Packet Truncation

New and Changed Information

The following table provides an overview of the significant changes to this document.

| Cisco NDB Release Version	Feature	Description
3.9	Packet Truncation	This document has details of how to implement Packet Truncation.

Packet Truncation

Packet truncation, also called as packet slicing, involves discarding bytes from a packet. Only a portion of the packet (initial bytes of the packet header) is saved instead of the entire packet, after a user-specified byte position is discarded. This helps in reducing the data overload on tools.

Packet truncation enables users to perform header analytics efficiently on the main information in the initial part of the packet . This helps in tools optimization like improving tools performance by eliminating transmission of the unnecessary part of the packet payload and increases storage capacity, by giving tools more room to store the important portions of each packet.

Consider the following topology - Cisco Nexus 9000 Series switch with source port (Ethernet 1/37) , truncation port (Ethernet 1/1) and delivery port (Ethernet 1/5). Packet truncation can be implemented in either of these two ways:

• Truncation port of the NDB switch is connected to another switch (or can also be another port on the same NDB switch).
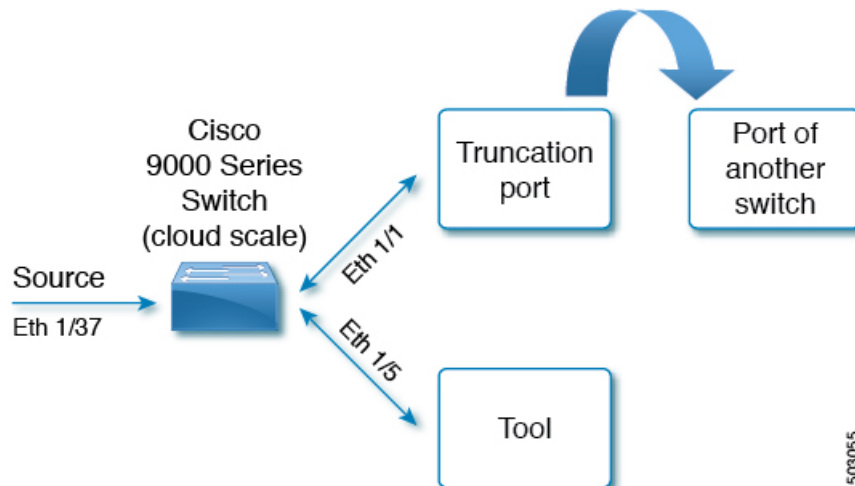
• Truncation port of the NDB switch uses self loopback modules. Self loopback modules are special transceivers.
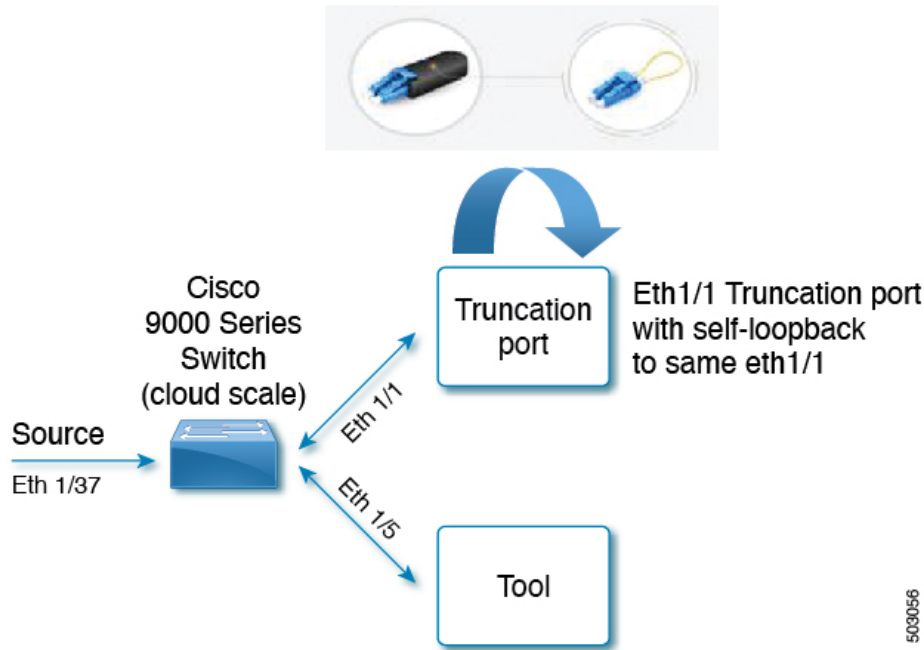
Packet truncation is supported on the following Nexus 9000 series switches:

Table 1: Support for Packet Truncation

EX Chassis	FX Chassis	Nexus 9364C, Nexus 9332C	Nexus 9336C-FX2	EOR switches with -EX or -FX LCs
Support started from NX-OS Release 7.0(3)I7(1)	Support started from NX-OS Release 7.0(3)I7(1)	Support started from NX-OS Release 7.0(3)I7(2)	Support started from NX-OS Release 7.0(3)I7(3)	9.3(1)
MTU size range is 320 to 1518 bytes	MTU size range is 64 to 1518 bytes	MTU size range is 64 to 1518 bytes	MTU size range is 64 to 1518 bytes	Depends on LC
Four active localized SPAN sessions	Four active localized SPAN sessions	Four active localized SPAN sessions	Four active localized SPAN sessions	-

Refer the respective switch documentation, for more information about Nexus 9000 series switches.

Guidelines and Limitations

- Packet truncation is supported for unicast traffic only (not supported for multicast traffic).

- Packet truncation port and delivery/monitor port should be present on the same switch.

Workflow for Packet Truncation

The following table lists the tasks for the workflow. Complete the tasks in the order as indicated in the table.

Task	Description	Result of the Task (Examples used in the task are indicated here)
Creating a Packet Truncation Port	Creates a packet truncation port.	Truncation_port was created.
Creating an Edge Span Port	Creates an edge span port.	Span_port was created.
Creating a Delivery Port	Creates a delivery port.	Tool_port was created.
Creating a Connection using Filters	Creates a connection between the edge span port and delivery port.	The default *match all* filter is used.

Creating a Packet Truncation Port

Use this procedure to configure a packet truncation interface.

Procedure

Step 1   Navigate to **Configuration** > **Port Definition** > **Port Configuration**.

Step 2   Click **Configure** for the interface selected for configuration.

Step 3   In the Configure Ports pane, click **Select a port type** and click **Packet Truncation Port**.

Step 4   In the **Port Description** field, enter the name as Truncation_port.

Step 5   Click **Submit**.

A packet truncation port is created to block the ingress traffic.

What to do next

Use the **show running-config** command to check the configurations of the truncation port. Details for the truncation port displayed below, are based on the topology discussed in the Packet Truncation section.

```
interface Ethernet1/1
 description Truncation_Port
 switchport mode trunk
 ip port access-group ndb_ipacl_Ethernet1_1 in
 ipv6 port traffic-filter ndb_ipv6acl_Ethernet1_1 in
 mac port access-group ndb_macacl_Ethernet1_1
 mode tap-aggregation
 spanning-tree bpdufilter enable
```

Creating an Edge Span Port

Use this procedure to create an edge span port, which is the ingress port for the packet.

Procedure

Step 1   Navigate to **Configuration** > **Port Definitions** > **Port Configuration**.

Step 2   Click **Configure** on the port to be configured as the span port.

The **Configure Ports** window is displayed.

Step 3   Select Edge Port - SPAN from the drop-down menu.

Step 4   In the **Port Description** field, enter Span_port.

Step 5   Click **Submit**.

What to do next

Use the **show running-config** command to check the configurations of the span port. Details for the source port displayed below, are based on the topology discussed in the Packet Truncation section.

```
interface Ethernet1/37
 description Span_Port
 no lldp transmit
 no lldp receive
 switchport mode trunk
 ip port access-group ndb_ipacl_Ethernet1_37 in
 ipv6 port traffic-filter ndb_ipv6acl_Ethernet1_37 in
 mac port access-group ndb_macacl_Ethernet1_37
 mode tap-aggregation
 spanning-tree bpdufilter enable
 switchport block multicast
 switchport block unicast
```

Creating a Delivery Port

Use this procedure to create a delivery (monitoring tool) port, which is the egress port for the packet.

Procedure

Step 1   Navigate to **Configuration** > **Port Definitions** > **Port Configuration**.

Step 2   Click **Configure** on the port to be configured as the monitor tool port.

Step 3   Select **Add Monitoring Device** .

The **Add Monitoring Device** window is displayed.

Step 4   In the **Monitoring Device Name** field, enter Tool_port.

Step 5   Check the **Packet Truncation** checkbox.

Step 6   In the **MTU Size** field, enter the MTU size in bytes. Packet truncation is based on the set MTU size.

Step 7   Select the configured packet truncation port from the drop-down list.

Step 8   Click **Submit**.

