

Multiple Thousands of UDP Connections

Goal: Set up and run traffic on multiple thousands of UDP connections.

LANforge-FIRE has the capability to create multiple thousands of UDP connections using only two ports. This example creates 1000 Layer-3 connections between two sets of 1000 MAC-VLANS that can all run simultaneously. This feature can be used to test stateless connection services such as DNS, DHCP, and file streaming systems.

The upper limit of the total number of concurrent connections is determined by the processor speed and total memory available on the system running the LANforge server software. In addition, the packet rate and payload size of each connection will also affect performance. Larger packet sizes take less CPU time to process.

NOTE: If you are attempting to run this test scenario, you will need a LANforge license key that enables the correct number of ports. Please contact us at support@candelatech.com for assistance.





1. For this example, we are using a CT503-MIX 1Gx4 with multiple 10 Gigabit fiber NICs. We have cabled two physical ports on this single LANforge system together. Our plan of action will be to create 1000 MAC-VLANs on each port as endpoints for 1000 Layer-3 UDP cross connections.



- A. **Connection Suggestion:** If you are using the LANforge GUI Client remotely connected to your LANforge Server (like using a VPN), this process will appear rather sluggish. This suggishness is caused by the volume of reporting traffic flowing to the GUI. We suggest you connect to the LANforge Server desktop using Remote Desktop or VNC.
- B. Reporting Suggestion: When creating 2000 MAC-VLANs and 1000 Layer-3 connections, we are actually creating 2000 + (3 x 1000) = 5000 reportable entities that could generate up to 5000 x 4kB = 20,000kB of traffic per reporting interval. We intentionally set our reporting intervals low (10 or more seconds) to keep the GUI client responsive.
- Set up two physical ports so that they have 0.0.0.0 IP addresses and IP masks. We will choose eth4 and eth5 for this example. We will base our MAC-VLANs off these two physical ports. Set the reporting level for these two ports to a low frequency: 30 sec.
 - A. In the LANforge GUI, go to the Port Manager tab.

4					L	ANforge	Manager Ver	sion(5.3.3)					
<u>C</u> ontrol	Repor	ting 1	ear-Off <u>I</u> nfo <u>P</u> lu	gins									
							Stop All	F	Restart Ma	anager		Refresh	HELP
	~		v v		~~~	-							
File-IO	Lay	yer-4	Generic Tes	t Mg	lest	Group	Resource M	gr Event	t Log Al	erts P	ort Mgr M	essages	
Status	La	ayer-3	L3 Endps	VoIP/	RTP V	oIP/RTP	Endps Arr	nageddon	WanL	nks A	ttenuators	Collision	-Domains
Di	isp: 1	92.168	.100.133:0.0	Sr	niff Packe	ets	Clear C	ounters	Reset	Port	Delete		
R	ot Tim	er: me	dium (8 s) 🔻		Apply		<u>V</u> iew [Details	Cr <u>e</u> a	te	Modify	Batch Mo	dify
					-All Eth	ernet In	terfaces (Por	ts) for all I	Resources	6			
Port	Pha	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.0			192.168.100.145	0	eth0		9,738,092	77,793	17	12,878	411,759,752	2 303,292	15 🔺
1.1.1			0.0.0.0	0	ethl		0	0	0	0	(0 0	0
1.1.2			0.0.0.0	0	eth2		0	0	0	0	1,664	1 20	0 =
1.1.3			0.0.0.0	0	eth3		0	0	0	0	1,664	1 20	0
1.1.4			0.0.0.0	0	eth4		0	0	0	0	(0	0
1.1.5			0.0.0.0	0	etn5		0	0	0	0	(0	
		11											
Logged	d in to	: If100	05c-is14120020:4	002	as: Adm	in							

