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.
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, repair 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.
Contacting Gefen Technical Support

Technical Support

(818) 772-9100     (800) 545-6900
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Mailing Address

Gefen, LLC
 c/o Customer Service
 20600 Nordhoff St.
  Chatsworth, CA 91311

Product Registration

Register your product here:  http://www.gefen.com/kvm/Registry/Registration.jsp
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 HD KVM over IP is running the latest firmware.

The HD KVM over IP is compatible with the DVI KVM over IP, VGA KVM over IP, DVI KVM over IP w/ Local DVI Output, and the HD over IP w/ RS-232 and 2-way IR which allows these products to be connected within a single system.

Gefen highly recommends the use of the Syner-G software and Matrix Controller (Gefen part no. EXT-CU-LAN) for setting up and controlling the operation of a Video-over-IP network using these products.

Shielded CAT-5e (or better) cables should not exceed 330 feet (100 meters) between the Sender / Receiver unit and the network.

By default, all Sender and Receiver units are set to channel 0.

This product does not support dual link resolutions.

By default, the source device will use the EDID from the display (or other sink device) which is connected the Receiver unit. See EDID Management (page 47) for more information.

If terminating network cables in the field, please adhere to the TIA/EIA568B specification. See the Network Cable Diagram (page 150) for details.

Important
The use of a Gigabit switch with higher than 8K "jumbo frame" capability is required when connecting the HD KVM over IP to a network.
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:

- jQuery
- Linux
Features

• Extends HDMI, USB, RS-232, bi-directional stereo analog audio, and IR over IP, using a Gigabit Local Area Network
• Supports resolutions up to 1080p Full HD and 1920 x 1200 (WUXGA)
• Supported HDMI Features
  ► HDCP
  ► 12-bit Deep Color
  ► LPCM 7.1 audio, Dolby® TrueHD, Dolby Digital® Plus, and DTS-HD Master Audio™
  ► Lip-Sync pass-through
• Built-in web interface facilitates intuitive set up and operation
• Any of the Senders within a network can be accessed by any Receiver unit via a web browser on a mobile device or computer, or by using the Gefen Keyboard Switching Controller software (available for download at www.gefen.com)
• Supports a total of just over 65,000 Sender and Receiver units, depending on the network bandwidth and number of ports on your network switch
• USB 2.0 data rates up to 480 Mbps and backward-compatibility with USB 1.1
• Three-port Gigabit Ethernet switch built into the Receiver unit
• Mode button on Sender for sharpness or motion optimization of image
• Field-upgradable firmware via web server interface
• Locking power supply connectors
• 1U tall, half-rack width enclosures are rack-mountable using EXT-RACK-1U
• Surface mounting brackets included
Packing List

The HD KVM over IP ships with the items listed below. The packing contents of the Sender and Receiver unit are listed below. If any of these items are not present in the box when you first open it, immediately contact your dealer or Gefen.

EXT-HDKVM-LANTX

- 1 x HD KVM over IP (Sender unit)
- 1 x 6 ft. HDMI cable (M-M)
- 1 x 6 ft. USB cable (A-B)
- 1 x 6 ft. DB-9 cable (M-F)
- 2 x Mounting brackets with screws
- 1 x 5V DC power supply
- 1 x Quick-Start Guide

EXT-HDKVM-LANRX

- 1 x HD KVM over IP (Receiver unit)
- 2 x Mounting brackets with screws
- 1 x 5V DC power supply
- 1 x Quick-Start Guide
# 1 Getting Started

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HD KVM over IP

1 Getting Started
### Sender Unit

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<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power</td>
<td>This LED glows solid blue when the unit is connected to an AC outlet and the unit is powered ON.</td>
</tr>
<tr>
<td>2</td>
<td>Link</td>
<td>This LED glows solid green when the Sender unit and Receiver unit are connected and passing video.</td>
</tr>
<tr>
<td>3</td>
<td>Mode</td>
<td>Press this button to switch between the Video Mode. See Setting the Video Mode (page 52) for more information.</td>
</tr>
<tr>
<td>4</td>
<td>Reset</td>
<td>Press this button to reset the unit to factory-default settings. See Performing a Factory Reset (page 55) for more information.</td>
</tr>
<tr>
<td>ID</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>----</td>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>HDMI In</td>
<td>Connect the included HDMI cable from this connector to the Hi-Def source.</td>
</tr>
<tr>
<td>2</td>
<td>RS-232</td>
<td>Connect the included RS-232 cable from this port to an RS-232 device.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>See Using RS-232 (page 35) for more information.</td>
</tr>
<tr>
<td>3</td>
<td>Line In</td>
<td>Connect a 3.5mm mini-stereo cable from the Line Out jack on the multimedia PC to this jack.</td>
</tr>
<tr>
<td>4</td>
<td>Line Out</td>
<td>Connect a 3.5mm mini-stereo cable from this jack to the Line In jack of a multimedia PC.</td>
</tr>
<tr>
<td>5</td>
<td>USB</td>
<td>Connect the included USB cable from the computer to this USB port.</td>
</tr>
<tr>
<td>6</td>
<td>Link</td>
<td>Connects the Sender unit to the network (or directly to the Receiver unit) using shielded CAT-5e (or better) cable.</td>
</tr>
<tr>
<td>7</td>
<td>IR Out</td>
<td>Connect an IR Emitter cable (Gefen part no. EXT-IREMIT) from this jack to the Hi-Def source to control the source from the viewing location.</td>
</tr>
<tr>
<td>8</td>
<td>5V DC</td>
<td>Connect the included 5V DC locking power supply to this power receptacle.</td>
</tr>
</tbody>
</table>
# Receiver Unit

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power</td>
<td>This LED glows solid blue when the unit is connected to an AC outlet and the unit is powered ON.</td>
</tr>
<tr>
<td>2</td>
<td>Link</td>
<td>This LED glows solid green when the Sender and Receiver units are connected using a shielded CAT-5e (or better) cable and successfully passing video.</td>
</tr>
<tr>
<td>3</td>
<td>IR</td>
<td>This IR sensor receives signals from the IR remote control of the Hi-Def source.</td>
</tr>
<tr>
<td>4</td>
<td>Reset</td>
<td>Press this button to reset the unit to factory-default settings. See [Performing a Factory Reset](page 55) for more information.</td>
</tr>
<tr>
<td>5</td>
<td>Switch</td>
<td>Switches the video channel when using multiple Receiver units on a network. See [Setting the Video Channel](page 18) for more information.</td>
</tr>
<tr>
<td>6</td>
<td>Mic In</td>
<td>Connect a microphone to this jack. If the microphone has a 1/4&quot; jack, use a 1/4&quot;-to-3.5mm adapter to connect the microphone to the Receiver unit.</td>
</tr>
<tr>
<td>7</td>
<td>Line Out</td>
<td>Connect a 3.5mm mini-stereo cable from this jack to a pair of powered speakers. See [Audio Connections](page 49) for more information.</td>
</tr>
<tr>
<td>8</td>
<td>USB</td>
<td>Connect up two USB devices to these USB ports.</td>
</tr>
<tr>
<td>ID</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>----</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>HDMI Out</td>
<td>Connect an HDMI cable from this connector to the HDTV display.</td>
</tr>
<tr>
<td>2</td>
<td>RS-232</td>
<td>Connect an RS-232 cable from this port to an RS-232 device. See Using RS-232 (page 35) for more information.</td>
</tr>
<tr>
<td>3</td>
<td>Ethernet (1, 2, 3)</td>
<td>Connects the Receiver unit to the network (or directly to the Sender unit) using shielded CAT-5e (or better) cable. See the next page for installation instructions.</td>
</tr>
<tr>
<td>4</td>
<td>IR Ext</td>
<td>Connect an IR Extender (Gefen part no. EXT-RMT-EXTIRN) to this port.</td>
</tr>
<tr>
<td>5</td>
<td>5V DC</td>
<td>Connect the included 5V DC locking power supply to this power receptacle.</td>
</tr>
</tbody>
</table>
The HD KVM over IP Sender and Receiver units can be connected over a Local Area Network (LAN) or they can be directly connected to one another. We will cover both installations.

**Local Area Network (LAN) Connection**

In order to connect the HD KVM over IP to a Local Area Network (LAN), both the Sender and Receiver unit must first be set to **DHCP** mode or **Static** IP mode. **DHCP** mode will use the DHCP server to automatically assign an IP address for each Sender and Receiver unit that is connected to the network. **Static** IP mode will allow the IP address for each Sender and Receiver unit to be configured manually. Contact your network administrator if necessary.

1. Use the included HDMI cable to connect the Hi-Def source to the **HDMI In** port on the Sender unit.

2. Connect an HDMI cable from the Hi-Def display to the **HDMI Out** port on the Receiver unit.

3. Connect a shielded CAT-5e (or better) cable from the **Link** port on the Sender unit to the network.

4. Connect a shielded CAT-5e (or better) cable from one of the **Ethernet** ports on the Receiver unit to the network.

5. Connect the included 5V DC locking power supplies to both the Sender unit and Receiver unit. Do not overtighten the locking connectors. Connect the included AC power cords from the power supplies to available electrical outlets.

6. Obtain the IP address of both the Sender and Receiver unit by disconnecting the HDMI cable from the Sender unit (or from the source device). Information, similar to the illustration on the next page, will be displayed.
6. Access the Network Setting control panel in Windows and locate your LAN connection. Under Windows 7, this can be done by clicking Start > Control Panel > Network Sharing Center > Change Adapter Settings.
7. Click on the Properties button, near the bottom of the dialog box, to display the Local Area Connection Properties dialog.

8. Click on Internet Protocol Version 4 (TCP/IPv4) to highlight the option.

10. Change the settings, as shown below.

![Internet Protocol Version 4 (TCP/IPv4) Properties](image)

11. Click the **OK** button, then close all Control Panel windows.

12. Open your Web browser and enter the IP address of the desired Sender or Receiver unit. In our example, we would enter 169.254.7.231 in order to access the Web interface of the Receiver unit.
13. The **Login** screen will be displayed.

14. In order to change network settings, you must login as “Administrator”. Select the “Administrator” username from the drop-down list.

![Login screen with Administrator selected](image)

15. Type the password in the **Password** field. The default password for “Administrator” is `admin`. The password is case-sensitive and will be masked as it is entered.

![Login form with Administrator and password](image)

**Information**

Passwords and operating features can be changed when logged in as Administrator. The User option has limited access. To change password credentials, see Changing the Password (page 54) for more information.

16. Click the **Login** button.

17. Click the **Network** tab. The current IP Mode will be highlighted within the **IP Setup** window group.
18. Click the desired **IP Mode** button.

   - If you will be using Static mode, then enter the IP Address, Subnet Mask, and Default Gateway. Contact your system administrator if necessary.

   - If DHCP mode is selected, then the IP address, subnet mask, and default gateway will be specified by the DHCP server.

      For this example, we will click the **DHCP** button.

19. Set the video channel. By default, both the Sender and Receiver unit are set to channel 0. See **Setting the Video Channel (page 18)** for more information.

