



# Avocent® IP SL IP Serial Device

Installer/User Guide

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### **Technical Support Site**

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/en-us/support/> for additional assistance.

# TABLE OF CONTENTS

<b>1 Getting Started</b> .....	<b>1</b>
1.1 Product Overview .....	1
1.2 Features and Benefits .....	3
1.3 Installation and Initial Setup .....	3
<b>2 Web User Interface (UI)</b> .....	<b>5</b>
2.1 Account Settings .....	6
2.2 Dashboard .....	7
2.3 Logs .....	7
2.4 Sessions .....	7
2.4.1 Serial management .....	7
2.5 Configuration .....	8
2.5.1 Registration .....	8
2.5.2 Network .....	9
2.5.3 Serial interfaces .....	9
2.5.4 User management .....	10
2.5.5 Services .....	10
2.5.6 Date and time .....	10
2.5.7 System settings .....	10
2.5.8 Certificate .....	11
2.5.9 Troubleshooting .....	11
2.5.10 Remote syslog .....	12
2.5.11 Remote authentication .....	12
2.6 Firmware .....	13
2.6.1 Firmware management .....	13
2.6.2 Firmware inventory .....	14
2.7 Media .....	14
2.7.1 Remote media .....	14
2.7.2 Virtual media .....	14
<b>Appendices</b> .....	<b>17</b>
Appendix A: Technical Specifications .....	17

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# 1 Getting Started

## 1.1 Product Overview

In today's edge market, as the footprint of compute, network and storage devices continues to increase, there is a growing need for remote access to IT devices. The Avocent IPSL IP serial device provides an innovative serial IP solution for simplifying remote access and troubleshooting IT devices while seamlessly scaling from edge to enterprise.

