

校園網路管理基礎班

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80723456-517

課程主題

2

- 瞭解校園網路架構並進行觀察、測試操作。
 - traffic.tanet.edu.tw
 - mrtg.tanet.edu.tw
 - mrtg.ntpc.edu.tw
 - Mis.ntpc.edu.tw
 - <https://www.pingplotter.com/>
 - 工作原理：<https://www.pingplotter.com/legacy-manual/v4/howitworks.html>
- 瞭解siraya觀察各種交換器L2、L3。用PRTG實現
 - nms.ntpc.edu.tw
 - <https://www.paessler.com/>
- 瞭解 CISCO WLC。
- 瞭解 Fortigate WIFI。
- Case Study 近日問題討論。

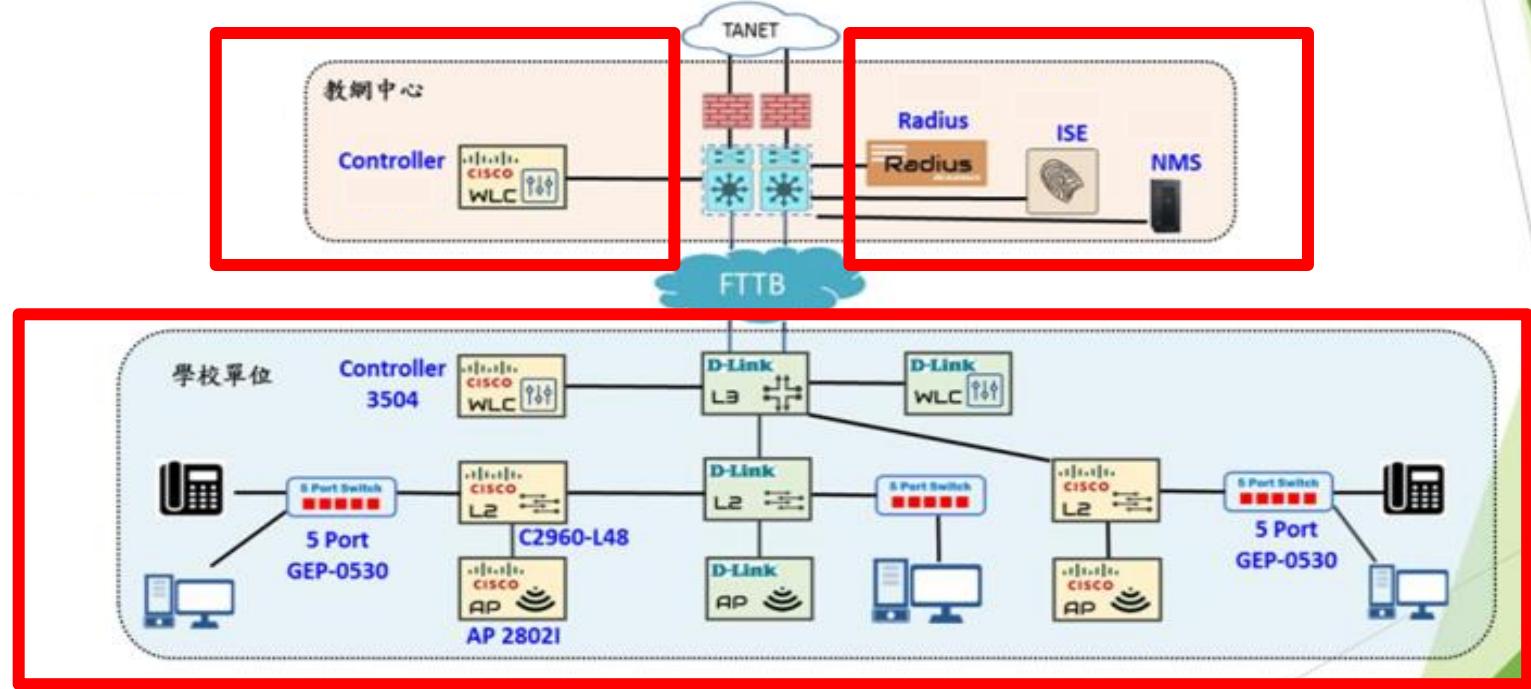
品質與速度

3

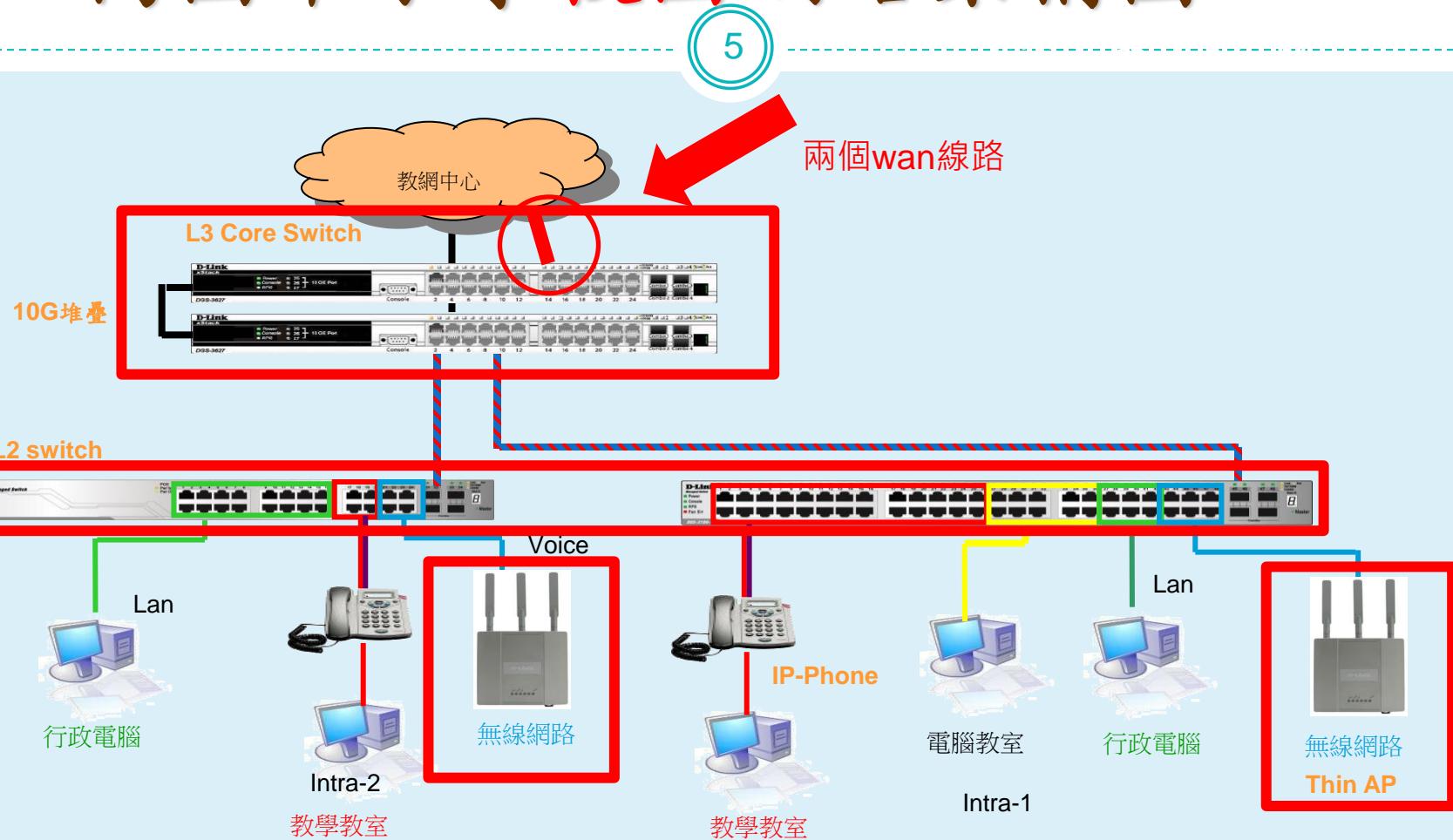
- 網速
 - nts.ntpc.edu.tw測試原理
- 網路品質
 - 延遲
 - 丟失
 - 抖動

整體網路架構

- 整體系統架構圖



高國中小學校園網路架構圖



網路醫生 pingplotter 把脈!!



PingPlotter

[Products](#)[Download](#)[Support](#)[Wisdom](#)

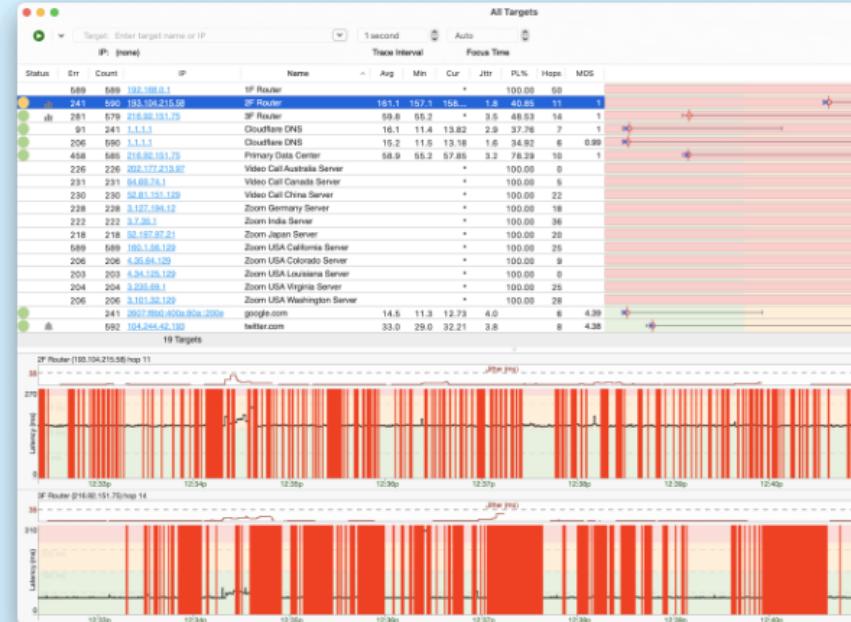
See Problems and Share the Solution

Download PingPlotter.

Download PingPlotter for free and try it for 14 days. If you need a hand with installation or getting started, Our Service Team is here to help.



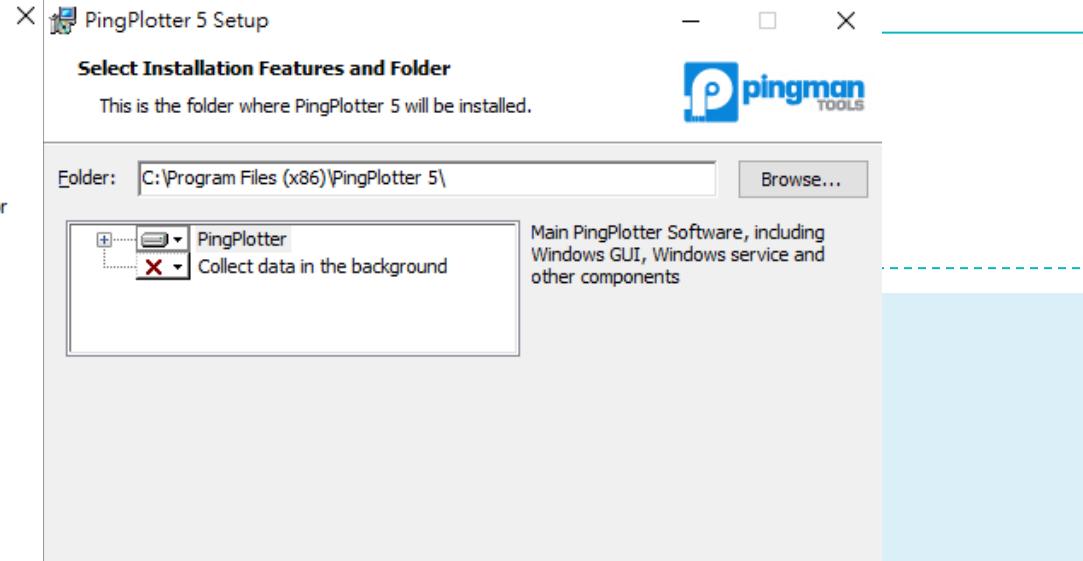
Version 5.23.0. Released 2022-04-22.

[Download](#)



Welcome to the PingPlotter 5 Setup Wizard

The Setup Wizard will allow you to change the way PingPlotter 5 superpowers are installed on your computer or even to remove PingPlotter 5 from your computer. Click "Next" to continue or "Cancel" to exit the Setup Wizard.

