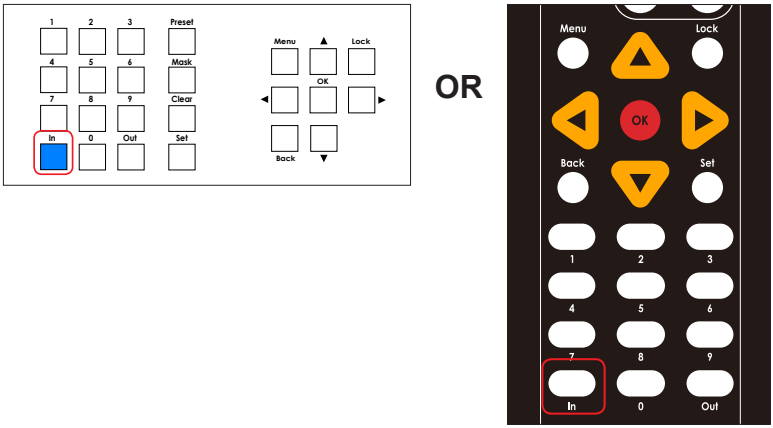
OR



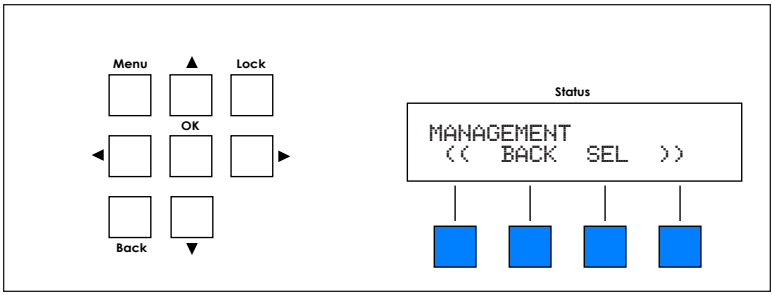

```
PRESS ANY KEY
TO START
```

Routing Inputs to Outputs

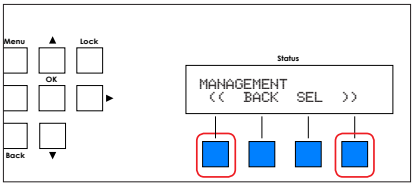
1. From the *standby screen*, press the **In** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.



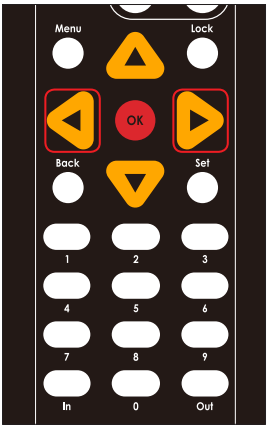
2. The four buttons under the **Status** window will glow solid blue and the *group* selection screen will be displayed. The currently selected *group* is displayed in the top row.



3. Select the *group* to work with by using the ◄ **or** ► buttons.



OR



4. Once the desired *group* is selected, press the **SEL** button. To return to the previous screen, press the **BACK** button

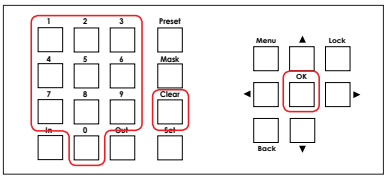
5. The following screen will be displayed:

```
ENTER INPUT CHANNEL
_01                BROWSE
```

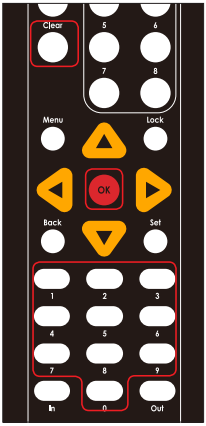
6. Select the desired input within the *group*. There are two methods:

   ► Select by Input Channel

   a. Use the numbers on the keypad to enter the number. If you make a mistake, press the **Clear** button to erase the entry. Press the **OK** button to accept the selection.

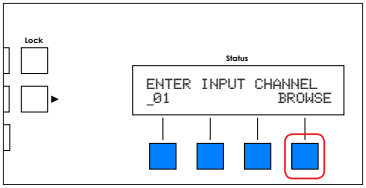


OR

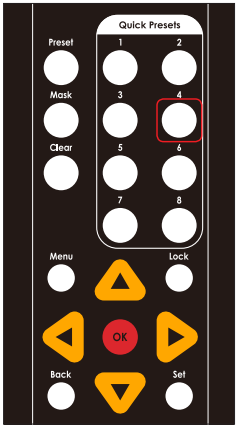


► Browse by Input

a. The second option is to press the **BROWSE** / **Quick Preset 4** button.

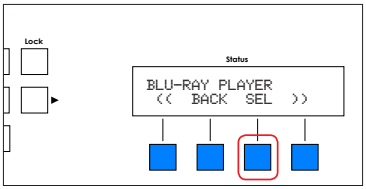


OR

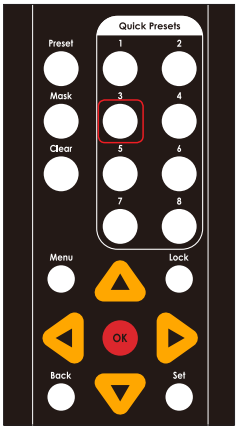


b. Use the ◄ or ► buttons to select the desired input. Each input will be listed by description, as shown in the example below.

c. Press the **SEL** button to select the currently displayed source.



OR



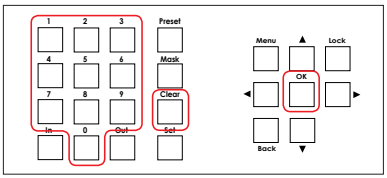
d. The output screen will be displayed.

```
ENTER OUTPUT ID
_0001          BROWSE
```

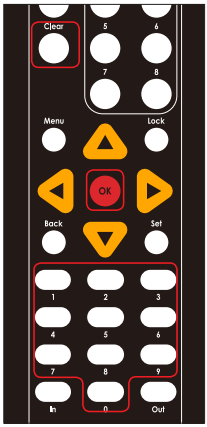
7. Select the output by one of the following methods:

► Select by Output Channel

a. Use the numeric keypad to enter the Output ID. If you make a mistake, press the **Clear** button to erase the entry. Press the **OK** button to accept the selection.



OR



► Browse by Output

a. Press the **BROWSE** / **Quick Preset 4** button.

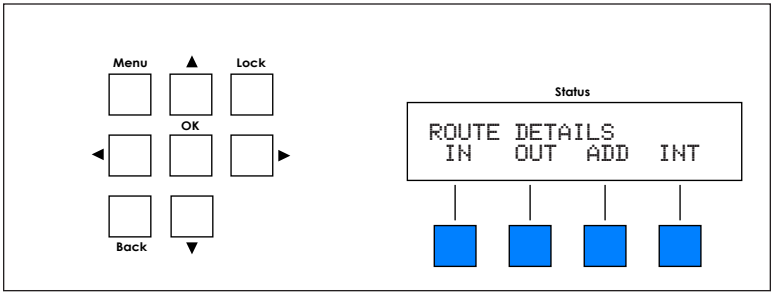
b. The output selection screen will be displayed:

```
SAMSUNG 24
 ((  BACK  SEL  ))
```

c. Use the ◄ or ► buttons to buttons to select the desired output.

d. Press the **SEL** / **Quick Presets 3** to select the current output.
Press the **BACK** / **Quick Presets 2** button to return to the previous screen.

8. The *route details* screen will be displayed.



From this screen, you can:

i. Press the **IN** / **Quick Preset 1** button to display the selected input.

```
BLU-RAY PLAYER
BACK
```

j. Press the **OUT** / **Quick Preset 2** button to display the selected output(s).

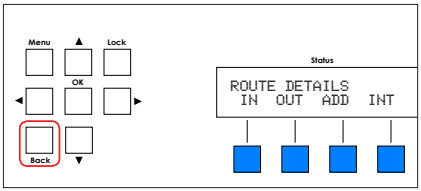
```
SAMSUNG 24
BACK   ((    ))
```

k. Press the **ADD** / **Quick Preset 3** button to add more outputs.
See Adding Outputs (page 68) for more information.

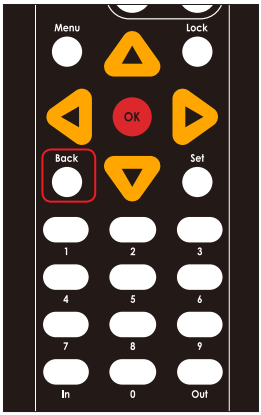
l. Press the **INT** / **Quick Preset 4** button to initiate the routing process.

```
INITIATE ROUTES
```

9. Press the **Back** button to exit the *route details* screen.



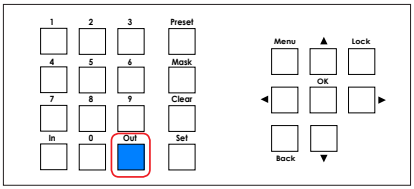
OR



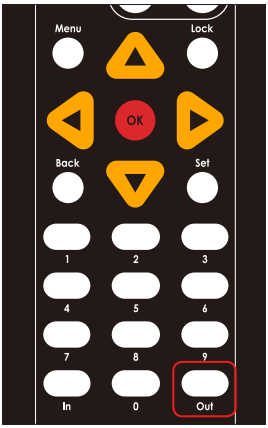
Routing Outputs to Inputs

Normally, when routing, the input is selected first, followed by the desired output(s). However, the Matrix Controller also provides the option to select the output(s) first, followed by the input.

1. From the *standby screen*, press the **Out** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

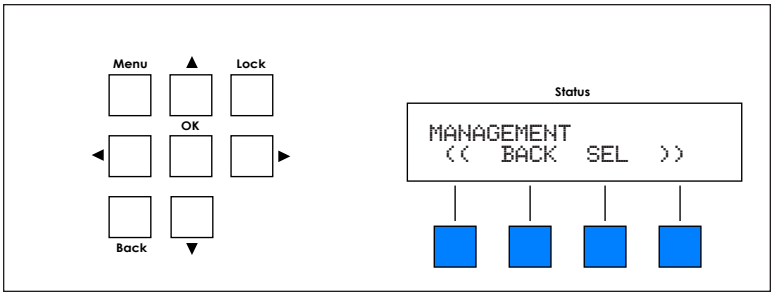


OR

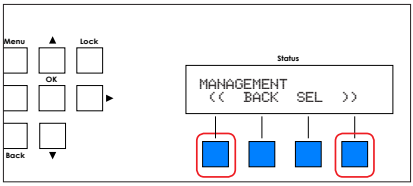


2. The **Out** button and the four buttons under the **Status** window will glow solid blue.

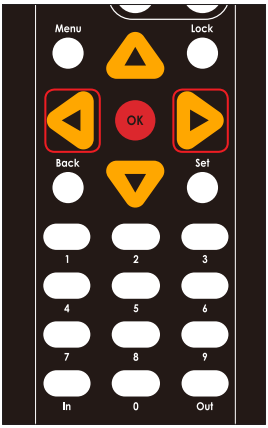
3. The *group* selection screen will be displayed. The currently selected *group* is displayed in the top row.



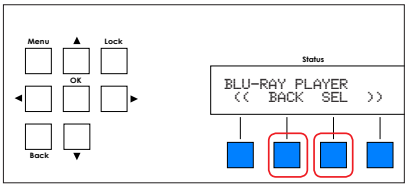
4. Select the desired *group* using the ◄ or ► buttons.



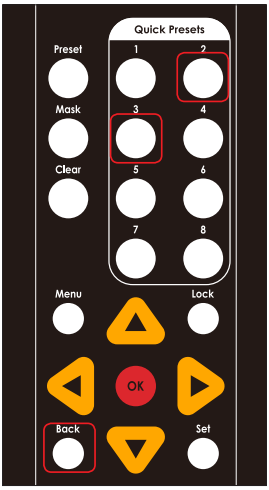
OR



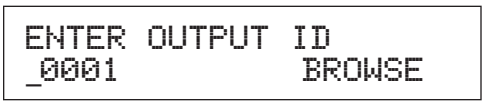
4. Once the desired *group* is selected, press the **SEL** / **Quick Preset 3** button.
To return to the previous screen, press the **BACK** / **Quick Preset 2** button.



OR



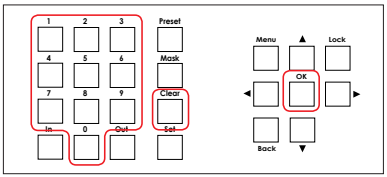
5. The following screen will be displayed:



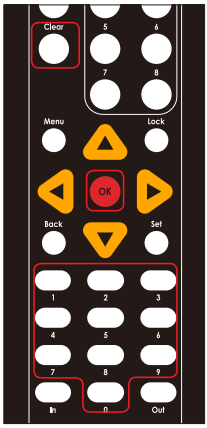
6. Select the desired output within the *group*. There are two methods:

► Select by Output Channel

a. Use the numbers on the keypad to enter the number. If you make a mistake, press the **Clear** button to erase the entry. Press the **OK** button to accept the selection.

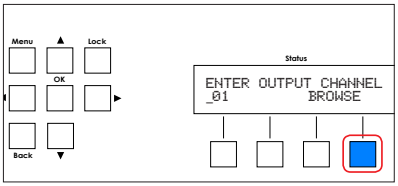


OR

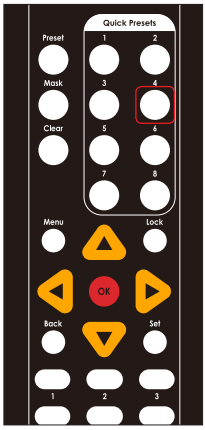


► Browse by Output

a. The second option is to press the **BROWSE** / **Quick Preset 4** button and select the output from a list.



OR



7. Select the desired output within the *group*. There are two methods:

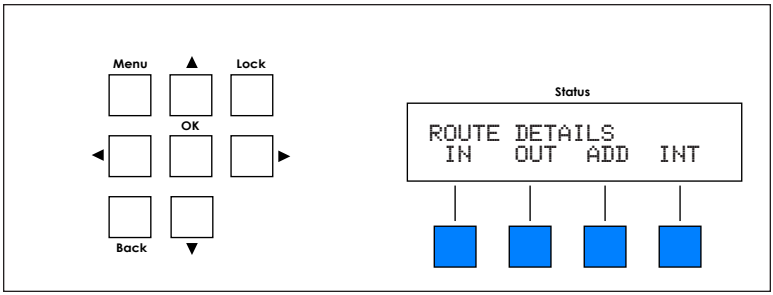
   b. The output selection screen will be displayed:

```
SAMSUNG 24
 ((  BACK  SEL  ))
```

   c. Press the ◄ or ► buttons to select the desired input.

   d. Press the **SEL** / **Quick Presets 3** button to select the current input.
   Press the **BACK** / **Quick Presets 2** button to return to the previous screen.

8. The *route details* screen will be displayed. From this screen, you can:



   a. Press the **INT** / **Quick Preset 4** button to initiate the routing process.

```
INITIATE ROUTES
```

   b. Press the **IN** / **Quick Preset 1** button to display the selected input.

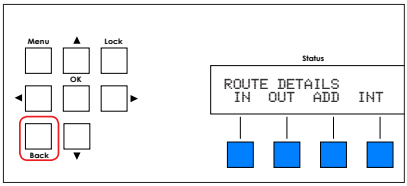
```
BLU-RAY PLAYER
BACK
```

   c. Press the **OUT / Quick Preset 2** button to display the selected output(s).

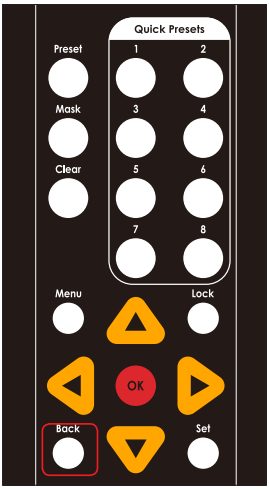
```
SAMSUNG 24
BACK  ((   ))
```

d. Press the **ADD** / **Quick Preset 3** button to add more outputs. See Adding Outputs (page 68) for more information.

9. Press the **Back** button to exit the *route details* screen.



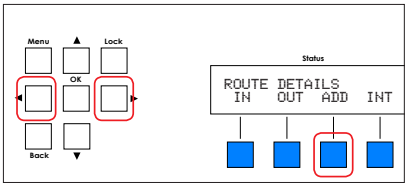
OR



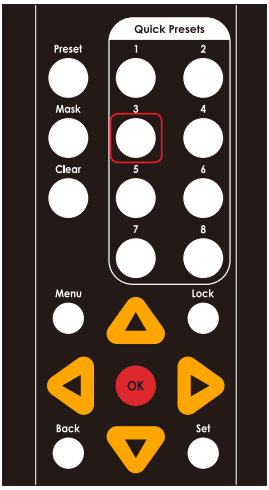
Adding Outputs

In order to add outputs, at least one input must be routed to an output within a *group*. See Routing Inputs to Outputs (page 57) for more information.

1. From the *route details* screen, press the **Add** button.

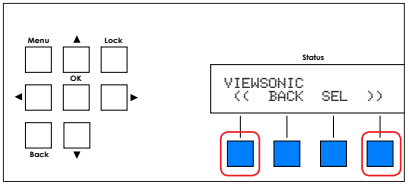


OR

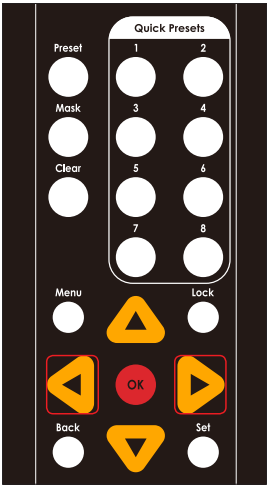


2. The add outputs screen will be displayed.

3. Use the ◄ or ► buttons to scroll through each of the available outputs.



OR

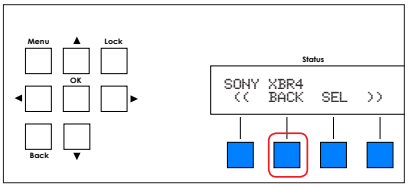


If no other outputs are available, then the following screen will be displayed.

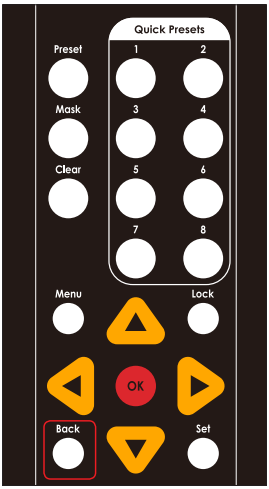
```
NO REMAINING OUTPUTS
BACK
```

If this is the case, press the **BACK** / **Quick Preset 1** button to return to the *route details* screen.

4. Once the desired output is selected, press the **SEL** / **Quick Preset 3** button.
5. Repeat steps 1 - 4 to continue adding outputs.
6. Press the **BACK** / **Back** button to return to the route details screen.



