

LANforge WiFi Station Reset Testing

Goal: Use the WiFi Port Reset plugin to emulate restarting of stations associated to your WiFi network.

Requires LANforge 5.2.12 or later. Restarting a WiFi station exercises the whole network stack because it forces negotiation across the wired network: your AP, your DHCP server, your AP controller, and possibly your RADIUS server. Performing this test at an unusually high frequency is a challenging robustness test for your wireless topology and can expose possible race conditions when large numbers of stations reset simultaneously while passing traffic. This cookbook assumes the System Under Test is your AP and that a CT520 (or better) is emulating stations to be reset on the network.





1. Create WiFi stations

A. In the **Ports** tab, select *wiphy0* and click **Create**

LANforge Manager Version(5.2.12) 🔶 -														+ _ □ ×	
<u>C</u> ontrol	Control Reporting Tear-Off Info Plugins														
									Stop	All	Restart	Manager		Refresh	HELP
File-IO Layer-4 Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages															
Status Layer-3 L3 Endps WanLinks Attenuators															
Disp: 192.168.100.27:0.0 Sniff Packets Clear Counters Reset Port Delete															
Rpt Timer: medium (8 s) ✓ Apply View Details Create Modify Batch Modify															
All Ethernet Interfaces (Ports) for all Resources.												e type.			
Port	Pha	Down		IP	SEC	Alias	Alias Parent RX			RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.2.3			0.0.0.0)	0	wiphy0		6	9,725	450	4	5,152	1,039	10	(🔺
1.2.2			10.26.4	4.12	0	sta0	wiphy0		1,110	5	0	76	1,244	6	
1.2.17		~	0.0.0.0)	0	wlan2	wiphy2		0	0	0	0	0	0	
1.2.16		V	0.0.0.0)	0	wlan1	wiphy1		0	0	0	0	0	0	
1.2.15		V	0.0.0.0)	0	wlan0	wiphy0		0	0	0	0	0	0	
1.2.14			0.0.0.0)	0	wiphy2			0	0	0	0	0	0	
1.2.13			0.0.0.0)	0	wiphyl			0	0	0	0	0	0	
1.2.1			10.26.1	1.3	0	ethl			2,768	8	0	191	0	0	
1.2.0			192.16	8.100.42	0	eth0		17	4,141	1,651	14	12,056	2,768,838	2,349	2(🗸
															•
Logged	in to:	192.1	68.100.3	26:4002 a	s: Ad	min									

B. In the Create VLANS window, craft ten wifi stations:

			Create VLANs o	on Port: 1.2.3		+ _ □ ×
0	○ MAC-VLAN● WiFi STA	○ 802.1Q-VLAN ○ Red ○ WiFi VAP ○ WiFi Moni	direct 🔾 Bridge tor	⊖ GRE Tunnel		
2	Shelf:	1	Resource:	2 (kedtest)	Port: 3 (v	viphy0) 🗸
B	VLAN ID:		DHCP-IPv4			
	Parent MAC:	00:0e:8e:43:36:e9	DHCP Client ID:	•		
	MAC Addr:	xxx;xxx;xx;*;*;xxx 👻	IP Address:		Global IPv6:	AUTO
	Quantity:	10	IP Mask or Bits:		Link IPv6:	AUTO
			Gateway IP:		IPv6 GW:	AUTO
	#1 Redir Name:		#2 Redir Name:			
	STA ID:	0	SSID:	jedtest	•	•
	WiFi AP:		Key/Phrase:			
	Use WPA	Use WPA2	Use WEP			
A	Down					
	Apply	<u>C</u> ancel				
		h	46		** k =	

- A. Select WiFi STA
- B. For MAC address, choose xx:xx:*:*:xx
- C. Select DHCP-IPv4
- D. Enter Quantity 10
- E. Specify **0** for *STA ID*
- F. The example *SSID* for this cookbook is jedtest
- G. ...and then click Apply
- C. You will see ten stations created:

<u></u>					LANfo	rge Ma	nager Vo	ersion(5.2.1	2)				+ _ = ×	
<u>C</u> ontrol	<u>R</u> epor	ting]	<u> [</u> ear-Off <u>I</u> nfo <u>P</u>	lugins										
	Stop All Restart Manager Refresh HELP													
Eile-IO	File-IO / Laver-4 / Test Mar / Test Group / Resource Mar / Event Log / Alerts / Port Mar / Messages													
	Status Layer-3 L3 Endps WanLinks Attenuators													
	Disp: 192.168.100.27:0.0 Sniff Packets Clear Counters Reset Port Delete													
	Disp. 192.100.27:0.0 Shin Fackets Clear Counters Reset Port Delete													
	Rpt Timer: medium (8 s) 🔻 Apply View Details Create Modify Batch Modify													
					All Et	hernet l	nterfaces (P	orts) for all R	esources					
Port	Pha	Down	IP	SEC	Alias	lias Parent RX Bytes RX Pkts Pps RX bps RX TX Bytes TX Pkts						Pps TX		
1.1.0			10.20.4.1	-	vapo	mpnyo	57,03	2 240		1,000		200		
1.2.12			10.26.4.51	0	sta9	wiphy0	15,40	130	1	1,106	2,224	16		
1.2.11			10.26.4.49	0	sta8	wiphy0	15,83	36 132	1	1,136	2,586	17		
1.2.10			10.26.4.47	0	sta/	wiphy0	15,58	34 132	1	1,118	2,224	16		
1.2.09			10.26.4.42	0	stab	wipnyu	14,61	2 122	1	1,048	13,052	60		
1.2.08			10.26.4.46	0	sta5	wipnyu	15,70	134	1	1,130	2,224	10		
1.2.07			10.26.4.43	0	sta4	wiphyo	15,85	130	1	1,139	2,048	18		
1.2.00			10.26.4.45	0	sta3	wiphy0	10,20	30 137	1	1,108	2,580	1/	=	
1.2.03	$+ \vdash$		10.26.4.44	0	etal	wiphy0	10,03	4 137	1	1,149	2,224	10		
1 2 02			10.26.4.48	0	stan	wiphy0	16.50	129	1	1 211	2,224	10		
1 2 01			10.26.1.3	0	eth1	mpriyo	19.23	30 72		132	2,040	10		
112101	+ =		101201110	-			10120		-	102	-	-		
													P	
Logged	in to:	192.16	58.100.26:4002	as: Ad	lmin									

