智慧網路系統建置與實作

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新北市教網

課程主題及環境需求

Lab需求雙螢幕或是開兩台電腦上課較優。 在學校操作較好。校外要用vpn。 智慧 網路 管理 系統 網路架構說明 網段分配說明 瞭解使用siraya觀察各種交換器L2、L3。 用PRTG實現 nms.ntpc.edu.tw https://www.paessler.com/ PRTG DEVICE
Sensor
WLC sensor
SFlow 比較各家智慧網管。 網路偵測工具介紹tcpview、process explore

整體網路架構(拓譜建立)

• 整體系統架構圖







(實作資料)學校ip分配表

6



學校IP基本網段(考試:vlan 31-34網段)

Vlan	-VID-	-網段	7IPv6	-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

PRTG NETWORK MONITOR



新北市教網

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



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<u>https://youtu.be/Lq7j-QipNrI</u>



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4	÷	C	() h	ttps://www.paessler.com		
				L2	PAESSLER PRODUCT + PRICING LEARN + SUPPORT +	

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.



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







BLOG

	E-mail and lice	ense key		
← → C		com/d	ownload/prtg-download?download=1	
	ARN ¥ SUPPORT ¥ Blog	Company Partner	PAESSLER PRODUCT + PRICING LEARN + SUPPORT +	Blog Company ▼ Partners ▼ ⊕▼
PRTG download - T Your PRTG License Name prtgtrial Your PRTG License Key 000014-164KFM-8FFZ8K-NJ5QAF- QNZNMH-J75UGE-JBA0D3-NH6MMY- XZ0ZQC-ZEB0P1 If your PRTG download didn't start autom DOWNLOAD PRTG	Setup - PRTG Network Monitor Setup - PRTG Network Monitor Memory and Memory		PRTG download - Thanks for Your PRTG License Name prtgtrial Your PRTG License Key 000014-164KFM-8FFZ8K-NJSQAF- QNZNMH-J75USE-JBA0D3-NH6MMY- XZ0ZQC-ZEB0P1 If your PRTG download didn't start automatically: DOWNLOAD PRTG	And Council Co
DOWNLOAD PRTG AND GET STARTED IN Install PRTG Network Monitor in your network an	A FEW MINUTES		DOWNLOAD PRTG AND GET STARTED IN A FEW MINUTES	

- 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.

- 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.



PRTG Monitor後台,新密碼!(很重要)