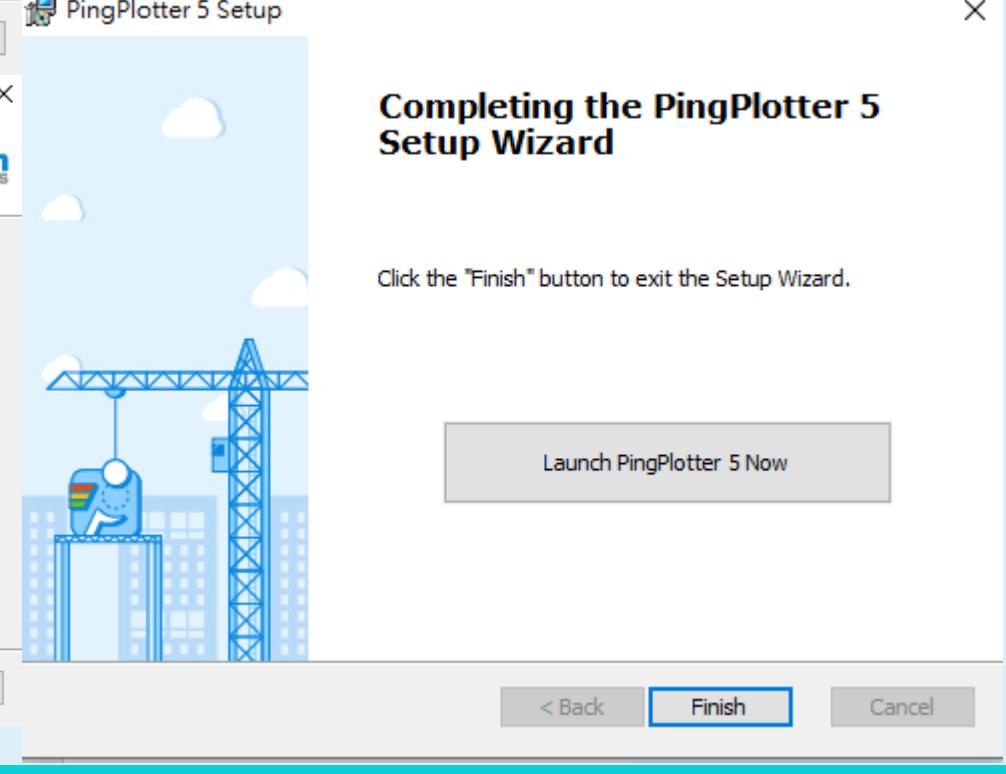


Ready to Install

The Setup Wizard is ready to begin the PingPlotter 5 installation

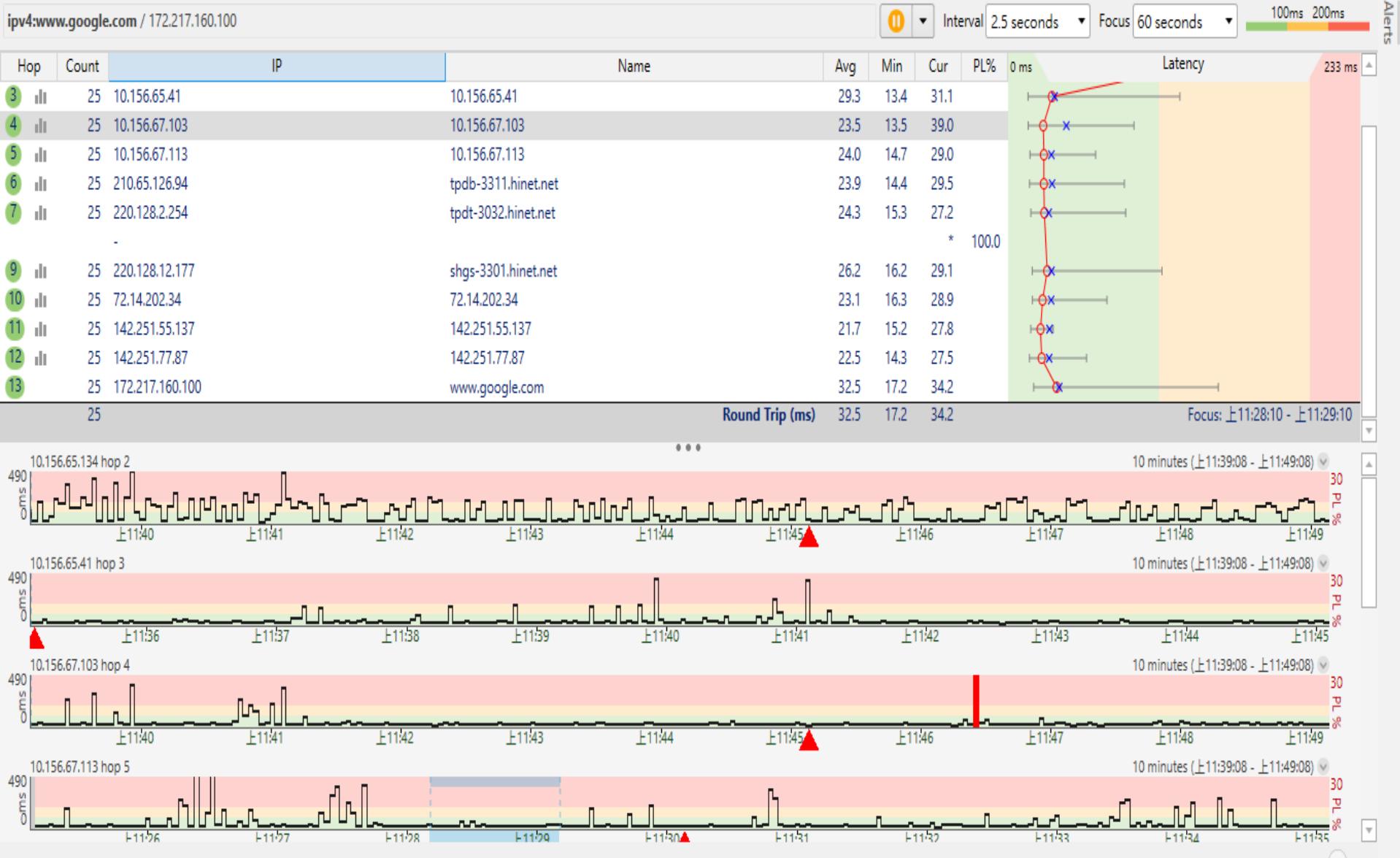


Click "Install" to begin the installation. If you want to review or change any of your installation settings, click "Back". Click "Cancel" to exit the wizard.



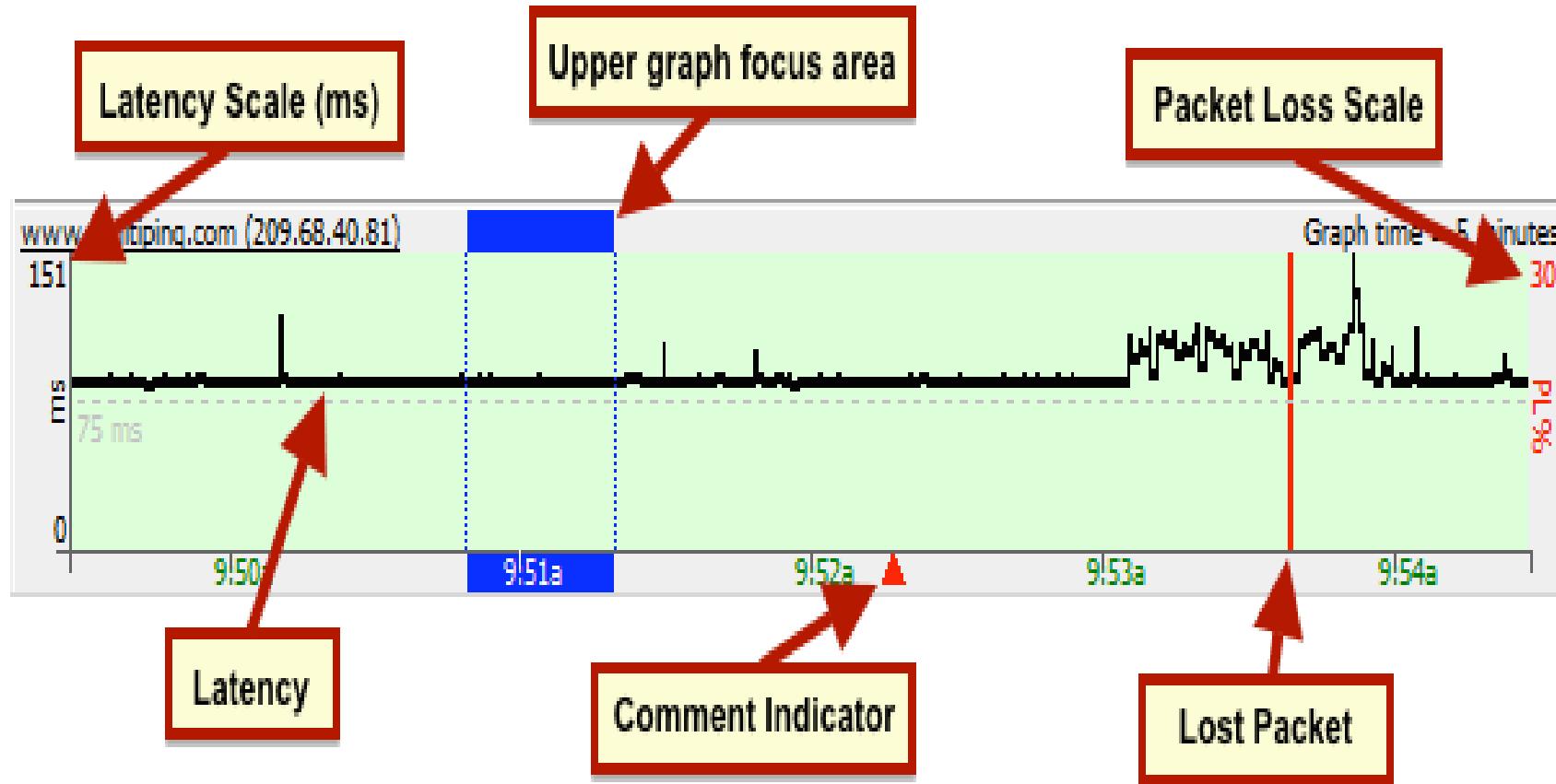
Track network performance automatically and get step-by-step help narrowing down problems. [Try Sidekick!](#)

www.google.com ✓ www.akamai.com ✓ +



時間曲線的使用

9



網絡流量有點像高速公路流量 假設到終點有15個匝道

10

- 我們可以派出 15 輛汽車
- 每個司機分配到這 15 個出口匝道中的一個。
- 每個司機的指示都是一樣的：
 - 由你指定的出口匝道出去再掉頭，然後回來。
 - 然後我們將測量每輛車從我們這裡出發，到他們的出口匝道。
 - 然後回到我們這裡所花費的時間
- 最重要的車是一直到**你的終點目標**的那輛——第 15 輛車。如果它在預期時間內到達並再次返回，那麼我們知道高速公路上的交通運行良好。。

example

11

- <https://www.pingplotter.com/legacy-manual/interpretgraphsexampleone.html>

課程安排

12

- PC網路設定
- PC基本網路設定及問題除錯
- 基礎服務介紹及實作：DNS、DHCP、Radius
- L2 Switch基本介紹及運用實作
- L2 switch Vlan原理及實作
- ~~L3 Switch Routing (ipv4 and ipv6)進階~~

個人PC網路設定

13

- 目的：了解PC網路設定
- IP 地址-IPv4 and IPv6
- 避罩用途：演算內外網判別。**(255.255.255.0)**
- Gateway 用途，Gateway在哪裡??
- Cmd 命令提示字元 常用指令
 - Ipconfig/all ipconfig/flushdns
 - Ping
 - Nslookup
 - Tracert -d IP
 - Route print

```
命令提示字元
Microsoft Windows [版本 10.0.18363.1500]
(c) 2019 Microsoft Corporation. 著作權所有，並保留一切
權利。
C:\Users\admin>nslookup
預設伺服器: homerouter.cpe
Address: 192.168.8.1

> server 203.72.153.153
預設伺服器: dns153.ntpc.edu.tw
Address: 203.72.153.153

> www.google.com
伺服器: dns153.ntpc.edu.tw
Address: 203.72.153.153
```

電腦開機程序及網頁開啟行為

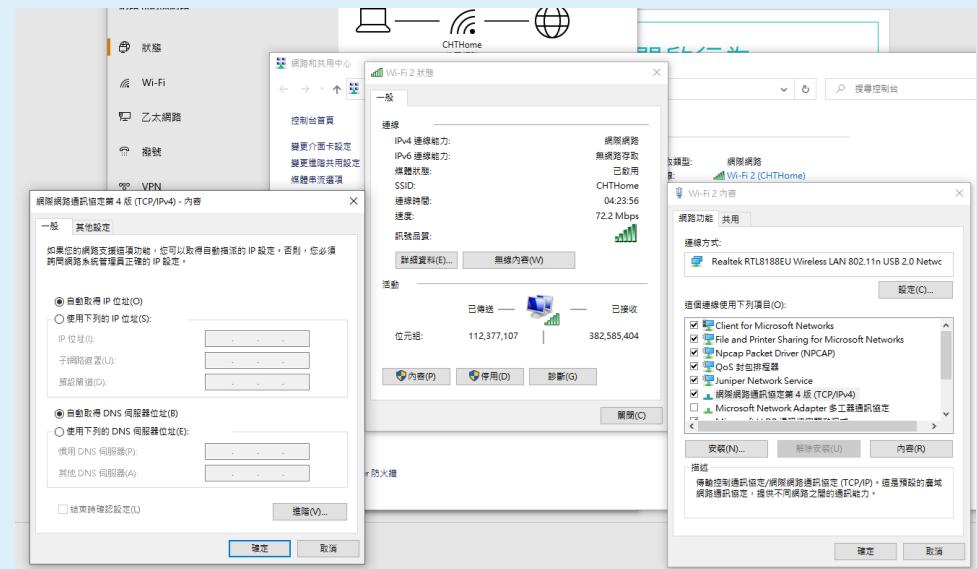
14

● 電腦開機程序

- 找尋DHCP server
- DHCP取得ip或是自訂ip
- DHCP取得dns或是自訂dns

● 網頁開啟行為

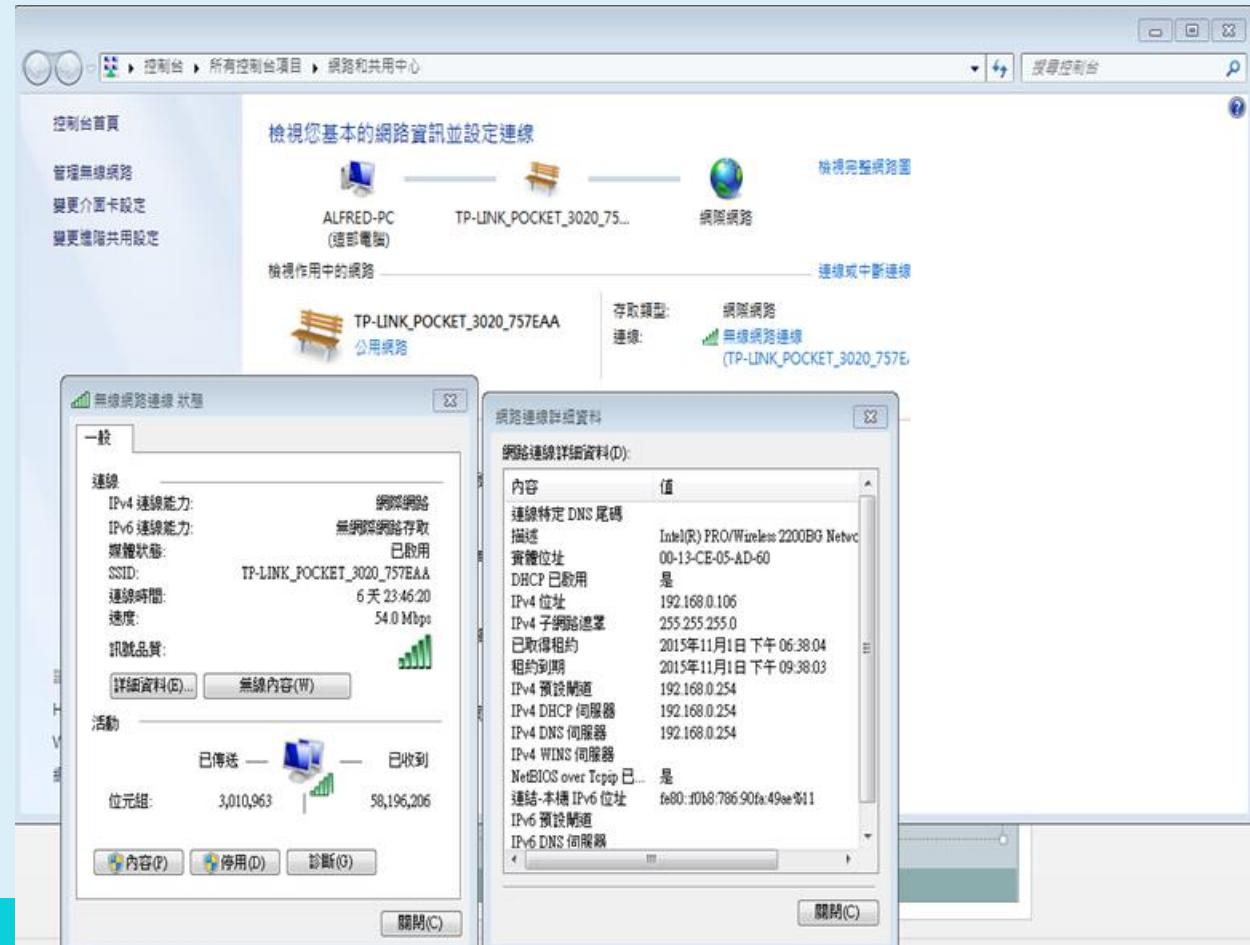
- DNS 詢問IP
- 取得ip上網
- PC->L3 Switch GW->F/W->Core->DNS
- PC->L3 Switch GW->F/W->Core->NCCU



IP Address

15

- A.B.C.D 0-255
- NetMask 遮罩
- Gateway
- DNS
- DHCP
- Ipv6



實體PC 網路設定

控制台首頁

管理無線網路

變更介面卡設定

變更進階共用設定

檢視您基本的網路資訊並設定連線

ALFRED-PC
(這部電腦)

