45HomeLab
A Division of 45Drives

X15 - STORAGE SERVER

USER MANUAL

REVISION DETAILS

Revision	Description of Changes
1.0	Initial publication.
1.1	IO Shield Update

Contents

GETTING STARTED

Welcome to the 45HomeLab community. We are so glad you've chosen us!

ABOUT US

Serving our customers well is at the core of everything we do at 45HomeLab. In an industry where technical support is strictly timed, automated and impersonal we are real people solving real storage problems. Our storage solutions are non-proprietary, giving you the freedom to run any software you choose.

 OUR GOAL

Provide you with the best storage solution for your data needs - not the most expensive one. Today we provide the most affordable storage solutions in the industry.

 OUR MISSION

To provide affordable open-source storage solutions while staying true to our community roots by giving back to the open-source community that we rely on.

 OPEN DESIGN

Unlike mainstream data storage providers 45HomeLab maintains an open design and ongoing relationships with the open-source community.

WHY 45HOMELAB X15

At 45HomeLab we know home labbers have a strong vision of the infrastructure they want, and how to build and configure it. A key pillar of a great home lab, is a sufficient storage that is customized and configured how you need it.

The problem is home storage offerings today are under powered and have locked down software, while enterprise solutions are just too big and expensive. We understand how frustrating this is, which is why we've created the 45HomeLab product line. It is big, strong, fast, while also being open and flexible so you can easily modify, upgrade, and repair it, all at a price that makes sense for a power home lab user.

Our new X15 is a 15-bay server that was designed to provide the power and storage needed for a great home lab.

HARDWARE

COMPONENTS AND SPECIFICATIONS

Chassis Dimensions (LxWxH): 20" x 17" x 7"

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Below are the components that will be in your X15 if you have not requested for any modification in the order the below components will be present by default. Your CPU, motherboard, RAM, Boot drives etc. could change based on your customization.

ID	Component	Model - Specs
1	Backplane	45Drives 15HDD Backplane
2	Boot Drive(s)	Kingston 1TB NV3 Gen 4x4 NVMe M.2
3	Data Cables	miniSASHD 0.6m
4	Chassis	45Homelab HL15 Chassis
5	CPU	Intel i7-14700
6	HBA Card	LSI 9400-16i 4-port 12G
7	Case Fans	Arctic P12 Pro PST
8	CPU Heatsink	Thermalright Peerless Assassin 120 Mini Black
9	Motherboard	Gigabyte MW34-SP0 (Rev. 1.1)
10	Power Supply	Corsair RM1000x 1000W PSU
11	Network Card	Intel X550T2 10Gbe
12	RAM	8GB DDR4-3200 ECC UDIMM
13	RAM	16GB DDR4-3200 ECC UDIMM
14	RAM	32GB DDR4-3200 ECC UDIMM

INITIAL SETUP

UNBOXING THE X15

- Once you receive your new unit from shipping, inspect the box and make sure there isn't any shipping damage.

- Put on protective gloves if needed and use a box cutter to open it.

- Once the box is open you can remove the top foam and take the unit out of the box.

- Inside we can find another smaller box containing the accessories purchased with the server along with some paper documents.

- Lay the new unit on a flat surface like a table and make one more inspection to be sure everything is in order. Lift the unit out of the box by the left and right side. Having a second person may help.

