



Agent MaaS Suite (AMS)

AXView 3.0 User's Manual

v1.2

Published by Software & Solution Product Division

Release Date: 2019/02/15



Agent MaaS Suite

AXView 3.0

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Release Note

Version	Revised Date	Author	Description
v1.0	2018/12/28	Brandon	- 1st release
v1.1	2019/01/02	Cynric	- add Modbus TCP and Modbus RTU configuration
V1.2	2019/02/15	Mark	- add Introduction

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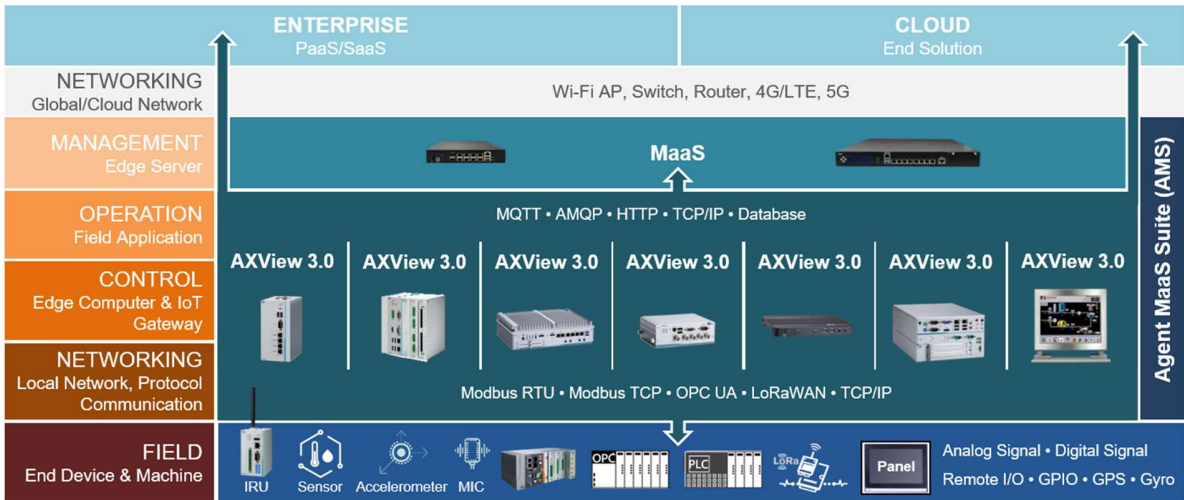
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1 Introduction

1.1 Architecture

Agent MaaS Suite (AMS) is the latest software solution product released by Axiomtek in response to the trend of the Internet of Things (IoT). It is a lightweight device and data management software platform that comes with information visualization and data clouding features. From the terminal device to the gateway equipment in the middle stage, and then to the remote management platform, AMS assists users in managing and handling the tasks that they may encounter in various classes, such as protocol communication, data collection and processing, message transmission, and information presentation. AMS also puts the IoT / IIoT spirit into action by performing device and equipment management, allowing users to reduce human resources and lower technical thresholds during project development, so that they can fully focus on application integration and creation of value-added services.



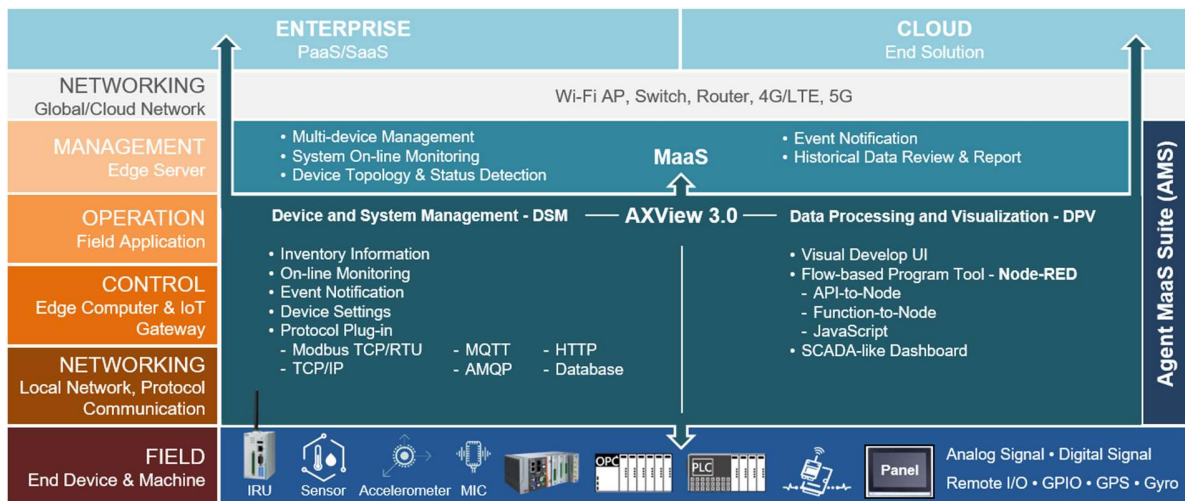


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1.2 Features

To exemplify the spirit of IoT/IIoT while retaining flexibility, AMS is divided into two packages according to their operational role requirements: System Management - AXView 3.0; and Remote Management - MaaS (Management as a Service).



Besides providing basic device management and data processing functions, AXView 3.0 also includes flexible features for design change and functional expansion, with the main function blocks encompassing both Device and System Management (DSM) and Data Processing and Visualization (DPV).



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1.3 Specifications

COMMUNICATION	Interface	RS-485, RJ-45, Wi-Fi, 3G/4G
	Protocol	Modbus RTU/TCP, MQTT, TCP/UDP, HTTP, Socket, WebSocket
MONITORING	System	Voltage, Temperature, Digital I/O, Fan speed, Status and USB insert/remove
		Connected device for Modbus device
DEVELOP TOOL		Node-RED integrated
PROGRAMMING LANGUAGE		JavaScript supported
SECURITY		Watchdog Timer to ensure normal operation Operating per user ID authentication
SYSTEM REQUIRMENTS	OS	Linux Ubuntu 16.04 or Yocto 2.5.1
	CPU	Intel® Atom® processor E3815 or above
	Storage	16GB or above
	Memory	4GB or above
PLATFORMS		Please refer to [1.4 Hardware Platform Support List]



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1.4 Hardware Platform Support List

Fanless Embedded System	eBOX100-312, eBOX560-300, eBOX560-500, eBOX560-512, eBOX565-312, eBOX565-500, eBOX625-853, eBOX626-853, eBOX627-312, eBOX625-312, eBOX670-891
IoT Gateway	ICO100-839, ICO120-83D, ICO300-83B, ICO310, ICO320-83C
Transportation System	tBOX300-510, tBOX324-894, tBOX500-510 UST100-508, UST500-510
Fanless Touch Panel PC	GOT110-316
Digital Signage Player	DSP300
Industrial PC	IPC962-511, IPC962-512, IPC964-512, IPS960-511-PoE, IPS962-512-PoE
Industrial Motherboard	IMB520, IMB523
System Host Board	SHB150, SHB140
Card/Module	AX92320



