

# VPIM Optional Feature Guide

Optional Feature  
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## 1 Overview

The Administered Voice Profile for Internet Mail (VPIM) optional feature allows users to send voice and fax messages from a NuPoint Messenger system to other, different voice mail systems. The transfer uses the VPIM protocol defined by the voice messaging committee of the Electronic Messaging Association (EMA). This protocol enables voice mail systems from different vendors to communicate with each other.

The voice mail system routes incoming and outgoing messages through the Administered VPIM facility. Outgoing messages go to a pre-configured destination system. Incoming messages go to recipients on the local system. VPIM sets up the routing through information contained in the Digits Translation Table (DTA) and Node Translation Table (NTA).

The DTA holds the information that sorts or routes the messages. For an outgoing message, the server compares the destination address for the message to the prefix entries in the DTA. When it finds a match, it reads the node number for that prefix.

The NTA holds the information that describes each node. After reading the node number from the DTA, the server reads the domain names and additional VPIM configuration (encoding type, prefix type, and alternate prefix) for the associated nodes, then sends the message to the recipient's server.

For incoming messages, the server compares the destination address to the prefix entries in the DTA. When it finds a match, it strips the prefix from the address. If the digits that remain match a mailbox listed in the alias file, the server places the message in the recipient's mailbox and activates the message waiting notification.

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## Message Characteristics

The source system provides these types of message attributes:

- The source system can mark the message as Confidential.
- The source system can mark the message as Urgent.

The destination system sends non-delivery notification for these occurrences:

- A VPIM message that does not comply with VPIM version 2 format or includes a text/plain body part.
- A VPIM message where one or more of the recipients is not a valid user on the system; the notification includes a list of invalid recipients.
- A VPIM message includes an IMAGE/TIFF body part and one or more of the recipients does not have the correct FCOS to receive fax messages; the notification includes a list of invalid recipients. The system logs the notification for each invalid recipient in the system error log and in the Event Recorder.

These limitations apply to the source and destination systems:

- The system can accept VPIM messages that exceed the recipient's maximum allowed message length. However, the system rejects any message that exceeds the shorter of 10 minutes or the maximum message length for the system.
- General system performance may slow down if the voice mail system sends or receives very long messages.
- Return receipts are not supported.

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### NP View and VPIM

NP View works with VPIM to allow the user to:

- Receive and play a VPIM message
- Answer, give, or make a VPIM message when the NP View Network address option is set to NP Net
- Create distribution lists containing VPIM recipients

NP View includes new features for VPIM:

- The Address field accepts any "Network telephone number" up to a predefined maximum length
- The sender's network number appears in the Mailbox field and the name appears in the Name field, or, if no match is made, "Network message" appears in the Name field

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### NP Admin and VPIM

The NP Admin product allows centralized administration and configuration monitoring with automatic error monitoring. Use NP Admin to set the required NCOS bits for any mailbox.

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## 2 Configuration

Configuring VPIM includes setting basic parameters for the TCP/IP network and for mailboxes, then setting parameters that determine how the mailboxes with the VPIM feature will communicate over the network.

The DTA and NTA tables hold information about the systems that exchange VPIM messages. When a user sends a VPIM message, the local system checks the DTA table to identify the node where the remote mailbox is located, then reads the NTA table for the domain name and VPIM configuration of that node. The administrator sets the type of prefix the node uses as the default prefix in the DTA table, no prefix, or an alternate prefix in NTA table. After receiving a message, the remote system checks the DTA and NTA tables to derive the mailbox number from the message address.

For the various VPIM nodes to successfully send and receive messages, the DTA and NTA tables at each VPIM node must contain the same information about all VPIM nodes.

To exchange VPIM messages with a remote node, set the protocol type in the NTA table for both nodes to "VPIM".

Before you start to configure VPIM on any node in the network, identify each node in the network and record these parameters:

- **Node Number** The number, from 2 to 8191, that identifies each node in the system; do not use 1 for any VPIM node
- **Prefix Type** Select the prefix type for each node:
  - Default: the VPIM user mailbox uses the prefix configured in the DTA table
  - No prefix: the VPIM user mailbox does not include a prefix
  - Alternate prefix: the VPIM network uses a prefix configured in the NTA table for transporting the message between nodes in the network
- **Prefix** The number, from 1 to 99,999,999,999, of the prefix for user mailboxes on this node; set in the DTA table (set the Prefix Type to D)
- **Alternate Prefix** The number, from 1 to 999,999, if a node uses the alternate prefix set in the NTA table (set the Prefix Type to A) for transporting messages within the network

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### Configuring Basic VPIM Parameters

To use the VPIM optional feature, start with these basic configuration steps:

1. Add any necessary optional feature software. See chapter 3 in the *Installation and Service Manual*  
Model 70  
Model 120  
Model 640.
2. Set up Unified TCP/IP. See the *Unified TCP/IP Manual*.
3. Set the Features Class of Service (FCOS). For details, see chapter 7 in the *Reference and Configuration Manual*.
4. Set the Network Class of Service (NCOS). For details, see chapter 8 the *NP Net Administrators Guide*.
5. Use the NCOS and FCOS functions to control a user's privileges, such as answering, making, or giving voice and fax messages across the network.
  - To include basic VPIM message capability in any mailbox, set up an NCOS with NCOS bits 2 through 9 as needed.
  - To include fax capability in any mailbox, add Feature bits 190 through 196 to the FCOS and NCOS bits 10 through 12 to the NCOS.

