# Configure a Fully Transparent Layer 2 Bridge Using URWB

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Configure a Fully Transparent Layer 2 Bridge Using URWB ..... 3
Key capabilities ..... 3
Guidelines and limitations ..... 3
Configure Layer 2 transparency ..... 3
Layer 2 transparency commands and parameters ..... 6
Legal information ..... 7

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## Configure a Fully Transparent Layer 2 Bridge Using URWB

This document describes Layer 2 transparency in an Ultra-Reliable Wireless Backhaul (URWB) network and explains how to configure and verify it. Layer 2 transparency forwards selected generic Layer 2 traffic across VLANs, supporting industrial protocols that do not use standard IP headers. The procedures apply to devices running UIW release 17.12.1 or later.

## Key capabilities

Layer 2 transparency provides the following capabilities:

- The system detects EtherTypes at the ingress and egress nodes of MPLS tunnels.
- Administrators can allow specific EtherTypes or enable Allow All to forward all detected EtherTypes.
- Ethernet-I frame forwarding can be controlled independently.
- PROFINET (0x8892) and QNX Qnet (0x8204) are allowed by default.

## Guidelines and limitations

Review these conditions before configuring the feature:

- Reload the device for changes to the Layer 2 transparency allow-list and Ethernet-I settings to take effect.
- The system reserves EtherTypes 0x0900–0x09FF and 0x8847. You cannot add these types to the allow-list manually.
- Filtering occurs at the ingress and egress nodes of MPLS tunnels within the URWB mesh network.

## Configure Layer 2 transparency

Enable VLANs, set the Native and Management VLAN IDs, and configure EtherType and Ethernet-I forwarding. You can perform the configuration through the CLI or Web UI.

### Before you begin

Confirm that the following prerequisites are met:

- The device is running UIW release 17.12.1 or later.
- The Native and Management VLAN IDs (VIDs) for the network are identified.
- The VLAN environment is established.

### Context

Perform this task to configure Layer 2 transparency using the CLI commands.

Establish an SSH session or a direct console connection to the device.

1. Use the **configure vlan status [enabled | disabled]** command to globally enable VLAN functionality on the device.

   ```
   Device# configure vlan enabled
   ```

2. Use the **configure vlan native vlan-id** command to assign the desired Native VLAN ID.

   ```
   Device# configure vlan native <VID>
   ```

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The supported native VLAN range is 0 to 4094.

3. Use the **configure vlan management vlan-id** command to assign the desired Management VLAN ID.

```
Device# configure vlan management 100
```

The supported Management VLAN range is 1 to 4094.

**Note**: Configure the native VID and management VID according to your network design requirements.

4. Use the **configure mpls ether-filter allow-list add all** command to add all detected EtherTypes to the allow-list.

```
Device# configure mpls ether-filter allow-list add all
```

5. Use the configure mpls ether-filter ethernet-I forward command to configure the system to forward Ethernet-I frames.

```
Device# configure mpls ether-filter ethernet-I forward
```

6. Use the write command to write the changes to system memory.

```
Device# write
```

7. Use the reload command to reload the device and apply the new transparency settings.

```
Device# reload
```

**Note**: The device will now forward all detected Layer 2 EtherTypes and Ethernet-I frames across the URWB network.

## Configure Layer 2 transparency using GUI

Perform this task to configure Layer 2 transparency on the Web UI.

