



VoiceNet

Reference

Manual

About This Manual

About This Manual

This manual describes how to instal, configure and maintain the VoiceNet NTerprise® voicemail system in conjunction with any of the following PABX brands.

NORTEL
VOCA
BITRONIC
GPT
HYUNDAI
PANASONIC
FUJITSU
NEC
ALCATEL
SEIMENS
OMNI
ERICSSON

How To Use This Manual

This manual contains detailed reference material, a list of tasks to perform, and a collection of general, detailed, and integration procedures for performing those tasks.

Organisation

This manual is divided into four sections as follows:

Section 1 describes the operation of the VoiceNet NTerprise® voicemail system, and contains a Task List for the implementation and configuration of the system.

Sections 2 and 3 contain General and Detailed Procedures for specific tasks to be undertaken either from the Task List, or from an operational and maintenance perspective.

Section 4 contains Integration Procedures for the correct configuration of the VoiceNet NTerprise® voicemail system with approved types of PABX and Keyphone systems.

Experienced field engineers who are either installing or maintaining the VoiceNet NTerprise® voicemail system will find that the General and Detailed Procedures listed in Sections 2 and 3 provide entry points to most of the functions and parameters required to be performed in the field. The title of each procedure describes the material that is covered in that procedure.

About This Manual

Task List

Use the task list, starting with a principal task, to configure or maintain a new system. Each task listed is described in more detail in the referenced procedure(s). If you want to perform other tasks on a system that is already configured, look up the task you wish to perform in the table of contents under the General Procedures, Detailed Procedures and Integration Procedures headings.

Procedures

Follow the steps in General Procedures (GP XXX) and Detailed Procedures (DP XXX) to accomplish the desired tasks. Readers familiar with a VoiceNet NEnterprise® voicemail system should still use the GP's and DP's as a checklist if desired, while readers new to the NEnterprise® system should use the GP's and DP's for step-by-step implementation instructions.

A reference column in each GP and DP contains pointers and links to supplemental information such as another procedure, manual or document.

Each GP and DP is numbered for document identification and reference, numbering does not necessarily indicate a sequence of performance.

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GP 100

Task	Instal Voicemail	<i>Reference</i>
1	<p>VoiceNet NTerprise[®] voicemail software can be installed on any Microsoft[®] Windows[™] 32-bit operating system. The minimum hardware requirements and detailed procedures which must be followed when setting up these operating systems are as follows:</p>	
	<p>Windows NT 4.0 Workstation SP6a (Minimum hardware requirements are Pentium II processor, Intel chipset motherboard, 64MB RAM, 10GB HDD, 24x CD-ROM)</p>	DP 118
	<p>Windows NT 4.0 Server (Minimum hardware requirements are Pentium II processor, Intel chipset motherboard, 128MB RAM, 10GB HDD, 24x CD-ROM)</p>	DP 118
	<p>Windows NT 4.0 Advanced Server (Minimum hardware requirements are Pentium II processor, Intel chipset motherboard, 256MB RAM, 10GB HDD, 24x CD-ROM)</p>	DP 118
	<p>Windows 2000 Professional (Minimum hardware requirements are Pentium III processor, Intel chipset motherboard, 128MB RAM, 20GB HDD, 48x CD-ROM)</p>	DP 116
	<p>Windows 2000 Server (Minimum hardware requirements are Pentium III processor, Intel chipset motherboard, 256MB RAM, 20GB HDD, 48x CD-ROM)</p>	DP 116
	<p>Windows 2000 Advanced Server (Minimum hardware requirements are Pentium III processor, Intel chipset motherboard, 256MB RAM, 40GB HDD, 48x CD-ROM)</p>	DP 116
	<p>Windows XP Professional (Minimum hardware requirements are Pentium III processor, Intel chipset motherboard, 256MB RAM, 40GB HDD, 52x CD-ROM)</p>	DP 117
2	<p>Each voicemail PC may run up to 16 ports of voicemail, normally installed in groups of 4 ports per voiceboard. Multiple voicemail PCs are configured where system expansion is required. Instal telephony hardware as required:</p>	
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GP 100

Task	Instal Voicemail	<i>Reference</i>
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Task	Reference	Configure New Voicemail System
1		There are three (3) steps to MANUALLY configuring the voicemail database for a new system installation. They are, in order of precedence
	GP 102	Adjust Configuration Parameters
	GP 103	Setup Time Parameters
	GP 104	Create New Mailboxes
2		Other optional procedures to MANUALLY configuring the voicemail database for a new system installation include
	GP 105	Change Security Passwords
	GP 106	Create Distribution Lists
3		Alternatively, you can use the NEnterprise® Installation WIZARD to AUTOMATICALLY configure the voicemail database for a new system installation, as follows
	DP 119	Install NEnterprise® Software

GP 102

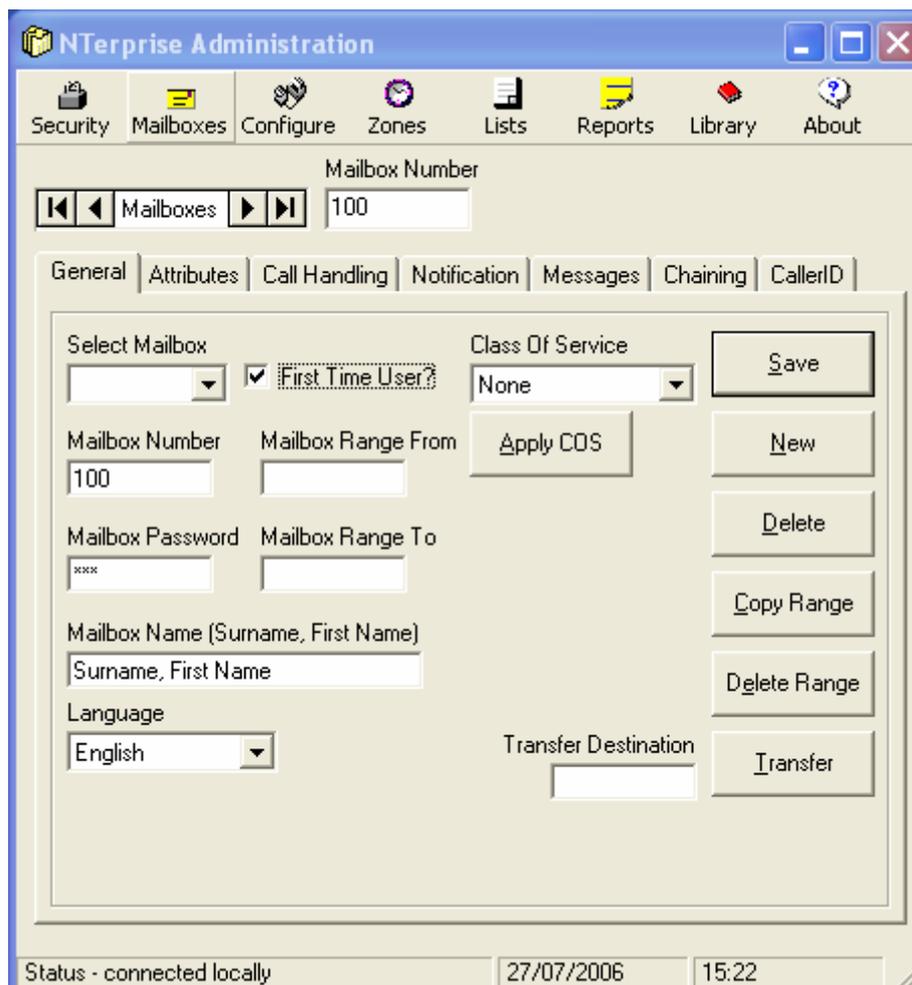
Task	Adjust Configuration Parameters	<i>Reference</i>
1	The Configuration Parameters are grouped under separate tabs for each area of functionality.	
2	Open the administration program to the Configure tab.	DP 150
3	To configure parameters under each tab refer to the following procedures: PABX Parameters Voicemail Parameters Faxmail Parameters Fax On Demand Parameters Email Parameters Port Parameters Message Waiting Parameters Menu Tree Parameters MultiSite Parameters	DP 151 DP 152 DP 153 DP 154 DP 155 DP 156 DP 157 DP 158 DP 159

GP 103

Task	Setup Time Parameters	<i>Reference</i>
1	The Time Parameters are grouped under separate tabs for each area of functionality.	
2	Open the administration program to the Time tab.	DP 160
3	To configure parameters under each tab refer to the following procedures: Zone Definitions Time Definitions Holiday Definitions	DP 161 DP 162 DP 163

Task Reference **Create a new mailbox**

- 1 **DP 170** Open the Voicemail Administration program.
- 2 Select the “Mailboxes” icon button. You will be on the “General” tab.



- 3 Select mailbox “100” (or any mailbox you wish) to use as a template mailbox by clicking on the “Select Mailbox” pull-down list and either selecting the mailbox number e.g. “100” with your mouse or by typing in the mailbox number e.g. “100” and pressing “Enter”.
- 4 Ensure that there is no password in the “Mailbox Password” field (i.e. no asterisks).
- 5 To create a new *single* mailbox, type in the new mailbox number you are creating in *both* the “Mailbox Range From” and “Mailbox Range To” fields.

Task	Reference	Create a new mailbox
6		Click on the “ <u>C</u> opy Range” button to create the new mailbox using the existing mailbox you are in (e.g. mailbox “100”) as a template.
7		To create a new consecutive <i>range</i> of mailboxes, type in the new mailbox range starting number in the “Mailbox Range From” field and type in the new mailbox range ending number in the “Mailbox Range To” field. If there are existing mailboxes within the range you have defined, the admin program will jump over those mailboxes leaving them as they were as it creates the new mailboxes within the range.
8		Click on the “ <u>C</u> opy Range” button to create the new mailbox range using the existing mailbox you are in (i.e. mailbox “100”) as a template for all the new mailboxes being created.

GP 105

Task	Change Security Password	<i>Reference</i>
1	The Security Parameters are grouped under separate tabs for each area of functionality.	
2	Open the administration program to the Security tab.	DP 180
3	To configure parameters under each tab refer to the following procedures:	
	Security Parameters	DP 181

Task	Reference	Create Distribution Lists
1		The Distribution List Parameters are grouped under separate tabs for each area of functionality.
2	DP 190	Open the administration program to the Lists tab.
3		To configure parameters under each tab refer to the following procedures:
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GP 107

Task	Configure Mailboxes in MailAlert	<i>Reference</i>
1	The Mailbox parameters are grouped under separate sub-trees for each area of functionality.	
2	Open the Admin program to expose Mailbox parameters.	DP 177
3	To configure parameters under each tab refer to the following procedures: General Definitions Attributes Definitions Call Handling Definitions Notification Definitions Messages Definitions Chaining Definitions	DP 171 DP 172 DP 173 DP 174 DP 175 DP 176

GP 108

Task	Setup MailAlert	<i>Reference</i>
1	The MailAlert program can be run as a standalone desktop application or as an Outlook Add-In application.	
2	Both applications use the file "MailAlert.INI" for initialising their parameters. This file is located in the %Windows% directory of the desktop the applications are running on. The settings and definitions for each parameter in the MailAlert.INI file are displayed in Detailed Procedure 101.	DP 101
3	Both applications permit the desktop user to handle their messages using the following procedures: MailAlert Log-In MailAlert Versions Play (from MailAlert) Call (from MailAlert) View (from MailAlert) Delete (from MailAlert) Keep (from MailAlert) Give (from MailAlert)	DP 102 DP 103 DP 104 DP 105 DP 106 DP 107 DP 108 DP 109

GP 109

Task	Setup Presence	<i>Reference</i>
1	The Presence program can be run as a standalone desktop application and/or as an Outlook Add-In application.	
2	Both applications use the file “MailAlert.INI” for initialising their parameters. This file is located in the %Windows% directory of the desktop the applications are running on. The settings and definitions for each parameter in the MailAlert.INI file are displayed in Detailed Procedure 101.	DP 101
3	Both applications permit the desktop user to change their “ <i>presence</i> ” using the following procedures: Presence Log On View Presence Icon Buttons View Presence New Message Status Change Presence Status Change Presence Destination Change Presence Start / Return Date / Time Shutdown Presence	DP 202 DP 203 DP 204 DP 205 DP 206 DP 207 DP 208

Task	Reference	Perform common mailbox administration tasks over the phone
1		Access the voicemail system over the phone internally by dialling the voicemail pilot number from an internal phone, or externally by dialling the full voicemail indial pilot number from an outside line.
2		<p>Common voicemail administration tasks are performed from mailbox “000”. To access mailbox “000” use one of the three (3) following methods depending on how you called the voicemail system.</p> <p>a.) if you have called voicemail internally by dialling the voicemail pilot number from an internal phone and your voicemail system recognises the internal phone you called from (i.e. voicemail answers with <i>“Hello, <mailbox number or name>...”</i>):</p> <ul style="list-style-type: none">- press hash hash (# #) to back out of the mailbox you are currently in,- press hash (#) followed by “000” to access mailbox “000” as the owner, and- enter your site-specific password when prompted to do so. <p>b.) if you have called voicemail internally by dialling the voicemail pilot number from an internal phone and your voicemail system plays the generic voicemail greeting (i.e. voicemail answers with <i>“NEnterprise voicemail. To access your mailbox please enter your user code”</i>):</p> <ul style="list-style-type: none">- press hash (#) followed by “000” to access mailbox “000” as the owner, and- enter your site-specific password when prompted to do so. <p>c.) if you have called voicemail externally by dialling the full voicemail indial pilot number from an outside line (i.e. typically, voicemail answers with <i>“NEnterprise voicemail. To access your mailbox please enter your user code”</i>):</p> <ul style="list-style-type: none">- press hash (#) followed by “000” to access mailbox “000” as the owner, and- enter your site-specific password when prompted to do so.
3		<p>The options available to you from the administration mailbox “000” are:</p> <ul style="list-style-type: none">- reset or remove a password from a mailbox,- run the RDA modem program Carbon Copy Remote Access,- reset or “check-out” a mailbox- create a new mailbox, and- delete a mailbox.

Task Reference **Perform common mailbox administration tasks over the phone**

4 To reset or remove a password from a mailbox, after successfully accessing the administration mailbox “000”, enter the following:

- 8 (for User options)
- 8 (for Additional user options)
- 1 (for remote admin tasks)
- 2 (reset, remove or change a password)

You will be prompted to enter the mailbox number whose password you wish to change.

After doing so, you can enter a new password followed by the hash (#) key, or you can enter the hash (#) key alone to leave the current mailbox password unchanged, or you can remove the current password from the mailbox by entering the star (*) key alone.

You will be asked to confirm your selection by repeating it.

When finished just hang up to terminate the call.

5 To run the modem program Carbon Copy Remote Access, after successfully accessing the administration mailbox “000”, enter the following:

- 8 (for User options)
- 8 (for Additional user options)
- 1 (for remote admin tasks)
- 3 (run the modem program Carbon Copy Remote Access)

When finished just hang up to terminate the call.

6 To reset or “check-out” a mailbox, after successfully accessing the administration mailbox “000”, enter the following:

- 8 (for User options)
- 8 (for Additional user options)
- 1 (for remote admin tasks)
- 4 (reset or “check-out” a mailbox)

You will be prompted to enter the mailbox number you wish to reset.

You will be asked to confirm your selection by repeating it.

Task Reference **Perform common mailbox administration tasks over the phone**

After doing so, voicemail will confirm the change by playing “*message sent*” back to you.

When finished just hang up to terminate the call.

7 To create a new mailbox, after successfully accessing the administration mailbox “000”, enter the following:

8 (for User options)
8 (for Additional user options)
1 (for remote admin tasks)
6 (create a new mailbox)

You will be prompted to enter the new mailbox number you wish to create.

You will then be asked to enter a copy mailbox number. This is an optional step if you wish to create a new mailbox based on copying an existing mailbox number. Don’t enter anything if you just wish to create a general mailbox, otherwise enter the mailbox “template” you wish to copy from.

After doing so, voicemail will confirm the change by playing “*message sent*” back to you.

When finished just hang up to terminate the call.

8 To delete a mailbox, after successfully accessing the administration mailbox “000”, enter the following:

8 (for User options)
8 (for Additional user options)
1 (for remote admin tasks)
7 (delete a mailbox)

You will be prompted to enter the mailbox number you wish to delete.

You will be asked to confirm your selection by repeating it.

After doing so, voicemail will confirm the change by playing “*message sent*” back to you.

When finished just hang up to terminate the call.

Task Reference **Common mailbox administration task shortcuts****1** **View the Call Statistics Report**

- open the Voicemail Administration program from the desktop
- (the default password is “VoiceNet”)
- select the “Reports” icon button
- select the “Call Statistics” tab
- select the type of statistics report you wish to run (usually “Calls Received”)
- view the generated report (which will be for the current day)
- NOTE: if you wish to view Call Statistics from a period previous to the current day, these reports are archived in the folder “E:\NTrprise\Archive\...”

2 **View the Mailbox Usage Report**

- open the Voicemail Administration program from the desktop
- (the default password is “VoiceNet”)
- select the “Reports” icon button
- select the “Mailboxes” tab
- select the “Usage” report with the “Mailbox Number (or Range)” field empty to view usage for ALL mailboxes in your system
- view the generated report
- this report shows you the last date on which each mailbox was accessed by it’s respective owner, either to listen to messages or manage other user options, so the report is useful in determining which mailboxes are really in use.

3 **To remove a password from a mailbox**

- open the Voicemail Administration program from the desktop
- (the default password is “VoiceNet”)
- select the “Mailboxes” icon button
- you will be on the “General” tab
- use the “Select Mailbox” pulldown list to select the mailbox you wish to change
- the “Mailbox Password” field should have asterisks in it indicating a password is present. Simply backspace out or select and delete the asterisks to remove the current mailbox password
- click on the “Save” button to save the mailbox without a password.

Task Reference **Common mailbox administration task shortcuts****4** **To re-run the Mailbox Tutorial**

- open the Voicemail Administration program from the desktop
- (the default password is "VoiceNet")
- select the "Mailboxes" icon button
- you will be on the "General" tab
- use the "Select Mailbox" pulldown list to select the mailbox you wish to change
- click on the "First Time User?" checkbox to enable re-run of the mailbox tutorial for that mailbox
- click on the "Save" button to save the mailbox.

5 **To access your own mailbox from someone else's extension**

- dial the internal voicemail access number from the other person's extension
- the voicemail "knows" which extension you are calling from, and automatically puts you into that extension's mailbox
- as soon as you hear voicemail greet the extension owner by saying "*Hello, ...etc*", enter a double hash (# #), which will take you out from that extension's mailbox back to the voicemail main menu
- when you hear the start of the voicemail main menu, which is normally "*NTerprise voicemail, to access your mailbox please enter your user code*", you should enter a hash (#) followed by your mailbox number (normally the same as your extension number). This tells voicemail that you wish to access your mailbox
- you will now be at the same point where you would have been if you had called the voicemail pilot from your own extension, i.e. voicemail should be asking you for your mailbox password.

Task Reference Voicemail Operating Description

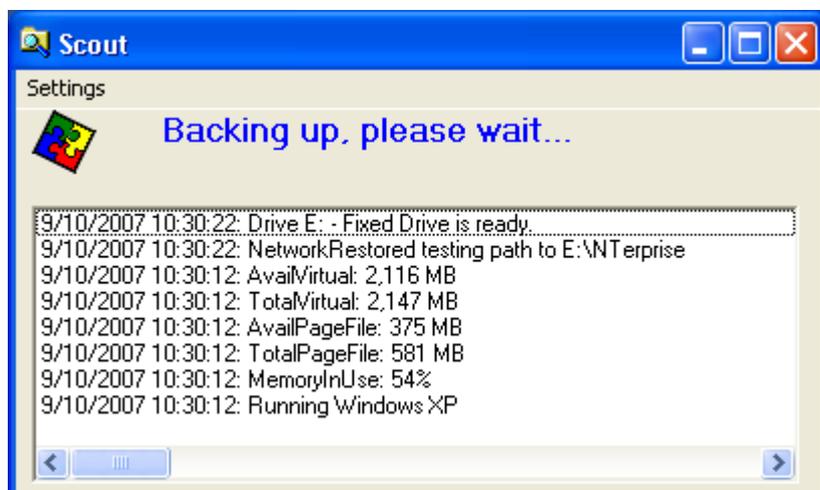
What happens from when the voicemail server starts up?

The voicemail server will be setup to automatically logon to Windows as an Admin user and run the programs listed in the “Start – Programs – Startup” group. There will normally be only one program listed in the Startup group, which will be “Scout.exe”. Any Services nominated as Automatic will of course also be run at this time. The most important of these from the voicemail point of view will be the Dialogic service, which initialises the Dialogic voiceboards installed in the voicemail server and prepares them to receive and make calls. The Dialogic voiceboards themselves essentially contain analog-to-digital and digital-to-analog processors for each port they supply. Typically the voiceboards will be 4-port, with their real-world interfaces consisting of four RJ12 telephony sockets.

What does Scout do?

The Scout program does the following (in sequential order):

- 1 Closes any currently open network sessions.
- 2 Tests that the path to the voicemail server database is valid and reachable.
- 3 Compacts the voicemail database (the database “whitespace” will expand with usage).
- 4 Backs up the database, all messages and all greetings to multiple nominated destinations.



- 5 Adds any new INI file sections to the relevant INI files.
- 6 Checks the ..\Update sub-folder for any more recent executables, and if so then backs up the existing .exe's, then copies the new .exe's over the top.
- 7 Opens a link to the database, and creates any new database fields as defined in the ScoutUpgrade.txt file located in either the ..\Update sub-folder or the primary ..\NTerprise folder.
- 8 Checks whether the Dialogic voiceboard service is running, and if so
- 9 Runs the nominated programs as defined in the Scout.INI file.
- 10 After running the nominated programs, Scout closes automatically.

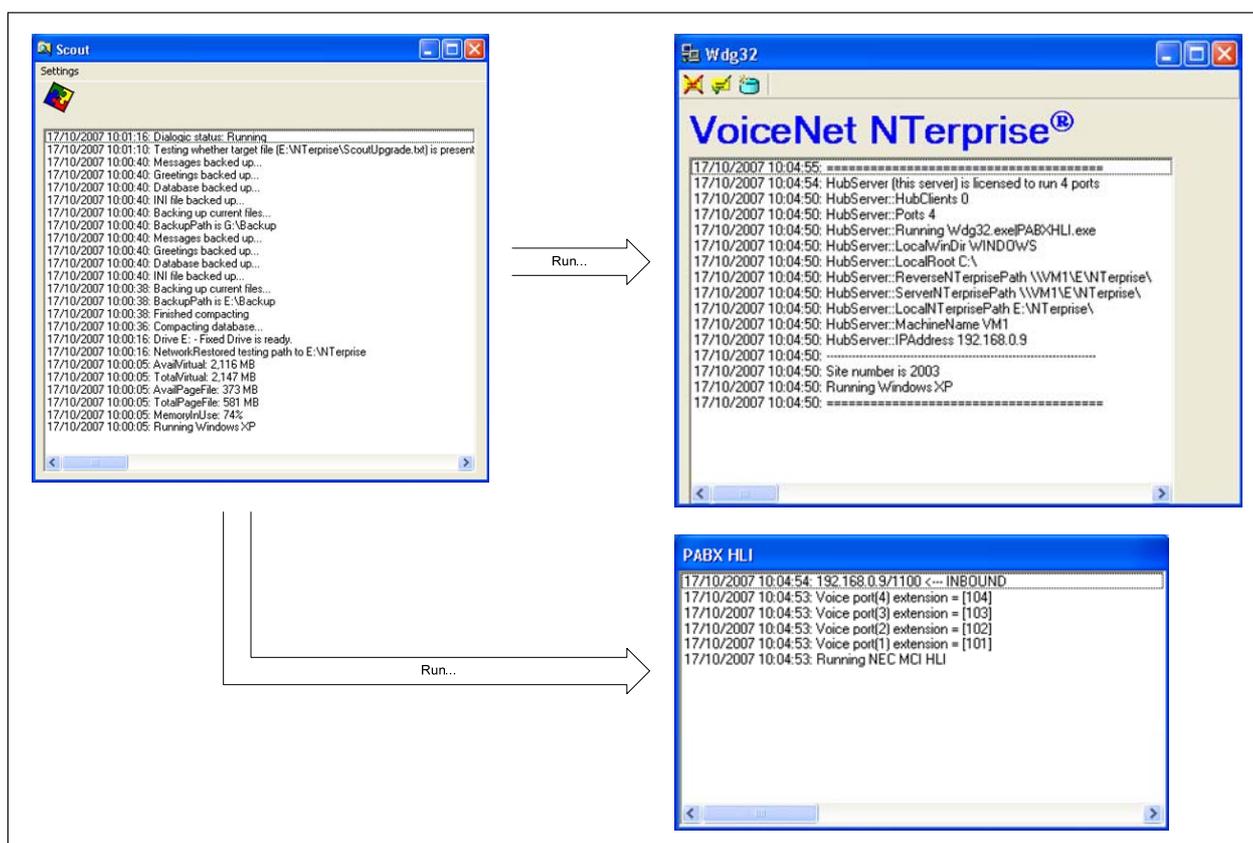
Task Reference Voicemail Operating Description

What programs would Scout normally run?

Scout will almost always run the Wdg32.exe program, and if there is a high-level interface (RS232 or TCP/IP) to the PABX or Hotel Property Management System (PMS) or other third-party system, it will run the relevant interface program. In, for example, the case of NEC PABX system interfaces, Scout will normally run the PABXHLI.exe program, which will appear as an icon down in the System Tray near the time. So, normally Scout will run:

Wdg32.exe

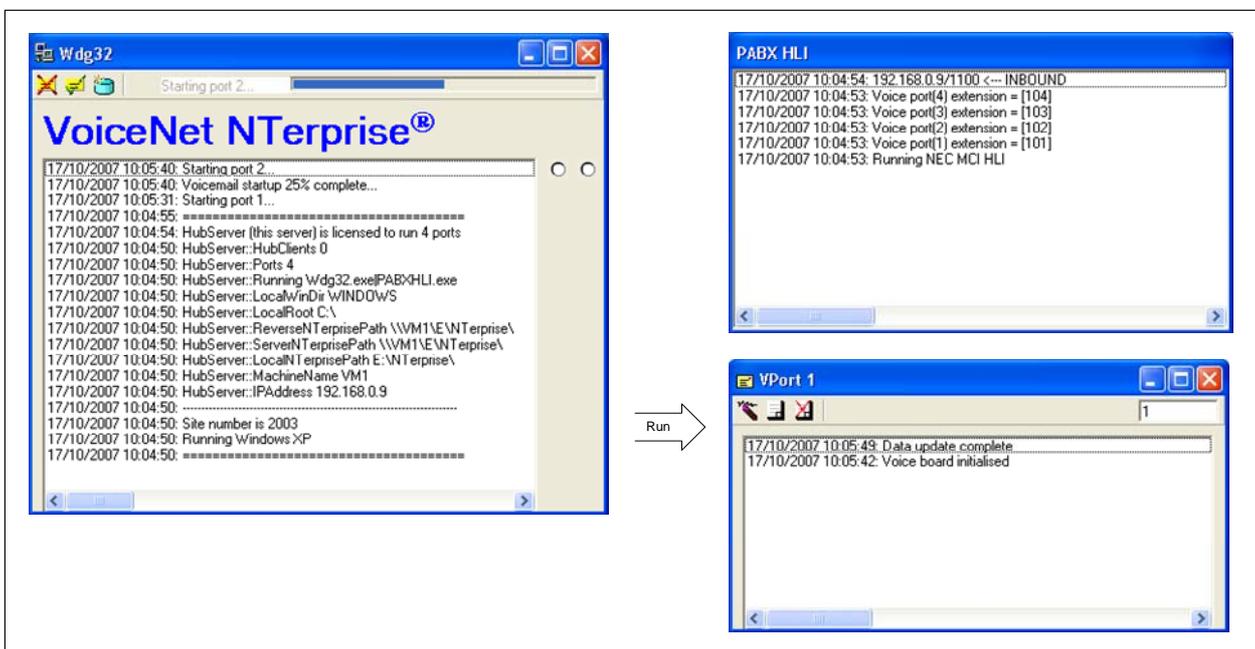
PABXHLI.exe



Task Reference Voicemail Operating Description

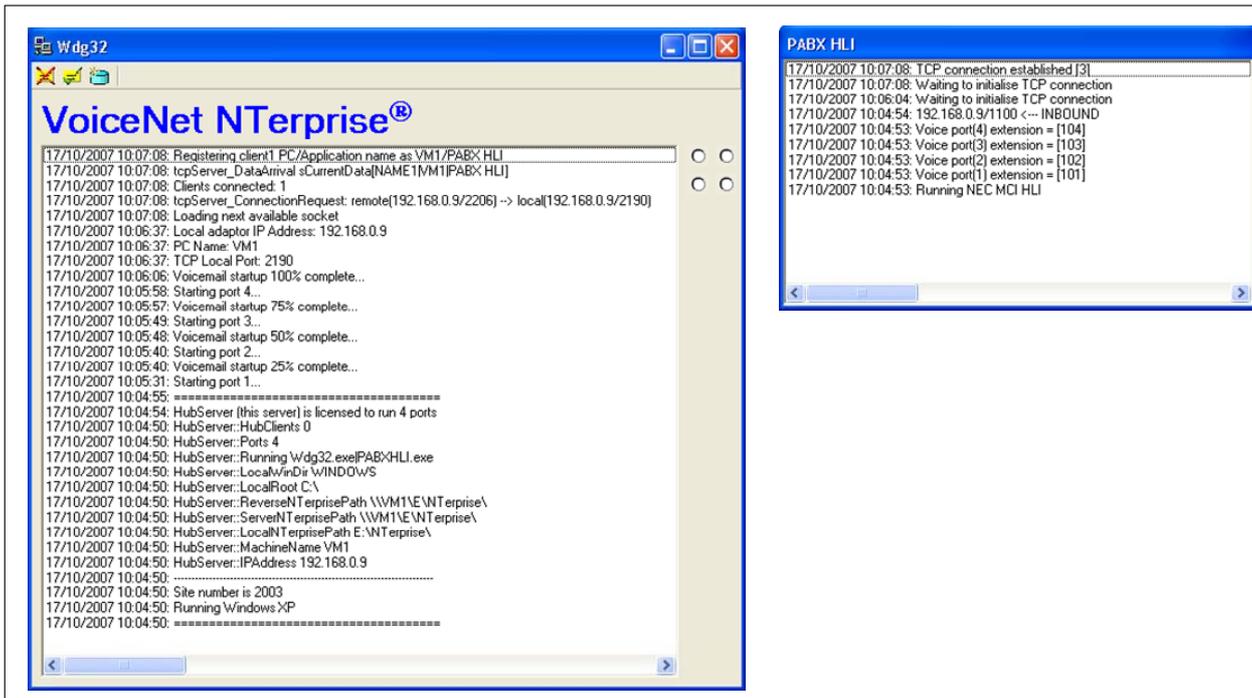
What happens next?

The Wdg32 program will run some system checks and then attempt to run the voicemail ports. A progress bar will appear in the Wdg32 window showing the ports as they are loaded, and the transaction window will also show the progress of the ports as they are started. The transaction window will on first startup also display relevant system details for each voicemail server in the system (in almost all cases there will only be one voicemail server per system).



Task Reference **Voicemail Operating Description**

The PABXHLL program will connect to the Wdg32 program and begin receiving and sending transmissions from it's connected serial or TCP/IP interface.



Task Reference **Voicemail Operating Description****What do the voicemail ports do?**

The voicemail port applications (one for each permitted voicemail port) respond to and answer calls made to the Dialogic voiceboard ports. Normally the ports are located as analog “extensions” behind a PABX, and so these calls coming in will have been sent to voicemail from the PABX, normally as either “forwarded” calls if a real extension owner hasn’t answered their phone, or as an “owner” call if a real extension owner is calling voicemail to retrieve their messages or setup their mailbox. The voicemail system identifies the type of call being sent from the PABX by analysing the data sent through the PABXHLLI high-level interface, then telling the relevant voicemail port what call type the next call coming in is.

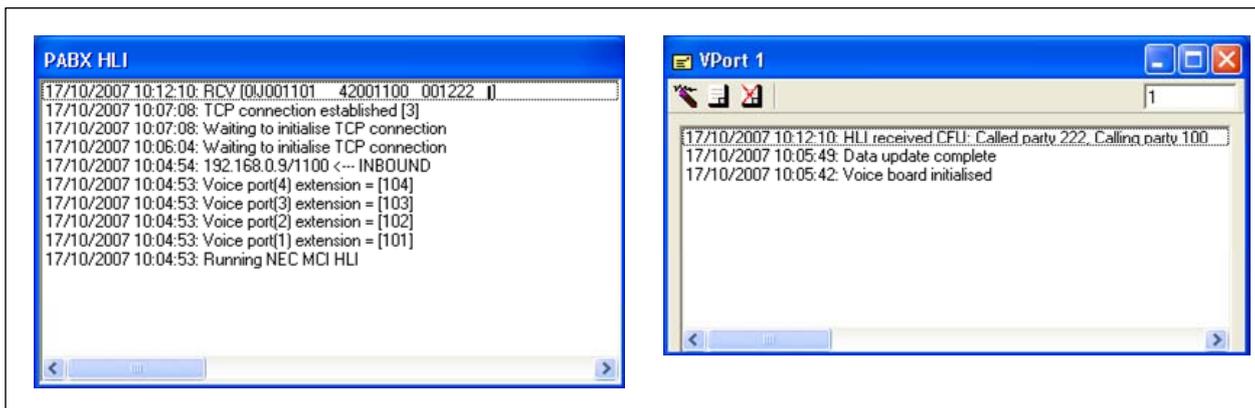
The voicemail port then plays relevant scripts and prompts to the caller according to the type of call, records messages, identifies when the caller has terminated the call, and then tells the PABXHLLI program to send a signal to the PABX to either turn ON or OFF the Message Waiting (MW) lamp associated with the relevant real extension.

What does the Wdg32 program do?

- runs the voicemail ports
- displays and writes to file all real-time voicemail port transactions
- shows call status of each voicemail port
- performs periodic housekeeping tasks such as log file archiving and message purging
- routes interprocess communications between applications
- monitors server and application “health”
- protects against applications being accidentally closed

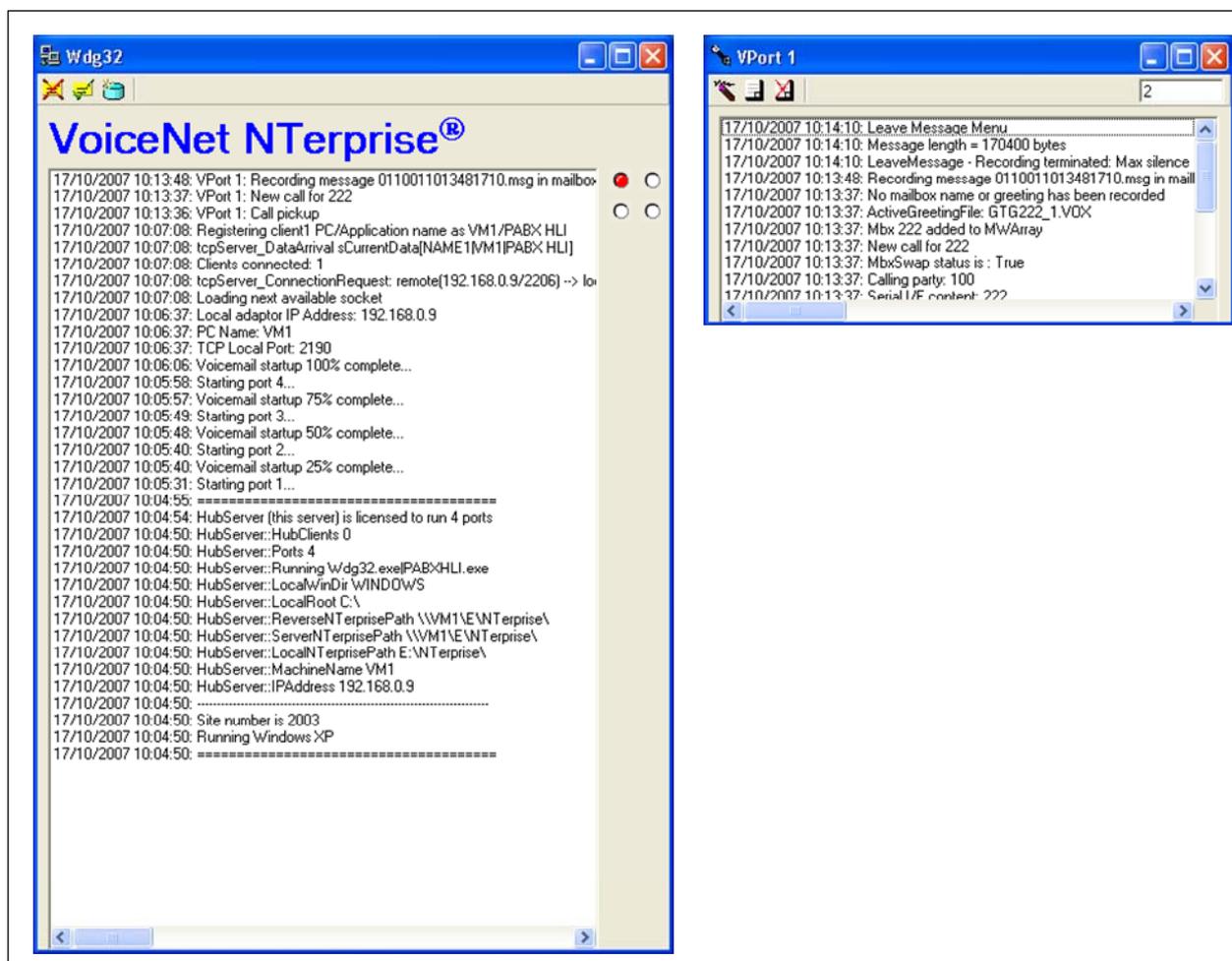
Task Reference **Voicemail Operating Description****What happens in a call?**

First, the PABXHLI receives data from the PABX providing information about the incoming call



Task Reference **Voicemail Operating Description**

Next, the physical call is sent to the appropriate voicemail port as an analog extension call from the PABX.....



Task Reference Voicemail Operating Description

When the caller hangs up, the voicemail boards detect hangup tone or other call termination received from either the PABX or the Telecom carrier, and the voicemail port ends and wraps up the call....

The image displays three screenshots of the VoiceNet NTerprise software interface, showing log windows for different components.

Wdg32 (VoiceNet NTerprise®): This window shows the main system log. Key events include:

- 17/10/2007 10:14:44: VPort 1: Waiting for next call...
- 17/10/2007 10:14:43: VPort 1: Requesting PABX HLI set MW for 222
- 17/10/2007 10:13:48: VPort 1: Recording message 0110011013481710.msg in mailbox
- 17/10/2007 10:13:37: VPort 1: New call for 222
- 17/10/2007 10:13:36: VPort 1: Call pickup
- 17/10/2007 10:07:08: Registering client1 PC/Application name as VM1/PABX HLI
- 17/10/2007 10:07:08: tcpServer_DataArrival sCurrentData[NAME1\VM1\PABX HLI]
- 17/10/2007 10:07:08: Clients connected: 1
- 17/10/2007 10:07:08: tcpServer_ConnectionRequest: remote[192.168.0.9/2206] -> lo
- 17/10/2007 10:07:08: Loading next available socket
- 17/10/2007 10:06:37: Local adaptor IP Address: 192.168.0.9
- 17/10/2007 10:06:37: PC Name: VM1
- 17/10/2007 10:06:37: TCP Local Port: 2190
- 17/10/2007 10:06:06: Voicemail startup 100% complete...
- 17/10/2007 10:05:58: Starting port 4...
- 17/10/2007 10:05:57: Voicemail startup 75% complete...
- 17/10/2007 10:05:49: Starting port 3...
- 17/10/2007 10:05:48: Voicemail startup 50% complete...
- 17/10/2007 10:05:40: Starting port 2...
- 17/10/2007 10:05:40: Voicemail startup 25% complete...
- 17/10/2007 10:05:31: Starting port 1...
- 17/10/2007 10:04:55: =====
- 17/10/2007 10:04:54: HubServer (this server) is licensed to run 4 ports
- 17/10/2007 10:04:50: HubServer: HubClients 0
- 17/10/2007 10:04:50: HubServer: Ports 4
- 17/10/2007 10:04:50: HubServer: Running Wdg32.exe\PABXHLI.exe
- 17/10/2007 10:04:50: HubServer: LocalWinDir WINDOWS
- 17/10/2007 10:04:50: HubServer: LocalRoot C:\
- 17/10/2007 10:04:50: HubServer: ReverseNTerprisePath \\VM1\NTERPRISE\
- 17/10/2007 10:04:50: HubServer: ServerNTerprisePath \\VM1\NTERPRISE\
- 17/10/2007 10:04:50: HubServer: LocalNTerprisePath E:\NTERPRISE\
- 17/10/2007 10:04:50: HubServer: MachineName VM1
- 17/10/2007 10:04:50: HubServer: IPAddress 192.168.0.9
- 17/10/2007 10:04:50:
- 17/10/2007 10:04:50: Site number is 2003
- 17/10/2007 10:04:50: Running Windows XP
- 17/10/2007 10:04:50: =====

VPort 1: This window shows the log for a specific voicemail port. Key events include:

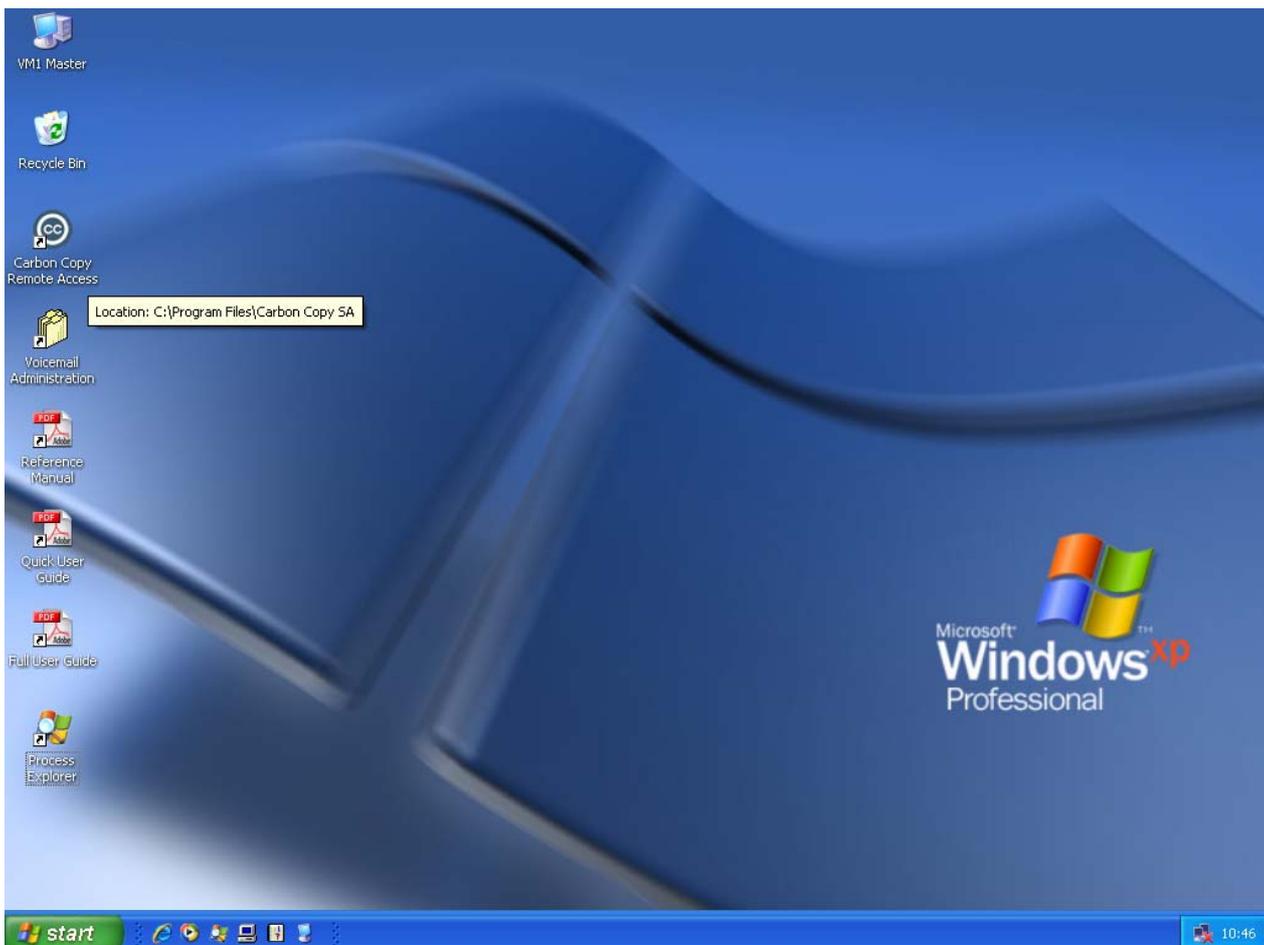
- 17/10/2007 10:14:44: Waiting for next call...
- 17/10/2007 10:14:43: HLI: Hanging up
- 17/10/2007 10:14:43: Updating Presence for mailbox 222
- 17/10/2007 10:14:43: Requesting PABX HLI set MW for 222
- 17/10/2007 10:14:43: 0 saved messages for mbx 222
- 17/10/2007 10:14:43: 1 new message for mbx 222
- 17/10/2007 10:14:43: -- SortMessages -- called from -- MessageWaiting
- 17/10/2007 10:14:43: Line dropped
- 17/10/2007 10:14:43: Message length = 170400 bytes
- 17/10/2007 10:14:42: Timeout in Leave Message Menu
- 17/10/2007 10:14:42: Caller has left a message, then entered []
- 17/10/2007 10:14:10: Leave Message Menu
- 17/10/2007 10:14:10: Message length = 170400 bytes
- 17/10/2007 10:14:10: LeaveMessage - Recording terminated: Max silence
- 17/10/2007 10:13:48: Recording message 0110011013481710.msg in mailbox
- 17/10/2007 10:13:37: No mailbox name or greeting has been recorded
- 17/10/2007 10:13:37: ActiveGreetingFile: GTG222_1.VOX
- 17/10/2007 10:13:37: Mbx 222 added to MWArray
- 17/10/2007 10:13:37: New call for 222
- 17/10/2007 10:13:37: MbxSwap status is : True
- 17/10/2007 10:13:37: Calling party: 100
- 17/10/2007 10:13:37: Serial I/F content: 222
- 17/10/2007 10:13:37: Serial I/F subject: DivertedCall
- 17/10/2007 10:13:37: Inband delay timer = 1 seconds
- 17/10/2007 10:13:36: Call picked up
- 17/10/2007 10:13:36: CallerID: []
- 17/10/2007 10:13:36: Call pickup
- 17/10/2007 10:12:10: HLI received CFU: Called party 222, Calling party 100
- 17/10/2007 10:05:49: Data update complete
- 17/10/2007 10:05:42: Voice board initialised

PABX HLI: This window shows the log for the PABX HLI component. Key events include:

- 17/10/2007 10:14:43: RESEND [0]A2222 []
- 17/10/2007 10:14:43: SND [0]A2222 []
- 17/10/2007 10:12:10: RCV [0]001101 42001100 001222 []
- 17/10/2007 10:07:08: TCP connection established [3]
- 17/10/2007 10:07:08: Waiting to initialise TCP connection
- 17/10/2007 10:06:04: Waiting to initialise TCP connection
- 17/10/2007 10:04:54: 192.168.0.9/1100 <-- INBOUND
- 17/10/2007 10:04:53: Voice port[4] extension = [104]
- 17/10/2007 10:04:53: Voice port[3] extension = [103]
- 17/10/2007 10:04:53: Voice port[2] extension = [102]
- 17/10/2007 10:04:53: Voice port[1] extension = [101]
- 17/10/2007 10:04:53: Running NEC MCI HLI

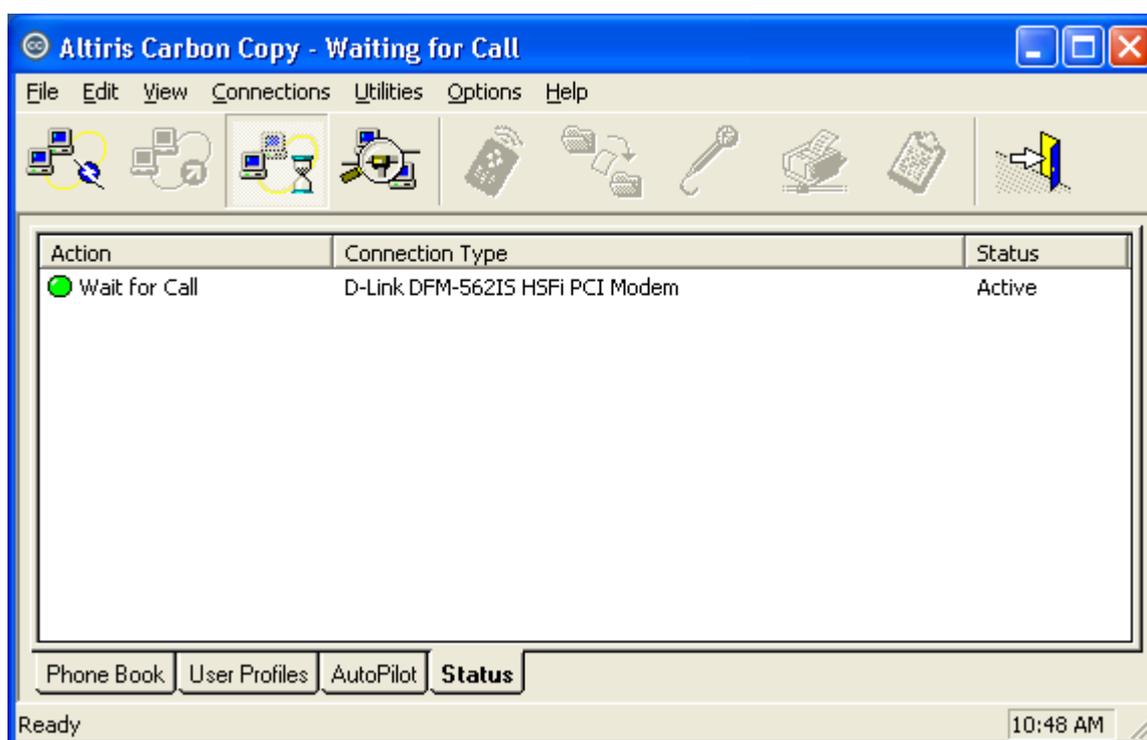
Task Reference **Voicemail Operating Description****Remote Access to the voicemail server**

VoiceNet uses Carbon Copy as it's remote access program. Carbon Copy can be run by double clicking the Carbon Copy Remote Access icon located on the desktop.



Task Reference Voicemail Operating Description

Carbon Copy will be set up to automatically minimise and wait for a call when run.



Remote access to the voicemail server can be obtained via direct indial modem or, if the voicemail server is connected to a LAN, via the network. Usually, access is via 56K modem. Carbon Copy access is password protected and will only permit three attempts before hanging up on the caller. Once the remote user is connected to the voicemail server, Carbon Copy gives them the ability to have local control over the server, including being able to view the screen display and transfer files. When the remote user has finished their task on the voicemail server and hung up, Carbon Copy will automatically close, meaning the modem will no longer answer calls until Carbon Copy is run again.

IMPORTANT:

Do not run Carbon Copy and then “test” the connection by dialling the modem number from a normal phone to see whether it answers. This will result in the modem / Carbon Copy remaining in a hung state because no handshaking has occurred, and you will not be able to connect to the voicemail server when attempting to dial in from another modem. If this occurs, Carbon Copy must be closed, Windows Task Manager must be run, it’s Processes tab checked for the existence of the process “Shellker.exe”, if present this process must be terminated, and then Carbon Copy must be restarted from the desktop icon.

DP 102

Task MailAlert Log On

Reference

The MailAlert Log On screen is only displayed when the MailAlert application is running as a standalone application on the users desktop. If MailAlert is incorporated into Outlook on the users desktop then the MailAlert COM Addin is run automatically when the user runs Outlook.

**mailbox:**

Enter your mailbox number in this field.

password:

Enter your mailbox password in this field.

Continue

Click on the green tick button or press “Enter” to proceed with the Log On request.

Cancel

Click on the red cross button to cancel your Log On.

IMPORTANT:

Regardless of whether MailAlert is being run as a standalone application or as a COM Addin to Outlook your computer **MUST** be connected to your network and **MUST** be able to “see” the voicemail server **BEFORE** you run MailAlert. Typically the voicemail server computer name will be “VM”. If your computer can’t “see” the voicemail server across your network you will not be able to Log On.

DP 103

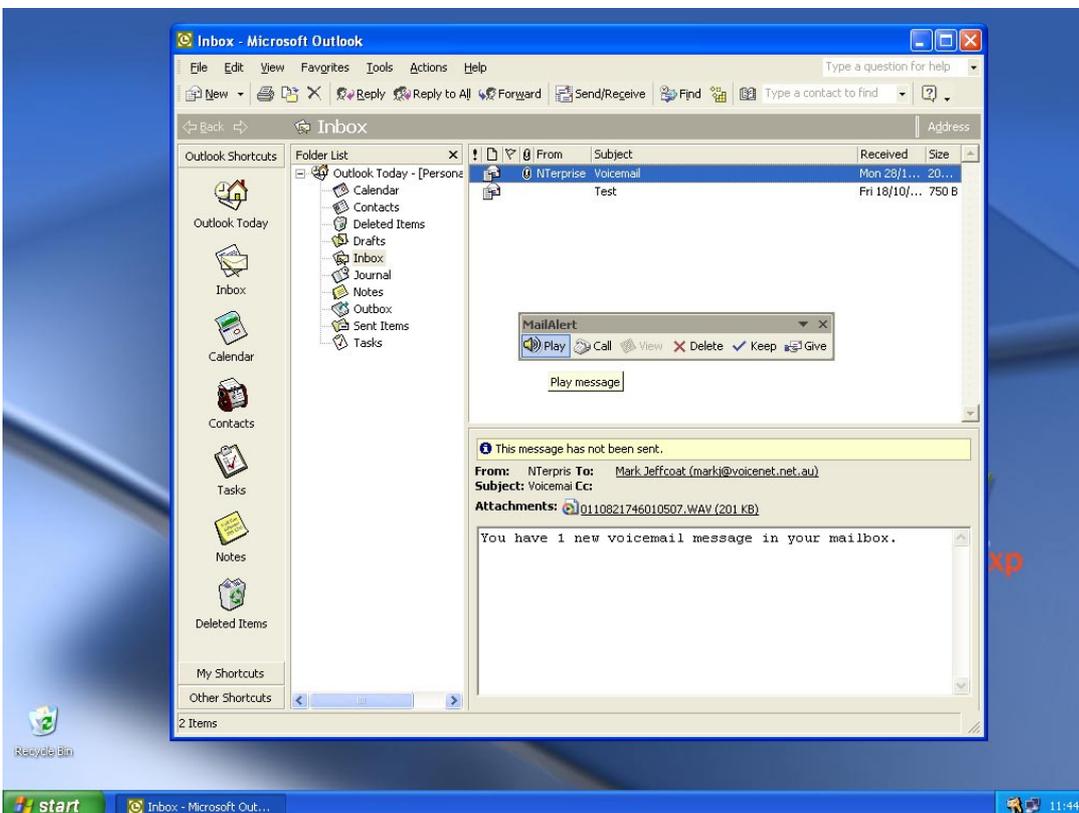
Task MailAlert Versions

Reference

There are two versions of MailAlert available to desktop users. The first MailAlert application runs as a standalone application on the users desktop. The second is incorporated into Outlook on the users desktop as a COM Addin which is run automatically when the user runs Outlook.



MailAlert Standalone Version

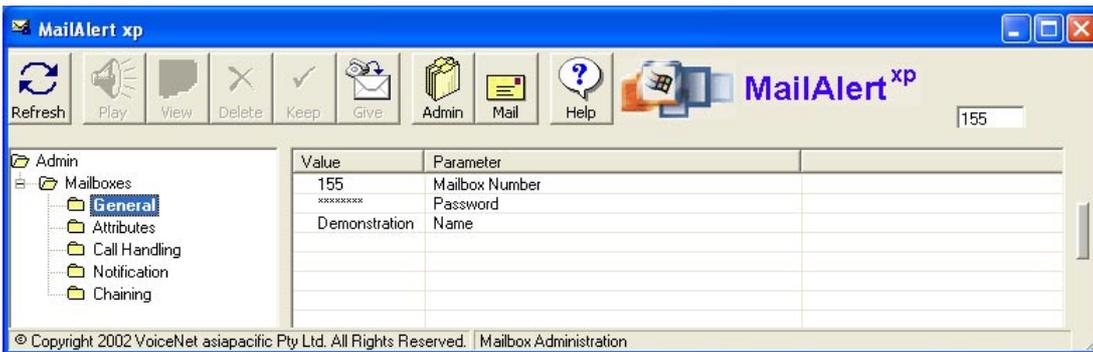


MailAlert COM Addin to Outlook

DP 103

Task MailAlert Versions

Reference



The standalone version also permits users to administer changes to their mailbox attributes by clicking on the Admin icon button. Normal message status for the users mailbox is viewed by clicking on the Mail icon button.



The Outlook Com Addin does not permit users to administer changes to their mailbox attributes, however they can handle voice messages from Outlook using the MailAlert toolbar.

This toolbar is displayed whenever the Outlook user selects a message in their Inbox whose Subject is "Voicemail". This is the default subject which the voicemail server assigns when it forwards new voice messages to users via their intranet mail.

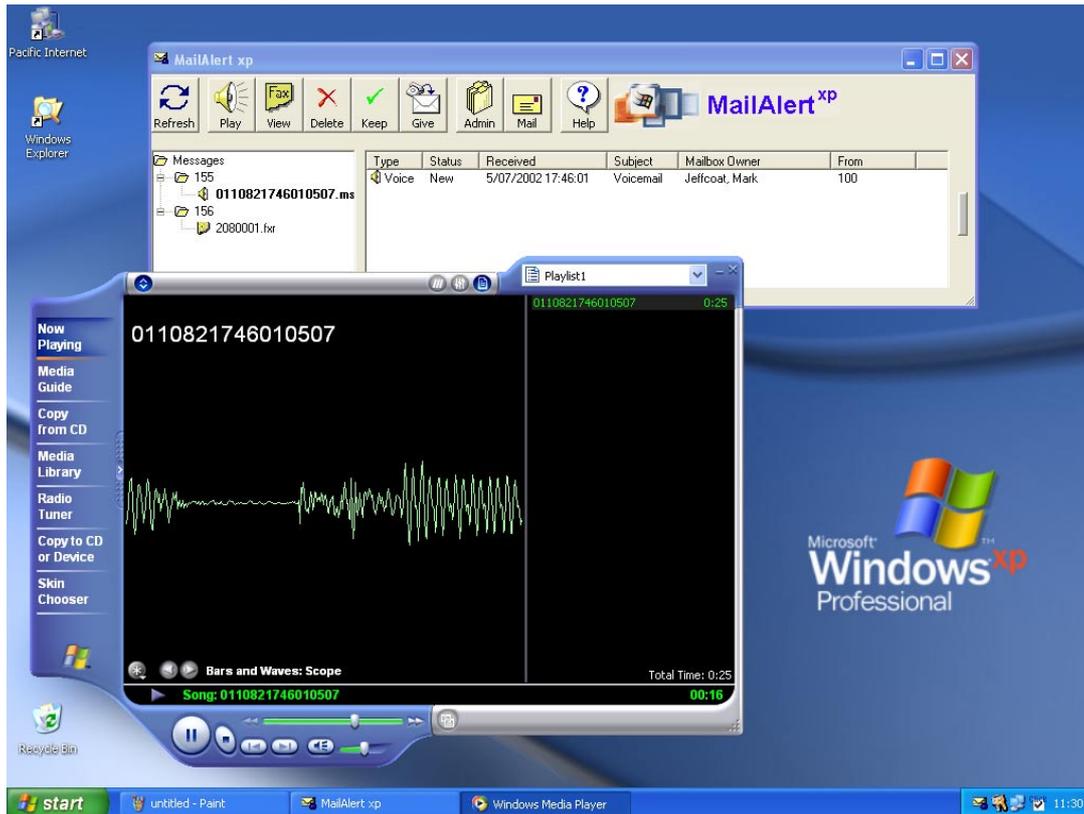


DP 104

Task Play (from MailAlert)

Reference

StandAlone Version



To play a voicemail message:

1. Select the message from the message status screen.
2. Click on the Play icon button



DP 104

Task Play (from MailAlert)

Reference

Notes – Standalone version

The MailAlert application by default will determine whether the users desktop is equipped with software and hardware to play WAV format files. If the MailAlert application determines that WAV files can be played then it will display the Play icon button, and use the media player as defined in MAILALERT.INI as:

[Media]

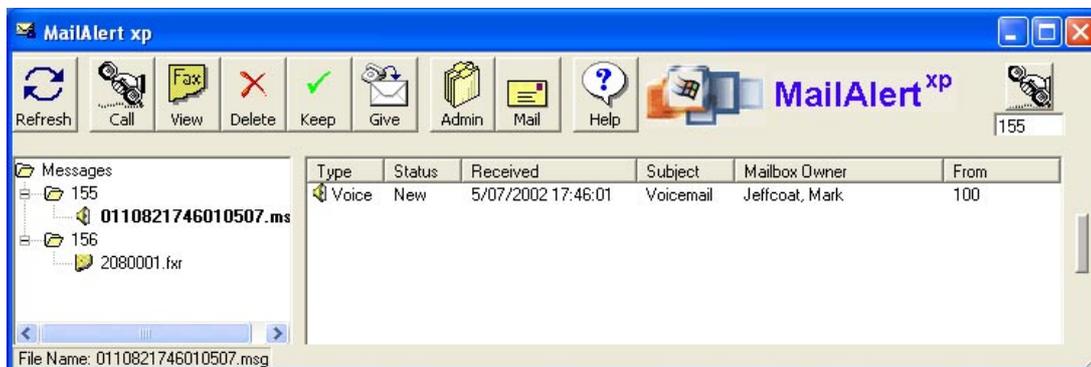
PlayWAV=c:\Program Files\Windows Media Player\wmplayer.exe

Users may override this default behaviour by assigning a value of False in MAILALERT.INI as follows:

[Application]

SpeakersPresent=False

In which case MailAlert will display and or use the Call icon button instead of the Play icon button.