TP-LINK_POCKET_3020_75...
網際網路

TP-LINK_POCKET_3020_757EAA
公用網路

檢視作用中的網路

存取類型: 網際網路

連線: 無線網路連線
(TP-LINK_POCKET_3020_757EAA)

無線網路連線 狀態

一般

連線

IPv4 連線能力: 網際網路

IPv6 連線能力: 無網際網路存取

媒體狀態: 已啟用

SSID: TP-LINK_POCKET_3020_757EAA

連線時間: 6 天 23:46:20

速度: 54.0 Mbps

訊號品質:

詳細資料(E)... 無線內容(W)

活動

已傳送 —  — 已收到

位元組: 3,010,963 | 58,196,206

內容(P) 停用(D) 診斷(G) 關閉(C)

網路連線詳細資料

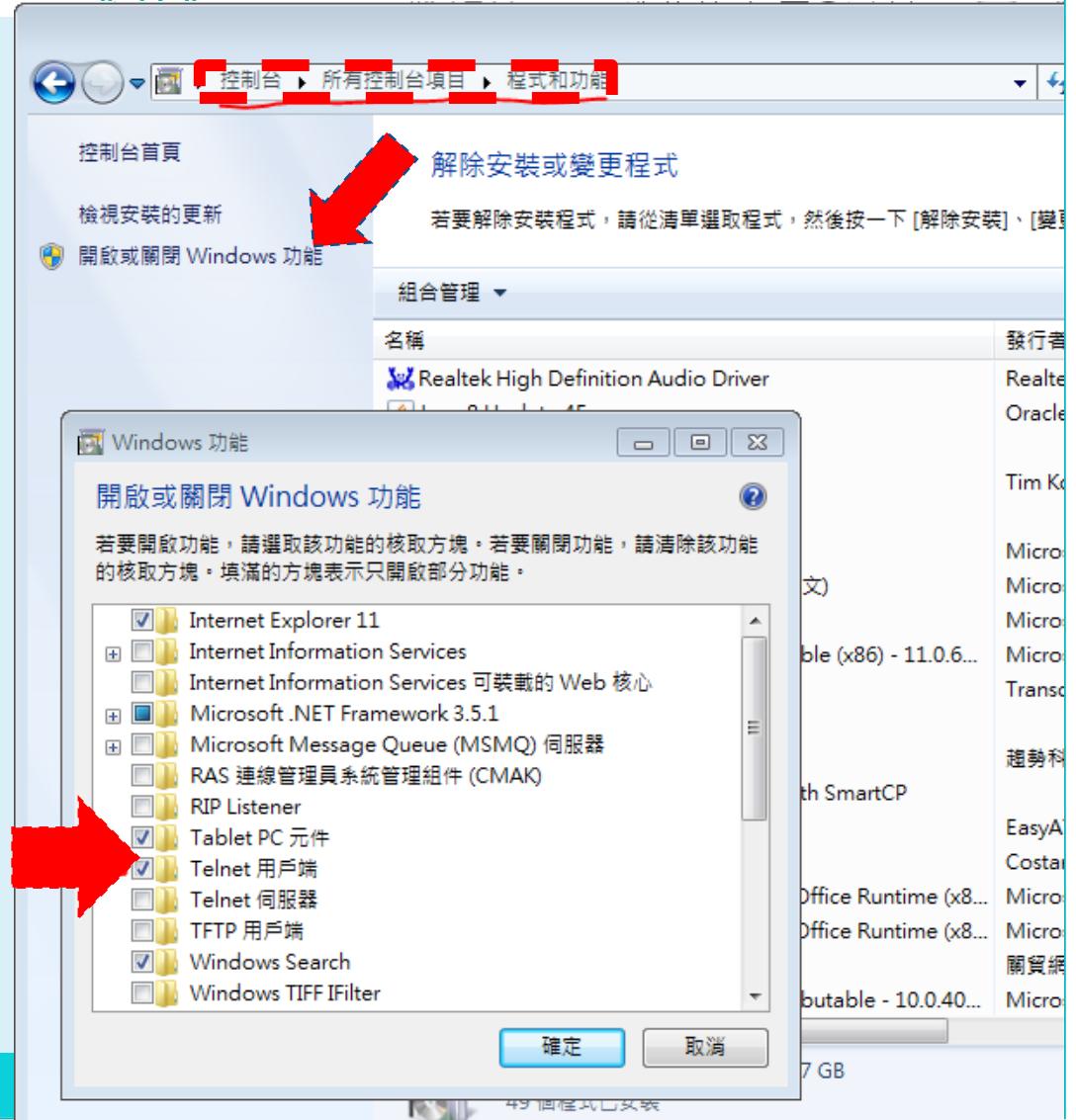
內容	值
連線特定 DNS 尾碼	
描述	Intel(R) PRO/Wireless 2200BG Netw...
實體位址	00-13-CE-05-AD-60
DHCP	已啟用
IPv4 位址	192.168.0.106
IPv4 子網路遮罩	255.255.255.0
已取得租約	2015年11月1日下午 06:38:04
租約到期	2015年11月1日下午 09:38:03
IPv4 預設閘道	192.168.0.254
IPv4 DHCP 啟服器	192.168.0.254
IPv4 DNS 啟服器	192.168.0.254
IPv4 WINS 啟服器	
NetBIOS over Tcpip	是
連結-本機 IPv6 位址	fe80::f0b8:7869:fa:49ae%11
IPv6 預設閘道	
IPv6 DNS 啟服器	

關閉(C)

個人電腦網路設定基本概念

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- DOS指令
(命令提示字元)
或 執行 cmd
 - ipconfig /all
 - Nslookup
 - Ping
 - Tracert -d DST ip
 - Pathping
 - telnet ip port
 - ✖ esa.ntpc.edu.tw
 - ✖ Cloud.ntpc.gov.tw



PRTG NETWORK MONITOR



- 監視DHCP、DNS、Gateway
- 監視學校L3 Router重要 port
- 監視重要電腦
- 監視重要伺服器
- 設計一個手機監控智慧網管

手機監控

Alfred 2021-03-15 下午 10:56 >

< Back 网络基础设施

DNS: dns153 ✓ 2

DNS: dns154 ✓ 2

forti3950b-a ✓ 4

forti3950b-b ✓ 2

C9300_F1-3.ntpc.edu.tw (9300...) ✓ 24

C9300-NCCU ✓ 15

NX_B (n7k-b) [Cisco Device] ✓ 12

传感器: (115) Port-channel11 Traffic (2 天)
网络基础设施 / C9300_F1-3.ntpc.edu.tw (9300school)...

最大值: 18,323,460 kbit/秒

最小值: 517,586 kbit/秒

(101) TenGigabitEthernet2/1/1 Traffic
确定
Last Value: 575,332 kbit/秒

(102) TenGigabitEthernet2/1/2 Traffic
确定
Last Value: 304,412 kbit/秒

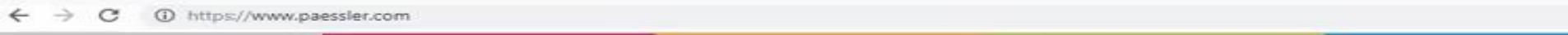
(103) TenGigabitEthernet2/1/3 Traffic
确定
Last Value: 284,344 kbit/秒

(115) Port-channel11 Traffic
确定
Last Value: 1,738,718 kbit/秒

Last Update: 2021/3/15, 10:59 PM

W 1 ✓ 99

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Work smarter, start monitoring

PRTG monitors your whole IT infrastructure 24/7 and alerts you to problems before users even notice. Find out more about the monitoring software that helps system administrators work smarter, faster, better.



[DOWNLOAD FREE TRIAL](#)

[DOWNLOAD FREWARE](#)

PRTG Network Monitoring Software
Version 18.4.47.1962 (December 11th, 2018)

Languages English, German, Spanish, French, Portuguese, Dutch, Russian, Japanese, and Simplified Chinese

Unified Monitoring Network devices, bandwidth, servers, applications, virtual environments, remote systems, IoT, and more

License key



← → C https://www.paessler.com/download/prtg-download?download=1



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Your PRTG License Key

000014-164KFM-8FFZ8K-NJ5QAF-
QNZNMH-J75U6E-JBA0D3-NH6MMY-
XZ0ZQC-ZEB0P1

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PRTG download - Thanks for downloading!

A screenshot of a Windows File Explorer window. The title bar says "Your" and "Compressed Folder Tools Downloads". The address bar shows the path "This PC > Downloads > prtg". The main area displays two files:

Name	Date modified	Type	Size
PRTG Network Monitor 18.4.47.1962 Setup.exe	12/10/2018 1:58 PM	Application	190,863 KB
whatsnew	12/10/2018 11:36 ...	Chrome HTML Do...	44 KB

The left sidebar shows "Quick access" and "This PC" sections. The "Downloads" section is highlighted.

E-mail and license key



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com/download/prtg-download?download=1

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Your PRTG License Name

Your PRTG License Key

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[DOWNLOAD PRTG](#)

Setup - PRTG Network Monitor

Your Email Address
The following information is required to continue with the installation

Whenever the sensors in your installation discover outages or suspicious values, PRTG can send notifications to alert you. Please enter your email address to make sure you receive these important system alerts. Paessler will also use this address to provide support.

Your Email Address:

We protect your personal data!
[See our privacy policy for more information.](#)

www.paessler.com

< Back Next > Cancel

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Home > Downloads > PRTG Download - Thanks for downloading!

PRTG download - Thanks for downloading!

Your PRTG License Name

Your PRTG License Key

If your PRTG download didn't start automatically, click here.

[DOWNLOAD PRTG](#)

Setup - PRTG Network Monitor

Your License Key
The following information is required to continue with the installation

Please enter your license key! Both, name and key, must be entered exactly as provided in the email (or license document) from Paessler. Using copy/paste is recommended!

License Name:

License Key:

Don't have a license key?
Try unlimited sensors for 30 days, then use 100 sensors for free forever!

[CLICK HERE to request your free license key \(no questions asked\).](#)

www.paessler.com

< Back Next > Cancel

DOWNLOAD PRTG AND GET STARTED IN A FEW MINUTES

- Install PRTG Network Monitor in your network and enter your license key. Watch [this video](#) how to do it.
- If required, all your settings and data from the trial phase can be kept in your commercial edition.
- For [technical support](#) check our manual and Knowledge Base or open a support ticket.
- For questions regarding purchasing and available licenses, please contact sales@paessler.com.

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- For questions regarding purchasing and available licenses, please contact sales@paessler.com.

進入網頁設定(管理) 程式集



← → C

Home Devices Libraries Sensors Alarms Maps Reports Logs Tickets Setup

Devices

Group Root

Overview 2 days 30 days 365 days Alarms Log Management Settings Notifications

Search...

Root
Local Probe Disconnected
Probe Device
Core Health Probe Health System Health Disk Free Common SaaS... XenServer PV... Add Sensor
1st group

Congratulations!

PRTG is about to scan your network. You will see all your devices soon.
For the next 30 days, we have unlocked unlimited sensors for you. Afterwards you can use 100 sensors for free forever.

OK Skip introduction

Help Remote Site With PRTG you...

G AnyDesk

N Google Chrome

P Notepad++

PRTG Network Monitor New

PRTG Network Monitor (Default Browser)

PRTG Network Monitor (Default...) New

PRTG Network Monitor on the W...

Uninstall PRTG Network Monitor New

PRTG Monitor後台，新密碼!(很重要)

PRTG Network Monitor - PRTG Administration Tool

PAESSLER

PRTG Network Monitor

核心连接的探针设置	用于监控的探针设置	服务启动/停止	日志和信息
PRTG Web 服务器	PRTG 核心服务器	群集	管理员

PRTG 系统管理员用户帐户的登录凭据

电子邮件地址: alfred@ntpc.edu.tw

登录名: alfred

密码: *****

生成新密码

保存并关闭 取消

PRTG Network Monitor - PRTG Administration Tool

PAESSLER

PRTG Network Monitor

Probe Settings for Core Connection	Probe Settings for Monitoring	Service Start/Stop	Logs and Info
Web Server	Core Server	Cluster	Administrator

Select TCP Port for PRTG's Web Server

Secure HTTPS Server (standard port 443, recommended, mandatory for Internet access)
 Insecure HTTP server (standard port 80, not recommended)
 Expert configuration

Select IP Address for PRTG's Web Server

Localhost: Use 127.0.0.1 (PRTG will not be accessible from other computers)
 All IPs: Use all IPs available on this computer (Note: Selected TCP port must be available on all IPs)
 Specify IPs:

select all IPs deselect all IPs

Select System Language

English

Save & Close Cancel

Setting設定



主页 设备 库 传感器 报警 拓扑图 报表 日志 工单 设置

设备

群组 Root

概述

2 天

30 天

365 天

报警

日志

管理

设置

Root

本地探?

Probe Device

Core H... 2 传感器

网络发现

网络基础设施

DNS: dns153

PING DNS

DNS: dns154

PING DNS

forti3950b-a

(003) HA-120 (004) HA-64 (379) TO_N7K_A (380)
Traffic Traffic Traffic To_Next_Switch

forti3950b-b

(379) TO_N7K_A (380)
Traffic To_Next_Switch

C9300_F1-3.ntpc.edu.tw (9300sch...)

(036) TgnGiabitEth0	(037) TgnGiabitEth0	(038) TgnGiabitEth0	(096) GigabitEthernet0	(101) TgnGiabitEth0	(102) TgnGiabitEth0	(103) TgnGiabitEth0	(115) Port-channel11	(502) To_2050D_A_E1	(503) To_2050D_B_E1
(504) To_C3750-CUT_A_Traffic	(031) GigabitEthernet0	(036) TgnGiabitEth0	(037) TgnGiabitEth0	(038) TgnGiabitEth0	(040) TgnGiabitEth0	(041) TgnGiabitEth0	(042) TgnGiabitEth0	(119) To_C3750-CUT_A_Traffic	System Health
System Health	System Health	System Health	System Health	System Health	System Health	System Health	System Health	System Health	System Health

C9300-NCCU

(060) TgnGiabitEth0	(142) Port-channel10	Ping 1	正常运行时间 1	(060) TgnGiabitEth0	(062) N7K-B-ae2	(066) N7K-B-ae2	(126) TgnGiabitEth0	(128) N7K-B-ae2	System Health
(065) TgnGiabitEth0	(067) TgnGiabitEth0	(129) SRX-ae4	(131) TgnGiabitEth0	(132) N7K-B-ae2	(133) TgnGiabitEth0	(134) TgnGiabitEth0	(135) TgnGiabitEth0	(136) TgnGiabitEth0	CPU
(151060492) Vlan12	(151060502) Vlan22	(151060512) Vlan22	(151060522) Vlan12	(369098758) port_channel7	(369098771) port_channel20	(369098783) port_channel22	(369098784) port_channel22	(369098785) port_channel24	(369099099) port_channel24

NX_B (n7k-b) [Cisco Device]

(151060492) Vlan12	(151060502) Vlan22	(151060512) Vlan22	(151060522) Vlan12	(369098758) port_channel7	(369098771) port_channel20	(369098783) port_channel22	(369098784) port_channel22	(369098785) port_channel24	(369099099) port_channel24
(369099192) port_channel11	(369102845) port	(369102846) port	(369102847) port	System Health	System Health	System Health	System Health	System Health	Memory

网络基础设施

Internet

HTTP

DNS: 203.72.153.153

Ping

DNS: 203.72.153.154

Ping

网关: 163.20.66.254

Ping

SNMP

Credentials for VMware/XenServer

User

Password

VMware Protocol

HTTPS (recommended)

HTTP

Session Pool

Reuse session for multiple scans (recommended)

Create a new session for each scan

Credentials for SNMP Devices

SNMP Version

v1

v2c (recommended)

v3

Community String public

SNMP Port 161

SNMP Timeout (Sec.) 5

Due to internal limitations, you can only monitor a limited number of sensors per second when using SNMP v3. The main limiting factor is CPU power. Currently, PRTG is able to handle roughly 40 requests per second per computer core, depending on your system. This means that you can run about 5,000 SNMP v2 sensors with a 60-second scanning interval on a computer with two cores, and around 10,000 sensors with a 60-second interval on a system with four cores. If you experience an increased Interval Delay or Open Requests reading of the Probe Health sensor, you need to distribute the load over multiple probes. SNMP v1 and v2 do not have this limitation.