20. Click the **Save** button in the bottom-right corner of the **IP Setup** window group.

21. Click the **Reboot** button near the bottom of the page.

22. Repeat steps 12 - 21 for each Sender and Receiver to be configured.

**Important**

The use of a Gigabit switch with “jumbo frame” capability is required when connecting the HD KVM over IP to a network. The switch should be set to greater than 8K.
Using a Direct Connection

By default, the HD KVM over IP is shipped in Auto IP mode. Auto IP mode is used for directly connecting Sender and Receiver units to one another. In Auto IP mode each Sender and Receiver unit assigns itself a unique IP address within the range of 169.254.x.x. To configure the units to work over a LAN, we must access the Web interface of the Sender and Receiver unit on a computer. Then, we can change the network settings.

1. Use the included HDMI cable to connect the Hi-Def source to the HDMI In port on the Sender unit.
2. Connect an HDMI cable from the Hi-Def display to the HDMI Out port on the Receiver unit.
3. Connect a shielded CAT-5e (or better) cable from the LAN port on the Sender unit to the LAN 1 port on the Receiver unit.
4. Connect another shielded CAT-5e (or better) cable from one of the Ethernet ports on the Receiver unit to a PC.

5. Connect the included 5V DC locking power supplies to both the Sender unit and Receiver unit. Do not overtighten the locking connectors. Connect the included AC power cords from the power supplies to available electrical outlets.
6. Obtain the IP address of both the Sender and Receiver unit by disconnecting the HDMI cable from the Sender unit (or from the source device). Information, similar to the illustration on the next page, will be displayed.
7. Make note of both IP addresses. These IP addresses can be entered in a Web browser to access the built-in Web interface.

8. See Local Area Network (LAN) Connection (page 6) and follow steps 6 - 22, in order to configure your PC and access the built-in Web interface.

9. Set the video channel. By default, both the Sender and Receiver unit are set to channel 0. See Setting the Video Channel (page 18) for more information.

10. Once both Sender and Receiver units are configured using the built-in Web interface, the shielded CAT-5e cable, between the PC and the Receiver unit, can be disconnected.

11. See Supplementary Connections (page 14) for instructions on connecting USB, IR, RS-232, and audio cables.
Supplementary Connections

► **USB** (see *USB Control (page 39)* for more information on using USB devices)

1. Connect the included USB cable from the computer to the **USB** port on the Sender unit.

2. Connect a maximum of two USB devices to the Receiver unit.

► **IR**

3. Connect an IR Emitter (Gefen part no. EXT-IREMIT) to the Sender unit and attach it to the IR sensor on the device to be controlled.

4. Connect an IR Extender (Gefen part no. EXT-RMT-EXTIRN) to the Receiver unit if the IR sensor will not be within line-of-site for proper IR control.

► **Audio** (see *Audio Connections (page 49)* for more information on using audio devices)

5. Connect a 3.5mm mini-stereo cable from the **Line In** jack on the Sender unit to an audio source.

6. Connect a pair of powered speakers (or another audio output device) to the **Line Out** jack on the Receiver unit.

7. Connect a microphone to the **Mic In** jack on the Receiver unit.

8. Connect a pair of powered speakers (or another audio output device) to the **Line Out** jack on the Sender unit.

► **RS-232**

9. Connect the included RS-232 cable from the PC or automation system to the **RS-232** port on the Sender unit.

10. Connect an RS-232 cable from the Receiver unit to the RS-232 device to be controlled.
Installation & Configuration

Sample Wiring Diagram

[Diagram of a sample wiring diagram showing various components and cables such as CAT-5, HDMI cable, USB cable, audio cable, microphone, multimedia PC, IR emitter, IR extender, Gigabit switch, multimedia PC, RS-232 controlled device, receiver, microphone, USB mouse, USB keyboard, and HD display.]
HD KVM over IP

2 Basic Operation
Setting the Video Channel

In order a Sender and Receiver unit to communicate with one another, they must both be set to the same video channel. This is similar to changing the channel on a set-top box in order to view a different program. Pressing and releasing the **Switch** button on the front of the Receiver unit can also be used to change the video channel. We will cover both methods in this section. By default, all Sender and Receiver units are set to channel 0.

**Setting the Channel using the Web Interface**

1. Access the Web interface by entering the IP address of the desired Sender or Receiver unit.
2. Login as “Administrator” or “User”.
3. Click the **Network** tab. The current channel is displayed within the **Channel Setup** window group.
4. Click the **Channel Selection** drop-down list and select the desired channel. Channel numbers can range from 0 to 255.
5. Click the **Save** button on the right-hand side of **Channel Setup** window group.
6. The following message will be displayed, at the top of the page, indicating that the selected channel has been applied.

   ![Success: Channel Selected.]

7. Access the Web interface of the next unit (Sender or Receiver) by entering its IP address.

8. Repeat steps 2 - 5 for each Sender and Receiver to be changed.

## Setting the Channel using the Front Panel

1. Press and release the **Switch** button on the front panel of the Receiver unit.

![HD KVM over IP R](image)

2. The current video channel of the Receiver unit will be shown on the connected display.

![Channel: 02](image)
3. While the current video channel is being displayed, press and release the **Switch** button on the Receiver unit. The Receiver unit will change to the next available video channel that is being used by a Sender unit.

Let’s look at an example: In the illustration below, we have one Receiver unit and three Sender units. The numbers indicate the video channel for each Sender and Receiver unit. Our Receiver unit is currently set to channel 2 and is receiving the signal from the Sender unit on channel 2.

If we press and release the **Switch** button, the Receiver unit will automatically jump to channel 5 because it is the next “larger” video channel number.
4. Press the Switch button again to jump to the next available channel. In this case, channel 5 is the largest video channel number. Therefore, pressing the Switch button will return to video channel 1.

5. To set the video channel on a Sender unit, use the Web interface. See Setting the Channel using the Web Interface (page 18) for more information.
Enabling or Disabling Video over IP

This feature is useful for masking video. Disabling the video on the Sender unit will mask the video on all connected Receiver units (*multicast mode* only). To mask the video on selected Receiver units, disable the video on the desired Receiver units.

1. Access the Web interface by entering the IP address of the a Receiver unit.
2. Login as “Administrator”.
3. Click the **Functions** tab.
4. Under the **EDID Management** window group, check the **Enable Video over IP** box to enable video. Uncheck this box to disable video.

5. Click the **Save** button within the **EDID Management** group.
6. Click the **Reboot** button at the bottom of the page.
7. Repeat steps 1 through 5 for each Sender and/or Receiver unit in the system.
Configuring Unicast Mode

The term unicast is used to describe a configuration where information is sent from one point to another point. It is possible to have multiple Sender and Receiver units connected in a system. However, in unicast mode a Sender unit can communicate with only one Receiver unit at a time. In unicast mode, the HD KVM over IP functions similar to a HD KVM switcher.

**Information**
The HD KVM over IP Sender and Receiver units shipped from the factory in unicast mode.

The illustration, below, shows 3 Sender units (S1, S2, and S3) and 2 Receiver units (R1 and R2) on a network, operating in unicast mode. The video channels are notated in blue.

*Figure 2.1 - Unicast mode: A Sender unit can communicate with only one Receiver unit at a time.*

1. Access the Web interface for each Sender and Receiver unit that will be using unicast mode. In this example, we will start with Receiver unit R1.
2. Login as “Administrator”.

**Tip**
In unicast mode, the HD KVM over IP behaves as a HD KVM Switcher.
3. Click the **Network** tab.

4. Click the **Unicast** button under the **Network Mode** window group. When selected, the **Unicast** button will be highlighted in blue.

5. Click the **Save** button in the lower-right corner of the **Network Mode** group.

6. The following message will be displayed, at the top of the page, indicating that the casting mode has been applied to the Sender or Receiver unit.

   ![Success: New casting mode applied.](image)

7. Click the **Reboot** button at the bottom of the page. If the **Reboot** button is not clicked, the following message will be displayed, indicating that the unit must be rebooted.

   ![Warning: Reboot for new settings to take effect.](image)

8. Repeat steps 1 - 7 in order to configure the Sender unit for *unicast* mode.

   ![Important](image)

   When switching between *unicast* and *multicast* modes, both Sender and Receiver units must be set to the same mode.
Switching between Sender units in Unicast mode

When multiple Sender and Receiver unit are used in unicast mode, the HD KVM over IP behaves as a switcher. In unicast mode, a Sender unit can communicate with only one Receiver unit at a time.

In the example below, we will switch Receiver unit R1 to receive the Hi-Def source on Sender unit S1. To do this, all we need to do is change the video channel.

Figure 2.2 - Unicast mode: Receiver unit R1 is connected to Sender unit S2.

1. Access the Web interface for Receiver unit R1.
2. Login as “Administrator”.
3. Click the Network tab and change the video channel. Refer to Setting the Video Channel if necessary.
4. Click the Save button.
5. The following message will be displayed, at the top of the page, indicating that the new channel has been applied to the Sender or Receiver unit.

   **Success: Channel Selected.**

6. Receiver unit R1 is now receiving the Hi-Def source on Sender unit S1, as shown on the next page.
Figure 2.3 - Unicast mode: Receiver unit R1 is now connected to Sender unit S1.

Figure 2.4 - Unicast mode violation: Two Sender units (S1 and S2) using the same video channel.

In this example, Receiver R1 will continue to receive audio/video data from Sender S1, even though Sender S2 is set to the same channel. The reason for this is because Receiver R1 and Sender S1 were already set to the same channel and communicating (as depicted in Figure 2.3). However, this scenario violates the unicast mode rule: A Sender unit can communicate with only one Receiver unit at a time.
When using unicast mode, each of the Sender units must be assigned a unique channel and should never be changed. Use the Receiver unit to switch (channels) between Sender units.

Multiple Receiver units can simultaneously connect to any Sender unit within the network including the Gefen KVM over LAN products with HDMI, DVI, or VGA video, to create a virtual matrix of just over 65,000 Sender and Receiver units, depending on the network bandwidth and number of ports on the network switch. Although any combination of HDMI, DVI, and VGA Senders and Receivers can be used, HDCP content is only supported by HDMI Sender and Receiver units.

**Information**

In unicast mode, if an additional Sender unit is introduced into a system with the same channel as another Sender unit, then the Receiver unit will continue to receive audio/video data from the Sender unit which was connected first.
Configuring Multicast Mode

The term multicast is used to describe a configuration where information is sent from one or more points to a set of other points. For example, a single Sender unit can transmit data to multiple Receiver units. In addition, if multiple Sender units are used, each Sender unit can transmit data to any Receiver that is not already receiving data from another Sender unit. In *multicast* mode, the HD KVM over IP functions similar to a HD KVM matrix.

The illustration, below, shows 3 Sender units (S1, S2, and S3) and 2 Receiver units (R1 and R2) on a network, operating in *multicast* mode. The video channels are shown in blue.

*Figure 2.5 - Multicast mode: A Sender unit can communicate with multiple Receiver units.*

1. Access the Web interface for each Sender and Receiver unit that will be using *multicast mode*. In this example, we will start with Receiver S2.
2. Login as “Administrator”.

**Tip**

In *multicast mode*, the HD KVM over IP behaves as a HD KVM Matrix.
3. Click the **Network** tab.