B. Assign IP addresses and masks to the two ports.

		Type: Ethernet Dri	iver: ixgbe(4.0.1-k)	Bus: 0000:02:	00.0 Cu	ır: 5GT/s x8 Max: 5GT/s x8	
			Port Configur	ables			
Enable ——		General Int	erface Settings		1	Port Rates	Advert Rates
Set IF Down Set MAC	Down	Aux-Mgt				○ 10bt-HD ○ 10bt-FD ○ 100bt-HD	10bt-HD
Set TX Q Len	DHCP-IPv6	DHCP Release	DHCP Vendor ID:	None	-	0 100bt-FD	100bt-HD
Set MTU		Secondary-IRc	DHCP Client ID:	None		1000-PD 1000-PD 1000-PD 1000-PD	100bt-FD
Set Offload		DI ANIC	Dece Up	None		O 40G-FD O Autonegotiate	1000-FD
Set Rate Info	ID Addresset		Peer IP:	NA		1.0	10G-FD
Set PROMISC	IP Address:	0.0.0.0	GIODAI IPV6:	AUTO		Renegotiate	40G-FD
Set Rx-All/FCS	IP Mask:	0.0.0.0	LINK IPV6:	AUTO		Restart Xcvr	Flow-Contro
Set Bypass	Gateway IP:	0.0.0.0	IPv6 GW:	AUTO		PROMISC	
Set Bridge Info	Alias:		MIU:	1500		RX-ALL	Offload
Set CPU Mask	MAC Addr:	00:e0:ed:2c:0b:86	TX Q Len	1000		RX-FCS	TSO Enable
-Services -	Br Cost:	Ignore 💌	Priority:	Ignore	-	Bypass NOW!	UFO Enable
НТТР	Rpt Timer:	slower (30 s) 🔻	Watchdog:	0	-	Bypass Power-UP	GSO Enable
FTP	CPU Mask:	NO-SET 💌	WiFi Bridge:	NONE	-	Bypass Power-DOWN	
RADIUS						Bypass Disconnect	

C. Verify the port configuration.

For more information see LANforge User's Guide: Ports (Interfaces)

- 3. We will use the Port Batch Create tool to create 1000 MAC-VLANs on each of the two ports. These MAC-VLAN ports should report more frequently than the parent ports: set them to report every 15 seconds. We also want to create MAC addresses that are distinct for these two groups: the first three octets will match the parent port, but we will set their fourth octets to 04 and 05 to remind us of their parent ports. The following two octets will be random (specified with '*').
 - A. In the **Ports** tab, highlight port **eth4** and click the **Create** button.

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<u>C</u> ontrol	Repor	ting 1	ear-Off Info	<u>P</u> lu	gins										
								Stop	All	F	lestart M	anager		Refresh	HELP
	-v		V - ·	v -		~	-			v					
File-IO	Lay	er-4	Generic	les	t Mgr	lest	Group	Resource	e Mgr	Event	Log A	erts I	Port Mgr M	essages	
Status	La	yer-3	L3 Endp	IS	VoIP/	RTP	OIP/RTP	Endps	Armag	geddon	WanL	inks /	Attenuators	Collision	1-Domains
Di	sp: 19	92.168	.100.133:0.	0	Sn	iff Pack	ets	Clea	r Cour	nters	Reset	Port	Delete		
Rp	ot Time	er: me	dium (8 s)	-		Apply		<u>V</u> ie	w Det	ails	Cr <u>e</u> a	te	Modify	Batch Mo	dify
		_		_		-All Eth	nernet In	terfaces (Ports)	for all I	Resource	s			
Port	Pha	Down	IP		SEC	Alias	Parent Dev	RX Bytes	R)	K Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.0			192.168.10	0.145	0	eth0		11,288,3	86	94,453	16	12,653	418,918,121	316,454	12 🔺
1.1.1			0.0.0.0		0	ethl			0	0	0	0	(0 0	0
1.1.2			0.0.0.0		0	eth2			0	0	0	0	1,664	20	0
1.1.3			0.0.0.0		0	eth3			0	0	0	0	1,664	1 20	0
1.1.4			0.0.0.0		0	eth4			0	0	0	0	(0 0	0
1.1.5			0.0.0.0		0	eth5			0	0	0	0	(0 0	0 -
4															•
Logged	l in to:	If10	05c-is14120	020:4	002	as: Adn	nin								

B. Follow the these steps to create 1000 MAC-VLANs on the port.

\$			Create VLANs on Port: 1.1.4		
0	MAC-VLAN WiFi STA	○ 802.1Q-VLAN ○ ○ WiFi VAP ○ WiFi N	Redirect 🛛 Bridge 🔷 GRE Tunnel Aonitor 🔷 WiFi Virtual Radio		
0	Shelf:	1	Resource: 1 (lf1005c-is14120020) 💌	Port: 4 (eth4) 🔻
0	VLAN ID:		DHCP-IPv4		
e	Parent MAC:	00:e0:ed:2c:0b:87	DHCP Client ID: None		
	MAC Addr:	xx:xx:xx:04:*:* 🔻	IP Address: 172.16.1.1	Global IPv6:	AUTO
	Quantity:	1000	IP Mask or Bits: 255.255.0.0	Link IPv6:	AUTO
			Gateway IP:	IPv6 GW:	AUTO
	#1 Redir Name:		#2 Redir Name:		
	STA ID:		SSID:		-
	WiFi AP:		Key/Phrase:		
	WPA	WPA2	WEP		
0	Down				
	Apply	<u>C</u> ancel			