- 2. Create Connections to Stations
 - A. In the $\ensuremath{\text{Layer-3}}$ tab, click $\ensuremath{\text{Create}}$

🛃 LANforge Manager Version(5.2.12) 🔶 + – 🗆 ×
Control Reporting Tear-Off Info Plugins
Stop All Restart Manager Refresh HELP
File-IO Layer-4 Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages
Status Layer-3 L3 Endps WanLinks Attenuators
Rpt Timer: fast (1 s) ▼ Go Test Manager all ▼ Select All Start Stop Quiesce Clear
View 0 - 200 🔽 Go Display Create Modify Delete
Cross Connects for Selected Test Manager
Name Type State Pkt Tx A \rightarrow B Pkt Tx A \leftarrow B Rate A \rightarrow B Rate A \leftarrow B Rx Drop % A Rx Drop % B Drop Pkts A Drop Pkts
Ungged in to: 192.168.100.26:4002 as: Admin

B. Create station download traffic

<u>ي</u>	sta-trf - Create/	M	odify Cross Connec	2	+ _ □ X
+ - All	Display S	ync	Batch-Create	Ap	oply OK Cancel
CX Name: CX Tvpe:	Cross-Connect sta-trf LANforge / TCP			Atte	empt to apply changes, and cl
Resource:	Endpoint A 2 (kedtest)	•	Endpoint B 2 (kedtest)	-	
Port:	2 (sta0)	•	1 (eth1)	•	
Min Tx Rate:)ld DSL (256 Kbps)	•	old DSL (256 Kbps) 🗸	
Max Tx Rate:	Same	•	Same	-	
Min PDU Size:	TCP Pld (1,460 B)	•	TCP Pld (1,460 B)	-	
Max PDU Size:	Same	•	Same	-	
IP ToS:	Best Effort (0)	•	Best Effort (0)	-	
Pkts To Send:	Infinite	-	Infinite	-	

- A. This example connection is named *sta-trf*
- B. Connection Type is LANforge / TCP
- C. This example *resource* is **kedtest**, where our stations live
- D. The Endpoint A Port will be the station sta0,
- E. and the Endpoint B *Port* will be upstream of the ap, eth1.
- F. We'll set the *Min Tx Rate* for both sides to **265 Kbps**
- G. and set the PDU Size to TCP Pld (1,460 B).
- H. ...then click **OK**
- C. Test this station by selecting it and clicking Start

LANforge Manager Version(5.2.12)	+ _ = ×										
<u>Control Reporting Tear-Off</u> Info <u>Plugins</u>											
Stop All Restart Manager Refresh	HELP										
File-IO Layer-4 Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages											
Status Layer-3 L3 Endps WanLinks Attenuators											
Rpt Timer: fast (1 s) ▼ Go Select All Start Stop Quiesce Clear View 0 - 200 ▼ Go Display Crgate Modify Delete											
Cross Connects for Selected Test Manager											
Name Type State Pkt Tx A → B Pkt Tx A ← B Rate A → B Rate A ← B Rx Drop % A Rx Drop % B Drop Pkts A	op Pkts B										
sta-trf LF/TCP Stopped 0 0 0 0 0 0 0	0										
Logged in to: 192.168.100.26:4002 as: Admin											

- D. Click $\ensuremath{\text{Stop}}$ when you are done testing the connection
- E. Click **Modify** for **sta-trf** and we will batch create nine more:

<u>ځ</u>	LANforge Manager Version(5.2.12)
<u>Control Reporting Tear-Off</u> Info Plu	ugins	
	Stop All	Restart Manager Refresh HELP
File-IO Layer-4 Test Mgr Test (Group Resource Mgr Event Log Alerts	Port Mgr Messages
Status Layer	r-3 L3 Endps	WanLinks Attenuators
Rpt Timer: fast (1 s)	Go Test Manager all	Select All Start Stop Quiesce Clear
View 0 - 200	Go	Display Cr <u>e</u> ate Modify Delete
		est Manager
Name Type State Pk	t Tx A \rightarrow B Pkt Tx A \leftarrow B Rate A \rightarrow B	Rate A ← B Rx Drop % A Rx Drop % B Drop Pkts A Drop Pkts B
sta-trf LF/TCP Stopped	0 0 0	0 0 0 0 0
	II	
Logged in to: 192.168.100.26:4002 a	as: Admin	

F. Click Batch Create in the Create-Modify Cross Connect window

	sta-trf - Create	/м	odify Cross Connect	-		+ _ = ×
+ - All	Display	Syno	Batch-Create	App	ly ОК	Cancel
CX Name: CX Tvoe:	Cross-Connect sta-trf LANforge / TCP		Create a s	series	s of tests based	d off of the c
Resource:	Endpoint A 2 (kedtest)	-	Endpoint B 2 (kedtest)	-		
Port: Min Tx Rate:	2 (staO))ld DSL (256 Kbps)	•	1 (eth1))ld DSL (256 Kbps)			
Max Tx Rate: Min PDU Size:	Same TCP Pld (1,460 B)	•	Same TCP Pld (1,460 B)	•		
Max PDU Size: IP ToS:	Same Best Effort (0)	•	Same Best Effort (0)	•		
Pkts To Send:	Infinite	•	Infinite	•		

