Configure NetFlow/IPFIX for Telemetry Ingest on SNA

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Introduction

This document describes the best practices and basic configuration of Netflow/IPFIX that Secure Network Analytics (SNA) needs for telemetry ingest.

Prerequisites

- Cisco SNA knowledge
- NetFlow/IPFIX knowledge

Requirements

- Secure Network Analytics in 7.2.1 or newer
- Flow Collector in 7.2.1 or newer
- CLI access as root to the Flow Collector

Components Used

- This depends completely on your network design and the devices that you have selected to send NetFlow/IPFIX to Secure Network Analytics. NetFlow/IPFIX configuration is different on each exporter, for detailed configuration please contact the support team of each exporter.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background information

The Flow Collector is a SNA appliance in charge of collect, process and store flows that are sent to Secure Network Analytics. For NetFlow version 9 or IPFIX, several fields could be included on NetFlow/IPFIX template to add more information related to network traffic, however, there are 9 specific fields that must be included in NetFlow/IPFIX template for the Flow Collector to process those Flows. Flow Collector does not process incoming flows which includes a non-valid template, therefore SNA does not display flow information of those exporters under Web UI or Desktop Client.

Configure

Required Fields

Next fields must be included on NetFlow/IPFIX template for Telemetry ingest. Ensure that these 9 fields are included on NetFlow/IPFIX template, in order for Secure Network Analytics to process incoming flows.

- Source IP Address
- Destination IP Address
- Source Port
- Destination Port
- Layer 3 Protocol
- Bytes Count
- Packet count
- Flow Start Time
- Flow End Time

> **Note**: More fields could be included on NetFlow/IPFIX configuration, however the previous fields are the minimum requirements of Secure Network Analytics for Telemetry Ingest.

Recommended Fields

It is recommended to include the next fields on NetFlow/IPFIX template to gather information about interface information, this configuration is required to show interface information such as name and speed:

- Interface input
- Interface output

Best Practice

Additionally, next settings are recommended as best practices to ensure a proper performance of Secure Network Analytics.

- Set active timeout to 60 seconds
- Set inactive timeout to 15 seconds
- Set template timeout to 30 seconds

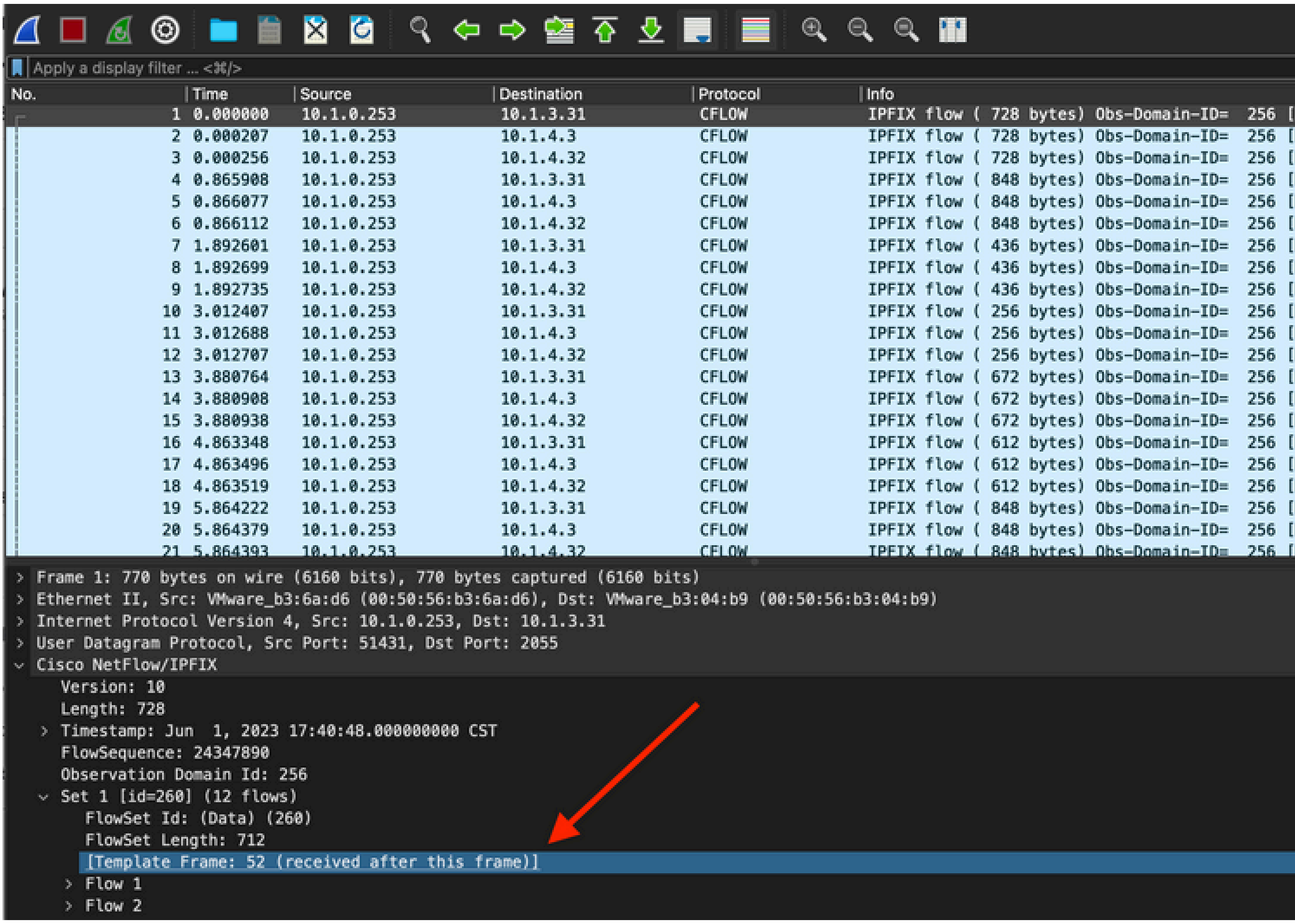
> **Note**: Default port for NetFlow is 2055, however you can select another port, please ensure to use the same port during lc-ast process on Flow Collector(s).