- A. Create a MAC Address pattern similar to the parent MAC address pattern: 00:e0:ed:30:*:*
- B. Set Quantity to 1000
- C. Set an initial IP Address: 172.16.1.1
- D. Set the IP Mask: 255.255.0.0
- E. Click **Apply**, this takes a second to start.
- F. You do not need to close the **Create** window.

C. Repeat the previous step with these changes to create the next 1000 MAC-VLANs on port eth5.

\$			Create VLANs on Port: 1.1.4		
0	MAC-VLAN WiFi STA	○ 802.1Q-VLAN ○ ○ WiFi VAP ○ WiFi M	Redirect O Bridge O GRE Tunnel Aonitor O WiFi Virtual Radio		
0	Shelf:	1 💌	Resource: 1 (lf1005c-is14120020) 🔻	Port: 5 (eth5) 💌
0	VLAN ID:		DHCP-IPv4		
e	Parent MAC:	00:e0:ed:2c:0b:86	DHCP Client ID: None		
	MAC Addr:	xx:xx:05:*:*	IP Address: 172.16.10.1	Global IPv6:	AUTO
	Quantity:	1000	IP Mask or Bits: 255.255.0.0	Link IPv6:	AUTO
			Gateway IP:	IPv6 GW:	AUTO
	#1 Redir Name:		#2 Redir Name:		
	STA ID:		SSID:		
	WiFi AP:		Key/Phrase:		
	WPA	WPA2	WEP		
0	Down				
	Apply	<u>C</u> ancel			

- A. Create a MAC Address pattern similar to the parent MAC address pattern: 00:e0:ed:05:*:*
- B. Set Quantity to 1000
- C. Set an initial IP Address: 172.16.10.1
- D. Set the IP Mask: 255.255.0.0
- E. Click **Apply**, this takes a second to start.
- F. When the progress bar switches to Ready you can click **Cancel** to close the Create window.
- D. Check the **Ports** tab to watch the IP addresses get assigned to the MAC-VLANs. This will take 5 or more minutes.

					LANF	orge Mai	nager Versio	n (5.3.3)					
ontrol	Repor	ting]	[ear-Off Info Pl	ugins									
							Stop All	Res	tart Mana	aer	Re	fresh	HELP
						L				3			
File-IO	Lay	er-4	Generic Te	st Mgr	Test Gro	up Re	esource Mgr	Event L	og Alert	s Port	Mgr Messa	ages	
Status	La	yer-3	L3 Endps	VoIP/	RTP VolP	RTP End	dps Armag	geddon	WanLinks	s Atte	nuators C	ollision-Do	mains
Di	ien: 1	02160	100 122 0 0	6.	iff Dackota		Close Cour	tore	Pacat Da	t D	alota		
D	isp. I	92.108	3.100.133:0.0	51	in Packets		clear cour	iters	Reset Pol		elete		
R	pt Tim	er: me	dium (8 s) 🔻		Apply		View Det	ails	Create	M	odify <u>B</u> a	tch Modify	/
					-All Ethern	et Inter	faces (Ports)	for all Res	sources				
Port	Pha	Down	IP	SEC	Alias	Parent	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps '
						00.							
.1.1			172.16.10.106	0	eth5#105	eth5	0	0	0	0	1,296	16	
1.1			172.16.10.105	0	eth5#104	eth5	0	0	0	0	1,296	16	
.1.1			172.16.10.104	0	eth5#103	eth5	0	0	0	0	1,296	16	
.1.1			1/2.16.10.103	0	eth5#102	eth5	0	0	0	0	1,296	16	
.1.1			1/2.16.10.102	0	eth5#101	eth5	0	0	0	0	1,296	16	
.1.1			172.16.10.101	0	eth5#100	eth5	0	0	0	0	1,296	16	
.1.1			172.16.10.11	0	eth5#10	eth5	0	0	0	0	1,476	18	
.1.1			172.16.10.2	0	eth5#1	eth5	0	0	0	0	1,554	19	
.1.1			172.16.10.1	0	eth5#0	eth5	0	0	0	0	1,386	17	
.1.0			0.0.0.0	0	eth5		164	2	0	0	1,385,728	16,286	
.1.1			172.16.4.232	0	eth4#999	eth4	468	6	0	0	1,296	16	
.1.1			172.16.4.231	0	eth4#998	eth4	1,248	16	0	0	1,296	16	
1.1			172.16.4.230	0	eth4#997	eth4	0	0	0	0	1,296	16	
.1.1			172.16.4.229	0	eth4#996	eth4	468	6	0	0	1,296	16	
1.1			172.16.4.228	0	eth4#995	eth4	780	10	0	0	1,296	16	
.1.1			172.16.4.227	0	eth4#994	eth4	468	6	0	0	1,296	16	
(
_													

