

## Layer-3 Traffic Test on Android

Goal: Create Layer-3 Traffic between LANforge Manager and Android Resource.

This cookbook requires LANforge GUI version 5.4.6 and above.



## Create Layer-3 TCP/UDP Traffic between LANforge Manager and Android resource

- 1. Connect Android phone to LANforge via USB such that the device will appear in Interop Tab. Initial Android interop setup can be done using the following link.
- 2. Below is an example of a phone (resource ID 10) that is now clustered with the LANforge.

After entering the test room, the device should appear in *Port Mgr* tab.

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3. Click on the *Layer-3* tab, then click on the *Create* button. This will open a window to create a Layer-3 cross-connect.

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Endpoint A	Endpoint B		NO	
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Port: 1 (eth1)	▼ 2 (eth2) ▼			
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4. Add the details as mentioned below.

Enter CX name of your choice, CX type (TCP or UDP), endpoint-A value (the resource-ID of your phone), endpoint-B value (the resource-ID of your LANforge in Resource option). Also, select respective ports to run the traffic and set *Min Tx Rate* as required on server side to run download traffic. Click on *Apply* and *OK* to save the cross-connect settings.

The below image is of a **TCP downstream** cross-connect with an intended load of 6 Mbps.

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l3.png	
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5. Click the *Charts* tab on the app. Then, in the GUI, start the Layer-3 cross-connect by clicking the crossconnect in the table to highlight it and clicking the *Start* button in the *Layer-3* tab. The graph will start plotting immediately after starting the Layer-3 cross-connect.

Throughput obtained in Layer-3 will be reflected in the *Charts* tab in the app.

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L3CX.png	
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Traffic-charts.png	

6. Further cross-connect data points are displayed in the *L3 Endps* tab. Also, if a cx on the *Layer-3* tab is highlighted (by single clicking it's row), the endpoints associated with that cx will be selected when switching to the *L3 Endps* tab.

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Below is an example of **TCP Upstream** traffic by selecting the Tx rate on client side.

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	+	-	All		Display	Sync Batch	-Create	Apply	<u>OK</u> C	ancel	1												
			c	ross-Connect																			
	CX-Name: SamsungS7Edge-TCPUL							1															
	CX Type: LANforge / TCP					-																	
			En	dpoint A (Clier	nt)	Endpoint B (Sen	/er)																
	Resour	rce:	10	(SWDH7006)	-	1 (ct521b-0fef)																	
	Port:		0	(wlan0)(MGT)	-	1 (eth1)																	
	Min Tx	Rate:	6M	(6 Mbps)	> -	Zero (0 bps)		·															
	MaxTx	k Rate:	Sa	ne	-	Same	-																
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## Bi-Directional traffic can be run by setting the *Tx-Rate* ate on both client and server side.

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0		LAN	orge Manager Version	1(5.4.6)		$\odot$ $\otimes$ $\otimes$		
Control Reporting Windows I	nfo <u>T</u> ests							
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Generic Test Mgr Resource	e Mgr Interop DUT Pr	rofiles Traffic-Profiles	Alerts Warnings +	Wifi-Messages	r		SM-GS	35T (as superuser) 🕑 🐼 🛞
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		Cross	Connects for Selected Test	Manager				
Name	SamsungS7Edge-TC	P-Bi - Create/Modify Cr	oss Connect	⊙ ⊙ ⊗ pp % B Drop Pl	kts A Drop Pkts B Avg RTT	Rpt EID	SPEED (↓↑)	207 bps/2.60 Kbps
+ - All	Display	Sync Batch-Create	Apply OK	Cancel				
		2011	Carry 20					
CX-Name:	SamsungS7Edge-TCP-Bi						Traffic sta	itus (Y-axis in Mbps X-axis in Sec)
CX Type:	LANforge / TCP		-				15	
	Endpoint A (Client)	Endpoint B (Server)					1	1
Resource:	10 (21DKG913)	1 (ct521b-0fef)	-				) 5	10 A 10 A
Port	0 (wlan0)(MGT)	1 (eth1)	-				0	Å
Min Tx Rate:	6M (6 Mbps)	6M (6 Mbps)	•				900 9	50 1,000 1,050 1,100
Max Tx Rate:	Same	Same	-				Downlos	d Upload fotal
Min PDU Size:	AUTO	AUTO	-					Notwork Info
Max PDU Size:	Same	Same	-				IP	192 168 1
IP ToS:	Best Effort (0)	Best Effort (0)	-				SSID	"Interop_QA
Pkts To Send:	Infinite	Infinite	-				BSSID	28:80:88:2c:9b:c
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View 0 - 20000 V Go Display Crgate Mogify Delete	
Cross Connects for Selected Test Manager	
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ß	

Similarly, a UDP cross-connect can be created by changing the CX Type to LANforge/UDP.

