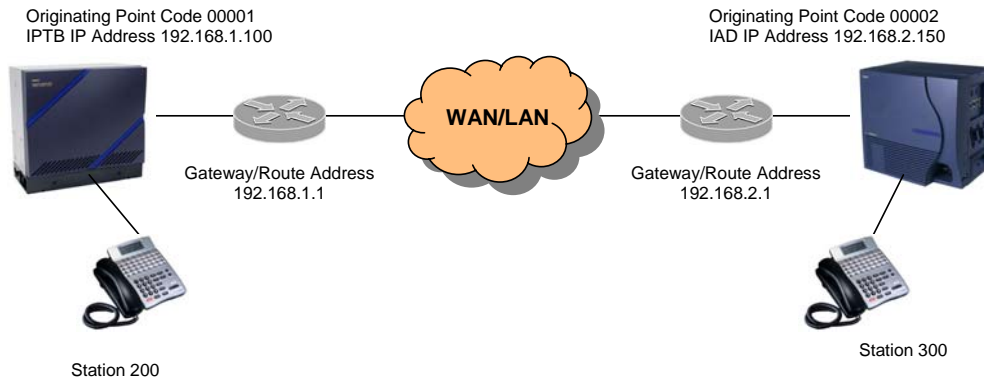


IP CCIS Trunking to IPKII

Here is an example of IP CCIS trunking to an NEC IPKII. IP addressing, trunk, route, and station numbers are for example only. The programming examples for either system can be used for IP-CCIS trunking connection to any other like system or the NEAX 2400.

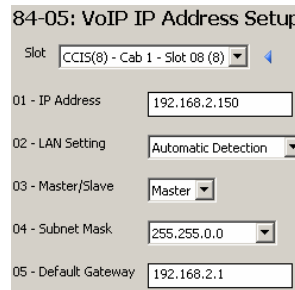


Before you start with the IPS you should.....

- a. Confirm the revision of the IPTB card to be version B2 2.06 or higher. In programming check **CM F85>XX11>**, **CM F85>XX12>**, and **CM F85>XX13>** where **XX** = the sense wheel of the IPTB board.
- b. Confirm the 3 cables from the IPTB board to the VCTI boards are connected as per the IVS2 IP Manual (rev 3) Chapter 2 page 29. Do this wrong and you will smell smoke.
- c. The IPTB board with VCTI cards have very specific power requirements in that depending on the number of cards to be installed you must have vacant slots available in the PIM. These conditions **MUST** be confirmed with the IVS2 IP Manual (rev 3) Chapter 2 page 27.
- d. VCTI boards can be mounted in LT slots 08~11 if required.
- e. Out of the box the IPTB boards on the NEAX 2000 are defaulted to G729a voice compression. The IPKII PVA card does G 7.11. Obviously one side **MUST** be changed.
- f. The IPTB board CAN be set for 10 or 100 Mbps (MODE Rotary SW and SW2) but in either setting the data is at half duplex only.
- g. Fax is available through the IPTB but modem data communication is not.
- h. CM F88 must have 1 CCIS license (F88>05>) and 1 IP license (F88>11>) for each IPTB installed in the system. Total of 8 IPTB's can be installed each with 4 VCTI's (total of 128 IP CCIS trunks).
- i. See item 3 in "Before you start with the IPKII you should.....".

Before you start with the IPKII you should.....