E. Adjust the Report Timer.

							Stop All	Res	tart Mana	ger	Re	fresh	HEI
le-IO	La	yer-4	Generic T	est Mgr	Test Gro	up Re	esource Mgr	Event L	og Alert	s Port	Mgr Mess	ages	
tatus	L	ayer-3	L3 Endps	VoIP/	RTP VolP	RTP End	ips Armag	eddon	WanLink	s Atte	nuators (ollision-Dom	ain
Di	isn [.]	0216	B 100 133 0 0	Sr	iff Dackets		Clear Cour	tors	Reset Por		oloto		
		52.10	5.100.155.0.0		IIII Fackets		cical cour		Reservoi				-
R	pt Tin	ier: s	low (15 s)		Apply		View Det	ails	Create	<u>M</u>	odify <u>B</u> a	atch Modify	
	i i	Ŷ	Ē.	-	All Ethern	et Inter	faces (Ports)	for all Re	sources			1	_
Port	Pha.	Dowr	ı IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts F	Pps
			172.16.1.35	0	eth4#34	eth4	1,092	14	0	0	1,554	19	
			172.16.1.34	0	eth4#33	eth4	1,170	15	0	0	1,484	18	
			172.16.1.33	0	eth4#32	eth4	546	7	0	0	1,484	18	
0			172.16.1.32	0	eth4#31	eth4	312	4	0	0	1,734	21	
0			172.16.1.31	0	eth4#30	eth4	858	11	0	0	1,414	17	
0			172.16.1.30	0	eth4#29	eth4	468	6	0	0	1,664	20	_
			172.16.1.29	0	eth4#28	eth4	624	8	0	0	1,644	20	_
0			172.10.1.28	0	eth4#2/	eth4	024	8	0	0	1,734	21	
0			17216126	0	eth4#20	eth4	026	12	0	0	1,734	21	
0	H		17216125	0	eth/#2/	eth/	312	12	0	0	1,734	18	
.0	H		172.16.1.24	0	eth4#23	eth4	624	8	0	0	1,414	17	
.0	H		172.16.1.23	0	eth4#22	eth4	936	12	0	0	1,734	21	
0	H		172.16.1.22	0	eth4#21	eth4	156	2	0	0	1,664	20	
0			172.16.1.21	0	eth4#20	eth4	1,326	17	0	0	1,664	20	
0			172.16.1.20	0	eth4#19	eth4	624	8	0	0	1,734	21	
0			172.16.1.19	0	eth4#18	eth4	624	8	0	0	1,734	21	
0			172.16.1.18	0	eth4#17	eth4	468	6	0	0	1,734	21	
L.O			172.16.1.17	0	eth4#16	eth4	1,170	15	0	0	1,484	18	
0			172.16.1.16	0	eth4#15	eth4	702	9	0	0	1,406	17	
0			172.16.1.15	0	eth4#14	eth4	156	2	0	0	1,476	18	
0			172.16.1.14	0	eth4#13	eth4	936	12	0	0	1,714	21	
0			172.16.1.13	0	eth4#12	eth4	0	0	0	0	1,484	18	
0			172.16.1.12	0	eth4#11	eth4	156	2	0	0	1,484	18	
0			172.16.1.11	0	eth4#10	eth4	468	6	0	0	1,476	18	
0			172.16.1.10	0	eth4#9	eth4	468	6	0	0	1,734	21	
			172.16.1.9	0	eth4#8	eth4	624	8	0	0	1,484	18	
0			172.10.1.8	0	eth4#7	eth4	200	11	0	0	1,484	10	
0	H		1721616	0	eth4#5	eth4	156	2	0	0	1,334	19	
.0	HH		172.16.1.5	0	eth4#4	eth4	130	2	0	0	1,404	19	
.0	H		172.16.1.4	0	eth4#3	eth4	1.638	21	0	0	1,484	18	
	H	TH	172.16.1.3	0	eth4#2	eth4	546	7	0	0	1.476	18	
			172.16.1.2	0	eth4#1	eth4	156	2	0	0	1,554	19	
0			172.16.1.1	0	eth4#0	eth4	468	6	0	0	1,386	17	
.0			0.0.0.0	0	fcoel		0	0	0	0	0	0	
			0.0.0.0	0	fcoe0		0	0	0	0	0	0	
			0.0.0.0	0	eth5		164	2	0	0	1,385,728	16,286	
			0.0.0.0	0	eth4		34,276	418	0	0	1,369,546	16,095	
			0.0.0.0	0	eth3		0	0	0	0	1,664	20	
0			0.0.0.0	0	eth2		0	0	0	0	1,664	20	
0			0.0.0.0	0	ethl		0	0	0	0	0	0	
0			192.168.100.1	45 0	eth0		43,279,207	224,696	112	264,500	904,063,970	694,811	