What to do next

Use the **show running-config** command to check the configurations of the delivery port. Details for the delivery port displayed below, are based on the topology discussed in the Packet Truncation section.

```
interface Ethernet1/5
 no lldp transmit
 no lldp receive
 switchport mode trunk
 ip port access-group ndb_ipacl_Ethernet1_5 in
 ipv6 port traffic-filter ndb_ipv6acl_Ethernet_5 in
 mac port access-group ndb_macacl_Ethernet1_5
 mode tap-aggregation
 spanning-tree bpdufilter enable
```

Use the **show monitor session all** command to check the MTU size. An extract of the command is shown below; the displayed ports are based on the topology discussed in the Packet Truncation section.

```
session 1
---------
description       :NDB-session
type             :local
state   :up
acl-name       :acl-name1
mtu       :500
source intf    :
 rx       :
 tx        :Eth1/1
 both     :
source VLANs    :
 rx       :
 tx       :
 both     :
filter VLANs   :filter not specified
source fwd drops    :
destination ports    :ETh1/5
source VSANs :
```

Creating a Connection using Filters

Use this procedure to create a connection using the default **match-all** filter.

Procedure

Step 1	Navigate to **Configuration** > **Connections** > **User Connections**.
Step 2	Click **New Connection**.
	The **Add Connection** window is displayed.
Step 3	In the **Connection Details** pane, enter a name in the **Connection Name** field.
	Enter the connection name as Packet_Truncation_Connection.
Step 4	In the **Filter Details** pane, select the **Default Match_all** filter from the **Allow Filters** drop-down menu.
Step 5	In the **Destination Device/ Destination Group Details** pane, select the Source and Destination ports.

Choose Span_port and Tool_port, based on the earlier configurations.

Step 6   Click **Install Connection** to install the connection in the switch.

What to do next

Use the **show ip access-lists** command to check the latest configuration updates to the switch, after the connection is established.

```
IP access list ndb_ipacl_Ethernet1/37
 statistics per-entry
 49500001 permit any any redirect Ehernet1/1 (match=0)
 49993001 deny ip any any (match=0)
```

Validating Traffic

This task describes how to confirm packet truncation based on MTU size. MTU size for the delivery port is set to 500 bytes.

Before you begin

Send traffic from the production switch with 1500 bytes.

Procedure

Step 1   Use the **show ip access-lists** command to check the acl counter.

```
IP access list ndb_ipacl_Ethernet1_37
 statistics per-enry
 49500001 permit ip any any redirect Ethernet1/1 (match=1)
 49993001 deny ip any any (match=0)
```

Step 2   Use the **show interface** command for the source port and check the size of the received bytes.

The **Inoctets** column for the source port (Eth1/37) displays 1504 bytes.

```
Port  InOctets  InUCastPkts
--------------------------------------------------
Eth1/37  1504     1
--------------------------------------------------
Port  InMcastPkts  InBcastPkts
--------------------------------------------------
Eth1/37  0    0
--------------------------------------------------
Port  OutOctets  OutUcastPkts
--------------------------------------------------
Eth1/37  260       0
--------------------------------------------------
Port  OutMcastPkts  OutBcastPkts
--------------------------------------------------
Eth1/37  1    0
```

Step 3   Use the **show interface** command for the trunction port.

The **Outoctets** column for the truncation port (Eth1/1) displays 1500 bytes.

```
Port  InOctets  InUCastPkts
-------------------------------------------------------
Eth1/1  369      1
-------------------------------------------------------
Port  InMcastPkts  InBcastPkts
-------------------------------------------------------
Eth1/1  0    0
-------------------------------------------------------
Port  OutOctets  OutUcastPkts
-------------------------------------------------------
Eth1/1  1500        1
-------------------------------------------------------
Port  OutMcastPkts  OutBcastPkts
-------------------------------------------------------
Eth1/1  1    0
```

Step 4   Use the **show interface** command for the monitor port.

The **Outoctets** column for the monitor port (Eth1/5) displays 500 bytes, based on the set MTU size. The received 1500 bytes packet is truncated to 500 bytes and sent to the tool.

```
Port  InOctets  InUCastPkts
-------------------------------------------------------
Eth1/5  0          0
-------------------------------------------------------
Port  InMcastPkts  InBcastPkts
-------------------------------------------------------
Eth1/5  0    0
-------------------------------------------------------
Port  OutOctets  OutUcastPkts
-------------------------------------------------------
Eth1/5  500        1
-------------------------------------------------------
Port  OutMcastPkts  OutBcastPkts
-------------------------------------------------------
Eth1/5  0    0
```