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Tech Notes

Troubleshooting CSNA

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Introduction

This document provides information on how to troubleshoot Cisco Systems Network Architecture (CSNA).

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

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

Conventions

Refer to [Cisco Technical Tips Conventions](#) for more information on document conventions.

Background Information

All CSNA-related traffic flows on the Channel Interface Processor (CIP) virtual interface 2.

No traffic flows over ports 0 or 1 on the CIP for CSNA. This is different from the Channel Port Adapter

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Suggestions for improvement:

(256 character limit)

(CPA), where all CSNA traffic flows over physical interface 0.

Troubleshooting Steps

1. Issue the **show ext ch 3/0 csna oper** command to display the CSNA channel device state. Refer to [Understanding CSNA States](#) for more information.
 - o Substitute **oper** with **stat** to receive statistics for the CSNA channel device.
 - o Verify that the CSNA channel status is **setupCompleat**.
2. Issue the **show ext ch 3/2 conn llc** command to identify the number of service access points (SAPs) and connections opened on the CIP.
 - o Verify that the correct SAP, as defined on the External Communications Adapter (XCA) major node, has been opened on a CIP internal Token Ring LAN adapter, such as Lan Adapter 0.
3. If the CSNA channel device, also called a subchannel, is **setupCompleat**, and the correct SAP, for example SAP 08, is open on the correct CIP internal MAC adapter, then proceed to step 4. Otherwise, you have a configuration problem with the PATH/DEVICE or the XCA major node.
4. Issue the **debug source-bridge** command to identify whether explorers are generated. If you are sure explorers are being received by the router destined for a CIP internal MAC address, then turn on **debug channel vlan**.
5. Issue the **show ext ch 3/2 lan** command to show the CIP internal MAC adapters. Verify that the CIP internal MAC adapters are acknowledged (ACK) by the CIP microcode.

```

router#debug channel vlan
router#show ext ch 3/2 lan
Lan TokenRing 0
      source-bridge 1000 1 100
      Adapno Mac Address      Name      Vcnum
      ... 0 4000.1234.0001      544 0041  ACK ... .. . . .
... INU
                                     ^^^-----Check this sta

```

6. If the CIP internal MAC adapters have not been acknowledged (ACK) by the CIP, and CRE or PNDING are displayed on the **show ext ch 3/2 lan**, the CIP microcode is not acknowledging the CIP adapter config command coming from the Router Processor (RP). In this case, the RP does not forward explorers to the CIP.
7. If the CIP internal MAC adapters have been acknowledged by the CIP, and explorers are being received on the router destined for the CIP MAC adapter(s), then issue the **show ext ch 3/2 llc stat 4000.0008.0000** command, where 4000.0008.0000 is the internal MAC address of the CIP. This verifies whether the CIP MAC adapter is receiving test commands and responding.
8. If the CIP MAC is receiving test commands and responding, issue the **show ext ch 3/2 llc stat 4000.0008.0000 08** command to verify whether the SAP is receiving exchange identifications (XIDs) and responding. If the SAP does not respond, it is because of one of these reasons:

- The switched major node is not active.
- The IDBLK/IDNUM is not valid.
- The physical unit (PU) is already in use.

Troubleshooting Tips

Possible Symptoms	Suggested Actions
End station receives no response to TEST FRAME.	<p>Step 1: CSNA cannot respond to test unless an SAP is open. This occurs when XCA node is activated.</p> <p>Step 2: Make sure XCA node is active via vary net, act, id=<xcamajnode>.</p> <p>Step 3: Make sure the Relative Adapters Numbers (RAN) opened in the XCA major node corresponds to the correct adapter/destination MAC address for the connection.</p> <p>Step 4: Make sure SAPADDR in XCA major node is not 4, and down stream devices, such as Synchronous Data Logical Link Control (SDLLC) and Qualified Logical Link Control (QLLC), default to 4. Failure symptom shows up as no response to IEEE (NULL) XID, but gets a response to TEST.</p>
End station receives no response to NULL/IEEE XID.	<p>Step 1: Ensure that the SAP activated in XCA major node matches the destination SAP for the connection.</p> <p>Step 2: Ensure that the end station users have not exceeded the allowed number of active connections (specified in AUTOGEN parameter in XCA major node) for this XCA definition. Virtual Telecommunications Access Method (VTAM) notifies you by ignoring the NULL XID.</p>
End station receives no response to XID0 or XID3.	<p>Step 1: Check switched major node definition for a IDNUM/IDBLK or CPNAME match. VTAM can also issue an error message, though the user may have this filtered out.</p> <p>Step 2: The IDNUM/IDBLK or CPNAME can already be in use by another end station. Check the status of the PU in VTAM using the display command d net,id=pu. The PU must be in connectable (CONCT) state.</p>
VTAM to PU4 or VTAM to	In both of these cases, VTAM sends a spanning explorer (single route broadcast). The source-bridge spanning