OR




```
ROUTE DETAILS
 IN   OUT   ADD   INT
```

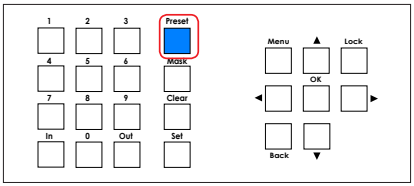
7. Press the **INT** / **Quick Preset 4** button to initialize the new routing configuration.

```
INITIATE ROUTES
```

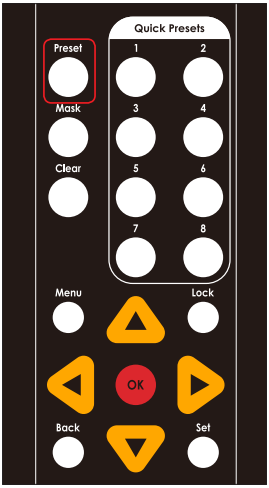
Selecting Presets

Before using the front panel to select presets, use the built-in Web interface to add and configure presets. See Using Presets (page 47) for more information. To access routing presets, use the following procedure.

1. From the *standby screen*, press the **Preset** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.



OR



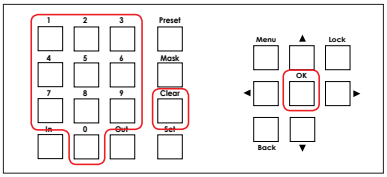
2. The *enter preset ID* screen will be displayed:

```
ENTER PRESET ID
_001          BROWSE
```

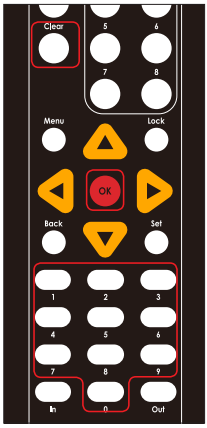
3. Select the desired preset. There are two methods:

   ► Select by Preset ID

   a. Use the numeric keypad to enter the Preset ID. If you make a mistake, press the **Clear** button to erase the entry. Press the **OK** button to accept the selection.



OR

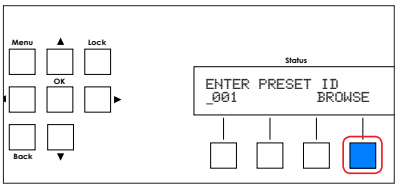


b. Press the **OK** button to accept the selection.

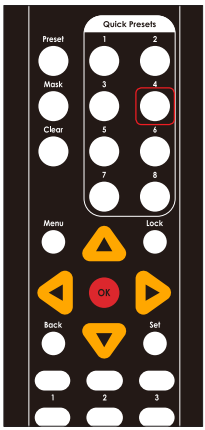
c. Once the preset is selected, the *initiate preset* screen will be displayed, indicating that the preset has been selected.

► Browse by Preset Name

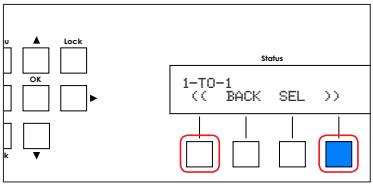
a. Press the **BROWSE** / **Quick Preset 4** button.



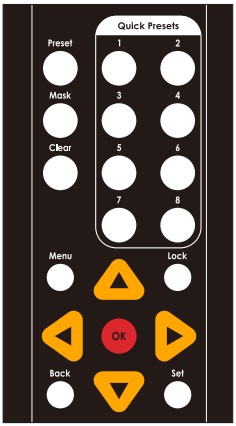
OR



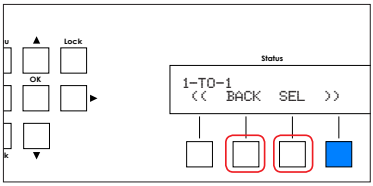
b. Use the ◄ **or** ► buttons to select the desired preset. Each preset will be listed by the name that it was given in the Web interface.



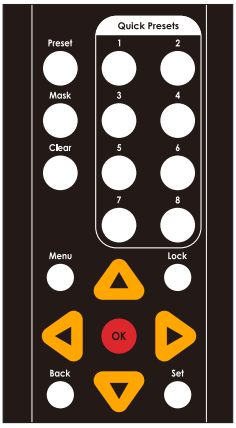
OR



c. Press the **SEL** / **Quick Preset 2** button to select the displayed preset. Use the **BACK** / **Quick Preset 2** button to return to the *enter preset ID* screen.

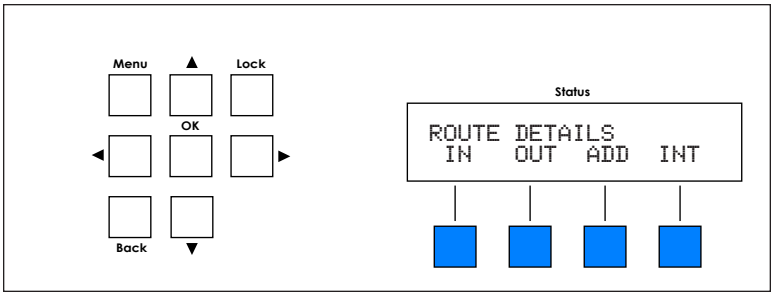


OR



d. Once the preset is selected, the *initiate preset* screen will be displayed, indicating that the preset has been selected.

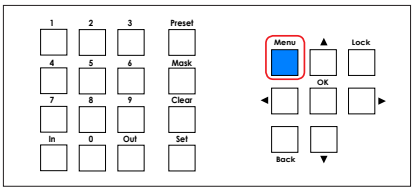
4. After a few moments, the *route details* screen will be displayed.



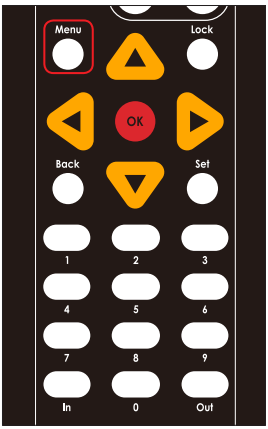
Setting the Network Mode

1. From the *standby screen*, press the **Menu** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

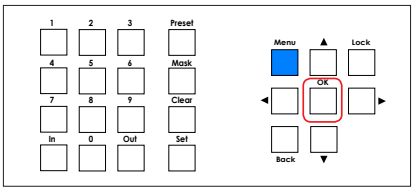
2. The **Network** menu will be displayed.



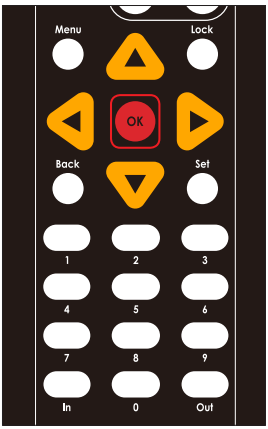
OR

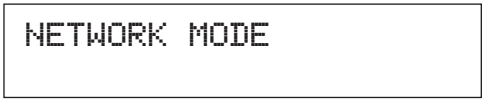


3. Press the **OK** button to enter the **Network Menu** menu.

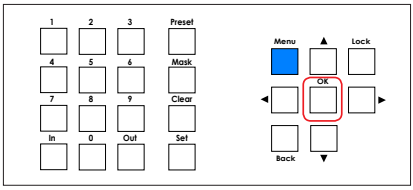


OR

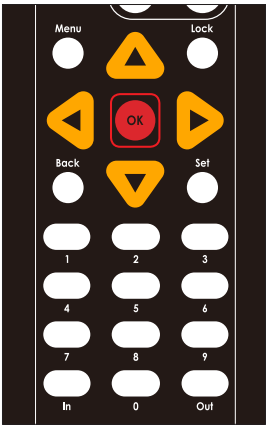




4. Press the **OK** button again to change the network mode.

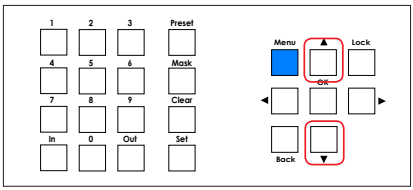


OR

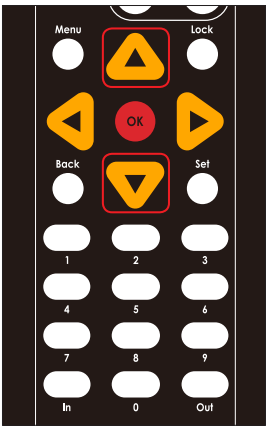



```
NETWORK MODE: (EDIT)
SEPARATE
```

5. Press the ▲ or ▼ buttons to select either **Separate** or **Combined**. In the example, below, we have selected **Combined**.



OR



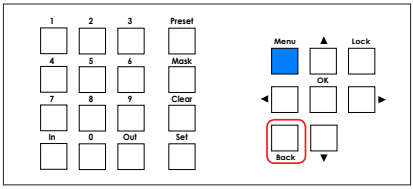

```
NETWORK MODE: (EDIT)
COMBINED
```

6. Press the **OK** button to save the change.

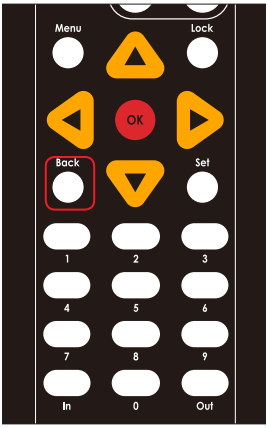
7. The following screen will be displayed:

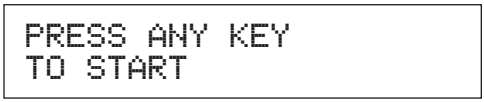
```
PLEASE REBOOT UNIT
TO APPLY CHANGES
```

8. Reboot the unit to apply the changes. To ignore the changes and return to the *standby screen*, continuously press and release the **Back** button.



OR



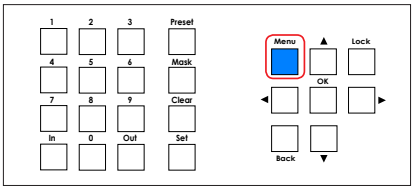


Control IP Settings

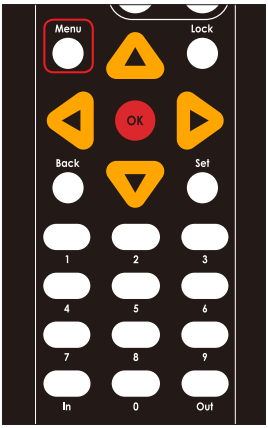
The Control IP Settings menu allows you to set the IP mode (Static or DHCP), IP address, subnet mask, gateway address, and HTTP listening port of the Matrix Controller.

1. From the *standby screen*, press the **Menu** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

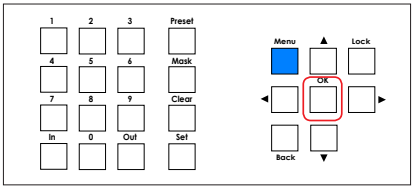
2. The **Network** menu will be displayed.



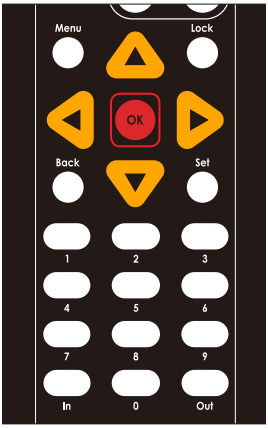
OR

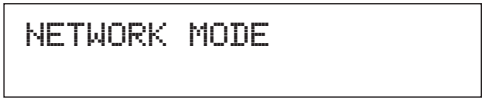


3. Press the **OK** button to enter the **Network Menu** menu.

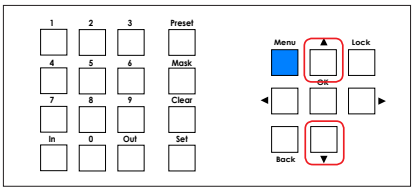


OR

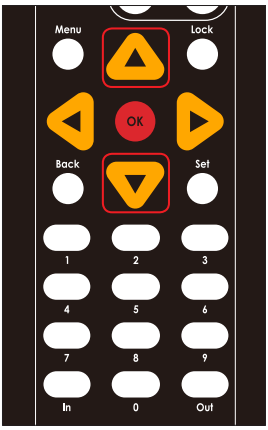




4. Press the ▲ or ▼ buttons to select **Control IP Settings**.



OR




```
CONTROL IP SETTINGS
```

5. Press the **OK** button to enter the **Control IP Settings** menu. The current IP mode setting will be displayed.

```
IP MODE:
STATIC
```

6. Press the **OK** button, again, to edit the current setting.

```
IP MODE: <EDIT>
STATIC
```

7. Press the ▲ or ▼ buttons to select either **Static** or **DHCP**. In this example, we will leave the IP mode setting as **Static**. Consult your network administrator, if necessary, for required network configuration settings.

```
IP MODE: <EDIT>
STATIC
```

8. Press the **OK** button to save the current changes.

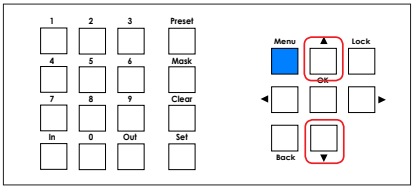
9. The following screen will be displayed, momentarily:

```
PLEASE REBOOT UNIT
TO APPLY CHANGES
```

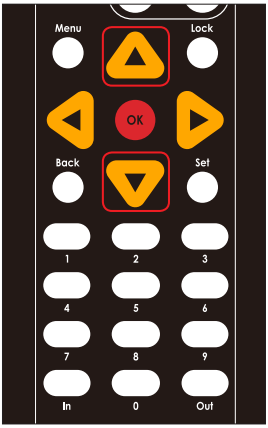
Important

Any time a setting has been changed, the “please reboot unit” message will be displayed. However, it is not required to reboot the unit until all desired changes have been made. All changed settings are “saved” but will *only* be applied once the unit is rebooted.

10. Continue by pressing the ▲ or ▼ buttons to select the **IP Address** setting. The current IP address will be displayed.



OR



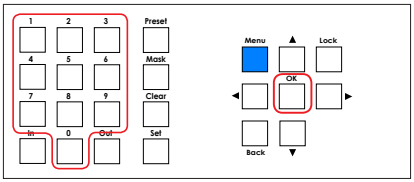

```
IP ADDRESS:
192.168.1.74
```

11. Press the **OK** button to change the setting. The first digit of the IP address will flash.

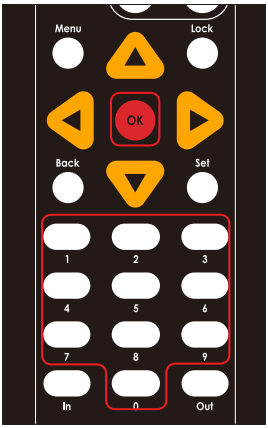
```
IP ADDRESS:
_92.168.001.074
```

12. Use the numeric keypad to enter the desired IP address.

    If a one or more digits in the IP address is less then three digits in length, then preceding zeros must be used to pad the value. For example, if one of the numbers is `10`, then you would enter `010` on the keypad. If the number is `5`, then you would enter `005`.



OR



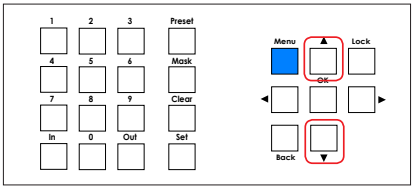

```
IP ADDRESS:
010.005._01.074
```

13. The cursor will automatically advance to the next digit in the IP address. If an error is made, use the ◄ or ► to move backward or forward between each digit.

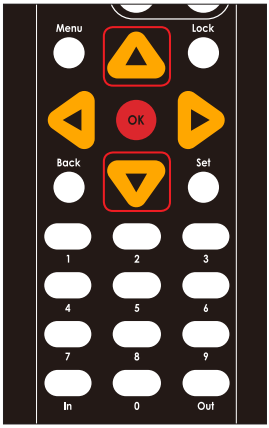
14. Press the **OK** button to save the change.

```
IP ADDRESS:
10.5.64.74
```

15. Press the ▲ or ▼ buttons to select the **Subnet Mask** setting. The subnet mask address will be displayed.



OR




```
SUBNET MASK:
255.255.255.0
```

16. Press the **OK** button to edit the current selection. The first digit of the address will flash.

```
SUBNET MASK:
_55.255.255.000
```

17. Use the numeric keypad to enter the desired subnet mask.

    If a one or more digits in the subnet mask is less then three digits in length, then preceding zeros must be used to pad the value. For example, if one of the numbers is `10`, then you would enter `010` on the keypad. If the number is `5`, then you would enter `005`.

    The cursor will automatically advance to the next digit in the subnet mask. If an error is made, use the ◄ or ► to move backward or forward between each digit.

18. Press the **OK** button to save the change. For this example, we will leave the subnet mask at `255.255.255.0`.

```
SUBNET MASK:
255.255.255.0
```

19. Press the ▲ or ▼ buttons to select the **Gateway** setting. The gateway address will be displayed.

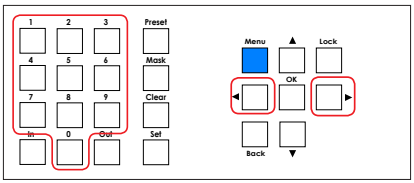
```
GATEWAY
192.168.1.1
```

20. Press the **OK** button to change the setting. The first digit of the gateway address will flash.

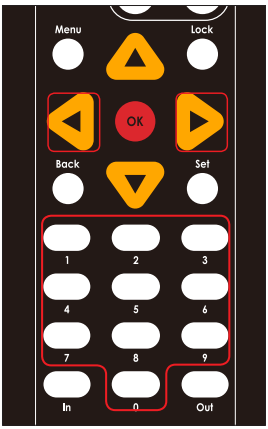
```
GATEWAY
_92.168.1.1
```

21. Use the numeric keypad to enter the desired address.

    If a one or more digits in the IP address is less then three digits in length, then preceding zeros must be used to pad the value. For example, if one of the numbers is `10`, then you would enter `010` on the keypad. If the number is `5`, then you would enter `005`.



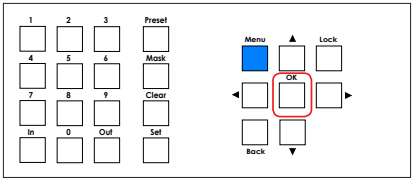
OR



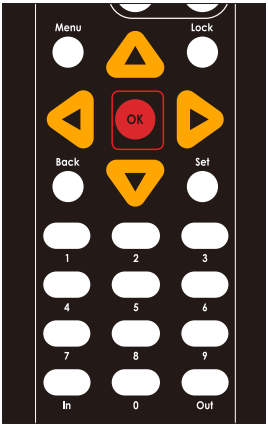

```
GATEWAY
010.005.0_1.072
```

22. The cursor will automatically advance to the next digit in the IP address. If an error is made, use the ◄ or ► to move backward or forward between each digit.

23. Press the **OK** button to save the change.



OR




```
GATEWAY
10.5.64.1
```

24. Press the ▲ or ▼ buttons to select the **HTTP Port** setting. The current HTTP listening port is displayed.

```
HTTP PORT:
80
```

25. Press the **OK** button to edit the current port settings. The first available digit of the port number will flash.

```
HTTP PORT: <EDIT>
_0080
```

26. Use the numeric keypad to enter the desired listening port.

    The port range is 1 to 65535. Use preceding zeros to pad numbers less than 5 digits. For example, if the listening port is `80`, then you would enter `00080`.