Figure 1.1 Avocent IPSL IP Serial Device Descriptions

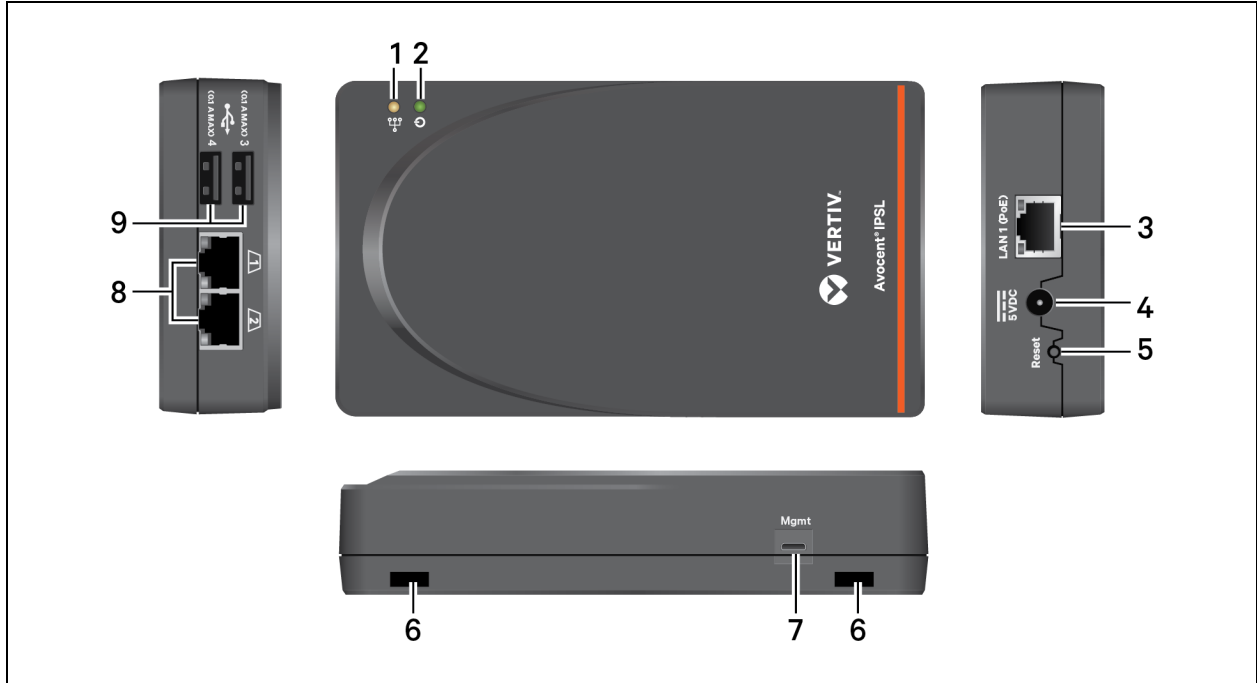


Table 1.1 Avocent IPSL IP Serial Device Descriptions

Item	Description	Item	Description
1	Activity indicator	6	Holes to secure the device
2	Power indicator	7	Mgmt port for Micro USB
3	LAN1 (PoE+) port	8	RJ45 ports
4	Power input	9	USB Type A ports
5	Reset button		

The Avocent IP SL IP serial device has LED indicators for both power and activity. The following table defines the indicators.

**Table 1.2 LED Indicator Descriptions**

Indicator	Description
<b>Power LED</b>	
Blinking red	The serial device is booting.
Solid red	The device is fully booted and is now accessible.
<b>Activity LED</b>	
Off	No activity detected.
Solid green	Any session type is active.
Blinking blue	Locator function has been activated, either locally or remote.



**CAUTION:** When performing a firmware update or factory reset for the serial device, both the power and activity LED's blink red. Do not remove the serial device during this time or else the firmware will become corrupted.

The Avocent IP SL IP serial device also has a Reset button that enables you to reset the device or activate the device's locator function. Choose from the following options to utilize this button:

- To activate the locator mode, press and hold the Reset button for less than two seconds. Repeat this process to deactivate the locator mode.
- To reboot the device, press and hold the Reset button for two to eight seconds.
- To perform a factory reset, press and hold the Reset button for more than eight seconds. This erases all settings and configuration information on the IP serial device.

For more information about RJ-45 pin out of Avocent IP SL IP serial device, refer to the following table.

**Table 1.3 RJ-45 Pin Out**

RJ45 Pin	Avocent	Cisco
1	RTS	CTS
2	DTR	DCD/DSR
3	TXD	RXD
4	GND	GND
5	CTS	NC
6	RXD	TXD
7	DCD/DSR	DTR
8	NC	RTS

## 1.2 Features and Benefits

The Avocent IP SL IP serial device provides the following benefits for your data center:

- Secure remote serial access to IT devices to quickly troubleshoot problems without being physically present.
- Simultaneous management of up to four serial devices.
- Reduced power costs and simplified cabling by leveraging Power over Ethernet (PoE).
- Ability to work as a standalone serial device or as part of an integrated Vertiv™ Avocent® DSView™ Solution.
- Centralization and protection for your expensive IT equipment on-site while permitting remote access.
- Quick location of your Avocent IP SL IP serial device via LED lights.
- Remote firmware updates of your IT devices.

## 1.3 Installation and Initial Setup

For installation and initial network configuration instructions, see the Vertiv™ Avocent® IP SL IP Serial Device Quick Installation Guide provided with your device. For any additional product documentation or product-related links, visit the [Vertiv™ Avocent® IP SL Serial Device](#) product page and select the *Documents & Downloads* tab.

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## 2 Web User Interface (UI)

Once you have connected the Avocent IP SL IP serial device to a network and configured its IP address, you can directly access the serial device via its web UI.

