Proactive Monitoring Software User's Manual

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www.moxa.com/product

Proactive Monitoring Software User's Manual

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Table of Contents

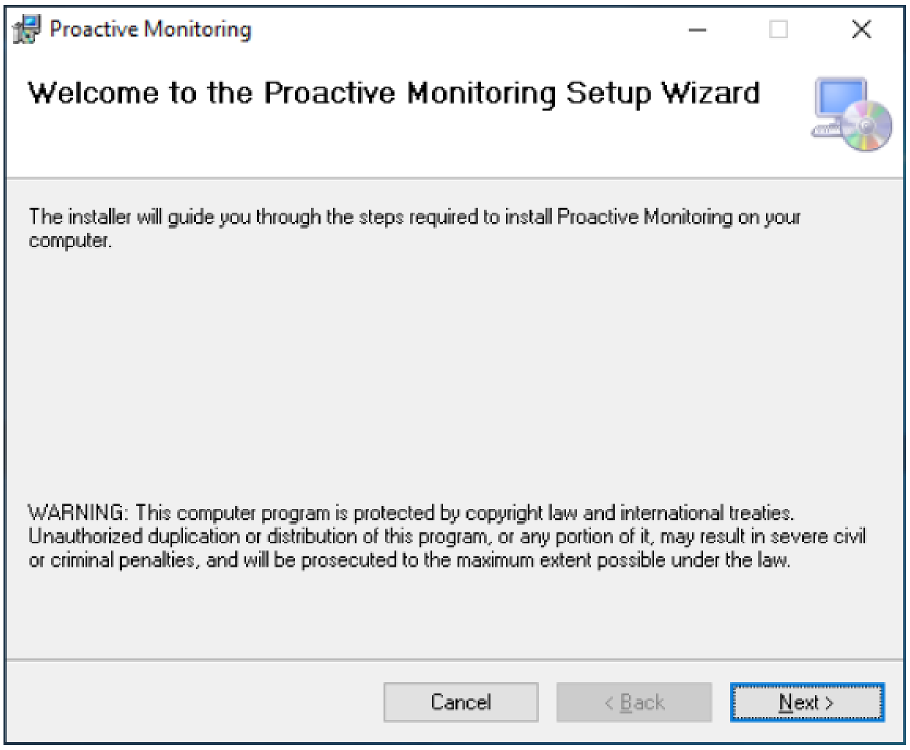
1
Installation and Usage

The following topics are covered in this chapter:

Installing Moxa Proactive Monitoring

To install the Moxa Proactive Monitoring software, do the following:

1. Get the ProactiveMonitoringSetup_Vx.x.x_x64.msi file from a Moxa representative and run it.
2. Click **Next**.

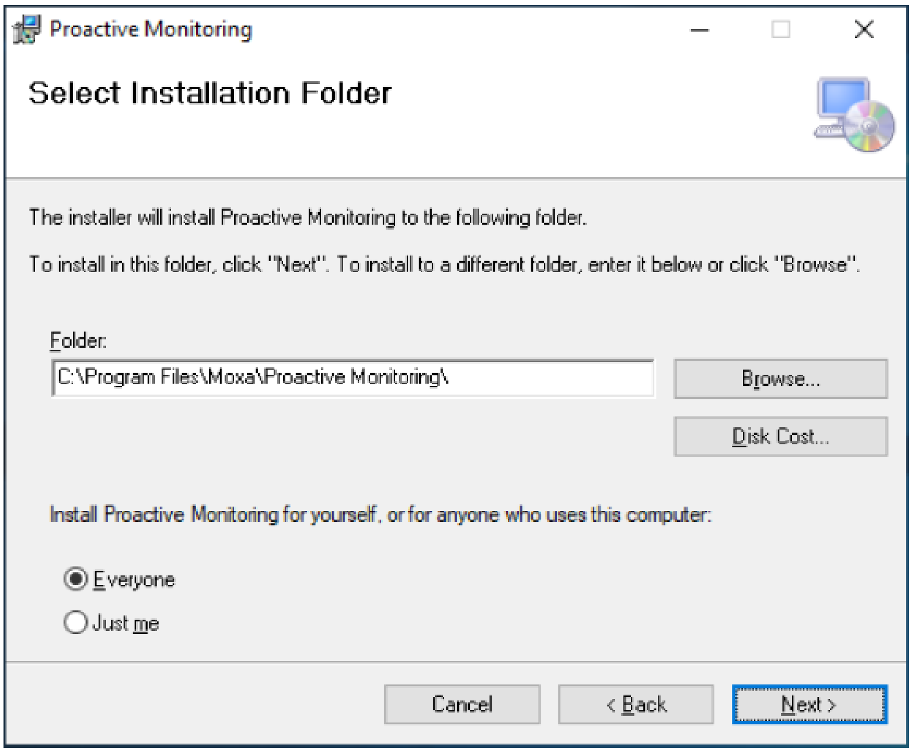

Proactive Monitoring

Welcome to the Proactive Monitoring Setup Wizard

The installer will guide you through the steps required to install Proactive Monitoring on your computer.

WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.

3. Browse to a new folder or use the default folder. Click **Next**.


Proactive Monitoring

Select Installation Folder

The installer will install Proactive Monitoring to the following folder.

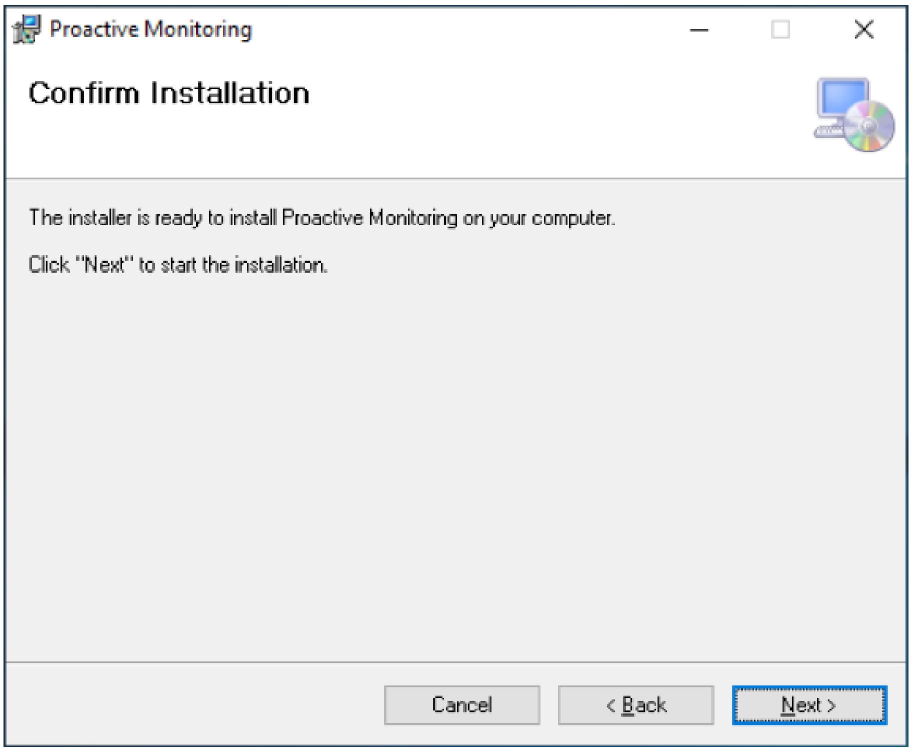
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".

Folder:
C:\Program Files\Moxa\Proactive Monitoring\

Install Proactive Monitoring for yourself, or for anyone who uses this computer:

● Everyone
○ Just me

4. Click **Next** on the confirmation screen to start the installation.



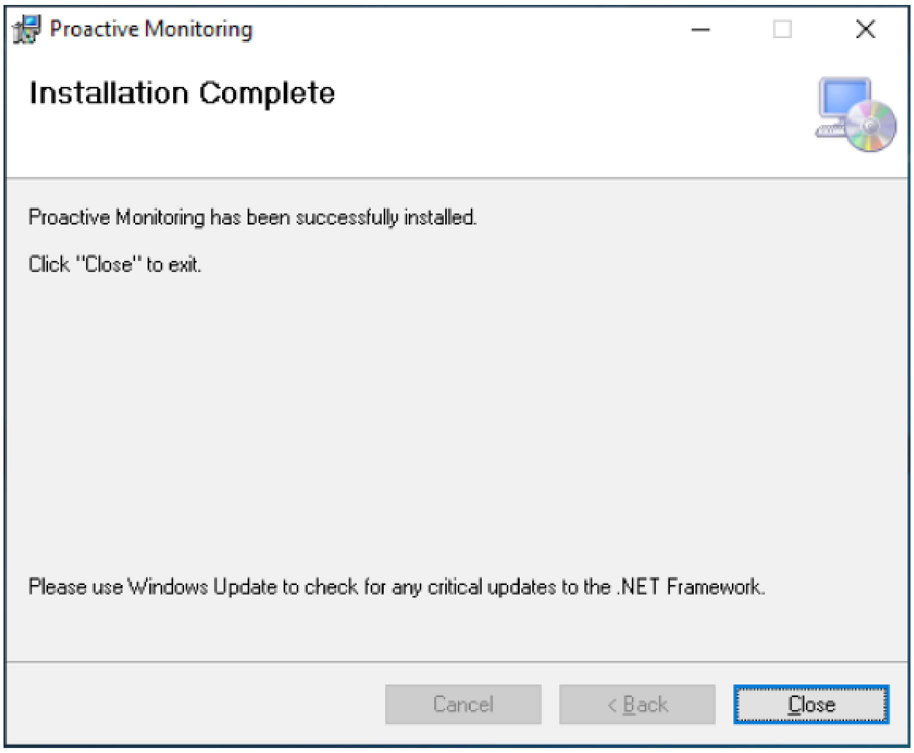
Proactive Monitoring

Confirm Installation

The installer is ready to install Proactive Monitoring on your computer.

Click "Next" to start the installation.

5. After the installation, process is complete, click **Close** to exit the InstallShield Wizard.



Proactive Monitoring

Installation Complete

Proactive Monitoring has been successfully installed.

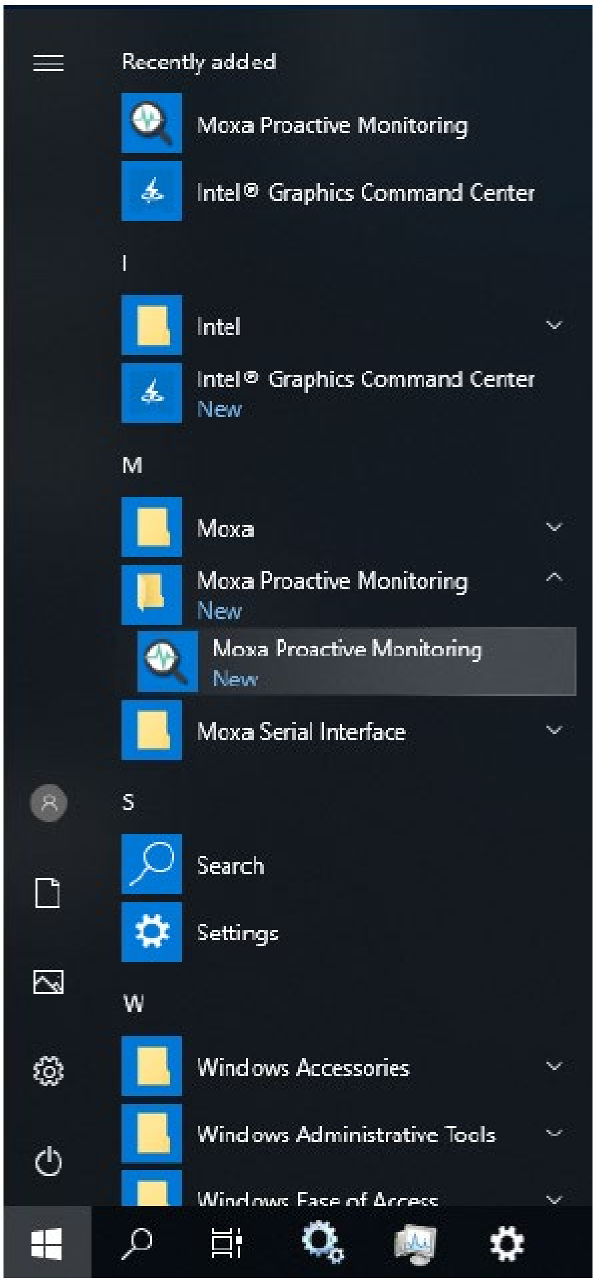
Click "Close" to exit.

Please use Windows Update to check for any critical updates to the .NET Framework.

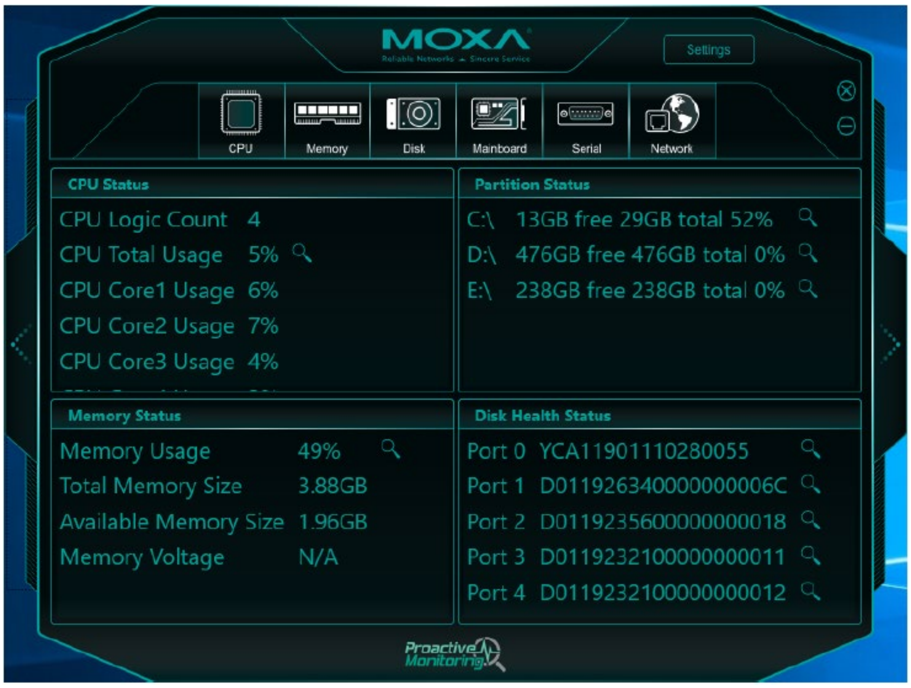
Monitoring System Status

To use the Proactive Monitoring software to monitor the system status of your computer, do the following:

1. In your computer, go to **All Programs** > **Moxa** and select **Moxa Proactive Monitoring** to run the tool.


Recently added
Moxa Proactive Monitoring
Intel® Graphics Command Center
I
Intel
Intel® Graphics Command Center
New
M
Moxa
Moxa Proactive Monitoring
New
Moxa Proactive Monitoring
New
Moxa Serial Interface
S
Search
Settings
W
Windows Accessories
Windows Administrative Tools
Windows Ease of Access

2. In the system dashboard (default view) that is displayed, check the system status of your computer.



CPU Status

CPU Logic Count	4
CPU Total Usage	5%
CPU Core1 Usage	6%
CPU Core2 Usage	7%
CPU Core3 Usage	4%

Partition Status

C:\	13GB free 29GB total 52%
D:\	476GB free 476GB total 0%
E:\	238GB free 238GB total 0%

Memory Status

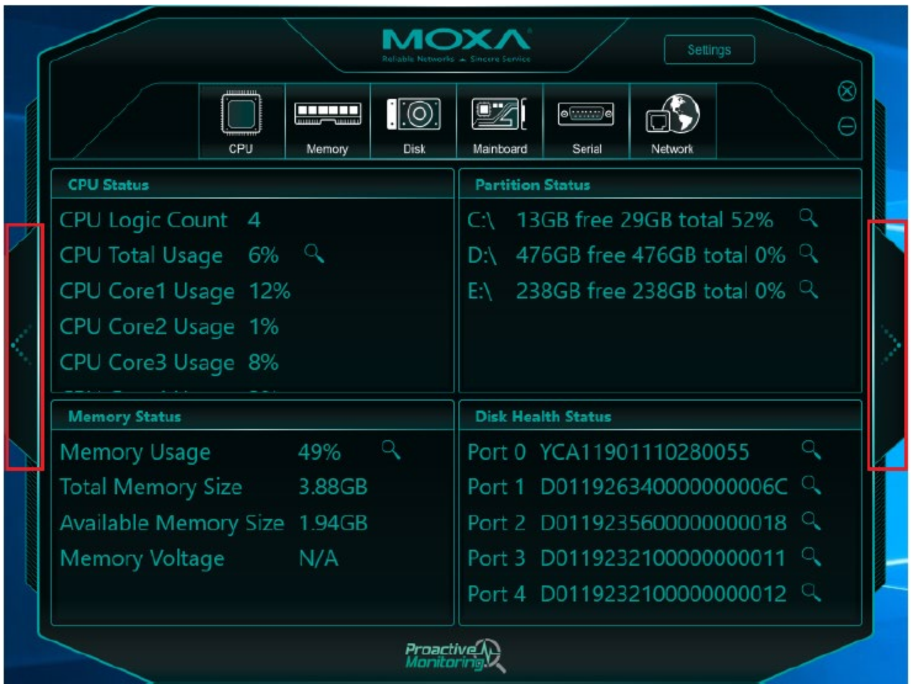
Memory Usage	49%
Total Memory Size	3.88GB
Available Memory Size	1.96GB
Memory Voltage	N/A

Disk Health Status

Port 0	YCA11901110280055
Port 1	D0119263400000006C
Port 2	D01192356000000018
Port 3	D01192321000000011
Port 4	D01192321000000012

The dashboard displays four categories of system statuses—CPU, Disk, Memory, and Mainboard.

3. To change the dashboard view and display other system status items, click the previous button on the left, or the next button on the right.



CPU Status

CPU Logic Count	4
CPU Total Usage	6%
CPU Core1 Usage	12%
CPU Core2 Usage	1%
CPU Core3 Usage	8%

Partition Status

C:\	13GB free 29GB total 52%
D:\	476GB free 476GB total 0%
E:\	238GB free 238GB total 0%

Memory Status

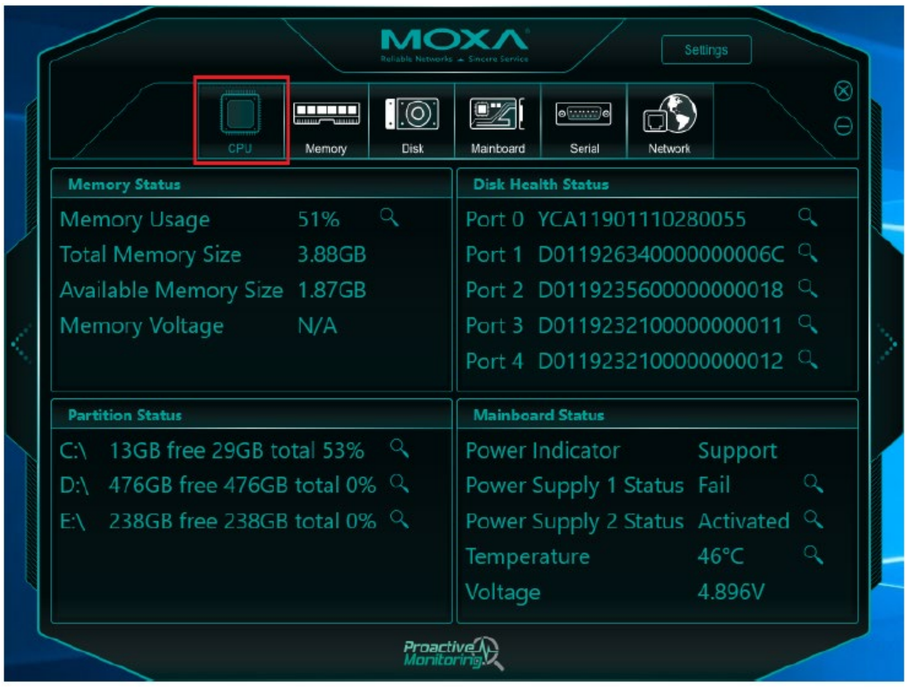
Memory Usage	49%
Total Memory Size	3.88GB
Available Memory Size	1.94GB
Memory Voltage	N/A

Disk Health Status

Port 0	YCA11901110280055
Port 1	D0119263400000006C
Port 2	D01192356000000018
Port 3	D01192321000000011
Port 4	D01192321000000012

Customizing the System Dashboard

You can select your own system status items to display on the dashboard by turning on or off the status monitor of each item. For example, if you do not want to monitor the CPU status, you can turn off the feature by clicking on the button with the CPU icon. The dashboard will be updated based on your selection.