Verify

To validate NetFlow/IPFIX template configuration, you can run a packet capture between the exporter and Flow Collector. Log into the Flow Collector with **root** user via SSH and run command:

```
tcpdump -nli [Collecting_Interface] host [Exporter_IP_Address] and port [NetFlow_Port] -w /lancope/var/t
```

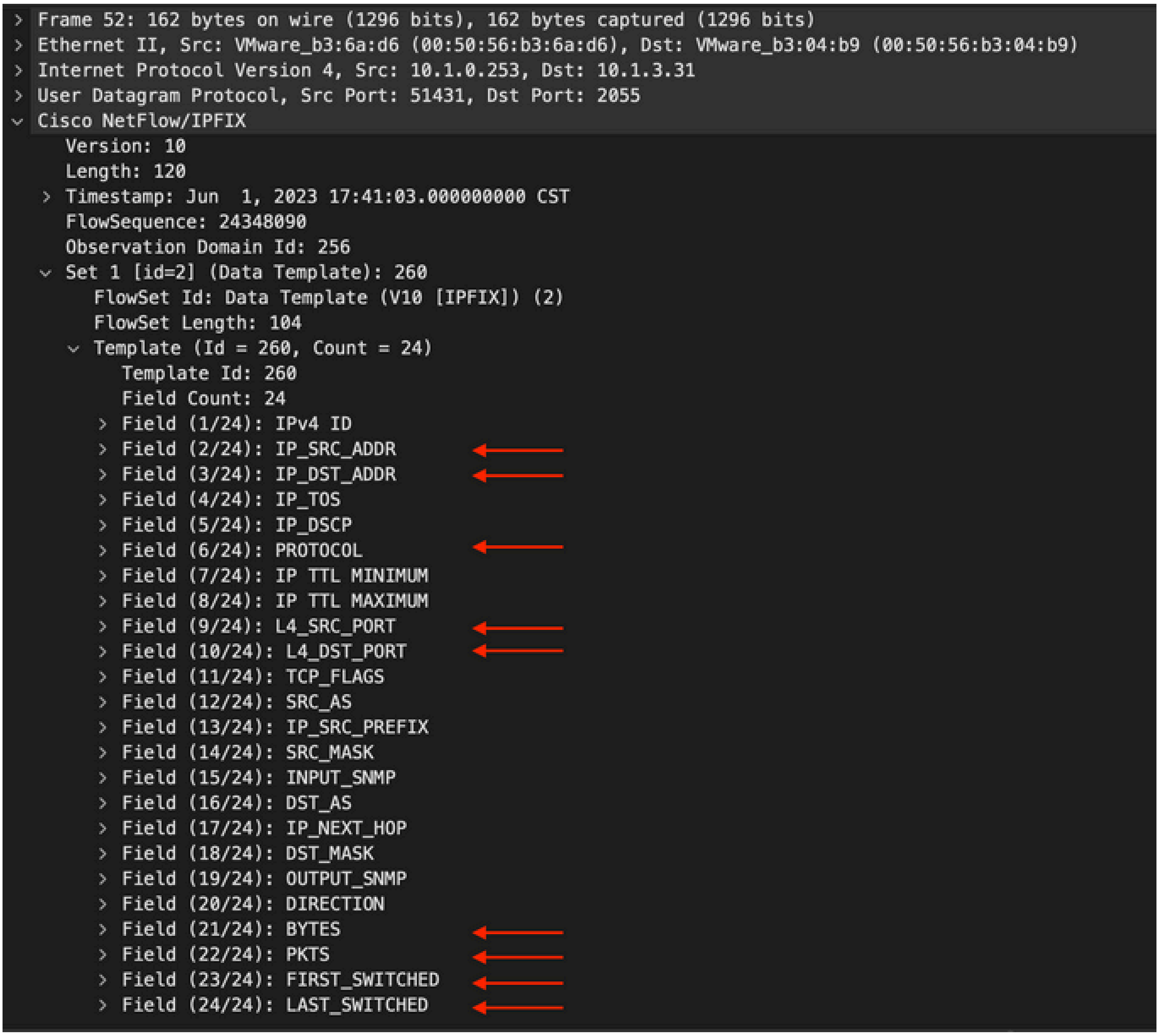
- Use a SCP tool to export the packet capture from the Flow Collector (located in **/lancope/var/tcpdump**) to your local machine and then open it on Wireshark



```
No.   Time       Source        Destination   Protocol   Info
    1 0.000000   10.1.0.253    10.1.3.31     CFLOW      IPFIX flow ( 728 bytes) Obs-Domain-ID=   256 [
    2 0.000207   10.1.0.253    10.1.4.3      CFLOW      IPFIX flow ( 728 bytes) Obs-Domain-ID=   256 [
    3 0.000256   10.1.0.253    10.1.4.32     CFLOW      IPFIX flow ( 728 bytes) Obs-Domain-ID=   256 [
    4 0.865908   10.1.0.253    10.1.3.31     CFLOW      IPFIX flow ( 848 bytes) Obs-Domain-ID=   256 [
    5 0.866077   10.1.0.253    10.1.4.3      CFLOW      IPFIX flow ( 848 bytes) Obs-Domain-ID=   256 [
    6 0.866112   10.1.0.253    10.1.4.32     CFLOW      IPFIX flow ( 848 bytes) Obs-Domain-ID=   256 [
    7 1.892601   10.1.0.253    10.1.3.31     CFLOW      IPFIX flow ( 436 bytes) Obs-Domain-ID=   256 [
    8 1.892699   10.1.0.253    10.1.4.3      CFLOW      IPFIX flow ( 436 bytes) Obs-Domain-ID=   256 [
    9 1.892735   10.1.0.253    10.1.4.32     CFLOW      IPFIX flow ( 436 bytes) Obs-Domain-ID=   256 [
   10 3.012407   10.1.0.253    10.1.3.31     CFLOW      IPFIX flow ( 256 bytes) Obs-Domain-ID=   256 [
   11 3.012688   10.1.0.253    10.1.4.3      CFLOW      IPFIX flow ( 256 bytes) Obs-Domain-ID=   256 [