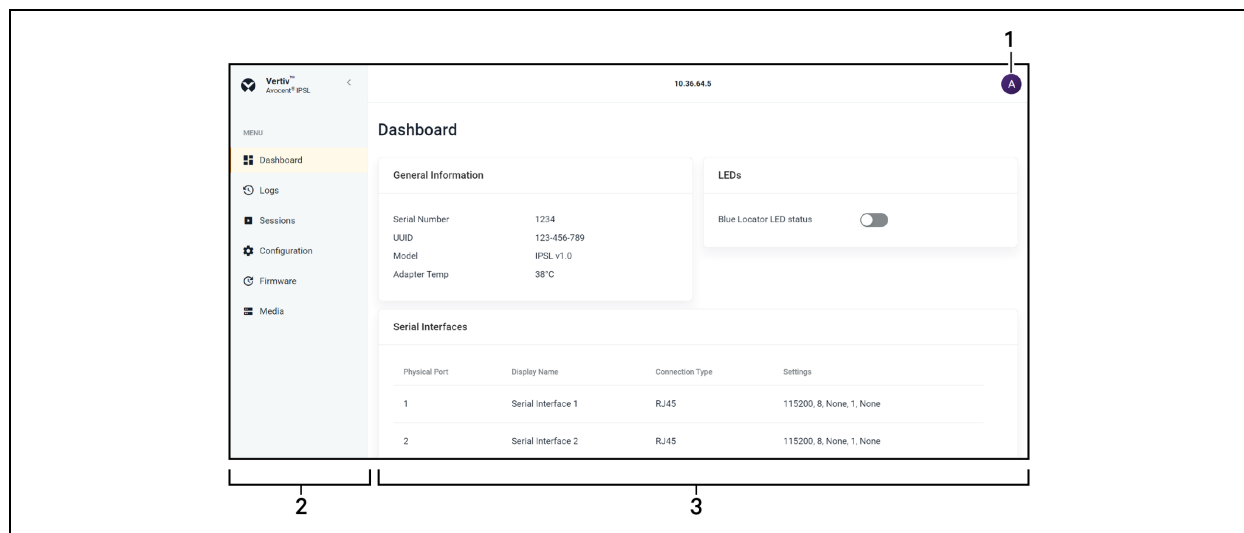
The web UI is compatible with the latest 32-bit and 64-bit versions of the following web browsers:

- Google Chrome
- Microsoft Edge
- Apple Safari
- Mozilla Firefox

### To log into the web UI:

1. Open a web browser and enter the IP address for the Avocent IP SL IP serial device that you previously configured. The IP address should be entered in the following format: **https://<appliance.IP>**
2. At the login screen, enter your username and password. The web UI opens into the Dashboard screen.

**Figure 2.1 Dashboard Screen**



**Table 2.1 Web UI Overview Descriptions**

Item	Description
1	User preferences
2	Sidebar
3	Content area

**NOTE:** By default, the serial device is set to Managed mode upon initial login. While in Managed mode, the serial device disables certain UI features under the Configuration tab. To configure the mode of the serial device, refer to [Registration](#) on page 8.

## 2.1 Account Settings

To open your account settings, click the profile icon in the top right corner of the web UI. The drop-down menu allows you to choose from User Preferences, Help and Log Out.

### User Preferences

This option provides you access to the following tabs: User Profile, Localization and Color Theme. The capabilities of these tabs has been provided in the remainder of this section.

**Table 2.2 User Preferences**

Tab	Description
User Profile	Configure the profile name, password and email address.
Localization	<ul style="list-style-type: none"> <li>Measuring System - Select either the Metric or Imperial radio button to determine the measuring system for the serial device.</li> <li>Time Zone - Select your time zone for alarms and notifications from the drop-down menu.</li> <li>Time Number Separators - Select the digit grouping and decimal values from the respective drop-down menu.</li> <li>Data Format - Select either the Day/Month/Year or Month/Day/Year radio button to determine the format for all dates in the web UI.</li> <li>Time Format - Select either the 12-hours or 24-hour radio button to determine the format for all times in the web UI.</li> <li>Language - Select the language to be used in the web UI from the drop-down menu.</li> </ul>
Color Theme	Select the radio button for your desired color theme.

### Help

This option redirects you to a digital copy of the Vertiv™ Avocent® IP SL IP Serial Device Installer/User Guide.

### Log Out

This option immediately logs you out of the web UI.

## 2.2 Dashboard

From the Dashboard screen, you can perform the following functions:

- Access general information, including the serial number, UUID, model, and adapter temperature.
- Configure the blue locator LEDs status using the slider button.
- Launch serial sessions via the Serial Interfaces section. For more information, refer to [Launching a serial session](#) on the next page.
- View the serial interfaces associated with the serial device.
- View the audited log of events for the serial device.

## 2.3 Logs

From the Logs screen, you can view the log of events that have occurred on the serial device. On this screen, you can perform the following functions:

- Use the search bar to search for a specific event.
- Use the drop-down menu to filter by name, resolved, or severity.
- Use the arrows next to each column to sort each event.
- Click the icons in the upper right-hand corner to clear or refresh the logs.

## 2.4 Sessions

From the Sessions screen, you can view session information for past and current sessions.