Memory Status

Memory Usage	51%
Total Memory Size	3.88GB
Available Memory Size	1.87GB
Memory Voltage	N/A

Disk Health Status

Port 0	YCA11901110280055
Port 1	D0119263400000000006C
Port 2	D011923560000000018
Port 3	D011923210000000011
Port 4	D011923210000000012

Partition Status

C:\	13GB free 29GB total 53%
D:\	476GB free 476GB total 0%
E:\	238GB free 238GB total 0%

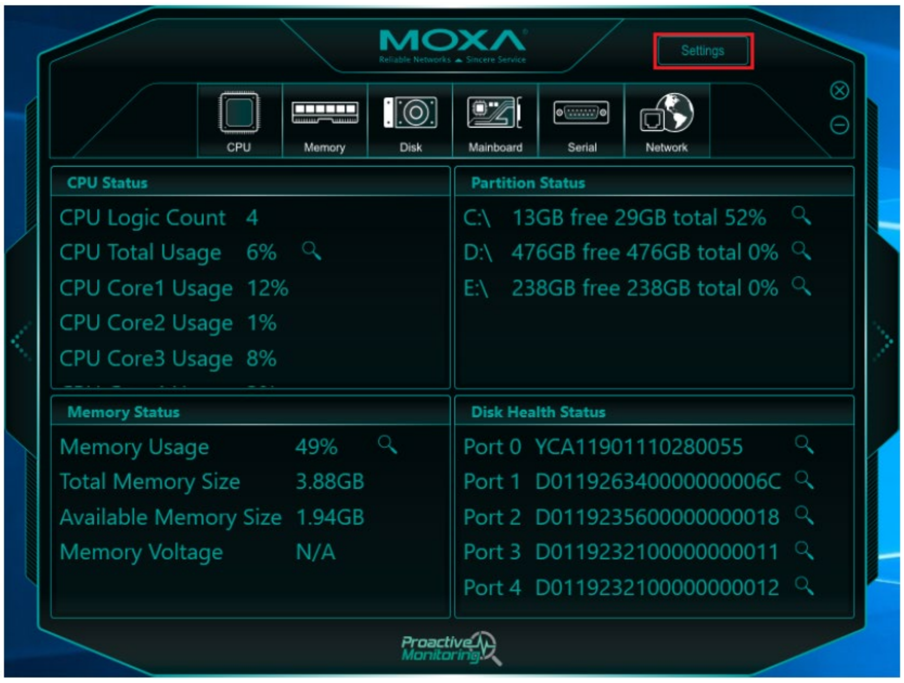
Mainboard Status

Power Indicator	Support
Power Supply 1 Status	Fail
Power Supply 2 Status	Activated
Temperature	46°C
Voltage	4.896V

You can also further customize the items that you want to display.

For example, if you do not want to show the CPU usage of each core, you can turn off that item as follows:

1. Click on the **Settings** button on the top right corner of the dashboard.



CPU Status

CPU Logic Count	4
CPU Total Usage	6%
CPU Core1 Usage	12%
CPU Core2 Usage	1%
CPU Core3 Usage	8%

Partition Status

C:\	13GB free 29GB total 52%
D:\	476GB free 476GB total 0%
E:\	238GB free 238GB total 0%

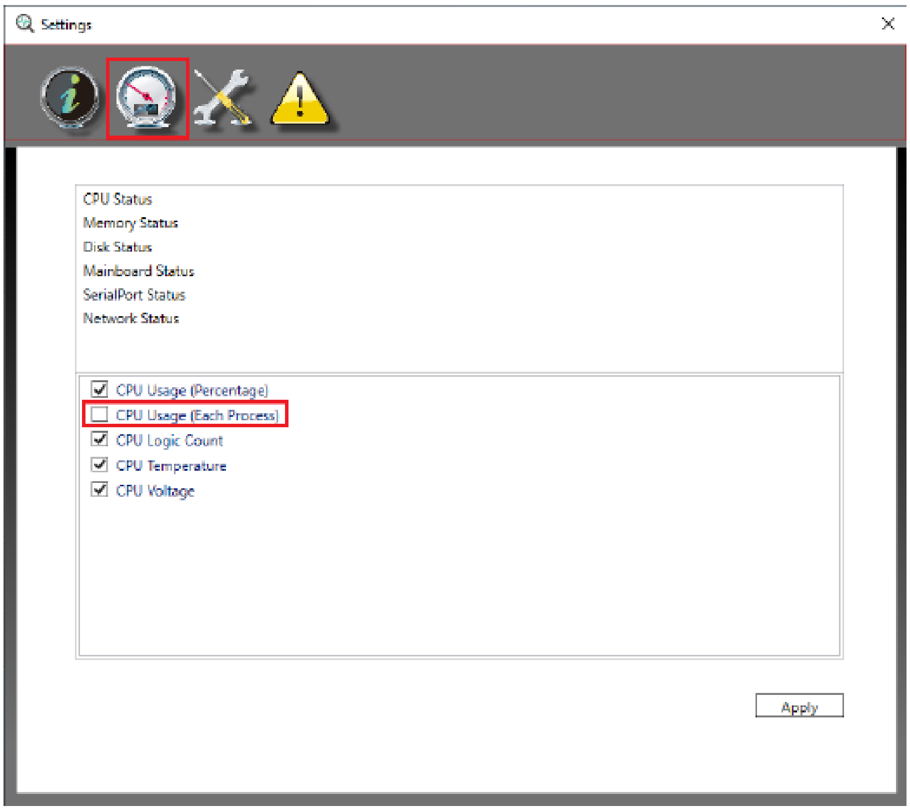
Memory Status

Memory Usage	49%
Total Memory Size	3.88GB
Available Memory Size	1.94GB
Memory Voltage	N/A

Disk Health Status

Port 0	YCA11901110280055
Port 1	D0119263400000000006C
Port 2	D011923560000000018
Port 3	D011923210000000011
Port 4	D011923210000000012

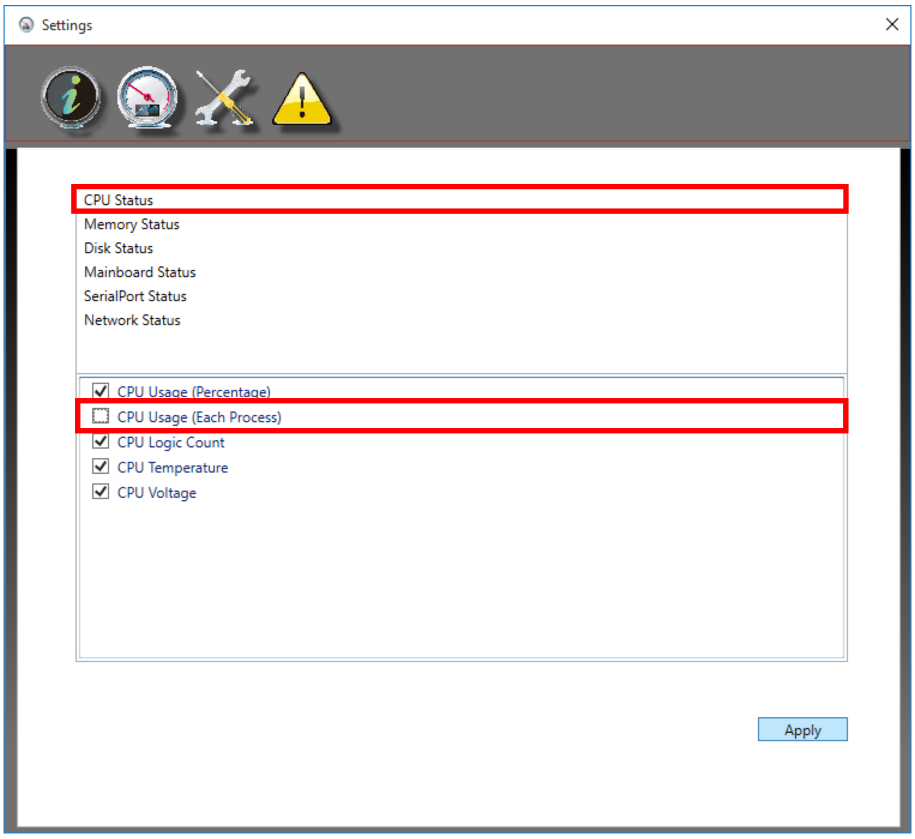
2. In the **Settings** page, select the second icon to switch to a member item's selection page and select **CPU Usage (Each Process)**.



CPU Status
Memory Status
Disk Status
Mainboard Status
SerialPort Status
Network Status

- [x] CPU Usage (Percentage)
- [ ] CPU Usage (Each Process)
- [x] CPU Logic Count
- [x] CPU Temperature
- [x] CPU Voltage

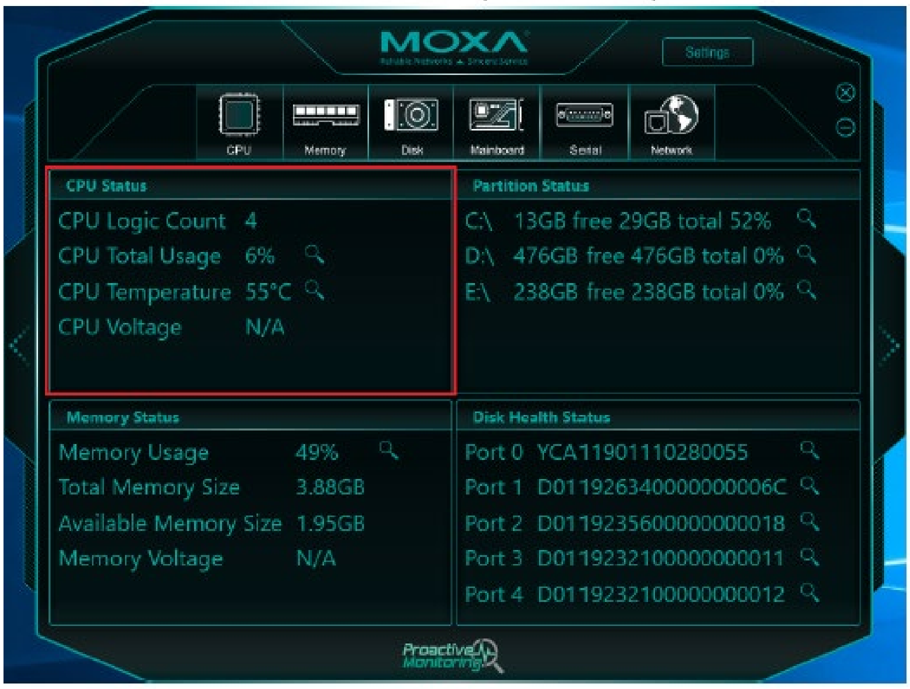
3. Select **CPU Status** in the top section of the window and deselect **CPU Usage (Each Process)** in the bottom section of the window.



CPU Status
Memory Status
Disk Status
Mainboard Status
SerialPort Status
Network Status

- [x] CPU Usage (Percentage)
- [ ] CPU Usage (Each Process)
- [x] CPU Logic Count
- [x] CPU Temperature
- [x] CPU Voltage

4. Click **Apply**.
   The CPU status shown on the dashboard will be updated based on your selection.



CPU Status
CPU Logic Count 4
CPU Total Usage 6%
CPU Temperature 55°C
CPU Voltage N/A

Partition Status
C:\ 13GB free 29GB total 52%
D:\ 476GB free 476GB total 0%
E:\ 238GB free 238GB total 0%

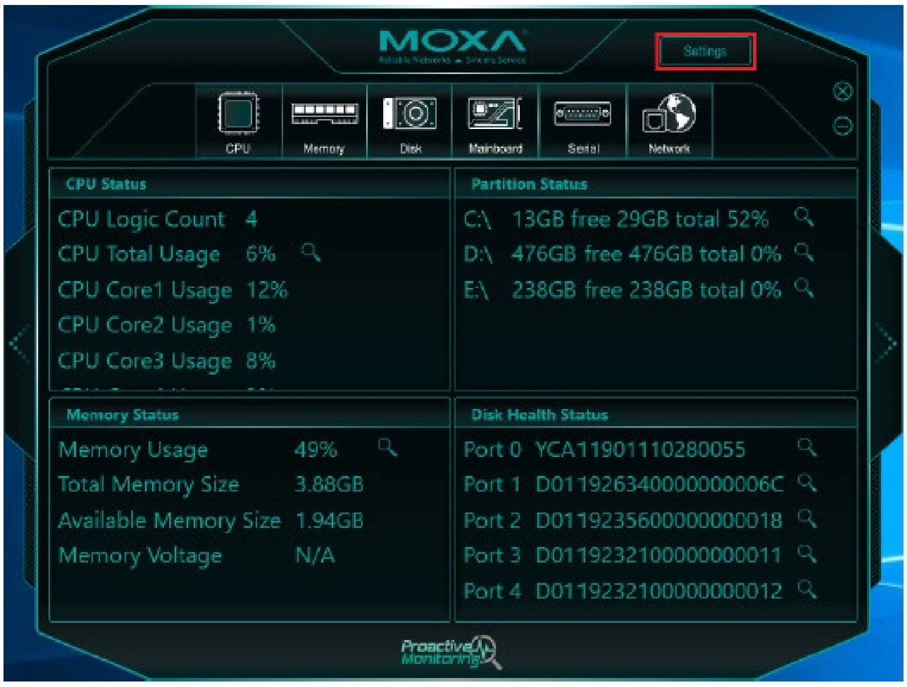
Memory Status
Memory Usage 49%
Total Memory Size 3.88GB
Available Memory Size 1.95GB
Memory Voltage N/A

Disk Health Status
Port 0 YCA11901110280055
Port 1 D0119263400000000006C
Port 2 D0119235600000000018
Port 3 D0119232100000000011
Port 4 D0119232100000000012

Setting Up System Alerts

To configure system alerts, do the following:

1. In the dashboard, click **Settings**.



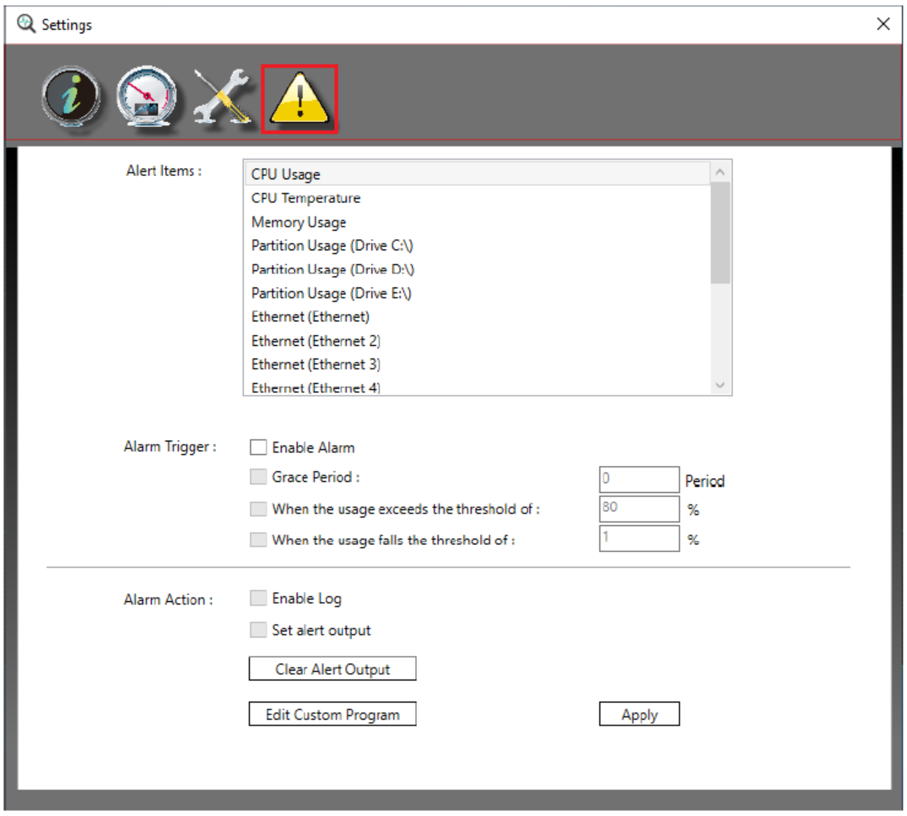
CPU Status
CPU Logic Count 4
CPU Total Usage 6%
CPU Core1 Usage 12%
CPU Core2 Usage 1%
CPU Core3 Usage 8%

Partition Status
C:\ 13GB free 29GB total 52%
D:\ 476GB free 476GB total 0%
E:\ 238GB free 238GB total 0%

Memory Status
Memory Usage 49%
Total Memory Size 3.88GB
Available Memory Size 1.94GB
Memory Voltage N/A

Disk Health Status
Port 0 YCA11901110280055
Port 1 D0119263400000000006C
Port 2 D0119235600000000018
Port 3 D0119232100000000011
Port 4 D0119232100000000012

2. In the **Settings** page, click on the alert icon to switch to the alert setting pages.



Settings

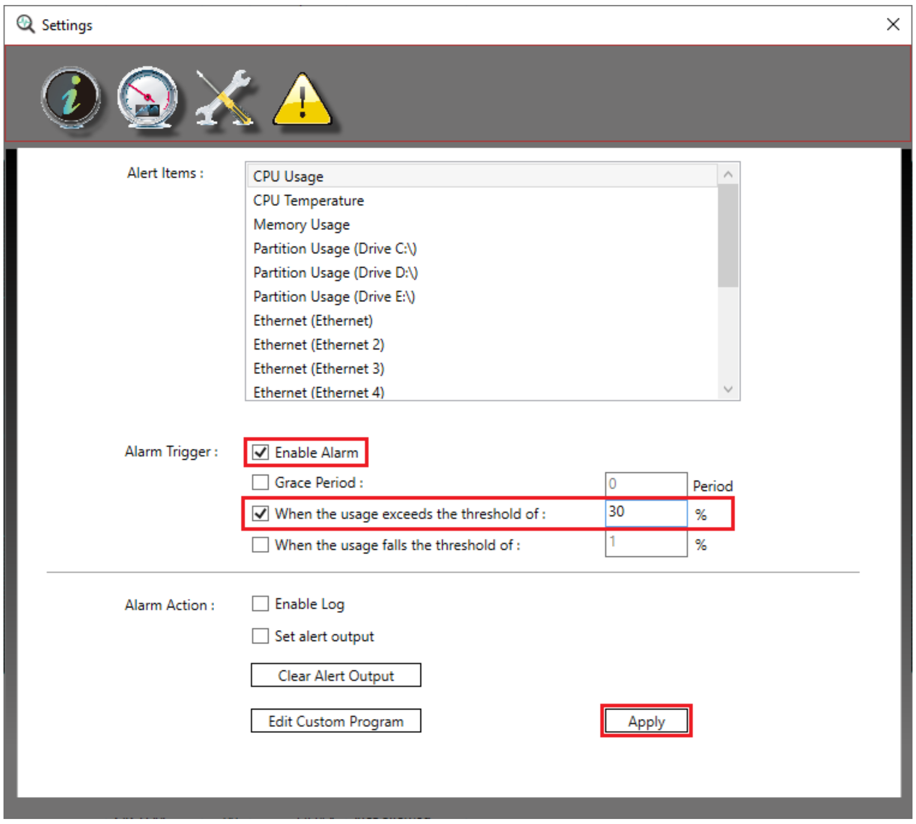
Alert Items :
- CPU Usage
- CPU Temperature
- Memory Usage
- Partition Usage (Drive C:\)
- Partition Usage (Drive D:\)
- Partition Usage (Drive E:\)
- Ethernet (Ethernet)
- Ethernet (Ethernet 2)
- Ethernet (Ethernet 3)
- Ethernet (Ethernet 4)

Alarm Trigger :
- ☐ Enable Alarm
- ☐ Grace Period : 0 Period
- ☐ When the usage exceeds the threshold of : 80 %
- ☐ When the usage falls the threshold of : 1 %

Alarm Action :
- ☐ Enable Log
- ☐ Set alert output

For example, you can configure an alert if the CPU usage in the system crosses the threshold usage of 30%. When CPU usage is over 30%, the icon on the dashboard will change to red, and an alert is logged in the log file.

To configure this alert, select the **Enable Alarm** and **When the usage exceeds the threshold of:** options and set the threshold value to **30%.**



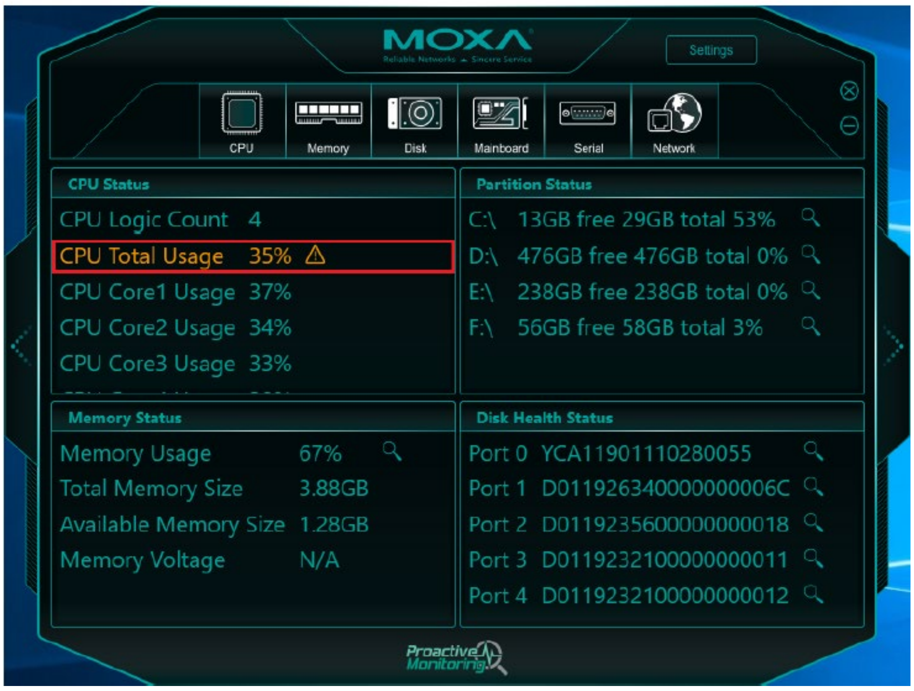
Settings

Alert Items :
- CPU Usage
- CPU Temperature
- Memory Usage
- Partition Usage (Drive C:\)
- Partition Usage (Drive D:\)
- Partition Usage (Drive E:\)
- Ethernet (Ethernet)
- Ethernet (Ethernet 2)
- Ethernet (Ethernet 3)
- Ethernet (Ethernet 4)

Alarm Trigger :
- ☑ Enable Alarm
- ☐ Grace Period : 0 Period
- ☑ When the usage exceeds the threshold of : 30 %
- ☐ When the usage falls the threshold of : 1 %

Alarm Action :
- ☐ Enable Log
- ☐ Set alert output

If the CPU usage over than the threshold, an alert is displayed in the Proactive Monitoring dashboard.