4. Click the **Multicast** button under the **Network Mode** window group. When selected, the **Multicast** button will be highlighted in blue.

5. Click the **Save** button in the lower-right corner of the **Network Mode** group.

   The following message will be displayed, at the top of the page, indicating that the casting mode has been applied to the Sender or Receiver unit.

   **Success: New casting mode applied.**

   If a display is connected to the Receiver unit, then the message “Starting USB” will be displayed. For more information on using USB under multicast mode, refer to **USB under Multicast Mode**.

6. Click the **Reboot** button at the bottom of the page. If the **Reboot** button is not clicked, the following message will be displayed, indicating that the unit must be rebooted.

   **Warning: Reboot for new settings to take effect.**

7. Repeat the steps above in order to configure the Sender unit to **multicast** mode.

   **Important**

   When switching between **unicast** and **multicast** modes, both Sender and Receiver units must be set to the same mode.
Gefen Syner-G Discovery

Enabling the Gefen Syner-G Discovery feature allows the Gefen Syner-G Software Suite or Gefen Discovery Tool App to locate a Sender and/or Receiver on a network. Once the software is able to locate the unit, IP settings can be changed as desired.

1. Access the Web interface by entering the IP address of a Receiver or Sender unit.
2. Login as “Administrator”.
3. Click the Network tab.
4. Under the IP Setup window group, check the Gefen Syner-G Discovery box to allow the Gefen Syner-G software to locate the unit. If you do not want the unit to be discoverable, then un-check this box.
5. Click the Save button.
6. Click the Reboot button at the bottom of the page to restart the unit and apply the change.
Finding Your Device

If several Sender and Receiver unit pairs are connected on a network, you may need to physically identify a particular Sender and/or Receiver unit. In such a case, use the **Find Your Device** feature.

1. Access the Web interface by entering the IP address of a Receiver or Sender unit.
2. Login as “Administrator”.
3. Click the **Network** tab.
4. Under the **IP Setup** window group, click the **Show Me** button. By default, the **Hide Me** button will be selected.

Although shown, below, it is not necessary to have the **Gefen Syner-G Discovery** option enabled in order to use the **Find Your Device** feature.
5. The following message will be displayed, at the top of the page, indicating that the LED indicators on the unit are blinking.

![Success: Device is blinking!]

6. The **Power** and **Link** LED indicators will continue to blink until the **Hide Me** button is clicked.

![HD KVM over IP R]

7. Click the **Hide Me** button to stop both LED indicators from blinking.

![Remote UDP Port: 50008
Enable Remote UDP Access: □
Gefen Syner-G Discovery: □
Find Your Device: Hide Me Show Me
MTU size: 8000 1500
Save]

8. The **Power** and **Link** LED indicators will stop blinking and the following message will be displayed at the top of the page.

![Success: Device will stop blinking!]
The MTU (Maximum Transmission Unit) size setting relates to the maximum data packet size that can be transmitted between the Sender and Receiver unit. Use this setting based on the maximum bandwidth of the network switch that is being used.

1. Access the Web interface by entering the IP address of a Receiver or Sender unit.
2. Login as “Administrator”.
3. Click the Network tab.
4. Click the 8000 or 1500 button to set the desired MTU size.
   - If you are using a gigabit switch with 8K jumbo frame capability, then click the 8000 button.
   - If you are using a megabit switch, then click the 1500 button.
5. Click the **Save** button.

![MTU Size Configuration](image_url)

6. Click the **Reboot** button at the bottom of the page to restart the unit and apply the change.

7. Repeat steps 1 - 6 for each Sender and Receiver unit.
The HD KVM over IP supports RS-232 pass-through, allowing the control of remote RS-232 devices. The Sender and Receiver unit which are being used to pass-through the RS-232 data must be set to the same baud rate as the RS-232 host and client.

In the example below, an RS-232 device has been connected to Receiver R1. We want to control this product from Sender unit S3, using an automation control device. The channel numbers are listed in blue.

*Figure 2.6 - Basic RS-232 connection*

Table 2.1 - RS-232 settings for an arbitrary RS-232 device.

<table>
<thead>
<tr>
<th>Description</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud rate</td>
<td>19200</td>
</tr>
<tr>
<td>Data bits</td>
<td>8</td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
</tr>
<tr>
<td>Stop bits</td>
<td>1</td>
</tr>
<tr>
<td>Hardware flow control</td>
<td>None</td>
</tr>
</tbody>
</table>

Confirm that the same RS-232 settings are assigned to both the Sender and Receiver units. To do this, access the Web interface on both the required Sender unit and Receiver unit to set the proper RS-232 settings. Follow the instructions on the next page.
1. Access the Web interface for the Sender unit and login as “Administrator”.

2. Click the **Functions** tab.

3. Locate the **Serial over IP** group and change the RS-232 settings to match the settings of the RS-232 device that is being used. In this case, we need to use the settings from Table 2.1

![Serial over IP](image)

4. Make sure that the **Enable Serial over IP** box is checked.

   **Important**

   If **Enable Serial over IP** is not checked, then RS-232 pass-through will be disabled.

5. Click the **Save** button in the lower-right corner of the **Serial over IP** group.
6. The following message will be displayed, at the top of the page, indicating that the new Serial over IP options have been applied.

   ![Success: New Serial over IP options applied.](image)

7. Click the **Reboot** button at the bottom of the page. If the **Reboot** button is not clicked, the following message will be displayed, indicating that the unit must be rebooted.

   ![Warning: Reboot for new settings to take effect.](image)

8. Repeat steps 1 - 7 for the Receiver unit.
Basic Operation

RS-232 under Unicast Mode

In *unicast mode*, a Sender unit will be able to communicate with only one Receiver unit at a time.

*Figure 2.7 - In unicast mode, the host can talk to only one RS-232 device at a time.*

RS-232 under Multicast Mode

In multicast mode, a Sender unit can communicate with multiple Receiver units simultaneously.

*Figure 2.8 - In multicast mode, the host can talk to multiple RS-232 devices.*
USB under Unicast Mode

When connecting USB devices to the HD KVM over IP, the functionality is similar to that of video and RS-232.

Information

The HD KVM over IP Sender and Receiver units shipped from the factory in unicast mode.

As an example, we will start with our original diagram and connect a computer to Sender unit S2 and a keyboard and mouse device to Receiver unit R2. This will allow us to control the computer from the Receiver unit.

*Figure 2.9 - Using USB devices under unicast mode.*

1. Make sure the desired Sender and Receiver units are set to *unicast* mode. Refer to Configuring Unicast Mode if necessary.
2. Access the Web interface for the Sender unit.
3. Login as “Administrator”.
4. Click the **Functions** tab.
4. Locate the **USB over IP** group and make sure the **Enable USB over IP** box is checked. This is the default setting. Note that in *unicast* mode, the **Operation Mode** is automatically set to **Active on link** and cannot be changed.

![USB over IP settings](image)

5. Make sure that the **USB Mouse Mode** is set to **High Resolution**. This is the default setting. Use **Compatibility** mode *only* if using additional KVM switchers or other devices within the system that causes the mouse to behave erratically.

6. Click the **Save** button within the **USB over IP** group, then click the **Reboot** button at the bottom of the page.

7. Connect the USB host (e.g. computer) to the **USB** port on the Sender unit.

8. Connect a USB device (keyboard and/or mouse) to a USB port on the Receiver unit. Up to 4 USB devices can be connected per network in *unicast* mode.

9. The keyboard and mouse (or other USB device) can now be used from the Receiver unit.

**Important**

When enabling or disabling USB over IP, the **Save** and **Reboot** buttons must be clicked to apply changes.
When connecting USB devices to the HD KVM over IP, the functionality is similar to that of video and RS-232. There are two USB modes available in multicast mode: Active per request mode and Active on link mode.

For an example, we’ll begin with the last diagram and connect another keyboard and mouse device to Receiver R1. This will allow us to control the computer from two separate locations.

Figure 2.9 - Using USB devices under multicast mode.

1. Make sure the desired Sender and Receiver units are set to multicast mode. Refer to Configuring Multicast Mode if necessary.

2. Access the Web interface for the Sender unit.

3. Click the Functions tab.

4. Locate the USB over IP group and make sure the Enable USB over IP box is checked. This is the default setting. See the illustration on the following page.
Note that in *multicast* mode, the **Operation Mode** for both Sender and Receiver units are automatically set to **Active per request** mode.

Under **Active per request** mode, multiple USB devices may be present on one or more Receiver units. However, only one Receiver unit can have USB control at a time.

By default, the first Receiver unit connected to the system will have USB control. In the example, below, Receiver unit R2 currently has control (we arbitrarily connected Receiver unit R2 before Receiver unit R1).

See the diagram on the next page.
Now, let’s look at an example of switching USB control between two Receiver units. Using the diagram, above, we want Receiver unit R1 to have USB control.

To assign USB control to another Receiver unit, follow the steps on the next page.

**Important**

If switching between **Active per request** mode and **Active on link** mode, the **Save** and **Reboot** buttons must be clicked to apply changes.
**Active per request mode**

1. Press and hold the **Switch** button on the desired Receiver unit, for at least two seconds. In this example, we will depress the **Switch** button on Receiver unit R1.

2. The message “Starting USB” will appear on the connected display.

3. In order to assign USB control to a different Receiver unit, repeat steps 1 - 2.

---

**Important**

If switching between **Active per request** mode and **Active on link** mode, the **Save** and **Reboot** buttons must be clicked to apply changes.
**Active on link mode**

Under *Active on link* mode, a maximum of four USB devices can be used within a system. In the diagram, on the previous page, the system is already using the maximum number of USB devices (2 USB devices per Receiver). If we had two more Receiver units (making a total of four Receiver units), we would only be able to connect one USB device to each Receiver unit. To switch to *Active on link* mode, follow the instruction below.

1. Access the Web interface for the Sender unit.
2. Login as “Administrator”.
3. Click the **Functions** tab.
4. Locate the **USB over IP** group and make sure the **Enable USB over IP** box is checked. This is the default setting.

![USB over IP](image)

5. Click the **Active on link** radio button within the **USB over IP** group.
6. Click the **Save** button within the **USB over IP** group.

7. The following message will be displayed, at the top of the page, indicating that the new Serial over IP options have been applied.

   ![Success: New USB options applied.]

8. Click the **Reboot** button at the bottom of the page. If the **Reboot** button is not clicked, the following message will be displayed, indicating that the unit must be rebooted.

   ![Warning: Reboot for new settings to take effect.]

9. Repeat steps 2 - 8 for the Receiver unit.
EDID Management

The HD KVM over IP features EDID Management. Before the source can send video (and/or audio) data, the source device (connected to each Sender unit) reads the EDID (Extended Display Identification Data) from the displays which are connected to each Receiver unit. The EDID contains information about what type of audio/video data can be sent by each source.

By default, the (downstream) EDID from the display, connected to the Receiver unit, is used. However, under certain circumstances, it may be desirable to use the internal EDID which is stored in the Sender unit.

Using the Internal EDID

1. Access the Web interface for the Sender unit.
2. Login as “Administrator”.
3. Click the Functions tab.
4. Click the Load Internal EDID button.