1. Choose **Advanced settings** > **Ethernet Filter**.

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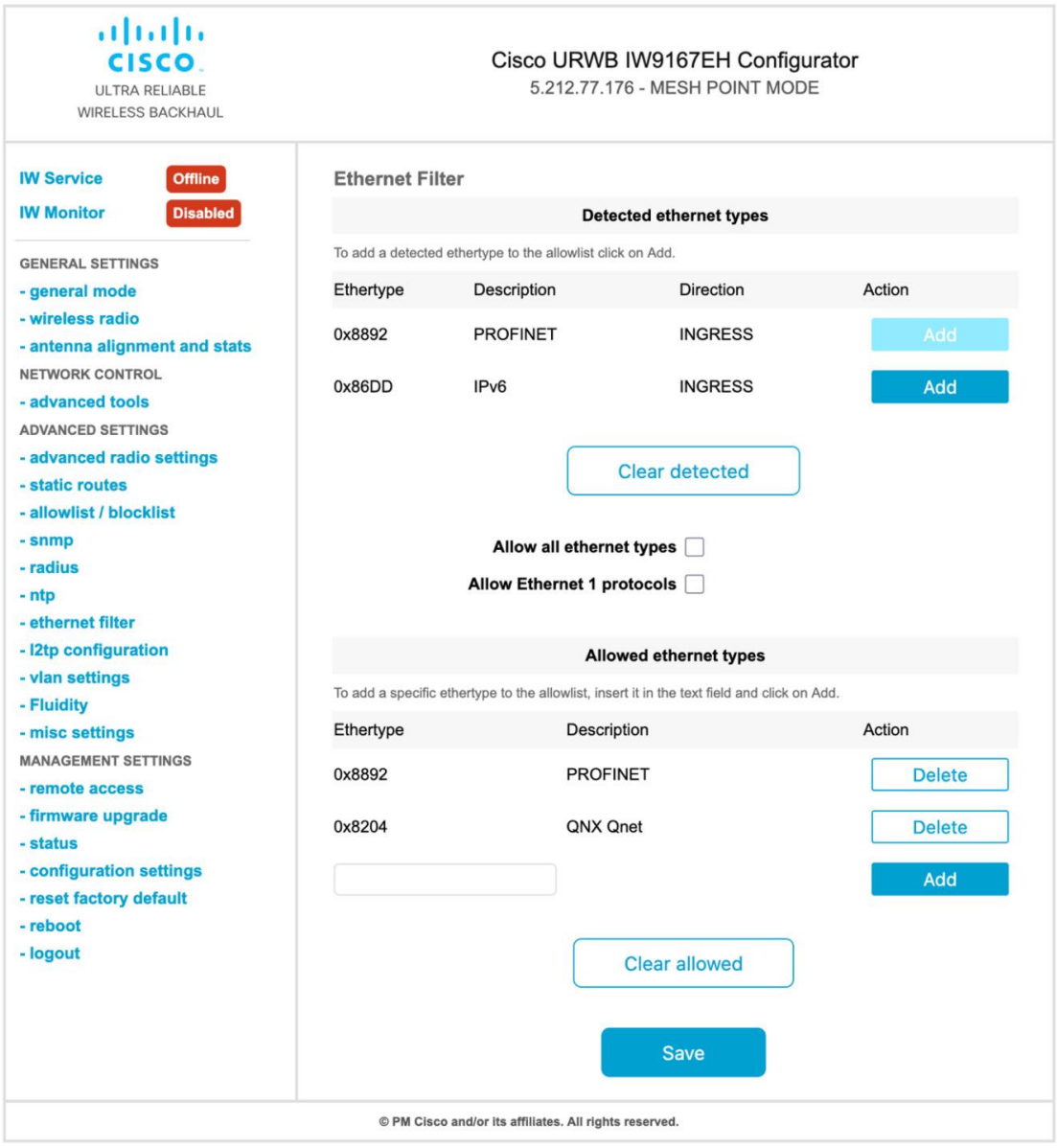


2. In the **Ethernet Filter** window, check the checkbox for **Allow all ethernet types**. This setting ensures that all detected Layer 2 traffic is forwarded without requiring manual entry of individual hex codes.