    If an error is made, use the ◄ or ► to move backward or forward between each digit.

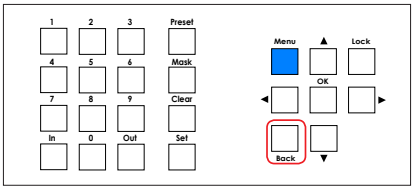
```
HTTP PORT: <EDIT>
0008_
```

27. Press the **OK** button to save the change.

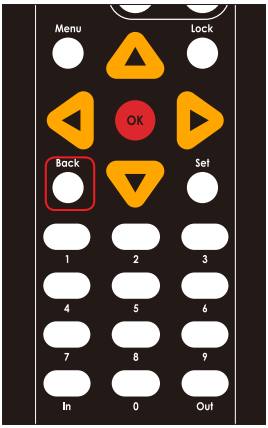
```
HTTP PORT
81
```

28. To make changes to any of the IP settings, again, press the ▲ or ▼ buttons to select the desired menu, then press the **OK** button to make changes to the selected setting.

29. To return to the standby screen, consecutively press and release the **Back** button until the *standby screen* is displayed.



OR



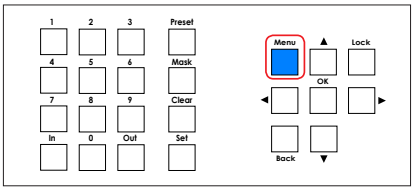

```
PRESS ANY KEY
TO START
```

Video IP Settings

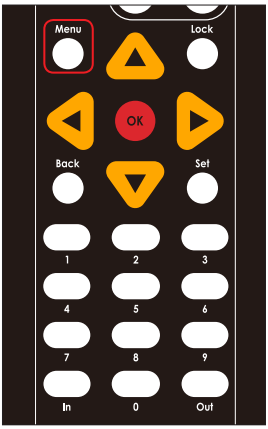
Video IP settings are only used in *separate mode* and allows you to access the Web interface using the Video IP address. Refer to Separate Mode (page 13) for more information on *separate mode*.

1. From the *standby screen*, press the **Menu** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

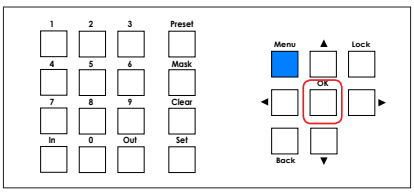
2. The **Network** menu will be displayed.



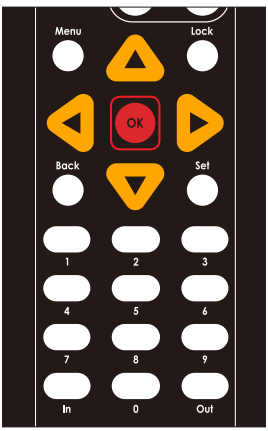
OR

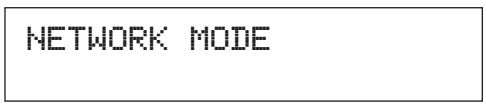


3. Press the **OK** button to enter the **Network Menu** menu.

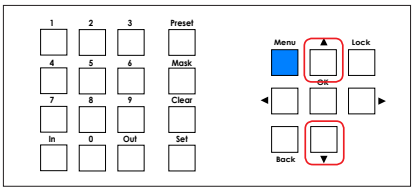


OR

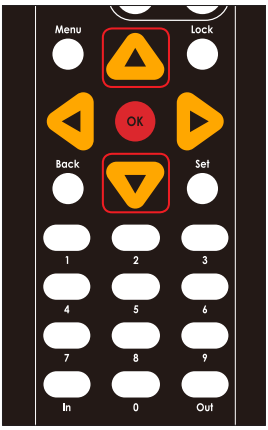




4. Press the ▲ or ▼ buttons to select **Video IP Settings**.



OR




```
VIDEO IP SETTINGS
```

5. Press the **OK** button to enter the **Video IP Settings** menu. The current IP mode setting will be displayed.

```
IP MODE:
STATIC
```

The **IP Mode** for **Video IP Settings** cannot be changed. It will always be set to *static*.

6. Continue by pressing the ▲ or ▼ buttons to select the **IP Address** setting.

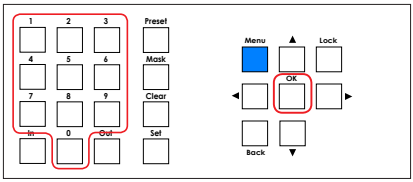
```
IP ADDRESS:
192.168.1.75
```

7. Press the **OK** button, again, to edit the current setting.

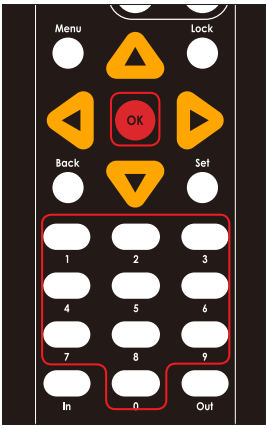
```
IP ADDRESS:
_92.168.001.075
```

8. Use the numeric keypad to enter the desired IP address.

   If a one or more digits in the IP address is less then three digits in length, then preceding zeros must be used to pad the value. For example, if one of the numbers is `10`, then you would enter `010` on the keypad. If the number is `5`, then you would enter `005`.

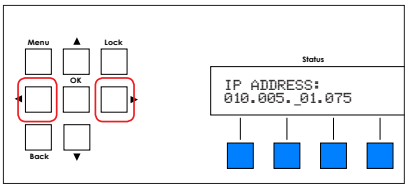


OR

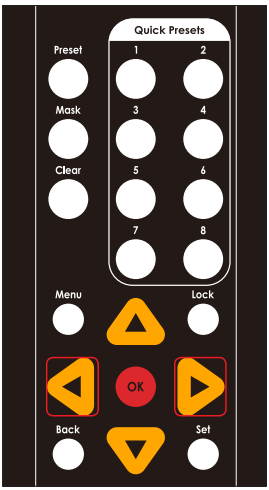



```
IP ADDRESS:
010.005._01.075
```

9. The cursor will automatically advance to the next digit in the IP address.
   If an error is made, use the ◄ or ► to move backward or forward between each digit.



OR



10. Press the **OK** button to save the current changes.

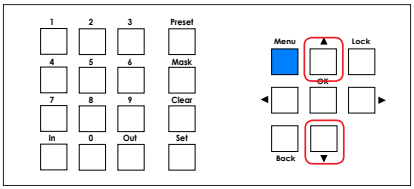
11. The following screen will be displayed, momentarily:

```
PLEASE REBOOT UNIT
TO APPLY CHANGES
```

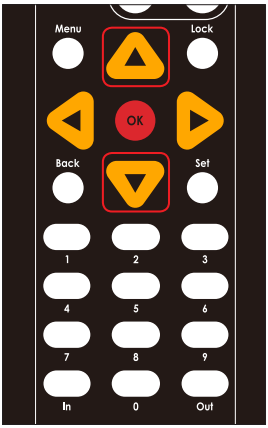
Important

Any time a setting has been changed, the “please reboot unit” message will be displayed. However, it is not required to reboot the unit until all desired changes have been made. All changed settings are “saved” but will *only* be applied once the unit is rebooted.

12. Continue by pressing the ▲ or ▼ buttons to select the **Subnet Mask** setting. The subnet mask address will be displayed.



OR




```
SUBNET MASK:
255.255.255.0
```

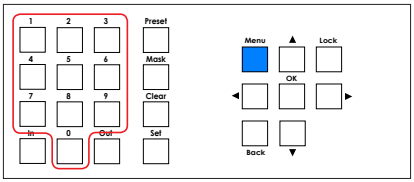
13. Press the **OK** button to change the setting. The first digit of the subnet mask will flash.

```
SUBNET MASK:
_55.255.0.000
```

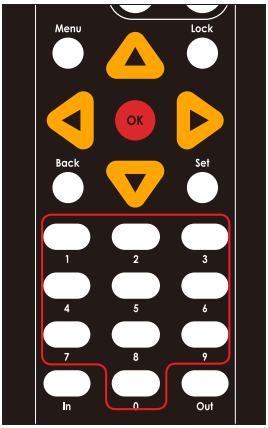
14. Use the numeric keypad to enter the desired subnet mask address.

    If a one or more digits in the address is less then three digits in length, then preceding zeros must be used to pad the value. For example, if one of the numbers is `10`, then you would enter `010` on the keypad. If the number is `5`, then you would enter `005`.

    The cursor will automatically advance to the next digit in the subnet mask. If an error is made, use the ◄ or ► to move backward or forward between each digit.



OR



15. Press the **OK** button to save the change. For this example, we will leave the subnet mask set to `255.255.255.0`.

```
SUBNET MASK:
255.255.0.0
```

16. Press the ▲ or ▼ buttons to select the **Gateway** setting. The gateway address will be displayed.

```
GATEWAY:
192.168.1.1
```

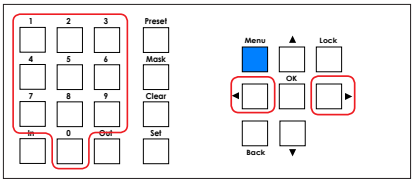
17. Press the **OK** button to change the setting. The first digit of the gateway address will flash.

```
GATEWAY:
_92.168.001.001
```

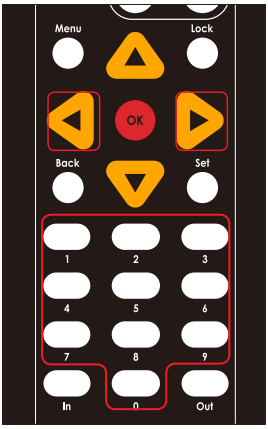
18. Use the numeric keypad to enter the desired address.

    If one or more digits in the address is less then three digits in length, then preceding zeros must be used to pad the value. For example, if one of the numbers is `10`, then you would enter `010` on the keypad. If the number is `5`, then you would enter `005`.

    The cursor will automatically advance to the next digit in the gateway address.
    If an error is made, use the ◄ or ► to move backward or forward between each digit.



OR




```
GATEWAY
010.005.0_1.072
```

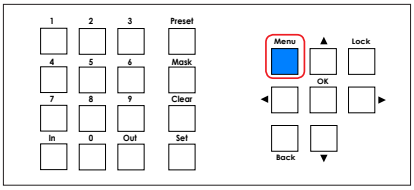
19. Press the **OK** button to save the changes.

```
GATEWAY:
10.5.64.1
```

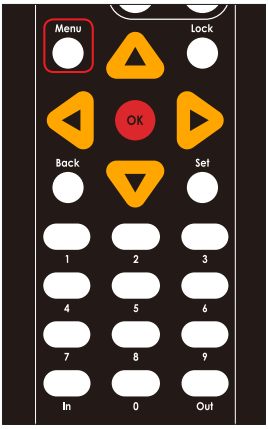
Telnet / TCP Settings

1. From the *standby screen*, press the **Menu** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

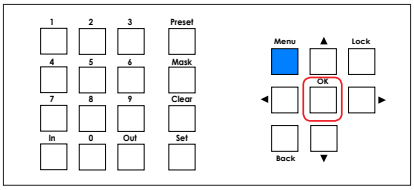
2. The **Network** menu will be displayed.



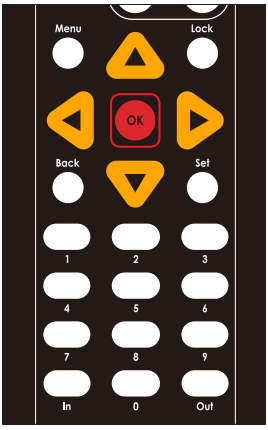
OR

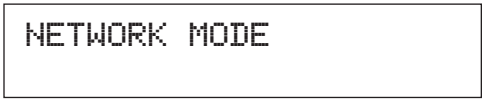


3. Press the **OK** button to enter the **Network Menu** menu.

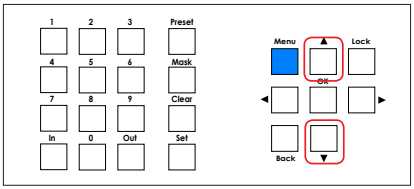


OR

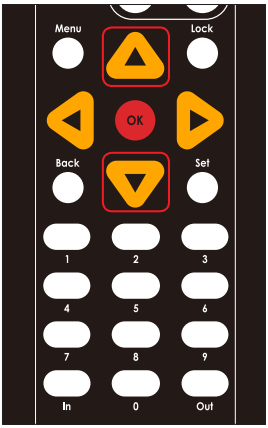




4. Press the ▲ or ▼ buttons to select **Telnet / TCP Settings**.



OR




```
TELNET/TCP SETTINGS
```

5. Press the **OK** button to enter the menu.

6. The current TCP access status will be displayed.

```
TCP ACCESS:
ENABLED
```

7. Press the ▲ or ▼ buttons to select either **Enabled** or **Disabled**. This setting is used to allow or prevent TCP access. In this example, we will leave the TCP access setting as **Enabled**.

8. Press the **OK** button to save the current changes. For this example, we will leave the setting as **Enabled**.

```
TCP ACCESS:
ENABLED
```

9. Press the ▲ or ▼ buttons to select **TCP Port**.

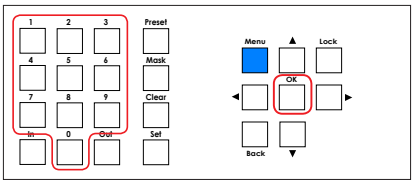
```
TCP PORT:
23
```

10. Press the **OK** button to edit the current port setting. The first available digit in the port setting will flash.

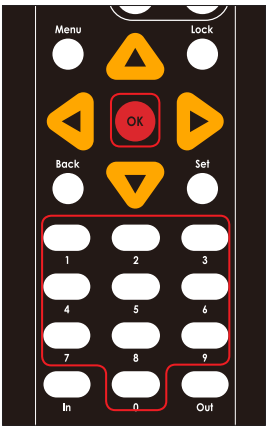
```
TCP PORT: (EDIT)
_0023
```

11. Use the numeric keypad to enter the desired listening port.

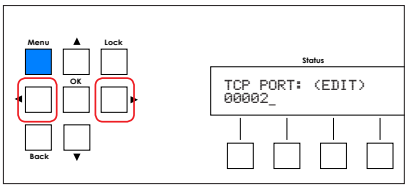
    The port range is 1 to 65535. Use preceding zeros to pad numbers less than 5 digits. For example, if the listening port is `23`, then you would enter `00023`.



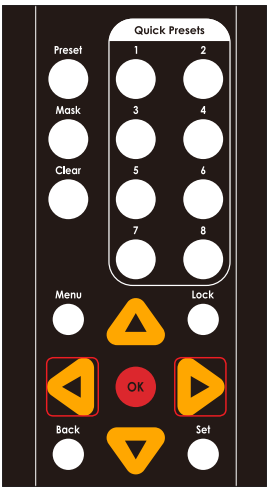
OR



12. If an error is made, use the ◄ or ► to move backward or forward between each digit.



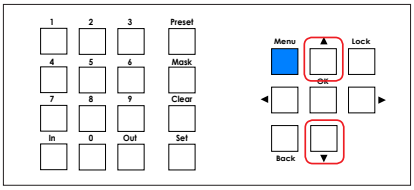
OR



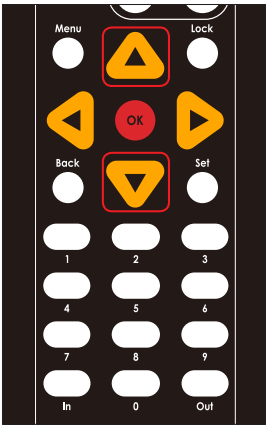
12. Press the **OK** button to save the change.

```
TCP PORT:
23
```

13. Press the ▲ or ▼ button to select the **Welcome Message** setting.



OR




```
WELCOME MESSAGE:
DISABLED
```

14. Press the **OK** button to edit the current setting.

```
WELCOME MESSAGE: ED
DISABLED
```

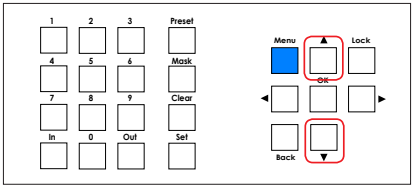
15. Press the ▲ or ▼ buttons to select either **Enabled** or **Disabled**.

    If this option is set to **Enabled**, then the following message will be displayed at the beginning of each Telnet session: "Welcome to EXT-CU-LAN Telnet". If set to **Disabled**, then no message will be displayed.

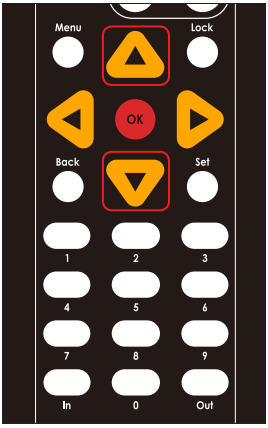
16. Press the **OK** button to save the changes.

```
WELCOME MESSAGE:
ENABLED
```

17. Press the ▲ or ▼ button to select the **Require Password** setting.



OR




```
REQUIRE PASSWORD:
DISABLED
```

18. Press the **OK** button to edit the current selection.

```
REQUIRE PASSWORD: ED
DISABLED
```

19. Press the ▲ or ▼ buttons to select either **Enabled** or **Disabled**.

    If this option is set to **Enabled**, then a password will be required to connect during a Telnet session. If set to **Disabled**, then no password will be required.

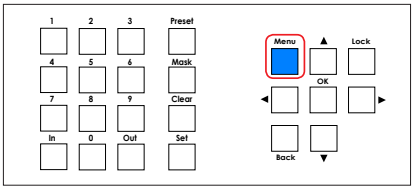
20. Press the **OK** button to save the changes.

```
REQUIRE PASSWORD:
ENABLED
```

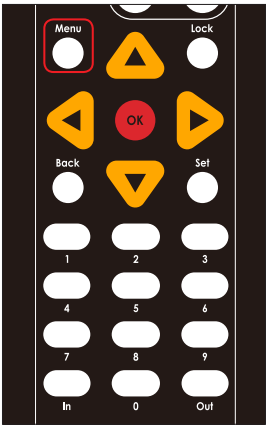
UDP Settings

1. From the *standby screen*, press the **Menu** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

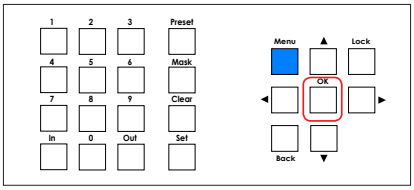
2. The **Network** menu will be displayed.