5. After a few moments, the following message will appear at the top of the page, indicating that the new EDID has been applied.

   ![Success: New video mode applied.]

   Clicking the Save or Reboot button is not required for the changes to take effect.
Using the Downstream EDID

By default, the (downstream) EDID from the display, connected to the Receiver unit, is used. If the internal EDID is being used, then use the following procedure to revert to the downstream EDID.

1. Access the Web interface for the Receiver unit.
2. Login as “Administrator”.
3. Click the Functions tab.
4. Make sure that the Copy EDID of Connected Display box is checked. This is the default setting.

5. Click the Save button within the EDID Management window group.
6. The following message will be displayed, at the top of the page, indicating that the new Serial over IP options have been applied.

   ![Success: New video mode applied.]

7. Click the Reboot button at the bottom of the page.
8. The Sender unit will now use the EDID of the downstream sink device.
Audio works in both unicast and multicast modes. The only difference between the two modes is that the **Mic In** jack is automatically disabled, on all Receiver units, in **multicast** mode. To illustrate how audio works with the HD KVM over IP, we will set up a microphone and some speakers.

1. Our computer has a **Line In** jack, as part of the sound card and we want to be able to access this jack from the Receiver unit. Therefore, connect the microphone to the **Mic In** jack on the Receiver unit.

![Connect to microphone](image1)

2. In order to get the audio from the microphone into the computer, connect a 3.5mm-to-3.5mm mini-stereo cable from the **Line Out** jack on the Sender unit to the **Line In** jack on the computer.

**Warning**

*Do not* connect the mini-stereo cable from the **Line Out** jack on the Sender unit to the **Mic In** jack on the computer. Doing so will result in audio “clipping” and may cause damage to the computer’s sound card.

![Connect to Line Out on computer](image2)

3. Connect another 3.5mm-to-3.5mm mini-stereo cable between the **Line Out** jack on the computer and the **Line In** jack on the Sender unit. Note that any audio device (e.g. MP3 player, etc.) can also be connected to the **Line In** jack on the Sender unit.

![Connect to Line In on computer](image3)
4. Finally, we’ll connect a set of powered computer speakers to the **Line Out** jack on the Receiver unit.

In the diagram below, the mouse and keyboard USB devices have been removed from Sender unit S2 and Receiver unit R2, for purposes of clarity. Arrowheads indicate the audio signal path.

*Figure 2.12 - Speaker and microphone connections in unicast mode.*
Using HDMI Sources

The HD KVM over IP will pass content from HDCP sources such as Blu-ray players and Playstation® console systems.

If a 3.5mm mini-stereo cable is connected to the Line In jack on the Sender unit, then the HDMI audio will be disabled on the Receiver unit. The Line Out jack, on the Receiver unit, will output audio from the source connected to the Line In jack on the Sender unit.

HDMI audio can NOT be output using the Line Out jack on the Receiver unit.
The video mode can be changed using the Mode button or through the Web interface of the Sender unit. Consecutively pressing the Mode button on the Sender unit will switch between Graphic, Low, Med, High, and Video mode. The Web interface will allow you to select either Graphic or Video modes.

Using the Web interface

1. Access the Web interface for the Sender unit.
2. Login as “Administrator” or “User”.
3. Click the Network tab.
4. Click the desired mode within the Picture Quality Mode window group. The default setting is “Video”.

► Video Mode

If the HDMI signal is motion video, then click the Video button. This mode will optimize the frame rate.

► Graphic Mode

If the HDMI signal is a static image, then click the Graphic button.
5. The selected mode will be displayed on the screen, as shown below.

6. Rebooting the Sender unit is *not* required for the changes to take effect.

### Using the Front Panel

1. Press the **Mode** button on the front panel of the Sender unit.

2. Consecutively press the **Mode** button on the Sender unit to switch between **Graphic**, **Low**, **Med**, **High**, and **Video** modes. The video modes on all Sender and Receiver units, on the network, should be set to the same mode.

   ► **Graphic Mode**
   If the source video signal is a static image, then click the Graphic button.

   ► **Low**
   Low-bandwidth video mode. Limits the video bandwidth on the network. Note that using this setting will degrade the video quality. Use this setting if you are connected to a 100-megabit switch.

   ► **Med**
   Medium-bandwidth video mode. Use this setting if you are connected to a 100-megabit switch.

   ► **High**
   High-bandwidth video mode. Use this setting if you are connected to a 100-megabit switch.

   ► **Video Mode**
   “Ultra-high” bandwidth video mode. This mode should be used with a gigabit switch that supports 8K (or greater) jumbo frames.

3. The selected mode will be displayed on the screen, as shown at the top of the page.
Basic Operation

1. Access the Web interface for the Sender / Receiver unit.
2. Login as “Administrator”.
3. Click the System tab.
4. Under the Password Change window group, enter the new password for the desired username. Note that the new password will not be masked when it is entered.
5. Click the Change button.
Performing a Factory Reset

The HD KVM over IP can be reset using the Web interface or using the buttons on the front panel. When using the Web interface, the Sender / Receiver units will automatically be reset to Auto IP mode. When using the front-panel buttons, the Sender / Receiver can be reset to either Auto IP or Static IP mode.

**Reset using the Web Interface**

1. Access the Web interface for the desired Sender / Receiver unit. It does not matter which unit is reset first.
2. Login as “Administrator”.
3. Click the System tab.
4. Click the Reset button.

**Information**

Once a unit has been reset to Auto IP mode, the connection to the Web interface will be terminated. To reestablish a connection to the Web interface, from your computer, see Installation & Configuration (page 6).
5. Both the **Power** and **Link** LED indicators will begin to flash.

6. After both LED indicators stop flashing, the unit will be reset.

7. Repeat the process for each unit.
Reset using the Front Panel

1. Disconnect the power from the Sender / Receiver unit. It does not matter which unit is reset first. When the HD KVM over IP is reset, it can be set to either Auto IP or Static IP mode.

2. Use one of the following options to reset the unit to the desired mode.
   - Factory reset with Auto IP mode:
     1. If resetting the Sender unit, press and hold the Mode button. If resetting the Receiver unit, press and hold the Switch button.
     2. Reconnect the power to the unit you are resetting.
     3. Hold the Mode / Switch button until both Power and Link LED indicators begin to flash.
     4. Release the Mode / Switch button.
   - Factory reset with Static IP mode:
     1. If resetting the Sender unit, press and hold the Mode button. If resetting the Receiver unit, press and hold the Switch button.
     2. Reconnect the power to the unit you are resetting.
     3. Hold the Mode / Switch button until the Power LED indicator begin to flash.
     4. Release the Mode / Switch button.
     5. After a few moments, the Link LED indicator will also begin to flash.

3. Press the Reset button using the end of a paper clip or other sharp pointed object.
Rebooting a Unit

The HD KVM over IP Sender or Receiver unit can be rebooted in three different ways: Using the Web interface, the Reset button on the front panel, or simply disconnecting and reconnecting the power.

Reboot using the Web Interface

1. Access the Web interface for the Sender / Receiver unit.
2. Login as “Administrator”.
3. Click the System tab.
4. Click the Reboot button.
5. After a few moments, the Power LED indicator will flash.
6. Several seconds later, the Power LED indicator will glow solid blue and the Link LED indicator will begin to flash.
7. After both LED indicators stop flashing, the reboot process will be complete.
Reboot using the Front Panel

1. Press the **Reset** button, on the desired Sender or Receiver unit, using the end of a paper clip or other sharp pointed object.

2. After a few moments, the **Power** LED indicator will flash.

3. Several seconds later, the **Power** LED indicator will glow solid blue and the **Link** LED indicator will begin to flash.

4. After both LED indicators stop flashing, the reboot process will be complete.
HD KVM over IP

3 Advanced Operation
1. Launch the desired terminal application (e.g. Windows Hyperterminal, etc).

2. Within the terminal program, enter the IP address of the Sender or Receiver unit that you wish to control.

3. Enter the TCP listening port. The default listening port is 23.

4. After the correct settings have been used in the terminal program, information similar to the following will be displayed.

   In the example, below, we are connected to the client (Receiver unit) and Telnet login has been enabled:

   ----------- Welcome to the Gefen Telnet Server -----------

   ast2-client001C9103C8B3 login:

5. Login as “Administrator”. The default password is “admin”. To change the Telnet password, see the #set_telnet_pass command.

