



**C60-00F-01**

**C60-082-30-130**

**C60-164-30-250**

**C60-244-30-370**

**D60-044-30**

**D60-044-90**

**D60-084-30**

**H60-044-30-150**

**H60-044-90-250**

**H60-084-30-250**

L2 PRO Gigabit PoE Switch Series

## **Network Topology System User Manual**

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## NTS Overview

1. NTS is an intelligent management tool embedded in switches to intuitively help IT/TS reduce support cost/time/effort.
2. All devices connected to the switches can be discovered and displayed by NTS automatically using standard networking protocols such as LLDP, ONVIF, etc.
3. Users can operate the features below via an intuitive web GUI.
  - Power down, remotely, the IP cameras, NVRs, or any PoE devices.
  - Identify where exactly the broken cable is, remotely.
  - Detect abnormal traffic issues on IP cameras/NVR.
  - Monitor devices status intuitively, e.g. link up, PoE power, traffic, etc.
4. NTS supports up to 255 devices within 1 subnets.

The embedded Network Topology System is designed to be extremely easy-to-use/manage/install IP Phone, IP Cam, or Wifi-AP for enterprise applications.

User can deploy IP Device through Topology/ Floor/ Map View to installation location, and through Diagnostics and Traffic Monitor, they may also check link status and monitor throughput as well.

