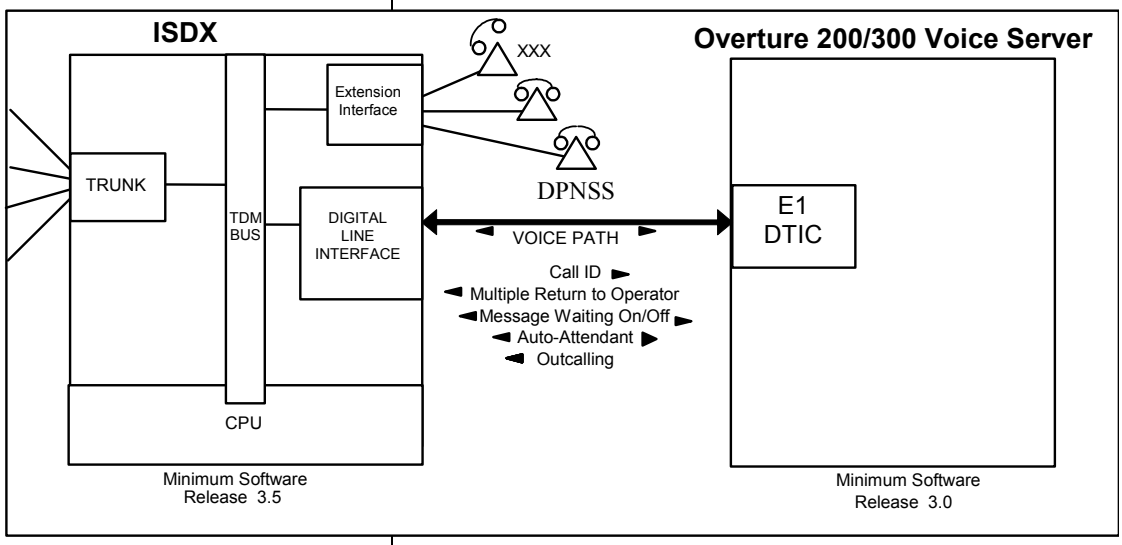
Octel 200/300

Message Server

Configuration Note 6102 Rev. D (12/03)

GPT iSDX - DPNSS (UK & Ireland)



With DPNSS, one digital pathway between the PBX and the Octel system transmits both call information and voice communications

1.0 METHOD OF INTEGRATION

With DPNSS integration, one digital pathway between the PBX and the Octel system transmits both call information and voice communications. The pathway is provided by a 2 Megabit digital link which provides 32 channels that connects to the E1-DTIC card. Two of the channels are reserved for synchronization and signaling with the other 30 channels available for voice. The DTIC card connects directly to the PBX using a DPNSS link which makes the Octel Voice Server appear as another PBX on the network. Within one of the reserved channels, routing information is sent so that the destination PBX has information regarding the source of the call and the reason for its arrival. This extra information is sent as 'Supplementary Information Codes'. The Octel receiving a call now knows what phone to direct the call to and can see from the supplementary code who is calling and the reason why the call was delivered to the Voice Server. Message-waiting indication is set and canceled using a supplementary code. Voice is carried through the system in its digital format, (in Europe as a 'A-Law' type signal). This removes the need to convert speech from analogue to digital, to store it on the disk, and then back to replay it.

2.0 OCTEL ORDERING INFORMATION

Octel requirements

2.1 VOICEMAIL SOFTWARE

- Serenade 3.0 (or higher)
- COD DSP ports
- DPNSS revision 1.23 code (or higher)
- Software Features Packages X0031 (Adaptive Integration)

2.2 VOICE MAIL HARDWARE

- E1 - DTIC (1 per 30 ports)
- Earthing Bracket
- Amphenol to BNC convertor (1 per E1 card)

3.0 PBX REQUIREMENTS

PBX requirements

3.1 HARDWARE REQUIREMENTS

- Digital Line Interface card (1 per E1 card)
- 2 x DPNSS cables per 1 card

3.2 HARDWARE REQUIREMENTS

- Minimum Software release 3.5.301
- The Integrated Voice Mail (IVM) package
- Software patches required - PBX Revision dependent.

