

# eLinkKVM Manual

v0.1

# Chapter 1: Introduction

## Overview

A KVM switch (an abbreviation stands for **K**eyboard, **V**ideo and **M**ouse") is a hardware device that enables a user to control multiple computers from one or more sets of keyboards, video monitors, and mice. For example, in the following diagram, the computer on the right is currently being controlled by the peripherals.

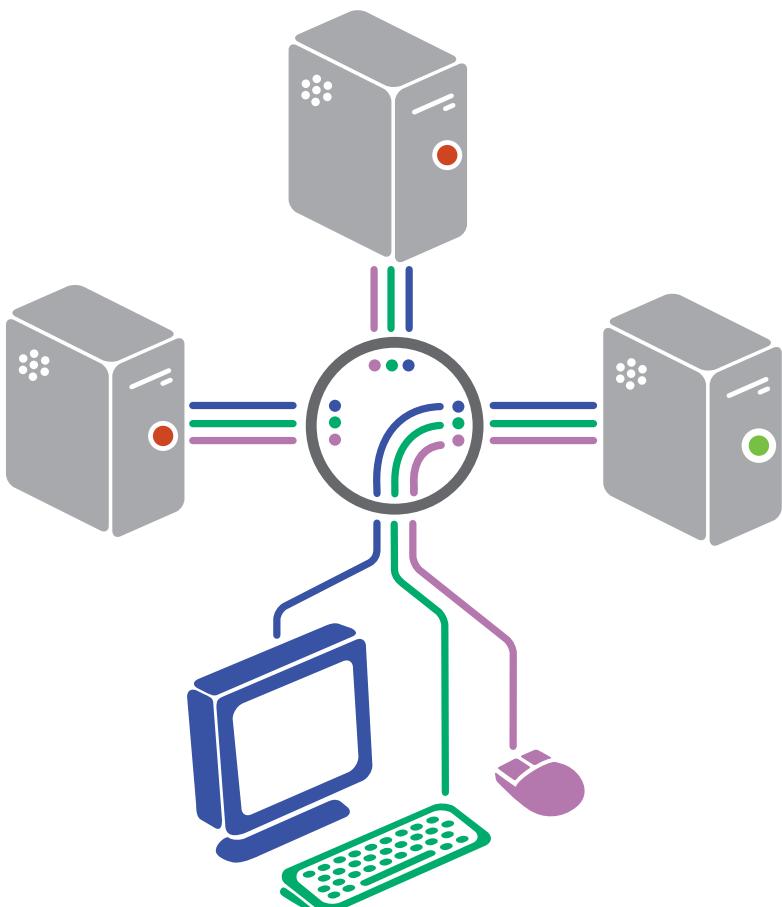


Figure 1. KVM SWitch interworking

[TODO] Replace Wikipedia diagram about with our original diagram

Normal KVM switches attach controlling and controlled devices directly to itself. In contrast, KVM over-IP switches, provides over-the-internet functionality. This means, instead of physically connected to a KVM switch through very long cables and are usually limited in a room, a floor or a building, the controlling devices can be anywhere in the world that can connect to a KVM over-IP switch and control the connected computers with a normal Internet connection.

Another approach for remote controlling is using pure software. However, as a pure software solution is usually limited only in an operating system environment. Without an operating system, a software solution is infeasible. Unlike software solutions for remote controlling, a hardware solution like a KVM switch can be used as a replacement for a computer monitor. This diagram demonstrates the scope difference between a software and a hardware solution:

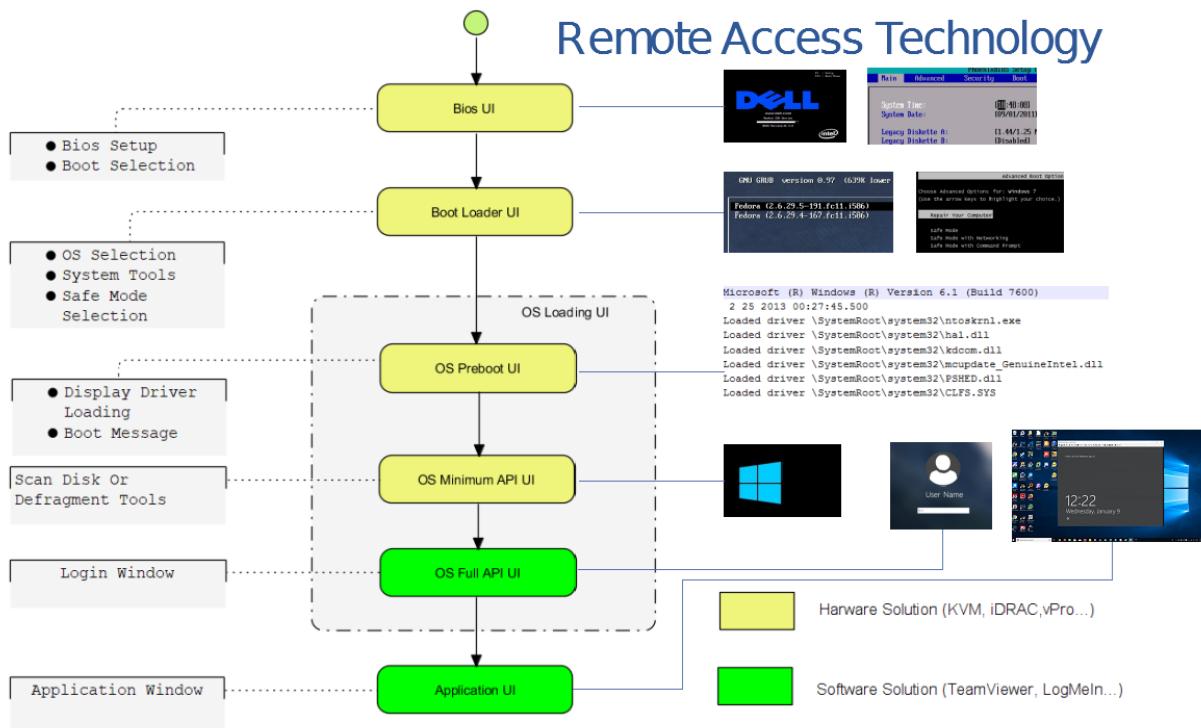


Figure 2. Hardware and Software remote control scopes

eLinkKVM is one of such KVM-over-IP devices. However, unlike other KVM-over-IP solutions that are solely hardware solutions, eLinkKVM takes on a unique hybrid approach that combines both hardware and software. While being a hardware solution similar to other KVM-over-IP switches, but unlike other KVM-over-IP switches, eLinkKVM takes a step further with its patented technology called **Booster**. **Booster** is a software solution that works together with eLinkKVM hardware to uplift processing performance by utilizing computing resources of the remote hosts. **Booster** is not limited to an operating system environment, but also in BIOS and UEFI environments.

Operators can monitor and access their computers from remote locations using a remote control software. An eLinkKVM device connects to a local area network or directly to a personal computer (PC) using a standard ethernet cable, then uses a USB cable and a video display cables to connect to a server and complete control it with Keyboard, Video and Mouse functionality from the eLinkKVM device.

Because the eLinkKVM uses the Internet as its data communication medium, the server it is connected to can be accessed from any authorized computer across the Internet, regardless of physical location.

A user at a remote location connect to the eLinkKVM via its IP address. Once a connection has been established and authorization granted, the remote computer can exchange keyboard, video and mouse signals with the remote server (of which the eLinkKVM is attached to), just as if they were physically present and working on the equipment directly.

## Booster technology

**Booster** is a patented technology that allows eLinkKVM to utilize computing resources from remote hosts to improve remote performance. To quickly summarize, Booster includes software agents that work on major OS platforms (Windows, Linux and Mac OS) however, unlike traditional software

solutions, Booster agents can also operate in BIOS and UEFI environments, independent of any operating system.

These software agents are installed on remote hosts to utilize the extra computing power on the remote hosts to accelerate screen data processing without affecting performance. This enables higher quality remote screen and more responsive interactions with the remotely remote hosts.

**Booster** also helps reducing the loads on eLinkKVM devices, making eLinkKVM devices run cooler and extend the longevity of eLinkKVM devices, while delivering higher performance.

The following diagram shows the scope covered by Booster:

*Booster operating scope*

image::../../Resource/BoosterModeDiagramFlow.svg[image].

## Features

The eLinkKVM is designed to help the IT person remotely operate the Server in most responsive and efficient way. The device is not only allowing remotely access at Bios Level which is similar traditional KVM over IP but also adding more features:

- Full Bios-level control over an IP Network\* The video capture hardware (Hardware mode) is designed to decode the video signal up to 1920x1080 that help to monitor the screen in any situation.
- Patented Booster technology Faster and higher resolution with Booster technology, a patent technology allows monitor the screen with faster transfer, any video resolution with just a USB connection for almost any situation. See the **Booster** chapter for more information.
- Featureful native client software Client software is bundled with many unique features: scripting and image recognition, to automate manual operations. See the eLinkViewer chapter for more information.
- Virtual Media support with 8GB Internal Flash or 64GB with SD Card

Instead of using a separate computer as a share network storage to emulate the Virtual Media, eLinkKVM itself is a high performance shared network storage device.

- USB-Powered Design

The power is getting from USB port of Server, no external power supply required

- RS232 Serial Port

For Serial Console, Remote Dial In or control external PDU

- Built-in IPMI (Intelligent Platform Management Interface) utility

eLinkKVM understands IPMI and allows control the server that support IPMI interface. The user may power on/off/reset server without using an external PDU

- Support USB Host Interface

The USB Host port allow eLinkKVM control the USB 3G/4G, external USB storage or USB security device to add more functionality.

- Flexible Two Ethernet Ports

The Ethernet ports can be configured to work independently to connect 2 different networks with the master port can be configured as a DHCP server. Or 2 ports can be used to connect a server to a router, using a single server Ethernet port.

- Built-In USB Hub

Physically emulate all USB device (Mouse, Keyboard, Storage) with just one USB cables

- Scalability

eLinkKVM can scale to control more than one computers by connecting the computers to eLinkSwitch.

- Compact form factor

Small footprint of eLinkKVM making it easy to attach to existing servers

- Low cost

Ideal for distributed IT system environments such as small branch offices, campuses, test labs, and server hosting environments.

- Remote firmware upgrade Firmware can be easily upgraded remotely with a few mouse clicks.

## eLinkKVM Physical Connections

eLinKVM can be flexibly setup to connect between a remote terminal and a remote host with many options.

To connect a remote terminal over IP, the following methods can be used:

- Connect eLinkKVM directly to a router. A remote terminal then can access eLinkKVM over the Internet.
- Connect eLinkKVM directly to a USB 3G/4G. A remote terminal then can access eLinkKVM over the Internet.
- Direct connect eLinkKVM to the remote terminal. A remote terminal then can access eLinkKVM with a direct connection, Internet is not required.

After setting up, eLinkKVM is ready to be accessed by a remote terminal.

To connect a remote host to an already connected eLinkKVM device, the following methods can be used:

- Connect a VGA cable between the remote host and eLinkKVM to capture the host screen.
- Using a RS232 cable to capture its serial output.

- Connect the remote host to the Slave port on eLinkKVM to manage through IPMI interface.

After physical connections on both ends are done, a remote connection is up and running.

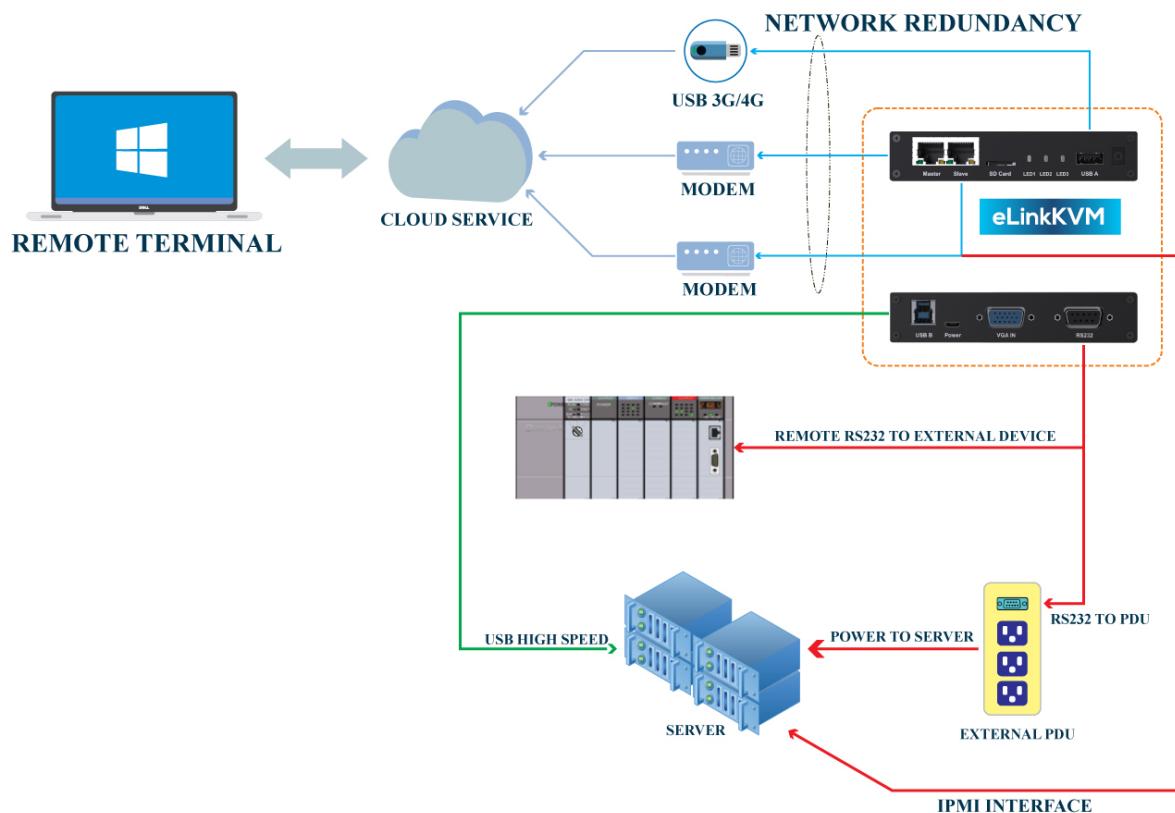


Figure 3. Complete system eLinkKVM connect to Router, connect to IPMI server, USB, RS232, external PDU, USB 3G, etc.

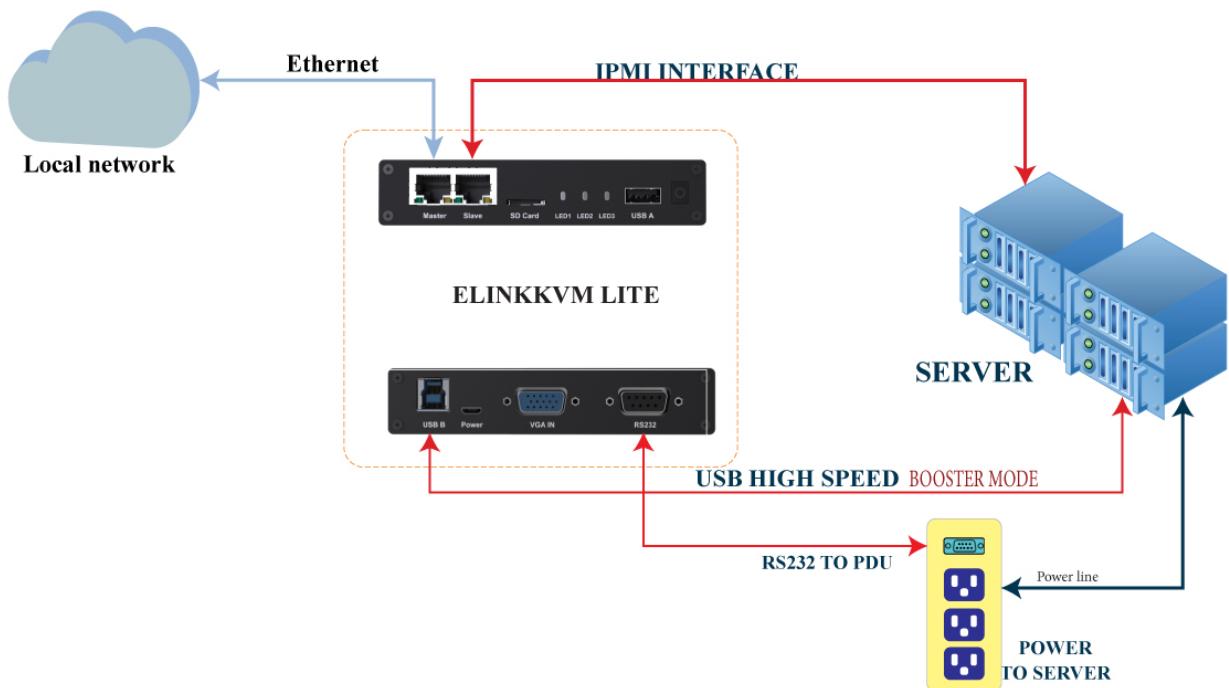


Figure 4. ELinkKVM Lite A minimal connection just USB (to run Booster), eLinkKVM connect to Router, eLinkKVM connect to IPMI\_

