

## Release Notes

# NEAX<sup>®</sup> 2000 IPS NEAX<sup>®</sup> IPS<sup>DM</sup>

**3400 Series Software R9 Release**

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## 1. Overview

The NEAX 2000 IPS expands its capabilities once again with the release of 3400 Series R9 software. 3400 series R9 software is being released with feature enhancements, expanded capacity of terminals and virtual stations. The terminals included in the over all expansion are Analog, Digital, Digital IP and Wireless. The total IP station capacity is being expanded from 448 to 956. Other feature enhancements include SMDR over IP, PMS over IP, Fax over IP (FoIP), Modem over IP (MoIP) and more.

Note – when upgrading systems to R9 you must convert the data using CM 00>90:0 in offline mode.

## 2. New and Enhanced Features

### 2.1 ATTCON Semi-Automatic Camp-On

This feature provides a convenient way for the Attendant (SN716) to preannounce caller information to the destination station. When the destination station is busy, the Attendant places the incoming caller in Semi-Automatic Camp-On. When the destination station becomes idle the Attendant is notified and can announce the call and automatically release it to the destination station. Prior to R9 the IPS only supported Automatic Camp-On to a busy station.

#### Conditions

- 1) When a camped-on station is called, OAI control is not exercised
- 2) Semi-Automatic camp-on is not supported across CCIS, automatic camp-on is used, regardless of the setting of camp-on type (CM08>542).
- 3) When semi-automatic camp-on is set, the loop used is not released, regardless of the setting of the loop release function (CM08>014), the loop is held until semiautomatic camp-on operation is completed.

#### Operation

1. Incoming call to the operator.
2. Operator answers the call.
3. Operator transfers the incoming call to ext 1100
4. Ext 1100 is busy
5. Operator presses the release key (Loop key flashes red)
6. Ext 1100 hears tone and the answer key lamp flashes red
7. Incoming call hears hold music
8. The call is camp-on
9. Ext 1100 releases original call (tone stops, answer key stops flashing)
10. Call recalls at attendant console. (Loop key flashes red)
11. Ext 1100 is idle and free to for normal operation if required.
12. Attendant presses the loop key. (Loop key is now green)

13. Call is directed to ext 1100 (OPR is displayed on LCD)
14. Ext 1100 answers call.
15. Ext 1100 and operator are in conversation. (OPR is displayed on to LCD)
16. Incoming call is still holding
17. Operator presses the release key to release the call. (Loop key is green)
18. The Incoming call is connected to Ext 1100 (The time and DDD are displayed on LCD)

## Programming

Command	First Data	Second Data
CM 08	542 type of camp on	0 Semi Automatic 1 Standard Camp on

## 2.2 Modem over IP

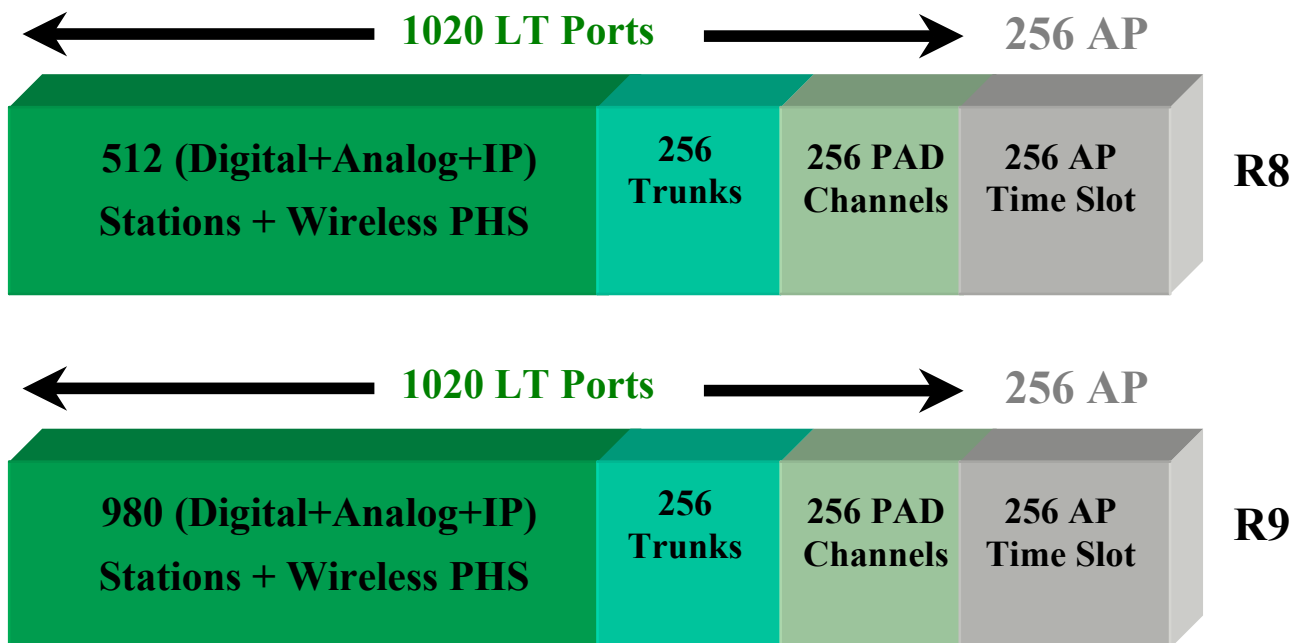
Prior to R9 a modem connection over IP was treated as a voice call. With R9 software and SPN-8IPLA PAD-B the system detects the modem connection and uses pass-through mode for better through put and success rate. Connection speeds range from 9.6 kbps to 24 kbps; those speeds vary depending on the CODEC used (G.711 or G.726) and network configuration.

