

L2TPv3 Ethernet Pseudowire

Feature Overview and Configuration Guide

Introduction

This guide describes AlliedWare Plus™ L2TPv3 Ethernet pseudowire and its configuration.

L2TPv3 Ethernet pseudowires can be used to transport Ethernet frames across an IP backbone network, which connects Ethernet LANs together. A pseudowire is an emulation of a point-to-point connection over a Packet Switched Network (PSN).

Products and software version that apply to this guide

This guide applies to AlliedWare Plus L2TPv3 Ethernet pseudowire, running version **5.4.5** or later.

To see whether a product supports L2TPv3 Ethernet pseudowire, see the following documents:

- The [product's Datasheet](#)
- The [AlliedWare Plus Datasheet](#)
- The product's [Command Reference](#)

These documents are available from the above links on our website at alliedtelesis.com.

Feature support may change in later software versions. For the latest information, see the above documents.



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What is L2TPv3 Ethernet Pseudowire?

The Layer 2 Tunneling Protocol - version 2 (L2TPv2) provides a mechanism for tunneling Layer 2 packets over the Internet. However, L2TPv2 is limited to transporting PPP frames.

Layer 2 Tunneling Protocol - version 3 (L2TPv3) adds the ability to carry more Layer 2 protocols than just PPP. ISPs and network operators may use L2TPv3 to extend Frame Relay or ATM networks over an IP infrastructure.

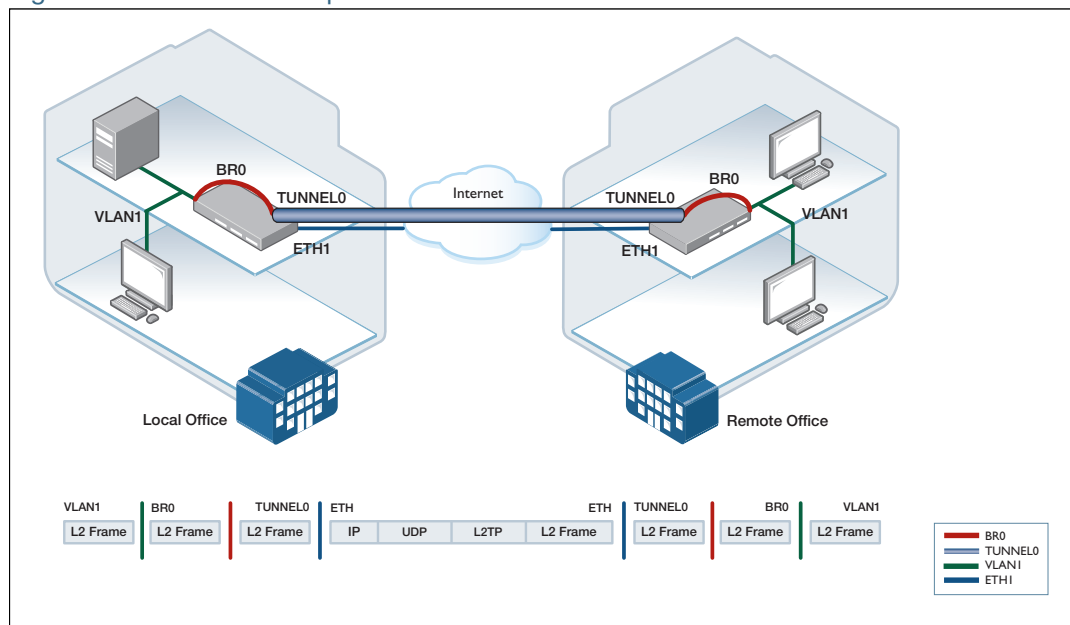
Each L2TPv3 session carries one data frame type which is agreed by both peers when the session is established. A session provides the data channel in L2TP and is effectively a virtual physical wire of that data link type.

L2TPv3 Ethernet pseudowires can be used to transport Ethernet frames across an IP backbone network, which connects Ethernet LANs together. A pseudowire is an emulation of a point-to-point connection over a Packet Switched Network (PSN).

L2TPv3 can also be used to transport IPv6 traffic over an IPv4 network.

L2TPv3 is described in RFC3931 and the specifications for supported Layer 2 protocols are maintained in separate RFCs (Ethernet RFC4719).