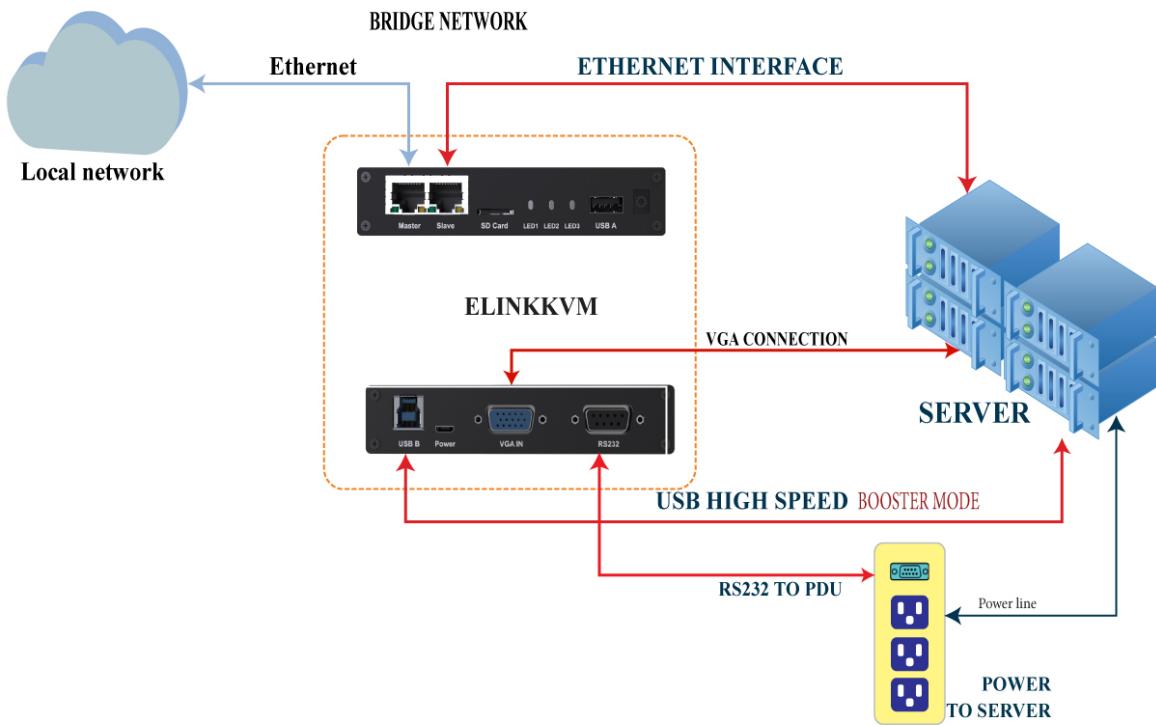


Figure 5. Using feature network bridge to save network connection (network cable to eLinkKVM to Master Connector & from Slave Connector to Server), eLinkKVM connect USB to server

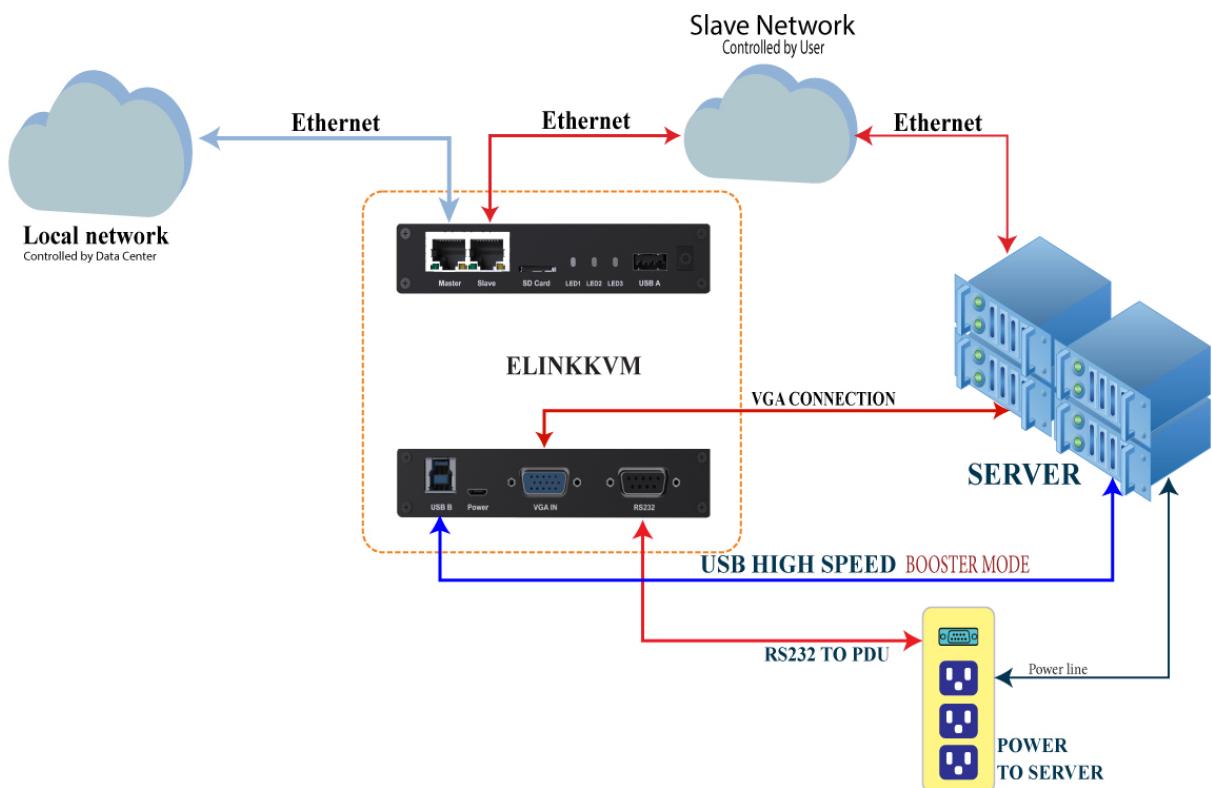


Figure 6. Separate network layer

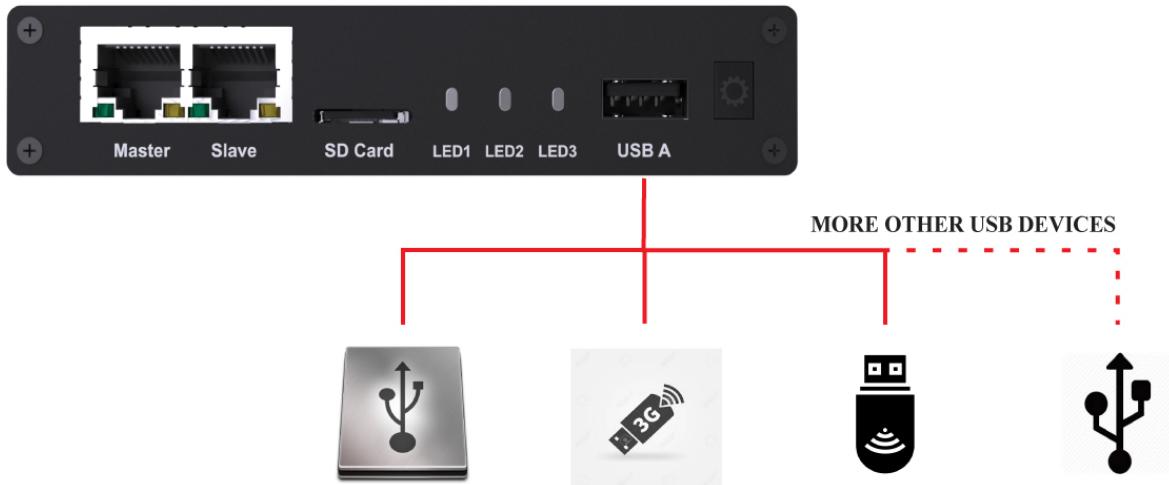


Figure 7. Extend function with USB device

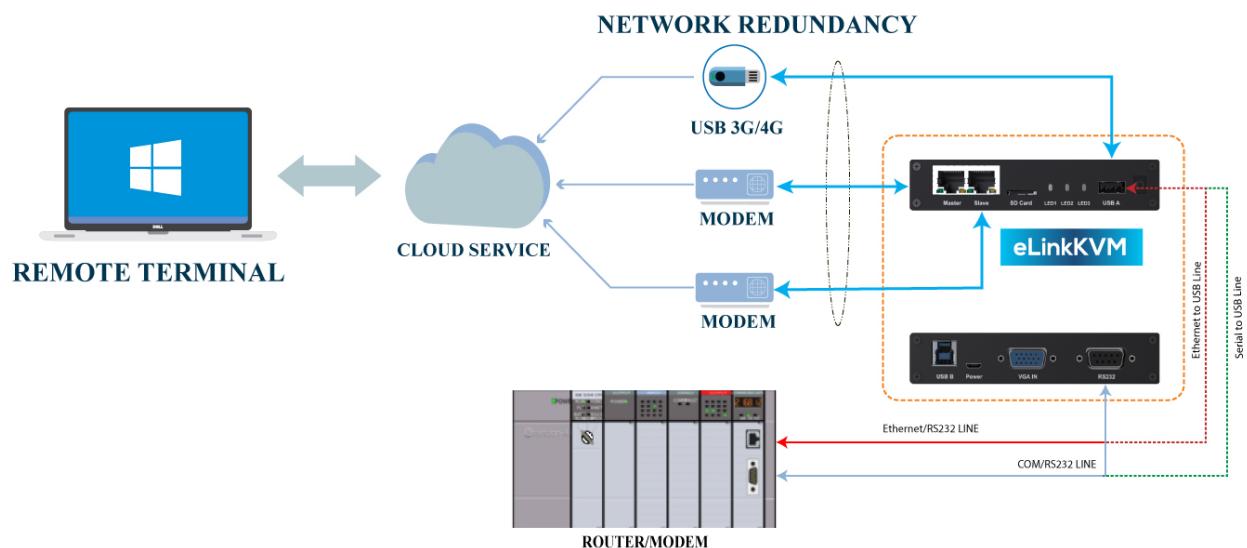


Figure 8. ELinkKVM configure network through multiple network

## Technical Specifications

### Hardware specification

Feature	Description
Networks	2 Ethernet ports (10/100Mbps)
Storage	Internal Flash Storage (8GB) that can be accessed by eLinkViewer software

Interfaces	<ul style="list-style-type: none"> <li>• Micro SD-CARD (extend up to 64GB)</li> <li>• RS232 interface</li> <li>• USB Host interface to extend to USB 3G/4G, USB Wifi, USB Storage</li> </ul>
Video	<ul style="list-style-type: none"> <li>• VGA Port, Video Full HD Resolution</li> <li>• VGA Text mode: 640x350, 640x480, 720x400</li> <li>• VGA Graphic mode: 640x480, 800x600, 1024x768, 1152x864, 1280x1024,</li> <li>• 1440x900,1680x1050,1600x1200,1920 x1080</li> <li>• Secure, full BIOS-level control of remote servers over an IP network</li> </ul>

## Software Specification

Feature	Description
Remote Access Features	<ul style="list-style-type: none"> <li>• Support VNC Protocol</li> <li>• Emulation the USB Relative Mouse and Absolute Mouse</li> <li>• Emulation the USB Keyboard</li> <li>• Capture Full HD resolution with <b>Hardware Mode</b></li> <li>• Capture all resolutions with 100% screen quality using the patented <b>Booster Mode</b></li> </ul>
Connections	<ul style="list-style-type: none"> <li>• Direct Connect Through TCP/IP</li> <li>• Extension through USB 3G/4G</li> <li>• Coming the Cloud Service to connect behind Firewall</li> </ul>
Securities	<ul style="list-style-type: none"> <li>• Secure by SSL</li> <li>• Multiple Login Accounts (Up to 8 users)</li> </ul>
Remote Server Power Control	<ul style="list-style-type: none"> <li>• Remote Reset/On/Off Server through an IPMI</li> <li>• GUI Interface from eLinkViewer</li> <li>• Control the External PDU through RS232</li> </ul>
Virtual Media	Disk images (.iso, .raw, .hdd, .hdd2**) can be mounted as a USB 2.0 devices on

Server power design	No external power supply required on a remote computer for easy software installation and system updates
Multi-purpose USB port	Keyboard, Mouse and Storage functionalities are integrated in a single USB port.
Compact form factor	Making it easier to attach to existing servers
Batch setup	Multiple eLinkKVM devices can be scripted by the eLinkViewer software to get the same configuration.

## eLinkViewer Software Specification

**eLinkViewer** is an application specifically made to view remote screen content captured by an eLinkKVM device as well as interact with a remote computer.

**eLinkViewer** also provides functionalities to manage an eLinkKVM device.

Feature	Description
General	<ul style="list-style-type: none"> <li>Support multiple VNC Server and eLinkKVM</li> <li>Remote protocol using VNC and extension commands for eLinkKVM</li> <li>Support video scaling and full screen</li> </ul>
Automation	Support image recognition and Python scripting allow automation the activities
IPMI	Support IPMI protocol to control server with GUI
Platform	Currently support Windows
Bandwidth Optimization	Provide video quality settings to maximize remote performance for the available network bandwidth
Screen scaling	Viewer screen can be scaled to any resolution independent from remote computer's resolution or even enter a full-screen mode. In full-screen mode, the viewer screen scales according to the remote computer's resolution.

## Components

Front and rear views of an eLinkKVM device:



## Front view

ID	Component	Description
1	Ethernet ports (10/100Mbps)	<ul style="list-style-type: none"> <li>Master: can be configured as a DHCP server, a DHCP client or a static IP</li> <li>Slave: can be configured as a DHCP Client or a static IP</li> </ul>
2	SD card	Allows a user to expand storage capacity with an external micro SD card
3	Status Leds 1,2,3	Signal device statuses through different led colors
4	USB Type-A	Allow to attach an external peripheral device such as USB 3G/4G, USB Mass Storage, etc., to extend eLinkKVM functionality.

## Rear view

ID	Component	Description
1	USB Type-B	Power the device and acts as a communication channel between eLinkKVM and a server
2	Power	The secondary source is supplied by a micro USB cable. It is necessary when the power from USB Type B port is insufficient, or keeping the connection to eLinkKVM alive when the server is power off.
3	VGA	For capturing and outputting video signal to send and receive over the internet.
4	RS232	The serial communication port (COM port**). This port will be connected to the server serial port.

## Chapter 2: Installing eLinkKVM

This chapter describes how to install the eLinkKVM device and necessary software to work with eLinkKVM . It contains the following sections:

- Package contents
- Power on eLinkKVM
- eLinkKVM in Setup Mode
- eLinkKVM in Operating Mode
- Network setup
- eLinkViewer setup

## Package Contents

In addition to the **eLinkKVM** device, the package contains the following items:

- 1 USB 2.0 Type-B Cable
- 1 VGA cable
- 1 RS232 cable (optional)
- 1 USB Power Adapter (5V - 2A) and Micro USB cable
- Mounting kit (see Chapter 4: Mounting Bracket Kit)
- Quick Start Guide

## Power On eLinkKVM

The USB-Powered design allow eLinkKVM power directly from server USB port (1) without an

external power. But in some cases, it is necessary to keep the device active while the server can be turned off or eLinkKVM need to provide the power to external USB 3G. This can be done by supplying another 5V power source to the micro USB port (2) on an eLinkKVM device.



Figure 9. Rear USB ports for powering up an eLinkKVM device

During the bootup process the 3 LEDs will be blink and turn green when the device is ready. User can start using the device.