#### Feature bits

- 190 Receive fax messages
- 191 Make fax messages
- 192 Give fax messages
- 193 Deliver fax to default number
- 194 Deliver fax online
- 195 Specify fax delivery number

196 Change default fax number

#### NCOS bits

- 002 Allow user to make network messages
- 003 Allow user to make urgent network messages
- 004 Allow user to give network message
- 005 Allow user to give urgent network messages
- 006 Allow user to answer network message
- 007 Allow user to answer urgent network messages
- 008 Automatic receipt on network messages
- 009 Say "Remote mailbox" when playing network messages
- 010 Allow user to make fax message over the network
- 011 Allow user to give fax messages over the network
- 012 Allow user to answer fax message over the network

For details about Feature bits and configuring an FCOS, see the *Reference and Configuration Manual*. For details about NCOS bits and setting up NCOS 1, see the *NP Net Administrator's Guide*.

6. Set the Dialing Plan. See the *NP Net Administrator's Guide*, Chapter 6.

A network typically requires a special prefix digit, such as 8, for access to remote telephones. In the dialing plan, indicate the prefix digit with **N** or **P** at the prefix digit position.

- If one node uses **P**, all nodes must use **P**
- If **N** is used, include it in the Absorb digit setting in the DTA Table; if **P** is used, the digit is transparent, do not include it in the Absorb setting
- If all telephone numbers used with the prefix digit will be the same length, enter **Px**, where **x** is the number of digits in the telephone numbers
- If the telephone numbers may vary in length, enter **PV**

7. Configure Mailboxes. Be sure to include the NCOS you set up. See the *Reference and Configuration Manual*, Chapter 6.

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## Configuring the DTA table

For the node for each server, determine these DTA parameters:

- **Node Number** A number, from 2 to 8191, that identifies a particular node in the system. Do not use 1 for any VPIM node.
- **Absorb digit** The number of digits to absorb (strip from the telephone number) for a destination node. Set this to the same length as the prefix.

- **Prefix** The number, from 1 to 99,999,999,999 that is the valid prefix for this node.

Follow these steps to configure the DTA table:

1. From the Main menu, select (S) System Maintenance, select (W) Network Menu, select (M) Network Maintenance, then (D) Digits Translation.
2. At the Digits Translation menu, set these parameters:
  - (a) Select (C) Create new prefix/node pairs, then enter the **number** for the VPIM node.
  - (b) At the prompt for the Absorb digits, enter the **number** of digits to strip from the telephone number.
  - (c) At the prompt for the Prefix, enter the prefix **number** for this node.
  - (d) Press **Enter** twice to return to the Digits Translation menu.
3. At the Digits Translation menu, select (L) List the dta table to check the prefix, node, and absorb count information.

For example, a DTA Table with three VPIM nodes appears like this:

```
PREFIX/NODE PAIR REPORT
Tue May 25 08:54:18 1999

Prefix      Node      Absorb Cnt
408555      100       6
510555      101       6
650555      102       6

3 Prefixes found
```

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## Configuring the NTA table

For the node for each server, determine these NTA parameters:

- **Node number** A number, from 2 to 8191, that identifies a particular node in the system. Do not use 1 for any VPIM node.
- **Protocol** V for VPIM
- **Access** Y for all nodes
- **Domain name** The Internet address, up to 255 alphanumeric characters
- **Prefix Type** Select the prefix type for the node:
  - D, default: the VPIM user mailbox uses the prefix configured in the DTA table
  - N, no prefix: the VPIM user mailbox does not include a prefix
  - A, alternate prefix: the VPIM network uses the prefix configured in the NTA table for transporting the message between nodes in the network
- **Alternate Prefix** The number, from 1 to 999,999, that is the alternate prefix if the Prefix Type is set to A.

Follow these steps to configure the NTA table:

1. From the Main menu, select (S) System Maintenance, select (W) Network Menu,

select (M) Network Maintenance, then (T) Network Node Table.