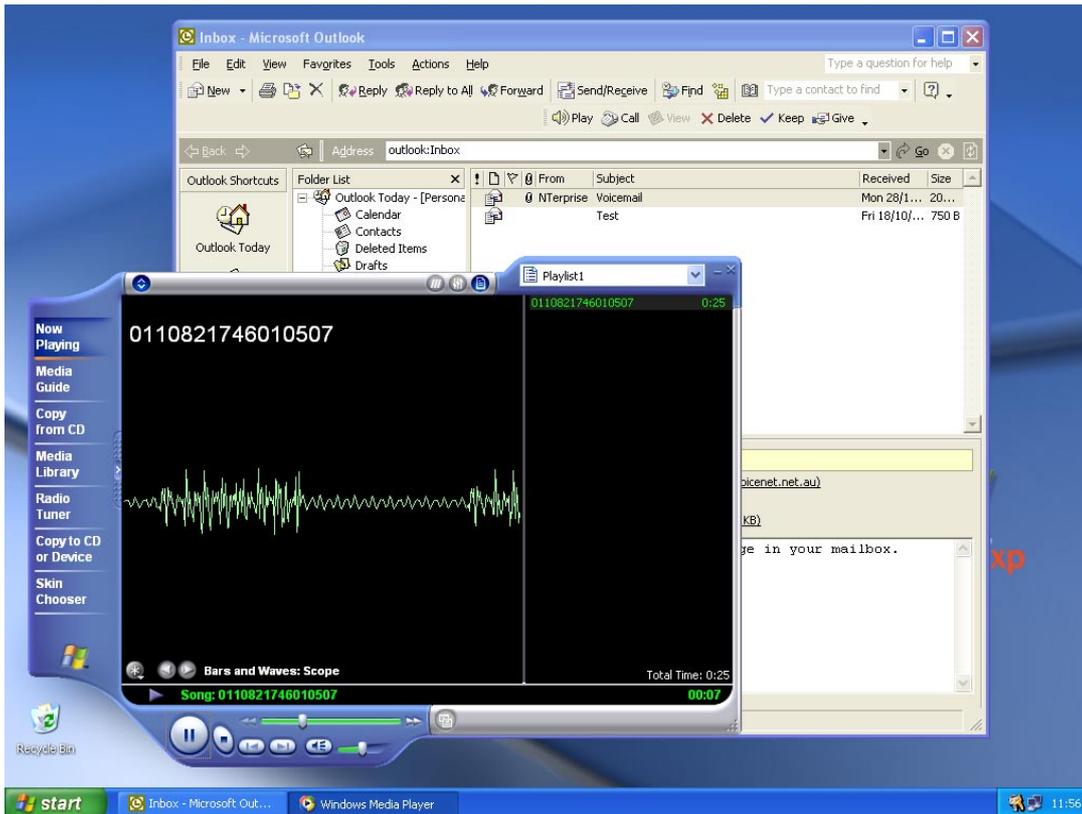


DP 104

Task Play (from MailAlert)

Reference

Outlook Version

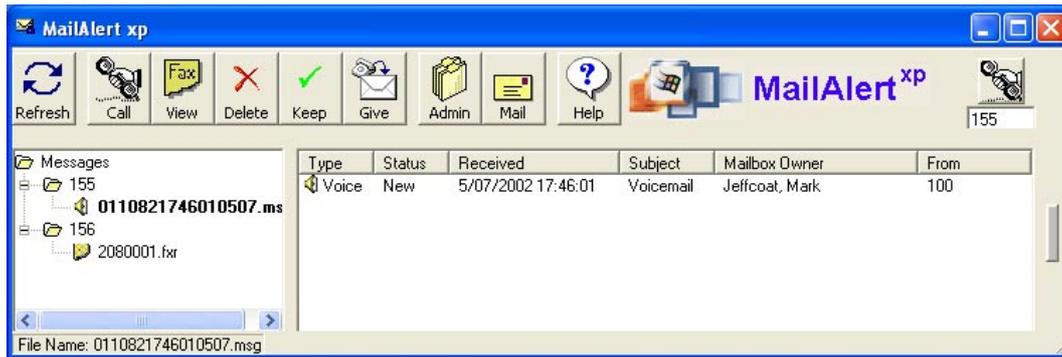


To play a voicemail message:

1. Select the Voicemail message from the Outlook Inbox.
2. Click on the Play icon button



DP 105

Task Call (from MailAlert)*Reference***StandAlone Version**

To have MailAlert call a number (either an internal PABX extension or an offnet number) and play a voicemail message to the destination when that destination answers:

1. Select the message from the message status screen.
2. Click on the Call icon button
3. Enter the destination number in the field displayed at the far right of the MailAlert window under the phone icon button.
4. Click on the phone icon button or press Enter to initiate the call.



DP 105

Task **Call (from MailAlert)**

Reference

Notes – Standalone version

The MailAlert application by default will determine whether the users desktop is equipped with software and hardware to play WAV format files. If the MailAlert application determines that WAV files cannot be played then it will display the Call icon button, even if the user attempts to overrides the default behaviour by assigning a value of True in MAILALERT.INI:

```
[Application]  
SpeakersPresent=True
```

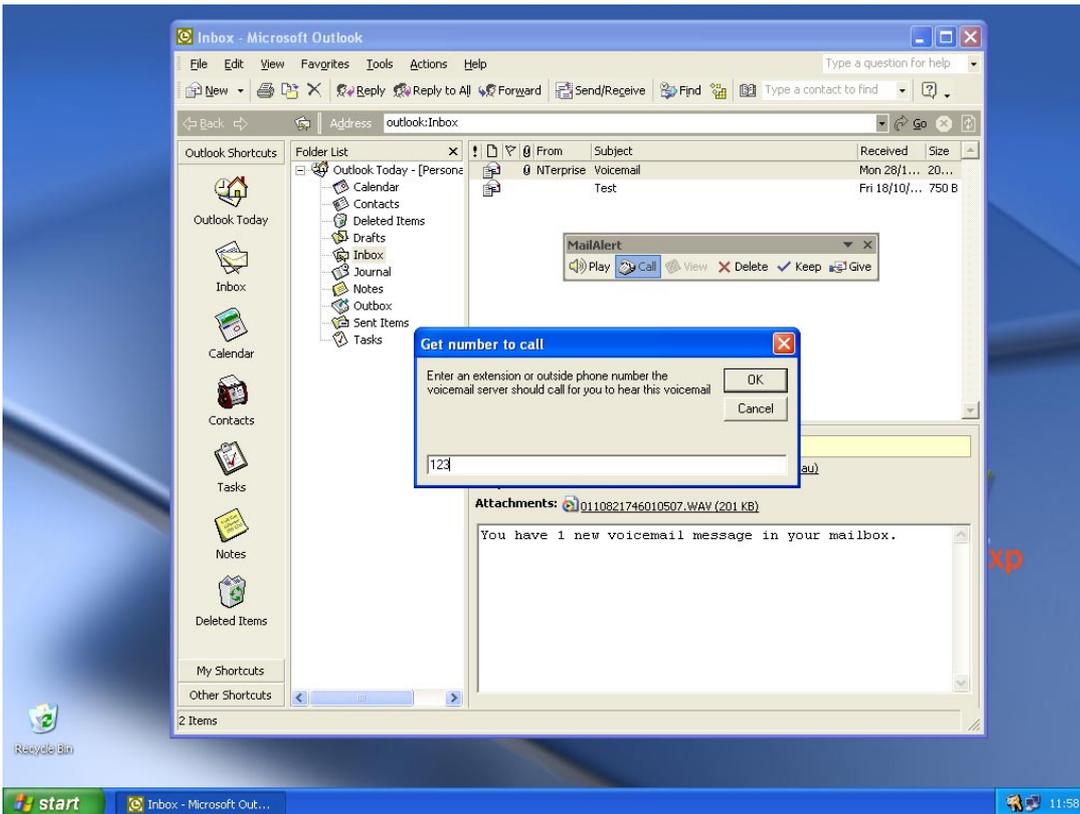


DP 105

Task Call (from MailAlert)

Reference

Outlook Version



To have MailAlert call a number (either an internal PABX extension or an offnet number) and play a voicemail message to the destination when that destination answers:

1. Select the Voicemail message from the Outlook Inbox.
2. Click on the Call icon button
3. Enter the destination number in the text field displayed in the popup window titled **"Get number to call"**.
4. Click on the OK button or press Enter to initiate the call.



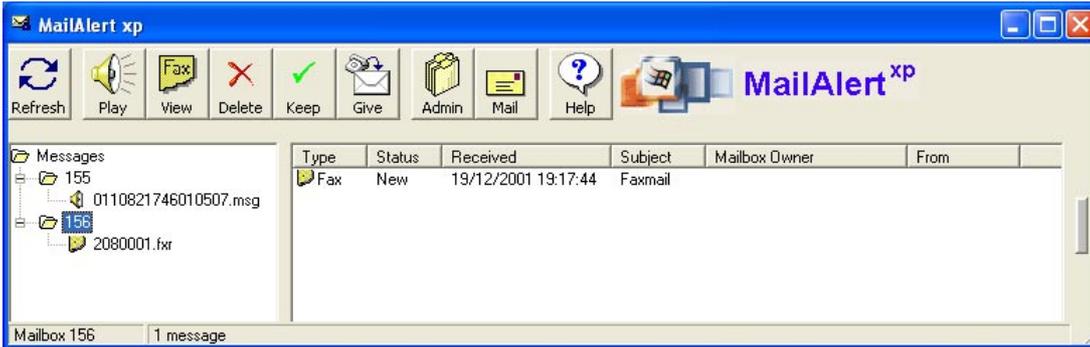
VoiceNet

DP 106

Task View (from MailAlert)

Reference

StandAlone Version



To have MailAlert view a fax message:

1. Select the message from the message status screen.
2. Click on the View icon button



DP 106

Task View (from MailAlert)

Reference

Notes – Both versions

The MailAlert application will only enable the View icon button if the optional Fax Notification module has been enabled on the voicemail server.

Fax Notification requires the use of a Fax Server in conjunction with the Voicemail Server. The Fax Server receives and sends faxes from multiple sources and routes incoming faxes based on rules defined in its administration module.

If Fax Notification is enabled then MailAlert will look for new faxes under the fax notification master directory structure defined in MAILALERT.INI as:

```
[Locations]
FaxFileDir=\\VM\Enterprise\Fax\
```

And use the current MailAlert mailbox as the defining sub-directory to look for new faxes.

If Fax Notification is enabled and new faxes are located in the path defined above then MailAlert will use the fax viewer defined in MAILALERT.INI below to view those faxes when the View icon button is clicked:

```
[Locations]
FaxPath=C:\Program Files\Symantec\WinFax
```

```
[Media]
ViewFAX=wfvw32.exe
```

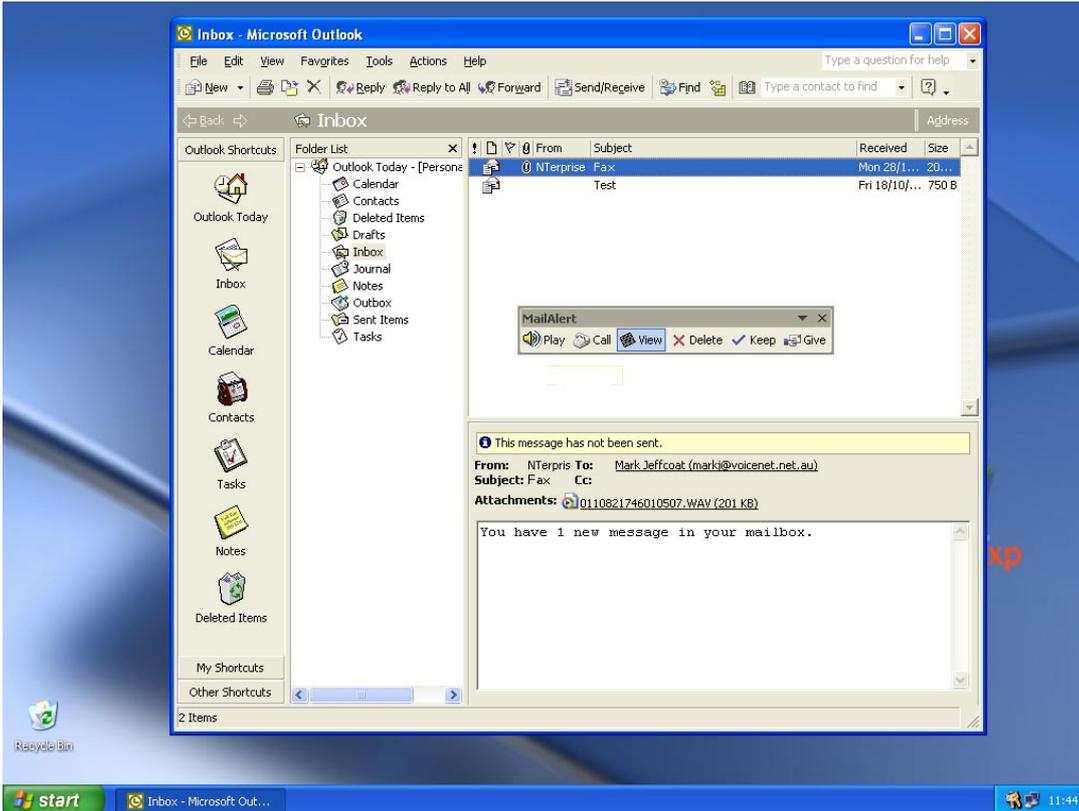


DP 106

Task View (from MailAlert)

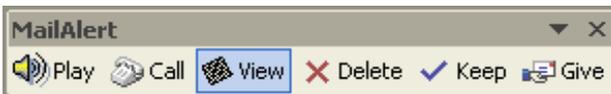
Reference

Outlook Version



To have MailAlert view a fax message:

1. Select the Fax message from the Outlook Inbox.
2. Click on the View icon button

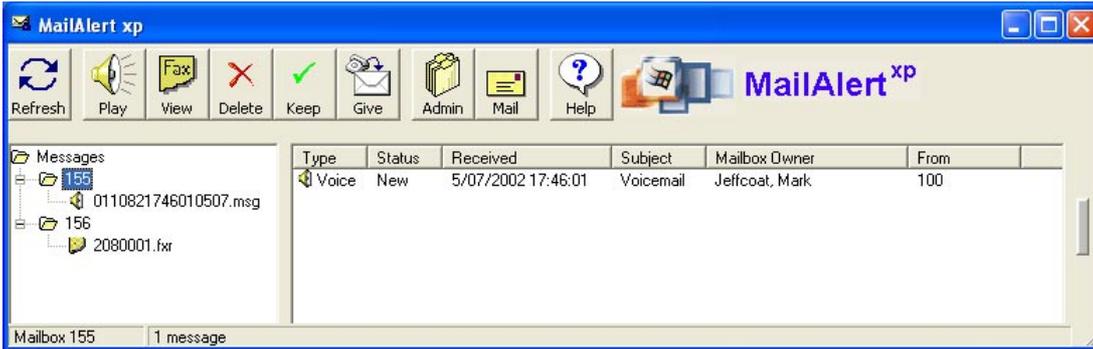


DP 107

Task Delete (from MailAlert)

Reference

StandAlone Version



To have MailAlert delete a voicemail or fax message:

1. Select the message from the message status screen.
2. Click on the Delete icon button



DP 107

Task **Delete (from MailAlert)**

Reference

Notes – Both versions

Afer deleting a message, the MailAlert application will remove that message from the status screen (if Standalone version) or place it in the Deleted Items folder (if Outlook version).

MailAlert will also place a function call with the voicemail server to mark the message for deletion from the voicemail database and from the ...\`Messages`\... directory on the voicemail server.

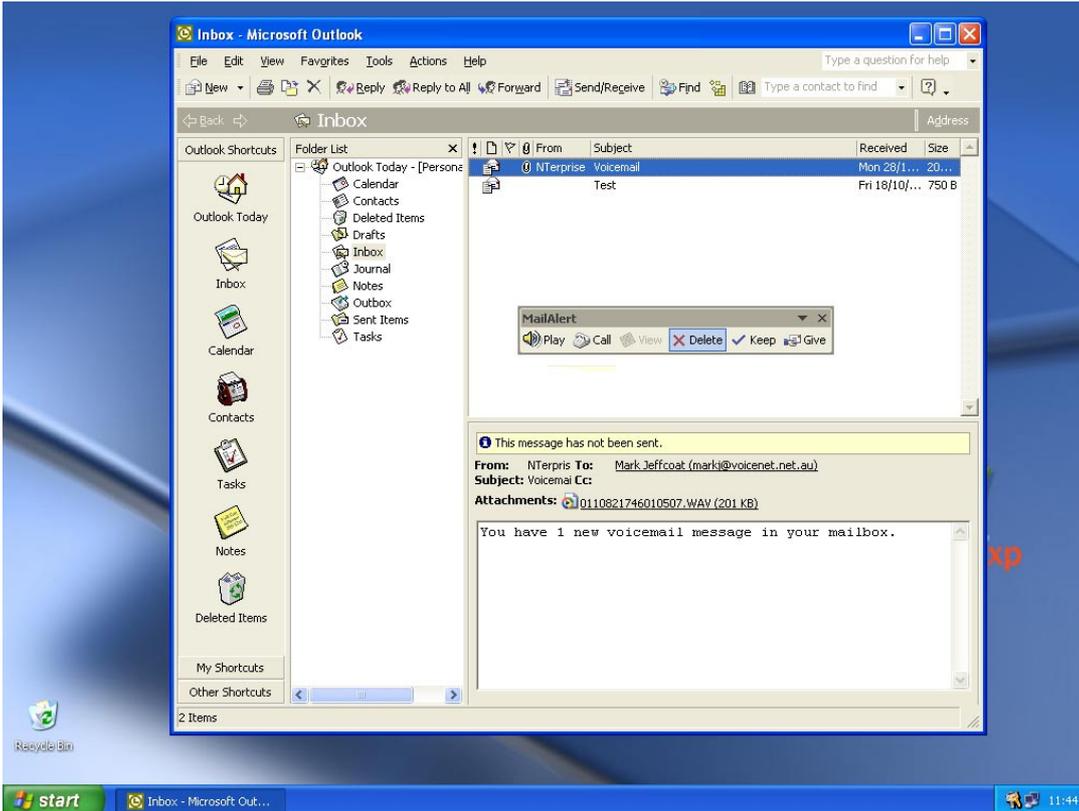
Messages marked for deletion can be recovered by the voicemail administrator up until 2AM of the next day after they have been deleted.

DP 107

Task Delete (from MailAlert)

Reference

Outlook Version



To have MailAlert delete a voicemail or fax message:

1. Select the message from the Outlook Inbox.
2. Click on the Delete icon button

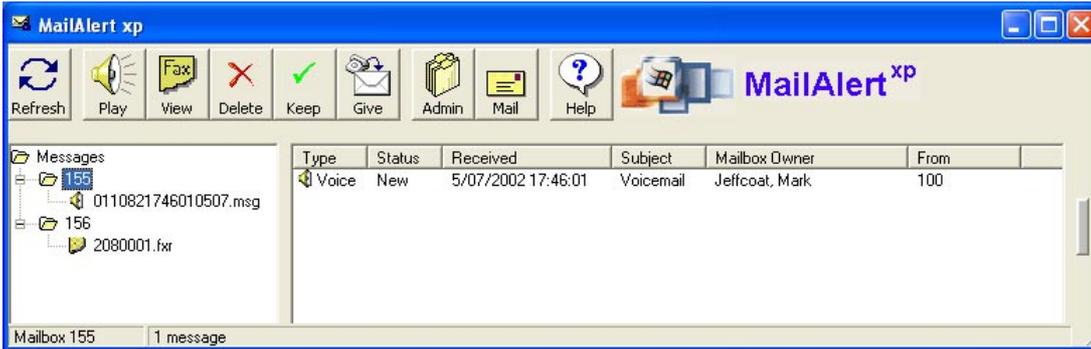


DP 108

Task Keep (from MailAlert)

Reference

StandAlone Version



To have MailAlert keep (save) a voicemail or fax message:

1. Select the message from the message status screen.
2. Click on the Keep icon button



DP 108

Task **Keep (from MailAlert)**

Reference

Notes – Both versions

Afer keeping a message, the MailAlert application will change the status of that message to Played on the status screen (if Standalone version) or flag it as played in the Inbox folder (if Outlook version).

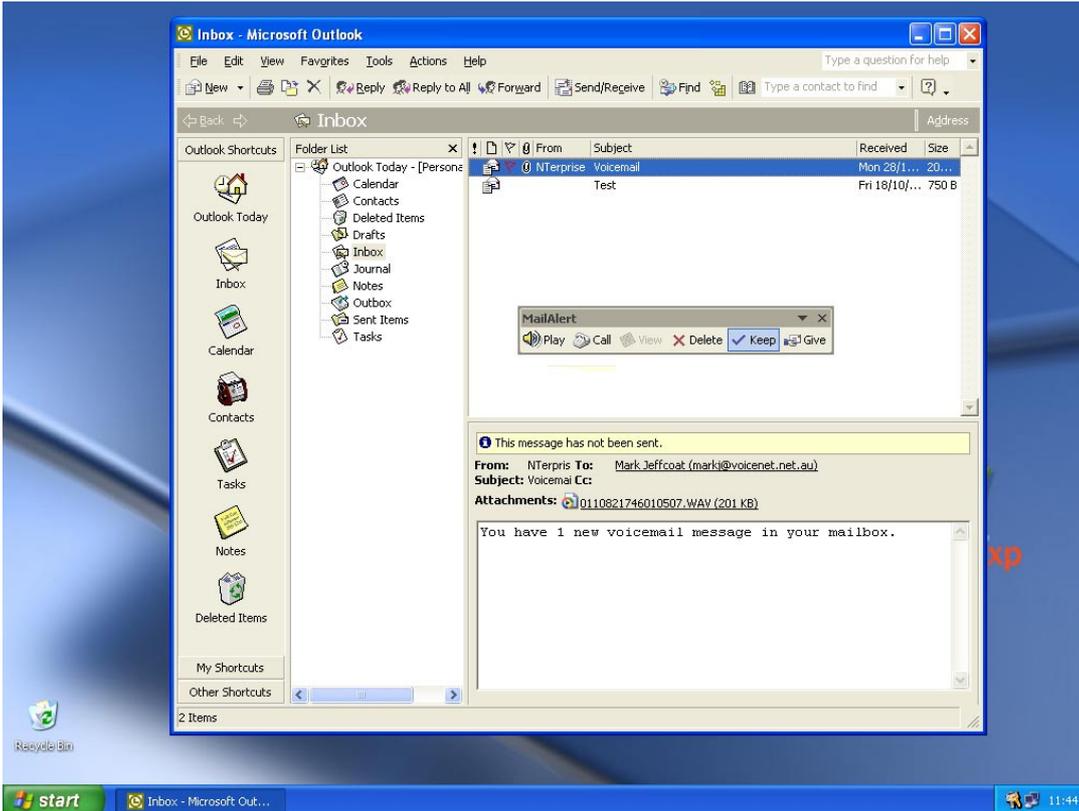
MailAlert will also place a function call with the voicemail server to change the message status to played in the voicemail database.

DP 108

Task Keep (from MailAlert)

Reference

Outlook Version



To have MailAlert keep (save) a voicemail or fax message:

1. Select the message from the Outlook Inbox.
2. Click on the Keep icon button



DP 109

Task Give (from MailAlert)

Reference

StandAlone Version



To have MailAlert give a message to another mailbox:

1. Select the message from the message status screen.
2. Click on the Give icon button
3. Enter the destination mailbox in the field displayed at the far right of the MailAlert window under the new give icon button.
4. Click on the new give icon button or press Enter.

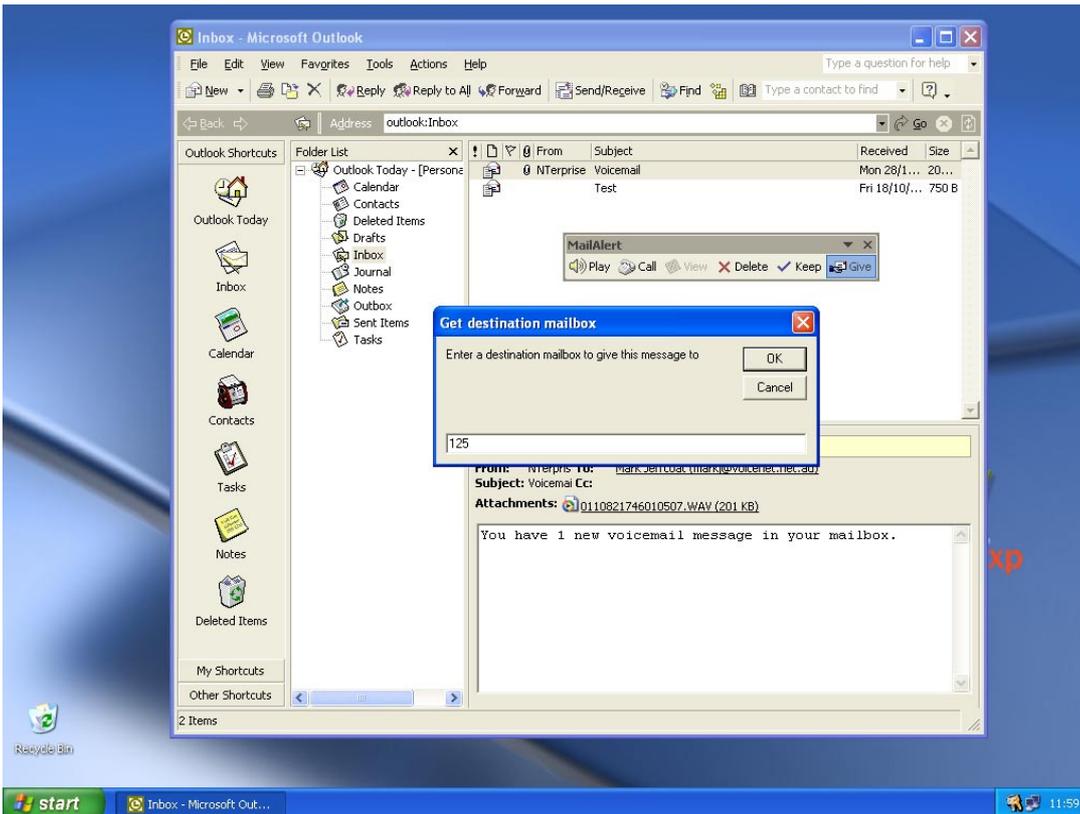


DP 109

Task Give (from MailAlert)

Reference

Outlook Version



To have MailAlert give a message to another mailbox:

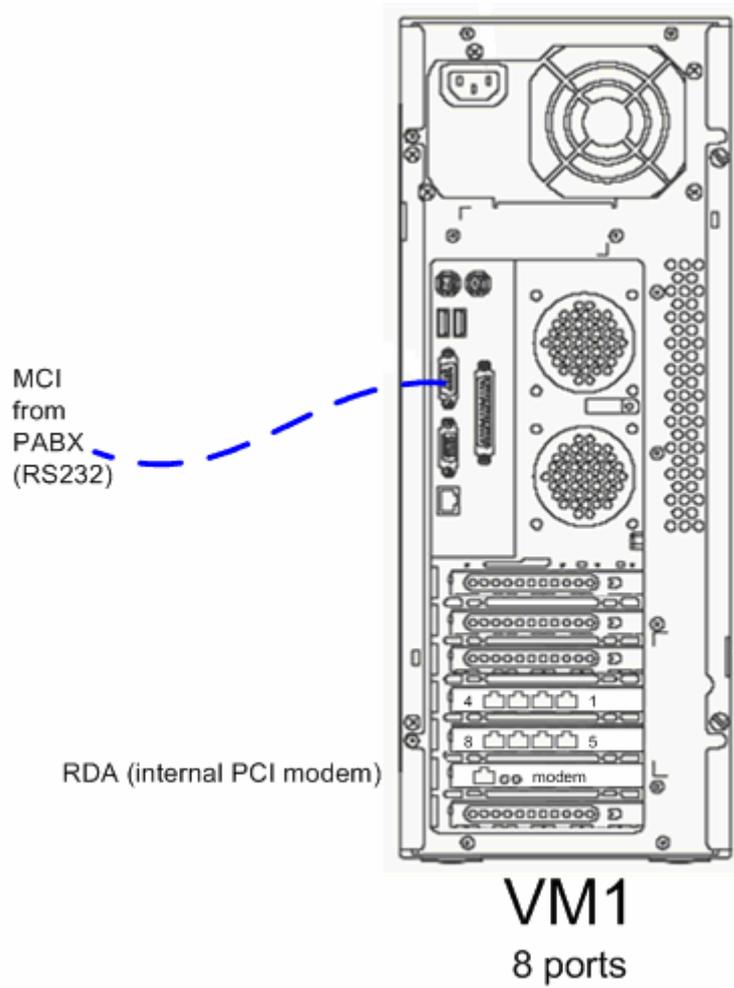
1. Select the Voicemail message from the Outlook Inbox.
2. Click on the Give icon button
3. Enter the destination mailbox in the text field displayed in the popup window titled "**Get destination mailbox**".
4. Click on the OK button or press Enter to initiate the call.



DP 113

Task Reference **NEC Express5800/110Ei Server physical setups**

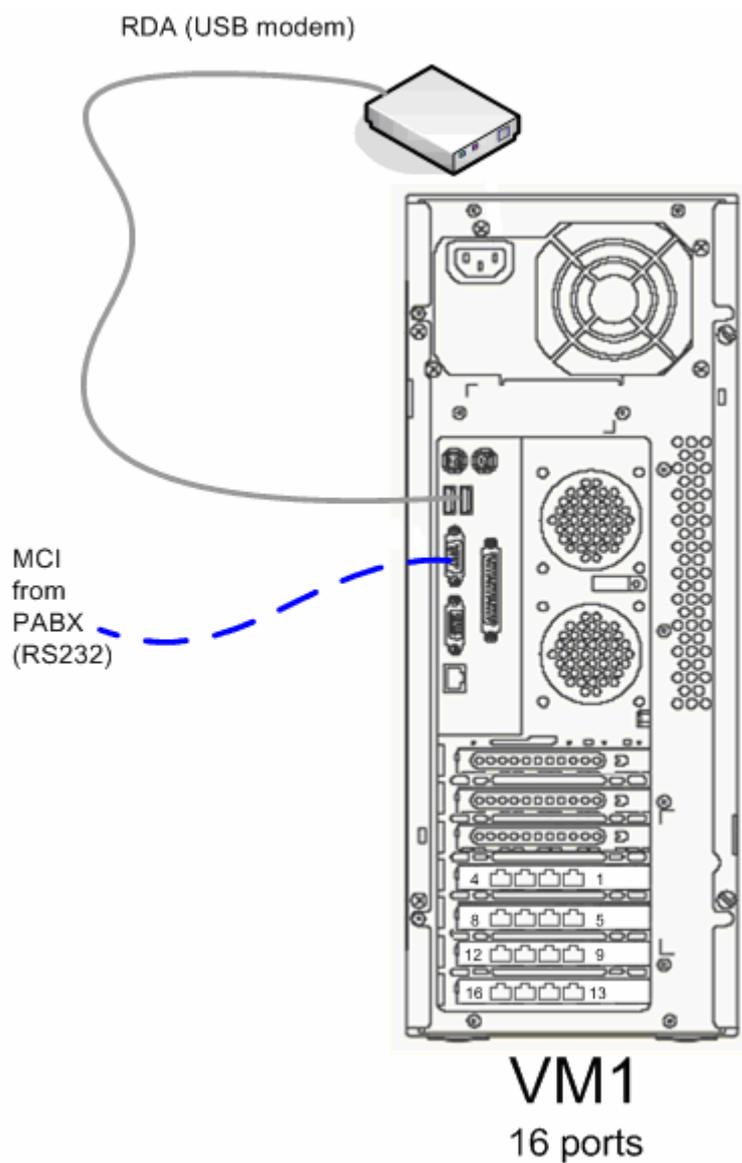
1 8-port voicemail system



DP 113

Task Reference **NEC Express5800/110Ei Server physical setups**

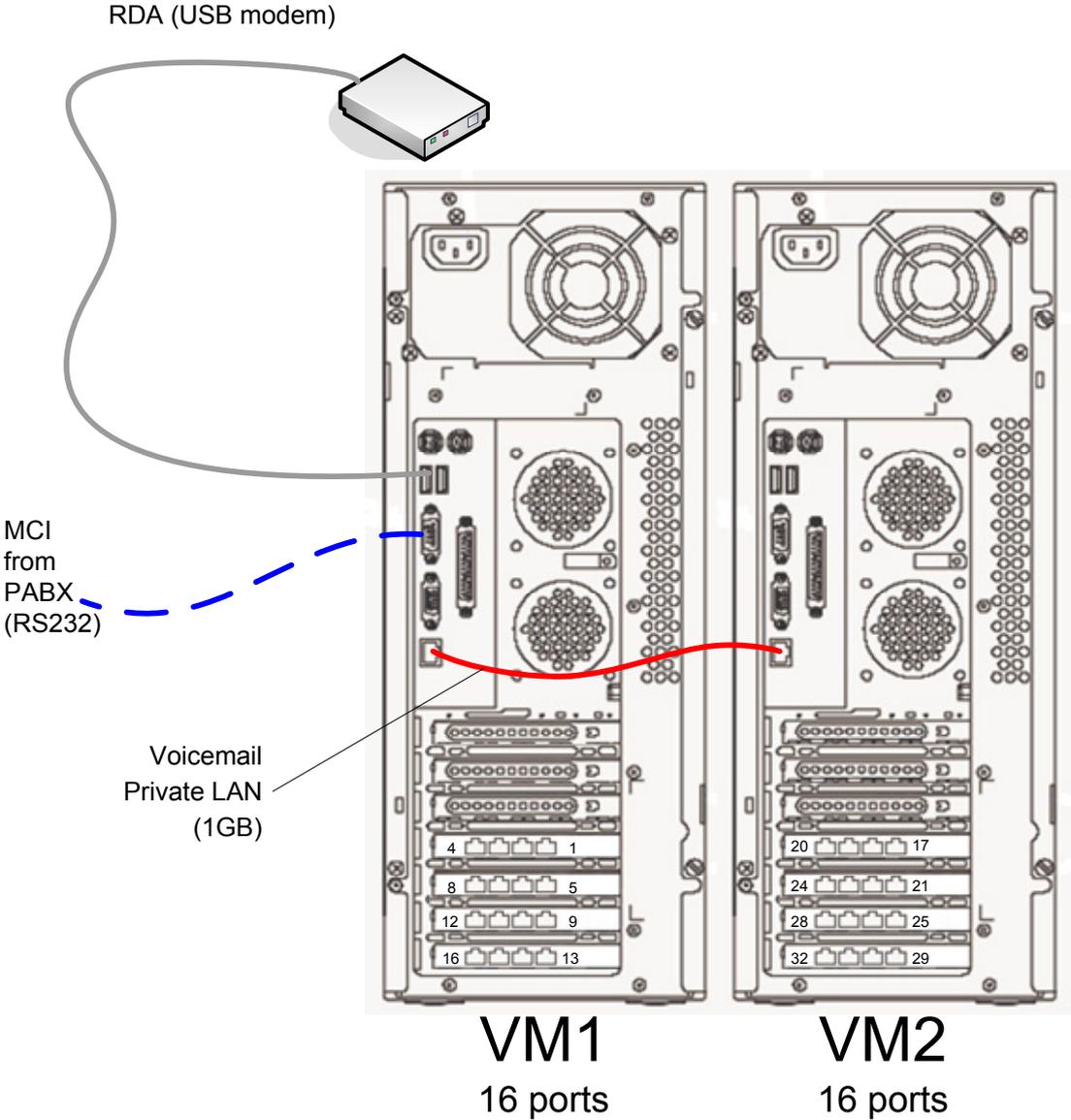
2 16-port voicemail system



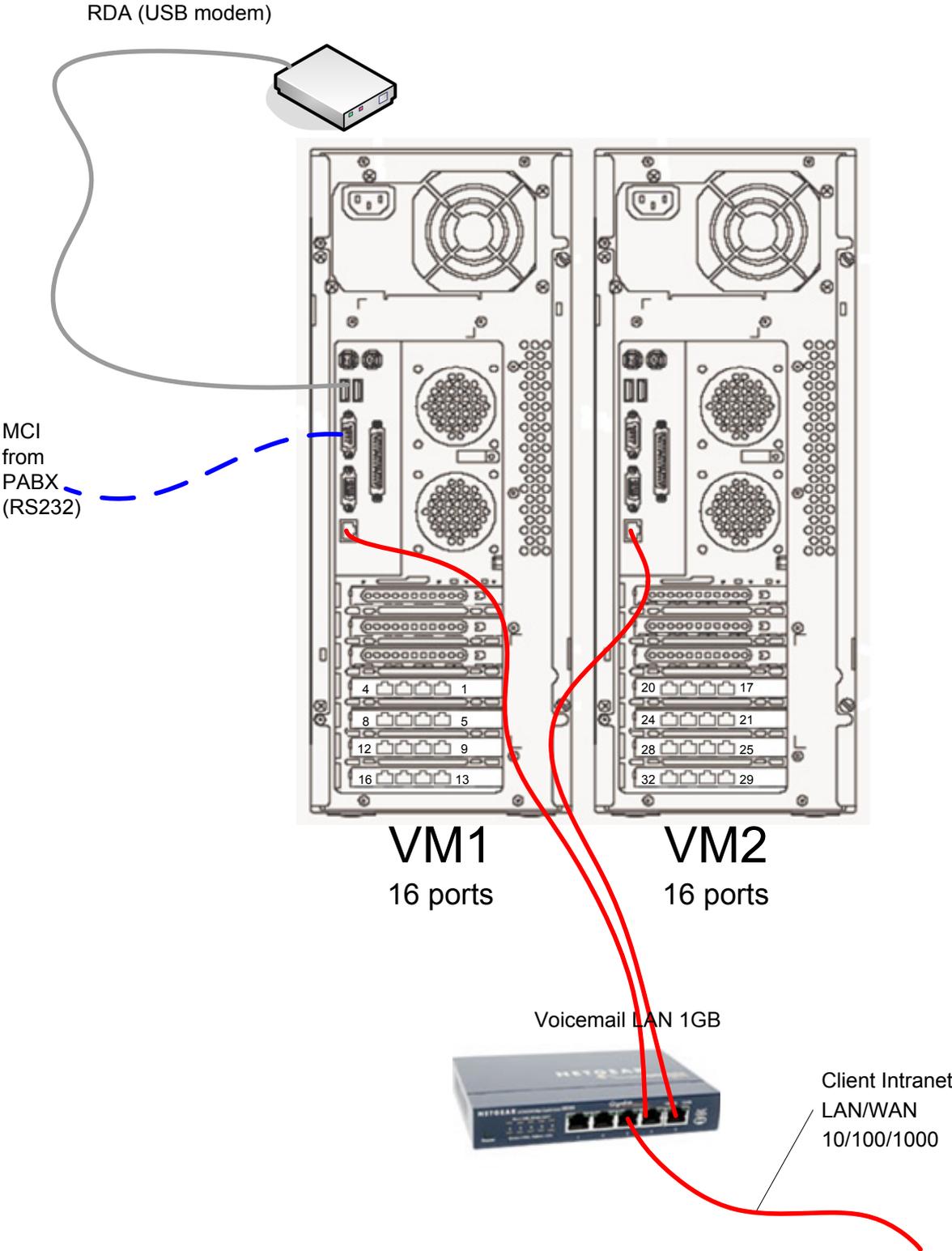
DP 113

Task Reference **NEC Express5800/110Ei Server physical setups**

3 32-port voicemail system (private intranet vs client intranet/internet)

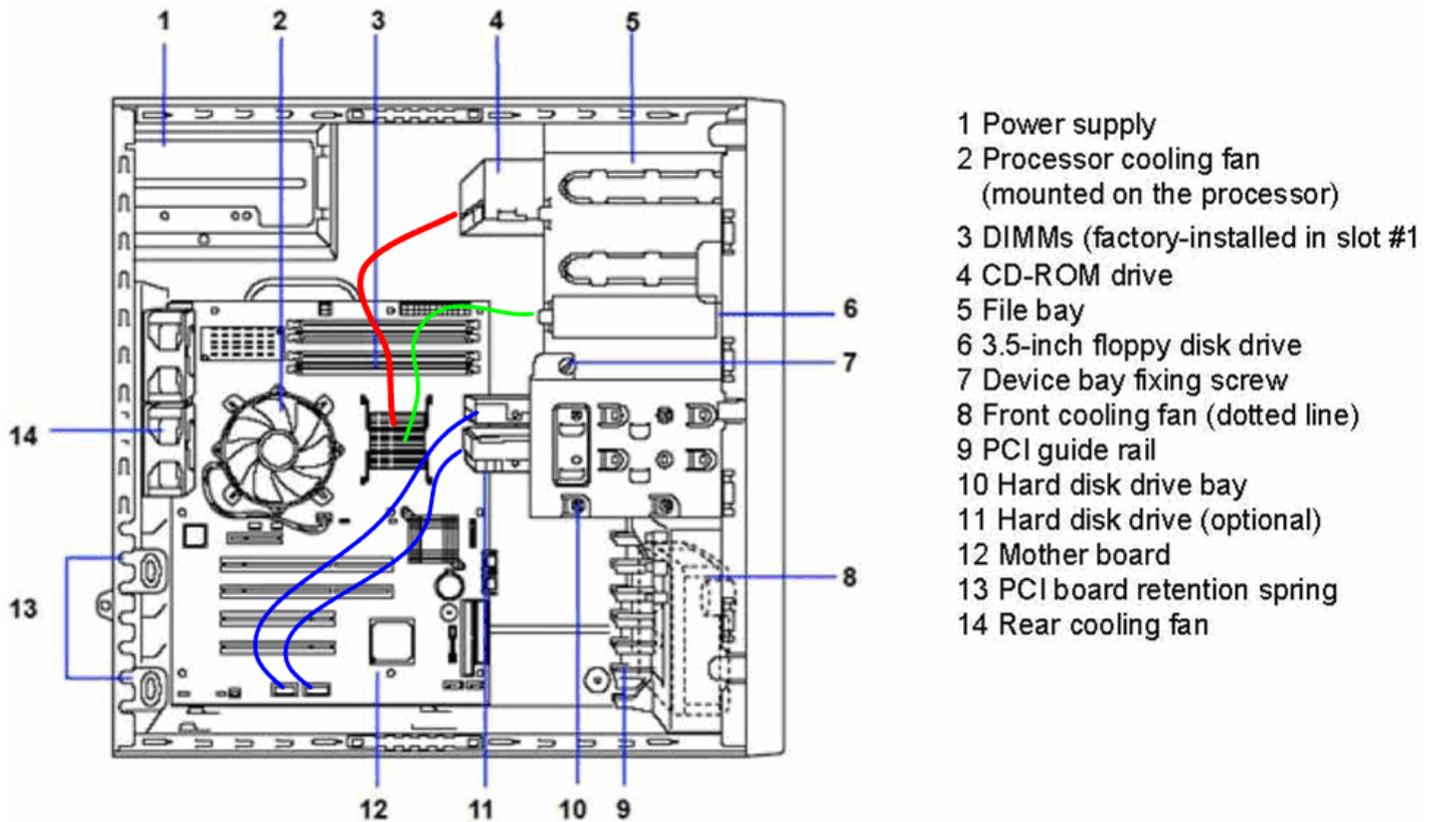


Task Reference **NEC Express5800/110Ei Server physical setups**



Task Reference **NEC Express5800/110Ei Server physical setups**

4 Internal dual HDD arrangement (SATA)



Task	Reference	Install NEC ExpressBuilder Maintenance Partition
1		Start with a clean unformatted Hard Disk drive. Insert NEC ExpressBuilder CD and select “Tools” from the menu.
2		Select “Setup Maintenance Partition” from the menu.
3		Select “Create Maintenance Partition” from the menu.
4		The system will reboot and the maintenance utilities will be installed on the new maintenance partition. When complete select “Return to the Tools Menu” from the menu.
5		Select “Return to the Top Menu” from the menu.
6		Select “End” from the menu and then select the “Reboot” button.
7		Remove the NEC ExpressBuilder CD before the system reboots.

DP 115

Task	Record Company Business/After Hours Greetings	Reference
1	Dial the VM Hunt Group Number recorded in the Site Information sheet.	DP 121
2	Access the Reception mailbox recorded in the Site Information sheet.	DP 121 & Voicemail User Guide
3	After gaining access to the reception mailbox and handling any new messages, press U , the 8 key, for User options then press N , the 6 key, to record Name and greetings.	
4	<p>The reception mailbox allows you to pre-record three (3) greetings.</p> <p>Greeting 1 is the mailbox greeting e.g. <i>“Please leave a detailed message after the tone.”</i></p> <p>Greeting 2 is the After Hours Company greeting e.g. <i>“Thank you for calling xyz. The office is now closed. Our office hours are.....”</i></p> <p>Greeting 3 is the Business Hours Company greeting e.g. <i>“Thank you for calling xyz. To access your mailbox, please enter your user code at any time, otherwise please use our voicemail system to direct your call.”</i></p> <p>Enter 1, 2, or 3 to select the greeting you wish to record.</p>	
5	The voicemail system will play the existing greeting if one has already been recorded. Press R , the 7 key, to re-record the greeting or press X , the 9 key, to exit from this option.	
6	After recording the greeting, press the hash (#) key to terminate the recording cleanly. Hanging up after making a recording will result in the voicemail system adding your hangup tone to the recording, which will confuse callers.	
7	Continue recording the other greetings, then press X , the 9 key, or hangup to exit from the system. The new recordings will take effect immediately.	

Task	Reference	Install Windows XP Professional SP3
1		<p>NOTE:</p> <p>If installing dual HDD's, physically connect (i.e. disk 0 MasterIDE/SATA) only one HDD at a time, install all programs on that HDD, then disconnect that HDD at repeat the procedure with the second HDD. Alternatively, download and use the built images for dual HDD setup to prepare each partition of each HDD.</p>
2	DP 114	<p>[optional NEC/Dell only]</p> <p>Install NEC ExpressBuilder Maintenance Partition (requires 55MB FAT EISA configuration partition)</p> <p>or</p> <p>Configure Dell pre-installed Dell Utilities (requires 31MB FAT EISA configuration partition).</p>
3		<p>Restart system with Windows XP CD inserted. From the "Welcome to Setup" screen select "Enter" to setup Windows XP.</p>
4		<p>Press "F8" to agree to the Windows licensing conditions of use.</p>
5		<p>You will be presented with a summary of the current master hard disk (HDD) partition and format status. Select the "Unpartitioned space" on the master HDD.</p>
6		<p>Enter "C" to create a new partition in the unpartitioned space. This partition will be your "C:" drive where the Windows operating system will be installed. The recommended size of the partition is 25% of your total unpartitioned space OR no less than 20 GB (20,000 MB), whichever is the larger size.</p>
7		<p>Select the new raw C: partition and press "Enter". Select "Format the partition using the NTFS file system" and press "Enter".</p>
8		<p>After the partition has been created Windows will commence installing on your HDD. At the "Regional and Language Options" screen select the "Customize" button. On the "Regional Options" tab in the "Standards and formats" frame select "English (Australia)" from the pulldown list and then press the "Customize" button.</p>
9		<p>Select the "Time" tab and select "H:mm:ss" from the "Time format:" pulldown list. Press the "Apply" button and then the "OK" button.</p>
10		<p>On the "Regional Options" tab in the "Location" frame select "Australia" from the pulldown list. Press the "Apply" button and then the "OK" button. Back at the "Regional and Language Options" screen press the "Next" button.</p>

Task	Reference	Install Windows XP Professional SP3
11		At the “Personalize your Software” screen enter values for the “Name” and “Organization” fields. The normal values we use are “Name: Admin” and “Organization: VoiceNet asiapacific”. Press the “Next” button.
12		At the “Your Product Key” enter the Microsoft Windows product key issued with your system. Normally, this key should be attached to the side of your computer. Press the “Next” button.
13		At the “Computer Name and Administrator Password” screen enter “VM1” in the “Computer name” field and “VoiceNet<site number>” in the “Administrator password” and “Confirm password” fields.
14		At the “Date and Time Settings” screen in the “Time Zone” frame select “[GMT + 10:00] Canberra, Melbourne, Sydney” from the pulldown list. Confirm that the time as displayed in the “Date & Time” frame is correct (adjust if necessary) then press the “Next” button.
15		Windows will now continue with the installation process. After rebooting, at the “Let’s set up your PC” screen, click “Next”. At the “Help protect your PC” screen, select “Not right now” for Automatic Updates, then click “Next”. At the “Who will use this computer?” screen, enter “Admin” in the “Your name:” field, then click “Next”, then click “Finish”.
16		At the main Windows desktop, right-click on the “Start” button and choose “Properties”. Select the “Taskbar” tab and set up your choices as follows: <ul style="list-style-type: none"><input type="checkbox"/> Lock the taskbar<input type="checkbox"/> Auto-hide the taskbar<input checked="" type="checkbox"/> Keep the taskbar on top of other windows<input checked="" type="checkbox"/> Group similar taskbar buttons<input checked="" type="checkbox"/> Show Quick Launch<input checked="" type="checkbox"/> Show the clock<input type="checkbox"/> Hide inactive icons

Task Reference **Install Windows XP Professional SP3**

- 17 Select the “Start Menu” tab, select “☉ Start menu” if not already selected, then select the “Customize...” button. Select the “Advanced” tab. In the “Start menu items:” listbox set up your choices as follows:

Control Panel

☉ Display as a menu

Enable dragging and dropping

Favourites menu

Help and Support

My Computer

☉ Display as a menu

My Documents

☉ Display as a menu

My Music

☉ Don't display this item

My Network Places

My Pictures

☉ Don't display this item

Network Connections

☉ Display as Connect to menu

Printers and Faxes

Run command

Scroll Programs

Search

Set Program Access and Defaults

System Administrative Tools

☉ Display on the All Programs menu and the Start menu

Click on the “OK” button.

Click on the “Apply” button then the “OK” button.

Task Reference **Install Windows XP Professional SP3**

18 Add Explorer to the Quick Launch taskbar as follows. Right-click on the “Start” button and choose “Explore”. Select “View – List” from the toolbar. Select “Tools – Folder Options...” from the toolbar. At the “General” tab select Use Windows classic folders. Select the “View” tab. Set up your options in the “Advanced settings:” listbox as follows:

- Automatically search for network folders and printers
- Display file size information in folder tips
- Display simple folder view in Explorer’s Folders list
- Display the contents of system folders
- Display the full path in the address bar
- Display the full path in the title bar
- Do not cache thumbnails
- Hidden files and folders
 - Show hidden files and folders
- Hide extensions for known file types
- Hide protected operating system files (Recommended)
- Launch folder windows in a separate process
- Managing pairs of Web pages as a single file
 - Show and manage the pair as a single file
- Remember each folder’s view settings
- Restore previous folder windows at logon
- Show Control Panel in My Computer
- Show encrypted or compressed NTFS files in color
- Show pop-up description for folder and desktop items
- Use simple file sharing (Recommended)

Click on the “Apply to All Folders” button, then click the “OK” button.

Left-click on the “Start” button, go to “All Programs – Accessories – Windows Explorer” and right-click on “Windows Explorer” and select “Send To – Desktop (create shortcut).”

Rename the shortcut icon on the desktop to “Explorer” and drag it to the Quick Launch taskbar.

Right-click on the Explorer icon in the Quick Launch taskbar and select “Properties”. On the “Shortcut” tab, edit the “Target:” field to read as follows:

Target: %SystemRoot%\explorer.exe /n, /e, /select, C:\

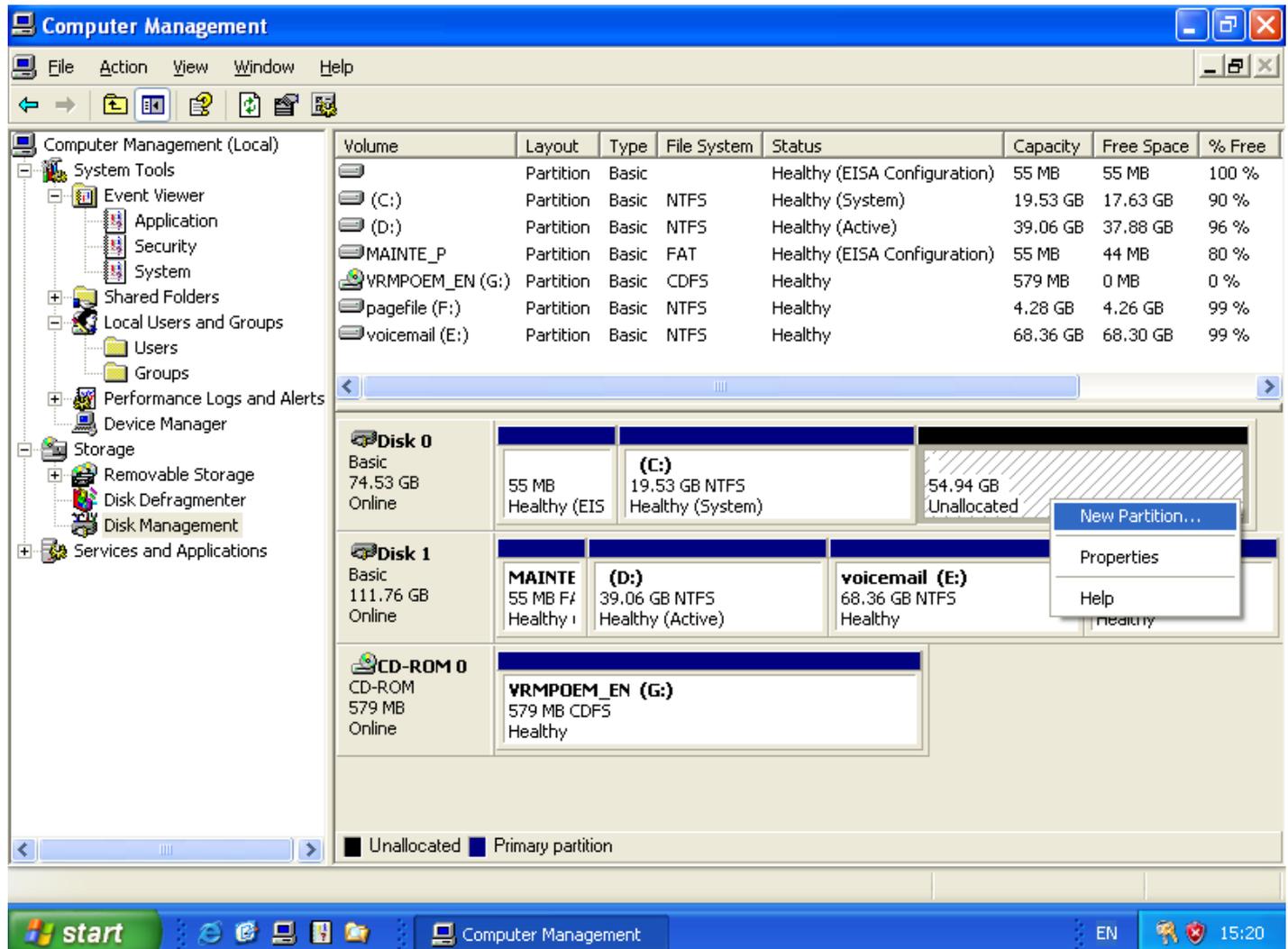
then click on the “Apply” and “OK” buttons. This will cause Explorer to open on the C: drive when run.

Task Reference **Install Windows XP Professional SP3**

- 19 Add Computer Management and Event Viewer to the Quick Launch taskbar as follows. Left-click on the “Start” button, go to “Administrative Tools – Computer Management”, right-click on “Computer Management” and select “Send To – Desktop (create shortcut).
- Drag the shortcut icon on the desktop to the Quick Launch taskbar.
- Repeat the same procedure with “Administrative Tools – Event Viewer”.
- 20 Delete the shortcuts from the desktop.
- 21 Set up your desktop properties. Right-click anywhere on the desktop, select “Properties” and go to the “Desktop” tab. Select “Windows XP” from the “Background:” listbox and click “Apply”. Go to the “Screen Saver” tab and select “Windows XP” from the “Screen saver” listbox, enter “20” minutes in the “Wait:” field, disable “ On resume, password protect”.
- Select the “Power...” button. On the “Power Schemes” tab select “Always On” from the “Power schemes” listbox. In the “Settings for Always On power scheme” frame, set all options to “Never”, then click on the “Apply” and “OK” buttons.
- 22 Set up Administrator account privileges. Launch Computer Management, expand the Local Users and Groups folder and select the Users folder. Right-click on “Admin” and choose “Properties”. Under the “General” tab ensure that the option “ Password never expires” is selected.
- 23 Set up Event Viewer properties. While in Computer Management, expand the Event Viewer folder. For each log listed (normally Application, Security, and System) right-click on the log, choose “Properties”. In the “Log size” frame ensure that the “ Overwrite events as needed” option is selected, then click on the “Apply” and “OK” buttons.

Task Reference **Install Windows XP Professional SP3**

- 24 Set up additional hard disk partitions. While in Computer Management, expand the “Storage” folder and select “Disk Management”. A graphic display of your hard disk(s) will be shown which should be similar to the screenshot below.



Note that in this screenshot two hard disks (HDD) are shown. The HDD we are interested in setting up will be Disk 0. Right-click on the “Unallocated” partition as shown and select “New Partition...” which will run the New Partition Wizard. The “Partition Type” should be “Ⓞ Primary partition”, the “Partition size in MB:” should be all of the remaining unallocated space LESS 3000 MB which we will use later when creating another partition for the system pagefile. Let the Wizard assign the drive letter. The “Volume label:” should be “voicemail”. Leave all other settings at their defaults and click “Finish” to run the Wizard.

