

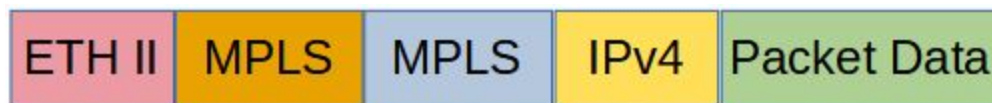
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Stripping/Filtering MPLS Labels

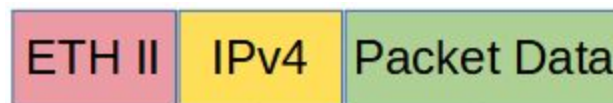
Overview:

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.

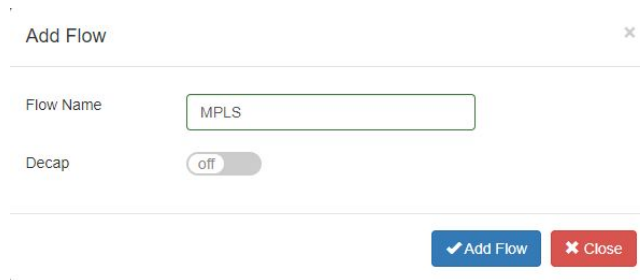
1. Create a Flow
2. Create a Tap Group

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.

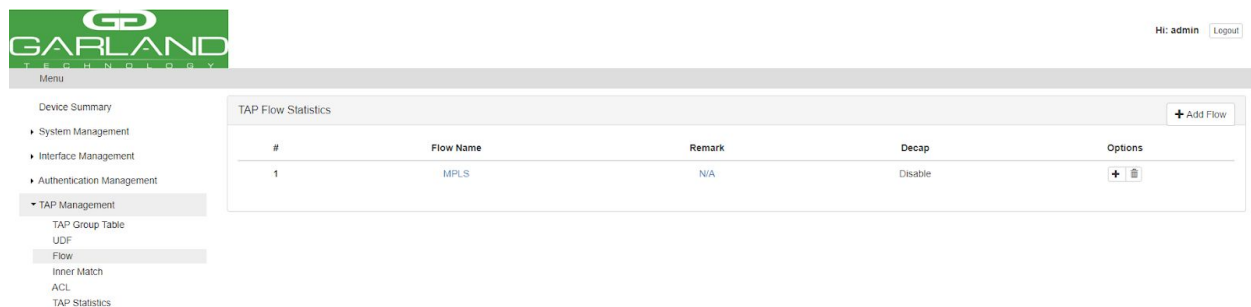
The Add Flow panel will appear.



The screenshot shows a modal window titled "Add Flow" with a close button (X) in the top right corner. Inside the window, 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 Garland Technology logo at the top. The menu items are: Device Summary, System Management, Interface Management, Authentication Management, TAP Management (which is 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	+ [icon]

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 l2gre	off
Add l3gre	off
Add Vxlan	off
Add Erspan-type-1	off
Add Erspan-type-2	off

OK Close

- Under Match Rule, select mpls for the IP Protocol number.
- Enable Mpls enable.
- Under Action, enable Strip-header.
- 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.

The screenshot shows the 'Add Flow Entry' configuration window. The 'Match Rule' section is expanded, showing the following settings:

- Sequence-num: off
- Action: permit
- IP protocol number: mpls
- Mpls enable: on
- Num: 7
- label1: num
- label1 number: 5545
- label2: num
- label2 number: 5545
- label3: 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

The 'Action' section is also expanded, showing the following settings:

- Strip-header: on
- Strip-position: off
- Strip-offset: off
- Vlan mark: off
- Strip packet: off
- Add I2gre: off
- Add I2gre: off
- Add Vxlan: off
- Add Encap-type-1: off
- Add Encap-type-2: off

At the bottom right, there are 'OK' and 'Close' buttons.

- Under Match Rule, select mpls for the IP Protocol number.
- Enable Mpls enable.
- 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 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.

Add Flow Entry

Match Rule

Sequence-num	off
Action	permit
IP protocol number	mpls
Mpls enable	on
Num	5
label1	num
label1_number	12345
label2	any
label3	num
label3_number	34567
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

Truncation	off
Untag	Disable
Strip-header	off
Vlan mark	off
Edit packet	off
Add I2gre	off
Add I2gre	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 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	<input type="checkbox"/>
Action	permit
IP protocol number	mpls
Mpls enable	<input checked="" type="checkbox"/>
Num	any
Filter Type	ipet
Ether Type	<input type="checkbox"/>
DSCP	<input type="checkbox"/>
Ip-precedence	<input type="checkbox"/>
Options	<input type="checkbox"/>
Fragment	<input type="checkbox"/>
Src-mac	<input type="checkbox"/>
Dst-mac	<input type="checkbox"/>
COS	<input type="checkbox"/>
Inner COS	<input type="checkbox"/>
VLAN	<input type="checkbox"/>
Inner VLAN	<input type="checkbox"/>
UDF	<input type="checkbox"/>

Action	
Truncation	<input type="checkbox"/>
Untag	Disable
Strip-header	<input type="checkbox"/>
Vlan mark	<input type="checkbox"/>
Edit packet	<input type="checkbox"/>
Add I2gre	<input type="checkbox"/>
Add I3gre	<input type="checkbox"/>
Add Vxlan	<input type="checkbox"/>
Add Erspan-type-1	<input type="checkbox"/>
Add Erspan-type-2	<input type="checkbox"/>

OK Close

7. Under Match Rule, select mpls for the IP Protocol number.
8. Enable Mpls 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	<input type="checkbox"/>
Action	permit
IP protocol number	any
Filter Type	IPv4
Ether Type	<input checked="" type="checkbox"/>
Value	0x8847
Wildcard	0x0
Src-mac	<input type="checkbox"/>
Dst-mac	<input type="checkbox"/>
CCS	<input type="checkbox"/>
Inner CCS	<input type="checkbox"/>
VLAN	<input type="checkbox"/>
Inner VLAN	<input type="checkbox"/>
UDF	<input type="checkbox"/>

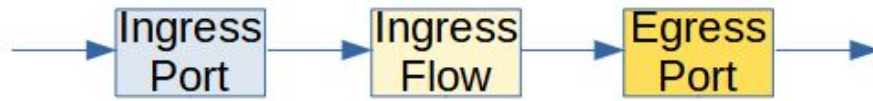
Action

Truncation	<input type="checkbox"/>
Untag	Disable
Strip-header	<input type="checkbox"/>
Vlan mark	<input type="checkbox"/>
Edit packet	<input type="checkbox"/>
Add I2gre	<input type="checkbox"/>
Add I3gre	<input type="checkbox"/>
Add Vxlan	<input type="checkbox"/>
Add Etype-1	<input type="checkbox"/>
Add Etype-2	<input type="checkbox"/>

- Under Match Rule, select any for the IP Protocol number.
- Enable Ether Type.
- Enter the Ether Type value for MPLS, 0x8847.
- 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

TAP Group ID

✓ 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
 - 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	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.

MPLS configuration panel with the following fields:

- Direction: egress (dropdown)
- Port: eth-0-2 (dropdown)
- Timestamp: off (toggle)

Buttons: OK, Close

14. Select the Direction, egress.

15. Select the desired egress port.

16. Select OK.

MPLS configuration panel showing a table with one entry:

#	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	[Icon]

Buttons: Ingress, Egress, + Add, Close

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.