6. Type #help for a list of commands or refer to the tables on the following pages.
## Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#factory_reset</td>
<td>Resets the unit to factory-default settings</td>
</tr>
<tr>
<td>#get_description</td>
<td>Displays the description of the Sender / Receiver unit</td>
</tr>
<tr>
<td>#get_discovery</td>
<td>Displays the current state of the discovery service</td>
</tr>
<tr>
<td>#get_edid_copy</td>
<td>Displays the EDID copy state (Rx only)</td>
</tr>
<tr>
<td>#get_firmware_version</td>
<td>Displays the firmware version</td>
</tr>
<tr>
<td>#get_gateway</td>
<td>Displays the gateway IP address</td>
</tr>
<tr>
<td>#get_hardware_version</td>
<td>Displays the hardware version</td>
</tr>
<tr>
<td>#get_hdcp</td>
<td>Displays the HDCP state (Tx only)</td>
</tr>
<tr>
<td>#get_ip_address</td>
<td>Displays the IP address</td>
</tr>
<tr>
<td>#get_ip_mode</td>
<td>Displays the IP mode</td>
</tr>
<tr>
<td>#ipconfig</td>
<td>Displays the IP configuration information</td>
</tr>
<tr>
<td>#get_jumbo_mtu</td>
<td>Displays the current MTU setting</td>
</tr>
<tr>
<td>#get_net_mode</td>
<td>Displays the network casting mode</td>
</tr>
<tr>
<td>#get_netmask</td>
<td>Displays the netmask address</td>
</tr>
<tr>
<td>#get_pq_mode</td>
<td>Displays the picture quality mode (Tx only)</td>
</tr>
<tr>
<td>#get_product_name</td>
<td>Displays the name of the product</td>
</tr>
<tr>
<td>#get_remote_udp_access</td>
<td>Displays the remote UDP access state</td>
</tr>
<tr>
<td>#get_remote_udp_ip</td>
<td>Displays the remote UDP IP address</td>
</tr>
<tr>
<td>#get_remote_udp_port</td>
<td>Displays the remote UDP listening port</td>
</tr>
<tr>
<td>#get_rx_channel</td>
<td>Displays the channel of the Receiver unit (Rx only)</td>
</tr>
<tr>
<td>#get_rx_id</td>
<td>Displays the ID of the Receiver unit</td>
</tr>
<tr>
<td>#get_serial_allow</td>
<td>Displays the Serial-over-IP state</td>
</tr>
<tr>
<td>#get_serial_baud</td>
<td>Displays the serial baud rate setting</td>
</tr>
<tr>
<td>#get_serial_bits</td>
<td>Displays the serial data bits setting</td>
</tr>
<tr>
<td>#get_serial_parity</td>
<td>Displays the serial parity setting</td>
</tr>
<tr>
<td>#get_serial_stop</td>
<td>Displays the serial stop bits setting</td>
</tr>
<tr>
<td>#get_telnet_access</td>
<td>Displays the Telnet access state</td>
</tr>
<tr>
<td>#get_telnet_pass</td>
<td>Displays the Telnet password state</td>
</tr>
<tr>
<td>#get_telnet_port</td>
<td>Displays the Telnet listening port</td>
</tr>
<tr>
<td>#get_telnet_welcome</td>
<td>Displays the Telnet welcome message</td>
</tr>
<tr>
<td>#get_tx_channel</td>
<td>Displays the video channel (Tx only)</td>
</tr>
<tr>
<td>#get_udp_access</td>
<td>Displays the UDP access state</td>
</tr>
<tr>
<td>#get_udp_port</td>
<td>Displays the UDP listening port</td>
</tr>
<tr>
<td>#get_usb_allow</td>
<td>Displays the USB-over-IP state</td>
</tr>
<tr>
<td>#get_usb_mode</td>
<td>Displays the USB operating mode</td>
</tr>
<tr>
<td>Command</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>#get_usb_mouse</td>
<td>Displays the mouse operating mode</td>
</tr>
<tr>
<td>#get_video_allow</td>
<td>Displays the Video-over-IP state</td>
</tr>
<tr>
<td>#get_web_port</td>
<td>Displays the HTTP listening port</td>
</tr>
<tr>
<td>#help</td>
<td>Displays a list of available commands</td>
</tr>
<tr>
<td>#reboot</td>
<td>Reboots the unit</td>
</tr>
<tr>
<td>#set_description</td>
<td>Sets the description of the Sender / Receiver unit</td>
</tr>
<tr>
<td>#set_discovery</td>
<td>Enables or disables the discovery service</td>
</tr>
<tr>
<td>#set_edid_copy</td>
<td>Enables or disables EDID copy (Rx only)</td>
</tr>
<tr>
<td>#set_gateway</td>
<td>Sets the gateway address</td>
</tr>
<tr>
<td>#set_hdcp_allow</td>
<td>Enables or disables HDCP-detection (Tx only)</td>
</tr>
<tr>
<td>#set_ip_address</td>
<td>Sets the IP address</td>
</tr>
<tr>
<td>#set_ip_mode</td>
<td>Sets the IP mode</td>
</tr>
<tr>
<td>#set_jumbo_mtu</td>
<td>Sets the MTU mode</td>
</tr>
<tr>
<td>#set_net_mode</td>
<td>Sets the network casting mode</td>
</tr>
<tr>
<td>#set_netmask</td>
<td>Sets the netmask address</td>
</tr>
<tr>
<td>#set_pq_mode</td>
<td>Sets the picture quality mode (Tx only)</td>
</tr>
<tr>
<td>#set_remote_udp_access</td>
<td>Enables or disables remote UDP access</td>
</tr>
<tr>
<td>#set_remote_udp_ip</td>
<td>Sets the remote UDP IP address</td>
</tr>
<tr>
<td>#set_remote_udp_port</td>
<td>Sets the remote UDP listening port</td>
</tr>
<tr>
<td>#set_rx_id</td>
<td>Sets the ID of the Receiver unit (Rx only)</td>
</tr>
<tr>
<td>#set_serial_allow</td>
<td>Enables or disables Serial-over-IP mode</td>
</tr>
<tr>
<td>#set_serial_baud</td>
<td>Sets the baud rate for the serial port</td>
</tr>
<tr>
<td>#set_serial_bits</td>
<td>Sets the data bits for the serial port</td>
</tr>
<tr>
<td>#set_serial_parity</td>
<td>Sets the parity setting for the serial port</td>
</tr>
<tr>
<td>#set_serial_stop</td>
<td>Sets the number of stop bits for the serial port</td>
</tr>
<tr>
<td>#set_showme</td>
<td>Enables or disables the “show me” feature</td>
</tr>
<tr>
<td>#set_telnet_access</td>
<td>Enables or disables Telnet access</td>
</tr>
<tr>
<td>#set_telnet_pass</td>
<td>Sets the Telnet password</td>
</tr>
<tr>
<td>#set_telnet_port</td>
<td>Sets the Telnet listening port</td>
</tr>
<tr>
<td>#set_telnet_welcome</td>
<td>Sets the Telnet welcome message</td>
</tr>
<tr>
<td>#set_tx_channel</td>
<td>Sets the video channel (Tx only)</td>
</tr>
<tr>
<td>#set_udp_access</td>
<td>Enables or disables UDP access</td>
</tr>
<tr>
<td>#set_udp_port</td>
<td>Sets the UDP listening port</td>
</tr>
<tr>
<td>#set_usb_allow</td>
<td>Enables or disables USB-over-IP</td>
</tr>
<tr>
<td>#set_usb_mode</td>
<td>Sets the USB operating mode</td>
</tr>
<tr>
<td>Command</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>#set_usb_mouse</td>
<td>Sets the mouse operating mode</td>
</tr>
<tr>
<td>#set_video_allow</td>
<td>Enables or disables Video-over-IP</td>
</tr>
<tr>
<td>#set_web_port</td>
<td>Sets the HTTP listening port</td>
</tr>
<tr>
<td>#set_webui_ad_pass</td>
<td>Sets the Administrator password for the Web UI</td>
</tr>
<tr>
<td>#set_webui_user_pass</td>
<td>Sets the User password for the Web UI</td>
</tr>
<tr>
<td>#use_telnet_login</td>
<td>Enable or disables Telnet login credentials</td>
</tr>
<tr>
<td>#use_telnet_welcome</td>
<td>Enables or disables the Telnet welcome message</td>
</tr>
<tr>
<td>r</td>
<td>Routes an input to a Receiver unit (Rx only)</td>
</tr>
</tbody>
</table>

**Important**

Commands that are limited to a Sender or Receiver unit are marked as “Tx only” and “Rx only”, respectively. Unless otherwise noted, all commands can be used when connected to either a Sender or Receiver unit.
#factory_reset

Resets the unit to factory-default settings. *param1* must be included and set to 1.

**Syntax**

```
#factory_reset param1
```

**Parameters**

| param1 | Integer | 1 |

**Example**

```
#factory_reset 1
RESET TO FACTORY DEFAULTS
```

**Related Commands**

#reboot
#get_description
Displays the description of the Sender / Receiver unit.

Syntax

#get_description

Parameters

None

Example

#get_description
EXT-HDKVM-LAN-S

Related Commands

#get_product_name
#set_description
#get_discovery
Displays the current discovery mode setting.

Syntax

#get_discovery

Parameters

None

Example

#get_discovery
DISCOVERY SERVICE IS ENABLED

Related Commands

#set_discovery
#set_showme
#get_edid_copy

Displays the EDID copy state. This command is only available when connected to a Receiver unit.

Syntax

#get_edid_copy

Parameters

None

Example

#get_edid_copy
COPY EDID OF CONNECTED DISPLAY IS ENABLED

Related Commands

#set_edid_copy
#get_firmware_version

Displays the firmware version.

Syntax

#get_firmware_version

Parameters

None

Example

#get_firmware_version
FIRMWARE VERSION IS V1.53V

Related Commands

#get_hardware_version
#get_gateway

Displays the gateway address of the Sender/Receiver unit.

Syntax

#get_gateway

Parameters

None

Example

#get_gateway
GATEWAY: 192.168.0.1

Related Commands

#get_ip_address
#get_ip_mode
#get_ipconfig
#get_netmask
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#get_hardware_version

Displays the hardware version of the Sender / Receiver unit.

Syntax

#get_hardware_version

Parameters

None

Example

#get_hardware_version

HARDWARE VERSION IS ast1510hv1

Related Commands

#get_firmware_version
#get_hdcp
Displays the current HDCP state. This command is only available when connected to a Sender unit.

Syntax

#get_hdcp

Parameters

None

Example

#get_hdcp
HDCP ENCRYPTED SOURCE is ENABLE

Related Commands

#set_hdcp_allow
#get_ip_address

Displays the current IP address of the Sender or Receiver unit.

Syntax

```
#get_ip_address
```

Parameters

None

Example

```
#get_ip_address
IP: 10.5.64.60
```

Related Commands

```
#get_gateway
#get_ip_mode
#get_ipconfig
#get_netmask
#get_web_port
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
```
#get_ip_mode

Displays the current IP mode.

Syntax

#get_ip_mode

Parameters

None

Example

#get_ip_mode
IP MODE IS SET TO DHCP

Related Commands

#get_gateway
#get_ip_address
#get_ipconfig
#get_netmask
#get_web_port
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
#get_ipconfig

Displays the current IP configuration. In addition to providing the MAC address and the broadcast IP address, this command also provides the same information as executing the #get_ip_mode, #get_ip_address, #get_netmask, and #get_gateway commands.

Syntax

```
#get_ipconfig
```

Parameters

None

Example

```
#get_ipconfig
IP CONFIGURATION IS :
IP MODE: DHCP
IP: 10.5.64.60
NETMASK: 255.255.255.0
GATEWAY: 10.5.64.1
BROADCAST: 10.5.64.255
MAC ADDRESS: 00-1C-91-03-C8-B3
```

Related Commands

- #get_gateway
- #get_ip_address
- #get_netmask
- #get_web_port
- #set_gateway
- #set_ip_address
- #set_ip_mode
- #set_netmask
- #set_web_port
#get_jumbo_mtu

Displays the current MTU (Maximum Transmission Unit) setting. The default setting is *enabled*.

**Syntax**

```
#get_jumbo_mtu
```

**Parameters**

None

**Example**

```
#get_jumbo_mtu
JUMBO MTU is ENABLE
```

**Related Commands**

```
#set_jumbo_mtu
```
#get_net_mode
Displays the current network mode setting.

Syntax

#get_net_mode

Parameters

None

Example

#get_net_mode
NETWORK CASTING MODE IS UNICAST

Related Commands

#set_net_mode
#get_netmask
Displays the current net mask setting.

Syntax

#get_netmask

Parameters

None

Example

#get_netmask
NETMASK: 255.255.255.0

Related Commands

#get_gateway
#get_ip_address
#get_ipconfig
#get_web_port
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
#get_pq_mode

Displays the picture quality mode. This command is only available when connected to a Sender unit.

Syntax

```
#get_pq_mode
```

Parameters

None

Example

```
#get_pq_mode
TRANSMITTER PICTURE QUALITY IS VIDEO
```

Related Commands

```
#set_pq_mode
```
#get_product_name
Displays the product name of the Sender / Receiver unit.

Syntax

#get_product_name

Parameters

None

Example

#get_product_name
PRODUCT NAME IS EXT-HDKVM-LAN-S

Related Commands

#get_description
#get_remote_udp_access
Displays the remote UDP access state.

Syntax

#get_remote_udp_access

Parameters

None

Example

#get_remote_udp_access
REMOTE UDP ACCESS IS ENABLED

Related Commands

#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
#get_remote_udp_ip

Displays the remote UDP IP address.

Syntax

```markdown
#get_remote_udp_ip
```

Parameters

None

Example

```markdown
#get_remote_udp_access
REMOTE UDP IP: 192.168.1.29
```

Related Commands

```markdown
#get_remote_udp_access
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
```
#get_remote_udp_port
Displays the remote UDP listening port.