- Task Reference** **Install Windows XP Professional SP3**
- 25 When the new partition has finished being created, repeat the previous step with the remainder of the unallocated space and the New Partition Wizard, the only differences being that the “Partition size in MB:” should be all of the remaining unallocated space and you assign the “Volume label:” as “pagefile”. Your HDD partitioning will now be complete.
- 26 Set up System settings. Go to “Start – Control Panel – System”.
- Select the “Remote” tab. In the “Remote Assistance” frame disable “ Allow Remote Assistance invitations to be sent from this computer”.
- Select the “Automatic Updates” tab. Ensure that “ Turn off Automatic Updates” is selected.
- Select the “Advanced” tab. Select the “Error Reporting” button and select “ Disable error reporting” with “ But notify me when critical errors occur” enabled. Click on the “OK” button to continue.
- In the “Startup and Recovery” frame, select the “Settings” button and set the “ Time to display list of operating systems:” value to 10 seconds.
- In the “Performance” frame select the “Settings” button, go to the “Advanced” tab and click on the “Change” button. The drive map will show the current pagefile sizing on C: drive e.g. 758 – 1512. Select your pagefile partition, then in the “Paging file size for selected drive” frame select the “ Custom size:” option and in the “Initial size (MB):” and “Maximum size (MB):” fields enter the same value as per your existing maximum pagefile size e.g. 1512 then click the “Set” button. Then select your existing pagefile partition (C:), then in the “Paging file size for selected drive” frame select the “ Custom size:” option and in the “Initial size (MB):” and “Maximum size (MB):” fields enter the value as “0”. Now click on the “Set” button. Click on the “OK” button to exit.
- Windows will pop up a window saying “The changes you have made require you to restart your computer before they can take effect”. Select “OK” to continue. Click “Apply” and “OK” as needed to back out of the System settings until Windows displays the advice “You must restart your computer before the new settings will take effect. Do you want to restart your computer now?” Select “Yes” to restart your computer.
- 27 Setup local security policies. Choose Start – Administrative Tools – Local Security Policy. Under Account Policies select Password Policy. In the right hand window double click on Maximum password age and set to 0 days (password will not expire), click “Apply”. Under Local Policies – Audit Policy, in

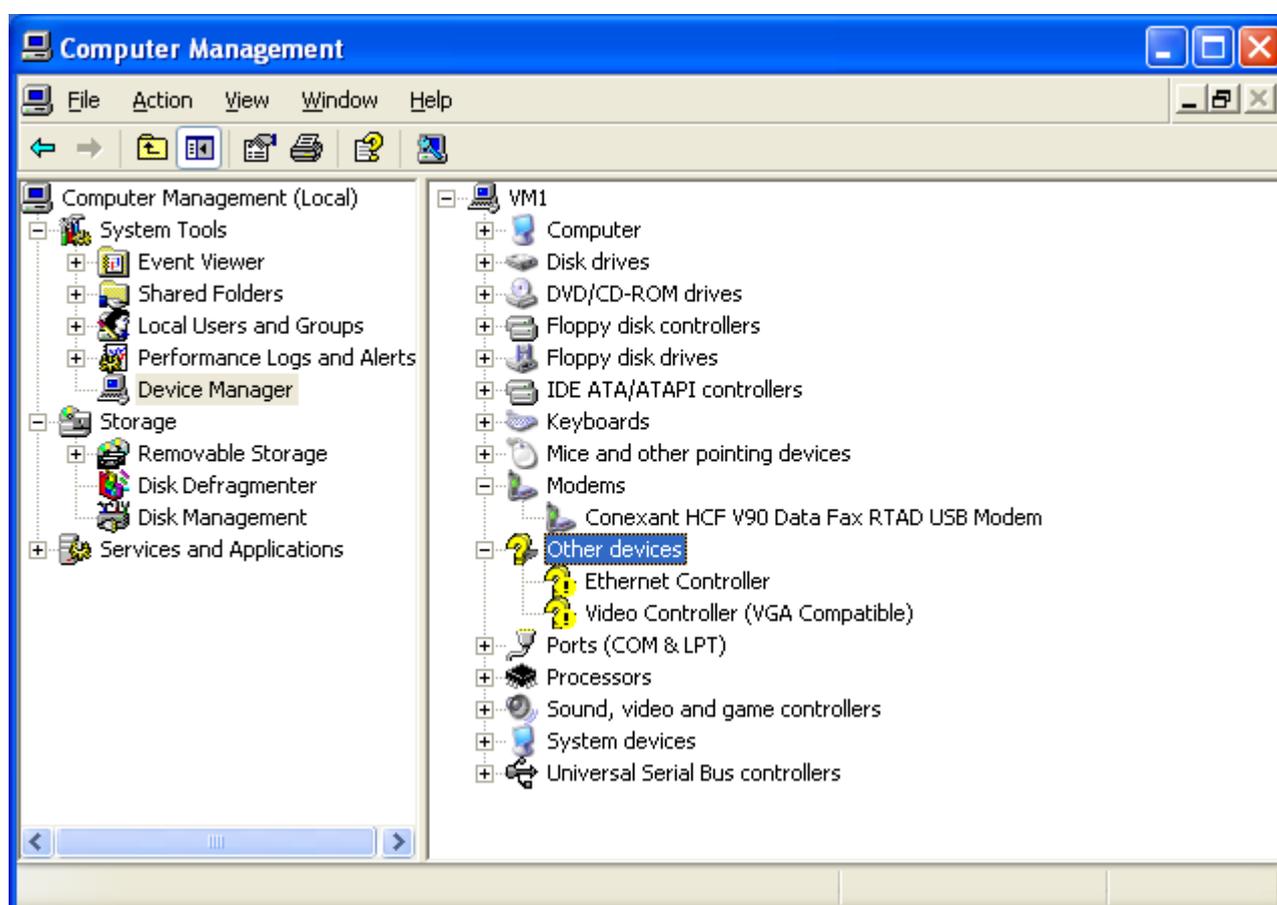
Task Reference **Install Windows XP Professional SP3**

the right hand window set the Policy Settings for “Audit these attempts:” to both Success and Failure for the policies “Audit account logon events”, Audit logon events”, “Audit policy change”, and “Audit privilege use”. Under Local Policies - User Rights Assignment, in the right hand window set the Security settings to Administrators group for “Act as part of the operating system”, “Add workstations to domain”, “Create a token object”, “Create permanent shared objects”, “Lock pages in memory” and “Synchronize directory service data”. Under Local Policies - Security Options, in the right hand window set “Recovery Console: Allow automatic administrative logon” to Enabled and set “Shutdown: Clear virtual memory pagefile” to Enabled. Close Local Security Policies.

- 28 Adjust Date and Time Properties. Right click on the time displayed in the lower right hand corner of the desktop. Select “Adjust Date/Time”. Select the “Internet Time” tab and disable “ Automatically synchronize with an Internet time server”.
- 29 Install your modem. Adjust modem settings. Select “Start – Control Panel – Phone and Modem Options”. Under the “Modems” tab, select your modem from the list of installed modems and select “Properties”. Under the “Modem” tab in the “Dial Control” frame, deselect “ Wait for dial tone before dialling”. Under the “Diagnostics” tab select the “Query Modem” button to confirm that your modem is communicating with your computer. Under the “Advanced” tab select the “Advanced Port Settings...” button if present. Set the “Receive Buffer” slide to “8” and the “Transmit Buffer” slide to “11”. Click “OK” to close the window.
- 30 Insert your phone line into your modem and activate Windows software. Select “Start – All Programs - Activate Windows” and follow the instructions of the Activation Wizard.

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- 31 [optional] only if you are setting up an NEC 5800/110 series or Dell PowerEdge series server...
 You will need to install the drivers for the ethernet and video controllers. First insert the NEC ExpressBuilder or Dell Utilities CD and when the CD auto-runs close it. Then run Computer Management from the Quick Launch taskbar. Select the “Device Manager” folder. In the displayed devices you should see these controllers listed under “Other devices” as per the illustration below.



Right-click on the Ethernet Controller and select “Update Driver...”.
 Select “ No, not this time” when Windows asks to connect to the internet.
 Select “ Install the software automatically (recommended)” and click “Next >”.
 Allow Windows to locate and install the appropriate driver from the CD.

- 32 Repeat this procedure for the Video Controller and or SM Bus Controller.

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33 After the Ethernet Controller driver has been successfully updated, Computer Management will refresh to display the Ethernet Controller it found. Right-click on the controller device e.g. Intel® PRO/1000 MT Network Connection and under the “Power Management” tab disable “ Allow the computer to turn off this device to save power”. Click “OK” to close the Ethernet Controller Properties window and then close Computer Management.

34 Set up Networking. Select “Start – Connect To - Show all connections”. Right-click on “Local Area Connection” and select “Properties”. Under the “General” tab scroll down the “This connection uses the following items:” listbox and select the “ Internet Protocol (TCP/IP)” item. Click the “Properties” button, enable the “ Use the following IP address:” frame and make the following entries:

VM1

IP address: 192.168.0.20
Subnet mask: 255.255.255.0

VM2

IP address: 192.168.0.21
Subnet mask: 255.255.255.0

VMWEB

IP address: 192.168.0.22
Subnet mask: 255.255.255.0

Enable the “ Show icon in notification area when connected” option.

Under the “Advanced” tab in the “Windows Firewall” frame select the “Settings...” button. Under the “General” tab ensure that your Firewall is “ On (Recommended)”. Under the “Exceptions” tab disable ALL Programs and Services listed.

Click on “OK” to close the “Properties” window.

35 Set up Sharing. Using simplified file sharing (defined previously in Task 18) create a new share “C” for partition C with sharing permission set to “Read” only. Create a new share “E” for partition E with sharing permission set to “Read” and “Change” only. Then change to advanced sharing by returning to Explorer. At the “General” tab select Use Windows classic folders. Select the “View” tab. Change your last option in the “Advanced settings:” listbox to:

Use simple file sharing (Recommended)

Task Reference **Install Windows XP Professional SP3**

- 36 **KB 314054** [optional] only required if you have multiple voicemail servers in the voicemail system. Setup your primary computer to act as the master clock server for the voicemail system. Choose Start – Run, type in “regedt32” and press Enter. Locate and then click the following registry entry:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config\
```

In the right pane, right-click “AnnounceFlags”, and then click “Modify”. In the “Edit DWORD Value” dialog box, under “Value data”, type “5”, and then click “OK”.

Enable NTPServer. Locate and then click the following registry entry:

```
...\W32Time\TimeProviders\NTPServer\
```

In the right pane, right-click “Enabled” and then click “Modify”. In the “Edit DWORD Value” dialog box, type “1” under “Value data” and then click “OK”.

Exit the Registry Editor.

- 37 [optional] only required if you have multiple voicemail servers in the voicemail system. At the command prompt (“Start – Run, type “cmd”, press Enter”) type the following command to restart the Windows Time service, and then press Enter:

```
Net stop w32time && net start w32time
```

- 38 [optional] only required if you have multiple voicemail servers in the voicemail system. After the Windows Time service restarts, your PC will function as an SNTP master clock server.

- 39 [optional] only required if you have multiple voicemail servers in the voicemail system. Setup client voicemail servers to synchronise with master clock server. If this computer is not going to be the master clock server, then it’s time needs to be synchronised with the nominated master clock server you set up previously. At the command prompt (“Start – Run, type “cmd”, press Enter”) type

```
net time /setsntp:<timeserver>
```

where <timeserver> is the computer name of your nominated master clock server. Press Enter, you should receive confirmation of success. Then type

```
net time /set /Y
```

Task Reference **Install Windows XP Professional SP3**

to force your computer to synchronise with the master clock server. Press Enter, you should receive confirmation of success. Your computer will now synchronise with the master clock server every 8 hours, and whenever it restarts.

- 40 Install Recovery Console (Note: if you are upgrading from SP1 to SP2 or SP3 then you must install Recovery Console BEFORE upgrading). With Windows running, insert the Windows Setup CD. Click “Start” and select “Run”. Type the following where D: is the CD-ROM drive letter:

```
D:\i386\winnt32.exe /cmdcons
```

Follow the instructions on the screen to complete the installation of Recovery Console.

- 41 [optional] only if dual HDD installed. Modify your “boot.ini” file for the Master HDD only to include the Standby HDD as rdisk(1) viz:

```
[boot loader]
timeout=10
default=multi(0)disk(0)rdisk(0)partition(1)\WINDOWS
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Microsoft Windows XP Professional Master"
/fastdetect
multi(0)disk(0)rdisk(1)partition(1)\WINDOWS="Microsoft Windows XP Professional Standby"
/fastdetect
C:\CMDCONS\BOOTSECT.DAT="Microsoft Windows Recovery Console" /cmdcons
```

or if a maintenance partition exists:

```
[boot loader]
timeout=10
default=multi(0)disk(0)rdisk(0)partition(2)\WINDOWS
[operating systems]
multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Microsoft Windows XP Professional Master
HDD" /fastdetect
multi(0)disk(0)rdisk(1)partition(2)\WINDOWS="Microsoft Windows XP Professional Standby
HDD" /fastdetect
C:\CMDCONS\BOOTSECT.DAT="Microsoft Windows Recovery Console" /cmdcons
```

- 42 Connect your PC to the internet and run Windows Update.

- 43 Your installation of Windows XP Professional SP3 is now complete.

Task Reference **Install Windows Server 2003 R2**

- 1 NOTE:
If installing dual HDD's, physically connect (i.e. disk 0 MasterIDE/SATA) only one HDD at a time, install all programs on that HDD, then disconnect that HDD at repeat the procedure with the second HDD. Alternatively, download and use the built images for dual HDD setup to prepare each partition of each HDD.
- 2 **DP 114** [optional NEC/Dell only]
Install NEC ExpressBuilder Maintenance Partition (requires 55MB FAT EISA configuration partition)
or
Configure Dell pre-installed Dell Utilities (requires 31MB FAT EISA configuration partition).
- 3 Restart system with Windows Server 2003 CD inserted. From the "Welcome to Setup" screen select "Enter" to setup Windows Server 2003.
- 4 Press "F8" to agree to the Windows licensing conditions of use.
- 5 You will be presented with a summary of the current master hard disk (HDD) partition and format status. Select the "Unpartitioned space" on the master HDD.
- 6 Enter "C" to create a new partition in the unpartitioned space. This partition will be your "C:" drive where the Windows operating system will be installed. The recommended size of the partition is 25% of your total unpartitioned space OR no less than 20 GB (20,000 MB), whichever is the larger size.
- 7 Select the new raw C: partition and press "Enter". Select "Format the partition using the NTFS file system" and press "Enter".
- 8 After the partition has been created Windows will commence installing on your HDD. At the "Regional and Language Options" screen select the "Customize" button. On the "Regional Options" tab in the "Standards and formats" frame select "English (Australia)" from the pulldown list and then press the "Customize" button.
- 9 Select the "Time" tab and select "H:mm:ss" from the "Time format:" pulldown list. Press the "Apply" button and then the "OK" button.
- 10 On the "Regional Options" tab in the "Location" frame select "Australia" from the pulldown list. Press the "Apply" button and then the "OK" button. Back at the "Regional and Language Options" screen press the "Next" button.

Task Reference **Install Windows Server 2003 R2**

- 11 At the “Personalize your Software” screen enter values for the “Name” and “Organization” fields. The normal values we use are “Name: Admin” and “Organization: VoiceNet asiapacific”. Press the “Next” button.
- 12 At the “Your Product Key” enter the Microsoft Windows product key issued with your system. Normally, this key should be attached to the side of your computer. Press the “Next” button.
- 13 At the “Computer Name and Administrator Password” screen enter “VM1” in the “Computer name” field and “VoiceNet<site number>” in the “Administrator password” and “Confirm password” fields.
- 14 At the “Date and Time Settings” screen in the “Time Zone” frame select “[GMT + 10:00] Canberra, Melbourne, Sydney” from the pulldown list. Confirm that the time as displayed in the “Date & Time” frame is correct (adjust if necessary) then press the “Next” button.
- 15 Windows will now continue with the installation process. After rebooting, at the “Let’s set up your PC” screen, click “Next”. At the “Help protect your PC” screen, select “Not right now” for Automatic Updates, then click “Next”. At the “Who will use this computer?” screen, enter “Admin” in the “Your name:” field, then click “Next”, then click “Finish”.
- 16 At the main Windows desktop, right-click on the “Start” button and choose “Properties”. Select the “Taskbar” tab and set up your choices as follows:
- Lock the taskbar
 - Auto-hide the taskbar
 - Keep the taskbar on top of other windows
 - Group similar taskbar buttons
 - Show Quick Launch
 - Show the clock
 - Hide inactive icons

Task Reference **Install Windows Server 2003 R2**

- 17 Select the “Start Menu” tab, select “ Start menu” if not already selected, then select the “Customize...” button. Select the “Advanced” tab. In the “Start menu items:” listbox set up your choices as follows:

Control Panel

 Display as a menu Enable dragging and dropping Favourites menu Help and Support

My Computer

 Display as a menu

My Documents

 Display as a menu

My Music

 Don't display this item My Network Places

My Pictures

 Don't display this item

Network Connections

 Display as Connect to menu Printers and Faxes Run command Scroll Programs Search System Administrative Tools Display on the All Programs menu and the Start menu

Click on the “OK” button.

Click on the “Apply” button then the “OK” button.

Task Reference **Install Windows Server 2003 R2**

- 18 Add Explorer to the Quick Launch taskbar as follows. Right-click on the “Start” button and choose “Explore”. Select “View – List” from the toolbar. Select “Tools – Folder Options...” from the toolbar. At the “General” tab select Use Windows classic folders. Select the “View” tab. Set up your options in the “Advanced settings:” listbox as follows:

- Automatically search for network folders and printers
 - Display file size information in folder tips
 - Display simple folder view in Explorer’s Folders list
 - Display the contents of system folders
 - Display the full path in the address bar
 - Display the full path in the title bar
 - Do not cache thumbnails
- Hidden files and folders
- Show hidden files and folders
 - Hide extensions for known file types
 - Hide protected operating system files (Recommended)
 - Launch folder windows in a separate process
 - Remember each folder’s view settings
 - Restore previous folder windows at logon
 - Show Control Panel in My Computer
 - Show encrypted or compressed NTFS files in color
 - Show pop-up description for folder and desktop items

Click on the “Apply to All Folders” button, then click the “OK” button.

Left-click on the “Start” button, go to “All Programs – Accessories – Windows Explorer” and right-click on “Windows Explorer” and select “Send To – Desktop (create shortcut).

Rename the shortcut icon on the desktop to “Explorer” and drag it to the Quick Launch taskbar.

Right-click on the Explorer icon in the Quick Launch taskbar and select “Properties”. On the “Shortcut” tab, edit the “Target:” field to read as follows:

Target: %SystemRoot%\explorer.exe /n, /e, /select, C:\

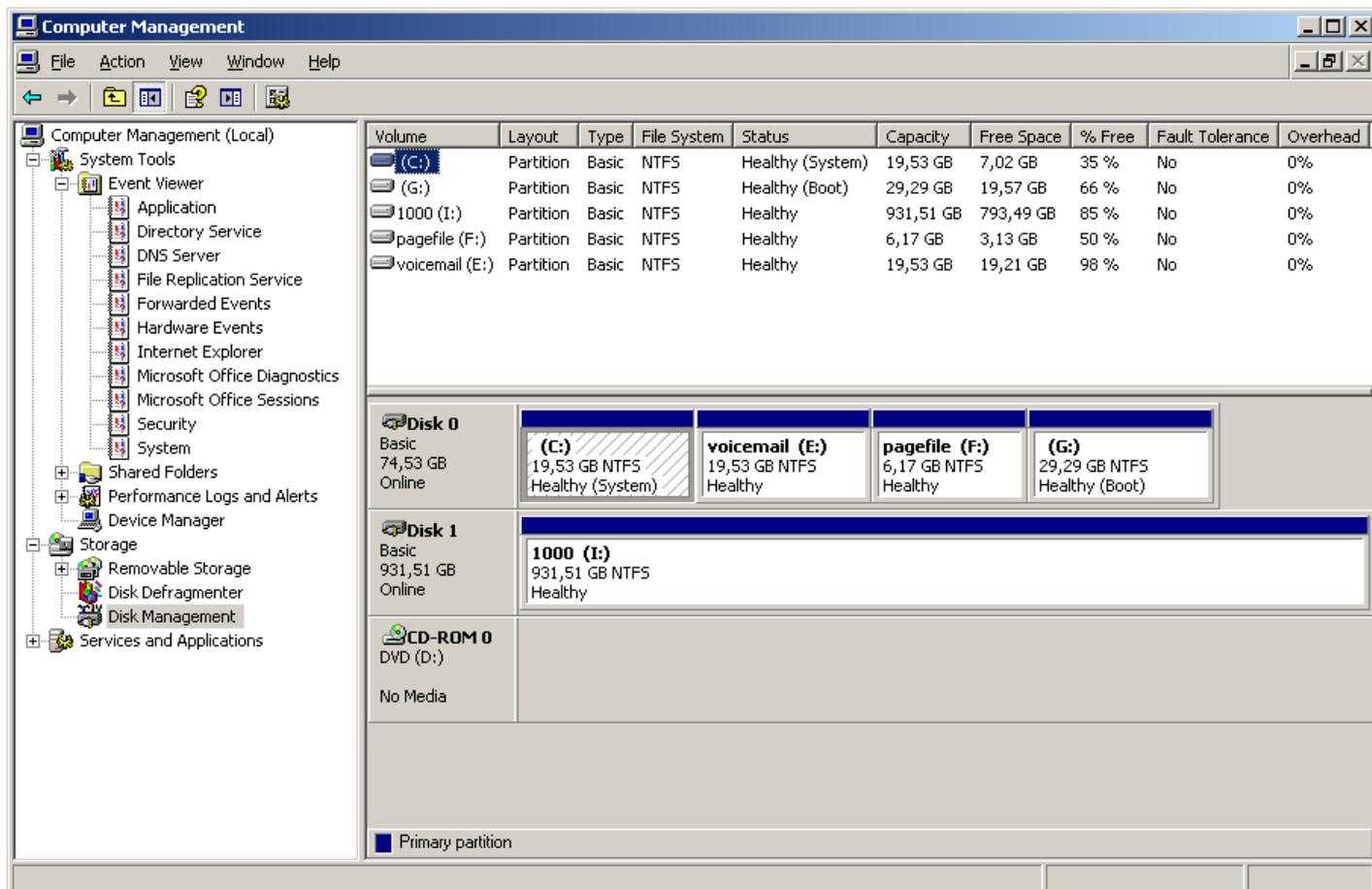
then click on the “Apply” and “OK” buttons. This will cause Explorer to open on the C: drive when run.

Task Reference **Install Windows Server 2003 R2**

- 19 Add Computer Management and Event Viewer to the Quick Launch taskbar as follows. Left-click on the “Start” button, go to “Administrative Tools – Computer Management”, right-click on “Computer Management” and select “Send To – Desktop (create shortcut).
- Drag the shortcut icon on the desktop to the Quick Launch taskbar.
- Repeat the same procedure with “Administrative Tools – Event Viewer”.
- 20 Delete the shortcuts from the desktop.
- 21 Set up your desktop properties. Right-click anywhere on the desktop, select “Properties” and go to the “Desktop” tab. Select “Windows Server 2003” from the “Background:” listbox and click “Apply”. Go to the “Screen Saver” tab and select “Windows Server 2003” from the “Screen saver” listbox, enter “20” minutes in the “Wait:” field, disable “ On resume, password protect”.
- Select the “Power...” button. On the “Power Schemes” tab select “Always On” from the “Power schemes” listbox. In the “Settings for Always On power scheme” frame, set all options to “Never”, then click on the “Apply” and “OK” buttons.
- 22 Install Active Directory. Go to All Programs – Administrative Tools – Manage Your Server and add the following roles: File Server, Print Server, Application Server, Mail Server (POP3, SMTP), Domain Controller (Active Directory). Set up Administrator account privileges. Launch Administrative Tools – Active Directory Users and Computers, and select the Users folder. Right-click on “Administrator” and <local admin account name> and choose the “Account” tab. In the “Account options” grouping ensure that the option “ Password never expires” is selected.
- 23 Set up Event Viewer properties. Go to Computer Management, expand the Event Viewer folder. For each log listed (normally Application, Security, and System) right-click on the log, choose “Properties”. In the “Log size” frame ensure that the “ Overwrite events as needed” option is selected, then click on the “Apply” and “OK” buttons.

Task Reference **Install Windows Server 2003 R2**

- 24 Set up additional hard disk partitions. While in Computer Management, expand the “Storage” folder and select “Disk Management”. A graphic display of your hard disk(s) will be shown which should be similar to the screenshot below.



Note that in this screenshot two hard disks (HDD) are shown. The HDD we are interested in setting up will be Disk 0. Right-click on the “Unallocated” partition as shown and select “New Partition...” which will run the New Partition Wizard. The “Partition Type” should be “Ⓞ Primary partition”, the “Partition size in MB:” should be all of the remaining unallocated space LESS 3000 MB which we will use later when creating another partition for the system pagefile. Let the Wizard assign the drive letter. The “Volume label:” should be “voicemail”. Leave all other settings at their defaults and click “Finish” to run the Wizard.

- 25 When the new partition has finished being created, repeat the previous step with the remainder of the unallocated space and the New Partition Wizard, the only differences being that the “Partition size in MB:” should be all of the

Task Reference **Install Windows Server 2003 R2**

remaining unallocated space and you assign the “Volume label:” as “pagefile”. Your HDD partitioning will now be complete.

- 26 Set up System settings. Go to “Start – Control Panel – System”.
- Select the “Remote” tab. In the “Remote Assistance” frame disable “ Allow Remote Assistance invitations to be sent from this computer”. In the “Remote Desktop” frame disable “ Enable Remote Desktop on this computer”.
- Select the “Automatic Updates” tab. Ensure that “ Turn off Automatic Updates” is selected.
- Select the “Advanced” tab. Select the “Error Reporting” button and select “ Disable error reporting” with “ But notify me when critical errors occur” enabled. Click on the “OK” button to continue.
- In the “Startup and Recovery” frame, select the “Settings” button and set the “ Time to display list of operating systems:” value to 10 seconds.
- In the “Performance” frame go to the “Advanced” tab, in the “Processor scheduling” frame select the “ Programs” option, in the “Memory usage” frame select the “ Programs” option, and then click on the “Change” button. The drive map will show the current pagefile sizing on C: drive e.g. 758 – 1512. Select your pagefile partition, then in the “Paging file size for selected drive” frame select the “ Custom size:” option and in the “Initial size (MB):” and “Maximum size (MB):” fields enter the same value as per your existing maximum pagefile size e.g. 1512 then click the “Set” button. Then select your existing pagefile partition (C:), then in the “Paging file size for selected drive” frame select the “ Custom size:” option and in the “Initial size (MB):” and “Maximum size (MB):” fields enter the value as “0”. Now click on the “Set” button. Click on the “OK” button to exit.

TN 002
TN 003

IMPORTANT:
Before shutting down Windows (see below) you should follow the procedure outlined in TN 002 How to disable the Shutdown Event Tracker in Server 2003, so that the server shuts down automatically without requiring manual intervention, and also follow the procedure outlined in TN 003 How to setup AutoAdminLogon in Server 2003, so that the server automatically boots up into Windows without requiring a password to be manually entered.

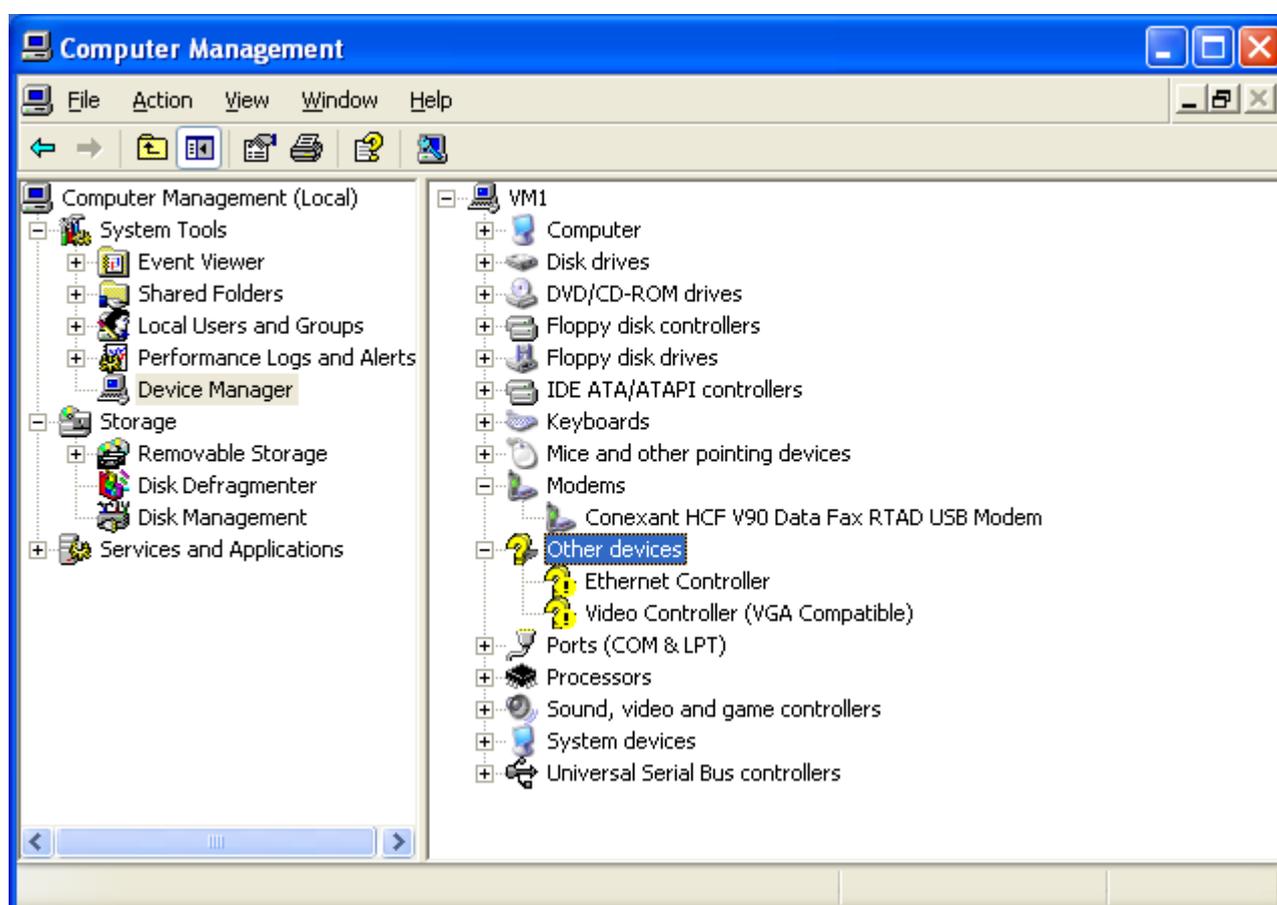
Task Reference **Install Windows Server 2003 R2**

Windows will pop up a window saying “The changes you have made require you to restart your computer before they can take effect”. Select “OK” to continue. Click “Apply” and “OK” as needed to back out of the System settings until Windows displays the advice “You must restart your computer before the new settings will take effect. Do you want to restart your computer now?” Select “Yes” to restart your computer.

- 27 If the client site’s IT Administrator has given the voicemail server domain controller authority then you can setup local security policies. Choose Start – Administrative Tools – Local Security Policy. Under Account Policies select Password Policy. In the right hand window double click on Maximum password age and set to 0 days (password will not expire), click “Apply”. Under Local Policies – Audit Policy, in the right hand window set the Policy Settings for “Audit these attempts:” to both Success and Failure for the policies “Audit account logon events”, “Audit logon events”, “Audit policy change”, and “Audit privilege use”. Under Local Policies - User Rights Assignment, in the right hand window set the Security settings to Administrators group for “Act as part of the operating system”, “Add workstations to domain”, “Create a token object”, “Create permanent shared objects”, “Lock pages in memory” and “Synchronize directory service data”. Under Local Policies - Security Options, in the right hand window set “Recovery Console: Allow automatic administrative logon” to Enabled and set “Shutdown: Clear virtual memory pagefile” to Enabled. Close Local Security Policies.
- 28 Adjust Date and Time Properties. Right click on the time displayed in the lower right hand corner of the desktop. Select “Adjust Date/Time” and adjust the system location, date and time accordingly.
- 29 Install your modem. Adjust modem settings. Select “Start – Control Panel – Phone and Modem Options”. Under the “Modems” tab, select your modem from the list of installed modems and select “Properties”. Under the “Modem” tab in the “Dial Control” frame, deselect “ Wait for dial tone before dialling”. Under the “Diagnostics” tab select the “Query Modem” button to confirm that your modem is communicating with your computer. Under the “Advanced” tab select the “Advanced Port Settings...” button if present. Set the “Receive Buffer” slide to “8” and the “Transmit Buffer” slide to “11”. Click “OK” to close the window.
- 30 Insert your phone line into your modem and activate Windows software. Select “Start – All Programs - Activate Windows” and follow the instructions of the Activation Wizard.

Task Reference **Install Windows Server 2003 R2**

- 31 [optional] only if you are setting up an NEC 5800/110 series or Dell PowerEdge series server...
 You will need to install the drivers for the ethernet and video controllers. First insert the NEC ExpressBuilder or Dell Utilities CD and when the CD auto-runs close it. Then run Computer Management from the Quick Launch taskbar. Select the “Device Manager” folder. In the displayed devices you should see these controllers listed under “Other devices” as per the illustration below.

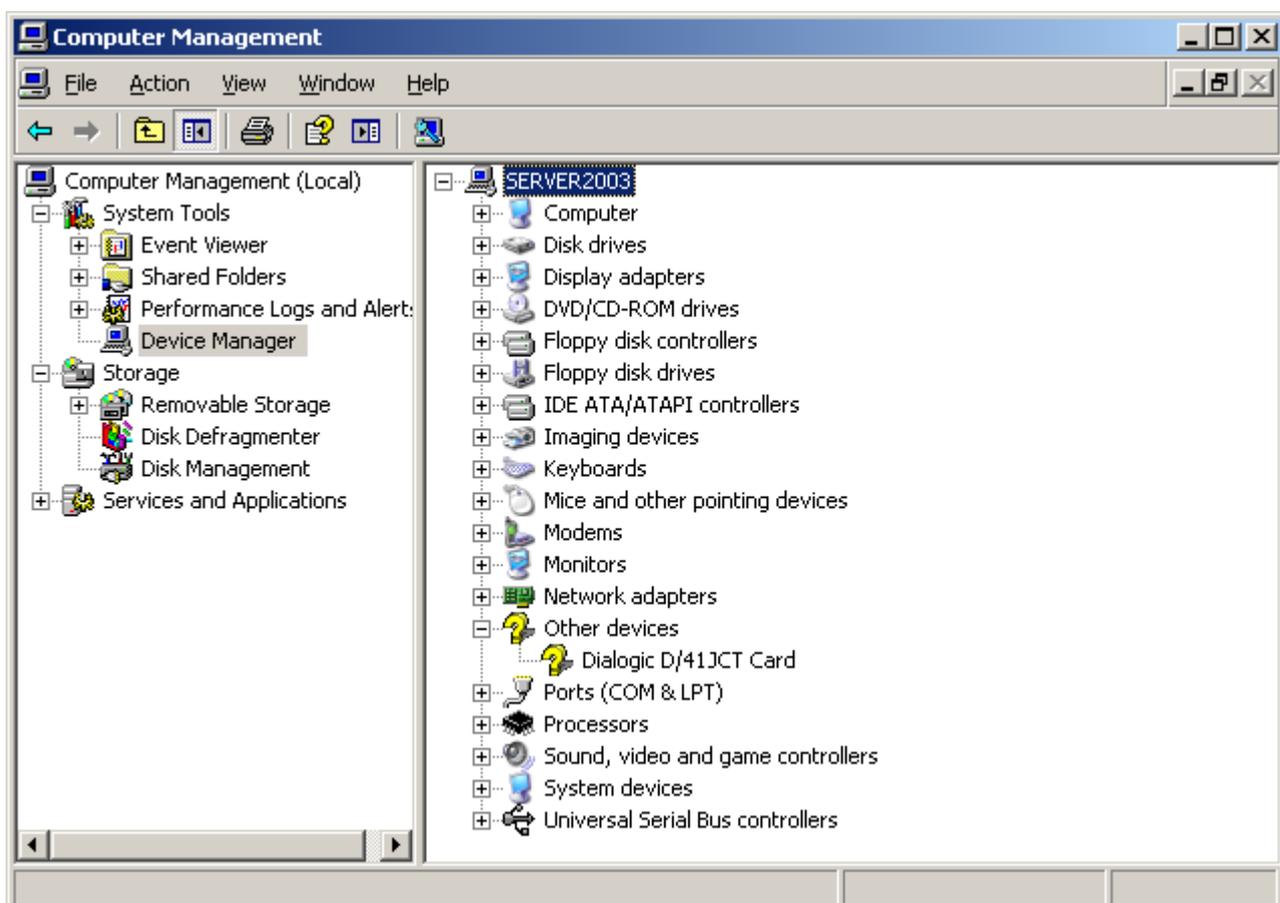


Right-click on the Ethernet Controller and select “Update Driver...”.
 Select “Ⓞ No, not this time” when Windows asks to connect to the internet.
 Select “Ⓞ Install the software automatically (recommended)” and click “Next >”.
 Allow Windows to locate and install the appropriate driver from the CD.

- 32 Repeat this procedure for the Video Controller and or SM Bus Controller.

Task Reference **Install Windows Server 2003 R2**

- 33 After the Ethernet Controller driver has been successfully updated, Computer Management will refresh to display the Ethernet Controller it found. Right-click on the controller device e.g. Intel® PRO/1000 MT Network Connection and under the “Power Management” tab disable “ Allow the computer to turn off this device to save power”. Click “OK” to close the Ethernet Controller Properties window and then close Computer Management.



Task Reference **Install Windows Server 2003 R2**

- 34 Set up Networking. Select “Start – Connect To - Show all connections”. Right-click on “Local Area Connection” and select “Properties”. Under the “General” tab scroll down the “This connection uses the following items:” listbox and select the “ Internet Protocol (TCP/IP)” item. Click the “Properties” button, enable the “ Use the following IP address:” frame and make the following entries:

VM1

IP address: 192.168.0.20
Subnet mask: 255.255.255.0

VM2

IP address: 192.168.0.21
Subnet mask: 255.255.255.0

VMWEB

IP address: 192.168.0.22
Subnet mask: 255.255.255.0

Enable the “ Show icon in notification area when connected” option.

Under the “Advanced” tab in the “Windows Firewall” frame select the “Settings...” button. Under the “General” tab ensure that your Firewall is “ On (Recommended)”. Under the “Exceptions” tab disable ALL Programs and Services listed.

Click on “OK” to close the “Properties” window.

- 35 Set up Sharing. Open Windows Explorer, right-click on the C: drive and select “Sharing and Security...” and create a new share name “C” for partition C with sharing permission set to “Everyone = Read” only. Create a new share “E” for partition E with sharing permission set to “Everyone = Change/Read” and “<local admin> = Full Control”.

Task Reference **Install Windows Server 2003 R2**

- 36 **KB 314054** [optional] only required if you have multiple voicemail servers in the voicemail system. Setup your primary computer to act as the master clock server for the voicemail system. Choose Start – Run, type in “regedt32” and press Enter. Locate and then click the following registry entry:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config\
```

In the right pane, right-click “AnnounceFlags”, and then click “Modify”. In the “Edit DWORD Value” dialog box, under “Value data”, type “5”, and then click “OK”.

Enable NTPServer. Locate and then click the following registry entry:

```
...\W32Time\TimeProviders\NTPServer\
```

In the right pane, right-click “Enabled” and then click “Modify”. In the “Edit DWORD Value” dialog box, type “1” under “Value data” and then click “OK”.

Exit the Registry Editor.

- 37 [optional] only required if you have multiple voicemail servers in the voicemail system. At the command prompt (“Start – Run, type “cmd”, press Enter”) type the following command to restart the Windows Time service, and then press Enter:

```
Net stop w32time && net start w32time
```

- 38 [optional] only required if you have multiple voicemail servers in the voicemail system. After the Windows Time service restarts, your PC will function as an SNTP master clock server.

- 39 [optional] only required if you have multiple voicemail servers in the voicemail system. Setup client voicemail servers to synchronise with master clock server. If this computer is not going to be the master clock server, then it’s time needs to be synchronised with the nominated master clock server you set up previously. At the command prompt (“Start – Run, type “cmd”, press Enter”) type

```
net time /setsntp:<timeserver>
```

where <timeserver> is the computer name of your nominated master clock server. Press Enter, you should receive confirmation of success. Then type

```
net time /set /Y
```

Task Reference **Install Windows Server 2003 R2**

to force your computer to synchronise with the master clock server. Press Enter, you should receive confirmation of success. Your computer will now synchronise with the master clock server every 8 hours, and whenever it restarts.

- 40 Install Recovery Console (Note: if you are upgrading from R1 to R2 then you must install Recovery Console BEFORE upgrading). With Windows running, insert the Windows Setup CD. Click “Start” and select “Run”. Type the following where D: is the CD-ROM drive letter:

```
D:\i386\winnt32.exe /cmdcons
```

Follow the instructions on the screen to complete the installation of Recovery Console.

- 41 [optional] only if dual HDD installed. Modify your “boot.ini” file for the Master HDD only to include the Standby HDD as rdisk(1) viz:

```
[boot loader]
timeout=10
default=multi(0)disk(0)rdisk(0)partition(1)\WINDOWS
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Windows Server 2003, Standard Master HDD"
/fastdetect
multi(0)disk(0)rdisk(1)partition(1)\WINDOWS="Windows Server 2003, Standard Standby HDD"
/fastdetect
C:\CMDCONS\BOOTSECT.DAT="Microsoft Windows Recovery Console" /cmdcons
```

or if a maintenance partition exists:

```
[boot loader]
timeout=10
default=multi(0)disk(0)rdisk(0)partition(2)\WINDOWS
[operating systems]
multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Windows Server 2003, Standard Master HDD"
/fastdetect
multi(0)disk(0)rdisk(1)partition(2)\WINDOWS="Windows Server 2003, Standard Standby HDD"
/fastdetect
C:\CMDCONS\BOOTSECT.DAT="Microsoft Windows Recovery Console" /cmdcons
```

- 42 Connect your server to the internet and run Windows Update.

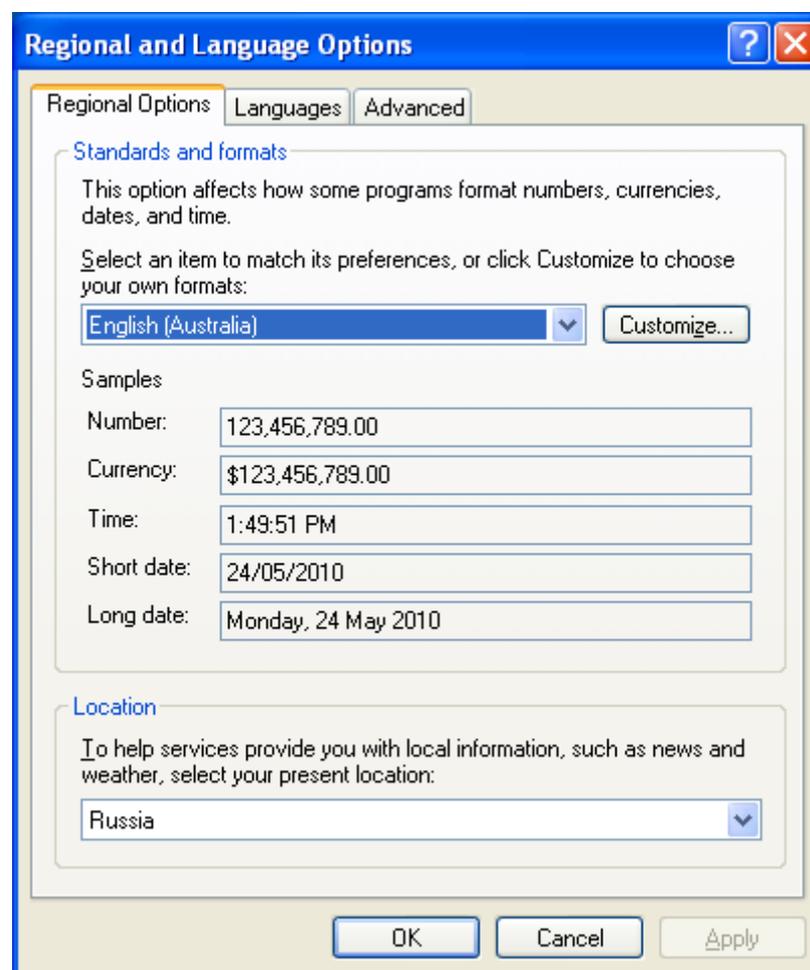
- 43 Your installation of Windows Server 2003 Standard R2 is now complete.

Task Reference **Install NTerprise® V7 Software**

- 1 Insert the NTerprise Installation CD-ROM.

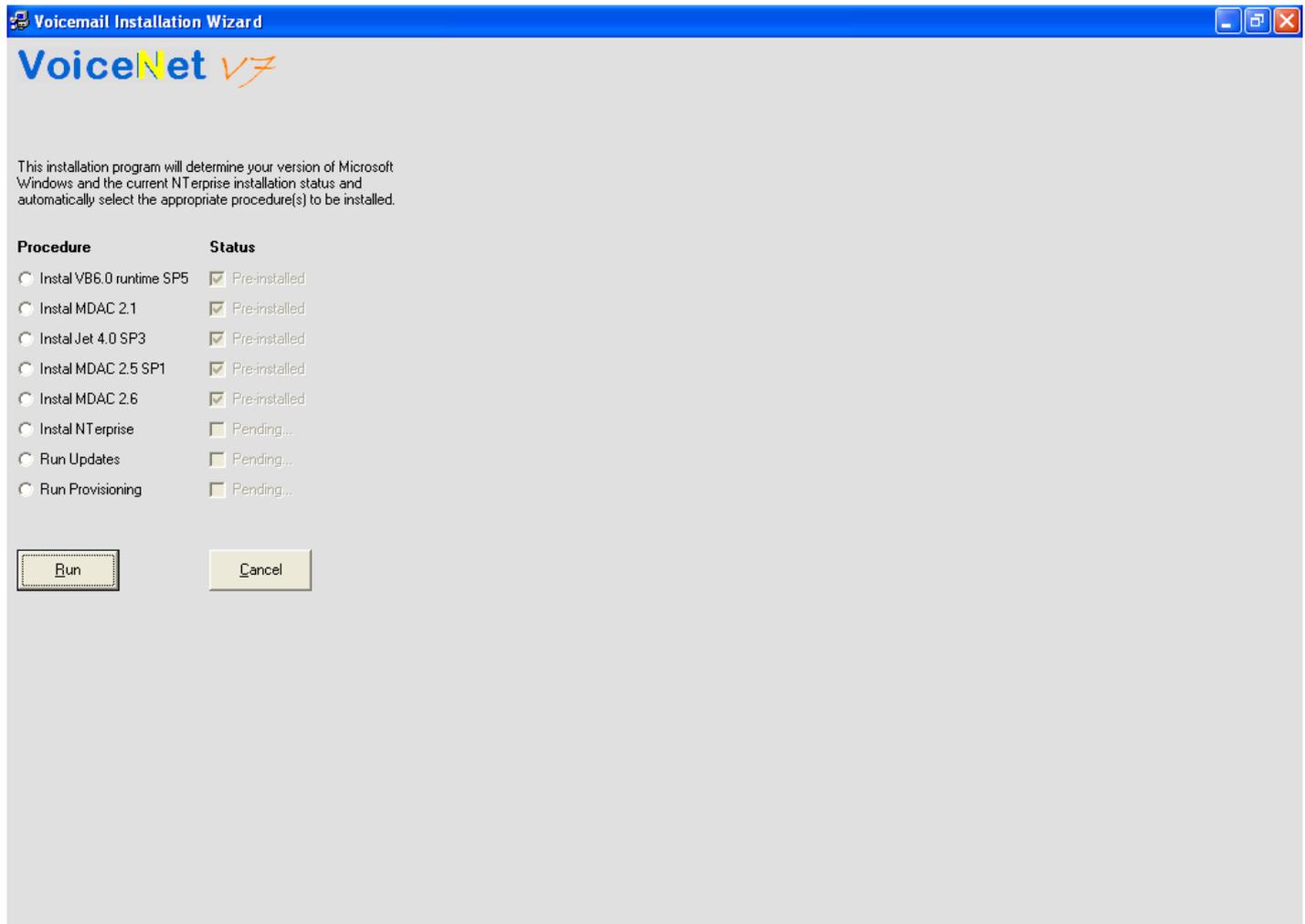
WARNING:

Regional and Language Options **MUST** be adjusted so that English is selected in the Standards and formats section, otherwise the installation program will not run correctly. After installation has been successfully completed, you may change this setting back to your preferred format.



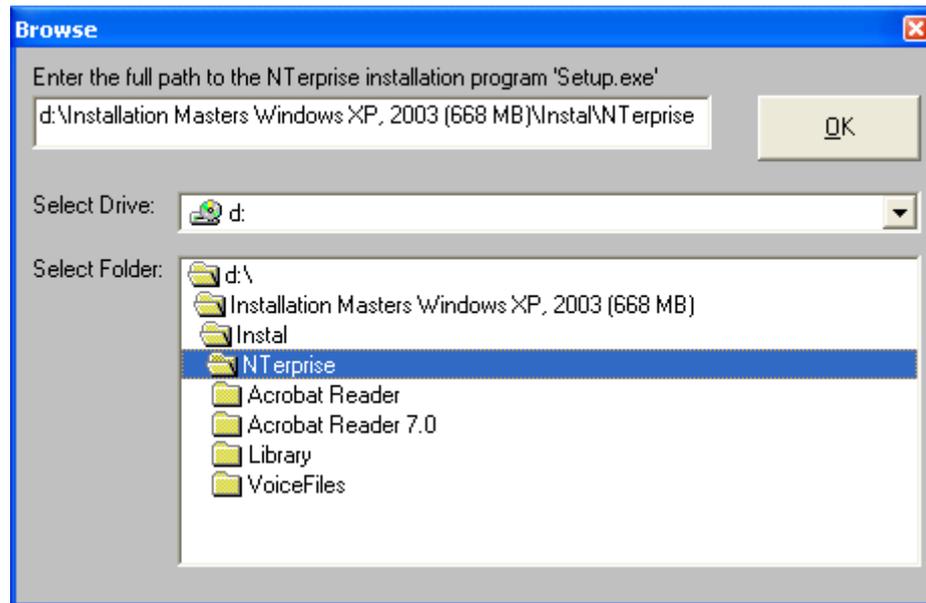
Task Reference **Install NTerprise® V7 Software**

- 2 Run ..\InstalNTerpriseV7.exe. The Voicemail Installation Wizard will display the initial setup screen. Click “Run” to proceed.



Task Reference **Install NTerprise® V7 Software**

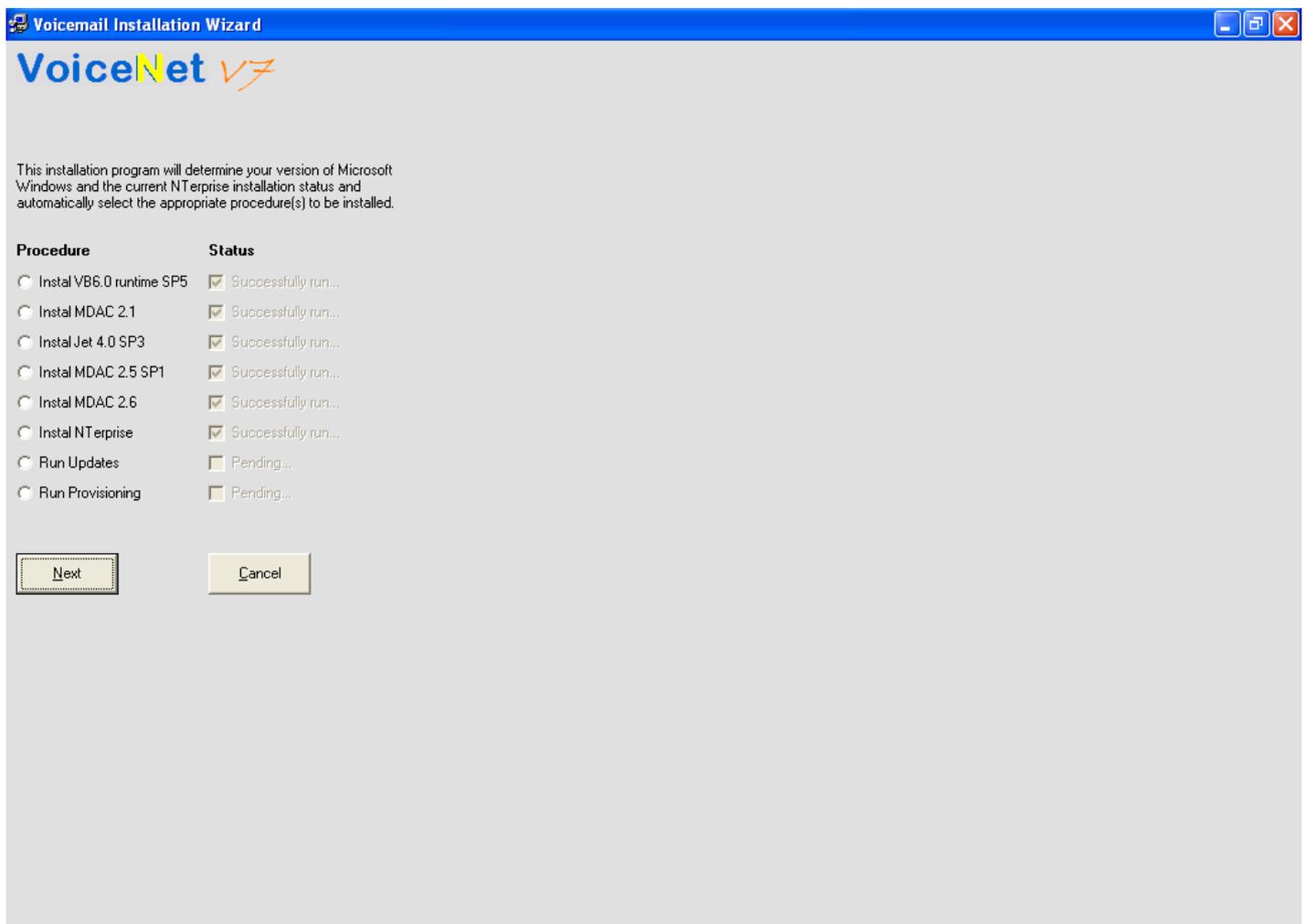
- 3 Select the path to where the files “INSTAL.CAB” and “setup.exe” are located.
 This will normally be ..\Install\NTerprise



Task Reference **Install NTERPRISE® V7 Software**

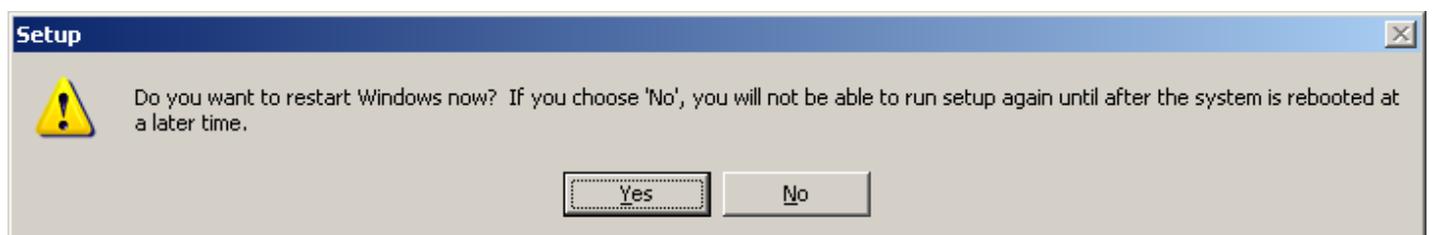
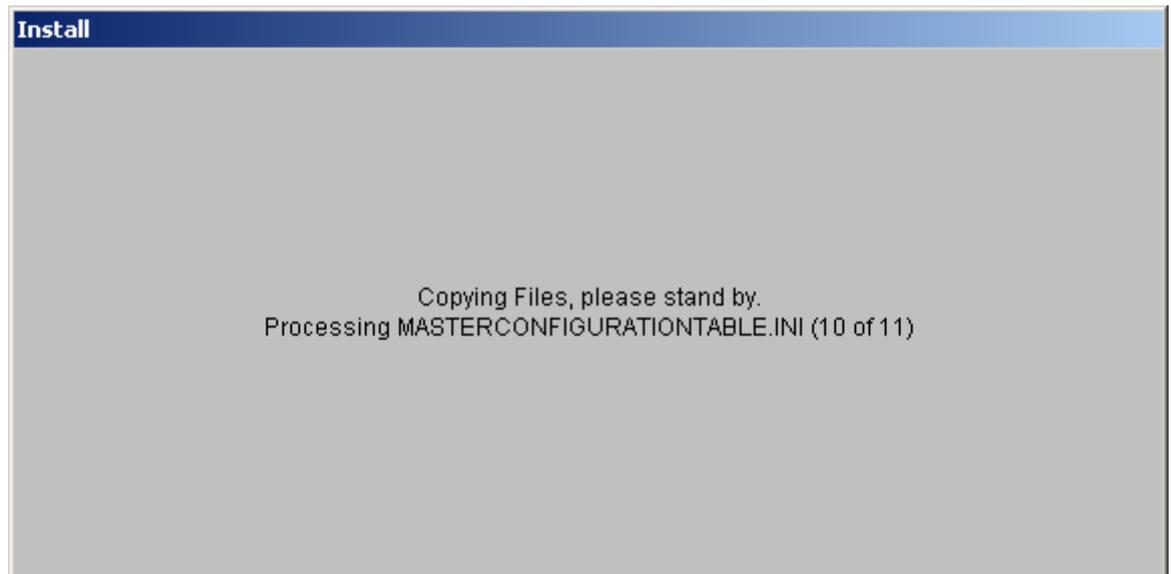
4 Depending on the version of operating system you are running, the InstaNTERPRISE program will need to be run a number of times before completing successfully.

Windows NT will install all options, and may also require PC resets where requested by the installation programs. Windows 2000 will not instal MDAC 2.1 or MDAC 2.5 SP1. Windows 2000 MUST be at SP3 to successfully complete the InstaNTERPRISE program because of its implementation of Windows File Protection.



Task Reference **Install NTerprise® V7 Software**

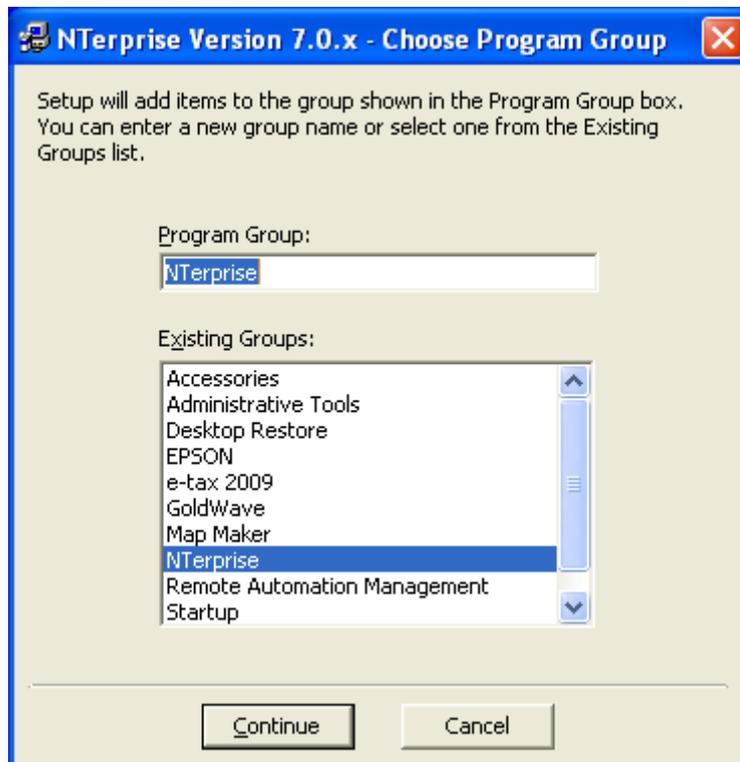
- 5 Your PC's hard disk should already have been formatted with 3 partitions C, E, and F. Setup may need to copy necessary system files before the main installation commences.



Task Reference **Install NTerprise® V7 Software**

Install the NTerprise software to the default E:\NTerprise folder when asked, otherwise you will later have to modify the relevant INI files such as NTERPRISE.INI to reflect your modified path.