G. Create nine more cross connects like this one:

🛓 🛛 Layer-3 Batch Creator: sta-trf 🔶 🛧 – 🗆	×
sta-trf01, sta-trf02 sta-trf09	
Endp-A Resources: 2, 2 2	
Endp-B Resources: 2, 2 2	
Endp-A Ports: stal, sta2 sta9	
Endp-B Ports: eth1, eth1 eth1	
Endp-A IPs: AUTO, AUTO AUTO	
Endp-B IPs: AUTO, AUTO AUTO	
Quantity: 9 Number of Digits: 2 🗹 Zero Pad	
Starting Name Suffix: 1 Name Increment: 1	
Resource Increment A: 0 Resource Increment B: 0	
Port Increment A: 1 Port Increment B: 0	
IP Addr Increment A: 0 IP Addr Increment B: 0	
IP-Port Increment A: 1 IP-Port Increment B: 1	
Apply Close	

- A. Set Quantity to 9
- B. Set Number of Digits to 2
- C. We are not changing the B-side port, so we do not need to increment it. Set the Port Increment B to 0

H. Select all connections and click **Start**

£			LA	Nforge Ma	anager Versio	n(5.2.12)				↑ _ □ ×					
Control Report	Control Reporting Tear-Off Info Plugins														
	Stop All Restart Manager Refresh HELP														
File-IO Layer Status	File-IO Layer-4 Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages Status Layer-3 L3 Endps WanLinks Attenuators														
Rpt Time	Rpt Timer: fast (1 s) Go Test Manager all Image: Select All Start Stop Quiesce Clear														
View	View 0 - 200 View Go Display Create Modify Delete														
				-Cross Con	nects for Selecte	d Test Manager—									
Name	Туре	State	$Pkt Tx A \to B Pkt$	Tx A ← B	Rate A → B	Rate A ← B	Rx Drop % A	Rx Drop % B	Drop Pkts A	Drop Pkts B					
sta-trf	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
sta-trf01	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
sta-trf02	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
sta-trf03	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
sta-trf04	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
sta-trf05	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
sta-trf06	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
sta-trf07	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
sta-trf08	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
sta-trr09	LF/TCP	Stopped	0	0	0	0	0	0	0	0					
				1						•					
Logged in to: 3	192.168.	100.26:400	02 as: Admin												

I. Connections should not show dropped packets in the __Rx Drop % A *or* Rx Drop % B__ columns

<u></u>	LANforge Manager Version(5.2.12) 🔶 – 🗆													
<u>Control</u> Report	iontrol <u>R</u> eporting <u>T</u> ear-Off <u>Info</u> <u>Plugins</u>													
	Stop All Restart Manager Refresh HELP													
File IO Lavor	File-10 / Laver-4 / Test Mar / Test Group / Resource Mar / Event Log / Alerts / Port Mar / Messages													
Triterio Layer-4 reschipt resconce mai Evenic Log Alleris Port Mgr Messages														
Status Layer-3 L3 Endps WanLinks Attenuators														
Rpt Timer	Rpt Timer: fast (1 s) 🔻 Go Test Manager all 💌 Select All Start Stop Quiesce Clear													
View	View 0 - 200 View Go Display Create Modify Delete													
					onnects for Selecte	ed Test Manager—								
Name	Name Type State Pkt Tx A \rightarrow B Pkt Tx A \leftarrow B Rate A \rightarrow B Rate A \leftarrow B Rx Drop % A Rx Drop % B Drop Pkts A Drop Pkts B													
sta-trf	LF/TCP	Run	3,404	3,403	255,911	255,835	0	0	0	0				
sta-trf08	LF/TCP	Run	3,422	3,422	255,935	255,935	0	0	0	0				
sta-trf09	LF/TCP	Run	3,422	3,422	255,937	255,935	0	0	0	0				
sta-trf05	LF/TCP	Run	3,418	3,422	255,962	255,934	0	0	0	0				
sta-trf07	LF/TCP	Run	3,422	3,422	255,934	255,934	0	0	0	0				
sta-trf03	LF/TCP	Run	3,424	3,424	255,916	255,914	0	0	0	0				
sta-trf01	LF/TCP	Run	3,411	3,409	255,942	255,956	0	0	0	0				
sta-trf02	LF/TCP	Run	3,413	3,416	255,929	255,975	0	0	0	0				
sta-trf04	LF/TCP	Run	3,407	3,418	255,975	255,961	0	0	0	0				
sta-trf06	LF/TCP	Run	3,422	3,422	255,935	255,935	0	0	0	0				
•	Image: Constraint of the second sec													
Logged in to: 1	92.168.	100.26:400	12 as: Admin											

- 3. Configure Port Reset Script
 - A. In the Port Manager tab, select stations sta0 sta9

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<u>C</u> ontrol	Repor	ting	Tear-Off Info F	lugins										
	Stop All Restart Manager Refresh HELP													
File-IO	File-IO Layer-4 Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages													
	Status Layer-3 L3 Endps WanLinks Attenuators													
	Disp: 192.168.100.27:0.0 Sniff Packets Clear Counters Reset Port Delete													
	Rpt Timer: medium (8 s) ▼ Apply View Details Create Modify Batch Modify													
					All	Ethernet	Interfac	es (Po	orts) for all I	Resources.				
Port	Pha	. Dow	n IP	SEC	Alias	Parent Dev	RX Byt	tes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.0	_		10.20.4.1		vapo	wipityo	214,040	.,, , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			2,507,	222,007,034	391,049	000 0
1.2.12			10.26.4.51	0	sta9	wiphy0	21,257	7,798	38,835	65	290,790	22,009,588	38,622	65
1.2.11			10.26.4.49	0	sta8	wiphy0	21,249	9,072	38,786	65	290,865	21,999,752	38,574	65
1.2.10			10.26.4.47	0	sta7	wiphy0	21,247	7,308	38,758	65	290,858	22,004,860	38,624	65
1.2.09			10.26.4.42	0	sta6	wiphy0	21,244	4,194	38,723	65	290,803	22,014,686	38,667	65
1.2.08			10.26.4.46	0	sta5	wiphy0	21,459	9,954	39,127	65	290,848	22,218,674	38,929	65
1.2.07			10.26.4.43	0	sta4	wiphy0	21,409	9,922	39,015	65	290,807	22,173,506	38,899	65
1.2.06			10.26.4.45	0	sta3	wiphy0	21,400	0,150	38,975	65	290,673	22,169,234	38,935	65 =
1.2.05			10.26.4.44	0	sta2	wiphy0	21,389	9,356	39,010	65	290,788	22,155,736	38,912	65
1.2.04			10.26.4.50	0	stal	wiphy0	21,254	4,448	38,738	65	290,712	22,017,214	38,679	65
1.2.02			10.26.4.48	0	sta0	wiphy0	22,248	8,546	40,545	65	290,861	23,045,812	40,454	65
1.2.01			10.26.1.3	0	eth1		214,509	9,005	385,688	657	2,929,	214,502,436	385,568	657 2, 🕶
							-0							•
Logged	in to:	192.1	68.100.26:4002	as: Ac	lmin									