CPU Status

CPU Logic Count 4
CPU Total Usage 35% ⚠
CPU Core1 Usage 37%
CPU Core2 Usage 34%
CPU Core3 Usage 33%

Partition Status

C:\ 13GB free 29GB total 53%
D:\ 476GB free 476GB total 0%
E:\ 238GB free 238GB total 0%
F:\ 56GB free 58GB total 3%

Memory Status

Memory Usage 67%
Total Memory Size 3.88GB
Available Memory Size 1.28GB
Memory Voltage N/A

Disk Health Status

Port 0 YCA11901110280055
Port 1 D0119263400000000006C
Port 2 D011923560000000000018
Port 3 D011923210000000000011
Port 4 D011923210000000000012

Setting the Grace Period

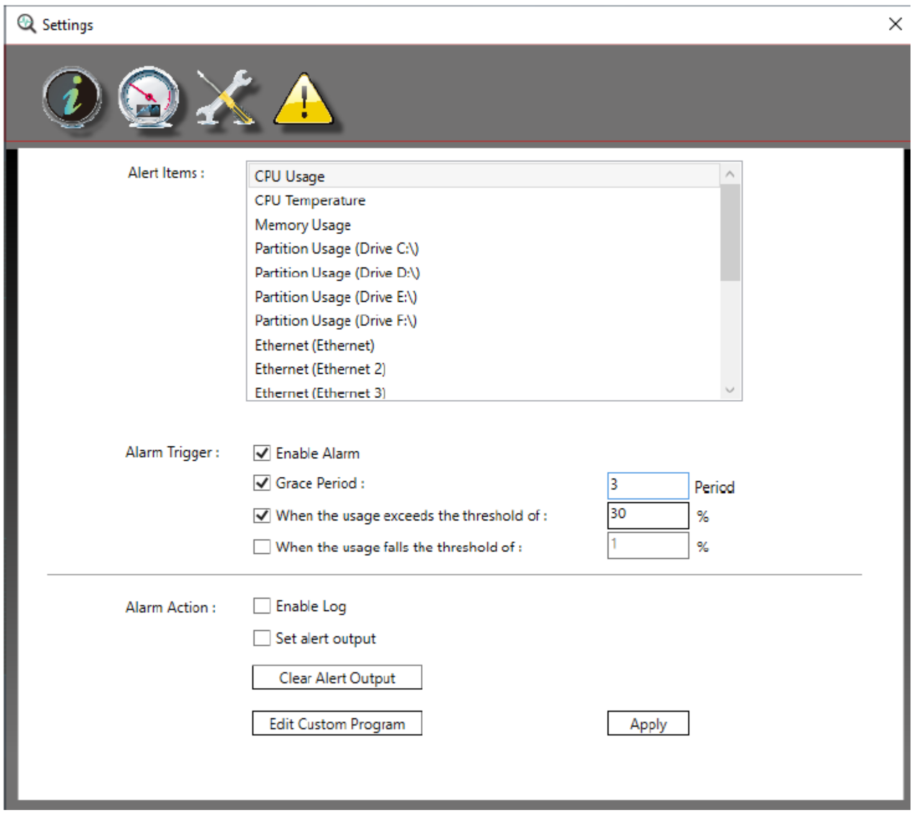
The Grace Period setting is used to avoid the false alarms. For example, multiple programs running on the computer can cause temporary high CPU usage but the situation will go back to normal after the programs are closed. However, an alarm is triggered because the current CPU usage over the threshold. This is called a false alarm. To avoid false alarms, Proactive Monitoring will recheck the system status based on the Grace Period set. If we assign a value of 3 to the Grace Period, the alarm will be triggered after the Proactive Monitoring has scanned the same error 3 times.

NOTE The scanning timer is based on the Scan Interval; you can assign the scan interval and grace period to set a suitable configuration.

To set a grace period for an alert, do the following:

In the Settings window for alerts, select the Grace Period option and enter a value.

In the following example, the Grace Period value is set to 3 when the CPU usage exceeds 30%. The scan interval is the default value.



Settings

Alert Items :

- CPU Usage
- CPU Temperature
- Memory Usage
- Partition Usage (Drive C:\)
- Partition Usage (Drive D:\)
- Partition Usage (Drive E:\)
- Partition Usage (Drive F:\)
- Ethernet (Ethernet)
- Ethernet (Ethernet 2)
- Ethernet (Ethernet 3)

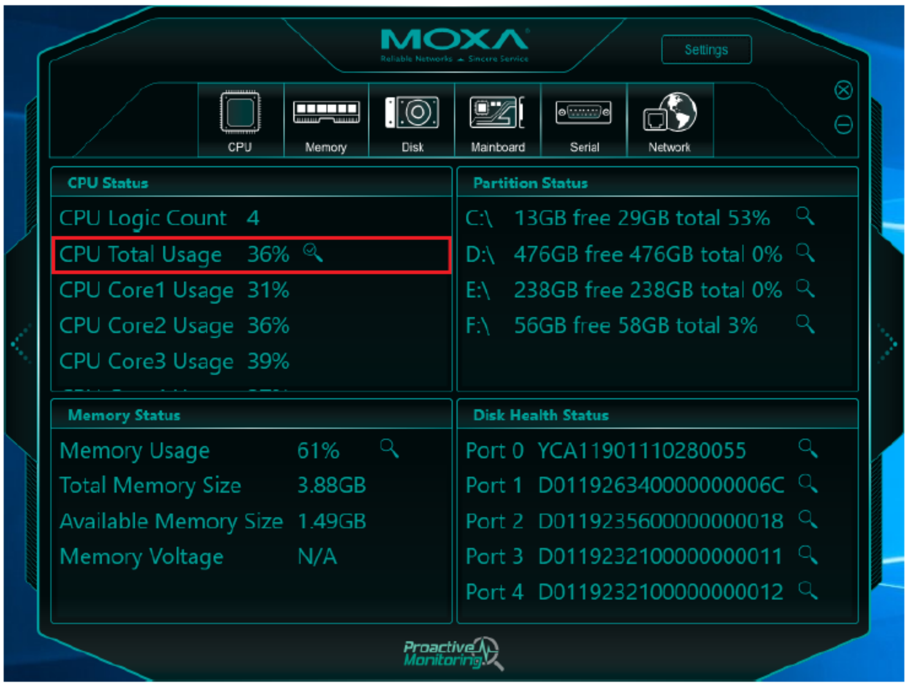
Alarm Trigger :

- [✓] Enable Alarm
- [✓] Grace Period : 3 Period
- [✓] When the usage exceeds the threshold of : 30 %
- [ ] When the usage falls the threshold of : 1 %

Alarm Action :

- [ ] Enable Log
- [ ] Set alert output

If the CPU usage crosses the threshold (30%) for the first time, no alarm is triggered and the value is displayed on the dashboard.



CPU Status

CPU Logic Count	4
CPU Total Usage	36%
CPU Core1 Usage	31%
CPU Core2 Usage	36%
CPU Core3 Usage	39%

Partition Status

C:\	13GB free 29GB total 53%
D:\	476GB free 476GB total 0%
E:\	238GB free 238GB total 0%
F:\	56GB free 58GB total 3%

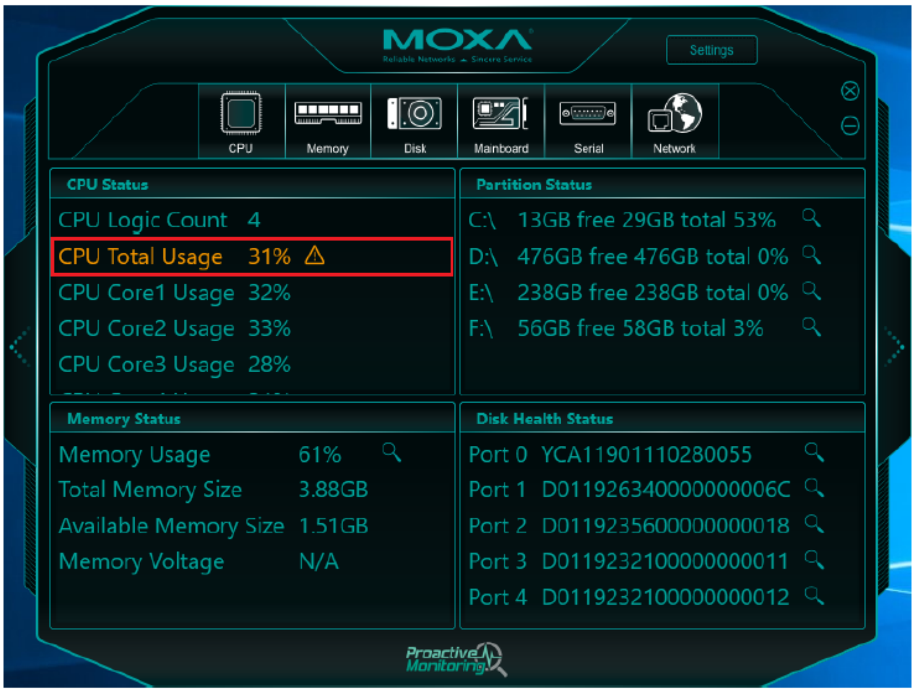
Memory Status

Memory Usage	61%
Total Memory Size	3.88GB
Available Memory Size	1.49GB
Memory Voltage	N/A

Disk Health Status

Port 0	YCA11901110280055
Port 1	D0119263400000000006C
Port 2	D0119235600000000018
Port 3	D0119232100000000011
Port 4	D0119232100000000012

The Proactive Monitoring software will recheck the system status 3 times. If the CPU usage is still over the threshold, an alarm is triggered.



CPU Status

CPU Logic Count	4
CPU Total Usage	31% ⚠
CPU Core1 Usage	32%
CPU Core2 Usage	33%
CPU Core3 Usage	28%

Partition Status

C:\	13GB free 29GB total 53%
D:\	476GB free 476GB total 0%
E:\	238GB free 238GB total 0%
F:\	56GB free 58GB total 3%

Memory Status

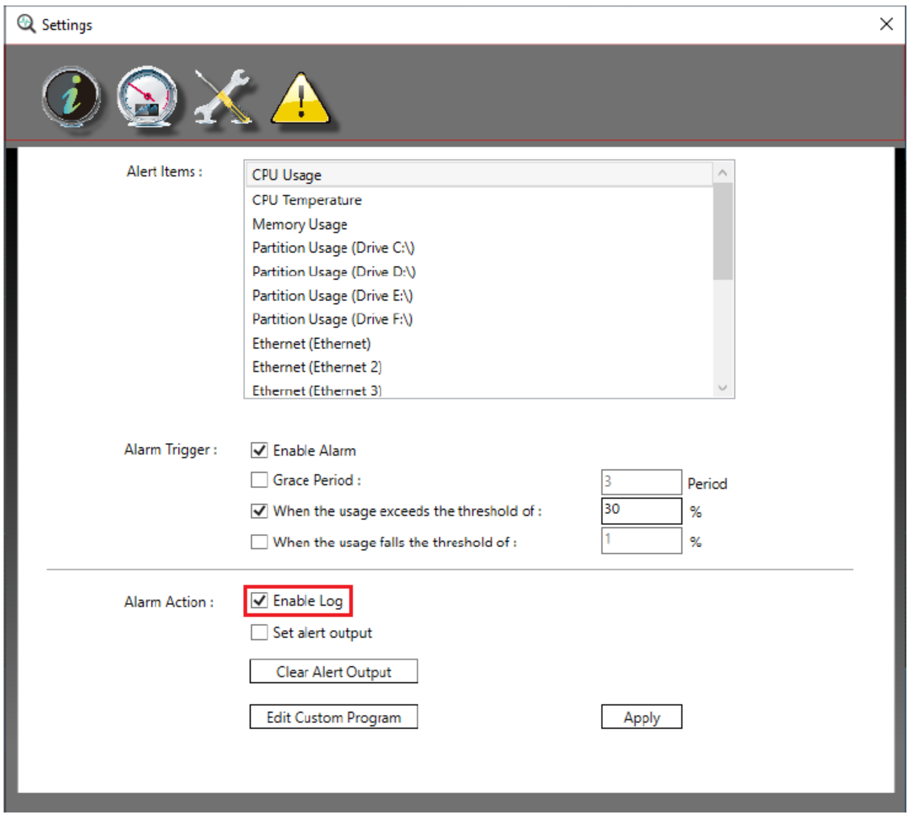
Memory Usage	61%
Total Memory Size	3.88GB
Available Memory Size	1.51GB
Memory Voltage	N/A

Disk Health Status

Port 0	YCA11901110280055
Port 1	D0119263400000000006C
Port 2	D0119235600000000018
Port 3	D0119232100000000011
Port 4	D0119232100000000012

Enabling the Event Log

In the Settings window for alert, select the **Enable Log** option and click **Apply**.



Alert Items :

- CPU Usage
- CPU Temperature
- Memory Usage
- Partition Usage (Drive C:\)
- Partition Usage (Drive D:\)
- Partition Usage (Drive E:\)
- Partition Usage (Drive F:\)
- Ethernet (Ethernet)
- Ethernet (Ethernet 2)
- Ethernet (Ethernet 3)

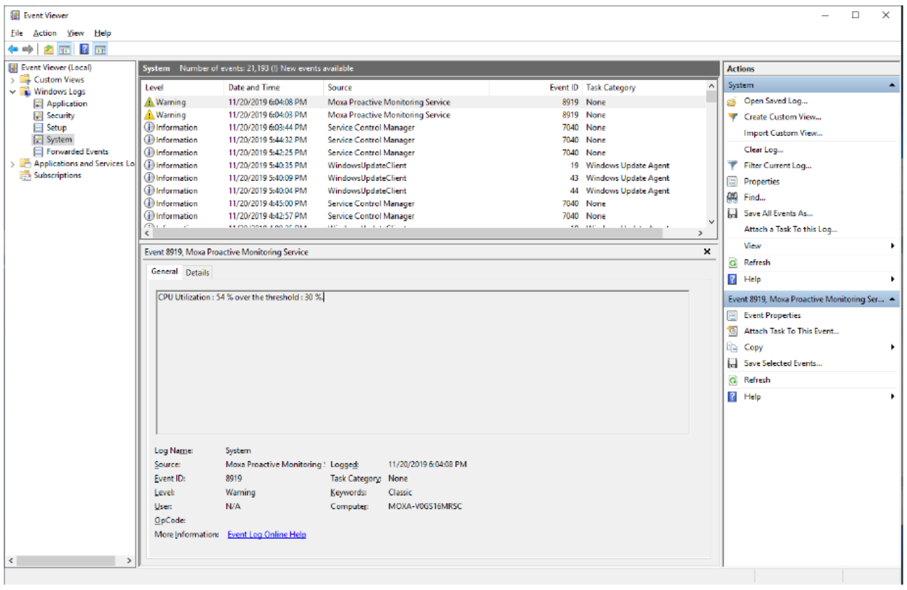
Alarm Trigger :

- ☑ Enable Alarm
- ☐ Grace Period : 3 Period
- ☑ When the usage exceeds the threshold of : 30 %
- ☐ When the usage falls the threshold of : 1 %

Alarm Action :

- ☑ Enable Log
- ☐ Set alert output

To check the event log, run the **Windows Event Viewer** and open Windows System log. If the CPU usage is over the threshold, you will find the corresponding event logs.



System Number of events: 21,193 (!) New events available

Level	Date and Time	Source	Event ID	Task Category
Warning	11/20/2019 6:04:08 PM	Moxa Proactive Monitoring Service	8919	None
Warning	11/20/2019 6:04:03 PM	Moxa Proactive Monitoring Service	8919	None
Information	11/20/2019 6:03:44 PM	Service Control Manager	7040	None
Information	11/20/2019 5:44:32 PM	Service Control Manager	7040	None
Information	11/20/2019 5:42:25 PM	Service Control Manager	7040	None
Information	11/20/2019 5:40:35 PM	WindowsUpdateClient	19	Windows Update Agent
Information	11/20/2019 5:40:09 PM	WindowsUpdateClient	43	Windows Update Agent
Information	11/20/2019 5:40:04 PM	WindowsUpdateClient	44	Windows Update Agent
Information	11/20/2019 4:45:00 PM	Service Control Manager	7040	None
Information	11/20/2019 4:42:57 PM	Service Control Manager	7040	None

Event 8919, Moxa Proactive Monitoring Service

General Details

CPU Utilization : 54 % over the threshold : 30 %.

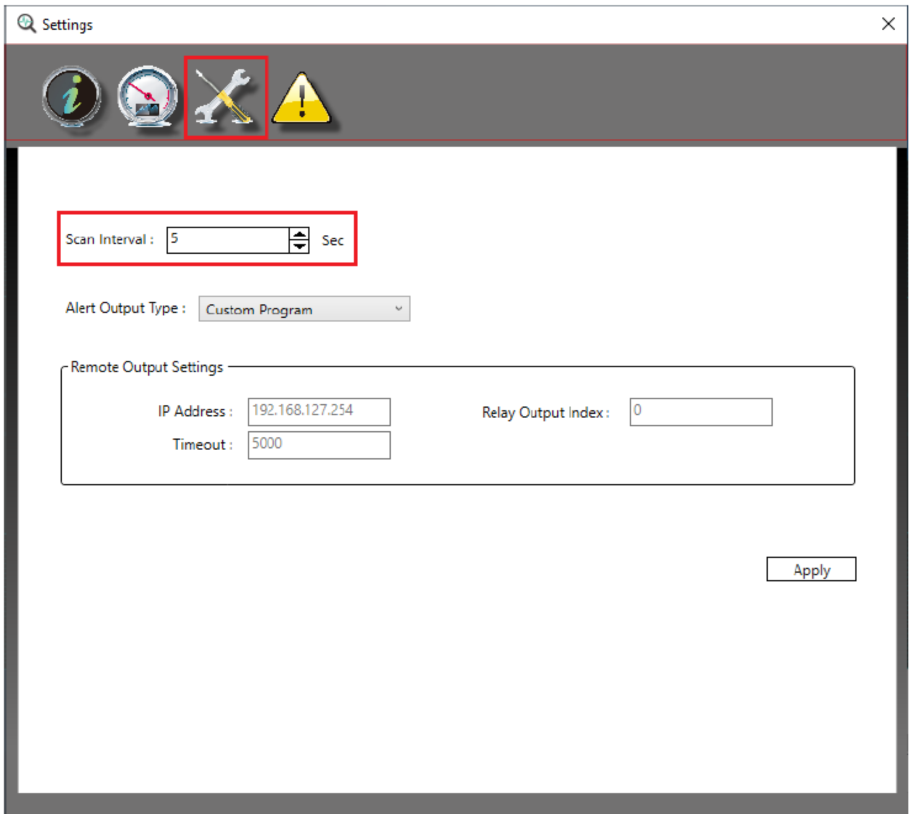
Log Name:	System		
Source:	Moxa Proactive Monitoring :	Logged:	11/20/2019 6:04:08 PM
Event ID:	8919	Task Category:	None
Level:	Warning	Keywords:	Classic
User:	N/A	Computer:	MOXA-V0GS16MRSC
OpCode:			
More Information:	Event Log Online Help		

Setting the Scan Interval

The Scan Interval is the frequency at which the Proactive Monitoring software will scan the system status. The default value is 5 seconds.

To modify the **Scan Interval**, do the following:

1. In the Settings window, click on configuration icon.
2. Set a new Scan Interval value and click **Apply** to save the setting.



Scan Interval : 5 Sec

Alert Output Type : Custom Program

Remote Output Settings

IP Address : 192.168.127.254

Relay Output Index : 0

Timeout : 5000

Setting Up the Alert Output

The alert output function provides three output types: **Custom Program**, **Local Alert Output**, and **Remote Alert Output**.

Custom Program: The system will run the custom program when there is an alert. You can then edit the program to start or stop an alert.

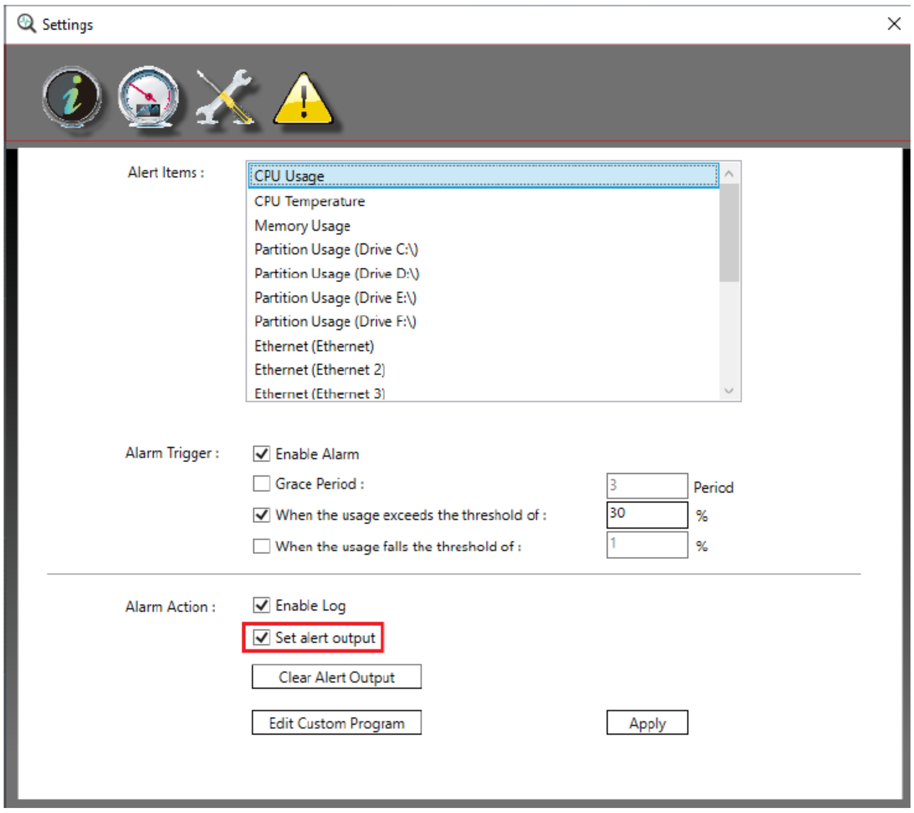
Local Alert Output: The system will use the local relay to send the alert.

NOTE Only some Moxa computers are equipped with a relay output.

Remote Alert Output: Moxa ioLogik E2214-T is used to achieve a centralized remote alarm solution for predictive maintenance. This solution only need the simple settings to achieve the ready-to use, customer don't need to develop their application again.

