

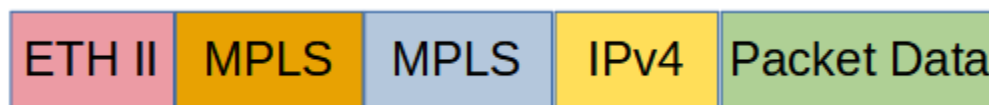
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Stripping/Filtering MPLS Labels

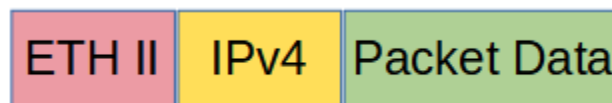
Overview:

When the MPLS label(s) are removed from a packet, the packet maintains the original ETH II, IPv4, and packet data as shown below.

MPLS Packet



MPLS Packet – Labels Removed



The Advanced Features MPLS abilities:

- Strip from 1 up to 9 MPLS labels from packets.
- Strip MPLS labels from packets based on IP Protocol number.
- Strip MPLS labels based on filtering up to 3 MPLS Labels, 1st, 2nd and 3rd.
- Filter MPLS packets based on filtering up to 3 MPLS Labels, 1st, 2nd and 3rd.
- Filter MPLS packets based on IP Protocol.
- Filter MPLS packets based on Ether Type.

Stripping MPLS labels from a packet or filtering MPLS packets involves two configuration processes.

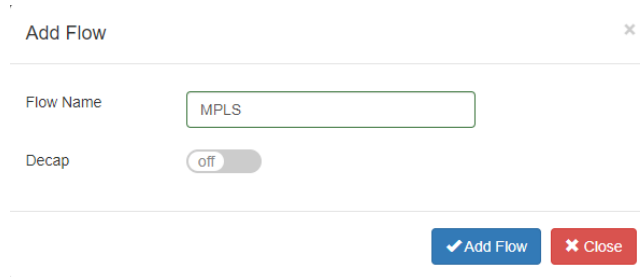
1. Create a Flow
2. Create a Tap Group

1. Create a Flow

The flow defines which MPLS packets will have the MPLS labels stripped and/or filtered. Packets that do not meet the flow attributes will not be stripped and/or filtered. In some cases, it may be required to create more than 1 flow.

1. Select Tap Management.
2. Select Flow.
3. Select + Add Flow.

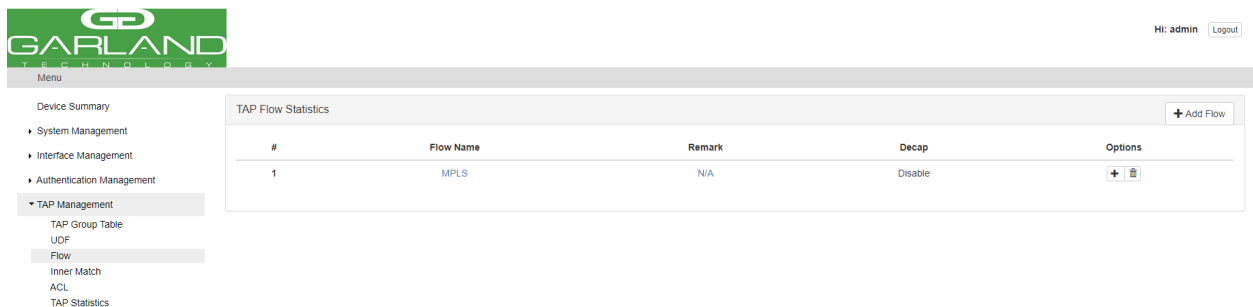
The Add Flow panel will appear.



The screenshot shows a modal window titled "Add Flow" with a close button (X) in the top right corner. Inside the modal, there is a "Flow Name" label followed by a text input field containing the text "MPLS". Below this, there is a "Decap" label followed by a toggle switch currently set to "off". At the bottom right of the modal, there are two buttons: a blue button with a checkmark icon and the text "Add Flow", and a red button with an X icon and the text "Close".

4. Enter the Flow Name.
5. Select Add Flow.

The flow will be displayed.