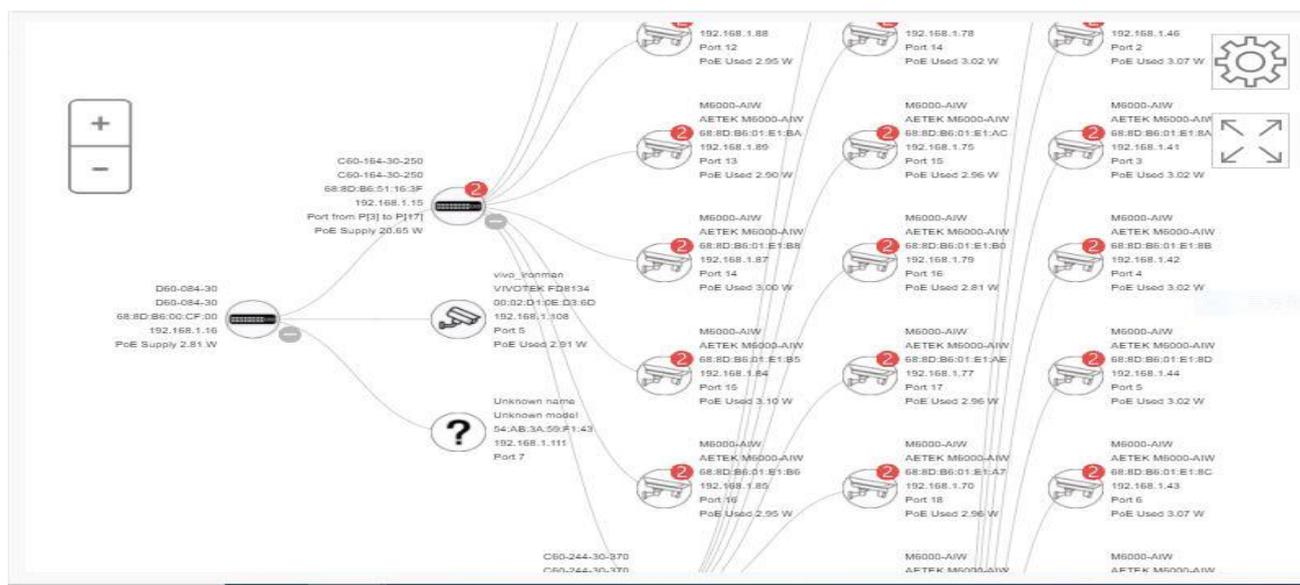


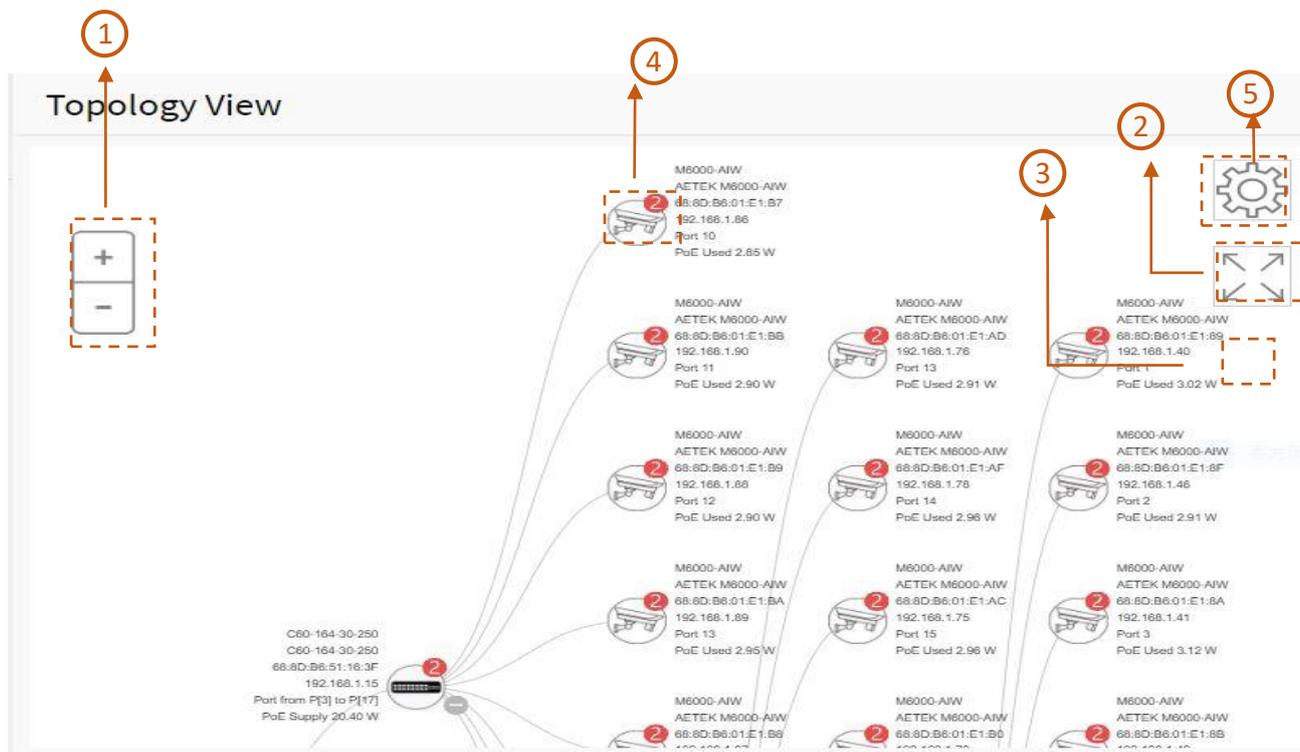
Figure 1: The NTS Overview

# Graphical Monitoring

## Topology View

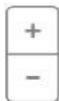
NTS can automatically discover all IP devices and display the devices by graphic networking topology view. User could manage and monitor them by the Topology View, such as to remotely diagnose the cable connection status, auto alarm notifications on critical events, remotely reboot PoE device when it's not alive. Therefore, the user can apply NTS platform to solve the abnormal issues anytime and anywhere by tablet or smart phone, and keep the network works smoothly.

Click Graphical Monitoring Topology View, you can see a visual view of the network topology.



**Figure 3: The Topology View**

## Parameter description:



1. Icon with plus and minus marks: Zoom in and zoom out the topology view, user can scroll up/down with mouse to achieve the same purpose.



2. Icon with screen view type: Click it to change to Full Screen View of Topology or return to the Normal View.

3. Icon with information list: User can select what kind of information should be shown on the topology view of each device. Up to 3 items can be selected.