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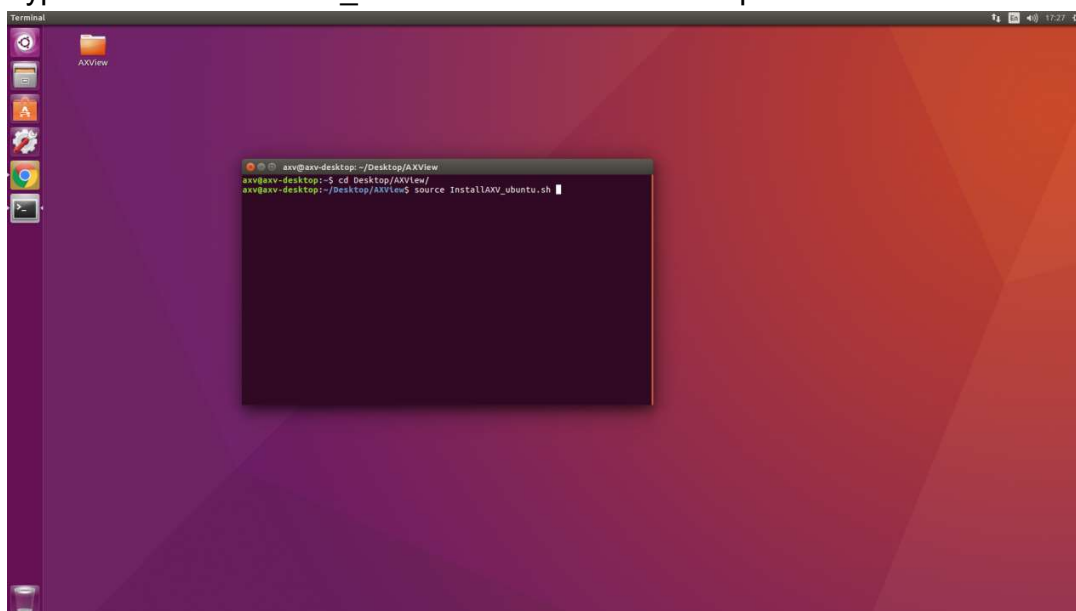
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2 Getting Started

2.1 Install AXView 3.0

2.1.1 Install AXView 3.0 in Ubuntu 16.04 (need to connect to Internet)

- 1) Open "Terminal" and navigate to .tar.gz directory.
- 2) Type "source InstallAXV_ubuntu.sh" to run install script.



- 3) System will install needed components.