面板介紹

主页 设备 库 传感器 警报 拓扑图 报表 日志 工单 设置

设备

群组 Root

概述

2 天

30 天

365 天

警报

日志

管理

设置

通知

!! 1 ✓ 93 ? 6 (共 100)

S M L XL ⚙ 🏠

搜索...



+ 添加传感器

C9300_F1-3.ntpc.edu.tw (9300school) [Cisco Device Cisco IOS] 🔍

✓ (036) TenGigabitEthernet1/1/1 Traffic 🔍	303,933 kbit/秒
✓ (037) TenGigabitEthernet1/1/2 Traffic 🔍	283,515 kbit/秒
✓ (038) TenGigabitEthernet1/1/3 Traffic 🔍	133,974 kbit/秒
✓ (096) GigabitEthernet2/0/48 Traffic 🔍	138,665 kbit/秒
✓ (101) TenGigabitEthernet2/1/1 Traffic 🔍	352,281 kbit/秒
✓ (102) TenGigabitEthernet2/1/2 Traffic 🔍	251,524 kbit/秒
✓ (103) TenGigabitEthernet2/1/3 Traffic 🔍	545,065 kbit/秒
✓ (115) Port-channel11 Traffic 🔍	1,305,734 kbit/秒
✓ (502) To_3950B_A_F1-1 Traffic 🔍	483,810 kbit/秒
✓ (503) To_3950B_B_F1-2 Traffic 🔍	698,083 kbit/秒
✓ (504) To_C3750-CHT-4 Traffic 🔍	167,042 kbit/秒
✓ (031) GigabitEthernet1/0/24 Traffic 🔍	29,076 kbit/秒
✓ (036) TenGigabitEthernet1/1/1 Traffic 🔍	304,034 kbit/秒
✓ (037) TenGigabitEthernet1/1/2 Traffic 🔍	288,949 kbit/秒
✓ (038) TenGigabitEthernet1/1/3 Traffic 🔍	135,126 kbit/秒
✓ (040) TenGigabitEthernet1/1/5 Traffic 🔍	298,986 kbit/秒
✓ (041) TenGigabitEthernet1/1/6 Traffic 🔍	1,052,833 kbit/秒
✓ (042) TenGigabitEthernet1/1/7 Traffic 🔍	664,865 kbit/秒
✓ (119) To_C3750-CHT-4 Traffic 🔍	170,375 kbit/秒

Add device

127.0.0.1/group.htm?id=0&tabid=1

Home Devices Libraries Sensors Alarms Maps Reports Logs Tickets Setup

All

Root

Favorite Devices

Device List

Dependencies

Add Group

Add Auto-Discovery Group

Add Device

days days Alarms Log

30 days 365 days Alarms Log Management Settings Notifications

Search...

Devices All

Group Root Favorite Devices

Device List Dependencies Add Group

Root Add Auto-Discovery Group

Add Device

System Health 100% Disk Free 361 Common Sess. 100% Business Proc. Down Bylog Receiver 0/0 Add Sensor

Network Discovery

Network Infrastructure 5 Sens. 253 Sens. 12 Sens.

Virtual Systems 11 Sens.

Linux / MacOS / Unix

PING 5 Sens. 24 Sens. 223 Sens. 0 Sens.

Custom Sensors

Buffer

SNMP System 8d 16h Ping 0 ms Tabla linea disk 1369 # Add Sensor

Synology

Add Sensor Run Auto-Discovery

添加新设备

必要时定义设备名称、地址以及针对自动发现、凭据设置 (Windows、Linux、VMware/XEN 和 SNMP) 的选项。

PRTG 手册 : 添加设备

设备名称和地址

设备名称 (必填)

device

IP 版本 (必填)

使用 IPv4 连接

使用 IPv6 连接

IPv4 地址/DNS 名称 (必填)

需要此字段。

标签 (必填)



设备图标 (必填)



取消

确定

SNMP 设备凭据

继承自 [网络发现](#) (SNMP 版本: V2, SNMP 端口: 161, 超时 (秒): 5 秒)

SNMP 版本 (必填)

v1

v2c (推荐)

v3

社区字符串 (Community String) (必填)

public

SNMP 端口 (必填)

161

超时 (秒) (必填)

5

数据库管理系统的凭据

继承自 [网络发现](#)

(超时 (秒): 60 秒)

AWS 的凭据

继承自 [网络发现](#)

Credentials for Dell EMC

取消

确定

Add sensor

127.0.0.1/group.htm?id=0&tabid=1

Home Devices Libraries Sensors Alarms Maps Reports Logs

Devices Group Root

All

Favorite Devices

Device List

Dependencies

Root Add Group

Locally Add Auto-Discovery Group

Add Device

System Health 100% Disk Free 100% Common SaaS 36% Business Proc. Down 100% Synology Req.

30 days 365 days Alarms

S M L XL

Network Discovery

Network Infrastructure

W5 Sens... ✓253 Sens... U 12 Sens...

Virtual Systems

✓11 Sens...

Linux / MacOS / Unix

U 1 Ping W 5 Sens... U 24 Sens... ✓223 Sens... U 3 Sens...

Custom Sensors

Buffalo

SNMP System... Ping 0 msec Table/nas disk... Add Sensor

Synology

Add Sensor Run Auto-Discovery

127.0.0.1/addsensor.htm?id=3062

Home Devices Libraries Sensors Alarms Maps Reports Logs Tickets Setup

Devices Local Probe * Custom Sensors

Add Sensor to Device Synology

Monitor What?

Availability/Uptime CPU Usage Hardware Parameters
 Bandwidth/Traffic Disk Usage Network Infrastructure
 Speed/Performance Memory Usage Custom Sensors

Target System Type?

Windows Storage and File Server Cloud Services
 Linux/macOS Email Server Virtualization OS
 WMI Database

Technology Used?

Ping HTTP
 SNMP SSH
 WMI Packet Sniff
 Performance Counters NetFlow/ef

(Cancel sensor creation)

Search Type to search name or description

257 Matching Sensor Types

Most Used Sensor Types

DNS	Ping	SNMP CPU Load	SNMP Custom	SNMP Disk Free	SNMP
Monitors a DNS server (Domain Name Service), resolves a domain name, and compares it to an IP address	Monitors connectivity using Ping	Monitors the load of a CPU via SNMP	Monitors a numerical value returned by a specific OID using SNMP	Monitors the free disk space on a logical disk via SNMP	Monitors system
Add this sensor to a device the DNS service is running on	Ping requests are used to check whether a device is reachable through the network.	To query data from a probe device (localhost, 127.0.0.1, or -1), add this device to PRTG with the IP address it has in your network and create the sensor on this device.	If you want to monitor more than one OID, use the SNMP Custom Advanced Sensor instead.	Uses more generic OID values compared to the SNMP Linux Disk Free Sensor.	of read a
SNMP Memory	SNMP System Uptime	SNMP Traffic			

加減sensor

Home Devices Libraries Sensors Alarms Maps Reports Logs Tickets Setup New Log Entries 18

Devices Local Probe Custom Sensors Synology Device Synology

Overview 2 days 30 days 365 days Alarms System Information Log Settings Notifications

To see sensor gauges here, please change the priority of one or more sensors to ★★★★☆ /★★★★★.

Pos	Sensor	Status	Message	Graph	Priority	
1.	[?] disk: 0 - disk id	Unknown	No data yet	Response Tim	No data	★★★☆☆
2.	[?] Table(disk: 1): [tablename] / [rowidentifier]	Unknown	No data yet	disk temperat	No data	★★★★☆
3.	[?] Table(disk: 2): [tablename] / [rowidentifier]	Unknown	No data yet	disk temperat	No data	★★★☆☆
4.	[?] Table(disk: 3): [tablename] / [rowidentifier]	Unknown	No data yet	disk temperat	No data	★★★☆☆
5.	[?] Table(disksmart: 2): [tablename] / [rowidentifier]	Unknown	No data yet	disk smart att	No data	★★★☆☆
6.	[?] Table(disksmart: 21): [tablename] / [rowidentifier]	Unknown	No data yet	disk smart att	No data	★★★☆☆

1 to 6 of 6

Recommended Sensors

Priority	Sensors	Total Sensors	Links
★★★★★	1×Ping	1	Add These Sensors
★★★★☆	4×SNMP Traffic, 1×SNMP Disk Free, 1×CPU Load, 2×SNMP Memory, 1×RDP (Remote ...)	9	Add These Sensors

[Recommend Now](#)

What is this? PRTG can inspect your devices to recommend useful sensor types. Add these sensors to get a much better and more detailed picture about the status of this device in the future.

监控什么?	目标系统类型?	使用的技术?
<input type="radio"/> 可用性/正常运行时间	<input type="radio"/> CPU 使用情况	<input type="radio"/> 硬件参数
<input type="radio"/> 带宽/流量	<input type="radio"/> 磁盘使用情况	<input type="radio"/> Windows
<input type="radio"/> 速度/性能	<input type="radio"/> 内存使用情况	<input type="radio"/> Linux/macOS
	<input type="radio"/> 自定义传感器	<input type="radio"/> 网络基础设施
		<input type="radio"/> 电子邮件服务器
		<input type="radio"/> 存储和文件服务器
		<input type="radio"/> 云服务
		<input type="radio"/> 虚拟化操作系统
		<input type="radio"/> 数据库
		<input type="radio"/> Ping
		<input type="radio"/> HTTP
		<input type="radio"/> PowerShell
		<input type="radio"/> SNMP
		<input type="radio"/> SSH
		<input type="radio"/> 推送消息接收程序
		<input type="radio"/> WMI
		<input type="radio"/> 数据包嗅探
		<input type="radio"/> PRTG Cloud
		<input type="radio"/> 性能计数器
		<input type="radio"/> xFlow

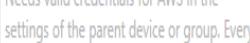
> 查找更多传感器类型？查看 PRTG 全球

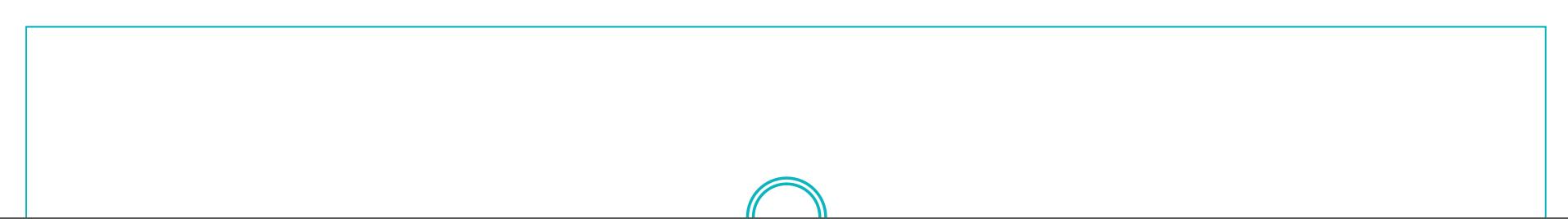
< 取消传感器创建

搜索  键入以搜索名称或描述

284 正在匹配传感器类型

最常用的传感器类型

AWS Cost	DNS	HTTP	Microsoft Azure Subscription Cost BETA	MQTT 往返	NetApp 卷 BETA
Monitors the costs of an AWS account by reading its data from the AWS Cost Explorer API	监控 DNS 服务器、解析域名并将其与 IP 地址进行比较 将此传感器添加到 DNS 服务运行的设备上。	使用 HTTP 监控 Web 服务器 显示网站或特定网站元素是否可达。	Monitors the cost in a Microsoft Azure subscription Requires valid Azure AD credentials in the settings of the parent device or group. Make sure that you assigned the correct permissions and roles in your Microsoft Azure subscription.	监控 MQTT 代理（服务器）的可用性、连接时间，以及数据包的往返时间。PRTG 将作为发布和订阅客户端连接到代理，并使用预定义主题发送数据包。 需要在父设备中定义的有效 MQTT 凭据。	使用 SOAP 监控 NetApp cDOT 或 ONTAP 存储系统的卷 在探针系统上需要 .NET 4.7.2。支持 NetApp cDOT 版本 8.3 及更高版本，并支持 NetApp ONTAP 版本 9.0 及更高版本。
					
Ping	POP3	SNMP 流量			
通过 ping 监控设备连接状态	使用 POP3 监控电子邮件服务器	监控使用 SNMP 的服务器、交换机等			



设备

群组 Root

概述 2 天 30 天 365 天 警报 日志 管理 设置 通知触发器 备注

新日志条目 14 W 1 ✓ 97 U 2 搜索...

W 1 ✓ 97 U 2 (共 100) S M L XL ⚙️ 📈

Root
本地探?
Probe Device W Core H... ✓ 2 传感器
网络发现
网络基础设施
DNS: dns153
✓ PING
✓ DNS
+ 添加传感器
DNS: dns154
✓ PING
✓ DNS
+ 添加传感器
forti3950b-a
✓ (003) HA-120 Traffic 23,090 kbit/秒
✓ (004) HA-64 Traffic 2,16 kbit/秒
✓ (379) TO_N7K_A Traffic 2,366,909 kbit/秒
✓ (380) To_New_Switch Traffic 2,283,062 kbit/秒
+ 添加传感器
forti3950b-b
✓ (379) TO_N7K_A Traffic 2,567,220 kbit/秒
✓ (380) To_New_Switch Traffic 2,510,121 kbit/秒
+ 添加传感器
C9300_F1-3.ntpc.edu.tw (9300school) [Cisco Device Cisco IOS]
✓ (036) TenGigabitEthernet1/1/1 Traffic

NEED SOME TECHNICAL ADVICE
Not sure how to make this PRTG,
YOUR PRTG?
Ask the team >>

状态: 确定
默认时间间隔: 60 seconds
ID: #0

+ 添加传感器

2 天 30 天 365 天

North America Europe Africa

2021/02/15 2021/02/16 2021/02/17 2021/02/18 2021/02/19 2021/02/20 2021/02/21 2021/02/22 2021/02/23 2021/02/24 2021/02/25 2021/02/26 2021/02/27 2021/02/28 2021/03/01

2021/02/15 2021/02/16 2021/02/17 2021/02/18 2021/02/19 2021/02/20 2021/02/21 2021/02/22 2021/02/23 2021/02/24 2021/02/25 2021/02/26 2021/02/27 2021/02/28 2021/03/01

2021/02/15 2021/02/16 2021/02/17 2021/02/18 2021/02/19 2021/02/20 2021/02/21 2021/02/22 2021/02/23 2021/02/24 2021/02/25 2021/02/26 2021/02/27 2021/02/28 2021/03/01





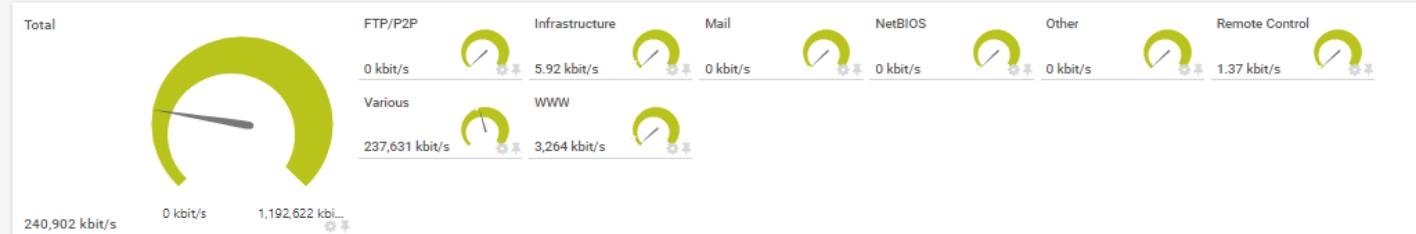
Sensor sFlow ★★★★☆
OK



Overview Live Data 2 days 30 days 365 days Historic Data Log Settings Notification Triggers Comments History



Add Toplist

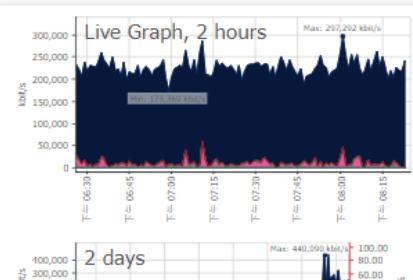


Find out why and how to buy PRTG!