A. Click the Column header labeled **Port** to sort all the newly created MAC-VLANs to the top.

B. Select all the MAC-VLANs.

C. Change the **Rpt Timer** setting to slow (15 s)

D. Click Apply.

- 4. Create Cross Connects between the MAC-VLANs. We can create all these cross connections in two steps. First we will create the first cross-connect. Next, we will batch-create the remaining 999 cross connections using the first as a template.
 - A. Switch to the Layer-3 tab and click the Create button to see the Create/Modify Cross Connect window.

<u></u>			LANforge	Manager Versior	(5.3.3)			
<u>Control</u> <u>Reporting</u>	g <u>T</u> ear-Off <u>I</u> nfo	Plugins						
				Stop All	Restart N	Manager	Refresh	HELP
File-IO Layer	-4 Generic	Test Mgr T	est Group	Resource Mgr	Event Log	Alerts Port Mgr	Messages	
Status Laye	r-3 L3 Endps	VoIP/RTP	VoIP/RTF	PEndps Armag	eddon Wan	Links Attenuat	ors Collision-D	omains
Rpt Timer:	default (5 s)	▼ Go Tes	t Manager	all	Select A	ll Start Stop	Quiesce Cle	аг
View	0 - 200		▼ Go		Disp	lay Cr <u>e</u> ate <u>M</u>	odify Delete]
			Cross Con	nects for Selected	Test Manager			
Name	Type State	Pkt Rx A	Pkt Rx B	Bps Rx A	Bps Rx B	Rx Drop % A Rx Dro	op % B Drop Pkts A	Drop Pkts
								Þ
Logged in to: If	f1005c-is1412002	20:4002 as:	Admin					

B. Set up the cross connection between the first two MAC-VLANs.

_	eg13cx - Crea	te/	Modify Cross Connect	- • ×
+ - All	Display Syn	С	Batch-Create	Apply OK Cancel
CX Name: CX Type:	Cross-Connect eal3cx LANforge / UDP			-
	Endpoint A		Endpoint B	
Resource:	1 (lf1005c-is14120020)	•	1 (lf1005c-is14120020)	-
Port:	8 (eth4#0)	•	1008 (eth5#0)	•
Min Tx Rate:	New Modem (56 Kbps)	•	New Modem (56 Kbps)	•
Max Tx Rate:	Same	•	Same	-
Min PDU Size:	9000 (9,000 B)	•	9000 (9,000 B)	•
Max PDU Size:	Same	-	Same	•
IP ToS:	Best Effort (0)	•	Best Effort (0)	•
Pkts To Send:	Infinite	-	Infinite	•

- A. Connection name: eg13cx
- B. Port, TX Endpoint: eth4#0
- C. Port, RX Endpoint: eth5#0
- D. Min PDU Size: 9,000 B
- E. Click the **OK** button to save.

