**WanPath Corruptions**

**Goal:** Setup a WanLink with WanPath Corruptions.

In this test scenario, LANforge-ICE is used to filter traffic by VLAN on a WanLink with the use of WanPaths and then use WanPath Corruptions to overwrite the DSCP field in the IP packet.

**Note:** VLAN filtering was recently fixed and should be used with LANforge version 5.3.7 and up.

1. Setup a WanLink connection.
   A. Go to the **WanLinks** tab and select **Create**.
B. Enter the WanLink name, physical ports, base transfer rate, delay, jitter etc...
These impairments will be applied to all traffic on the WanLink.

C. Select **Apply** to create the base WanLink.

For more information see [LANforge-GUI User Guide: Creating & Modifying WanLinks](#)
2. Setup the WanPaths.
   A. Select All to un-hide the other WanLink config panels.

B. In panel 3, for Endpoint-A WAN Paths, select Create-WP.
C. Enter a Name and Transfer Rate for the WanPath. Here we are matching the WanLink’s transfer rate.
D. Select checkbox for **Use Pcap Filter**
E. Enter the PCAP Filter `vlan 1010` to apply any WanPath impairment or corruptions only to packets with 802.1q vlan id 1010.

Expression is based on the Tcpdump expression field.

F. Select **Apply** to create the WanPath.

For more information see *Tcpdump man page*, *Pcap Filter Syntax*.
3. Setup the Corruptions.
   A. Enter the following values into **Corruption #0** fields
      
      A. Rate **100000**
         (How often, per million packets, should the corruption be applied)
      
      B. Corruption **Write Byte**
      
      C. Byte-to-Write **40**
         (Hex 0x00-0xff or decimal 0-255)
         If you enter 0x28 and select OK, the GUI will translate it to decimal 40.
      
      D. Min Offset **19**
      
      E. Max Offset **20**
         The Differentiated Services Field is in byte 20 of the ethernet frame which corresponds to the 2nd byte of the IP header.
   
   B. Select checkbox **Do Checksum** which will re-calcuate the checksum after making the errors so that the packet is still valid.

![Create/Modify WanPath for Endpoint: 100Mbps-wan-A](image)
C. Select OK then create a second WanPath for this WanLink on Endpoint-B using the same values.
D. Verify that the WanPaths on this WanLink are setup correctly, then select OK on the Create/Modify WanLink window shown here.

For more information see LANforge-GUI User Guide: Creating & Modifying WanPaths.
4. Run traffic through LANforge-ICE ports eth2 and eth3, and capture traffic on eth2.
   A. Here we are using LANforge-FIRE on a secondary resource to send a 10Mbps bi-directional UDP flow between 802.1q VLAN endpoints eth2.1010 and eth3.1010 with an IP ToS value of decimal 184 which corresponds to DSCP value decimal 46 or Expedited Forwarding.

B. Go to the Port Mgr tab and highlight WanLink port eth2, then select the Sniff Packets button to bring up Wireshark.
C. The capture will show that periodically the DSCP field gets overwritten per the WanPath corruption logic of writing a decimal value 40 in the IP ToS field which corresponds to a DSCP value of decimal 10 or Assured Forwarding 11.