PAESSI	FR		DDTC N	atwork Manitor				
FALJJL	- L IX		PRIGN					
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 条统管理	星员用户帐户的	登录凭据			RTG Network Monitor - PRTG Administ	tration Tool		
电子邮件地址:	alfred@ntpc.edu	ı.tw			PAESSLER		PRTG Netw	vork Mo
登录名 :	alfred				Probe Settings for Core Connection	Probe Settings for Monitoring	Service Start/Stop	Logs and
密码:	********	***	生成	新密码	Web Server	Core Server Clus	ster Adr	ninistrator
					Secure HTTPS Server (standard po Insecure HTTP server (standard po Expert configuration	vrt 443, recommended, mandatory f ort 80, not recommended) b Server	or Internet access)	
					Secure HTTPS Server (standard po Insecure HTTP server (standard po Expert configuration Select IP Address for PRTG's We Localhost: Use 127.0.0.1 (PRTG w AI IPs: Use all IPs available on this Specify IPs:	art 443, recommended, mandatory f ort 80, not recommended) b Server ill not be accessible from other comp computer (Note: Selected TCP por	or Internet access) auters) t must be available on all IP	5)
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Setting設定 ◎主页 设备 库 传感器 警报 拓扑图 报表 日志 工単 设置 设备 群组 Root 2 天 ▲ 警报 论 设置 🔿 概述 30 天 365 天 □ 日志 葦 管理 🚡 Root 白白本地探? Core H... 2 传感器 🗄 📼 Probe Device 🖂 😑 📩 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 Now Switch 🛱 📾 forti3950b-b 🏳 (379) TO_N7K_A (380) Traffic To Nou Switch 🖻 📾 C9300_F1-3.ntpc.edu.tw (9300scho... 🔎 (036) (037) (038) (096) (101)(102) (115) Port-(502) (503) T- 20500 0 C1 TanGiashitEtha TonGioshitEtha TanGiaphitEtha GiashitEthorno TonGiaphitEtha TanGiaphitEtha TonGiaphitEtha channel11 Traffic To 2050P A E1 (504) To_C3750-(031) (036) (037) (038) (040) (041) (042) (119) To_C3750- System Health CHT A Teaffic GiashitEthors TanGiashitEtha TanGiashitEtha TanGiaphitEtha TanGiashitEtha TanGiaphitEtha CHT A Traffic CDU TanGi -hitEtha System Health System Health System Health System Health rth 75 N P (iii eta 泊座 🖻 📾 C9300-NCCU 🖾 (142) Port-正常运行时间 1 (060) Ping 1 (060) (062) N7K-B-ae2 (066) N7K-B-(126) (128) N7K-B-ae2 System Health Traffic TonGiaphitEtho channel10 Traffic TonGioshitEtho 5620 Teaffic TonGinabitEtha Traffic CDU (065) (067) (129) SRX-ae4 (131)(132) N7K-B-TanGiashitEtha TanGiashitEtha Traffic TonGiaphitEtha ao20 Traffic 😑 📾 NX_B (n7k-b) [Cisco Device] 🖂 (151060492) (151060502) (151060512) (151060522) (369098758) (369098771) (369098783) (369098784) (369098785) (369099099) Man12 Traffic Man 22 Traffie VIan22 Traffic Man 12 Traffic nort channel7 nort channel20 port channel22 port channel22 port channel21 port channel210 (369099192) (369102845) (369102846) (369102847) System Health System Health port_channel//1_port nort nort CDU Mamon □ 🔓 网络基础设施 😑 📖 Internet HTTP 🖻 🖮 DNS: 203.72.153.153 🖂 Ping 🖻 📾 DNS: 203.72.153.154 🖂 Ping 白 🔤 网关: 163.20.66.254 🖂 Ping

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SNMP

credentials for vieware/venserver		User D	
		Password 0	
		VMware Protocol 0	HTTPS (recommended)
			OHTTP
		Session Pool	Reuse session for multiple scans (recommended)
			O Create a new session for each scan
Credentials for SNMP Devices		SNMP Version	Ov1
			v2c (recommended)
			O v3
	2	Community String $^{\odot}$	public
		SNMP Port	161
		SNMP Timeout (Sec.)	5
		Due to internal limitations, you can o CPU power. Currently, PATG is able to that you can nin about 5,000 SMMP v sensors with a 60-second interval on	nly monitor a limited number of sensors per second when using SNMP v3. The main limiting factor is o handle roughly 40 requests per second and computer core, depending on your system. This means r2 sensors with a 50-second scanning interval on a computer with two cores, and around 10,000 a system with four cores. If you expensence an increased interval Delay or Open Requests reading of

					面板介	闷			
Ē	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10	0) S M L XL (•					搜索	Q
+	添加传感器							
□ ⇔ C9300_	F1-3.ntpc.edu.tw (9300sch	ool) [Cisco Device Cisco I	OS] 🏴					
	(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
V	(096) GigabitEthernet2/0/48	8 Traffic 🏳					138,	665 kbit/秒
	(101) TenGigabitEthernet2/	1/1 Traffic 🏳					352,3	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	역 :					1,305,	734 kbit/秒
	(502) To_3950B_A_F1-1 Traf	ffic 🏳					483,	B10 kbit/秒
	(503) To_3950B_B_F1-2 Traf	fic 🏳					698,	083 kbit/秒
	(504) To_C3750-CHT-4 Traff	fic I¤					167,	042 kbit/秒
	(031) GigabitEthernet1/0/24	4 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 🏳					298,9	986 kbit/秒
	(041) TenGigabitEthernet1/	1/6 Traffic 🏳					1,052,	B33 kbit/秒
Image: A start of the start	(042) TenGigabitEthernet1/	1/7 Traffic 🏳					664,	865 kbit/秒

