

Generating Traffic Using Armageddon

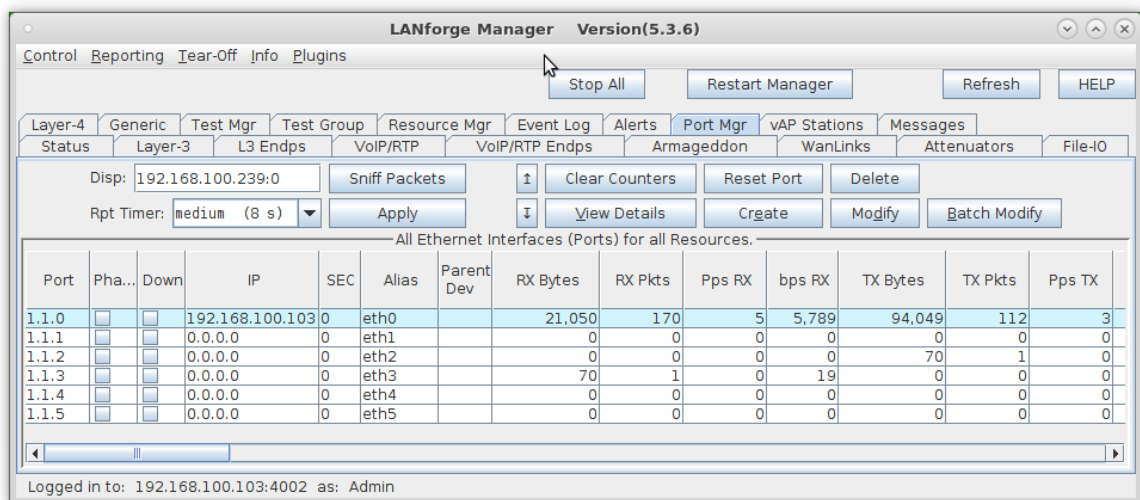
Goal: Set up and run near line-speed 1Gbps traffic using the LANforge Armageddon feature.

- For more information, see the [LANforge User's Guide: Armageddon \(Accelerated UDP\)](#)

In this test scenario, LANforge Armageddon is set up to run at about 80,000 packets/second full-duplex to achieve near line-speed 1Gbps traffic generation.

Note: In order to use the LANforge Armageddon feature, your system must have the LANforge kernel patch applied and your system must be properly licensed. Please feel free to contact us at support@candelatech.com if you would like to obtain a demo license for the Armageddon feature.

- Configure the physical interfaces.
 - Go to the Port Manager and select ports eth2 and eth3



The screenshot shows the LANforge Manager Version(5.3.6) Port Manager interface. The interface includes a top navigation bar with tabs like Control, Reporting, Tear-Off, Info, and Plugins. Below this is a sub-navigation bar with tabs for Layer-4, Generic, Test Mgr, Test Group, Resource Mgr, Event Log, Alerts, Port Mgr (selected), vAP Stations, and Messages. The main area displays a table titled "All Ethernet Interfaces (Ports) for all Resources." with columns for Port, Phase, Down, IP, SEC, Alias, Parent Dev, RX Bytes, RX Pkts, Pps RX, bps RX, TX Bytes, TX Pkts, and Pps TX. The table lists several interfaces, including eth0, eth1, eth2, eth3, eth4, and eth5, with their respective statistics.

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			192.168.100.103	0	eth0		21,050	170	5	5,789	94,049	112	3
1.1.1			0.0.0.0	0	eth1		0	0	0	0	0	0	0
1.1.2			0.0.0.0	0	eth2		0	0	0	0	70	1	0
1.1.3			0.0.0.0	0	eth3		70	1	0	19	0	0	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

Logged in to: 192.168.100.103:4002 as: Admin

B. Modify ports eth2 and eth3:

eth2 (jw2) Configure Settings

Port Status Information

Current: LINK-UP 1000bt-FD AUTO-NEGOTIATE TSO GSO GRO

Driver Info: Port Type: Ethernet Driver: igb(5.4.0-k) Bus: 0000:0a:00.0 Cur: 2.5GT/s x1 Max: 2.5GT/s x1

