

# CIP CSNA Terminology

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## Introduction

This document discusses Channel Interface Processor (CIP) Cisco Systems Network Architecture (CSNA) terminology.

## 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.

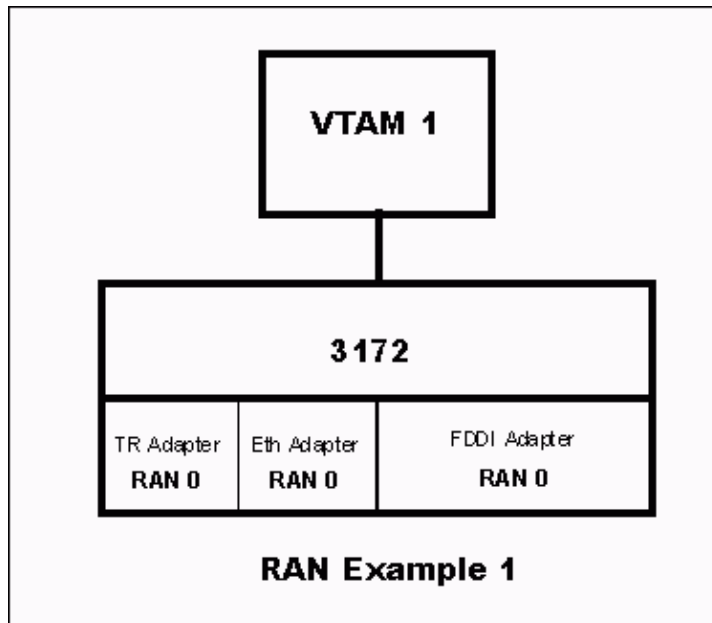
## Relative Adapter Numbers (RAN)

A communications adapter that is configured in the IBM 3172 is assigned a Relative Adapter Number (RAN), which ranges from 0 to 127. The assignment of this number is based on the order in which the adapter was configured. The adapter number is relative to the adapter type and the order of configuration. For example, if an IBM 3172 has one Token Ring adapter, one Ethernet adapter, and one Fiber Distributed Data Interface (FDDI) adapter (two slots required) configured, the configuration shows one Token Ring adapter with RAN 0, one Ethernet adapter with RAN 0, and one FDDI adapter with RAN 0. If you remove the FDDI adapter and replace it with two additional Token Ring adapters, the configuration shows three Token Ring adapters:

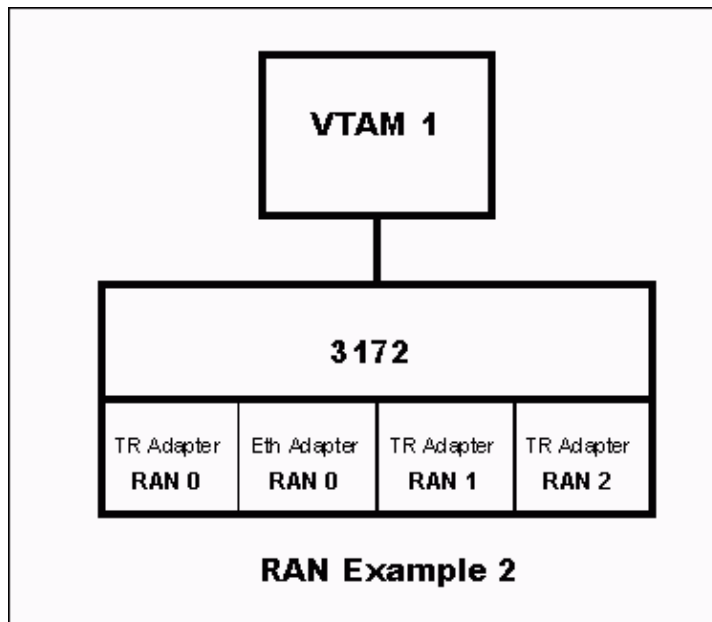
- One adapter with RAN 0
- One adapter with RAN 1
- One adapter with RAN 2

**Note:** The RAN is not a slot number. The IBM 3172 configuration software, Operator Facility/2 assigns the RAN. You have no direct control over RAN assignment.