[GET MORE INFORMATION](#)



Last Scan:	147 s
Last Up:	147 s
Last Down:	
Uptime:	100.0000%
Downtime:	0.0000%
Coverage:	100%
Sensor Type:	sFlow
Performance Impact:	█
Dependency:	█ Parent
Interval:	60 s
Autonomous:	No
ID:	#6003



Channel ▾	ID ▾	Last Value (volume) ▾	Last Value (speed) ▾	Minimum ▾	Maximum ▾
Downtime	-4				
FTP/P2P	3002	0 KB	0 kbit/s	0 kbit/s	291 kbit/s
Infrastructure	3007	43 KB	5.92 kbit/s	0 kbit/s	30,055 kbit/s
Mail	3003	0 KB	0 kbit/s	0 kbit/s	662 kbit/s
NetBIOS	3008	0 KB	0 kbit/s	0 kbit/s	274,900 kbit/s

Add sensor

Add Sensor to Device school [10.226.127.254]

(Step 1 of 2)

Monitor What?

- Availability/Uptime
- CPU Usage
- Hardware Parameters
- Bandwidth/Traffic
- Disk Usage
- Network Infrastructure
- Speed/Performance
- Memory Usage
- Custom Sensors

Target System Type?

- Windows
- Storage and File Server
- Cloud Services
- Linux/macOS
- Email Server
- Virtualization OS
- Database

Technology Used?

- Ping
- HTTP
- PowerShell
- SNMP
- SSH
- Push Message Receiver
- WMI
- Packet Sniffing
- PRTG Cloud
- Performance Counters
- sFlow

< Cancel sensor creation

> Looking for more sensor types? See our PRTG Sensor Hub.

Search

Type to search for a name or description

10 Matching Sensor Types

Matching Sensor Types

IPFIX

Monitors a device using IPFIX

You have to enable IPFIX export on the device for this sensor to work.



NetFlow v9

Monitors a device using NetFlow v9

You have to enable NetFlow v9 export on the device for this sensor to work.



IPFIX (Custom)

Monitors a device using IPFIX (customizable)

You have to enable IPFIX export on the device for this sensor to work.



NetFlow v9 (Custom)

Monitors a device using NetFlow v9 (customizable)

You have to enable NetFlow v9 export on the device for this sensor to work.



jFlow v5

Monitors a device using jFlow v5

You have to enable jFlow v5 export on the device for this sensor to work.



sFlow

Monitors a device using sFlow v5

You have to enable sFlow v5 export on the device for this sensor to work.



jFlow v5 (Custom)

Monitors a device using jFlow v5 (customizable)

You have to enable jFlow v5 export on the device for this sensor to work.



sFlow (Custom)

Monitors a device using sFlow v5 (customizable)

You have to enable sFlow v5 export on the device for this sensor to work.



NetFlow v5

Monitors a device using NetFlow v5

You have to enable NetFlow v5 export on the device for this sensor to work.



NetFlow v5 (Custom)

Monitors a device using NetFlow v5 (customizable)

You have to enable NetFlow v5 export on the device for this sensor to work.



Dlink 3620 sflow 指令



- enable sflow
- create sflow analyzer_server 1 owner NTPC timeout infinite collectoraddress
163.20.66.142 collectorport 6343 maxdatagramsize 1400
- create sflow flow_sampler ports 1:1-24 analyzer_server_id 1 rate 1 tx_rate 1
maxheadersize 256
- 說明：163.20.66.142 要改成安裝prtg的server ip

Top Talkers

✓ Sensor sFlow — Toplist Top Talkers



[Sensor Overview](#) [Print This Toplist](#)

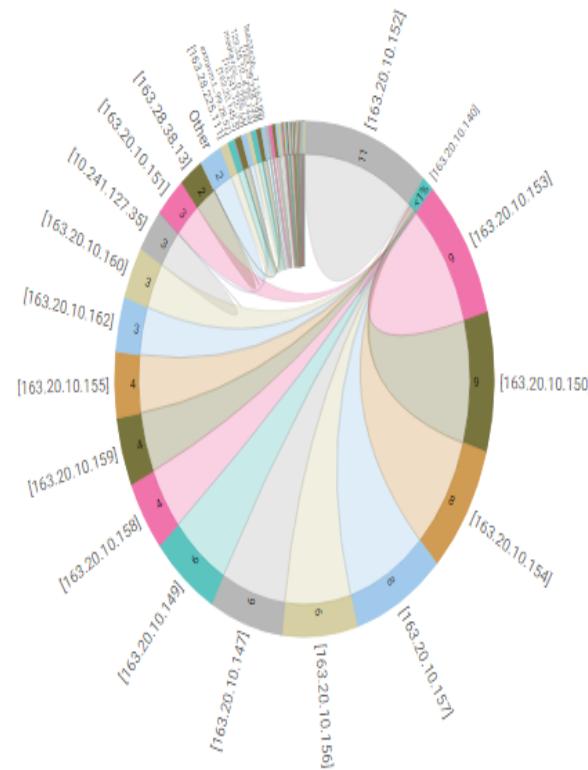


Start [x](#)
End [x](#)

2021/11/24
下午 08:15:00 - 下午 08:30:00
[下午 08:00:00 - 下午 08:15:00](#)
下午 07:45:00 - 下午 08:00:00
下午 07:30:00 - 下午 07:45:00
下午 07:15:00 - 下午 07:30:00
下午 07:00:00 - 下午 07:15:00
下午 06:45:00 - 下午 07:00:00
下午 06:30:00 - 下午 06:45:00
下午 06:15:00 - 下午 06:30:00
下午 06:00:00 - 下午 06:15:00
下午 05:45:00 - 下午 06:00:00
下午 05:30:00 - 下午 05:45:00
下午 05:15:00 - 下午 05:30:00
下午 05:00:00 - 下午 05:15:00
下午 04:45:00 - 下午 05:00:00
下午 04:30:00 - 下午 04:45:00
下午 04:15:00 - 下午 04:30:00
下午 04:00:00 - 下午 04:15:00
下午 03:45:00 - 下午 04:00:00
下午 03:30:00 - 下午 03:45:00

Top Talkers 2021/11/24 下午 08:00:00 - 下午 08:15:00

Items: [▼ 50](#)

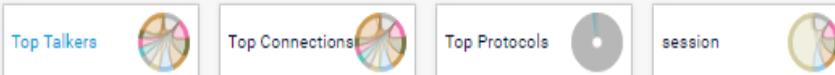


Pos	Source IP	Destination IP	Bytes
1.	[163.20.10.152]	[163.20.10.140]	2,782 MB 11 %
2.	[163.20.10.153]	[163.20.10.140]	2,317 MB 9 %
3.	[163.20.10.150]	[163.20.10.140]	2,248 MB 9 %
4.	[163.20.10.154]	[163.20.10.140]	2,086 MB 8 %
5.	[163.20.10.157]	[163.20.10.140]	2,001 MB 8 %
6.	[163.20.10.156]	[163.20.10.140]	1,643 MB 6 %
7.	[163.20.10.147]	[163.20.10.140]	1,602 MB 6 %
8.	[163.20.10.149]	[163.20.10.140]	1,457 MB 6 %
9.	[163.20.10.158]	[163.20.10.140]	1,155 MB 4 %
10.	[163.20.10.159]	[163.20.10.140]	1,099 MB 4 %
11.	[163.20.10.155]	[163.20.10.140]	1,063 MB 4 %
12.	[163.20.10.162]	[163.20.10.140]	886 MB 3 %
13.	[163.20.10.160]	[163.20.10.140]	849 MB 3 %
14.	[10.241.127.35]	[163.20.10.201]	697 MB 3 %
15.	[163.20.10.151]	[163.20.10.140]	672 MB 3 %
16.	[163.28.38.13]	[10.197.2.164]	515 MB 2 %
Other			485 MB 2 %

TOP Connections

✓ Sensor sFlow — Toplist Top Connections

[Sensor Overview](#) [Print This Toplist](#)



Start End

2021/11/24

[下午 08:15:00 - 下午 08:30:00](#)

下午 08:00:00 - 下午 08:15:00

下午 07:45:00 - 下午 08:00:00

下午 07:30:00 - 下午 07:45:00

下午 07:15:00 - 下午 07:30:00

下午 07:00:00 - 下午 07:15:00

下午 06:45:00 - 下午 07:00:00

下午 06:30:00 - 下午 06:45:00

下午 06:15:00 - 下午 06:30:00

下午 06:00:00 - 下午 06:15:00

下午 05:45:00 - 下午 06:00:00

下午 05:30:00 - 下午 05:45:00

下午 05:15:00 - 下午 05:30:00

下午 05:00:00 - 下午 05:15:00

下午 04:45:00 - 下午 05:00:00

下午 04:30:00 - 下午 04:45:00

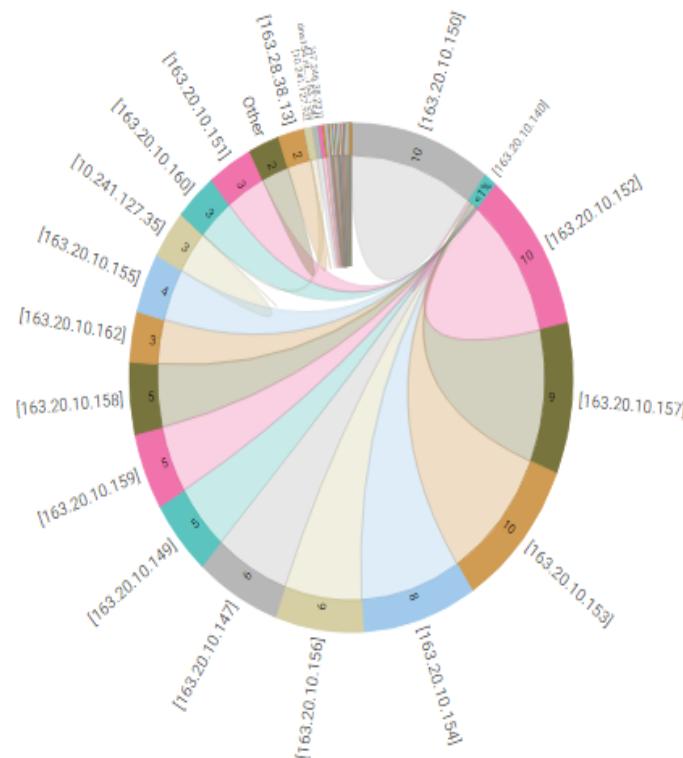
下午 04:15:00 - 下午 04:30:00

下午 04:00:00 - 下午 04:15:00

下午 03:45:00 - 下午 04:00:00

下午 03:30:00 - 下午 03:45:00

Top Connections 2021/11/24 下午 08:15:00 - 下午 08:30:00 (Live Toplist, 89 % Complete)



Pos	Source IP	Source Port	Destination IP	Destination Port	Protocol	Bytes
1.	[163.20.10.150]	10000	[163.20.10.140]	65391	6	2,194 MB
2.	[163.20.10.152]	10000	[163.20.10.140]	63874	6	2,179 MB
3.	[163.20.10.157]	10000	[163.20.10.140]	65394	6	2,011 MB
4.	[163.20.10.153]	10000	[163.20.10.140]	65393	6	1,846 MB
5.	[163.20.10.154]	10000	[163.20.10.140]	65390	6	1,709 MB
6.	[163.20.10.156]	10000	[163.20.10.140]	63883	6	1,306 MB
7.	[163.20.10.147]	10000	[163.20.10.140]	65388	6	1,053 MB
8.	[163.20.10.149]	10000	[163.20.10.140]	65515	6	1,039 MB
9.	[163.20.10.159]	10000	[163.20.10.140]	65376	6	977 MB
10.	[163.20.10.158]	10000	[163.20.10.140]	65392	6	937 MB
11.	[163.20.10.155]	554	[163.20.10.140]	65445	6	699 MB
12.	[163.20.10.162]	10000	[163.20.10.140]	65514	6	694 MB
13.	[163.20.10.160]	10000	[163.20.10.140]	65396	6	674 MB
14.	[10.241.127.35]	6921	[163.20.10.201]	6910	17	657 MB
Other						516 MB
15.	[163.20.10.151]	554	[163.20.10.140]	65450	6	503 MB
16.	[163.28.38.13]	443	[10.197.2.164]	64572	17	436 MB
17.	[163.20.10.147]	10000	[163.20.10.140]	65386	6	291 MB
18.	[120.102.234.81]	443	[163.20.145.95]	55921	6	230 MB
19.	[163.20.10.151]	554	[163.20.10.140]	65454	6	216 MB
20.	[163.20.10.153]	10000	[163.20.10.140]	65387	6	195 MB
21.	[163.20.10.155]	554	[163.20.10.140]	65473	6	138 MB
22.	[10.241.127.92]	6921	[163.20.10.201]	6910	17	117 MB

TOP Protocols



Sensor sFlow — Toplist Top Protocols



Sensor Overview

Print This Toplist

Top Talkers



Top Connections



Top Protocols



session



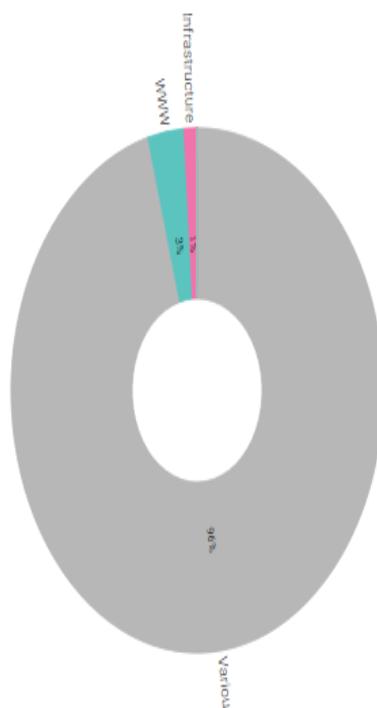
Start

End

2021/11/24

下午 08:15:00 - 下午 08:30:00
下午 08:00:00 - 下午 08:15:00
下午 07:45:00 - 下午 08:00:00
下午 07:30:00 - 下午 07:45:00
下午 07:15:00 - 下午 07:30:00
下午 07:00:00 - 下午 07:15:00
下午 06:45:00 - 下午 07:00:00
下午 06:30:00 - 下午 06:45:00
下午 06:15:00 - 下午 06:30:00
下午 06:00:00 - 下午 06:15:00
下午 05:45:00 - 下午 06:00:00
下午 05:30:00 - 下午 05:45:00
下午 05:15:00 - 下午 05:30:00
下午 05:00:00 - 下午 05:15:00
下午 04:45:00 - 下午 05:00:00
下午 04:30:00 - 下午 04:45:00
下午 04:15:00 - 下午 04:30:00
下午 04:00:00 - 下午 04:15:00
下午 03:45:00 - 下午 04:00:00
下午 03:30:00 - 下午 03:45:00