Syntax

```
#get_remote_udp_port
```

Parameters

None

Example

```
#get_remote_udp_port
REMOTE UDP COMMUNICATIONS PORT: 50008
```

Related Commands

```
#get_remote_udp_access
#get_remote_udp_ip
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
```
#get_rx_channel
Displays the current channel of the Receiver unit. To set the video channel of a Receiver unit, use the `r` command.

Syntax

```
#get_rx_channel
```

Parameters

None

Example

```
#get_rx_channel
RECEIVER CHANNEL: 1
```

Related Commands

```
#get_tx_channel
#set_tx_channel
r
```
#get_rx_id

Displays the ID of the Receiver unit. This command is only available when connected to a Receiver unit.

Syntax

```
#get_rx_id
```

Parameters

None

Example

```
#get_rx_id
RX ID: 8
```

Related Commands

`#set_rx_id`
#get_serial_allow

Displays the Serial-over-IP state. Use the #set_serial_allow command to enable or disable the Serial-over-IP feature.

Syntax

#get_serial_allow

Parameters

None

Example

#get_serial_allow
SERIAL OVER IP is ENABLE

Related Commands

#get_serial_baud
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
#get_serial_baud
Displays the serial baud rate setting. Use the #set_serial_baud command to set the baud rate.

Syntax

#get_serial_baud

Parameters

None

Example

#get_serial_baud
SERIAL BAUD RATE IS 19200

Related Commands

#get_serial_allow
#get_serial_bits
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
#get_serial_bits
Displays the serial data bits setting. Use the #set_serial_bits command to set the number of data bits.

Syntax

#get_serial_bits

Parameters

None

Example

#get_serial_bits
SERIAL DATA BITS IS 8

Related Commands

#get_serial_allow
#get_serial_baud
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_parity
#set_serial_stop
#get_serial_parity

Displays the serial parity bit setting. Use the #set_serial_parity command to set the parity bit.

Syntax

#get_serial_parity

Parameters

None

Example

#get_serial_parity
SERIAL PARITY MODE SET TO NONE

Related Commands

#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
#get_serial_stop

Displays the serial stop bits setting. Use the #set_serial_stop command to set the number of stop bits.

Syntax

#get_serial_stop

Parameters

None

Example

#get_serial_stop
SERIAL STOP BITS IS 1

Related Commands

#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
#get_telnet_access

Displays the Telnet access state. Use the #set_telnet_access command to enable or disable Telnet access.

Syntax

#get_telnet_access

Parameters

None

Example

#get_telnet_access
TELNET ACCESS IS ENABLED

Related Commands

#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
#use_telnet_login
#use_telnet_welcome
#get_telnet_pass

Displays the Telnet password state. Use the #set_telnet_pass command to enable or disable password credentials during a Telnet session.

Syntax

#get_telnet_pass

Parameters

None

Example

#get_telnet_pass
TELNET INTERFACE PASSWORD IS DISABLED

Related Commands

#get_telnet_access
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
#use_telnet_login
#use_telnet_welcome
#get_telnet_port
Displays the Telnet listening port.

Syntax

#get_telnet_port

Parameters

None

Example

#get_telnet_port
TELNET COMMUNICATION PORT: 23

Related Commands

#get_telnet_access
#get_telnet_pass
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
#use_telnet_login
#use_telnet_welcome
#get_telnet_welcome

Displays the Telnet welcome message. Use the #set_telnet_welcome to create a custom welcome message.

Syntax

#get_telnet_welcome

Parameters

None

Example

#get_telnet_welcome
TELNET WELCOME IS ---- Welcome to the Gefen Telnet Server -----

Related Commands

#get_telnet_access
#get_telnet_pass
#get_telnet_port
#set_telnet_access
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
#use_telnet_login
#use_telnet_welcome
#get_tx_channel

Displays the video channel of the Sender unit. This command is only available when connected to a Sender unit.

Syntax

#get_tx_channel

Parameters

None

Example

#get_tx_channel

Related Commands

#get_rx_channel
#set_tx_channel
#get_udp_access
Displays the UDP access state. Use the #set_udp_access command to enable or disable UDP access.

Syntax

#get_udp_access

Parameters

None

Example

#get_udp_access
UDP ACCESS IS ENABLED

Related Commands

#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
#get_udp_port
Displays the local UDP listening port.

Syntax
#get_udp_port

Parameters
None

Example
#get_udp_port
UDP COMMUNICATION PORT: 50007

Related Commands
#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
#get_usb_allow

Displays the USB-over-IP state.

Syntax

#get_usb_allow

Parameters

None

Example

#get_usb_allow
USB OVER IP is ENABLE

Related Commands

#get_usb_mode
#get_usb_mouse
#set_usb_allow
#set_usb_mode
#set_usb_mouse
#get_usb_mode
Displays the USB operating mode.

Syntax

#get_usb_mode

Parameters

None

Example

#get_usb_mode
USB OPERATION MODE IS ACTIVE ON LINK

Related Commands

#get_usb_allow
#get_usb_mouse
#set_usb_allow
#set_usb_mode
#set_usb_mouse
#get_usb_mouse

Displays the mouse operating mode.

Syntax

```
#get_usb_mouse
```

Parameters

None

Example

```
#get_usb_mouse
USB MOUSE MODE IS HIGH
```

Related Commands

```
#get_usb_allow  
#get_usb_mode   
#set_usb_allow  
#set_usb_mode   
#set_usb_mouse  
```
#get_video_allow

Displays the Video-over-IP status. Use the #set_video_allow command to enable or disable video over IP.

Syntax

#get_video_allow

Parameters

None

Example

#get_video_allow
VIDEO OVER IP is ENABLE

Related Commands

#set_video_allow
#get_web_port

Displays the HTTP listening port. Use the #set_web_port command to set the HTTP listening port.

Syntax

#get_web_port

Parameters

None

Example

#get_web_port
WEB INTERFACE PORT: 80

Related Commands

#get_gateway
#get_ip_address
#get_ipconfig
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
#help

Displays a list of available commands. The commands listed are specific to either the Sender or Receiver unit.

Syntax

#help

Parameters

None

Example

#help

#FACTORY_RESET
#GET_DISCOVERY
#GET_FIRMWARE_VERSION
#GET_GATEWAY
#GET_HDCP
#GET_IPCONFIG
#GET_IP_ADDRESS
#GET_IP_MODE
...
...
#SET_TELNET_ACCESS
#SET_TELNET_PASS
#SET_TELNET_PORT
#SET_TELNET_WELCOME
#SET_TX_CHANNEL
#SET_UDP_ACCESS
#SET_UDP_PORT
#SET_USB_ALLOW
#SET_USB_MODE
#SET_USB_MOUSE
#SET_VIDEO_ALLOW
#SET_WEBUI_AD_PASS
#SET_WEBUI_USER_PASS
#SET_WEB_PORT
#USE_TELNET_LOGIN
#USE_TELNET_WELCOME
#reboot

Reboots the Sender / Receiver unit.

Syntax

#reboot

Parameters

None

Example

#reboot
UNIT WILL REBOOT SHORTLY

Related Commands

#factory_reset
#set_description

Sets the description for the Sender / Receiver unit. The description string cannot exceed 30 characters in length. Spaces and underscore characters are acceptable. Avoid using symbols and special characters.

Syntax

#set_description param1

Parameters

param1 String

Example

#set_description Blu-ray_Panasonic

PRODUCT DESCRIPTION SET

Related Commands

#get_description
#get_product_name
#set_discovery

Enables or disables the discovery feature. The default value is On.

Syntax

#set_discovery param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Integer</th>
<th>[0 ... 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>On</td>
</tr>
</tbody>
</table>

Example

#set_discovery 0
DISCOVERY SERVICE SET TO DISABLED

Related Commands

#get_discovery
#set_showme
#set_edid_copy

Enables or disables the EDID copy state. When \textit{param1} = 1, the downstream EDID (connected to the Receiver unit) is copied to the Sender unit. If \textit{param1} = 0, then the internal (default) EDID is used. This command is only available when connected to a Receiver unit.

**Syntax**

```
#set_edid_copy param1
```

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>On</td>
</tr>
</tbody>
</table>

**Example**

```
#set_edid_copy 1
COPY EDID OF CONNECTED DISPLAY SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

**Related Commands**

- `#get_edid_copy`
### #set_gateway

Sets the gateway address. This command is only applicable when using Static IP mode. *param1* must be specified using dot-decimal notation.

#### Syntax

```
#set_gateway param1
```

#### Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>IP Address</th>
</tr>
</thead>
</table>

#### Example

```
#set_gateway 192.168.1.1
GATEWAY ADDRESS SET TO 192.168.1.1
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

#### Related Commands

```
#get_gateway
#get_ip_address
#get_ip_mode
#get_ipconfig
#get_netmask
#get_web_port
#set_ip_address
#set_ip_mode
#set_netmask
#set_web_port
```
#set_hdcp_allow

Enables or disables HDCP-encrypted sources. This command is only available when connected to a Sender unit.

Syntax

#set_hdcp_allow param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

Example

#set_hdcp_allow 1
HDCP ENCRYPTED SOURCE SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES

Related Commands

#get_hdcp_allow
#set_ip_address

Sets the IP address. `param1` must be specified using dot-decimal notation.

**Syntax**

```
#set_ip_address param1
```

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>IP Address</th>
</tr>
</thead>
</table>

**Example**

```
#set_gateway 192.168.1.1
GATEWAY ADDRESS SET TO 192.168.1.1
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

**Related Commands**

- `#get_gateway`
- `#get_ip_address`
- `#get_ip_mode`
- `#get_ipconfig`
- `#get_netmask`
- `#get_web_port`
- `#set_gateway`
- `#set_ip_mode`
- `#set_netmask`
- `#set_web_port`
#set_ip_mode

Sets the IP mode.

**Syntax**

```
#set_ip_mode param1
```

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>Integer</th>
<th>[0 ... 2]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Description</strong></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Static</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>DHCP</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Auto IP</td>
<td></td>
</tr>
</tbody>
</table>

**Example**

```
#set_ip_mode 1
IP MODE SET TO DHCP
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

**Related Commands**

- #get_gateway
- #get_ip_address
- #get_ip_mode
- #get_ipconfig
- #get_netmask
- #get_web_port
- #set_ip_address
- #set_gateway
- #set_netmask
- #set_web_port
**#set_jumbo_mtu**

Enables or disables jumbo MTU (Maximum Transmission Unit) mode. When enabled, the MTU size is set to 8000 (8K jumbo frames).

**Syntax**

#set_jumbo_mtu param1

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>Integer</th>
<th>[0 ... 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Description</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled (MTU = 1500)</td>
</tr>
<tr>
<td>1</td>
<td>Enabled (MTU = 8000)</td>
</tr>
</tbody>
</table>

**Example**

#set_jumbo_mtu 1  
JUMBO MTU SET TO ENABLED  
PLEASE REBOOT THE UNIT TO APPLY CHANGES

**Related Commands**

#get_jumbo_mtu
### `#set_net_mode`

Sets the network casting mode.