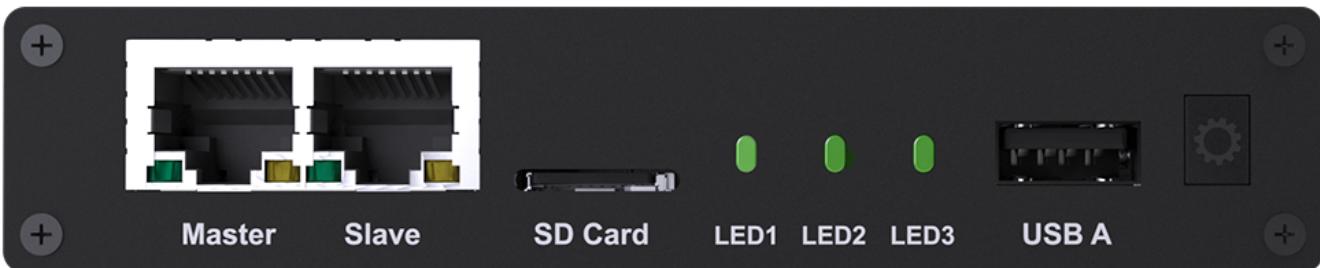
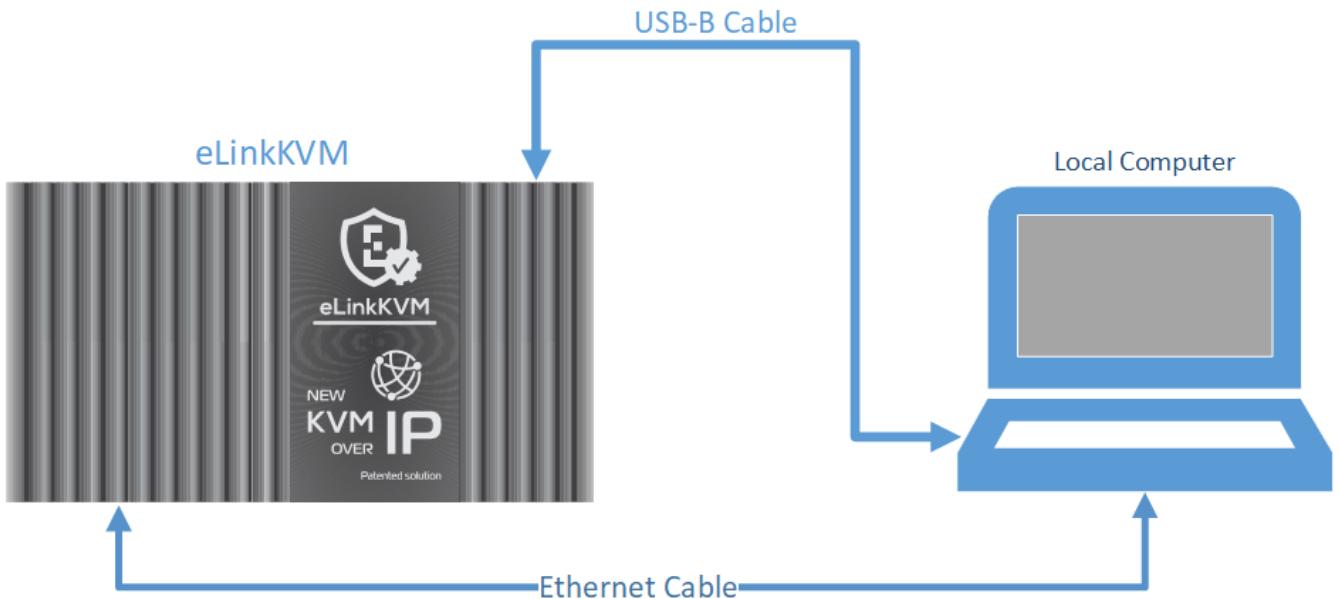


Figure 10. Front status LEDs

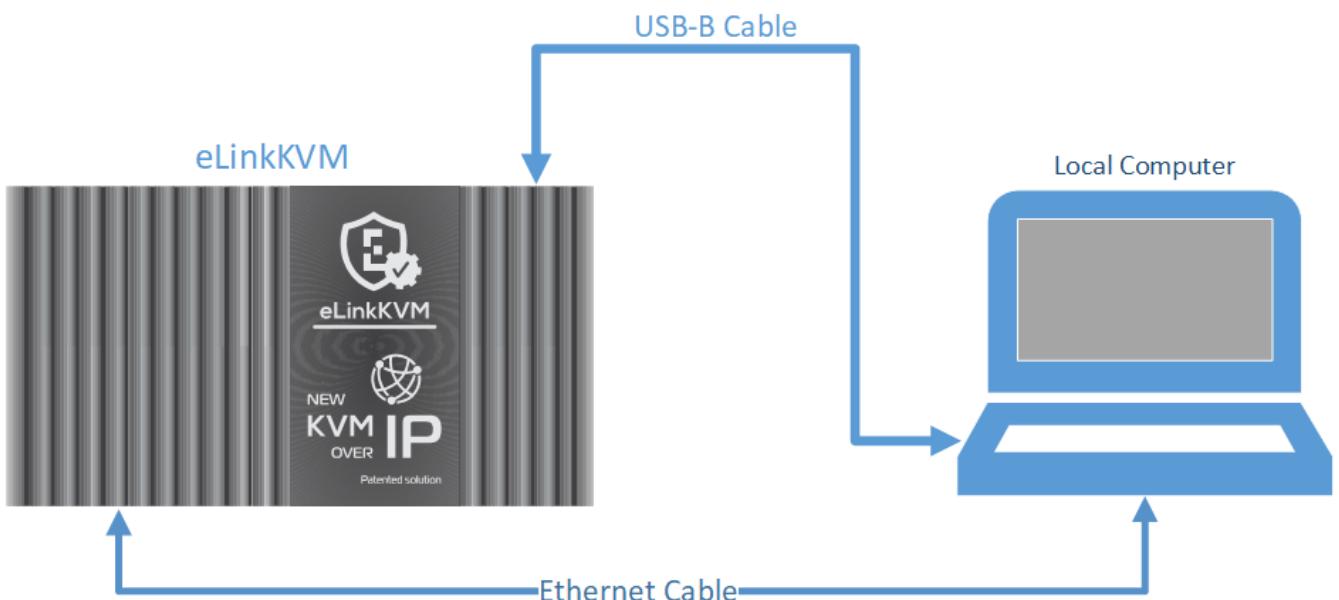
LED ID	Color	Description
1	Green	TBD
2	Green	TBD
3	Green	TBD

## eLinkKVM in Setup Mode



*Figure 11. Multiple network layers*

The eLinkKVM is designed to be just plug and play. User can just install the device in operation mode and start using immediately. But there are some cases when the auto DHCP IP address may not work; the user may have to setup it manually. Below are the connection diagrams when setting up eLinkKVM.



*Figure 12. Connection setup from an eLinkKVM device to a remote host*

Perform following steps to configure eLinkKVM:

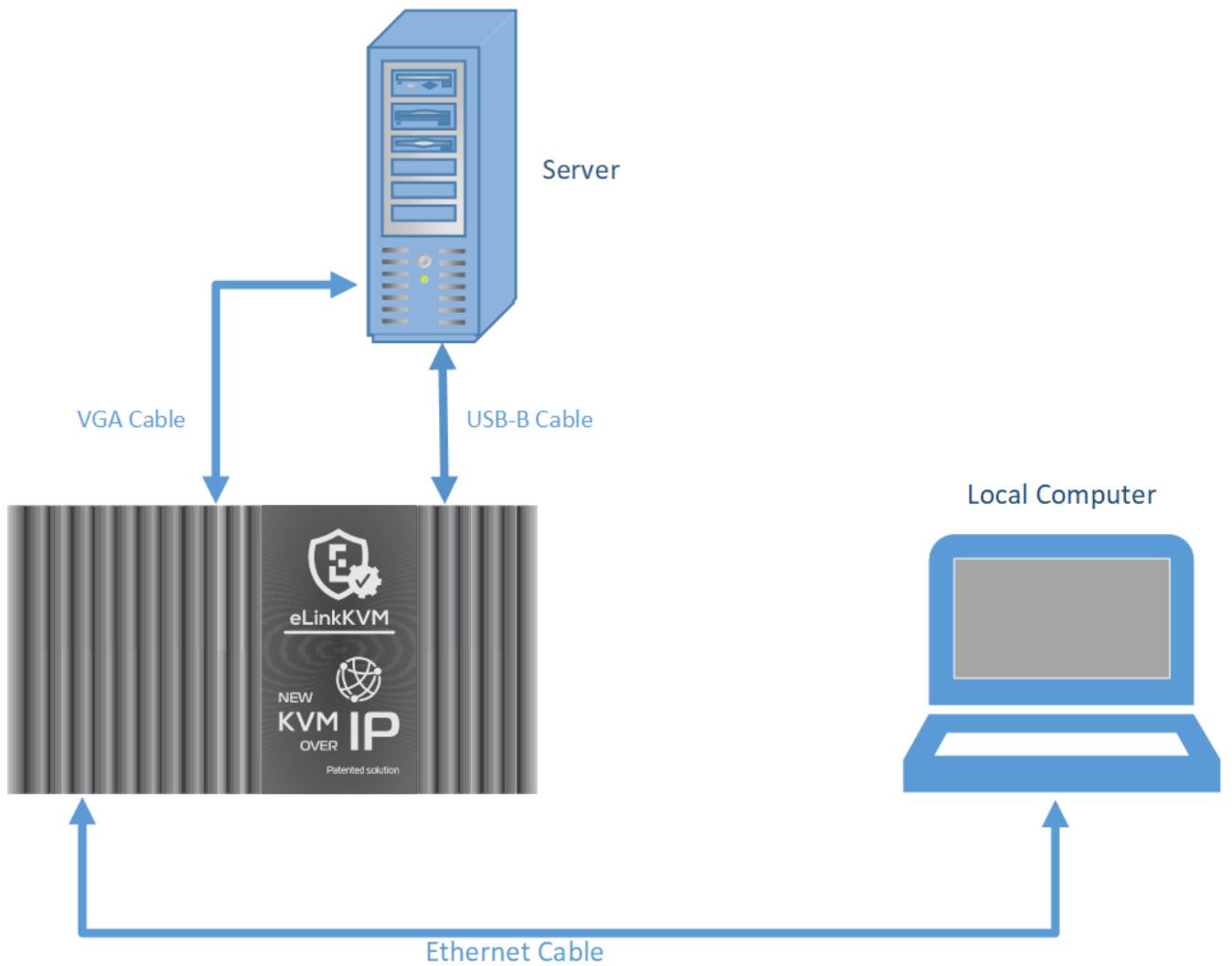
- 1. Connect Ethernet RJ45 cable between eLinkKVM and remote terminal
- 2. Connect USB Type-B cable to remote terminal and Type-B port of eLinkKVM device



Figure 13. Connection setup from an eLinkKVM device to a remote terminal

## eLinkKVM in Operation Modes

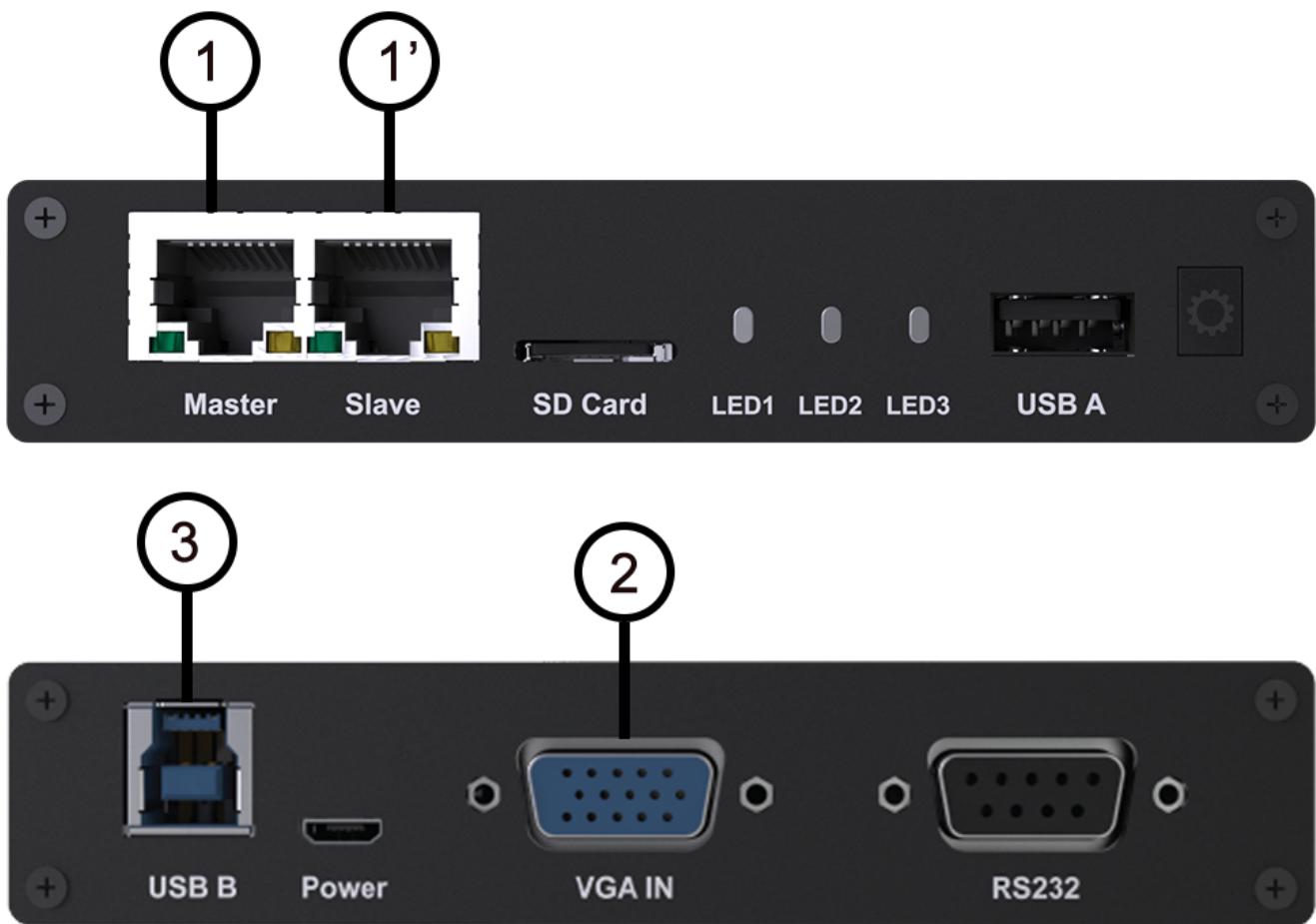
The main usage of eLinkKVM is to remotely monitor a server. The basic connection is described below where eLinkKVM is connected to Server through USB cable and VGA and connect to remote terminal through ethernet.



*Figure 14. Basic eLinkKVM Operating Mode*

Perform following steps to configure eLinkKVM:

1. Connect Ethernet RJ45 cable between eLinkKVM and remote terminal
2. Connect VGA cable between Server and VGA port on eLinkKVM
3. Connect USB Type-B cable between Server USB port and Type-B port of eLinkKVM device



## Network configuration

We may not need to explain in detail how to config Window to get IP address as other manual don't explain that

eLinkKVM supports two Ethernet ports for network connection:

- Ethernet Master: by default, configured as a DHCP server.
- Ethernet Slave: by default, configured as a DHCP client.

To connect to an eLinkKVM device, a network connection between a remote terminal and an eLinkKVM device is required. The connection can either be:

- *Direct connect*: An ethernet cable connects directly between a remote terminal and an eLinkKVM device.
- *Local Area Network*: Both the remote terminal and an eLinkKVM device are connected to a local area network (LAN). eLinkKVM is plugged to the router of the network.
- *Over the Internet*: an eLinkKVM device is provided with a static address for a remote terminal to access it anywhere in the world.

When a connection is established, its network interface must be configured in the operating system of the remote terminal. Currently, only Windows is supported.

## Windows

1. Open **Control Panel** → **All Control Panel Items** → **Network Connections**.

[TODO] Add an demo picture`

1. Right click on Ethernet Device of the eLinkKVM connection, select `Properties.

[TODO] Add an demo picture

1. Double click **Internet Protocol version 4 (TCP/IPv4)**

[TODO] Add an demo picture

1. Check the following options:

- Obtain an IP Address automatically
- Obtain DNS server address automatically

2. Verify the Setting

The default address for Ethernet Master port is **10.0.0.1**. To check if the hardware is setup correctly:

1. On Windows, open **cmd.exe**. On Linux and Mac OS, open a terminal emulator.
2. Type the following command:

```
ping 10.0.0.1
```

If **ping`** receives response packets, this means eLinkKVM is connected. To actually use eLinkKVM, the software eLinkViewer is required. The basic usage is described in the next chapter.

## Setup eLinkViewer

Download the eLinkViewer setup package from link:[www.elinkgate.com/support/download.html](http://www.elinkgate.com/support/download.html) just run setup.exe and following the instructions.

Go to chapter 3 (Basic usage) to see how to run and using eLinkViewer.

# Chapter 3: Remote management software for eLinkKVM with eLinkViewer

eLinkViewer is a specialized software for remote control and management of an eLinkKVM device. Booster technology is only available with eLinkViewer.