### 4. Device icon

#### I. Device category

-  : It means the device is Switch.
-  : It means the device is PC.
-  : It means the device is IP Cam.
-  : It means the device is IP Phone.
-  : It means the device is AP.
-  : It means the device is Router.

#### II. Device Status

-  Icon with black mark: Device link up. User can select function and check issues.
-  Icon with red mark: Device link down. User can diagnose the link status.
-  Icon with numbers: It means some events happened (e.g. Device Off-line, IP Duplicate...etc.) on the IP device, user can click on the device icon to check events in Notification.
-  Icon with question: It means the IP device is detected by NTS, but the device type can't be recognized which will be classified as an unknown device type.

### III. Device consoles

- To left-click any device icon to display the device consoles for further actions:

Device Dashboard	
Device Type	PoE Switches
Device Name	<input type="text" value="D60-084-30"/>
Model Name	D60-084-30
MAC Address	68:8D:B6:00:CF:00
IP Address	192.168.1.16
Http Port	80
PoE Supply	3.02 W
API Account	<input type="text" value="admin16"/>
API Password	<input type="text" value="passwd16"/>
<input type="button" value="Close"/> <input type="button" value="Apply"/>	
 Upgrade  PoE Config	

**Figure 5: The Device Console**

- Dashboard Console: it displays device info and related actions for the device.
  - ◆ Different device type supports different function:
    - If an IP device is recognized as NTS switch, it will support "Upgrade", "PoE Config" function.
    - If an IP device is recognized as PoE device, it will support more "PoE Reboot" function in addition "Upgrade".
  - ◆ Device Type: It can be displayed automatically. If an unknown type is detected, user can still

select type from a pre-defined list.

- ◆ Device Name: Create your own Device Name or alias for easy management such as, 1F\_Lobby\_Cam1.
- ◆ Model Name, MAC Address, IP Address, PoE Supply and PoE Used are displayed automatically by NTS.
- ◆ Http Port: Re-assign http port number to the device for better security.



- ◆ **Login** Login: Click the Login Action Icon to log in the device via http for further configuration or status monitoring.



- ◆ **Upgrade** Upgrade: Click it to upgrade software version.



- ◆ **PoE Config** PoE Config: Click it to configure the PoE function, enable/disable PoE Auto Checking or enable/disable PoE mode for per port.

PoE Auto Checking	
	DISABLE
Port	PoE Mode
1	ENABLE
2	ENABLE
3	ENABLE
4	ENABLE
5	ENABLE
6	ENABLE
7	ENABLE
8	ENABLE
9	ENABLE
10	ENABLE

**Figure 6: The PoE Configure**



- ◆ **Diagnostics** Diagnostics: Click Diagnostic Action Icon to perform the cable diagnostics, to examine where the broken cable is, and, check if the device connection is alive or not by ping.

- Cable Status:

- Green icon: Cable is connected correctly.
- Red icon: Cable is not connected correctly. User can check the distance info (XX meters) to identify the broken cable location.
- Connection:
  - Green icon: Device is pinged correctly.
  - Red icon: Device is not transmitted /receiving data correctly. Which means it might not be pinged successfully.

Icon	Diagnostic
1	AETEK D60-084-30 D60-084-30 192.168.1.16 68:8D:B6:00:CF:00 Port: 3 <span style="color: green;">✓</span> Connection ok Speed: 1G <span style="color: green;">✓</span> Cable Status ok
2	AETEK C60-164-30-250 C60-164-30-250 192.168.1.15 68:8D:B6:51:16:3F Port: 18 <span style="color: green;">✓</span> Connection ok <span style="color: red;">✗</span> Cable Status login error.
10	AETEK C60-244-30-370