Figure 1: L2TPv3 Ethernet pseudowire



AlliedWare Plus L2TPv3 Ethernet pseudowire supports the following features:

- Unmanaged L2TPv3 over UDP as specified in RFC3931
- Virtual Tunnel Interfaces (VTI) for L2TPv3 pseudowires
- Configurable delivery protocol (IPv4 default, IPv6 optional)
- Transports L2TP over UDP (source and destination ports of 1701)
- Ethernet as the payload as specified in RFC471
- Transports 802.1Q tagged Ethernet frames
- Supports 256 L2TPv3 tunnels
- Configurable tunnel source using IPv4 or IPv6 address
- Configurable tunnel source using interface
- Configurable tunnel destination using IPv4 or IPv6 address
- Configurable tunnel destination using host name
- Configurable local tunnel ID
- Configurable remote tunnel ID
- Local session ID defaults to tunnel ID
- Remote session ID defaults to tunnel ID
- Display of tunnel parameters in show interface output
- L2TPv3 VTIs support configurable MTU (defaults to 1488 bytes)
- A reachable IPv4 and IPv6 address can be configured on the L2TPv3 VTI
- L2TPv3 VTIs support dot1q sub interfaces
- L2TPv3 VTIs can be attached to bridges
- Sets the TTL field in the outer IP header to the default system TTL (64)
- Protection of L2TPv3-based VTI traffic using IPSec in transport mode

Configuration Example

This example shows how to configure L2TPv3 Ethernet pseudowire.

The following table lists the parameter values in the example. Note public IP addresses are used in this example.

Table 1: IP address allocation

	DEVICE A	DEVICE B
IP address of Ethernet interface eth1	1.1.1.1/30	2.2.2.2/30
tunnel source IP address	1.1.1.1	2.2.2.2
tunnel destination IP address	2.2.2.2	1.1.1.1
IP address of tunnel interface	172.168.1.1/24	172.168.1.2/24
tunnel local ID	77	88
tunnel remote ID	88	77

Table 2: Configuring L2TPv3 Ethernet pseudowire

Step 1. Configure Device A	
<code>awplus# configure terminal</code>	Enter the Global Configuration mode.
<code>awplus (config)# interface eth1</code>	Enter the Interface Configuration mode.
<code>awplus (config-if)# ip address 1.1.1.1/30</code>	To assign an IP address for interface eth1.
<code>awplus (config-if)# interface tunnel1</code>	Create tunnel interface tunnel1.
<code>awplus (config-if)# tunnel source 1.1.1.1</code>	Create the tunnel source IP address.
<code>awplus (config-if)# tunnel destination 2.2.2.2</code>	Configure the tunnel destination IP address.
<code>awplus (config-if)# tunnel local id 77</code>	Configure the tunnel local ID.
<code>awplus (config-if)# tunnel remote id 88</code>	Configure the tunnel remote ID.
<code>awplus (config-if)# tunnel mode l2tp v3</code>	Configure L2TPv3 as the encapsulation mode for the tunnel.
<code>awplus (config-if)# 172.168.1.1/24</code>	Configure an IP address for the tunnel interface.
Step 2. Configure Device B	

Table 2: Configuring L2TPv3 Ethernet pseudowire

<code>awplus# configure terminal</code>	Enter the Global Configuration mode.
<code>awplus (config)# interface eth1</code>	Enter the Interface Configuration mode.
<code>awplus (config-if)# ip address 2.2.2.2/30</code>	To assign an IP address for interface eth1.
<code>awplus (config-if)# interface tunnel1</code>	Create tunnel interface tunnel1.
<code>awplus (config-if)# tunnel source 2.2.2.2</code>	Create the tunnel source IP address.
<code>awplus (config-if)# tunnel destination 1.1.1.1</code>	Configure the tunnel destination IP address.
<code>awplus (config-if)# tunnel local id 88</code>	Configure the tunnel local ID.
<code>awplus (config-if)# tunnel remote id 77</code>	Configure the tunnel remote ID.
<code>awplus (config-if)# tunnel mode l2tp v3</code>	Configure L2TPv3 as the encapsulation mode for the tunnel.
<code>awplus (config-if)# 172.168.1.2/24</code>	Configure an IP address for the tunnel interface.