Port Configurables

General Interface Settings

Enable

- ☐ Set IF Down
- ☐ Set MAC
- ☐ Set TX Q Len
- ☐ Set MTU
- ☐ Set Offload
- ☐ Set Rate Info
- ☐ Set PROMISC
- ☐ Set Rx-All/FCS
- ☐ Set Bypass
- ☐ Set Bridge Info
- ☐ Set CPU Mask

Services

- ☐ HTTP
- ☐ FTP
- ☐ RADIUS

General Interface Settings

☐ Down ☐ Aux-Mgt

☐ DHCP-IPv6 ☒ DHCP Release DHCP Vendor ID: None

☒ DHCP-IPv4 Secondary-IPs DHCP Client ID: None

DNS Servers: BLANK Peer IP: NA

IP Address: 10.0.0.102/24 Global IPv6: AUTO

IP Mask: 255.255.255.0 Link IPv6: AUTO

Gateway IP: 0.0.0.0 IPv6 GW: AUTO

Alias: MTU: 1500

MAC Addr: 00:30:18:cc:5b:d2 TX Q Len: 1000

Br Cost: ignore Priority: ignore

Rpt Timer: medium (8 s) Watchdog: 0

CPU Mask: NO-SET WiFi Bridge: NONE

Port Rates

- ☐ 10bt-HD
- ☐ 10bt-FD
- ☐ 100bt-HD
- ☐ 100bt-FD
- ☐ 1000-FD
- ☐ 10G-FD
- ☐ 40G-FD
- ☒ Autonegotiate

Advert Rates

- ☒ 10bt-HD
- ☒ 10bt-FD
- ☒ 100bt-HD
- ☒ 100bt-FD
- ☒ 1000-FD
- ☐ 10G-FD
- ☐ 40G-FD
- ☒ Flow-Control

Offload

- ☒ TSO Enabled
- ☐ UFO Enabled
- ☒ GSO Enabled
- ☐ LRO Enabled
- ☒ GRO Enabled

Buttons: Print View Details Probe Sync Apply OK Cancel

A. In this example, eth2 and eth3 are physically connected with a patch cable

C. Configure each port with a valid IP address, then click OK

eth3 (jw2) Configure Settings

Port Status Information

Current: LINK-UP 1000bt-FD AUTO-NEGOTIATE PROMISC

Driver Info: Port Type: Ethernet Driver: igb(5.4.0-k) Bus: 0000:0b:00.0 Cur: 2.5GT/s x1 Max: 2.5GT/s x1

Port Configurables

General Interface Settings

Enable

- ☐ Set IF Down
- ☐ Set MAC
- ☐ Set TX Q Len
- ☐ Set MTU
- ☐ Set Offload
- ☐ Set Rate Info
- ☐ Set PROMISC
- ☐ Set Rx-All/FCS
- ☐ Set Bypass
- ☐ Set Bridge Info
- ☐ Set CPU Mask

Services

- ☐ HTTP
- ☐ FTP
- ☐ RADIUS

General Interface Settings

☐ Down ☐ Aux-Mgt

☐ DHCP-IPv6 ☒ DHCP Release DHCP Vendor ID: None

☒ DHCP-IPv4 Secondary-IPs DHCP Client ID: None

DNS Servers: BLANK Peer IP: NA

IP Address: 10.0.0.103/24 Global IPv6: DELETED

IP Mask: 255.255.255.0 Link IPv6: DELETED

Gateway IP: 0.0.0.0 IPv6 GW: DELETED

Alias: MTU: 1500

MAC Addr: 00:30:18:cc:5b:d3 TX Q Len: 1000

Br Cost: ignore Priority: ignore

Rpt Timer: medium (8 s) Watchdog: 0

CPU Mask: NO-SET WiFi Bridge: NONE

Port Rates

- ☐ 10bt-HD
- ☐ 10bt-FD
- ☐ 100bt-HD
- ☐ 100bt-FD
- ☐ 1000-FD
- ☐ 10G-FD
- ☐ 40G-FD
- ☒ Autonegotiate