   12 3.012707   10.1.0.253    10.1.4.32     CFLOW      IPFIX flow ( 256 bytes) Obs-Domain-ID=   256 [
   13 3.880764   10.1.0.253    10.1.3.31     CFLOW      IPFIX flow ( 672 bytes) Obs-Domain-ID=   256 [
   14 3.880908   10.1.0.253    10.1.4.3      CFLOW      IPFIX flow ( 672 bytes) Obs-Domain-ID=   256 [
   15 3.880938   10.1.0.253    10.1.4.32     CFLOW      IPFIX flow ( 672 bytes) Obs-Domain-ID=   256 [
   16 4.863348   10.1.0.253    10.1.3.31     CFLOW      IPFIX flow ( 612 bytes) Obs-Domain-ID=   256 [
   17 4.863496   10.1.0.253    10.1.4.3      CFLOW      IPFIX flow ( 612 bytes) Obs-Domain-ID=   256 [
   18 4.863519   10.1.0.253    10.1.4.32     CFLOW      IPFIX flow ( 612 bytes) Obs-Domain-ID=   256 [
   19 5.864222   10.1.0.253    10.1.3.31     CFLOW      IPFIX flow ( 848 bytes) Obs-Domain-ID=   256 [
   20 5.864379   10.1.0.253    10.1.4.3      CFLOW      IPFIX flow ( 848 bytes) Obs-Domain-ID=   256 [
   21 5.864393   10.1.0.253    10.1.4.32     CFLOW      IPFIX flow ( 848 bytes) Obs-Domain-ID=   256 [
```

```
> Frame 1: 770 bytes on wire (6160 bits), 770 bytes captured (6160 bits)
> Ethernet II, Src: VMware_b3:6a:d6 (00:50:56:b3:6a:d6), Dst: VMware_b3:04:b9 (00:50:56:b3:04:b9)
> Internet Protocol Version 4, Src: 10.1.0.253, Dst: 10.1.3.31
> User Datagram Protocol, Src Port: 51431, Dst Port: 2055
v Cisco NetFlow/IPFIX
    Version: 10
    Length: 728
  > Timestamp: Jun  1, 2023 17:40:48.000000000 CST
    FlowSequence: 24347890
    Observation Domain Id: 256
  v Set 1 [id=260] (12 flows)
      FlowSet Id: (Data) (260)
      FlowSet Length: 712
      [Template Frame: 52 (received after this frame)]
    > Flow 1
    > Flow 2
```