NTerprise Version 7.0.x Setup

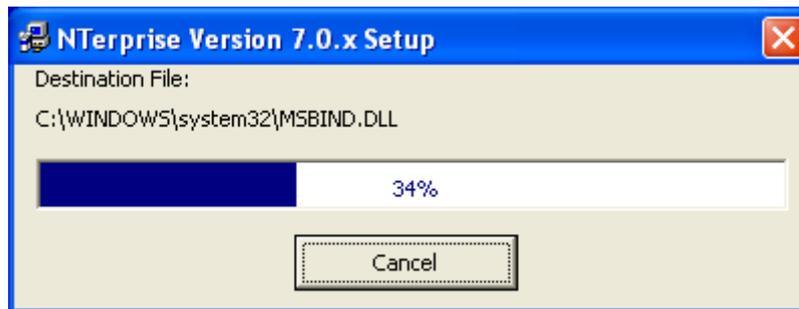
Task Reference **Install NTerprise® V7 Software**

If the Installation program asks you to confirm file replacement, select the option to “keep” your existing, more recent, file.

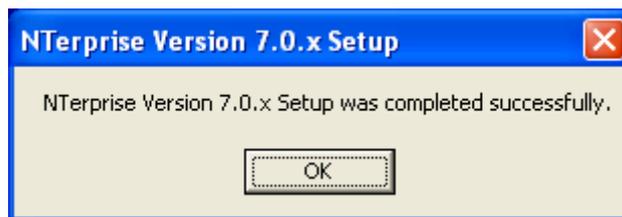


Task Reference **Install NTerprise® V7 Software**

Wait for the installation progress bar to indicate that installation is complete.

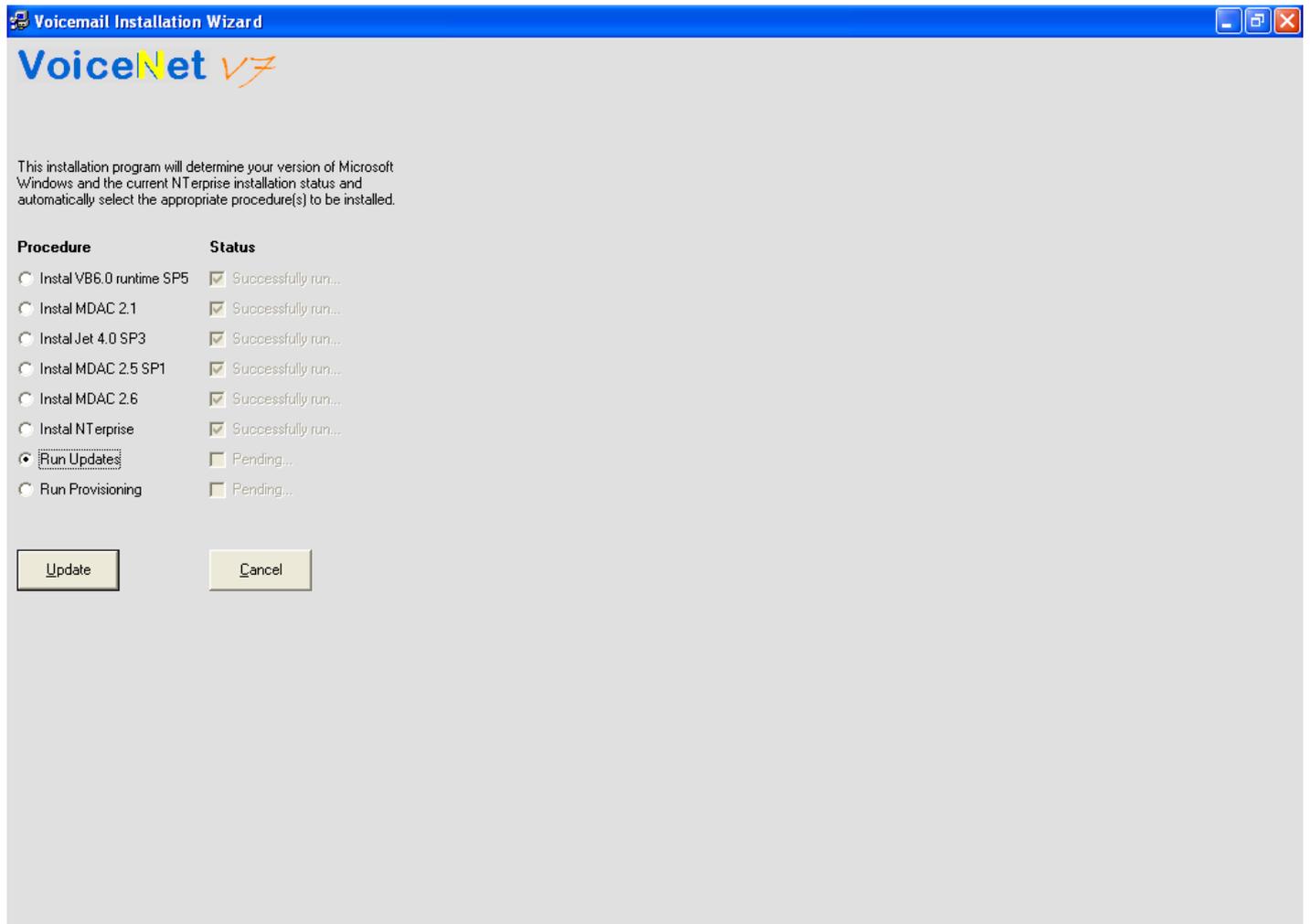


When the installation is complete, select "OK".



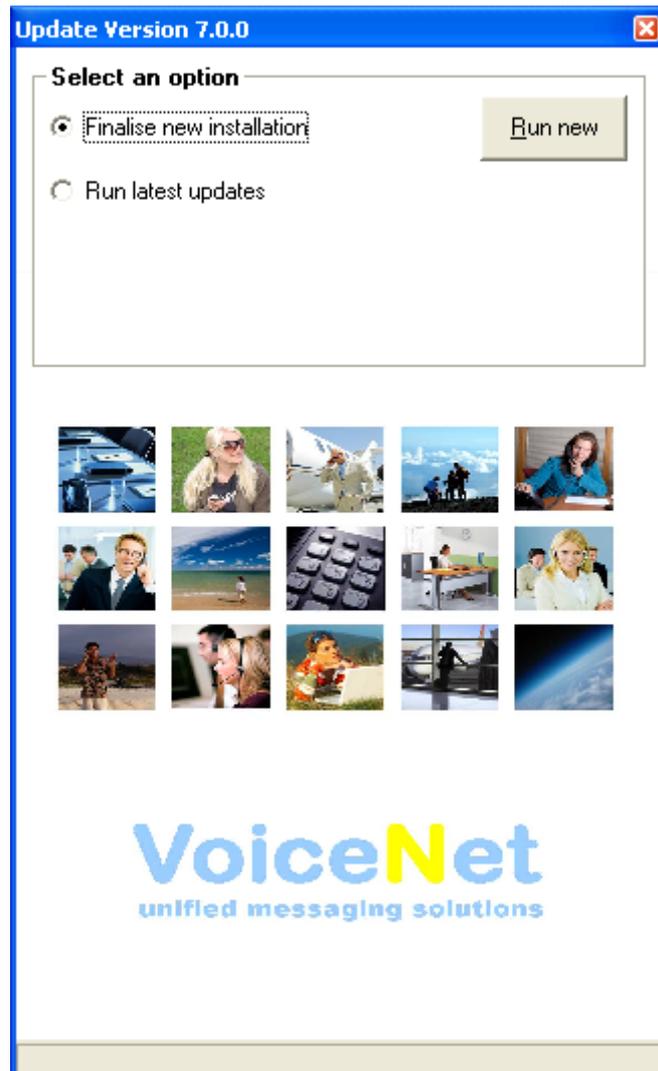
Task Reference **Install NTerprise® V7 Software**

6 You are now ready to begin the update part of the installation. Click the “Update” button.

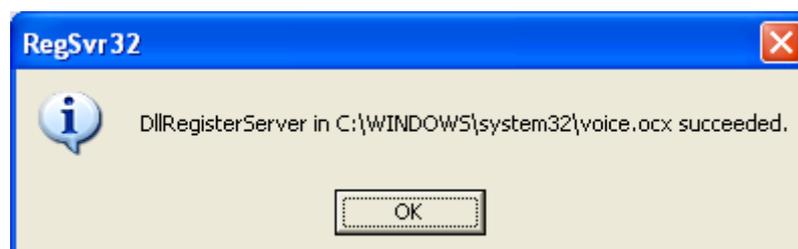


Task Reference **Install NTerprise® V7 Software**

7 The Update program should have “Finalise new installation” selected. Click on the “Run new” button.

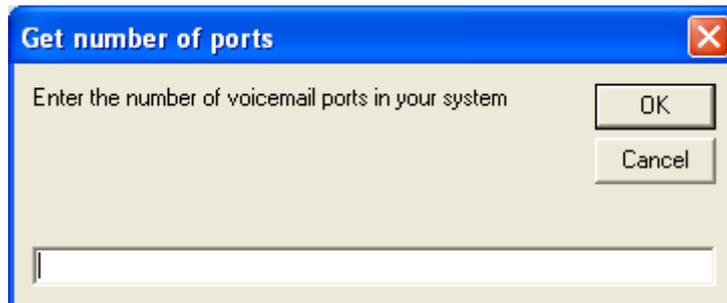


The Update program will confirm that the Dialogic TDM voice interface has been successfully registered.

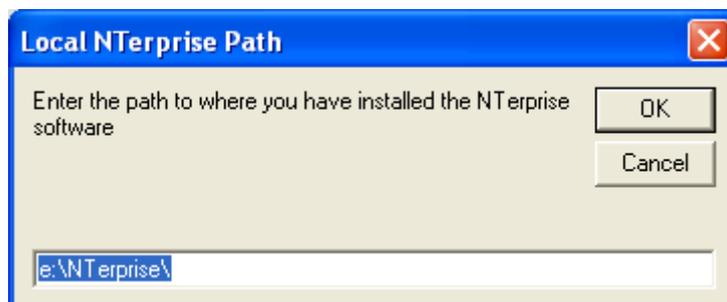


Task Reference **Install NEnterprise® V7 Software**

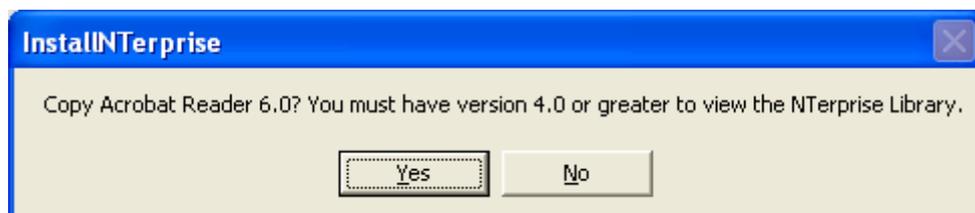
You will be asked to enter the number of voicemail ports your system is licensed for. This is only for database provisioning purposes, it DOES NOT change the number of voicemail ports your system is licensed to run.



You will be asked to enter the full path to the voicemail folder where you are installing the voicemail software. NOTE that you are expected to include the backslash after the folder name.

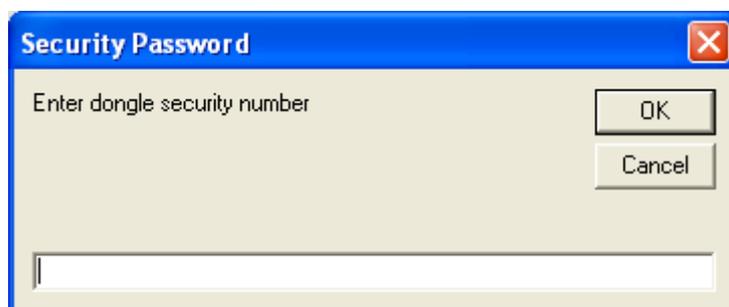


You will be asked whether you wish to install Adobe Acrobat Reader. You must have Acrobat Reader installed in order to be able to open and read "pdf" files such as the voicemail Reference Manual or User Guides. Answer "Yes" if you are unsure whether you already have Acrobat Reader installed.



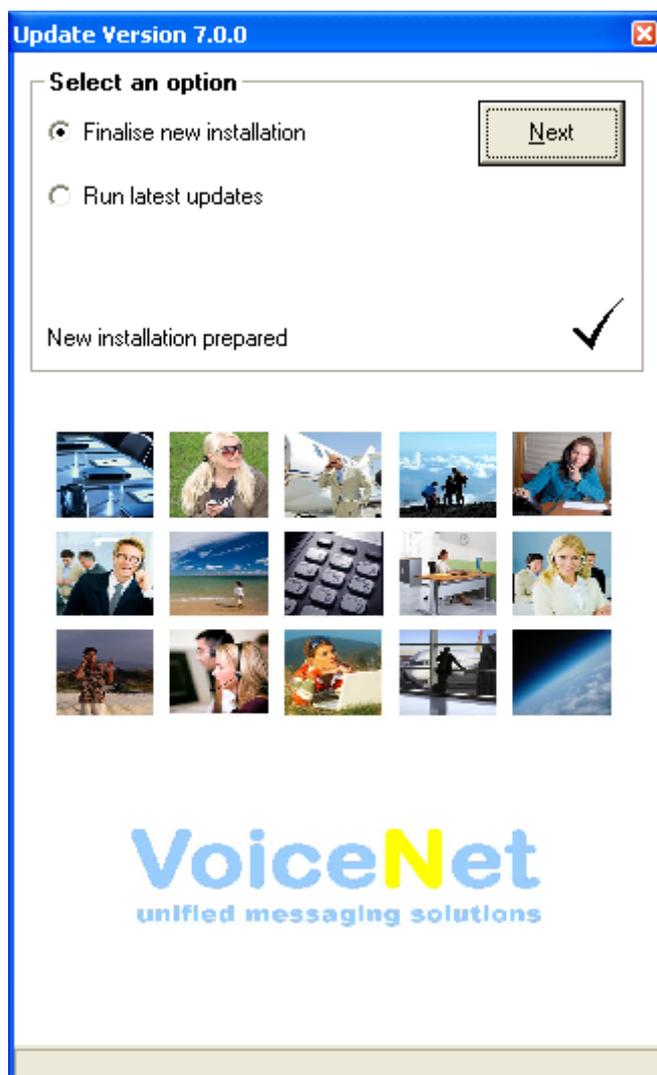
Task Reference **Install NTerprise® V7 Software**

Enter your dongle security number (located on your CD label) when asked and press “OK”.



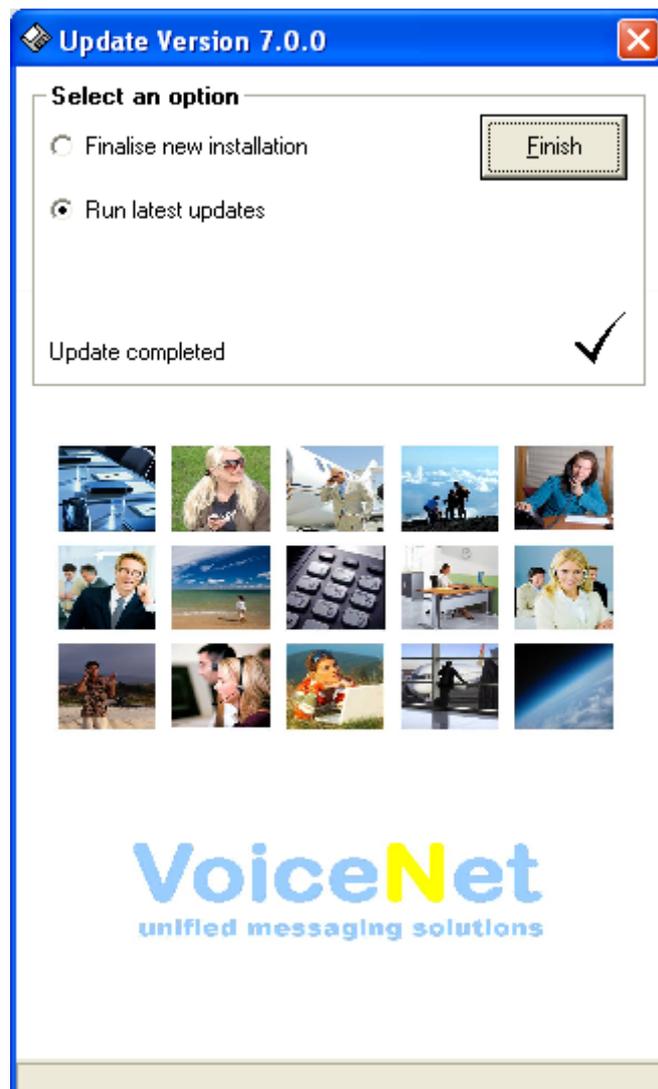
Task Reference **Install NTerprise® V7 Software**

The Update program will indicate “New installation prepared”. Click “Next”.



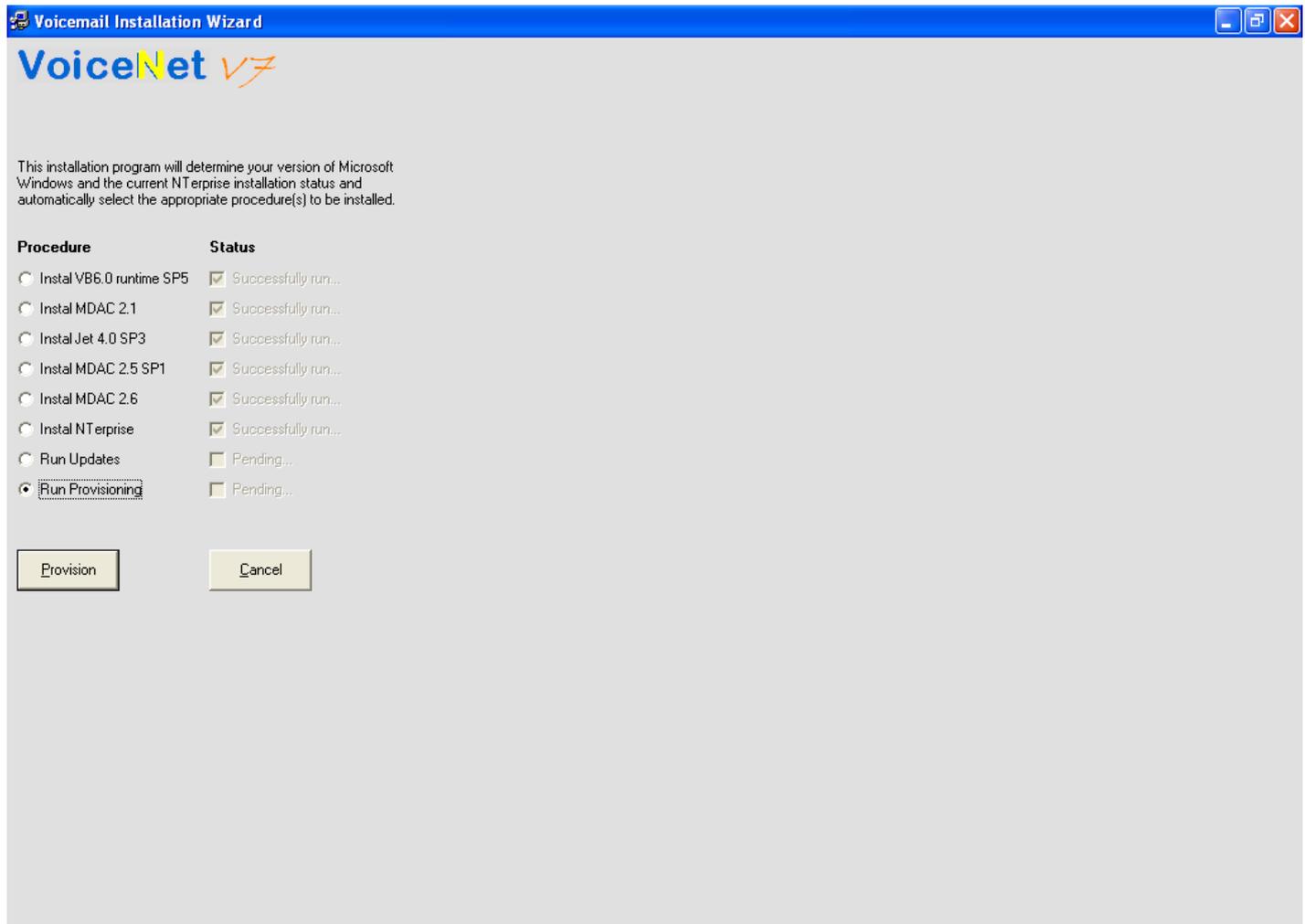
Task Reference **Install NTerprise® V7 Software**

The Update program will indicate “Run latest updates”. Click “Finish”..



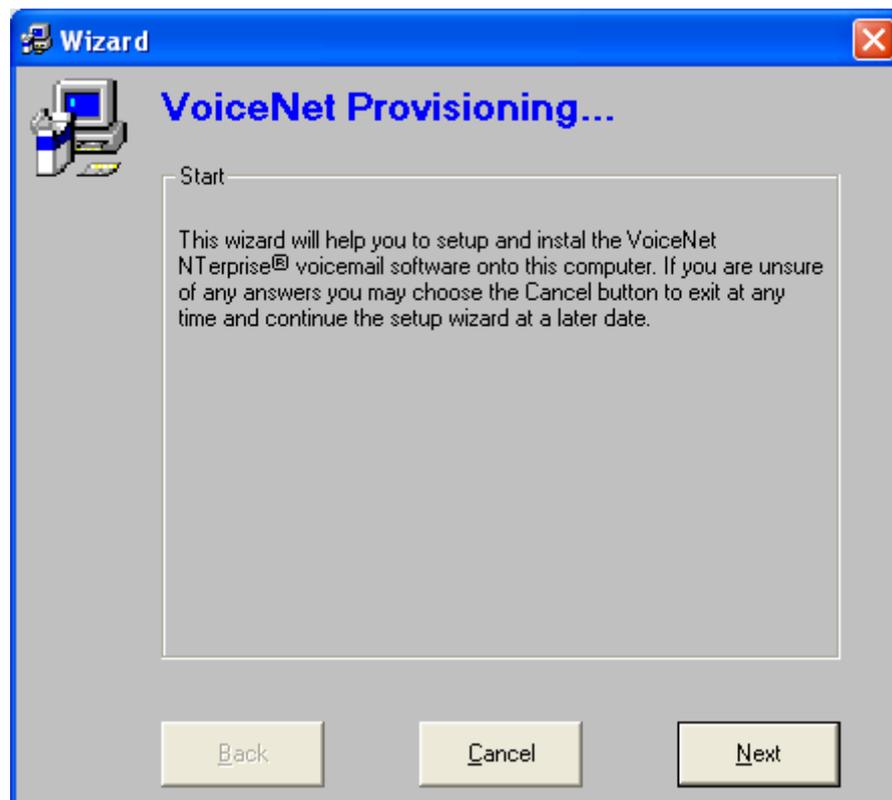
Task Reference **Install NTerprise® V7 Software**

8 The Installation program now needs to complete setting up your new voicemail system by collecting information about the system. Click the “Provision” button.



Task Reference **Install NEnterprise® V7 Software**

9 The provisioning wizard will run. Click “Next”

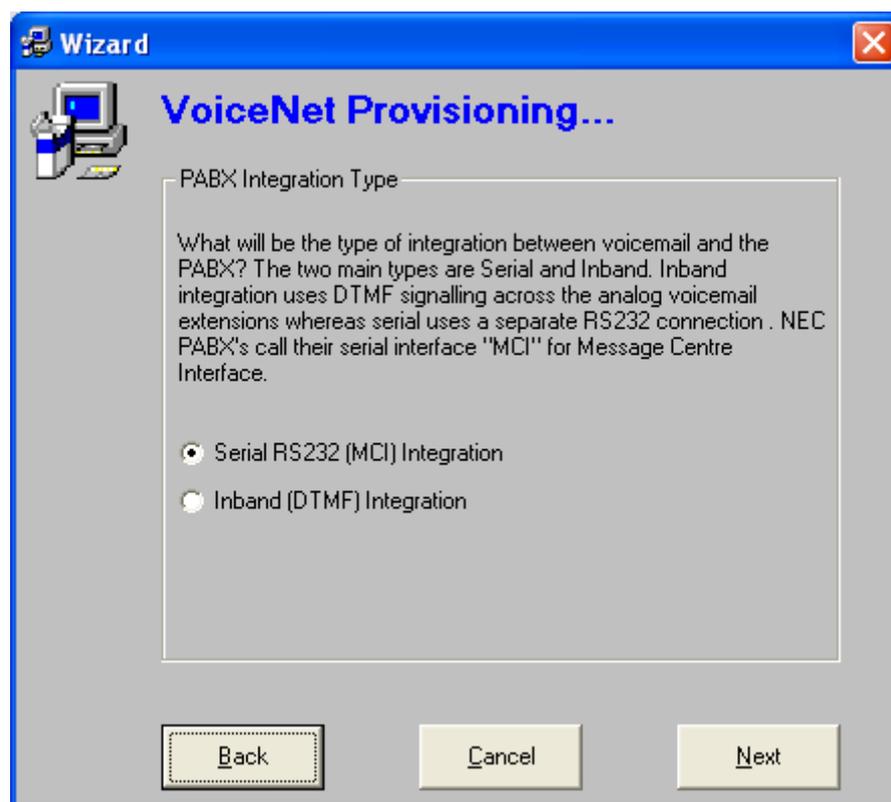


You can go back at any time within the provisioning wizard if you wish to change some of the information you have entered.

Task Reference **Install NEnterprise® V7 Software**

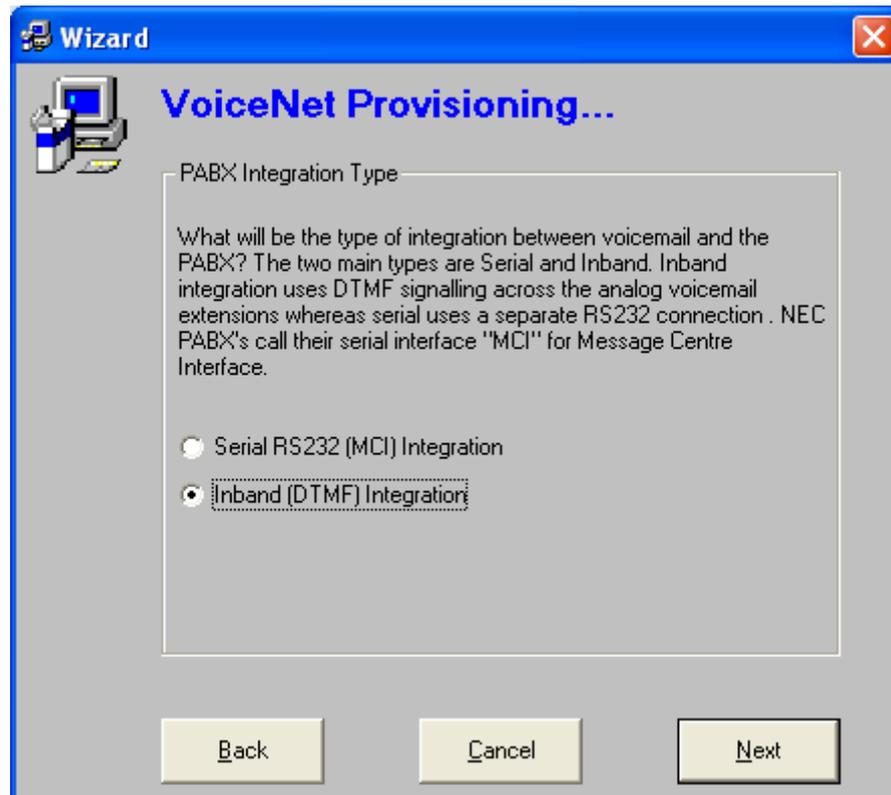
10 The first question asked is about the type of interface between the voicemail system and the phone (PABX) system. Older PABX systems might use the “inband” type of interfacing, where information is passed between the systems using DTMF tone signalling. More modern PABX systems will use some form of high level interface, either in RS232 or TCP/IP form, to communicate with the voicemail system. NOTE: this interfacing is the signalling which provides information about the call type, it is not how the PABX physically sends calls to the voicemail.

Select the first option entitled “Serial RS232 (MCI) Integration” if any form of high level interface (serial RS232, TCP/IP, SIP) is being used between the PABX and the voicemail.



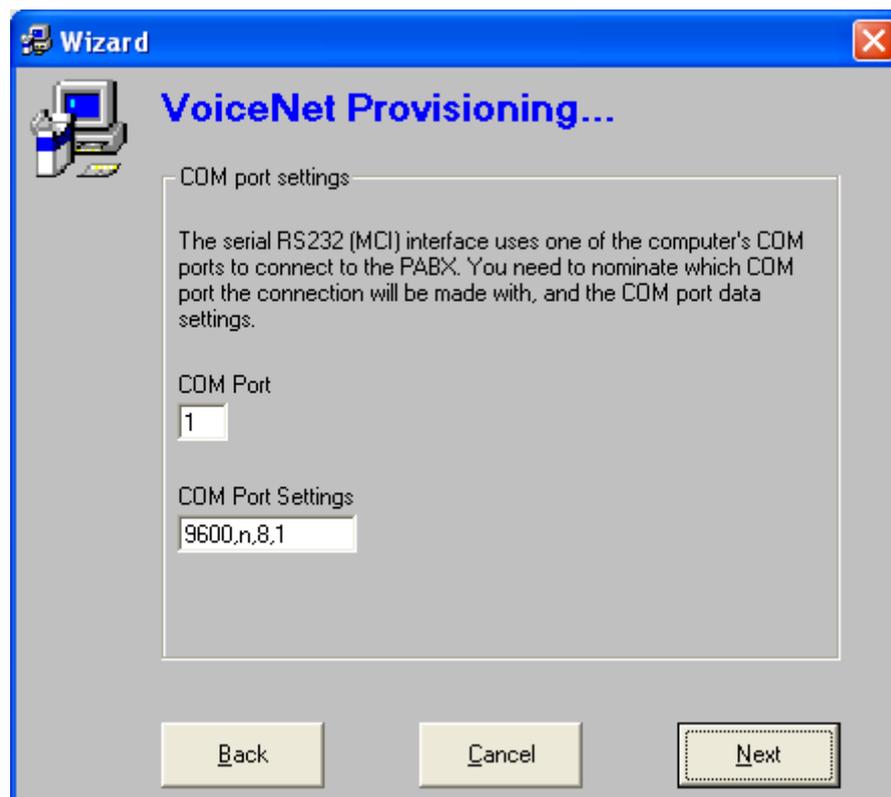
Task Reference **Install NEnterprise® V7 Software**

Select the second option entitled “Inband (DTMF) Integration” if it is appropriate or if you are unsure.



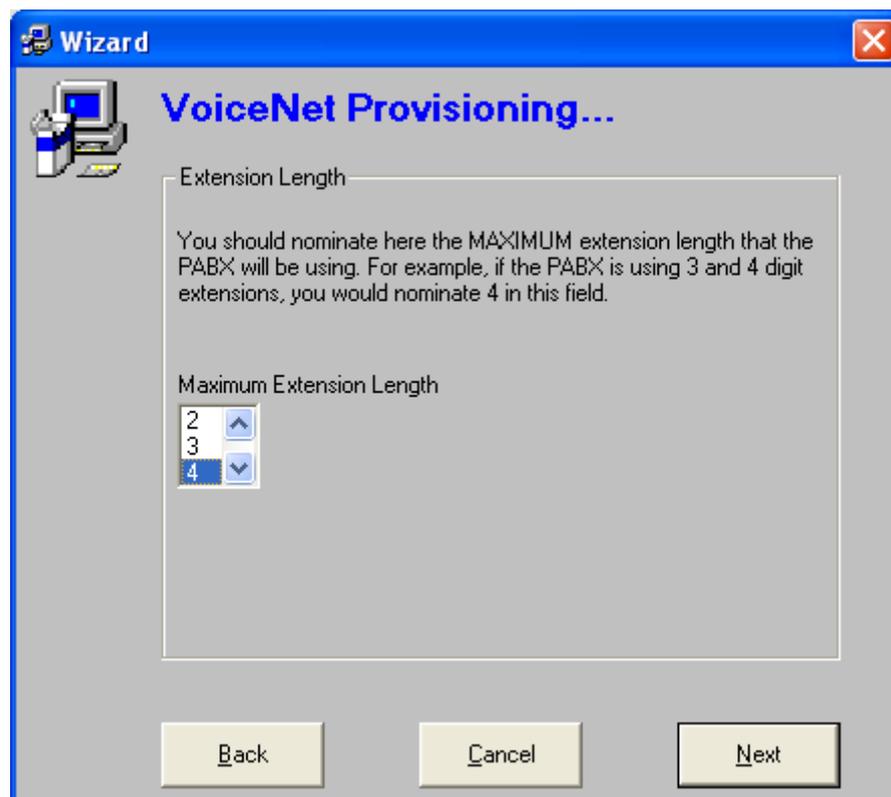
Task Reference **Install NEnterprise® V7 Software**

11 If you selected “Serial RS232 (MCI) Integration” then the wizard will ask you for COM port settings.



Task Reference **Install NTerprise® V7 Software**

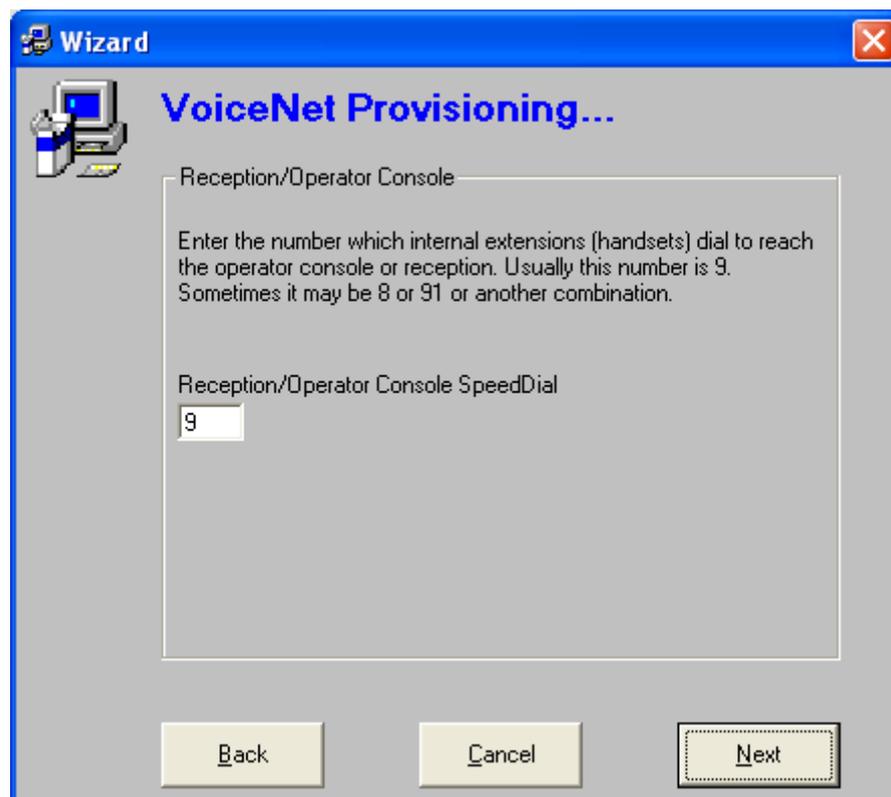
12 The next question asked by the wizard, for both types of interfaces, will be about the maximum length of extensions in the phone system.



Task Reference **Install NTerprise® V7 Software**

13

The next question is about how you will access the operator or receptionist from your phone system. Normally you dial a single digit such as “0” or “9”.



Task Reference **Install NEnterprise® V7 Software**

14 Now enter the number you dial to pick up and outside line from your extension.



Task Reference **Install NTerprise® V7 Software**

15 Enter the PABX analog extension numbers for each voicemail port.

Wizard VoiceNet Provisioning...

Voicemail port extension numbers

Enter the PABX analog extension number corresponding to each voicemail port. Only complete the fields for the actual extensions i.e. for a 4-port system complete Port 1 to Port 4. These values are critical for the correct operation of the serial RS232 (MCI) interface.

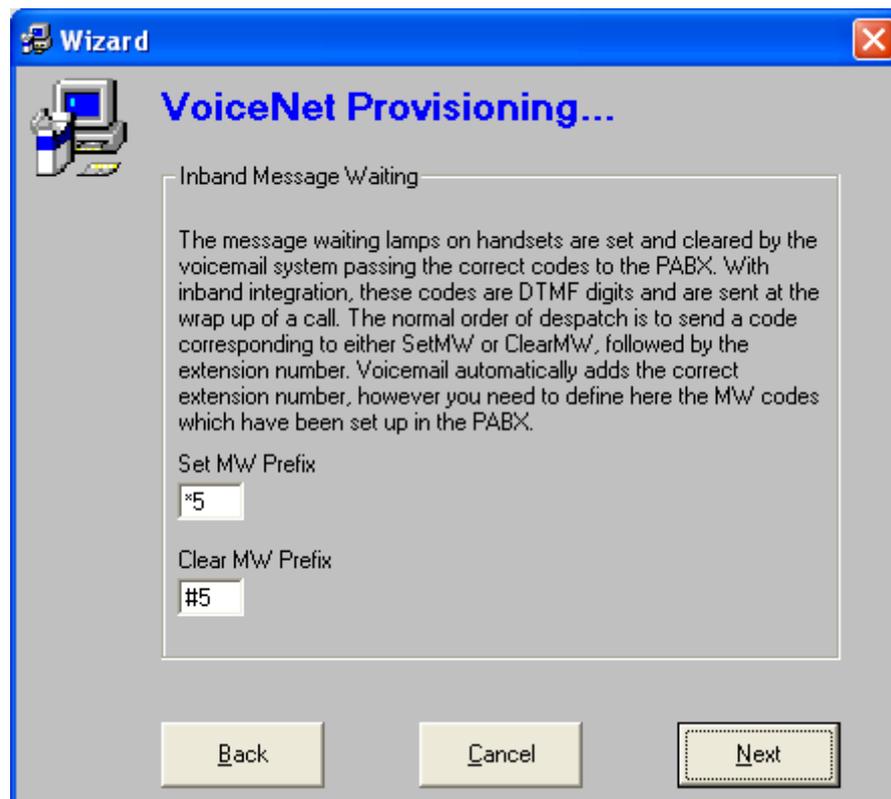
Port Extensions

Port 1	8001	Port 5	8005
Port 2	8002	Port 6	8006
Port 3	8003	Port 7	8007
Port 4	8004	Port 8	8008

Back Cancel Next

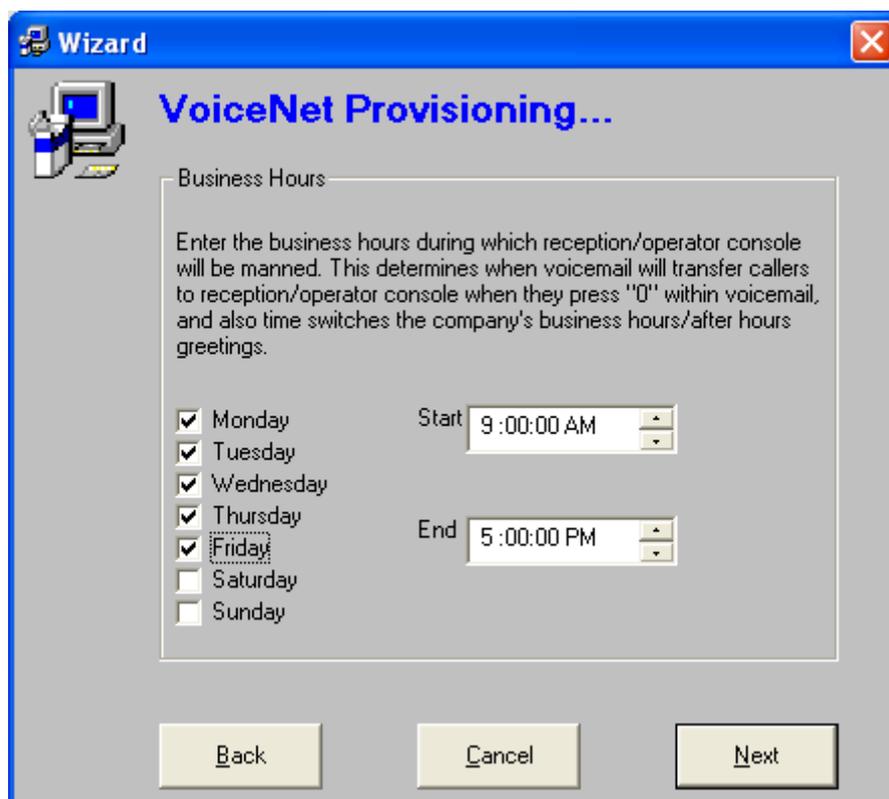
Task Reference **Install NTerprise® V7 Software**

- 16 If using inband integration, enter the DTMF codes used to tell the PABX when to turn on and off the Message Waiting (MW) lamp on extensions when a new voicemail message has been left or has been listened to and deleted/kept by the mailbox owner.



Task Reference **Install NTerprise® V7 Software**

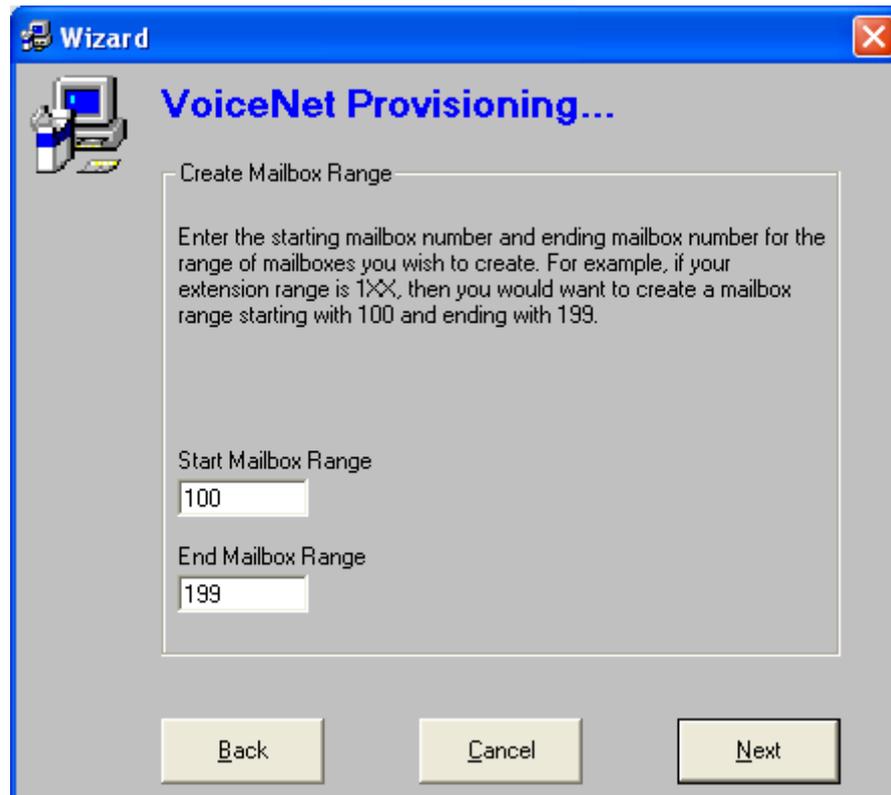
17 Enter the business hours for your company.



The screenshot shows a Windows-style dialog box titled "Wizard" with a close button in the top right corner. The main title is "VoiceNet Provisioning...". On the left side, there is a small icon of a computer monitor and keyboard. The main content area is titled "Business Hours" and contains the following text: "Enter the business hours during which reception/operator console will be manned. This determines when voicemail will transfer callers to reception/operator console when they press '0' within voicemail, and also time switches the company's business hours/after hours greetings." Below this text is a list of days of the week with checkboxes: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday. The checkboxes for Monday through Friday are checked, while Saturday and Sunday are unchecked. To the right of the days list are two time selection fields: "Start" and "End". The "Start" field is set to "9:00:00 AM" and the "End" field is set to "5:00:00 PM". At the bottom of the dialog box, there are three buttons: "Back", "Cancel", and "Next".

Task Reference **Install NEnterprise® V7 Software**

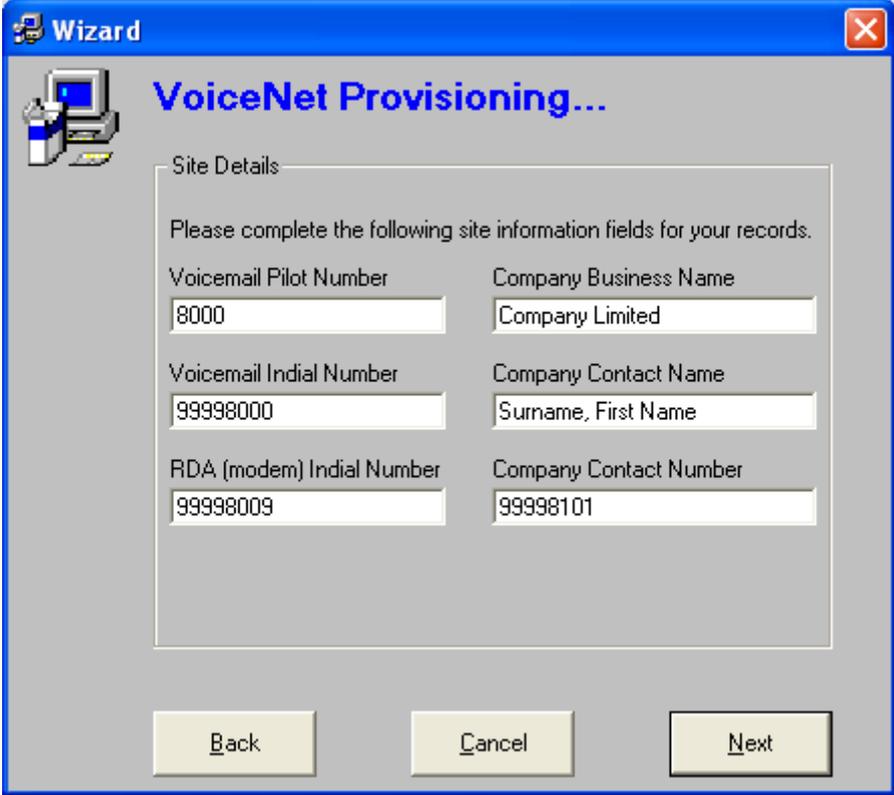
18 Enter the range of mailboxes your system will be using. Normally this will correspond to the numbering plan of extensions your phone system is using.



Task Reference **Install NTerprise® V7 Software**

19

Enter the requested information about your voicemail system. The “pilot” number for voicemail is sometimes called the “hunt group” number and corresponds to the number you dial to listen to your voicemail messages. If in doubt you should check with your phone system supplier before entering this information.



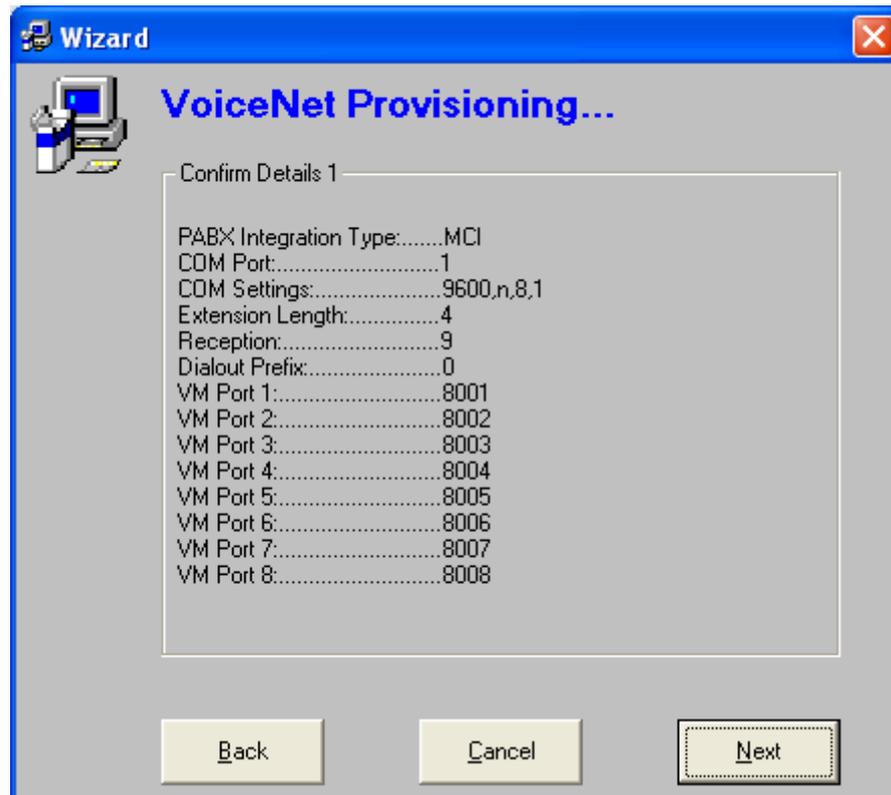
The screenshot shows a Windows-style dialog box titled "Wizard" with a close button in the top right corner. The main title is "VoiceNet Provisioning...". On the left side, there is a small icon of a computer monitor and keyboard. The dialog contains a section titled "Site Details" with the instruction: "Please complete the following site information fields for your records." Below this instruction are six text input fields arranged in two columns. The first column contains: "Voicemail Pilot Number" (8000), "Voicemail Indial Number" (99998000), and "RDA (modem) Indial Number" (99998009). The second column contains: "Company Business Name" (Company Limited), "Company Contact Name" (Surname, First Name), and "Company Contact Number" (99998101). At the bottom of the dialog are three buttons: "Back", "Cancel", and "Next".

Field Label	Value
Voicemail Pilot Number	8000
Voicemail Indial Number	99998000
RDA (modem) Indial Number	99998009
Company Business Name	Company Limited
Company Contact Name	Surname, First Name
Company Contact Number	99998101

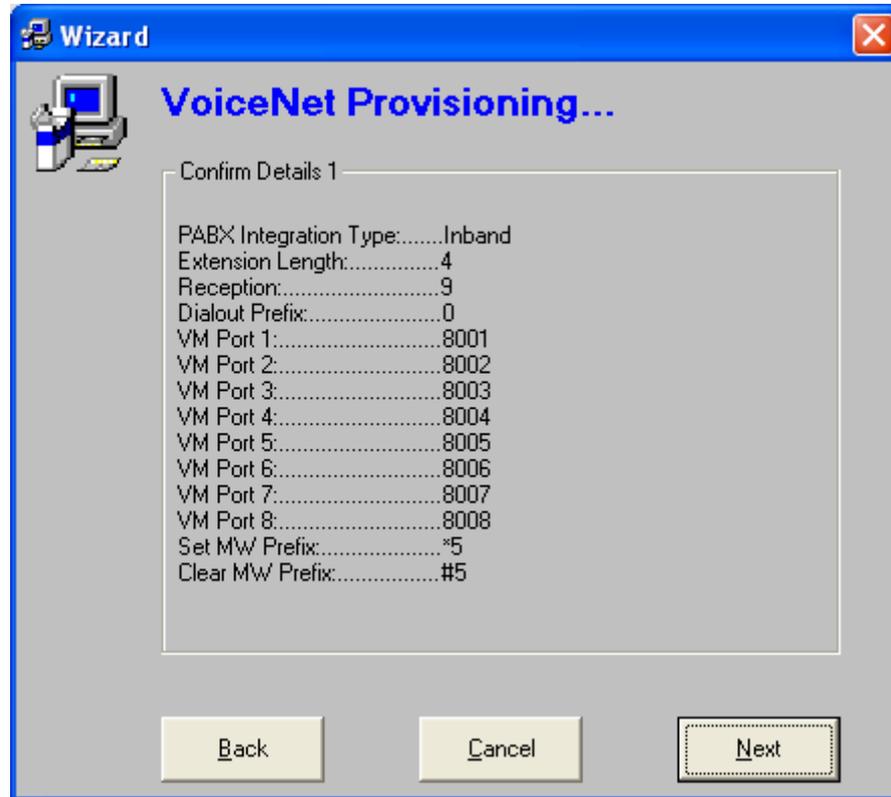
Task Reference **Install NTerprise® V7 Software**

20

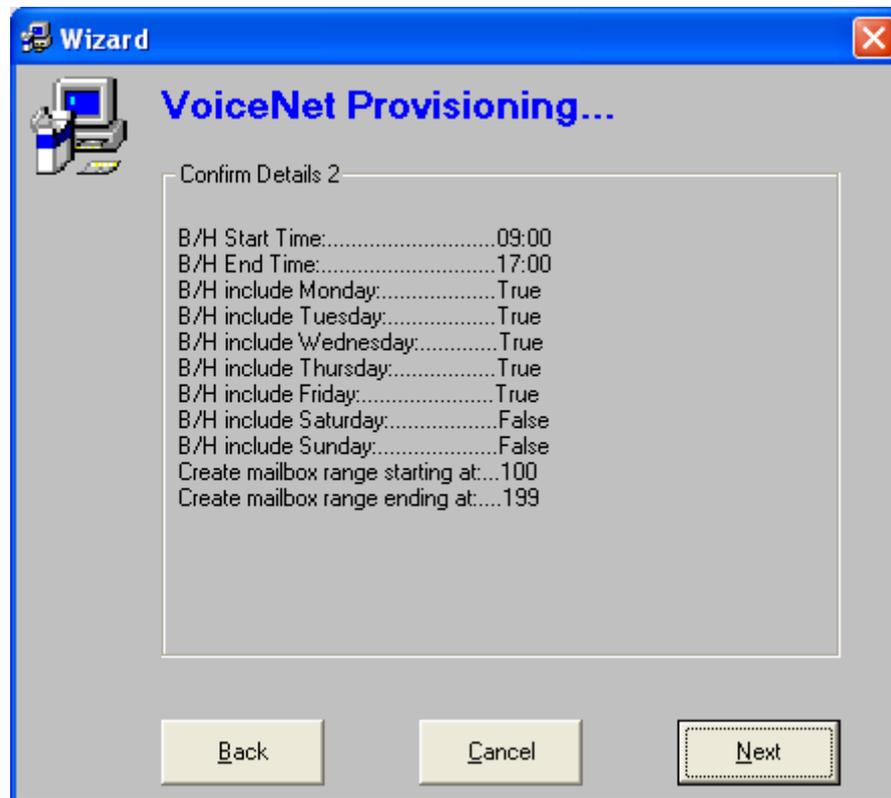
The provisioning wizard will now ask you to confirm all of the information you have entered. Click “Next” to proceed or “Back” to change some of the information.



High Level Interface example

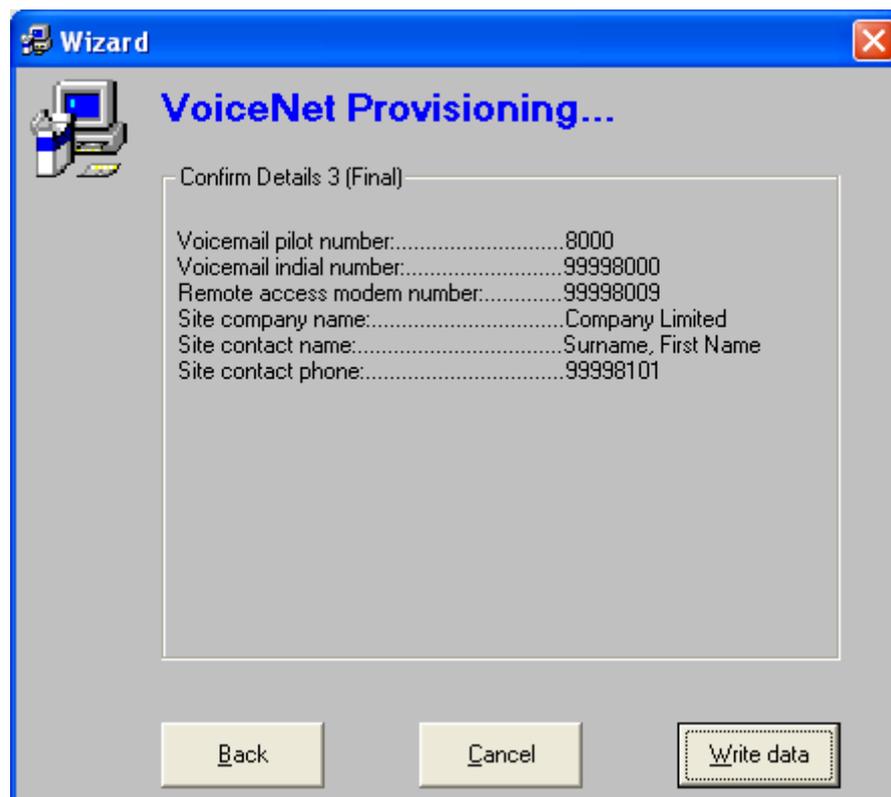
Task Reference **Install NTerprise® V7 Software**

Inband integration example

Task Reference **Install NTerprise® V7 Software**

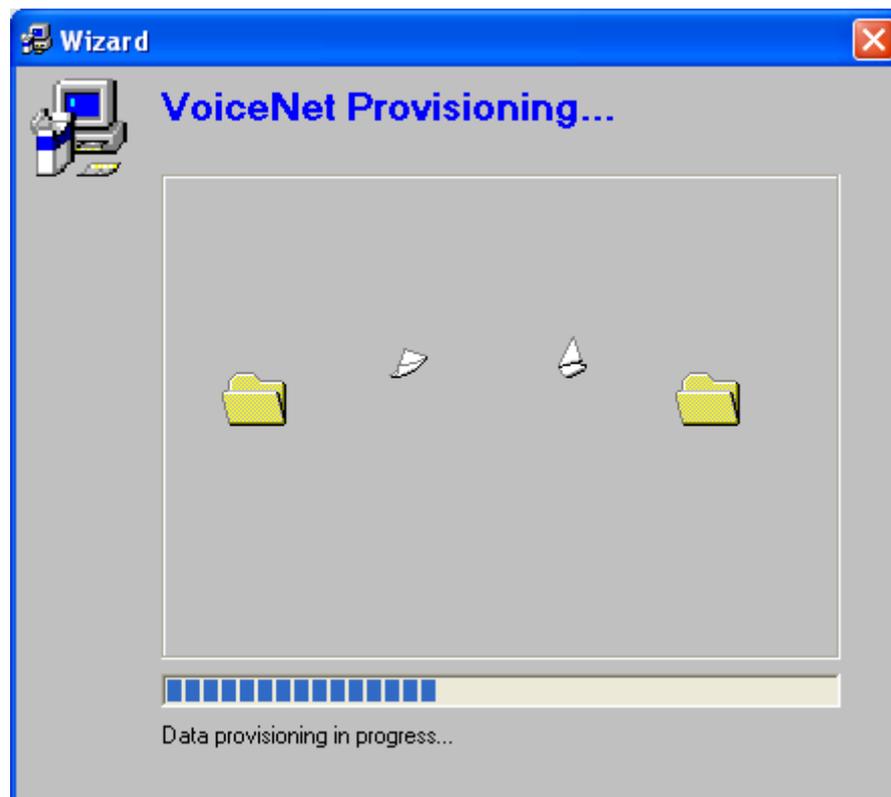
Task Reference **Install NTerprise® V7 Software**

Select “Write data” to create database records for the information you have collected in the provisioning wizard.