2. At the Network Node Access Table Maintenance menu, select (C) Create new node entry, then set these parameters:
  - (a) At the prompt for the Node number, enter the **number** that identifies the node in the system.
  - (b) At the prompt to select the protocol, enter **v**.
  - (c) At the prompt to select the encoding type, enter **G**.
  - (d) At the prompt for the Domain Name, enter the Internet **address**, up to 255 characters.
  - (e) At the prompt to Select prefix to use, enter the type, **D**, **N**, or **A**.
  - (f) If the node uses and Alternate prefix, at the prompt to Select new prefix to use, enter the **prefix** listed in the NTA table, up to 6 digits.
  - (g) At the prompt for Access, enter **y**.
  - (h) Press **Enter** to return to the Network Node Access Table Maintenance menu.

For example, an NTA Table that includes VPIM node number 3 with address load.bayptin.com appears like this:

```

                                NODE ACCESS TABLE REPORT
                                Wed Jan  5 03:12:45 2000
                                STRING      HARDWARE    ACCESS    PARALLEL
                                LINKS
                                MAX
                                2              VPIM              Y
                                Domain name : model120.bayptin.com
                                Encoding type: G.721 Prefix type: Use Default
                                3              VPIM              Y
                                Domain name : load.bayptin.com
                                Encoding type: G.721 Prefix type: Use Default
                                4              VPIM              Y
                                Domain name : model70.bayptin.com
                                Encoding type: G.721 Prefix type: Use Default
                                104 npnet1      TCP    100.1.1.1      0 = ETHERNET    Y
                                105 npnet      TCP    100.1.1.2      0 = ETHERNET    Y
                                5 Nodes found
                                Press any key to continue....
```

For details, refer to the *NP Net Administrator's Guide*.

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## Configuring the Network Queue

The network queue parameters affect how NP Net and VPIM perform in a system. Use these settings, rather than the defaults, for optimum VPIM performance:

Parameter	Explanation	Set to
<b>Message Count Threshold</b>	The minimum number of individual messages, of 0 any type, that must arrive in a queue before that queue sends the messages	

<b>Message Waiting Threshold</b>	The maximum time, in minutes, that any message can wait in a queue, even if the message total has not reached the message count threshold	0
<b>Total Message Minutes</b>	The minimum total of speech time that must arrive in the queue before the queue sends the messages.	0
<b>Maximum Call Setup Tries</b>	The maximum number of calls that this node will make to the destination node to make a connection	3
<b>Call Setup Retry Interval</b>	The time, in minutes, between attempts to establish a connection with the destination node.	2

1. From the Main menu, select (S) System Maintenance, (W) Network Menu, (M) Network Maintenance, then (Q) Modify Network Queueing.
2. Set the Network Queue Time Windows for weekdays and weekends according to the guidelines for the site. For details about the Network Queue parameters, see the *NP Net Administrator's Guide*, Chapter 7.

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## Configuring SMTP Message Reception

Set the SMTP Receive Tasks Limit to 1. This allows the server to continue processing other calls.

1. From the Main menu, select (S) System Maintenance, (W) Network Menu, (M) Network Maintenance, (V) SMTP Receive Configuration, then (M) Modify VPIM configuration.
2. At the prompt to enter the Max Number of Receivers in the host, enter 1.

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## Generating and Verifying the Alias File

When all parameters are set, generate the alias file.

1. From the Main menu, select (S) System Maintenance, (W) Network Menu, (M) Network Maintenance, (V) SMTP Receive Configuration, then (G) Generate Alias File.

The utility automatically creates the list of prefixes with mailbox numbers that can send and receive VPIM messages.

2. Select (V) View Alias File and verify that all mailboxes are included. The alias list will appear similar to this:

```
#mandatory aliases
postmaster:    root
MAILER-DAEMON: postmaster
#aliases for VPIM accounts
vpim:          "|/usr/vm/bin/vpim_rcv"
102998: vpim
102999: vpim
1021233: vpim
1021234: vpim
```



```
1025000: vpimline 2991/3021 99%
1026000: vpim
Press any key to continue . . .
```

Each time you create or delete a mailbox with VPIM privileges, you must regenerate the alias file.

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### Configuring the Hosts File

If the system is on a network that does not support a domain name server, configure the Hosts File. For more information on the Hosts File, see the *Unified TCP/IP Manual*.

1. From the Main menu, select (S) System maintenance, (R) Reconfiguration, (R) Reconfigure system, (G) Offline Menu, (U) UNified TCP/IP Menu.
2. At the TCP/IP Network Configuration menu, select (D) Domain Name, then enter the Internet **address**, up to 255 characters.
3. Select (H) Configure Hosts File.
4. At the Configure Hosts File menu, select (C) Create Host Entry, then at the prompts, enter the **host name**, **domain name**, and **IP address**.
5. To check the Hosts File, select (L) List Host Entries.
6. Select (X) Exit to save the Hosts File and return to the TCP/IP Network Configuration menu.
7. Activate the configuration:
  - (a) Select (X) Exit until you reach the NuPoint Voice Configuration Main menu.
  - (b) From the Configuration Main menu, select (E) Online Menu, then (A) Activate Configuration, and enter **Y** to confirm.
8. Reboot the server.