- Identify the frame in which the NetFlow/IPFIX template was received and open it to validate the fields that the template includes



```
> Frame 52: 162 bytes on wire (1296 bits), 162 bytes captured (1296 bits)
> Ethernet II, Src: VMware_b3:6a:d6 (00:50:56:b3:6a:d6), Dst: VMware_b3:04:b9 (00:50:56:b3:04:b9)
> Internet Protocol Version 4, Src: 10.1.0.253, Dst: 10.1.3.31
> User Datagram Protocol, Src Port: 51431, Dst Port: 2055
v Cisco NetFlow/IPFIX
    Version: 10
    Length: 120
  > Timestamp: Jun  1, 2023 17:41:03.000000000 CST
    FlowSequence: 24348090
    Observation Domain Id: 256
  v Set 1 [id=2] (Data Template): 260
      FlowSet Id: Data Template (V10 [IPFIX]) (2)
      FlowSet Length: 104
    v Template (Id = 260, Count = 24)
        Template Id: 260
        Field Count: 24
      > Field (1/24): IPv4 ID
      > Field (2/24): IP_SRC_ADDR
      > Field (3/24): IP_DST_ADDR
      > Field (4/24): IP_TOS
      > Field (5/24): IP_DSCP
      > Field (6/24): PROTOCOL
      > Field (7/24): IP TTL MINIMUM
      > Field (8/24): IP TTL MAXIMUM
      > Field (9/24): L4_SRC_PORT
      > Field (10/24): L4_DST_PORT
      > Field (11/24): TCP_FLAGS
      > Field (12/24): SRC_AS
      > Field (13/24): IP_SRC_PREFIX
      > Field (14/24): SRC_MASK
      > Field (15/24): INPUT_SNMP
      > Field (16/24): DST_AS
      > Field (17/24): IP_NEXT_HOP
      > Field (18/24): DST_MASK
      > Field (19/24): OUTPUT_SNMP
      > Field (20/24): DIRECTION
      > Field (21/24): BYTES
      > Field (22/24): PKTS
      > Field (23/24): FIRST_SWITCHED
      > Field (24/24): LAST_SWITCHED
```

Note: The field names showed can look different on each exporter, this is just a reference of how you can validate those fields.