1. Load the latest Service Pack and firmware to the PVA card. At time of writing the Service Pack would be SP01J while the Firmware can be CCIS 1.59T2 or Combo 1.02T4. Check www.necntac.com under the Downloads section for the latest versions. If using the Combo firmware the CPU must be at 2.0 software revision or higher.
2. To load a Service Pack and Firmware to the PVA board.....
 - a. Insert the PVA ETU in to any slot in the KSU. Turn the **Sense Wheel** to **A** and **SW1-4** to the **ON** position.
 - b. Press the reset button and wait two to three minutes for the BUSY lamp to stop flashing. Then turn the **Sense Wheel** back to **0** and **SW1-4** to the **OFF** position (away from the card). Connect your PC to the PVA ETU Ethernet connector with a cross over cable or via a small hub/switch.
 - c. The PVA ETU Default IP Address is : **192.168.1.100**
Set your PC so that it is statically assigned an IP address of **192.168.1.xxx** with a subnet mask of **255.255.255.0** to ensure it is in the same network as the PVA ETU.
 - d. Using the Microsoft IE browser (Version 6 or higher) enter the IP address **192.168.1.100** into the navigational bar.
 - e. At the PVA ETU Login screen enter the following information. Default Login ID= **admin** (lower case). Default Password= **password** (lower case).
 - f. On the PVA ETU Welcome screen, select **Browse** and locate the Service Pack for loading E.g. **PVA_SP01J.spk** then click **Upload**.
 - g. Once the Service Pack has been successfully loaded (two to three minutes), the BUSY lamp will stop flashing and LED1 will be solid on the back side of the PVA ETU.
 - h. Log back into the card. Default Login ID = **admin** (Lower case). Default Password = **password** (Lower case).
 - i. On the Welcome screen, select **Browse** and locate the firmware file for loading E.g. **PVACCISoIP_Ver157.pkg** Click Upload.
 - j. Once the firmware has been successfully loaded (20 to 30 seconds), the PVA ETU card will request a reset of the board. Select the reset option from the browser and wait for the card to reset.
 - k. Once on line the card will have 3 solid LED's on the back side of the card and it will assume the IP address assigned in CM 84-05.
 - l. Go to CM 84-05 and set the IP Address, Subnet Mask and Gateway for the PVA card. Reset the PVA card.
 - m. If you are utilizing the PVA **Combo** firmware you must Set the number of trunks the card can use for CCIS in **CM 10-40**. This CM **MUST** be set via the phone and not via PC-Pro or WebPro. Also do not attempt to set more trunks than licenses on the card. Once this CM is changed reset the PVA card and the Card Configuration screen will show the number of trunk ports.
3. Always try to bench test. If possible take the IPKII (or spare cabinet with spare CPU, PVA, and ESI boards) to the PBX site or vice versa and connect the PVA card directly to the IPTB card with a cross over cable to test operation. This will save you hours of second guessing your work when you plug into the customers network and cannot call or there is no speech path due to a network configuration issue. The cross over cable between the two devices eliminates any network issues and testing should include a voice call and call back, in both directions, between sites to confirm IP and point code programming. Make sure to also test message lamps if Centralized Billing is to be used.



84-05: VoIP IP Address Setup	
Slot	CCIS(8) - Cab 1 - Slot 08 (8)
01 - IP Address	192.168.2.150
02 - LAN Setting	Automatic Detection
03 - Master/Slave	Master
04 - Subnet Mask	255.255.0.0
05 - Default Gateway	192.168.2.1

System Programming NEAX 2000 IPS

Programming for the IPS with **IPTB** board in **LT06** and **VCTI** boards in **LT07** and **LT08**. LT slots 09, 10, and 11 are empty. The IPTB Sense wheel is a **08**. IP addressing, trunk, route, and station numbers are **FOR EXAMPLE ONLY**.

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. CM 050>08>38 2. CM 0607>0>08 3. CM 14>00056>D074 4. CM 14>00057>D075 5. CM 14>00058>D076 6. CM 14>00059>D077 7. CM 14>00036>D078 8. CM 14>00037>D079 9. CM 14>00038>D080 10. CM 14>00039>D081 11. CM 14>03063>D254 12. CM 3000>074~081>32 13. CM 35999>32>CCC 14. CM 3500>32>04 15. CM 3504>32>2 16. CM 3509>32>03 17. CM 3520>32>00 18. CM 3590>32>0 19. CM 3591>32>0 20. CM 3035>074~081>001~008 21. CM 3044>074~081>01~08 22. CM A700>0>254 23. CM A701>0>00001 24. CM A702>0>NONE 25. CM A726>0>0 26. CM A728>0>0 27. CM A740>0>192168001100 28. CM A741>0>255255255000 29. CM A742>0>192168001001 30. CM A746>0>0 31. CM 200>3>A129 32. CM 8AA000>3>4007 33. CM 8A4007>3>0032 34. CM 8A0032>1>03232 35. CM 8A5032>167>032 36. CM 8A5032>168>00002 37. CM 5B01>03200>192168002150 38. CM A8>00002>0 39. CM 08>253>0 40. CM 08>379>0 41. CM 08>606>1 | <p>The example shows the VCTI's in LT07 and LT08. This is to help identify how utilizing the 4 port only slot (LT08) can enable another 4 port card to be used in LT 04, as shown in this case. Also as shown another 4 port card could also be installed in LT11 using the LENS 060-063 (top half of LT 07).</p> <p>This CCH trunk must be assigned to a non-hardware LEN. Place trunks in an unused route (to default route use CM35999) Default the trunk RT before assignments (R8 and higher) Assign trunk route as TIE lines Answer supervision arrives Wink signaling for incoming connections Wink signaling for outgoing connections Assign CCIS functionality to trunk route If wired CCIS is also in the system the IP should use CCH 0. Assign CIC's to CCIS trunks Setting 01 must be set to the first trunk on the first VCT connected to the IPTB board. Therefore it is always recommended to install the VCTI boards to the right of the IPTB. This helps keep the programming in a more orderly fashion.</p> <p>DO NOT assign this trunk to a route.
Origination Point Code
This MUST be NONE. NEVER assign a DPC. This is done in LCR.
To send station name display to the IPKII.
To send received caller ID to the IPKII.
IP Address for the IPTB
Subnet Mask for the IPTB
Default Gateway for the IPTB
Assign Point to Multi-Point protocol
Lead digit of stations in IPKII = LCR group 3
LCR Group 3 = Development pattern 4007
Digit 3 to go to Route Pattern 0032
Route Pattern 0032 uses LCR pattern 032 and trunk route 32
LCR pattern 032 IP Address pattern 032
LCR pattern 032 goes to Destination Point Code 00002
IP Address pattern 032 is assigned the destination IP Address
Destination Point Code 00002 is accessed via CCH 0</p> <p>Expanded CCIS package available
Link re-connect. Default is 1. DO NOT change.</p> |
|--|---|