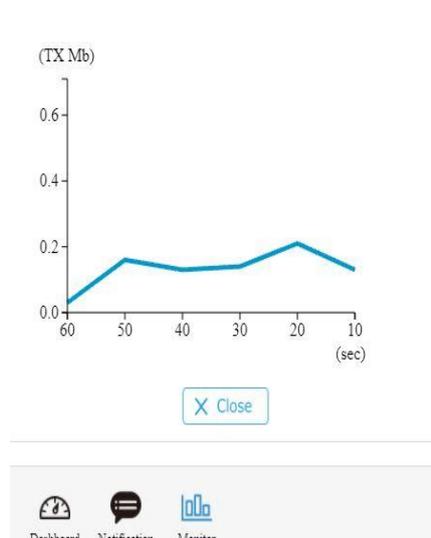
**Figure 7: The Diagnostics**

- ◆  PoE Reboot: Click Reboot Action Icon to reboot the device remotely so as recover the device back to its normal operation.
- ◆  Icon with blank node: When NTS switch detects more than two IP devices from the same port, switch can't resolve this IP device's layout, instead, it will show a blank node to present this situation. User can use "Parent Node" function to adjust layout in Dashboard.
- Notification Console: It displays alarms and logs triggered by events.

[Edit] Device Notification	
Device Type	IP Cameras
Device Name	vivo_ironman
Model Name	FD8134
MAC Address	00:02:D1:0E:D3:6D
IP Address	192.168.1.108
ID	Information
1	<p>⊙ Normal</p> <p>🕒 2021-01-05 08:54:25</p> <p>💬 ONLINE</p>
2	<p>⚠️ <b>Warning</b></p> <p>🕒 2021-01-05 08:51:57</p> <p>💬 OFFLINE</p>
3	<p>⊙ Normal</p> <p>🕒 2021-01-01 13:05:16</p>

**Figure 8: The Notification Console**

- Monitor Console: It displays the traffics for device health check purpose.
  - ◆ For each IP device except NTS switches, User can set a threshold of throughput for IP devices, and get notification when throughput is lower or higher than settings.
  - ◆ If both values are "0", it means the function is disabled.
  - ◆ Polling interval is 1 second, when the page is closed, the Polling interval will change to around 5 seconds.



**Figure 9: The Monitor Console**



5. In the upper right corner, there is a "Setting icon". When user clicks the icon, it will pop-up Device, Group, Config, export topology view and advanced search functions for the topology.

- Device Search Console

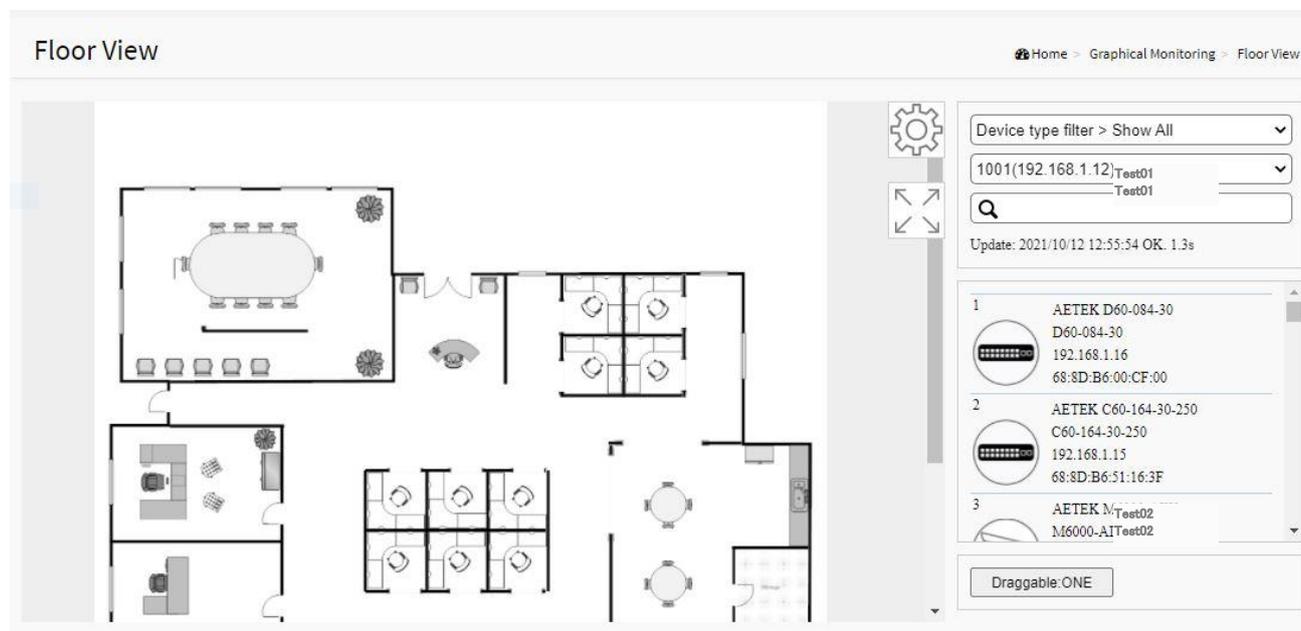
All devices and info. It will show on the list.