B. In the LANforge Manager windows, select the *Chamber View* - *Tests* - *Port Reset* option - Run Test



C. In the *Port Reset Test* window, you will see the ten ports already selected. We will configure quick resets for this test:

<u>ی</u>	Port Reset	Test	* _	□ ×
Concurrent Ports to Rese	et:	Five	(5)	-
Minimum Time between R	esets:	5 seconds	(5 s)	-
Maximum Time between F	Resets:	20 seconds	(20 s)	-
		Random	Port Selection	
	Ports S	Selection		(
Ports in Use			Free Ports	
1.2.2 sta0 1.2.4 sta1 1.2.5 sta2 1.2.6 sta3 1.2.7 sta4 1.2.8 sta5 1.2.9 sta6 1.2.10 sta7 1.2.11 sta8 1.2.12 sta9	Remove I	.dd Ports Ports>>	1.0.0 eth0 1.1.0 eth0 1.1.1 eth1 1.1.2 wiphy0 1.1.3 wiphy1 1.1.4 wlan0 1.1.5 wlan1 1.1.6 vap0 1.2.0 eth0 1.2.1 eth1 1.2.2 wiphy0	
			Start Cl	ose

- A. Set Concurrent Ports to Reset to 5
- B. Set Minimum Time between Resets to 5 seconds
- C. and Maximum Time between Resets to 20 seconds
- D. ...and click Start

4. Observe Results

A. The Port Reset Test Results window will show the list of ports getting reset.

🔮 Graphical Script Report for: Port Reset Tes 🔪 🔷 🕈 🗕 🗆 🗙
Port Reset script requested values:
Concurrent Ports to Reset: Five (5)
Minimum Time between Resets: 5 seconds (5 s)
Maximum Time between Resets: 20 seconds (20 s)
Random Port Selection: false
Date: Thu May 29 13:35:50 PDT 2014
Build Date: Tue May 20 10:57:47 PDT 2014
Build Version: 5.2.12
Add Your Notes Below:
1401395999 969 reset port 1.2 sta6
1401305000 660 reset port 1 2 sta7
1401305000 070 reset port 1 2 sta8
1401395999 971 reset port 1 2 sta9
1401396012.250 reset port 1.2 sta0
1401396012.250 reset port 1 2 stal
1401396012.250 reset port 1 2 sta2
1401396012 251 reset port 1 2 sta3
1401396012.251 reset port 1.2 sta4
1401396030.832 reset port 1 2 sta5
1401396030.832 reset port 1 2 sta6
1401396030.832 reset port 1 2 sta7
1401396030.832 reset port 1 2 sta8
1401396030.832 reset port 1 2 sta9
1401396035.948 reset port 1.2 sta0
1401396035.948 reset port 1 2 stal
1401396035.948 reset port 1 2 sta2
1401396035.948 reset port 1 2 sta3
1401396035.948 reset port 1 2 sta4
1401396045.998 reset port 1 2 sta5
1401396045.998 reset port 1 2 sta6
1401396045.999 reset port 1 2 sta7
1401396045.999 reset_port 1 2 sta8
1401396045.999 reset_port 1 2 sta9
1401396052.644 reset_port 1 2 sta0
1401396052.645 reset_port 1 2 stal
1401396052.645 reset_port 1 2 sta2
1401396052.645 reset_port 1 2 sta3
1401396052.645 reset_port 1 2 sta4
1401396066.772 reset_port 1 2 sta5
1401396066.773 reset_port 1 2 sta6
1401396066.773 reset_port 1 2 sta7
1401396066.773 reset_port 1 2 sta8
1401396066.773 reset_port 1 2 sta9
1401396085.062 reset_port 1 2 sta0
1401396085.062 reset_port 1 2 stat
1401396085.062 reset_port 1 2 sta2
1401396085.062 reset_port 1 2 sta3
1401390003.002 reset port 1 2 sta4
Close Save File

