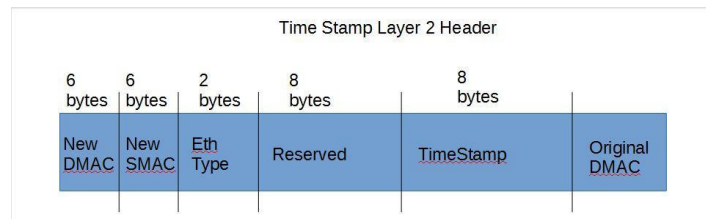


AF1G52AC

Overview:

In traditional data center applications, devices are used to sample network traffic. As traffic increases, there is a growing requirement for extended performance monitoring.

The Advanced Features provides a flexible packet time stamping function. The time stamp function is set up to insert a new 30 byte Layer 2 header before the original DMAC address. The Time Stamp Layer 2 header is defined as follows:



The time stamping is performed before the packet enters the switching chip. This function supports the standard Time of Day format and is accurate down to 8 nanosecond resolution. The software can distinguish these packets by the new EthType that has been added into the packet. The Time Stamp EthType is defined as 0xff12.

Note: When Layer 3 routing or filtering is to be performed, the additional Time Stamp header needs to be removed.

Garland Technology has produced a Wireshark plugin that will capture and display these packets as shown below.

```

No.    Time                               Source                                Destination                            Protocol  Length  Info
-----
1 0.000000000 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
2 0.000007365 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
3 0.000014712 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
4 0.000022060 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
5 0.000029448 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
6 0.000036792 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
7 0.000044160 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
8 0.000051528 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
9 0.000058872 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
10 0.000066240 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
11 0.000073608 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
12 0.000080952 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22
13 0.000088320 0.0.0.0                            0.0.0.0                                UDP      102 0 → 0 Len=22

> Frame 1: 102 bytes on wire (816 bits), 98 bytes captured (784 bits) on Interface 0
  Packet Source Port: 1
    Timestamp Time of day: 2019-06-23 16:27:28
    Timestamp nano second: 421603264
    > Ethernet II, Src: HongTech_d8:dd:dd (00:40:dd:dd:dd:dd), Dst: Silicon_c8:cc:cc (cc:cc:cc:cc:cc:cc)
    > 802.1Q Virtual LAN, PVID: 3, OUI: 0, ID: 3588
    > Internet Protocol Version 4, Src: 0.0.0.0, Dst: 0.0.0.0
    > User Datagram Protocol, Src Port: 0, Dst Port: 0
    > Data (22 bytes)

0000 aa aa aa aa aa bb bb bb bb ff 12 10 00 .....
0010 00 01 00 00 00 7b 5d 0f ee c0 19 21 27 c0 cc cc .....{ }...!...
0020 cc cc cc cc 00 40 dd dd dd dd 01 00 6e 04 00 00 .....@...e...
0030 45 00 00 32 00 00 00 00 7f 11 00 00 00 00 00 .....E-2.....f...
0040 00 00 00 00 00 00 00 00 00 1e 00 00 2e 2f 10 93 .....XFA.....R-YH
0050 58 94 46 41 f9 00 04 80 00 00 0f 52 0e 59 48 a1 .....
0060 d8 94
  
```

1. Enable Time Stamp

1. Select Tap Management.
2. Select Tap Group Table.
3. Select Timestamp.

The Timestamp over the Ethernet panel will appear.

4. Enable Timestamp.

Timestamp Over Ethernet

Timestamp Enable on

Dst-mac f093.c5a1.a1a1 Src-mac f093.c5b2.b2b2 Type 0xff12

OK Close

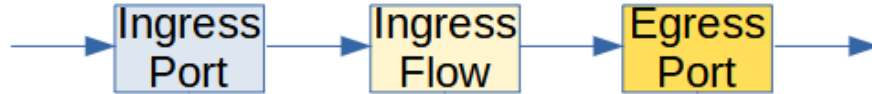
5. Enter the Dst-mac for the new Time Stamp L2 segment.
6. Enter the Src-mac for the new Time Stamp L2 segment.
7. Enter the Ether Type for the new Time Stamp L2 segment, (0xff12)
- 8) Select OK.