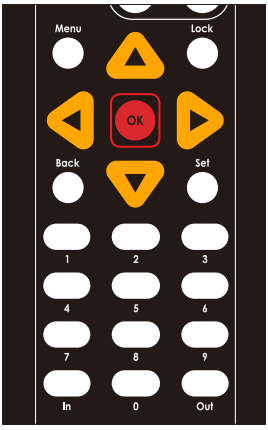
OR

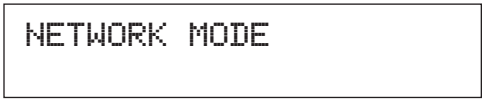


3. Press the **OK** button to enter the **Network Menu** menu.

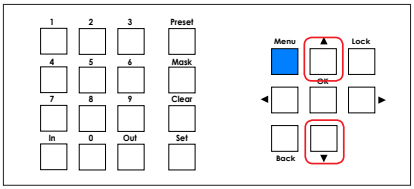


OR

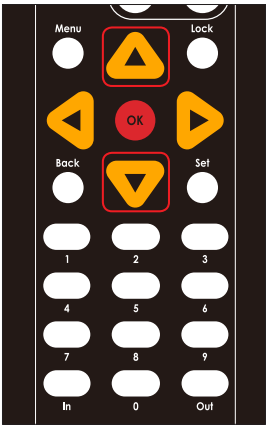




4. Press the ▲ or ▼ buttons to select **UDP Settings**.



OR




```
UDP SETTINGS
```

5. Press the **OK** button to enter the menu.

6. The current UDP access status will be displayed.

```
UDP ACCESS:
ENABLED
```

7. Press the **OK** button, again, to edit the current setting.

```
UDP ACCESS: (EDIT)
ENABLED
```

8. Press the ▲ or ▼ buttons to select either **Enabled** or **Disabled**. This setting is used to allow or prevent UDP access. In this example, we will leave the IP mode setting as **Enabled**.

9. Press the **OK** button to save the current changes. For this example, we will leave the setting as **Enabled**.

```
UDP ACCESS:
ENABLED
```

10. Press the ▲ or ▼ buttons to select **UDP Port**.

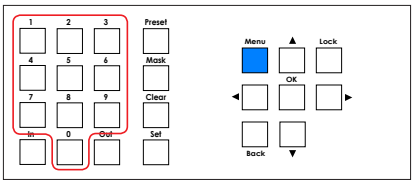
```
UDP PORT:
50007
```

11. Press the **OK** button to edit the current port setting. The first available digit in the port setting will flash.

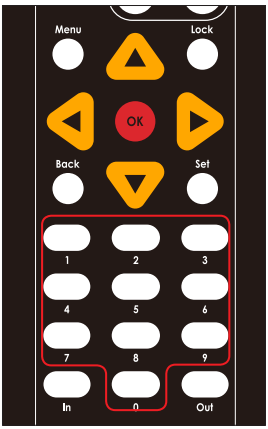
```
UDP PORT: (EDIT)
_0007
```

12. Use the numeric keypad to enter the desired listening port.

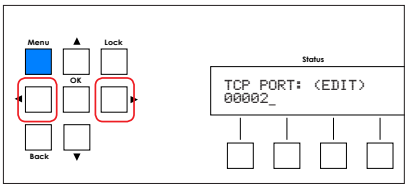
    The port range is 1 to 65535. Use preceding zeros to pad numbers less than 5 digits. For example, if the listening port is `23`, then you would enter `00023`.



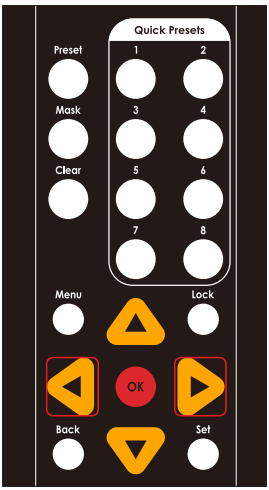
OR



13. If an error is made, use the ◄ or ► to move backward or forward between each digit.



OR



14. Press the **OK** button to save the change.

15. Press the ▲ or ▼ button to select the **Remote UDP Access** setting.

```
REMOTE UDP ACCESS:
DISABLED
```

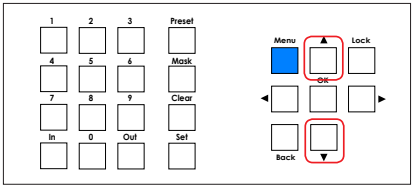
16. Press the ▲ or ▼ buttons to select either **Enabled** or **Disabled**.

    If this option is set to **Enabled**, then remote UDP access will be permitted. Otherwise, set this option to **Disabled** to prohibit access using the UDP protocol.

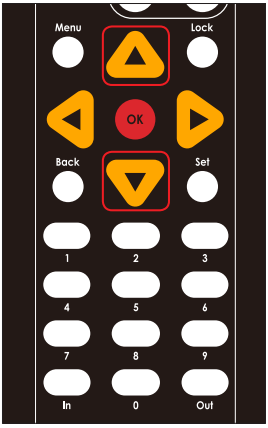
17. Press the **OK** button to save the changes.

```
REMOTE UDP ACCESS:
ENABLED
```

18. Press the ▲ or ▼ button to select the **Remote UDP Address** setting.



OR




```
REMOTE UDP ADDRESS:
192.168.1.129
```

19. Press the **OK** button to edit the current selection. The first digit in the first digit of the address will flash.

```
REMOTE UDP ADDRESS:
_92.168.001.129
```

20. Use the numeric keypad to enter the desired address.

    If a one or more digits in the address is less then three digits in length, then preceding zeros must be used to pad the value. For example, if one of the numbers is `10`, then you would enter `010` on the keypad. If the number is `5`, then you would enter `005`.

21. If an error is made, use the ◄ or ► to move backward or forward between each digit.

22. Press the **OK** button to save the change.

23. Press the ▲ or ▼ button to select the **Remote UDP Port** setting.

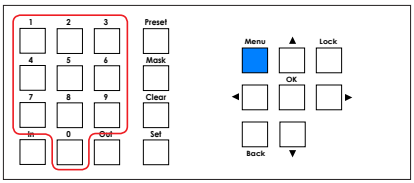
```
REMOTE UDP PORT:
50008
```

24. Press the **OK** button to edit the current setting. The first available digit in the port setting will flash.

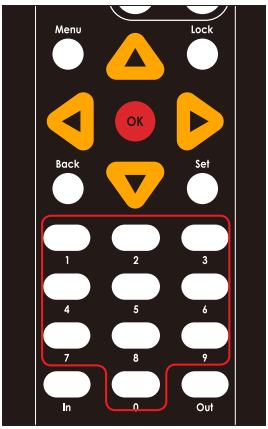
```
REMOTE UDP PORT: ED
_0008
```

25. Use the numeric keypad to enter the desired listening port.

    The port range is 1 to 65535. Use preceding zeros to pad numbers less than 5 digits. For example, if the listening port is `23`, then you would enter `00023`.



OR



26. If an error is made, use the ◄ or ► to move backward or forward between each digit.

```
REMOTE UDP PORT: ED
5000_
```

27. Press the **OK** button to save the change.

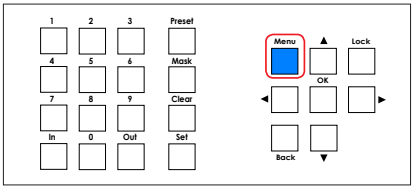
```
REMOTE UDP PORT:
50008
```

Discovery Settings

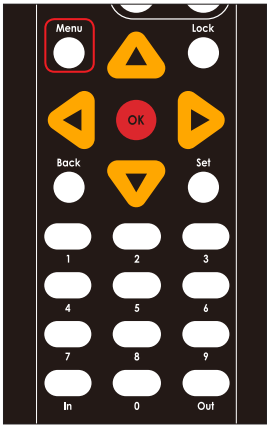
The Discovery Settings menu allows the Matrix Controller to be “discovered” on a network using the Gefen Syner-G Software Suite.

1. From the *standby screen*, press the **Menu** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

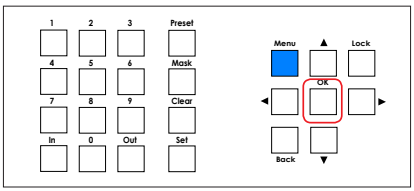
2. The **Network** menu will be displayed.



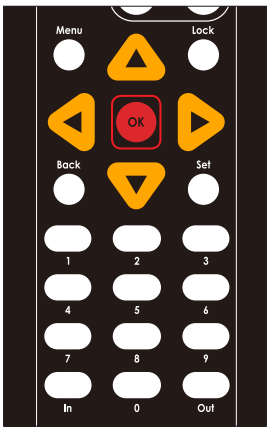
OR

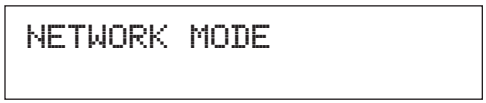


3. Press the **OK** button to enter the **Network Menu** menu.

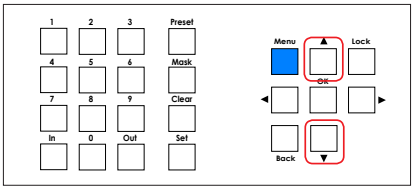


OR

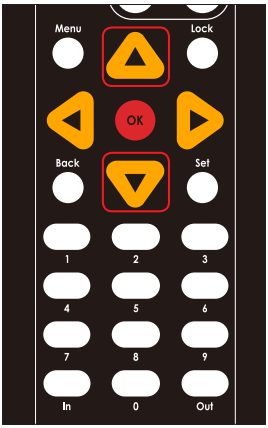




4. Press the ▲ or ▼ buttons to select **Discovery Settings**.



OR




```
DISCOVERY SETTINGS
```

5. Press the **OK** button to enter the menu.

6. The current read / write status of the Discovery Service will be displayed.

```
DISCOVERY:
READ / WRITE
```

7. Press the **OK** button, again, to edit the current setting.

```
DISCOVERY: (EDIT)
READ / WRITE
```

8. Press the ▲ or ▼ buttons to select either **Read / Write**, **Read Only**, or **Disabled**.

   ► **Read / Write**
   This mode will permit the discovery of the Matrix Controller on the network. In addition, the IP settings, description, and other settings for the Matrix Controller can be changed using the Syner-G Software Suite.

   ► **Read Only**
   This mode only permits the discovery of the Matrix Controller on the network.

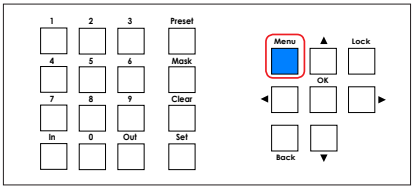
   ► **Disabled**
   This mode prevents the discovery of the Matrix Controller on the network.

9. Press the **OK** button to save the current changes. For this example, we will leave the setting as **Read / Write**.

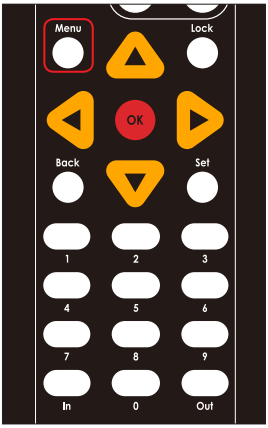
Setting the IR Channel for the Matrix Controller

1. From the *standby screen*, press the **Menu** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

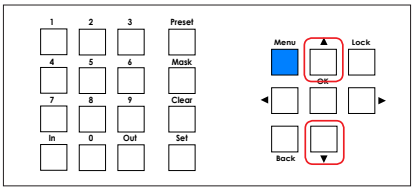
2. The **Network** menu will be displayed.



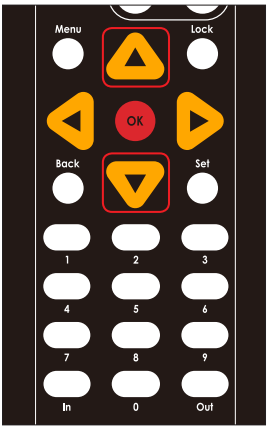
OR



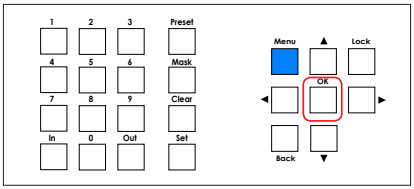
3. Press the ▲ or ▼ buttons to select the **System** menu.



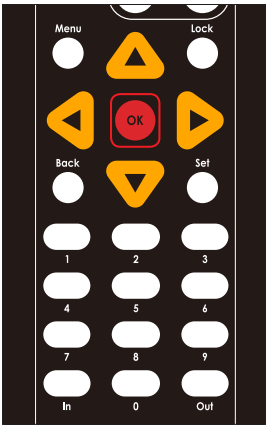
OR



4. Press the **OK** button to enter the **System** menu. The IR Channel setting will be displayed.



OR




```
IR CHANNEL: (EDIT)
1
```

5. Press the ▲ or ▼ buttons to select the desired IR channel (1 - 4).

6. Press the **OK** button to save the current changes.

```
IR CHANNEL:
2
```

Resetting the Matrix Controller

Resetting the Matrix Controller will erase all current configurations and return the Matrix Controller to factory-default settings. If you need to reset the Matrix without erasing any current settings, refer to Rebooting the Matrix Controller (page 111).

Warning

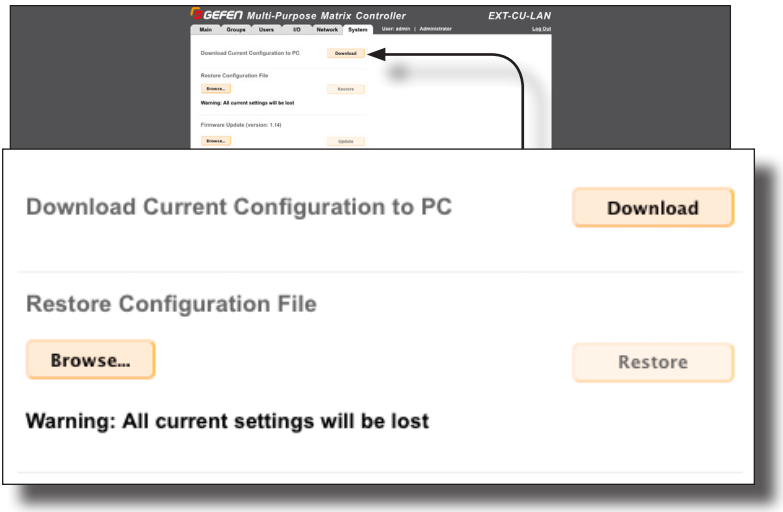
The following procedure will *reset* the Matrix Controller to factory-default settings. All IP settings and network configurations will be lost!

1. Before resetting the Matrix Controller, you may want to save the current settings to a configuration file. If you do not want to save the configuration settings, then skip to Step 2.

   a. Login to the Web interface.

   b. Click the **System** tab.

   c. Click the **Download** button.

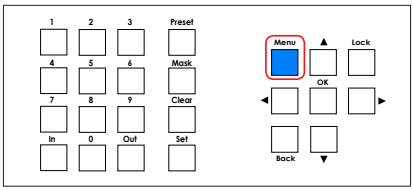


   d. Select a destination folder where the configuration file will be saved.

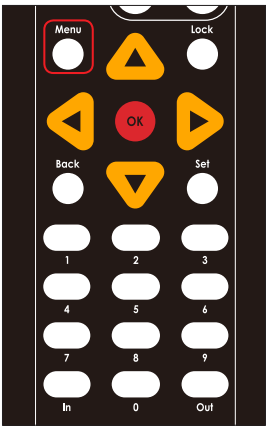
   e. The file will be saved as `settings.xml`.

2. From the *standby screen*, press the **Menu** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

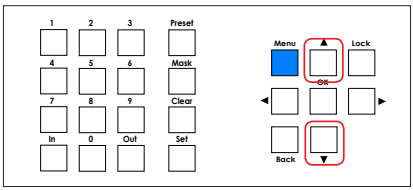
3. The **Network** menu will be displayed.



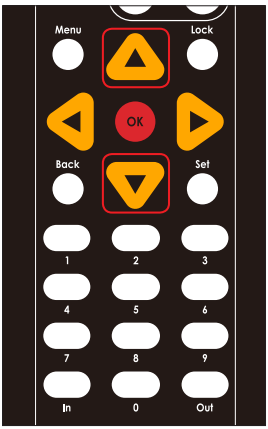
OR



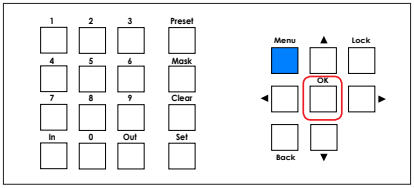
4. Press the ▲ or ▼ buttons to select the **System** menu.



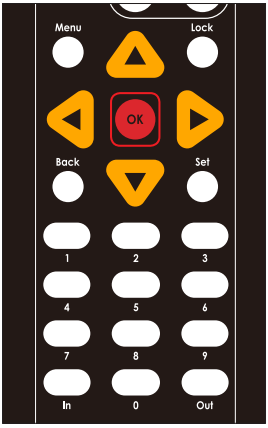
OR



5. Press the **OK** button to enter the menu. The IR Channel setting will be displayed.



OR




```
IR CHANNEL:
2
```

6. Press the ▲ or ▼ buttons to select the **Factory Reset** option.

```
FACTORY RESET
```

7. Press the **OK** button to continue.

8. The Matrix Controller will prompt you to confirm that you wish to proceed:

```
CONFIRM RESET
YES
```

9. Press the ▲ or ▼ buttons to select between **Yes** and **No** options.

   ► To reset the Matrix Controller to factory-default settings, select **Yes** and press the **OK** button.

   ► To cancel the procedure, select No and press the **OK** button.

10. If the Matrix Controller is reset, the following message will be displayed:

```
FACTORY DEFAULT
RESTORED...REBOOTING
```

11. After about 30 seconds, the *passcode screen* will be displayed.

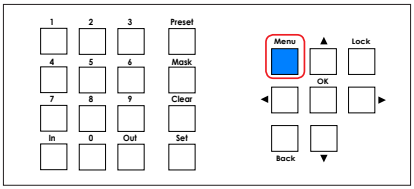
```
ENTER PASSCODE:
000000
```

Rebooting the Matrix Controller

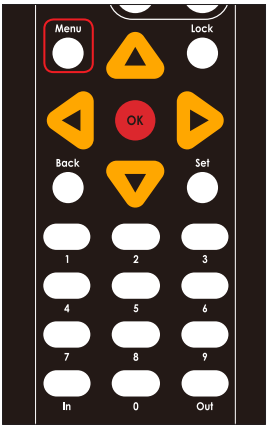
Rebooting the Matrix Controller is identical to disconnecting and reconnecting the power supply on the back of the unit. Rebooting the Matrix Controller may be required after changing specific system settings. Rebooting does not reset the Matrix Controller to factory-default settings. To reset the Matrix Controller, see Resetting the Matrix Controller (page 107).

1. From the *standby screen*, press the **Menu** button. See Accessing the Menu System (page 54) for information on how to display the *standby screen*.

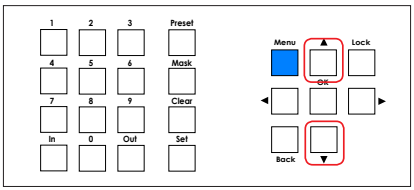
2. The **Network** menu will be displayed.