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### Checking Node Function With Ping

To verify that other nodes are able to send and receive VPIM messages, ping the other nodes.

1. From the Main menu, select (S) System Maintenance, (W) Network Menu, (M) Network Maintenance, then (T) Network Node Table, then (P) Ping a node entry.
2. At the prompt to ping a node, enter a node **number**. The ping attempt, with statistics, appears on the screen:

```
Trying : 101      Domain Name : pv_vpim2.calaveras.bayptin.com

PING pv_vpim2.calaveras.bayptin.com (134.199.188.31): 56 data bytes
64 bytes from 134.199.188.31: icmp_seq=0 ttl=255 time=0 ms
64 bytes from 134.199.188.31: icmp_seq=1 ttl=255 time=0 ms
64 bytes from 134.199.188.31: icmp_seq=2 ttl=255 time=0 ms
64 bytes from 134.199.188.31: icmp_seq=3 ttl=255 time=0 ms

--- pv_vpim2.calaveras.bayptin.com ping statistics ---

4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 0/0/0 ms
Press any key to continue...
```

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## Testing the VPIM Feature

When all parameters are configured and the nodes are connected, check that messages move successfully between remote mailboxes.

1. Make and send one or more messages from a mailbox on one node to mailboxes on each other node in the system.
2. Check that all messages arrived.
3. Answer each message from within the mailbox.
4. Check that each answer arrived at the originating mailbox.
5. If the VPIM feature includes the fax option, repeat these test steps with fax messages.

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## 3 Troubleshooting

This chapter discusses isolating faults only within the VPIM feature. For other server problems, refer to the troubleshooting information and diagnostics for the system.

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### Isolating Faults

Check the symptom and explanation, then follow the steps to diagnose the problem.

#### No VPIM messages go to or arrive from one node in the network

Ping the node name assigned. (See Chapter 2.) If the ping fails, contact your network administrator.

Check the host table. For details, see the *Unified TCP/IP Manual*, chapter 2.

#### One or more mailboxes cannot send or receive VPIM messages

Regenerate the alias file.

Check that the mailbox(s) have the appropriate NCOS

Run Event Recorder with message level for NP Net.

Check the System Configuration. In this typical System Configuration report, the parameters related to VPIM appear in bold:

```
                SYSTEM CONFIGURATION
                Tue May 25 10:03:52 1999
NP VOICE SYSTEM CONFIGURATION
Group #1: "Jojo"
  Lines 3:0 3:1 3:2 3:3 3:4 3:5 3:6 3:7
          Fax Conn: Fax Group 1 (4 channels serving 8 lines)
          Voice Recognition Conn: <none>
  Application = [NP VOICE]
  Dial plan = [4,4,4,4,4,4,4,p11,3]
```

```

Administrator mbox # = [998]
General Greeting mbox # = []
Attendant mbox # = [999]
Wait Prompt = [Y]
Caller multiple messages enabled = [Y]
KEY_0 for attendant transfer during greeting = [y]
Disconnect string = []
Pre-company name string = []
Pre-mailbox greeting string = []
Passcode Length Min = [4], Max = [10], Language = [English]
"6" Key Operator Transfer Dial String = []
"6" Key Operator Transfer pre-Dial String = []
Start of day = [08:00 AM], End of day = [05:00 PM], Days of Week
=[DDDDNN]
Passcode trip count = [5], Passcode trip period = [24]
Dial-by-name: Last First = [Y], Match Threshold = [3], Exact = [Y]
                Suppress Number = [N], Single Digit Access = [N]
Delay Before Answer = [50]
E-mail Transfer String = []
Allow Dial an Extension for callers = [N], users = [N]
Analog Networking: Call Setup timeout = [6]
    International Access Code = [], Country code = []
    Area/City code = [], 1plus dialing = []
    Area/City code is dialed with Local Telephone Number = [N]
    Telephone number = [], Loop-back Test Mailbox = []
Name Greet Quality = [], Message Quality = []
Attendant's extension = [0]
Pre DN or attendant xfer string = [S+]
Group #99: End of Group Info

```

**TCP/IP System Wide Host Configuration**

-----  
 Domain name: calaveras.bayptin.com

H	C	M	S		IP Address	Host Name	Port	Irq	Vendor
o	a	o	l	N					
s	r	d	o	e					
t	d	e	t	t					
1	1	P	1	3	134.199.188.32	pv_vpim3	0280	10	ALTA #1
<b>Host Card</b>					<b>Gateway Address</b>	<b>Subnet Mask</b>	<b>Broadcast Address</b>		
1	1				134.199.188.251	255.255.255.0			