Deleted: <sp><sp>

System Programming Elite IPKII

1. With firmware loaded the PVA card will be recognized by the system in the Card Configuration.

Card	ESIB (16)	PR T (24)	SL I (8)	ESIB (16)	ESIB (16)	None	None	CCIS VOIP (8)
Ports	1~16tel	9~32trk	17~24tel	25~40tel	41~56tel			1~8trk
Version								
Slot	01	02	03	04	05	06	07	08

Take note of the trunk numbers assigned to the PVA.

2.

22-02: Incoming Call Trunk Setup

Trunk: 001: IP - Cabinet 1 - Slot 08 (8) | Night Mode

Trunk	Mode 1	Mode 2
01	Tie line	Tie line
02	Tie line	Tie line
03	Tie line	Tie line
04	Tie line	Tie line
05	Tie line	Tie line
06	Tie line	Tie line
07	Tie line	Tie line
08	Tie line	Tie line

Set all CCIS VOIP trunks as Tie line in CM 22-02. This should be set to all modes 1~8.

3.

50-01: CCIS System Setting

01 - CCIS Availability

Use Program 50-01: CCIS System Setting to set the availability of CCIS in the Electra Elite IPK II. All other CCIS settings will not function if this program is disabled.

Enable the CCIS feature

4.

50-02: Connecting System Settings

CCIS Route ID	Common Signaling Channel Port	Common Signaling Channel Data Speed Assignment	Origination Point Code	Destination Point Code	Calling Name Indication	CCH Package Channel Number
09	0	56kbps	2	0	<input checked="" type="checkbox"/>	0

Use Program 50-02: Connecting System Settings to define the settings for each CCIS Route ID.

In 50-02 CCIS VOIP **MUST** be assigned to **CCIS Route ID 9**. Then set **ONLY** the Origination Point Code.

5.

50-03: CCIS Destination System Settings

CCIS System ID (1-255)

CCIS System ID	Destination Point Code	CCIS Route ID	IP Address
001	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="192.168.1.100"/>
002	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0.0.0.0"/>

In CM 50-03 enter the Destination Point Code of EVERY other site in the CCIS network. The CCIS System ID is an entry number only and has nothing to do with the actual DPC. The only thing that should be entered is the DPC and its associated IP Address. The CCIS Route ID MUST be left as 0.

Closed Numbering Plan

11-01: System Numbering

2nd Dial Digit

1st and 2nd Dial Digits	Dial Digit Length	Type
1x	<input type="text" value="3"/>	<input type="text" value="Extension"/>
2x	<input type="text" value="1"/>	<input type="text" value="F-Route"/>
3x	<input type="text" value="3"/>	<input type="text" value="Extension"/>

1. With CM 11-01 point the leading digit/digits to an F-Route. Dial Digit Length should be the number of digits to get to the F-Route. Within the F-Route itself you define the actual total number of digits dialed.

2.