Function	
A.	Filter devices by Device Type
B.	Search devices by key words full text search
C.	Save the whole View to SVG, PNG or PDF

**Figure 10: The Device Search Console**

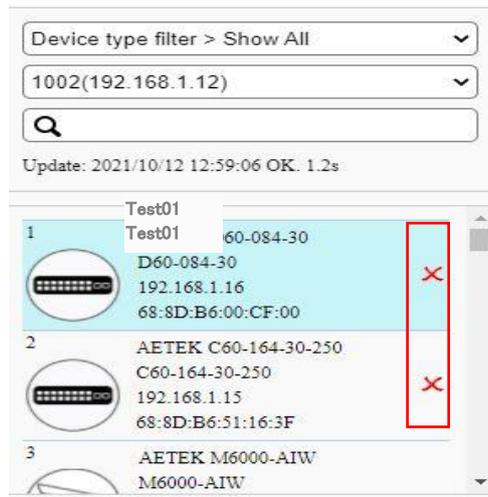
## Floor View

User can easily plan IP devices installation location onto the custom uploaded floor images.



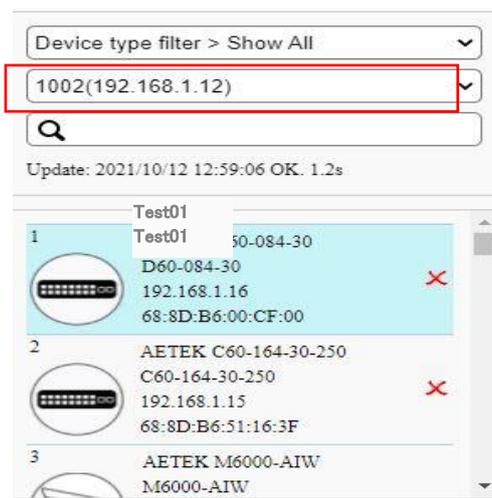
**Figure 13: The Floor View**

- Anchor Devices onto Floor Maps
- Find Device Location Instantly
- 10 Maps can be Stored in Each Switch
- Other Feature same as Topology View
- To place and remove a device icon:
  - To select a device and click its icon from the device list.
  - The device icon will show on the floor image's default location.
  - To click and hold left mouse by dragging-and-dropping the icon to the correct location on the floor view.
  - To click cross sign on the right side of device icon to remove a device from all floor view images.