Advert Rates

- ☒ 10bt-HD
- ☒ 10bt-FD
- ☒ 100bt-HD
- ☒ 100bt-FD
- ☒ 1000-FD
- ☐ 10G-FD
- ☐ 40G-FD
- ☒ Flow-Control

Offload

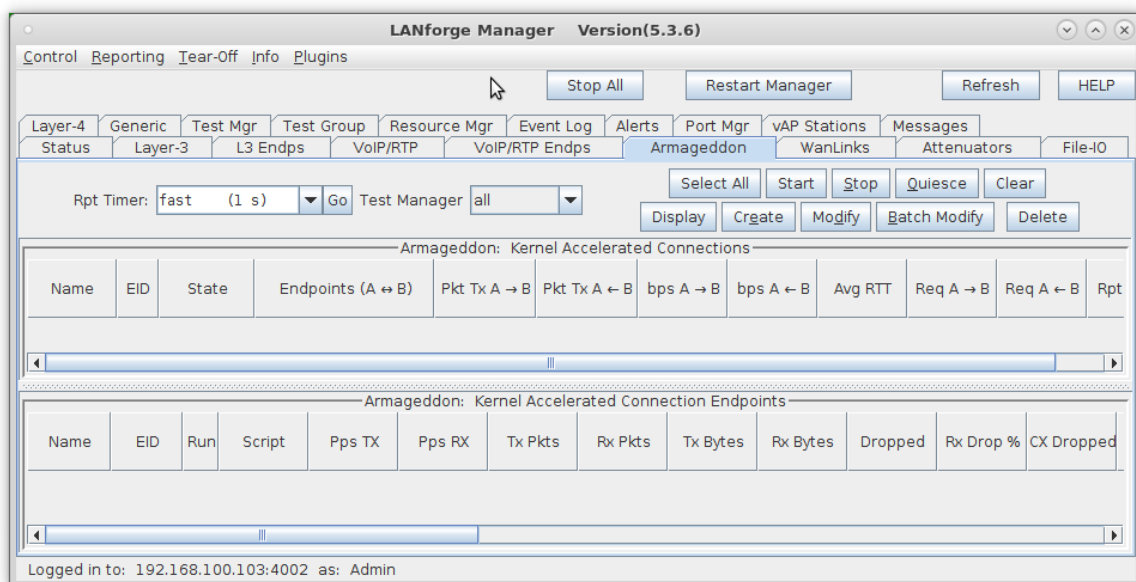
- ☐ TSO Enabled
- ☐ UFO Enabled
- ☐ GSO Enabled
- ☐ LRO Enabled
- ☐ GRO Enabled

