Configure MPLS Parameter on IW URWB Mode Radios

Contents

Introduction

This document describes the configuration of MPLS parameters on IW9165 and IW9167 radios in URWB mode.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Basic CLI navigation and commands
- Understanding of IW URWB mode radios

Components Used

The information in this document is based on these software and hardware versions:

- IW9165 and IW9167 radios
- Industrial Wireless service

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

MPLS is a routing technique that uses labels instead of IP addresses to send data from source to destination.

On IW9165 and IW9167 radios in URWB mode, several MPLS parameters can be configured via IoT OD with the Industrial Wireless service and CLI.

This document provides detailed instructions on configuring these parameters.

Configure

Current Configuration

To view the current MPLS configuration on the device:

```
device#show mpls configuration
```

Example output:

```
Configuration for MPLS:
- MPLS tunnels: Tunnel1, Tunnel2
- Unicast flooding: enabled
- Pseudowire formation: meshend
- Cluster ID: cluster1
- ARP limit: rate 100, grace 200, block 300
- ARP unicast flooding: enabled
- Reduce broadcast: enabled
- VBR table: 5 entries
```

```
[ME_TRK_IW9167EH#show mpls config
layer 2
unicast-flood: disabled
arp-unicast: enabled (broadcasting not allowed)
reduce-broadcast: disabled
pwlist: all
Cluster ID: disabled
Ethernet Filter allow-list: 0x8892 0x8204, ethernet-I block
MPLS fast failover is disabled
ARP limit: rate 0 grace 30000 block 0
MPLS tunnels:
ldp_id 1030010529 debug 0 auto_pw 1
local_gw 5.246.2.0 global_gw 0.0.0.0 pwlist { }
mobility true vehicle_id -2 v2v_handoff 0 v2v_pws false auto_en true static_pws { 0.0.0.0 }
lsps 4
<5.246.2.0 5.1.88.75 2106858818> ESTABLISHED ftn 1 ilm 504000 pi- 21.660488742 ka 0 { 5.246.2.0 5.1.88.75 }
<5.246.2.0 5.0.191.222 438988236> ESTABLISHED ftn 4 ilm 504002 pim 8.109886768 ka 0 { 5.246.2.0 5.1.88.75 5.0.191.222 }
<5.246.2.0 5.1.80.170 1537200926> ESTABLISHED ftn 3 ilm 504001 pim 8.647991507 ka 0 { 5.246.2.0 5.1.88.75 5.1.80.170 }
<5.246.2.0 5.66.194.36 1538179829> ESTABLISHED ftn 6 ilm 504003 pim 8.947489475 ka 0 { 5.246.2.0 5.1.88.75 5.66.194.36 }
ME_TRK_IW9167EH#
```

Unicast Flooding

Step 1: Enable unicast flooding of MPLS packets.

```
device#configure mpls unicast enabled
```

Step 2: Disable unicast flooding of MPLS packets.

```
device#configure mpls unicast disabled
```

Step 3: Enable unicast flooding from non-private IP addresses.

```
device#configure mpls unicast restricted
```

Step 4: Enable retry limitations for unicast packets.

```
device#configure mpls unicast-flood rate-limit enabled
```

Step 5: Disable retry limitations for unicast packets.

```
device#configure mpls unicast-flood rate-limit disabled
```

```
[ME_TRK_IW9167EH#configure mpls unicast-flood
  disabled      disable unicast flooding
  enabled       enable unicast flooding for safe IP address ranges
  rate-limit    set unicast flooding rate limitation
  unrestricted  enable unicast flooding for all IP addresses
[ME_TRK_IW9167EH#configure mpls unicast-flood rate-limit
  disabled  disable unicast flooding rate limitation
  enabled   enable unicast flooding rate limitation
```

Pseudowire Formation

Step 1: Enable pseudowires to only mesh end.

```
device#configure mpls pw-set meshend
```

Step 2: Enable pseudowires to all devices.

```
device#configure mpls pw-set all
```

```
[ME_TRK_IW9167EH#configure mpls pw-set
  all      install pseudowires to all units
  meshend  install pseudowires to mesh-end units only
ME_TRK_IW9167EH#configure mpls pw-set
```

Cluster ID

Step 1: Configure the cluster ID.

```
device#configure mpls cluster-id set cluster1
```

Step 2: Remove the cluster ID.

```
device#configure mpls cluster-id clear
```

```
[ME_TRK_IW9167EH#configure mpls cluster-id
  clear  clear Cluster ID
  set    set Cluster ID
[ME_TRK_IW9167EH#configure mpls cluster-id set
  WORD  String  Cluster ID
```

ARP Limit

Step 1: Set the ARP limit rate.

```
device#configure mpls arp-limit rate N
```

Step 2: Set the ARP limit grace value.

```
device#configure mpls arp-limit grace rate X
```