Refer to Appendix A.

4.0 SUPPORTED FEATURES

Supported integration features

- System forward to personal greeting (Internal & External)
  - all calls
  - ring-no-answer
  - busy
- Message-waiting notification
  - stutter dial tone, bell tinkle, or LED on analogue phones
  - message on ISDTs, Multiline, ACD sets.
- Automated Attendant
- Outcall
- Multiple return-to-operator
- Personal greeting of original-called party on multiple-call forward
- Direct Call (Quick Logon)

5.0 CONFIGURING THE ISDX TO INTEGRATE

Configuring the iSDX to integrate

The Integrated Voice Messaging (IVM) feature must be installed and enabled by the PBX vendor on the 'host' PBX

The iSDX will still be able to provide full integration if the IVM package is not present but features such as Diversion Timers, IVM diverts and DTMF from consoles and digital phones will not be available.

Octel normally requires that the iSDX has IVM installed.

The iSDX produces a conversion table which enables the user's mailbox number to be different from the extension number. The **RVM** command is used on the iSDX to do this. If the mailbox number is the same as the extension number then the LVM table must be left blank and patches 1810***x***, and 1811***x*** must be fitted.

Extensions can be defined as 'LUAL' users in the LIVU table. No diversions are required to be set by the user or by the System Manager for LUAL users. Automatic redirection to the Octel will occur after *'all'* other extension invoked diversions have been resolved. The command used to set each extension as an LUAL user is :-

RIVU *nnnn*, where *nnnn* is the extension number.
Direct voice mail access can be achieved by ISDT's, Operators and rotary phones as the iSDX uses digit conversion to regenerate the necessary DTMF tones. This also applies across a DPNSS network.
If the PBX software is below 3.7.001 then patch 2094***x*** is needed to enable feature phones to send DTMF while users are within their mailboxes.

Note. x denotes the release of iSDX Software.

5.1 System Parameters.

- SPILE = 0. Sets the location of the voice mail to be off site
- SPIDG = PBX Node ID + Access Number (Pilot Number).

Example XXXYYYY i.e. 7011234

NOTE: This has to be input in octels. Use PBO XXXYYYY to convert.
Need example here!
Inserted as a 3 octet number with empty fields set to 0.

- SPNAD & SPRAD. Set as per PBX network configuration
- SPEID & SPLOC. Set as per PBX network configuration.

5.2 Routing Tables.

- Extension and Routing Tables to refect PBX network.
- Pilot Number = Route Access Code + PBX Node ID + Access Number.

5.3 DPNSS Trunk Main Group

- The Trunk Main Group should be set to Cyclic Hunting.

5.4 PROGRAMMING FORWARD TO PERSONAL GREETING

Programming Forward to personal greetings

DIVERTIONS INVOKED BY EXTENSION

Each extension can be programmed by the user to divert their telephone to the pilot number of the Voice Server. The following call diversions types are available on the iSDX. Broken dial tone is heard when these features are invoked.

IMMEDIATE / ALL CALLS

Will forward all calls.

Activation Code	#9*xxxx*
Deactivation Code	##9

BUSY DIVERSION,

Will divert calls to a when the user is on the phone.

Activation Code	#0*xxxx*
Deactivation Code	##0

RING-NO-ANSWER,

Will divert a call if the user does not answer their phone within a specified time, usually 15 seconds.

Activation Code	#0**xxxx*
Deactivation Code	##0

Note : *xxxx* denotes the Voice Server Pilot Number.

5.5 DIVERSIONS INVOKED BY THE SYSTEM MANAGER

Each extension can be programmed by the System Manager to divert to the pilot number of the Voice Server. The following call-diversions types are available on the iSDX. Normal dial tone is heard when these forwarding features are invoked.

- Divert on Ring Tone No Reply External
- Divert on Ring Tone No Reply Internal
- Divert on Busy External
- Divert on Busy Internal

The command to perform this operation for each extension is, **RFD** *nnnn xxxx* **RE RI BE BI** ,

where *nnnn* - extension number. *xxxx* - Voice Server Pilot Number

RE - Divert on Ring Tone No Reply External *
RI - Divert on Ring Tone No Reply Internal *
BE - Divert on Busy External *
BI - Divert on Busy Internal *

Note * : Reply **Yes** / **No** is required to set each option.