# Login

TODO need to disable Local Account/Online Account

To connect to an eLinkKVM device, fill the configured IP address in the textbox next to the **Server** field and click **Connect** to connect eLinkViewer to the eLinkKVM at the configured IP address:

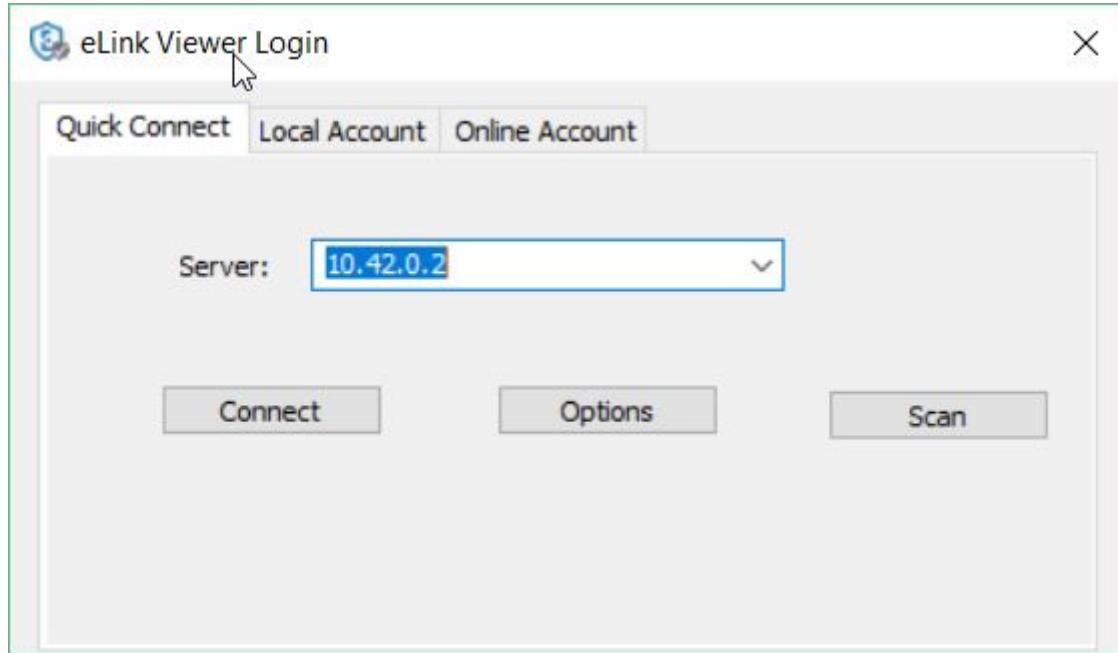


Figure 15. eLinkViewer quick connectd UI

**Options:** configure eLinkKVM-VNC connection

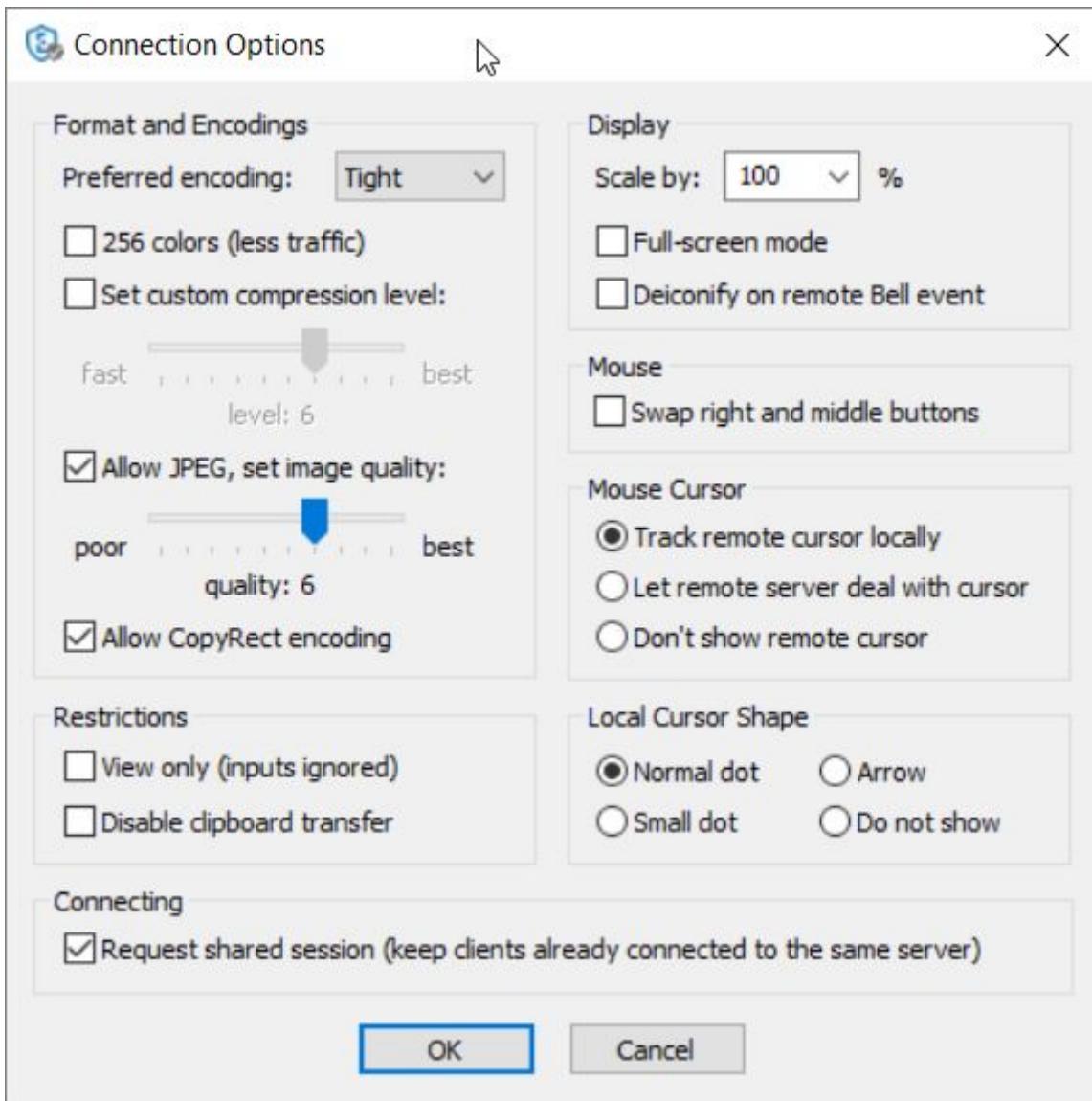


Figure 16. Connection options

- Scan: Scan for all eLinkKVM devices in the current local area network (LAN)

TODO: add static image for scanning eLinkKVM devices later

After connecting to an eLinkKVM device, the viewer screen switches to **Dummy** screen. The **Dummy** screen displays device status and settings.

TODO: Add dummy screen UI later

## Basic Remote Control

### Quick usage

**Dummy** screen includes many tabs that displays an appropriate screen for the functionality of each tab. Assume the eLinkKVM device is properly setup with VGA cable attached, to start remote controlling, simply switching from **Dummy** video screen to **VGA** video screen:

1. Click **ELink Configuration**.
2. Click **VGA**.

3. Click **OK**.

The default **Dummy** screen should be switched to the actual output from the remote host.

TODO: Add static image version

## Disconnect from an eLinkKVM device



- The following dialog box shows the connection has been terminated:



Figure 17. Exit connection dialog

## Dummy Screen

### Device Status

The default screen when successfully connected to an ElinkKVM device.

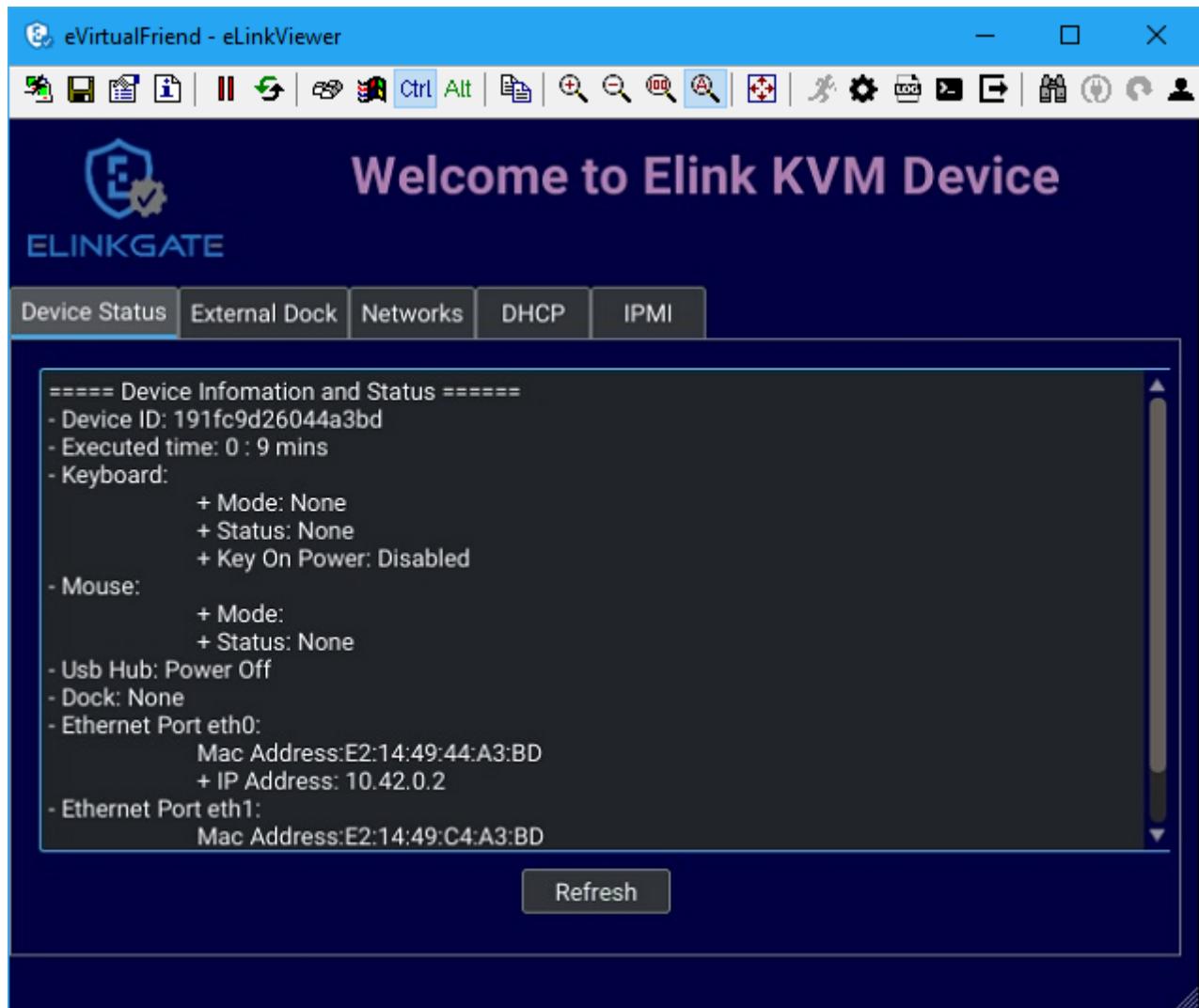


Figure 18. Device status UI

## External Dock

Display basic info of Dock if current eLinkKVM connected to a eLink Dock

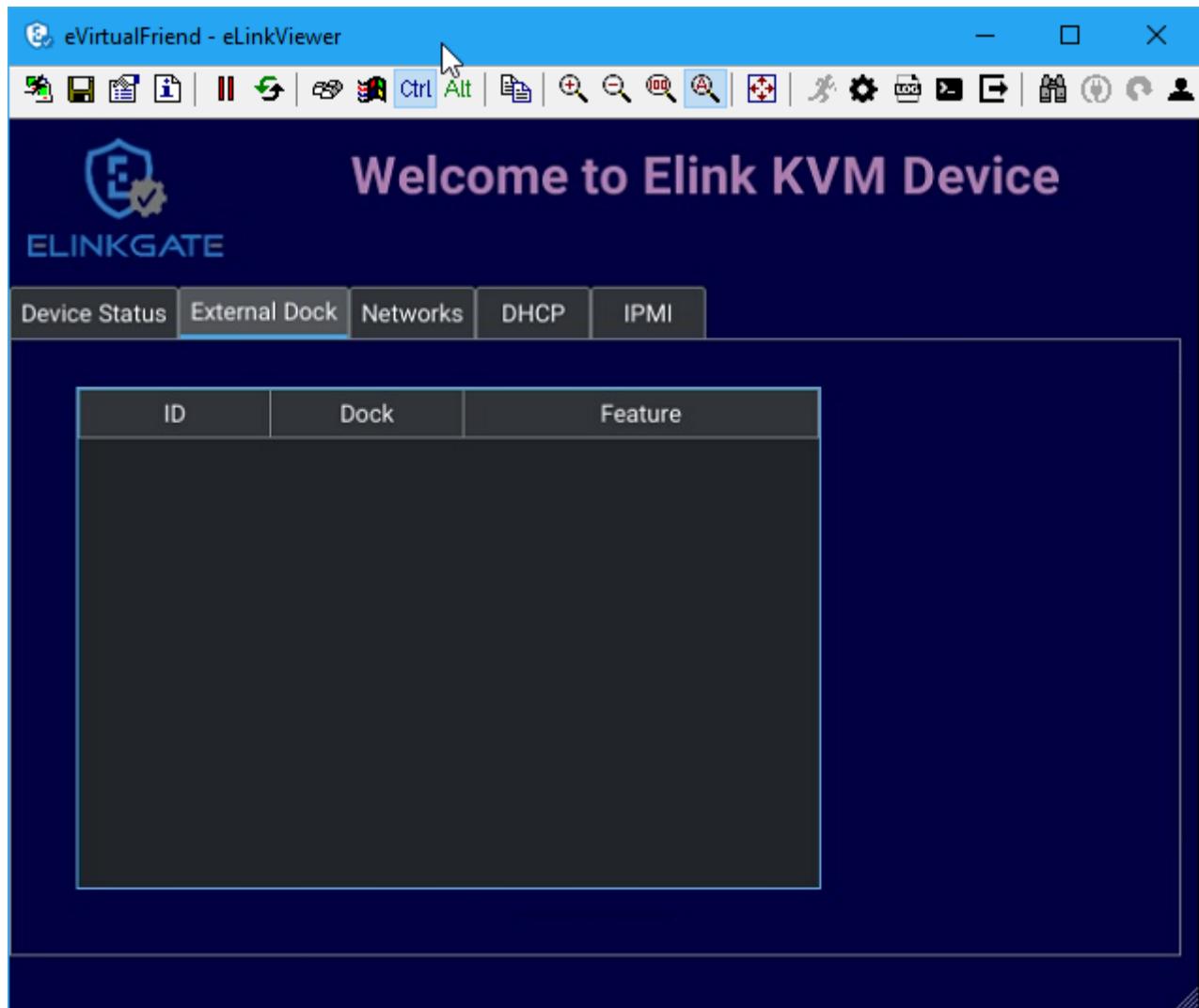


Figure 19. Dummy Info Status UI

## Networks

Display the current network configuration of an eLinkKVM device and allows changes accordingly:

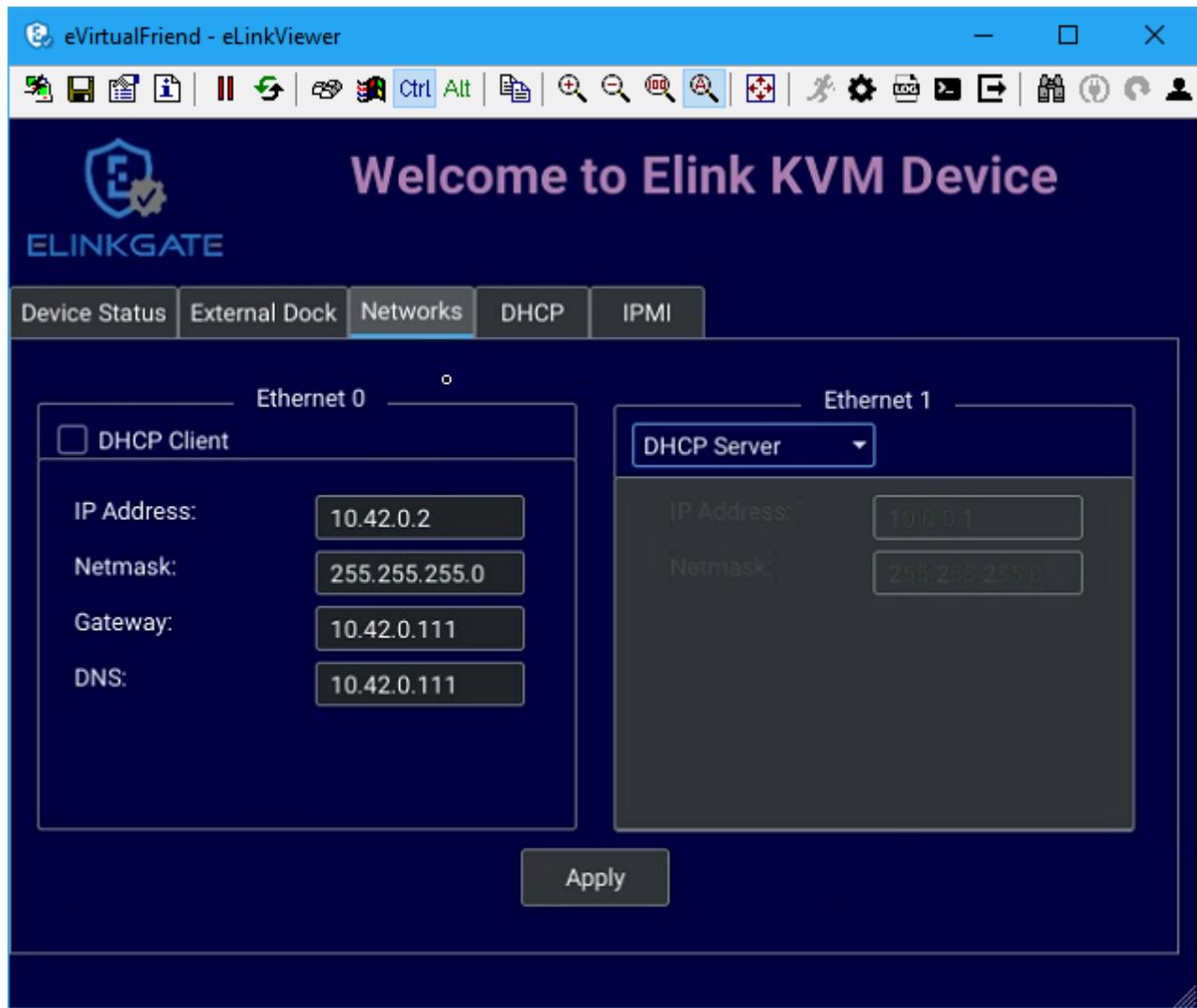


Figure 20. Network Configuration UI

## COM Port

Display the current COM port configuration of an eLinkKVM device and allows changes accordingly:

TODO need to add comport here

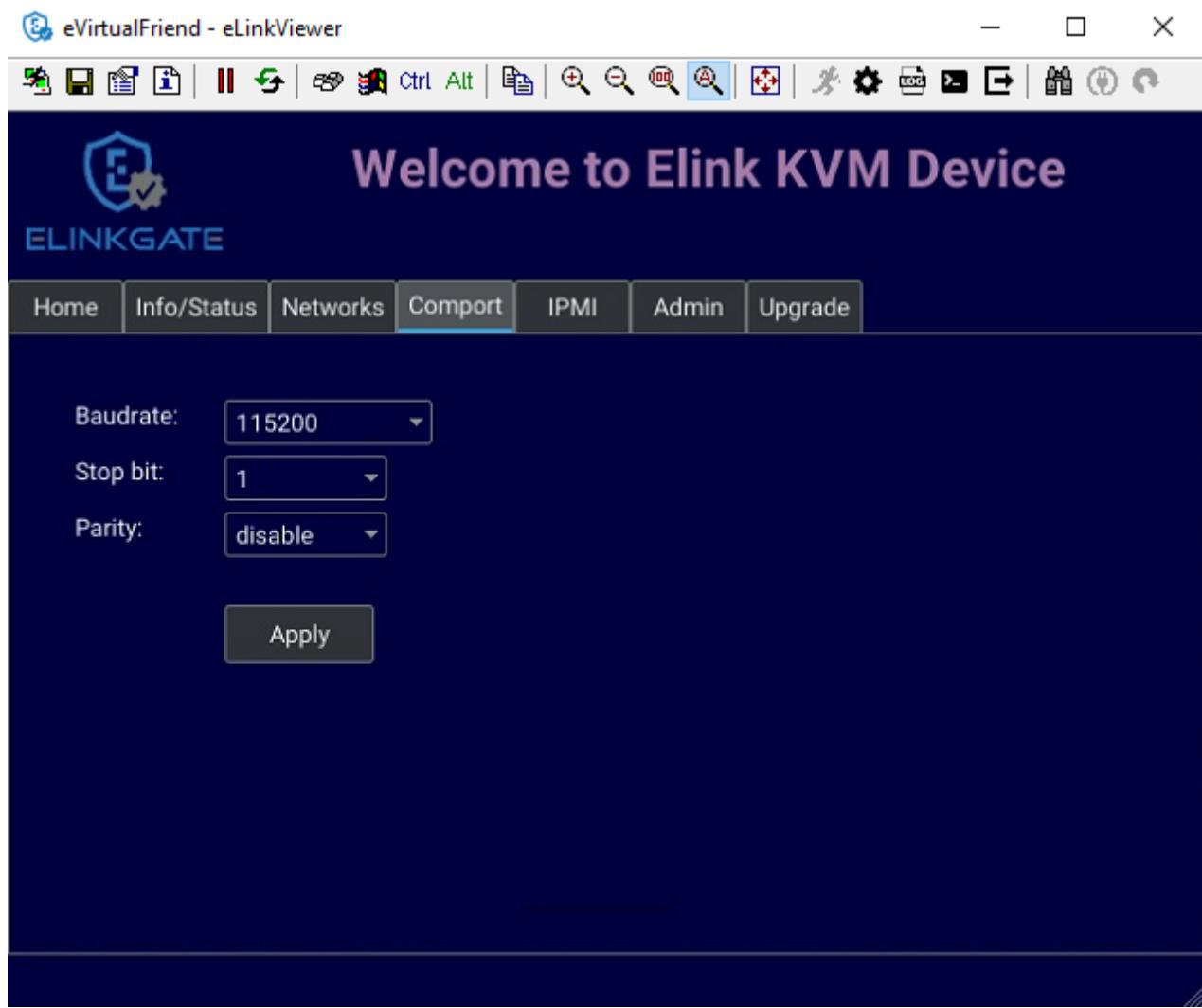


Figure 21. COM Port UI

## DHCP

Display all IP address already allocated by DHCP server of eLinkKVM

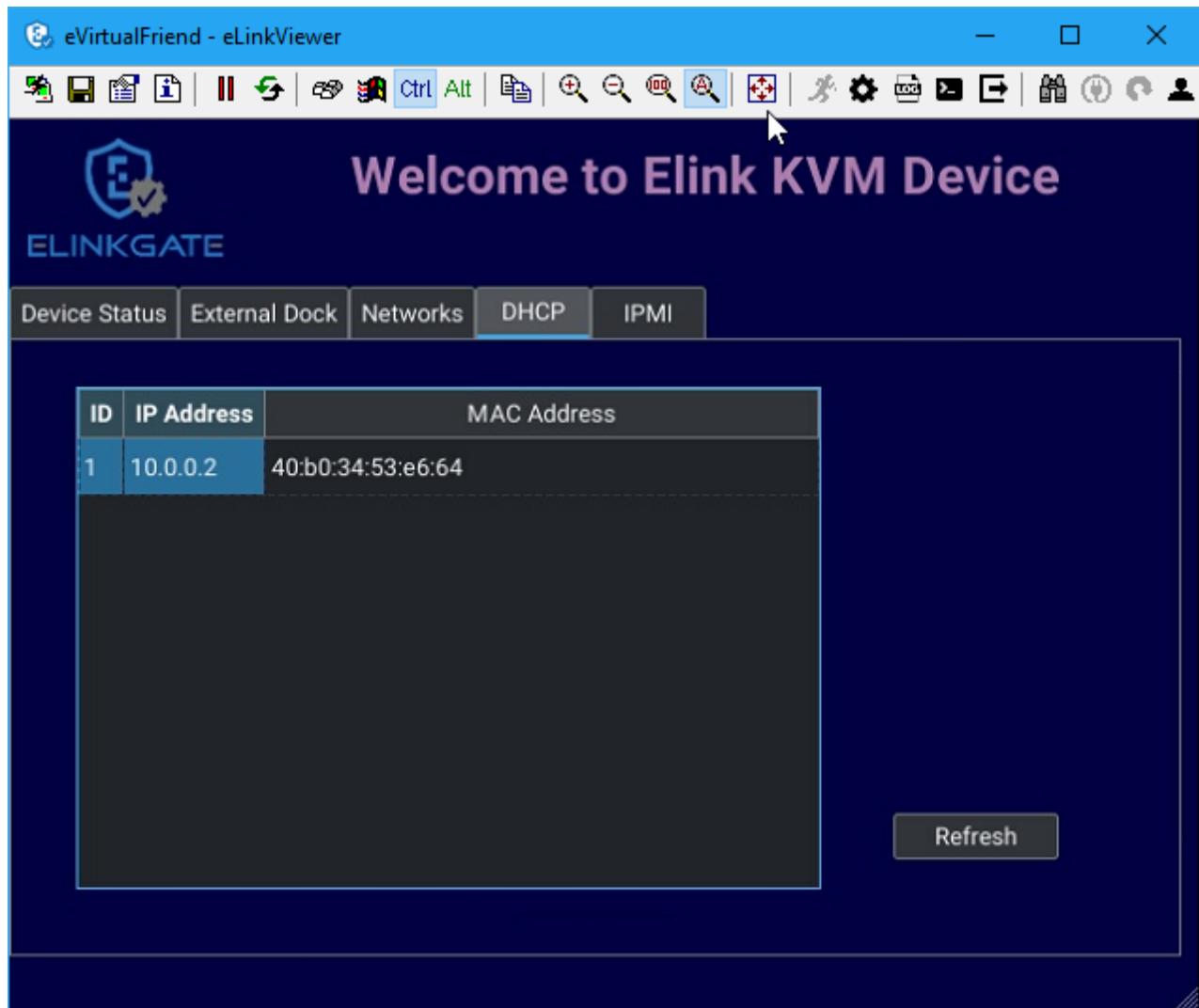
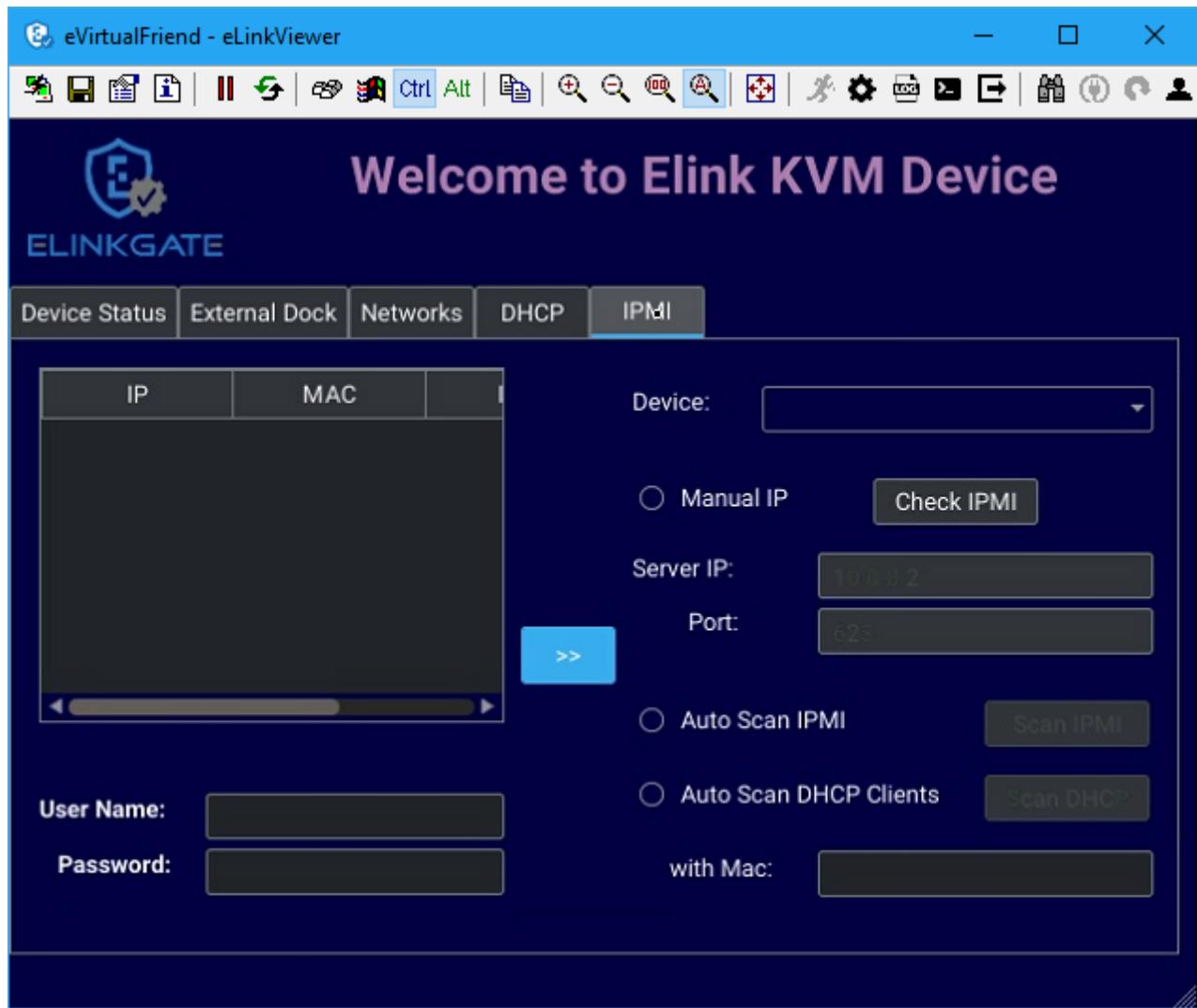


Figure 22. DHCP Configuration UI

## IPMI

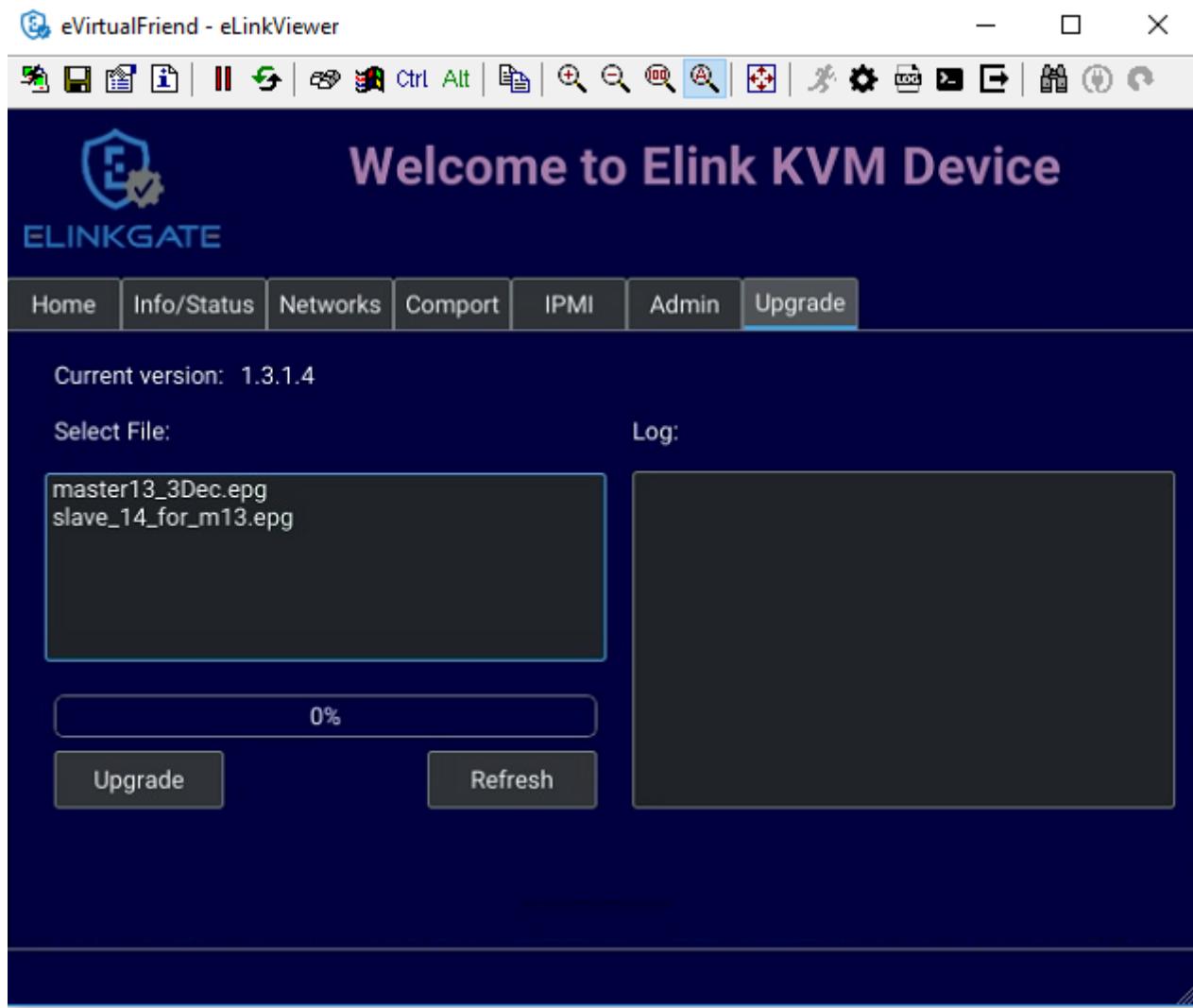
Display the current IPMI configuration of an eLinkKVM device and allows changes accordingly:



**Admin**

**Upgrade**

Display the current firmware version of an eLinkKVM device and allows upgrading to a newer firmware. The firmware must be first uploaded onto the device using [File Transfer](#) feature of eLinkViewer.