C. In the Layer-3 tab...

<u></u>					LANforge	Manager Version	(5.3.3)				
<u>Control</u> <u>R</u>	eporting	<u>T</u> ea	ar-Off <u>I</u> nfo	Plugins							
						Stop All	Restart M	anager		Refresh	HELP
File-IO Status	Layer Layer	-4 r-3	Generic L3 Endps	Test Mgr VoIP/RTP	Test Group VoIP/RTF	Resource Mgr PEndps Armag	Event Log A eddon WanL	lerts Por inks Atte	t Mgr Mes enuators	sages Collision-D	omains
Rpt	Timer:	defa	ult <mark>(</mark> 5 s)	▼ Go Te	st Manager	all 🔻	Select All	Start	Stop Qu	iesce Cle	ar
Vie	w	0 - 2	00		▼ Go		Displa	ay Cr <u>e</u> ate	e <u>M</u> odify	Delete]
					-Cross Con	nects for Selected	Test Manager-			-C	
Nam	e .	Туре	State	Pkt Rx A	Pkt Rx B	Bps Rx A	Bps Rx B	Rx Drop % A	Rx Drop % B	Drop Pkts A	Drop Pkt
eg13cx	LF	/UDP	Stopped	0	0	0	0	0	0	0	
•					III.						•
Logged i	n to: If	1005	c-is141200	20:4002 as:	Admin						

- A. Select the cross-connect eg13cx
- B. Click **Modify** in the **Layer-3** tab.
- D. Click Batch Create in the Create/Modify Cross Connect window.

<u>المعامم المعامم ومامم وموامم وما معامم وموامم ومامم وما معامم وموامم ومامم ومامم وموامم ومامم وموامم وموامم ومامم وموامم و </u>	eg13cx - Crea	te/	Modify Cross Connect			
+ - All	Display Sync	:	Batch-Create	Apply	у ок	Cancel
CX Name: CX Type:	Cross-Connect eq13cx LANforge / UDP		•	•		
Resource:	Endpoint A 1 (lf1005c-is14120020)	•	Endpoint B 1 (lf1005c-is14120020)	-		
Port:	8 (eth4#0)	•	1008 (eth5#0)	-		
Min Tx Rate:	New Modem (56 Kbps)	-	New Modem (56 Kbps)	-		
Max Tx Rate:	Same	-	Same	-		
Min PDU Size:	9000 (9,000 B)	•	9000 (9,000 B)	-		
Max PDU Size:	Same	-	Same	-		
IP ToS:	Best Effort (0)	-	Best Effort (0)	-		
Pkts To Send:	Infinite	-	Infinite	-		

E. We can create cross connects in one batch. Using the Layer-3 Batch Creator window:

<u></u>	Layer-3 B	atch Creator: eg13cx		الالا
eg13cx0001, eg13cx00	02 eg13cx	0999		
Endp-A Resources: 1,	11			
Endp-B Resources: 1,	11			
Endp-A Ports: et	h4#1, eth4#	2 eth4#999		
Endp-B Ports: et	h5#1, eth5#	2 eth5#999		
Endp-A IPs: AU	JTO, AUTO	. AUTO		
Endp-B IPs: AL	ло, аито	. AUTO		
Quantity:	999	Number of Digits:	4	Zero Pa
Starting Name Suffix:	1	Name Increment:	1	
Resource Increment A:	0	Resource Increment B:	0	
Port Increment A:	1	Port Increment B:	1	
IP Addr Increment A:	0	IP Addr Increment B:	0	
IP-Port Increment A:	1	IP-Port Increment B:	1	
	Арр	oly Close		

- A. Specify for **Quantity**: 999. This brings us to 1000 cross connects.
- B. Starting Name Suffix: 1
- C. Click the **Apply** button to create the cross connects.
- F. Expect the system to work for a few minutes while it creates the cross connects.

When creating lots of entities at once, the system may be sluggish for a minute or two as it completes the request. Please be patient.	
Submit Batch Anyway	Cancel

- A. When the process completes, the Batch Warning will disappear.
- B. Click the **Cancel** button on the **Create/Modify Cross Connects** window.
- G. Update Report Timer for all cross connects.

Rpt Timer:	slow	(10 s)	•	Go	Test M	ana	ager
View	0 - 200					-	Go
	all						Long
	0 - 200	R :					

- A. The **Layer-3** tab now shows the first 200 Layer-3 cross connects.
- B. Use the View dropdown to display all the cross connects: select A11 and press Go.
- C. Click the **Select All** button to select all cross connects.
- D. Select slow (10s) in the Rpt Timer dropdown.
- E. Click the Report Timer ${\bf Go}$ button to apply. This will help keep the GUI responsive.

5. Start your cross connects.

- A. In the Layer-3 tab, click the Select All button.
- B. Then click the **Start** button.