### Conditions

- 1) Modem over IP is not supported via 32IPLA /-A, only on 8IPLA.
- 2) Refer to FAX over IP programming
- 3) IP-PAD firmware required is SC-3330 IPAD B1 2.00
- 4) The system detects the modem connection and uses pass-through mode to establish connection.
- 5) Connection speeds vary depending on the CODEC used (G.711 or G.726) and network configuration, speeds can range from 9.6 kbps to 24 kbps.

### 2.3 Line Size Expansion (Analog, Digital, IP, PS)

The number of stations in R9 software has been increased to a total of 980. Basic systems ship with 512 ports. Additional 64 port licence keys are required to access the extra capacity. The combination of Analog, Digital, IP, and Wireless PS can be used to achieve the 980-station count. An IP Remote PIM network would be required to reach 980 TDM stations, because a stand-alone system only supports hardware up to 512 TDM stations. In R9 each type of station has its own limit to the number of that type of station that can be programmed.



#### 2.3.1 Analog and Digital Stations

Previously analog and digital stations had a maximum of 512 in both standalone and in IP Remote PIM network. The maximum number of Analog and Digital stations has now been increased from 512 to a total of 980 in an IP Remote PIM network. The maximum in a stand-alone system remains 512. (note the total number of all stations + analogue trunks + IPPAD channels cannot exceed 1020, also taking into account traffic handling sites should not exceed 700 extns)

#### 2.3.2 IP Stations

Previously IP stations had a maximum of 448 in both standalone and in IP Remote PIM network. IP stations have now been increased from 448 to a total of 956 for both stand-alone and Remote PIM network. Beware of traffic limitations when working on large deployments.

**Comparison Table for Port Capacity Enhancement**

Capacities	Software		Comments
	R8	R9	
Number of LT Ports	1020	1020	
Number of DTMF Receivers	32	32	
Number of Attendant Consoles	8	8	
Number of Digital/Analog Stations	512	980 <sup>1</sup>	Remote PIM Network
Number of ISDN Stations	128	128	ISDN Stations Main Site only
Number of IP Stations	448	956	Stand-Alone and Remote PIM
Number of Wireless PS	256	512	Wireless PS
Number of IP PAD Channels	256	256	
Number of Analog Trunks			
Number of P2P CCIS Trunks	256	256	MAX 127 channels Main Site Only
Number of AP Trunks			
Number of AP Channels	256	256	
Number of AP/FP Cards	64	64	
Number of Physical FP Cards	4	4	Main Site only
Number of Built-In FP on CPU	30	30	
Number of Virtual FP for IP Stations	30	30	
Number of Remote PIM's	15	15	

Increased Capacities =

**NOTE 1:** 980 is the maximum number of terminals operated in an IP Remote network. In a stand-alone system the maximum number of TDM terminals is 512.

**2.3.3 Station Line Size Comparison including Virtual Station Expansion**

Capacities	Software							
	R8 Stand Alone		R8 w/Remote PIM		R9 Stand Alone		R9 w/Remote PIM	
Total Number of Terminals	512		1020		1020		1020	
Number of Digital	512	512	512	512	512	980	980	980
Number of Digital IP	448		448		956		956	
Number of Virtual	768 <sup>1</sup>		768 <sup>1</sup>		1020 <sup>2</sup>		1020 <sup>2</sup>	

**NOTE 1:** To Calculate the Number of Virtual stations use this formula:  
 $768 - \text{Number of Digital/ IP} = \text{Virtual}$

**NOTE 2:** To Calculate the Number of Virtual stations use this formula:  
 $1020 - \text{Number of Digital/ IP} = \text{Virtual}$

The chart above is an example of the expanded port capacity of the IPS in R9 and is intended to help explain the addition to the Virtual extension. The total number of Virtual extensions available is calculated using the equation above. Other LT ports (CO Trunks, DAT, Registers, etc.) which are used to calculate the total number of ports used in the system does not affect the total number of virtual extension. Refer to the example below.

**Example:** NEAX 2000 IPS with two IP Remote PIMs.

Main Site: 128 Digital, 96 IP terminals, 48 analog stations, 64 Wireless PSs, 64 trunks, 32 IP PADs, 24 ZTs, and 8 DAT circuits.

Remote Site 1: 16 Digital, 16 IP terminals, 8 analog stations, 8 trunks, and 32 IP PADs

Remote Site 2: 16 Digital, 16 IP terminals, 8 analog stations, 8 trunks, and 32 IP PADs

Capacities				
Port Type	Port Memory	Shared Memory	Virtual Memory Command 11	
	1020		1020	
Digital	- 160	←→	- 160	
IP Terminals	- 128	←→	-128	
Analog Stations	- 64			
Wireless PS	- 64			
Trunks	- 64			
IP PADs	-96			
ZTs	-24			
DATs	-8			
Total	412			732
	Ports Available			Virtuals Available

### Conditions

1. Message Waiting can be set for and operated on all terminals. Note that the total number of blocks (the number that can be set simultaneously = 128)
2. Call back can be set for and operated on all terminals. Note that the total number of blocks (the number that can be set simultaneously = 128)
3. When using the AP00-B (former) it is only possible to monitor a maximum of 504. If more than 504 stations are required in a system, the AP00 should be upgraded the SC-3168 IPS MRCA PROG-A1 program or use internal SMDR.