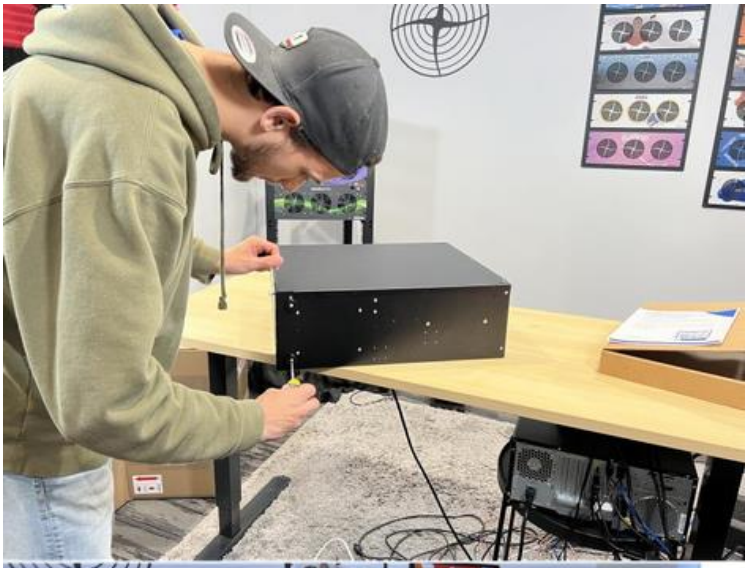
- Loosen the two thumb-screws at the front of the chassis and remove the top cover.

- Carefully remove the foam bags that surround the CPU heatsink.

- Replace the top cover and secure it with the thumb-screws. Unboxing is complete!

- After the unboxing is complete you can move on to either racking the unit or placing the unit in its final destination with the provided rubber feet.

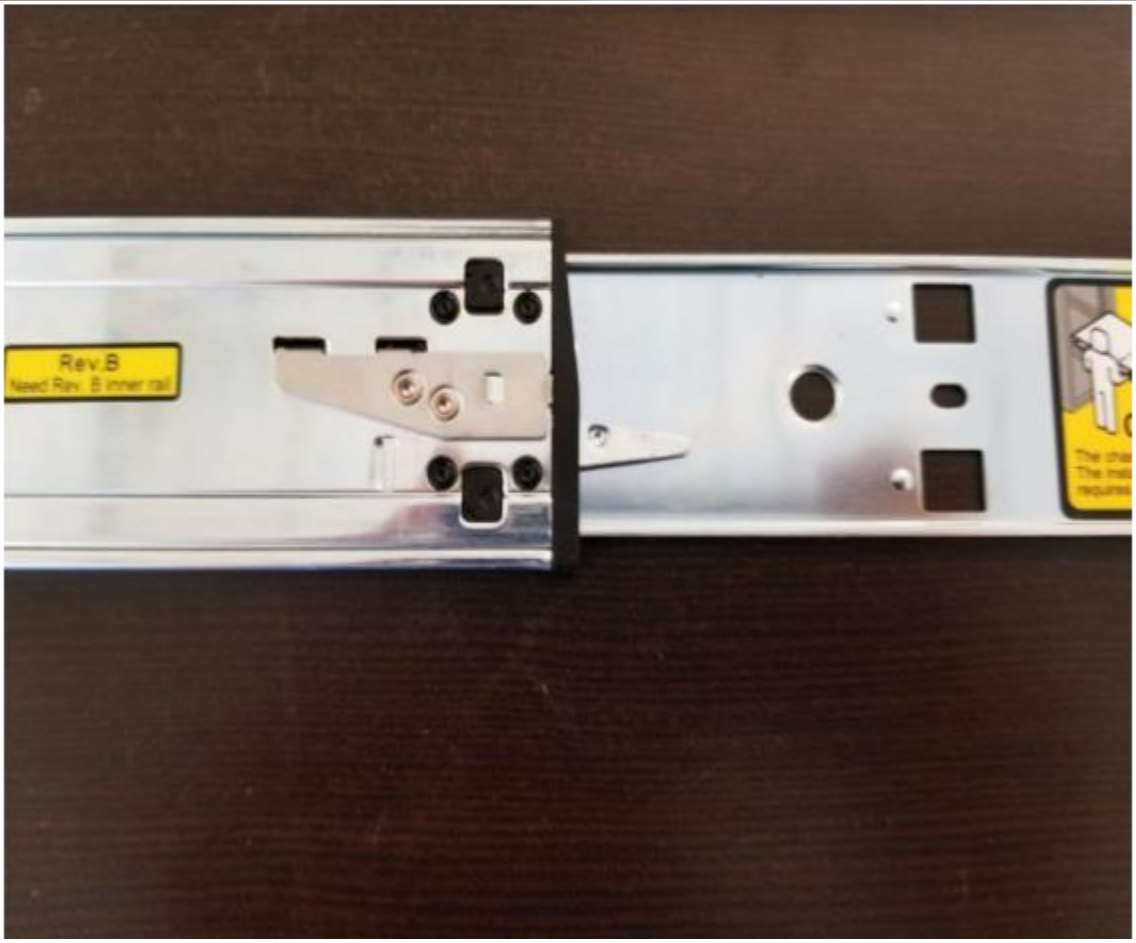
- The Rubber feet can be screwed into the base of the system for desktop placement.



