

Armageddon UDP Traffic Generation with Random MAC Addresses.

Goal: Generate network traffic to a network device with one or many destination MAC addresses. These scenarios are useful for testing switches and firewalls that have to handle UDP traffic from thousands of source MAC addresses and one or many destination MAC addresses. This cookbook covers two scenarios:

- 1. A single destination MAC address. (This would exercise a firewall or router.)
- 2. Thousands of destination MAC addresses. (This would exercise a switch by overflowing the device CAM table.)

A one-sided traffic stream is

used to send packets to a network device under test when round-trip reporting is not required.

| tion s | cenario 1 | |
|-------------------------------|-------------------------------|-------------------------------|
| N | Thousands of IAC Addresses | Firewall |
| rch I | | ->- |
| is 📘 | LANforge FIRE | System Under Test |
| cenario 2 | | |
| Thousands of IAC Addresses | Switch | Thousands of MAC Addresses |
| | | ⇒ 📭 |
| LANforge FIRE | System Under Test | LANforge FIRE |



1. On the Armageddon tab, click Create.

| \$ | | L | ANforge Mana | ger Version | (5.3.3) | | | | G | . • × |
|---|--|-----------------------------------|--------------|--------------|-----------------------|-----------------|----------------|--------------------|-----------|-------|
| <u>C</u> ontrol <u>R</u> eport | ing <u>T</u> ear-Off <u>i</u> | Info <u>P</u> lugins | | | | | | | | |
| | | | | Stop All | Resta | art Manage | er | Refree | sh I | HELP |
| File-IO Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators Collision-Domains | | | | | | | ains | | | |
| Rpt Timer: de | Rpt Timer: default (5 s) V Go Test Manager all V | | | | | | | | | |
| | | | | | Display | Cr <u>e</u> ate | <u>M</u> odify | <u>B</u> atch Modi | ify Del | ete |
| | 1 | Armag | jeddon: Ker | nel Accelera | ted Conne | ctions — | | 1 | | |
| Name Ell | D State | Endpoints (A \leftrightarrow B) | Pkt Tx A → B | Pkt Tx A ← B | bps A \rightarrow B | bps A ← B | Avg RTT | Req A → B | Req A ← B | Rpt 1 |
| |] | | | | | I | |]] | |] |
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| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Logged in to: | brent-6port: | 4002 as: Admin | | | | | | | | |

2. Firewall Scenario: Configure the Armageddon connection with the following values:

| 🗟 Create/Modify Armageddon Endpoint 🗧 🗆 🗙 | | | | | | | | |
|--|--|---------------|---------------------------|-----------------------------------|-----------------|-----------------------------|-------------|--|
| Cross Connect Information | | | | | | | | |
| CX Name: macgen CX Type: Armageddon UDP 💌 Rpt Timer: slow (10 s) 💌 Test Manager default_tm 💌 | | | | | | | | |
| Quiesce: | Quiesce: 3 (3 sec) 🔽 🔲 Relative-Timestamps | | | | | | | |
| | | | | | | | | |
| Forde Names | macran A | Ch alfa | TX Endpoin | t (endpoint A) | (broot (port) - | Deete | 2 (ath1) | |
| Endp Name: | macgen-A | Sheir: | 1 | Resource: | (brent-oport) • | Port: | 2 (eth1) | |
| Pld Pattern | Increasing 🔻 | Src MAC: | 00:01:00:00:00:00 | | Dest MAC: | Dest MAC: 00:0e:fa:12:bc:3a | | |
| Min Src IP: | 10.26.0.1 | Max Src IP: | 10.26.254.254 Min Dst IP: | | 10.27.0.1 | Max Dst IP: 10.27.254.254 | | |
| Min Src Port: | 9 | Max Src Port: | 9 | Min Dst Port: | 9 | Max Dst Port: 9 | | |
| Pps Tx: | 80000 💌 | Min Pkt Size: | 1514 | Max Pkt Size: | 1514 💌 | Multi-Pkt: | 0 💌 | |
| Pkts to Send: | 0 | Src MAC Cnt: | 65025 | Dst MAC Cnt: | 1 | Quiesce: | 3 (3 sec) 🔻 | |
| Thread-ID: | 0 | IP ToS: | Best Effort (0) | • | | Script | Thresholds | |
| 🗌 Use Router | MAC Slow S | tart 🗌 UnMa | naged 🗌 Checksum | Clear-Port- | On-Start | | | |
| | | | RX Endpoin | t (endpoint B) | | | | |
| Endp Name: | macgen-B | Shelf: | 1 | Resource: | 0 🗸 | Port: | 0 | |
| Pld Pattern | Increasing 💌 | Src MAC: | DEFAULT | | Dest MAC: | DEFAULT | | |
| Min Src IP: | | Max Src IP: | DEFAULT | Min Dst IP: | | Max Dst IP: | DEFAULT | |
| Min Src Port: | | Max Src Port: | | Min Dst Port: | | Max Dst Port: | 9 | |
| Pps Tx: | 1 💌 | Min Pkt Size: | 128 | Max Pkt Size: | 128 💌 | Multi-Pkt: | 0 | |
| Pkts to Send: | | Src MAC Cnt: | | Dst MAC Cnt: | | Quiesce: | 3 (3 sec) 🔻 | |
| Thread-ID: | | IP ToS: | Best Effort (0) | - | | Script | Thresholds | |
| 🗹 Use Router MAC 🗌 Slow Start 🔽 UnManaged 🗌 Checksum 📄 Clear-Port-On-Start | | | | | | | | |
| Display Refresh Apply OK Cancel | | | | | | | | |