Buttons: Print View Details Probe Sync Apply OK Cancel

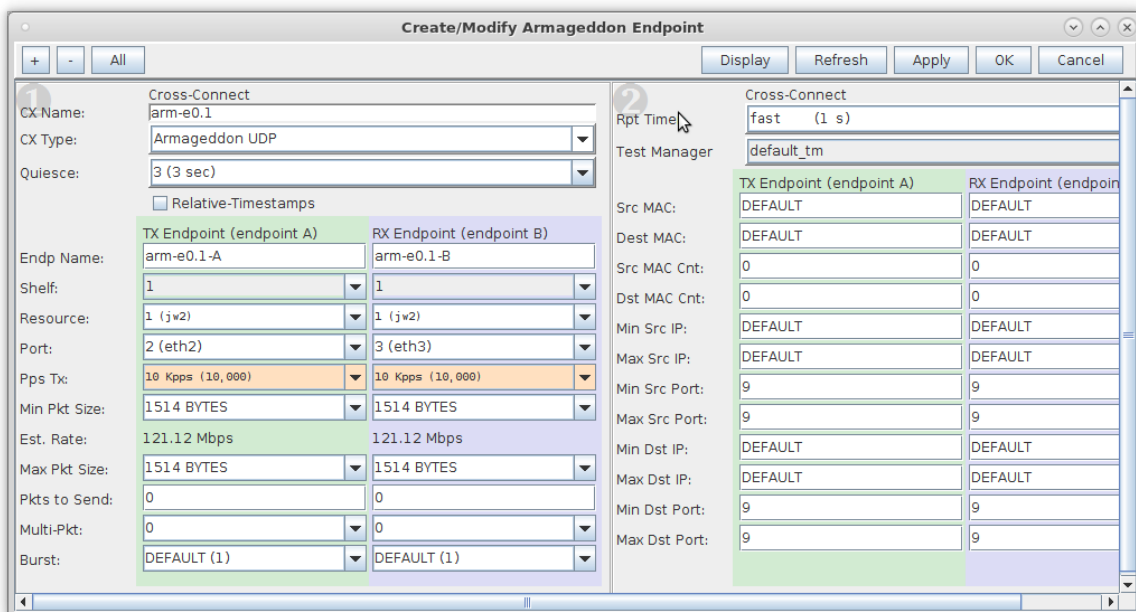
For more information see [LANforge User's Guide: Ports \(Interfaces\)](#)

2. Create the Armageddon cross-connect.

- A. On the **Armageddon** tab, click the **Create** button



- B. Enter a CX Name, select ports eth2 and eth3, then enter the speed and packet size for both endpoints



- A. For this example, 10000pps at 1514byte packet size should generate about 121Mbps
- B. Click **OK** when finished

C. Verify that the Armageddon connection is created

The screenshot shows the LANforge Manager interface. The 'Armageddon' tab is selected. The 'Armageddon: Kernel Accelerated Connections' table shows a connection named 'arm-e0.1' with EID '14...', State 'Stopped', and Endpoints 'arm-e0.1-A <=> arm-...'. The 'Armageddon: Kernel Accelerated Connection Endpoints' table shows two endpoints: 'arm-e0....' with EID '1.1.2.25' and 'arm-e0....' with EID '1.1.3.26'. Both endpoints have 'Run' checkboxes that are unchecked. The status bar at the bottom indicates 'Logged in to: 192.168.100.103:4002 as: Admin'.

Name	EID	State	Endpoints (A ↔ B)	Pkt Tx A → B	Pkt Tx A ← B	bps A → B	bps A ← B	Avg RTT	Req A → B	Req A ← B	Rpt
arm-e0.1	14...	Stopped	arm-e0.1-A <=> arm-...	0	0	0	0	0	1,000	1,000	

Name	EID	Run	Script	Pps TX	Pps RX	Tx Pkts	Rx Pkts	Tx Bytes	Rx Bytes	Dropped	Rx Drop %	CX Dropped
arm-e0....	1.1.2.25	<input type="checkbox"/>	None	0	0	0	0	0	0	0	0	0
arm-e0....	1.1.3.26	<input type="checkbox"/>	None	0	0	0	0	0	0	0	0	0

For more information see [LANforge User's Guide: Armageddon \(Accelerated UDP\)](#)

3. Run the Armageddon cross-connect and view results.
 - A. Select the Armageddon connection then click Start

The screenshot shows the LANforge Manager interface. The 'Armageddon' tab is selected. The 'Armageddon: Kernel Accelerated Connections' table shows a connection named 'arm-e0.1' with EID '14...', State 'Run', and Endpoints 'arm-e0.1-A <=> arm-...'. The 'Armageddon: Kernel Accelerated Connection Endpoints' table shows two endpoints: 'arm-e0....' with EID '1.1.2.25' and 'arm-e0....' with EID '1.1.3.26'. Both endpoints have 'Run' checkboxes that are checked. The status bar at the bottom indicates 'Logged in to: 192.168.100.103:4002 as: Admin'.