RACKING THE X15

Note: Do not install the storage hard-drives before racking your new unit.

- If you purchased rails with your new 45HomeLab unit or have supplied your own, you will be able to attach them to the sides of the unit.
- Unbox the rails and disconnect the part that attaches to the unit. There should be a latch on the rail that allows the easy disconnection.



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- Locate the screws inside the included rail mount kit and screw the rails onto each side of the unit.

- The rails only go one way so make sure you put them in correctly. The rails should have indicators on them to show which side and which side is up.

- Screw the screws back in their respective places, holding the rail as you do this. (It may be easier if one person holds the rail and a second person screws them in.)

- Once the rails are attached to the side of the unit, you can install the other piece of the rail into the rack. Once again there are indicators showing which way needs to be up and which side is which.

- After both parts are installed, it is now time to connect them you have to align the sides perfectly.
- Extend the rails on the rack to full length.

- Pick up the unit with another person and align the sides of the rails on the rack with the sides of the 45HomeLab unit. Make sure that the rails are on securely or the unit may fall.
- Slide the unit onto the rails until you hear a click. You will then need to flip the latch to fully move the unit into the rack.

- Now let’s attach the rack ears with the provided hardware.

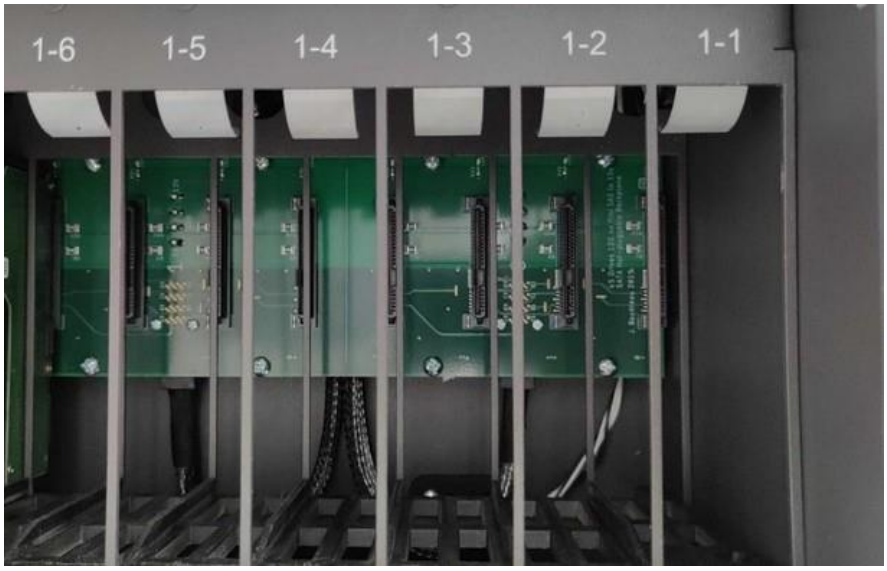
- Your server is now racked!

s

- After the unit is racked the next step is to Insert the Storage Drives

INSERTING THE STORAGE DRIVES

- Once your unit is racked or in its final destination you can now start installing the storage drives.
- It is best practice to install the drives from starting from index 1-1 and sequentially incrementing in order.