✓ (119) To C3750-CHT-4 Traffic I⊂

◎主页

设备

170,375 kbit/秒

Add device ← → C ① ① 127.0.0.1/group.htm?id=0&ttabid=1 ← → C ① ① 127.0.0.1/group.htm?id=0&tabid=1 Home Libraries Sensors Devices Alarms Reports Home Libraries Alarms Tickets Setup Sensors Maps Reports # Devices # Devices All All Group Roo Roo Favorite Devices Favorite Devices Ov Device List T Log ∃ Management O Settings A Notifica A Alarms T Log 30 days 365 days O Ovi Device List A Alarms 1 days days Q 12 W10 Dependencies 5 M L XL 🛞 🏭 Search. Dependencies a Root Add Group Add Group B D Loca Add Auto-Discovery Group Add Auto-Discovery Group hi V System Health. V Disk Free Common SasS. Business Proc. V Syslog Receiver + Add Sensor 100 % 28 % 100 % 0 % 0 % Add Device Add Device B Retwork Discovery E 🗄 Network Infrastructure ₩5 Sem... V 12 Sen... 🗄 🗟 Virtual Systems 🗸 11 Sen... E D Linux / MacOS / Unix I! PING W 5 Sens. II 24 Sen. ↓ 223 Se. U 3 Sens. B B Custom Sensors E H BURD F SNMP System . Ping 8 d 16 n 0 mee 7 J966 # Add Sensor 🗄 🎟 Synology 🛱 Add Sensor Run Auto-Discovery

将设备添	加到群組 网	络发现								▶ 将设备添加到群组 网络发现			×
添加新 ^{必要时定》}	设备 X设备名称、	地址以及针》	付自动发现、	凭据设置(\	Windows \ Li	inux • VMwa	re/XEN 和 SN	NMP)的选项	∏ ∘	>¤77) H ⊡, 10>40,40	$(im + i\pi)$		
PRTG 手册	├: 添加设备									SNMP 设备凭据			
										鐵承自 岡	端口: 161, 超时 (秒): 5 秒)		
设备名	你和地址									SNMP 版本 🖲			
设备名称	0									O v1			
Device										● v2c(推荐)			
in III + (O v3			
IP版本《										社区字符串 (Community String) 🖲			
● 使用	IPv4 连接									public			
◯使用	IPV6 注接									public			
IPv4 地址	:/DNS 名称(SNMP 端口 0			
										161			
需要此字	段。									招时 (秒) 🕕			
标签 🛙													
0										5			
设备图标	0									数据库管理系统的凭据			
 ••• ••• 				0		0		0	0 🖲	🕑 继承自 🔤 网络发现	(超时(秒): 60 秒)		
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		0 **	0 ==			0 🕯	$\bigcirc \bigcirc$		0 🗹	AWS 的凭据			
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O 1166	0 👙	0 🔀	0 🔇	0	\circ	0		O leghech	0 🔇				
0 🛄	0 🝣	00	О ока		0 💵	0	0 🗖	0 🌾	0 3	Credentials for Dell FMC			
								取游	確定			<u>取消</u>	确定