## eLinkKVM Toolbar

Connection user interface:



Figure 23. eLinkViewer Toolbar

1. Create a new connect to an eLinkKVM device

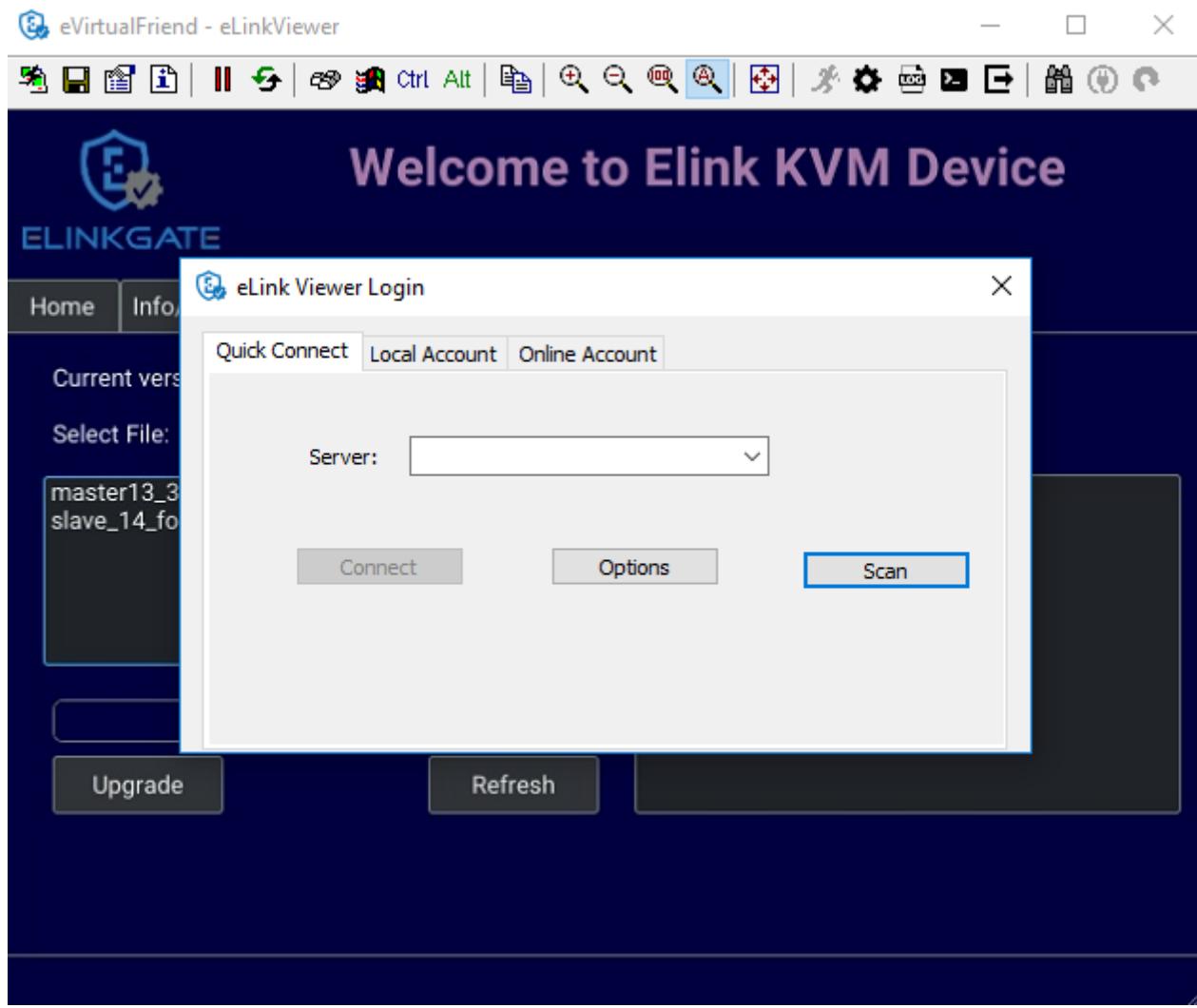


Figure 24. Create New Connection

1. Store current vnc session as a .vnc file
2. eLinkKVM connect options

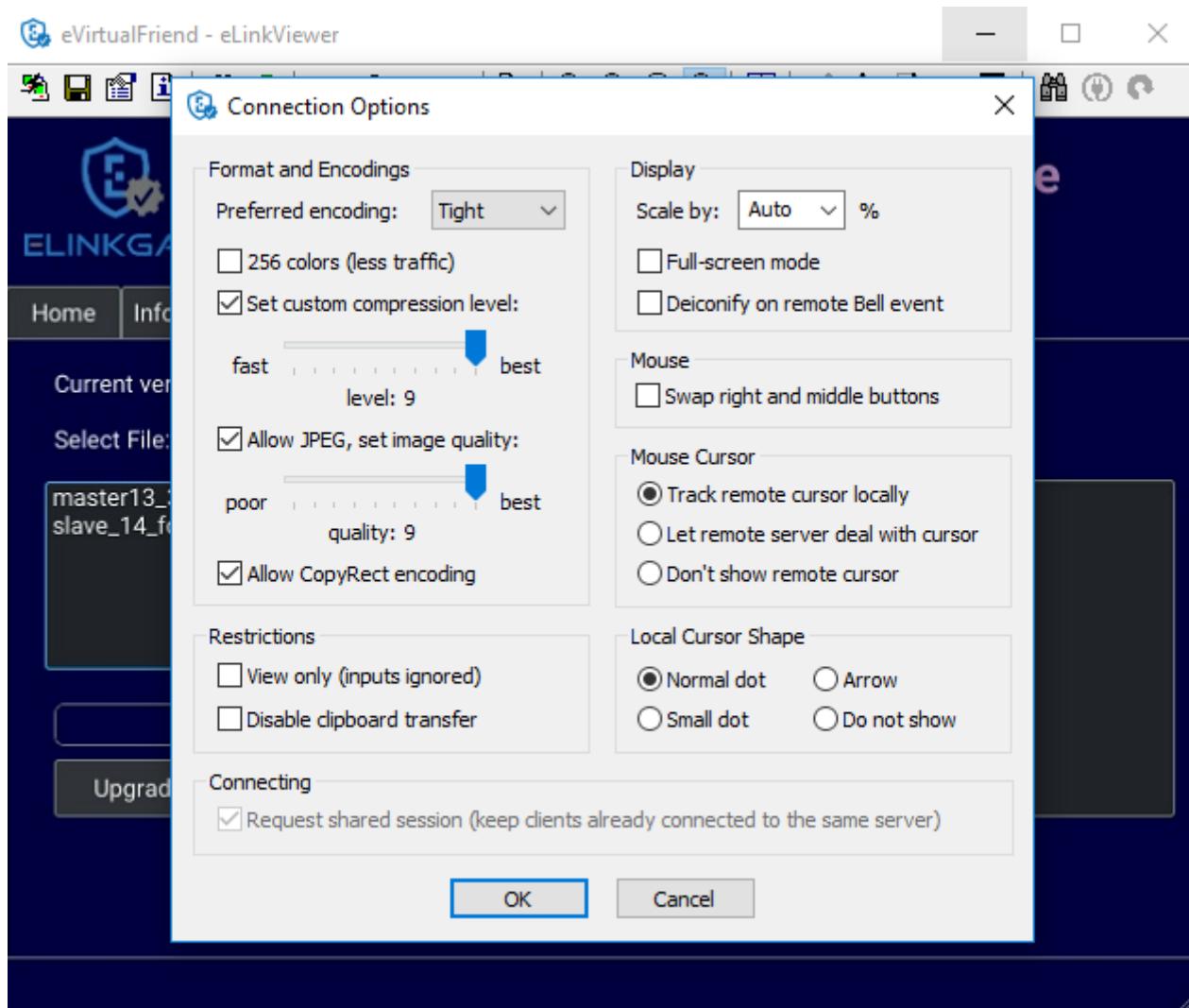


Figure 25. Connection Options

1. Current connection status
2. Pause frame transmitting
3. Request refresh current remote screen
4. Send **Ctrl + Alt + Delete** key combination
5. Press/Hold **Ctrl** key
6. Press/Hold **Alt** key
7. Open eLinkViewer **File Transfer** window
8. Scale in
9. Scale out
10. Scale (100%)
11. Auto zoom
12. Full screen (press **Ctrl + Shift + Alt + F** to return to windowed eLinkViewer)
13. Turn booster mode on/off
14. eLinkKVM Configuration
15. Open event log

16. Open Python script command prompt

17. Disconnect

18. Scan IPMI

TODO: Add static image version

## Mode Setting UI

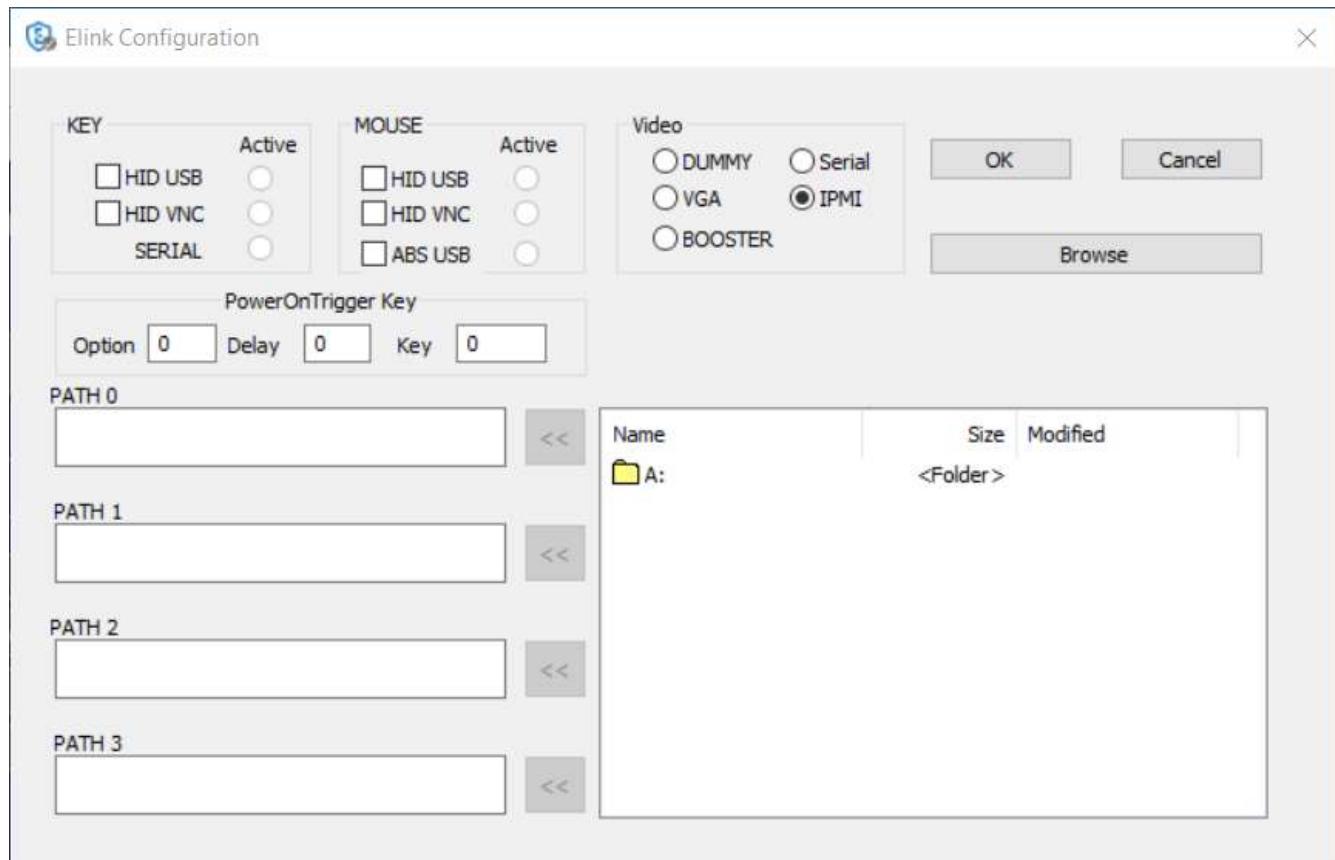


Figure 26. Elink Configuration UI

The viewer provides a dialog called **Elink Configuration** that includes the following options to configure how an eLinkKVM emulates keyboard, video and mouse.

### Key

- HID USB : use real keyboard (USB).
- HID VNC : use software keyboard (VNC protocol)
- Serial: use software keyboard (serial protocol)

### Mouse

- HID USB : use real mouse (USB)
- HID VNC: use software mouse (VNC protocol)
- ABS USB: use real mouse, but sync both local and remote mouse as one mouse pointer (USB absolute hid)

### Video

- Dummy : configure network and serial connections
- VGA: use VGA display over a VGA cable.
- Booster: enable remote management with **Booster**. This will be covered in later chapters.
- Serial: enable serial display and communication
- IPMI: enable Serial Over Lan (SOL) with IPMI
  - File browsing and disk image mounting:
- Path 0/1/2/3: File paths to disk images
- **Browse** button allows navigating to the disk images with a file explorer:

TODO: Add a static version

- Example: Configure eLinkKVM to use **USB Key`**, **Vnc Mouse**, and **Booster** mode with **refind.hdd2** disk image.

TODO: Add a static version

## Python Console UI

eLinkKVM allows eLinkKVM to be controlled by scripting with Python. On the toolbar, the button **Python Console Script** open a Python console similar to regular Python console but with Python eLinkSDK already loaded. A user can interactively use the Python console by typing code directly on it.

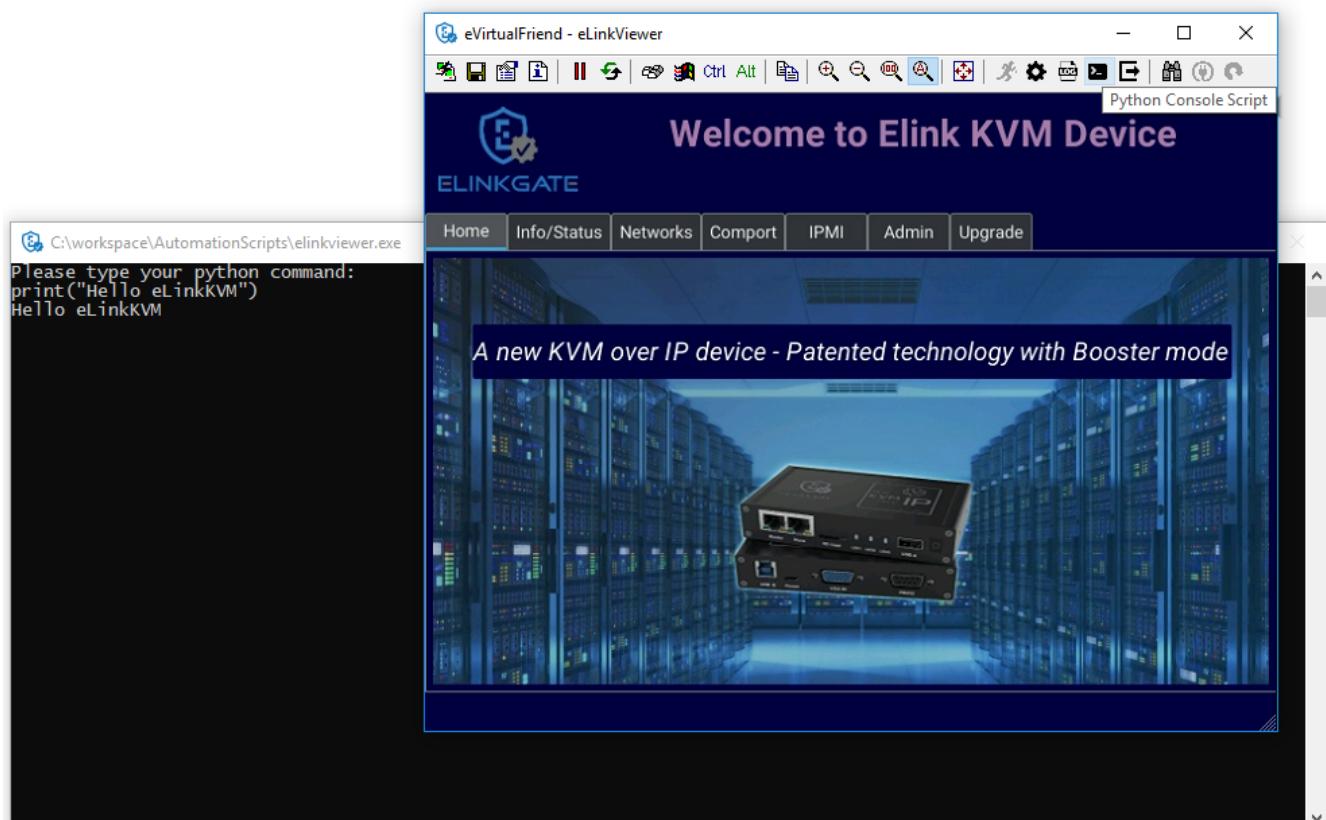


Figure 27. Python Console UI

The Python console can also launch a script from the command line:

```
eLinkviewer.exe -cons=setup_win2012.py
```

The Python console appears to display script output, error and exception if any.

## Event Log UI

Event log displays events and performance metrics related to eLinkKVM.