### Programming

Command	First Data	Second Data
CM 050	16~19, 32~59 FP number	00 FP
CM 058	16~19, 32~59 Virtual FP	Xx zz Xx= main site 00 Zz =PIM number  00~15 PIM number 00~07 for physical PIMS, 08~15 for virtual PIMS (note PIM12 is also used for VIPT)
CM 056	16~19, 32~59 Virtual FP	0 Virtual FP
CM 11	000~1019 (note extended range)	Xxxx virtual extn

## 2.4 SMDR Interface over IP

Traditionally SMDR output has been via an AP00 or the CPU with the output being an RS232C serial interface. SMDR in R9 now has the ability to transmit over TCP/IP via the built-in AP00 function on the CPU. Only one connection is allowed using port 60010. Once the SMDR over IP function is enabled the associated RS port on the CPU is unavailable for RS SMDR output.

Note this feature uses a polling protocol, it is not just a simple telnet connection. Some development is required by SMDR vendors.

### Specifications

Item	Condition
Physical layer	Ethernet
Connection layer	The Ethernet packet format conforms to the DIX specifications.
TCP/IP core protocol	ARP, IP, ICMP, UDP, TCP
Socket interface	Conforming to 4.3BSD socket interface
Transport protocol	TCP stream type protocol
Application port number	60010
Number of connections	1 connection
Client/server Server:	PBX
Client:	PMS
Transmission code	JIS 7-bit ASCII code
Quasi-normal restriction condition	1. When connection is closed 2. Status monitoring text

### Conditions

- 1) MCI output via RS Port is still available
- 2) Modem via RS Port is still available
- 3) Mat connection via RS Port is available
- 4) SMDR Via RS Port is not available
- 5) Only one SMDR terminal can be connected.
- 6) The maximum number of trunk calls simultaneously is 255 trunk calls
- 7) Set "60010" as the port number.
- 8) Set command 08>800 to 0 when assigned as a local office (Built- in SMDR)
- 9) Centre office for centralised billing is available
- 10) The SMDR terminal is should always be connected. If communication is interrupted for 120 seconds, the PBX assumes that a communication disconnection has occurred. While communication is disconnected, billing information of own office (center office) can be stored up to 1000 calls. The local office is notified to stop sending data.
- 11) If the power supply is turned off or the system is initialized at the center office, the stored information is lost and outputting is stop.

## Programming

### Standalone

Command	First Data	Second Data
CM 02	0,1,2, Set time	
CM 0B00	00,01,02 Set IP address	
CM 0401	05 Destination of in-built SMDR	0 LAN interface
CM 0401	08 Message format	00 Extended (CLI) 15 Standard
CM 08	827 Parity check	0 None 1 check as per 08>828
CM 08	828 type of Parity	0 Odd 1 Even

### CCIS Centralised Site

CM 08	368 Centralised Billing	0 Available
CM 08	378 Billing Node	0 Local 1 Centre office
CM A703	0~7 CCIS channel handler	1 Distant end is local office
CM 0401	06 Destination of Centralised SMDR	0 LAN interface

### Reference chart for available SMDR formats

SMDR	Centre Office with centralized billing	Local Office with centralized billing	Standalone office. No centralized billing (local)
SMDR with AP00 (PN-AP00-B with AP00 program)	Standard format	Standard format	Standard format
SMDR with AP00 (PN-AP00-B with MRCA program)	Standard & Extended format.	Standard format	Standard & Extended format.
MP built-in SMDR on RS-232C	Cannot be the centralized office.	Standard & Extended format.	Standard & Extended format.
MP built-in SMDR on IP	Standard & Extended format.	Not supported	Standard & Extended format.

## **2.5 PMS Interface over IP**

Prior to R9 the only way to connect to a Property Management System was via an AP00 MRC-C using an RS232C serial interface. PMS in R9 now has the ability to transmit over TCP/IP via the built-in AP00 function on the CPU. Only one connection is allowed using port 60050. When using PMS over IP an AP00 MRC-C cannot be used in the system. The IP interface is compatible with model 90/120 message specifications.

No Application testing has been performed.

## 2.6 Pass Through FAX over IP (FoIP) with G.711 Codec

The IPS has three types of IP-PAD's released to the Australian and New Zealand markets, which are the PN-32IPLA, PN-32IPLA-A, and the PN-8IPLA/PZ-24IPLA each providing the ability to communicate FAX over the IP network. However each IPPAD provides a different FAX mode of operation resulting in the inability to provide FAX service between different IPPAD card types; this was due to the 32IPLA/-A supporting only T.30 relay mode and the 8IPLA only supporting Pass through Mode. With the release of the R9 enhancement and IP-PAD firmware, pass through mode is made available between the 8IPLA and the 32IPLA-A. (not the 32IPLA)

Previously FoIP was only supported with G.711 non-compressed, the 32 IPLA-A and 16VCT was required for Fax transmission. FoIP is now available in G.711 non-compressed or G.726 compression mode. When using G.711 Pass Through FAX with a 32 IPLA-A the 16VCT is no longer required. When using G.726 Pass Through FAX with a 32 IPLA-A, the 16 VCT is required. Pass Through FAX is available between 8 IPLA and 32 IPLA-A card combinations.