<u>取消</u>

确定

确定

Add sensor

← → C 介 ① 127.0.0.1/group.htm?id=0&tabid=1 ← → C △ ③ 127.0.0.1/addsensor.htm?id=3062 Home Libraries Sensors Alarms Maps Reports Devices Home Libraries Sensors Alarms Maps Tickets Setup Devices Reports # Devices All Devices Local Probe * Custom Sensors * Group Roc Favorite Devices O Ovi A Alarms 30 days 365 days Device List Add Sensor to Device Synology Dependencies 5 M L XL 🔅 👪 #2 W10 Add Group 3 Root Monitor What? Target System Type? E C Loca Add Auto-Discovery Group BHE O Availability/Uptime () Windown O Storage and File Server O Cloud Services O Hardware Parameters hh System Health Olsk Free Common SasS. Business Proc. Syslog Rec Add Device O Bandwidth/Traffic O Disk Usage O Network Infrastructure () Linux/macOS E P Network Discovery ∃ ⇒ Network Infrastructure O Speed/Performance O Memory Usage O Custom Sensors O Virtualization 0S O Detabase ₩5 Sem. ✓ 253 Se. U 12 Sen. 🗉 🖹 Virtual Systems ✓11 Sen.: 🗄 🖹 Linux / MacOS / Unix II PING ₩5:Sens. II 24 Sen... ✓ 223 Se... U 3 Sens... Cancel sensor creation 🗄 🗟 Custom Sensors E = Buffalo P 0 msec Table(nas disk ... + Add Sensor 1,966 # SNMP System _ Ping 8d 15h Search Q Type to search name or description 🗄 🛲 Synology 🖾 Run Auto-Discovery 0 Most Used Sensor Types

D

M

MMP Memory		SNMP System Lintime		SNMP Traffic						
1	0		0		0		0		0	
impares it to an iP address If this sensor to a device the D ming an	WS service is	Ping requests are used to sheak wh device is reachable through the neb	ether a vork.	To query data from a prote devi 127.0.0.1, or :1), add this device the IP address it has in your net the aenaor on this device.	ice (locathost, e to PRTG with work and create	If you want to monitor more t the SNMP Cuators Advanced	han one OIO, von Sensor instead	Usen mare generic OIO voluen SNMP Linux Duk Frae Senuor	compared to the	Shown of read
onitors a DNS server (Dom rvice), resolves a domain r	ain Name name, and	Monitors connectivity using Pin	g	Monitors the load of a CPU	via SNMP	Monitors a numerical valu specific OID using SNMP	e returned by a	Monitors the free disk spa disk via SNMP	ce on a logical	Monito system
NS	?	Ping	?	SNMP CPU Load	?	SNMP Custom	?	SNMP Disk Free	?	SNM

Technology Used?

O Performance Counters O NetFlow, sF

257 Matching Sensor Type

O Packet Shift

() Ping

加減sensor

	rview 2 days 30 days	365 days	A Alarms	System Information	Log Ö	Settings		A Notifie
To see	sensor gauges here, please change the priority of one or more s	ensors to 青青青青☆ /青青素	bbt.					
°os ▼	Sensor 🖗	Status 🖗	Message		Graph		Priority =	ß
₽ 1.	? disk: 0 - disk id	Unknown	No data yet		Response Tir	n No data	*****	ß
₽ 2.	? Table(disk: 1): [tablename] / [rowidentifier]	Unknown	No data yet		disk tempera	t No data	*****	8
• 3.	7 Table(disk: 2): [tablename] / [rowidentifier]	Unknown	No data yet		disk tempera	t No data	******	ß
⊷ 4.	7 Table(disk: 3): [tablename] / [rowidentifier]	Unknown	No data yet		disk tempera	t No data	*****	ß
• 5.	Table(disksmart: 2): [tablename] / [rowidentifier]	Unknown	No data yet		disk smart at	n No data	*****	ß
• 6.	Table(disksmart: 21): [tablename] / [rowidentifier]	Unknown	No data yet		disk smart at	No data	******	ß
			1 to 6 of 6 >>>					
Recon	nmended Sensors			la la				
riority		Sensors			Total Sensors	Links		
****	*	1×Ping			1	• Add	These Sensor	s
k### \$,	4×SNMP Tra	affic, 1×SNMP Disk Free, 1×	CPU Load, 2×SNMP Memory, 1×RDP (Remote .		• Add	These Sensor	5
****	1	4×SNMP Tra	affic, 1×SNMP Disk Free, 1×	CPU Load, 2×SNMP Memory, 1×RDP (Remote .		• Add	These Sensor	•