The screenshot shows the Garland Technology web interface. On the left is a navigation menu with the following items: Device Summary, System Management, Interface Management, Authentication Management, TAP Management (expanded), TAP Group Table, UDF, Flow (highlighted), Inner Match, ACL, and TAP Statistics. The main content area is titled "TAP Flow Statistics" and includes a "+ Add Flow" button in the top right. Below the title is a table with the following data:

#	Flow Name	Remark	Decap	Options
1	MPLS	N/A	Disable	+ -

In the top right corner of the interface, there is a user status bar showing "Hi: admin" and a "Logout" button.

6. Select the + in the Options column for the desired flow to define the flow attributes.

The Add Flow Entry panel will be displayed.

The flow defines which packets will have the MPLS labels stripped or passed per the filter. Packets that do not meet the flow attributes will not be affected or dropped. In some cases, it may be required to create more than 1 flow.

Flow Option 1 – Strip MPLS Labels (IP Protocol)

This flow may be used to strip all of the MPLS labels from packets without specifying the number of MPLS labels or using filtering to determine which MPLS packets are affected.

Add Flow Entry

Match Rule	
Sequence-num	off
Action	permit
IP protocol number	mpls
Mpls enable	on
Num	any
Filter Type	ipv4
Ether Type	off
DSCP	off
Ip-precedence	off
Options	off
Fragment	off
Src-mac	off
Dst-mac	off
COS	off
Inner COS	off
VLAN	off
Inner VLAN	off
UDF	off

Action	
Strip-header	on
Strip-position	off
Strip-offset	off
Vlan mark	off
Edit packet	off
Add I2gre	off
Add I3gre	off
Add Vxlan	off
Add Erspantype-1	off
Add Erspantype-2	off

OK Close

7. Under Match Rule, select mpls for the IP Protocol number.

8. Enable Mpls to enable.

9. Under Action, enable Strip-header.

10. Select OK.

Flow Option 2 – Strip MPLS Labels (Strip 1-9 Labels and Filter on 1st, 2nd, and 3rd)

This flow may be used to strip all of the MPLS labels from packets by specifying the packets that meet the MPLS label number and using filtering to determine which MPLS packets are affected.

7. Under Match Rule, select mpls for the IP Protocol number.
8. Enable Mpls to enable.
9. Select the MPLS label number, 1-9. The MPLS labels will only be stripped from the packets that match the number selected. If 7 is selected, packets with 1-6, 8-9 MPLS labels will not be affected.
10. Select the label1 option, any or number. If any is selected this flow will not use the 1st MPLS label as a filter option. If the number is selected an option will appear to enter the matching MPLS 1st label. Any packet that does not meet the number entered will not be affected.
11. Select the label2 option, any or number. If any is selected this flow will not use the 2nd MPLS label as a filter option. If number is selected an option will appear to enter the matching MPLS 2nd label. Any packet that does not meet the number entered will not be affected.
12. Select the label3 option, any or number. If any is selected this flow will not use the 3rd MPLS label as a filter option. If number is selected an option will appear to enter the matching MPLS 3rd label. Any packet that does not meet the number entered will not be affected.
13. Under Action, enable Strip-header.

14. Select OK.

Flow Option 3 – Filter MPLS Packets (Filter on 1st, 2nd, and 3rd)

This flow may be used to filter MPLS packets based on the 1st, 2nd and 3rd MPLS label number.

The screenshot shows the 'Add Flow Entry' configuration window. Under the 'Match Rule' section, the 'IP protocol number' is set to 'mpls'. The 'Mpls enable' toggle is turned on. The 'Num' is set to 5. The 'label1' dropdown is set to 'num', and the 'label1_number' field contains '12345'. The 'label2' dropdown is set to 'any'. The 'label3' dropdown is set to 'num', and the 'label3_number' field contains '34567'. Below the 'Match Rule' section, the 'Filter Type' is set to 'ip v4'. Under the 'Action' section, the 'Truncation' toggle is off, and the 'Untag' dropdown is set to 'Disable'. All other action options (Strip-header, Vlan mark, Edit packet, Add t2gre, Add t3gre, Add Vxlan, Add Erspan-type-1, Add Erspan-type-2) are toggled off.

7. Under Match Rule, select mpls for the IP Protocol number.

8. Enable Mpls enable.

9. Select the MPLS label number, 1-9. The MPLS packets that match the number selected will be passed. If 5 is selected, packets with 1-4, 6-9 MPLS labels will be dropped.

10. Select the label1 option, any or number. If any is selected this flow will not use the 1st MPLS label as a filter option. If number is selected an option will appear to enter the matching MPLS 1st label. Any packet that does not meet the number entered will not be dropped.