- The drive should fit snugly into a slot. Make sure the back of the drive is facing the right when placing in the slot

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- After all the drives are inserted into the slots, you can close up the unit and move on to hooking up the needed cables to your unit.

CABLE SETUP

At this point, you should have the unit unboxed, racked, and storage drives installed. The next step is to connect the cables needed to connect and configure the unit.

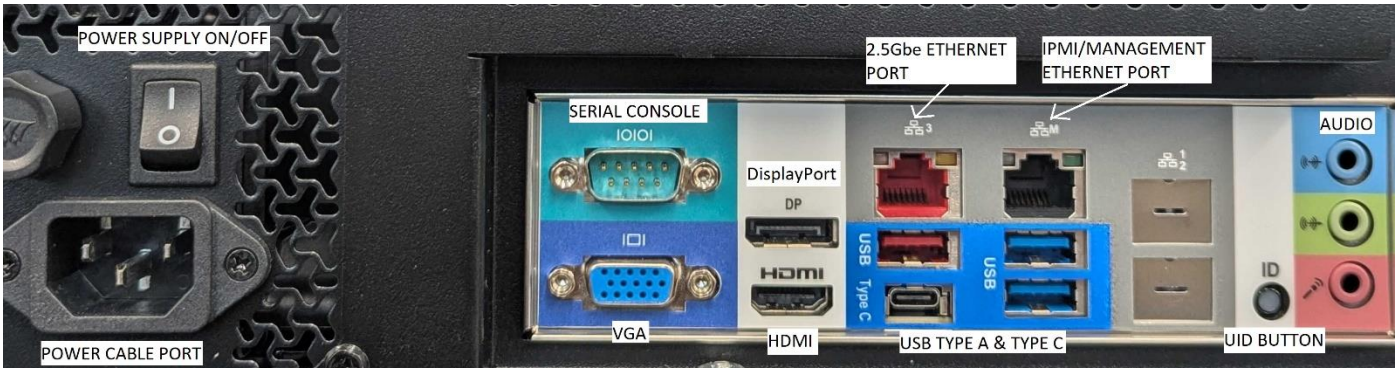


Fig: Rear Panel slots

No	Component
1	Serial Console
2	VGA Output
3	DisplayPort Output
4	HDMI Output
5	2.5Gbe LAN
6	
7	3 x USB 3.2 Type A & 1 x USB 3.2 Type C
8	IPMI/Management LAN
9	UID Button
10	AUDIO