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```

axv@axv-desktop:~/Desktop/902
> node-pre-gyp install --fallback-to-build
[bcrypt] Success: "/usr/bin/AXGateway/SensorNetwork/Webservices/node_modules/bcrypt/lib/binding/bcrypt_lib.node" is installed via remote
> jwt@0.0.0 install /usr/bin/AXGateway/SensorNetwork/Webservices/node_modules/jwt
> node-gyp rebuild
make: Entering directory '/usr/bin/AXGateway/SensorNetwork/Webservices/extra/node-jwt/build'
  CXX(target) Release/obj.target/jwt/src/jwt.o
  CXX(target) Release/obj.target/jwt/src/jwt/JWEFunction.o
  SOLINK_MODULE(target) Release/obj.target/jwt.node
  COPY Release/jwt.node
make: Leaving directory '/usr/bin/AXGateway/SensorNetwork/Webservices/extra/node-jwt/build'
npm WARN gateway-apt@1.0.0 No description
npm WARN gateway-apt@1.0.0 No repository field.
added 460 packages from 395 contributors and audited 1784 packages in 100.732s
found 0 vulnerabilities (13 low, 3 moderate, 0 high)
run "npm audit fix" to fix them or "npm audit" for details
[ ] loadExtraneous: [ ] removeObsoleteDep removing bindings

```

4) Reboot the device.

2.1.2 Install AXView 3.0 in Yocto 2.5.1

Please contact us.



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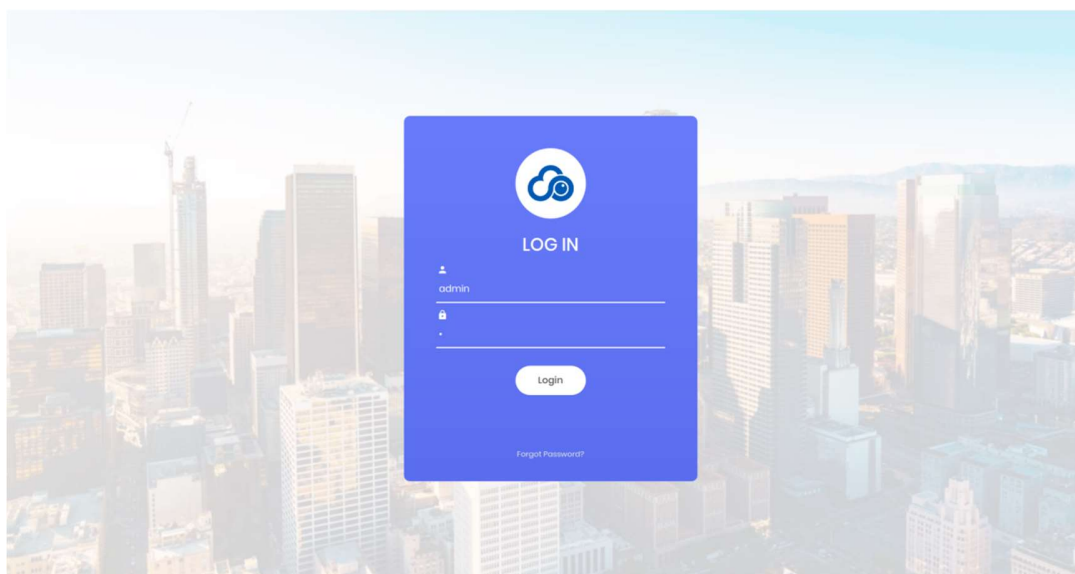
3 AXView 3.0

3.1 Login

Open your web browser recommended that you to use browser software Google Chrome, Firefox, and type in the following address to the URL bar:

`http://<gateway_ip>:8080`

After the navigation, it'll show login web page. Please enter the id and password to login (Default id: **admin**, default password: **admin**).

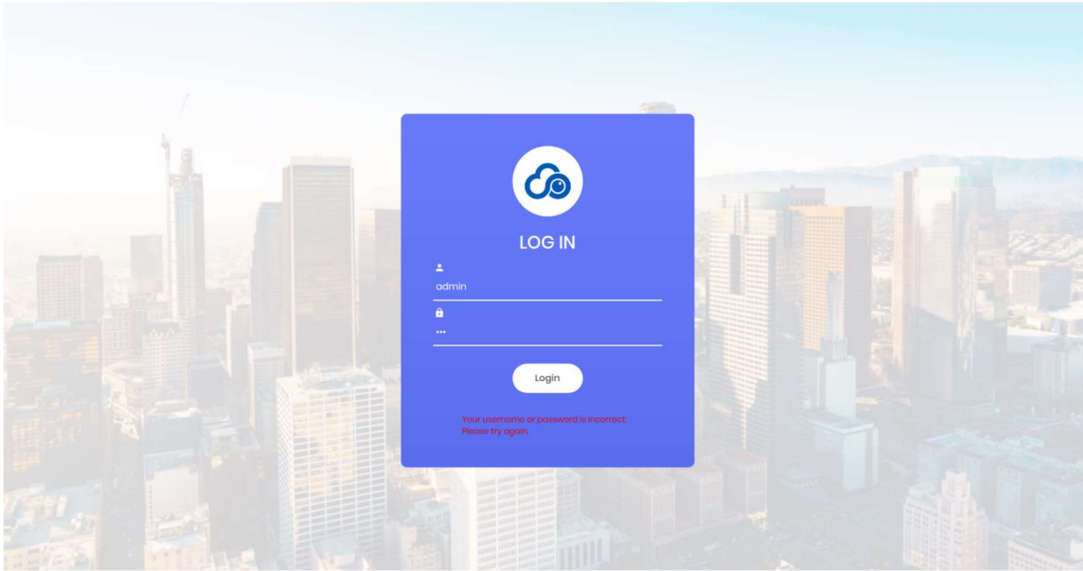


If you enter the wrong id or password, it'll show error message as below.



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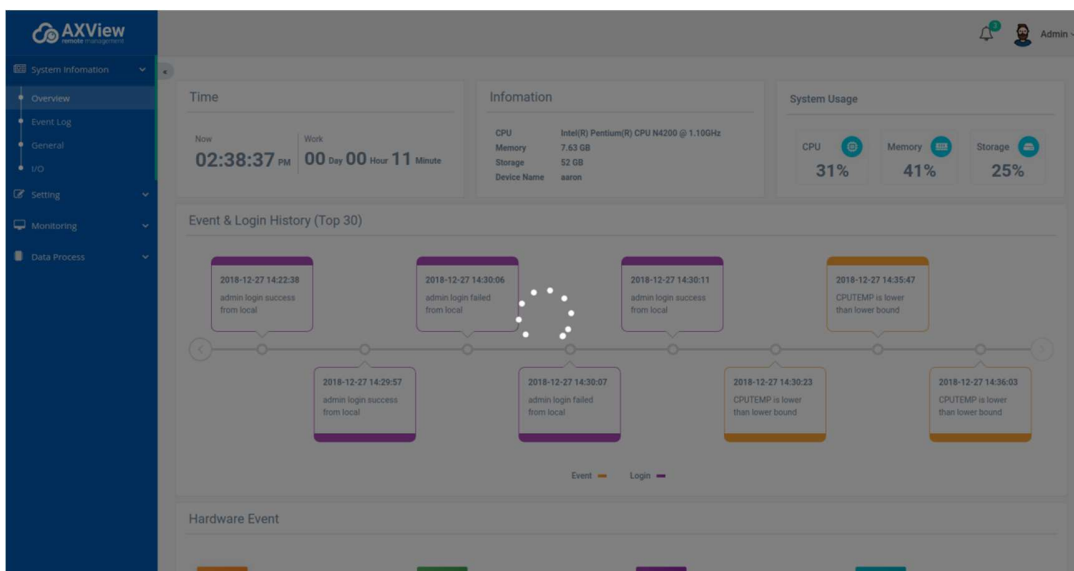
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3.2 System Information

3.2.1 Overview

This is the home page of AXView. The overview provides a one-stop summary on this gateway. From here you can see the gateway status likes working hours, hardware information, system status, events & login history and hardware status.