Top Protocols 2021/11/24 下午 08:15:00 - 下午 08:30:00



Pos	Channel	Bytes	%
1.	Various	23 GB	96 %
2.	WWW	762 MB	3 %
3.	Infrastructure	270 MB	1 %
4.	NetBIOS	2,410 KB	< 1 %
5.	Remote Control	1,364 KB	< 1 %
	Other	0 Byte	< 1 %

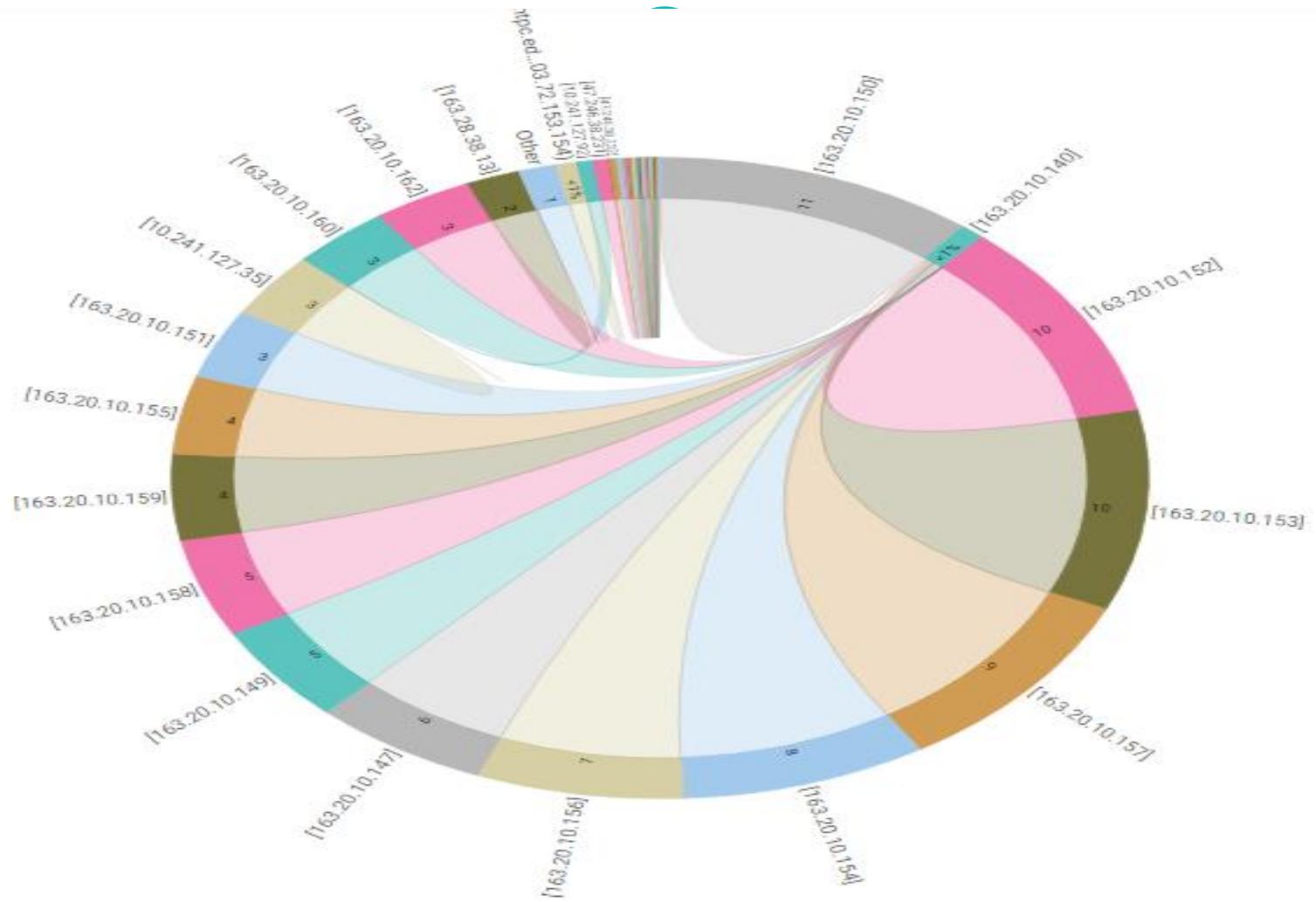
« « 1 to 6 of 6 » »



items: 0

Pos	Source IP	Source Port	Destination IP	Destination Port	Protocol	IPv4 ToS	Channel	IP	Port	Interface	Sender IP	Inbound Interface	Outbound Interface	Bytes
1.	[163.20.10.150]	10000	[163.20.10.140]	65391	6	0	Various	[163.20.10.150]	10000	23	[163.20.204.241]	23	27	120 M
2.	[163.20.10.150]	10000	[163.20.10.140]	65391	6	0	Various	[163.20.10.140]	65391	27	[163.20.204.241]	23	27	104 M
3.	[163.20.10.149]	10000	[163.20.10.140]	65515	6	0	Various	[163.20.10.149]	10000	26	[163.20.204.241]	26	27	96 ME
4.	[163.20.10.158]	10000	[163.20.10.140]	65392	6	0	Various	[163.20.10.158]	10000	23	[163.20.204.241]	23	27	89 ME
5.	[163.20.10.158]	10000	[163.20.10.140]	65392	6	0	Various	[163.20.10.140]	65392	27	[163.20.204.241]	23	27	86 ME
6.	[163.20.10.149]	10000	[163.20.10.140]	65515	6	0	Various	[163.20.10.140]	65515	27	[163.20.204.241]	26	27	86 ME
7.	[163.20.10.147]	10000	[163.20.10.140]	65388	6	0	Various	[163.20.10.147]	10000	23	[163.20.204.241]	23	27	80 ME
8.	[163.20.10.147]	10000	[163.20.10.140]	65388	6	0	Various	[163.20.10.140]	65388	27	[163.20.204.241]	23	27	79 ME
9.	[163.20.10.157]	10000	[163.20.10.140]	65394	6	0	Various	[163.20.10.157]	10000	23	[163.20.204.241]	23	27	75 ME
10.	[163.20.10.157]	10000	[163.20.10.140]	65394	6	0	Various	[163.20.10.140]	65394	27	[163.20.204.241]	23	27	74 ME
11.	[163.20.10.153]	10000	[163.20.10.140]	65393	6	0	Various	[163.20.10.153]	10000	23	[163.20.204.241]	23	27	72 ME
12.	[163.20.10.153]	10000	[163.20.10.140]	65393	6	0	Various	[163.20.10.140]	65393	27	[163.20.204.241]	23	27	69 ME
13.	[163.20.10.156]	10000	[163.20.10.140]	63883	6	0	Various	[163.20.10.156]	10000	25	[163.20.204.241]	25	27	66 ME
14.	[163.20.10.156]	10000	[163.20.10.140]	63883	6	0	Various	[163.20.10.140]	63883	27	[163.20.204.241]	25	27	64 ME
15.	edge-star-shv-01-tpe1.facebook.com	443	[10.197.0.248]	61112	17	0	Various	edge-star-shv-01-tpe1.facebook.com	443	24	[163.20.206.249]	24	23	61 ME
16.	[163.20.10.152]	10000	[163.20.10.140]	63874	6	0	Various	[163.20.10.152]	10000	25	[163.20.204.241]	25	27	60 ME
17.	[163.20.10.155]	554	[163.20.10.140]	65445	6	184	Various	[163.20.10.155]	554	23	[163.20.204.241]	23	27	59 ME
18.	[163.20.10.152]	10000	[163.20.10.140]	63874	6	0	Various	[163.20.10.140]	63874	27	[163.20.204.241]	25	27	59 ME
19.	[163.20.10.155]	554	[163.20.10.140]	65445	6	184	Various	[163.20.10.140]	65445	27	[163.20.204.241]	23	27	54 ME
20.	[163.20.10.159]	10000	[163.20.10.140]	65376	6	0	Various	[163.20.10.159]	10000	23	[163.20.204.241]	23	27	52 ME
21.	[163.20.10.159]	10000	[163.20.10.140]	65376	6	0	Various	[163.20.10.140]	65376	27	[163.20.204.241]	23	27	51 ME
22.	[163.20.10.162]	10000	[163.20.10.140]	65514	6	0	Various	[163.20.10.162]	10000	26	[163.20.204.241]	26	27	46 ME
23.	[163.20.10.162]	10000	[163.20.10.140]	65514	6	0	Various	[163.20.10.140]	65514	27	[163.20.204.241]	26	27	37 ME

Sflow



手機安裝



- 1、PRTG APP 下載
- 2、PRTG ip
- 3、user name/password
- 4、password random

Vlan

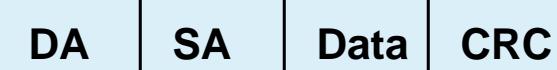
46

IEEE 802.1p/802.1q Frame Tagging

The 32-bit field (VLAN Tag) in the frame header that identifies the frame as belonging to a specific VLAN/priority.

The Max. size of a Tagged Ethernet Frame is 1522 Bytes (1518+ 4 bytes tagging).

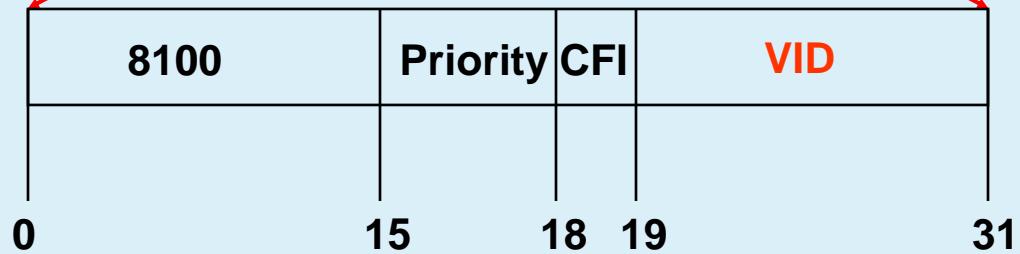
The frame without VLAN tag, we call it as Untagged Frame or Frame.



Regular frame (or untagged frame)



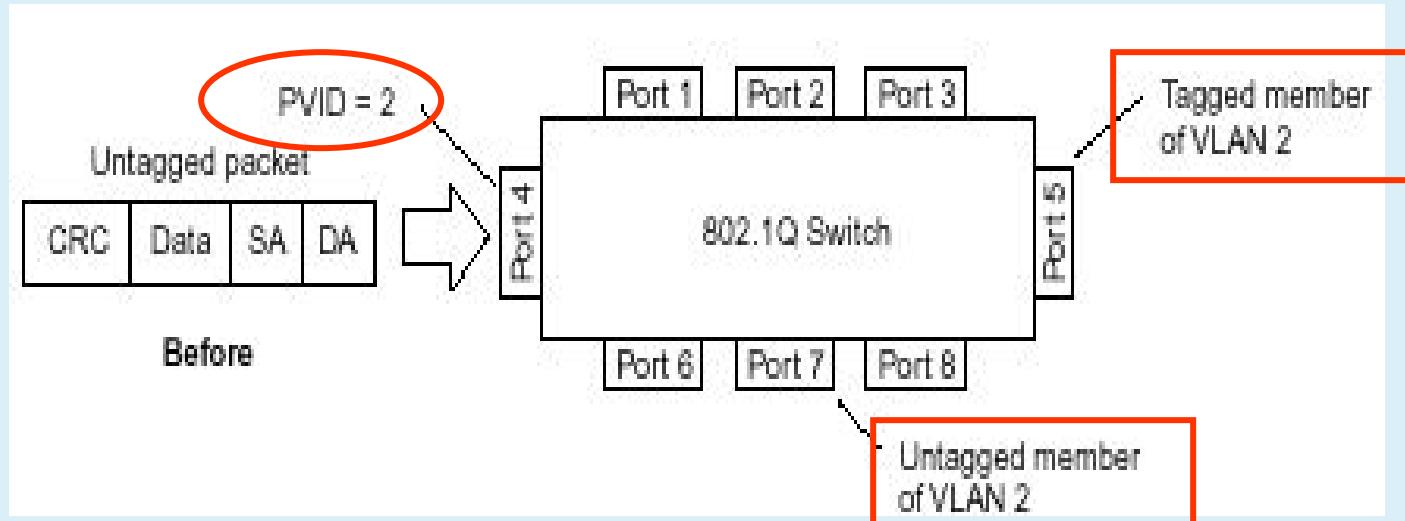
802.1q/1p tagged frame



Priority (1p) has 3 bits, 0-7.

VLAN (1q) has 12 bits, 0-4095

802.1p/1q Untagged Incoming Frame



Assumed the PVID of port4 is 2 and default priority=0

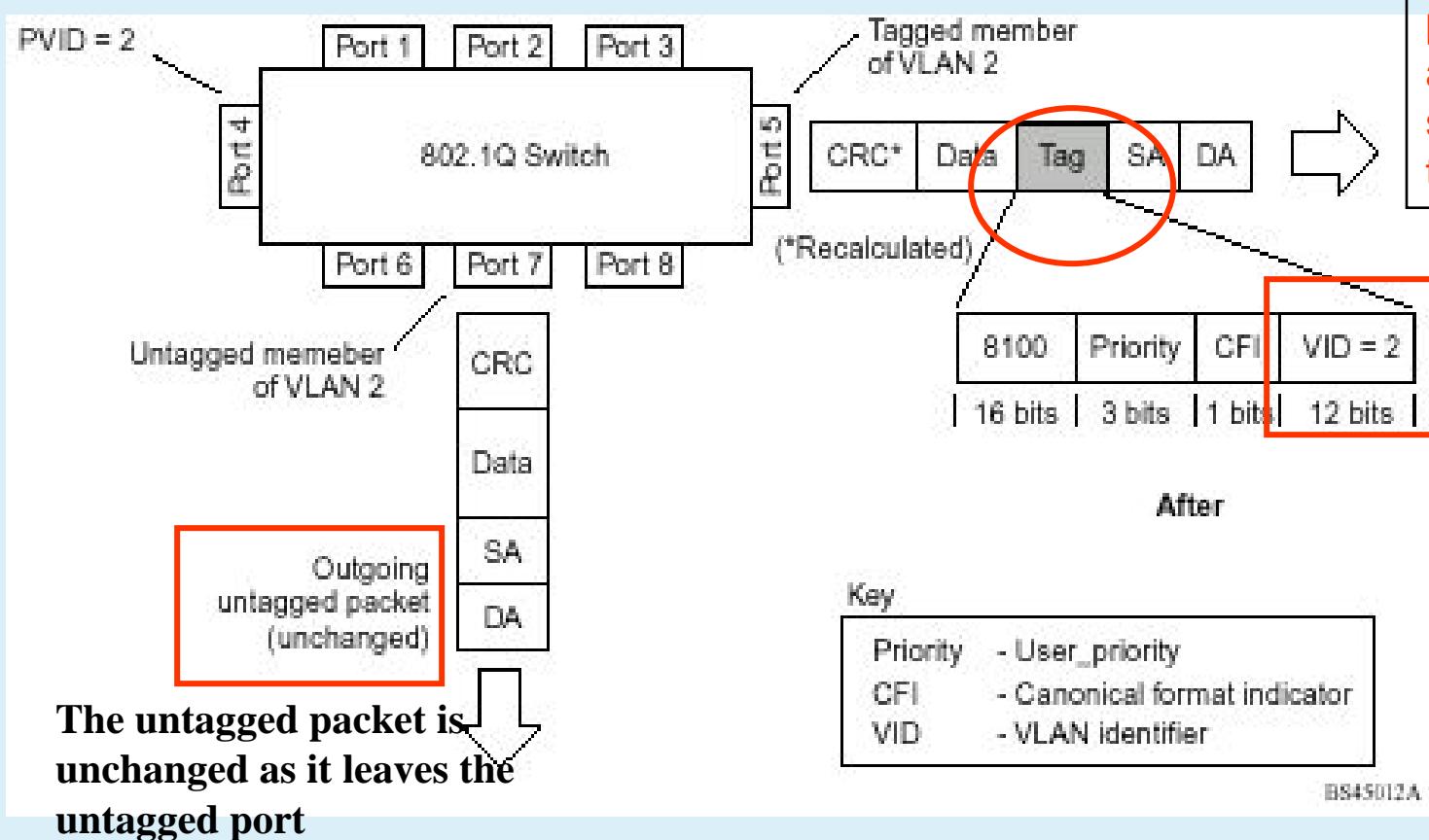
The incoming untagged packet will be assigned to VLAN 2/priority=0