B. The Layer-3 tab will show the amount of lost and dropped packets.

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<u>Control</u> Report	ing <u>T</u> ea	ar-Off <u>I</u> nfo	<u>P</u> lugins							
					Stop	All Rest	art Manager		Refresh	HELP
File-IO Laver	-4 Te	st Mar Te	st Group B	esource Mar	Event Log Ale	rts Port Mar	senessel			
Status	4 10.		aver-3		13 Endos	WanLin	ks	γ	Attenuators	
010100		1	.,						, accordatore	
Rpt Timer	Rpt Timer: fast (1 s) 🔻 Go Test Manager all 💌 Select All Start Stop Quiesce Clear									
View	0 - 20	0		🕶 Go		Display	Cr <u>e</u> ate	<u>M</u> odify	Delete	
					onnects for Select	ed Test Manager—				
	1									
Name	Туре	State	Pkt Tx A → B	Pkt Tx A ← B	Rate A → B	Rate A ← B	Rx Drop % A	Rx Drop % B	Drop Pkts A	Drop Pkts B
sta-trf06	LF/TCP	Run	37,168	37,167	244,535	244,529	0.296	0.517	110	192
sta-trf01	LF/TCP	Run	36,584	36,589	240,615	240,604	0.344	0.541	126	198
sta-trf07	LF/TCP	Run	36,944	36,943	243,062	243,055	0.3	0.536	111	198
sta-trf09	LF/TCP	Run	36,666	36,665	241,233	241,226	0.475	0.54	174	198
sta-trf04	LF/TCP	Run	36,613	36,613	240,884	240,884	0.497	0.56	182	205
sta-trf08	LF/TCP	Run	36,666	36,665	241,233	241,226	0.305	0.537	112	197
sta-trf05	LF/TCP	Run	36,779	36,779	241,976	241,976	0.517	0.579	190	213
sta-trf02	LF/TCP	Run	36,498	36,498	240,127	240,127	0.299	0.556	109	203
sta-trf03	LF/TCP	Run	36,670	36,670	241,259	241,259	0.303	0.559	111	205
sta-trf	LF/TCP	Run	36,737	36,739	241,651	241,634	0.544	0.593	200	218
•										•
Logged in to: 1	92.168	100.26:400	12 as: Admin	1						

C. We can graph the throughput of the connections with the Dynamic Report menu option

<u>ن</u>				LAN	lforge	Manager Versi	on(5.2.12)					↑ _ □ ×
<u>Control</u> <u>R</u> epor	ting <u>T</u> ea	ar-Off <u>I</u> nfo	<u>P</u> lugins									
						Stor	o All	Rest	art Manager		Refresh	HELP
File-IO Laye	File-IO Layer-4 Test Mgr Test Group Res					Event Log Ale	rts Port N	1gr N	lessages	~~~~~		
Status		[L	ayer-3			L3 Endps		WanLin	ks		Attenuators	6
Rpt Time	er: fast	(1 s)	Go Tes	st Mar	ager a	all 🗸	Select	All	Start	Stop Qu	iesce C	lear
View	0 - 20	0		-	Go		D	isplay	Cr <u>e</u> ate	Modify	Delete	
					Cross (Connects for Select	ed Test Man	ager—				
Name	Туре	State	Pkt Tx A → B	Pkt T	x A ← B	Rate A → B	Rate A	⊢B	Rx Drop % A	Rx Drop % B	Drop Pkts A	Drop Pkts B
sta-trf05	LE/TCP	Run	37 223		37 223	241.038	2	41 038	0.537	0.602	200	224
sta-trf	LF/TCP	WAITING	37,295		37,294	241,849	2	41,843	0.617	0.627	230	234
sta-trf09	LF/TCP	Run	37,227	[Ctort (Colostod		40,987	0.484	0.559	180	208
sta-trf08	LF/TCP	Run	37,218		Starts	selected		40,987	0.317	0.556	118	207
sta-trf07	LF/TCP	Run	37,524		Stop S	elected		42,968	0.309	0.552	116	207
sta-trf04	LF/TCP	WAITING	37,181		Clear	Selected		41,110	0.584	0.584	217	217
sta-trf03	LF/TCP	WAITING	37,238		Modify	Selected		41,480	0.379	0.583	141	217
sta-trf02	LF/TCP	WAITING	37,066		Displa	v Selected		40,364	0.391	0.58	145	215
sta-trf06	LF/TCP	Run	37,746		Dynam	ic Report		44,425	0.315	0.527	119	199
sta-trf01	LF/TCP	WAITING	37,139		Table	Report		40,825	0.399	0.584	148	217
					Count	Colocted						
					Coloui	selected						•
Logged in to:	102169	100.26-400			Calcul	ations						
Logged In to:	192.100.	100.20:400	72 as. Aumin		Add/R	e <u>m</u> ove Table Colum	ns					

D. In the *Dynamic Reports* window, we are graphing the **Rx-Bps** for each connection in axis-A, and in axis-B we are graphing the Rx-Bps for the upstream port, *eth1*



E. You will also want to watch for warnings and failures. In the *Alerts* tab, you will see persistent alerts. The alerts in this picture can be safely ignored:

<u></u>		LANforge M	lanager \	/ersion(5.2.12)		+ _ = >
<u>Control</u> <u>Reporting</u> <u>Tear-Off</u>	Info Plugins					
				Stop All Restart Manager	Refresh	HELP
File-IO Layer-4 Test Mgr	Test Group	Resource Mgr	Event Log	Alerts Port Mgr Messages		
Status	Layer-3	Ľ	3 Endps	WanLinks	Attenuator	s
				Select All]	
	1	1	Ale	1.5	1	
Time-Stamp	ID Priority	Name	Event	Event Description	Туре	EID
2014-05-29 10:10:35.208	781 Warning	wlan0	WiFi-Config	Port wlan0 has no WiFi SSID Configured	. Port	1.2.15
2014-05-29 10:10:35.245	787 Warning	wlan1	WiFi-Config	Port wlan1 has no WiFi SSID Configured	. Port	1.2.16
2014-05-29 10:10:35.283	793 Warning	wlan2	WiFi-Config	Port wlan2 has no WiFi SSID Configured	. Port	1.2.17

F. Check the *LANforge Wireless Events* window.You will see station connects and disconnects and failure notices. The messages shown in this picture are normal:

2014-05-29 14:03:57.201 1.2: sta6 (phy #0): disconnected (local request) 2014-05-29 14:03:57.201 1.2: sta6: new station 00:4fr.73:a3:47:ce 2014-05-29 14:03:57.201 1.2: sta6: new station 00:4fr.73:a3:47:ce	-
2014-05-29 14:03:57.201 1.2: sta6 (phy #0): assoc 00:4f:73:a3:47:ce > 00:0e:8e:67:06:e9 status: 0: Successful 2014-05-29 14:03:57.201 1.2: sta6 (phy #0): connected to 00:4f:73:a3:47:ce > 00:0e:8e:67:06:e9 status: 0: Successful 2014-05-29 14:03:57:201 1.2: sta6 (phy #0): connected to 00:4f:73:a3:47:ce 2014-05-29 14:09:57:201 1.2: sta6 (phy #0): connected to 00:4f:73:a3:47:ce 1	
2014-05-29 14:03:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h the IBSS or ESS 2014:05:57.201 1.2: sta7 (phy #0): deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauth 00:06:8e:62:c1:e9 \rightarrow 00:4f:73:a3:47:ce reason 3: Deauth 00:06:8e	as
2014-05-29 14:03:57.201 1.2: sta7: new station 00:4f;73:a3:47:ce 2014-05-29 14:03:57.201 1.2: sta7: new station 00:4f;73:a3:47:ce 2014-05-29 14:03:57.201 1.2: sta7: (phy #0): auth 00:4f;73:a3:47:ce -> 00:0e:8e:62:c1:e9 status: 0: Successful	
2014-05-29 14:03:57.201 1.2: sta7 (phy #0): assoc 00:41:3:a3:47:ce > 00:e8:e62:c1:e9 status: 0: successful 2014-05-29 14:03:57.201 1.2: sta7 (phy #0): connected to 00:4f:73:a3:47:ce 2014-05-29 14:03:57.201 1.2: sta8: del station 00:4f:73:a3:47:ce	
2014-05-29 14:03:57.201 1.2: sta8 (phy #0): deauth 00:0e:8e:cb:9e:e9 → 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or f the IBSS or ESS 2014-05-29 14:03:57.201 1.2: sta8 (phy #0): disconnected (local request)	as
2014-05-29 14:03:57.201 1.2: sta8: new station 00:41:73:a3:47:ce 2014-05-29 14:03:57.201 1.2: sta8 (phy #0): auth 00:4f:73:a3:47:ce -> 00:0e:8e:cb:9e:e9 status: 0: Successful 2014-05-29 14:03:57.201 1.2: sta8 (phy #0): assoc 00:4f:73:a3:47:ce -> 00:0e:8e:cb:9e:e9 status: 0: Successful	
2014-05-29 14:03:57.202 1.2: sta8 (phy #0): connected to 00:4f:73:a3:47:ce 2014-05-29 14:03:57.202 1.2: sta9: del station 00:4f:73:a3:47:ce 2014-05-29 14:03:57.202 1.2: sta9 (phy #0): deauth 00:0e:8e:d1:9b:e9 → 00:4f:73:a3:47:ce reason 3: Deauthenticated because sending station is leaving (or h	nas
the IBSS or ESS 2014-05-29 14:03:57.202 1.2: sta9 (phy #0): disconnected (local request) 2014-05-29 14:03:57.202 1.2: sta9: new station 00:4f;73:a3:47:ce	
2014-05-29 14:03:57.202 1.2: sta9 (phy #0): auth 00:4f:73:a3:47:ce -> 00:0e:8e:d1:9b:e9 status: 0: Successful 2014-05-29 14:03:57.230 1.2: sta9 (phy #0): assoc 00:4f:73:a3:47:ce -> 00:0e:8e:d1:9b:e9 status: 0: Successful 2014-05-29 14:03:57.230 1.2: sta9 (phy #0): connected to 10:4f.73:a3:47:ce	
Pause Close Save File	-

G. In the LANforge Messages window, you will see connection warnings. Connections will warn when their IP changes, and this is normal, as shown in this picture:

LANforge Messages (192.168.100.26:4002)	► ×
******* Thu May 29 14:06:24 PDT 2014 WARNING: Endpoint: sta-trf09-A is running and a change of the IPv4 address from: 10.26.4.51 to: 0.0.0.0 was dete endpoint.	cted on port: sta9. Automatically restarting this
******* Thu May 29 14:06:39 PDT 2014 WARNING: Endpoint: sta-trf01-A is running and a change of the IPv4 address from: 10.26.4.50 to: 0.0.0.0 was dete endpoint.	cted on port: stal. Automatically restarting this
******* Thu May 29 14:06:39 PDT 2014 WARNING: Endpoint: sta-trf-A is running and a change of the IPv4 address from: 10.26.4.48 to: 0.0.0.0 was detecte endpoint.	ed on port: sta0. Automatically restarting this
****** Thu May 29 14:06:39 PDT 2014 WARNING: Endpoint: sta-trf02-A is running and a change of the IPv4 address from: 10.26.4.44 to: 0.0.0.0 was dete endpoint.	cted on port: sta2. Automatically restarting this
****** Thu May 29 14:06:39 PDT 2014 WARNING: Endpoint: sta-trf03-A is running and a change of the IPv4 address from: 10.26.4.45 to: 0.0.0.0 was dete endpoint.	cted on port: sta3. Automatically restarting this
******* Thu May 29 14:06:39 PDT 2014 WARNING: Endpoint: sta-trf04-A is running and a change of the IPv4 address from: 10.26.4.43 to: 0.0.0.0 was dete endpoint.	cted on port: sta4. Automatically restarting this
	-
Pause Close Save File	

H. And in the Event Log tab, you can review more detailed link-up, link-down and connection events that occur with these station restarts:

			LANforge M	lanager \	/ersion(5.2.12)		+ _	□ ×
<u>Control</u> <u>Reporting</u> <u>Tear-Off</u>	f <u>I</u> nfo	<u>P</u> lugins						
					Chan All Destant Manager	Defeash		
					Stop All Restart Manager	Refresh	HE	ELP
		at Crown	Deseurse Mar	Fuentier	Alasta Dast Mar Massagaa			
File-IO Layer-4 Test Mg	gr ie	est Group	Kesource Mgr	Event Log	Alerts Port Mgr Messages			
Status	Li	ayer-3		3 Enaps	WanLinks A	ttenuators	3	
Configure Events					Select All Create Modify Dela	to		
Configure Events					Select All Cleate Modily Dele			
				Eve	ents			
Time-Stamp	ID	Priority	Name	Event	Event Description	Туре	EID	
2014-05-29 14:07:59.178	7783	mio	sta-triu7-B	Endp-Start	Starting: sta-trio7-B Reason: checkivonPhantom:	Enapoint	1.2.1	
2014-05-29 14:07:59.179	7784	Info	sta-trru8-A	Endp-Start	Starting: sta-triue-A Reason: checkNonPhantom:	Endpoint	1.2.11	
2014-05-29 14:07:59.179	7785	Into	sta-trru8-B	Endp-Start	Starting: sta-trru8-B Reason: checkNonPhantom:	Endpoint	1.2.1	
2014-05-29 14:07:59.179	7707	Into	sta-tri09-A	Endp-Start	Starting: sta-tro9-A Reason: checkNonPhantom:	Endpoint	1.2.12	
2014-05-29 14:07:59.179	7700	INTO	sta-trru9-B	Endp-Start	Starting: sta-troug-B Reason: checkwonPhantom:	Endpoint	1.2.1	
2014-05-29 14:08:07.861	7700	Into	stau	Link-Down	Port stau is Link DOWN.	Port	1.2.2	
2014-05-29 14:08:07.861	7700	Into	stat	Link-Down	Port stal is Link DOWN.	Port	1.2.4	
2014-05-29 14:08:07.861	7790	Info	stau	Link-Up	Port stal is Link UP.	Port	1.2.2	
2014-05-29 14:08:07.801	7702	Info	stal	Link-Op	Port stal is Link OF.	Port	1.2.4	
2014-05-29 14:08:07.861	7702	Info	staz	Link-Down	Port sta2 is Link DOWN.	Port	1.2.5	
2014-05-29 14:08:07.801	7704	Info	staz	Link-Op	Port sta2 is Link OF.	Port	1.2.5	
2014-05-29 14:08:07:801	7705	Info	sta2	Link-Down	Port sta2 is Link DOWN.	Port	1.2.0	
2014-05-29 14:08:07.801	7706	Info	stad	Link-Op	Port stad is Link DOWN	Port	1.2.0	
2014-05-29 14:08:07:801	7797	Info	eta/	Link-Uo	Port sta4 is Link DOWN.	Port	1.2.7	
2014-05-29 14:00:07:097	7000	Info	sta4	Link-Op	Port sta4 is Link DOWN	Port	1.2.7	
2014-05-29 14:08:07:897	7901	Info	stat	Disconnect	sta0 (pby #0); disconnected (local request)	Port	1.2.2	
2014-05-29 14:08:07 929	7804	Info	stal	Link-Down	Port stal is Link DOWN	Port	124	
2014-05-29 14:08:07 929	7805	Info	etal	Disconnect	stal (nby #0); disconnected (local request)	Port	124	
2014-05-29 14:08:07 929	7806	Info	sta0	Link-Un	Port sta0 is Link UP	Port	122	
2014-05-29 14:08:07 929	7807	Info	sta0	Connect	sta0 (phy #0): connected to 00:4f:73:a3:47:ce	Port	1.2.2	
2014-05-29 14:08:07 964	7808	Info	stal	Link-Un	Port stal is Link UP	Port	124	
2014-05-29 14:08:07.964	7809	Info	stal	Connect	stal (phy #0): connected to 00:4f:73:a3:47:ce	Port	1.2.4	
2014-05-29 14:08:08.025	7812	Info	sta2	Link-Down	Port sta2 is Link DOWN.	Port	1.2.5	
2014-05-29 14:08:08.025	7813	Info	sta2	Disconnect	sta2 (phy #0): disconnected (local request)	Port	1.2.5	
2014-05-29 14:08:08.025	7814	Info	sta2	Link-Up	Port sta2 is Link UP.	Port	1.2.5	
2014-05-29 14:08:08.025	7815	Info	sta2	Connect	sta2 (phy #0); connected to 00:4f:73:a3:47:ce	Port	1.2.5	
2014-05-29 14:08:08.094	7818	Info	sta3	Link-Down	Port sta3 is Link DOWN.	Port	1.2.6	
2014-05-29 14:08:08.094	7819	Info	sta3	Disconnect	sta3 (phy #0); disconnected (local request)	Port	1.2.6	
2014-05-29 14:08:08.094	7820	Info	sta3	Link-Up	Port sta3 is Link UP.	Port	1.2.6	
2014-05-29 14:08:08.094	7821	Info	sta3	Connect	sta3 (phy #0): connected to 00:4f:73:a3:47:ce	Port	1.2.6	
2014-05-29 14:08:08.157	7824	Info	sta4	Link-Down	Port sta4 is Link DOWN.	Port	1.2.7	
2014-05-29 14:08:08.157	7825	Info	sta4	Disconnect	sta4 (phy #0): disconnected (local request)	Port	1.2.7	
2014-05-29 14:08:08.157	7826	Info	sta4	Link-Up	Port sta4 is Link UP.	Port	1.2.7	
2014-05-29 14:08:08.157	7827	Info	sta4	Connect	sta4 (phy #0): connected to 00:4f:73:a3:47:ce	Port	1.2.7	
2014-05-29 14:08:08.217	7798	Info	sta-trf-A	Endp-Stop	Stopping: sta-trf-A Reason: IP changed.	Endpoint	1.2.2	
2014-05-29 14:08:08.217	7799	Info	sta-trf-B	Endp-Stop	Stopping: sta-trf-B Reason: notifyEndpStopping.	Endpoint	1.2.1	
2014-05-29 14:08:08.218	7802	Info	sta-trf01-A	Endp-Stop	Stopping: sta-trf01-A Reason: IP changed.	Endpoint	1.2.4	
2014-05-29 14:08:08.218	7803	Info	sta-trf01-B	Endp-Stop	Stopping: sta-trf01-B Reason: notifyEndpStopping.	Endpoint	1.2.1	
2014-05-29 14:08:08.219	7810	Info	sta-trf02-A	Endp-Stop	Stopping: sta-trf02-A Reason: IP changed.	Endpoint	1.2.5	
2014-05-29 14:08:08.219	7811	Info	sta-trf02-B	Endp-Stop	Stopping: sta-trf02-B Reason: notifyEndpStopping.	Endpoint	1.2.1	
2014-05-29 14:08:08.220	7816	Info	sta-trf03-A	Endp-Stop	Stopping: sta-trf03-A Reason: IP changed.	Endpoint	1.2.6	
2014-05-29 14:08:08.220	7817	Info	sta-trf03-B	Endp-Stop	Stopping: sta-trf03-B Reason: notifyEndpStopping.	Endpoint	1.2.1	
2014-05-29 14:08:08.221	7822	Info	sta-trf04-A	Endp-Stop	Stopping: sta-trf04-A Reason: IP changed.	Endpoint	1.2.7	
2014-05-29 14:08:08.221	7823	Info	sta-trf04-B	Endp-Stop	Stopping: sta-trf04-B Reason: notifyEndpStopping.	Endpoint	1.2.1	
Logged in to: 192.168.100.	26:400)2 as: Ad	min					-