The Avocent IPSL IP serial device provides flexible, centralized control of data center servers and virtual media of remote branch offices where trained operators may be unavailable. This flexibility allows for target device management control and secure remote access from anywhere at anytime. The target management functionality of the appliance provides enterprise customers with the following features and options:

- HTML5 serial viewer
- Virtual media. For more information, refer to [Virtual media](#) on page 14.
- Configure serial communication
- Parameters
- Data logging
- Manage up to 4 serial devices
- Serial over SSH

### 2.4.1 Serial management

#### Prerequisites

Before launching an HTML5 serial session, ensure the following requirements have been met:

- Must use the latest version of one of the following web browsers: Google Chrome, Microsoft Edge, Apple Safari, or Mozilla Firefox.
- Must have assigned rights or belong to a user group with assigned rights.
- May need to disable the browser's pop-up blockers to allow the session to launch.

## Launching a serial session

The Avocent IP SL IP serial device provides remote access to your serial devices. To modify your serial communication parameters, see [Serial interfaces](#) on the facing page.

### To launch a serial session:

1. From the left-hand sidebar, click *Dashboard*.
2. Under Serial Interfaces, hover your mouse over the desired target and click the Launch Console icon.

-or-

Click the vertical ellipsis and select whether to launch the serial session in a new tab or a new window.

### To end a serial session:

From the Serial Viewer session, click the user icon in the upper right-hand corner and select *Exit Serial Viewer*.

## 2.5 Configuration

From the Configuration tab, you can access eleven sub-menu items - Registration, Network, Serial Interfaces, User Management, Services, Date and Time, System Settings, Certificates, Troubleshooting, Remote Syslog, and Remote Authentication - which allow you to configure the advanced settings for the IP serial device.

### 2.5.1 Registration

From the Registration screen, you can configure the operation mode of the Avocent IP SL IP serial device.

The serial device can be operated as a standalone device or managed by a Vertiv™ Avocent® DSView™ Solution managing appliance (Vertiv™ Avocent® RM1048P Rack Manager or Vertiv™ Avocent® MP1000 Management Platform).

#### To set the device to Managed mode:

1. From the left-hand sidebar, click *Configuration - Registration*.
2. Click the Managed radio button. The Managed mode disables all web UI control features in the Configuration tab, except Registration and Serial Interfaces.
3. Enter the IP address of the appliance that will manage the serial device (rack manager or management platform) in the Registrar IP Address field.
4. Enter the hostname in the Registrar Hostname field.
  - If the managing system is a Vertiv™ Avocent® RM1048P Rack Manager, enter **\*.RMx.interbox.vertiv.com**.
  - If the managing system is a Vertiv™ Avocent® MP1000 Management Platform, enter **\*.MPx.interbox.vertiv.com**.

**NOTE: The values in the Interval fields should not be changed as they are pre-defined and used only in specific troubleshooting situations.**

**NOTE: If the Config via DHCP Enabled option is enabled and configuration items are identified in the DHCP date, the hostname configuration and registrar IP address are obtained from the DHCP server that assigned the IP address to the Avocent IP SL IP serial device. If the option is disabled, the Registrar IP Address field is disregarded.**

5. Click *Apply*.

## 2.5.2 Network

From the Network screen, you can view and configure the network settings for the serial device.

The Avocent IPSL IP serial device has two physical network interfaces (USB0 and eth0). Network settings can be changed for both interfaces. The eth0 interface reflects the link status of the one LAN ports. The USB0 network settings are applicable when you connect a computer to the serial device through the micro USB cable. Each interface has an individual MAC address and can be assigned an IP address via DHCP or statically.

### To configure the ethernet interface:

1. From the left-hand sidebar, click *Configuration - Network*.
2. From the Network menu, select either *Manager Ethernet Interface - eth0* or *Manager Ethernet Interface - usb0*.
3. Under the Interface Settings heading, the following options are provided:
  - Enable or disable the interface.
  - Set the network speed.
  - Enable or disable the Duplex mode.
  - Enable or disable Auto Negotiation.
4. Under the IPv4 Settings, the DHCP settings for the interface can be configured.
5. Under the IPv6 Settings heading, a static IP address can be configured by clicking the plus icon (+) to the right and entering the required information.
6. Click *Apply*.

## 2.5.3 Serial interfaces

From the Serial Interfaces screen, you can configure the serial communication parameters.