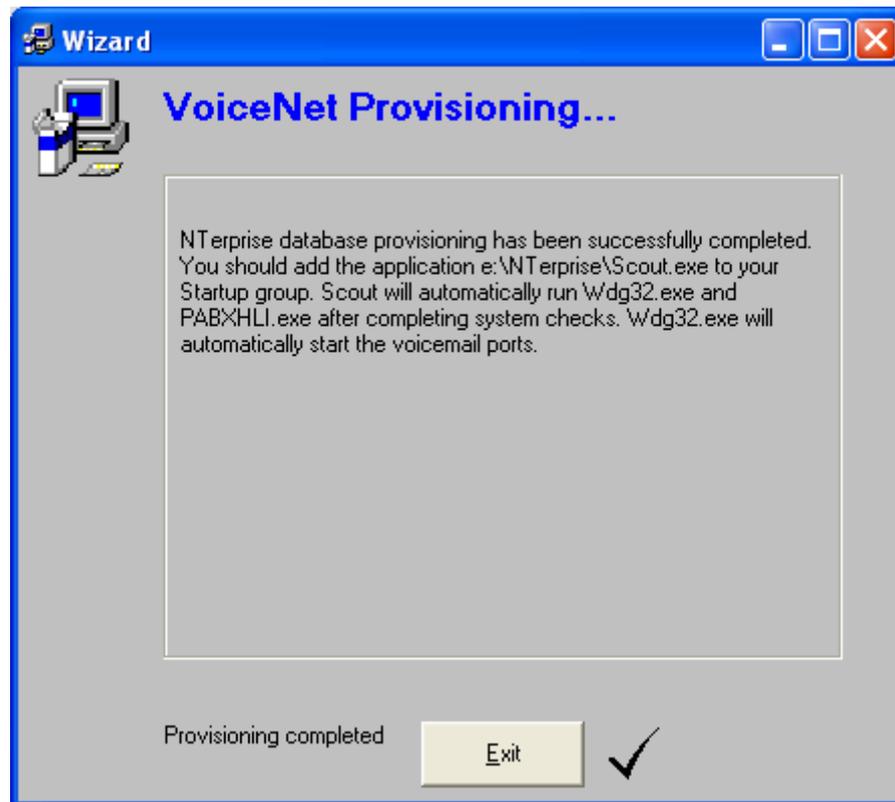
Task Reference **Install NTerprise® V7 Software**

21 The wizard will indicate the progress of the data provisioning.



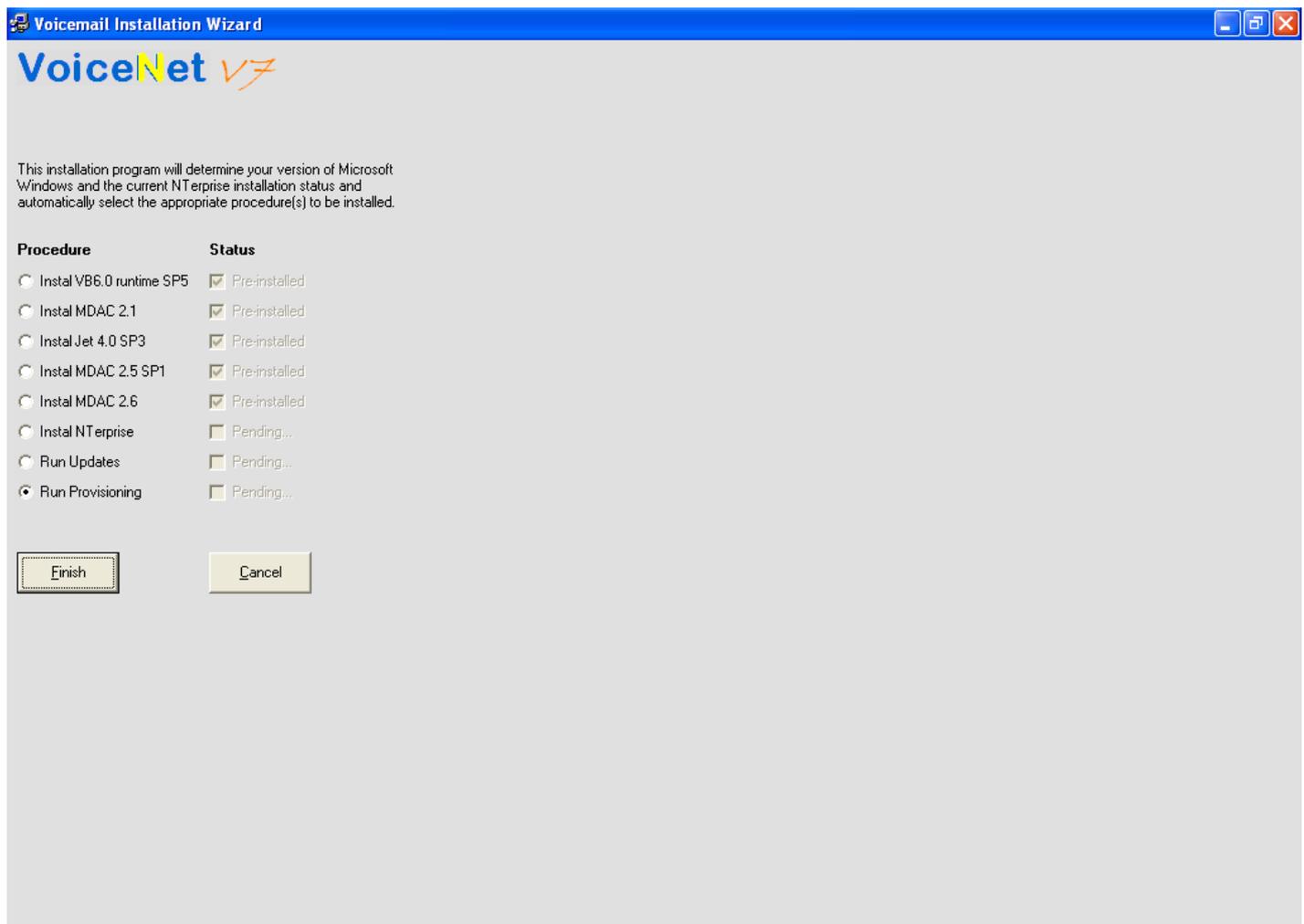
Task Reference **Install NEnterprise® V7 Software**

Click “Exit” when finished”



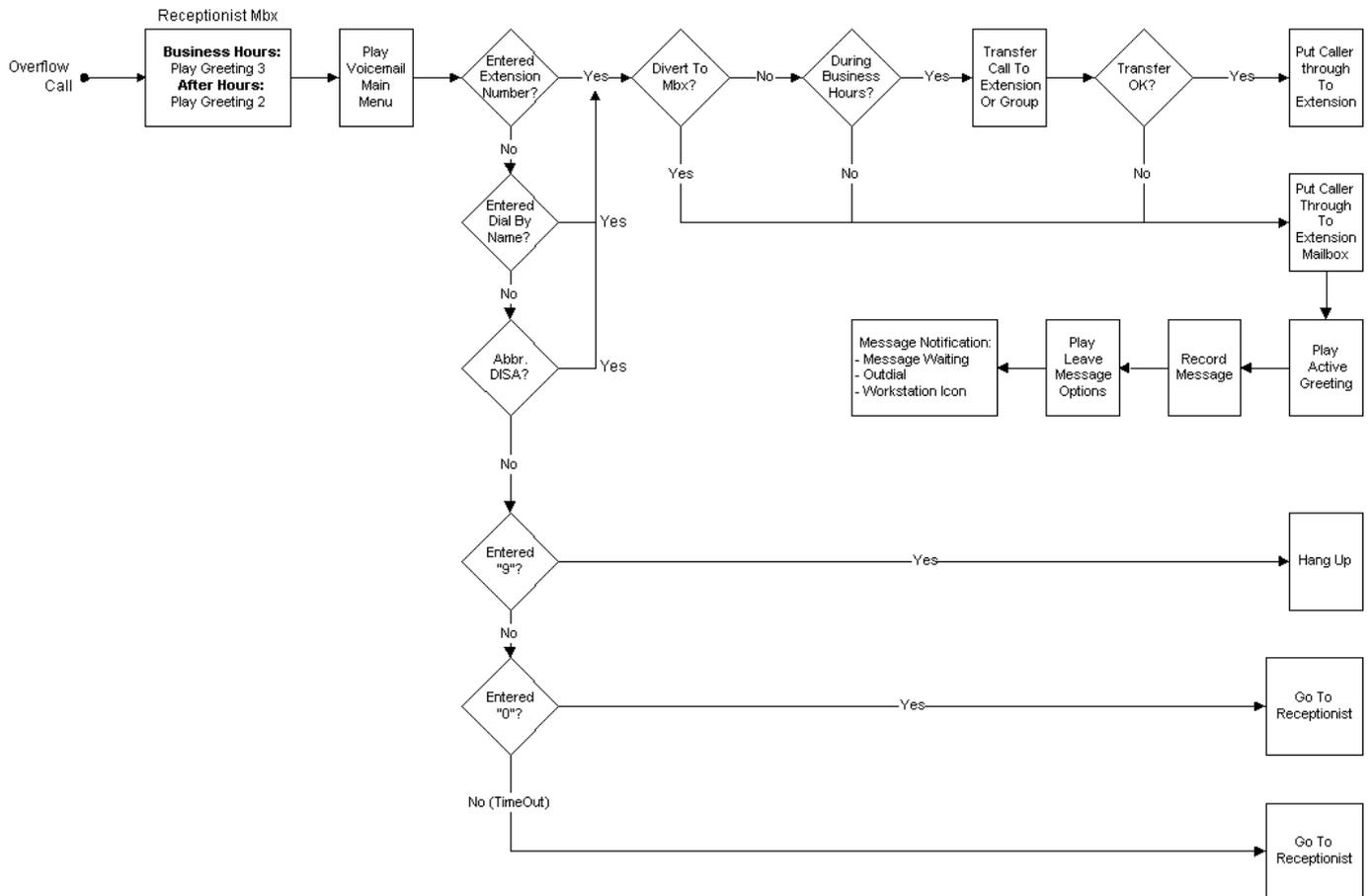
Task Reference **Install NTerprise® V7 Software**

22 The installation of your VoiceNet V7 messaging system is complete. Click “Finish” to exit the installation program. Refer to the General and Detailed Procedures in your Reference Manual for instructions on how to complete advanced setup tasks and operate your voicemail system.



DP 120

Task Reference System Flowchart



Task Reference System Flowchart

VoiceNet User Guide

#	Jump over new messages (valid only on initial mailbox access)								
##	Back out to voicemail (valid only on initial mailbox access)								Caller Options (press # after leaving message)
**	<room number> Hotel system only - checked out guest can retrieve stored messages from house phone								
7	Play message options: —	7	Replay message						7 Replay message
		3	Discard message						3 Discard & Rerecord message
		4	Give message						4 Generate future delivery
		2	Reply to message through voicemail						6 Message Receipt
		5	Keep message						8 Urgent delivery
		*	Rerund						9 Send message & EXit
		#	Forward						
		6	Pause (toggle)						
		8	Skip Next						
		9	Skip Previous						
		1	Skip Last						
		2	Skip First						
		2	Callback to caller ID number						
		0	Increase playback volume to maximum						
8	User options: —	6	Record Name and greeting						
			Record Name						
		7	Change Password						
		8	Additional User options (may have restricted access)						
			2	Access multiple mailboxes					1 Enter new mailbox number
			3	Setup mailbox					2 Direct calls to mailbox
			4	Diversion options					3 Blind transfer calls to extension
			5	Notification Lists					4 Superize transfer calls to extension
			4	Nominate the active mailbox Greeting					5 Screened transfer calls to extension
			5	Setup distribution Lists					6 Offnet transfer calls
			6	Notification options					9 Intranet transfer calls
			7	Record additional mailbox greetings					9 EXit diversion menu
			6	Setup message					2 Create a list
			7	Play a list contents					3 Delete a list
			3	Setup message Forwarding					6 Modify a list
			6	Setup Outdial notification number					7 Play a list contents
			9	EXit list menu					9 EXit list menu
			1	Pre-record 3 greetings & name					3 Setup message Forwarding
			2	Record Busy / No Answer greetings					6 Setup Outdial notification number
			3	Record Business Hours / After Hours greetings					9 EXit notification menu
			4	Record outdial greeting for offnet message notification					1 Pre-record 3 greetings & name
			5	Record auto-expiry greeting					2 Record Busy / No Answer greetings
			9	Exit additional user options menu					3 Record Business Hours / After Hours greetings
			5	Stamp message Private					4 Record outdial greeting for offnet message notification
			5	Enter message password					5 Record auto-expiry greeting
6	Make message —		9	Exit additional user options menu					Define activation ON dateline
			5	Stamp message Private					Define expiry OFF dateline
			5	Enter message password					
9	EXit user menu								Serial Number: 100-09002-EN

DP 121

Task Audit Client Requirements

SITE INFORMATION (to be completed by installation technician onsite)

Dealer: Dealer Contact: Dealer Tel: Dealer Fax:	
--	--

Client Name: Client Contact: Map Reference: Client Tel: Client Fax:	
---	--

Installation Date: Activation Date:	
PABX Brand/Model:	
VM software version: Site Number:	
Number of VM ports:	
Reception Mailbox:	
Business Hours:	
Mailbox Range:	
Other Considerations:	
Dongle Number:	
Modem Number:	
VM Indial Number:	
VM Group Numbers:	
COM1: COM2: RAM: Operating System: O/S Serial No: Motherboard/CPU: PC Serial No.: HDD Setup:	

Task Reference **Conduct System Tests****DP 120**

The flowchart and User Guide in DP 120 and the information contained in this Detailed Procedure is provided to enable installation technicians to ascertain that the voicemail and PABX systems are functioning correctly and integrating with each other.

There are two (2) types of integration available between the voicemail (VM) and PABX. These are inband and serial.

IP xxx

Inband integration comes in two (2) levels, forwarding information only (Inband Level 1) and forwarding plus owner information (Inband Level 2). To determine which level of integration to expect from the PABX, refer to the appropriate Integration Procedure (IP) for that brand and model of PABX. Complete the following checklist for the appropriate tests.

SITE COMMISSIONING	
Integration Type:	Inband Level 1: <input type="checkbox"/> Inband Level 2: <input type="checkbox"/> Serial: <input type="checkbox"/>
Vicemail picks up call:	<input type="checkbox"/>
Correct company greeting played:	<input type="checkbox"/>
Main menu played (optional):	<input type="checkbox"/>
Station Forwarding Data received:	<input type="checkbox"/>
Mailbox greeting played correctly:	<input type="checkbox"/>
Mailbox Owner Data received: (not applicable to Inband Level 1)	<input type="checkbox"/>
Set MW sent:	Parameters: <input type="text"/>
Clear MW sent:	Parameters: <input type="text"/>
Hangup Tone received:	Parameters: <input type="text"/>
Transfer to Operator:	<input type="checkbox"/>
Remote Access Modem picks up call:	<input type="checkbox"/>

Task Reference Conduct System Tests

VOICEMAIL ACCEPTANCE TESTING										
Item	Task	English 00	Japanese 01	Mandarin 02	Korean 03	Russian 04	Polish 05	German 06	French 07	
1	Check-in room guest (simulator) create new mailbox clear out old messages MW lamp OFF									
2	Leave voicemail message for room guest MW lamp ON									
3	Room guest play / keep new message MW lamp OFF									
4	Room guest play / delete saved message MW lamp OFF									
5	Transfer room guest (simulator) create new mailbox transfer messages MW lamp OFF (old room) MW lamp ON (new room)									
6	Check-out room guest (simulator) clear out old messages MW lamp OFF									
7	Staff mailbox setup Complete new user tutorial record name / greeting / password									
8	Staff mailbox setup change greeting / password									
9	Staff mailbox internal caller leave message Staff mailbox external caller leave message MW lamp ON									
10	Staff mailbox play / keep new message MW lamp OFF									
11	Staff mailbox play / delete saved message MW lamp OFF									
12	Voice mail transfer caller to Reception									
13	Reception call voicemail									
14	Auto Attendant (TBA example only) For reservations press 1 For accounts press 2 For restaurant press 3 For front desk press 0									
15	Fax server RECEIVE incoming fax storage notification									
16	Fax server SEND outgoing fax storage report									

DP 123

Task	Handover and Practical Completion	<i>Reference</i>
1	Make a copy of the Audit Client Requirements sheet. Retain the copy for remote administration purposes and disaster recovery, and place the original with the System Technical Manual for storage by the client.	DP 121
2	Make a copy of the System Tests sheet. Retain the copy for remote administration purposes and disaster recovery, and place the original with the System Technical Manual for storage by the client.	DP 122
3	Arrange for system “walkthrough” with the client’s representative.	
4	Conduct, or make arrangements for conducting, client user training on the voicemail system.	
5	Obtain the client representative’s sign-off on the Warranty Certificate. Make a copy of the Warranty Certificate. Retain the copy for remote administration purposes and disaster recovery, and place the original with the System Technical Manual for storage by the client.	DP 148

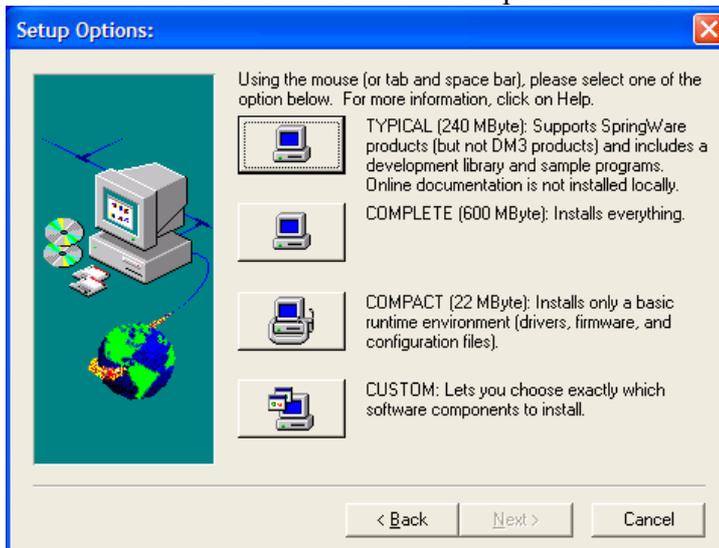
DP 137

Task Instal Dialogic™ Software (Windows NT / 2000 / XP)

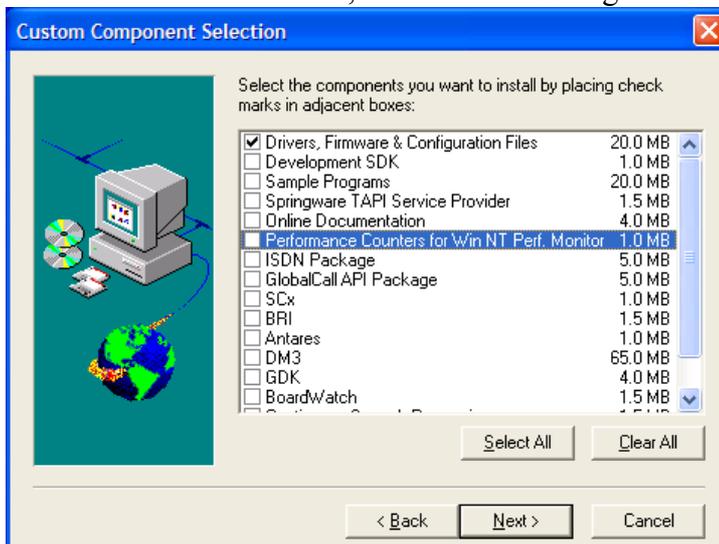
Reference

- 1 Insert the CD-ROM labelled Dialogic® System Release Version 5.1.1 for Windows® on Intel® Architecture dated April 2002 or greater.
- 2 Rn "<CD-ROM DIR>:\SETUP.EXE"
- 3 Select NO when asked to view the Release Guide. Accept the License Agreement. Enter appropriate information for the Name and Company fields when prompted.
- 4 Choose the "CUSTOM" software components installation option.

**Dialogic®
Release
Notes**



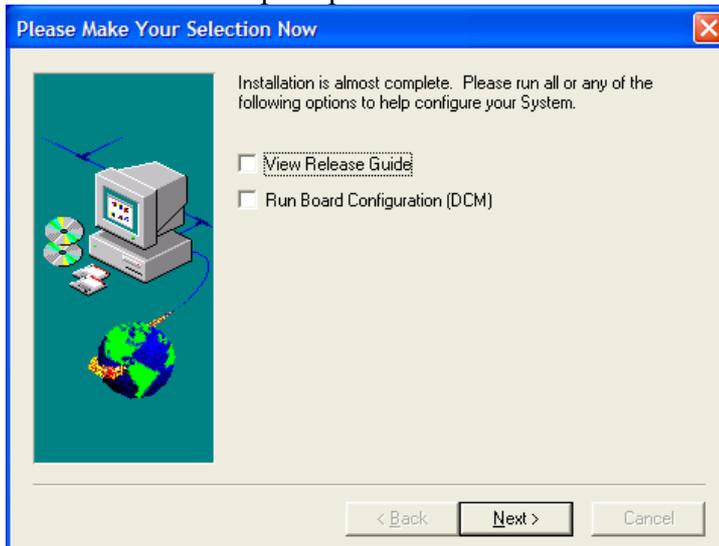
- 5 Select ONLY the "Drivers, Firmware & Configuration Files" option:



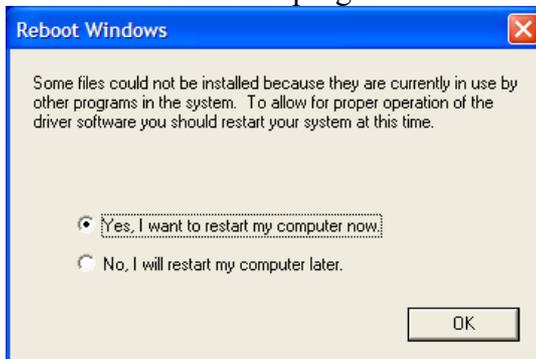
DP 137

Task **Instal Dialogic™ Software (Windows NT / 2000 / XP)***Reference*

6 Enter “Next” when prompted with no selections:



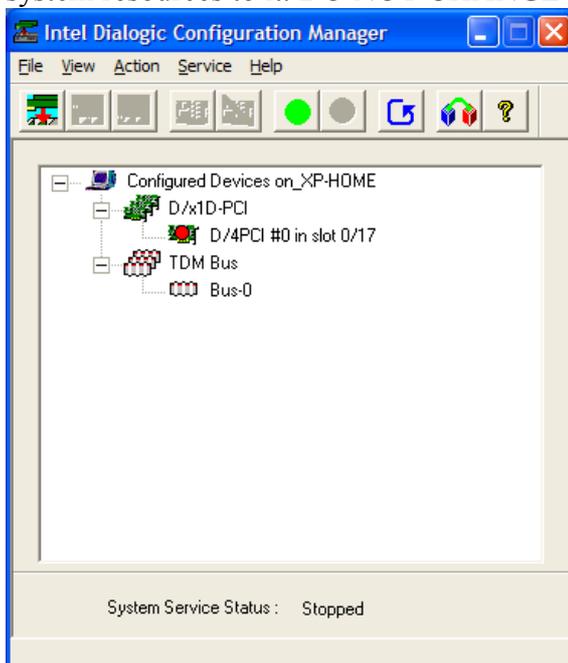
7 Allow the installation program to reboot the PC when finished.



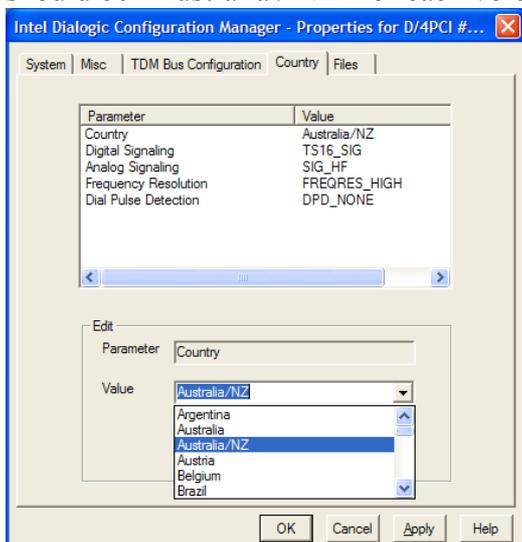
DP 137

Task **Instal Dialogic™ Software (Windows NT / 2000 / XP)***Reference*

- 8 Now add your voiceboards. Run the Dialogic Configuration Manager (DCM) program from the Programs group. Choose “CONNECT” to your PC name if running for the first time. If the voiceboard is PCI-based, the DCM will automatically find your board and allocate system resources to it. **DO NOT CHANGE** these resource settings.



- 9 The only setting that requires change is the country selection, which should be “Australia / NZ” for each voiceboard.



Task Reference Dialogic Quick Install Cards (PCI, PCIe boards)

Dialogic® D/4PCIU, D/4PCIUF

Quick Install Card for PCI Universal

Dialogic®

Part Number 64-0048-02
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Before You Begin

Protecting the Board from Damage

CAUTION

All computer boards are sensitive to electrostatic discharge ("ESD"). Handle all static-sensitive boards and components at a static-safe work area, and observe anti-static precautions at all times.

If you are not familiar with ESD safety precautions, visit <http://www.dialogic.com/support/hwinstall> to learn more.

Unpacking the Board

Unpack the Dialogic® D/4PCIU, D/4PCIUF board ("board") according to the following steps:

1. Prepare a static-safeguarded work area.
2. Carefully remove the board from the shipping carton and anti-static packaging. Handle the board by the edges and avoid touching the board's components.
3. Lay the board on the static-dissipative work surface.

Note: Place boards in static-shielding bags when carrying boards from station to station.

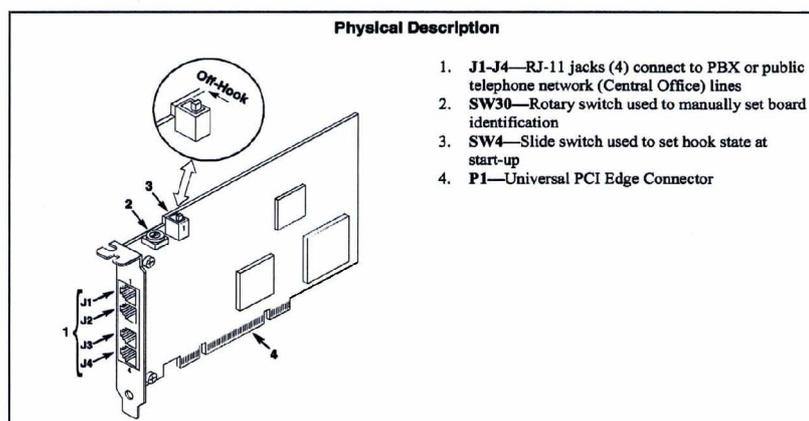
CAUTION: Do not remove the board from the anti-static packaging until you are ready to install it. Observe proper anti-static precautions at all times.

Configuring the Hardware

Initial Hook State

The position of slide switch SW4 determines how the board responds to an incoming call when the chassis power is on but the board is not initialized. Refer to the *Physical Description* section. Set the SW4 slide switch as follows:

- SW4 = On-hook (default): Callers hear ringing.
SW4 = Off-hook: Callers hear a busy signal.



NOTE: If the chassis power is off, callers hear ringing (on-hook).

Board Identification

The Dialogic® D/4PCIU board uses Plug and Play technology, including hardware auto-configuration for IRQ and memory address. This technology enables quick installation and operation using the factory default hardware settings.

The system software assigns board instance numbers in ascending order (beginning with 0) as it detects each board in your system. A board instance number is the identification (ID) number used by the system software to recognize the board. Each Board ID is based on the SW30 rotary switch setting. See the *Physical Description* section.

NOTE: The ascending Board IDs automatically assigned by the system may not correspond to a physical order in the chassis.

Geographical Sequence

Leave SW30 set to Board ID 0 (default) to let the system automatically assign board instance numbers by PCI bus logical slot number. This method is not available for ISA bus boards.

NOTE: If you add or remove a board, the system may change the existing board instance (ID) numbers.

Programmable Sequence

You **must** set SW30 to a unique number for each installed board. Use a non-metallic screwdriver to turn SW30 to 1 of 16 board settings, 0–9 or A–F. You should assign sequential numbers to each Dialogic® board, starting at 1. This method is also used for all ISA bus boards.

Precedence in Mixed Systems

In systems where both ISA and PCI boards exist, PCI boards take precedence and are numbered before ISA boards. Also, when using both geographical and programmable assignment methods, PCI boards that use SW30 setting 0 are numbered before PCI boards that use SW30 settings 1–9 or A–F.

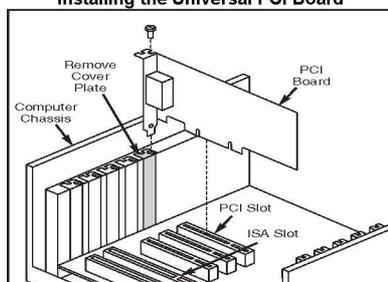
NOTES: After the hardware and the system software are installed in a Windows system, refer to the Dialogic® Configuration Manager (DCM) utility to retrieve the assigned board instance (ID) number(s). After the hardware and the system software are installed in a Linux system, refer to the proper configuration files to retrieve the assigned board instance (ID) number(s).

Task Reference Dialogic Quick Install Cards (PCI, PCIe boards)

Installing the Hardware

NOTE: If you are adding Dialogic® hardware to an existing system, you do not need to uninstall existing system software.

1. Working with your computer at a static-safe work area, switch off the power and disconnect all power cords from the electrical outlets.
2. Remove the computer cover.
3. Select an empty PCI expansion bus slot and remove the slot's retaining screw and access cover plate.
4. Insert the edge connector of the board into the bus slot. Press firmly until the board is securely seated.

Installing the Universal PCI Board

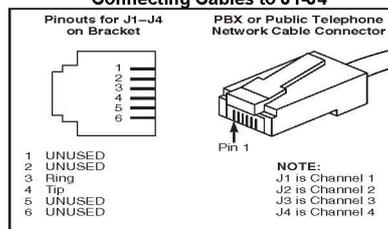
5. Replace and tighten the retaining screw to secure the board firmly in the chassis slot.
6. Replace the computer cover when finished and reconnect the power cords.
7. Turn the power to the chassis ON.

CAUTION: If your BIOS is set to use Plug and Play technology and there are ISA boards in your system, an IRQ conflict can be created if a PCI board is assigned the same IRQ as an ISA board. This could cause the machine to stop responding. You can prevent this by entering the BIOS and reserving the appropriate IRQs (those used by your ISA boards) for ISA use only.

Connecting External Cables

Each RJ-11 jack on the rear bracket of this board supports a single channel. Use RJ-11 connectors and telephone cable to connect each channel jack to a PBX station port or to the Public Telephone Network Central Office (CO).

NOTE: A standard telephone will not function when directly connected to the board.

Connecting Cables to J1-J4**After Installing Hardware**

After installing the hardware, run the Dialogic® Configuration Manager (DCM) as described in the installation instructions included with the Dialogic® System Software to configure your system.

For technical specifications and product information go to: <http://www.dialogic.com/products.htm>.

Warranty and Return Information**Warranty Period**

For specific warranty information for this board, refer to the Warranty section of the Products page, located at this URL: <http://www.dialogic.com/warranties/>.

Contacting Technical Support

Dialogic provides technical support for its products through a network of value added distributors who are trained to answer technical questions on installing and configuring Dialogic® products. If you are unsure how to contact your support channel, please call Dialogic in the United States at 973-967-6600 (9am-5pm EST) and we will assist in obtaining the appropriate support channel. Outside the United States please refer to <http://www.dialogic.com/support/contact> to obtain local contact information.

Dialogic also provides direct support via Dialogic® Pro™ Services agreements. For more details of direct support from Dialogic please refer to:

<http://www.dialogic.com/support/DialogicPro>.

Returning a Product

To return a board for warranty repair or any other returns, please refer to the following: <http://www.dialogic.com/support/hwfaults>.

Sales Assistance

If you have a sales question, please contact your local Sales Representative or the Regional Sales Office for your area. Address, telephone and fax numbers, are available at the Dialogic website located at: <http://www.dialogic.com/contact.htm>.

To purchase Dialogic® products, please refer to the following website to locate the appropriate supplier: <http://www.dialogic.com/purchase.htm>.

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Task Reference Dialogic Quick Install Cards (PCI, PCIe boards)

Dialogic
Making Innovation Thrive

Dialogic® D/4PCU4S and D/4PCU4F Media Boards Installation Guide

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1. Product Description

The Dialogic® D/4PCU4S and D/4PCU4F Media Boards ("D/4PCU4S and D/4PCU4F" or "boards") are combined media analog boards with four-port voice, fax, and speech in a half-length PCI Express form factor. The boards support both voice and fax, and fax and speech, while the D/4PCU4S Board has four ports of voice and speech. The D/4PCU4S and D/4PCU4F include the following components, shown in the Physical Layout illustration:

- J1-J4 Jacks:** Four RJ-11 jacks to connect to PBX or other telephony network (Central Office lines).
- SW30:** Rotary switch used to set board state at startup.
- SW4:** Slide switch used to set board state at startup.
- PCI Express connector:** Host bus connector. Compatible with X1 or larger PCI Express Link connectors.

Additional Information

Additional information about the D/4PCU4S and D/4PCU4F is available from a number of sources, such as via the website <http://www.dialogic.com/products>. The product data sheet provides a functional description of the D/4PCU4S and D/4PCU4F, as well as information on other applications, configurations, features, and technical specifications. Refer to the Release Guide and the online Release Update for your Dialogic® Software release to verify that the D/4PCU4S and D/4PCU4F are supported in the release, and for information on any new features or issues that may relate to them.

The D/4PCU4S and D/4PCU4F contain safety warnings and national requirements for proper operation of telecommunications equipment.

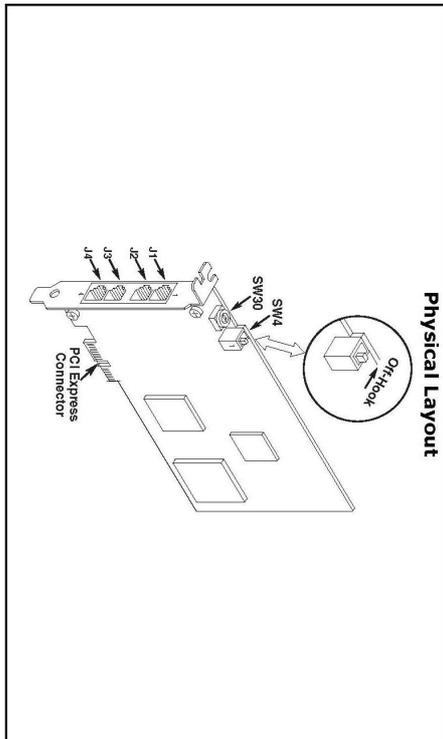
2. Before You Begin

Protecting the Board from Damage

CAUTION: All computer boards are sensitive to electrostatic discharge ("ESD"). Handle all static-sensitive boards and components at a static-safe

Part number: 64-0267-02

Physical Layout



work area, and observe anti-static precautions at all times.

If you are not familiar with ESD safety precautions, visit <http://www.dialogic.com/support/wininstall> to learn more.

Unpacking the Board

Unpack the board according to the following steps:

1. Prepare a static-secured work area.
2. Carefully remove the board from its shipping container. Handle the board by the edges and avoid touching the board's components.
3. Lay the board on the static-dissipative work surface.

Note: Place board in static-shielding bag when returning board from station to station.

CAUTION: Do not remove the board from the anti-static packaging until you are ready to install it. Observe proper anti-static precautions at all times.

3. Configuring the Board

The D/4PCU4S and D/4PCU4F use Plug and Play technology to simplify installation. No user configuration is required for IRQ or memory address.

Configuration Manager (DCM) tool after you start the installation.

Linux Systems: In a Linux system, you must explicitly specify the board ID numbers by setting SW30 on each board to a different position (0-9 or A-F). Refer to the Configuration Guide for Springware architecture products in your Dialogic® Software Release Guide for further information about the board ID numbers.

Setting the Initial Hook State

The position of slide switch SW4 determines how the board responds to an incoming call when the chassis power is off. Callers hear a busy signal when the Physical Layout section. Set the SW4 slide switch as follows:

- SW4 = on-hook (default): Callers hear ringing.
 - SW4 = off-hook: Callers hear a busy signal.
- Note:** If the chassis power is off, callers hear ringing (on-hook).

4. Choosing a Slot

The D/4PCU4S and D/4PCU4F implement a PCI Express X1 lane configuration, allowing them to be used in any PCI Express slot that meets the fully Specification Revision 1.0a or higher.

5. Installing the Board

WARNING! Unplug the equipment before performing the procedures described here. Opening the chassis can result in personal injury. Ensure that the system is disconnected from its power source and from all telecommunications lines, networks, or modem lines whenever the cover is removed. Operate the system with the cover removed.

CAUTION: To avoid possible damage to the board, remove power from the computer before beginning installation. Observe proper anti-static precautions at all times while handling and installing the board.

To install the D/4PCU4S or D/4PCU4F, perform the following steps:

1. Turn off all power to the system and disconnect the system's power cords.
2. Remove the computer's cover.
3. Choose an empty PCI Express expansion slot and remove that slot's retaining screw and access cover plate.
4. Insert the board's edge connector into the bus cover plate. Push the board into the slot until the board until the board is fully seated in the edge connector.

Task Reference Dialogic Quick Install Cards (PCI, PCIe boards)



Dialogic® D/120CT-LSU

Installation Guide

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1. Product Description

The Dialogic® D/120CT-LSU combined media board ("board") is a 12-port analog telecom board in a PCI form factor with universal connectivity. It supports both 5V and 3.3 V signaling. The D/120CT-LSU board is designed to support multimedia resources. This high-performance, scalable product supports voice, fax, and software-based speech recognition processing in a single PCI slot, and provides 12 analog telephone interface channels for direct connection to analog loop start lines.

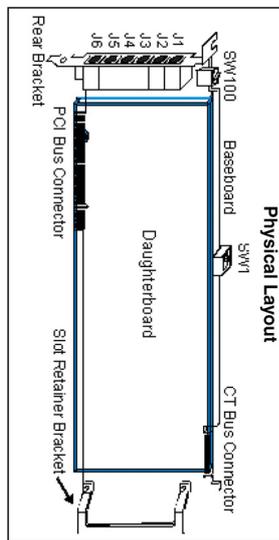
The physical features of the D/120CT-LSU board include the following:

- SW100:** Rotary switch used to determine board ID
- SW1:** Slide switch for on/off hook on power-up
- J1-J6:** RJ-14 connectors, two analog telephone lines per connector

Additional Information

Additional information about the D/120CT-LSU is available from a number of sources.
The product data sheet, available at <http://www.dialogic.com/products/st.asp>, provides a number of details about the board, including technical specifications, applications, features, and other information.
Refer to the Release Guide and the online Release Update for your Dialogic® system software release to verify that the D/120CT-LSU is supported in the release and for information on any new features or issues that may relate to it.

Part number: 64-0053-02



The Regulatory Notices document that is packed with each D/120CT-LSU board contains safety warnings and national requirements for proper operation of telecommunications equipment.

2. Before You Begin

Protecting the Board from Damage

CAUTION: All computer boards are sensitive to electrostatic discharge ("ESD"). Handle all static-sensitive boards and components at a static-safe work area, and observe anti-static precautions at all times.

If you are not familiar with ESD safety precautions, visit <http://dialogic.com/support/rm/install> to learn more.

Unpacking the Board

CAUTION: Do not remove the board from the anti-static packaging until you are ready to install it. Observe proper anti-static precautions at all times.

1. Unpack the board according to the following steps:
1. Prepare a static-segregated work area.
2. Carefully remove the board from the shipping carton and static shielding bag; handle the

board by the edges and avoid touching the board's components.

3. Lay the board on the static-safe work surface.
- Note:** Place boards in static-shielding bags when carrying boards from station to station.

3. Configuring the Board

The D/120CT-LSU board uses Plug and Play technology, including hardware auto-configuration for IFC and memory address. This allows you to use the factory default hardware settings for quick installation and operation of the board.

In addition to the automatically configured items, the D/120CT-LSU board has two manually configurable options: board ID and board sequence.

- Board ID
- Hook-switch state at start-up

Setting the Board ID

When you start Dialogic® boards, each board is assigned an identification for use by the application program. The board number is based on the board ID that is set through hardware switches on the board (binary SW100).

Set the board ID switches to select the board sequencing method as follows:

Geographical Sequence (by PCI Bus and Slot Number) Board ID 0 (factory default): All Dialogic® PCI boards can share the factory default setting of board ID 0; in this case, board numbers are assigned in ascending order based on the PCI bus and slot number.

board to the system. It could change the board number where you install it. Also, PCI boards that use ID 0 for the geographical numbering sequence are not available for ISA bus telecom boards.

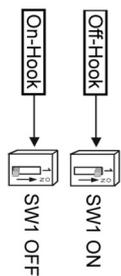
Programable Sequence (by Board ID): Board IDs 1-9, A-F: In addition to the geographical assignment method, the programable assignment method can be used to further identify board ID from your system default of 0 to other number, the software will use that setting to identify the board. This method is also used for all ISA bus boards.

CAUTION: When not set to 0 to use the geographical sequence method, each PCI board must be set to a unique ID number. The ID setting must not conflict with the board ID of any other Intel or Dialogic telecom board which has been manually assigned.

Precedence in Mixed Systems: In systems using both board numbering methods, or where both ISA and PCI boards exist in the same system, PCI boards take precedence over ISA boards. PCI boards before an ISA bus board that uses a specific board ID (1-9, A-F).

Setting the Hook-Switch State for Start-Up (Optional)

Slide switch SW1 determines how the D/120CT-LSU board responds to an incoming call when the PC power is on, but the board is not yet initialized. When SW1 is set to the On position, the D/120CT-LSU board will answer the call. When SW1 is set to the Off position, the board responds as on-hook.



4. Installing the Board

CAUTION: These procedures assume familiarity with the general terminology associated with electronic equipment and with the safety practices and regulatory compliance required for using and modifying electronic equipment. Modifications should be performed only by qualified technical personnel.

WARNING! Unplug the equipment before performing the procedures described here.

Failure to disconnect the power before you open the chassis can result in personal injury. Ensure that the system is disconnected from the power source and that all telecommunications lines are disconnected from the system before the cover is removed. Do not operate the system with the cover removed.

CAUTION: To avoid possible damage to the board, remove power from the computer before beginning installation. Observe proper anti-static precautions in all times while handling and installing the board.

1. Install each board in the PC chassis using adjacent PCI slots according to the following instructions.
2. Remove the PC cover.
3. Select an empty PCI expansion bus slot, and remove the system's power cords from electrical outlets.
3. Select an empty PCI expansion bus slot, and remove the static retaining screw and access coverplate.

Task Reference Dialogic Quick Install Cards (PCI, PCIe boards)

Dialogic®

D/120JCT-LS-EW Installation Guide

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1. Product Description

The Dialogic® D/120JCT-LS-EW combined media and telephony board is a PCI Express form factor. The Dialogic® D/120JCT-LS-EW supports voice, fax, and software-based speech recognition processing in a single PCI Express slot, for direct connection to analog loop start lines.

Additional Information

Additional information about the Dialogic® D/120JCT-LS-EW is available from a number of sources. The product data sheet, available at <http://www.dialogic.com/products>, provides a complete list of supported applications, features, and technical specifications. Refer to the Release Guide and the online Release Update for your Dialogic® system release software supported in the release and for information on any new features or issues that may relate to it. The Regulatory Notices document that is packed with each Dialogic® D/120JCT-LS-EW board contains important information about regulatory requirements for proper operation of telecommunications equipment.

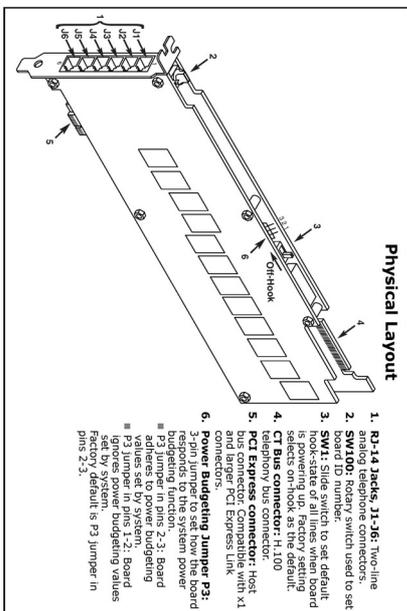
2. Before You Begin

Protecting the Board from Damage

CAUTION: All computer boards are sensitive to electrostatic discharge (ESD). Handle all static work areas, and observe anti-static precautions at all times.

If you are not familiar with ESD safety precautions, visit <http://www.dialogic.com/support/learn1> to learn more.

Part number: 64-0098-03



Physical Layout

1. **RJ-14 jacks, J1-J6:** Two-line analog telephone connectors.
2. **SW100:** Rotary switch used to set board ID number.
3. **Board ID number:** Board ID numbers to set default hook-state of all lines when board is powering up. Factory setting is 100.
4. **CT Bus connector:** H-100 telephony bus connector.
5. **PCI Express connector:** Host bus connector. Express link connectors.
6. **Power Budgeting Jumper P3:** 3-pin jumper to set on-board budgeting function.
 - P3 Jumper in pins 2-3: Board values set by system.
 - P3 Jumper in pins 1-2: Board factory default is P3 jumper in pins 2-3.

Unpacking the Board

1. Prepare a static-secured work area.
2. Carefully remove the board from the shipping container, and avoid touching the board's components.
3. Lay the board on the static-dissipative work surface.

CAUTION: Do not remove the board from the anti-static packaging until you are ready to install. Observe proper anti-static precautions at all times.

3. Configuring the Board

Configure the board using the following steps. Plug and play technology simplifies installation. No user configuration is required for IRQ or memory address.

The Dialogic® D/120JCT-LS-EW board has the following manually configurable options:

- Board ID
- Board state during start-up
- Power budgeting (see Choosing a Slot section below)

Setting the Board ID

When the system is started, each Dialogic® telecom board is assigned a board instance ID number that programs can use to identify. The board state during start-up is set to the setting of SW100 controls the generation of the instance numbers.

Windows Systems: In a Windows system, leaving numbers geographically based on the bus and setting on all Dialogic® telecom boards causes the system release software to assign instance numbers will be until the system is started and configured, and the instance number for any

given board is likely to change when there is any change in the number or arrangement of boards in the system.

As an alternative, you may set SW100 on each board to the setting of 25W. This setting will explicitly assign specific ID numbers to the boards. Note that each board must be set to a hook-state of all lines when board is powering up. In either case, you can read the ID numbers assigned to the boards in the Dialogic Configuration Manager (CCM) after you start the system.

Linux Systems: In a Linux system, you must explicitly specify the board ID numbers by setting SW100 on each board to a different value. For information about the Configuration Guide for Springware architecture products in your Dialogic system release software, see the Configuration Guide for Springware architecture products in your Dialogic system release software.

Setting the Hook-Switch State for Start-Up

Slide switch SW1 determines how the Dialogic® D/120JCT-LS-EW board responds to an incoming call when the PC power is on, but the board is not yet initialized.

When the SW1 slider is positioned away from the board, the board responds as on-hook while uninitialized. With the SW1 slider positioned closer to the bracket, the board responds as off-hook during initialization.

The factory default setting for SW1 is on-hook.

4. Choosing a Slot

The Dialogic® D/120JCT-LS-EW board is a full-height, full-length PCI Express board. The board requires 25W of power. The following explanation and guidelines are provided to ensure proper configuration of the product.

Power Budgeting: A new feature, introduced in the Dialogic® D/120JCT-LS-EW board, provides a mechanism to enable a system to negotiate power consumption requirements for add-in devices. Per PCI Express Card Electromechanical Specification Revision 1.1a, add-in cards can draw no more than 10W in a x1 slot unless the board's required power is successfully negotiated and allocated by the system (power budgeting). Power budgeting is implemented by a vendor's system and is not a compliance requirement per the PCI Express Card Electromechanical Specification revision 1.1a or the PCI Express Card Electromechanical Specification. This feature, Power Budgeting Jumper P3 is designed to ensure proper configuration of the board.

The Dialogic® D/120JCT-LS-EW board must be installed in a slot that can be allocated 25W in the system.

If Power Budgeting is not implemented by a vendor's system, the Dialogic® D/120JCT-LS-EW board must be installed in a slot with the P3 jumper in position 1-2 (power budgeting ignored). This is allowed per PCI Express Card Electromechanical Specification Revision 1.1a to support a minimum of 25W. The board must be able to support a minimum of 25W.

If Power Budgeting is implemented by a vendor's system, the Dialogic® D/120JCT-LS-EW board can be budgeted into a x2 slot, but the P3 jumper must be in position pins 2-3 (power budgeting activated).

WARNING! Installing the Dialogic® D/120JCT-LS-EW board in a x1 slot with the P3 jumper in position 1-2 will void the warranty of the D/120JCT-LS-EW board.

If the Dialogic® D/120JCT-LS-EW will be connected to other telephony boards via a CT Bus cable, you must connect the CT Bus cable (in addition to ensuring that the power requirements are met):

- Install boards in adjacent slots whenever possible.
- If the Dialogic® D/120JCT-LS-EW board will be connected to one or more PCI boards, use the board's power source (closest to the PCI slots).

5. Installing the Board

WARNING! During the equipment before you install the board, the power must be disconnected. Failure to disconnect the power before you open the chassis can result in personal injury, property damage, or equipment damage. Do not connect telecommunications links, networks, or other equipment to the board until the board is removed. Do not operate the system with the cover removed.

CAUTION: To avoid possible damage to the board, observe proper anti-static precautions during installation. Observe proper anti-static precautions at all times while handling and installing the board. To install the Dialogic® D/120JCT-LS-EW board, perform the following steps:

1. Turn off all power to the system and disconnect the system's power cords.
2. Remove the computer's cover.
3. Remove the slot's expansion slot and remove the slot's retaining screw and access cover plate.

Task Reference **Instal Dialog/4 Voiceboard (ISA)**

First Board (ports 1 to 4):

Board Address "0"	SW1: all OFF
Base Memory Address D0000H	JP5 out, JP6 out
Interrupt Level 5	JP1 Pin 4 ON
Line Connections	J1 ports 1, 2 (RJ14) J2 ports 3, 4 (RJ14)

Second Board (ports 5 to 8):

Board Address "1"	SW1-3: ON
Offset Memory Address D2000H	JP5 out, JP6 out
Interrupt Level 5	JP1 Pin 4 ON JP7 OFF
Line Connections	J1 ports 1, 2 (RJ14) J2 ports 3, 4 (RJ14)

Third Board (ports 9 to 12):

Board Address "2"	SW1-2: ON
Offset Memory Address D4000H	JP5 out, JP6 out
Interrupt Level 5	JP1 Pin 4 ON JP7 OFF
Line Connections	J1 ports 1, 2 (RJ14) J2 ports 3, 4 (RJ14)

DP 140

Task **Instal Modem Card (PCI)***Reference*

- 1 Shutdown and turn off the PC.
- 2 Instal the modem card in an available PCI slot.
- 3 Turn the PC on.
- 4 Allow Windows Plug & Play to find the new hardware.
- 5 Follow the Plug & Play instructions by inserting the modem card installation disk or the Windows CD when prompted.

**DP 100 &
Modem
Installation
Guide**

DP 145

Task **Instal HASP® Dongle and Driver Software**

The HASP® security dongle stores program information which enables the various NTerprise® modules to run. Without the dongle, voicemail will not work.

- 1 Insert the NTerprise Installation CD-ROM..
- 2 Run “<CD-ROM DIR>:\Hasp32\HDD32.EXE
- 3 Choose the “Typical” setup for Parallel-USB type.
- 4 Restart the PC if prompted to do so.
- 5 Insert the dongle into the parallel port of the PC, or into a spare USB port depending on the type of dongle provided.

Reference

DP 146

Task **Instal MailAlertXP Software***Reference*

- 1 Insert the NTerprise Installation CD-ROM.
- 2 Run ..\Instal\InstalMailAlertXP.exe



- 3 Depending on the version of operating system you are running, the InstalMailAlertXP program will need to be run a number of times before completing successfully.

Windows NT will install all options, and may also require PC resets where requested by the installation programs.

Windows 2000 will not instal MDAC 2.1 or MDAC 2.5 SP1. Windows 2000 MUST be at SP3 to successfully complete the InstalMailAlertXP program because of its implementation of Windows File Protection.

DP 147

Task **Instal Remote Access Software**

VoiceNet provide remote support capability with all voicemail systems supplied. This remote support is conducted via the supplied internal or external modem, a direct indial analog line supplied from the PABX, and the remote access software program CarbonCopy 5.5 Access Edition. Once installed, Carbon Copy can be run by clicking on its icon which should be located on the desktop. Security is maintained through passwords, and by not running Carbon Copy from the Startup prorgam group.

Reference

- 1 Insert the NTerprise Installation CD-ROM..
- 2 Run "<CD-ROM DIR>\CarbonCopy32\CC55Eng.EXE
- 3 Acknowledge default values for all questions asked.
- 4 Reset the PC when installation is complete.
- 7 Call VoiceNet technical support on 02 9977 8081 for instructions on setting up the parameters within CarbonCopy so that a remote access connection with the voicemail system can be established.
- 8 Use Explorer to locate the executable file C:\Program Files\Carbon Copy AE\CCW32.EXE and create and place a shortcut to this file on the PC's desktop.

DP 148

Certificate of Practical Completion

CLIENT: _____
ADDRESS: _____
TEL: _____
FAX: _____
EMAIL: _____
CONTACT NAME: _____

We are pleased to confirm that your new VoiceNet NTerprise® system has been installed and commissioned in accordance with VoiceNet's Quality System.

Please indicate your acceptance of the work carried out by signing and dating this form. Your warranty will commence from the date of acceptance.

Thank you for your cooperation during the installation and commissioning period. If we can be of any further assistance, or you require remote maintenance or administration of your NTerprise® system, please contact the VoiceNet Technical Assistance Centre (TAC) on +61 2 9997 7109 (Press 1 for Tech Support), or the undersigned on +61 2 9997 7233.

WARRANTY PERIOD: _____ Months
EFFECTIVE DATE: _____

ACCEPTED FOR AND ON BEHALF OF:

For VoiceNet *asiapacific* Pty Ltd:

For the Client:

Name: _____

Name: _____

Position: _____

Position: _____

Signature: _____

Signature: _____

Date: _____

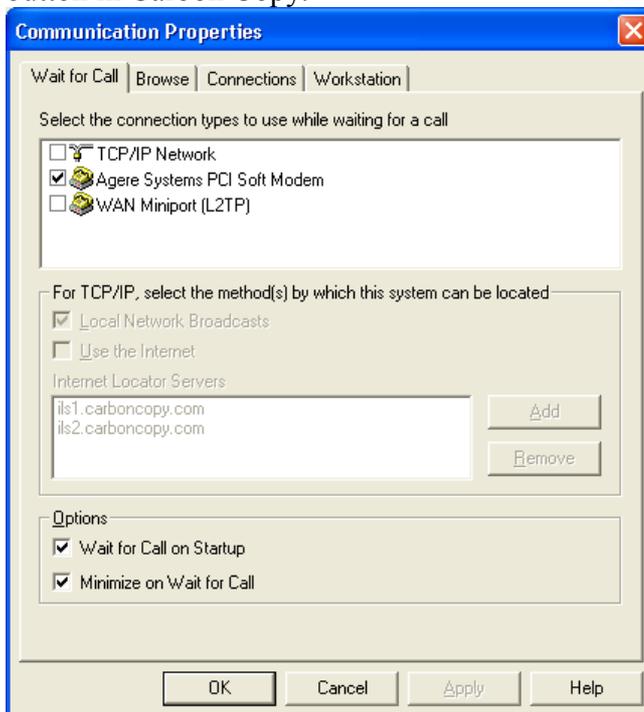
Date: _____

DP 149

Task Configure Remote Access Software*Reference*

Once installed, Carbon Copy can be run by clicking on its icon which should be located on the desktop. It then needs to be configured before VoiceNet can remotely dial in to the site.

- 1 Set up Wait For Call on your modem by clicking on the Comms button in Carbon Copy.

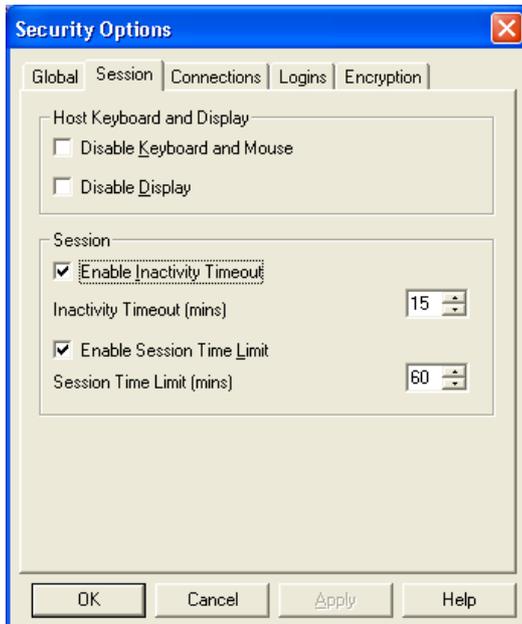
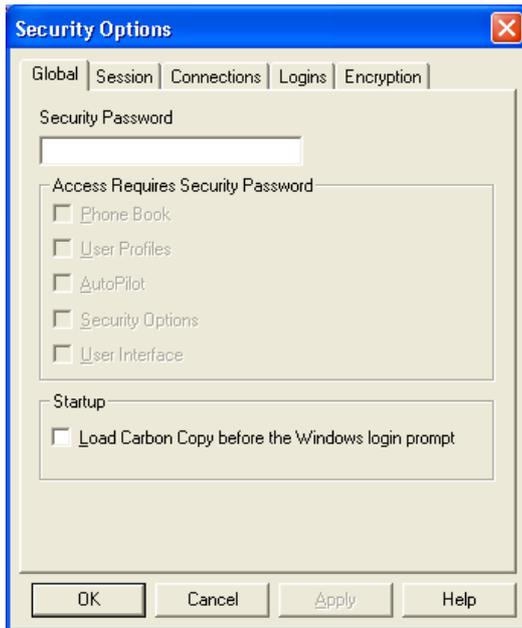


DP 149

Task **Configure Remote Access Software**

2 Setup Security Settings by clicking on the Security button.

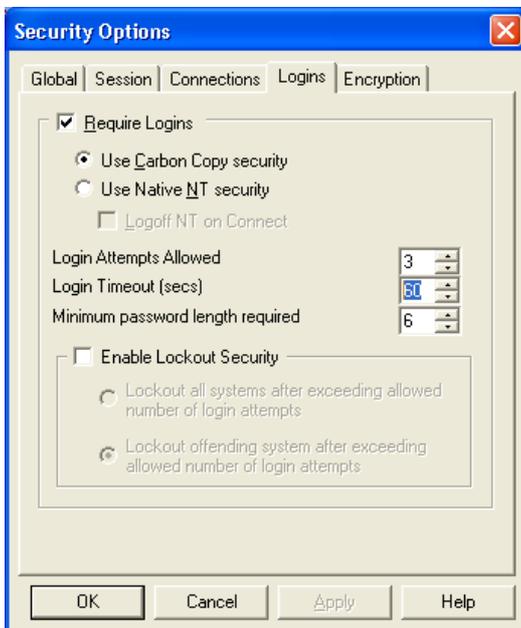
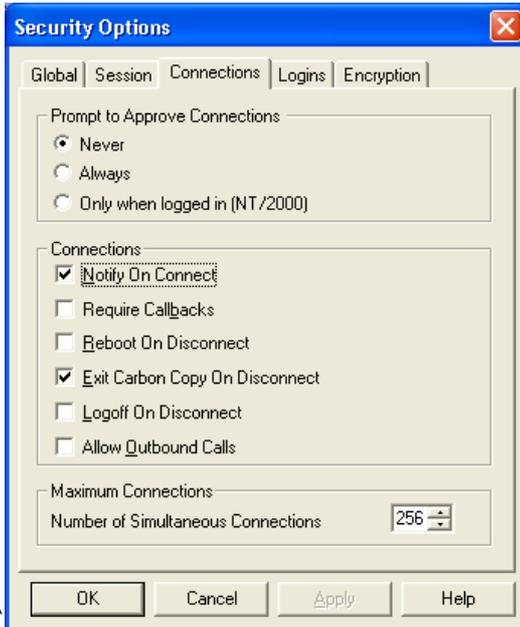
Reference



DP 149

Task **Configure Remote Access Software**

Reference

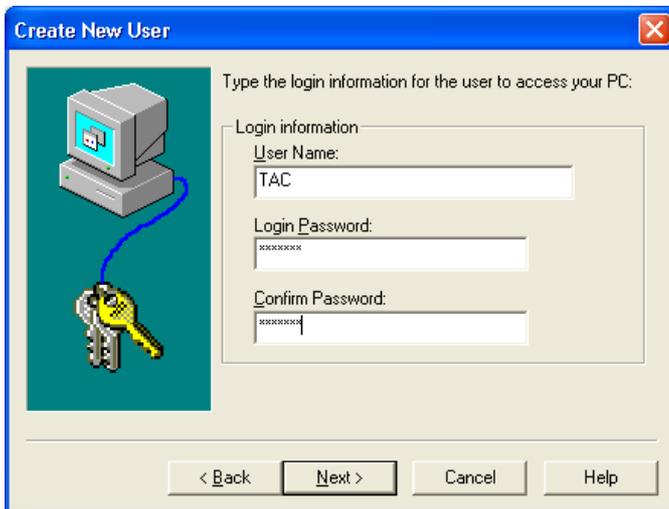
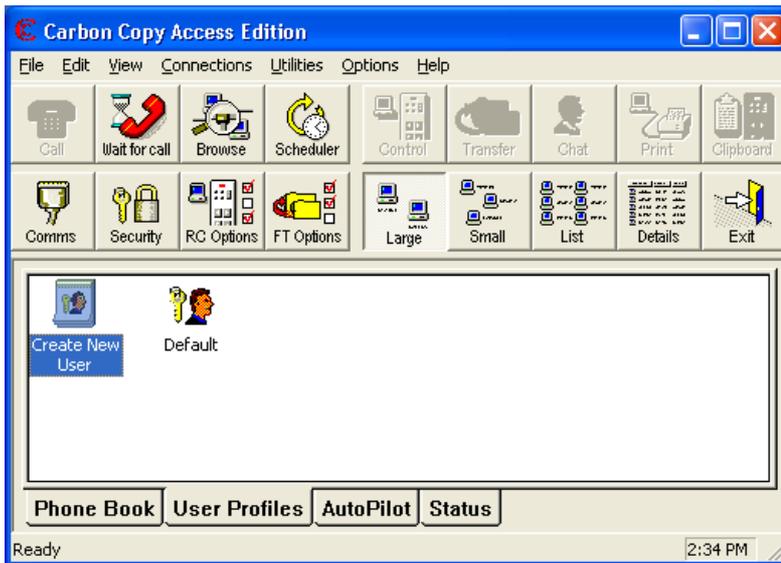


DP 149

Task **Configure Remote Access Software**

Reference

- 3 Set up a new user account. Coordinate the User Name and User Password with VoiceNet.