添加传感器到设备 C9300_F1-3.ntpc.edu.tw (9300school) [Cisco Device Cisco IOS] [163.20.250.252]



主页 设备 库 传感器 警报 拓扑图 报表 日志 工单 设置 新日志朱目 14 ¥ 1 ¥ 97 U 2 提实 12音
主页 设备 库 传感器 警报 拓扑图 报表 日志 工单 设置 新日志条目 14 W 1 ✔ 97 U 2 提表

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2+70	Root
11+51	ROOL

◎ 概述	2 天	30 天	365 天	▲ 警报	■ 日志	莘 管理	✿ 设置	♣ 通知触发器	♀ 备注	ĩ
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□ 🔓 网络发现 □ 🖕 网络基础设 □ 📟 DNS: dna ☑ P	施 1153 日 ING 日 NNS 日							1 毫秒 6 毫秒	状态: 默认时间间隔: ID:	确定 60 secon #0 ❹ 添加传感器
÷ ≋ DNS: dn: ✓ ₽ ✓ ₽	5加作家器 (154 戸) ING 戸 NS 戸 5加作家器							4 毫秒 5 毫秒	HAMERICA North Atlantic Or	EUROPE
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= ⇔ C9300_F ✓ (&加传感器 1-3.ntpc.edu.tw (9300school 036) TenGigabitEthernet1/1/1	I) [Cisco Device Cisco IOS I Traffic I의	5] Im				1,813	3,333 kbit/秒	50.0 60.0 40.0 0.0 0.0	877 (2. 52. 51 % 2000 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1





Sensor **sFlow ^P ★★★**☆☆ ০ĸ

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Overview	(••) Live Data	2 days	s 30 days	365 days	🕍 Historic Data	🗏 Log	Settings	A Notification	Triggers 🖓 C	comments 🔋 History	
Top Talkers	Top Connections	Top Protocols	session					Add Topliet	Find out why and buy PRTG! GET MORE INFORMA Last Scan: Last Up:	how to	
Total 240,902 kbit/s	0 kbit/s 1,192,622 kbi	FTP/P2P 0 kbit/s Various 237,631 kbit/s	Infrastructure 5.92 kbit/s WWW 3,264 kbit/s	Mail 0 kbit/s	NetBIOS 0 kbit/s	Other	Remote Control		Last Down: Uptime: Downtime: Coverage: Sensor Type: Performance Impact: Dependency: Interval: Autonomous: ID:	100.0000% 0.0000% sFlow ₩ Parent 60 s No #6003	
Channel - Downtime FTP/P2P Infrastructure	3	D Las -4 -002 -007 -003	st Value (volume) ≑ 0 KB 43 KB	Last Value (speed) © 0 kbit/s 5.92 kbit/s	Minimur 0 ki 0 ki	n © bit/s bit/s	Maximum © 291 kbit/s 30,055 kbit/s	°° °°	عمر معن	h, 2 hours Мак. 202,212 Май, А	
NetBIOS	3	008	0 KB	0 kbit/s 0 kbit/s	0 kt	pit/s	274,900 kbit/s	000	100,000 2 days	Max: 440,000 kbit/s 100.00 80.00 60.00 g ²	

Add sensor

Add Sensor to Device school [10.226.127.254]

Monitor What?			Target System	Туре?	Technology Used	?	
 Availability/Uptime Bandwidth/Traffic Speed/Performance 	O CPU Usage O Disk Usage O Memory Usage	 Hardware Parameters Network Infrastructure Custom Sensors 	Vindowa Linux/macOS Virtualization OS	 Storage and File Server Cloud Services Email Server Database 	O Ping O SNMP O WMI O Performance Counters	O HTTP O SSH O Packet Sniffi	O PowerShell O Push Message Receiver ng O PRTG Cloud
reation							> Looking for more sensor types? See our PRTG Sensor H
	Search	Q Type to search for a	name or description		10 Matching S	ensor Types	