### Conditions

- 1) Firmware required for the 32IPLA-A is SC-3353 IPS IPPAD PROG-E1.
- 2) 32IPLA-A with SC-3353 IPS IPPAD PROG-E1 firmware supports both Pass through and T.30 relay.
- 3) Firmware required for the 8IPLA is SC-3330 IPS IPPAD PROG- A1 5.00
- 4) Fax mode of 32IPLA-A is default T.30.
- 5) Incomplete FAX transmissions = Check PAD levels, confirm 0A80 is set, check codec setting of IP-PAD and verify 67XX commands.
- 6) Network issues such as delay, jitter and drop packets may course poor image quality and unreadable documents.
- 7) Error correction Mode (ECM) can be turned on to correct errors coursed by network issues. Error correction mode is a FAX and IP-PAD function and must be enabled on all connecting FAX machines and IP-PAD'S to work. Turn on ECM on all PAD'S and connecting FAX machines (ECM will correct errors that have occurred during the FAX transmission).
- 8) ECM will not work if external FAX machines do not have ECM enabled.
- 9) ECM mode is not required to be set on IP-PAD'S using Pass through mode.
- 10) Pass through mode is recommended for tandem connections.
- 11) Pass through requires greater bandwidth then T.30 relay.
- 12) When G.726 is used a VCT is required.
- 13) Set the speed and duplex configurations the same on both the Ethernet switch and IP-PAD LAN port. (Example Auto to Auto)

FAX Modes and IPPAD Combinations

IPPAD TYPE	PN-8IPLA (B1.01) <i>Note 1</i>	PN-32IPLA /VCT (C1) <i>Note 1</i>	PN-32IPLA (C1) <i>Note 1</i>	PN-32IPLA-A/ VCT (E1 1.01) <i>Note 1</i>	PN-32IPLA-A (E1 1.01) <i>Note 1</i>	IPX IP-PAD with VCT	SV7000 MC
PN-8IPLA (B1.01)	**Pass through G.711/G.726	Not Supported	Not Supported	**Pass through G.711/G.726	**Pass through G.711	**Pass through G.711/G.726	**Pass through G.711/G.726
PN-32IPLA /VCT (C1)	Not Supported	***T.30 <i>Note 2</i>		***T.30 <i>Note 2</i>	Not supported <i>Note 3</i>	***T.30 <i>Note 2</i>	***T.30 <i>Note 2</i>
PN-32IPLA (C1)	Not Supported	T.30 Relay SUPPORTED With VCT card. When No VCT card is mounted FAX over IP is Not Available.					
PN-32IPLA-A/ VCT (E1 1.01)	**Pass through G.711/G.726	***T.30 <i>Note 2</i>		***T.30 & **Pass through G.711/G.726 <i>Note 2</i>	**Pass through G.711 <i>Note 3</i>	***T.30 & **Pass through G.711/G.726 <i>Note 2</i>	***T.30 & **Pass through G.711/G.726 <i>Note 2</i>
IPX IP-PAD with VCT	**Pass through G.711/G.726	***T.30 <i>Note 2</i>		***T.30 & **Pass through G.711/G.726 <i>Note 2</i>	**Pass through G.711 <i>Note 3</i>	***T.30 & **Pass through	***T.30 & **Pass through
SV7000 MC	**Pass through G.711/G.726	***T.30 <i>Note 2</i>		***T.30 & **Pass through G.711/G.726 <i>Note 2</i>	**Pass through G.711 <i>Note 3</i>	***T.30 & **Pass through	***T.30 & **Pass through

\*\* IPPAD FAX Mode G.711 Payload type Dynamic 103  
 \*\*\* IPPAD FAX Mode T.30 Relay Payload type Dynamic 97

**Note 1:** Firmware from 8IPLA differ form the 32IPLA-A (Do Not Load)  
**Note 2:** Set 0A82 for each IP-PAD to 0 for ECM (Error correction mode must be enabled on all FAX machines to have any effect).  
**Note 3:** T.30 is supported with VCT card.

**WARNING:** Please note that when we mention T.30 or Pass through FAX mode, we are referring to the communications between IPPAD'S over the IP network. Not the FAX protocol the FAX is sending / receiving.

## Programming

### Fax Over IP

Command	First Data	Second Data
CM 0A80	Xx LAN Interface number	0 To provide

### Pass Through Fax Over IP

Command	First Data	Second Data
CM 6720	Xxyy Locations between 8A5xxx>173 and 0A09	1 Fax list 1 (see below) 4~7 programmable list 6721~6724

#### Fax list 1

Protocol = G.711

Payload = 40ms

Min Jitter = 120ms

Max Jitter = 120ms

### T.30 Fax Over IP

Command	First Data	Second Data
CM 6720	Xxyy Locations between 8A5xxx>173 and 0A09	0 Fax list 0 (see below) 4~7 programmable list 6721~6724
0A82	Error Correction Mode	0 To provide (only available with T.30)

#### Fax list 0

Protocol = T.30 fax relay

Payload = -ms

Min Jitter = 0ms

Max Jitter = 0ms

## 2.7 MP/IP-PAD LAN Interface Speed Setting

Previously the LAN speed of the CPU/M606 and IP PAD cards were fixed to auto negotiate 10/100 Half Duplex. R9 software adds fixed 100 Mbps Full Duplex to the CPU/M606, which is adjusted via office data programming. Control for 100 Mbps Full Duplex or auto negotiate 10/100 Half Duplex on the 32 IPLA and 8 IPLA IP PAD is done via switch settings on each card.