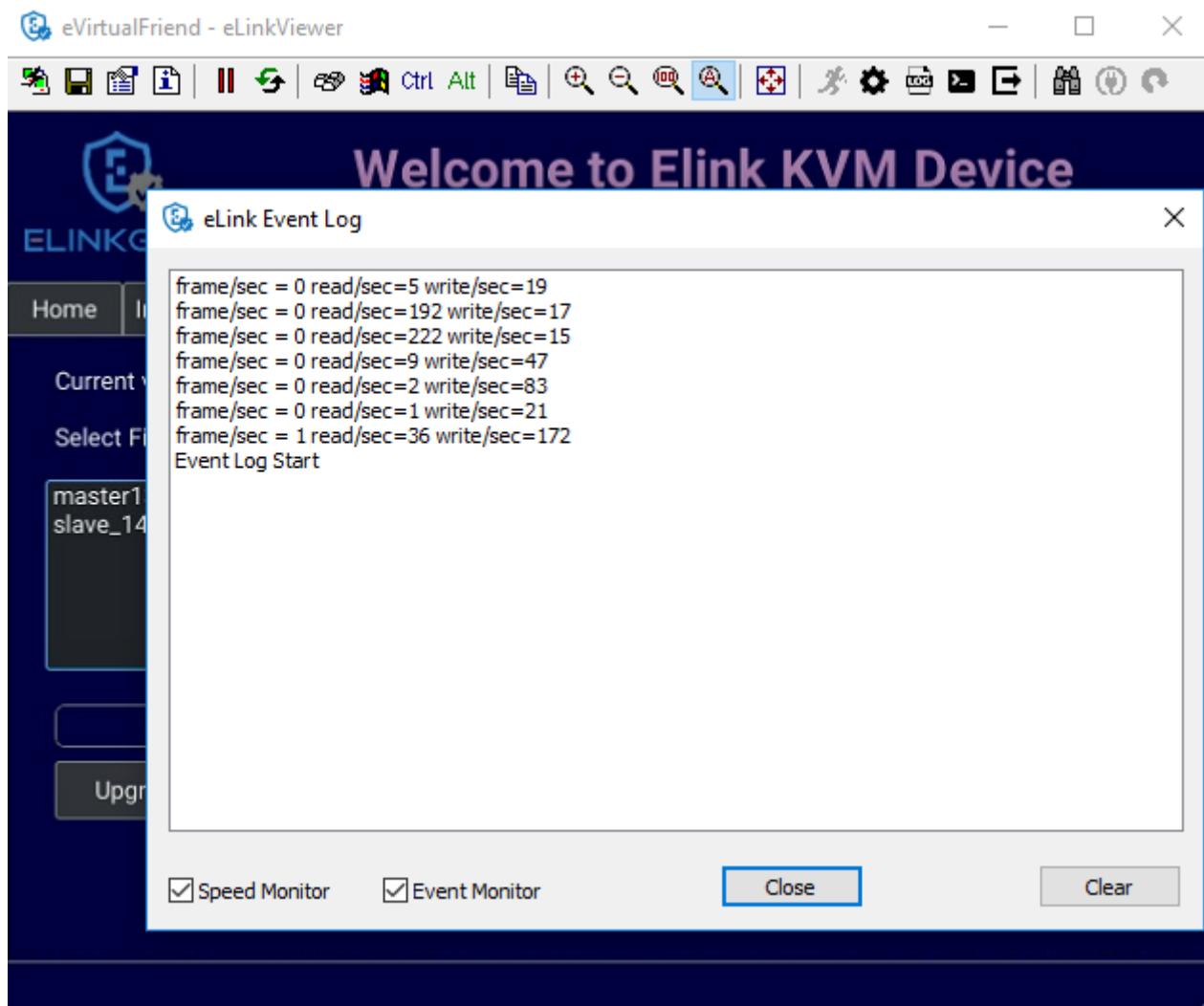


Figure 28. Event Log UI

## File Transfer UI

eLinkViewer allows data transfer from a local PC to an eLinkKVM device with **File Transfer**:

TODO: Add a static version .File Transfer UI  
image::[https://drive.google.com/a/elinkgate.com/uc?id=1GxA\\_1EL\\_1K73yQ5nnnYQ6wVgxPXzgb-Xk\[FileTransferring\]](https://drive.google.com/a/elinkgate.com/uc?id=1GxA_1EL_1K73yQ5nnnYQ6wVgxPXzgb-Xk[FileTransferring])

- Click **File Transfer** on eLinkViewer toolbar . **File Transfer** window appears. To the left is a directory tree of the local PC, to the right is the directory tree of the eLinkKVM device.
- Browse the local directory tree and select a file or directory to upload to an eLinkKVM device. Next, on the directory tree of the eLinkKVM device, select a path to store the file or directory.

- Finally, click the button **>>** to transfer the selected file/directory. A confirm dialog appears. Click **Yes** to confirm or click **No** cancel the action. After confirming the transfer, the transfer starts and a progress bar that displays the transferring process starts running.

## IPMI Command Center

IPMI Interface:

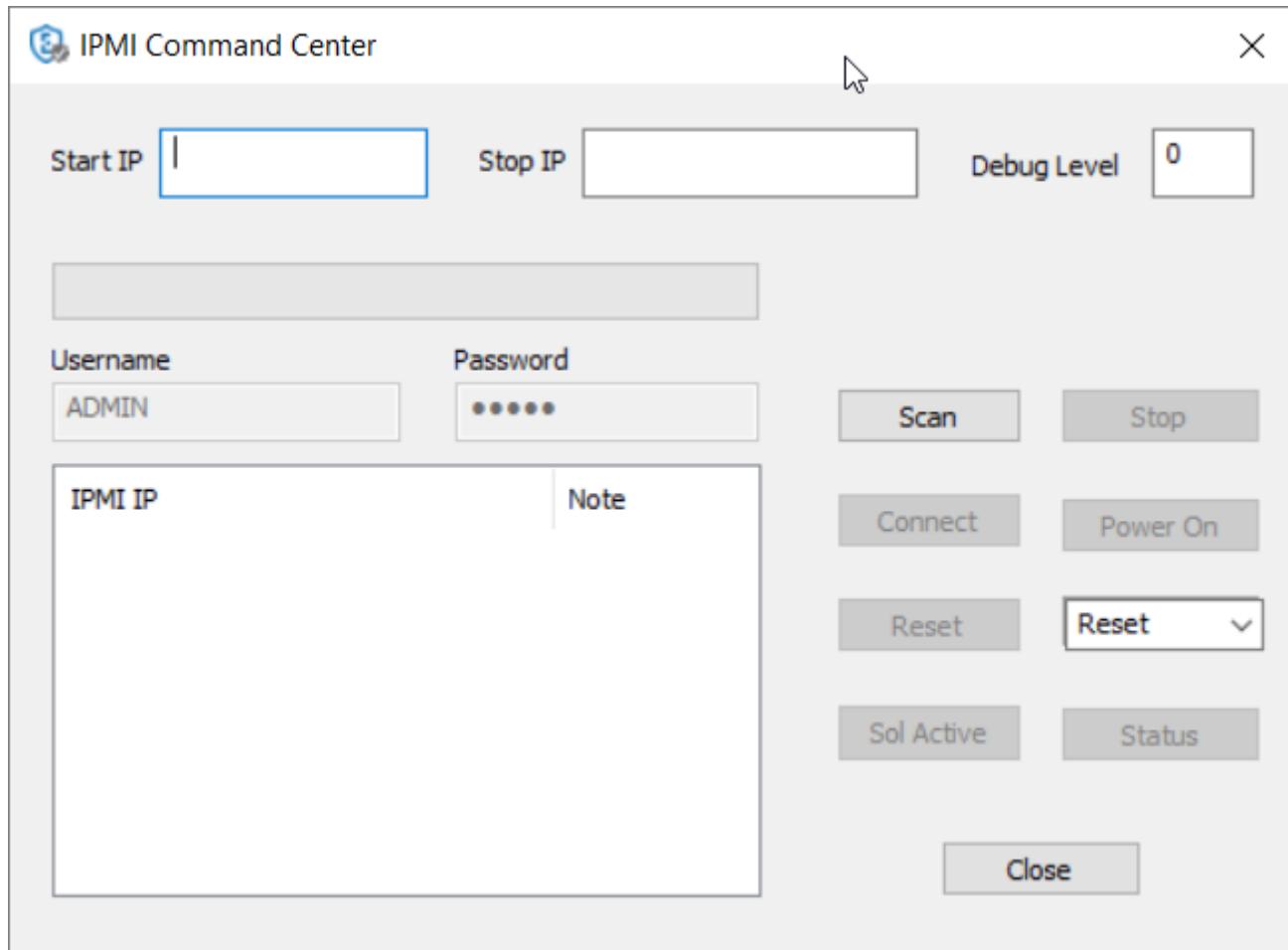


Figure 29. eLinkViewer IPMI Command Center

IPMI command center allows a user to scan servers with IPMI ports in a local area network and connect to these server to run IPMI commands.

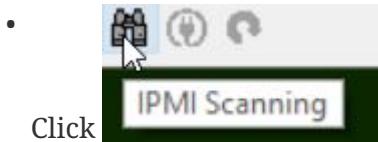
- Start IP:** start IP to begin scanning
- Stop IP:** End IP to end scanning
- User Name - Password:** user name and password for each IPMI server. For example, default username and password are ADMIN/ADMIN for a Super Micro server.
- Scan :** start scanning for an IPMI server
- Stop:** End a current scanning process
- Connect:** connects to an IPMI server. When an IPMI server is found, an IP address is display, click on the IP address to select then enter a Username and Password.
- Power On:** Turn a server on with IPMI
- Reset** with options:

### *IPMI Reset with options*

image:../../../../Resource/elinkviewer\_ipmi\_reset.png[ipmi-reset-options]

- **Reset** : restart a server
- **Reset to Bios Setup**: restart a server and enter BIOS
- **Reset to USB**: restart a server and boot with a USB device
  - **Sol Active**: enable IPMI management with Serial Over Lan (SOL)
  - **Close** : Close IPMI command center

Use IPMI command center to scan and run IPMI commands.



- Enter Start IP and end IP. Limit the ranger of IP scanning.
- Click **Scan** to start scanning. Found IPMI servers are displayed as a list.
- Click on one of the found IPMI IP addresses, enter **Username** and **Password**, then click **Connect**
- Click **Power On**, **Reset**, etc., to run appropriate IPMI commands.

TODO: Add a static version

## **Serial Console**

### **eLinkViewer Image Capture**

To capture the current eLinkViewer screen or a part of it:

- Press the **Pause** button
- After the screen is paused, hold the **Ctrl** button.
- While holding the **Ctrl** button, drag the mouse to select a capture region.

TODO: Add a screenshot

# **Chapter 4: eLinkKVM Configuration**

## **User Management**

## **Network Configuration**

### **Static IP configuration**

Steps to configure static IP for an eLinkKVM device:

1. Power up an eLinkKVM device and wait for the device to start up completely (all LED1 ,

LED2, LED 3 light up).

2. Use a Ethernet (RJ45) cable to connect a PC to the Ethernet Master port. The default IP is **10.0.0.1**.
3. Open eLinkViewer, enter **10.0.0.1** and click **Connect** to connect to the eLinkKVM device:

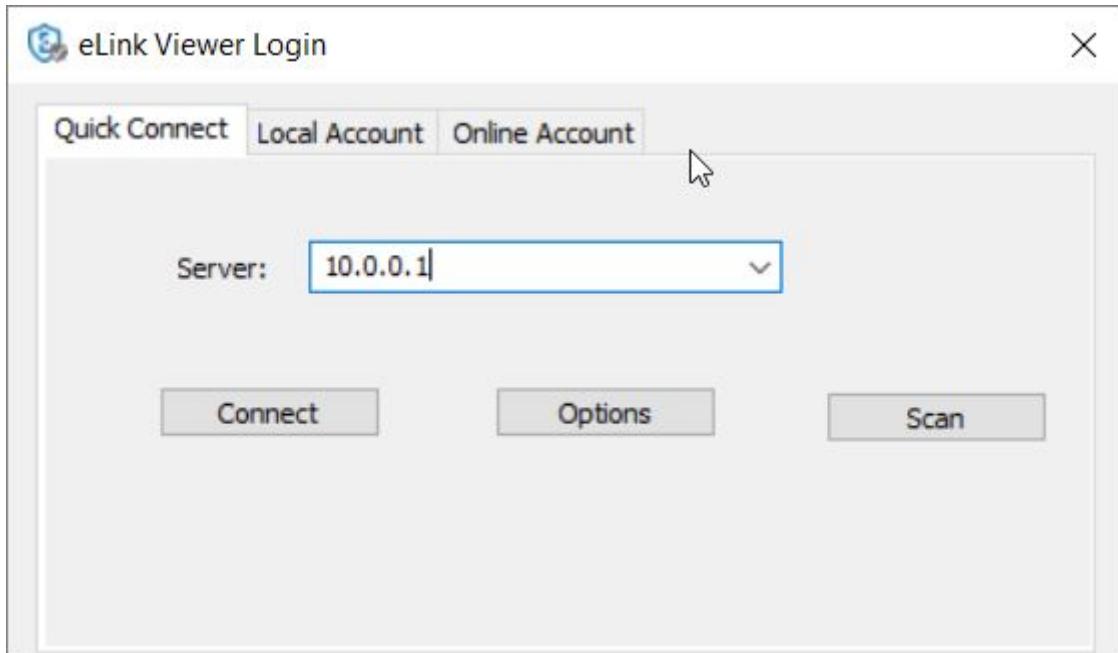
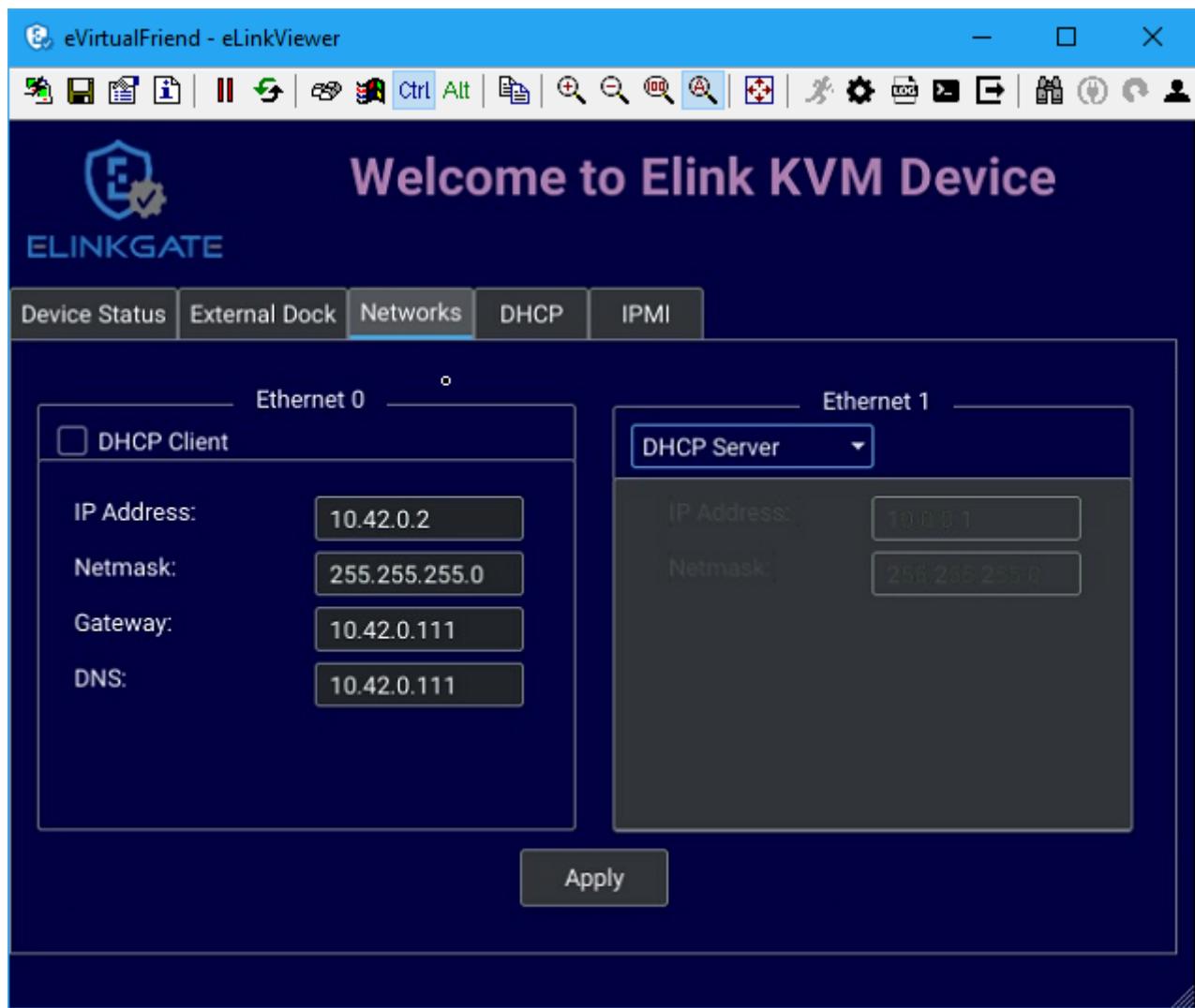


Figure 30. Connect to Master ethernet port

When connected, eLinkViewer displays its home screen with many tabs for different screens. One of the tab is **Network**. Click on **Network** tab to move to this screen:



1. The **Network** screen displays the following fields:

- IP Address
- Netmask
- Gateway
- DNS

Similar to how an ethernet adapter can be configured in an operating system.

**Example:**

Instead of using the default IP address **10.0.0.1**, the IP address of the connected eLinkKVM can be changed to **10.0.0.2**.

```
Ip address: 10.42.0.2
Netmask:    255.255.255.0
GateWay:   10.42.0.1
DNS:      10.42.0.1
```

TODO: Add a static version

TODO: Add a static version

## Dynamic IP Configuration

Dynamic IP address is acquired automatically, issued by a DHCP server. In this case, the connected eLinkKVM device must be configured as a DHCP client.