To set up the alert output, do the following:

1. In the Settings window, select the **Set alert output** and click **Apply**.

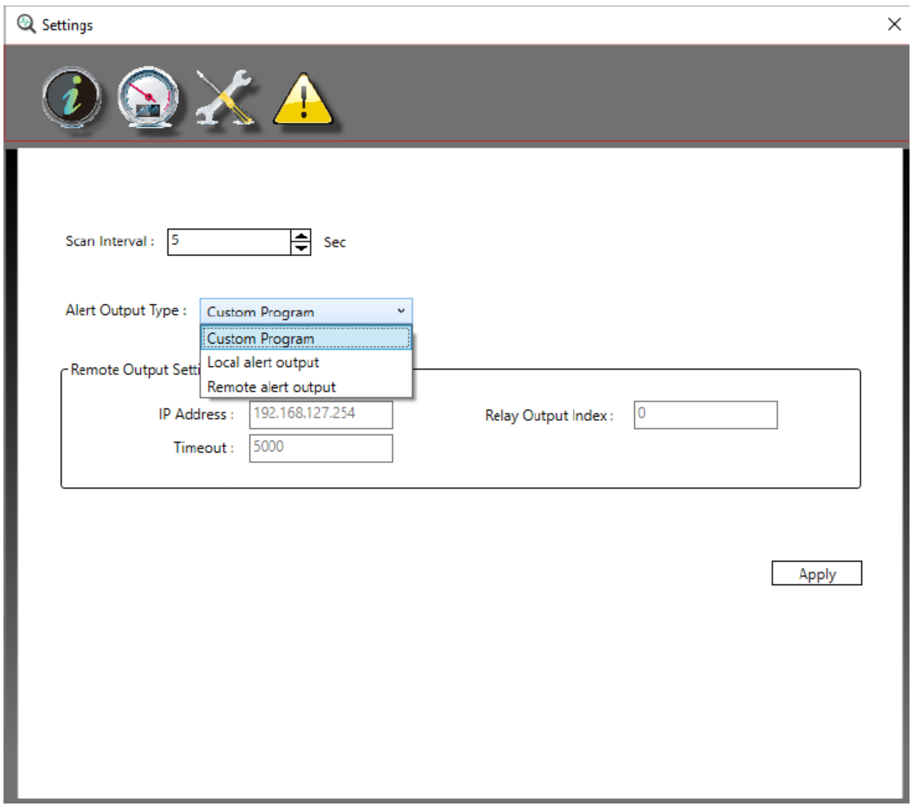


Alert Items :
- CPU Usage
- CPU Temperature
- Memory Usage
- Partition Usage (Drive C:\)
- Partition Usage (Drive D:\)
- Partition Usage (Drive E:\)
- Partition Usage (Drive F:\)
- Ethernet (Ethernet)
- Ethernet (Ethernet 2)
- Ethernet (Ethernet 3)

Alarm Trigger :
- [✓] Enable Alarm
- [ ] Grace Period : 3 Period
- [✓] When the usage exceeds the threshold of : 30 %
- [ ] When the usage falls the threshold of : 1 %

Alarm Action :
- [✓] Enable Log
- [✓] Set alert output

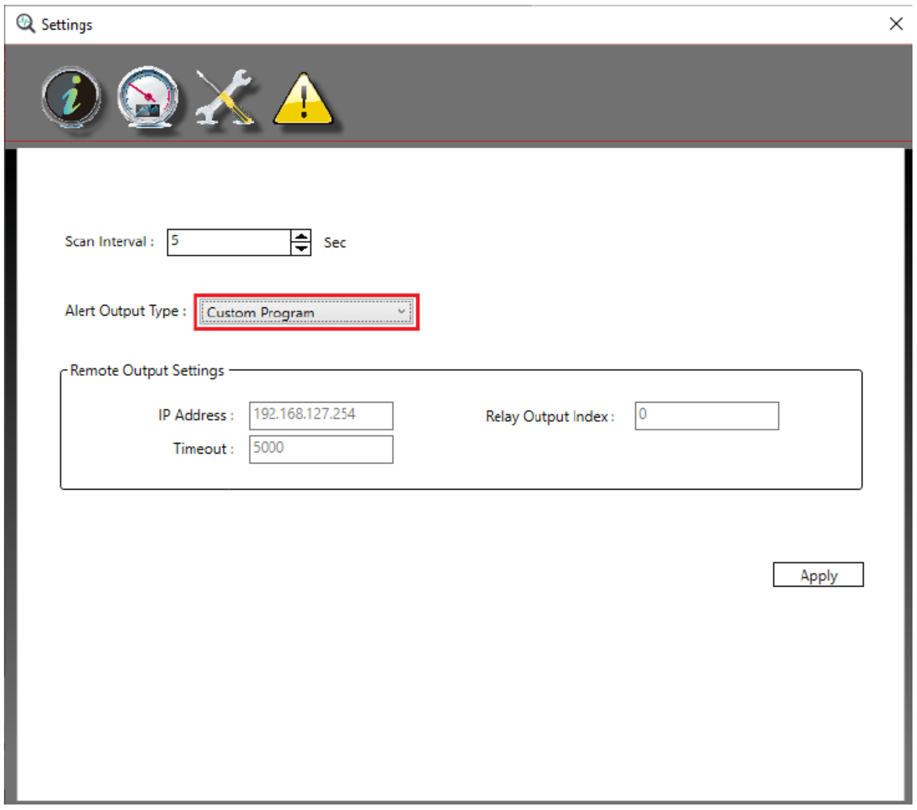
2. Select the alert output type and click **Apply**.



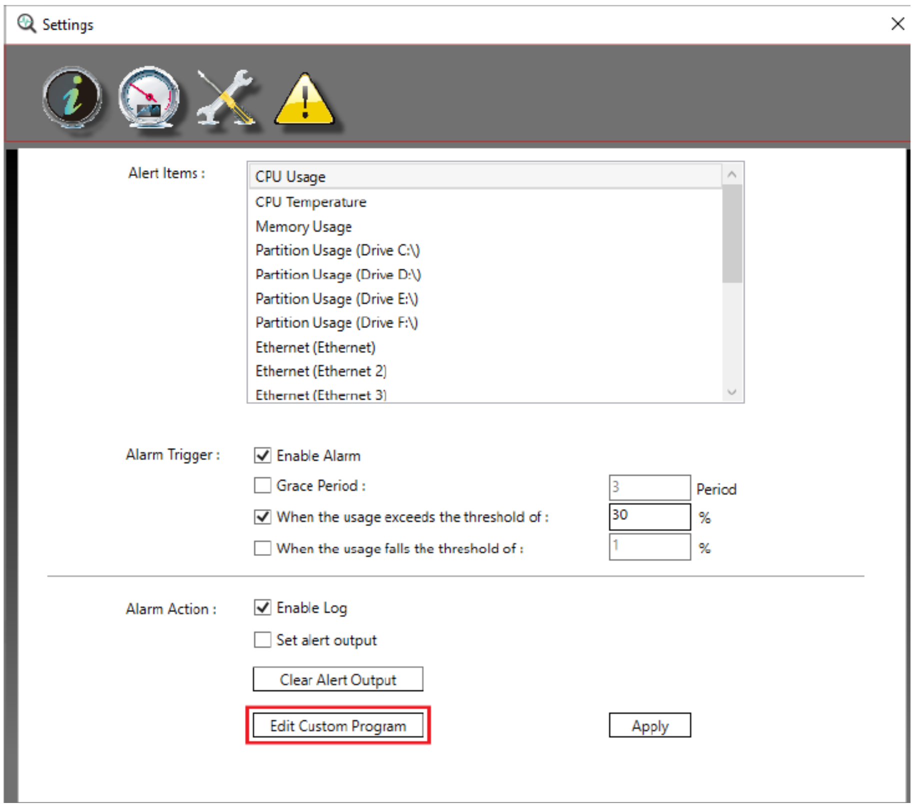
Custom Program

To set up a custom program as the alert output, do the following:

1. In the alert settings window, select **Custom Program** and click **Apply** to save the setting.



2. Click **Edit Custom Program.**



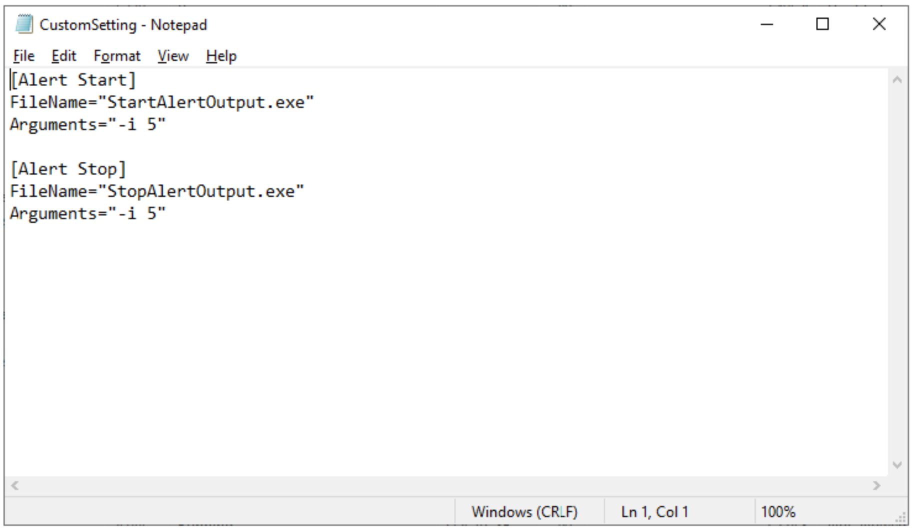
Settings

Alert Items :
- CPU Usage
- CPU Temperature
- Memory Usage
- Partition Usage (Drive C:\)
- Partition Usage (Drive D:\)
- Partition Usage (Drive E:\)
- Partition Usage (Drive F:\)
- Ethernet (Ethernet)
- Ethernet (Ethernet 2)
- Ethernet (Ethernet 3)

Alarm Trigger :
- [✓] Enable Alarm
- [ ] Grace Period : 3 Period
- [✓] When the usage exceeds the threshold of : 30 %
- [ ] When the usage falls the threshold of : 1 %

Alarm Action :
- [✓] Enable Log
- [ ] Set alert output

3. Edit the path and arguments of the programs.
   For example, "**-i 5**" means 5 second interval between the alert outputs.



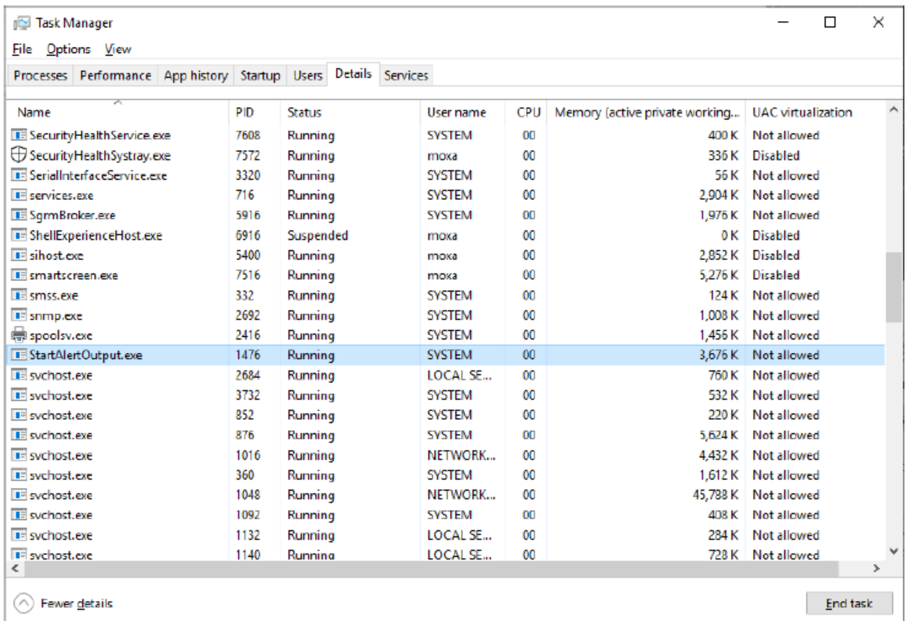
CustomSetting - Notepad

```
[Alert Start]
FileName="StartAlertOutput.exe"
Arguments="-i 5"

[Alert Stop]
FileName="StopAlertOutput.exe"
Arguments="-i 5"
```

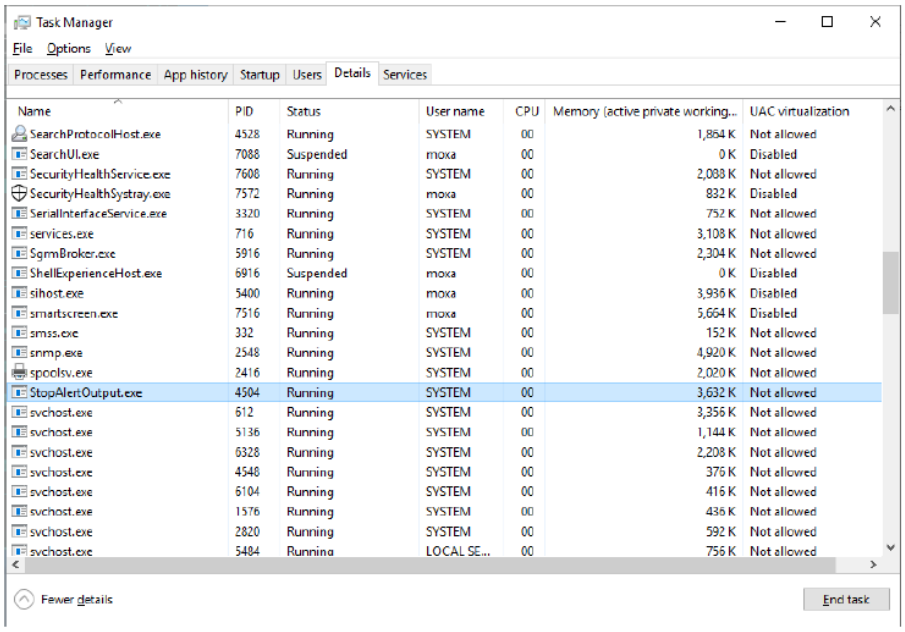
4. When an alert condition occurs, the programs will run in the background.

Alert Start


Task Manager
File Options View
Processes Performance App history Startup Users Details Services
Fewer details
End task

Name	PID	Status	User name	CPU	Memory (active private working...	UAC virtualization
SecurityHealthService.exe	7608	Running	SYSTEM	00	400 K	Not allowed
SecurityHealthSystray.exe	7572	Running	moxa	00	336 K	Disabled
SerialInterfaceService.exe	3320	Running	SYSTEM	00	56 K	Not allowed
services.exe	716	Running	SYSTEM	00	2,904 K	Not allowed
SgrmBroker.exe	5916	Running	SYSTEM	00	1,976 K	Not allowed
ShellExperienceHost.exe	6916	Suspended	moxa	00	0 K	Disabled
sihost.exe	5400	Running	moxa	00	2,852 K	Disabled
smartscreen.exe	7516	Running	moxa	00	5,276 K	Disabled
smss.exe	332	Running	SYSTEM	00	124 K	Not allowed
snmp.exe	2692	Running	SYSTEM	00	1,008 K	Not allowed
spoolsv.exe	2416	Running	SYSTEM	00	1,456 K	Not allowed
StartAlertOutput.exe	1476	Running	SYSTEM	00	3,676 K	Not allowed
svchost.exe	2684	Running	LOCAL SE...	00	760 K	Not allowed
svchost.exe	3732	Running	SYSTEM	00	532 K	Not allowed
svchost.exe	852	Running	SYSTEM	00	220 K	Not allowed
svchost.exe	876	Running	SYSTEM	00	5,624 K	Not allowed
svchost.exe	1016	Running	NETWORK...	00	4,432 K	Not allowed
svchost.exe	360	Running	SYSTEM	00	1,612 K	Not allowed
svchost.exe	1048	Running	NETWORK...	00	45,788 K	Not allowed
svchost.exe	1092	Running	SYSTEM	00	408 K	Not allowed
svchost.exe	1132	Running	LOCAL SE...	00	284 K	Not allowed
svchost.exe	1140	Running	LOCAL SE...	00	728 K	Not allowed

Alert Stop

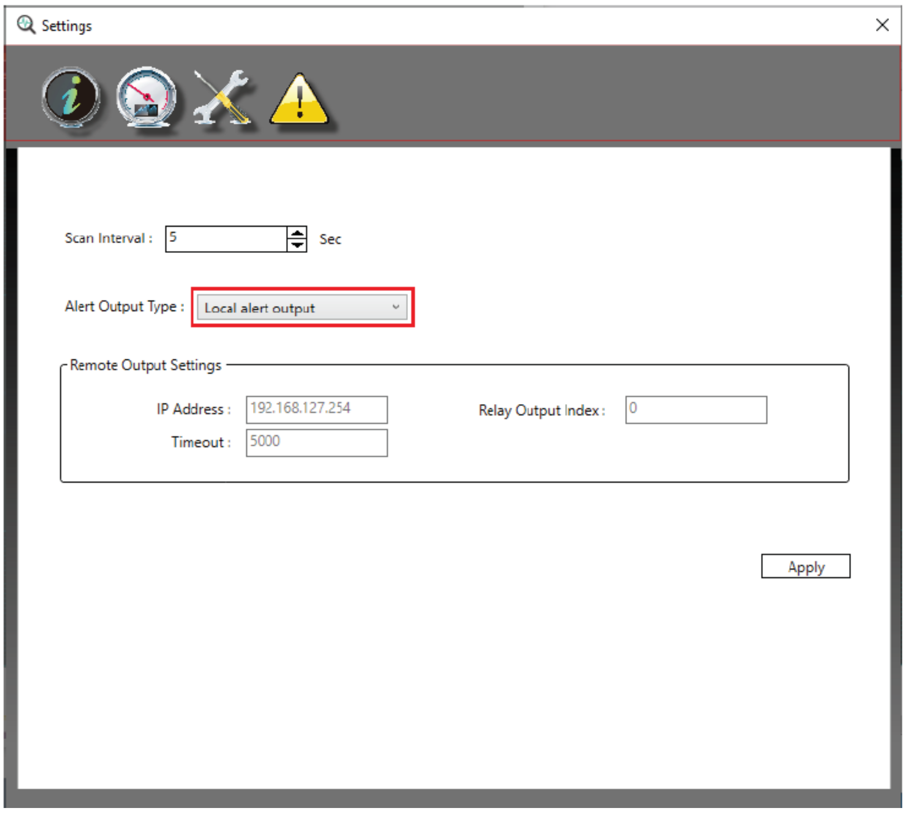

Task Manager
File Options View
Processes Performance App history Startup Users Details Services
Fewer details
End task

Name	PID	Status	User name	CPU	Memory (active private working...	UAC virtualization
SearchProtocolHost.exe	4528	Running	SYSTEM	00	1,864 K	Not allowed
SearchUI.exe	7088	Suspended	moxa	00	0 K	Disabled
SecurityHealthService.exe	7608	Running	SYSTEM	00	2,088 K	Not allowed
SecurityHealthSystray.exe	7572	Running	moxa	00	832 K	Disabled
SerialInterfaceService.exe	3320	Running	SYSTEM	00	752 K	Not allowed
services.exe	716	Running	SYSTEM	00	3,108 K	Not allowed
SgrmBroker.exe	5916	Running	SYSTEM	00	2,304 K	Not allowed
ShellExperienceHost.exe	6916	Suspended	moxa	00	0 K	Disabled
sihost.exe	5400	Running	moxa	00	3,936 K	Disabled
smartscreen.exe	7516	Running	moxa	00	5,664 K	Disabled
smss.exe	332	Running	SYSTEM	00	152 K	Not allowed
snmp.exe	2548	Running	SYSTEM	00	4,920 K	Not allowed
spoolsv.exe	2416	Running	SYSTEM	00	2,020 K	Not allowed
StopAlertOutput.exe	4504	Running	SYSTEM	00	3,632 K	Not allowed
svchost.exe	612	Running	SYSTEM	00	3,356 K	Not allowed
svchost.exe	5136	Running	SYSTEM	00	1,144 K	Not allowed
svchost.exe	6328	Running	SYSTEM	00	2,208 K	Not allowed
svchost.exe	4548	Running	SYSTEM	00	376 K	Not allowed
svchost.exe	6104	Running	SYSTEM	00	416 K	Not allowed
svchost.exe	1576	Running	SYSTEM	00	436 K	Not allowed
svchost.exe	2820	Running	SYSTEM	00	592 K	Not allowed
svchost.exe	5484	Running	LOCAL SE...	00	756 K	Not allowed

Local Alert Output

NOTE Only some Moxa computers are equipped with a relay output.

To set up a local alert output, select the **Local alert output** in the Settings window and click **Apply** to save the setting.

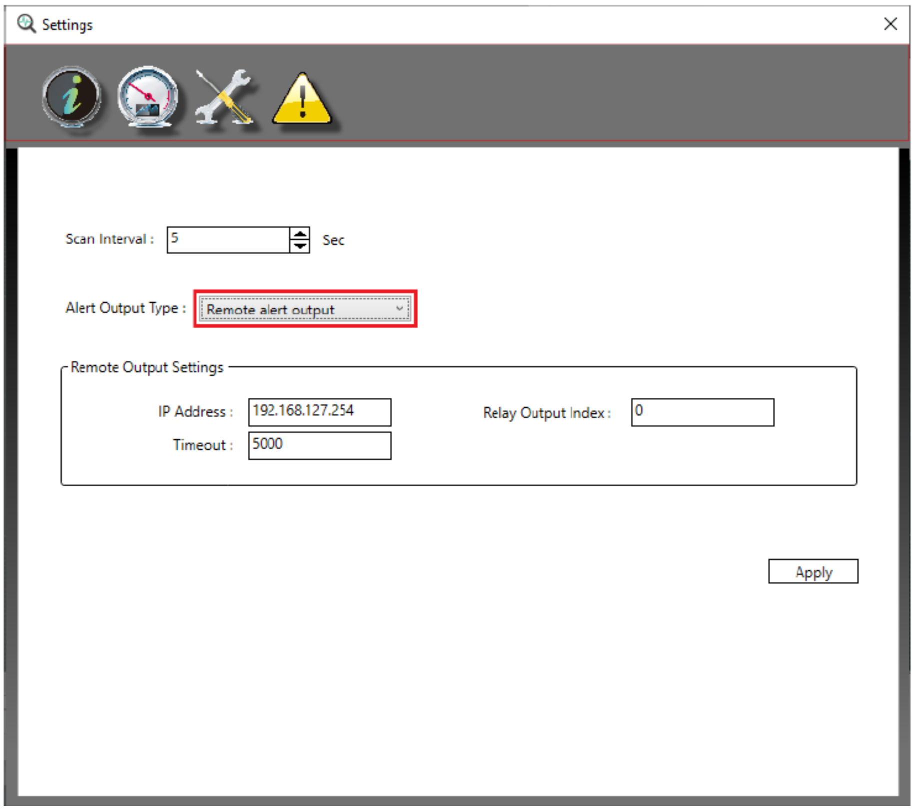


When the alert occurs, the service will send a relay output.