### To configure the serial interfaces:

1. From the *Configuration - Serial Interfaces* screen, ensure that the Interface Enabled option is enabled. This setting must be enabled to launch serial sessions.

**NOTE: If the SSH Enabled option is enabled, you will be connected to the serial port that is configured as per SSH port through SSH client.**

2. Use the drop-down menu to select appropriate values for these fields:
  - Bit Rate
  - Stop Bits
  - Flow Control
  - Data Bits
  - Parity
3. Enter the name in the Display Name field. You can give the name of port to which it is connected. For example, serial interface 1.
4. Click *Apply*. Once the serial interface is configured, it appears on the Dashboard screen where you can launch sessions.

**NOTE: To set the default values, use the Refresh icon in the upper right-hand corner.**

## 2.5.4 User management

From the User Management screen, you can view and configure the user and group accounts. By default, the user is Administrator and the following are the pre-defined user groups: Administrator, Operator, Read only. On this screen, you can perform the following functions:

- Select the settings icon to configure the password policy and FIPS mode settings.
- Select the plus icon (+) to add a new user, then enter the required information.
- Select the refresh icon to reload the page.
- Select the vertical ellipsis to the right of existing user entries to edit or delete the user.

**NOTE:** Based on your assigned permissions, access to ports may be restricted by an administrator.

## 2.5.5 Services

From the Services screen, you can perform the following functions:

- View the settings for the web server.
- Configure the duration of the timeout, then click *Apply*.

## 2.5.6 Date and time

From the Date/Time screen, you can perform the following functions:

- Enable or disable Network Time Protocol.
- Set the timezone and date time for the serial device.

## 2.5.7 System settings

From the System Settings screen, you can view and configure system settings for the Avocent IPSL IP serial device.

### Password policy

The global password rules can be configured for all the user accounts, as well as account expiration settings. By default, password must have a minimum of eight characters and all other password expiration rules are set.

**To configure global password rules:**

1. From the *Configuration - System Settings* screen, under the Password Policy, use the slider to enable or disable password policy.
2. Under the Password Change Interval field, use the arrows to define an interval for password changes .
3. Use the slider to enable or disable password age check.
4. Use the arrows to define duration for checking password age under the Password Duration field.
5. Click *Apply*.

**NOTE:** When the global password policy is updated for enhanced security, all local user accounts are flagged to change the password at next login.

### FIPS mode settings

The FIPS mode of operation can be enabled or disabled via the web UI and is executed after a reboot.

By default, the FIPS mode of operation is disabled and needs to be enabled to modify or update.

**To enable or disable FIPS mode:**

1. From the *Configuration - System Settings* screen, under the FIPS Mode Settings, use the slider to enable or disable FIPS mode.
2. Click *Apply*.
3. Perform a system reboot for the changes to take effect.

**NOTE: The selected FIPS mode is enabled even after performing a factory reset.**

## 2.5.8 Certificate

From the Certificate screen, you can perform the following functions:

- View the general information for the currently uploaded certificate.
- Generate a Certificate Signing Request (CSR).
- Upload a certificate file.

**To generate a CSR:**

1. From the left-hand sidebar, click *Configuration - Certificate - Generate CSR*.
2. Enter the following required information: Common Name, State, Organization, Email, Country, City, and Organizational Unit.
3. Click *Generate*.

**To upload a certificate:**

1. From the left-hand sidebar, click *Configuration - Certificate - Upload Certificate*.
2. Click the *Upload PEM* button.
3. Browse to and select the appropriate file.

**NOTE: Uploading a new certificate replaces the current certificate and requires you to login to the appliance again.**

## 2.5.9 Troubleshooting

From the Troubleshooting screen, you can run a troubleshooting report on the serial device to identify certain issues.

**To submit a troubleshooting report:**

1. From the left-hand sidebar, click *Configuration - Troubleshooting*.
2. Select the type of test action: *Ping*, *Traceroute*, or *TcpConnect*.
3. Enter the IP address.

**NOTE: This field accepts both the FQDN and IP format.**

4. Enter the port number.
5. Check the Force IPv6 option, if desired.

**NOTE: FQDN addresses can be resolved to IPv6 using this field. IP addresses are automatically identified as IPv4 and IPv6.**

6. Click *Submit*.

## 2.5.10 Remote syslog

From the Remote Syslog screen, you can add a remote syslog server for better management and monitoring of the serial device.