DP 149

Task Configure Remote Access Software

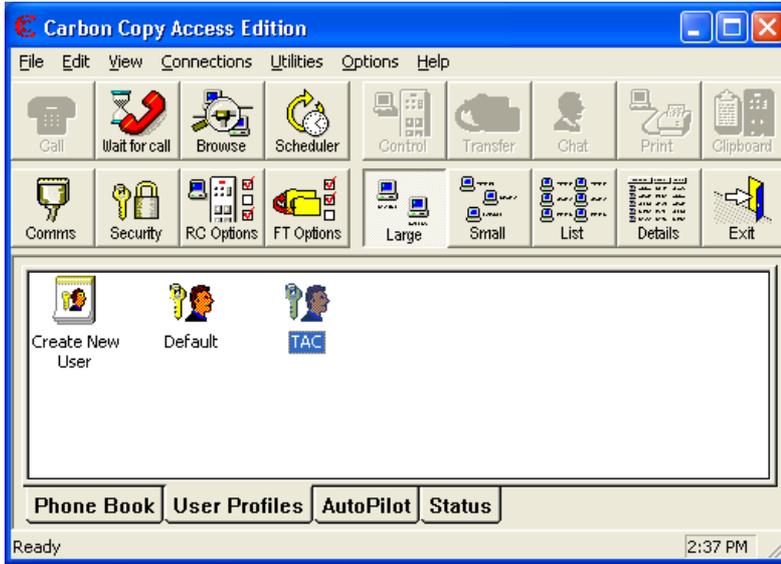
Reference



DP 149

Task **Configure Remote Access Software**

Reference

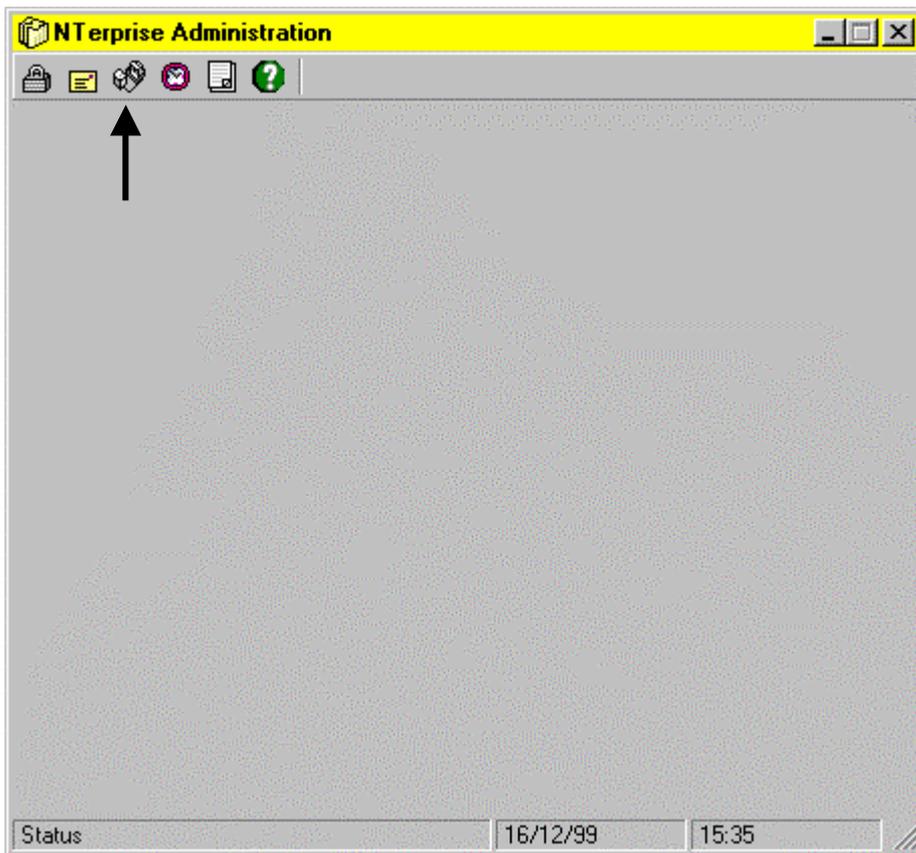


DP 150

Task Open the Configure Tabs in Administration

Reference

- 1 Run the Administration program by double left clicking on the Admin32 icon on the Desktop.
- 2 Enter the administration password. The default password left by the system installers will be "VoiceNet". The password is case-sensitive so enter it exactly as spelt above.
- 3 Click on the Configure button to bring up the Configure tabs as shown below.



DP 151

Task PABX Parameters*Reference*

The screenshot shows the NTerprise Administration window with the PABX parameters tab selected. The interface includes a menu bar with options like Ports, Message Waiting, Menu Tree, and MultiSite. The PABX section contains several configuration fields:

- PABX Type:** A dropdown menu currently set to "NEC MCI".
- Extension Length:** A text input field containing the number "4".
- High Level Interface:**
 - CDM Port:** A text input field containing "1".
 - Inband Delay:** A text input field containing "10".
 - CDM Parameters:** A text input field containing "9600,n,8,1".
 - Handshaking:** A text input field containing "0".
- Integration Strings:**
 - Begin Transfer String:** A text input field containing "&".
 - End Transfer String:** A text input field containing "&".
 - Blind Transfer Suffix:** An empty text input field.
 - Hangup - [string] - Pickup:** A text input field containing "..".

The status bar at the bottom shows the date "16/12/99" and the time "15:36".

PABX Type

The approved PABX types for use with the NTerprise system are listed in this combo box. Select the correct PABX type for your site. If your site's PABX is not listed here, use the Generic type or contact VoiceNet's Technical Assistance Centre for advice on configuring your system.

Extension Length

The Extension Length is used to setup the system mailboxes to the same length as the phone system extensions. Multiple extension lengths are handled by putting the longest extension length into the field. For example, if 3 and 4 digit extension lengths are being used by the phone system, then put 4 into the Extension Length field.

DP 151

Task PABX Parameters

Reference

High Level Interface

High Level Interfaces (HLI) are serial RS232 interfaces to third party systems, through which data is transferred between the systems. Existing HLI's are as follows:

PABX systems:	NEC MCI FUJITSU 9600 ERICSSON MD110
Property Management Systems:	ELTRAX (formerly SULCUS) MICROS.FIDELIO TRILOGY

When using serial integration, the Message Waiting Port field nominates the application which will handle the serial communication task.

COM Port

The COM Port field should be 0 if no High Level Interface is in use, otherwise it should correspond to the COM port with which the RS232 serial cable is attached to the voicemail PC (usually 1 or 2).

COM Parameters

For phone systems which require a serial integration with voicemail, the COM Parameters are needed to define the setup of the voicemail serial communications. The parameters are entered in the form:

(Baud rate, parity, data bits, stop bit) e.g. 9600,n,7,1

Inband Delay

The Inband Delay period is the period (in 100ms increments) immediately following pickup, during which a port will wait to receive call data on an incoming call. In the case of serial interfaces, the serial information received during this period will be applied to the call handling, for example the serial information might indicate that the next call on port 2 is a call forward no answer from extension 123. Port 2 would pick up the call and direct the caller to the mailbox 123 to hear the mailbox greeting and leave a message. In the case of inband interfaces, this period is used to analyse digits passed inband to the NTerprise system at the head of a call.

Also see..... Mailbox Swap

DP 151

Task PABX Parameters

Reference

Handshaking

Handshaking should always be 0 (No Handshaking) unless otherwise specified. Other possible values are:

- 1 XOn/XOff handshaking
- 2 RTS/CTS handshaking
- 3 Combined 1 and 2 handshaking

Integration Strings

Integration strings are used to match specific voicemail to PABX parameters, for example hookflash timing.

Begin Transfer String

This string is sent by the NTerprise system as DTMF tones to the PABX system at the beginning of a call transfer by the NTerprise system. In general, a “&” corresponds to a hookflash, and a “,” corresponds to a pause. The hookflash duration is defined in the file c:\windows\NTVM32.INI under the section header [Control Block] as “flashtm=<value in 10ms increments>”. The pause duration is defined under the same section as “pausetm=<value in 10ms increments>”.

End Transfer String

This parameter is used to nominate the hookflash (&) and any other parameters such as pause (,) used by the voicemail system to take a call off hold and end a call transfer.

Blind Transfer Suffix

This field contains the digits sent to the phone system AFTER a hook flash followed by an extension number in order to tell the phone system to camp on the caller to that extension. Most systems do not require anything in this field. The only phone system we are aware of which DOES require anything in this field is the NEC NDK9000, which requires a hookflash (&) in this field.

Hangup-(string)-Pickup

This field contains values acted on by the voicemail system (usually a pause ",") between hanging up a call and picking up to make an outbound call for example, between hanging up after a message has been left and picking up to set message waiting inband.

Task Reference

Voicemail Parameters

NTrprise Administration

Security Mailboxes Configure Zones Lists Reports Library About

VoiceNet Sydney

Ports Message Waiting Menu Tree AMIS
PABX VoiceMail FaxMail Fax On Demand Unified

Voicemail Parameters

<input checked="" type="checkbox"/> Caller Transfer Message	Virtual Prefix	Real Prefixes
<input checked="" type="checkbox"/> Extension Transfer Message	V	123456789
<input checked="" type="checkbox"/> Enable MultiUser Mailbox Access	Transfer Delay	Greeting Delay
<input checked="" type="checkbox"/> Play Main Menu To Callers	0	0
<input type="checkbox"/> Enable Compress Silence Recording	Dial Out Timeout	Transfer(x10 sec)
<input type="checkbox"/> Enable Busy/NoAnswer Mailbox Greetings	20	3
<input checked="" type="checkbox"/> Enable Mailboxes Starting With "9"	Digits Timeout	List Digit: 0
<input type="checkbox"/> Play Virtual Mailbox Name Only	3	List Length: 5
<input checked="" type="checkbox"/> Play Invalid Mailbox Prompt	Reset PC Period	List COS: <input type="checkbox"/>
BUSY/NO ANSWER, ▾	2	
	Dial Out Loops	Main Menu Loops
	2	2
Strip 2 leading digits from 6 digit-length mailboxes starting with 82		

Status - connected remotely over LAN 13/04/2007 11:06

Caller Transfer Message

Select this option to enable the system message which plays “*Transferring to <recorded extension name>*” to a caller when the system initiates a supervised transfer to an extension.

Extension Transfer Message

Select this option to enable the system message which plays “*Transferring a call to your extension*” to an extension owner when the system completes a supervised transfer to an extension.

Task Reference

Voicemail Parameters

Enable MultiUser Mailbox Access

Select this option to globally permit all mailbox owners to access other mailboxes from their own mailbox, by selecting **2** (the **A** key) from their Additional User Options Menu while online to the voicemail system. Access to another mailbox is conditionally restricted by the mailbox password.

DP 120

DP 122

Play Main Menu To Callers

Select this option to globally enable the playing of the main menu voice prompt *"This is the main menu. If you know the extension number"*. This prompt is conditionally played AFTER the company greeting (if recorded) and is only played to callers who have accessed the voicemail system via an outside line, or who have accessed the voicemail system to pick up messages either from another extension (i.e. not their own extension) by pressing double hash (##) immediately after voicemail answers or voicemail has not received any data to identify who the mailbox owner is.

Enable Compress Silence Recording

Select this option to globally enable the compression of periods of silence detected during the recording of a message (usually performed when recording space is at a premium, or no hangup tone is generated by the PABX resulting in long periods of silence at the end of a message before the system has timed out and hung up on the disconnected call).

IMPORTANT

This will also compress all silence BETWEEN spoken words in the message, which may make the message unintelligible to the mailbox owner.

NOTE that the average recording space available on the PC hard disk is 40 hours per 1GB of speech storage, so it is highly unlikely that recording space will be at a premium and that this option would be necessary.

**VoiceNet
User Guide**

→ User Options

→ Additional User Options

→ Record Additional
Mailbox Greetings**Enable Busy/NoAnswer Mailbox Greetings**

Select this option to globally enable the use of prerecorded greetings for each type of forwarded call to a mailbox. This option is only available for PABX integrations which provide information on the type of call forwarding to the mailbox (current known PABX integrations which provide this information are NEC MCI, Fujitsu 9600, Ericsson MD110, Panasonic KX-TDxx, Alcatel 4300 and 4400, Siemens, and Samsung).

Task Reference **Voicemail Parameters**

The NTerprise system will play the following mailbox greetings for each type of forwarded call:

Call Forward Unconditional	Greeting 1
Call Forward Busy	Greeting 2
Call Forward No Answer	Greeting 3

Enable Mailboxes Starting With “9”

Select this option to globally enable the use of mailboxes prefixed with “9”, for example mailbox “910”. This option should be used if the mailbox range includes mailboxes in the 900 to 999 range. It should NOT be used if the only mailbox prefixed with a “9” is the Reception mailbox (which will normally be the case with NEC PABX systems). It prevents the normal action of the NTerprise system in terminating the call if it receives a “9”, instead the system will wait for additional digits when identifying a valid mailbox number and will need to time out if no further digits are received before continuing to the next prompt.

Play Virtual Mailbox Name Only

Select this option to globally enable the playing of the prerecorded mailbox name (e.g. “*Bill Smith*”) rather than the normal mailbox greeting when a call forwarded call for a destination mailbox is received by the voicemail system.

Also see.....Mailbox Swap

Play Invalid Mailbox Prompt

Select an option from the pull-down list to globally enable an appropriate system response to the receipt of an invalid mailbox number. Options are:

INVALID MAILBOX

plays “*I’m sorry, that is an invalid mailbox number.*”

UNREGISTERED MAILBOX

plays “*I’m sorry, this extension does not have a registered voice mailbox.*”

BUSY/NO ANSWER, TRY AGAIN LATER

plays “*extension number XXX is busy / unavailable, please try again later..*”
depending on the type of call forward.

After playing the selected system response the voicemail system will hang up on the caller.

Task Reference**Voicemail Parameters****Virtual Prefix**

This field contains the prefix to be substituted for the real mailbox prefix when DTMF is received during the inband delay period. This can be used by the voicemail system in two ways.

Method 1 Virtual Prefix = "V"

The voicemail system will perform a mailbox swap for the received mailbox number, placing the caller directly into the mailbox to leave a message, regardless of the actual mailbox's call handling option at the time.

NOTE this method MUST be used where mailbox ranges extend beyond a single prefix digit, for example a range between 100 and 299.

Method 2 Virtual Prefix = <single digit between 1 and 9>

RULES: The real mailbox range must not exceed a single digit prefix e.g. 100 to 199 is acceptable, 100 to 202 is not. The virtual prefix must be different from the real mailbox prefix e.g. if the real mailbox range is 100 to 199, then a virtual prefix between 2 and 9 is acceptable. A mailbox must be created with both the real prefix and the virtual prefix for each mailbox in the real prefix range e.g. real mailbox range is 100 to 199, virtual mailbox range is 200 to 299.

If the voicemail system receives the virtual prefix during the inband delay period it will use the "virtual" mailbox number received for determining the call handling for the real mailbox. For example, a virtual mailbox number 223 is received, and the corresponding real mailbox number is 123. The system will examine mailbox 223 to determine the call handling option for mailbox 123. Using this method different mailbox call handling scenarios can be achieved depending on the first digit received during the inband delay period.

Real Prefixes

This field should contain the real prefix digits for the mailbox range entered in the database, for example if the mailbox range is 100 to 350, and 900, the real prefix digits would be "1239".

Transfer Delay

This field contains the delay in seconds before the NEnterprise® system begins playing a mailbox greeting. Valid values are 0 to 5 only. This delay can be used where receptionists are transferring callers to a mailbox directly (by putting the caller on hold, calling the voicemail huntgroup and entering the mailbox number) and the mailbox greeting begins playing before the transfer has been completed by the receptionist hanging up. NOTE this value is global, i.e. it affects ALL mailboxes.

Task Reference**Voicemail Parameters****Greeting Delay**

This field contains the delay in seconds before the NTerprise® system begins playing the company greeting (if recorded), or the default main menu if enabled and no company greeting is recorded. This can be useful in inband integration situations where a long pause prefixes the DTMF digits received inband providing call forwarding information to the voicemail system, and consequently the voicemail system begins playing the company greeting before it has received all the DTMF digits to tell it which mailbox greeting to play. By putting a greeting delay of 1 to 2 seconds in this field, the company greeting can be “stalled” until the mailbox greeting begins playing, causing the company greeting to be bypassed.

Dial Out Timeout

This field contains the period in seconds before the voicemail system will terminate an unanswered attempt to dial out.

Transfer (x 10 sec)

This field contains the period in 10 second increments before the voicemail system will terminate an unanswered supervised transfer to an extension.

Digits Timeout

This field contains the period in seconds during which the voicemail system will wait for a response from the user, for example when waiting for the caller to enter digits. The timeout applies not only to the period waiting for the first digit, but also between each subsequent digit if further digits are expected. At the expiration of this period the system will either repeat the previous prompt or hangup, depending on where the caller is in the system menu structure. Some form of timeout is necessary to permit the system to cope with callers using a rotary style phone where DTMF will not be received. Valid range is between 1 and 10.

List Digit

This field contains the prefix to identify lists from normal mailboxes. It is used by the voicemail system when mailbox owners are making or giving a message to a list of other mailboxes, to allow the voicemail system to identify a list number from a mailbox number. The default value is 0 i.e. lists begin with 0 e.g. 01, 02, 03, etc. up to the length specified in the field “List Length”.

List Length

This field specifies the length of list numbers. The default is “2” i.e. list numbers can be from x to xx in length. Maximum value is 10.

Task Reference**Voicemail Parameters****List COS**

This field (if filled in) should contain the same number as the value in the “List Digit” field if, and only if, mailboxes will also start with the same number as lists have been specified to start with.

Reset PC Period

This field contains the period in days before the NTerprise system will conduct a software reset of the voicemail PC. Before conducting the reset, the system will perform a controlled “courtesy down” on all voicemail ports. The reset will occur immediately following the housekeeping period defined in the file ...\`<WinDir>`\NTERPRISE.INI under the section header [House Keeping Times].

It is recommended that the system be reset each night unless there are special circumstances therefore the default value is 1.

Dial Out Loops

This field contains the number of times the voicemail system will unsuccessfully attempt to reach a specified dial out number before terminating the attempt.

NOTE that Australian Telecom regulations permit no more than three (3) attempts per hour.

Default value is 1.

Main Menu Loops

This field specifies the number of times the voicemail system will loop through the Main Menu without receiving any input from the caller, before terminating the call.

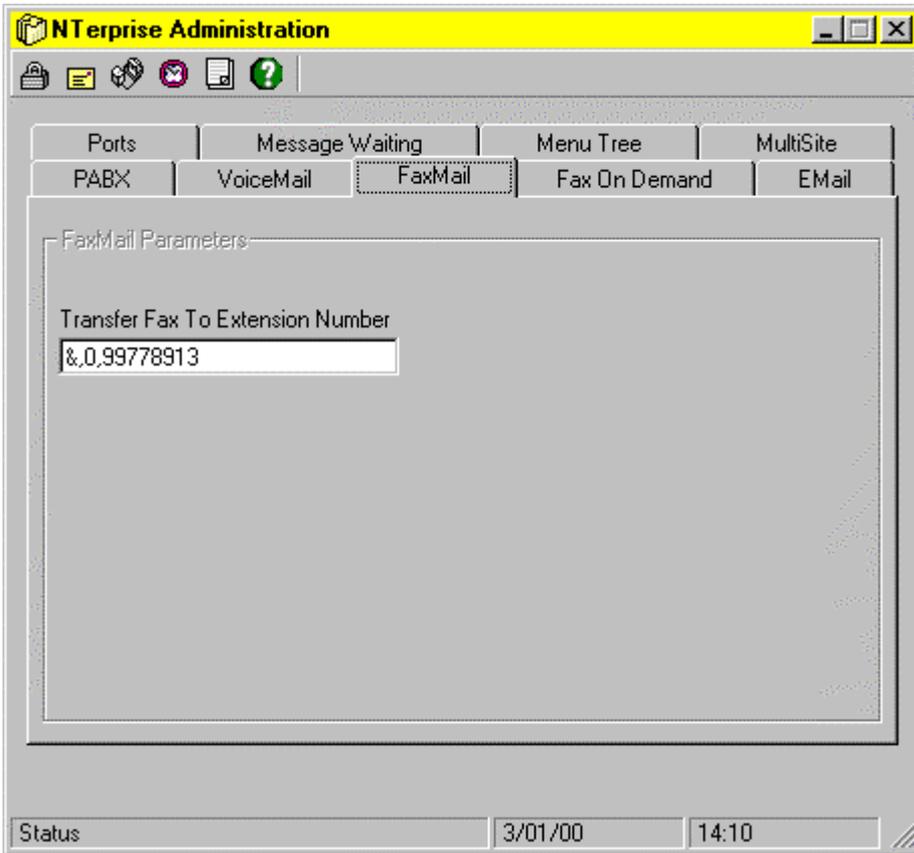
Strip X leading digits from X digit-length mailboxes starting with X or XX

This string of fields define a method for stripping leading digits away from received call forwarded numbers to arrive at a shortened number which corresponds to the actual mailbox number. This would typically be used in multi-site PABX environments where the PABX is adding site-specific codes as prefixes to extension numbers which are identical across sites. These site-specific codes need to be stripped away before the “real” mailbox number for each site can be arrived at.

DP 153

Task Faxmail Parameters

Reference



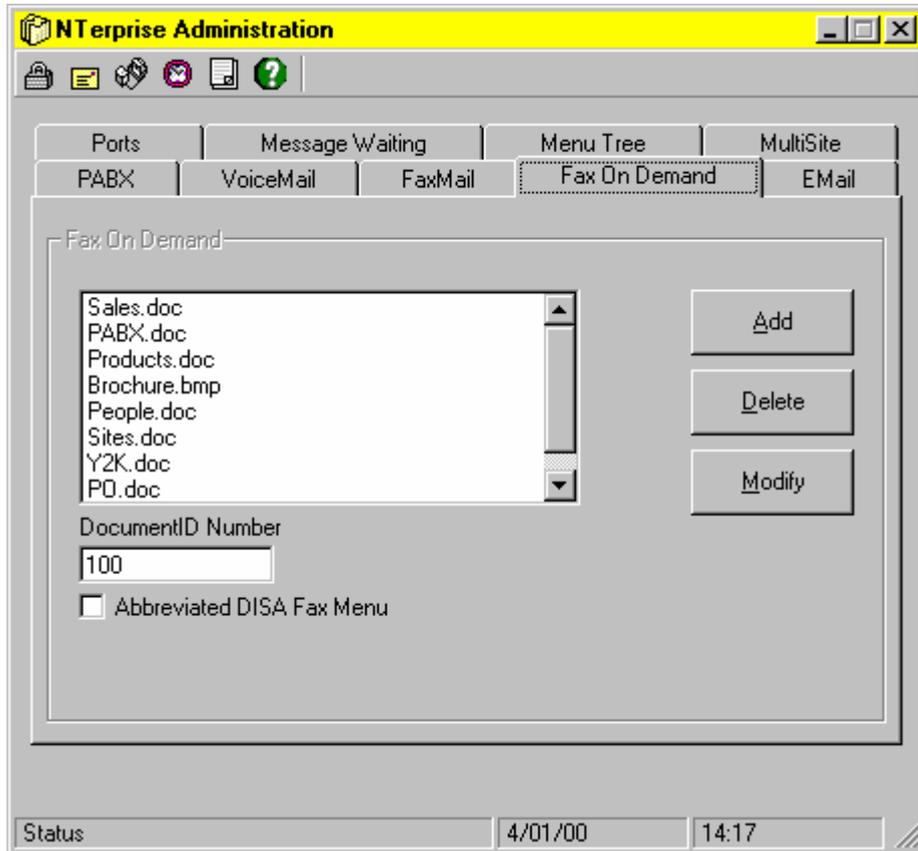
Transfer Fax To Extension Number

This field should contain the destination extension or direct number for faxes to be sent to when voicemail detects a fax receive tone during a voice call. This field is optionally enabled depending on the module level purchased with the NTerprise system. This field is global. The default number should be the reception mailbox number.

DP 154

Task Fax On Demand Parameters

Reference



The Fax On Demand module sends documents to WinFax PRO Version 8 and above using DDE (Dynamic Data Exchange) links for automatic fax out. You must have WinFax PRO and a modem installed in order send faxes.

DP 140

Permitted document types are:

- *.fx* WinFax fax document
- *.doc MS Word, Wordpad, Notepad documents
- *.txt Text documents
- *.pcx Pictures created/saved in Paint
- *.bmp Bitmaps created/saved in Paint

The lowest documentID number is always used as the "Catalogue" document unless the Abbreviated DISA checkbox is selected, in which case the 8 lowest documentID numbers are associated with the Press 1 to Press 8 options. The cover page message entered with this document will be used during faxing.

DP 154

Task Fax On Demand Parameters

Reference

Add

You select the fax document names (including any path) by clicking on the **Add** button. As you "Add" other documents, the documentID number is automatically incremented by one. For example, the first and lowest documentID number is 100, the next document added will automatically be assigned documentID number 101.

Delete

This button allows you to remove documents from the list.

Modify

This button allows you to edit/modify documents selected by opening the program in which the document was originally created/saved.

Setup The Fax On Demand Module

- 1 Create a new mailbox number with a "virtual" number not corresponding to a real extension number.
- 2 Create a mailbox name called "Fax On Demand" in your new mailbox. The spelling is case-sensitive.
- 3 Record the initial Fax On Demand menu as Greeting 1 of the new virtual Fax On Demand mailbox. For example, record *"Thank you for calling our Fax on Demand system. For a catalogue of available fax documents press 1, or to hear a list of available fax documents press 2"*. A sample file containing this prompt is included in the c:\NTERprise\VoiceFiles directory as "faxmain1.vox".

GP 104

To use this prompt as your default you begin by identifying the unique ID number of your new mailbox from its mailbox attributes and then copying the file "faxmain1.vox" as file "c:\NTERprise\box<ID>_1.vox" where <ID> corresponds to the 3 digit ID number of your new mailbox. If your ID number is only 2 digits (e.g. 61) then the 3 digit number should be preceded by a zero (e.g. 061).

DP 154

Task Fax On Demand Parameters

Reference

- 4 Record your list of available fax documents, including instructions on entering their three digit document number, as Greeting 2 of the new mailbox. For example, record *"The following documents are available. Enter the preferred document number at any time. Multiple documents can be ordered during the same call. When finished ordering documents press the hash key. The available documents and their numbers are"* A sample voice file is included as "faxmain2.vox". It can be copied as greeting 2 using the same technique as in Step 3.

NOTE: The three digit document numbers you speak to callers must correspond to the three digit DocumentID numbers assigned in the Fax On Demand window.

- 5 Choose a single digit number to allow callers to access the Fax On Demand module from the voicemail main menu. This number will be assigned to your Fax On Demand virtual mailbox in the Menu Tree configuration parameters e.g. *"Please press 2 to hear our fax on demand options"*.
- 6 Re-record your Business Hours and After Hours company greetings to reflect the new option available to callers. For example *"Thank you for calling XYZ. To use our fax on demand system, press 2."*
- 7 Choose the method of operation for the Fax On Demand menu by checking or unchecking the Abbreviated DISA checkbox. If unchecked the caller menu will operate as described above with the first option "1" being the catalogue and the second option "2" being a list of available documents to choose from.

DP 158

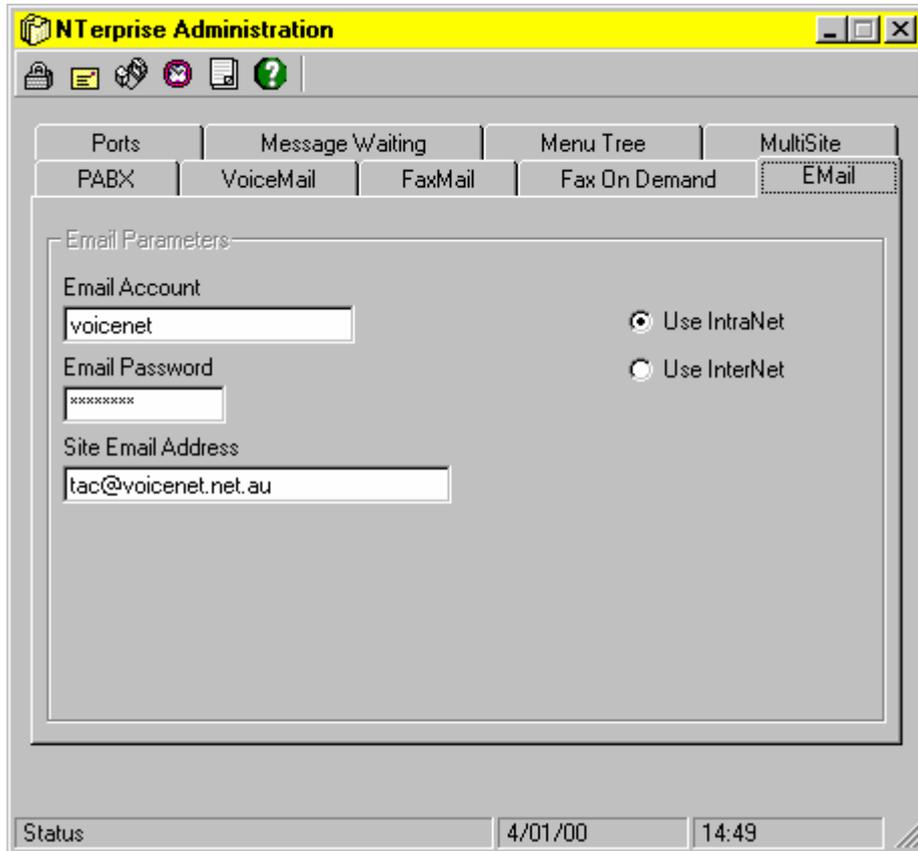
DP 115

If the checkbox is checked, then you can record a different fax menu for the caller where they can press a single digit number from "1" to "7" to retrieve the specific first to seventh documents respectively. Pressing "8" will repeat the menu to the caller and pressing "9" will return the caller to the main menu.

DP 155

Task Email Parameters

Reference



The Email module sends an email message notification through the MailAlert program via an Intranet or an Internet ISP to a mailbox owner when new voice or fax messages are received in their mailbox. The email message can take the form of a simple text message including the header as specified e.g. "You have a new voicemail message", or it can also include the actual voice message as an attachment in WAV format so that the message can be played on a multimedia PC.

NOTE: If the message is included as an attachment, playing the attachment DOES NOT change the message status on the voicemail PC i.e. the message status remains as "New".

Email Account

This field should contain your ISP account name for Internet message notification, or your company account name for Intranet message notification.

Email Password

This field should contain your ISP account password for Internet message notification, or your company account password for Intranet message notification.

DP 146

DP 155

Task	Email Parameters	<i>Reference</i>
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Site Email Address		
---------------------------	--	--

This field should contain your voicemail system's email address.		
--	--	--

Use IntraNet		
---------------------	--	--

Nominates the use of Intranet message notification.		
---	--	--

Use InterNet		
---------------------	--	--

Nominates the use of Internet message notification.		
---	--	--

DP 156

Task Port Parameters

Reference

Select a port Scroll Bar

Use the scroll bar to move up and down through the list of available voicemail ports to view and edit the attributes for each port.

Port Number

This field displays the current port number. The field is not editable. It is updated as you move through the ports using the scroll bar.

Reception Mailbox

In normal use the same reception mailbox will be assigned to each port, however each port in the system can have a different reception mailbox assigned. In this way, callers who press "0" to go to reception on port 1 could be handled by a different receptionist than callers who press "0" on line 2.

The reception mailbox also affects the company business hours and after hours greetings played by the system. This field enables you to set up different companies on the voicemail system when they are sharing the same PABX, by splitting the allocation of voicemail ports between companies.

DP 115

DP 156

Task Port Parameters

Reference

B/H Ring Pickup

This field determines how many rings before the voicemail system will answer a call on the specified port during business hours. It is normally set to 1 but can be increased to give a receptionist a chance to pick up the call before it goes to voicemail.

A/H Ring Pickup

This field determines how many rings before the voicemail system will answer a call on the specified port OUTSIDE business hours. It is normally set to 1 but can be increased under conditions where the voicemail huntgroup or individual analog ports are included in the night ring group. In this case the rings should be staggered by 1 for each port so that they don't all pick up the same call. i.e. Port 1 – A/H Rings 7, Port 2 – A/H Rings 8, etc. By setting up the ring pickup in this way a nightbell can be used and after say 6 rings voicemail will pick up the call.

B/H Zone

This field contains the Zone Definition number for the Business Hours Zone.

DP 161

Dial Out Prefix

The dialout prefix for each port must be specified here in order for message notification and caller transfer offnet via dialout to operate correctly. The usual prefixes for getting an outside line from a PABX are either "9," or "0," depending on the model.

Port Extension Number

The port extension field should correspond to the real analog port number from the PABX, and is used when interfacing with the PABX using HLI serial integration.

IP XXX

DP 156

Task Port Parameters

Reference

Enable Extension Transfers

This option essentially converts the voicemail system to an autoattendant system if enabled (checked).

Not Enabled

Mailbox numbers received and extensions call forwarded to voicemail will always go to the associated mailbox for the caller to leave a message. The only exception to this rule is the Reception Mailbox which, *during Business Hours*, will always follow the specific Call Handling path set up in the mailbox.

Enabled

Mailbox numbers received and extensions call forwarded to voicemail will follow the specific Call Handling path set up in the associated mailbox *during* the associated Transfer Zone. Outside the Transfer Zone calls will go to the associated mailbox for the caller to leave a message. The only exception to this rule is the Reception Mailbox which, *during Business Hours*, will always follow the specific Call Handling path set up in the reception mailbox.

Enable Return To Main Menu

Select this option if you wish to allow callers to return to the main menu after leaving a message in a mailbox, otherwise the voicemail system will hangup after recording the caller's message.

DP 157

Task **Message Waiting Parameters***Reference*

The screenshot shows the 'NT Enterprise Administration' window with the 'Message Waiting' tab selected. The 'Message Waiting Parameters' section includes the following fields and options:

- Enable Message Waiting
- Message Waiting Port:
- B/H MW Repeat Period:
- A/H MW Repeat Period:
- PABX Inband Integration:
 - Prefix:
 - Suffix:
 - Buttons: Set String, Clear String

The status bar at the bottom shows 'Status', '3/01/00', and '14:12'.

Enable Message Waiting

Check this option if message waiting is to be used by the voicemail system to signal the receipt of new messages to mailbox owners.

Message Waiting Port

This field should contain either a "0" or the nominated message waiting port number, usually the last port. If the value is "0" then each individual port will send the message waiting signal after a new message has been left for a mailbox. If the value is not "0", then each individual port will communicate with the nominated message waiting port telling it to send the message waiting signal after a message has been left.

B/H MW Repeat Period

This field contains the business hours (as defined by the B/H Zone) cycle period in minutes before the last port, or the nominated message waiting port if it is not "0", begins a check of all mailboxes in the database in order to resend MW ON or MW OFF signals depending on whether each mailbox has new messages.

DP 157

Task Message Waiting Parameters

Reference

A/H MW Repeat Period

This field contains the OUTSIDE business hours (as defined by the B/H Zone) cycle period in minutes before the last port, or the nominated message waiting port if it is not "0", begins a check of all mailboxes in the database in order to resend MW ON or MW OFF signals depending on whether each mailbox has new messages.

PABX Inband Integration

Voicemail systems using inband integration to communicate with the PABX system are normally required to send DTMF strings to the PABX to tell it to turn ON or OFF the message wait lamp on individual extensions. The DTMF string format is in the form <prefix><extension number><suffix>.

IP XXX

Prefix (Set String)

This field contains the prefix string to set the MW lamp ON. It may require a pause ",", before the digits in the string e.g. ",*8".

Suffix (Set String)

This field contains the suffix string to set the MW lamp ON. It may require a pause ",", before the digits in the string e.g. ",8". Most PABX systems do not use any suffix.

Prefix (Clear String)

This field contains the prefix string to set the MW lamp OFF. It may require a pause ",", before the digits in the string e.g. ",*9".

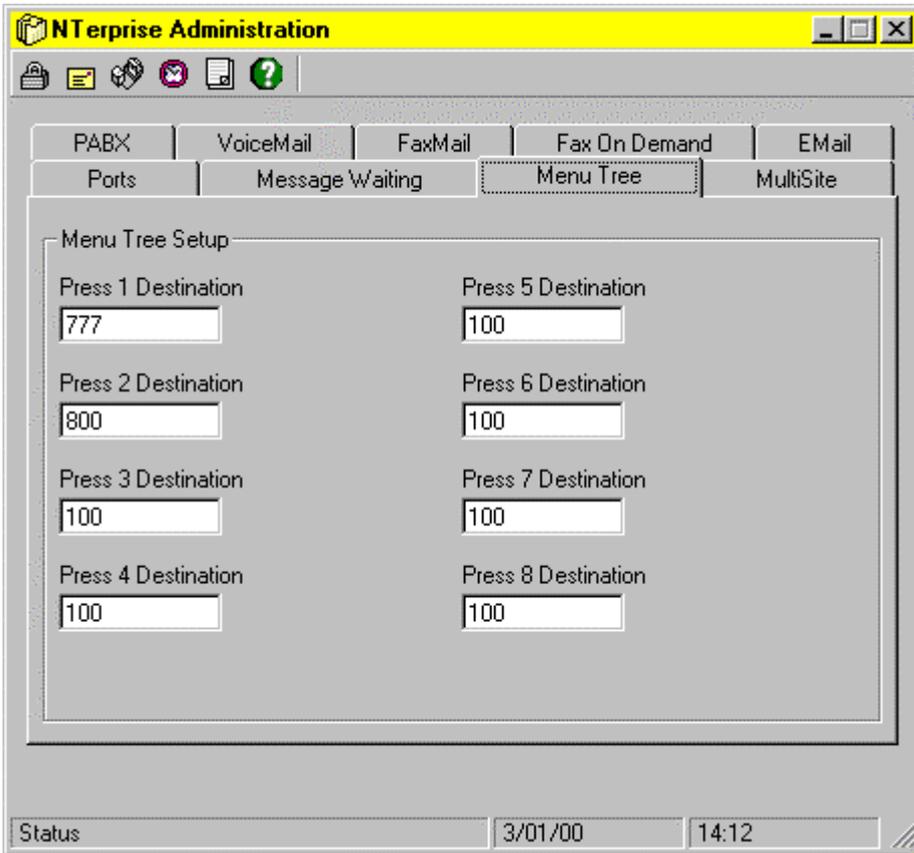
Suffix (Clear String)

This field contains the suffix string to set the MW lamp OFF. It may require a pause ",", before the digits in the string e.g. ",9". Most PABX systems do not use any suffix.

DP 158

Task Menu Tree Parameters

Reference



Menu Tree Setup

If the NEnterprise system is to be used as an autoattendant then the Menu Tree defines the first level of single digit options callers may press to go to secondary levels. Each option should be associated with a valid mailbox, and that mailbox's call handling should be set up appropriately. The menu tree can be used to direct callers to audiotext information mailboxes, to normal mailboxes to leave a message, to transfer to an extension number, to transfer to hunt groups, or to go to another mailbox with further chaining options defined.

See also.....[Mailbox Chaining](#)

DP 158

Task Menu Tree Parameters

Reference

Press 1 Destination

This field should contain a valid mailbox number. When the caller presses 1 from the main menu or company greeting they will go to this mailbox. Further call handling is then defined in this mailbox.

Press 2 Destination

This field should contain a valid mailbox number. When the caller presses 2 from the main menu or company greeting they will go to this mailbox. Further call handling is then defined in this mailbox.

Press 3 Destination

This field should contain a valid mailbox number. When the caller presses 3 from the main menu or company greeting they will go to this mailbox. Further call handling is then defined in this mailbox.

Press 4 Destination

This field should contain a valid mailbox number. When the caller presses 4 from the main menu or company greeting they will go to this mailbox. Further call handling is then defined in this mailbox.

Press 5 Destination

This field should contain a valid mailbox number. When the caller presses 5 from the main menu or company greeting they will go to this mailbox. Further call handling is then defined in this mailbox.

Press 6 Destination

This field should contain a valid mailbox number. When the caller presses 6 from the main menu or company greeting they will go to this mailbox. Further call handling is then defined in this mailbox.

Press 7 Destination

This field should contain a valid mailbox number. When the caller presses 7 from the main menu or company greeting they will go to this mailbox. Further call handling is then defined in this mailbox.

Press 8 Destination

This field should contain a valid mailbox number. When the caller presses 8 from the main menu or company greeting they will go to this mailbox. Further call handling is then defined in this mailbox.

NOTE: Destinations not being used should contain the Reception Mailbox so that callers pressing a single digit will be transferred to reception.

DP 159

Task MultiSite Parameters - AMIS

Reference

The screenshot shows the NTerprise Administration interface. The title bar reads "NTerprise Administration". The menu bar includes Security, Mailboxes, Configure, Zones, Lists, Reports, Library, and About. The main window has a tabbed interface with tabs for PABX, VoiceMail, FaxMail, Fax On Demand, EMail, Ports, Message Waiting, Menu Tree, and AMIS. The AMIS tab is active, displaying the "MultiSite Parameters" configuration form. The form contains the following fields:

- Site Number: 1234
- Site Name: VoiceNet SYDNEY
- Country Code: 61
- Area Code: 02
- Public Network Access Number: 99771913
- Private Network Access Number: (empty)

At the bottom of the window, the status bar shows "Status - connected locally", the date "31/01/2003", and the time "16:46".

If **AMIS-Analog Networking** is enabled for the local system:

Site Number

Each NTerprise voicemail system is assigned a unique site number. This field is for reference purposes only and cannot be edited.

Site Name

This field should contain a descriptive name for the local site.

Country Code

The international country code for the local system, for example Australia is 61, the USA is 1.

Area Code

The local area code for the local system, for example within Australia, NSW would be 02, and VIC would be 03.

DP 159

Task MultiSite Parameters - AMIS*Reference***Public Network Access Number**

The number by which the local system can be indialled using the public switched network (i.e. the normal phone number for the local voicemail system).

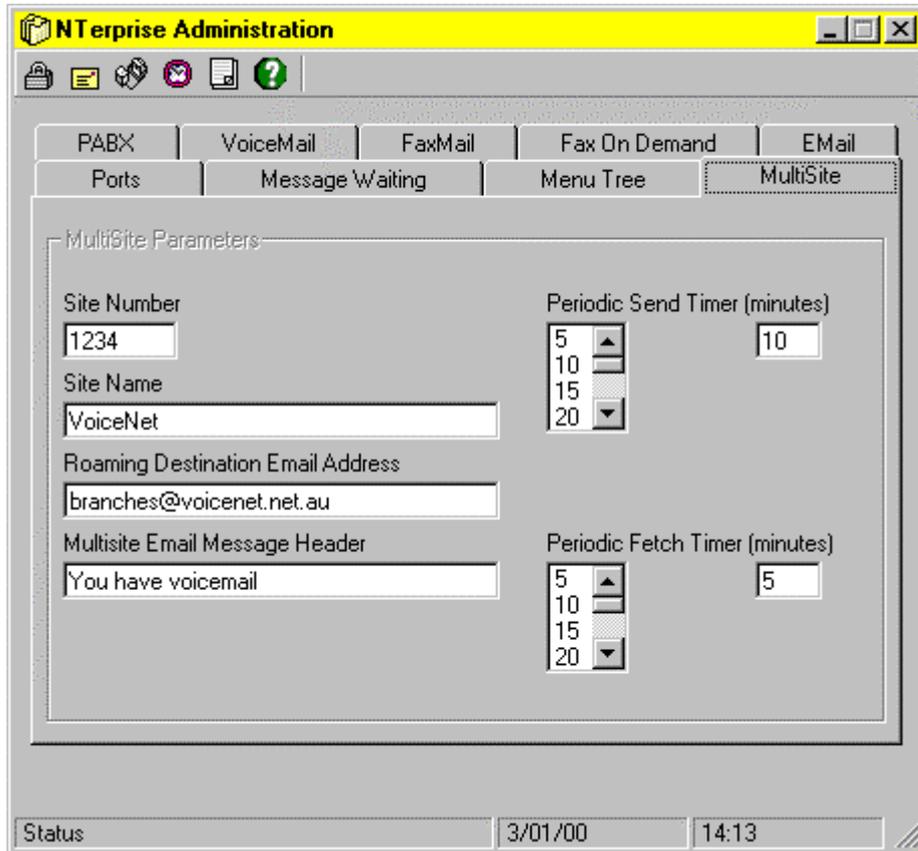
Private Network Access Number

The number by which the local system can be reached using a private or proprietary voice network (e.g. for NEC systems this would be the Number 7 link number for the local voicemail system).

DP 159

Task MultiSite Parameters - Internet

Reference



MultiSite Operation

MultiSite operation is designed for clients operating multiple NEnterprise sites in different locations worldwide. Mailbox owners who “roam” between sites (e.g. managers shuttling between Sydney and Hong Kong) can, from their current “local” site, retrieve messages left for them at another site.

Message transfers between sites are transparent to mailbox owners, and messages handled at a remote site are also automatically handled at every other site, so the mailbox owner does not return to their original site (or any other site, for that matter) and find “new” messages for them which they have already handled at another site.

DP 159

Task MultiSite Parameters - Internet

Reference

Site Number

Each NTerprise site in a multisite scenario is assigned a unique site number. This site number is used to identify where a message has originated, and is also used by roaming mailbox owners as a prefix when identifying themselves at a remote site. For example, if a mailbox owner (mailbox 666) was currently at a remote site with site number 1234, he would access his mailbox at that site by dialling the voicemail group number and entering “#1234666” to identify himself. Note that he enters the remote site number, NOT his local site number as the prefix.

Site Name

This field should contain a descriptive name for each site. It does not need to be unique, although for obvious reasons it should be in a multisite scenario.

Roaming Destination Email Address

This field should contain an email address which contains a distribution list for forwarding email received to all site addresses (as defined in Email Parameters) making up the multisite scenario.

DP 155

Multisite Email Message Header

This field should contain a meaningful header for messages emailed from that site.

Periodic Send Timer

This field contains the value in minutes for periodically checking and sending messages, for those mailbox owners who are currently nominated as “roaming”, to all remote sites from the local site. All messages will be sent to the distribution list defined by the Roaming Destination Email Address forwarding instructions.

Periodic Fetch Timer

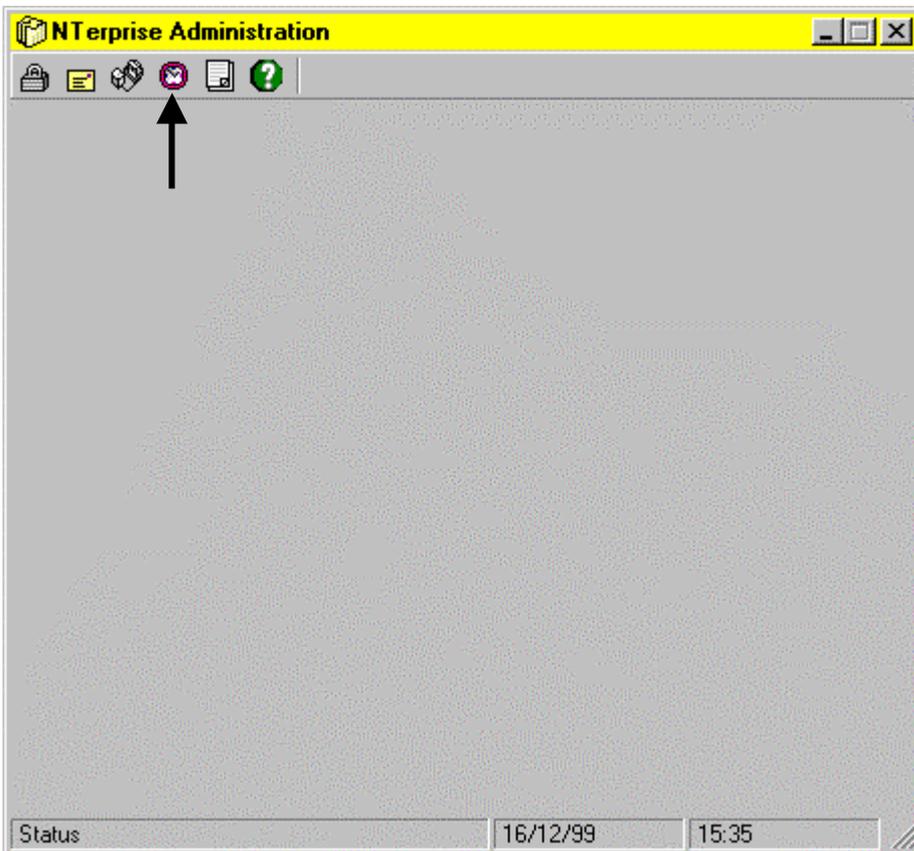
This field contains the value in minutes for periodically fetching messages from the inbox of the local NTerprise email address. Messages fetched will be sorted and assigned to their appropriate mailboxes for message notification and handling.

DP 160

Task Open the Time Tabs in Administration

Reference

- 1 Run the Administration program by double left clicking on the Admin32 icon on the Desktop.
- 2 Enter the administration password. The default password left by the system installers will be "VoiceNet". The password is case-sensitive so enter it exactly as spelt above.
- 3 Click on the Time button to bring up the Time tabs as shown below.



DP 161

Task Zone Definitions

Reference
General Description

Many of the functions and procedures within the voicemail system are controlled by time, or dependent on time. Time within the voicemail system is defined by Zones, with each zone consisting of up to 4 Time definitions, with each time definition consisting of a start and end time for nominated days of the week. Holidays are treated as being after hours. Common functions controlled by zones are:

- the playing of business and after hours company greetings
- whether a call handling option is valid
- whether a message notification option is valid
- when to perform time-dependent tasks such as housekeeping, redial, etc.

DP 161

Task Zone Definitions

Reference

Select Zone Definition

Use the pull-down list or the horizontal scroll bar to select an existing zone definition.

Zone Definition Name

This field should contain a meaningful name for the zone definition. Default zone names are Business Hours, Always, and Never.

Zone Definition Number

This field should contain the number of the Zone. Default zone definition numbers are 1(Business Hours), 2(Always), and 3(Never), therefore further zone definition numbers will commence from 4.

Time Definition 1 (to 4)

These fields should contain a valid Time Definition number. Since there are 4 time definition fields, a zone definition can be constructed with overlapping or sequential time definitions, for example the Business Hours zone definition might consist of Time Definition 1 (Monday to Friday 8:30AM to 5:00PM) and Time Definition 2 (Saturday 9:00AM to 12:30PM). Enter a 0 in the field if it is not being used.

Add

Click on the Add button to add a new zone definition. Use the Select pull-down list to select "New Zone". Edit the name, number, and time fields appropriately.

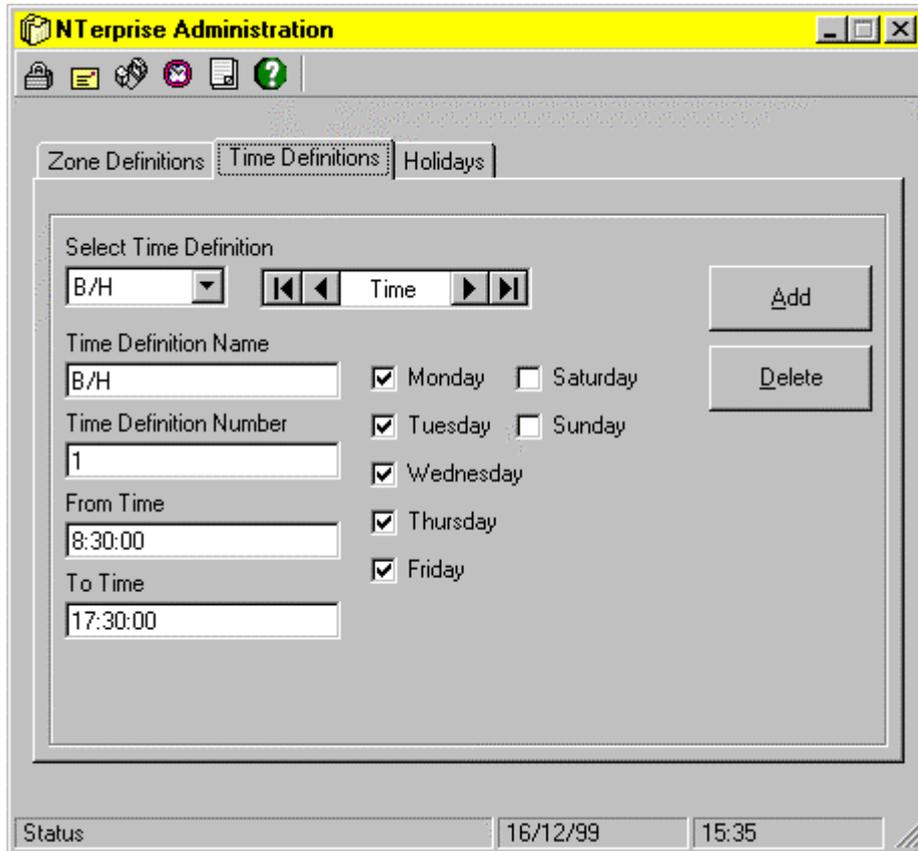
Delete

Click on the Delete button to delete the currently displayed Zone Definition. The zone definitions will be updated when you exit from the Admin program.

DP 162

Task Time Definitions

Reference

**General Description**

Many of the functions and procedures within the voicemail system are controlled by time, or dependent on time. Time within the voicemail system is defined by Zones, with each zone consisting of up to 4 Time definitions, with each time definition consisting of a start and end time for nominated days of the week. Holidays are treated as being after hours. Common functions controlled by zones are:

- the playing of business and after hours company greetings
- whether a call handling option is valid
- whether a message notification option is valid
- when to perform time-dependent tasks such as housekeeping, redial, etc.

DP 162

Task	Time Definitions	<i>Reference</i>
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Select Time Definition

Use the pull-down list or the horizontal scroll bar to select an existing time definition.

Time Definition Name

This field should contain a meaningful name for the time definition. Default time names are Business Hours, Always, and Never.

Time Definition Number

This field should contain the number of the Time Definition. Default time definition numbers are 1(Business Hours), 2(Always), and 3(Never), therefore further time definition numbers will commence from 4.

From Time

This field should contain the commencing time in hh:mm:ss 24 hours format, for example 8:30:00 (equivalent to 8:30AM)

To Time

This field should contain the finishing time in hh:mm:ss 24 hours format, for example 17:30:00 (equivalent to 5:30PM).

Days of the Week

The operational days of the week for the time definition should be checked.

Add

Click on the Add button to add a new time definition. Use the Select pull-down list to select "New Zone". Edit the name, number, and time fields appropriately.

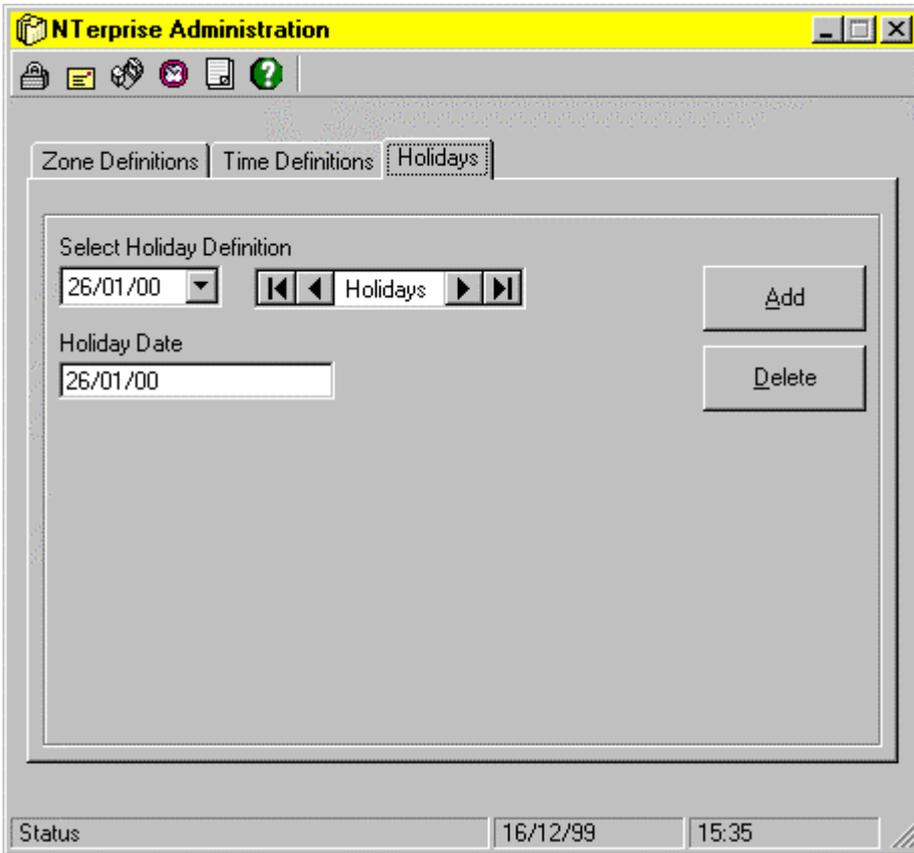
Delete

Click on the Delete button to delete the currently displayed Time Definition. The time definitions will be updated when you exit from the Admin program.

DP 163

Task Holiday Definitions

Reference



General Description

Many of the functions and procedures within the voicemail system are controlled by time, or dependent on time. Time within the voicemail system is defined by Zones, with each zone consisting of up to 4 Time definitions, with each time definition consisting of a start and end time for nominated days of the week. Holidays are treated as being after hours. Common functions controlled by zones are:

- the playing of business and after hours company greetings
- whether a call handling option is valid
- whether a message notification option is valid
- when to perform time-dependent tasks such as housekeeping, redial, etc.

DP 163

Task Holiday Definitions

Reference

Select Holiday Definition

Use the pull-down list or the horizontal scroll bar to select an existing time definition.

Holiday Date

This field should contain the holiday date in the format dd/mm/yy, for example January 26th, 2000 would be 26/01/00.

Add

Enter a new date in the Holiday Date field by typing over any existing values in the field. Click on the Add button to add the new holiday definition to the list.