**Figure 14: The Device Icon to Remove a Device**

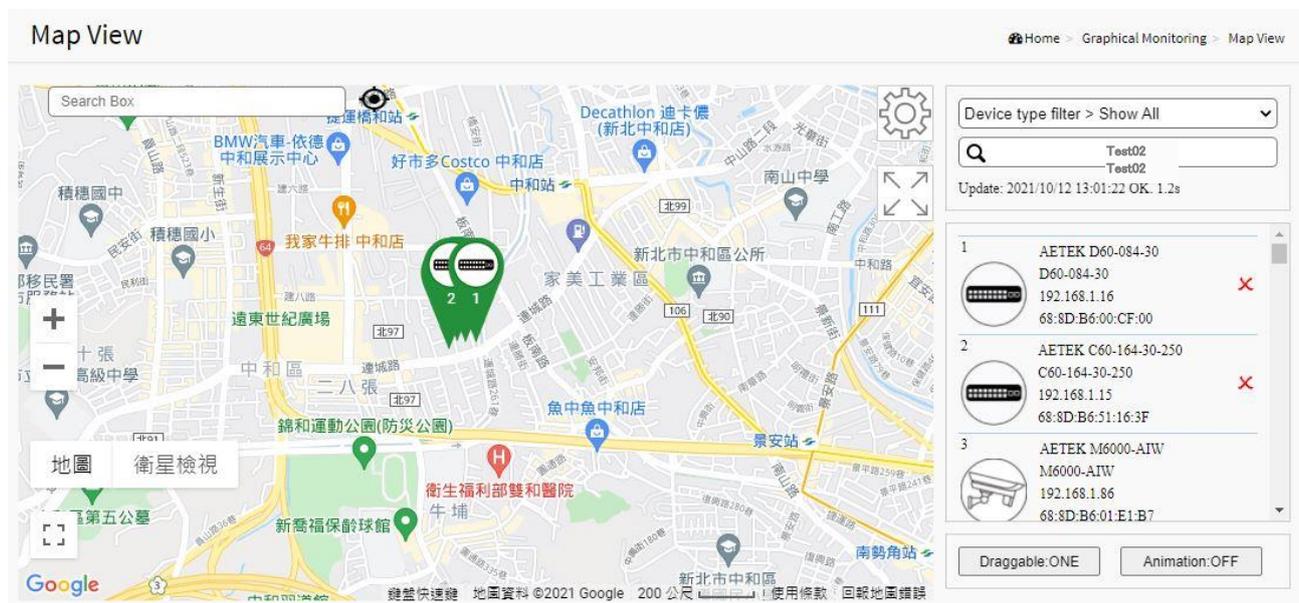
- If there are more than two floor images, it can be selected from the field.



**Figure 15: The Device Icon to Select floor**

## Map View

It can help to find the location of the devices even they are installed in different building. User can place the device icon on the Map View of which navigated by Google map.



**Figure 16: The Map View**

- Anchor Devices onto Google Map.
- Find Devices Instantly from Map.
- On-Line Search Company/Address.
- Outdoor IP Cam/WiFi Applications.
- Other Feature same as Topology View.

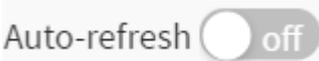
# Management

## Device List

It will show all devices and their information which are detected by NTS.

Status	Device Type	Model Name	Device Name	MAC	IP Address
Online	PoESW	D60-084-30	D60-084-30	68:8D:B6:00:CF:00	192.168.1.16
Online	PoESW	C60-164-30-250	C60-164-30-250	68:8D:B6:51:16:3F	192.168.1.15
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B7	192.168.1.86
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:BB	192.168.1.90
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B9	192.168.1.88
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:BA	192.168.1.89
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B8	192.168.1.87
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B5	192.168.1.84
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B6	192.168.1.85
Online	PoESW	C60-244-30-370	C60-244-30-370	68:8D:B6:01:BF:96	192.168.1.14

**Figure 17: The Devices List**

A.  If you want to auto-refresh the information then you need to evoke the "Auto refresh".

B.  Click this icon to Refresh the status of all devices.

C.  Click this icon to Edit Device Name and http Port.

- User can press "Edit" icon to edit device name for each IP device. This function can also be configured in the Dashboard of Topology view.
- There is no HTTP connection function for Unknown Device and PC type devices, so UI

doesn't provide "Edit HTTP port" function for configuring it.