Port5 is tagged and port 7 is untagged egress member of VLAN 2

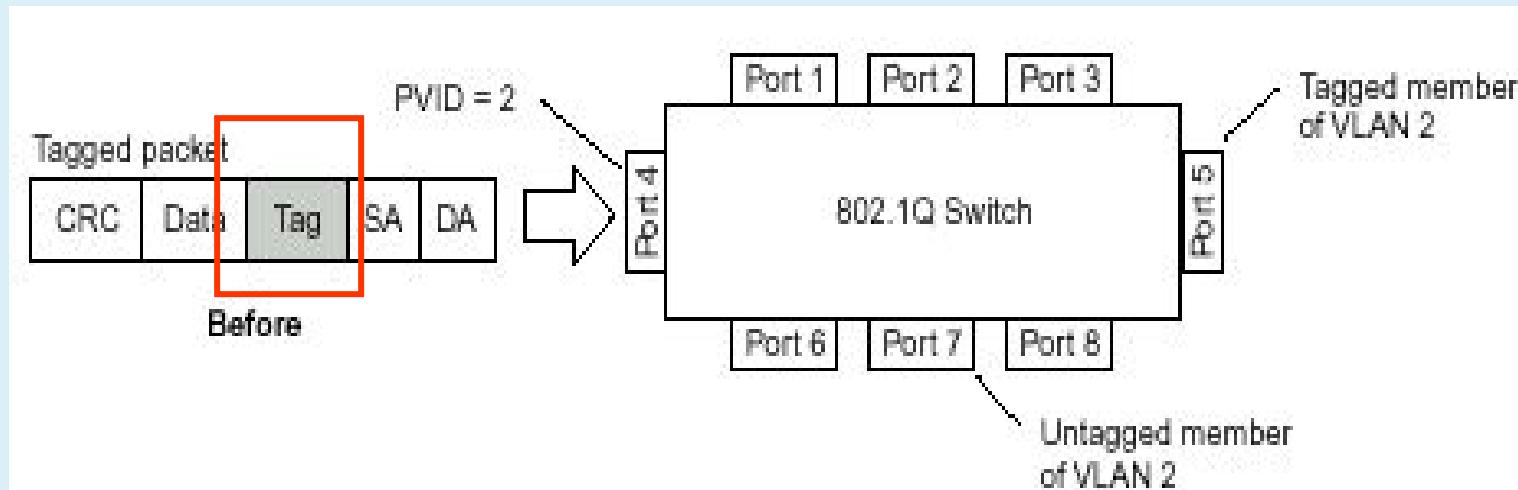
This packet will be forwarded to port5 and port7 with tagged and untagged respectively.

Priority tagging (802.1p) follows the similar rule as 802.1q tagging.

802.1p/1q Untagged Incoming Frame



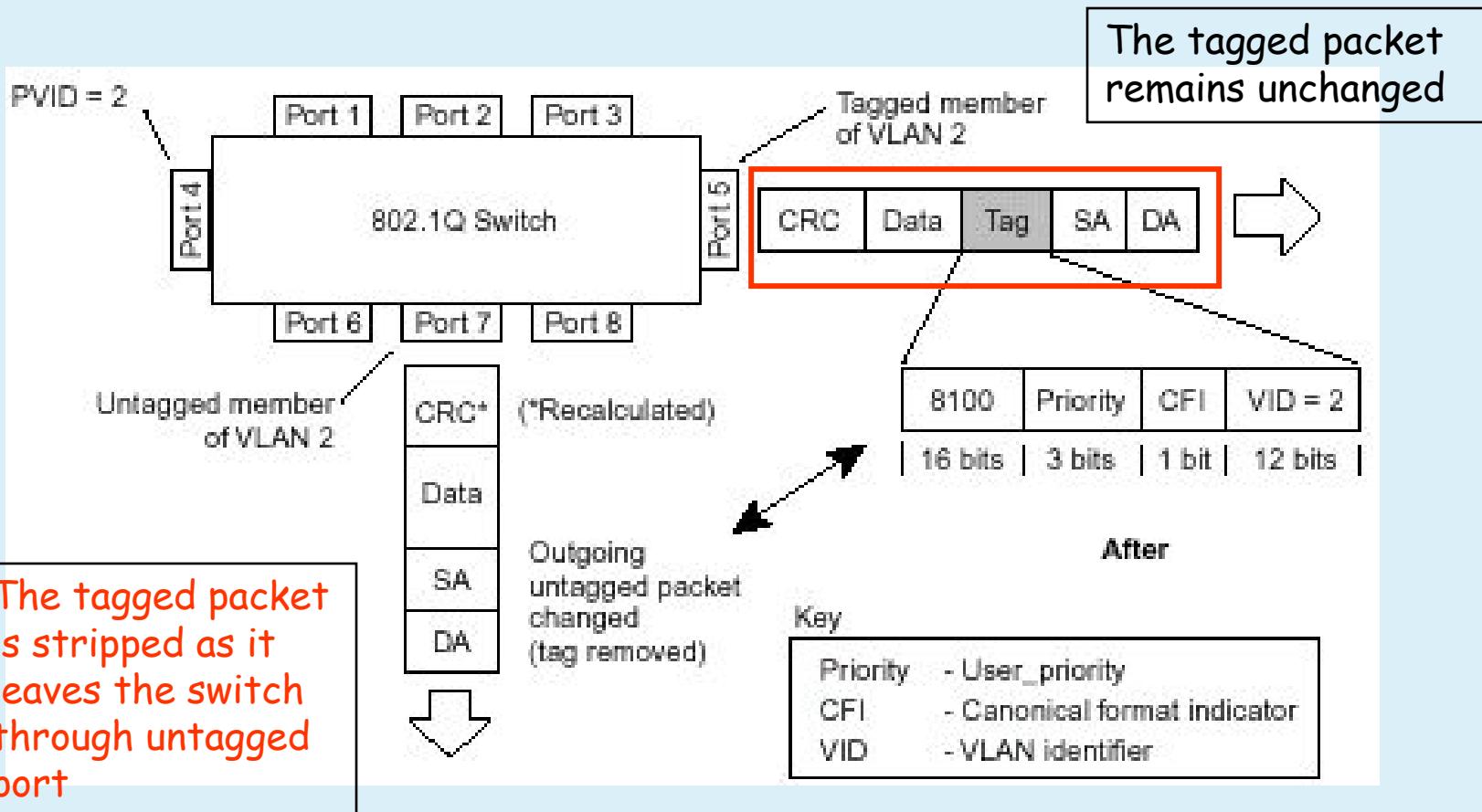
802.1p/1q Tagged Incoming Frame



Assumed tagged incoming packet having vid=2/priority=0
Port5 is a tagged and port 7 is an untagged egress member of VLAN 2
This packet will be forwarded to port5 and port7

22=00100010

802.1p/1q Tagged Incoming Frame



802.1p/1q Tagging summary

Ingress (incoming frame):

- If receiving **untagged** frame, add the tag into this frame with VID=PVID and priority= 802.1p default priority
- If receiving **tagged** frame, the VID/priority values are unchanged.

Inside the Switch (all frames are tagged)

- For VLAN, based on the VID to lookup the VLAN table, and forward frame to member ports of this VLAN.
- For priority, based on the “Class of Service mapping” to process the frame with associated priority Queue.

Egress (outgoing frame):

- **Untagged** egress port: Remove the tagging.
- **Tagged** Egress port: Un-change the tagging, so that the 1p/1q info can be carried to next 802.1p/q aware switch.

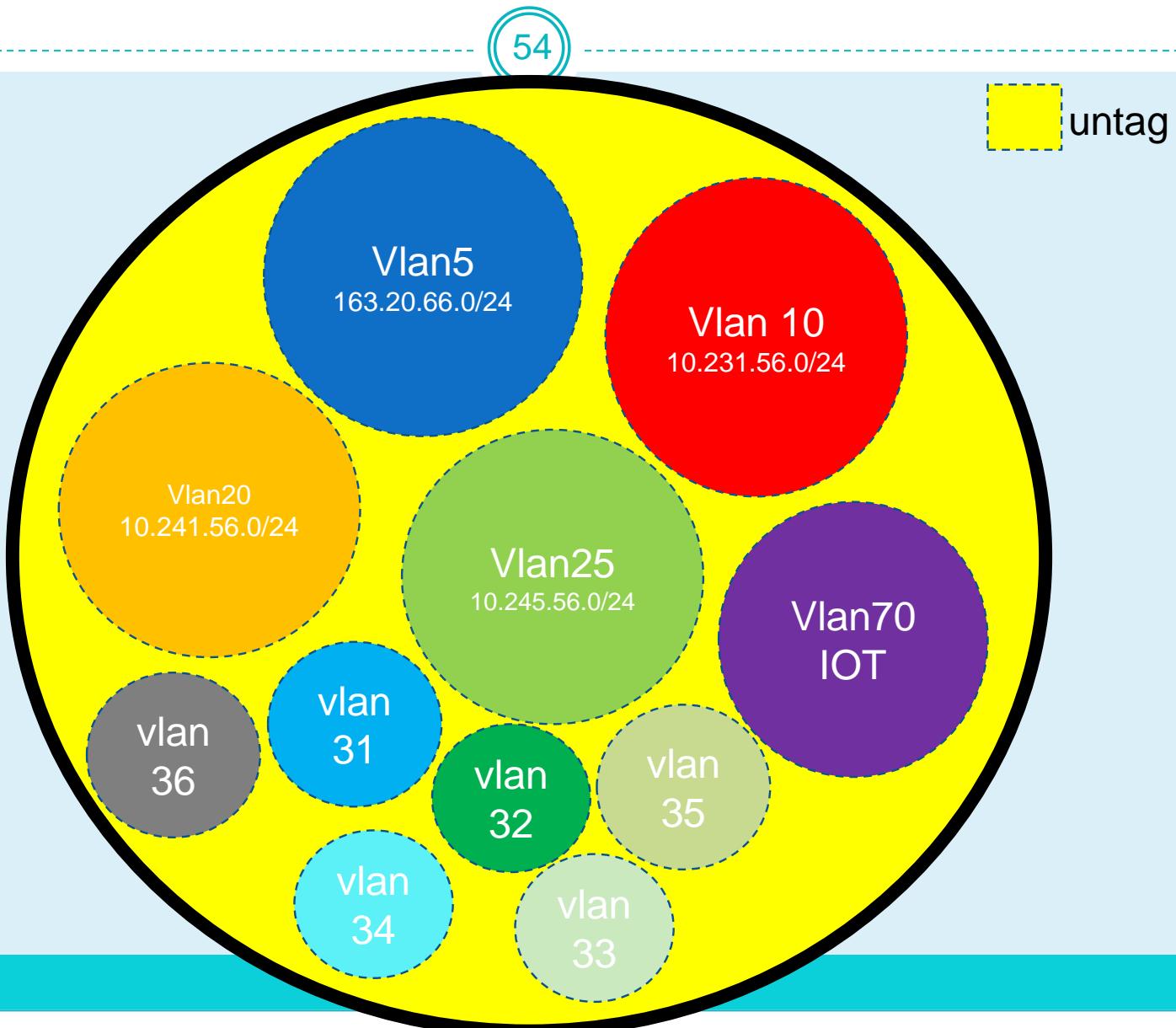
Vlan 水管理論

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在大水管中，大管內壁(小水管外and大水管壁之間空隙)
能接觸到的資料流是untag
能在所有小水管中的資料流都是帶tag



VLAN大水管



Vlan tag

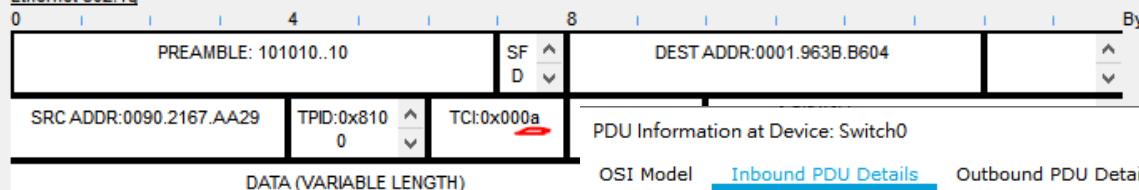
55

PDU Information at Device: Multilayer Switch0

OSI Model Inbound PDU Details Outbound PDU Details

PDU Formats

Ethernet 802.1q

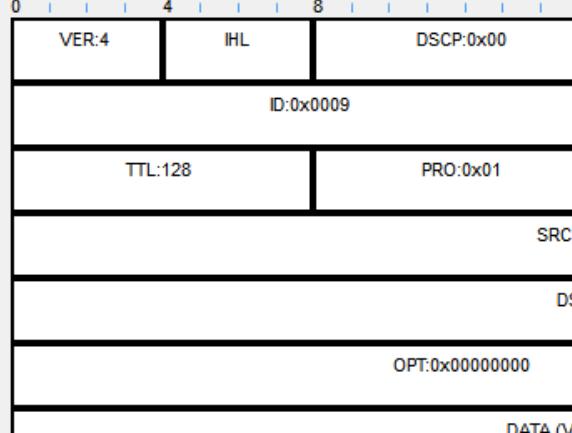


PDU Information at Device: Switch0

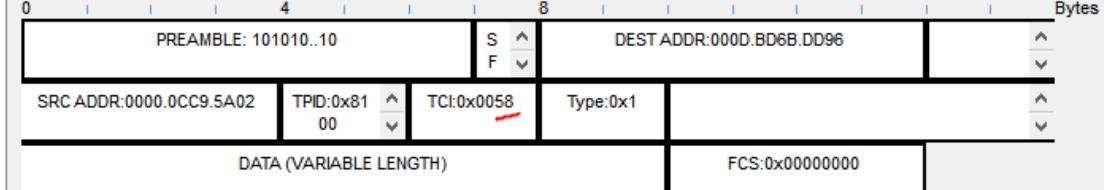
OSI Model Inbound PDU Details Outbound PDU Details