6. Monitoring your cross connects.

\$							LANfo	rge Mana	ger Vers	ion(5.3.3)							-	
Control F	eporting	Tear-Off Inf	o <u>P</u> lugins																
											St	op All	Res	start Mar	nager		Refre	sh H	ELP
Collision	-Domain	is File-IO	Layer-4	Generic	Test Mg	r Tes	t Group	Resour	ce Mgr	Event L	og Aler	ts Port	Mgr M	essages					
Stat	IS	Layer-3	L	3 Endps		VoIP/RT	P	Vol	P/RTP En	dps		Armage	ddon		WanLink	S	Atte	enuators	
		Min F	DU Size AUTO)	▼ G	o Max	PDU Size	Same		▼ Go	Г	Chart	Chan I		Class	1			
						-						start	Stop	Julesce	Clear				
		MINT	fx Rate	Modem (56 Kbps)	▼ G	o MAX	(Tx Rate	Same		▼ Go									
		View	0 -	400	🔻 G	0					Display	Cr <u>e</u> ate	Modify	Batch M	odify	Delete			
		8		2				Al	l Endpoir	nts —					0				
Dropped	Jitter	Tx Bytes	Rx Bytes	Replays	TCP Rtx C	up Pkts	Rx Dup %	000 Pkts	Rx 000 9	RX 6 Wrong Dev	CRC Fai	RX BER	CX Active	CX Estab	CX Estab/s	1st RX	СХ ТО	Pattern	
0	0	5.652.000	5.652.000	0	0	0	0	0	(0	0 0	0 0	1]	0	1.364	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(D	0 0	0	1]	. 0	1,364	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(D	0 0	0 0	1]	. 0	1,499	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(D	0 0	0	1]	. 0	1,499	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(D	0 0	0	1]	. 0	1,638	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(D	0 0	0 0	1]	. 0	1,638	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(D	0 0	0 0	1]	. 0	1,818	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(D	0 0	0 0	1]	. 0	1,818	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(D	0 0	0 0	1]	. 0	1,845	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0	0 0	0	1]	. 0	1,845	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0 0	0	1]	. 0	2,011	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0	0 0	0	1	1	. 0	2,011	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0	0 0	0	1]	. 0	2,040	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0	0 0	0 0	1]	. 0	2,040	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0 0	0	1	1	. 0	2,186	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0 0	0	1]	. 0	2,186	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0 0	0	1		. 0	2,279	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0 0	0	1]	. 0	2,279	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0	0 0	0	1]	. 0	2,327	0	INCREASING	
0	0	5,652,000	5,652,000	0	0	0	0	0	(0 0	0 0	1		. 0	2,327	0	INCREASING	
	_						1.00												•
																			_

Logged in to: lf1005c-is14120020:4002 as: Admin

A. As you scroll to the left in the L3 Endpoints table, you can monitor the connection qualities.

B. Tx Bytes and Rx Bytes columns show traffic amount.

Tx Bytes	Rx Bytes
5,652,000	5,652,000
5,652,000	5,652,000
5,652,000	5,652,000
5,652,000	5,652,000
5,652,000	5,652,000
5,652,000	5,652,000
5,652,000	5,652,000
5,652,000	5,652,000
5,652,000	5,652,000