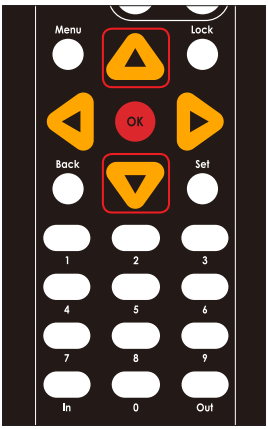
OR



3. Press the ▲ or ▼ buttons to select the **System** menu.

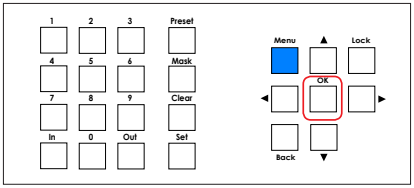


OR

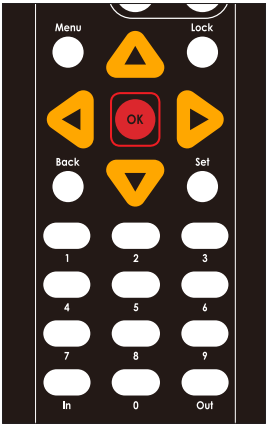


4. Press the **OK** button to enter the menu.

5. The IR Channel setting will be displayed.



OR




```
IR CHANNEL:
2
```

6. Press the ▲ or ▼ buttons to select the **Reboot Unit** option.

```
REBOOT UNIT
```

7. Press the **OK** button to continue. The Matrix Controller will prompt you to confirm that you wish to proceed:

```
CONFIRM REBOOT
YES
```

8. Press the ▲ or ▼ buttons to select between **Yes** and **No** options.

   ► To reboot the Matrix Controller, select **Yes** and press the **OK** button.

   ► To cancel the procedure, select No and press the **OK** button.

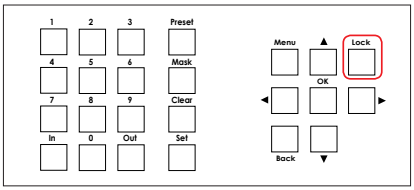
9. If the Matrix Controller is rebooted, the following message will be displayed:

10. After about 30 seconds, the *passcode screen* will be displayed.

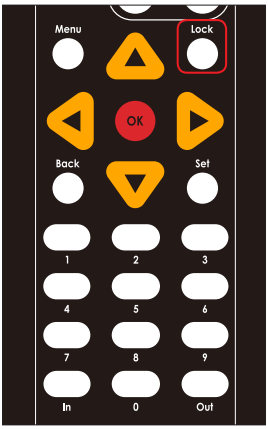
Locking / Unlocking the Matrix Controller

The front panel of the Matrix Controller can be locked to prevent unauthorized tampering or accidental pressing of the front panel buttons.

1. From any screen, press the **Lock** button.



OR



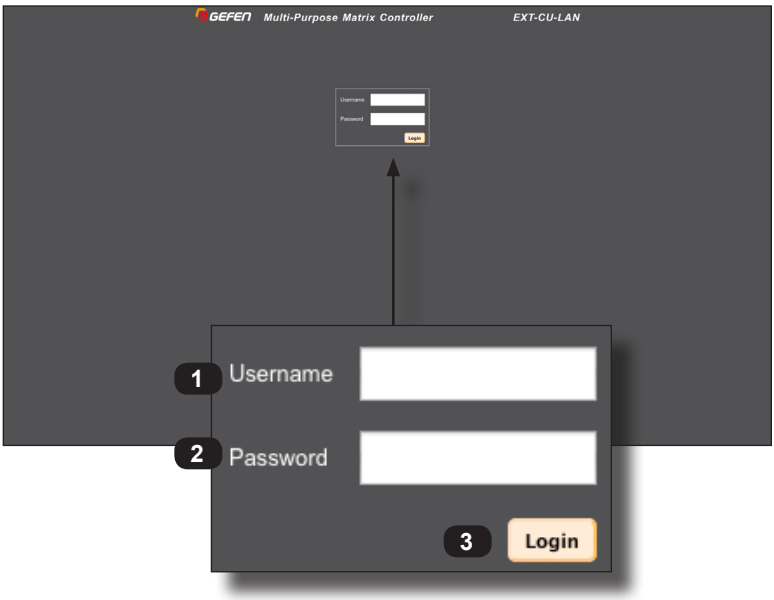
2. The Matrix Controller is now locked and the passcode screen will be displayed.

```
ENTER PASSCODE:
000000
```

3. To unlock the Matrix Controller, enter the passcode and press the **OK** button on the front panel or on the IR remote control. The default passcode is `123456`.

Using the Built-in Web Interface

The built-in Web interface provides advanced control of the Matrix Controller. In order to access the Web interface use the Gefen Syner-G Software Suite to obtain the IP settings of the Matrix Controller. Once connected to the Matrix Controller, the login screen will be displayed.



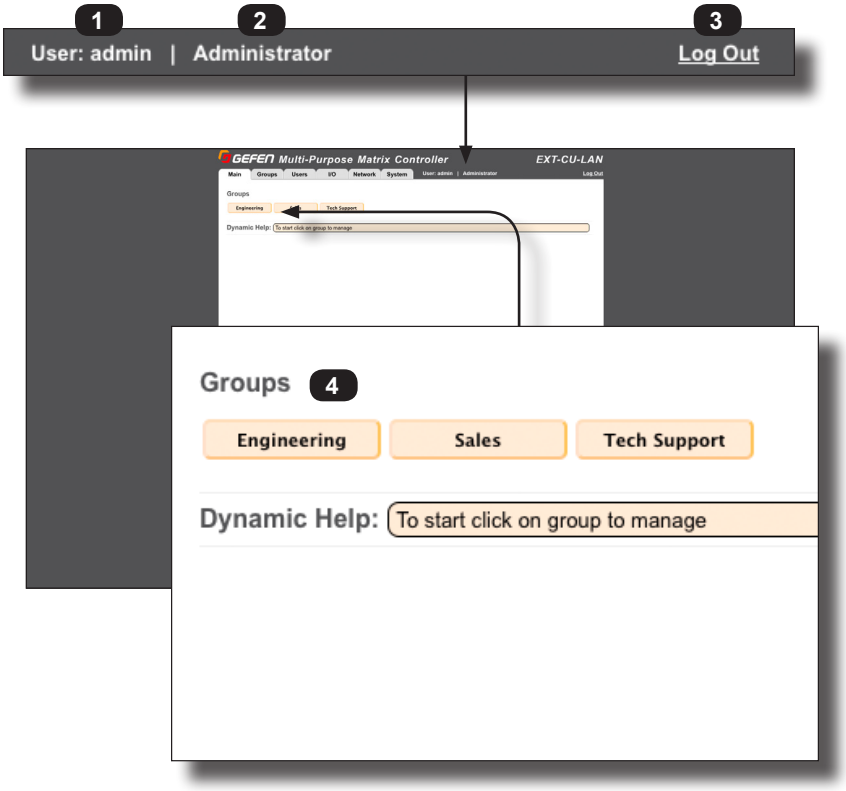
1 Username
Enter the *user* in this field. The Matrix Controller comes with two users: `admin` and `front panel`. The `admin` login provides unrestricted access to all features and settings and is used primarily to create and manage users, groups, presets, and other network settings. The front panel *user* is required in order to control the Matrix Controller through the front panel.

2 Password
Enter the password for the associated *user*. The password is masked when it is entered. If the `front panel` *user* is used to login, then the password must be the same as the *passcode* used to access the front panel.

3 Login
Click this button to login in to the **Main** page of the Web interface.

Main

The **Main** page is used to manage all *groups* that have been created. If no *groups* have been defined, they will need to be created. See Creating Groups (page 31) for information on creating *groups*.



1 **User**
The *user* for the current Web session.

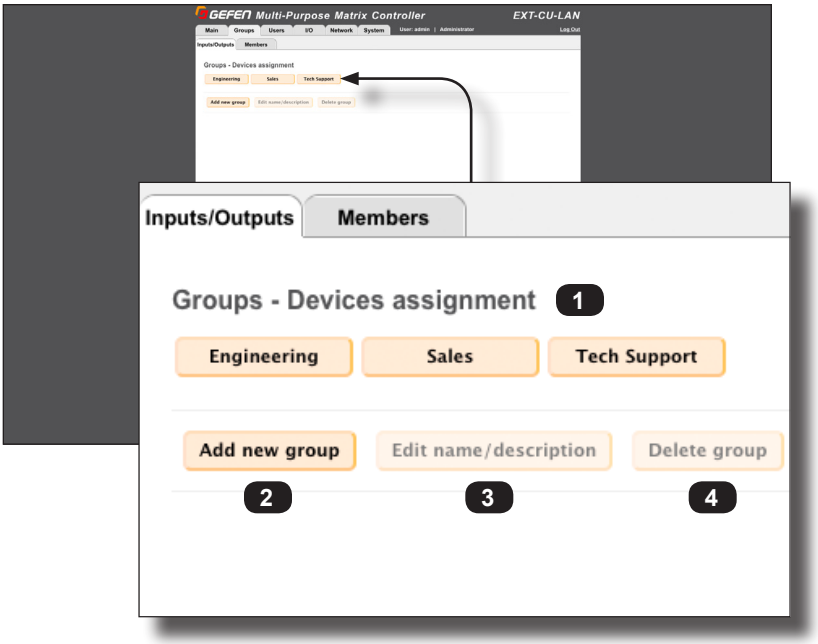
2 **Access level**
Displays the access level of the *user*. There are two access levels: Administrator and Operator.

3 **Log Out**
Click this link to log out of the current Web session.

4 **Group listing**
Displays a list of all created groups in the form of buttons (as shown).

Groups ► Inputs / Outputs

This page is used to add inputs and outputs, of available KVM over IP device, to each *group*. If no *groups* have been defined, they will need to be created. If a *group* is created on this page, the *group* will also appear under the **Groups ► Members**.



1 Group Name
Displays each *group* that is created as a button.

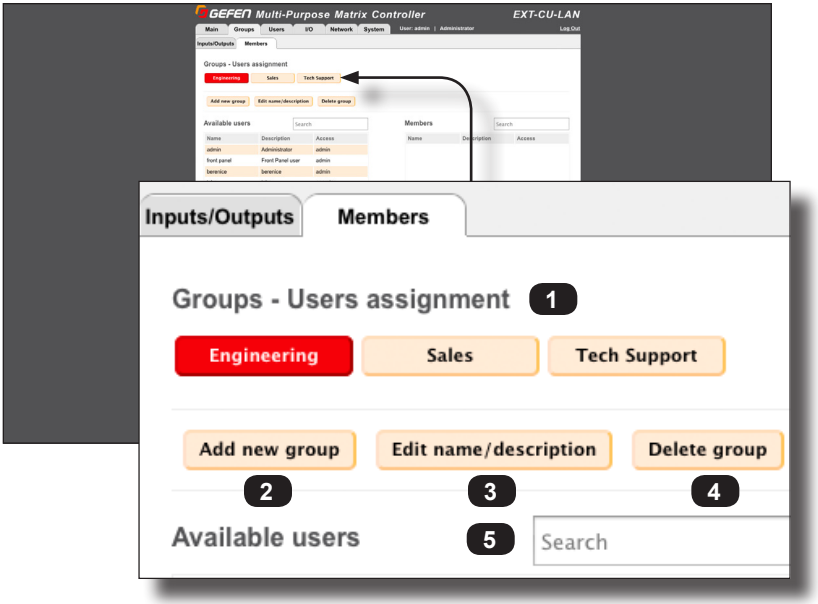
2 Add new group
Click this button to create a new *group*.

3 Edit name / description
Click this button to change the name and/or description of the selected *group*. This button is enabled only if a *group* button is clicked.

4 Delete group
Click this button to delete the selected *group*. This button is enabled only if a *group* button is clicked.

Groups ► Members

This page is used to assign *members* to each *group*. If no *groups* have been defined, they will need to be created. If a *group* is created on this page, the *group* will also appear under the **Groups ► Inputs / Outputs**. See Adding Members (page 40) for more information.



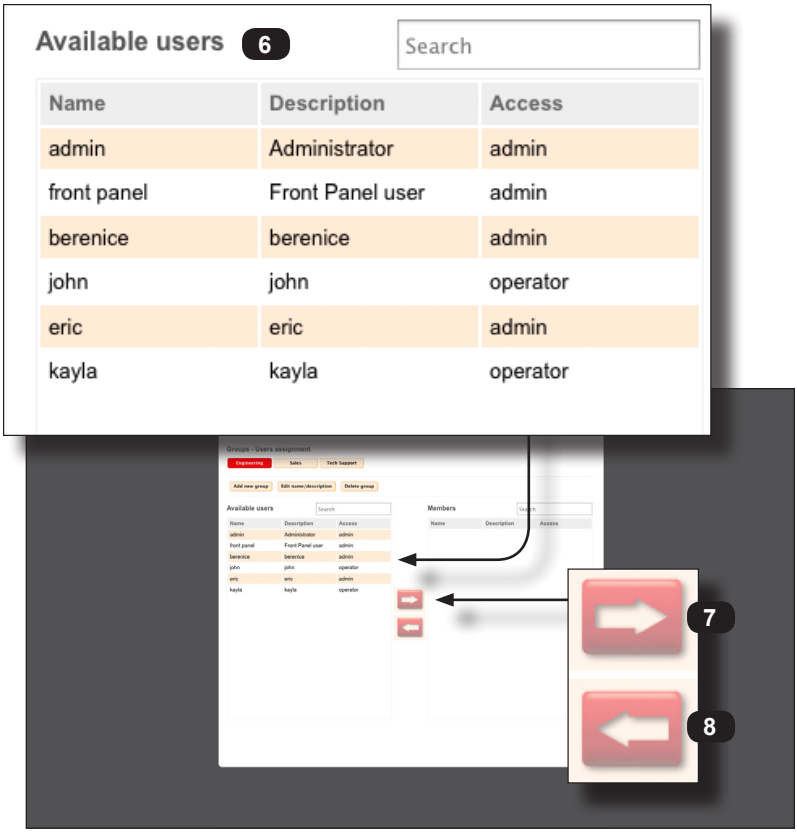
1 Group Name
Displays each *group* that is created has a button.

2 Add new group
Click this button to create a new *group*.

3 Edit name / description
Click this button to change the name and/or description of the selected *group*. This button is enabled only if a *group* button is clicked.

4 Delete group
Click this button to delete the selected *group*. This button is enabled only if a *group* button is clicked.

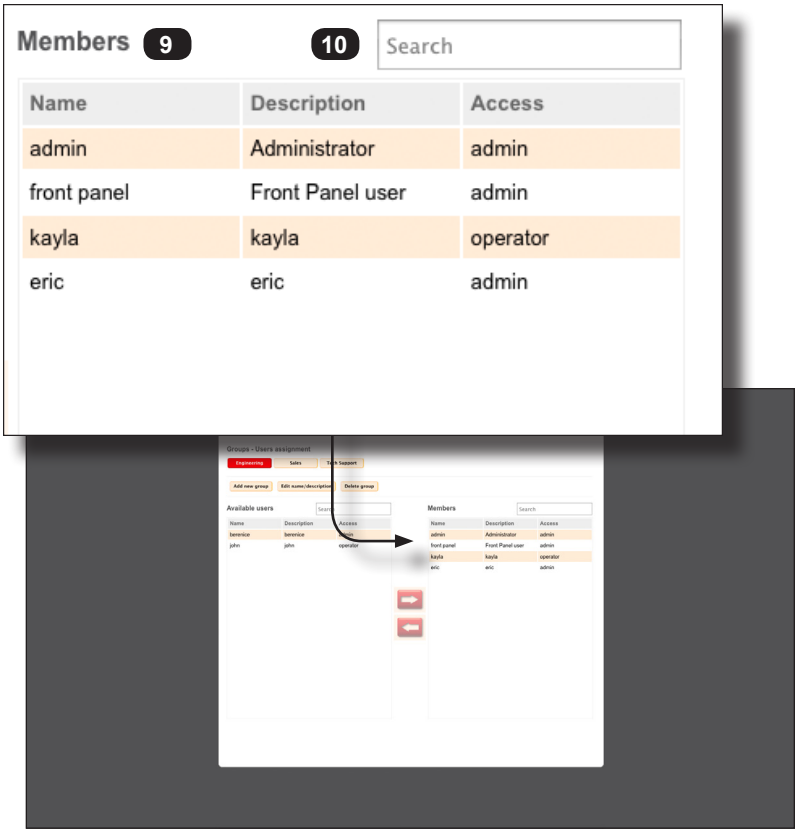
5 Search box
To quickly search for a user in the Available Users list, enter the user in this text box.



6 Available users
Lists all users that have been created. The admin and front panel user names are indigenous to the Matrix Controller and cannot be deleted. See Creating Users (page 26) for more information. For details on how to add members to groups, see Adding Members (page 40).

7 Right Arrow Icon
Click this button to move the selected users, under the **Available users** list, to the **Members** list. This button is only enabled when one or more *users* have been selected from the **Available users** list. See Adding Members (page 40) for more information.

8 Left Arrow Icon
Click this button to move the selected Members to the Available users list. This button is only enabled when one or more *members* have been selected from the **Member** list See Removing Members (page 42) for more information.

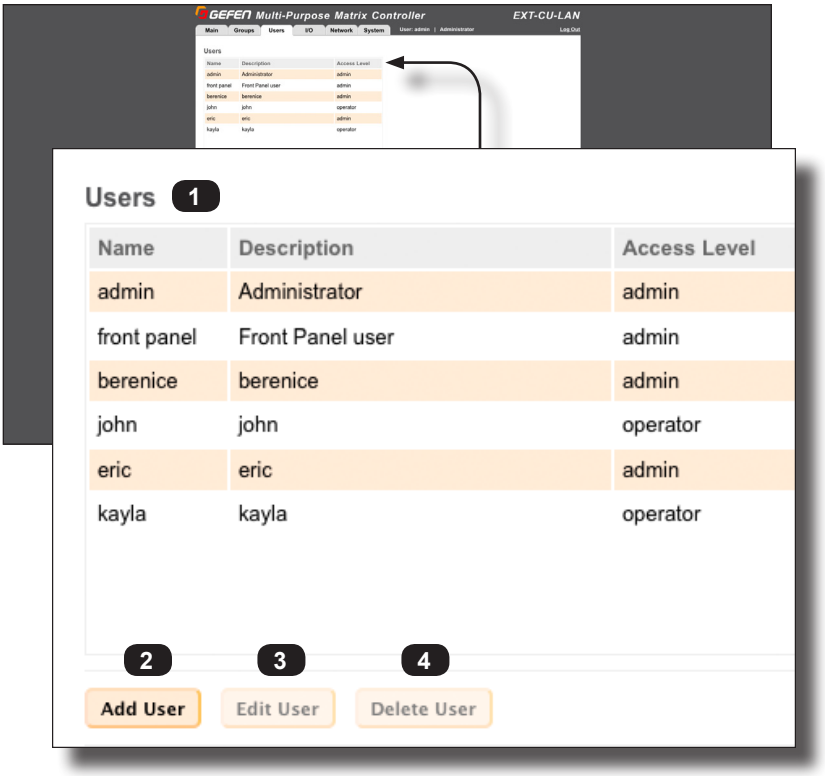


9 Members
Lists all members that have been added to the current *group*. See Adding Members (page 40) for more information.