7. The *Modify* window (found by single-clicking a cross-connect and clicking *Modify* or double-clicking on a cross-connect) displays the first configuration section which is sufficient for creating a cx. Further cross-connect options are displaying by pressing the + button in the upper right-hand corner.

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0	0			SamsungS7E	Edge-TCPDL	- Create/Mod	lify Cro	oss Connect				×		$\odot$ $\otimes$ $\otimes$
Control Report	+ - All						Disc	play Sync Batch	-Cre	ate Apply OK	Cance			
Status Port	CX-Name: CX Type:	Cross-Connect SamsungS7Edge-TCPDL LANforge / TCP Endpoint A (Client)		Endpoint B (Server)	•	Report Timer Pld Pattern	r.	Cross-Connect fast (1 s) Endpoint A (Client) increasing (0)	•	Endpoint B (Server) increasing (0)	]		p All Restart Manager ngs + Wrifi-Messages r	Refresh HELP
Nar SamsungS7Edg	Port: Min Tx Rate: Max Tx Rate: Min PDU Size: Max PDU Size: IP ToS: Pkts To Send:	Q (whanO)(MGT) zero (0 bps) Same AUTO Same Best Effort (0) Infinite		I (eth1) GM (6 Mbps) Same AUTO Same Best Effort (0) Infinite	• • • •	Min IP Port: Max IP Port: Min Duration Max Duration Min Reconn: Max Reconn: Multi-Conn:	n: in: :	AUTO Same Forever Same 0 (0 ms) Same Ten (10) V Auto-Helper Script	* * * * * *	AUTO ▼ Same ▼ Forever ▼ Same ▼ 0 (0 ms) ▼ Same ▼ One (1) ▼ CAuto-Helper Script			ID Endpoints (A B) SamsungS7Edge-TCPDL-A <-> Samsung	57E
	Test Manager Quiesce: IP Addr:	Cross-Connect default_tm 3 (3 sec) Endpoint A (Client) AUTO	•	Endpoint 8 (Server) AUTO	• •	Snd Buff Size Rcv Buff Size Send Bad FC Src MAC:	e: 2: :S:	Ihresholds Endpoint A (Client) OS Default OS Default E011998448105	•	Thresholds Endpoint B (Server) 05 Default				
	Filename: Dest MAC:	Replay File     Loop     Dest Mac     Icae:3e:e0:0free Endpoint A (Client)	<b>•</b>	Replay File     Loop     Dest Mac     6011:89:84:48:65 Endpoint B (Server)	Ţ	Proxy Addr: Proxy Port: Socket Priori	ity: Endpoir	Use-Proxy 192.168.1.5 33017 0 Payload	dpoi			_		
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To understand more about each option, click on this link.

8. Multiple cross-connects can be created with a single station by double-clicking on the cross-connect and selecting *Batch-Create* option.

🕑 Applications Places System 🗟 🏼 😂 🚄 饕		Mon Mar 20, 04:55:45
📷 🛃 LANforge Manage 🍝 [Batch Modify AD 🍝 [Batch Modify AD 🍝 [WiFi Cap	acity Test] 🛛 🛃 [WiFi Capacity Test] 🐁 [Batch Modify AD 💻 SM-G935T (as sup 🛃 SamsungS7Edge-T 🛃 SamsungS	7Edge-T 🔬 Layer-3 Batch Cre
C LANforge Manager	Version(5.4.6) 📀 🔗 🛞	
Control Reporting Windows Info Tests		
Chamber <u>V</u> iew	Stop All Restart Manager Refresh HELP	
Generic Test Mgr Resource Mgr Interop DUT Profiles Traffic-Profiles Alerts V	Varnings + Wifi-Messages	
Status Port Mgr Extended Port Mgr Layer	3 L3 Endps Layer 4-7 RF-Generator	i (as superuser) 🕓 🐷 🖉
	Salact All Start + Start Ouigers Class	* ≪ %•⊿ 100% ∎ 5:25 PM
Rpt limer: Tast (1 s) Go lest Manager all	E LANforg	e InterOp
SamsungS7Edge-TCPDL - Create/Modify Cross Connect	Create Mogify Delete	
+ - All Display Sync Batch-Creat Apply	QK Cancel	S_INFO CHARTS VIDE
Cross-Connect	Drag M. P. Drag Distr A. Drag Distr P. Aug PTT Rpt EID SPEED (11) 5.3	31 Kbps/69.44 Kbps
CX Name: SamsungS7Edge-TCPDL	Timer Lip	102 168 1 3
SamsungS CX Type: LANforge / TCP	0 0 0 1000 2.8 SSID	'Interop 045'
Endpoint A (Client) Endpoint B (Server)	BSSID	28:80:88:2c:9b:db
Resource: 10 (SWDH7006)	Signal	-28 dBm
Port 0 (wlan0)/MGT) V 1 (eth1)	LinkSpeed	433 Mbps
	Layer-3 Batch Creator: SamsungS7Edge-TCPDL	5180 MHz
Min Ix Rate: Zero (e ops)	CPU util	22.22 %
Max Tx Rate: Same Same	DNS1	192.168.1.1
Min PDU Size: AUTO 🔽 AUTO	DNS2	0.0.0.0
Max PDU Size: Same 💌 Same	DHCP Server	192.168.1.1
ID ToS: Best Effort (0) The Best Effort (0)	SamsungS7Edge-TCPDL0001, SamsungS7Edge-TCPDL0002 SamsungS7Edge-TCPDL0010 Gateway	192.168.1.1
	Endp-A Resources: 10, 10 10	86400 Sec
Pkts To Send:	Endp-B Resources: 1, 1 1 College Concepted	YES
	Endp-A Ports: wlan1, wlan2 wlan10	NU
	Endp-B Ports: eth2. eth3 eth11	
4	Ende-A IPs: AUTO. AUTO AUTO	
I consed in the localheet 4003 are Admin	Endo-B IDe: AUTO AUTO	
I3.png		
Reports	Cupatiba 10 Number of Disitor 4 III Terra Dad	
Et al la companya de	Quantity. 10 Number of Digits. 4 Zero Pad	
L3CX.png	Starting Name Suffix: 1 Name Increment: 1	
	Resource Increment A: 0 Resource Increment B: 0	
candela-install	Port Increment A: 1 Port Increment B: 1	
Traffic-charts.png	IP Addr Increment A: 0 IP Addr Increment B: 0	
	IP-Port Increment A: 1 IP-Port Increment B: 1	