11. Select the label2 option, any or number. If any is selected this flow will not use the 2nd MPLS label as a filter option. If number is selected an option will appear to enter the matching MPLS 2nd label. Any packet that does not meet the number entered will not be dropped.

12. Select the label3 option, any or number. If any is selected this flow will not use the 3rd MPLS label as a filter option. If number is selected an option will appear to enter the matching MPLS 3rd label. Any packet that does not meet the number entered will not be dropped.

14. Select OK.

Flow Option 4 – Filter MPLS Packets (Filter on IP Protocol)

This flow may be used to filter MPLS packets based on IP Protocol only.

Add Flow Entry

Match Rule

Sequence-num	off
Action	permit
IP protocol number	mpls
Mpls enable	on
Num	any
Filter Type	ipd
Ether Type	off
DSCP	off
Ip-precedence	off
Options	off
Fragment	off
Src-mac	off
Dst-mac	off
COS	off
Inner COS	off
VLAN	off
Inner VLAN	off
UCF	off

Action

Truncation	off
Untag	Disable
Strip-header	off
Vlan mark	off
Edit packet	off
Add i2gre	off
Add i3gre	off
Add Vxlan	off
Add Erspan-type-1	off
Add Erspan-type-2	off

OK Close

7. Under Match Rule, select mpls for the IP Protocol number.

8. Enable Mpls to enable.

9. Select OK.

Flow Option 5 – Filter MPLS Packets (Filter on Ether Type)

This flow may be used to filter MPLS packets based on Ether Type only.

Add Flow Entry

Match Rule

Sequence-num	off
Action	permit
IP protocol number	any
Filter Type	l2v4
Ether Type	on
Value	0x8847
Wildcard	0x0
Src-mac	off
Dest-mac	off
COS	off
Inner COS	off
VLAN	off
Inner VLAN	off
UDP	off

Action

Truncation	off
Untag	Disable
Strip-header	off
Vlan mark	off
Edit packet	off
Add l2gre	off
Add l3gre	off
Add Vxlan	off
Add Eirspantype-1	off
Add Eirspantype-2	off

OK

Close

7. Under Match Rule, select any for the IP Protocol number.

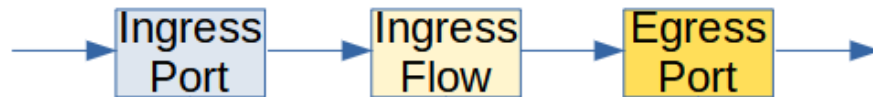
8. Enable Ether Type.

9. Enter the Ether Type value for MPLS, 0x8847.

10. Select OK.

2. Create a Tap Group

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



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

The TAP Group Name panel will appear.

TAP Group Name

TAP Group Name

MPLS

TAP Group ID

0

OK

Close

4. Enter the TAP Group Name.

5. Select OK.

The Tap Group will be displayed.

Hi: admin

Logout

Menu

Device Summary

System Management

Interface Management

Authentication Management

TAP Management

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	MPLS	N/A	NO	

- 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.

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

The add panel will appear.

- Select the Direction, ingress.
- Select the desired ingress port.
- Enable Flow Match.
- Select the MPLS flow.
- Select OK.

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

The add panel will appear.

The image shows a configuration panel titled "MPLS". It contains three rows of settings:

- Direction:** A dropdown menu with "egress" selected.
- Port:** A dropdown menu with "eth-0-2" selected.
- Timestamp:** A toggle switch set to "off".

At the bottom right of the panel are two buttons: a blue "OK" button and a red "Close" button.

14. Select the Direction, egress.

15. Select the desired egress port.

16. Select OK.

The image shows a configuration panel titled "MPLS". It has two tabs: "Ingress" and "Egress". The "Egress" tab is selected. Below the tabs is a table with the following columns: #, Port, Flow Match, Untag, Vlan mark, Truncation, Edit-macda, Edit-macsa, Edit-ipda, Edit-ipsa, Edit-vlan, and Options. The table contains one row with the following data:

#	Port	Flow Match	Untag	Vlan mark	Truncation	Edit-macda	Edit-macsa	Edit-ipda	Edit-ipsa	Edit-vlan	Options
1	eth-0-1	MPLS	Disable	N/A	Disable	N/A	N/A	N/A	N/A	N/A	

At the bottom right of the panel is a red "Close" button.

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

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