10 Search box
To quickly search for a *member* under the **Members** list, enter the *member* name in this text box.

Users

The **Users** page is used to add, edit, and delete users. You will be asked to create a *user*, password, and specify an access level (Administrator or Operator) for each *user* that is created. See Creating Users (page 26) for information.



1 Users
Displays the name, description, and access level for all users.

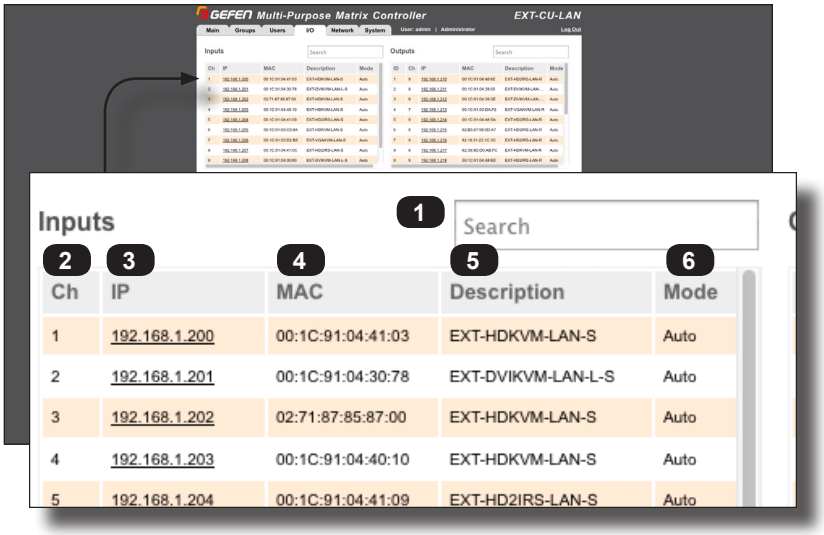
2 Add User
Click this button to add a *user*.

3 Edit User
Click this button to edit the *user*, description, access level, and password of the selected *user*. This button is enabled when a *user* is selected.

Delete User
Click this button to delete the selected *user*. This button is enabled only if a *user* is selected.

I/O

The **I/O** page is used to manage all Gefen KVM over IP products that are connected to the network and detected by the Matrix Controller. The I/O page contains two columns: **Inputs** and **Outputs**.



1 **Search (Inputs)**
Enter the IP address, MAC address, or the description of the unit to search for under the **Inputs** column.

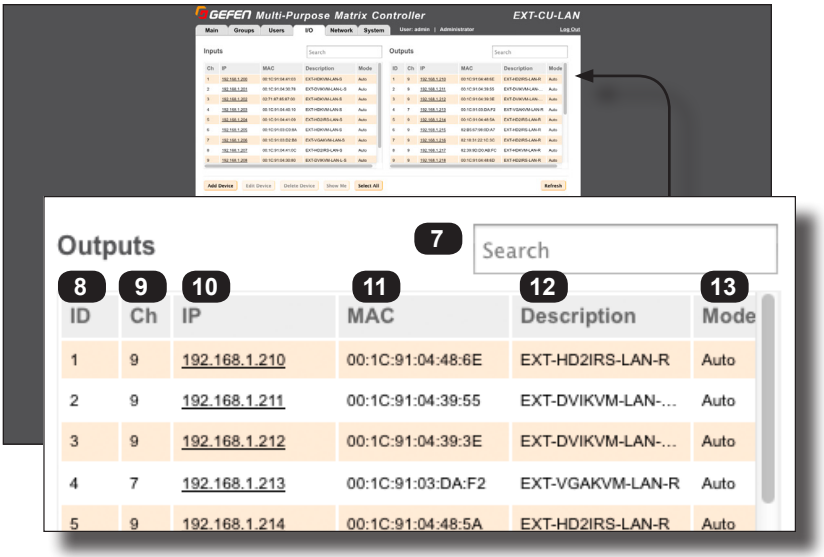
2 **Ch (Inputs)**
Displays the channel of the KVM over IP product.

3 **IP (Inputs)**
DIsplays the IP address of the KVM over IP product. You can access the Web interface of the KVM over IP (Sender unit) by clicking the desired IP address, under this column.

4 **MAC (Inputs)**
Displays the MAC address of the product.

5 **Description (Inputs)**
Displays the description of the product. By default, the product name is used as a description. This name can be changed using the **Edit Device** button.

6 **Mode (Inputs)**
Displays the network mode of the KVM over IP product. The different modes are: Auto, Static, and DHCP. See the product manual for the KVM over IP for more information about network modes.



7 Search (Outputs)
Enter the IP address, MAC address, or the description of the unit to search for under the **Outputs** column.

8 ID (Outputs)
DIsplays the ID of the KVM over IP device.

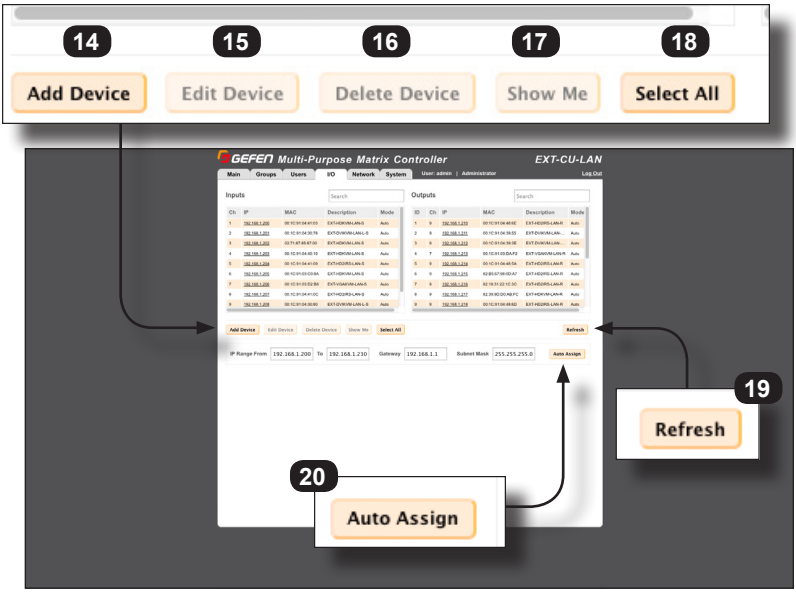
9 Ch (Outputs)
Displays the channel of the KVM over IP product.

10 IP (Outputs)
DIsplays the IP address of the KVM over IP product. You can access the Web interface of the KVM over IP (Receiver unit) by clicking the desired IP address, under this column.

11 MAC (Outputs)
Displays the MAC address of the product.

12 Description (Outputs)
Displays the description of the product. By default, the product name is used as a description. This name can be changed using the **Edit Device** button.

13 Mode (Outputs)
Displays the network mode of the KVM over IP product. The different modes are: Auto, Static, and DHCP. See the product manual for the KVM over IP for more information about network modes.



14 Add Device
Normally, the Matrix Controller will automatically attempt to connect and retrieve device information. However, if the KVM over IP device has a unique IP address, then click this button to add a device to the list. The IP address and Telnet port of the device must be provided.

15 Edit Device
Click this button to edit settings and description of the selected device.

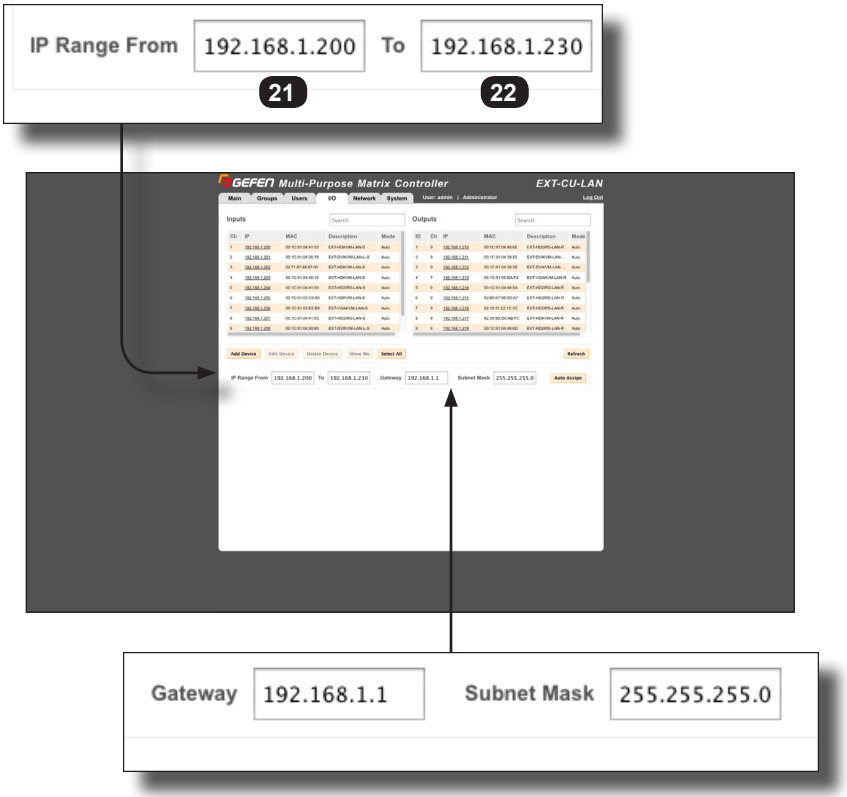
16 Delete Device
Click this button to remove a device from the list.

17 Show Me
Click this button to activate the “show me” feature on the selected device.

18 Select All
Click this button to select all devices under both the Inputs and Outputs column.

19 Refresh
Click this button to refresh the page. This button should be used instead of the refresh function of the Web browser.

20 Auto Assign
Click this button to auto-assign the IP address, ID, and Channel of the selected device(s). This button should only be used if there are conflicting ID numbers (outputs only) or Channel numbers (inputs only).



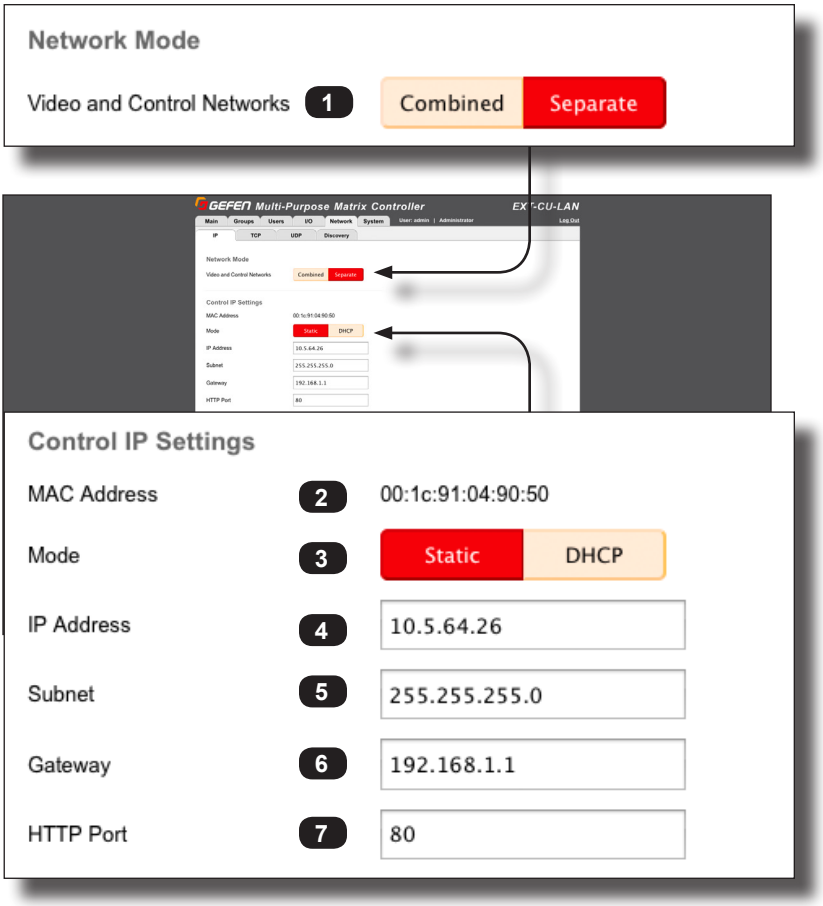
21 IP Range (From)
Enter the starting IP address to use. This information is used by the Auto Assign button.

22 IP Range (To)
Enter the starting IP address to use. This information is used by the Auto Assign button.

23 Gateway
Enter the gateway address in this field.

24 Subnet Mask
Enter the subnet mask address in this field.

Network ► IP



1 **Video and Control Networks**
Click to switch between *combined* and *separate* modes. See Combined Mode (page 9) and Separate Mode (page 13) for more information.

2 **MAC Address**
Displays the MAC address of the Matrix Controller.

3 **Mode**
Selects the network mode: Static or DHCP.

4 **IP Address**
Enter the IP address of the Matrix Controller. This field is only available if the Mode is set to Static.

5 **Subnet**
The subnet mask in this field.

6 **Gateway**
The gateway address.

7 **HTTP Port**
Enter the HTTP listening port.

8 MAC Address
The MAC address of the managed switch to which the KVM over IP devices are connected.

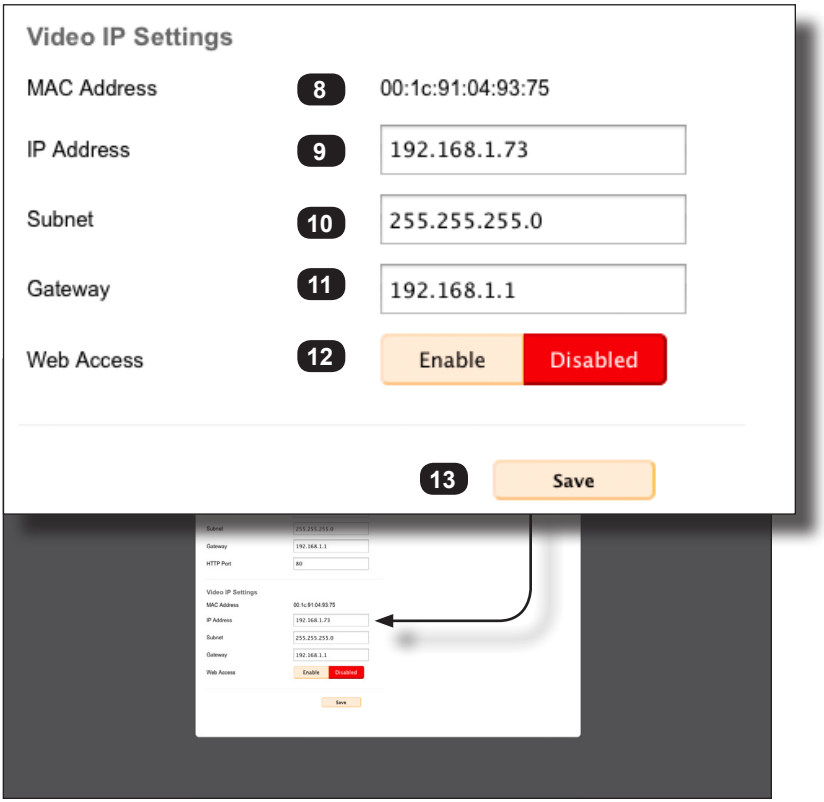
9 IP Address
The IP address of the managed switch.

10 Subnet
The subnet mask of the managed switch.

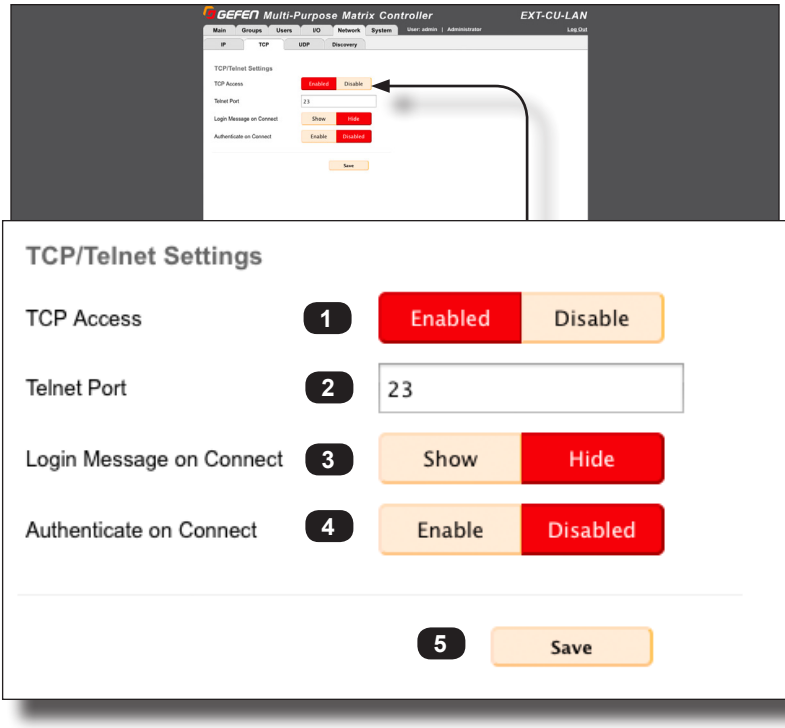
11 Gateway
The gateway address of the managed switch.

12 Web Access
Enables or disables Web access. Enabling this features allows you to access the Matrix Controller Web interface through the video network. Once enabled, connect a computer to the same switch that the KVM over IP products are connected to, then enter the IP address in the Web browser.

13 Save
Click this button so save any changes on this page.



Network ► TCP



1 **TCP Access**
Click these buttons to enable or disable TCP access.

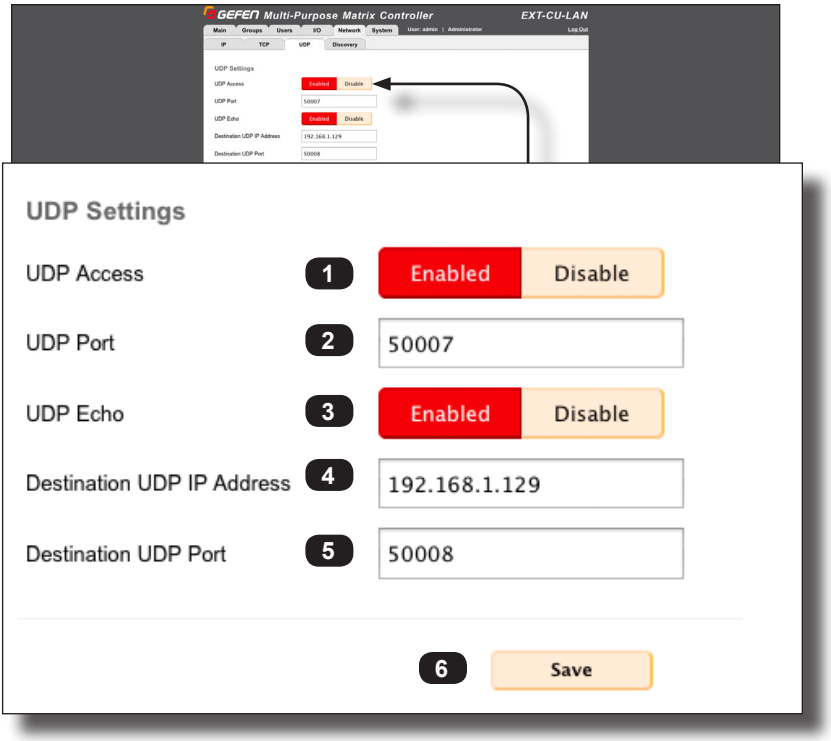
2 **Telnet Port**
Enter the Telnet listening port in this field.