[TODO] Put a screenshot showing how to select DHCP Client

## IPMI Configuration

### Offline Configuration

eLinkKVM supports configuration with a text file. Steps:

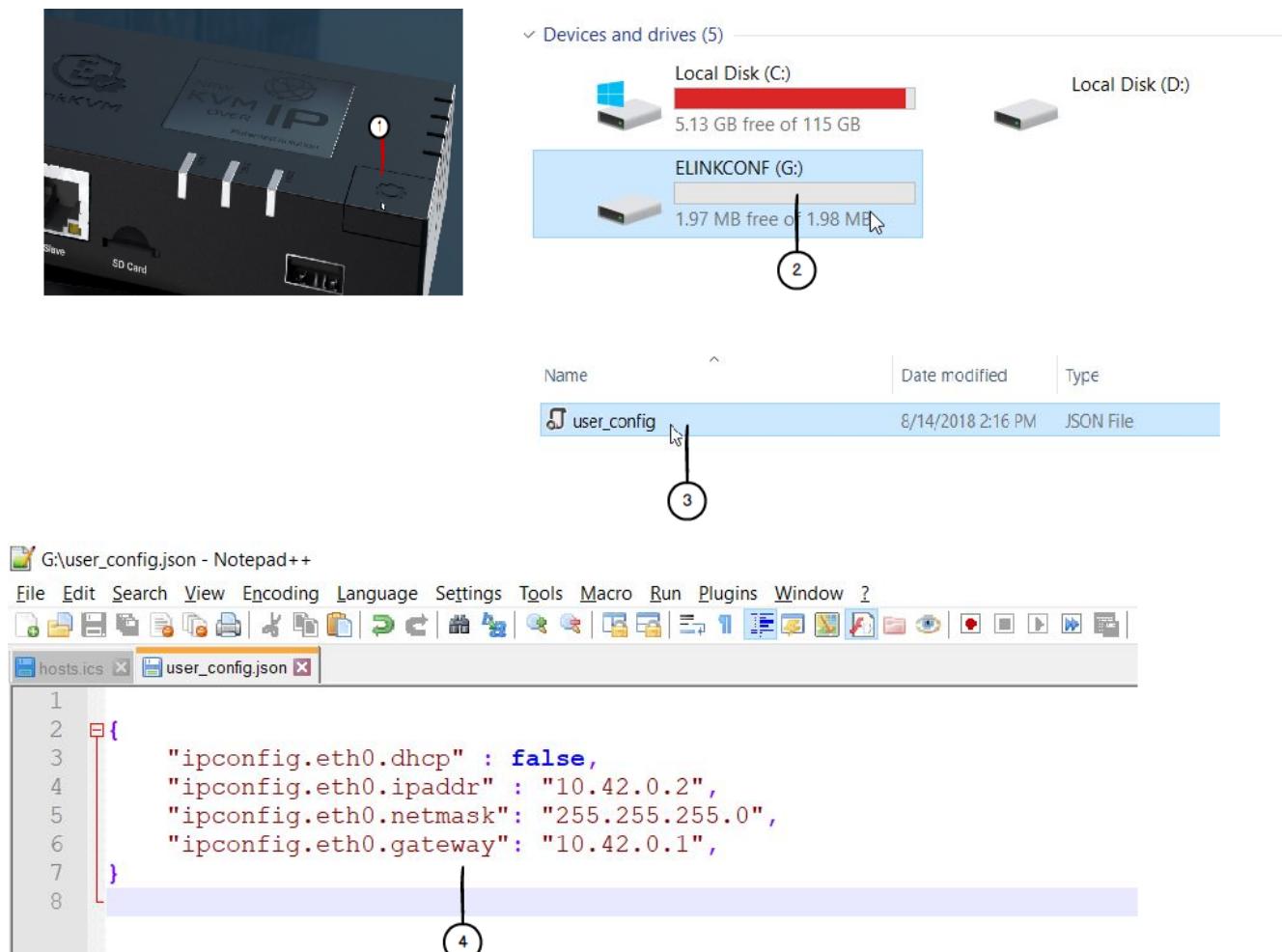


Figure 31. Configure eLinkKVM with a text file

1. Press **Enter Configuration** button an eLinkKVM device. The firmware on the eLinkKVM device then configures itself as a storage device.
2. Open the drive **ELINKCONF**.
3. In **ELINKCONF** drive, there is a configuration file that can be edited by any text editor.
4. Edit the file following eLinkKVM configuration syntax. Store the file and reset eLinkKVM to use the new configuration.

TODO: Add a static version

TODO Factory Reset

## Chapter 5: Booster Mode

Booster is a patented technology for eLinkKVM and related ElinkGate products. Booster includes software agents for each major OS platform (Windows, Linux and Mac OS) that are installed on controlled computers. When an eLinkKVM device is attached to a controlled computer, the installed software agent is activated to cooperate with a eLinkKVM device using a specialized proprietary protocol. The software agent then utilizes the available computing resources on the remote host to greatly accelerate video input and output processing. As a result, eLinkKVM can deliver higher performance at higher resolutions for an extremely economical price.

To enable Booster technology, a user only needs to install the accompanied software components on an existing operating-system installation. For a fresh computer that need a new operating-system installation, a tool called `elinkSetupTool` is provided to help creating install disk images with embedded Booster from existing installation ISO files, which is covered in the next chapter.

These disk images can be loaded on eLinkKVM internal storage for remote operating-system installations on new computers with Booster enabled through the whole installation process. After the installation process is done, the freshly installed operating system is also pre-installed with Booster software to allow a user to continue using Booster without any interruption.

*Figure 32. Booster operating scope*

Once a Booster agent is installed on a respective operating system, simply click the **Booster** icon to start getting remote screen with Booster.

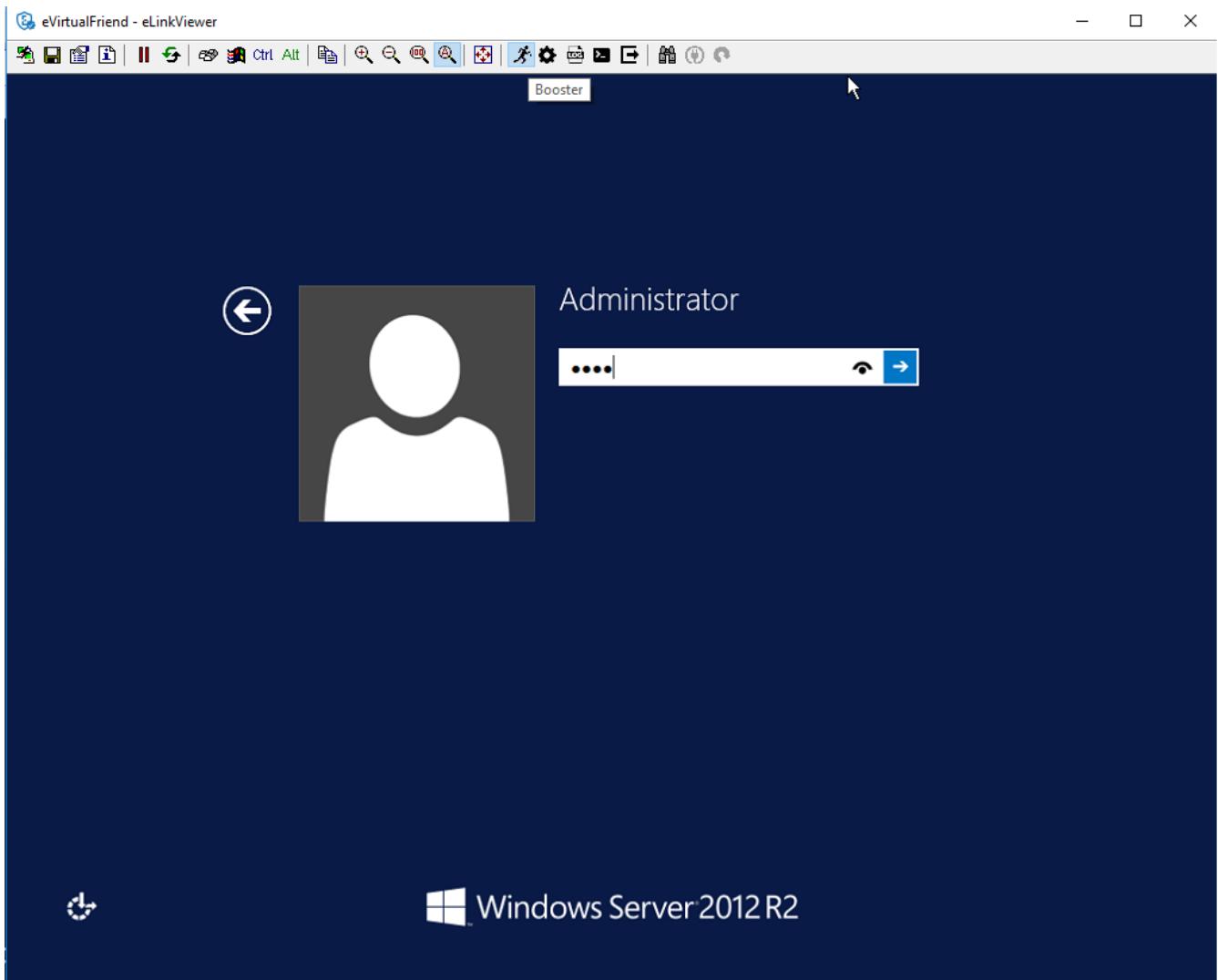


Figure 33. Booster enabled

Screen quality may improve slightly or significantly compared to VGA hardware mode, depends on the quality of the VGA cable. Remote keyboard and mouse interactions become much more responsive.

## Booster Configuration

To make it convenient to switch between Booster and other modes, eLinkViewer allows a user to customize Auto Booster Toggle button. Pressing this button allows a user to switch between a pre-configured Booster mode and the current mode.

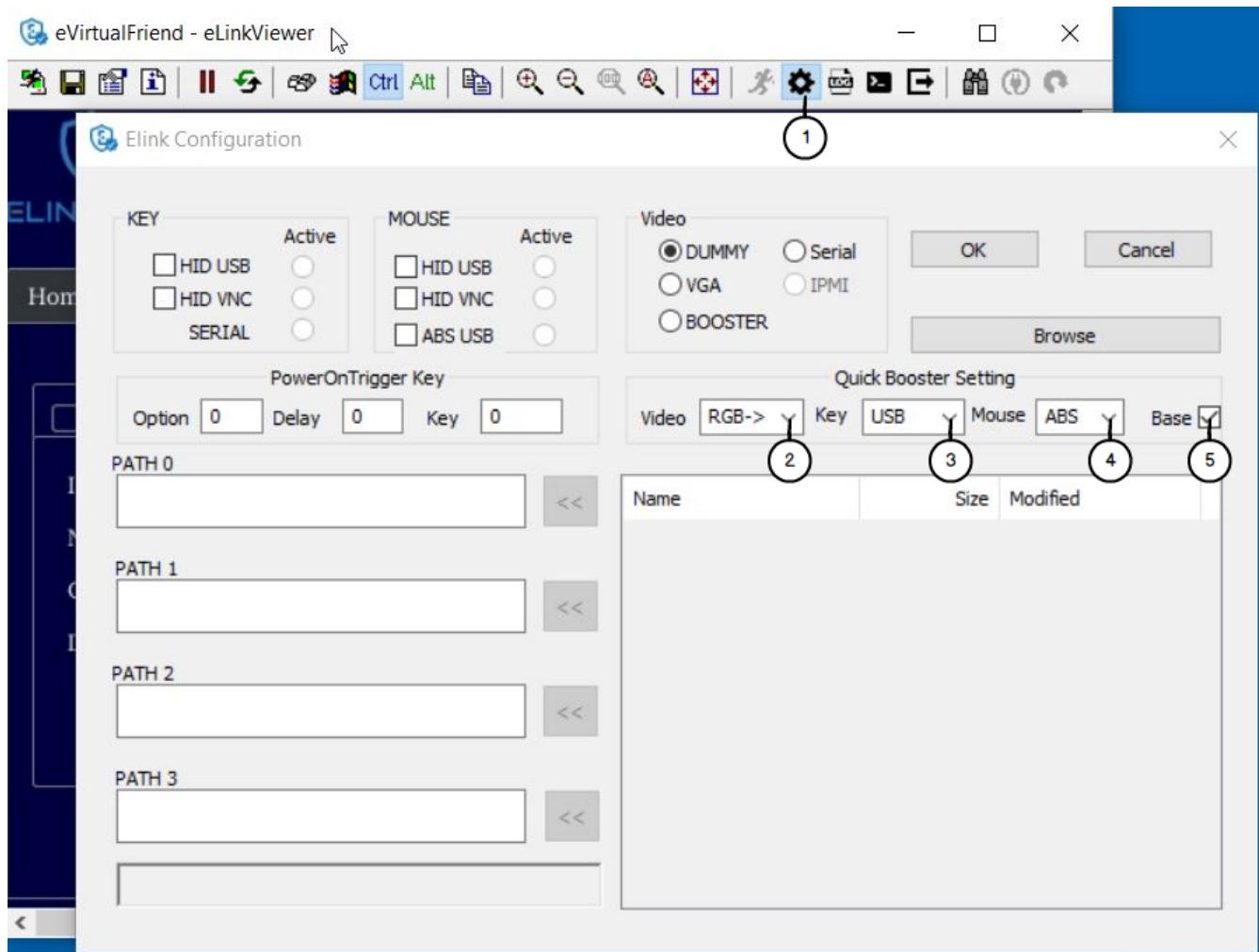


Figure 34. Booster Configuration UI

Steps to configure Booster mode:

1. Click **ELink Configuration** button.
2. From **Elink Configuration** select a remote display mode.
3. Similarly, select a Key mode
4. Next, select a Mouse mode
5. Select **Base** to confirm configuration. This configuration is used whenever **Auto Booster Mode** button is clicked.
6. Press OK to save the configuration.
7. Press OK to confirm.

TODO: Add a static version

## Booster for Windows

Follow these steps to install and use Booster on Windows:

- Logged into the computer to be a remote host.
- Download [setup\\_elinkagent.exe](#) on the website.

- Click the exe file, follow the installer instructions to install the agent.
- After the installation, run `eLinkServer.exe` to enable **Booster** on the remote host.
- On the remote terminal, connect the remmote host with `eLinkViewer`.
- Click `Elink Configuration → Browse` then select `A:\floppy.hdd2`.
- Clicking **Booster** to activate remote with Booster.

## Booster for Linux

Follow these steps to install and use Booster on Linu:

- Logged into the computer to be a remote host.
- Download setup package for a distro, e.g. `.deb` for Ubuntu, `.rpm` for Fedora.
- Install the packages.
- On Ubuntu: `sudo apt-get install elinkagent.deb`
- On Feodra: `sudo apt-get install elinkagent.rpm`
- After the installation, run `eLinkServer` to enable **Booster** on the remote host.
- On the remote terminal, connect the remmote host with `eLinkViewer`.
- Click `Elink Configuration → Browse` then select `A:\floppy.hdd2`.
- Clicking **Booster** to activate remote with Booster.

## Booster for UEFI

By default, when installing the setup packages for an appropriate operating system, Booster is also installed for UEFI bootloader. Whenever an operating system enters a non-graphical environment in UEFI, Booster can be used without any restriction.

## Embed Booster into operating system setup images with eLinkSetupTool

**Booster** can run in a setup environment of an operating system when it is being installed on a computer. To use this feature, the setup disk images must be recreated with an appropriate **Booster** agent embedded, using `eLinkSetupTool`, a disk creation image tool. **Booster** is enabled as soon as the setup image is loaded by the remote host computer.

### eLinkSetupTool instalation

#### On Windows

- Download `setupTool.exe`.
- Click the installer and follows the instructions.

#### On Ubuntu

- Download `setuptool.deb`.
- Install it:

```
sudo apt-get install setuptool.deb
```

## On Fedora

- Download `setuptool.rpm`:

```
sudo dnf install setuptool.rpm
```

After the installation, `vfimg` command should be available globally to be used in a terminal program, e.g. `cmd.exe` on Windows.

TODO: the setup files is above, e.g. `setuptool.exe` should be clickable to download

# eLinkSetupTool usage

## Create OS setup image

To create a new disk image, simply run the following command:

```
vfimg /create-image Win2012.hdd2 /iso Win2012.iso
```

The command produces the following output:

```
Initializing environment...Done.
Start Analyzing image...Found a Windows 2012 ISO. Done
Format HDD image to FAT32...Done.
Generate elinkme_dummy.dat...Done.
Copy files from ISO to HDD...Done.
Installing vfservice to boot.wim...Done.
Installing vfservice to UEFI...Done.
Generate Embedded Hddx at the end of HDD file...Done
```

The above command creates a new image `Win2012.hdd2` with Booster agent embedded from the original Windows setup image `Win2012.iso`. Once the new image is created, upload it to eLinkKVM with **File Transfer**. To use the new image::

- Click **Elink Configuration** → **Browse**.
- Browse to the uploaded `Win2012.hdd2` and select it.
- `Win2012.hdd2` is now exposed to the remote host computer as a USB drive and is selectable as a boot device in the BIOS.

## Create a minimal floppy image

eLinkKVM is already bundled with the minimal image `floppy.hdd2` in its internal storage that can be mounted as a floppy disk drive. For some reason, if the disk is deleted, a user can recreate and reupload the image. To create the floppy image, run the following command:

```
vfimg /make-floppy floppy.hdd2  
....
```

## Install UEFI Booster agent to an existing disk image

Aside from OS setup images, there are disk images that contain troubleshooting tools running in the UEFI environment. To create new images with UEFI Booster agent, run the following command:

```
vfimg /install-uefi img.hdd2
```

## Display version information:

To show the current setup tool version, run the following command:

```
vfimg /version
```

# Chapter 6: Multi user manager

## Multiple User

- Support up to 8 devices
- multiple role :
- Admin : Data center admin account. Can create other lower priority account types like Manager and User
- Manager: User manager account. Can create User account
- User: Access account

[EV multiple user] | ../../Resource/EV\_multiple\_user.png

**NOTE**

For the first time configure, the default user name and password of ELinkKVM is **admin/admin** click to icon User Configure below to open User Account Configuration

*Create new account by click to blank field, enter password and select*

*the rule for the new account image::D:\Project\elinkgate\_doc\Resource\EV\_UM.ico.[image]*

*[image] | ../../Resource/EV\_UM\_Dialog.png*

*Figure 35. Create new account*

**TODO add animation for Create new user by elinkviewer**