Remote Alert Output

To set up a remote alert output, do the following:

1. In the alert settings window, select Remote alert output.



Scan Interval : 5 Sec

Alert Output Type : Remote alert output

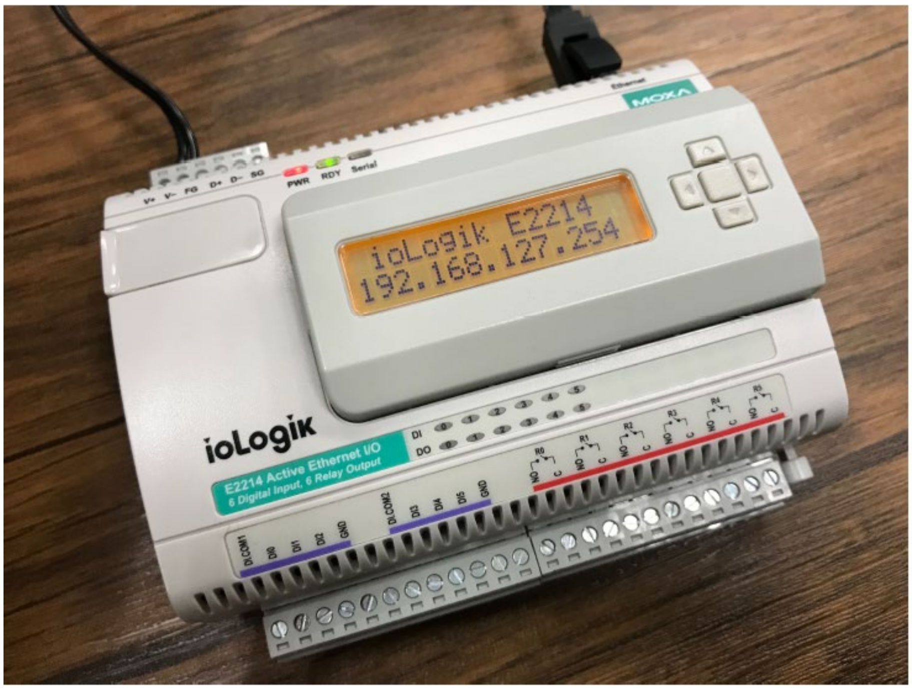
Remote Output Settings

IP Address : 192.168.127.254

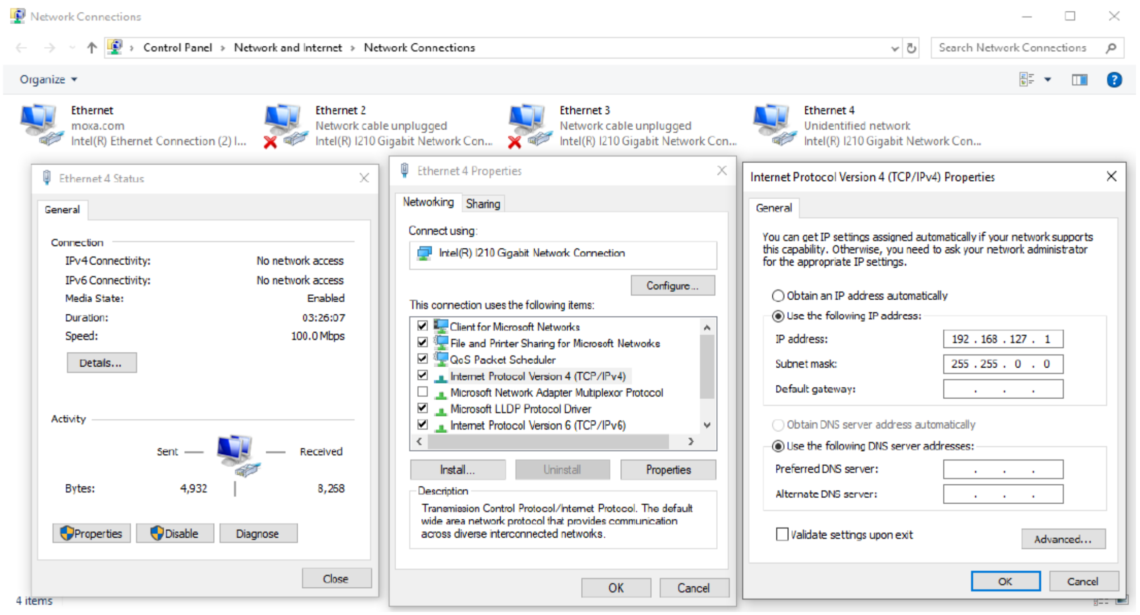
Relay Output Index : 0

Timeout : 5000

2. Edit the remote output settings of the ioLogik device, including the IP address, relay output index of ioLogik, and the timeout.
3. Check the IP address of the ioLogik device.



4. Set the device IP address to the same subnet as the ioLogik.


Network Connections

Control Panel > Network and Internet > Network Connections

Ethernet
moxa.com
Intel(R) Ethernet Connection (2) I...

Ethernet 2
Network cable unplugged
Intel(R) I210 Gigabit Network Con...

Ethernet 3
Network cable unplugged
Intel(R) I210 Gigabit Network Con...

Ethernet 4
Unidentified network
Intel(R) I210 Gigabit Network Con...

Ethernet 4 Status

Connection

IPv4 Connectivity:	No network access
IPv6 Connectivity:	No network access
Media State:	Enabled
Duration:	03:26:07
Speed:	100.0 Mbps

Activity

	Sent	Received
Bytes:	4,932	8,268

Ethernet 4 Properties

Connect using:
Intel(R) I210 Gigabit Network Connection

This connection uses the following items:
- [✓] Client for Microsoft Networks
- [✓] File and Printer Sharing for Microsoft Networks
- [✓] QoS Packet Scheduler
- [✓] Internet Protocol Version 4 (TCP/IPv4)
- [ ] Microsoft Network Adapter Multiplexor Protocol
- [✓] Microsoft LLDP Protocol Driver
- [✓] Internet Protocol Version 6 (TCP/IPv6)

Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

Internet Protocol Version 4 (TCP/IPv4) Properties

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically [✓ Use the following IP address:]

IP address:	192 . 168 . 127 . 1
Subnet mask:	255 . 255 . 0 . 0
Default gateway:	. . .

Obtain DNS server address automatically [✓ Use the following DNS server addresses:]

Preferred DNS server:	. . .
Alternate DNS server:	. . .

[ ] Validate settings upon exit

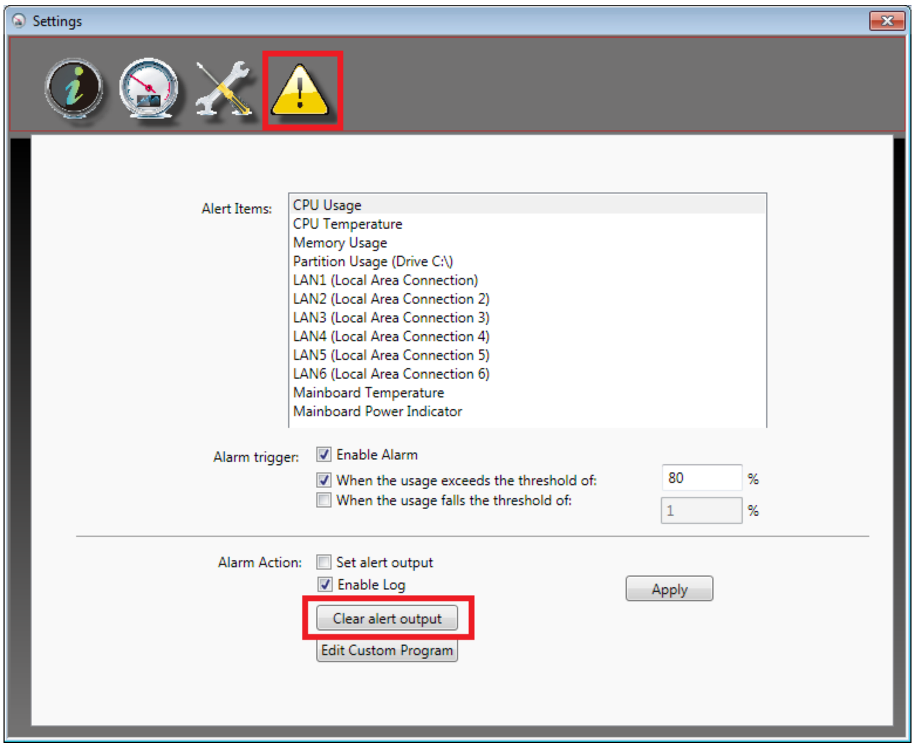
4 items

When the alert occurs, the service will send a remote alert output to the target DO of the ioLogik device.

Clearing an Alert Output

When an alert is generated and sent to a relay output, Proactive Monitoring tool will store the output signal until it is cleared. There are two ways to clear the alert output:

(a) Click the **Clear alert output** button.


Settings

Alert Items:
- CPU Usage
- CPU Temperature
- Memory Usage
- Partition Usage (Drive C:\)
- LAN1 (Local Area Connection)
- LAN2 (Local Area Connection 2)
- LAN3 (Local Area Connection 3)
- LAN4 (Local Area Connection 4)
- LAN5 (Local Area Connection 5)
- LAN6 (Local Area Connection 6)
- Mainboard Temperature
- Mainboard Power Indicator

Alarm trigger:
- [✓] Enable Alarm
- [✓] When the usage exceeds the threshold of: 80 %
- [ ] When the usage falls the threshold of: 1 %

Alarm Action:
- [ ] Set alert output
- [✓] Enable Log

(b) Double-click the alert item on the dashboard.

2 APIs

The Moxa Proactive Monitoring tools provides APIs to communicate with the supported hardware devices. The APIs are developed using the C programming language.

The following topics are covered in this chapter:

Overview

The Proactive Monitoring APIs provide the following information:

- CPU status
- Memory status
- Partition status
- Disk health status
- Mainboard status
- Network status
- Serial port status
- RAID status

CPUStatus

The **CPUStatus** API can get the following information on the CPU.

GetAverageCpuUsage	Gets the average CPU utilization
GetCpuUsage	Gets the CPU utilization per core
GetCpuLogicCount	Gets the number of CPU units in a system
GetVcoreVoltage	Gets the CPU voltage
GetCpuTemperature	Gets the CPU temperature

GetAverageCpuUsage

Syntax

```
int GetAverageCpuUsage(int *value);
```

Description

Gets the average CPU usage information in a system.

Parameter

Value: The average CPU usage information.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Failed to get the average CPU usage information from the shared memory.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetCpuUsage

Syntax

```
int GetCpuUsage(int *index int *value);
```

Description

Gets the CPU core usage information based on the specified index.

Parameter

Index: The index of the CPU core; index=0 to average.

Value: The usage information for the target core CPU.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Failed to get the usage information for the target CPU core from the shared memory.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetCpuLogicCount

Syntax

```
int GetCpuLogicCount(int *value);
```

Description

Gets information on the number of CPU units in a system.

Parameter

Value: The CPU core count.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Failed to get information on the CPU unit count from the shared memory.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetVCoreVoltage

Syntax

```
int GetVCoreVoltage(int *value);
```

Description

Gets information on the CPU voltage.

Parameter

The CPU voltage. If the value is -1, it means the model does not support this function.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Failed to gets the CPU voltage information from the shared memory.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetCpuTemperature

Syntax

```
int GetCpuTemperature(int *value);
```

Description

Gets information on the CPU temperature.

Parameter

The CPU temperature. If the value is -1, it means the model does not support this function.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Failed to get information on the CPU temperature from the shared memory.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

MemoryStatus

The MemoryStatus API can get the following information on the status of the computer memory.

GetMemUsage	Gets the total disk usage information for a system
GetMemTotalSize	Gets the total memory size in a system
GetMemAvailSize	Gets information on the physical memory available in the system
GetVDDRVoltage	Gets information on the voltage requirement for the memory in a system

GetMemUsage

Syntax

int GetMemUsage(int *value);

Description

Gets the total disk usage information for a system.

Parameter

Value: the memory usage.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the memory usage from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetMemTotalSize

Syntax

int GetMemTotalSize(int *value);

Description

Gets the total memory size in a system.

Parameter

Value: the memory total size

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the memory total size from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetMemAvailSize

Syntax

int GetMemAvailSize(int *value)

Description

Gets information on the physical memory available in the system.

Parameter

Value: the memory available size

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the memory available size from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetVDDRVoltage

Syntax

```
int GetVDDRVoltage(int *value);
```

Description

Gets information on the voltage requirement for the memory in a system.

Parameter

Value: the memory voltage.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the memory voltage from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

PartitionStatus

The PartitionStatus API can get the following CPU status.

GetPartitionName	Display the partition name of the system.
GetPartitionUsage	Display the partition utilization of the system.
GetPartitionTotalSize	Display the total partition size of the system.
GetPartitionAvailSize	Display the available size of the partition.
GetPartitionCount	Display the partition count.

GetPartitionName

Syntax

```
int GetPartitionName(int index, char *value);
```

Description

Get the target partition letter.

Parameter

Index: the index of the target partition.

Value: the letter of the target partition.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the target letter from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetPartitionUsage

Syntax

```
int GetPartitionUsage(int index, char *value);
```

Description

Get the target partition usage.

Parameter

Index: the index of the target partition.

Value: the usage of the target partition.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the target partition usage from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetPartitionTotalSize

Syntax

```
int GetPartitionTotalSize(int index, char *value);
```

Description

Get the target partition total size.

Parameter

Index: the index of the target partition.

Value: the total size of the target partition.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the target partition total size from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetPartitionAvailSize

Syntax

```
int GetPartitionAvailSize(int index, char *value);
```

Description

Get the target partition available size.

Parameter

Index: the index of the target partition.

Value: the available size of the target partition.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the target partition available size from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetPartitionCount

Syntax

int GetPartitionCount(int index, char *value);

Description

Get the partition count.

Parameter

Value: the partition count.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	**Value**	**Meaning**
GET_FAIL	-101	Get the partition count from share memory fail.

Requirements

Name	**Item**
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

DiskHealthStatus

The DiskHealthStatus API can get the following disk health status.

GetDiskHealthStatus	Display the disk health status.
GetDiskSerialNumber	Display the disk serial number.
GetDiskAvgEraseCount	Display the disk average erasure count

GetDiskHealthStatus

Syntax

int GetDiskHealthStatus(int index, int *value);

Description

Get the health status of the target disk.

Parameter

Index: the index of the target disk.

Value: the health status of target disk. 1 for no disk, 2 for disk status good and 3 for disk status failure.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure. **Error codes**

Name	**Value**	**Meaning**
GET_FAIL	-101	Get the target disk health status from share memory fail.

Requirements

Name	**Item**
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll
DLL	mxDiskInfoLib.dll

GetDiskSerialNumber

Syntax

```
int GetDiskSerialNumber(int index, char *value);
```

Description

Get the serial number of the target disk.

Parameter

Index: the index of the target disk.

Value: the serial number of the target disk.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the target disk serial number from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll
DLL	mxDiskInfoLib.dll

GetDiskAvgEraseCount

Syntax

```
int GetDiskAvgEraseCount(int index, int *value);
```

Description

Get the average erasure count of the target disk.

Parameter

Index: the index of the target disk.

Value: the average erasure count of the target disk.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the disk average erasure count from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll
DLL	mxDiskInfoLib.dll

MainboardStatus

The MainboardStatus API can get the following mainboard status.

GetPwrStatus	Display the power module status.
GetPwrIndicato	Display the power indicator status.
GetV5VVoltage	Display the mainboard 5V sensor voltage.
GetSystemTemperature	Display the mainboard temperature.

GetPwrStatus

Syntax

```
int GetPwrStatus(int index, int *value);
```

Description

Get the power module status.

Parameter

Index: the index of power module, 0 for power module 1, 1 for power module 2.

Value: the power module status.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the power module status from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetPwrIndicator

Syntax

```
int GetPwrIndicator(int *value);
```

Description

Get the power indicator status.

Parameter

Value: The power indicator status. Check the following value for details:

3: power module 1 and 2 indicators are on.

1: power module 1 indicator is on and power module 2 indicator is off.

2: power module 1 indicator is off and power module 2 indicator is on.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the power indicator status from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetV5VVoltage

Syntax

```
int GetV5VVoltage(int *value);
```

Description

Get the mainboard 5V sensor voltage.

Parameter

Value: the mainboard 5V sensor voltage.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the mainboard 5V sensor voltage from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetSystemTemperature

Syntax

```
int GetSystemTemperature(int *value);
```

Description

Get the mainboard temperature.

Parameter

Value: the mainboard temperature.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the mainboard temperature from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

EthernetStatus

The EthernetStatus API can get the following Ethernet status.

GetEthConnectionID	Display the Ethernet connection ID.
GetEthDescr	Display the Ethernet description.
GetEthSpeed	Display the Ethernet speed.
GetEthLink	Display the Ethernet link status.
GetEthCount	Display the Ethernet count.

GetEthConnectionID

Syntax

int GetEthConnectionID(int index, char *value);

Description

Get the Ethernet connection ID.

Parameter

Index: the index of the Ethernet.

Value: the Ethernet connection ID.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the Ethernet connection ID from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetEthDescr

Syntax

int GetEthDescr(int index, char *value);

Description

Get the Ethernet description.

Parameter

Index: the index of the Ethernet.

Value: the Ethernet description.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the Ethernet description from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetEthSpeed

Syntax

int GetEthSpeed(int index, int *value);

Description

Get the Ethernet speed.

Parameter

Index: the index of the Ethernet.

Value: the Ethernet speed.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the Ethernet speed from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetEthLink

Syntax

int GetEthLink(int index, int *value);

Description

Get the Ethernet link status.

Parameter

Index: the index of the Ethernet.

Value: the Ethernet link status. 0 for disconnected, 1 for connecting.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the Ethernet link status from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetEthUsage

Syntax

```
int GetEthUsage(int index, int *value);
```

Description

Get the Ethernet usage.

Parameter

Index: the index of the Ethernet.

Value: the Ethernet usage.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the Ethernet usage from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetEthCount

Syntax

```
int GetEthCount(int *value);
```

Description

Get the Ethernet count.

Parameter

Value: the Ethernet count.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the Ethernet count from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

SerialPortStatus

The SerialPortStatus API can get the following the serial port status.

GetUartStatus	Display the serial port status.
GetUartCount	Display the serial port count.

GetUartStatus

Syntax

int GetUartStatus(int index, int *value);

Description

Get the serial port status.

Parameter

Index: the index of the serial port.

Value: the serial port status.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the serial port status from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetUartCount

Syntax

int GetUartCount(int *value);

Description

Get the target serial port count.

Parameter

Index: the index of the serial port.

Value: the serial port count.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get the serial port count from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

RAIDStatus

The RAIDStatus API can get the following RAID mode status.

GetRaidCount	Display the RAID count.
GetRaidMode	Display the RAID mode.
GetRaidRedundancyStatus	Display the RAID redundancy status.

GetRaidCount

Syntax

int GetRaidCount(int *value);

Description

Get the RAID count on the system.

Parameter

Value: the RAID count on the system.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get RAID count from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetRaidMode

Syntax

int GetRaidMode(int index, int *value);

Description

Get the RAID mode of the target volume.

Parameter

Index: the index of the target volume.

Value: the RAID mode of the target volume.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get RAID mode of the target volume from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

GetRaidRedundancyStatus

Syntax

```
int GetRaidRedundancyStatus(int index, int *value);
```

Description

Get the RAID redundancy status of the target volume.

Parameter

Index: the index of the target volume.

Value: the RAID redundancy status of the target volume.

Return Value

Returns the status of the GET request; 0 for success, -101 for failure.

Error codes

Name	Value	Meaning
GET_FAIL	-101	Get RAID redundancy status of the target volume from share memory fail.

Requirements

Name	Item
Header	HardwareMonitorApi.h
Library	HardwareMonitorApi.lib
DLL	HardwareMonitorApi.dll

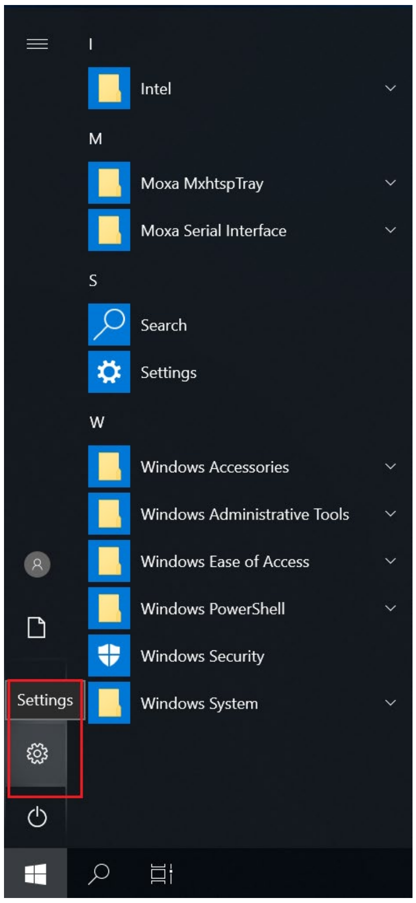
3
SNMP With Windows Service

The following topics are covered in this chapter:

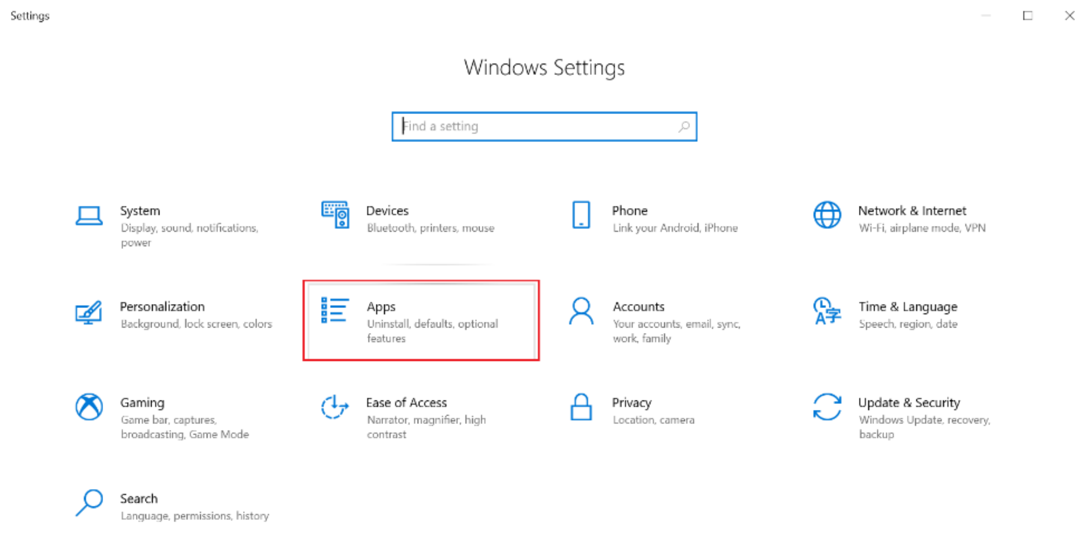
Installing SNMP

Before using SNMP V2 with Windows Service, you need to install the SNMP feature on your computer. Follow these steps.