### Conditions

- 1) 8IPLA firmware SC-3330 IPS B1 2A and later
- 2) The speed / duplex mode for the MP card is configured using the office data. A system reset is required. *Warning: execute EC6 before reset.*
- 3) The speed / duplex mode for the 32IP-PAD card is configured using the rotary switch on the card. Card requires an initialisation for change to take affect.
- 4) The speed mode for the 8IP-PAD card is configured using the DIP switch on the card. Card requires an initialisation for change to take affect.
- 5) Set the speed and duplex configurations the same on both the Ethernet switch and CPU (M606) LAN port. (Example Auto to Auto)
- 6) If setting Speed/Duplex at the remote site, set data 0BXX>05 to both Main and remote sites.
- 7) Speed/Duplex must be specified at the remote sites.

#### PN-32IPLA /-A

Mode	Description	Remark
0	Speed mode = Auto negotiation	Default
1	Speed mode = 100 Mbps, full duplex	
3	Speed mode = 10 Mbps, half duplex	
4	Speed mode = 100 Mbps, half duplex	
E	Firmware download	
Other	Do not use	

#### PN – 8IPLA

SW0	Description		Remark
4	OFF	(Default)	(Default)
	ON	Do not use	
3	OFF	Auto negotiation (default)	(Default)
	ON	100 Mbps, full duplex	
2	OFF	Normal mode for PBX (default)	(Default)
	ON		
1	OFF	(Default)	(Default)
	ON	Do not use	

## Programming

Command	First Data	Second Data
CM 0B00	05 Speed/Duplex mode	0 100/ Full Duplex 1 Auto Neg
CM 0B31~60	05 Speed/ Duplex mode	0 100/ Full Duplex 1 Auto Neg

### 2.8 SP30 Cooperation with PHS Terminals

PHS can now be used like a wireless handset of SoftPhone SP30 (Version 2). Since SoftPhone is set as a main station and PHS is set as a sub station of SoftPhone, both SoftPhone and PHS can originate, answer, hold and transfer the call to one station number.

For more information refer to SP30 TIB NEC 8954.

### 2.9 DeskCon Lockout Operation

Previously this feature was available on ICS120/IVS2000 with SN708 ATTCON but not on SN716 DESKCON. This feature provides a soft-key that allows the SN716 DESKCON to be set into a lockout mode. This disables the console from originating or receiving calls and setting or resetting service features. To return the Console to its manual operating condition a password is required.

#### Operation

To Set Lockout from a SN716 DESKCON

1. In an idle state, the LCD displays MODE PROG.
2. Press MODE key.
3. DAY NIGHT ACTIV LKOUT appears on the LCD.  
Note: NIGHT is displayed only on the master attendant console.
4. Press LKOUT key.
5. Press the Answer key and receive service set tone. The LCD displays SET LKOUT.
6. Press the Release key. MODE appears on the LCD. The mode of console is changed from normal to lockout mode.

To cancel Lockout from SN716 DESKCON

1. Press MODE key.
2. Dial a password. PASSWORD xxx is displayed on the LCD.
3. If the entered password is wrong, MODE appears on the LCD again. (Lockout mode).

4. If the entered password is correct, DAY NIGHT ACTIV LKOUT appears on the LCD.
5. Press ACTIV key.
6. Press the Answer key and receive service set tone. The LCD displays SET ACTIVE.
7. Press the Release key. MODE PROG appears on the LCD. The mode of console is changed from lockout to normal mode.

## 2.10 MATWorX IPS R9 Enhancements

- **IP PAD Setting Add-In (New);** new add-in to maintain IP-PAD information and adjust the quality of communication among IP devices.
- **Graphical Configuration Report Add-In (Enhancement);** Adds 8IPLA and 24IPLA to the existing graphical configuration report (GCR)
- **Data Setting Add-In (Enhancement);** Adds data setting add-in for PHS (virtual PIM assignments) and 8IPLA/24IPLA.
- **Ease of Operation (Improvement):**
  1. It is now possible to change the font size and window size of the MOC add-in and the Mach Script Editor.
  2. The following have been added to MATWorX Scheduler.  
MATWorX Scheduler activates applications at specified times:
    - AP Program Download
    - LEN List-Up
    - Fault Information Display
    - Mach Script Editor
    - Office Data Save, Load and Verify

## 2.11 My Line Display During Idle State

Previously to see the My Line number of a digital terminal the phone had to be off hook via handset/headset or speaker. This enhancement provides the ability for digital terminals to display the My Line station number on LCD during idle state. This provides a convenient and quick way to visually identify the station number assigned to the digital terminal.

### Conditions

- 1) Enables every Dterm terminal with an LCD screen to display its own my line number.
- 2) The line number is displayed on the upper line of the LCD screen.
- 3) The line number is displayed 3 seconds after the terminal returns to idle.