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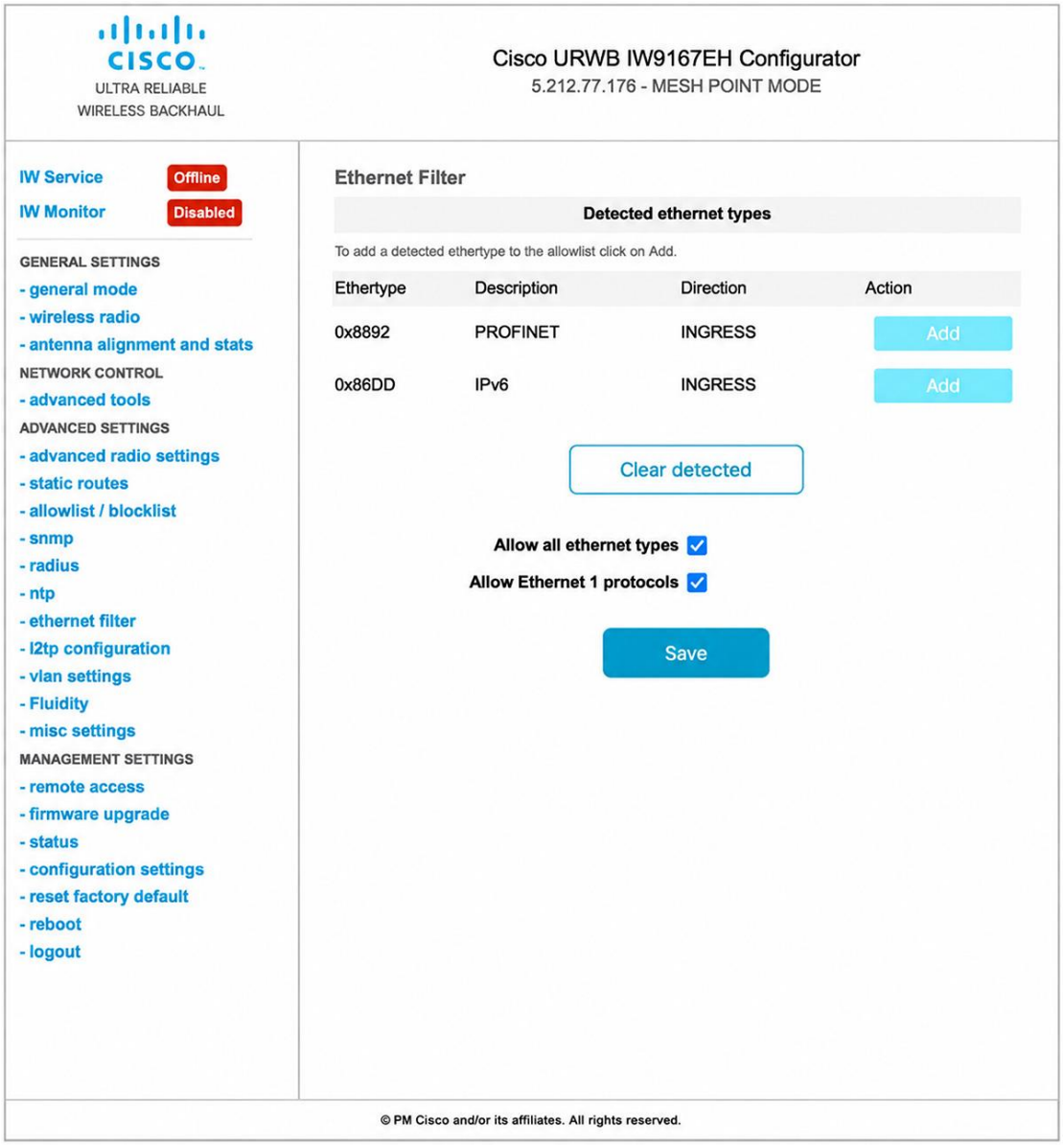


3. Check the checkbox for **Allow Ethernet 1 protocols** to permit Ethernet-I protocol frames.

4. Click **Save**.

5. Perform a **Reload or Reboot** of the device to apply the changes.

## Layer 2 transparency commands and parameters

### Verification commands

Use these CLI commands to monitor and verify Layer 2 transparency:

| Command | Description |
|---|---|
| show mpls config | Displays the current allow-list status and Ethernet-I forwarding state. |
| show mpls ether-filter | Lists EtherTypes currently detected by ingress nodes. |

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| Command | Description |
| --- | --- |
| configure mpls ether-filter table clear | Clears the table of detected EtherTypes that are not yet allowed. |

## Configuration parameters

The following parameters govern Layer 2 transparency:

- Allow-list range: 0x0 to 0xFFFF (hexadecimal).
- Reserved EtherTypes: 0x0900–0x09FF and 0x8847 cannot be added to the allow-list.
- MTU: When forwarding additional Layer 2 headers, ensure the wired interface MTU is sufficient to avoid fragmentation. The default MTU is 1600.

## Common EtherTypes

The following EtherTypes are used in URWB networks. PROFINET and QNX Qnet are allowed by default.

| EtherType | Protocol |
| --- | --- |
| 0x8892 | PROFINET (allowed by default) |
| 0x8204 | QNX Qnet (allowed by default) |
| 0x86DD | IPv6 |

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