Delete

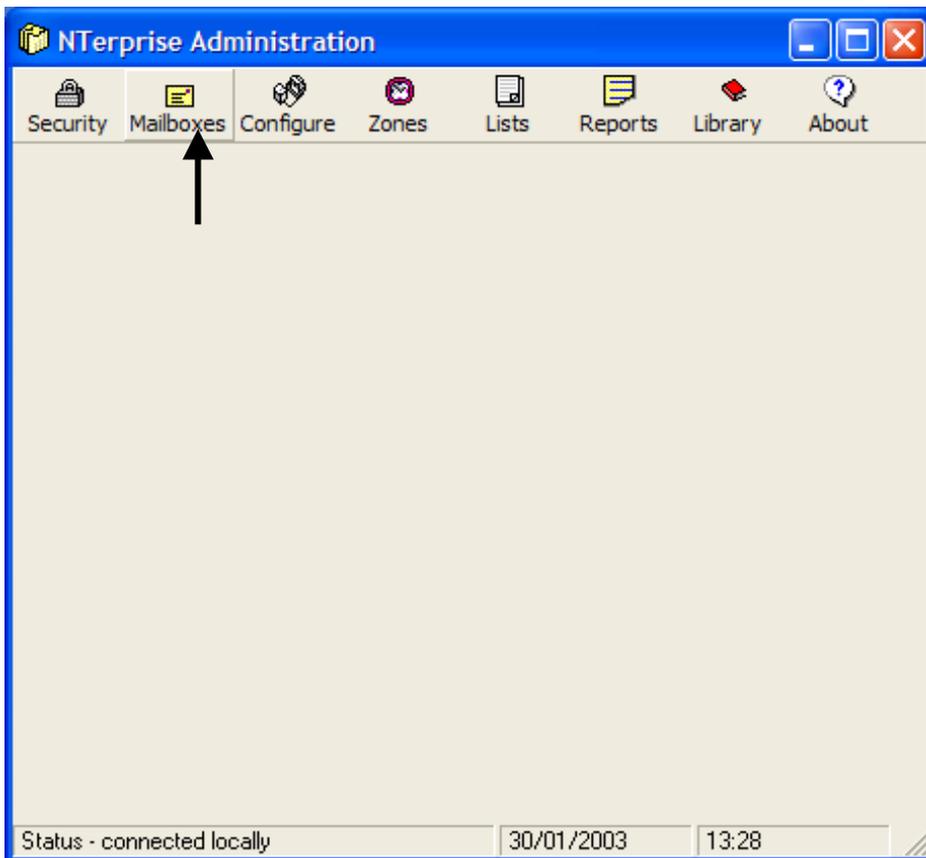
Click on the Delete button to delete the currently displayed Holiday Definition. The holiday definitions will be updated when you exit from the Admin program.

DP 170

Task Open the Mailboxes Tabs in Administration

Reference

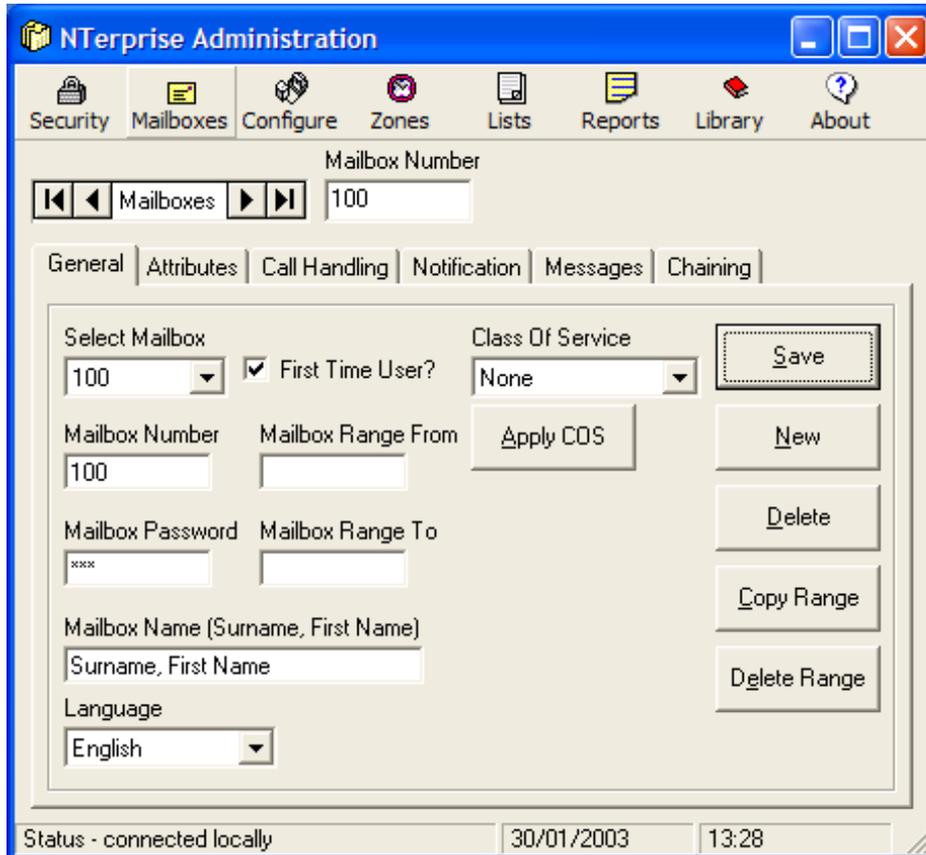
- 1 Run the Administration program by double left clicking on the Admin32 icon on the Desktop.
- 2 Enter the administration password. The default password left by the system installers will be “VoiceNet”. The password is case-sensitive so enter it exactly as spelt above.
- 3 Click on the Mailboxes button to bring up the Mailbox tabs as shown below.



DP 171

Task General Definitions

Reference

**Select Mailbox**

Use the pull-down list or the horizontal scroll bar to select an existing mailbox.

Mailbox Number

This field should contain a valid mailbox number. In normal operation, mailbox numbers will correspond to extension or group numbers. Additional mailboxes can be created as “virtuals”, i.e. not corresponding to a real extension. These virtual numbers can be used for audiotext and chaining mailboxes, as well as mailboxes for extensions shared by two or more employees. There is no predefined limit to the number of mailboxes which can be created. If the voicemail system receives extension information for a mailbox which does not exist in the database, the prompt *“I’m sorry, that is an invalid mailbox number”* will be played to the caller.

IMPORTANT:

To create a new mailbox, DO NOT type over an existing mailbox number and then click on the New button. The correct method to create a new mailbox is described under the section header “New” in this DP.

Task **General Definitions***Reference***Mailbox Password**

The mailbox password can consist of up to 10 numeric digits. The password restricts access to a mailbox's functions to authorised users of that mailbox. Longer passwords are better for limiting potential hacking into the system. No passwords are also permitted, and are the default in new system installations.

Should a mailbox owner forget their password, the system administrator can delete their password by highlighting the existing password and pressing the keyboard delete key, which will allow the owner to get into their mailbox and enter a new password.

Mailbox Name (Surname, First Name)

This field should contain a meaningful name for the mailbox owner (up to 30 alphanumeric characters). If the Dial-By-Name function is likely to be used in autoattendant mode, then the first 3 letters of the field should be alpha characters (a to z) corresponding to the first 3 letters of the mailbox owner's surname. This field is case-insensitive.

Language

This field defines the language that the mailbox's prompts are spoken in. It is normally applicable to hotel systems and will only apply if the appropriate additional language modules have been purchased by the client.

First Time User

This field should be checked if it is desired that the First Time User tutorial be played the first time that the mailbox owner accesses their mailbox. The tutorial prompts the mailbox owner through the setting up of their mailbox by helping them record their name, greeting and password.

Mailbox Range From

This field should contain the starting mailbox number in a sequential range of mailboxes being created or deleted.

See also... Copy Range
 Delete Range

Mailbox Range To

This field should contain the ending mailbox number in a sequential range of mailboxes being created or deleted.

See also... Copy Range
 Delete Range

DP 171

Task General Definitions

Reference

Save

This button saves all existing information for the currently displayed mailbox. Moving from a field after editing the data in that field will also automatically perform the same function.

New

This button creates a new empty mailbox with default attributes. The mailbox number, password and name fields will be cleared ready for new values to be entered. This button should be clicked FIRST when creating a new mailbox.

Delete

This button will ask for confirmation before deleting the currently displayed mailbox, any greetings recorded for that mailbox, and any messages held in that mailbox. Deletion is permanent after acknowledging YES to the confirmation. Respond NO if unsure.

Copy Range

Click this button to copy all of the currently displayed mailbox's settings and definitions to mailboxes created "on the fly" for the sequential range defined in the Range From and Range To fields.

Delete Range

This button will ask for confirmation before deleting all mailboxes, their greetings, and their messages, for the sequential range defined in the Range From and Range To fields. Deletion is permanent after acknowledging YES to the confirmation. Respond NO if unsure.

Class Of Service

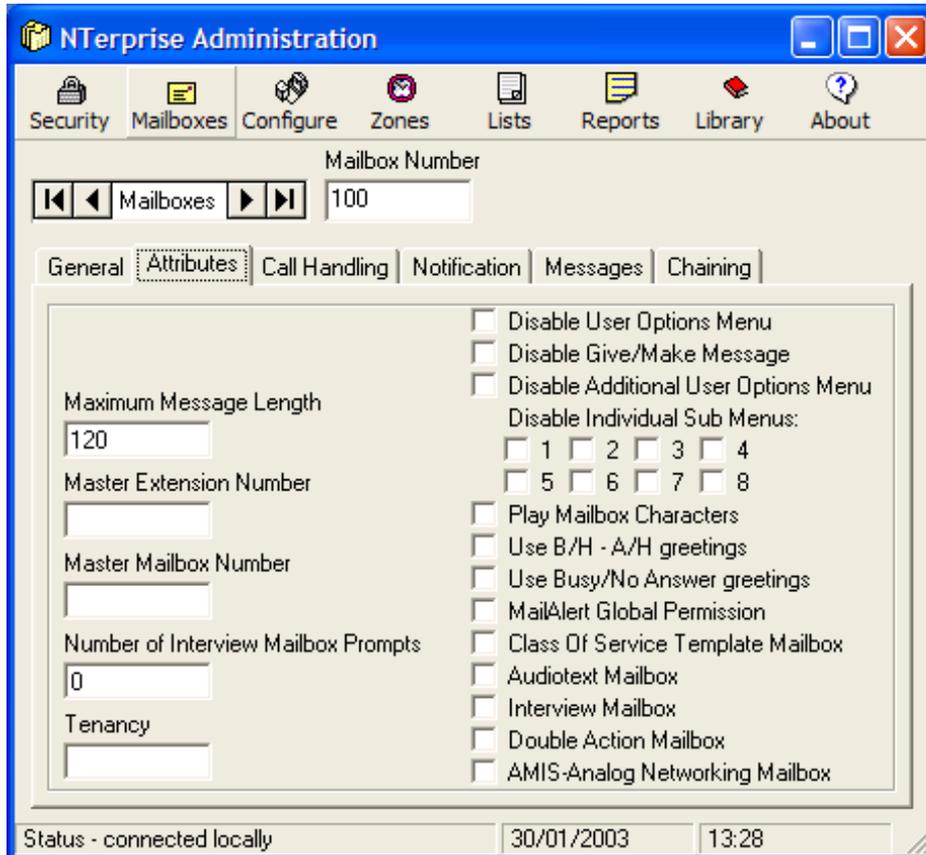
This pull-down field will contain the available Class Of Service templates for use in creating or modifying mailboxes. A Class Of Service template mailbox is, as the name suggests, set up as a template so that all of its settings and definitions can be applied to a range of mailboxes either retrospectively or when using the Copy Range button to create a new range of mailboxes. Defining a Class Of Service template mailbox is covered in DP172.

Apply COS

This button will apply all of the currently selected Class Of Service template settings and definitions to the current mailbox or to the range of mailboxes if defined in the Mailbox Range From and Mailbox Range To fields.

[DP 172](#)

DP 172

Task **Attributes Definitions***Reference***Maximum Message Length**

The maximum message length field is used to define the maximum message length the mailbox will record, and the maximum greeting length the mailbox owner can use. The maximum recording length allowable is 9,999 seconds (2.77 hours). The default length created with a new mailbox is 120 seconds.

Master Extension Number

This field is used in two ways:

- 1 To define Master Extension mailboxes and Tenancy Mailboxes. If the number entered in this field is the same as the currently displayed mailbox number, then the mailbox type will be a Master Extension mailbox. If the number entered corresponds to another mailbox, then the mailbox type will be a Tenancy mailbox.

DP 172

Task Attributes Definitions

Reference

Master Extension Mailbox

This mailbox is typically used in two ways. Firstly, it can be used as the mailbox behind a common extension which is shared by a number of people. In this scenario callers to a common extension (say 200) hear a recorded greeting which plays *"For John Smith press 202, for Fred Bloggs press 203, etc"*. Any messages left will be recorded in "virtual" mailboxes 202, 203, etc. The message waiting indicator on the master extension 200 will be turned on. Secondly, it can be used to light the message waiting lamp on a specific extension for any other mailbox receiving messages, which is useful in group hunt scenarios.

Tenancy Mailbox

This mailbox type is used to nominate mailboxes which reside behind a "master extension". Tenant mailboxes are usually but not necessarily "virtual" mailboxes (i.e. not corresponding to a real extension number). When a message is received by a tenancy mailbox, the message waiting indicator is set on it's Master Extension, because there is no real extension for that mailbox.

2 To define which extensions will have their message waiting lamps lit when the current mailbox has new messages. Any of those extensions can access the mailbox and handle the new messages, after which all the extensions message waiting lamps will be turned off. Multiple extensions are defined with comma delimiters e.g 101,102,103,104 if the field won't accept all the extensions you wish to define it can be expanded using the Update program located in the Nterprise folder.

Master Mailbox Number

Any calls to the originating mailbox will be sent to the Master Mailbox nominated in this field to leave a message. This is typically used where a single user has two extensions but only wants to collect messages from one mailbox, or in executive-PA pairings.

Number of Interview Mailbox Prompts

Interview mailboxes play a prompt (or question) then record the response. They can play up to 99 prompts in sequence. Nominate the number of prompts to be played in this field. When recording the prompts for this mailbox, go to User Options – Record Name & Greetings in the normal manner as if recording a normal mailbox greeting. You will be prompted to record one of your XX mailbox greetings, which will be the interview prompt depending on the number you entered (from 1 to 99).

Tenancy

This field is used in tenanted PABX sites to identify which mailboxes belong to which tenancy. Can be left blank under normal circumstances.

DP 172

Task Attributes Definitions

Reference

Disable User Options Menu

This option bars the mailbox owner from accessing their User Options Menu while online to their mailbox.

Disable Give/Make Message

This option bars the mailbox owner from using the Give Message and Make Message functions while online to their mailbox.

Disable Additional User Options Menu

This option bars the mailbox owner from accessing the sub menus specified under their Additional User Options Menu while online to their mailbox.

Disable Individual Sub Menus

Select the Additional User Options Menu choices which the mailbox owner will be barred from accessing. These option choices are defined in the expanded user guide presented as the spreadsheet “Userguide.xls” located in the Nterprise folder.

Play Mailbox Characters

This option plays mailbox characters rather than mailbox numbers when callers are put into a mailbox to record a message, where the mailbox does not have a name greeting recorded. For example, for mailbox 055 the system will play “*Mailbox zero five five is unavailable.....*” rather than “*Mailbox fifty five is unavailable.....*”.

Use B/H – A/H greetings

This option causes the system to play mailbox greeting 3 during business hours and mailbox greeting 2 outside business hours, if they are recorded. If they are not recorded it will play greeting 1 (if recorded) or the default prompt “*Mailbox <number> is unavailable, please leave a message after the tone.*” if no greeting is recorded.

Use Busy/No Answer greetings

Select this option to enable the use of prerecorded greetings for each type of forwarded call to the currently selected mailbox. This option is only available for PABX integrations which provide information on the type of call forwarding to the mailbox (current known PABX integrations are NEC MCI, Fujitsu 9600, Ericsson MD110, Alcatel 4400, Siemens 100 and 150 series, TIE and NORTEL GDK186). The NTerprise system will play the following mailbox greetings for each type of forwarded call:

Forward Unconditional	Greeting 1
Forward Busy	Greeting 2
Forward No Answer	Greeting 3

**VoiceNet
User Guide**

- User Options Menu
- Additional User Options
- Record Additional Mailbox Greetings)

**VoiceNet
User Guide**

- User Options Menu
- Additional User Options
- Record Additional Mailbox Greetings)

DP 172

Task **Attributes Definitions**

Reference

MailAlert Global Permission

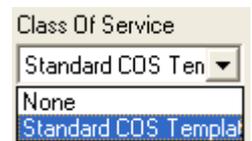
This option is used in conjunction with the MailAlert LAN-based module and when enabled permits the currently selected mailbox to view the messages and administration settings of multiple mailboxes from their local desktop MailAlert module.

Hotel Staff

This option is enabled and visible for hotel systems only and should be unchecked for hotel guests. When unchecked it will cause the system to bar mailbox owner access to the Give/Make Message functions, and to the User Options Menu, thereby preventing hotel guests from recording a custom mailbox greeting and entering a mailbox password. Guest mailboxes will simply play the prompt *“Please leave a detailed message for this room guest after the tone”* to callers, and guest mailbox owners will be able to play, delete and save their messages.

Class Of Service Template Mailbox

When selected this indicates that the currently selected mailbox’s settings and definitions can act as a pre-defined template for creating new mailboxes or applying retrospectively to existing mailboxes. Class Of Service template mailboxes will automatically have their name listed in the Class Of Service pull-down list on the General Tab.

**Audiotext Mailbox**

An audiotext mailbox is an information only mailbox which plays recorded information (its "active greeting") to the caller, but does not record a message from the caller. The mailbox will then either return the caller to the main menu, or if its' chaining options are enabled it will wait to see if the caller presses a digit corresponding to one of the chaining options to determine further call handling.

Interview Mailbox

This option nominates the current mailbox as an Interview Mailbox.

Double Action Mailbox

This option forces the currently selected mailbox to play its active greeting to callers BEFORE acting on its Call Handling type. For example, the mailbox may be set up to perform a blind transfer to a queue or hunt group, and have a recorded greeting along the lines of *“Your call is important to us, please wait while you are transferred to the first available operator”*.

DP 172

Task Attributes Definitions

Reference

AMIS-Analog Networking Mailbox

AMIS analog networking is used to make or give messages to other mailboxes in other voicemail systems anywhere in the world, provided the local voicemail system and the destination voicemail system can dial in to each other over normal phone lines.

The AMIS-Analog Networking Mailbox is used to record and send a message to the destination system's mailboxes as defined as follows:

Destination Voicemail System

The initial number for the destination voicemail system is defined under the Notification Tab of an AMIS-Analog Networking Mailbox.

DP 174

Destination Mailboxes

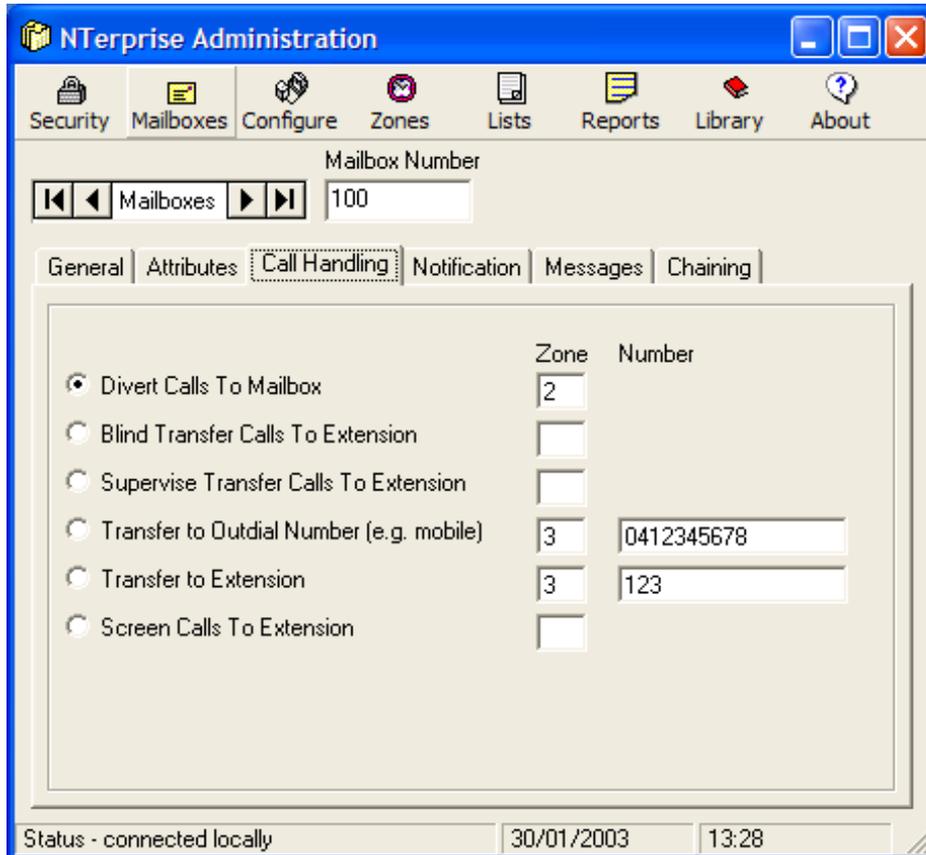
The destination mailboxes within the destination voicemail system are defined under the Chaining Tab of an AMIS-Analog Networking Mailbox. Up to 9 destination mailboxes can be defined in each AMIS-Analog Networking Mailbox.

DP176

To create and send a message, a mailbox owner must have been informed by the system administrator of the appropriate AMIS mailbox to use (i.e. the system administrator needs to have previously setup an AMIS mailbox for the particular destination system and destination mailboxes.

The mailbox owner then calls his local voicemail system, and makes a message (using the Make Message option from the User Menu) in the appropriate AMIS mailbox. The AMIS mailbox will then deliver the message to the destination mailboxes defined under its Chaining Tab. The mailbox owner can also Give a message he has previously received to an AMIS mailbox, with the same end result.

DP 173

Task **Call Handling Definitions***Reference***Mailbox Call Handling**

The first thing that the voicemail system does when it receives a valid mailbox number after picking up a call is to examine that mailbox's Call Handling to determine what to do with the call. All call handling options are dependent on their corresponding Zone being active. If their zone is inactive, the call handling will always default to the "Divert Calls To Mailbox" option.

Divert Calls To Mailbox

This option tells the system to divert the call to the mailbox, where depending on the type of mailbox a mailbox greeting will be played and optionally a message recorded.

DP 173

Task Call Handling Definitions

Reference

Blind Transfer Calls To Extension

This option will (if its zone is active) issue a hookflash to the PABX to place the caller on hold, then dial the extension (mailbox) number, then hang up. This has the effect of “camping” the caller onto the relevant extension, which will ring until it is answered, or until the PABX recall timer times out, in which case the caller would be returned to the voicemail system. NOTE that some PABX’s will require blind transfers to be enabled in their software programming in order for this procedure to operate correctly.

Supervise Transfer Calls To Extension

This option will (if its zone is active) issue a hookflash to the PABX to place the caller on hold, then dial the extension (mailbox) number, wait for the Transfer Timeout period defined in Admin – Configure – Voicemail, and if it detects a human voice answer it will issue another hookflash to the PABX to take the caller off hold and camp them on to the extension which has answered. The system will then hang up. If no human voice answer is detected the transfer will timeout and return the caller to the extension mailbox to leave a message.

Depending on the configuration setup, the voicemail system will play to the caller “*Transferring to <name>*” before it places the caller on hold, and if it detects human voice answering the transfer ring it will play to the (presumed) extension owner “*Transferring a call to your extension*”.

Transfer to Outdial Number (e.g. mobile)

This option will (if its zone is active) issue a hookflash to the PABX to place the caller on hold, pick up an outside line, then dial the outdial (e.g. mobile) number, then hang up. This has the effect of “camping” the caller onto the call, which will ring until it is answered, or until the PABX recall timer times out, in which case the caller would be returned to the voicemail system. NOTE that some PABX’s will require blind transfers to be enabled in their software programming in order for this procedure to operate correctly.

Transfer to Extension

This option will (if its zone is active) issue a hookflash to the PABX to place the caller on hold, then dial the extension number, then hang up. This has the effect of “camping” the caller onto the extension, which will ring until it is answered, or until the PABX recall timer times out, in which case the caller would be returned to the voicemail system. NOTE that some PABX’s will require blind transfers to be enabled in their software programming in order for this procedure to operate correctly.

DP 173

Task Call Handling Definitions

Reference

Screen Calls To Extension

This option will (if its zone is active) play a prompt to the caller asking them to record their name after the tone. The system will record the caller's response. It will then issue a hookflash to the PABX to place the caller on hold, then dial the extension (mailbox) number, wait for the Transfer Timeout period defined in Admin – Configure – Voicemail, and if it detects a human voice answer it will play a prompt to the (presumed) extension owner as follows:

“Transferring <recorded caller’s name> to your extension. To accept this transfer press 1, or to send the caller to your mailbox press 2 or wait.”

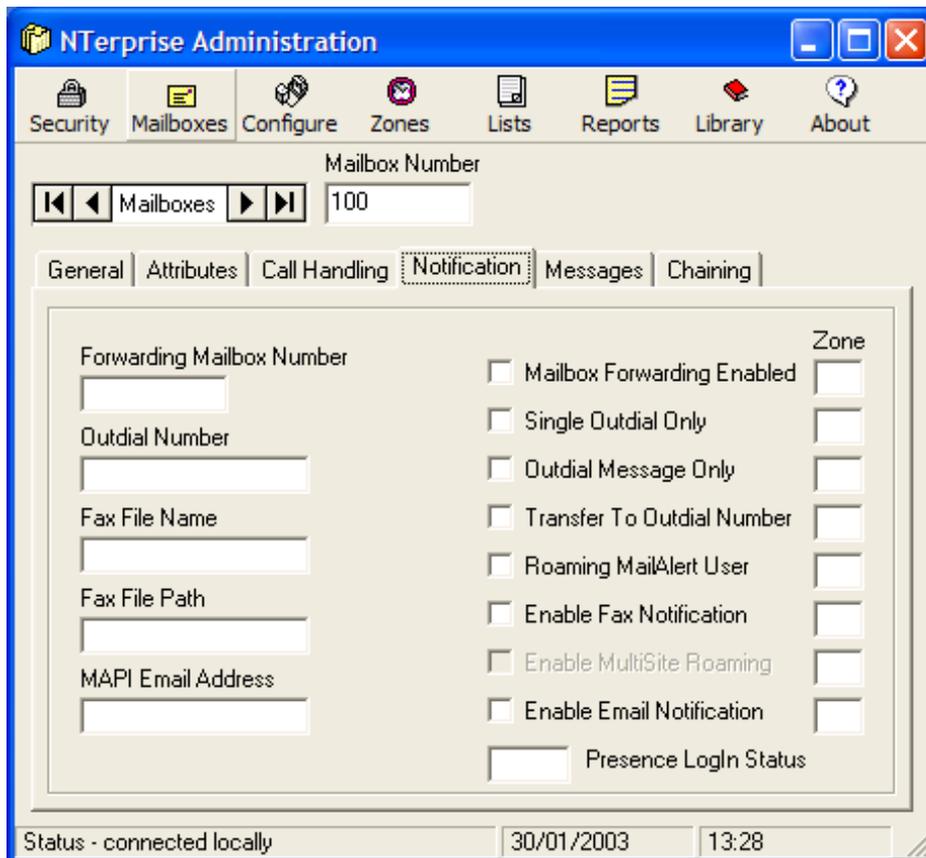
Depending on the response from the extension owner the system will either issue another hookflash to the PABX to take the caller off hold and camp them on to the extension which has answered, or return the caller to the extension mailbox to leave a message.

DP 152

DP 174

Task Notification Definitions

Reference

**General Description**

Probably the most important part of a voicemail system, after recording a message, is to notify the mailbox owner that they have a new message. The system will always tell the PABX to set the message waiting lamp on the mailbox owner's extension. Notification options allow the mailbox owner to specify additional options for how, what, and when they wish to be notified.

Notification can take place for new...

- Voice messages
- Fax Messages

and can take the form of...

- forwarding new voice messages to another mailbox
- outdialling to another number to deliver the message
- outdialling to another number to deliver a prerecorded message
- transferring the caller to an outdial number
- email notification
- screenpop notification over LAN to other PC's
- multisite notification for roaming mailbox owners

DP 174

Task Notification Definitions

Reference

Forwarding Mailbox Number

This field should contain the destination mailbox number for new messages from the currently displayed mailbox to be forwarded to (this is immediate if a high level PABX interface is implemented or after the expiry of the B/H or A/H Periodic MW cycle time if an inband PABX interface is implemented). The destination mailbox owner will have the following prompt played to them after the message time stamp when they retrieve a new message which has been transferred to their mailbox:

“Forwarded message from <origin mailbox name>”

Outdial Number

This field should contain the destination outdial number (without any dialout prefix AND without any spaces) for message notification via:

- single outdial only
- periodically repeating outdial (the default)
- outdial message only
- transfer caller to outdial number

The outdial number is usually a mobile phone or pager number, but can be any number including another extension within the PABX.

Fax File Name

This field should contain the fax file extension in the format “*.<extension>”, for example WinFax fax received extensions would be “*.fxr”.

Fax File Path

This field should contain the full path (including over LAN if applicable) to the master directory under which new fax files will be placed. Fax notification works by checking for new files of the format Fax File Name in a directory called <mailbox number> under the fax file path.

For example, fax notification for mailbox 156 where the fax file path nominated was \\FaxServer\c\FaxesReceived\ would check the directory:

\\FaxServer\c\FaxesReceived\156\ for any new files of the form *.fxr.

[DP 157](#)

DP 174

Task Notification Definitions

Reference

MAPI Email Address

This field should contain the destination email address (e.g. `mbx156@default.com`) or address book alias for email message notification. Email message notification will take the form of a message header (“Voicemail”) and message text (“You have *nn* new voicemail messages”), optionally with a message attachment in the form of a WAV multimedia file.

Mailbox Forwarding Enabled

This option will (if its zone is active) enable/disable the forwarding of new voice messages to the mailbox specified in the Forwarding Mailbox Number field.

Single Outdial Only

This option will (if its zone is active) enable/disable a once only outdial to the number specified in the Outdial Number field, when a new message is received for that mailbox.

Outdial Message Only

This option will (if its zone is active) enable/disable delivery of a prerecorded message (it plays mailbox greeting 2) to the number specified in the Outdial Number field, when a new message is received for that mailbox. This option is commonly used for outdial to pager services.

Transfer To Outdial Number

This option will (if its zone is active) enable/disable a supervised transfer to the outdial number instead of immediately placing a caller in a mailbox. If the supervised transfer is unsuccessful, it will return the caller to the mailbox to leave a message.

Roaming MailAlert User

This option will (if its zone is active) enable/disable the generation of “screenpop” message notification via the MailAlert program installed on the mailbox owner’s desktop PC. This facility requires a Microsoft network to be connected to all PC’s (including the voicemail server) which are using this function.

Enable Fax Notification

This option will (if its zone is active) enable/disable the delivery of fax notification messages. Fax notification plays to the mailbox owner the number of new faxes they have, and then for each new fax allows the mailbox owner to enter a fax delivery number for refaxing of the fax to that number.

DP 103

DP 174

Task Notification Definitions

Reference

Enable MultiSite Roaming

This option will (if its zone is active) enable/disable the generation and delivery of multisite message notifications to all site email addresses as defined under Configure – MultiSite.

DP 159

Enable Email Notification

This option will (if its zone is active) enable/disable the generation and delivery of email message notification to the email address specified in the MAPI Email Address field.

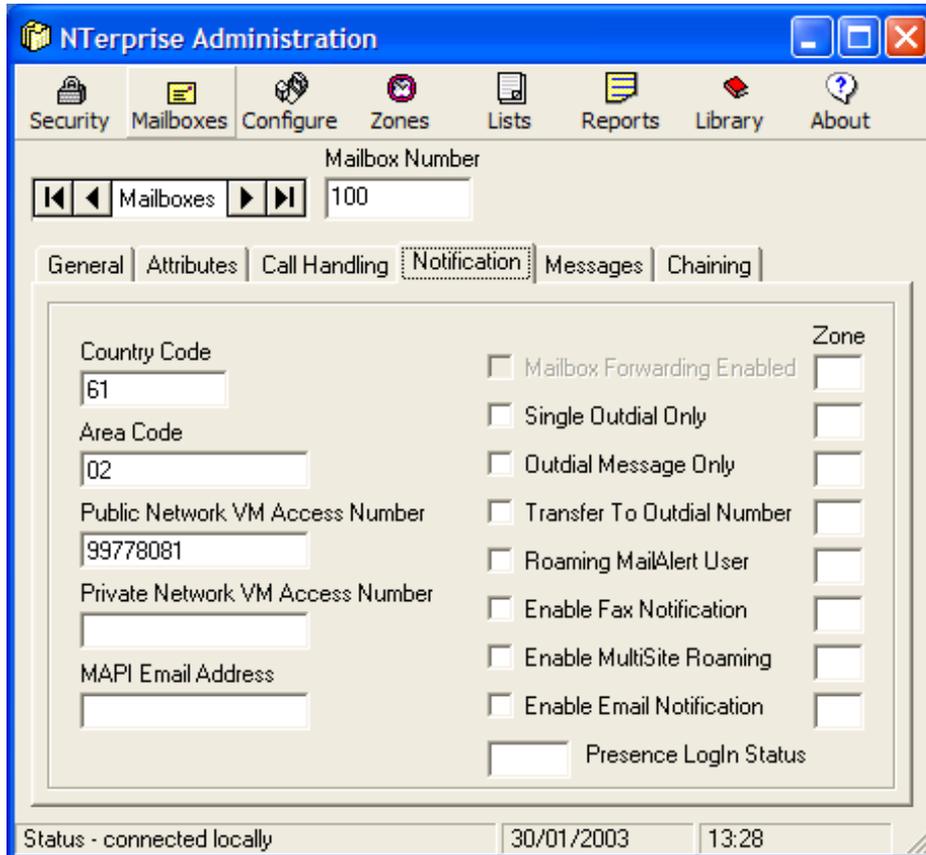
Presence LogIn Status

This field shows the current mailbox logged in if the mailbox owner is using the Presence desktop module to control their calls and appointments. If the mailbox owner is receiving a message on their desktop when they attempt to log in to Presence which says “User already logged in, exiting...” then clearing this field will permit the mailbox owner to log in to Presence successfully. The Presence LogIn Status field is automatically cleared each night during the voicemail system’s routine housekeeping procedures. It is also cleared when the mailbox owner closes Presence on their desktop, or when they turn off their desktop PC.

DP 174

Task Notification Definitions

Reference

**Notification – AMIS Mailbox**

If the currently selected mailbox is an AMIS-Analog Networking Mailbox, then the Notification Tab is used to define the indial parameters for the DESTINATION voicemail system, as follows:

Country Code

The international country code for the destination system, for example Australia is 61, the USA is 1.

Area Code

The local area code for the destination system, for example within Australia, NSW would be 02, and VIC would be 03.

Public Network VM Access Number

The number by which the destination can be indialled using the public switched network (i.e. the normal phone number for the destination voicemail system).

DP 174

Task Notification Definitions

Reference

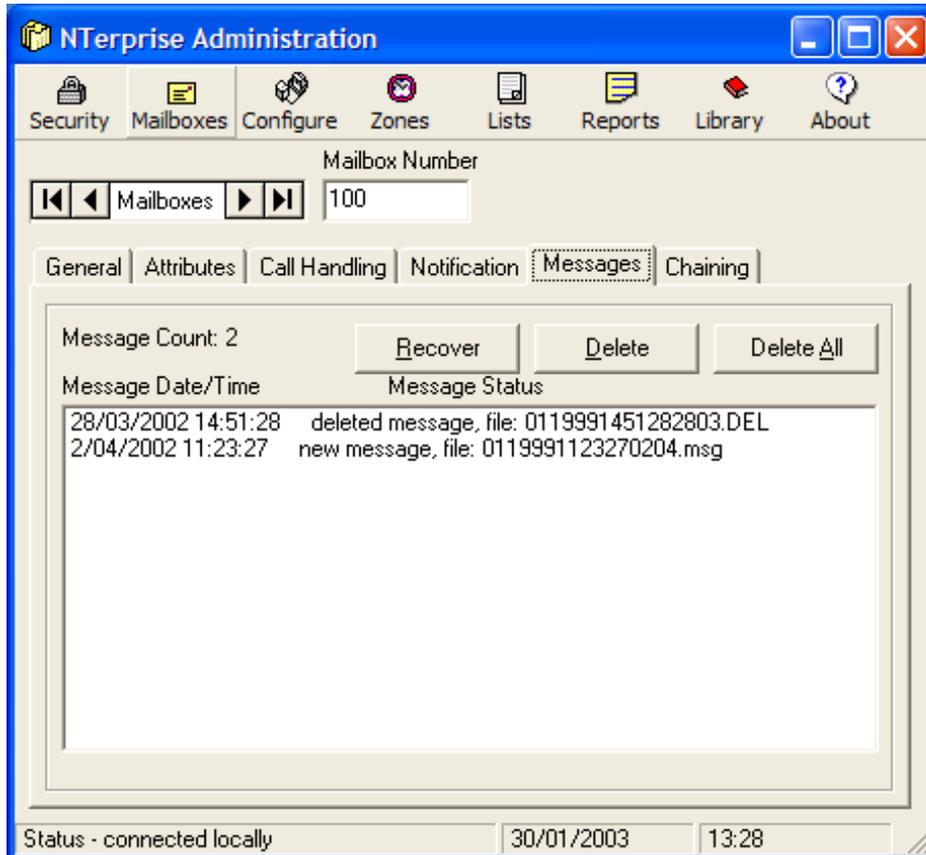
Private Network VM Access Number

The number by which the destination can be reached using a private voice network (e.g. for NEC systems this would be the Number 7 link number for the destination voicemail system).

NOTE

If this field is NOT blank, it will override the Public Network VM Access Number and become the default number by which this AMIS mailbox attempts to deliver messages to the destination voicemail system.

DP 175

Task **Message Definitions***Reference***Message Count**

A simple counter of all messages in the currently selected mailbox.

Message Date/Time

All messages in a mailbox will be date and time stamped in the format:

dd/mm/yyyy hh:mm:ss

and displayed descending sorted by date and time.

Message Status

This field displays the message status and message file name as follows:

new message	Message not yet played
saved message	Message has been played and saved (i.e. a kept message)
deleted message	Message has been played and marked for deletion
played message	Message has been played but not saved (i.e. treated as new)

DP 175

Task Message Definitions

Reference

Recover

When a mailbox owner plays a message and then deletes it, the message is actually only marked for future deletion. Messages are not actually physically deleted from the system until the system performs its routine housekeeping at 2AM the next morning. Therefore, messages which have been accidentally deleted can be recovered for the mailbox owner by the system administrator.

To do this, select the message(s) you wish to recover and then click the Recover button. The messages will be returned to the mailbox as new messages and the extension message waiting lamp will be turned on.

Delete

Select the message(s) you wish to delete and then click the Delete button. You will be asked to confirm deletion. Selecting YES will mark the selected messages for future deletion from the mailbox.

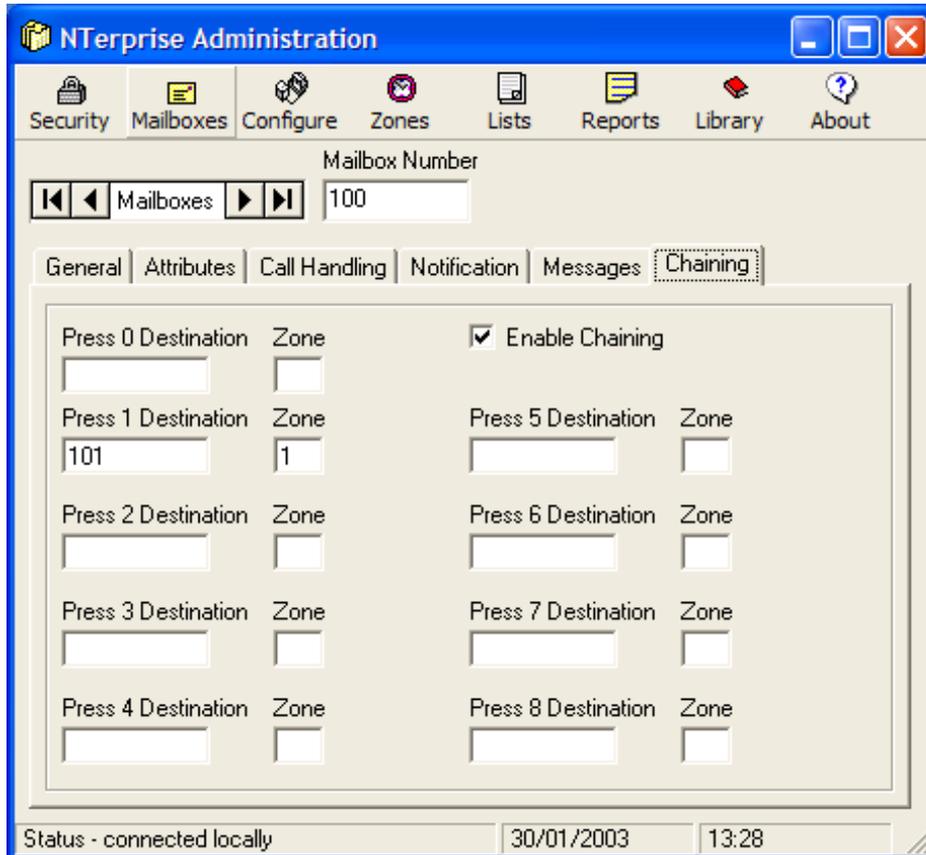
Delete All

Click the Delete All button. You will be asked to confirm deletion. Selecting YES will mark ALL messages for future deletion from the mailbox and the extension message waiting lamp will be turned off.

DP 176

Task Chaining Definitions

Reference



General Description

A multi-layered menu used to direct callers to specific destinations is constructed by nominating chain destinations for when users press a single digit between 0 and 8. The number of levels or layers is unlimited. The construction process might be as follows:

- 1 Create a new mailbox with attributes set as an audiotext mailbox. This type of mailbox will play its active greeting only. Information or caller choices are recorded in the active greeting. For example, this audiotext mailbox might be number 500 and play to callers *"For sales press 1, for accounts press 2"*.
- 2 Create another audiotext mailbox (numbered say 501) which is going to contain further options for accounts as follows *"For accounts receivable press 1, for accounts payable press 2"*.

DP 176

Task Chaining Definitions

Reference

- 3 In the chain section of the first mailbox 500 you would enable chaining, and put the sales extension number in the press 1 destination field. In the press 2 destination field you would put the second mailbox number 501. When callers press 1 they will be transferred to the sales extension, and when callers press 2 they will hear mailbox 501's active greeting.
- 4 In the chain section of mailbox 501 you would enable chaining, and put the accounts receivable extension number in the press 1 destination field, and put the accounts payable extension number in the press 2 destination field. When callers press 1 they will be transferred to accounts receivable, and when they press 2 they will be transferred to accounts payable.
- 5 Record the initial company greeting (which callers are going to hear as the top layer of the autoattendant) with a message which says *"You have called <company name>, to hear further message options press 1, or stay on the line to be transferred to reception"*.
- 6 Open the Voicemail Administration program, go to Configure - Menu Tree, and in the Press 1 field enter 500. When callers press 1 from the company greeting they will hear the active greeting of mailbox 500 giving them further options as outlined in steps 1 through 4.

DP 158

Enable Chaining

This option enables/disables the chaining function for the currently displayed mailbox.

Press 0(to 8) Chain Destination

This field should contain the destination mailbox for the system to send the caller to (if its zone is active) if the corresponding digit is pressed by the caller.

NOTE:

If the Press 0 Destination is not blank, then the destination mailbox it contains will override the system-wide reception mailbox used if caller's press 0 to go to reception rather than leaving a message in the mailbox. You can therefore set up tenancy- or company-based receptions which are specific to mailboxes.

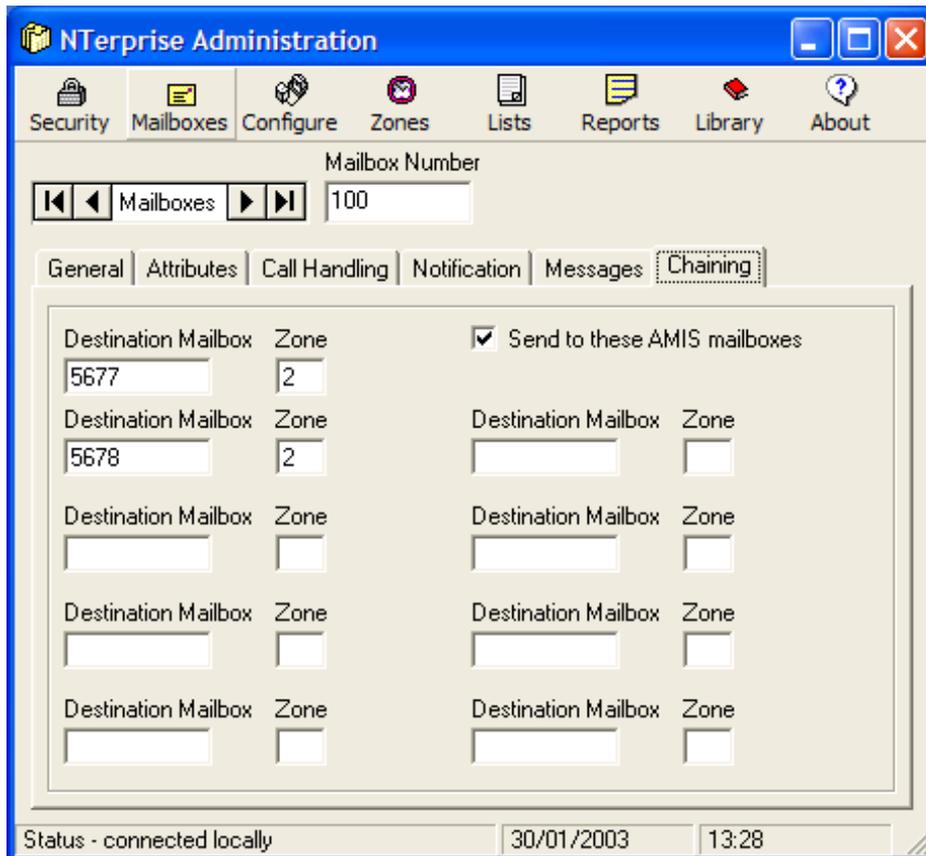
Zone

This field defines the applicable Zone Definition for the associated destination field. If left blank then the Business Hours zone will apply.

DP 176

Task Chaining Definitions

Reference

**Chaining – AMIS Mailbox**

If the currently selected mailbox is an AMIS-Analog Networking Mailbox, and the checkbox **Send to these AMIS mailboxes** is checked, then the Chaining Tab is used as follows:

Destination Mailbox

When messages are left in the currently selected mailbox, these fields define the mailboxes in the DESTINATION system to which those messages will be delivered.

Zone

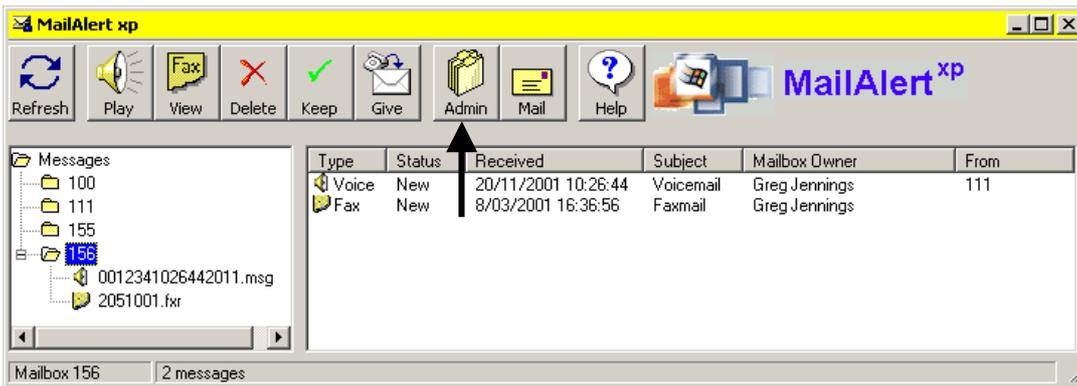
This field defines the applicable Zone Definition for the associated destination field. If left blank then the Business Hours zone will apply.

DP 177

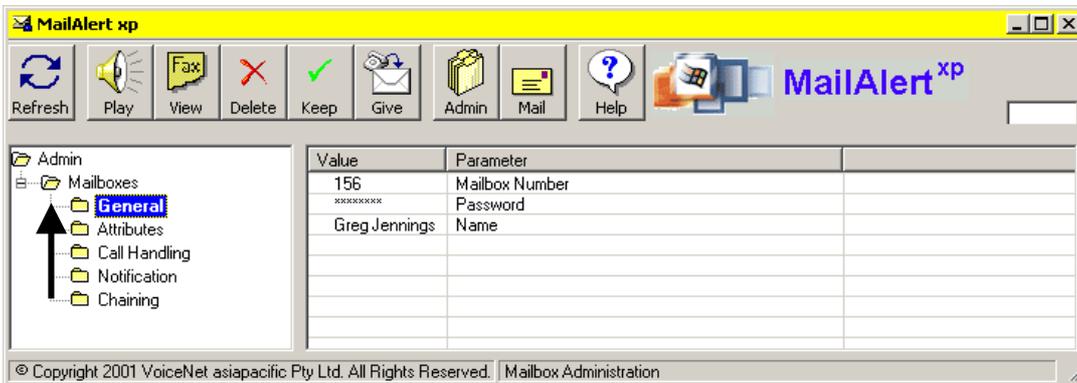
Task Open the Mailbox Admin function in MailAlert

Reference

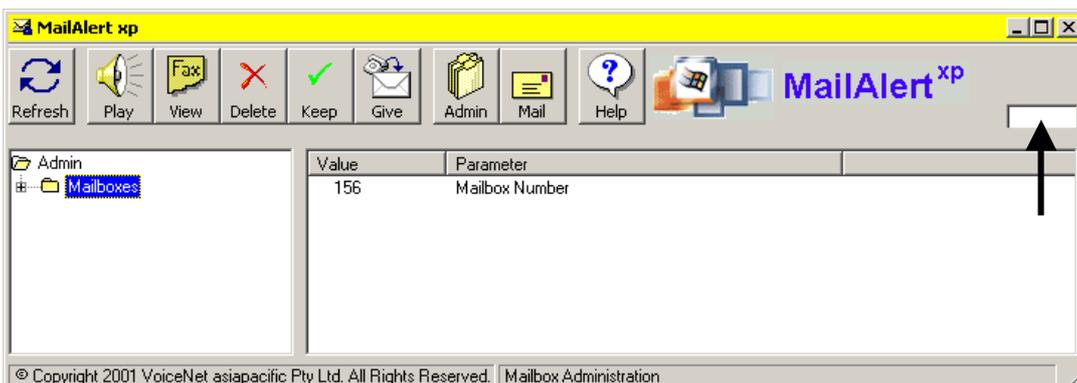
- 1 Click on the Admin button to bring up the Mailbox parameters as shown below.



- 2 Expand the left tree view by clicking on the headings.



- 3 If your mailbox is authorised for global access, you may view other mailboxes by closing the tree (double click on Admin), entering a mailbox number in the field provided, and then expanding the tree.

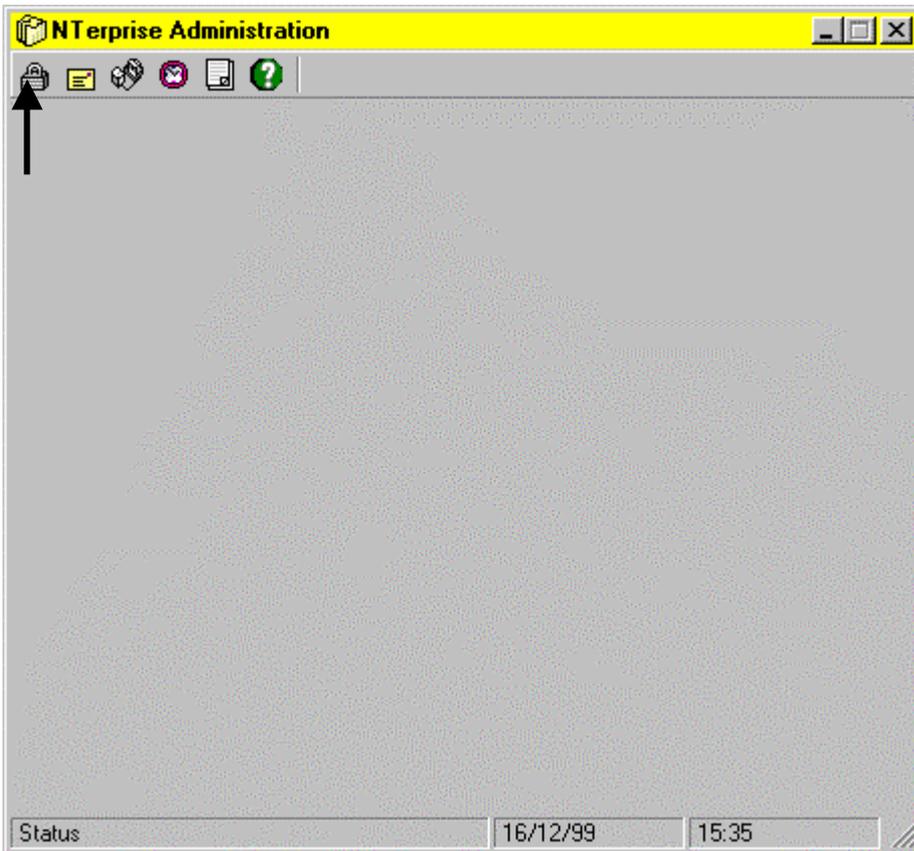


DP 180

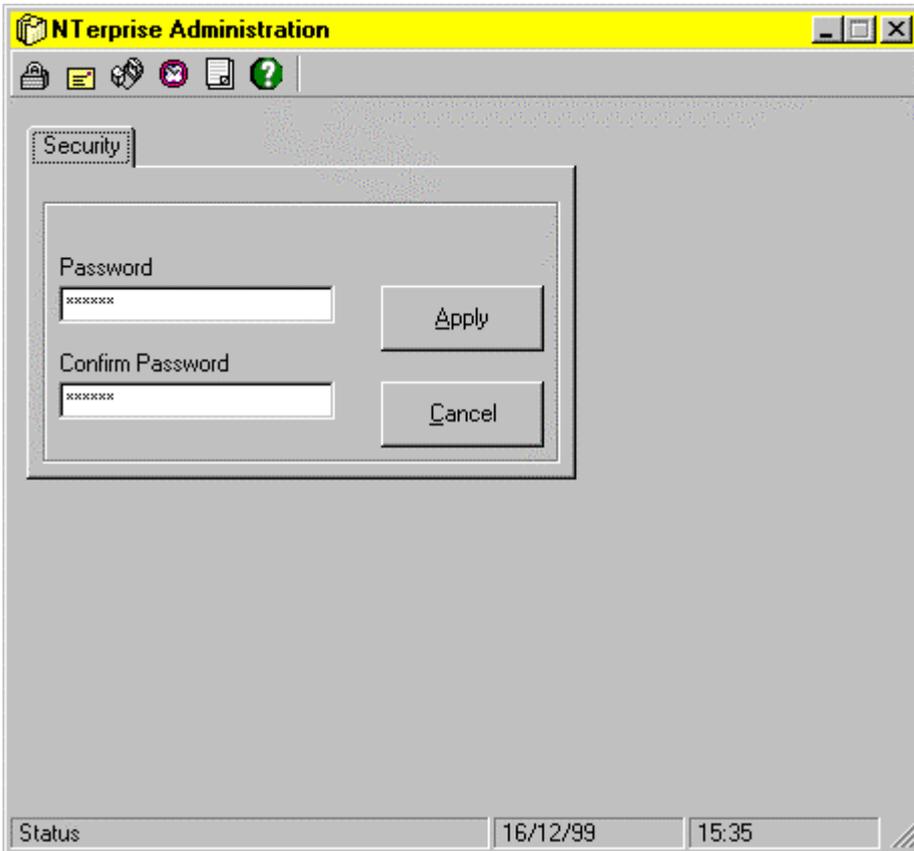
Task Open the Security Tab in Administration

Reference

- 1 Run the Administration program by double left clicking on the Admin32 icon on the Desktop.
- 2 Enter the administration password. The default password left by the system installers will be "VoiceNet". The password is case-sensitive so enter it exactly as spelt above.
- 3 Click on the Security button to bring up the Security tab as shown below.



DP 181

Task **Security Parameters***Reference***Password**

This field should contain the password for gaining access to the administration program. The field is case-sensitive and limited to 15 alphanumeric characters.

Confirm Password

This field should contain the same password as above, to serve as confirmation for gaining access to the administration program. The field is case-sensitive and limited to 15 alphanumeric characters.

Apply

Choose the apply button to apply the new password entered. Only matching password/confirm password fields will be accepted.

Cancel

Choose the cancel button to cancel the change passwords operation and close the Security tab.