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The screenshot shows the AXView 3.0 dashboard. On the left is a blue sidebar with navigation options: Overview, Event Log, General, I/O, Setting, Monitoring, and Data Process. The main content area is divided into three columns: 'Time' (showing 'Now 02:48:11 PM' and 'Work 00 Day 00 Hour 20 Minute'), 'Information' (showing CPU: Intel(R) Pentium(R) CPU N4200 @ 1.10GHz, Memory: 7.63 GB, Storage: 53 GB, Device Name: aaron), and 'System Usage' (CPU: 5%, Memory: 50%, Storage: 25%). Below these is the 'Event & Login History (Top 30)' section, which displays a timeline of events and logins. The events include 'admin login failed from local' and 'admin login success from local'. The logins include 'CPUTEMP is lower than lower bound'. A legend at the bottom indicates that orange boxes represent 'Event' and purple boxes represent 'Login'. Below the event history is a 'Hardware Event' section with a bar chart.

This screenshot is similar to the one above but shows a different state of the system. The 'Time' section now shows 'Now 02:49:04 PM' and 'Work 00 Day 00 Hour 21 Minute'. The 'Information' section shows the same hardware details. The 'System Usage' section shows CPU at 5%, Memory at 51%, and Storage at 25%. The 'Event & Login History (Top 30)' section shows the same sequence of events and logins as the previous screenshot. The 'Hardware Event' section is also present.

User can use user icon to change password and log out.

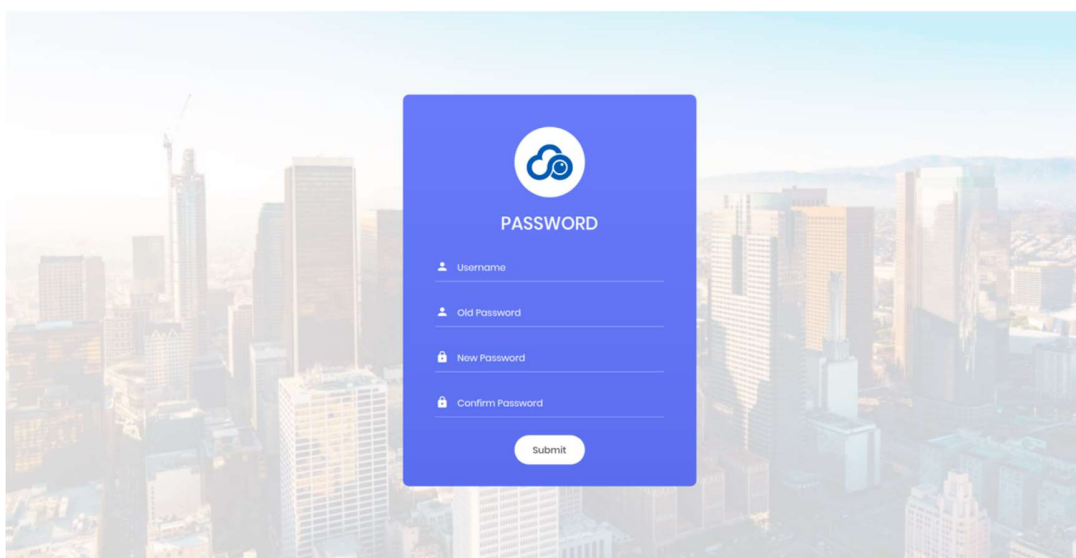
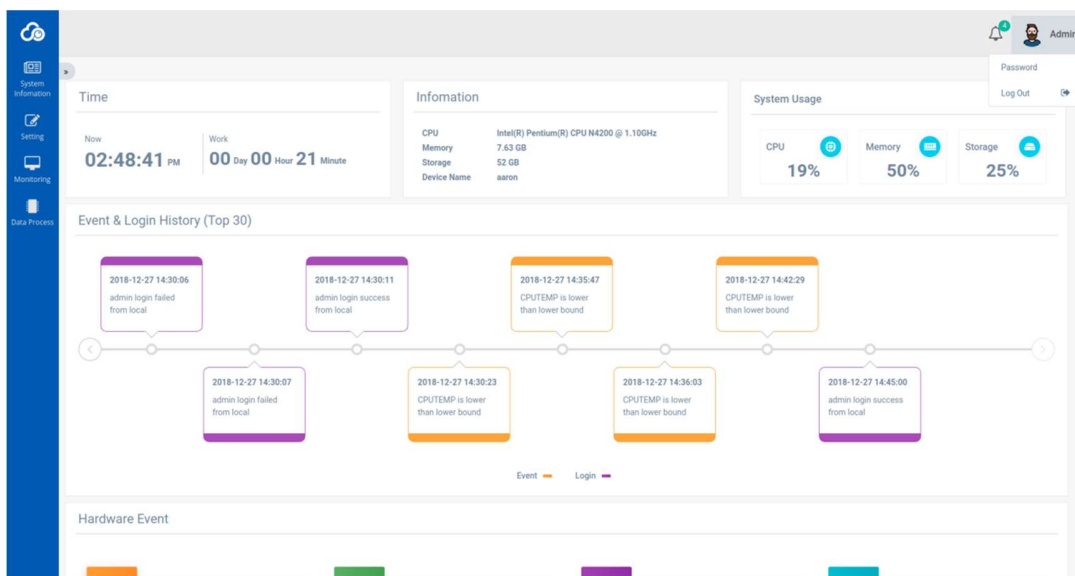


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3.2.1.1 Change Password

- Click "Password" will navigate to password change page.
Enter the Username, old password and new password to change password





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3.2.2 Event Log

- List all logs. The logs with bold text mean the logs unread.

The screenshot shows the AXView interface with the 'Event Log' menu item selected. The 'Log list' table contains the following data:

No.	Date	Message
1	2018-12-27 14:48:54	CPUTEMP is lower than lower bound
2	2018-12-27 14:42:29	CPUTEMP is lower than lower bound
3	2018-12-27 14:36:03	CPUTEMP is lower than lower bound
4	2018-12-27 14:35:47	CPUTEMP is lower than lower bound
5	2018-12-27 14:30:23	CPUTEMP is lower than lower bound
6	2018-12-26 10:49:03	SYSTEMP is lower than lower bound
7	2018-12-26 10:44:21	SYSTEMP is upper than upper bound
8	2018-12-26 10:24:48	+3.3V is lower than lower bound
9	2018-12-26 10:02:32	+3.3V is lower than lower bound
10	2018-12-26 09:31:23	+3.3V is lower than lower bound

- User can read log by click text.

The screenshot shows the same AXView interface as above, but the first three log entries (rows 1, 2, and 3) are now greyed out, indicating they have been read. The 'Read All' button is still visible in the top right corner of the log list area.