## Programming

Command	First Data	Second Data
CM 08	311 Display Myline on LCD	0 Available 1 Not Available
CM 15210	XX Display Myline on idle	0 Display 1 No display

After programming command 15210 the Dterm display will update under the following conditions.

- When command 1229 is executed (after setting 1229 to a 0 the system automatically set 1229 back to a 1) 1229 is a display update command.
- Displays are updated automatically after a period of time 0-24 hours.
- After a system initialisation.
- Unplugging and plugging the Dterm.

## 2.12 ISDN TRUNK TONE SENDING

This enhancement provides a tone to the user if an ISDN trunk has been selected, this feature is generally implemented when the ISDN trunk is the second choice route. In effect this is an expensive route warn tone – if enabled it is applied even if the route is 1<sup>st</sup> choice.

Example:

First choice is No: 7 CCIS (link down second choice to ISDN)

Second choice is ISDN (tone is provided to indicate higher cost path has been selected)

## Programming

Command	First Data	Second Data
CM 35200	XX Route	0 transmit seizure tone 1 No tone

## 2.13 Q-SIG Overlap Sending and Receiving

Overlap Sending and Receiving are now available on the IPS system running release 9 - (J1) software.

### Overlap Receiving

Overlap Receiving is a procedure used in call establishment of an incoming call. This enables the network to send called party number digits to the user in successive messages, when they are made available from the remote network.

### Overlap Sending

Overlap Sending is a procedure, used in call establishment of an outgoing call. This enables the user to send called party number digits to the network in successive messages.

### Conditions

- 1) PN-30PRTA with SC-3176 IPS PRTA PROG-A1
- 2) If the originating system has idle trunks, but the destination system has tandem trunks busy the call will not route second choice. (sending)
- 3) These features conform to the ETS 300 172 ETSI standard.
- 4) Refer to Q-SIG System Manual for PRT and IPS ISDN Features and Specifications for more detailed conditions.

### Programming

#### Overlap Sending

Command	First Data	Second Data
CM 3576	Xx route	00~07 max digit table
CM 35206	Xx route	0 – Overlap & Enbloc 1 – Enbloc only
CM 325307	Xx route	00~31 Number of division digits
CM 85x	Area code	01~79 max digits

#### Overlap Receiving

Command	First Data	Second Data
CM 35202	Xx route	00~07 max digit table
CM 35203	Xx route	0 – Overlap 1 – Enbloc
CM 08	655 operation of ORT / T302 timeout	0 Disconnect 1 Connect
CM 410	112 ORT /T302 timer	03~99 1 sec incr

## GENERAL NOTES

The following is a list of notes that have been provided to assist in the setup of the IPS2000 system and to help resolve configuration issues. These are generic across R8 and R9.

**Warning:** Execution of command 00>90:0 is required when upgrading to release 9 (J1) software from any previous IPS software release.

### IP-PAD

1. Limit IPPAD channels with 0A73. Use command E55> to busy out any unused channels.
2. IP-PAD all channel busy/no voice problem is now rectified with R9 software .
3. Set the speed and duplex configurations the same on both the Ethernet switch and IP-PAD LAN port. (Example Auto to Auto)
4. PN-32IPLA does not support Pass through FAX mode. ([see FAX combinations chart](#))
5. PN-8IPLA does not support T.30 relay. ([see FAX combinations chart](#))
6. PoE (Power over Ethernet) must be disabled on Ethernet switch interfaces that are connected to the CPU and IP-PADS on both the Main and remote sites.
7. Do not set command 0A50>XX for Release 6.2 (f2) or later.
8. 0A22>XX: 0 for error correction mode (NLP/ECM) must be set when using a 32IPLA or a 32IPLA-A.
9. ECM is not required for pass through mode (8IPLA & 32IPLA-A).
10. A soft reset via Matwork will not initialise a 32IPLA IPPAD card. 32IPLA-A and 8IPLA will reset.
11. Use IP-PAD PEG Counts (B00>077:XXXX) to check how many times all PAD channels have been busy, B00>077:001 when 001 is displayed the IP-PAD has had all channels busy once, depending on the customers requirements, we recommend a second IP-PAD be installed if the customer is experiencing busy tone when calling via the IP-PAD (IP to and from TDM) or a second voice compression card (VCT) be added when only G.729a is available.
12. Upgrade all 8IPLA IP-PAD'S from A1 4.00 to A1 5.00 when connecting 8IPLA to 8IPLA via gateway when Tagged VLANs are implemented.
13. Latest released firmware versions for IP-PAD'S currently (24/01/05) are;
  - C1 6.00 for 32IPLA and 32IPLA-A
  - E1 3.00 for 32IPLA-A
  - B1 2.00 for 8IPLA
14. Ensure all Locations combination setting are set and correct i.e., 6700>0000: X / 6700>0101: X / 6700>0100: X / 6700>0001: X. (X = Pattern number in CMD 42)