1. Click Settings on your computer.



2. In **Windows Settings**, select **Apps**.


Settings

Windows Settings

Find a setting

System
Display, sound, notifications, power

Devices
Bluetooth, printers, mouse

Phone
Link your Android, iPhone

Network & Internet
Wi-Fi, airplane mode, VPN

Personalization
Background, lock screen, colors

Apps
Uninstall, defaults, optional features

Accounts
Your accounts, email, sync, work, family

Time & Language
Speech, region, date

Gaming
Game bar, captures, broadcasting, Game Mode

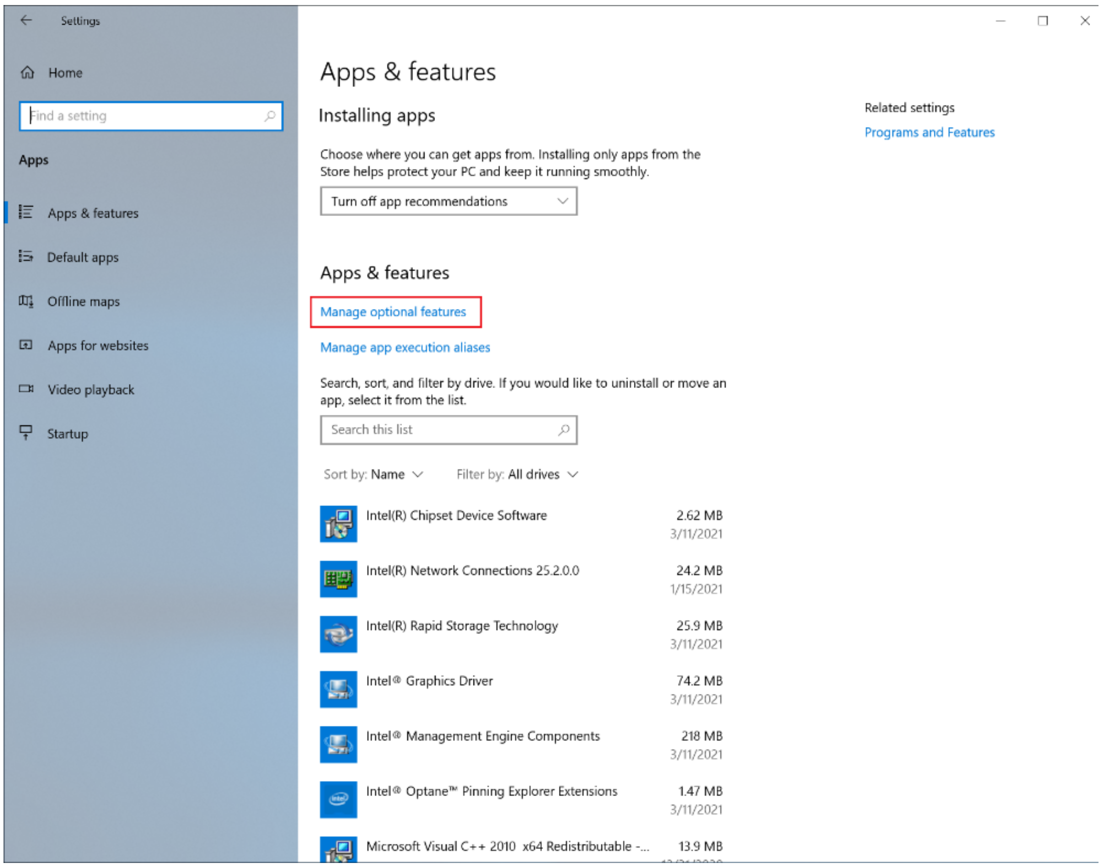
Ease of Access
Narrator, magnifier, high contrast

Privacy
Location, camera

Update & Security
Windows Update, recovery, backup

Search
Language, permissions, history

3. Click on the **Manage optional features** link in the **Apps & features** window.



Settings

Home

Find a setting

Apps

Apps & features

Default apps

Offline maps

Apps for websites

Video playback

Startup

Apps & features

Installing apps

Choose where you can get apps from. Installing only apps from the Store helps protect your PC and keep it running smoothly.

Turn off app recommendations

Related settings

Programs and Features

Apps & features

Manage optional features

Manage app execution aliases

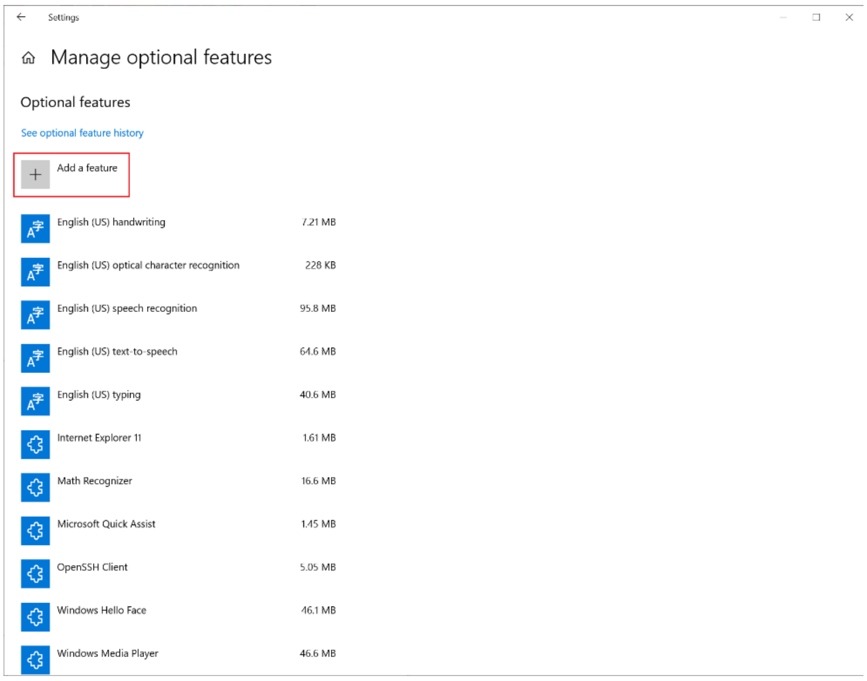
Search, sort, and filter by drive. If you would like to uninstall or move an app, select it from the list.

Search this list

Sort by: Name Filter by: All drives

Intel(R) Chipset Device Software	2.62 MB 3/11/2021
Intel(R) Network Connections 25.2.0.0	24.2 MB 1/15/2021
Intel(R) Rapid Storage Technology	25.9 MB 3/11/2021
Intel® Graphics Driver	74.2 MB 3/11/2021
Intel® Management Engine Components	218 MB 3/11/2021
Intel® Optane™ Pinning Explorer Extensions	1.47 MB 3/11/2021
Microsoft Visual C++ 2010 x64 Redistributable -...	13.9 MB

4. Click **Add a feature**.



Settings

Manage optional features

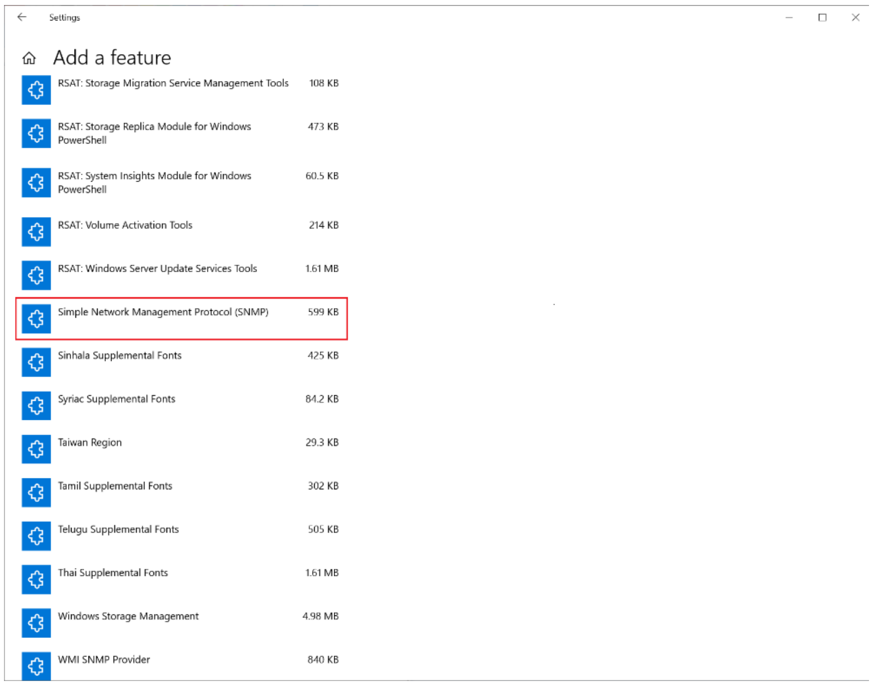
Optional features

See optional feature history

Add a feature

English (US) handwriting	7.21 MB
English (US) optical character recognition	228 KB
English (US) speech recognition	95.8 MB
English (US) text-to-speech	64.6 MB
English (US) typing	40.6 MB
Internet Explorer 11	1.61 MB
Math Recognizer	16.6 MB
Microsoft Quick Assist	1.45 MB
OpenSSH Client	5.05 MB
Windows Hello Face	46.1 MB
Windows Media Player	46.6 MB

5. Scroll down and select **Simple Network Management Protocol (SNMP)**.

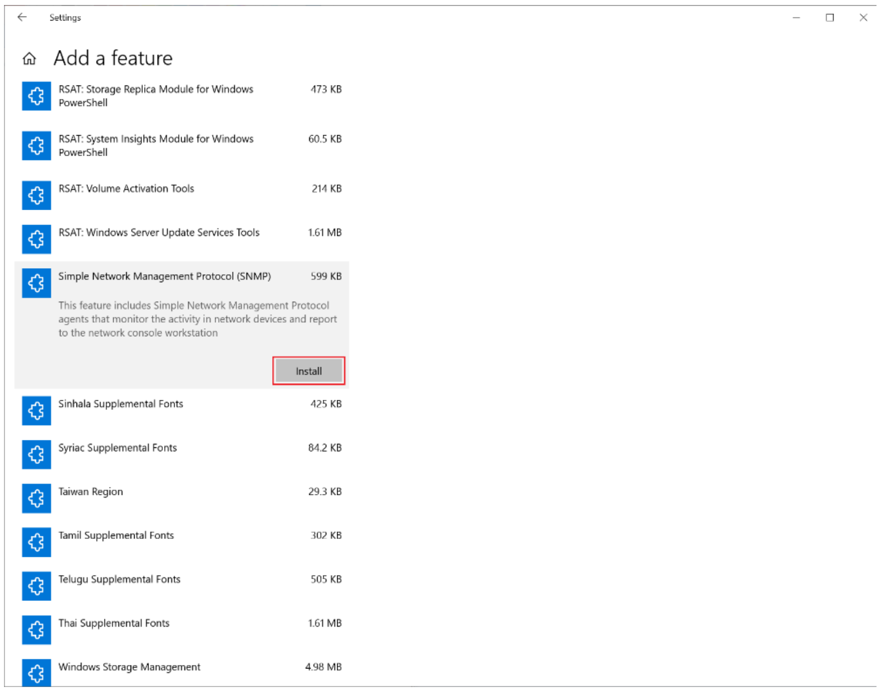


Settings

Add a feature

RSAT: Storage Migration Service Management Tools	108 KB
RSAT: Storage Replica Module for Windows PowerShell	473 KB
RSAT: System Insights Module for Windows PowerShell	60.5 KB
RSAT: Volume Activation Tools	214 KB
RSAT: Windows Server Update Services Tools	1.61 MB
Simple Network Management Protocol (SNMP)	599 KB
Sinhala Supplemental Fonts	425 KB
Syriac Supplemental Fonts	84.2 KB
Taiwan Region	29.3 KB
Tamil Supplemental Fonts	302 KB
Telugu Supplemental Fonts	505 KB
Thai Supplemental Fonts	1.61 MB
Windows Storage Management	4.98 MB
WMI SNMP Provider	840 KB

6. Click **Install**.



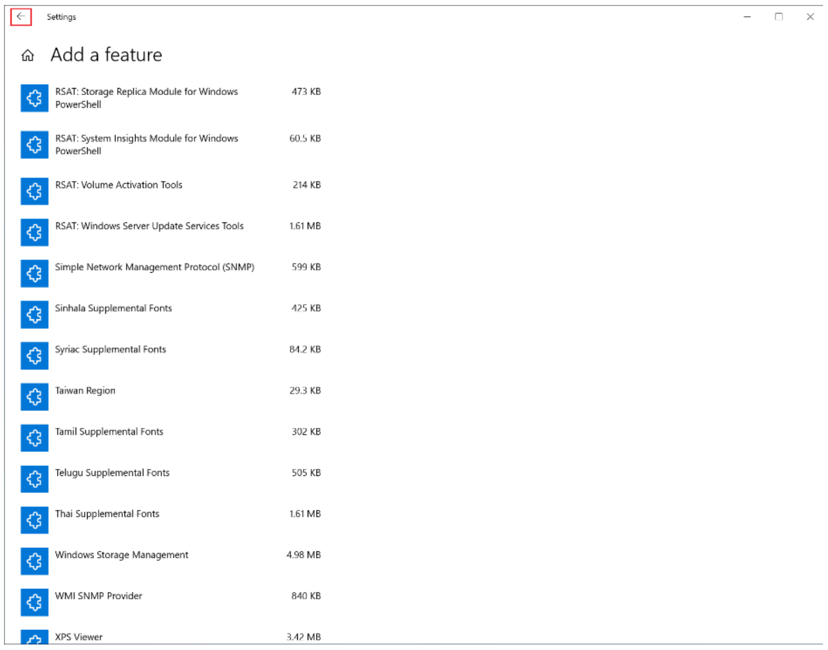
Settings

Add a feature

RSAT: Storage Replica Module for Windows PowerShell	473 KB
RSAT: System Insights Module for Windows PowerShell	60.5 KB
RSAT: Volume Activation Tools	214 KB
RSAT: Windows Server Update Services Tools	1.61 MB
Simple Network Management Protocol (SNMP)	599 KB
Sinhala Supplemental Fonts	425 KB
Syriac Supplemental Fonts	84.2 KB
Taiwan Region	29.3 KB
Tamil Supplemental Fonts	302 KB
Telugu Supplemental Fonts	505 KB
Thai Supplemental Fonts	1.61 MB
Windows Storage Management	4.98 MB

This feature includes Simple Network Management Protocol agents that monitor the activity in network devices and report to the network console workstation

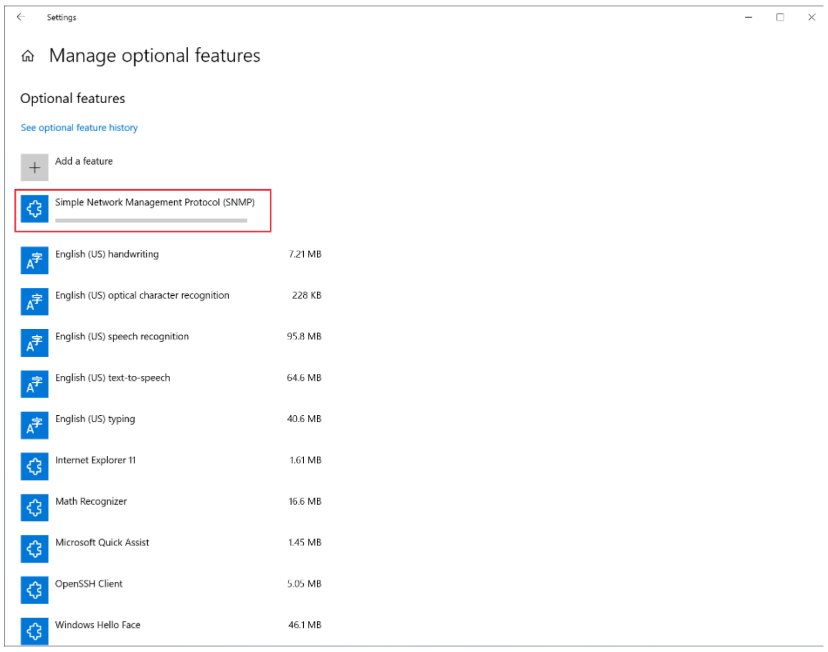
You can check on the installation process by clicking on the ← icon to go to the previous page.



Settings

Add a feature

RSAT: Storage Replica Module for Windows PowerShell	473 KB
RSAT: System Insights Module for Windows PowerShell	60.5 KB
RSAT: Volume Activation Tools	214 KB
RSAT: Windows Server Update Services Tools	1.61 MB
Simple Network Management Protocol (SNMP)	599 KB
Sinhala Supplemental Fonts	425 KB
Syriac Supplemental Fonts	84.2 KB
Taiwan Region	29.3 KB
Tamil Supplemental Fonts	302 KB
Telugu Supplemental Fonts	505 KB
Thai Supplemental Fonts	1.61 MB
Windows Storage Management	4.98 MB
WMI SNMP Provider	840 KB
XPS Viewer	3.42 MB



Settings

Manage optional features

Optional features

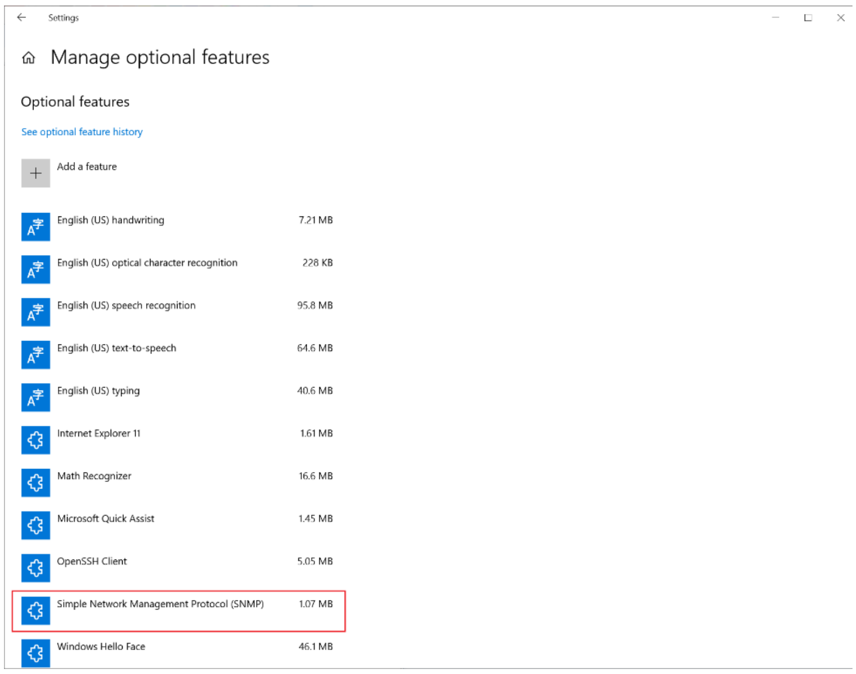
See optional feature history

Add a feature

Simple Network Management Protocol (SNMP)

English (US) handwriting	7.21 MB
English (US) optical character recognition	228 KB
English (US) speech recognition	95.8 MB
English (US) text-to-speech	64.6 MB
English (US) typing	40.6 MB
Internet Explorer 11	1.61 MB
Math Recognizer	16.6 MB
Microsoft Quick Assist	1.45 MB
OpenSSH Client	5.05 MB
Windows Hello Face	46.1 MB

7. After the installation is completed, check the **Optional features** list to confirm that the feature has been installed.