### To add a remote syslog:

1. From the left-hand sidebar, click *Configuration - Remote Syslog*.
2. Click the plus icon (+) in the top right-hand corner.
3. Enter the destination and certificate.
4. Using the drop-down menu, select the certificate type.
5. Click *OK*.

## 2.5.11 Remote authentication

From the Remote Authentication screen, you can implement authentication methods to ensure the security of your system and users. Providers can be authenticated via AD/LDAP, TACACS+, or RADIUS.

**NOTE: The authentication method configured for the Avocent IP SL IP serial device is used for the authentication of any user who attempts to login through SSH or the web UI.**

### To set the priority order for authentication methods:

1. From the *Configuration - Remote Authentication - Priority Setting* screen, use the drop-down menu to set the priority for the various authentication methods. The options include:
  - Local - LDAP - TACACS+ - RADIUS
  - Local - TACACS+ - LDAP - RADIUS
2. Click *Apply*.

### To add an LDAP authentication method:

1. From the *Configuration - Remote Authentication - LDAP* screen, use the Service Enabled slider button to enable the LDAP service.
2. Enter the required information into the provided fields.
3. Click the plus icon (+) to add an LDAP service address.
4. Enter the server address and server port number.
5. Role-based security can be enabled on the Avocent IP SL IP serial device, to map your Active Directory remote group to a role on the Avocent IP SL IP serial device. Click the plus icon (+) to perform remote role mapping.

**NOTE: When you are mapped to any local role, and the related security is enabled and configured, Active Directory remote group provides you the related permission after login.**

6. Enter the remote group name, and select the local role from the drop-down menu.
7. Click *Apply*.

### To add a TACACS+ authentication method:

1. From the *Configuration - Remote Authentication - TACACS+* screen, use the Service Enabled slider button to enable the TACACS+ service.
2. Enter the required information into the provided fields.
3. Click the plus icon (+) to add a TACACS+ service address, then enter the IP address.
4. Click *Apply*.



**To add a RADIUS authentication method:**

1. From the *Configuration - Remote Authentication - RADIUS* screen, use the Service Enabled slider button to enable the RADIUS service.
2. Enter the required information into the provided fields.
3. Click the plus icon (+) to add a RADIUS service address, then enter the IP address.
4. Click *Apply*.

## 2.6 Firmware

From the Firmware tab, you can access two sub-menu items - Firmware Management and Firmware Inventory - which allow you to manage the firmware upgrades, factory settings, and reboot actions for the serial device.

### 2.6.1 Firmware management

From the Firmware Management screen, you can perform reboots and factory resets.

**To reboot the main adapter:**

**NOTE: This action changes the currently running firmware. By default, currently running firmware is Primary Firmware.**

1. From the left-hand sidebar, click *Firmware - Firmware Management*.
2. Click on the drop-down arrow next to Reset Action and select one of these options:
  - ForceRestart
  - Graceful reboot into primary firmware
  - Graceful reboot into failover firmware.
3. Click *OK*. The device reboots immediately.

**To reset the currently running firmware settings to default values:**

1. From the left-hand sidebar, click *Firmware - Firmware Management*.
2. Click on the drop-down arrow next to Reset To Defaults Action and select one of these options:
  - ResetAll
  - PreserveNetwork
  - PreserveNetworkAndUsers
3. Click *OK*. The device reboots immediately.

**To reset to default values on firmware update:**

By default, the currently running firmware update is set to Off. It must be enabled to reset the default values.

**NOTE: This option is applicable only to the currently running firmware.**

1. From the left-hand sidebar, click *Firmware - Firmware Management*.
2. Use the slider to enable or disable this option.
3. Click *Apply*.

## 2.6.2 Firmware inventory

From the Firmware Inventory screen, you can access information about the primary firmware and failover firmware, including the name, version, and status of the firmware.

**NOTE: Ensure the Avocent IPSL IP serial device is in Standalone mode.**

**To update the primary firmware or failover firmware:**

1. From the left-hand sidebar, click *Firmware - Firmware Inventory*.
2. Click the *Update* button under the respective firmware section.
3. Copy the tftp file path and paste it in the TFTP Path field.

-or-

Click on *Image Upload* to drag and drop your file/folder.

-or-

Browse to and choose the file for updating firmware.