2. Apply Time Stamp to an Egress Port

The option to apply time stamping may be made to individual egress ports as Tap Groups are created. Time stamping is never applied to an ingress port.

Create a Tap Group with Timestamp.

The Tap Group defines the ingress port, ingress flow, and egress port with time stamp.



1. Select Tap Management.
2. Select TAP Group Table.
3. Select + Add TAP Group.

The TAP Group Name panel will appear.

The screenshot shows a dialog box titled "TAP Group Name" with a close button (X) in the top right corner. Inside the dialog, there are two input fields: "TAP Group Name" with the value "TG1" and "TAP Group ID" with the value "0". At the bottom right of the dialog, there are two buttons: a blue "OK" button with a checkmark and a red "Close" button with an X.

4. Enter the TAP Group Name.
5. Select OK.

The Tap Group will be displayed.



Menu

- Device Summary
- System Management
- Interface Management
- Authentication Management
- TAP Management
 - TAP Group Table
 - UDF
 - Flow
 - Inner Match
 - ACL
 - TAP Statistics

TAP Statistics + Add TAP Group Truncation Timestamp

| # | TAP Id | TAP Group Name | TAP Group Description | TAP Group truncation | Options |
|---|--------|----------------|-----------------------|----------------------|---------|
| 1 | 1 | TG1 | N/A | NO | |

6. Place the cursor on the tap group name under the TAP Group Name column and press the left mouse button.

The TAP group panel will appear.

TG1 x

+ Add

| # | Port | Flow Match | Untag | Vlan mark | Truncation | Edit-macda | Edit-macsa | Edit-ipda | Edit-ipsa | Edit-vlan | Options |
|---|------|------------|-------|-----------|------------|------------|------------|-----------|-----------|-----------|---------|
| | | | | | | | | | | | |

Close

7. Select the + Add to define the ingress port and ingress flow.

The add panel will appear.

TG1 x

| | |
|------------|---------|
| Direction | ingress |
| Port | eth-0-1 |
| Truncation | off |
| Untag | Disable |
| Vlan mark | off |
| Flow Match | on |
| Flow | Flow |

OK Close

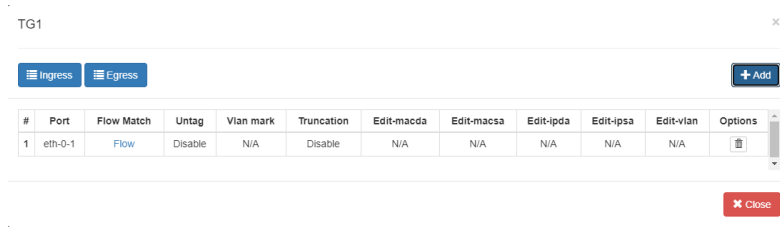
8. Select the Direction, ingress.

9. Select the desired ingress port.

10. Enable Flow Match.

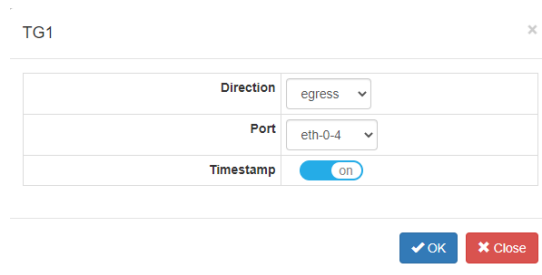
11. Select the desired flow.

12. Select OK.



13. Select the + Add to define the egress port with Timestamp.

The add panel will appear.



14. Select the Direction, egress.

15. Select the desired egress port.

16. Enable Timestamp.

17. Select OK.



18. The ingress port, ingress flow, and egress port may be displayed by selecting Ingress or Egress. Additional ingress ports, ingress flows, or egress ports with Time Stamp may be added to the Tap Group using the same steps.

19. Select Close to return the TAP Group Table display.