- User can read all logs by click "Read All" button.



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The screenshot displays the AXView Event Log interface. On the left is a blue sidebar with navigation options: System Information, Overview, Event Log (selected), General, I/O, Setting, Monitoring, and Data Process. The main content area is titled 'Log list' and contains a table with 10 rows of event data. A 'Read All' button is visible in the top right of the log area. The user 'Admin' is logged in, as shown in the top right corner.

No.	Date	Message
1	2018-12-27 14:48:54	CPUTEMP is lower than lower bound
2	2018-12-27 14:42:29	CPUTEMP is lower than lower bound
3	2018-12-27 14:36:03	CPUTEMP is lower than lower bound
4	2018-12-27 14:35:47	CPUTEMP is lower than lower bound
5	2018-12-27 14:30:23	CPUTEMP is lower than lower bound
6	2018-12-26 10:49:03	SYSTEMP is lower than lower bound
7	2018-12-26 10:44:21	SYSTEMP is upper than upper bound
8	2018-12-26 10:24:48	+3.3V is lower than lower bound
9	2018-12-26 10:02:32	+3.3V is lower than lower bound
10	2018-12-26 09:31:23	+3.3V is lower than lower bound

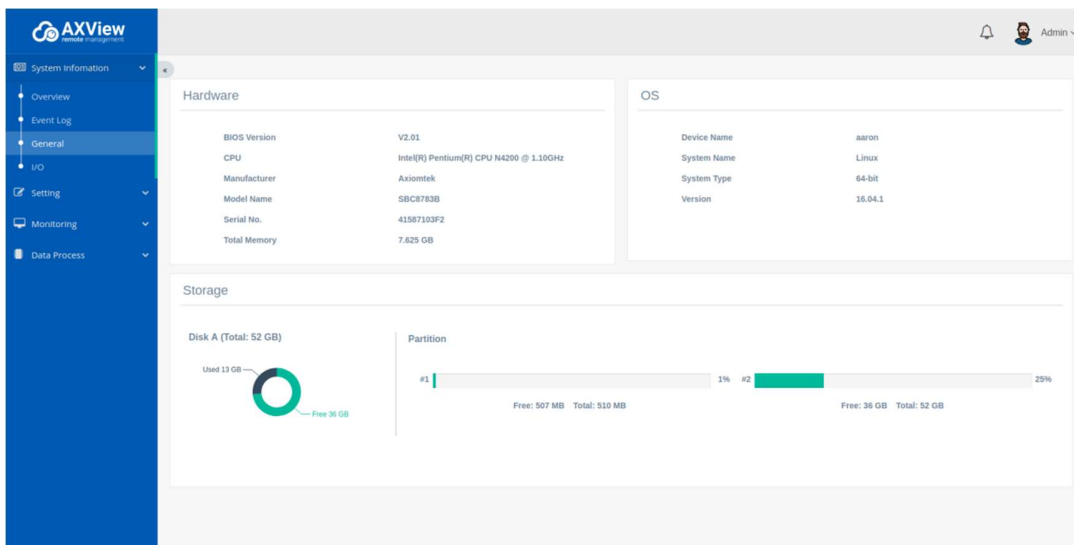


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3.2.3 General

List the information of hardware, operating system and all storages connected to the system.



When user inserts the USB flash, the page will show the information about the USB flash.



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The screenshot displays the AXView 3.0 v1.0 interface. On the left is a blue sidebar with navigation options: System Information, Overview, Event Log, General, I/O, Setting, Monitoring, and Data Process. The main content area is divided into two sections. The top section, 'System Information', contains two columns of data:

BIOS Version	V2.01	Device Name	aaron
CPU	Intel(R) Pentium(R) CPU N4200 @ 1.10GHz	System Name	Linux
Manufacturer	Axiomtek	System Type	64-bit
Model Name	SBC6783B	Version	16.04.1
Serial No.	41587103F2		
Total Memory	7.625 GB		

The bottom section, 'Storage', provides details for two disks:

- Disk A (Total: 52 GB):** A donut chart shows 13 GB used and 39 GB free. To its right, a 'Partition' bar chart shows two partitions: #1 (1% used, 507 MB free, 510 MB total) and #2 (25% used, 36 GB free, 52 GB total).
- Disk B (Total: 15 GB):** A donut chart shows 1 GB used and 14 GB free. To its right, a 'Partition' bar chart shows one partition: #1 (4% used, 14 GB free, 15 GB total).