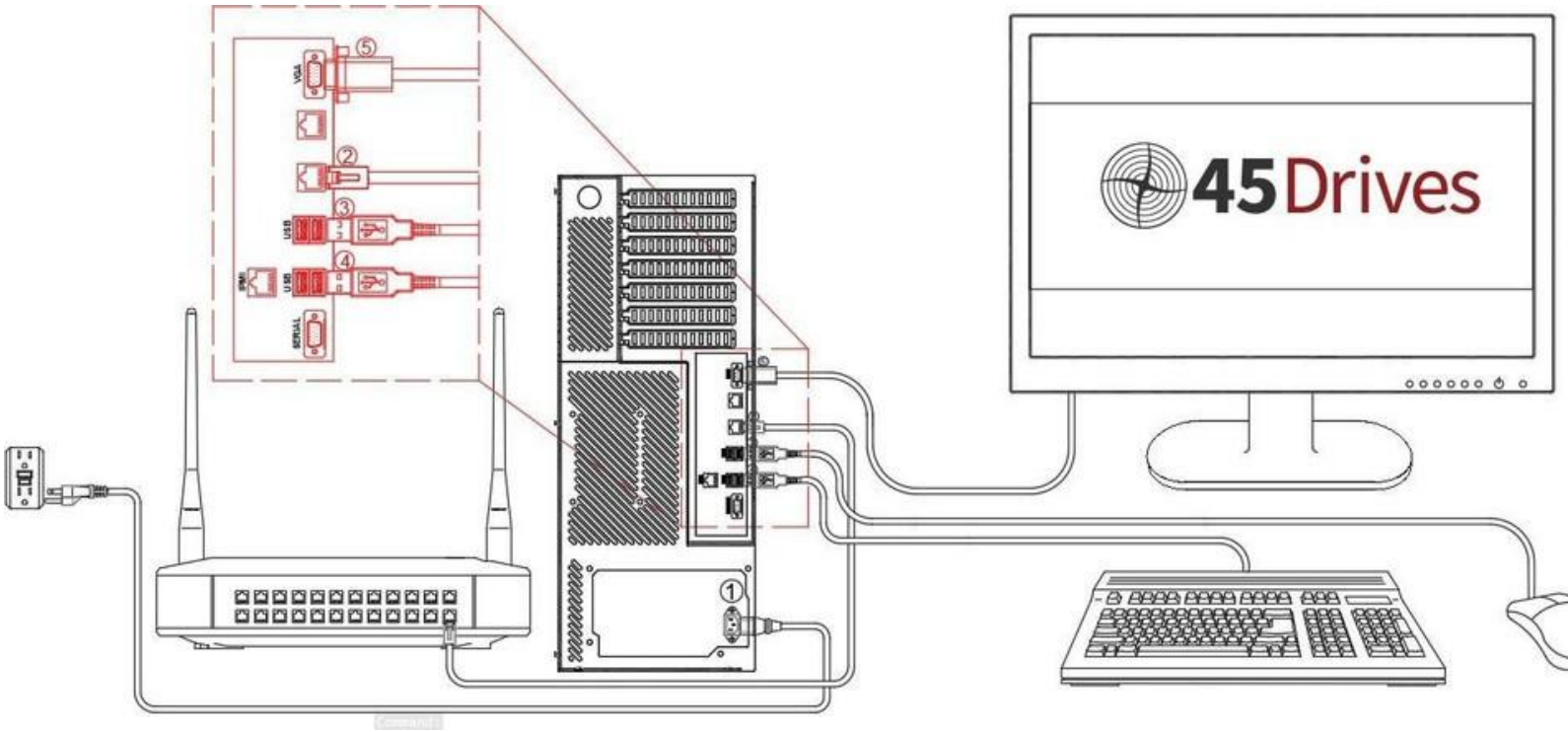
Table: Rear Panel Slot Details

- For the initial connection to your unit, you will need to connect an ethernet cable from your router or switch to the 2.5Gbe ethernet port on the back of the unit.
- A VGA monitor will also be connected initially so you can see the Unraid OS IP address in the bottom left-hand corner of the screen when the unit fully boots up. You can connect the monitor to the VGA port. You may alternatively use an HDMI or DP cable to connect a monitor. **If you use HDMI/DP, IPMI remote KVM will be feature disabled.**
- If you want to configure the unit locally, a USB keyboard will also be beneficial. You can use any of the USB slots in fig above.
- The last step would be to plug in the power cable to the power supply.
- After that you can turn on the power switch and the press the round blue power button at the back of the server to turn it on.