### OAI

1. Unlimited monitored points for OAI.
2. One extension can be monitored by four OAI applications.

### **IP-DTERM**

1. IP Dterm firmware 1.24 or later is recommended.
2. EC8 must be executed for online expansion. (Remote site only)
3. FP 20 through to 30 are now available for virtual PIM'S (IP-Dterms) (Release 9 or Later)
4. Command FA00 displays firmware versions of IP-Dterms,  
FA00>X-XXXXXXXX (station): 37030124 = *Version 1.24*
5. Command FA01 displays type of IP-DTERM,  
FA01> X-XXXXXXXX (station):05 = IP- DTERM (ITR) 03= 85 series with adaptor.
6. Command FA02 displays IP Addresses of IP-Dterms,  
FA02> X-XXXXXXXX (station): 010018010100: **A** or 010018010100: **N**  
**A = Available**  
**N = Not Available**

### **VIPT (P2P CCIS)**

1. Command 056>XX:0 must be assigned for VIPT
2. Peer to Peer CCIS link reconnect is available in H1 software or later (Command 08>628:0)
3. CCIS P2P (VIPT) trunks are included in the total IP-PORTS 1020 with release 9 software. So when calculating IP-Ports include CCIS P2P trunks to the total calculation.

## **UPGRADE PROCEDURE**

### *Reference*

NEAX 2000 IPS System Manual R9 ND-71503 Issue 5

TIB Upgrade procedure NEC-8217 (TIB R6.2 Upgrade)

1. Execute command EC6>0:0
2. Save original office (customer) data to file.
3. Once the save has finished execute command EC6 again. (This EC6 is required any CF data set during office save i.e, voice mail, mobile.)
4. Wait for EC6 to finish.
5. Set sense switch to position 8.
6. Press reset button.
7. Load J1 (Release 9) via Matwork.
8. Wait until load has finished.
9. Turn Power OFF.
10. Set sense switch to position 2 (OFF Line)
11. Turn power ON.
12. Execute command 00>90:0
13. Wait until conversion is complete.
14. Execute command EC6.
15. Wait until finished.
16. Turn Power OFF.
17. Set sense switch to position 0 (ON Line)
18. Turn Power ON.

### **DMR**

1. 6/10 Party conference is not supported on the DMR, even when hosted at the main site
2. External music on hold, refer to chart.
3. ADD-ON Conference is not supported with DMR configuration.
4. PN-4LCAA is required with DM/DMR, max 6 ringer circuits per FP. (Determined by switch setting) The 4LCAA is required for analog phones.
5. Include IP-PAD channels when calculating number of TDM ports.
6. Assign at least 16 channels to 30PRTA card (DMR), even when an onramp 10 is used, busy out the unused channels by command E51>xxx: 0 or assign unused trunks to a different route.
7. Do not use the upper highway when assigning AP'S to a remote site (DMR) for H1 (Release 8) and earlier.
8. The use of the upper highway is available from Release 9 (J1).
9. Number of Remote site license can be verified by command F88>16: 0001 remote site.
10. Commands Cm056, Cm057, Cm058 are used to assign an AP card to a remote site (DMR).
11. PN-32IPLA is not supported when installed at a remote site.
12. SMDR is not buffered when the remote site is in survival mode.
13. Execution of command EC6>0:0 & EC8>00:0 is required to ensure all IP-Dterms

registered at the remote site have the required IP-port licenses available, in the case that link down occurs (Survival mode)

14. The DMR will not operate if the system has insufficient TDM ports available.

15. PoE/inline power must be disabled.

16. On HP switch disable LACP (No LACP) on interface connected to CPU of remote site.

17. On Cisco switch set spanning tree port fast on interface connected to CPU of remote site

### Music on hold

#### External music source via MP card

##### IPS Standalone site

<ul style="list-style-type: none"> <li>▪ <b>IP-DTERM places IP-DTERM on hold</b> = Music source is generated by Internal adaptor of held IP-DTERM.</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>IP-DTERM places 'TDM' DTERM on hold</b> = Music source is generated by External source of MP (Main site)</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>IP- DTERM places an TDM Trunk call on hold</b> = Music source is generated by External source of MP (Main site)</li> </ul>

##### IPS DMR

<ul style="list-style-type: none"> <li>▪ <b>IP-DTERM places IP-DTERM on hold</b> = Music source is generated by Internal adaptor of held IP-DTERM.</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>IP-DTERM places 'TDM' DTERM on hold</b> = Music source is generated by External source of MP (<b>Remote MP</b>)</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>IP- DTERM places an Trunk call on hold</b> = Music source is generated by External source of MP (<b>Remote MP</b>)</li> </ul>

#### Remote PIM over IP configuration

<ul style="list-style-type: none"> <li>▪ <b>IP-DTERM at Main site places an IP-DTERM at the Remote site on hold</b> = Music source is generated by the Internal adaptor of the held IP-DTERM at the <b>remote site</b>.</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>IP-DTERM at Remote site places an IP-DTERM at the Main site on hold</b> = Music source is generated by the Internal adaptor of the held IP-DTERM at the <b>Main site</b>.</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>'TDM' DTERM at Remote site places an 'TDM' DTERM at the Main site on hold</b> = Music source is generated by External source of <b>Main</b> site MP</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>'TDM' DTERM at Main site places an 'TDM' DTERM at the Remote site on hold</b> = Music source is generated by External source of <b>Remote</b> site MP</li> </ul>

## 2.14 Useful Commands for IPS

These are a few of the basic commands, refer to the appropriate feature for full details of additional commands.