At the bottom left of the interface, it says 'AXView 3.0 v1.0' and at the bottom right, '© 2018 Axiomtek Co., Ltd.'



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3.2.4 I/O

- **UART/USB Information:**

Show and monitor the USB device information. If any USB device is removed or inserted, the information will change.

- **LAN Information and Status:**

List all information of the LAN port (e.g. IP and MAC address) and connection status on the system.

No.	IP	Interface	MAC Address	Link
1	10.1.70.106	enp1s0	0000E07103F2	Up
2		enp2s0	0000E07103F3	Down

When user inserts the USB flash, the page will show the information about the USB flash.



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The screenshot displays the AXView 3.0 web interface. On the left is a blue navigation sidebar with the following menu items: System Information (expanded), Overview, Event Log, General, I/O, Setting, Monitoring, and Data Process. The main content area is divided into three sections:

- UART / USB:** A table listing hardware details for various devices.
- LAN:** A table showing network interface configurations.

UART / USB	
UART Count	4
USB Device	USB Optical Mouse
Manufacturer	Logitech
Product ID	C077
Vendor ID	46D
USB Device	USB Receiver
Manufacturer	Logitech
Product ID	C534
Vendor ID	46D
USB Device	xHCI Host Controller
Manufacturer	Linux 4.15.0-43-generic xhci-hcd
Product ID	2
Vendor ID	1D6B
USB Device	Mass Storage Device
Manufacturer	JetFlash
Product ID	1800
Vendor ID	8564

LAN				
No.	IP	Interface	MAC Address	Link
1	10.1.70.106	enp1s0	0006E07103F2	Up
2		enp2s0	0006E07103F3	Down



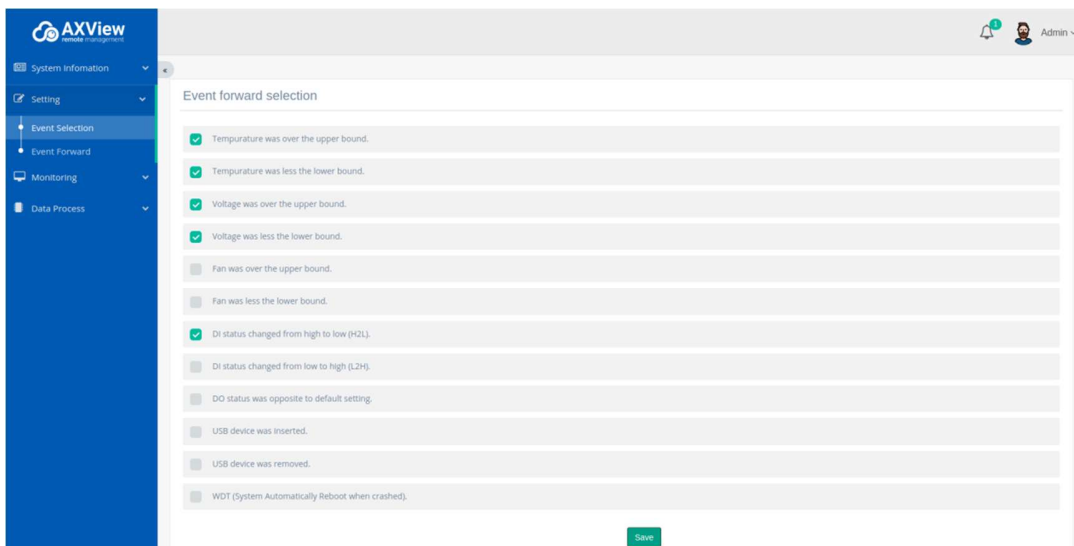
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3.3 Configuration

3.3.1 Event Selection

Select which one of the unusual event you want to know. After that, click “Save” button to save changes.





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3.3.2 Event Forward

If you want Agent to inform you about the unusual event through email, you must key in the related info for SMTP server and email account.

The screenshot displays the 'Email Configuration' page in the AXView 3.0 interface. On the left is a blue navigation sidebar with options: System Information, Setting, Event Selection, Event Forward (highlighted), Monitoring, and Data Process. The main content area is titled 'Email Configuration' and contains two sections:

- Email Server (SMTP):**
 - Host*: 192.168.10.2
 - Port*: 25
 - With SSL: Checked
- E-mail Account:**
 - ID*: AXV
 - Password*: *****
 - Sent by*: AXV@axiomtek.com.tw