**Figure 1 Example 1**



**Figure 2 Example 2**



After you configure the adapters, you must use the assigned RANs to complete the configuration of virtual telecommunications access method (VTAM) external communication adapter (XCA) major nodes. An XCA major node is used to control the activation and deactivation of subchannels and service access points (SAPs) and their association with IBM 3172 adapters. This control and association requires the accurate designation of the adapter type and RAN in the XCA configuration. Activation of an XCA major node causes VTAM to enable an adapter and activate a specific SAP on that adapter over a specific subchannel. Any mismatch of adapter type or RAN, or both, results in errors at XCA major node activation or lack of connectivity.

# CIP Internal LANs and Internal Adapter

The Cisco Systems Network Architecture (CSNA) feature does not require a rigid association between RANs and physical communication adapters. However, the CSNA feature introduces the concept of internal LANs and internal adapters for these reasons:

- To maintain compatibility with the IBM 3172 and VTAM
- To provide a smooth transition from an IBM 3172 installation to a CSNA 7000 router installation

Additionally, the CSNA feature allows you to have direct control over RAN assignments to internal adapters. An SNA node in the network accesses a mainframe through the MAC address of a LAN adapter in the IBM 3172 as the destination MAC address. The IBM 3172 that receives an LLC2 frame uses the assigned RAN of the LAN adapter on which the frame is received and the destination SAP in the LLC2 header of the frame to determine the physical channel adapter and subchannel on which to forward the frame to the mainframe.

In the CSNA framework, a frame can arrive over any LAN or WAN interface on the router. This is because source–route bridging (SRB), source–route translational bridging (SRT/LB), remote source–route bridging (RSRB), data–link switching (DLSw+), and so on are used regardless of the destination MAC address. There is no physical LAN adapter to subchannel mapping. Instead, you configure internal LANs and one or more internal adapters on each internal LAN.

CIP internal LAN is used to set up bridging to CSNA. This bridging can be source–route bridging for Token Ring and FDDI, or the transparent bridging for Ethernet, FDDI and Token Ring. Each CIP supports a maximum of 32 Internal LANs. CIP internal adapters are used to configure MAC, LLC2 and XCA major node information. Each internal adapter has a MAC address and a RAN, which is referred to as an ADAPTER# in the router configuration. Each internal adapter per media type and per CIP must have a unique ADAPTER#. The ADAPTER# of the internal adapter must match the ADAPNO configured in the corresponding VTAM XCA major node definition.

When a CIP–equipped Cisco 7000 router replaces an IBM 3172 or 3745, you can re–use the MAC address of the 3172 adapter or 3745 TIC for the configured internal adapter. This allows SNA nodes in the network to continue to access the host with the same destination MAC addresses after the installation of the CIP. CIP Internal Adapter supports duplicate MAC addresses. The MAC address must be on different internal LANs and each must have a different RAN. CIP supports a maximum of 32 internal adapters.

## CIP Virtual Interface

The CIP provides up to two channel–attached interfaces for Cisco 7000 series routers. These physical interfaces are designated as port 0 and port 1 in the CIP. A special CIP virtual interface is introduced for CSNA. This interface is always the third CIP interface. Even if the CIP in use is a single physical port board, the CIP virtual interface is still the third interface or port 2 (CIP slot x/2). This virtual interface anchors the internal LANs and adapters configuration and allows sharing of internal adapters between CIP physical interfaces.

**Note:** Channel Port Adapters (CPA) have no virtual interface. Therefore, you configure everything under the physical interface.

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## Related Information

- [IBM Technologies Support Page](#)
  - [Technical Support & Documentation – Cisco Systems](#)
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