VTAM (via CSNA) fails to connect.	command must be coded on intervening Token Ring or Fiber Distributed Data Interfaces (FDDI).
CSNA sessions drop when things get busy.	<p>Step 1: Currently, CSNA defaults to an LLC send window of 7. The 3745 and 3172 default to much lower values. If CSNA is sending lots of outbound data and exceeds the allowed send window, the receiver can send FRMR and tear down session.</p> <p>Step 2: Code llc2 local-window 1 under CIP Internal Adapter to rectify this problem.</p>
The end station Nth user cannot receive the CSNA connection.	The Nth user has exceeded maximum LLC connection limit. The max-llc2-sessions per CIP defaults to 256. The current code of CSNA does not send any ALERT. The only way to tell this is occurring is to issue the sh ex ch x/2 max command. The count for number exceeded is 0.
End user tearing down the session by indicating Invalid frame received from VTAM.	<p>Step 1: Check for possible mismatch for the MAXDATA value between the end station and switched major node definition for the PU.</p> <p>Step 2: The debug channel events sna command provides this indication:</p> <p>Connection failed/FRMR rxd - I-field too long</p>
Everything is fine through XID exchange, including PU and logical unit (LU) activation, but you never see the VTAM splash screen.	From a CSNA perspective, everything after the unnumbered acknowledgement (UA) is just LLC connection data passed up to VTAM. However, the USSMSG10 is potentially the first large I-frame. Keep this in mind when troubleshooting CSNA.
Connection problem in duplicate MAC address environment.	<p>Step 1: Check the Routing Information Field (RIF) to make sure you have the appropriate CSNA connection, especially in duplicate MAC address situations.</p> <p>Step 2: Issue the sh ex ch x/2 connection-map llc command to see the current number of active connections per SAP.</p>
SDLLC connection using RSRB/DLSw+	Check for a possible error in MAC Address for the tr

<p>not coming up when switched to CSNA from front-end processor (FEP) 3745.</p>	<p>partner <mac address> command in the SDLLC router definition. This MAC address points to the CIP internal Token Ring and not to the FEP Token Ring.</p>
<p>7000-CIP, FEP 3745 and SAA Gateway are all connected to the same Token Ring. No connection between SAA Gateway to VTAM when switched to CSNA from FEP 3745.</p>	<p>Step 1: Use a sniffer to determine whether the SAA Gateway that is sending the explorer frame with a broadcast bit turned off.</p> <p>Step 2: SAA Gateway needs to run Route.nlm for source-route bridging. In this case, Route.nlm is not loaded in the SAA Gateway. The scenario works when SAA Gateway is directly connected to FEP 3745, which does not require an RIF. However, when the SAA Gateway is switched to CSNA (even though the 7000-CIP is physically directly connected), logically the SAA Gateway is one hop away from the 7000-CIP due to the CSNA Internal Ring. CSNA must have the RIF in this case.</p> <p>Step 3: One method is to use downstream physical unit (DSPU) to force a route explorer to be generated by the router when devices like SAA Gateway do not participate in source-route bridging.</p>
<p>Unable to bring up APPC Networking Services for Windows (NS/WIN) and the IBM PC/3270 for Windows (PC/3270) at the same time in a LAN environment. When both start at the same time, whichever starts first works fine, but the other program hangs.</p>	<p>Step 1: The problem is due to the fact that two different SNA communications subsystems are started at the same time. One provides SNA service for LU2 (PC/3270), and one provides for LU6.2 (NS/WIN). By default, both want to use the same SAP, X'04', when communicating through the same CIP Internal Adapter. When the first subsystem talks to the adapter, it informs that it uses SAP X'04'. When the second subsystem attempts to inform the adapter that it also uses SAP X'04', the adapter refuses, because it cannot distinguish which of these two subsystems incoming data for SAP X'04' is destined.</p> <p>Step 2: The solution is to use SAP X'04' for one subsystem and change the SAP of the other subsystem to X'08', or to the next higher unused multiple of 4.</p>

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