Matching Sensor Types

< Cancel sensor creation

IPFIX ?	IPFIX (Custom) ?	jFlow v5 ?	jFlow v5 (Custom) ?	NetFlow v5 ?	NetFlow v5 (Custom) ?
Monitors a device using IPFIX	Monitors a device using IPFIX (customizable)	Monitors a device using jFlow v5 (customizable)		Monitors a device using NetFlow v5	Monitors a device using NetFlow v5 (customizable)
You have to enable IPFIX export on the device for this sensor to work.	You have to enable IPFIX export on the device for this sensor to work.	You have to enable jFlow v5 export on the device for this sensor to work.	You have to enable jFlow v5 export on the device for this sensor to work.	You have to enable NetFlow v5 export on the device for this sensor to work.	You have to enable NetFlow v5 export on the device for this sensor to work.
•	•	IIII 0	•	•	•
NetFlow v9 ?	NetFlow v9 (Custom)	sFlow ?	sFlow (Custom)		
Monitors a device using NetFlow v9	Monitors a device using NetFlow v9 (customizable)	Monitors a device using sFlow v5	Monitors a device using sFlow v5 (customizable)		
You have to enable NetFlow v9 export on the device for this sensor to work.	You have to enable NetFlow v9 export on the device for this sensor to work.	You have to enable sFlow v5 export on the device for this sensor to work.	You have to enable sFlow v5 export on the device for this sensor to work.		
•	•	•	•		

(Step 1 of 2)





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 Overview Print This Toplist



Top Connections







A

			lt	ems: * 50
Pos 🌣	Source IP ≑	Destination IP 单	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







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

Items: Y 50









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 %



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
з.	[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.facebo	443	[10.197.0.248]	61112	17	0	Various	edge-star-shv-01-tpe1.facebo	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

items: * ou



https://kb.paessler.com/en/topic/75561-how-can-i-monitor-a-cisco-wlc-deployment-with-prtg

- Deployment and Usage
- Download the required zip archive <u>here</u>.
- Extract the archive to your <u>PRTG program directory</u>. By default, this is %Program Files (x86)%\PRTG Network Monitor\. Move the contents of the single folders to the corresponding ones within the application directory.
- In PRTG, restart the core server: open Setup | System Administration | Administrative Tools | Restart Core Server and click Go!. This ensures that the MIB and lookups are loaded before you run the auto-discovery.
- Create a <u>new device</u> in PRTG with the address (IP or FQDN) of the device that you want to monitor and configure the <u>SNMP credentials</u> accordingly.

С	Cisco wlc 3504 snmp 設定								
ıılıılı، cısco	<u>M</u> ONITOR	<u>W</u> LANs	<u>C</u> ontroller	W <u>I</u> RELESS	<u>s</u> ecurity	M <u>a</u> nagemen			
Management Summary	SNMP v1	/ v2c Co	ommunity	TP /	Address(Tpv/	4/Ipv6)			
General SNMP V3 Users Communities Trap Receivers Trap Controls Trap Logs	<u>lufhwro</u> ******* <u>Tpcnc12!</u> <u>Tpcnc123!</u>			203 203 163 10.0	.72.154.0 .72.154.0 .20.0.0).0.0	·/ -P · · /			

• Right-click your new device, select Run Auto Discovery with Template, browse for wlc and select the Custom Cisco WLC Access Point Status v0.2 and Custom Cisco WLC SSID Statistics v0.2 templates from the list. Note: Using the auto-discovery with a dedicated device template is convenient here because it automates the creation of the custom sensors in an organized fashion. The sensors are deployed after a couple of seconds. • You can adjust the <u>channel limits</u> or <u>lookups</u> to your needs later.