3 **Login Message on Connect**
Click these buttons to show or hide the Telnet welcome message at the beginning of each Telnet session.

4 **Authenticate on Connect**
Click these buttons to enable or disable login credentials for TCP access.

5 **Save**
Click this button to save all changes on this page.

Network ► UDP



1 **UDP Access**
Click these buttons to enable or disable UDP access.

2 **UDP Port**
Enter the local UDP listening port in this field.

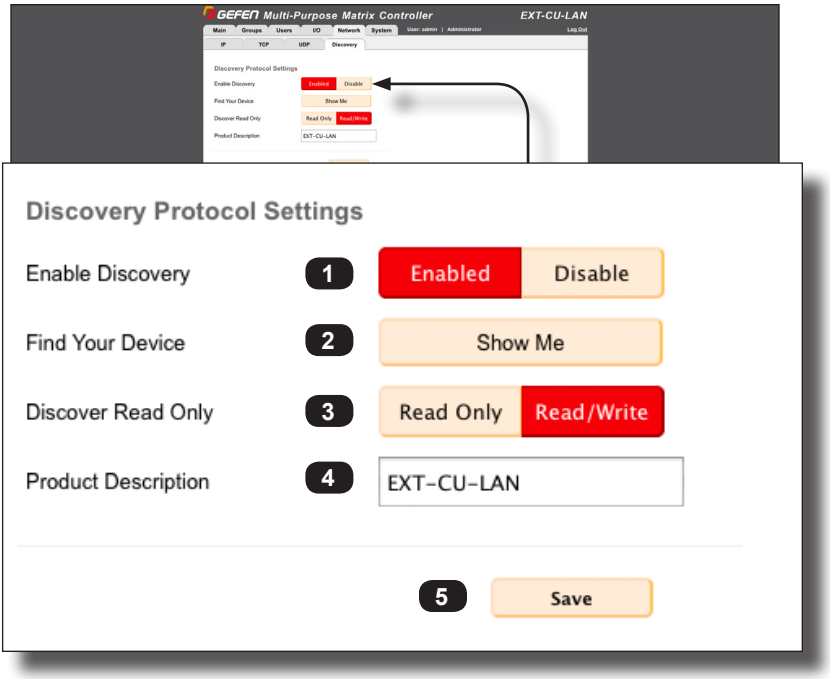
3 **UDP Echo**
Click these buttons to enable or disable UDP echo.

4 **Destination UDP IP Address**
Enter the remote UDP IP address in this field.

5 **Destination UDP Port**
Enter the remote UDP listening port in this field.

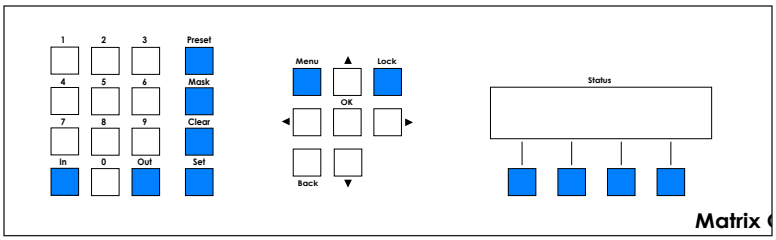
6 **Save**
Click this button to save all changes on this page.

Network ► Discovery

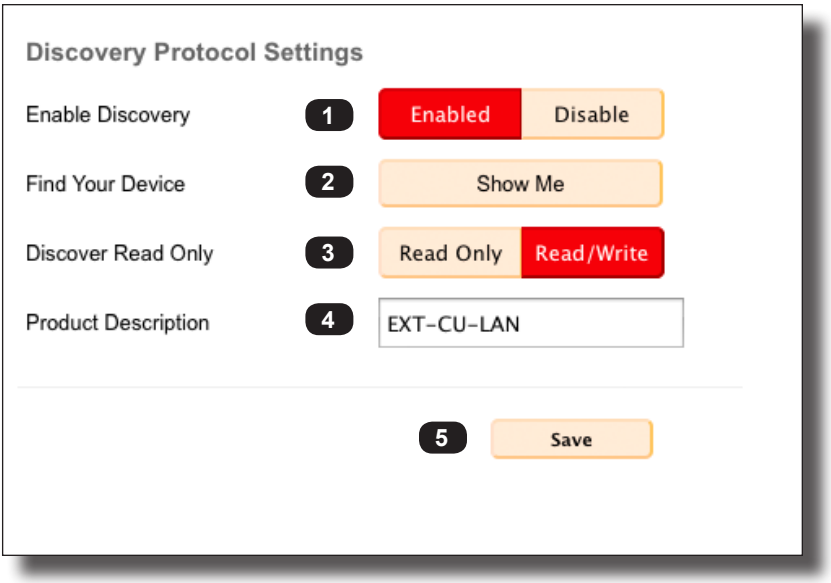


1 **Enable Discovery**
Click these buttons to enable or disable the Discovery feature. In order for the Matrix Controller to be discovered on a network using Gefen Syner-G, this feature must be enabled.

2 **Find Your Device**
Click this button to show the location of the device. When the **Show Me** button is clicked, the button text will change to **Hide Me** and the following buttons will flash on the front panel of the Matrix Controller:



Click the **Hide Me** button to stop the buttons from flashing.

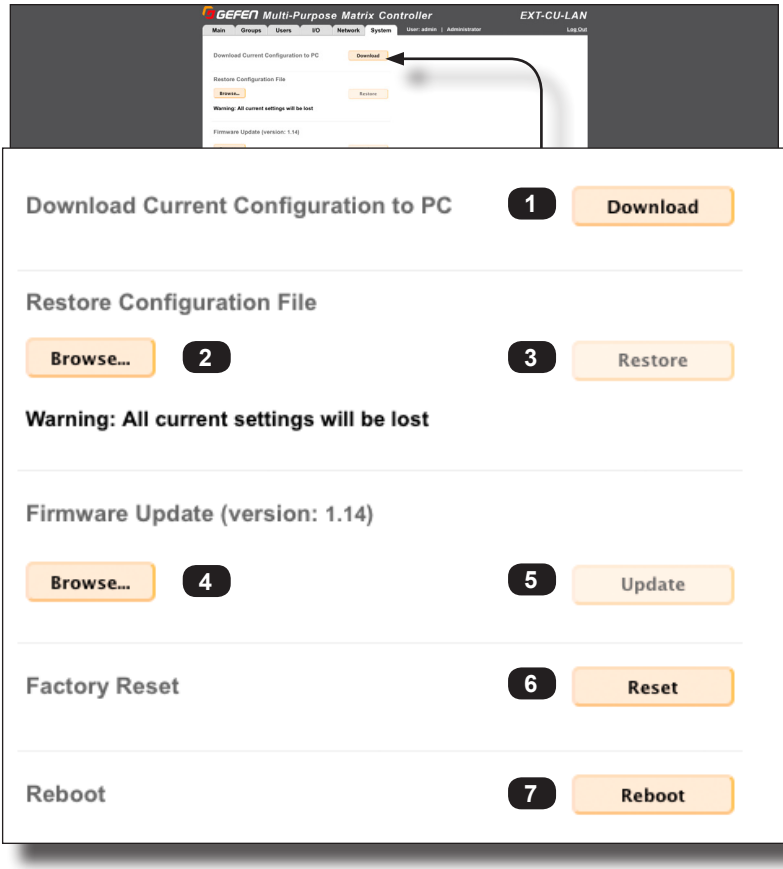


3 **Discover Read Only**
Click the **Read Only** button to restrict anyone using the Syner-G Software Suite from changing the settings of the Matrix Controller. Click the **Read / Write** button to allow anyone to read or change the settings of the Matrix Controller.

4 **Product Description**
Enter the name of the Matrix Controller in this field. The default name is `EXT-CU-LAN`.

5 **Save**
Click this button to save all changes on this page.

System

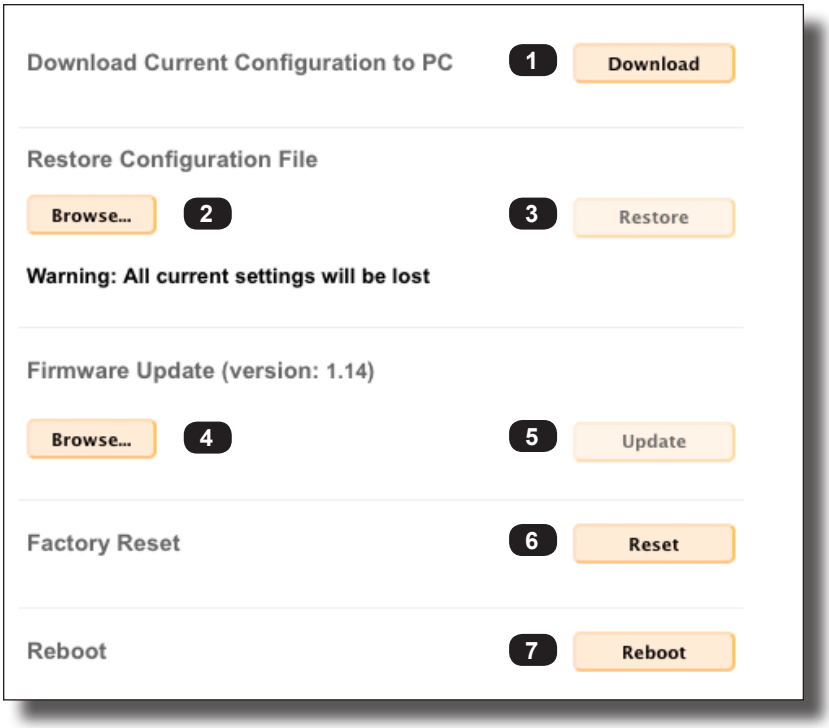


1 **Download**
Click this button to download the current Matrix Controller configuration to a file.

2 **Browse... (Restore Configuration File)**
Click to select the configuration file to upload.

3 **Restore**
Click this button to restore the selected configuration file.

4 **Browse... (Firmware Update)**
Click to select the firmware file.



5 Update
Click this button to begin the firmware update procedure.

6 Reset
Click this button to reset the Matrix Controller to factory-default settings.

7 Reboot
Click this button to reboot the Matrix Controller.

Matrix Controller

3 Advanced Operation

Command	Description
#factory_reset	Resets the Matrix Controller to factory-default settings
#get_discovery	Displays the Discovery Service status
#get_discovery_mode	Displays the mode of the Discovery Service
#get_firmware_version	Displays the current version of firmware
#get_gateway	Displays the gateway address
#get_ip_address	Displays the IP address
#get_ip_mode	Displays the IP mode
#get_ipconfig	Displays the current IP settings
#get_netmask	Displays the subnet mask
#get_telnet_access	Displays the Telnet access status
#get_telnet_pass	Displays the Telnet password status
#get_telnet_port	Displays the Telnet listening port
#get_udp_access	Displays the UDP access status
#get_udp_echo_access	Displays the UDP server echo status
#get_udp_echo_ip	Displays the address of the UDP echo server
#get_udp_echo_port	Displays the listening port of the UDP echo server
#get_udp_port	Displays the UDP listening port
#get_web_port	Displays the HTTP listening port
#help	Displays the list of available commands
#reboot	Reboots the Matrix Controller
#set_discovery	Enables or disables the Discovery Service
#set_discovery_mode	Sets the Discovery Service mode
#set_gateway	Sets the gateway address
#set_ip_address	Sets the IP address of the Matrix Controller
#set_ip_mode	Sets the IP mode
#set_netmask	Sets the net mask
#set_port_mode	Sets the network port mode
#set_showme	Enables or disables the “Show Me” feature
#set_telnet_access	Enables or disables Telnet access
#set_telnet_port	Sets the Telnet listening port
#set_udp_access	Enables or disables UDP access
#set_udp_echo_access	Enables or disables the UDP echo status
#set_udp_echo_ip	Sets the address of the UDP echo server
#set_udp_echo_port	Sets the listening port of the UDP echo server

(continued on next page)

Command	Description
#set_udp_port	Sets the UDP listening port
#set_web_port	Sets the HTTP listening port
#use_telnet_login	Enables or disables Telnet login credentials
#use_telnet_welcome	Enables or disables the Telnet welcome message
p	Recalls the specified preset number
r	Routes an input to the specified output(s)

#factory_reset

Reset the Matrix Controller to factory-default settings. The Matrix Controller *must* be power-cycled after executing this command.

Important

This command resets the IP address. If the IP address changes, then the Matrix Controller will be disconnected from the network. Use the Gefen Syner-G Discovery Tool to locate the Matrix Controller and assign the new network settings to work on your network.

Syntax

```
#factory_reset
```

Parameters

None

Example

```
#factory_reset
```

#get_discovery

Displays the Discovery Service status.

Syntax

```
#get_discovery
```

Parameters

None

Returns

Integer [0 ... 1]

Value	Description
0	Discovery disabled
1	Discovery enabled

Example

```
#get_discovery
DISCOVERY 1
```

Related Commands

#set_discovery

#get_discovery_mode

Displays the read/write mode of the Discovery Service.

Syntax

```
#get_discovery_mode
```

Parameters

None

Returns

Integer [0 ... 1]

Value	Description
0	Discovery mode disabled
1	Discovery mode enabled

Example

```
#get_discovery_mode
DISCOVERY MODE 1
```

Related Commands

#set_discovery_mode

#get_firmware_version

Displays the current version of firmware.

Syntax

```
#get_firmware_version
```

Parameters

None

Example

```
#get_firmware_version
FIRMWARE VERSION IS 1.14
```

#get_gateway

Displays the gateway address of the specified port on the Matrix Controller.

Syntax

```
#get_gateway param1
```

Parameters

`param1` Integer [1 ... 2]

param1	Description
1	Control Port (LAN 1)
2	Video Port (LAN 2)

Example

```
#get_gateway 1
GATEWAY 1 10.5.64.203
```

Related Commands

`#set_gateway`

#get_ip_address

Displays the IP address of the Matrix Controller.

Syntax

```
#get_ip_address param1
```

Parameters

`param1` Integer [1 ... 2]

param1	Description
1	Control Port (LAN 1)
2	Video Port (LAN 2)

Example

```
#get_ip_address 2
IP ADDRESS 2 192.168.1.75
```

Related Commands

#set_ip_address

#get_ip_mode

Displays the current IP mode of the specified port on the Matrix Controller.

Syntax

```
#get_ip_mode param1
```

Parameters

`param1` Integer [1 ... 2]

param1	Description
1	Control Port (LAN 1)
2	Video Port (LAN 2)

Example

```
#get_ip_mode 1
IP_MODE 1 DHCP
```

Related Commands

#get_ipconfig

#get_ipconfig

Displays the current IP settings.

Syntax

```
#get_ipconfig
```

Parameters

None

Example

```
#get_ipconfig
IP CONFIGURATION IS:
IP MODE: DHCP
IP: 10.5.64.203
NETMASK: 255.255.255.0
GATEWAY: 10.5.64.1
MAC ADDRESS: 00:1c:91:04:93:28
```

Related Commands

#get_gateway
#get_ip_address
#get_ip_mode
#get_netmask

#get_netmask

Displays the subnet mask of the specified control port on the Matrix Controller.

Syntax

```
#get_netmask param1
```

Parameters

None

Example

```
#get_netmask 2
NETMASK 2 255.255.0.0
```

Related Commands

#get_gateway
#get_ip_address
#get_ip_mode
#get_ipconfig
#set_netmask

#get_telnet_access

Displays the current Telnet access status.

Syntax

```
#get_telnet_access
```

Parameters

None

Returns

Integer [0 ... 1]

Value	Description
0	Telnet access disabled
1	Telnet access enabled

Example

```
#get_telnet_access
TELNET_ACCESS 1
```

Related Commands

#set_telnet_access

#get_telnet_pass

Displays the Telnet password status.

Syntax

```
#get_telnet_pass
```

Parameters

None

Returns

Integer [0 ... 1]

Value	Description
0	Password not required on connect
1	Password required on connect

Example

```
#get_telnet_pass
TELNET_PASS 0
```

Related Commands

#get_telnet_port

Displays the Telnet listening port.

Syntax

```
#get_telnet_port
```

Parameters

None

Returns

Telnet port

Example

```
#get_telnet_port
TELNET_PORT 23
```

Related Commands

#set_telnet_port

#get_udp_access

Displays the UDP access status.

Syntax

```
#get_udp_access
```

Parameters

None

Returns

Integer [0 ... 1]

Value	Description
0	UDP access disabled
1	UDP access enabled

Example

```
#get_udp_access
UDP_ACCESS 1
```

Related Commands

```
#set_udp_access
```

#get_udp_echo_access

Displays the UDP echo access status. When enabled, the UDP server returns an identical copy of the data that was received.

Syntax

```
#get_udp_echo_access
```

Parameters

None

Integer [0 ... 1]

Value	Description
0	UDP echo disabled
1	UDP echo enabled

Example

```
#get_udp_echo_access
UDP_ECHO_ACCESS 1
```

Related Commands

```
#set_udp_echo_access
```

#get_udp_echo_ip

Displays the IP address of the UDP server supporting the echo protocol.

Syntax

```
#get_udp_echo_ip
```

Parameters

None

Example

```
#get_udp_echo_ip
UDP_ECHO_IP 10.5.64.158
```

Related Commands

```
#set_udp_echo_ip
```

#get_udp_echo_port

Displays the listening port of the UDP server supporting the echo protocol.

Syntax

```
#get_udp_echo_port
```

Parameters

None

Example

```
#get_udp_echo_port
UDP_ECHO_PORT 50009
```

Related Commands

```
#set_udp_echo_port
```

#get_udp_port

Displays the UDP listening port.

Syntax

```
#get_udp_port
```

Parameters

None

Example

```
#get_udp_port
UDP_PORT 50008
```

Related Commands

```
#set_udp_port
```

#get_web_port

Displays the current HTTP listening port.

Syntax

```
#get_web_port
```

Parameters

None

Example

```
#get_web_port
WEB_PORT 80
```

Related Commands

```
#set_web_port
```

#help

Displays the list of available commands. If a command is specified as *param1*, then the description of the command is displayed.

Syntax

```
#help [param1]
```

Parameters

param1	String (command)

Examples

```
#help
AVAILABLE TCP/UDP COMMANDS:

#HELP
#GET_IPCONFIG
#SET_PORT_MODE
#GET_IP_MODE
#SET_IP_ADDRESS
...
...
#GET_FIRMWARE_VERSION
#FACTORY_RESET
#REBOOT



#help #get_ip_mode
GET THE CURRENT IP MODE FOR EITHER NETWORK PORT(0 = STATIC, 1 =
DHCP)
#GET_IP_MODE PARAM1
PARAM1 = 1-2 (1 = PORT 1 - CONTROL PORT; 2 = PORT 2 - VIDEO PORT)
```

#reboot

Reboots the Matrix Controller.