A mailbox user will typically have calls forwarded on Ring Tone No Reply External and Busy External.

Extension invoked forwarding features override system managed features and the extension user will then receive broken dial tone.

Note: The feature codes listed above are generally standard, but may vary from switch to switch.

☐ If extensions are defined as LUAL users in the LIVU table, then no diversion is required to be set by the user, as automatic redirection to the Voice Server will occur after "all" other diversion is resolved.

Programming OCTEL configuration

6.0 PROGRAMMING OCTEL CONFIGURATION

6.1 SYSTEM PARAMETERS

- Set System Parameter 3 to: 30 for GPT, PBX Model ISDX/Realitis
- Set System parameter 26: DOUBLE-INTERUPTED RINGBACK = NO
- Set System parameter 33 PBX INITIALIZE CODE = NONE
- Set System parameter 45 SYS. RELOAD FWD STRING = NONE
- Set System parameter 46 SYS. RELOAD CANCEL-FWD STRING = NONE
- Set System parameter 79 LAMP MW “ON” PRE-EXT DIGITS = NONE
- Set System parameter 80 LAMP MW “ON” POST-EXT DIGITS = NONE
- Set System parameter 81 LAMP MW “OFF” PRE-EXT DIGITS = NONE
- Set System parameter 82 LAMP MW “OFF” POST-EXT DIGITS = NONE
- Set System parameter 112 DTMF A ON CX AND MX PORTS = NO
- Set System parameter 117 RINGBACKS BEFORE ANSWERING AX PORT = 0
- Set System parameter 130 DTMF A ON FORWARDED CALLS = NO
- Set System parameter 159 DETECT CALL PROGRESS ON EXTERNAL CALLS = YES
- Set System parameter 169 OUTCALL SELECTION METHOD = ROTARY 1
- Set System parameter 198 PCM ENCODING FOR SYSTEM = 1 for A law
- Set System parameter 304 “B*AN*1” MSG WTG INDICATION ON STRING FOR DPNSS
- Set System parameter 305 “B*AN*0” MESSAGE WAITING INDICATION OFF STRING FOR DPNSS
- Set System parameter 306 VOICE MAIL ORIGINATING LINE ID FOR DPNSS = the calling extension used by the Voice Server for outcalling calls, must be diffferent than system parameter 313.
- Set System parameter 309 ENHANCED LAMP MWI “ON” PRE-EXTENSION DIGITS = NONE
- Set System parameter 310 ENHANCED LAMP MWI “ON” POST-EXTENSION DIGITS = NONE
- Set System parameter 311 ENHANCED LAMP MWI “OFF” PRE-EXTENSION DIGITS = NONE
- Set System parameter 312 ENHANCED LAMP MWI “OFF” POST EXTENSION DIGITS = NONE

NOTE: System parameter 309 -312 must be set to NONE to prevent DPNSS MWI from being invoked.

- Set System parameter 313 VOICE MAIL DESTINATION ADDRESS FOR DPNSS = this is the pilot number in the PBX for the Octel Voice Server
- Set System parameter 314 Permit non IVM users to divert to set diverts to VM- usally NO if using IVM
- Set System parameter 315 Permit non IVM users to divert to VM - usually NO if using IVM

NOTE: Verify the dialing sequences and message waiting feature codes are set to match the codes defined for your GPT iSDX. If necessary ask the Telecom manager or switch provider to modify codes to match.

6.2 SLOTS TABLE.

The Slots table allows the configuration of each line card and its associated ports.

1. Delete all entries in the slots table associated with analogue line cards
2. Add entry(s) for digital card(s).

6.3 Adding DTIC

From UPDATE use 'A SLOT' entering the location in which the card has been inserted.
Card Type = 53-DTC17-DPNSS
LSPTAB = 28-DPN_GPTA or 29-DPN_GPTB
The DPNSS link will be designated as either side A or side B at the PBX. The Vocie Server should be the opposite.