I. Use these monitoring sources to check for undesirable trends:

- Undesirable slowing trend in traffic
- stations that do no return
- DHCP failures or pool exhaustion
- or uncommonly long station re-association events

5. Halt the test when you are finished.

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Concurrent Ports to Reset: Five (5) I Minimum Time between Resets: 5 seconds (5 s) I Maximum Time between Resets: 20 seconds (20 s) I Random Port Selection Image: Concurrent Ports Selection Image: Concurrent Ports Selection Image: Concurrent Ports Selection Ports in Use Free Ports Image: Concurrent Ports Selection Image: Concurrent Ports Selection Ports sta2 Image: Concurrent Ports Image: Concurrent Ports Image: Concurrent Ports Image: Concurrent Ports 1.2.4 sta1 Image: Concurrent Ports 1.2.4 sta1 Image: Concurrent Ports Image: ConcurrentPorte Image: Concurrent Ports<	<u>المعامة المعامة المعام</u>	Port Reset	Test	÷.	>
Minimum Time between Resets: 5 seconds (5 s) 1 Maximum Time between Resets: 20 seconds (20 s) 1 Random Port Selection Ports Selection Ports in Use Free Ports 1.2.2 sta0 1.0.0 eth0 1.1.0 eth0 1.2.5 sta2 1.1.1 eth1 1.1.2 wiphy0 1.2.7 sta4 1.1.3 wiphy1 1.1.3 wiphy1 1.2.9 sta6 Remove Ports ->> 1.1.5 wlan1 1.2.10 sta7 1.2.0 eth0 1.2.1 eth1 1.2.12 sta9 1.2.1 eth1 2.3 winby0	Concurrent Ports to Rese	it:	Five	(5)	•
Maximum Time between Resets: 20 seconds (20 s) Random Port Selection Ports in Use Free Ports 1.2.2 sta0 1.0.0 eth0 1.2.4 sta1 1.0 eth0 1.2.5 sta2 1.1.1 eth1 1.2.6 sta3 << Add Ports	Minimum Time between R	esets:	5 seconds	(5 s)	•
Random Port Selection Ports in Use Free Ports 1.2.2 sta0 1.0.0 eth0 1.1.0 eth0 1.2.5 sta2 1.0.0 eth0 1.1.1 eth1 1.2.6 sta3 << Add Ports	Maximum Time between F	Resets:	20 seconds	(20 s)	•
Ports in Use Free Ports 1.2.2 sta0 1.0.0 eth0 1.1.0 eth0 1.2.4 sta1 1.1.0 eth0 1.1.1 eth1 1.2.5 sta2 1.1.2 wiphy0 1.1.3 wiphy1 1.2.7 sta4 1.1.3 wiphy1 1.1.4 wlan0 1.2.9 sta6 Remove Ports ->> 1.1.5 wlan1 1.2.10 sta7 1.2.0 eth0 1.2.1 eth1 1.2.12 sta9 1.2.1 eth1 1.2.2 wiphy0			Random	Port Selection	
Ports in Use Free Ports 1.2.2 sta0 1.0.0 eth0 1.1.0 eth0 1.2.5 sta2 1.1.1 eth1 1.1.2 wiphy0 1.2.7 sta4 1.1.3 wiphy1 1.1.3 wiphy1 1.2.9 sta6 Remove Ports ->> 1.1.5 wlan1 1.2.10 sta7 1.1.6 vap0 1.2.0 eth0 1.2.12 sta9 1.2.1 eth1 1.2.1 eth1		Ports S	election		
1.2.2 sta0 1.0.0 eth0 1.2.4 sta1 1.1.0 eth0 1.2.5 sta2 1.1.1 eth1 1.2.6 sta3 << Add Ports	Ports in Use			Free Ports	
	1.2.2 sta0 1.2.4 sta1 1.2.5 sta2 1.2.6 sta3 1.2.7 sta4 1.2.8 sta5 1.2.9 sta6 1.2.10 sta7 1.2.11 sta8 1.2.12 sta9	Remove F	dd Ports Ports>>	1.0.0 eth0 1.1.0 eth0 1.1.1 eth1 1.1.2 wiphy0 1.1.3 wiphy1 1.1.4 wlan0 1.1.5 wlan1 1.1.6 vap0 1.2.0 eth0 1.2.1 eth1 1.2.3 wiphy0	

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