 - E-mail to*: AXV@axiomtek.com.tw

A green 'Save' button is positioned at the bottom center of the configuration form.



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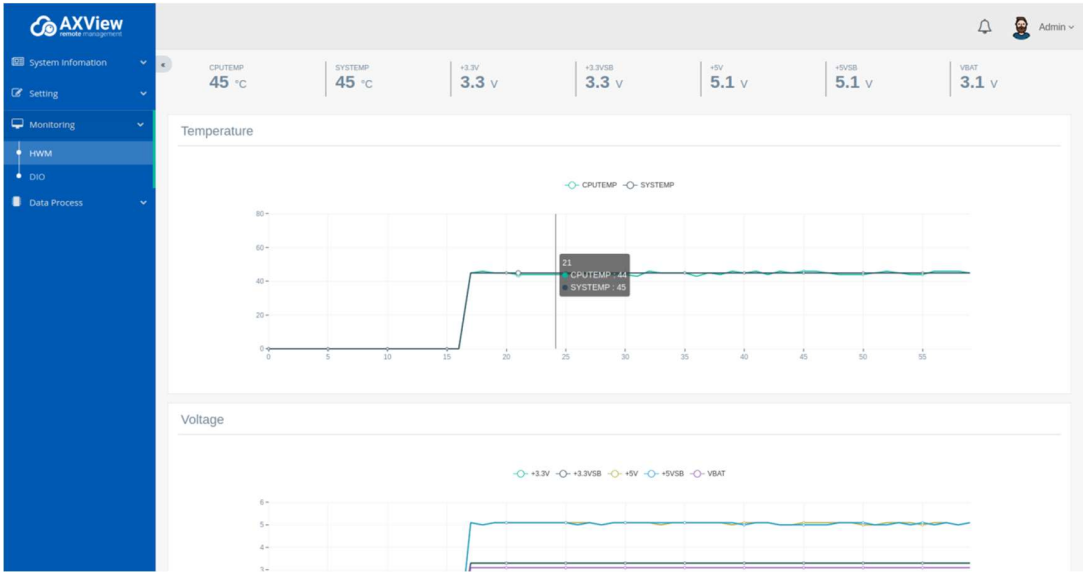
3.4 Monitoring

3.4.1 HWM

The Monitoring menu displays more detailed information about the following items:

- Temperature
- Voltage
- Fan Speed (If this item doesn't show on list, it means the device is fanless system)

Each item can be monitor and list bound values.

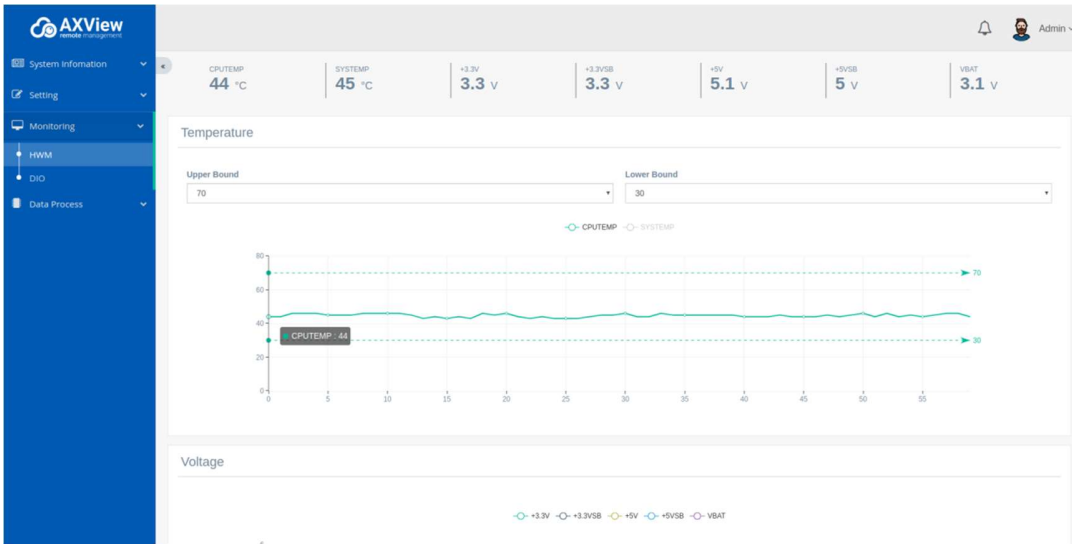


User can set up threshold value of upper and lower bound when selected monitor item is one.



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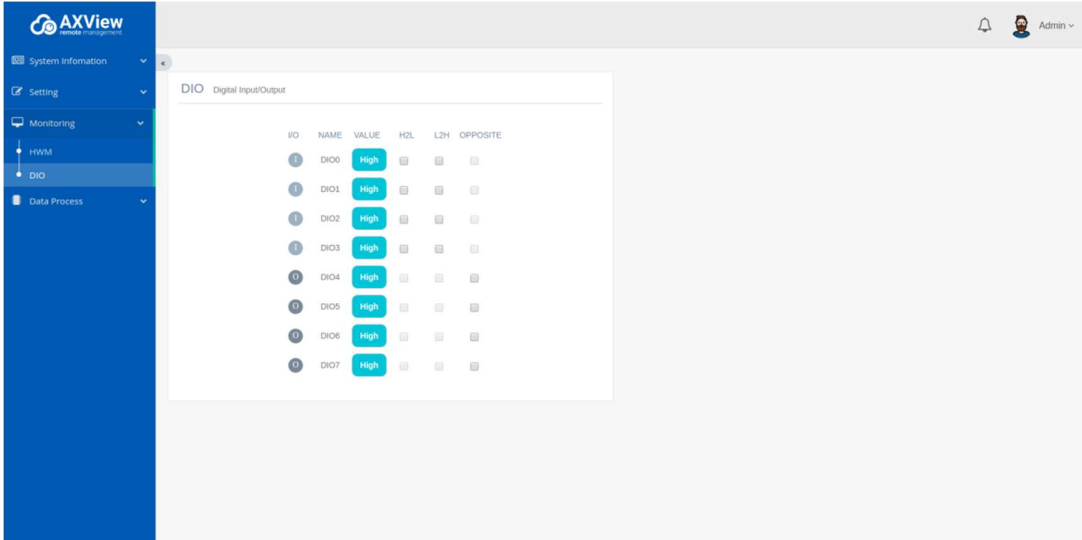
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3.4.2 DIO

Monitor digital input/output signal.

- Select “**Opposite**” tick box to set up threshold value for detecting state change of the digital output signal while it is not changed internally by user.
- Set up threshold value for detecting the state change of the digital input signal.
H2L means state is changed from high to low.
L2H means state is changed from low to high.





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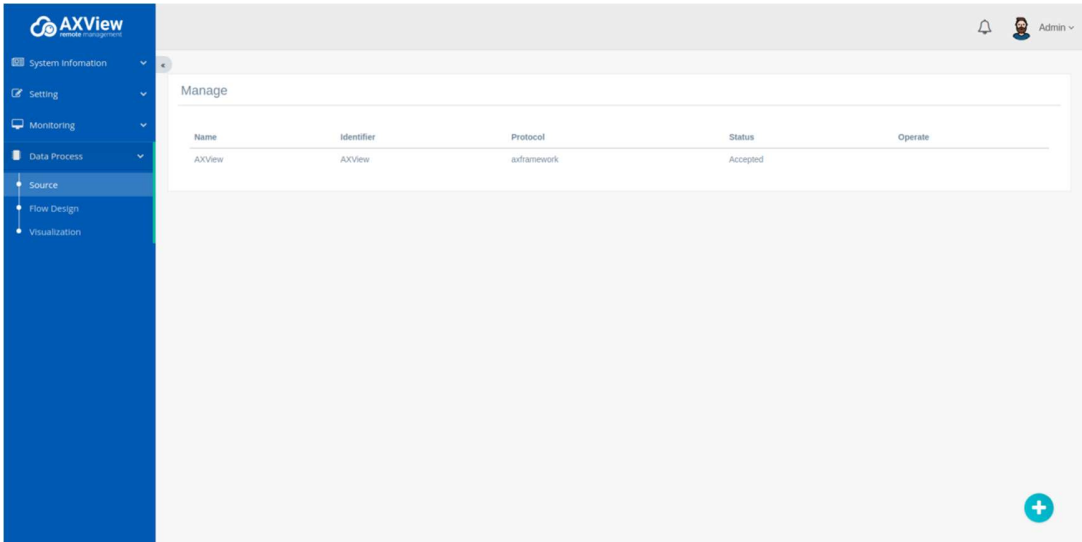
3.5 Data Process

3.5.1 Source

The Manage page allows you to add/configure edge device & sensors to this gateway, using available protocols.

Currently only Modbus is able to configure its respective parameters with the “Configure” button.

User can **double click** text of device name to modify the name.





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The screenshot displays the AXView 3.0 web interface. On the left is a blue sidebar menu with options: System Information, Setting, Monitoring, Data Process (selected), Source, Flow Design, and Visualization. The main content area is titled 'Manage' and contains a table with the following data:

Name	Identifier	Protocol	Status	Operate
<input type="text" value="New Device"/>	10.1.70.210.S1	modbus tcp	Not Accepted	<input type="button" value="Accept"/> <input type="button" value="Delete"/>
AXView	AXView	axframework	Accepted	

A green plus icon is visible in the bottom right corner of the main content area.



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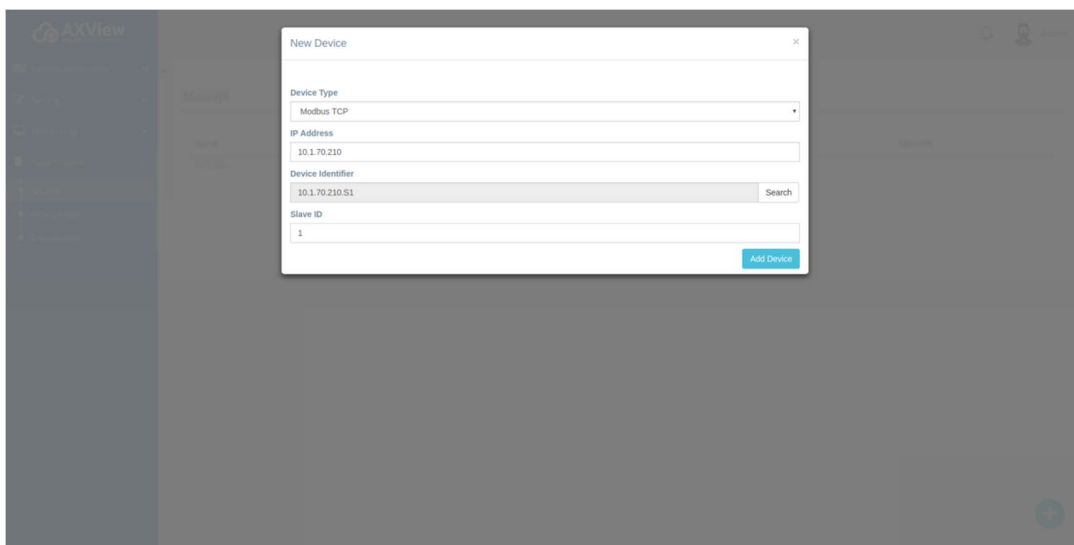
3.5.1.1 Modbus Protocol

This section explains how to manage Modbus devices in the system. Once the Modbus device correctly setup, we can add the new Modbus device and system through the configuration below.