Clock =	1st card installed	-	Primary
	2nd card installed	-	Secondary
	3rd card installed	-	Tertiary
	4th card installed	-	Leave blank
	5th card installed	-	Leave blank

Enter information for each PORT.
Enter as: EXTENSION NUMBER connected to each port (1-8 digits), CLASS-OF-SERVICE (0-511), ANSWER MODE (AX, CX, MX), USE PORT FOR MESSAGE WAITING AND NETWORK OUTCALLING (Y/N), TEST CHANNEL (Y/N), DPNSS Priority Parameter(X/Y)

Extension number should be set at - None
Test channel should be set at - No
The DPNSS priority X/Y should be set at the opposite than the switch setting, i.e. if the PBX channel is set to X the channel on the Voice Server should be set to Y

example:- n,254,AX,Y,N,X

SLOT CARD TYPE

	PORT SYS	EXTENSION#	COS	MODE	OUTCALL	TEST	X/Y
5	DTC17-DPNSS						
	1	n	254	AX	YES	NO	X
	2	n	254	AX	YES	NO	X
	3	n	254	AX	YES	NO	X
	4	n	254	AX	YES	NO	X
	5	n	254	AX	YES	NO	X
	6	n	254	AX	YES	NO	X
	7	n	254	AX	YES	NO	X
	8	n	254	AX	YES	NO	X
	9	n	254	AX	YES	NO	X
	10	n	254	AX	YES	NO	X
	11	n	254	AX	YES	NO	X
	12	n	254	AX	YES	NO	X
	13	n	254	AX	YES	NO	X
	14	n	254	AX	YES	NO	X
	15	n	254	AX	YES	NO	X
	16	n	254	AX	YES	NO	Y
	17	n	254	AX	YES	NO	Y
	18	n	254	AX	YES	NO	Y
	19	n	254	AX	YES	NO	Y
	20	n	254	AX	YES	NO	Y
	21	n	254	AX	YES	NO	Y
	22	n	254	AX	YES	NO	Y
	23	n	254	AX	YES	NO	Y
	24	n	254	AX	YES	NO	Y
	25	n	254	AX	YES	NO	Y
	26	n	254	AX	YES	NO	Y
	27	n	254	AX	YES	NO	Y
	28	n	254	AX	YES	NO	Y
	29	n	254	AX	YES	NO	Y
	30	n	254	AX	YES	NO	Y

LSP table : DPN_GPTB
PRIMARY SYNC RECEIVER OF CLOCK

Route Table

The Route Table needs to be modified for this integration in order to define the correct dialing pattern.

In most common configurations, an access of 9EDXXX-YYY-ZZZZ would represent an “9” to dial outside the switch and an “E” to expect dial tone, and D represents a short delay. However, these switches do not provide dial tone, therefore the dialing pattern needs to be modified to 9XXX-YYY-ZZZZ.

NOTE: Other places where the “E” is tyically seen are in Information Table, Index 17 (offsite prefix digits), and possibly Index 30 (group fax number).

PORT COS TABLE

As this is no longer a DTMF integration remove attributes 62 and 68 from all port classes of service.

USER TABLE

All extension numbers configured including Node ID must match the mailbox number, therefore, shared extensions with different mailbox numbers are not allowed.

APPLICATION DELAY TABLE

The Application Delay table contains the timing values used by the Voice Mail to detect cadences, provided by the PBX, such as Dial tone and Busy.

The Application Delay Table has to be configured so that the Overture can recognize the signals sent from the E1 card.

The UK Applications delay Table should be correct if the PBX type of "GPT ISDX/Realitis" is selected in System Parameter 3.

The only parameters that should need to be changed are;

53 = 2200
54 = 1800
55 = 3200
56 = 2800

These four delays are used for the RNA timer in index 7 of info table when used with PA, Auto Attendant or Outcalls.