CM	Description	Second Data
435>00	Flash ROM backup time	Eg Set 0300 for 3am
EC6>0	Flash ROM Backup	0 = back up now
F85	Software Revision	F85>FF03 +
F87	Software Options	F87>000 shows Allow or Restrict for each option
F88>01	Licence Capacity	Shows system licence limits
0B00>00	Set CPU IP address (OAI, IP MAT and Peer to Peer)	IP address xxx.xxx.xxx.xxx
0B00>01	Set CPU subnet	Subnet 255.xxx.xxx.xxx
0B00>02	Default gateway	Gateway xxx.xxx.xxx.xxx
	MAT port = 60000	
	OAI port = 60030	
	SMDR port =	
	PMS port =	

## IP Dterm Programming Summary

CMD	1 <sup>st</sup> Data	2nd Data	Description
0B00	00	xxxxxxxxxxxx	CPU IP address
0B00	01	xxxxxxxxxxxx	CPU Subnet mask
0B00	02	xxxxxxxxxxxx	CPU Default Gateway
050	16	00	Create FP19
058	16	0008	FP16 controls PIM8 at main site
056	16	0	FP16 is virtual
14	16000	Fxxx	Assign IP Dterms to virtual FP timeslots
1239	xxx	01	Assign IP Dterms to location 01
9000			Assign keys as normal
93			Assign Myline as normal
FA00	extn		Look up Firmware version eg 37030124 = v 1.24
FA02	Extn		Look up IP address, suffix A = Available, N= not available

### Accessing Dterm IP Set Up.

Power up phone

Press HOLD, TRANSFER, \*, # to access user menu

Press HOLD, #, 0 to access Admin menu

Press 7, factory default, OK and exit to initialise unit.

Set User Menu items

- 1 – DHCP enable / disable – dependant on customer network
- 2 – DRS primary address – CPU IP address set in CMD 0B00>00
- 4- IP address of Dterm – only required if DHCP not available
- 5– Default Gateway
- 6- Subnet Mask

DHCP options are:

Option 001 --> Subnet Mask

Option 003 --> Default Gateway Address

Option 006 --> DNS Server Address

Option 015 --> DNS Domain Name

Option 161 --> DRS Address

Option 141 --> FTP Server Address (Future Enhancement)

Option 151 --> File Name of "Config Data" (Future Enhancement)

## IP PAD Programming Summary (R8 and R9)

CMD	1st Data	2nd Data	Description
0A00	00	001	Assign location of IPPAD (example = PIM0 LT05)
0A01	00	xxxxxxxxxxxx	IP PAD IP address
0A02	00	xxxxxxxxxxxx	IP PAD Subnet mask
0A03	00	xxxxxxxxxxxx	IP PAD Default Gateway
0A09	00	02	Set IP PAD location number
0A22	00	0	NLP echo canceller
0A23	00	03	Send Pad (adjust as required)
0A24	00	03	Rec Pad (adjust as required)
0A29	00	53	Voice TOS=5, Control TOS = 3
0A73	00	Xx	Number of channels 00= 8 channels 01= 16 channels 02= 24 channels 07= 32 channels
0A80	00	0	Provide Fax service
14	00032~00063	DD000~DD031	Assign IPPAD channels
		DD032~DD063	
		DD064~DD095	
Locations			
6700	0101	NONE	Location 01~01 calls use G711 (or assign 0 if G729a required.)
6700	0102	0	Location 01~02 calls use Codec list 0
42	100	04	Codec List 0 = G729a
Busy out			
E55	xxzz	0	xx= IPPAD number, zz= channel number
Firmware			
F85	E001		Card 0. E101 for card 1

## IPT Programming Summary

CMD	1st Data	2nd Data	Description
050	20	38	Assign Virtual AP20 as IPT handler
054	20	12	Assign IPT handler to virtual PIM 12
056	20	0	Assign IPT handler as virtual FP
14	20000~ 20004	D200~D204	Assign number of virtual trunks as required/ licenced. Max 16 per virtual IPT
0607	0	20	Assign IPT as handler 0
AA14	20	1	Assign control channel
3000	200~204	20	Assign trunks to route (eg 20)
3500	20	04	Assign route as tie line
3504	20	2	Answer supv
3505	20	1	Release signal
3509	20	03	Wink start / CCIS
3520	20	00	Wink start / CCIS
3590	20	0	CCIS
3591	20	0	Handler 0 assigned to route
3035	200~204	001~004	CIC numbers
360	2020	0	Assign any tandem requirements
A700	0	255	Assign dummy trunk to handler 0
A701	0	00001	Assign OPC
A8	00002	0	Assign all DPC
A746	0	0	Point to Multipoint
A726	0	0	Name display on
A728	0	0	CLI/ transfer info
200	X	A129	Assign number plan to LCR
8AA000	3	4003	Assign LCR plan3 to Area Code table
8A4003	X	0020	Assign dialed digits to route pattern
8A0020	1	02020	Assign LCR pattern and route
8A5020	167	020	Assign IP address pattern
8A5020	168	00002	Assign DPC
8A5020	173	02	Assign location number to destination
5B01	02000	xxxxxxxxxxxx	Destination IP address (distant CPU)
853	X	X	Max number of digit table
For ISDN tandem calls			
3519	Xx	0	Set programmable pads on outgoing ISDN route
42	50	05	STA-DTI pad. This will reduce echo problems. This will reduce echo problems.
08	373	0	Send CF info across IP
08	379	0	Name display