- 1) When you click “+” button at bottom-right corner, a popup window will appear.
- 2) Fill up the required parameters Device Type.
 - Modbus TCP: Enter IP Address, and Slave ID. Click the “Search” button along the identifier category.
 - Modbus RTU: Enter the Slave ID.

Then click on “Add Device” button to complete the registration.

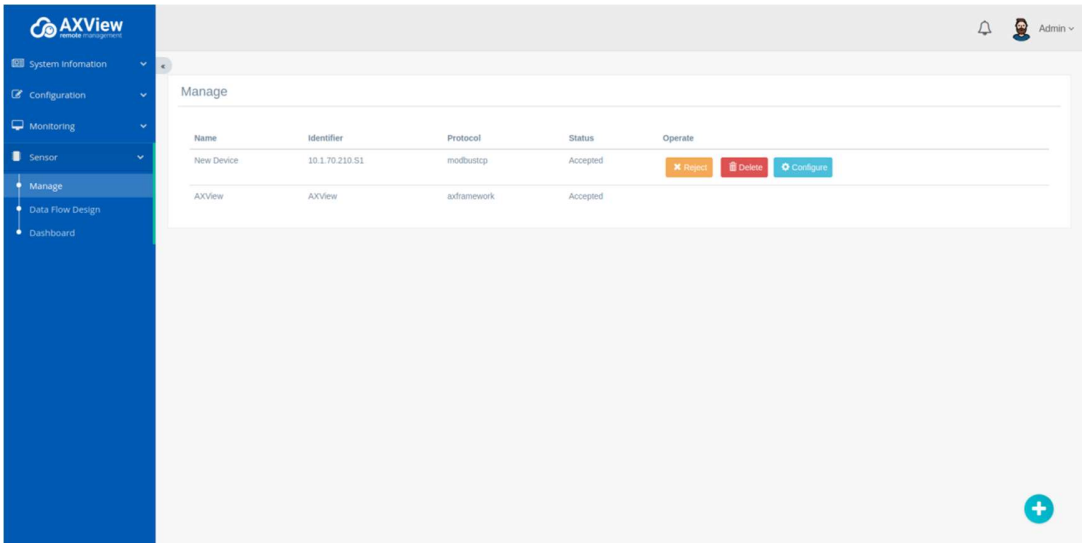
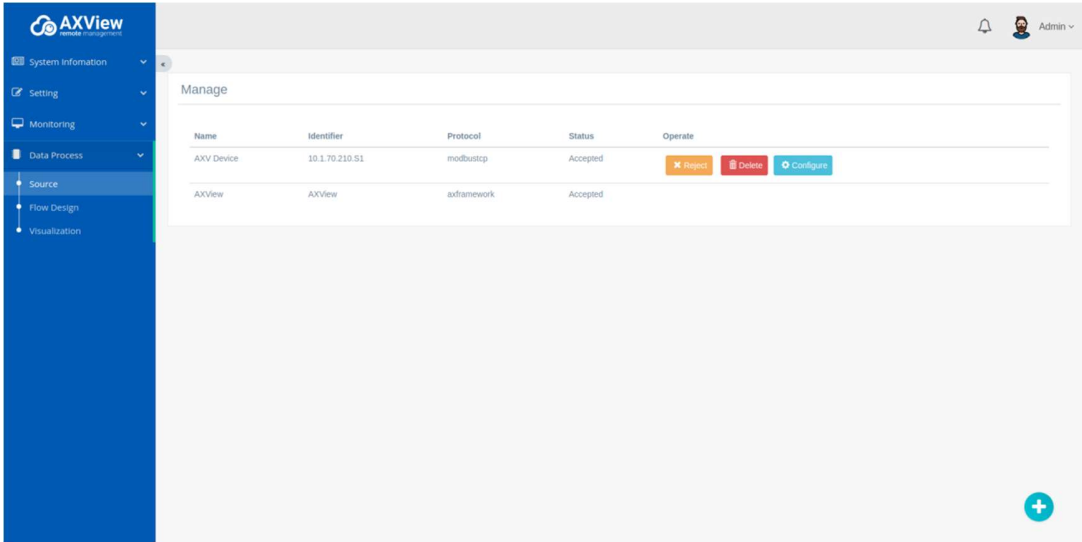
- 3) Click on “Accept” button to connect the new Modbus device with the system.
- 4) Once connected “Accept” button will change to “Reject” button.





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Once the new Modbus is added, we can know configure the device into its required parameters. Depending on the use case, respective parameters would be filled in.

Steps are as below:

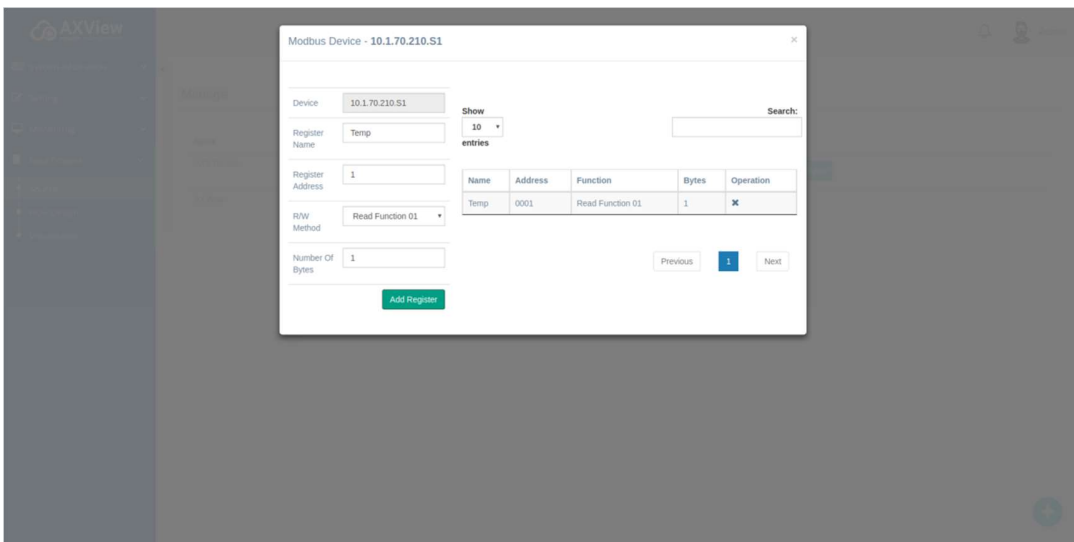
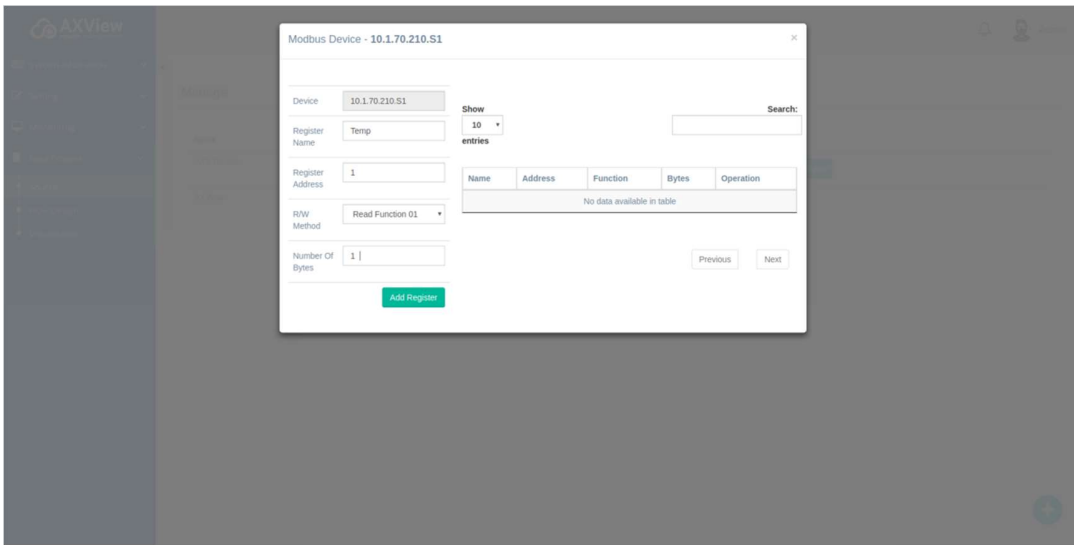
- 1) Click on the “Configure” button.



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- 2) New popup window would appear. Fill in the respective parameters for each use case of the Modbus. Click “Add Register” button to add the new parameters into the system.
- 3) Once successfully added, the respective parameters will appear in the list.



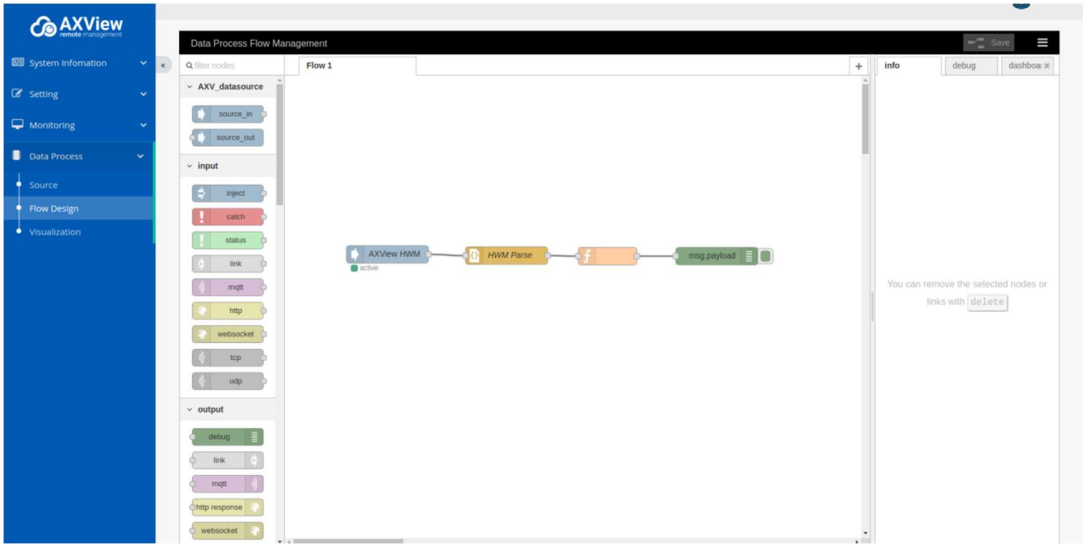


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3.5.2 Flow Design

The Flow Design page allows you to visually program your unique requirement on inputs data, function programming, and desired outputs; allow you an easy way to program into your operation needs.

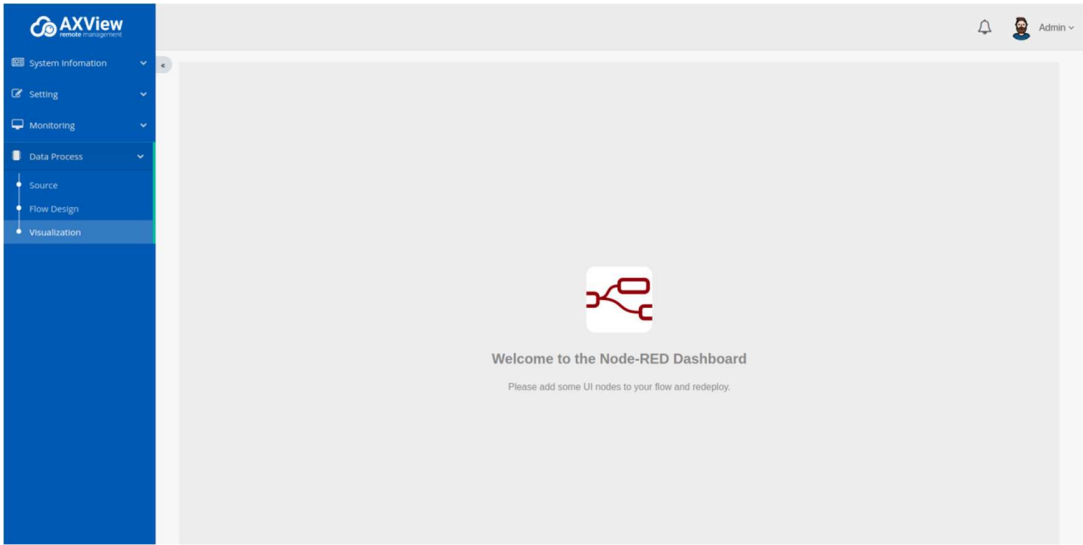




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3.5.3 Visualization





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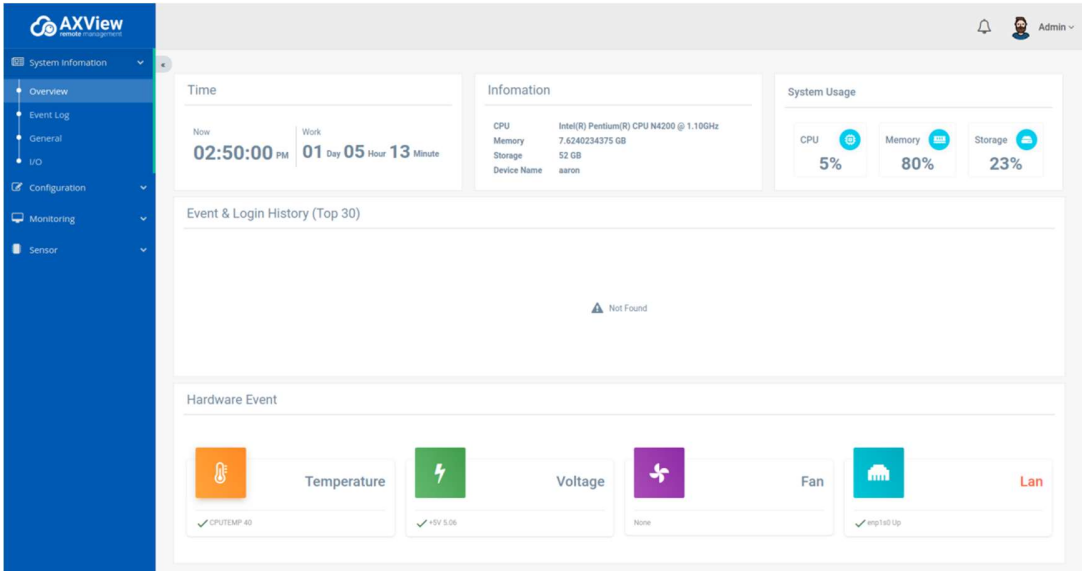
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Appendix A

Troubleshooting

400 ERROR – PAGE NOT FOUND

The request could not be understood by the server due to malformed syntax. The client should not repeat the request without modifications.



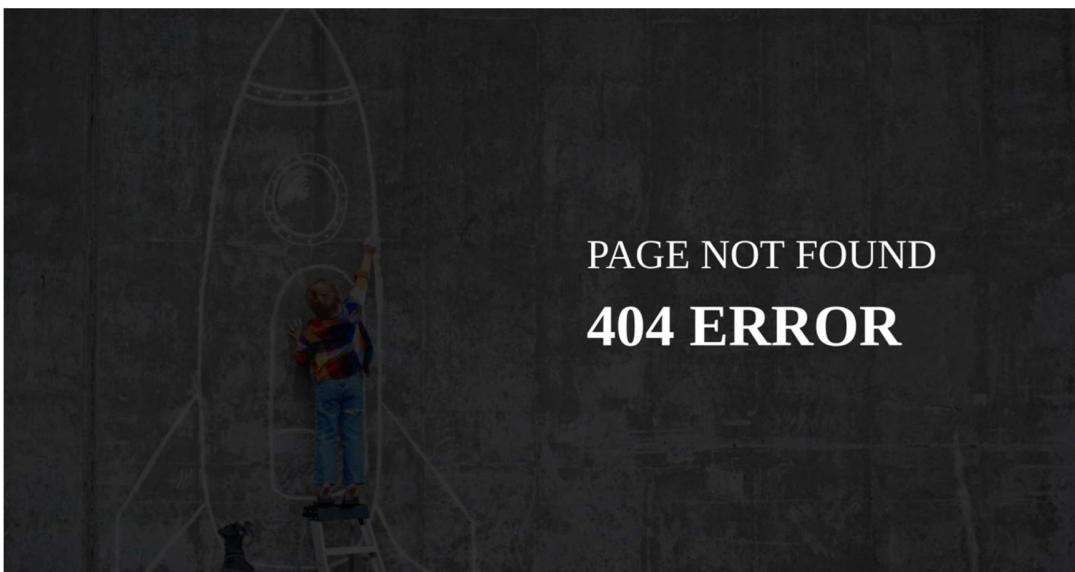


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404 ERROR – PAGE NOT FOUND

The server has not found anything matching the request-URI. The requested resource could not be found but may be available in the future. Subsequent requests by the client are permissible.





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500 ERROR – INTERNAL SERVER ERROR

The server encountered an unexpected condition which prevented it from fulfilling the request.