Power requirements

- The PSU we provide with the appropriate options is a Corsair RM1000x
- If you are sourcing your own power supply, you can use this as a minimum guideline. It is especially important to ensure you have at least 20A of 5v power.
- In addition, if you plan on using a graphics card, or anything that will increase power draw, you may require a more powerful supply.
- Corsair Modular ATX Power Supplies are guaranteed to fit

45HOMELAB X15 INITIAL CABLING SETUP DIAGRAM



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INITIAL CONFIGURATION /SETUP

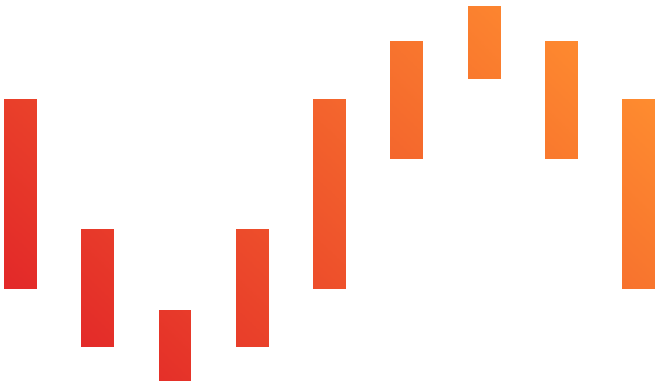
Now you have your X15 all powered up and ready to be configured. Before we proceed you need to have completed the steps below:

1. The power cable has been connected.
2. The 2.5Gbe Ethernet port is connected.
3. A monitor is to connected to take a note of the Unraid OS IP address.
4. A keyboard (and mouse) is connected for user input.
5. Server is powered on.

The Unraid OS should be reachable at the IP address shown on the login screen. Enter that IP address into the address bar of your web browser. You should be presented with a login screen. If you see a 169.254.xxx.xxx IP address, that means the server could not retrieve an IP from the router/switch. Check your network cables and reboot.

Visit the Official Unraid Docs webpage for steps on configuring the Unraid Operating System, and for activating the license included with your 45Homelab X15 server.

https://docs.unraid.net/unraid-os/getting-started/set-up-unraid/complete-your-post-setup-essentials/



OUT-OF-BAND MANAGEMENT (IPMI)

This is just an optional feature, IPMI is not required for the regular use of the system. IPMI would help you with remote monitoring. You can skip this step if you prefer.

IPMI or Intelligent Platform Management Interface is an open, industry-standard interface that was designed for the management of server systems over network. It enables you to monitor and control your server platform, as well as to retrieve information about your server platform is a standard. It supports FRU inventory reporting, system monitoring, logging of system events, system recovery (system reset or power off) or alerting.

- Turn on the server by pressing the power button at the back panel.
- Once the server starts booting up the IPMI IP address will be shown during bootup in the bottom left-hand corner.

Fig – Finding IPMI/BMC IP

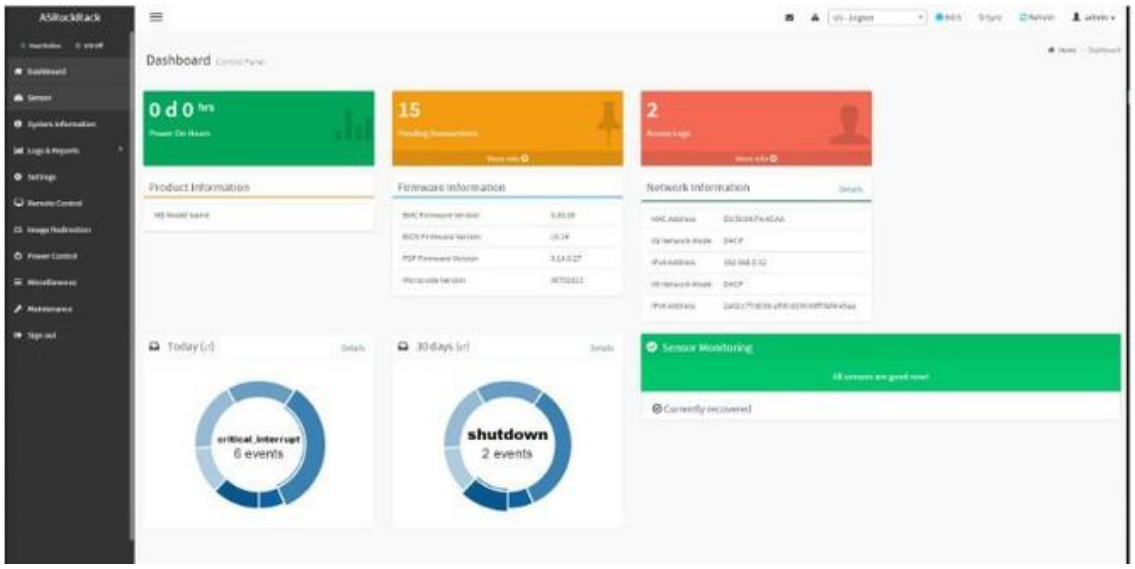
- Once you have recorded the IPMI IP you can visit the same IP in a web browser on a PC or laptop.
- You need to open the browser and type https://BMCIP to access the IPMI interface
- The login credentials are **admin** and a unique motherboard password. This password is on a sticker on the CPU heatsink.