PDU Formats

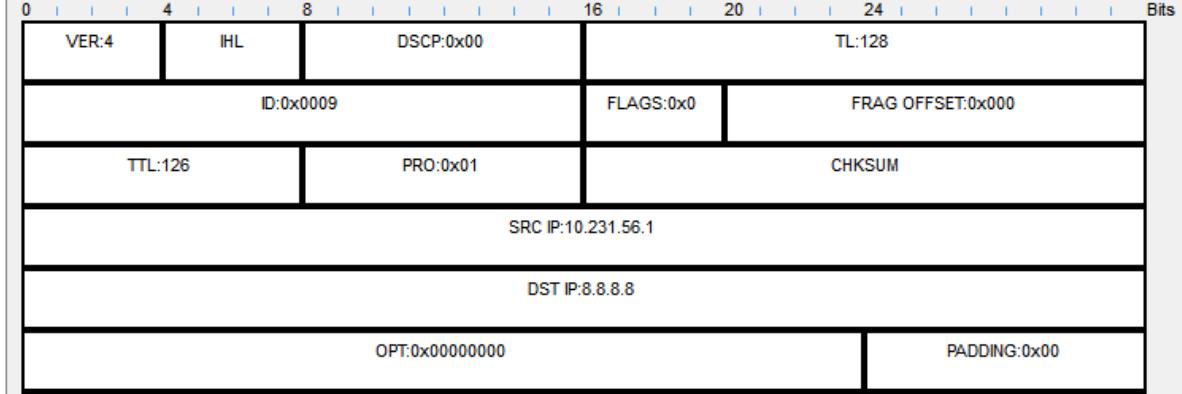
IP



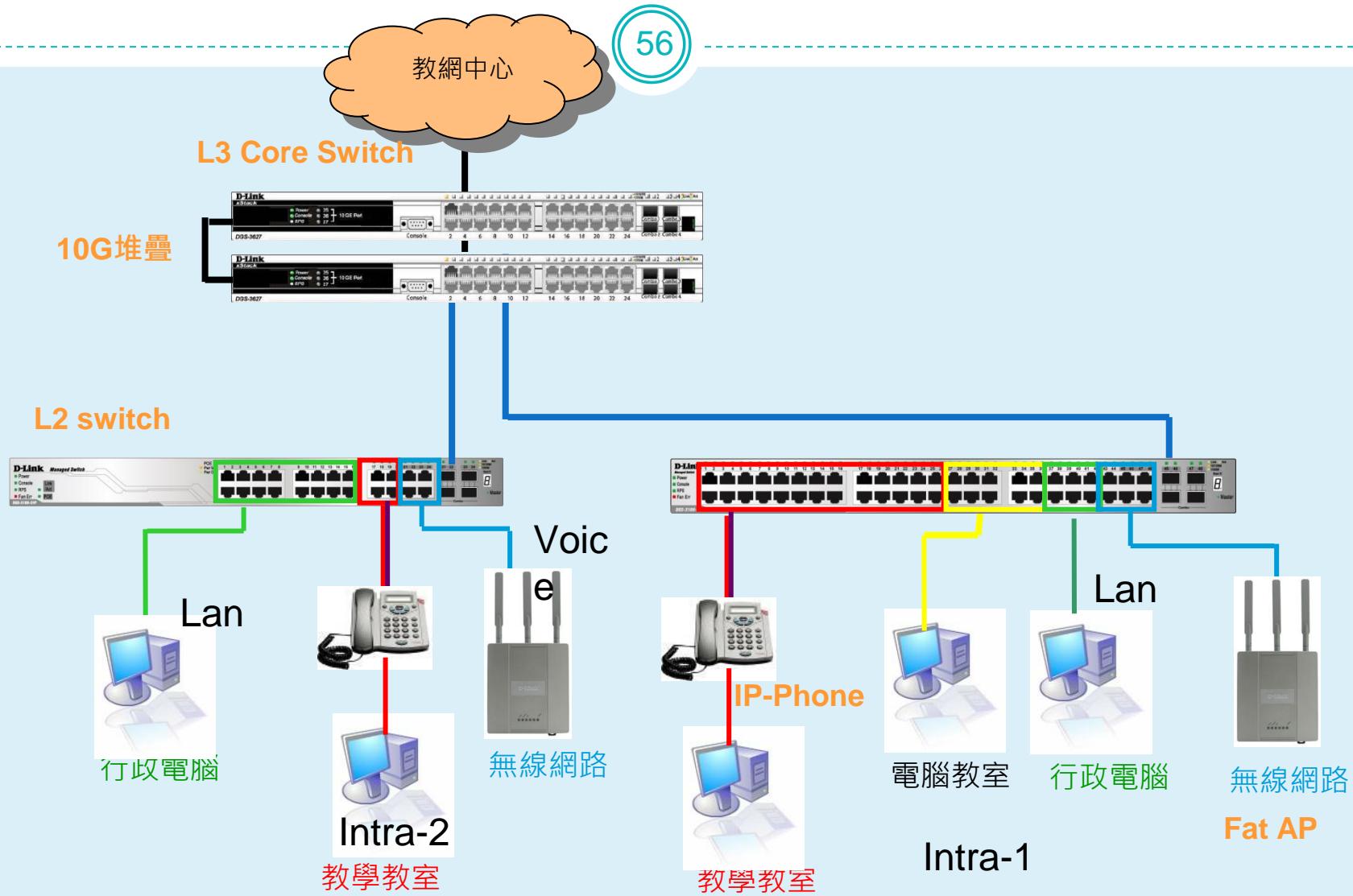
Ethernet 802.1q



IP



新北市高國中小學校園網路架構圖



(實作資料) 學校ip分配表

57

- <http://mis.ntpc.edu.tw>
- 網路服務
- 網路設定
- 連線單位Ipv4分配
- 連線單位Ipv6分配
- 光纖連線單位

學校IP基本網段

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Vlan	VID	網段	IPv6	用途
Mgt	1	10.226.56.254	2001:288:22xx:1::/64	網管用 >101 L2,>201 AP
Wan	2	163.20.202.184/29	2001:288:2201::xx/124	對外連結網段
Lan	5	163.20.66.254/24	2001:288:22xx:5::/64	行政用 保留<10 ; >250
dsa_wan	8	10.253.56.254/24	2001:288:22xx:8::/64	DSA-WAN IP (10.253.56.1)
Intra-1	10	10.231.56.254/24	2001:288:22xx:10::/64	電腦教室
Intra-2	20	10.241.56.254/24	2001:288:22xx:20::/64	教學教室
Voice	25	10.243.56.0/24	2001:288:22xx:25::/64	VoIP
Wlan	30	10.251.56.254/24	2001:288:22xx:30::/64	無線網路 (IP移至 DSA-3600使用)
WPA2	35	10.245.56.0/24	2001:288:22xx:35::/64	無線WAP2用
MAC	36	10.247.56.0/24	2001:288:22xx:36::/64	無線Mobile用

- enable sflow
- create sflow analyzer_server 1 owner NTPC timeout infinite collectoraddress **163.20.66.142** collectorport 6343 maxdatagramsize 1400
- create sflow flow_sampler ports 1:1-24 analyzer_server_id 1 rate 1 tx_rate 1 maxheadersize 256
- delete sflow flow_sampler ports 1:1-24

Cisco指令 and Dlink指令對照表

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- L3維護指令
- L2常用維護指令
- Cisco維護指令

- DGS-3620
 - create vlan lan tag 5

- DGS-1510
 - configure terminal
 - vlan 5
 - name lan

- Cisco-3750X
 - C3750X_CHT_F1-3(config)#vlan 5

設定vlan_port Accesc port

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DGS-3620

- Config vlan lan add untagged 1



DGS-1510

- configure terminal
- interface ethernet 1/0/1
- switchport hybrid native vlan 5
- switchport hybrid allowed vlan untagged 5



Cisco-3750X

- C3750X_CHT_F1-3(config) interface TenGigabitEthernet1/1/1
- C3750X_CHT_F1-3(config) switchport mode access
- C3750X_CHT_F1-3(config) switchport access vlan 5

- DGS-3620
- Config vlan default add untagged 1
- Config vlan intra-1 add tagged 1
- Config vlan intra-2 add tagged 1
- DGS-1510
- configure terminal
- interface ethernet 1/0/1
- switchport hybrid native vlan 1
- switchport hybrid allowed vlan untagged 1
- switchport hybrid allowed vlan tagged 10,20
- Cisdo-3750X
- interface TenGigabitEthernet1/1/1
- switchport trunk encapsulation dot1q
- switchport trunk allowed vlan 10,20
- switchport mode trunk

查看arp

DGS-3620
Sh arpentry

DGS-1510
Sh arp

Cisco-3750X
Sh arp

DGS-3620

```
ERDC-L3:admin#show arpentry
Command: show arpentry
```

ARP Aging Time : 20
ARP Retry Times : 4

Interface	IP Address	MAC Address	Type
System	10.226.56.0	FF-FF-FF-FF-FF-FF	Local/Broadcast
System	10.226.56.2	54-B8-0A-C6-39-E0	Dynamic
System	10.226.56.4	54-B8-0A-C6-78-00	Dynamic
System	10.226.56.5	54-B8-0A-C6-78-80	Dynamic

DGS-1510

```
ERDC-L2-02>sh arp
```

S - Static Entry

IP Address	Hardware Addr	IP Interface	Age (min)
10.226.56.2	54-B8-0A-C6-39-E0	vlan1	forever
10.226.56.254	3C-1E-04-B6-C2-00	vlan1	20

Total Entries: 2

Cisco-3750X

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
Internet	10.1.1.1	-	c067.af06.a2c0	ARPA	Vlan1
Internet	163.20.202.185	191	0009.0fab.7a9d	ARPA	Vlan256
Internet	163.20.202.187	119	3c1e.04b6.c201	ARPA	Vlan256
Internet	163.20.202.188	-	c067.af06.a2c3	ARPA	Vlan256
Internet	163.20.202.190	0	0009.0f09.0008	ARPA	Vlan256

查看mac

```
ERDC-L3:admin#sh fdb
Command: show fdb

Unicast MAC Address Aging Time = 300

VID VLAN Name           MAC Address       Port  Type   Status
--- ---                -----            ---   ---   ---
1   default             00-21-91-A7-1E-00 20   Dynamic Forward
1   default             00-21-91-A7-1E-FF 20   Dynamic Forward
1   default             3C-1E-04-B6-C2-00 CPU   Self    Forward
1   default             54-B8-0A-C6-39-E0 23   Dynamic Forward
1   default             54-B8-0A-C6-6E-C0 20   Dynamic Forward
1   default             54-B8-0A-C6-77-E0 23   Dynamic Forward
```

DGS-1510

```
ERDC-L2-02>sh mac-address-table
```

VLAN	MAC Address	Type	Ports
1	3C-1E-04-B6-C2-00	Dynamic	eth1/0/24
1	3C-1E-04-B6-C3-16	Dynamic	eth1/0/24
1	54-B8-0A-C6-39-E0	Static	CPU
1	54-B8-0A-C6-77-E0	Dynamic	eth1/0/24
1	54-B8-0A-C6-78-1A	Dynamic	eth1/0/24

Cisco-3750X

```
C3750X_CHT_F1-3#sh mac address-table
      Mac Address Table
```

Vlan	Mac Address	Type	Ports
All	0100.0ccc.cccc	STATIC	CPU
All	0100.0ccc.ccccd	STATIC	CPU
All	0180.c200.0000	STATIC	CPU

Sh vlan

六.查看vlan

DGS3620

```
ERDC-L3:admin#show vlan
Command: show vlan

VLAN Trunk State      : Disabled
VLAN Trunk Member Ports :

VID          : 1           VLAN Name      : default
VLAN Type    : Static      Advertisement : Enabled
Member Ports : 5,8,19-23,26-28
Static Ports  : 5,8,19-23,26-28
Current Tagged Ports :
Current Untagged Ports: 5,8,19-23,26-28
Static Tagged Ports :
Static Untagged Ports : 5,8,19-23,26-28
Forbidden Ports   :
```

DGS1510

```
ERDC-L2-02#show vlan

VLAN 1
  Name : default
  Tagged Member Ports  :
  Untagged Member Ports : 1/0/24-1/0/26,2/0/24-2/0/26

VLAN 5
  Name : lan
  Tagged Member Ports  : 1/0/24-1/0/26,2/0/24-2/0/26
  Untagged Member Ports :
```

Cisco3750X

```
c3750X_CHT_F1-3#sh vlan
```

VLAN Name	Status	Ports
1 default	active	G1/0/22, G1/0/23

Sh port

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五. 查看port狀態

DGS-3620

Port	State/ MDIX	Settings Speed/Duplex/FlowCtrl	Connection Speed/Duplex/FlowCtrl	Address Learning	AutoSpeed Downgrade
1	Enabled Auto	Auto/Disabled	1000M/Full/None	Enabled	Disabled
2	Enabled Auto	Auto/Disabled	1000M/Full/None	Enabled	Disabled
3	Enabled Auto	Auto/Disabled	1000M/Full/None	Enabled	Disabled

DGS-1510

Port	Status	VLAN	Duplex	Speed	Type
eth1/0/1	not-connected	20	auto	auto	1000BASE-T
eth1/0/2	not-connected	20	auto	auto	1000BASE-T
eth1/0/3	not-connected	20	auto	auto	1000BASE-T
eth1/0/4	connected	20	a-full	a-100	1000BASE-T
eth1/0/5	not-connected	20	auto	auto	1000BASE-T
eth1/0/6	not-connected	20	auto	auto	1000BASE-T

Cisco-3750X

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1	10.1.1.1	YES	NVRAM	up	down
Vlan40	163.20.250.254	YES	NVRAM	up	up
Vlan200	unassigned	YES	unset	up	up
Vlan256	163.20.202.188	YES	NVRAM	up	up
Vlan626	unassigned	YES	unset	up	up
FastEthernet0	unassigned	YES	NVRAM	administratively down	down
GigabitEthernet1/0/1	unassigned	YES	unset	down	down
GigabitEthernet1/0/2	unassigned	YES	unset	down	down
GigabitEthernet1/0/3	unassigned	YES	unset	down	down
GigabitEthernet1/0/4	unassigned	YES	unset	up	up
GigabitEthernet1/0/5	unassigned	YES	unset	up	up

- Vlan database
- Vlan xx name LAN(Intra-1)
- Config t
- Interface vlan
- interface fao/X
- Switch port trunk encapsalution dot.1q
- Switchport mode trunk (Access)
- Switchport access vlan xx
- Switchport trunk allow vlan xx,xx-xx
- Ip add xx.xx.xx.xx xx.xx.xx.xx xx.xxx.xx.xx
- Ip route xx.xx.xx.xx xx.xx.xx.xx aa.aa.aa.aa

模擬斷線除錯

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- 1.vlan斷線 或是被攻擊(要做出三台電腦測試)
- 2.學校L3故障
- 3.中華電信到教網線路斷線。
- 4.教網firewall掛點
- 5.教網ServerFarm掛點
- 教網核心交換器掛點
- 政大區網掛點

一般公文、公務雲除錯

70

- 需協助，Teamviewer、anydesk裝起來。
- 公務雲在骨幹GOV段
- Nslookup看DNS解析是否為172.18.x.x not 61.60.x.x
- Ping cloud.ntpc.gov.tw doc2.ntpc.gov.tw
- Tracert看路由走法

一般學校網路除錯

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- 電話:80723456----542 工程師
- Ping gateway
- Ping wan
- Ping firewall
- Ping serverfarm
- Ping gov
- Ping nccu
- Ping www.google.com
- Tracert看路由