Name	EID	State	Endpoints (A ↔ B)	Pkt Tx A → B	Pkt Tx A ← B	bps A → B	bps A ← B	Avg RTT	Req A → B	Req A ← B	Rpt
arm-e0.1	14...	Run	arm-e0.1-A <=> arm-...	23,968	24,044	12,270,618	12,257,976	655	1,000	1,000	

Name	EID	Run	Script	Pps TX	Pps RX	Tx Pkts	Rx Pkts	Tx Bytes	Rx Bytes	Dropped	Rx Drop %	CX Dropped
arm-e0....	1.1.2.25	<input checked="" type="checkbox"/>	None	995	990	23,968	23,847	36,287,552	36,104,358	0	0	0
arm-e0....	1.1.3.26	<input checked="" type="checkbox"/>	None	989	994	24,044	24,164	36,402,616	36,584,296	0	0	0

- B. It will take a moment for the Armageddon traffic to stabilize. Depending on the hardware, LANforge will settle on an actual rate which may differ from the requested rate.

LANforge Manager Version(5.3.6)

Control Reporting Tear-Off Info Plugins

Stop All Restart Manager Refresh HELP

Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr vAP Stations Messages

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators File-I/O

Rpt Timer: fast (1 s) Go Test Manager all

Select All Start Stop Quiesce Clear

Display Create Modify Batch Modify Delete

Armageddon: Kernel Accelerated Connections

Name	EID	State	Endpoints (A ↔ B)	Pkt Tx A → B	Pkt Tx A ← B	bps A → B	bps A ← B	Avg RTT	Req A → B	Req A ← B	Rpt
arm-e0.1	14....	Run	arm-e0.1-A ↔ arm-...	1,295,467	1,299,520	120,378....	119,168....	219	10,000	10,000	

Armageddon: Kernel Accelerated Connection Endpoints

Name	EID	Run	Script	Pps TX	Pps RX	Tx Pkts	Rx Pkts	Tx Bytes	Rx Bytes	Dropped	Rx Drop %	CX Dropped
arm-e0....	1.1.2.25	<input checked="" type="checkbox"/>	None	9,954	9,954	1,295,467	1,295,963	1,961,33...	1,962,08...	0	0	0
arm-e0....	1.1.3.26	<input checked="" type="checkbox"/>	None	9,987	9,986	1,299,520	1,299,013	1,967,47...	1,966,70...	0	0	0

Logged in to: 192.168.100.103:4002 as: Admin

- C. In this example, this system (1.8GHz Intel Atom D525, 6 onboard 10/100/1000 ports) is capable of reaching 81,000pps with 1514byte packets or, an equivalent speed of about 990-1005Mbps bi-directional.

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Armageddon: Kernel Accelerated Connections

Name	EID	State	Endpoints (A ↔ B)	Pkt Tx A → B	Pkt Tx A ← B	bps A → B	bps A ← B	Avg RTT	Req A → B	Req A ← B	Rpt
arm-e0.1	14....	Run	arm-e0.1-A ↔ arm-...	2,205,245	2,204,473	122,355....	122,769....	230	10,000	10,000	

Armageddon: Kernel Accelerated Connection Endpoints

Name	EID	Run	Script	Pps TX	Pps RX	Tx Pkts	Rx Pkts	Tx Bytes	Rx Bytes	Dropped	Rx Drop %	CX Dropped
arm-e0....	1.1.2.25	<input checked="" type="checkbox"/>	None	9,934	9,929	2,205,245	2,205,482	3,338,74...	3,339,09...	0	0	0
arm-e0....	1.1.3.26	<input checked="" type="checkbox"/>	None	9,935	9,942	2,204,473	2,204,231	3,337,57...	3,337,20...	0	0	0

Logged in to: 192.168.100.103:4002 as: Admin

- A. **NOTE:** Delay for Armageddon connections is measured in microseconds (us) and in this example, the system experiences about 39us of delay when sending to itself.

For more information see [LANforge User's Guide: Armageddon \(Accelerated UDP\)](#)

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