129 = 2500
130 = 4000
137 = 3700
138 = 200000
139 = 200000
143 = 80
147 = 20000

Determining ring cycles with a QSIG/DPNSS integration (all PBX's):

Ring cycles are calculated by multiplying index 7 of the Information table with the average ringback [on] added to the average ringback [off]

Single ringback (sys param 26 set to N)

ie. (index 7)*(average ring time)

average ring time = (application delay 53+54) + (application delay 55+56)
2 2

If sys 26 is set to Y for double interrupted ringback, then delays 61-68 are averaged.

An example of this formula listed below:

Assume Information table index 7 is set to 3

APPLICATION DELAY TABLE.

INDEX	DELAY (msec.)
53	2200
54	1100
55	3300
56	2700

Using the application delay's above:

(53+54) 2200+1100=3300/2=1650 -ringback on

(55+56) 3300+2700=6000/2=3000 -ringback off

Total =4650 (1 ring cycle) x 3 (index 7) =13950

The value 13950 means the server waits 13.950 secs. for an answer.

The value of 1 ring cycle is 4.650 secs.

LSP TABLE

The LSP table (Line Scanner Process Table) is used to download certain variables to the line cards. The LSP table used for a line card is assigned in the configuration of the 'Slots' table.

7.0 INSTALLATION OF DPNSS ON AN OVERTURE 200/300

Installation of DPNSS on an Overture 200/300

Refer to the installation instruction's for further details.

Check that the system is running S3.0 or higher (If it is not an upgrade is required first, **STOP**)

List All and capture to PC (for reference)

Print DTMFINT table, APPLICATION delays and SLOTS tables

Remove analogue line card(s) from slots table

Replace analogue line card(s) with digital E1 card

Setup System Parameters

Check and modify Application Delay table

Install E1 card in SLOTS table using LSP table 13 "DPNSS_CB"

Reboot system with RESTA 2 or power cycle system.

All table setup and modifications are required to be done in an UPDATE section logged in with the maintenance password.

All setup updates should be done referencing the given sections in this document.

7.1 INSTALLING HARDWARE

Installing Hardware

The Hardware for the DPNSS installation consists of three parts.

- E1 - DTIC
- Amphenol to BNC converter
- Earthing / Fixing Bracket

The E1 card can be installed in any of the slots which would normally house an analogue or FAX card, (i.e. slots 1-6 on a Serenade 200, slots 1-11 on a Serenade 300).
As with all other line cards the E1 card can be hot plugged.
The E1 card can be installed and configured with the system in-service but the system will need to be rebooted with a RESTA to activate the install

For specific information on the E1 card, the relevant part of the PRMs should be referenced.

The earthing bracket fixes to the back of the 200/300 across the fixing screws for J2 on a 200 or J4 on a 300.
The BNC converter fits into the Amphenol Socket corresponding with the slot that contains the E1 card. The converter is fixed into place with a screw which locates into the earthing bracket.

The PBX connects via standard DPNSS cables. These cables should be supplied by the PBX vendor. If the Status Trunk command on the DTIC shows Loss of Signal, these cables may be reversed. Change them and try again.

To conform to EMC regulations one Ferrite Bead must be installed on each 75 ohm cable, at the end that connects to the VM.

Testing the installation when complete

7.2 TESTING THE INSTALLATION

1. Create two mailboxes associated with two test extensions. Record a name and personal greeting for each mailbox. Put a different security code on each mailbox.

2. Call forward the test extensions to the Octel system access number.

3. Using one test extension, call the Direct Call Target Code + the extension number. You should hear “To enter your mailbox, press #”. Press #,#. You should hear “Please enter your security code”. Enter the security code and verify that the correct mailbox has been accessed.

4. Using one test extension, call the other test extension. You should hear the personal greeting.

5. Leave a message. Verify that the message waiting indicator turns on

6. Verify that transfer to attendant works properly.

7. Call the voice-processing module from a test extension. Log onto the mailbox.

8. Review the message in the mailbox.

9. Delete the message. Verify that the message waiting indicator turns off.

8.0 CONSIDERATIONS

Important notes regarding this integration

8.1 The iSDX requires software patches for feature phones and operators to have DTMF tones whilst within their mailbox. Software 3.7001 and above will provide DTMF to feature phones and operators.