- A. In the TX Endpoint (green box):
 - A. The connection name for this example is macgen.
 - B. Src MAC: 00:01:00:00:00:00. This is the starting point for emulated remote MAC addresses.
 - C. Dest MAC: 00:0e:fa:12:bc:3a. Use the destination MAC address of yoursystem under test.
 - D. Min Src IP: 10.26.0.1.
 - E. Max Src IP: 10.26.254.254. This emulates about 65,000 remote hosts.
 - F. Min Dst IP: 10.27.0.1.
 - G. Max Dst IP: 10.27.254.254. This emulates about 65,000 destination addresses.
 - H. Pps Tx: 80,000. This is a 1Gbps packet rate.
 - I. Min Pkt Size: 1514.
 - J. Max Pkt Size: 1514.
 - K. Src MAC Cnt: 65,025. This emulates 65,025 remote devices.
 - L. Dst MAC Cnt: 1.
 - M. Deselect Use Router MAC.
- B. In the RX Endpoint (blue box):
 - A. **Select UnManaged**. This allows us to *fire and forget* the packets.
- C. Click **OK** to commit the configuration.
- 3. Switch Scenario: Configure the Armageddon connection with the following values:

| 🗟 Create/Modify Armageddon Endpoint 🔤 🔍 🗙 | | | | | | | | |
|--|--------------|----------------|---------------------------|-----------------|-----------------|---------------------------|--------------|--|
| Cross Connect Information | | | | | | | | |
| CX Name | macgen | CX Type: | Armageddon UDP | Rpt Timer: sl | ow (10 s) 🔻 | Test Manager | default_tm 🔻 | |
| Quiesce: | 3 (3 sec) | 💌 🗌 Relativ | ve-Timestamps | | | | | |
| | | | TX Endpoin | t (endnoint A) | | | | |
| Endp Name: | macgen-A | Shelf: | 1 | Resource: | (brent-6port) 🔻 | Port: | 2 (eth1) 💌 | |
| Pld Pattern | Increasing 💌 | Src MAC: | 00:01:00:00:00:00 | | Dest MAC: | Dest MAC: 00:02:00:00:00 | | |
| Min Src IP: | 10.26.0.1 | Max Src IP: | 10.26.254.254 Min Dst IP: | | 10.27.0.1 | Max Dst IP: 10.27.254.254 | | |
| Min Src Port: | 9 | Max Src Port: | 9 Min Dst Port: | | 9 | Max Dst Port: 9 | | |
| Pps Tx: | 80000 💌 | Min Pkt Size: | 1514 | Max Pkt Size | 1514 💌 | Multi-Pkt: | 0 💌 | |
| Pkts to Send: | 0 | Src MAC Cnt: | 65025 | Dst MAC Cnt: | 65025 | Quiesce: | 3 (3 sec) 🔻 | |
| Thread-ID: | 0 | IP ToS: | Best Effort (0) | • | | Script | Thresholds | |
| 🗌 Use Routei | MAC Slow S | tart 🗌 UnMa | naged 🗌 Checksum | n 🗌 Clear-Port- | On-Start | | | |
| | | | | | | | | |
| Endn Name: | macgen-B | Shelf | | | 0 | Port: | | |
| Did Dattorn | | STO MAC | | incource. | Doot MAC | DEFAULT | | |
| Min Sro ID: | | Max Sro ID | DEFAULT | Min Det ID: | Dest MAC. | Max Det ID: | DEFAULT | |
| Min Src Port | | Max Src Port | | Min Dst IP. | | May Det Port | Q | |
| | 1 | Min Dkt Size | 128 | May Dkt Sizo | 128 | Multi-Dkt | | |
| Plate to Good | ÷ • | Fill PKt Size. | 0 | | | Outeren | | |
| PKts to Send: | | STC MAC CIT: | | DST MAC Cht: | | Quiesce: | 3 (3 sec) | |
| Thread-ID: | | IP ToS: | Best Effort (0) | • | | Script | Thresholds | |
| 🗹 Use Router MAC 🗌 Slow Start 🙀 UnManaged 🗌 Checksum 🗌 Clear-Port-On-Start | | | | | | | | |
| Display Refresh Apply OK Cancel | | | | | | | | |