Settings

Manage optional features

Optional features

See optional feature history

Add a feature

English (US) handwriting	7.21 MB
English (US) optical character recognition	228 KB
English (US) speech recognition	95.8 MB
English (US) text-to-speech	64.6 MB
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Math Recognizer	16.6 MB
Microsoft Quick Assist	1.45 MB
OpenSSH Client	5.05 MB
Simple Network Management Protocol (SNMP)	1.07 MB
Windows Hello Face	46.1 MB

SNMP V2 With Windows Service

Environment

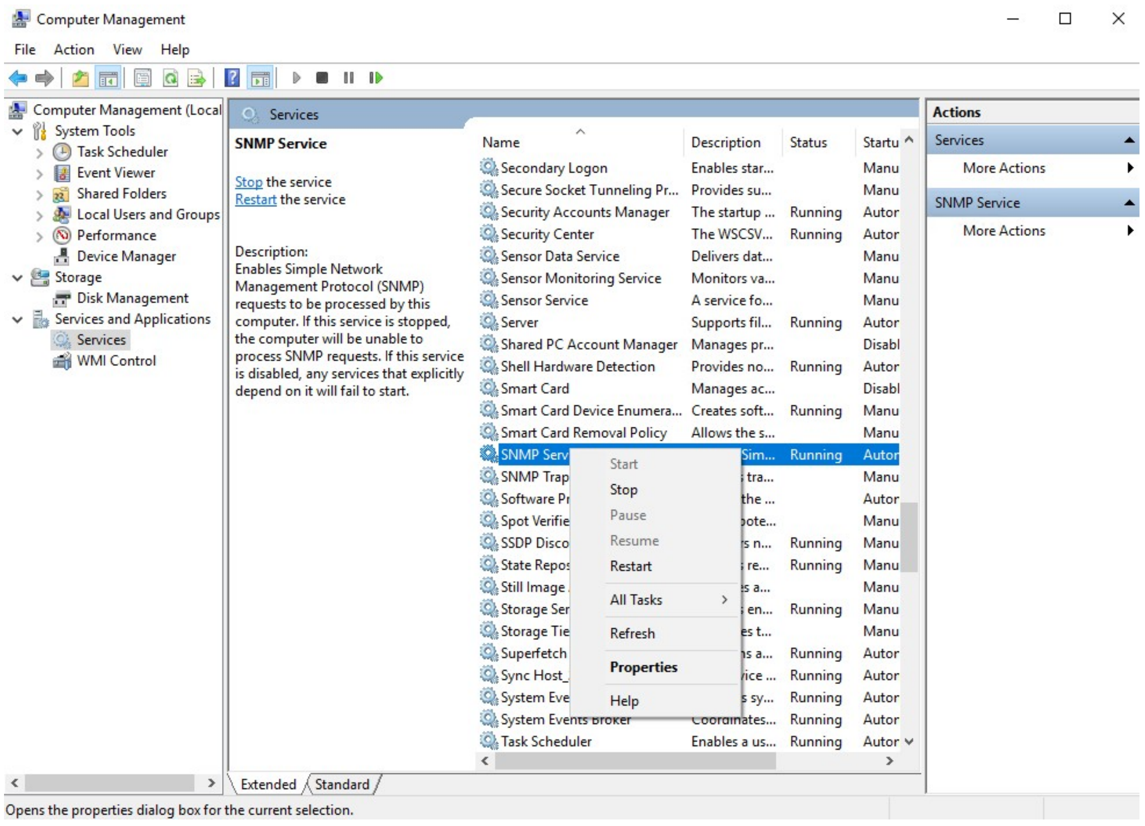
Type	Item
OS	Windows 10 x64
Software	Proactive Monitoring x64

Installing the Proactive Monitoring Tool

Run the **ProactiveMonitoringSetup.msi** file and follow the instructions to complete the installation.

Setting Up the Windows SNMP Service

1. In the Windows **Services** page, right-click on the **SNMP service** and select **Properties**.



Computer Management

File Action View Help

Computer Management (Local
- System Tools
  - Task Scheduler
  - Event Viewer
  - Shared Folders
  - Local Users and Groups
  - Performance
  - Device Manager
- Storage
  - Disk Management
- Services and Applications
  - Services
  - WMI Control

Services

SNMP Service

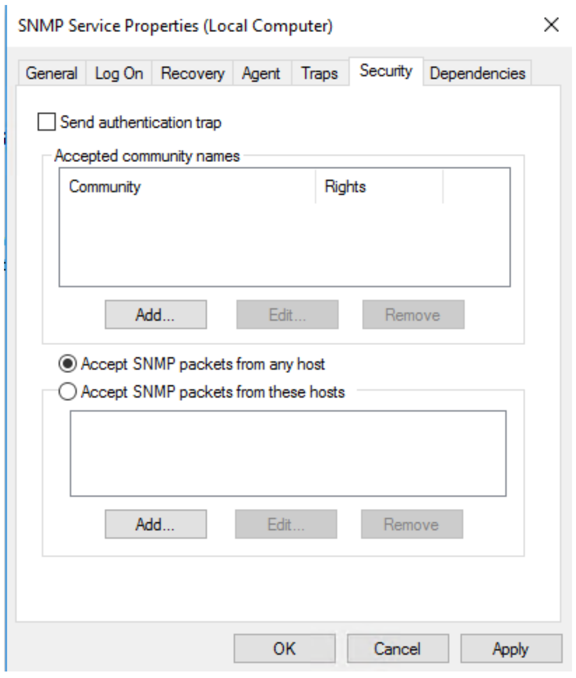
Stop the service
Restart the service

Description:
Enables Simple Network Management Protocol (SNMP) requests to be processed by this computer. If this service is stopped, the computer will be unable to process SNMP requests. If this service is disabled, any services that explicitly depend on it will fail to start.

Name	Description	Status	Startu
Secondary Logon	Enables star...		Manu
Secure Socket Tunneling Pr...	Provides su...		Manu
Security Accounts Manager	The startup ...	Running	Autor
Security Center	The WSCSV...	Running	Autor
Sensor Data Service	Delivers dat...		Manu
Sensor Monitoring Service	Monitors va...		Manu
Sensor Service	A service fo...		Manu
Server	Supports fil...	Running	Autor
Shared PC Account Manager	Manages pr...		Disabl
Shell Hardware Detection	Provides no...	Running	Autor
Smart Card	Manages ac...		Disabl
Smart Card Device Enumera...	Creates soft...	Running	Manu
Smart Card Removal Policy	Allows the s...		Manu
SNMP Serv	Sim...	Running	Autor
SNMP Trap	tra...		Manu
Software Pr	the ...		Autor
Spot Verifie	ote...		Manu
SSDP Disco	s n...	Running	Manu
State Repos	re...	Running	Manu
Still Image	s a...		Manu
Storage Ser	en...	Running	Manu
Storage Tie	es t...		Manu
Superfetch	s a...	Running	Autor
Sync Host_	ice ...	Running	Autor
System Eve	s sy...	Running	Autor
System Events Broker	Coordinates...	Running	Autor
Task Scheduler	Enables a us...	Running	Autor

Opens the properties dialog box for the current selection.

2. Select **Security** tab and then click **Add**.



SNMP Service Properties (Local Computer)

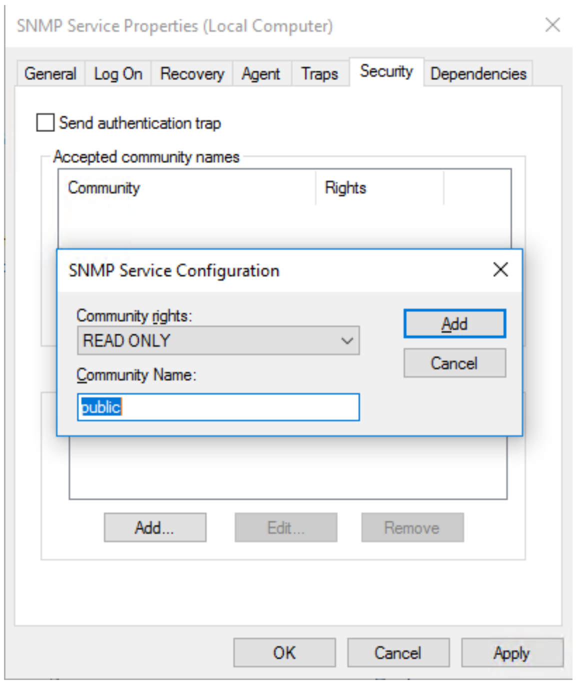
☐ Send authentication trap

Accepted community names

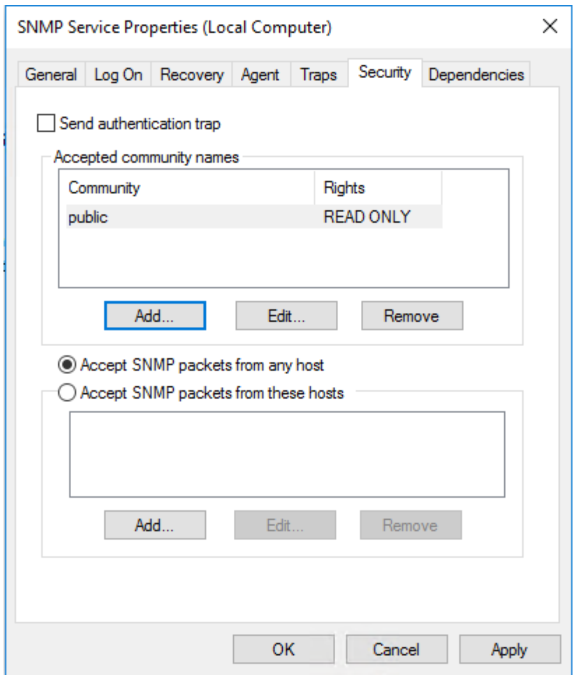
Community	Rights

(●) Accept SNMP packets from any host
( ) Accept SNMP packets from these hosts

3. Enter community name and then click **Add**.



4. Select **Accept SNMP packets from any host**.



SNMP With Net-SNMP Agent

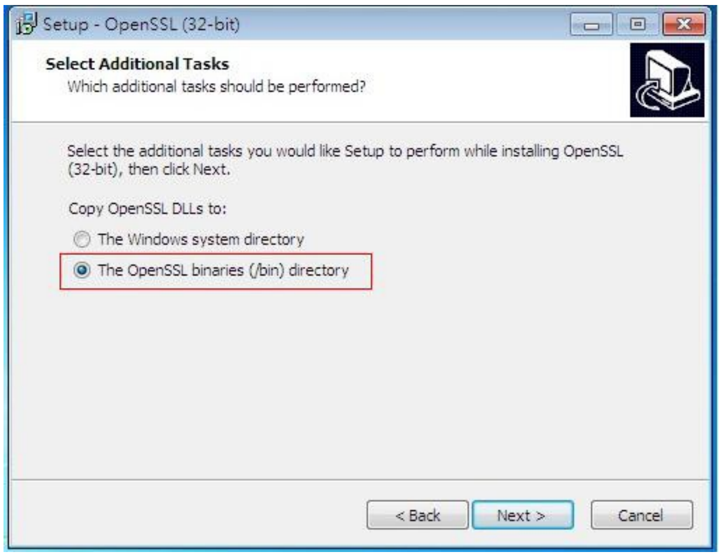
Environment

Type	Item	Description
OS	Windows 10 x64	-----
SW	Proactive Monitoring x64	-----
SW	Visual C++ 2008 x64	https://www.microsoft.com/en-US/download/details.aspx?id=15336
SW	OpenSSL 1.0.2L x64	https://www.openssl.org/source/
SW	Net-SNMP 5.5.0 x64	https://sourceforge.net/projects/net-snmp/files/net-snmp binaries/5.5-binaries/
SW	NetSnmpSetting x64	Install Proactive Monitoring dll and snmpd config file

Installing the Programs

You need to install the following programs.

- **ProactiveMonitoringSetup.msi**
- **vcredist_x64.exe**
- **Win64OpenSSL-1_0_2L.exe**, select **The OpenSSL binaries (/bin) directory**.

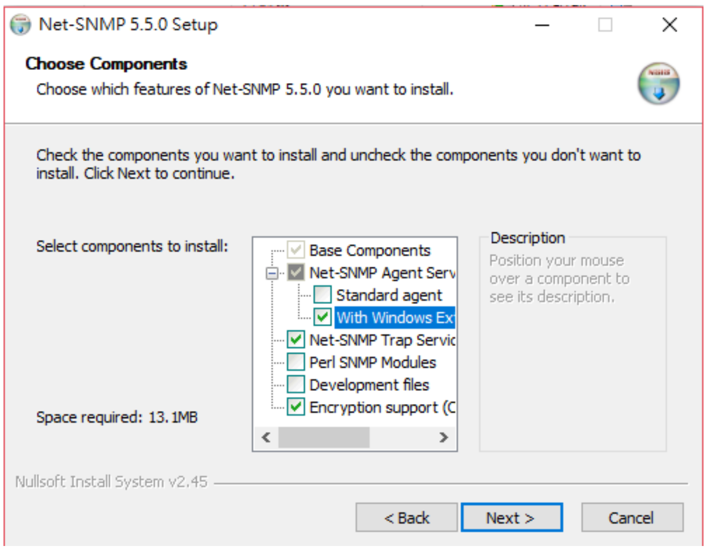

Setup - OpenSSL (32-bit)

Select Additional Tasks
Which additional tasks should be performed?

Select the additional tasks you would like Setup to perform while installing OpenSSL (32-bit), then click Next.

Copy OpenSSL DLLs to:
○ The Windows system directory
● The OpenSSL binaries (/bin) directory

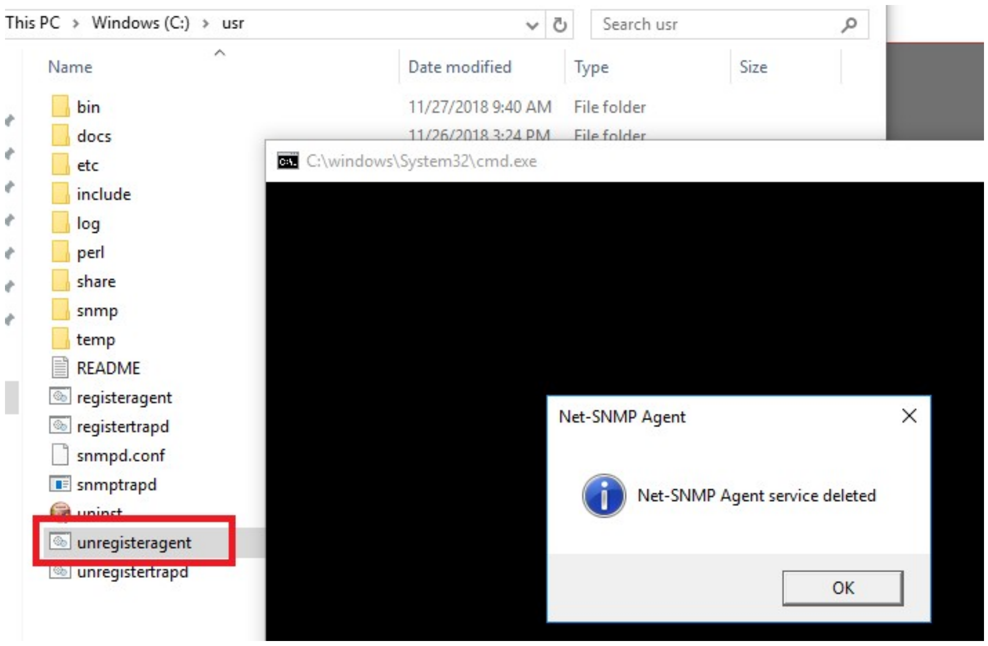
- **net-snmp-5.5.0-2.x64.exe**, select **with windows extension dll support and encryption support(openssl)**.


Net-SNMP 5.5.0 Setup
Choose Components
Choose which features of Net-SNMP 5.5.0 you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.
Select components to install:
Base Components
Net-SNMP Agent Serv
Standard agent
With Windows Ex
Net-SNMP Trap Servic
Perl SNMP Modules
Development files
Encryption support (C
Description
Position your mouse over a component to see its description.
Space required: 13.1MB
Nullsoft Install System v2.45
< Back
Next >
Cancel

- **NetSnmpSetting.msi**

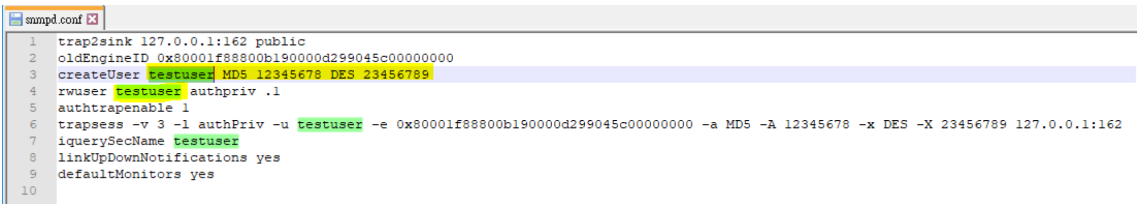
Setting Up the SNMP V3 Agent

1. Run **C:\usr\unregisteragent.bat** under **c:\usr**



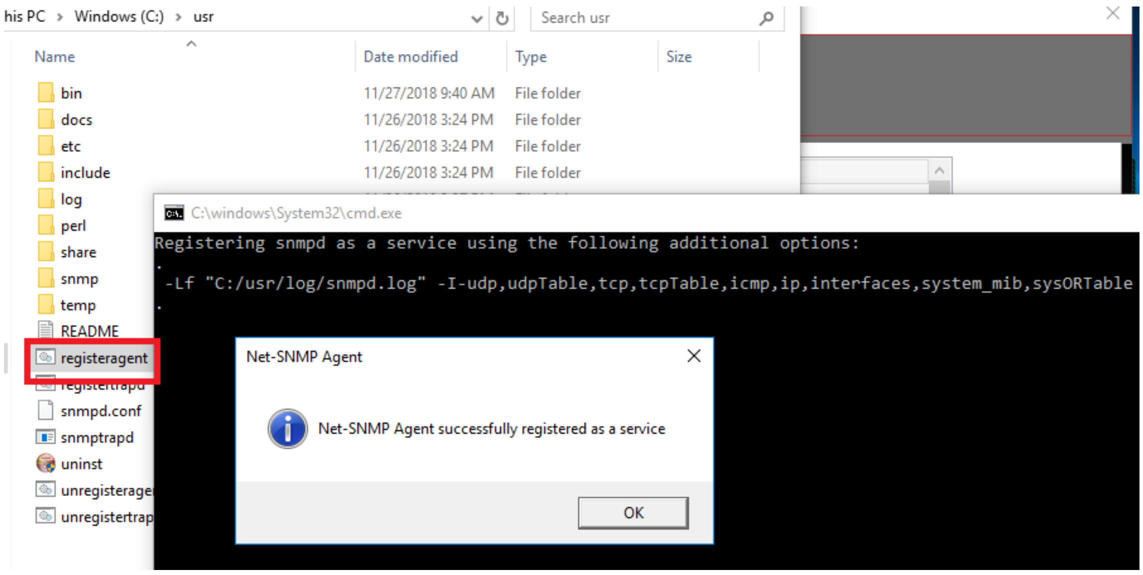
2. Open **C:\usr\etc\snmp\snmpd.conf** and then change the user settings
   a. Set User `createUser <username> <Auth Type> <Password> <encryption> <encryption Key>`
   b. Set Permission `rwuser <username> <Security Level> or rouser <username>`
   c. Set `trapsess -v 3 -l <Security Level> -u <username> -e <EngineID> -a <Auth Type> -A <Password> <destination IP>`

   For more information, please refer to the link http://www.net-snmp.org/docs/man/snmpd.examples.html



```
trap2sink 127.0.0.1:162 public
oldEngineID 0x80001f88800b190000d299045c00000000
createUser testuser MD5 12345678 DES 23456789
rwuser testuser authpriv .1
authtrapenable 1
trapsess -v 3 -l authPriv -u testuser -e 0x80001f88800b190000d299045c00000000 -a MD5 -A 12345678 -x DES -X 23456789 127.0.0.1:162
iquerySecName testuser
linkUpDownNotifications yes
defaultMonitors yes
```

3. Save **snmpd.conf** and run **C:\usr\registeragent.bat**

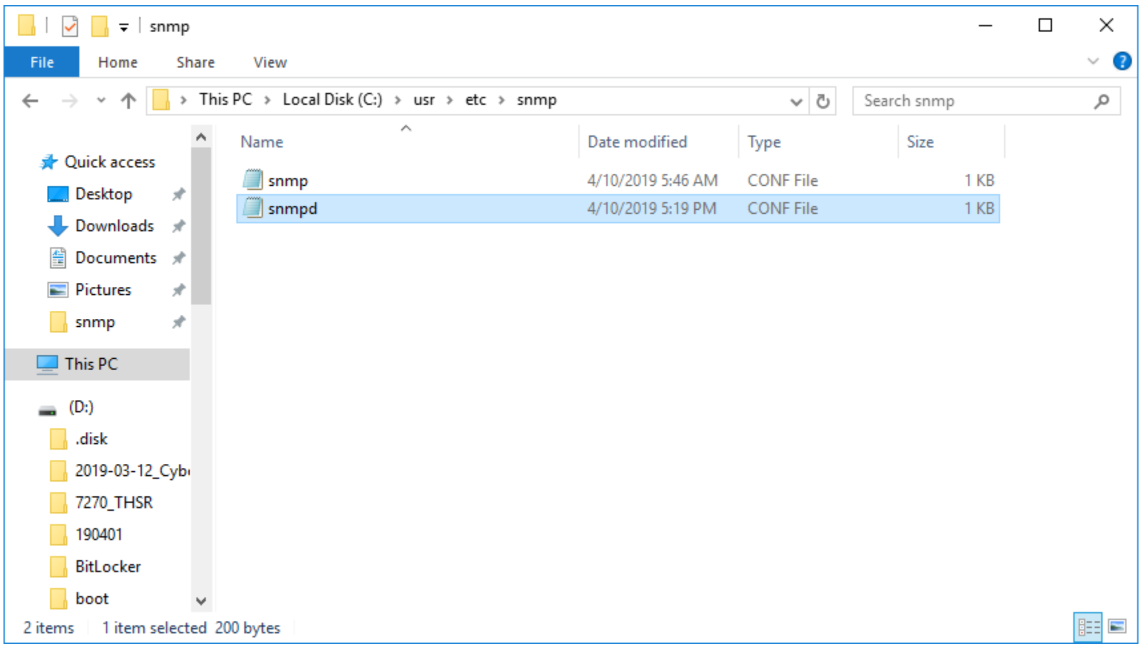


```
Registering snmpd as a service using the following additional options:
.
 -Lf "C:/usr/log/snmpd.log" -I-udp,udpTable,tcp,tcpTable,icmp,ip,interfaces,system_mib,sysORTable
.
```

Net-SNMP Agent successfully registered as a service

Setting Up the SNMP V2 Agent

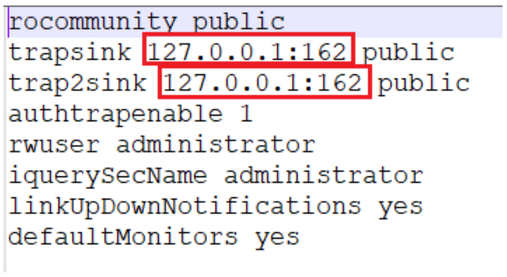
1. Under the **c:\usr\etc\snmp** folder, remove the original snmpd.conf and rename **snmpd_V2.conf** to **snmpd.conf**.