https://kb.paessler.com/en/topic/75561-how-can-i-monitor-a-cisco-wlc-deployment-with-prtg

 在此處下載所需的zip 存檔。
 將存檔解壓縮到您的<u>PRTG 程序目錄</u>。默認情況下,這是%Program Files (x86)%\PRTG Network Monitor\。將單個文件夾的內容移動到應用程序目錄 中的相應文件夾。

在 PRTG 中,重新啟動核心服務器:打開Setup | 系統管理 | 管理工具 | 重新啟動核心服務器並單擊執行 !.這可確保在您運行自動發現之前加載 MIB 和查找。

在 PRTG 中使用您要監控的設備的地址(IP 或 FQDN)創建一個新設備,並相應 地配置SNMP 憑據。

右鍵單擊您的新設備,選擇Run Auto Discovery with Template,瀏覽wlc並 從列表中選擇Custom Cisco WLC Access Point Status vo.2和Custom Cisco WLC SSID Statistics vo.2模板。

- 注意:在這裡使用帶有專用設備模板的自動發現很方便,因為它會以有組織的方式自動創建自定義傳感器。
- ▶ 傳感器在幾秒鐘後部署。

您可以稍後根據需要調整通道限製或查找。

結果

部署和使用







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

DGS-3620 Config vlan lan add untagged 1 DGS-1510 configure terminal interface ethernet 1/0/1switchport 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

trunk port

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 1/0/1switchport 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

ERDC-L3:admin# Command: show	show arpentry arpentry		
ARP Aging Tim ARP Retry Tim	e : 20 es : 4		
Interface	IP Address	MAC Address	TVDE
System	10.226.56.0	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 10.226.56.254	54-B8-0A-C6-39-E0 3C-1E-04-B6-C2-00	vlan1 vlan1	forever 20
Total Entries: 2			

Cisco-3750X

C3750X_CH	T_F1-3#sh arp		and a state			
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	3cle.04b6.c201	ARPA	Vlan256
Internet	163.20.202.188			c067.af06.a2c3	ARPA	Vlan256
Internet	163.20.202.190		0	8000.0010.0000	ARPA	Vlan256

DGS-3620 Sh arpentry

DGS-1510 Sh arp

Cisco-3750X Sh arp



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

Unicast MAC Address Aging Time = 300

VID	VLAN Name	MAC Address	Port	туре	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	Туре	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	туре	Ports		
All	0100.0ccc.cccc	STATIC	CPU		
All	0100.0ccc.cccd	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 : : 1 VID VLAN Name : default VLAN Type : Static Member Ports : 5,8,19-23,26-28 Advertisement : Enabled 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

C3750	0X_CHT_F1-3#sh vlan			
VLAN	Name	Status	Ports	
1	default	active	Gi1/0/22,	Gi1/0/23



DGS-3620

ERDC-L3:admin#show ports Command: show ports							
Port	State/ MDIX	Settings Speed/Duplex/FlowCtrl	Connection Speed/Duplex/FlowCtrl	Address Learning	AutoSpeed Downgrade		
1	Enabled	Auto/Disabled	1000M/Full/None	Enabled	Disabled		
2	Enabled Auto	Auto/Disabled	1000M/Full/None	Enabled	Disabled		
3	Enabled	Auto/Disabled	1000M/Full/None	Enabled	Disabled		

DGS-1510

ERDC-L2-02#sh interfaces status					
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

C3750X_CHT_F1-3#show	ip interface brie	1 E			
Interface	IP-Address	OK 2	Method	Status	Protocol
Vlanl	10.1.1.1	YES	NURAM	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 do	wn 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

LAB用指令

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.xxx



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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



●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



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- **電話:80723456----542** 工程師
- Ping gateway
- Ping wan
- Ping firewall
- Ping serverfarm
- Ping gov
- Ping nccu
- Ping <u>www.google.com</u>
- ●Tracert看路由