Syntax

```
#reboot
```

Parameters

None

Example

```
#reboot
UNIT WILL REBOOT SHORTLY
```

#set_discovery

Enables or disables the Discovery Service. This service is used by the Gefen Syner-G Discovery Tool. The default value is Enabled.

Syntax

```
#set_discovery param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_discovery 1
DISCOVERY 1
```

Related Commands

```
#get_discovery
```

#set_discovery_mode

Sets the Discovery Service mode. The default value is Read / Write.

- **Read / Write**
  This mode will permit the discovery of the Matrix Controller on the network. In addition, the IP settings, description, and other settings for the Matrix Controller can be changed using the Syner-G Software Suite.

- **Read Only**
  This mode only permits the discovery of the Matrix Controller on the network.

Syntax

```
#set_discovery_mode param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Read Only
1	Read / Write

Examples

```
#set_discovery_mode 0
DISCOVERY_MODE 0
```

Related Commands

```
#set_discovery
#get_discovery
```

#set_gateway

Sets the gateway address. The gateway address must be typed using dot-decimal notation. The Matrix Controller must be rebooted after executing this command. The default gateway is `192.168.1.254`.

Syntax

```
#set_gateway param1 param2
```

Parameters

`param1` Integer [1 ... 2]

param1	Description
1	Control Port (LAN 1)
2	Video Port (LAN 2)

`param2` Address

Example

```
#set_gateway 2 192.168.1.1
GATEWAY 2 192.168.1.1
```

Related Commands

`#get_gateway`

#set_ip_address

Sets the IP address of the Matrix Controller. The IP address must be entered using dot-decimal notation. The Matrix Controller must be rebooted after executing this command. The default IP address for the control port (LAN 1) is `192.168.1.74`. The default IP address for the video port (LAN 2) is `192.168.1.75`.

Syntax

```
#set_ip_address param1
```

Parameters

`param1` Integer [1 ... 2]

param1	Description
1	Control Port (LAN 1)
2	Video Port (LAN 2)

`param2` Address

Example

```
#set_ip_address 2 192.168.1.75
IP_ADDRESS 192.168.1.75
```

Related Commands

`#get_ip_address`

#set_ip_mode

Sets the IP mode fro the Control Network to either DHCP or Static. The Video Network IP mode is set to Static and cannot be changed.

Syntax

```
#set_ip_mode param1
```

Parameters

`param1` Integer [1 ... 2]

param1	Description
1	Control Port (LAN 1)
2	Video Port (LAN 2)

`param2` Integer [0 ... 1]

param2	Description
0	Static
1	DHCP

Example

```
#set_ip_mode 1 1
IP_MODE 1 1
```

Related Commands

`#get_ip_mode`

#set_netmask

Sets the subnet mask. The subnet mask address must be entered using dot-decimal notation. The Matrix Controller must be rebooted after executing this command. The default net mask is `255.255.255.0`.

Syntax

```
#set_netmask param1
```

Parameters

`param1` Integer [1 ... 2]

param1	Description
1	Control Port (LAN 1)
2	Video Port (LAN 2)

`param2` Address

Example

```
#set_netmask 2 255.255.0.0
NETMASK 2 255.255.255.0
```

Related Commands

`#get_netmask`

#set_port_mode

Sets the network port mode.

Syntax

```
#set_port_mode param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Combined
1	Separate

Example

```
#set_port_mode
SET_PORT_MODE 1
```

#set_showme

Enables or disables the “Show Me” feature. When the “Show Me” feature is enabled several of the button on the front panel will flash. This quickly identifies a unit and is useful when multiple units are being used. The default setting is Disabled.

Syntax

```
#set_showme param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_showme 1
SHOWME 1
```

Related Commands

#get_discovery
#get_discovery_mode
#set_discovery
#set_discovery_mode

#set_telnet_access

Enables or disables Telnet access. The default setting is Enabled.

Syntax

```
#set_telnet_access param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_telnet_access 1
TELNET_ACCESS 1
```

Related Commands

#get_telnet_access

#set_telnet_port

Sets the Telnet listening port. The default port is 23.

Syntax

```
#set_telnet_port param1
```

Parameters

param1	Integer	[0 ... 65535]

Example

```
#set_telnet_port 23
TELNET_PORT 23
```

Related Commands

#get_telnet_port

#set_udp_access

Enables or disables UDP access. The default setting is Enabled.

Syntax

```
#set_udp_access param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_udp_access 1
UDP_ACCESS 1
```

Related Commands

#get_udp_access

#set_udp_echo_access

Enables or disables UDP echo.

Syntax

```
#set_udp_echo_access param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#set_udp_echo_access 0
UDP_ECHO_ACCESS 0
```

Related Commands

`#get_udp_echo_access`

#set_udp_echo_ip

Sets the UDP echo IP address. The IP address must be entered using dot-decimal notation.

Syntax

```
#set_udp_echo_ip param1
```

Parameters

param1	Address

Example

```
#set_udp_echo_ip 10.5.64.158
UDP_ECHO_IP 10.5.64.158
```

Related Commands

#get_udp_echo_ip

#set_udp_echo_port

Sets the UDP echo communication port.

Syntax

```
#set_udp_echo_port param1
```

Parameters

param1	Integer	[0 ... 65535]

Example

```
#set_udp_echo_port
UDP_ECHO_PORT 50009
```

Related Commands

#get_udp_echo_port

#set_udp_port

Sets the UDP listening port. The default port is 50007.

Syntax

```
#set_udp_port param1
```

Parameters

param1	Integer	[0 ... 65535]

Example

```
#set_udp_port 50008
UDP_PORT 50008
```

Related Commands

#get_udp_port

#set_web_port

Sets the HTTP listening port. The Matrix Controller must be rebooted after executing this command. The default port setting is 80.

Syntax

```
#set_web_port param1
```

Parameters

param1	Integer	[0 ... 65535]

Example

```
#set_web_port 80
WEB_PORT 80
```

Related Commands

#get_web_port

#use_telnet_login

Enables or disables the requirement of login credentials for a Telnet session.

Syntax

```
#use_telnet_login param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Disabled
1	Enabled

Example

```
#use_telnet_login
TELNET_LOGIN 1
```

Related Commands

#use_telnet_welcome

#use_telnet_welcome

Enables or disables the Telnet welcome message. When enabled, the following message will be displayed at the beginning of each Telnet session: `Welcome to EXT-CU-LAN Telnet:` This message is enabled, by default. The message may be disabled for communications with some control systems.

Syntax

```
#use_telnet_welcome param1
```

Parameters

`param1` Integer [0 ... 1]

param1	Description
0	Telnet Welcome Disabled
1	Telnet Welcome Enabled

Example

```
#use_telnet_welcome 1
TELNET_WELCOME 1
```

Related Commands

`#use_telnet_login`

p

Recalls the specified preset number. Do not precede this command with the “#’ symbol.

Syntax

```
p param1
```

Parameters

`param1`	Integer	[1 ... 9999]

Example

```
p 2
p 2
```

r

Routes an input to the specified output(s). Do not precede this command with the "#' symbol.

Syntax

```
r param1 param2
```

Parameters

param1	Input Channel	[1 ... 255]
param2	Output ID	[1 ... 65535]

Example

```
r 1 4
r 1 4
```

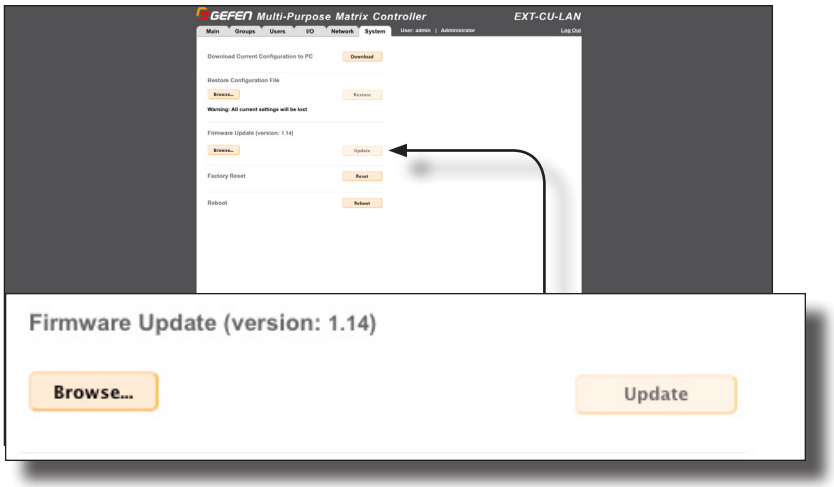
Matrix Controller

4 Appendix

Information

The firmware upgrade procedure can take up to 15 minutes to complete.

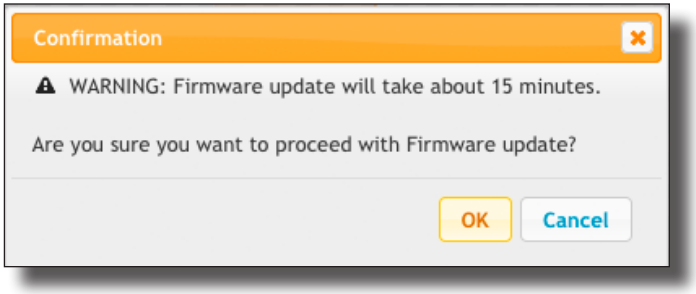
1. Download the latest version of firmware from the Gefen Web site.
2. Extract the .bin file from the .ZIP file.
3. Access the built-in Web interface and click the **System** tab.
4. Click the **Browse...** button and select the firmware file.



5. Click the **Update** button.

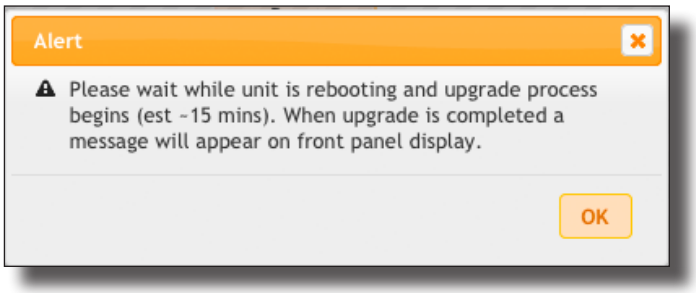
(continued on next page)

6. The following message box will be displayed:



Click the **OK** button to continue. Click the **Cancel** button to cancel the operation.

7. Another message box will be displayed, indicating that the upgrade process can take up to 15 minutes to complete.

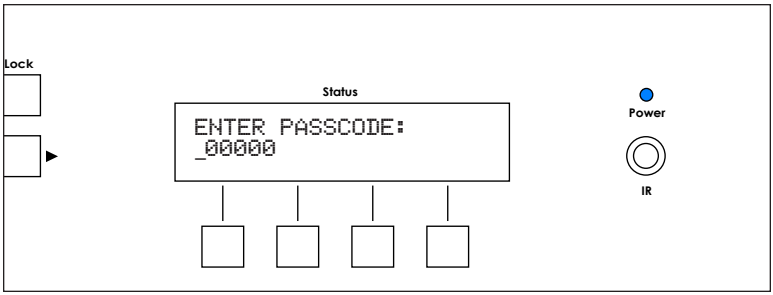


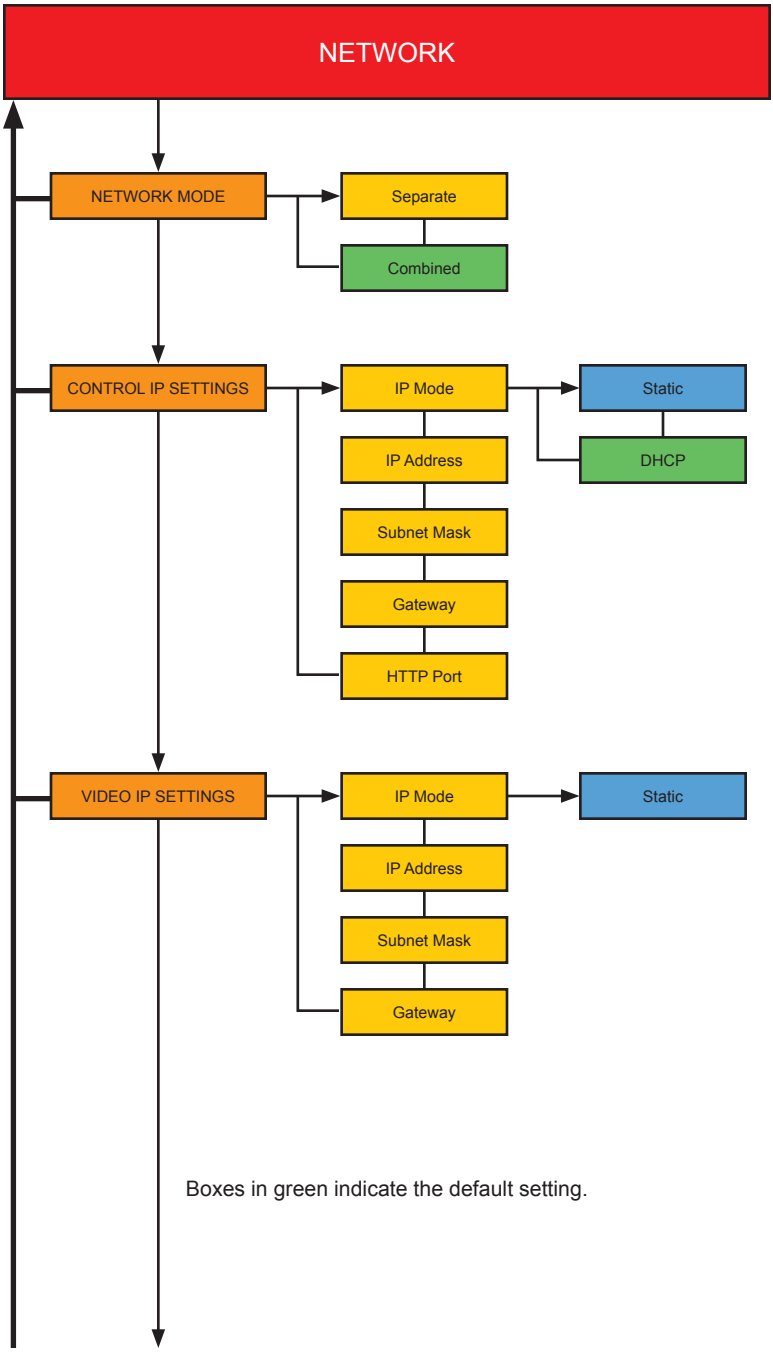
8. Click the **OK** button to acknowledge and dismiss the message box.

9. The display on the front panel will display the following set of similar messages during the upgrade process:

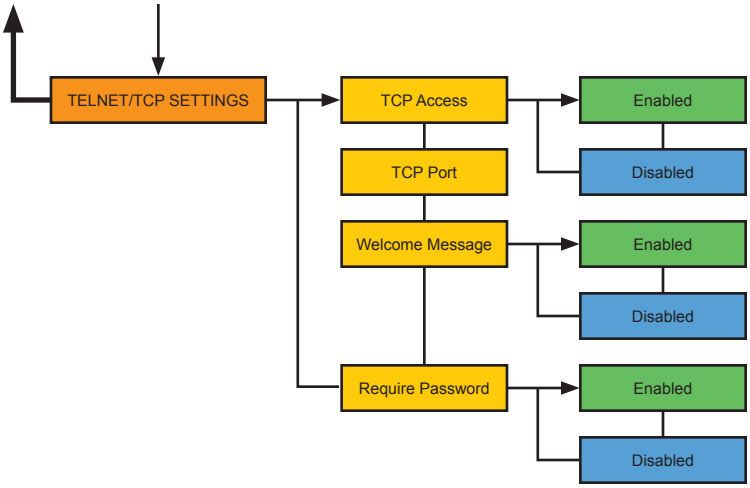
REBOOTING...	FIRMWARE UPGRADE APPLIED. REBOOTING.
FIRMWARE UPGRADE BUILDING FW FILE	FIRMWARE UPGRADE RESTORING SETTINGS
FIRMWARE UPGRADE APPLYING FIRMWARE	FIRMWARE UPGRADE FINISHED. REBOOTING.

10. After the firmware upgrade process has completed, the *passcode screen* will be displayed:

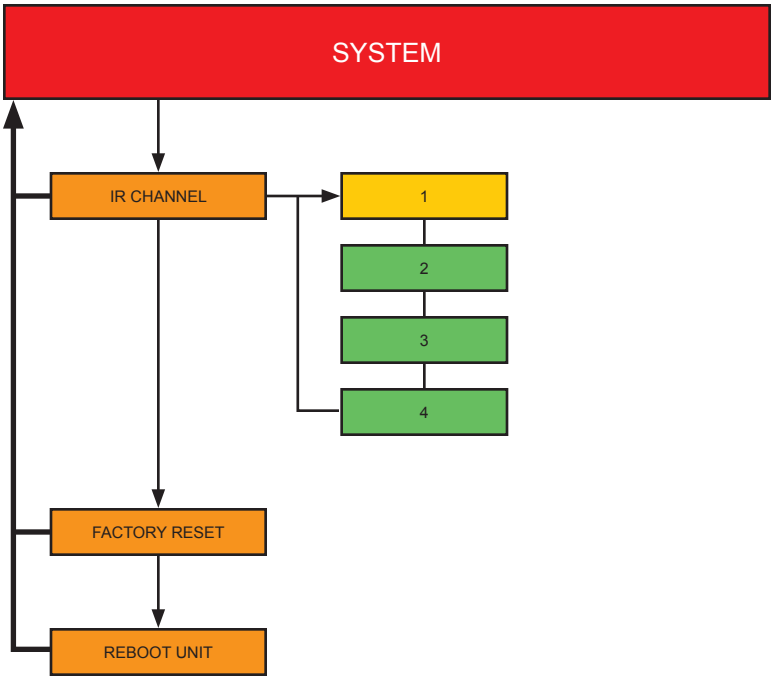




Boxes in green indicate the default setting.



Boxes in green indicate the default setting.



Boxes in green indicate the default setting.

Connectors, Controls, and Indicators		
LAN 1	•	1 x RJ-45, POE-enabled
LAN 2	•	1 x RJ-45
Power Connector	•	1 x locking
Front-panel buttons	•	28 x push button, tact-type
IR Sensor	•	1 x sensor, front panel
Display	•	1 x LCM display 2 lines, 20 characters per line
Power Indicator	•	1 x LED, blue

Operational		
Power Input	•	5V DC
Power Consumption	•	4.3W (max.)
Operating Temperature	•	+32 to +122 ºF (0 to +50 ºC)
Operating Humidity	•	5% to 90% RH, non-condensing
Storage Temperature	•	-4 to +185 ºF (-20 to +85 ºC)
Storage Humidity	•	0% to 95% RH, non-condensing
MTBF	•	50000 Hours

Physical		
Dimensions (W x H x D) without rack ears	•	17” x 3.5” x 2.7” (432mm x 88mm x 68mm)
Dimensions (W x H x D) with rack ears	•	19” x 3.5” x 2.7” (482mm x 88mm x 68mm)
Unit Weight	•	3.7 lbs (1.7 kg)

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