Name	Date modified	Type	Size
snmp	4/10/2019 5:46 AM	CONF File	1 KB
snmpd	4/10/2019 5:19 PM	CONF File	1 KB

2. Change **destination IP** in snmpd.conf.
3. Set **trapsink** <destination IP> **public**

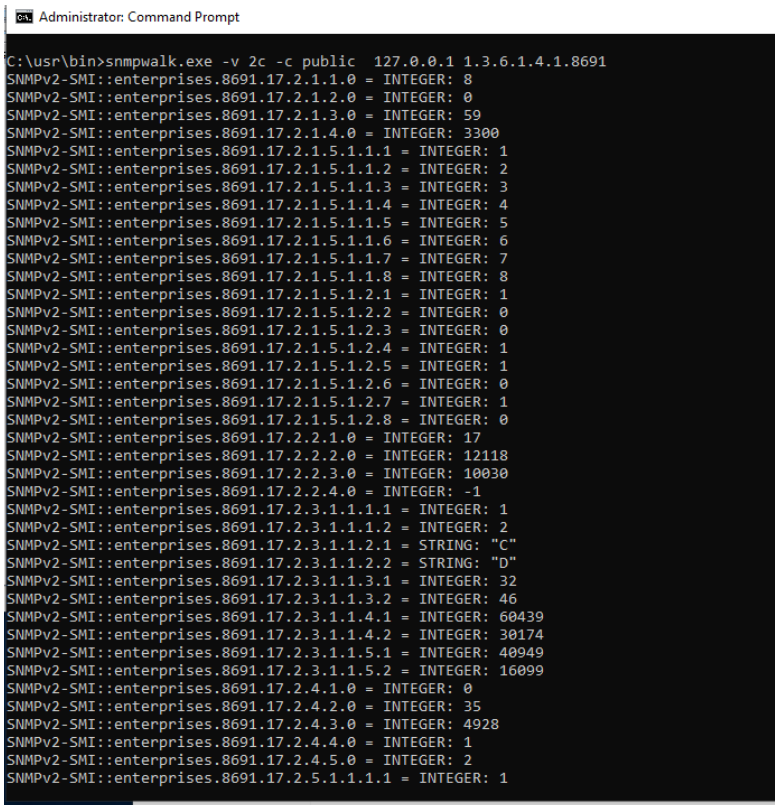
4. Set **trap2sink** <destination IP> **public**



```
rocommunity public
trapsink 127.0.0.1:162 public
trap2sink 127.0.0.1:162 public
authtrapenable 1
rwuser administrator
iquerySecName administrator
linkUpDownNotifications yes
defaultMonitors yes
```

Querying the SNMP Value

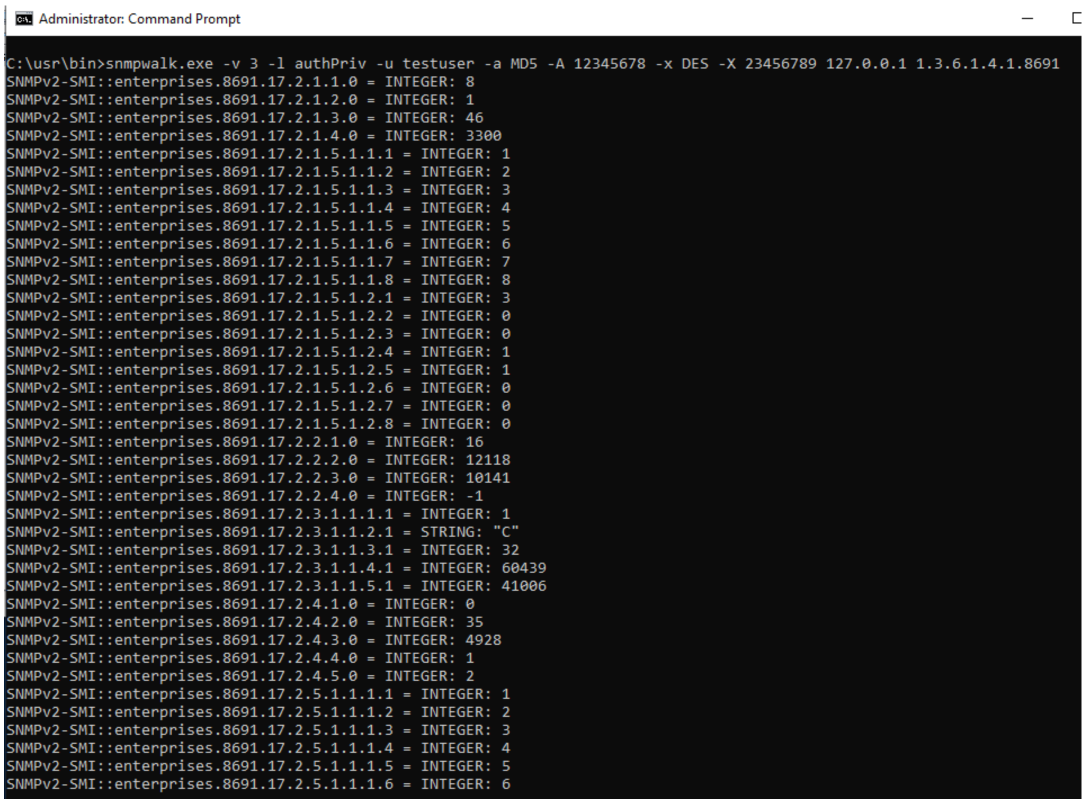
1. Query SNMP V2 value, open **cmd** and execute the command: **`snmpwalk.exe -v 2c -c public <target Device IP> <Proactive Monitoring OID>`**



Administrator: Command Prompt

```
C:\usr\bin>snmpwalk.exe -v 2c -c public  127.0.0.1 1.3.6.1.4.1.8691
SNMPv2-SMI::enterprises.8691.17.2.1.1.0 = INTEGER: 8
SNMPv2-SMI::enterprises.8691.17.2.1.2.0 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.1.3.0 = INTEGER: 59
SNMPv2-SMI::enterprises.8691.17.2.1.4.0 = INTEGER: 3300
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.1 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.2 = INTEGER: 2
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.3 = INTEGER: 3
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.4 = INTEGER: 4
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.5 = INTEGER: 5
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.6 = INTEGER: 6
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.7 = INTEGER: 7
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.8 = INTEGER: 8
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.1 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.2 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.3 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.4 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.5 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.6 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.7 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.8 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.2.1.0 = INTEGER: 17
SNMPv2-SMI::enterprises.8691.17.2.2.2.0 = INTEGER: 12118
SNMPv2-SMI::enterprises.8691.17.2.2.3.0 = INTEGER: 10030
SNMPv2-SMI::enterprises.8691.17.2.2.4.0 = INTEGER: -1
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.1.1 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.1.2 = INTEGER: 2
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.2.1 = STRING: "C"
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.2.2 = STRING: "D"
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.3.1 = INTEGER: 32
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.3.2 = INTEGER: 46
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.4.1 = INTEGER: 60439
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.4.2 = INTEGER: 30174
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.5.1 = INTEGER: 40949
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.5.2 = INTEGER: 16099
SNMPv2-SMI::enterprises.8691.17.2.4.1.0 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.4.2.0 = INTEGER: 35
SNMPv2-SMI::enterprises.8691.17.2.4.3.0 = INTEGER: 4928
SNMPv2-SMI::enterprises.8691.17.2.4.4.0 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.4.5.0 = INTEGER: 2
SNMPv2-SMI::enterprises.8691.17.2.5.1.1.1.1 = INTEGER: 1
```

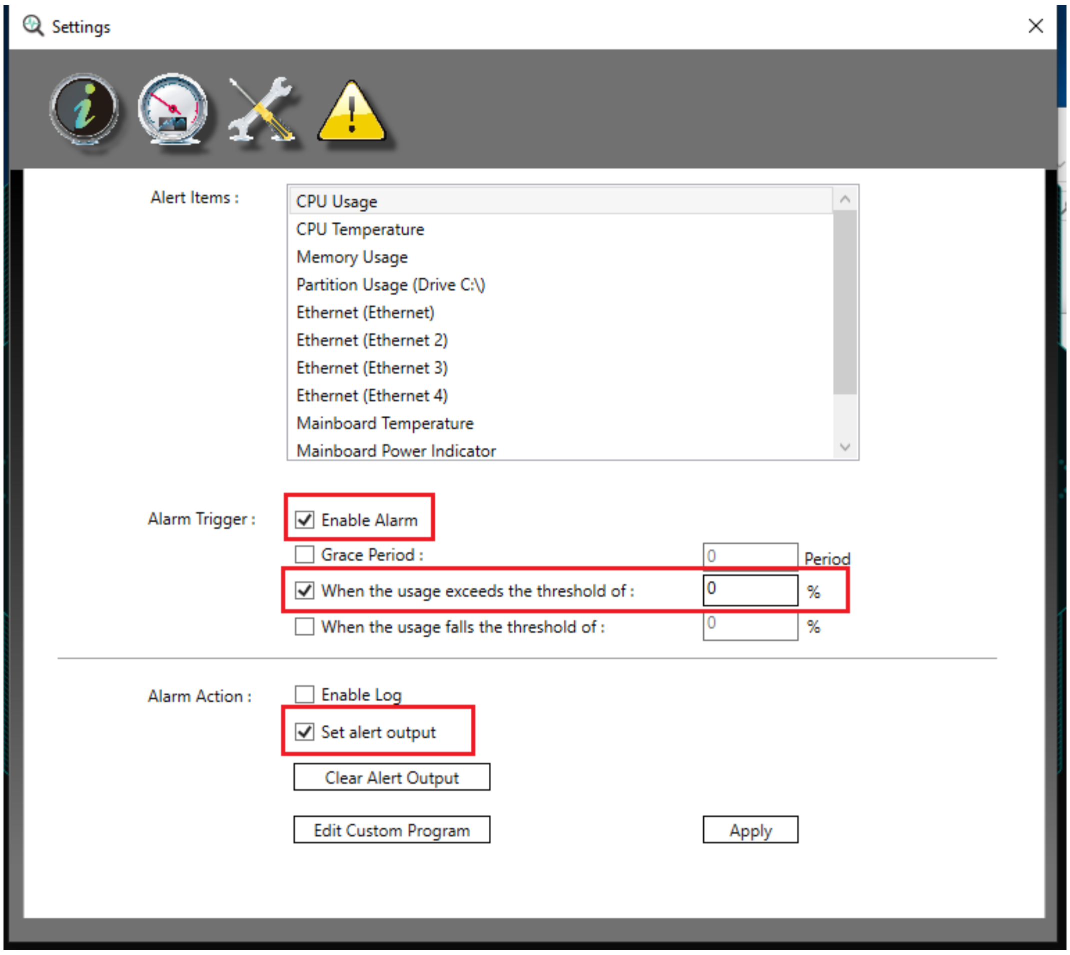
2. Query SNMP V3 value, open **cmd** and execute the command:
   `snmpwalk.exe -v 3 -l authPriv -u <username> -a MDS -A <password> -x DES -X <encryption Key> <target Device IP> <Proactive Monitoring OID>`


Administrator: Command Prompt

```
C:\usr\bin>snmpwalk.exe -v 3 -l authPriv -u testuser -a MD5 -A 12345678 -x DES -X 23456789 127.0.0.1 1.3.6.1.4.1.8691
SNMPv2-SMI::enterprises.8691.17.2.1.1.0 = INTEGER: 8
SNMPv2-SMI::enterprises.8691.17.2.1.2.0 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.1.3.0 = INTEGER: 46
SNMPv2-SMI::enterprises.8691.17.2.1.4.0 = INTEGER: 3300
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.1 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.2 = INTEGER: 2
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.3 = INTEGER: 3
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.4 = INTEGER: 4
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.5 = INTEGER: 5
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.6 = INTEGER: 6
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.7 = INTEGER: 7
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.1.8 = INTEGER: 8
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.1 = INTEGER: 3
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.2 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.3 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.4 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.5 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.6 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.7 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.1.5.1.2.8 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.2.1.0 = INTEGER: 16
SNMPv2-SMI::enterprises.8691.17.2.2.2.0 = INTEGER: 12118
SNMPv2-SMI::enterprises.8691.17.2.2.3.0 = INTEGER: 10141
SNMPv2-SMI::enterprises.8691.17.2.2.4.0 = INTEGER: -1
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.1.1 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.2.1 = STRING: "C"
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.3.1 = INTEGER: 32
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.4.1 = INTEGER: 60439
SNMPv2-SMI::enterprises.8691.17.2.3.1.1.5.1 = INTEGER: 41006
SNMPv2-SMI::enterprises.8691.17.2.4.1.0 = INTEGER: 0
SNMPv2-SMI::enterprises.8691.17.2.4.2.0 = INTEGER: 35
SNMPv2-SMI::enterprises.8691.17.2.4.3.0 = INTEGER: 4928
SNMPv2-SMI::enterprises.8691.17.2.4.4.0 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.4.5.0 = INTEGER: 2
SNMPv2-SMI::enterprises.8691.17.2.5.1.1.1.1 = INTEGER: 1
SNMPv2-SMI::enterprises.8691.17.2.5.1.1.1.2 = INTEGER: 2
SNMPv2-SMI::enterprises.8691.17.2.5.1.1.1.3 = INTEGER: 3
SNMPv2-SMI::enterprises.8691.17.2.5.1.1.1.4 = INTEGER: 4
SNMPv2-SMI::enterprises.8691.17.2.5.1.1.1.5 = INTEGER: 5
SNMPv2-SMI::enterprises.8691.17.2.5.1.1.1.6 = INTEGER: 6
```

Setting Up the SNMP Trap

1. Click **Enable Alarm**. Select the function of alarm trigger. In this case, we select the function **"When the usage exceeds the threshold of:"**, you can type the threshold value in text box. After all settings completed, click **Apply** button.


Settings

Alert Items :
- CPU Usage
- CPU Temperature
- Memory Usage
- Partition Usage (Drive C:\)
- Ethernet (Ethernet)
- Ethernet (Ethernet 2)
- Ethernet (Ethernet 3)
- Ethernet (Ethernet 4)
- Mainboard Temperature
- Mainboard Power Indicator

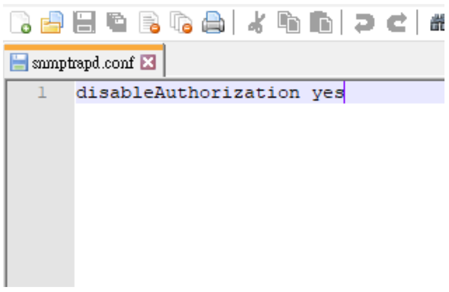
Alarm Trigger :
- [✓] Enable Alarm
- [ ] Grace Period : 0 Period
- [✓] When the usage exceeds the threshold of : 0 %
- [ ] When the usage falls the threshold of : 0 %

Alarm Action :
- [ ] Enable Log
- [✓] Set alert output

Clear Alert Output

Edit Custom Program Apply

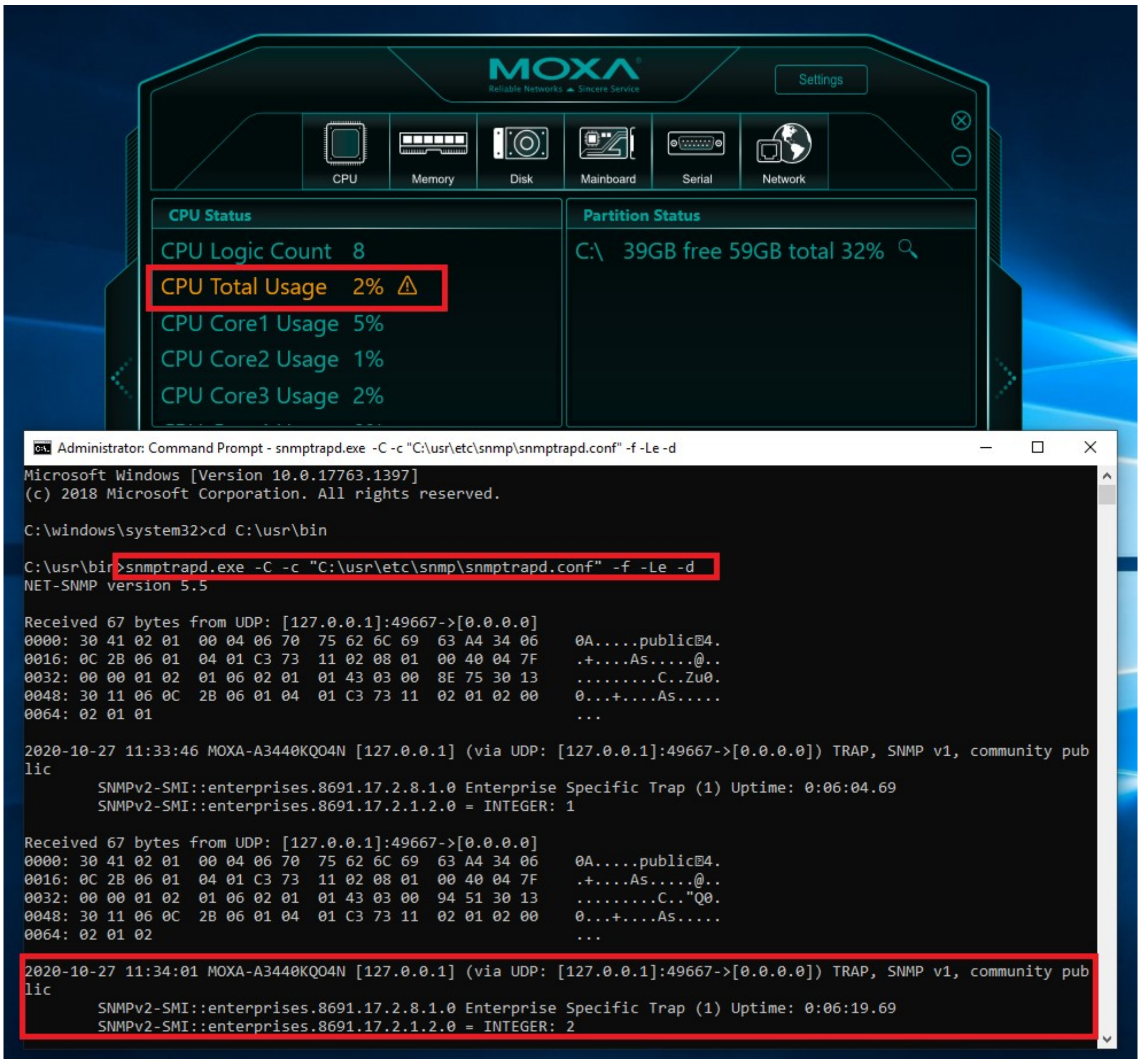
2. Setup **NetSNMP**, you may download the file at http://www.net-snmp.org/download.html
3. Add **snmptrapd.conf** at **C:\usr\snmp**


snmptrapd.conf

```
disableAuthorization yes
```

4. open **cmd** and execute the command: **`snmpdtrapd.exe -C c "<snmptrapd.conf path>" -f -Le -d`**

5. If the CPU usage over than the threshold, SNMP trapd will be shown on cmd.



CPU Status
CPU Logic Count 8
CPU Total Usage 2% ⚠
CPU Core1 Usage 5%
CPU Core2 Usage 1%
CPU Core3 Usage 2%

Partition Status
C:\ 39GB free 59GB total 32%

Administrator: Command Prompt - snmptrapd.exe -C -c "C:\usr\etc\snmp\snmptrapd.conf" -f -Le -d

```
Microsoft Windows [Version 10.0.17763.1397]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\windows\system32>cd C:\usr\bin

C:\usr\bin>snmptrapd.exe -C -c "C:\usr\etc\snmp\snmptrapd.conf" -f -Le -d
NET-SNMP version 5.5

Received 67 bytes from UDP: [127.0.0.1]:49667->[0.0.0.0]
0000: 30 41 02 01  00 04 06 70  75 62 6C 69  63 A4 34 06    0A.....public¤4.
0016: 0C 2B 06 01  04 01 C3 73  11 02 08 01  00 40 04 7F    .+....As.....@..
0032: 00 00 01 02  01 06 02 01  01 43 03 00  8E 75 30 13    .........C..Zu0.
0048: 30 11 06 0C  2B 06 01 04  01 C3 73 11  02 01 02 00    0...+....As.....
0064: 02 01 01                                              ...

2020-10-27 11:33:46 MOXA-A3440KQO4N [127.0.0.1] (via UDP: [127.0.0.1]:49667->[0.0.0.0]) TRAP, SNMP v1, community pub
lic
        SNMPv2-SMI::enterprises.8691.17.2.8.1.0 Enterprise Specific Trap (1) Uptime: 0:06:04.69
        SNMPv2-SMI::enterprises.8691.17.2.1.2.0 = INTEGER: 1

Received 67 bytes from UDP: [127.0.0.1]:49667->[0.0.0.0]
0000: 30 41 02 01  00 04 06 70  75 62 6C 69  63 A4 34 06    0A.....public¤4.
0016: 0C 2B 06 01  04 01 C3 73  11 02 08 01  00 40 04 7F    .+....As.....@..
0032: 00 00 01 02  01 06 02 01  01 43 03 00  94 51 30 13    .........C.."Q0.
0048: 30 11 06 0C  2B 06 01 04  01 C3 73 11  02 01 02 00    0...+....As.....
0064: 02 01 02                                              ...

2020-10-27 11:34:01 MOXA-A3440KQO4N [127.0.0.1] (via UDP: [127.0.0.1]:49667->[0.0.0.0]) TRAP, SNMP v1, community pub
lic
        SNMPv2-SMI::enterprises.8691.17.2.8.1.0 Enterprise Specific Trap (1) Uptime: 0:06:19.69
        SNMPv2-SMI::enterprises.8691.17.2.1.2.0 = INTEGER: 2
```