44-02: Dial Analysis Table for ARS/F-Route Access

Table Entry (1-120)

Table Entry	Dial	Service Type	Additional Data
001	<input type="text" value="2"/>	<input type="text" value="F-Route Table"/>	<input type="text" value="1"/>
002	<input type="text" value=""/>	<input type="text" value="Not set"/>	<input type="text" value="0"/>

In CM 44-02 enter the leading digit/digits for the call to go over CCIS and in the Additional Data box enter an F-Route number (1~500). It is a good idea when using F-Routes for CCIS and also for ARS to start the CCIS with low F-Route numbers and the ARS with higher numbers. E.g. CCIS uses F-Routes 1~50 while ARS uses F-Routes 100 and higher. Leading digit/digits to different sites all require their own individual F-Route.

44-05: ARS/F-Route Table

F-Route Table (1-500)

	Detour Order		
	1	2	3
01 - Trunk Group	<input type="text" value="10"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
02 - Delete Dial Digits	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
03 - Additional Dial Digits Table	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
04 - Beep Tone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05 - Gain Table when Internal Call	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
06 - Gain Table when Tandem Connection	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
07 - ARS Class of Service	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
08 - Dial Treatment	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
09 - Maximum Dialing Digit	<input type="text" value="3"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
10 - CCIS over IP Destination Point Code	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
11 - Network Specified Parameter Table	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

4. Finally go to 44-05 and select the F-Route assigned back in 44-02 and enter only the 3 entries shown above.

Additional Requirements/Trouble Shooting

NEAX 2000IPS

1. **CM 08>373>0** If centralized VM
2. **CM 08>376>0** If centralized VM
3. **CM 35134>30>XX** For QOS (Voice packets) when IP network uses TOS field Precedence(XX)
4. **CM A744>0>XX** For QOS (Signaling packets) when IP network uses TOS field Precedence(XX).
5. **CM 35161>0>XX** For QOS (Voice packets) when IP network uses Diffserv DS code point (XX)
6. **CM A750>0>XX** For QOS (Signaling packets) when IP network uses Diffserv DS code point(XX)
7. **CM 8A5030>174>0** To allow link reconnect to 2400 ONLY.
8. **CM A761>0>4~7** To change or cancel the Voice compression rate. 0 = CCH route
9. **CM 35145>XX>0** Caller ID from key system to pass out IPS ISDN B channel route (XX) in IPS.

Trouble Shooting

- a. Make sure voice and signaling ports are open through the IP Network. See **IP Port Numbers Used For CCIS** below. Test systems back to back to rule out network issues.
- b. If there is also regular T1 CCIS in the system the CIC's in CM 3035 must be unique to all trunks or link re-connect will not work. E.g. In this cheat sheet example CIC's 1~8 were used. If a T1 CCIS span were installed its CM 30-35 cannot contain CIC's 1~8.
- c. Point to Multi-Point CCIS over IP should use CCH 0. If there is also Peer to Peer CCIS to other NEAX systems the CCIS IP trunking will be CCH1 with the Peer to Peer as CCH 0. T1 CCIS would utilize CCH's 2 and higher.
- d. Make sure the CCH trunk D254 assigned in A700>X is not assigned any setting in CM 30.
- e. Sometimes after all programming is complete on this application and confirmed correct the MP requires one last reset before calls can be completed.
- f. Make sure CCIS Centralized Billing assignments in CM A7 and CM 08 are not assigned until the correct call operation is confirmed to the other site. If they have been set and you cannot call across the link you must un-assign and then reset the PBX before continuing to trouble shoot.

NEC IPKII

1. **CM 45-01-14** For Centralized VM in the NEAX 2000 IPS enter the pilot of the VM and make sure **CM 45-01-01** is NOT assigned.
2. Internal paging over CCIS and Call Park Retrieve over CCIS can only be done to the IPKII from the NEAX 2000 IPS and not in the other direction.
3. Centralized Billing and DSS/BLF over CCIS can be assigned to the NEAX 2000 IPS.
4. **CM 84-10** For QOS go to and assign either IP Precedence or DiffServ to protocols **05 – RTP/RTCP** (for voice packets) and to **07- CCIS** (for CCIS signaling packets)
5. **CM 84-21** For CCIS Codec. IPKII is default G711. NEAX 2000 default is G729.

Trouble Shooting

- a. Make sure **CM 14-13** and **CM 14-14** are **NOT** assigned for the IP-CCIS.
- b. **DO NOT** leave gaps in 50-03. Entries should start at **CCIS ID 001** and continue down the list. The sites do not have to be in any order. **DO NOT** include your own site in 50-03.
- c. The NEAX 2000 IPS is default codec G729 while the IPKII is default G711. One side **MUST** be changed.
- d. Make sure you have CAP keys assigned so as to make and receive a call over the CCIS trunks.

IP Port Numbers Used For CCIS