4. Click *Start Update*.

## 2.7 Media

From the Media tab, you can access two sub-menu items - Remote Media and Virtual Media - which allow you to configure the appropriate media options for file mapping with the serial device.

### 2.7.1 Remote media

From the Remote Media screen, you can add and configure a remote server location.

**To configure a remote server location:**

1. From the left-hand sidebar, click *Media - Remote Media*.
2. Select the type of file to map. Select *Virtual CD/DVD* to map an .iso file or select either *Virtual Floppy* or *Virtual Removable Disk* to map an .img file.
3. Copy the file path for the .iso file that is located on the CIFS server and paste it in the Image File Path field.
4. Use the drop-down menu to select either *CIFS* or *NFS* server for the Transfer Protocol.

**NOTE: A Transfer Protocol is a CIFS server by default.**

5. Enter the credentials (username and password).
6. Click *Mount Image Path*.

**NOTE: Once the physical drive or image is mapped, it can be used on the remote target device.**

### 2.7.2 Virtual media

From the Virtual Media screen, you can use the virtual media feature on the client workstation to map an .iso or .img file on the client machine as a virtual drive on a target device.

**NOTE: Only one virtual media session can be active on a target device at one time.**

## Prerequisites

Before using the Virtual Media feature, ensure the following prerequisites are met:

- The target device must be able to use the types of USB2 compatible media that you virtually map.
- The target device must support a portable USB memory device to map it on a client machine as a Virtual Media drive on the target device.
- You (or your use group) must have permission to establish virtual media sessions and/or reserved virtual medial sessions to the target device.

### To map a Virtual Media drive:

1. From the left-hand sidebar, click *Media - Virtual Media*.
2. Use the slider under Virtual Media Enabled to enable the On mode. This action shows the features of virtual media to map the .iso or .img files /folders.

**NOTE: Virtual Media control is disabled (Off mode) by default. Verify that another user is not using the Virtual Media feature on a different device or website if you are unable to enable Virtual Media control to On mode.**

### To map an .iso image, files, or a folder:

1. From the left-hand sidebar, click *Media - Virtual Media - CD/DVD Image*.
2. Drag and drop an .iso image file.  
  
-or-  
  
click *Choose ISO Image File* to map single .iso image file.  
  
-or-  
  
Drag and drop files/folder .  
  
-or-  
  
Click *Choose File* or *Choose Folder* to map the file/folder which contains more than one .iso image files.
3. From the open dialog box, navigate to the folder and select the .iso image, files or folder and click *Open* or *Upload*. This action maps an .iso image, files, or folder with read-only access as per selection in step 2.

### To map an .img file:

1. From the left-hand sidebar, click *Media - Virtual Media* , then click either *Removable Disk Image* or *Floppy Disk Image* to map an .img file.
2. Drag and drop an .img file.  
  
-or-  
  
Click *Choose Image File*.
3. From the open dialogue box, navigate to the folder and select an .img file and click *Open*. This action maps an .img file with read-only access.

**NOTE: After a physical drive or image is mapped, it can be used on the target device.**

### To unmap a Virtual Media drive:

1. From the Virtual Media menu, under the mapped drive click the *Unmap* button.
2. At the prompt, click *OK*. This action unmaps the drive from the target device.

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# Appendices

## Appendix A: Technical Specifications

**Table A.1 Avocent IP SL IP Serial Device Technical Specifications**

Item	Value
<b>Ports</b>	
Network	2 x 1G LAN ports - 1 x PoE, 1 x Service Processor connectivity
Serial	2 x USB-A, 2 x RJ-45
Power	1 x Power port
<b>Power</b>	
1 PoE port	802.3 at Type 2 PoE+ PD
External Power Supply	+5V 25W
<b>Environmental</b>	
Storage	-20 °C to 70 °C (-4 °F to 158 °F)
Operating	0 °C to 50 °C (32 °F to 122 °F)
<b>Indicators</b>	
LED Lights	2 x Tricolor lights
<b>Dimensions</b>	
Height x Width x Depth	1.6 inches x 4.1 inches x 6.6 inches (41 mm x 105 mm x 168 mm)
Weight	0.73 lbs (0.332 kg)

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### **Connect with Vertiv on Social Media**



<https://www.facebook.com/vertiv/>



<https://www.instagram.com/vertiv/>



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