- A. In the TX Endpoint (green box):
 - A. The connection name for this example is macgen.
 - B. Src MAC: 00:01:00:00:00:00. This is the starting point for emulated source MAC addresses.
 - C. Dest MAC: 00:02:00:00:00. This is the starting point for emulated destination MAC addresses. This address is 4.2 billion addresses after the starting source MAC address.
 - D. Min Src IP: 10.26.0.1.
 - E. Max Src IP: 10.26.254.254. This emulates about 65,000 remote hosts.
 - F. Min Dst IP: 10.27.0.1.
 - G. Max Dst IP: 10.27.254.254. This emulates about 65,000 destination addresses.
 - H. Pps Tx: 80,000. This is a 1Gbps packet rate.
 - I. Min Pkt Size: 1514.
 - J. Max Pkt Size: 1514.
 - K. Src MAC Cnt: 65,025. This emulates 65,025 source devices.
 - L. Dst MAC Cnt: 65,025. This emulates 65,025 destination devices.
 - M. Deselect Use Router MAC.
- B. In the RX Endpoint (blue box):
 - A. Select UnManaged. This allows us to *fire and forget* the packets.
- C. Click **OK** to commit the configuration.
- 4. Start traffic generation:

| 📓 LANforge Manager Version(5.3.3) 🗧 🕻 | | | | | | | |
|---|-------|--|--|--|--|--|--|
| <u>Control Reporting Tear-Off</u> Info Plugins | | | | | | | |
| Stop All Restart Manager Refresh HELP | | | | | | | |
| File-IO Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages Status Layer-3 L3 Endps VolP/RTP VolP/RTP Endps Armageddon WanLinks Attenuators Collision-Domains | | | | | | | |
| Rpt Timer: default (5 s) V Go Test Manager all V Select All Start Stop Quiesce Clear | | | | | | | |
| Display Create Modify Batch Modify Delet | e | | | | | | |
| Armageddon: Kernel Accelerated Connections | _ | | | | | | |
| Name EID State Endpoints (A \leftrightarrow B) Pkt Tx A \rightarrow B Pkt Tx A \leftarrow B bps A \rightarrow B bps A \leftarrow B Avg RTT Req A \rightarrow B Req A \leftarrow B | Rpt 1 | | | | | | |
| macgen 14 Stopped macgen-A <=> macg 0 0 0 0 0 80,000 1 | 1 | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| 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 Drop | oppe | | | | | | |
| macgen-A 1.1.2.19 🔲 None 0 0 0 0 0 0 0 0 0 | | | | | | | |
| macgen-B 0.0.65 None 0 0 0 0 0 0 0 0 0 0 | | | | | | | |
| | | | | | | | |
| , Logged in to: brent-6port:4002 as: Admin | | | | | | | |

A. In the Armageddon tab, click the Start button. Traffic will begin.

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