**Syntax**

`#set_net_mode param1`

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>Integer</th>
<th>[0 ... 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Multicast</td>
<td></td>
</tr>
</tbody>
</table>

**Example**

```
#set_net_mode 0
NETWORK CASTING MODE SET TO UNICAST
```

**Related Commands**

`#get_net_mode`
**#set_netmask**

Sets the network mask address. *param1* must be specified using dot-decimal notation.

**Syntax**

```bash
#set_netmask param1
```

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>IP Address</th>
</tr>
</thead>
</table>

**Example**

```
#set_netmask 255.255.255.0
NETMASK ADDRESS SET TO 255.255.255.0
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

**Related Commands**

- `#get_gateway`
- `#get_ip_address`
- `#get_ip_mode`
- `#get_ipconfig`
- `#get_netmask`
- `#get_web_port`
- `#set_ip_address`
- `#set_ip_mode`
- `#set_gateway`
- `#set_web_port`
#set_pq_mode

Sets the picture quality mode. This command is only available when connected to a Sender unit.

Syntax

#set_pq_mode param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Integer</th>
<th>[0 ... 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Graphic</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Video</td>
<td></td>
</tr>
</tbody>
</table>

Example

#set_pq_mode 1
TRANSMITTER PICTURE QUALITY SET TO VIDEO

Related Commands

#get_pq_mode
#set_remote_udp_access

Enables or disables remote UDP access.

Syntax

#set_remote_udp_access param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

Example

#set_remote_udp_access 1
REMOTE UDP ACCESS SET TO ENABLED

Related Commands

#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_udp_port
#set_remote_udp_ip

Set the remote UDP IP address. `param1` must be specified using dot-decimal notation.

Syntax

```
#set_remote_udp_ip param1
```

Parameters

- `param1`  
  IP address

Example

```
#set_remote_udp_ip 192.168.1.29
```

REMOTE UDP IP ADDRESS SET TO 192.168.1.29  
PLEASE REBOOT THE UNIT TO APPLY CHANGES

Related Commands

- `#get_remote_udp_access`
- `#get_remote_udp_ip`
- `#get_remote_udp_port`
- `#get_udp_access`
- `#get_udp_port`
- `#set_remote_udp_access`
- `#set_remote_udp_port`
- `#set_udp_access`
- `#set_udp_port`
#set_remote_udp_port

Set the remote UDP listening port.

Syntax

#set_remote_udp_port param1

Parameters

param1 Integer [0 ... 65535]

Example

#set_remote_udp_port 50008

REMOTE UDP COMMUNICATIONS PORT IS SET TO PORT 50008
PLEASE REBOOT THE UNIT TO APPLY CHANGES

Related Commands

#get_remote_udp_access
#get_remote_udp_ip
#set_remote_udp_port
#get_udp_access
#set_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_udp_access
#set_udp_port
**#set_rx_id**

Sets the ID of the Receiver unit. This command is only available when connected to a Receiver unit.

**Syntax**

```
#set_rx_id param1
```

**Parameters**

`param1`  
Integer  
[0 ... 65535]

**Example**

```
#set_rx_id 10
RX ID SET TO 10
```

**Related Commands**

`#get_rx_id`
**#set_serial_allow**

Enables or disables serial over IP.

**Syntax**

#set_serial_allow param1

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disable</td>
</tr>
<tr>
<td>1</td>
<td>Enable</td>
</tr>
</tbody>
</table>

**Example**

#set_serial_allow 0

SERIAL OVER IP SET TO DISABLED

**Related Commands**

#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
#set_serial_baud

Sets the baud rate for the serial port.

Syntax

#set_serial_baud param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Description (baud rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>300</td>
</tr>
<tr>
<td>1</td>
<td>600</td>
</tr>
<tr>
<td>2</td>
<td>1200</td>
</tr>
<tr>
<td>3</td>
<td>2400</td>
</tr>
<tr>
<td>4</td>
<td>4800</td>
</tr>
<tr>
<td>5</td>
<td>9600</td>
</tr>
<tr>
<td>6</td>
<td>14400</td>
</tr>
<tr>
<td>7</td>
<td>19200</td>
</tr>
<tr>
<td>8</td>
<td>38400</td>
</tr>
<tr>
<td>9</td>
<td>57600</td>
</tr>
<tr>
<td>10</td>
<td>115200</td>
</tr>
<tr>
<td>11</td>
<td>230400</td>
</tr>
</tbody>
</table>

Example

#set_serial_baud 7
SERIAL BAUD RATE SET TO 19200

Related Commands

#set_serial_allow  #set_serial_bits
#set_serial_baud  #set_serial_parity
#set_serial_bits  #set_serial_stop
#set_serial_bits

Sets the data bits for the serial port.

Syntax

#set_serial_bits param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Description (data bits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

Example

#set_serial_bits 3
SERIAL DATA BITS SET TO 8

Related Commands

#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
#set_serial_stop
#set_serial_parity

Sets the parity bit setting for the serial port.

Syntax

#set_serial_parity param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>Odd</td>
</tr>
<tr>
<td>2</td>
<td>Even</td>
</tr>
</tbody>
</table>

Example

#set_serial_parity 0
SERIAL PARITY MODE SET TO NONE

Related Commands

#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#get_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_stop
#set_serial_stop

Sets the number of stop bits for the serial port.

Syntax

#set_serial_stop param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Description (stop bits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Example

#set_serial_stop 0
SERIAL STOP BITS SET TO 1

Related Commands

#get_serial_allow
#get_serial_baud
#get_serial_bits
#get_serial_parity
#set_serial_stop
#set_serial_allow
#set_serial_baud
#set_serial_bits
#set_serial_parity
### #set_showme

Enables or disables the “Show Me” feature. When the “Show Me” feature is enabled, then both the **Power** and **Link** LED indicators, 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

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

#### Example

```
#set_showme 1
SHOW ME ENABLED
```

#### Related Commands

```
#get_discovery
#set_discovery
```
**#set_telnet_access**

Enables or disables Telnet access.

**Syntax**

```
#set_telnet_access param1
```

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Integer</td>
<td>[0 ... 1]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

**Example**

```
#set_telnet_access 1
TELNET ACCESS SET TO ENABLED
```

**Related Commands**

```
#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
#use_telnet_login
#use_telnet_welcome
```
#set_telnet_pass

Sets the Telnet password. The password cannot exceed 8 characters in length and is case-sensitive. No special characters are allowed. The default password is admin.

Syntax

#set_telnet_pass param1

Parameters

param1 String

Example

#set_telnet_pass b055man
TELNET INTERFACE PASSWORD IS SET

Related Commands

#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_port
#set_telnet_welcome
#use_telnet_login
#use_telnet_welcome
#set_telnet_port

Sets the Telnet listening port.

Syntax

#set_telnet_port param1

Parameters

param1        Integer     [0 ... 65535]

Example

#set_telnet_port 23
TELNET COMMUNICATIONS PORT SET TO PORT 23
PLEASE REBOOT THE UNIT TO APPLY CHANGES

Related Commands

#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_welcome
#use_telnet_login
#use_telnet_welcome
#set_telnet_welcome

Sets the Telnet welcome message. The welcome message cannot exceed eight characters in length.

Syntax

#set_telnet_welcome param1

Parameters

param1 String

Example

#set_telnet_welcome Welcome!
TELNET WELCOME MESSAGE SET TO Welcome!
Pleasing reboot the unit to apply changes

Related Commands

#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_port
#use_telnet_login
#use_telnet_welcome
#set_tx_channel

Sets the video channel for the Sender unit. This command is only available when connected to the Sender unit.

Syntax

```
#set_tx_channel param1
```

Parameters

| param1 | Integer | [0 ... 255] |

Example

```
#set_tx_channel 1
TRANSMITTER CHANNEL SET TO 1
PLEASE REBOOT THE UNIT TO APPLY CHANGES
```

Related Commands

```
#get_tx_channel
#get_rx_channel
```
#set_udp_access

Enables or disables UDP access.

Syntax

#set_udp_access param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

Example

#set_udp_access 0
UDP ACCESS SET TO DISABLED

Related Commands

#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_port
#set_udp_port

Sets the local UDP listening port.

Syntax

#set_udp_port param1

Parameters

param1        Integer        [0 ... 65535]

Example

#set_udp_port 50007
UDP COMMUNICATION IS SET TO PORT 50007
PLEASE REBOOT THE UNIT TO APPLY CHANGES.

Related Commands

#get_remote_udp_access
#get_remote_udp_ip
#get_remote_udp_port
#get_udp_access
#get_udp_port
#set_remote_udp_access
#set_remote_udp_ip
#set_remote_udp_port
#set_udp_access
#set_usb_allow

Enables or disables the USB-over-IP feature.

**Syntax**

#set_usb_allow param1

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>Integer</th>
<th>[0 ... 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Description</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

**Example**

#set_usb_allow 1
USB OVER IP SET TO ENABLED

**Related Commands**

#get_usb_allow
#get_usb_mode
#get_usb_mouse
#set_usb_mode
#set_usb_mouse
#set_usb_mode

Sets the USB operating mode.

Syntax

#set_usb_mode param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Integer</th>
<th>[0 ... 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Active per request</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Active on link</td>
<td></td>
</tr>
</tbody>
</table>

Example

#set_usb_mode 0
USB OPERATION MODE SET TO ACTIVE PER REQUEST

Related Commands

#get_usb_allow
#get_usb_mode
#get_usb_mouse
#set_usb_allow
#set_usb_mouse
#set_usb_mouse

Sets the USB mouse mode.

Syntax

#set_usb_mouse param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>High resolution</td>
</tr>
<tr>
<td>1</td>
<td>Compatibility</td>
</tr>
</tbody>
</table>

Example

#set_usb_mouse 0
USB MOUSE MODE SET TO HIGH RESOLUTION

Related Commands

#get_usb_allow
#get_usb_mode
#get_usb_mouse
#set_usb_allow
#set_usb_mode
#set_video_allow

Enables or disables the Video-over-IP feature.

Syntax

#set_video_allow param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

Example

#set_video_allow 1
VIDEO OVER IP IS SET TO ENABLED

Related Commands

#get_video_allow
#set_web_port

Sets the HTTP listening port.

Syntax

#set_web_port param1

Parameters

| param1     | Integer | [0 ... 65535] |

Example

#set_web_port 82
WEB INTERFACE PORT SET TO 80
PLEASE REBOOT THE UNIT TO APPLY CHANGES

Related Commands

#get_gateway
#get_ip_address
#get_ip_mode
#get_ipconfig
#get_netmask
#set_gateway
#set_ip_address
#set_ip_mode
#set_netmask
#set_webui_ad_pass

Sets the Administrator password for the Web interface login. The password cannot exceed eight characters in length. The default password is admin.

Syntax

#set_webui_ad_pass param1

Parameters

param1 Password

Example

#set_webui_ad_pass b05Sman
WEB UI ADMINISTRATOR PASSWORD IS SET

Related Commands

#set_webui_user_pass
**#set_webui_user_pass**

Sets the User password for the Web interface login. The password cannot exceed eight characters in length. The default password is _user_.

**Syntax**

