

# IEEE 802.10 VLAN Encapsulation

Document ID: 17055

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## Introduction

This document describes the transformations that occur with particular Ethernet encapsulations when bridging over an IEEE 802.10 Virtual LAN.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

This document is not restricted to specific software and hardware versions.

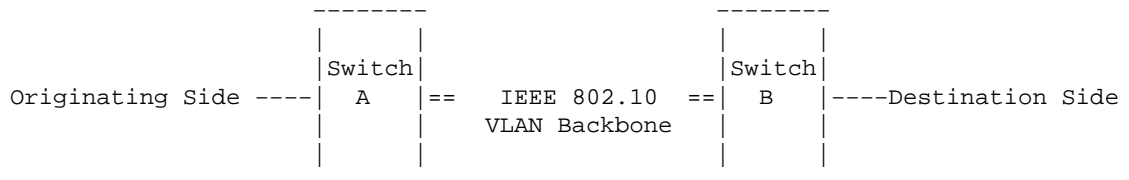
The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

### Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

## Encapsulation

The scenario is as shown.



**Note:** This is the case as of the 10.3 Release of IOS (March 1995).

1. IEEE 802.3 Format on originating side:

Destination	Source	Length	802.2 LLC	Data
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appears on the 802.10 VLAN backbone as:

Dest	Source	Length	0A 0A 03	SAID	Station ID	Frag Flag	Original 802.2 LLC	Data
		+ 16						

<----- 16 bytes ----->

**Note:** The 802.2 LLC Type 1 field now carries the 802.10 reserved LSAP value of 0x0A 0x0A 0x03.

The SAID is the 802.10 defined Security Association ID (4-bytes).

The Station ID comprises 8 bytes: the first six of which are the canonical Source Address of the original packet, and the last two are flags that are undefined and thus set to NULL.

The Fragmentation Flag is a boolean field and denotes the frame to be a fragment if true. Cisco does not support fragmentation of 802.10 packets and therefore this indicator is always set to NULL.

Switch B will then translate this frame back to its original 802.3/ 802.2 form.

2. Ethernet Version 2 (a.k.a. ARPA) format on originating side:

Destination	Source	Type
-------------	--------	------

appears on the 802.10 VLAN backbone as:

Dest	Source	Length	0A0A03	SAID	Station ID	Frag Flag	RFC 1042 SNAP Header	Original Type
							AA AA 03 OUI 00 00 00	

<----- 22 Bytes ----->

Translation sequence as the original frame passes through both switches is:

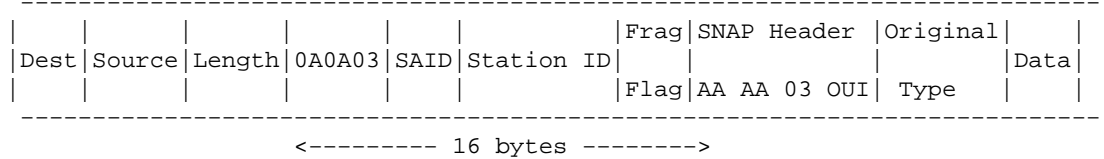
Ethernet V2 ----> SNAP ----> 802.10 ----> SNAP ----> Ethernet V2.

Switch B knows that this frame originated as an Ethernet V2 from the NULL Organizationally Unique Identifier contained within the SNAP Header and therefore translates it back to the original Ethernet V2 format.

3. SNAP encapsulation on Ethernet:

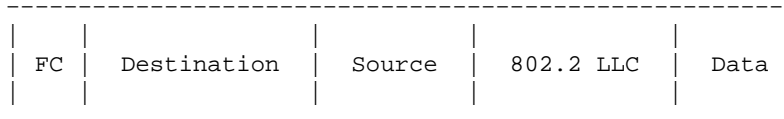
Destination	Source	Length	RFC 1042 SNAP Header	Type	Data
			AA AA 03 OUI		

appears on the 802.10 backbone as:

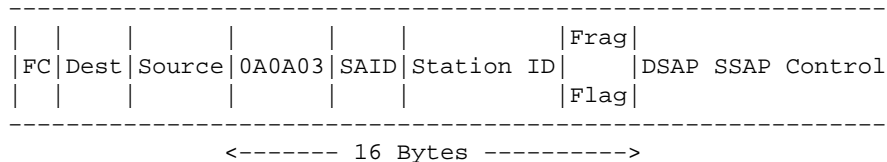


**Note:** Switch B will translate this back to SNAP format provided that the OUI is non-NULL in agreement with the standard. However if the originating OUI is 0x00 0x00 0x00 then the frame will be converted to Ethernet V2 format. (This is the well known problem with AppleTalk ARP which uses SNAP with a NULL OUI on Ethernet, and thus causes bridges and switches problems).

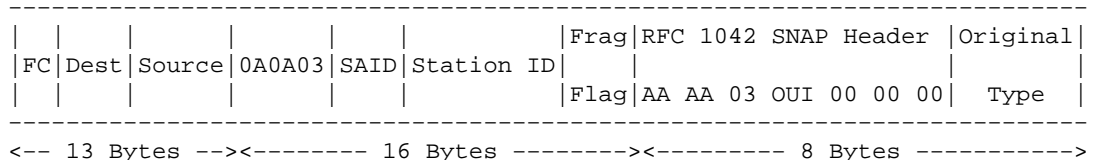
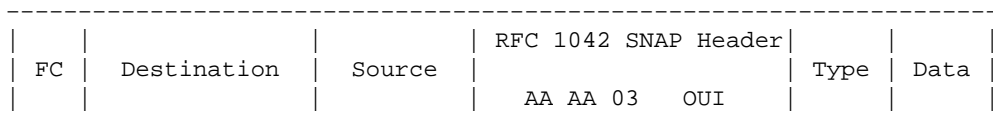
4. 802.2 on FDDI:



appears on the 802.10 VLAN backbone as:

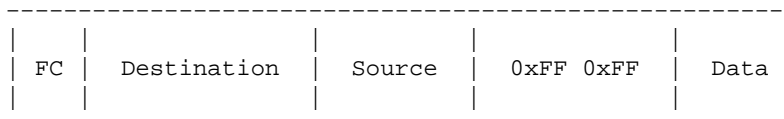


5. SNAP originating on FDDI, translated to 802.10 on FDDI:



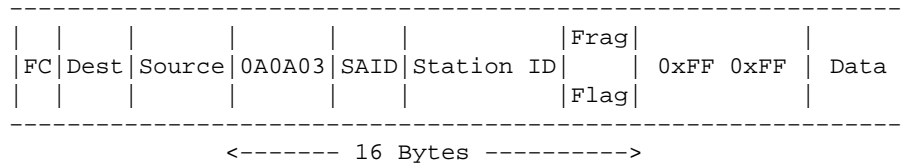
6. Novell's "Raw FDDI" on FDDI

**Note:** This is a non-standard bastardization and is treated as an 802.2 LSAP. For example:



where the Data field commences with the IPX header length etc ...

This appears on the 802.10 VLAN backbone as:



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## Related Information

- [LAN Product Support](#)
- [LAN Switching Technology Support](#)
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