9. Below, *Quantity, Port increment, Resource Increment* are entered in, then saved by clicking on *Apply*.

🕜 Applications Places System 🗟 💹 🍯 🚄 👻		Mon Mar 20, 04:59:15
🐻 🗄 LANforge Manager 😸 [Batch Modify ADB 😸 [Batch Modify ADB 😸 [WiFi Capacity Test] 🛛 🛃 [WiFi Capacity Test] 🛛 🛃 [Batch Modify ADB 🛤 SM-G935T (as super	🔬 SamsungS7Edge-TC 🌆 La	yer-3 Batch Creat
LANforge Manager Version(5.4.6) $\odot$ $\bigotimes$		
Control Beporting Windows Info Tests		
Chamber View Stop All Restart Manager Refresh HELP		
Generic   Test Mgr   Resource Mgr   Interop   DUT   Profiles   Traffic-Profiles   Alerts   Warnings   +   Wifi-Messages	O SM-6935T (a)	
Status Port Mgr Extended Port Mgr Layer-3 L3 Endps Layer 4-7 RF-Generator		superuser) 0 0 0
Rpt Timer: fast (1 s) 🔻 Go Test Manager all 💌 Select All Start + Stop- Quiesce Clear	LANforge Int	terOn
View 0-20000 🗸 Go Display Crgate Mogify Delete		
Cross Layer-3 Batch Creator: SamsungS7Edge-TCPDL 📀 🔗 🛞	LIVE_DATA SYS_IN	FO CHARTS VIDE
	SPEED (↓↑) 5.07 K	.bps/67.83 Kbps
Name Type State Protoco Protoco Bps toco	IP	192,168,1,3
SamsungS7Edg_LF/TCP_Stopped_0_0_0	SSID	'Interop_QA5'
	BSSID	28:80:88:2c:9b:db
SamsungS7Edge-TCPDL001, SamsungS7Edge-TCPDL002 SamsungS7Edge-TCPDL010	Signal	-28 dBm
Endp-A Resources: 10, 10 10	LinkSpeed	433 Mbps
Endp-B Resources: 1, 1 1	Channel	5180 MHz
Endo-A Ports: wian0_wian0_wian0	CPU util	17.59 %
Fride B Ports: eth1eth1	DNS1	192.168.1.1
	DNS2	0.0.0.0
	DHCP Server	192.168.1.1
Endp-B195: AUTO, AUTO	Gateway	192.168.1.1
	LeaseDuration	80400 Sec
Quantity: 10 Number of Digits: 3 🖉 Zero Pad	Cellular Congested	NO
Starting Name Suffice 1 Name Increment: 1	Central Congested	No
Resource Increment A: 0 Resource Increment B: 0		
l expertin tre localiset 4002 set 4 dmin Port Increment A: 0 Port Increment B: 0		<b>_</b>
I3,ppg IP Addr Increment A: 0 IP Addr Increment B: 0		
Reports IP-Port Increment A: 1 IP-Port Increment B: 1		
L3CK.png		
Attempt to apply changes, but do not close the current window to allow	more changes to be applied.	
Traffic-charts.png		

10. Select all the cross-connects (by clicking the *Select All* button) and press *Start* when all of them are highlighted. This will start all of them. Then, open the *Charts* tab in the app to observe the throughput.

Below, the throughput is around 66 Mbps the same thing is reflected in *Charts* tab.



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