8.2 The iSDX digital MultiLine phone requires users to process the Clear/Delete key in order to remove message waiting indication on the display.

8.2 iSDX software patches 2087*x* and 2119*x* are required for integration on external-call transfers.

8.3 Other patches are required below PBX software 3.7.001. See section 9.0 for details.

8.4 One part of the integration which operates in a different way from that of analogue is transfers. The DPNSS integration operates a 2 channel transfer on which optimization can not start until the Call Connect message has been received. On a system used heavily for call processing this must be taken into consideration during system sizing. Normally however this would be more than compensated for by the quicker hang up and the fact that MWI is no longer a port resource.

8.5 Please note that it is important to ensure system paramater 169 is set to ROTARY 1. This is to ensure that a self cleaning mechanism is in place for the DPNSS ports. Failing to set this up correctly can result in ports getting locked up.

8.6 Check to ensure all relevant DPNSS patches are loaded for the DPNSS image being used. Please refer to Appendix A for details of all required software patches for this integration.

9.0 APPENDIX A – SOFTWARE PATCH REQUIREMENTS

9.1 CPU PATCHES for S.4.0.0-2

Ensure CPU patches 54, 111, 140, 194, 202 and 213 are loaded and applied on the system for DPNSS. These patches are dynamic so no restart is required. Contact Avaya Customer Service Centre to get these patches loaded or the equivalent ones for the other releases of Sernade.

9.2 CPU PATCHES for S.4.1.0-2

Ensure CPU patch 23 is loaded and applied on the system for DPNSS. All other S.4.0.0-2 patches were incorporated into this release. S.4.1.1-2 has no DPNSS patches at this point in time.

9.3 DPNSS LINE CARD PATCHES

It's recommended that DPNSS image 1.40 is used as it's the latest image incorporating these patches. The new 1.40 image will need patches 1, 2, 4, 6, 7, 8, 9 and 10 loading and applying. Restart the DPNSS cards to make the patches effective. Contact Avaya Customer Support Centre to get these patches loaded.

9.1 APPENDIX B - SOFTWARE PATCH REQUIREMENTS

For PBX Software 3.5.301:

Mandatory Patches: 15360, 17892, 19630, 20870, 20880, 20940, 20960, 21180, 21250, 21280, 21411, 21630, 21640, 21650, 21670, 22540, 22850, 23380, 23400, 23780, 24210, 24520.

Optional Patches: 18100,18110 - These must be fitted if the extension number is to be used as the mailbox number and the extension number is sent in the message-waiting string.

21290 - This patch is required if remote sites connected by DPNSS are either iSDX with software lower than 3.5.301 or non iSDX with extensions that wish to integrate.

For PBX Software 3.6.001:

Mandatory Patches: As listed above with the exception of patch 19630.

Optional Patches: As listed above.

For PBX Software 3.6.201:

Mandatory Patches: 15360, 20873, 20881, 20943, 21182, 21252, 21413, 21632, 21641, 21650, 21670, 22543, 22853, 22841, 23382, 23781, 24210, 24521.

Optional Patches: 21290 - This patch is required if remote sites connected by DPNSS are either iSDX with software lower than 3.5.301 or non-iSDX sites with extensions that wish to integrate.

For PBX Software 3.7.001 :

Optional Patches: 20875, 24214, 27142, 28281, 23383.

For PBX Software 5.1.001 :

Optional Patches: 20875, 23383, 24215, 28430, 29142, 30440, 31122

For PBX Software 5.1.101 :

Optional Patches: 24215

For PBX Software 5.2.001 :

Mandatory Patch for Direct Call: 32340

Optional Patches: 20872, 23385

Note: PBX Patches are required if there is more than one Voice Mail system in a DPNSS network. DPNSS is clever enough to see that an extension on another node is busy or ring tone no reply so the call stays on the first node and goes to the wrong Voice Module. The following patches have been developed to correct this problem.

For PBX Software :	**3.6.201**	**28210**
	3.7	**28211**
	4.1.001 & 5.1.001	**28212**
	4.1.101 & 5.1.101	**28213**
	5.2	**28214**
	6.0 & 6.1	**Included in Software**

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