Step 3: Set the ARP limit block value.

```
device#configure mpls arp-limit block Y
```

```
[ME_TRK_IW9167EH#conf mpls arp-limit rate
  <0-65535>  Unsigned integer  rate limit in pkt/s (0 disabled)
[ME_TRK_IW9167EH#conf mpls arp-limit grace
  <0-65535>  Unsigned integer  msec in rate limit before dropping
[ME_TRK_IW9167EH#conf mpls arp-limit block
  <0-65535>  Unsigned integer  drop period in msec (0 disabled)
```

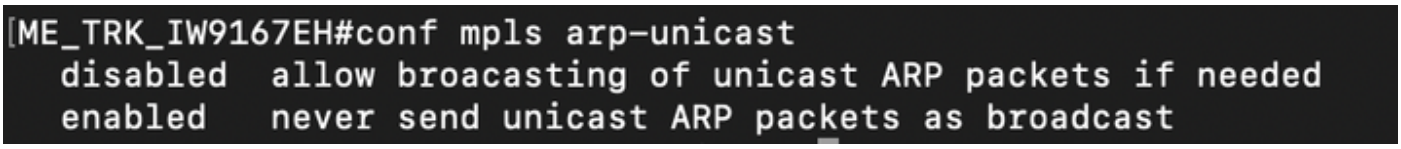
ARP Unicast Flooding

Step 1: Enable ARP unicast flooding.

```
device#configure mpls arp-unicast enabled
```

Step 2: Disable ARP unicast flooding.

```
device#configure mpls arp-unicast disabled
```



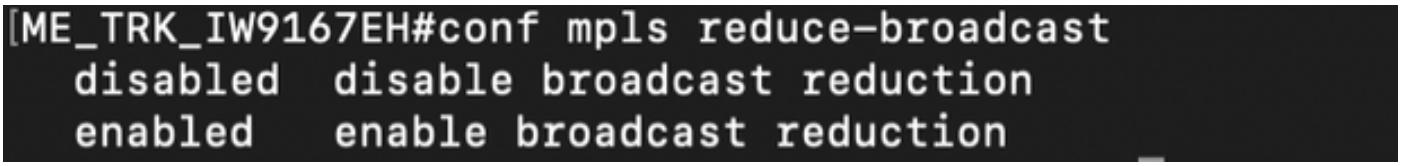
Reduce Broadcast

Step 1: Enable reducing broadcast packets.

```
device#configure mpls reduce-broadcast enabled
```

Step 2: Disable reducing broadcast packets.

```
device#configure mpls reduce-broadcast disabled
```



VBR Table

Step 1: Clear the VBR table from any device.

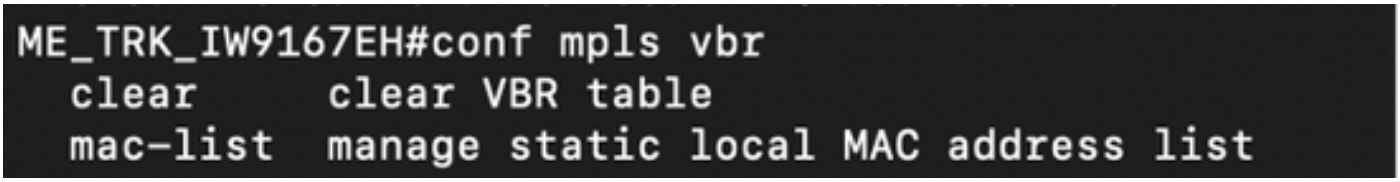
```
device#configure mpls vbr clear
```

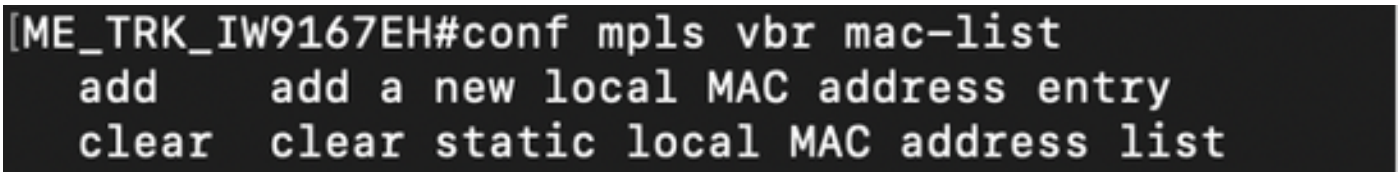
Step 2: Add a new path to a device.

```
device#configure mpls vbr mac-list add <mac-address> <vlan id>
```

Step 3: Delete a learned path from the device.

```
device#configure mpls vbr mac-list clear <mac-address> <vlan id>
```





Verify

Step 1: Verify the MPLS configuration.

```
device#show mpls configuration
```

Explanation: This command displays the current MPLS settings and tunnels established on the device.

```
Step 2: Validate VBR table entries
```

```
device#show mpls vbr
```

Related Information

- Cisco Technical Support & Downloads

```
```