Device List Home > Management > Device List

Show  entries Search:

Status	Device Type	Model Name	Device Name	MAC	IP Address
Online	PoESW	D60-084-30	D60-084-30	68:8D:B6:00:CF:00	192.168.1.16
Online	PoESW	C60-164-30-250	C60-164-30-250	68:8D:B6:51:16:3F	192.168.1.15
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B7	192.168.1.86
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:BB	192.168.1.90
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B9	192.168.1.88
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:BA	192.168.1.89
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B8	192.168.1.87
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B5	192.168.1.84
Online	IPMX	M6000-AIW	M6000-AIW	68:8D:B6:01:E1:B6	192.168.1.85
Online	PoESW	C60-244-30-370	C60-244-30-370	68:8D:B6:01:BF:96	192.168.1.14

**Figure 18: The Edit of Devices List**

D.  Search devices by key words with full text search.

E.  **Remove** Only Offline devices provide "Remove" function to remove from NTS device list.

**Note:**

The device name will not save until you click Apply button. Please do not click refresh, auto-refresh or edit button before you apply new device name.

## Maintenance

### Floor Image

In this page, user can add or delete a floor image.

#### Floor Image

Maximum: 40 files	Used: 2 file(s)	Free: 38 file(s)
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**Add Floor Image:** 選擇檔案 未選擇任何檔案

**Name:**

Add

Select	No.	File Name	Image
<input type="checkbox"/>	1	1001(192.168.1.12)	

**Figure 19: The Floor Image**

- Each NTS switch provides 10 files space for uploading.
- Only support JPG and PNG formats.
- File size is limited to 256KB.
- All NTS switches' floor image in the same network can be shared together.
  - For example:
 

If Switch1 has uploaded 10 floor images, Switch2 uploaded 5 images, the total 15 floor images can be shared and selected on all NTS switches in the same network.
- File name will attach IP address to let user know the floor image is stored on which NTS switch.

## Traffic Monitor

In this page, user can see traffic results on every connected devices.

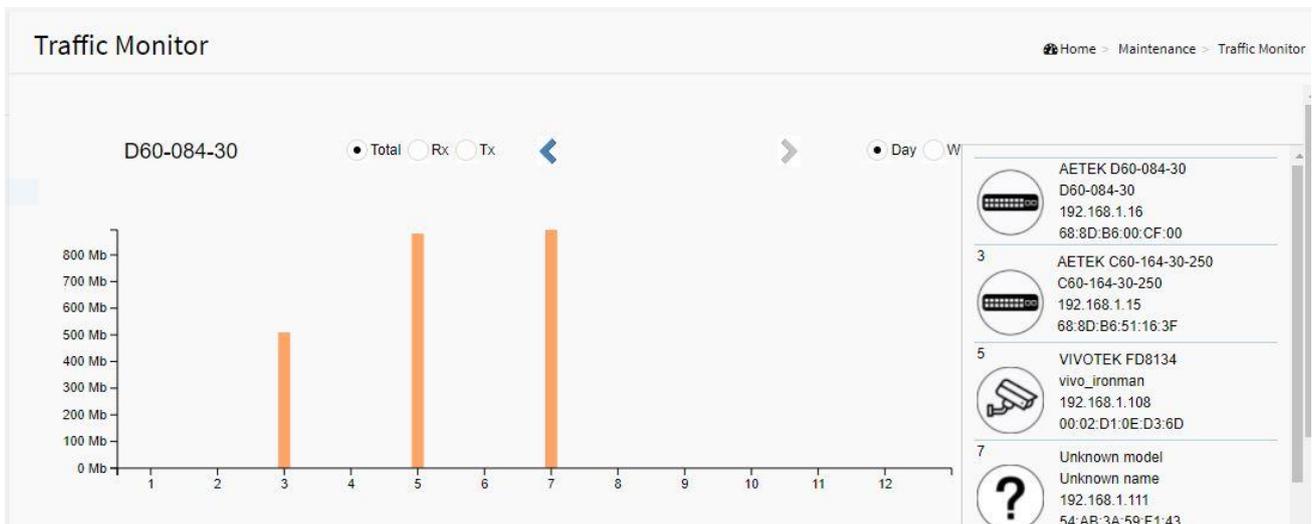


Figure 19: The Traffic Image