username - admin
password - SEE STICKER ON HEATSINK

Fig-IPMI log screen

- This password is on a sticker on the CPU heatsink.

- Pictured below is the IPMI overview screen



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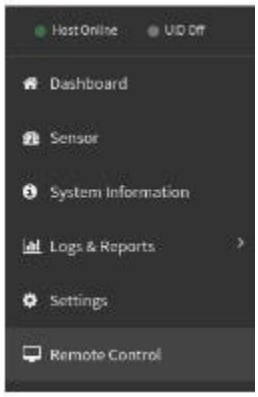
- Once you click on a Launch, a new window will be open. You click “launch H5Viewer” to open the remote console in a new window using the HTL5 interface. If you prefer the Java interface, click “Launch Jviewer

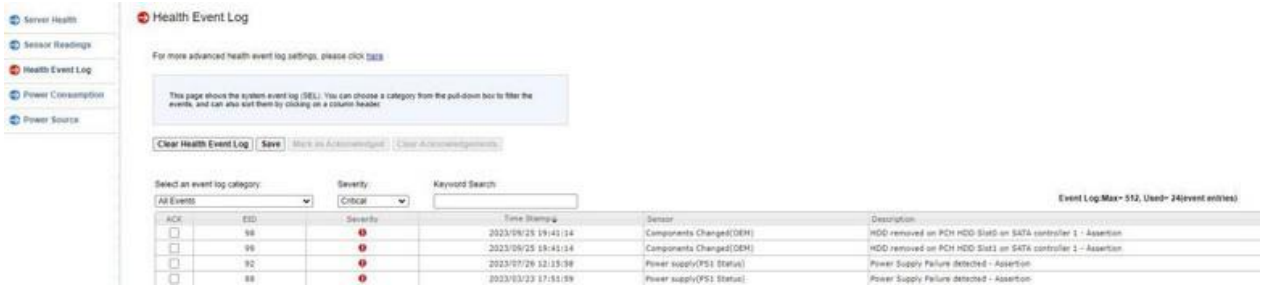


- Once you click on a Launch, a new window will be open. You click “launch H5Viewer” to open the remote console in a new window using the HTL5 interface. If you prefer the Java interface, click “Launch Jviewer” instead.

- Once you click on a Launch, a new window will be open.
- Here you can login to the desktop using your login user accoun

SERVER WONT POWER ON

- Try powering the server using the switch
- Check if you are seeing lights on the motherboard and the PSU
- Check if the fans are spinning
- Also check the health event logs.



- If you are not getting any video output it is most likely a motherboard issue or a CPU issue.
- Replace the faulty component and you should be able to power up the server.

SYSTEM WILL NOT BOOT INTO THE OS

- If the system is stuck in boot loop try accessing the server using the IPMI web UI.
- Try to go the boot menu by pressing F10 during the reboot.
- Once you are in the boot menu try manually select the boot drive and boot into it. If
- that works check if the boot order is set properly.
- Press Delete key to go to BIOS and check the boot order.