```
#set_webui_user_pass param1
```

**Parameters**

<table>
<thead>
<tr>
<th>param1</th>
<th>Password</th>
</tr>
</thead>
</table>

**Example**

```
#set_webui_user_pass m1ni0n
WEB UI USER PASSWORD IS SET
```

**Related Commands**

* #set_webui_ad_pass
#use_telnet_login

Enables or disables Telnet login credentials.

Syntax

#use_telnet_login param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Integer</th>
<th>[0 ... 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
<td></td>
</tr>
</tbody>
</table>

Example

#use_telnet_login 1
Password for ‘root’ changed
Password for ‘Administrator’ changed
Password for ‘User’ changed
TELNET INTERFACE LOGIN SET TO ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES

Related Commands

#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
#use_telnet_welcome
Advanced Operation

#use_telnet_welcome

Enables or disables the Telnet welcome message.

Syntax

#use_telnet_welcome param1

Parameters

<table>
<thead>
<tr>
<th>param1</th>
<th>Integer</th>
<th>[0 ... 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
<td></td>
</tr>
</tbody>
</table>

Example

#use_telnet_welcome 1
TELNET WELCOME SCREEN IS ENABLED
PLEASE REBOOT THE UNIT TO APPLY CHANGES

Related Commands

#get_telnet_access
#get_telnet_pass
#get_telnet_port
#get_telnet_welcome
#set_telnet_access
#set_telnet_pass
#set_telnet_port
#set_telnet_welcome
#use_telnet_login
Changes a Receiver unit to the specified video channel. Changing the video channel allows a Receiver unit to accept the signal from a Sender unit that uses the same video channel. This command is only available when connected to a Receiver unit. Do not precede this command with the # symbol.

Syntax

r param1

Parameters

param1 Integer [0 ... 255]

Example

r 1
TRANSMITTER 1 ROUTED TO RECEIVER

Related Commands

#get_rx_channel
#set_tx_channel
HD KVM over IP
## Default Settings

### Channel Setup

| Channel Selection | 0 |

### Picture

| Picture Quality Mode | Video |

### IP Setup

<table>
<thead>
<tr>
<th>MAC Address</th>
<th>Device-dependent (cannot be modified)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>Auto IP mode: 169.254.x.x Receiver = 169.254.x.x</td>
</tr>
<tr>
<td></td>
<td>Static IP mode: Sender = 192.168.1.72 Receiver = 192.168.1.73</td>
</tr>
<tr>
<td></td>
<td>DHCP mode: Determined by DHCP server</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subnet Mask</th>
<th>255.255.255.0</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Default Gateway</th>
<th>Auto IP mode: 169.254.x.x</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Static IP mode: 192.168.1.1</td>
</tr>
<tr>
<td></td>
<td>DHCP mode: Determined by DHCP server</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HTTP Port</th>
<th>80</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TCP / Telnet Port</th>
<th>23</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Enable Telnet / TCP Access</th>
<th>Enabled</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>UDP Port</th>
<th>50007</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Enable UDP Access</th>
<th>Disabled</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Remote UDP IP Address</th>
<th>192.168.1.255</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Remote UDP Port</th>
<th>50008</th>
</tr>
</thead>
</table>

| Enable Remote UDP Access | Disabled |

| Gefen Syner-G Discovery | Enabled |

| Find Your Device | Hide Me |

| MTU Size | 8000 |

(continued on next page)
### Default Settings

#### Network

<table>
<thead>
<tr>
<th>Network Mode</th>
<th>Unicast</th>
</tr>
</thead>
</table>

#### EDID Management

<table>
<thead>
<tr>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDCP Enable (Sender unit only)</td>
<td>Enabled</td>
</tr>
<tr>
<td>Enable Video over IP</td>
<td>Enabled</td>
</tr>
<tr>
<td>Copy EDID of Connected Display (Receiver unit only)</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

#### USB over IP

<table>
<thead>
<tr>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable USB over IP</td>
<td>Enabled</td>
</tr>
<tr>
<td>Operation Mode</td>
<td>Active per request</td>
</tr>
<tr>
<td>USB Mouse Mode</td>
<td>High Resolution</td>
</tr>
</tbody>
</table>

#### Serial over IP

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Serial over IP</td>
<td>Enabled</td>
</tr>
<tr>
<td>Baud rate</td>
<td>19200</td>
</tr>
<tr>
<td>Data bits</td>
<td>8</td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
</tr>
<tr>
<td>Stop bits</td>
<td>1</td>
</tr>
</tbody>
</table>
Upgrading the Firmware

The following items are required to upgrade the firmware:

- Gefen HD KVM over IP
- Computer (Mac or PC)
- Firmware files

1. Download the firmware for the HD KVM over IP from the Gefen Web site.

2. Extract both firmware files from the .ZIP file. The .ZIP file contains two files:
   - HDKVM-LAN-S_[version].bin (Sender unit)
   - HDKVM-LAN-R_[version].bin (Receiver unit)

3. Access the Web interface by entering the IP address of the Sender or Receiver unit. The order in which the Sender and Receiver units are upgraded does not matter.

4. Under the System tab, click the Update Firmware tab.

5. Click the Browse... button and select the firmware for the unit that is being upgraded:
   - If upgrading the Sender unit, the filename will contain the letter “S”. If upgrading the Receiver unit, the filename will contain the letter “R”.

   In the example below, we will be updating the Sender unit. Therefore, we need the filename that contains the letter “S”.

   ![Update Firmware Interface]

6. Click the Update button.

7. After a few moments, the Web interface will indicate that the upgrade process has been started.
8. Once the firmware upgrade process has completed, the HD KVM over IP will reboot.

9. Repeat the process for each Sender and Receiver unit in the system.
Gefen recommends the TIA/EIA-568-B wiring option. Use the table below when field-terminating cable for use with Gefen products.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Orange / White</td>
<td>TD+  (Transmit Data, positive differential signal)</td>
</tr>
<tr>
<td>2</td>
<td>Orange</td>
<td>TD-  (Transmit Data, negative differential signal)</td>
</tr>
<tr>
<td>3</td>
<td>Green / White</td>
<td>RD+  (Receive Data, positive differential signal)</td>
</tr>
<tr>
<td>4</td>
<td>Blue</td>
<td>Unused</td>
</tr>
<tr>
<td>5</td>
<td>Blue / White</td>
<td>Unused</td>
</tr>
<tr>
<td>6</td>
<td>Green</td>
<td>RD-  (Receive Data, negative differential signal)</td>
</tr>
<tr>
<td>7</td>
<td>Brown / White</td>
<td>Unused</td>
</tr>
<tr>
<td>8</td>
<td>Brown / White</td>
<td>Unused</td>
</tr>
</tbody>
</table>

**Information**

Shielded CAT-5e (or better) cabling is recommended.
The following illustrations provide instructions for installing the Sender and/or Receiver unit(s) in the Gefen 1U Rack Tray (Gefen part no. EXT-RACK-1U).

**Step 1**  Turn unit upside down.

**Step 2**  Remove rubber feet.

**Step 3**  Line up holes on unit and rack tray.

**Step 4**  Install countersink screws.

**Step 5**  Ensure the unit is installed securely.

**Step 6**  Unit has been installed into rack tray.
## Specifications

### Supported Formats

| Resolutions (max.)     | 1080p Full HD  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1920 x 1200 (WUXGA)</td>
</tr>
</tbody>
</table>

### Connectors, Controls, and Indicators

<table>
<thead>
<tr>
<th>Video Input (Sender)</th>
<th>1 x HDMI Type A 19-pin, female, locking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Output (Receiver)</td>
<td>1 x HDMI Type A 19-pin, female, locking</td>
</tr>
<tr>
<td>Audio (Sender)</td>
<td>1 x 3.5mm mini-stereo (Line In)</td>
</tr>
<tr>
<td></td>
<td>1 x 3.5mm mini-stereo (Line Out)</td>
</tr>
<tr>
<td>Audio (Receiver)</td>
<td>1 x 3.5mm mini-stereo (Line Out)</td>
</tr>
<tr>
<td></td>
<td>1 x 3.5mm mini-stereo (Mic In)</td>
</tr>
<tr>
<td>USB (Sender)</td>
<td>1 x Type B, female</td>
</tr>
<tr>
<td>USB (Receiver)</td>
<td>2 x Type A, female</td>
</tr>
<tr>
<td>Ethernet (Sender)</td>
<td>1 x RJ-45</td>
</tr>
<tr>
<td>Ethernet (Receiver)</td>
<td>3 x RJ-45, shielded</td>
</tr>
<tr>
<td>IR Emitter (Sender)</td>
<td>1 x 3.5mm mini-mono jack</td>
</tr>
<tr>
<td>IR Ext. (Receiver)</td>
<td>1 x 3.5mm mini-stereo jack</td>
</tr>
<tr>
<td>RS-232 (Sender)</td>
<td>1 x DB-9, female</td>
</tr>
<tr>
<td>RS-232 (Receiver)</td>
<td>1 x DB-9, male</td>
</tr>
<tr>
<td>Reset button (Sender)</td>
<td>1 x Push button, tact-type</td>
</tr>
<tr>
<td>Mode button (Sender)</td>
<td>1 x Push button, tact-type</td>
</tr>
<tr>
<td>Switch button (Receiver)</td>
<td>1 x Push button, tact-type</td>
</tr>
<tr>
<td>Link indicator (Sender / Receiver)</td>
<td>1 x LED, green</td>
</tr>
<tr>
<td>Power indicator (Sender / Receiver)</td>
<td>1 x LED, blue</td>
</tr>
</tbody>
</table>

### Operational

<table>
<thead>
<tr>
<th>Maximum Pixel Clock</th>
<th>225 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>5V DC</td>
</tr>
<tr>
<td>Power consumption (ea.)</td>
<td>10W (max.)</td>
</tr>
</tbody>
</table>

### Physical

| Dimensions (W x H x D) | 8.4” x 1.7” x 4.5”  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(213mm x 43mm x 113mm)</td>
</tr>
<tr>
<td>Unit Weight (ea.)</td>
<td>2.0 lbs. (0.91 kg)</td>
</tr>
</tbody>
</table>
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#get_net_mode 64
#get_net_mode 63
#get_net_mode 62
#get_net_mode 61
#get_net_mode 60
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#get_net_mode 41
#get_net_mode 40
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#get_net_mode 35
#get_net_mode 34
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#get_net_mode 31
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#get_net_mode 29
#get_net_mode 28
#get_net_mode 27
#get_net_mode 26
#get_net_mode 25
#get_net_mode 24
#get_net_mode 23
#get_net_mode 22
#get_net_mode 21
#get_net_mode 20
#get_net_mode 19
#get_net_mode 18
#get_net_mode 17
#get_net_mode 16
#get_net_mode 15
#get_net_mode 14
#get_net_mode 13
#get_net_mode 12
#get_net_mode 11
#get_net_mode 10
#get_net_mode 9
#get_net_mode 8
#get_net_mode 7
#get_net_mode 6
#get_net_mode 5
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#set_telnet_welcome 130
#set_tx_channel 131
#set_udp_access 132
#set_udp_port 133
#set_usb_allow 134
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