C. The Pattern column shows traffic trend.

Pattern

INCREASING
INCREASING
INCREASING
INCREASING
INCREASING

7. Sniffing your cross connects with Wireshark from the parent ports eth4 or eth5.

2	*eth4 [W	ireshark 1.10.14 (Git Rev Un	iknown from unl	<nown)] (on="" lf1005c-is14120020)<="" th=""><th></th></nown)]>	
<u>File</u> <u>E</u> dit	t <u>V</u> iew <u>G</u> o <u>C</u> apture <u>A</u> nalyze <u>S</u> ta	atistics Telephony <u>T</u> ools !	Internals <u>H</u> elp		
•	X 🗎 🖪 📐 🖿 🗙	C Q 💮 🗞	> ~ 2	E C - 4 🖬 🙀 M 🗞 🍽 :	0
Filter:		🗘 Expr	ression Clear	Apply Save	
No.	Time Source	Destination	Protocol L	ength Info	, <u>10-</u> 00
236139	29.33882300(172.16.2.195	172.16.11.195	LANforg€	162 Seq: 1870	
236140	29.33886600(172.16.11.194	172.16.2.194	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=0,	ID=305c)
236141	29.33886900(172.16.11.194	172.16.2.194	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=148	30, ID=30
236142	29.33887200(172.16.11.194	172.16.2.194	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=296	0, ID=30
236143	29.33887300(172.16.11.194	172.16.2.194	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=444	0, ID=30
236144	29.33887400(172.16.11.194	172.16.2.194	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=592	20, ID=30
236145	29.33887500(172.16.11.194	172.16.2.194	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=740	0, ID=30
236146	29.33887500(172.16.11.194	172.16.2.194	LANforg€	162 Seq: 1870	
236147	29.33889300(172.16.11.195	172.16.2.195	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=0,	ID=4df3)
236148	29.33889600(172.16.11.195	172.16.2.195	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=148	30, ID=4d
236149	29.33889700(172.16.11.195	172.16.2.195	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=296	0, ID=4d
236150	29.33889700(172.16.11.195	172.16.2.195	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=444	0, ID=4d
236151	29.33889800(172.16.11.195	172.16.2.195	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=592	20, ID=4d
236152	29.33889900(172.16.11.195	172.16.2.195	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=740	0, ID=4d
236153	29.33889900(172.16.11.195	172.16.2.195	LANforg€	162 Seq: 1870	
236154	29.33895600(172.16.2.198	172.16.11.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=0,	ID=c272)
236155	29.33895700(172.16.2.198	172.16.11.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=148	30, ID=c2
236156	29.33895800(172.16.2.198	172.16.11.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=296	0, ID=c2
236157	29.33895800(172.16.2.198	172.16.11.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=444	0, ID=c2
236158	29.33895900(172.16.2.198	172.16.11.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=592	0, ID=c2
236159	29.33895900(172.16.2.198	172.16.11.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=740	0, ID=c2
236160	29.33896000(172.16.2.198	172.16.11.198	LANforg€	162 Seq: 1870	
236161	29.33905300(172.16.11.198	172.16.2.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=0,	ID=b409)
236162	29.33905600(172.16.11.198	172.16.2.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=148	30, ID=b4
236163	29.33905700(172.16.11.198	172.16.2.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=296	0, ID=b4
236164	29.33905700(172.16.11.198	172.16.2.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=444	0, ID=b4
236165	29.33905800(172.16.11.198	172.16.2.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=592	0, ID=b4
236166	29.33905900(172.16.11.198	172.16.2.198	IPv4	1514 Fragmented IP protocol (proto=UDP 17, off=740	0, ID=b4
236167	29.33906000(172.16.11.198	172.16.2.198	LANforge	162 Seq: 1870	~
<					>
▷ Frame	1: 1514 bytes on wire (12112	bits), 1514 bytes captu	ured (12112 b	its) on interface O	
▷ Ether	net II, Src: Silicom_04:23:9c	(00:e0:ed:04:23:9c), Ds	st: Silicom_O	5:c6:72 (00:e0:ed:05:c6:72)	
▷ Inter	net Protocol Version 4, Src: 1	72.16.4.30 (172.16.4.30	0), Dst: 172.	16.13.30 (172.16.13.30)	
▷ Data	(1480 bytes)				
0000 00	e0 ed 05 c6 72 00 e0 ed 04	23 9c 08 00 45 00	r#		
0010 05	5 dc 5d 94 20 00 40 11 8e 20	ac 10 04 le ac 10]	@		-
0020 00	le 87 23 87 24 23 30 86 a8	00 00 00 00 la 2b	#.\$#0	.+	
0030 30	d 06 3b 06 3c 23 04 00 00	00 00 07 37 56 44 <m.< td=""><td>;.<#7</td><td>/D</td><td></td></m.<>	;.<#7	/D	
0040 e(u lle va se cs vu ut vo vu	Do 00 00 02 00 01 .=.	d: 2260 Dro	file: Default	
💛 🜌 🛛 File	. /var/unp/wiresnark_pcaping_et	Packets: 3308230 · Displaye	u. 5368 Pro	nie, Deraut	

- A. To sniff the parent ports that the MAC-VLANs are associated with, you want to be connected to the LANforge server desktop using either Remote Desktop or VNC.
- B. Operating this many cross connects can be taxing on many machines. To minimize the sluggishness of Wireshark, start Wireshark when none of the Cross-Connects are active, and use the LANforge client to start and stop the traffic.
- C. In the Layer-3 tab, click Select All and click Stop.
- D. In the Port Mgr tab, select interface eth4 and click the Sniff Packets button.
- E. Wireshark will open and be capturing packets.
- F. In the Layer-3 tab, click the Start button, and let your test run for one or two minutes.
- G. Then click the **Stop** or **Quiesce** buttons to end the test.
- H. Now you can save the Wireshark capture.

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