Task Reference Security Levels

Voicemail Administration (Level 1 Security Level)	Security	Level 1 Level 2 Level 3 Level 4
	Mailboxes	General Attributes Call Handling Notification Messages Chaining CallerID
	Configure	PABX VoiceMail FaxMail Fax On Demand Unified Ports Message Waiting Menu Tree AMIS
	Zones	Zone Definitions Time Definitions Holidays
	List	Setup Lists Modify Lists Report Lists
	Reports	Transactions Mailboxes Messages Call Statistics
	Library	
	About	

Task Reference Security Levels

Voicemail Administration (Level 2 Security Level)	Security	Level 1 Level 2 Level 3 Level 4
	Mailboxes	General Attributes Call Handling Notification Messages Chaining CallerID
	Configure	PABX VoiceMail FaxMail Fax On Demand Unified Ports Message Waiting Menu Tree AMIS
	Zones	Zone Definitions Time Definitions Holidays
	List	Setup Lists Modify Lists Report Lists
	Reports	Transactions Mailboxes Messages Call Statistics
	Library	
	About	

Task Reference Security Levels

Voicemail Administration (Level 3 Security Level)	Security	Level 1 Level 2 Level 3 Level 4
	Mailboxes	General Attributes Call Handling Notification Messages Chaining CallerID
	Configure	PABX VoiceMail FaxMail Fax On Demand Unified Ports Message Waiting Menu Tree AMIS
	Zones	Zone Definitions Time Definitions Holidays
	List	Setup Lists Modify Lists Report Lists
	Reports	Transactions Mailboxes Messages Call Statistics
	Library	
	About	

Task Reference Security Levels

Voicemail Administration
(Level 4 Security Level)

Security

Level 1
Level 2
Level 3
Level 4

Mailboxes

General

Attributes
Call Handling
Notification
Messages
Chaining
CallerID

Configure

PABX
VoiceMail
FaxMail
Fax On Demand
Unified
Ports
Message Waiting
Menu Tree
AMIS

Zones

Zone Definitions
Time Definitions
Holidays

List

Setup Lists
Modify Lists
Report Lists

Reports

Transactions
Mailboxes
Messages
Call Statistics

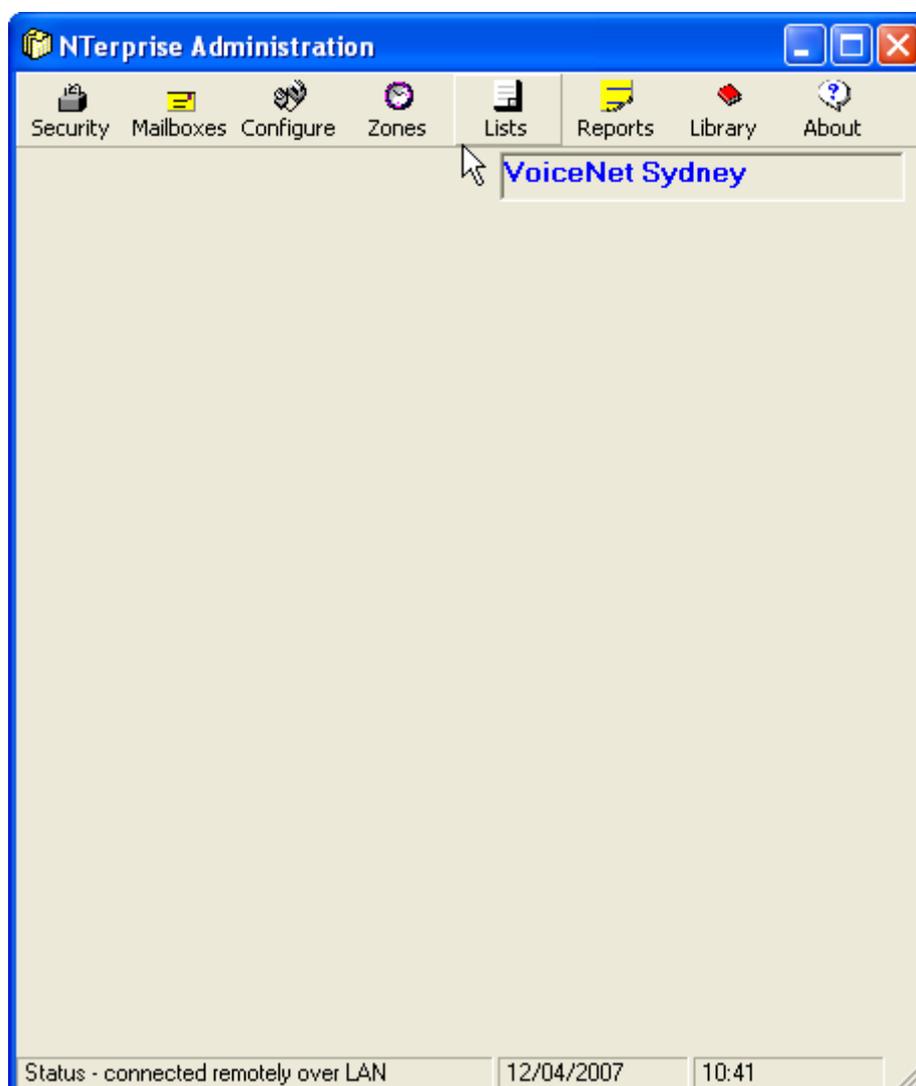
Library

About

DP 190

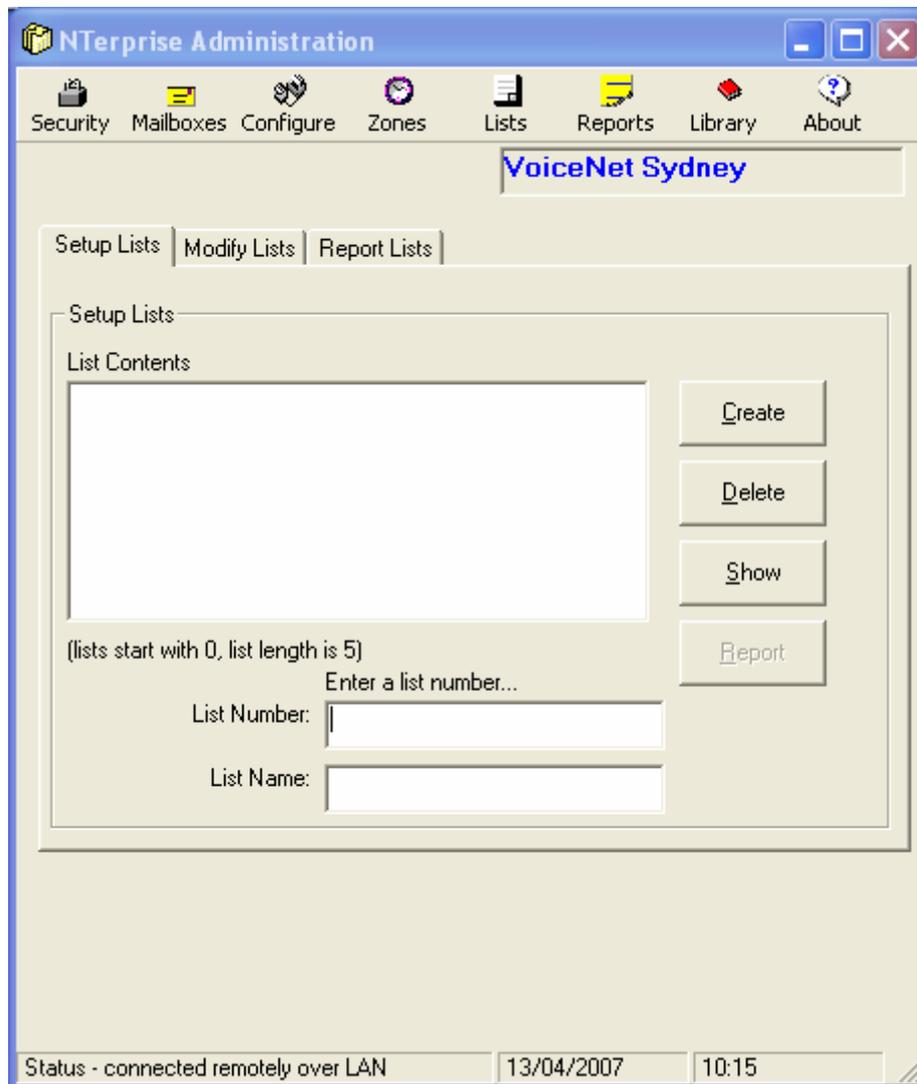
Task Reference **Open the Lists tab in Administration**

- 1 Run the Administration program by double left clicking on the Admin32 icon on the Desktop.
- 2 Enter the administration password. The default password left by the system installers will be "VoiceNet". The password is case-sensitive so enter it exactly as spelt above.
- 3 Click on the Lists button to bring up the Lists tab as shown below.



Task Reference

Setup Lists

**General Description**

Lists in voicemail are the equivalent of broadcasts in email. Lists can be used by the Give Message and Make Message functions of the voicemail system to pass pointers to a message to all members of the list. Only one copy of the actual message is kept by the voicemail system. Only when all members of the list have deleted their pointer to the message will the message actually be marked for deletion from the file system.

Task Reference**Setup Lists****List Contents**

This list box contains a listing of all the mailboxes in the list as defined by the List Number field.

DP 152**List Number**

This field should contain a valid list number (using the List Starting Digit and List Length as defined).

List Name

This field should contain any alphanumeric name (up to 30 characters) to describe the list can be entered in this field. Moving off the field automatically saves the entered list name.

In addition, a spoken list name can be recorded by mailbox owners through the User Menu - User Options Menu - Additional User Options – Lists - Modify Lists path.

Create

To create a new list enter a valid list number in the List Number field then click on the Create button.

New lists can also be created over the phone by a mailbox user through User Menu - User Options Menu - Additional User Options – Lists – Create List.

Delete

To delete a list enter a valid list number in the List Number field then click on the Delete button.

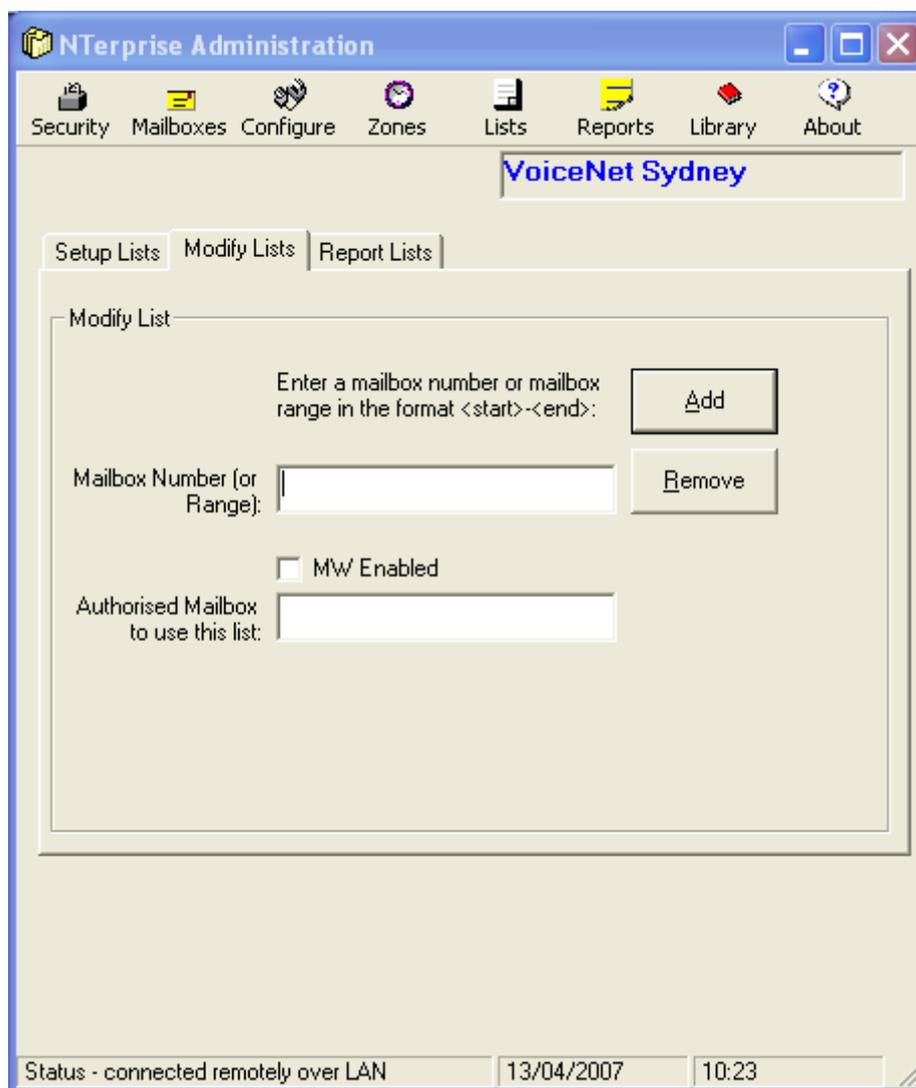
Lists can also be deleted over the phone by a mailbox user through User Menu - User Options Menu - Additional User Options – Lists – Delete List.

Show

Click on the Show button to show the contents (i.e. the member mailboxes) of the current List Number. The contents will be displayed in the List Contents box.

Task Reference

Modify Lists

**General Description**

Existing lists can be setup or modified by adding or deleting individual mailboxes or ranges of mailboxes from this tab.

Task Reference**Modify Lists****Mailbox Number (or Range)**

This field should contain the individual mailbox number or mailbox range (in the format xxx-xxx) to add or remove from the List Number currently displayed under the Setup Lists tab.

 MW Enabled

Message waiting indication will or will not be sent to all mailboxes defined in the “Mailbox Number (or Range)” field above whenever a list message is generated for this list depending on the state of the checkbox labelled “MW Enabled”, where unchecked means Message Waiting indication will not be sent. This is useful under circumstances where thousands of mailboxes may be receiving a list message and it would be undesirable to subject the PABX to such a large “burst” of MW indication.

Authorised Mailbox to use this list

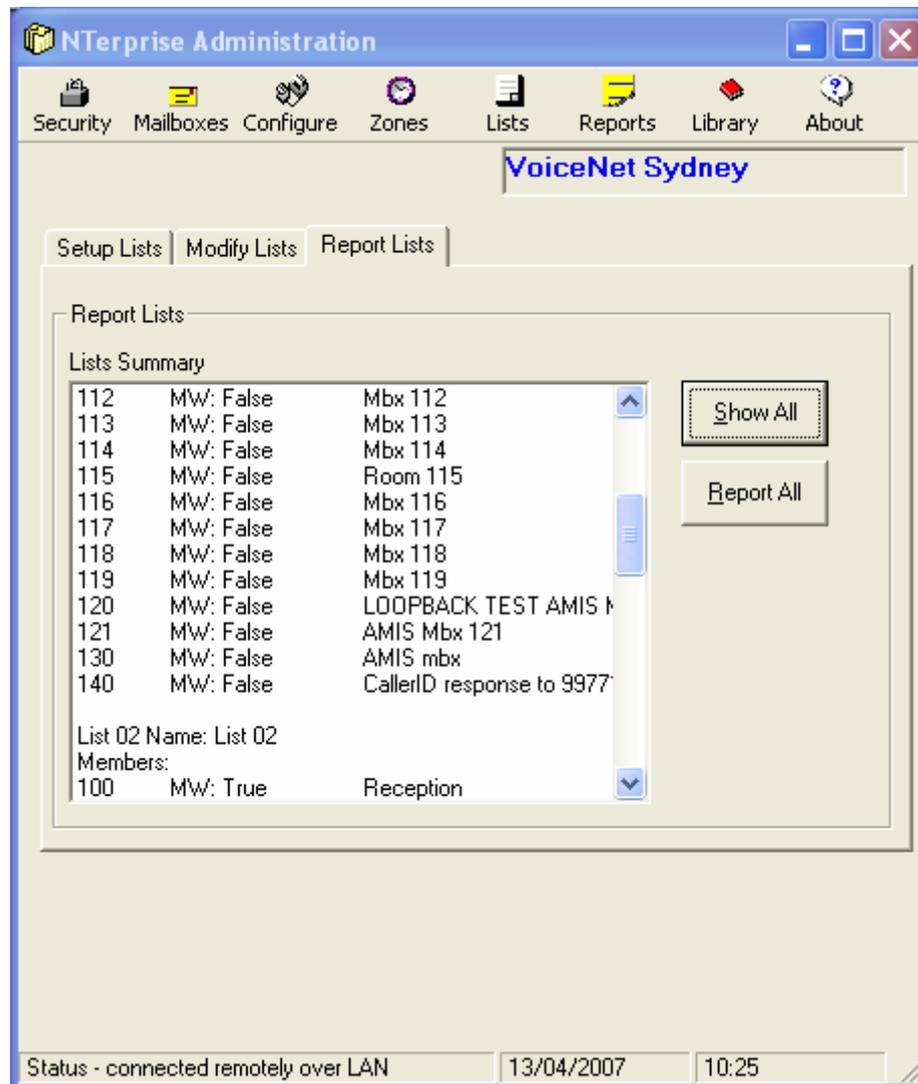
The mailbox listed in this field will be the ONLY mailbox from which messages to this list can be generated from i.e. this prevents other mailbox users from making / giving messages to this list.

Add

This button will add the values specified in the Mailbox Number (or Range) field to the current list. Duplicate values and invalid mailbox numbers will be ignored.

Remove

This button will remove the values specified in the Mailbox Number (or Range) field from the current list. Duplicate values and invalid mailbox numbers will be ignored.

Task Reference **Report Lists****General Description**

Existing lists can be displayed on screen and reports generated for saving or printout from this tab.

Show All button

This button will generate an on-screen display of all lists as per the above screen shot, in the format:

Mailbox MW indication Mailbox Name

Report All button

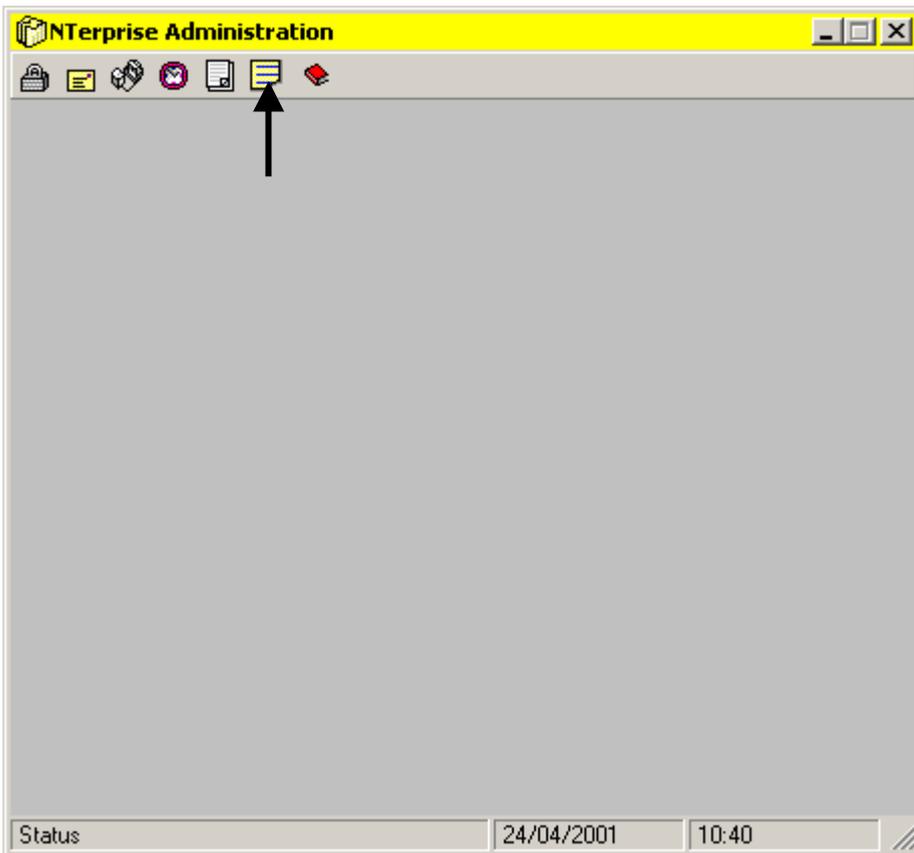
This button will generate an on-screen report in Wordpad of all lists as per the above format, which can be saved to file or printed.

DP 195

Task Open the Reports Tab in Administration

Reference

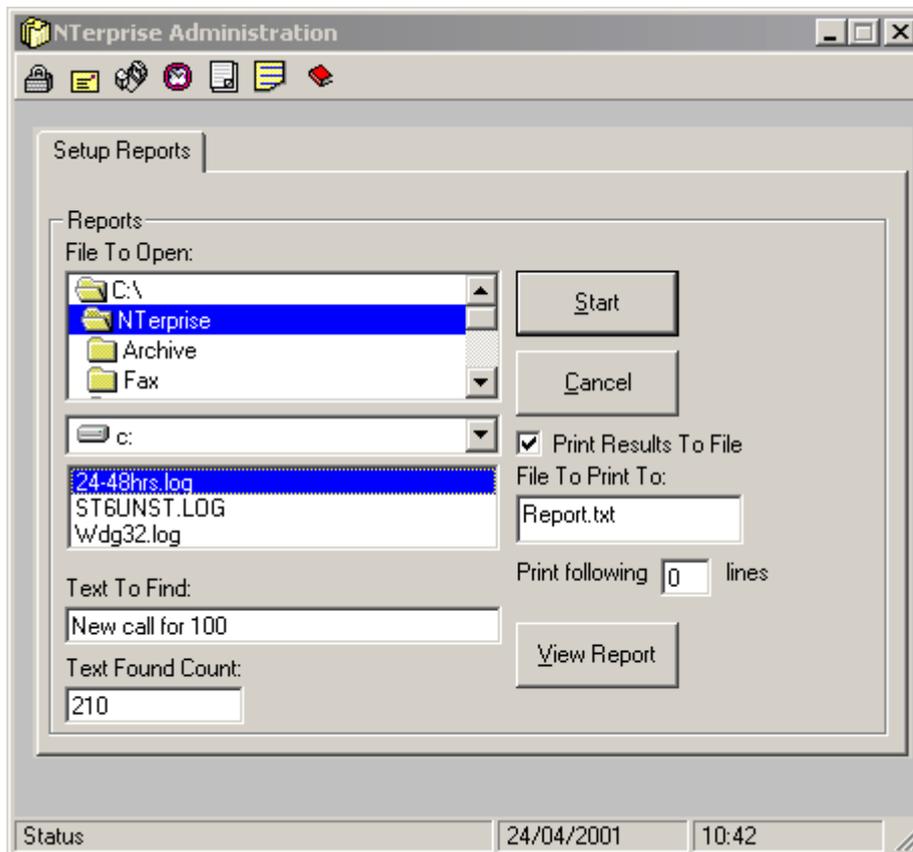
- 1 Run the Administration program by double left clicking on the Admin32 icon on the Desktop.
- 2 Enter the administration password. The default password left by the system installers will be "VoiceNet". The password is case-sensitive so enter it exactly as spelt above.
- 3 Click on the Reports button to bring up the Reports tab as shown below.



DP 196

Task Setup Reports

Reference

**General Description**

Report generation in the Admin32 program is based on text searches of the transaction log files generated by the voicemail system each day. The voicemail system records all transactions through the system to text files as follows:

<i>Application</i>	<i>Log File Name</i>
Wdg32	Wdg32.log
Portx	Portx.log
<i>where x = the port number</i>	

The current day's log files are located in the voicemail main directory "\NTerprise", for example, the log file for Port1 for today would be called Port1.log and can be located as "\NTerprise\Port1.log". At 2:00am voicemail performs its housekeeping tasks amongst which is the archiving of log files. Today's log files would all be rolled up into one log file called "24-48hrs.log" in the "\NTerprise" directory. The old 24-48hrs.log file would be archived to the "\NTerprise\Archive" subdirectory as "24Apr.log" (i.e. the date that the archive is performed).

DP 196

Task Setup Reports

Reference

File To Open

This directory list box contains a listing of all directories on the currently selected drive. The default directory for voicemail is “NTerprise”.

Under the directory list box can be found a drive list box for selecting other drives. From NTerprise Version 2.0.7 onwards, the drive where the voicemail directory “NTerprise” resides is drive d:. Other sites may find “NTerprise” on drive c:.

Under the drive list box is the file list box, where all files of type “*.log” will be displayed for the currently selected drive and directory combination. To select a file to run a report on, left click on the desired file name so that it is backlit/highlighted.

Text To Find

This field should contain a valid text string for the search engine. Text strings are CASE SENSITIVE. Typical search strings might include:

to find how many calls for a mailbox
New call for <mailbox number>

to find how many calls voicemail has taken that day
Call pickup

to find how many calls a port has taken that day
Vportx: Call pickup
where x = the port number

Text Found Count

This field will contain a count of the number of times the search engine has found the text search string within the currently selected search file. The count is cleared at the start of each new search.

Print Results To File

Select this checkbox if you wish to print the text strings found by the search to the file nominated in the File To Print To field.

File To Print To

This field contains the name of the text file which the report will be printed to. The file will be located in the “NTerprise” directory. If you run consecutive reports without changing the file to print to name, each report will be appended to the bottom of the previous report in that file.

DP 196

Task Setup Reports

Reference

Print following x lines

This field should contain the number of lines immediately following the search text line found, which you wish to also print to the report file. For example, nominating to print following 2 lines in a search with text string “Call pickup” might append to the report file for each occurrence of the text string as follows:

```
"24/4/01 8:27:29 AM Port 2: Call pickup"  
"24/4/01 8:27:29 AM Port 2: CallerID: [02 9999 1234]"  
"24/4/01 8:27:29 AM Port 2: Call picked up"
```

Start button

Select this button to run your report.

Cancel button

Select this button to cancel the report setup.

View Report button

Select this button to view the current report as defined in the FileTo Print To field in the Microsoft text editor Wordpad.

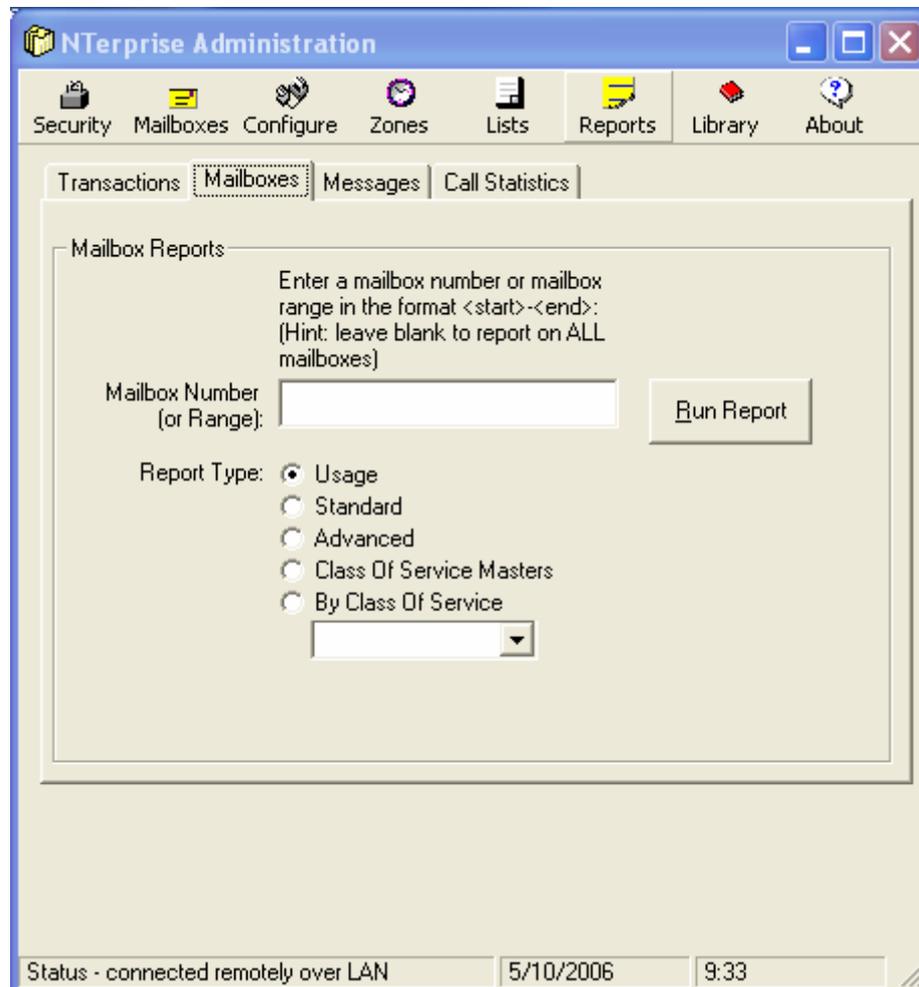
CAUTION:

The current day’s log files (i.e. Portx.log and Wdg32.log files) are *LIVE* files in that voicemail is constantly opening and writing to these files as transactions flow through the voicemail system. Running reports on these files in this state may result in incorrect transactions being recorded or transactions not being recorded by the voicemail system, and therefore is not recommended.

To run reports on these files you should either run a report the following morning on the 24-48hrs.log file, which is a “dead” file, and which will contain yesterday’s Portx.log and Wdg32.log files, or by copying and pasting the current Portx and Wdg32 log files and then running reports on the pasted copies, which are also “dead” files.

Task Reference **Run Mailbox Reports**

- 1 There are 5 main types of mailbox reports which the voicemail administration program generates. They are:
- a.) Usage reports
 - b.) Standard mailbox information
 - c.) Advanced mailbox information
 - d.) Class Of Service Masters listing
 - e.) Listing by Class Of Service



Task Reference Run Mailbox Reports

2

Usage Report.

This report would generally be run for ALL mailboxes (i.e. leave the “Mailbox number or Range” field empty) and will show, for each mailbox, the last date that each mailbox was accessed by its owner, either to set up user options or to listen to messages. This report is therefore useful in determining which mailboxes are really being used.

The screenshot shows a window titled "MailBoxes In Use Report" with a zoom level of 100%. The report displays a list of mailboxes with their corresponding mailbox numbers, names, and last accessed dates. The data is as follows:

Mailbox	Mailbox Name	Last Accessed
404	Mbx 404	Last Accessed:
405	Mbx 405	Last Accessed:
406	Mbx 406	Last Accessed:
407	Mbx 407	Last Accessed:
408	Mbx 408	Last Accessed:
409	Mbx 409	Last Accessed:
410	Mbx 410	Last Accessed:
4444	Mbx 4444	Last Accessed: 21-Sep-2006
4445	Mbx 4445	Last Accessed: 18-Sep-2006
500	Accounts Menu	Last Accessed:
501	Accounts Receivable	Last Accessed:
502	Accounts Payable	Last Accessed:
503	Sample 503	Last Accessed:
504	Sample 504	Last Accessed:
505	FaxPort505	Last Accessed:
601	FaxPort601	Last Accessed:
602	FaxPort602	Last Accessed:
603	FaxPort603	Last Accessed:
604	FaxPort604	Last Accessed:
605	FaxPort605	Last Accessed:
606	FaxPort606	Last Accessed:
666	VoiceNet Company Information	Last Accessed:
701	MRJ press 1	Last Accessed: 25-Aug-2006
742	Pearce, Roger	Last Accessed:
776	Home MRJ	Last Accessed:
777	TAC	Last Accessed: 4-Oct-2006
778	TAC Information	Last Accessed:
779	Change of Address	Last Accessed:
780	New Contact Numbers	Last Accessed:
781	New address details	Last Accessed:
799	Mbx 799	Last Accessed:
800	Fax On Demand	Last Accessed:
801	Out Of Service FOD	Last Accessed:

The window also shows a taskbar at the bottom with the Start button, several application icons, and the system tray displaying the time as 9:36.

Task Periodic Maintenance Procedures*Reference***Procedures Which The NTerprise System Performs Automatically****1 HouseKeeping Tasks****Archive Log Files**

The system records all transactions through the monitor in the log file “c:\NTerprise\0-24hrs.log”. At 2:00AM (or the nominated housekeeping time) this file is copied as “24-48hrs.log” and a new “0-24hrs.log” is created. The old “24-48hrs.log” is copied to the “c:\NTerprise\Archive\” sub directory as “<ddmmm>.log” where <ddmmm> is the current date in day month format.

Check Reset PC Period**Perform Courtesy Down on Ports**

The system will perform a “courtesy down” on the voicemail ports at the specified interval for the Reset PC period as defined in the administration program under Configure – VoiceMail. A courtesy down closes all inactive ports, and waits for active ports (i.e. ports currently in a call) to become inactive before closing them down.

Reset PC Automatically (Software Reset)

Following the completion of the courtesy down, the system will perform a software reset of the PC. Voicemail will be automatically restarted when the PC reboots into Windows.

Check HDD resource utilisation**Provide Warning on 80% of HDD capacity**

The system automatically checks the hard disk utilisation every housekeeping period. When the hard disk is 80% full the system will generate a message box warning that the hard disk drive is becoming full and that some archived log files should be deleted.

Set Housekeeping Task StartUp Time

To change the housekeeping start time edit the file “c:\windows\NTVM32.INI” in the section header [House Keeping Times] for the values OnTime and OffTime. NOTE that the total “window” between the OnTime and OffTime should be 30 seconds exactly, otherwise system will perform the housekeeping tasks twice (i.e. the check to determine whether housekeeping should be performed is done every 30 seconds).

DP 200

Task Periodic Maintenance Procedures

Reference

2 **Exception Handling**

Application Errors

Monitoring Error Window Banners

The Wdg32 program constantly monitors the Windows environment for window banners with the text “VM32” in them. If it detects any banners with this text it considers them to be an error banner and logs the error followed by a call for a courtesy down and PC reset to clear the error.

NOTE that editing the NTVM32.INI file in NotePad or WordPad will result in the text “VM32” being displayed in the banner of NotePad and therefore be treated as an error condition by Wdg32, therefore Wdg32 should be closed before editing this INI file.

Internal Error Handler

Each application contains an internal error handler which correctly handles any internal errors generated by the applications themselves, for example the detection of hangup tone is an internal error which is handled by hanging up the port and going into message waiting mode.

Windows Errors

Redirected to Internal Error Handler

Errors which are generated outside the applications but within the Microsoft application environment are handled by an exception handler which redirects the error back into the application for correct handling and execution. For example, external errors such as “Incorrect variable type” and even General Protection Faults are handled in this way.

The only windows errors which should be displayed as window banners are those generated completely outside the sphere of control of the applications and their related server objects.

DP 200

Task Periodic Maintenance Procedures

Reference

Recommended Periodic Procedures

(performed through Remote Access Software)

1 **Monthly**

Clear Temp Directory

Files with dates older than today's date should be deleted from the directory "c:\windows\temp".

Run Scandisk (not HDD full check)

Before running the Scandisk program all applications should be shut down because if they are running they will be changing files which will result in Scandisk constantly restarting. Run Scandisk by choosing Start – Programs – Accessories – System Tools – Scandisk and selecting the Standard format and Automatically Fix Errors option.

Copy and Delete Error Logs

The following log files should be copied as *.OLD and then deleted so that new files will be automatically created when and if required. These log files may cause the system to slow down if they are too big and the system is trying to write to them, which is why they should be periodically regenerated.

c:\windows\system\VM32_Server.ERR

c:\windows\vbevents.log (Win98)

Events Log (WinNT)

2 **Quarterly**

Clear Previous Quarter Archived Transaction Log Files

In the c:\NTERprise\Archive directory, files with names corresponding to dates more than 3 months old should be deleted if no longer required for historical transaction checking.

Check and Clear Old Message Files (if any)

In the c:\NTERprise directory, message files are identified by the "msg" extension e.g. 1001143022126789.msg where the name is constructed as follows:

1001 Site Number

1430 hhmm (hours:minutes i.e. 2:30PM)

2212 ddmm (daymonth i.e. 22nd Dec)

6789 random number

.msg voice message file extension

Old message files should be deleted if not required. Files already marked for deletion by the voicemail system use the extension "DEL".

DP 201

Task Troubleshooting Procedures

Reference

System Not Answering Ring

- 1 Determine first of all that ring is being generated at the end of the analog connection to the voicemail ports by putting a butt on the line and ringing either the voicemail hunt group or the specific analog extension.

Ring Generated on Butt?	NO	Goto Step 2
	YES	Goto Step 3
- 2 If ring is NOT being generated on the line then the problem lies with the PABX system. Goto END.
- 3 If ring is being generated on the line then the problem lies with the voicemail system. Further define the problem by determining whether it is hardware or software related. To exclude hardware, change the voiceboard in the PC and see whether ring is generated on the butt.

Ring Generated on Butt?	YES	Goto Step 4
	NO	Goto Step 5
- 4 The problem lies with the hardware. Change the Dialogic board and send the problem board back to the supplier for repair or replacement. Goto END.
- 5 The problem lies with the software. Run the Dialogic Diagnostics checks first to see whether the voiceboard answers ring from the Dialogic programs.

Rings answered?	YES	Goto Step 6
	NO	Goto Step 7
- 6 Reinstall the Dialogic software and drivers. Goto END.
- 7 Reinstall the NTerprise software. Goto END.
- 8 END

DP 139**DP 143****DP 119**

DP 201

Task Troubleshooting Procedures

Reference

Incorrect Company Greeting Being Played

- 1 Determine which mailbox greeting is played for the company greeting. Normally, Reception Mailbox Greeting 3 contains the Business Hours company greeting, and Reception Mailbox Greeting 2 contains the After Hours company greeting. Another potential way of playing the company greeting is to have external calls forwarding to a virtual extension which is forwarded on no answer to voicemail, in which case the greeting played to callers will be the active greeting of the virtual mailbox corresponding to that extension.

Examine the transaction log in the Wdg32 program to see which greeting is played to callers after a New Call is picked up. If the log says *“Playing B/H greeting....”* or *“Playing A/H greeting....”* then the Reception Mailbox is being used.

If the transaction log says *“Playing greeting X for mailbox XXX...”* then mailbox XXX is being used as an alternative company greeting.

Reception Mailbox used?	NO	Goto Step 2
	YES	Goto Step 5

- 2 Check the recorded greetings for mailbox XXX.
- 3 Confirm that the recorded greeting preferred as the company greeting is also the ACTIVE greeting for mailbox XXX.
- 4 Goto END.
- | | | | |
|---|-----------------------|-----|-------------|
| 5 | PC date/time correct? | NO | Goto Step 6 |
| | | YES | Goto Step 7 |
- 6 Change the PC date/time to the correct date/time. If this fixes the problem then goto END, otherwise proceed to Step 7.

**Voicemail
User Guide****Voicemail
User Guide**

DP 201

Task	Troubleshooting Procedures	<i>Reference</i>
Incorrect Company Greeting Being Played (continued)		
7	Check that the business hours Time Definition is correct.	DP 162
8	Check that the business hours Zone Definition is correct.	DP 161
9	Check that the Zone Definition assigned to each Port is correct.	DP 156
10	Check that the company greeting is recorded correctly i.e. Business Hours greeting in Reception Mailbox Greeting 3 and After Hours greeting in Reception Mailbox greeting 2.	DP 115
11	END	

DP 201

Task	Troubleshooting Procedures	<i>Reference</i>
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Incorrect Mailbox Greeting Being Played		
--	--	--

- | | | |
|---|---|--|
| 1 | Check the recorded greetings for mailbox XXX. | |
| 2 | Confirm that the recorded greeting preferred as the mailbox greeting which callers will hear is also the ACTIVE greeting for mailbox XXX. | |
| 3 | END | |

		Voicemail User Guide
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		Voicemail User Guide
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DP 201

Task Troubleshooting Procedures

Reference

Error Window Displayed “Out Of Memory”

- 1 This problem will be related to memory leakage over time. You should install NTerprise version 1.8.2 or greater and in the Admin32 program goto Configure – Voicemail and edit the Reset PC Period to be less than 3 days. This will ensure that the PC is restarted periodically and memory which has been leaked is regained after the restart. Memory leakage has been identified as a problem with versions less than 1.8.2, and is an inherent problem with Windows operating system based applications.

“General Protection Fault”

- 1 This problem will be related to an internal Windows program unrelated to the NTerprise voicemail applications, since all errors related to voicemail are handled internally by the applications themselves. The description of the GPF will provide a clue as to the origin of the error. You should call VoiceNet’s Technical Support Team on +61 2 9977 8081 to proceed with the troubleshooting of this problem.

Other

- 1 You should call VoiceNet’s Technical Support Team on +61 2 9977 8081 to proceed with the troubleshooting of this problem.

DP 201

Task	Troubleshooting Procedures	Reference
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Message Wait Lamps Not Working (continued)		
---	--	--

- | | | |
|----|---|--|
| 11 | Check the analog line integrity. If the line is OK call VoiceNet Technical Support for more help in this problem. | |
| 12 | The problem lies with the PABX system not actioning the MW signal. Refer to the PABX manual for further information dealing with the issue. | |
| 13 | END | |

DP 201

Task Troubleshooting Procedures

Reference

Message Wait Lamps Out Of Synch With Messages

- 1 Message wait lamps become out of synch when they are not ON and there are NEW messages for that mailbox(extension), or they are not OFF and there are NO NEW messages for that mailbox(extension). Generally, in an inband integration environment the MW lamps can become out of synch if each voicemail port is performing its own message wait signalling (i.e. the MW Port assignment is "0") and a call collision occurs between the MW signal being sent to the PABX from the port, and at the same time the PABX is sending a new call to that voicemail port. In this case the MW signal is heard by the new caller, and never reaches the PABX! The solution for this is twofold.
- 2 Assign a message waiting port to the voicemail system by going into the Admin32 program, to Configure – Message Waiting, and changing the Message Waiting Port field to a number other than "0". Usually, the last port number in the voicemail hunt group should be used, for example in a 4 port system the message waiting port would be "4". This allows all MW signalling to go through the least used voicemail port, unless the voicemail hunt group is of UCD (Uniform Call Distribution) type.
- 3 Assign a value in minutes to the Periodic B/H MW field and Periodic A/H MW field. Usually this value would be 30 for B/H and 60 for A/H. This informs the voicemail system to periodically roll through the entire mailbox database and check each mailbox for new messages, sending set or clear MW signals as appropriate to the mailbox's message contents. For larger mailbox databases, this roll through may take longer than 30 minutes, so the Periodic timers should be adjusted accordingly to prevent continuous looping of this function, which would stop the MW port from taking an incoming calls since it would always be in use sending MW signals.

DP 157

DP 157

DP 201

Task Troubleshooting Procedures

Reference

Very Long Message Files Being Recorded (WinNT only)

- 1 Extremely long message files (greater than 1GB!) can be recorded by the Dialogic voiceboards under certain circumstances in the Windows NT operating environment only. The specific circumstances are where the Dialogic board issues a recording beep at the same time as the caller presses a key sending DTMF to the board. In this circumstance the board will continue recording until the PC runs out of hard disk space!
- 2 The fix for this is provided by Dialogic in the form of software download. This download is available from VoiceNet under the following title:

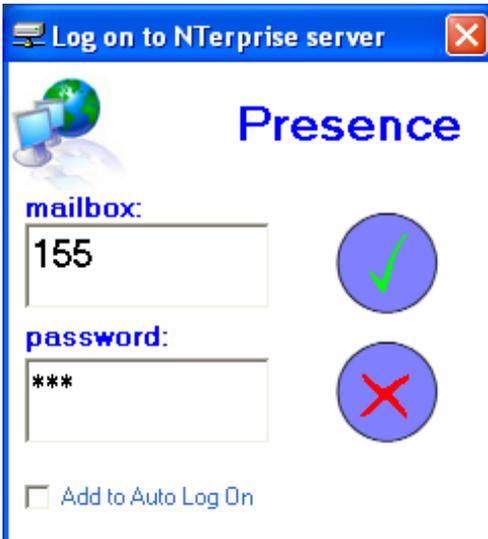
PTR: 6564.exe

which contains a self-extracting executable to be copied and run in the C:\USERS\DIALOGIC\DATA directory.

DP 202

Task Presence Log On

Reference



mailbox:

Enter your mailbox number in this field.

password:

Enter your mailbox password in this field.

Add to Auto Log On

Select the checkbox to have your mailbox and password details be used to bypass the Log On window the next time you run Presence.

NOTE:

If your network administrator has set your security permissions so that you cannot make changes to the file MAILALERT.INI then selecting this option will have no effect.

Continue

Click on the green tick button or press “Enter” to proceed with the Log On request.

Cancel

Click on the red cross button to cancel your Log On.

IMPORTANT:

Your computer **MUST** be connected to your network and **MUST** be able to “see” the voicemail server **BEFORE** you run Presence. Typically the voicemail server computer name will be “VM”. If your computer can’t “see” the voicemail server across your network you will not be able to Log On.

DP 203

Task View Presence Icon Buttons

Reference



Presence Icon

Left click on the Presence icon and move your mouse cursor up the right hand side of your desktop window to view the transparent Presence icon buttons. Immediately after you have logged on to the voicemail server, your Presence status as stored in the voicemail database when you last logged off will be returned and displayed on your Presence icon buttons.

DP 204

Task View Presence New Message Status

Reference



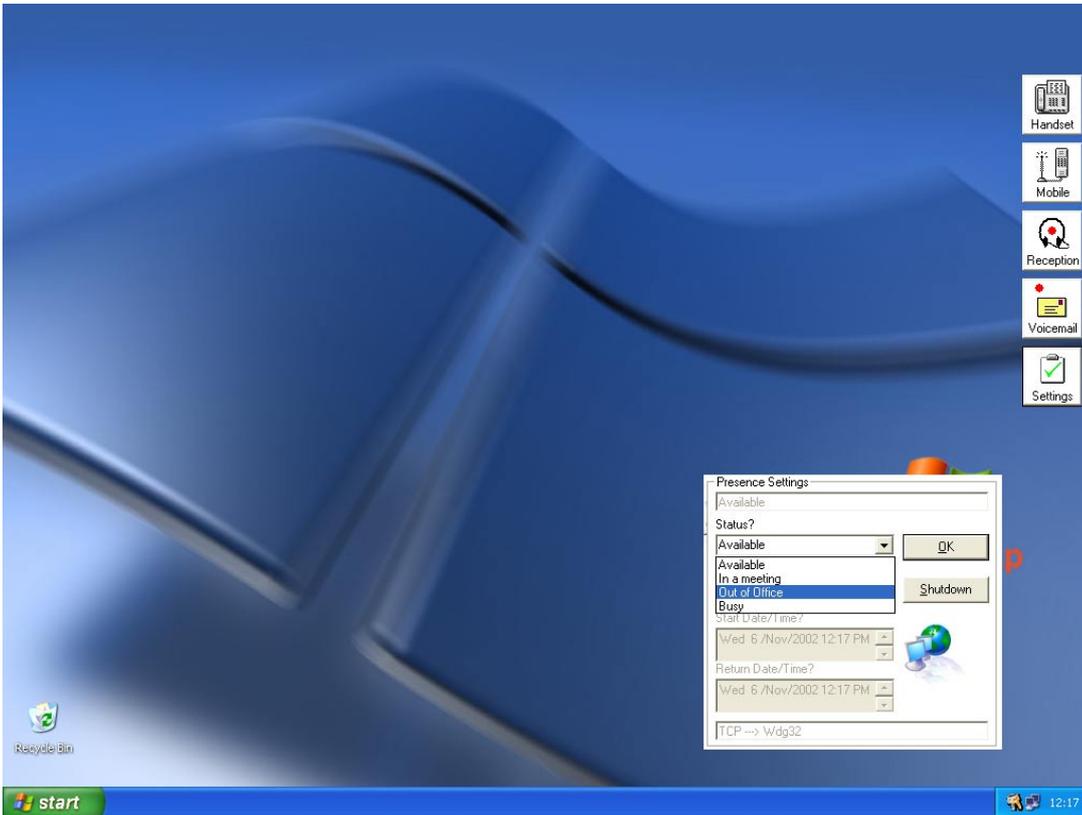
Message Status

If you have any new messages in your mailbox the Voicemail icon button will flash a red star to indicate new messages. Moving your mouse cursor over the Voicemail icon button will bring up a tooltip showing the number of new messages you have.

Destination

If your current destination for callers is not Voicemail, then one of the other Presence icon buttons will also display a solid red star indicating your currently selected caller destination. In the example displayed above, the selected destination is Reception.

DP 205

Task **Change Presence Status***Reference***Change Presence Status**

There are two methods of changing your status as follows.....

DP 205

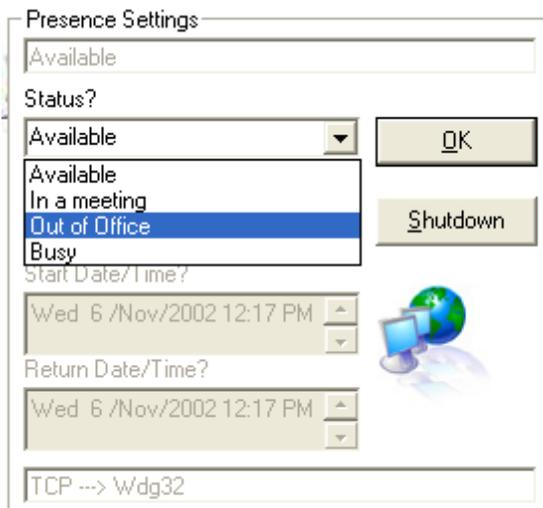
Task Change Presence Status

Reference

Change Presence Status – Method One

Your status can be defined from the available options as:

Available
In a meeting
Out of Office
Busy



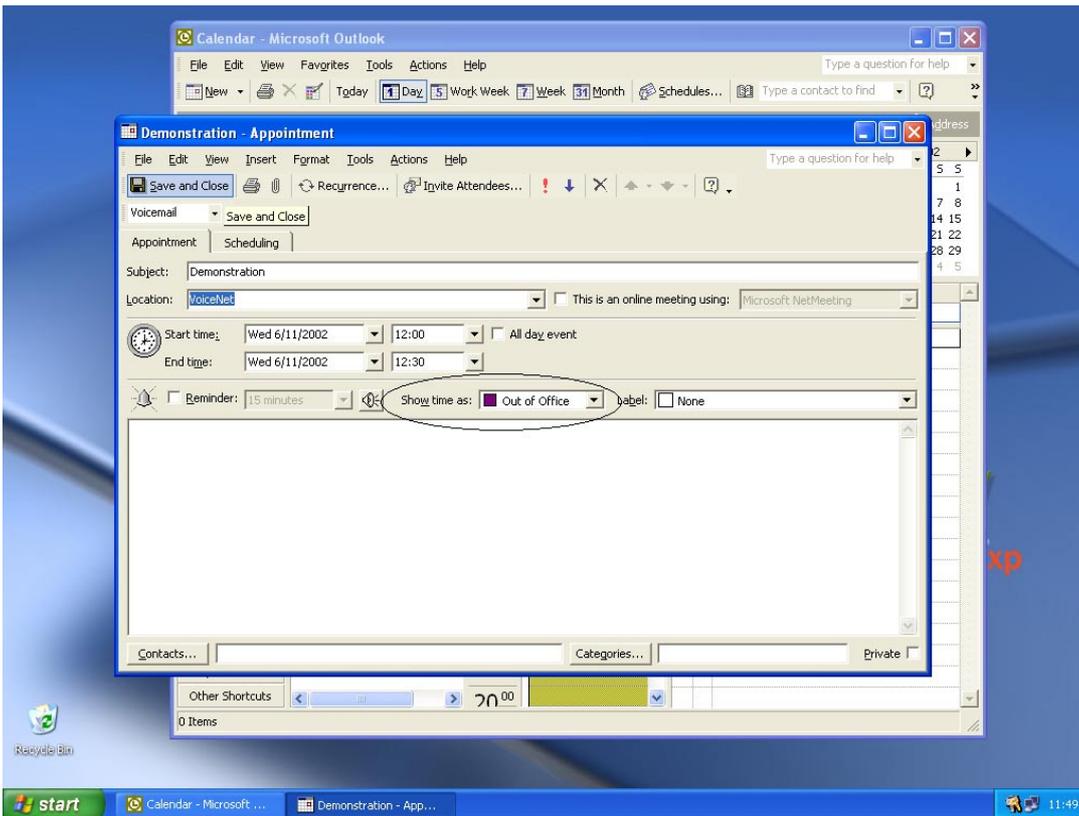
Left click on the Settings icon button (shown right) which will open the Presence Settings window shown above. You may then select your status from the pulldown list under the Status? Label.

Note that if you don't also nominate a Start Date/Time or a Return Date/Time which is after the current time, then when you close the Presence Settings window your status will change back to Available on the next minute tick.

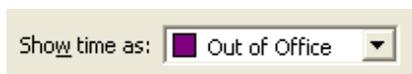
To close the Presence Settings window, either click on the "OK" button within the window, or left click on the Settings icon button.



DP 205

Task Change Presence Status*Reference***Change Presence Status – Method Two**

The second method is to set up an appointment within Outlook and nominate your status from the Appointments window.

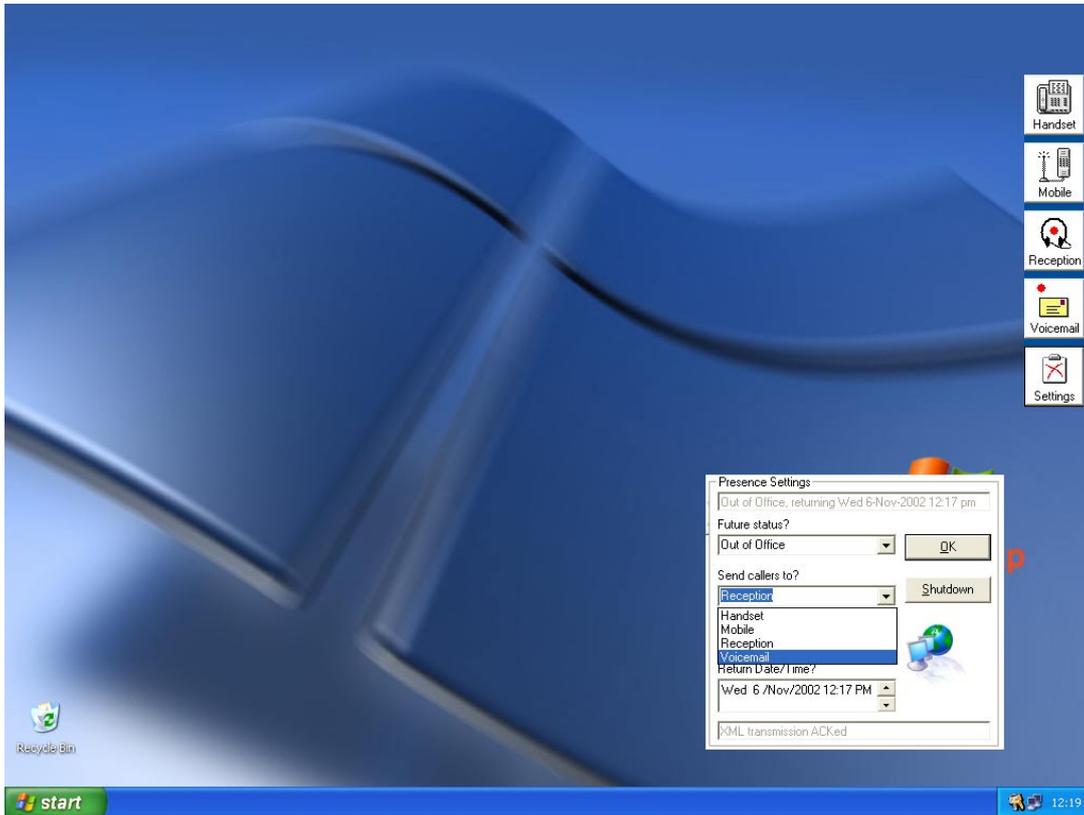
**IMPORTANT:**

Your computer MUST be connected to your network and MUST be able to “see” the voicemail server BEFORE you run Outlook. Typically the voicemail server computer name will be “VM”. If your computer can’t “see” the voicemail server across your network the Outlook COM Addin used to send Presence changes to the voicemail server will not be able to Log On.

DP 206

Task Change Presence Destination

Reference



Change Presence Destination

There are three methods of changing your destination as follows.....

DP 206

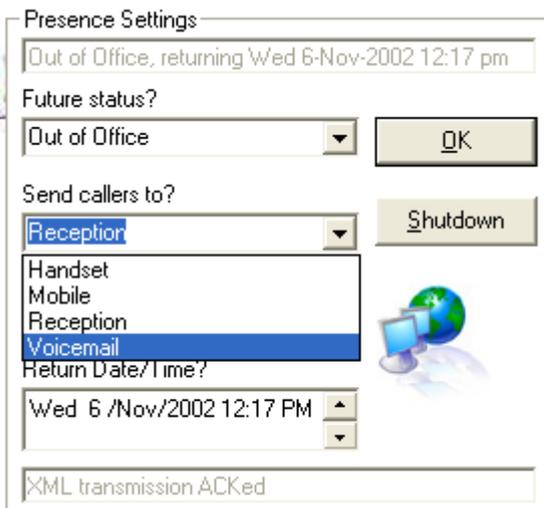
Task Change Presence Destination

Reference

Change Presence Destination – Method One

Your destination can be changed from the available options as:

Handset
Mobile
Reception
Voicemail



Left click on the Settings icon button (shown right) which will open the Presence Settings window shown above. You may then select your new destination from the pulldown list under the Send callers to? Label.

To close the Presence Settings window, either click on the “OK” button within the window, or left click on the Settings icon button.



DP 206

Task Change Presence Destination*Reference***Change Presence Destination – Method Two**

Directly click on one of the Presence icon buttons to change your destination. The Mobile and Reception icon buttons are also special in that they can be modified to enter any intranet or offnet destination respectively.

Example – no Mobile destination set up in your mailbox

Moving the mouse cursor over the Mobile icon button will display the tooltip

Right click to enter an offnet destination

Valid offnet destinations are any normal phone number including area codes where appropriate. Spaces within the phone number are not permitted e.g. “0299771913”. After right clicking on the Mobile icon button the text field will change to allow you to enter a new offnet number.

Example – no alternative intranet destination set up in your mailbox

By default selecting Reception as your destination will send callers to your reception or switch. Moving the mouse cursor over the Reception icon button will display the tooltip

Right click to change your intranet destination

Valid intranet destinations are any extension or hunt group number defined within your local PABX e.g. “155”. Spaces within the number are not permitted. After right clicking on the Reception icon button the text field will change to allow you to enter a new intranet number.

Example – change your existing mobile destination in your mailbox

If you already have a valid mobile/offnet destination defined in your mailbox then moving your mouse cursor over the Mobile icon button will display the tooltip

Right click to change your current offnet destination

Valid offnet destinations are any normal phone number including area codes where appropriate. Spaces within the phone number are not permitted e.g. “99771913”. After right clicking on the Mobile icon button the text field will change to allow you to enter a new offnet number.

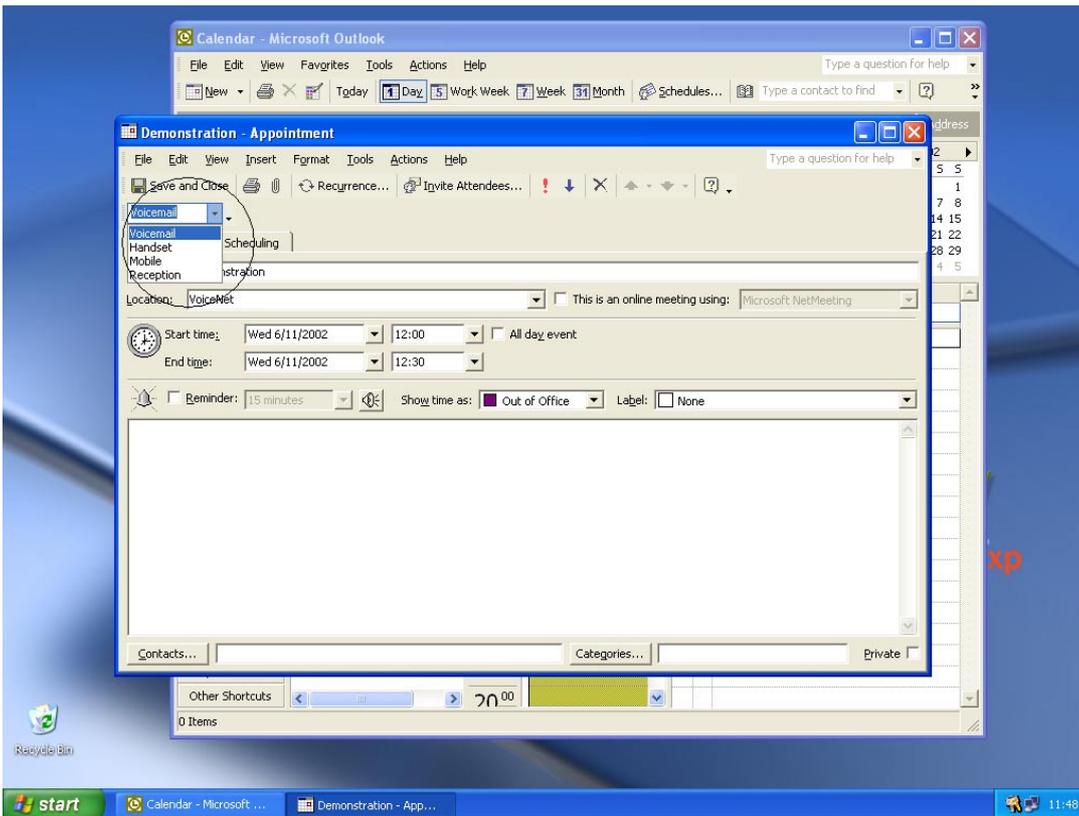


DP 206

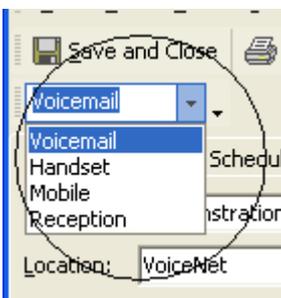
Task Change Presence Destination

Reference

Change Presence Destination – Method Three



The third method is to set up an appointment within Outlook and nominate your *future* destination from the Appointments window.



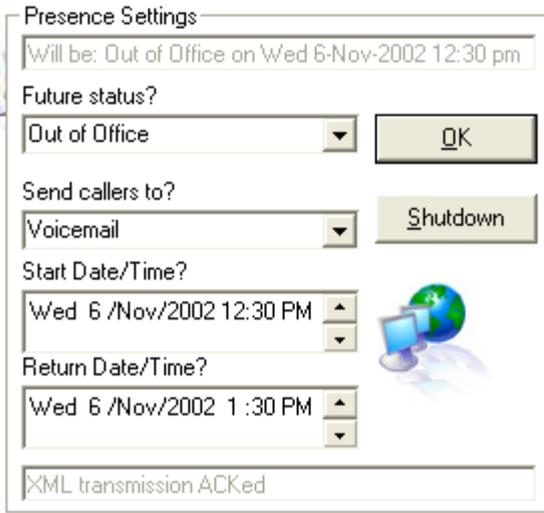
VoiceNet

DP 207

Task Change Presence Start and Return Date/Time

Reference

Change Presence Start and Return Date/Time – Method One



If your current status is Available and your Start Date/Time and Return Date/Time are in the past then the Settings icon button will display a green tick on the slate board.



To complete setting up a future appointment or to change your status from Available you will need to nominate future dates and times under the Start Date/Time? and Return Date/Time? labels.

If your current status is preset to change from Available to one of the other status options at some time in the future (i.e. your Start Date/Time is in the future) then the Settings icon button will display a green tick and a small red star in the lower right hand corner of the slate board. Moving your mouse over the Settings icon button will bring up a tooltip showing what your future status will be, for example:

Status will be: Out of Office on Wed 6-Nov-2002 12:30pm



DP 207

Task **Change Presence Start and Return Date/Time***Reference*

If your current status is not Available and your Start Date/Time is in the past and your Return Date/Time is in the future then the Settings icon button will display a red cross in the slate board. Moving your mouse over the Settings icon button will bring up a tooltip showing what your current status is, for example:

Your mailbox greeting to callers will also be automatically changed so that it plays a greeting similar to the example below:

"<your recorded name e.g. John Smith> is unavailable and will be returning at 1:30pm on Wednesday the 6th of November. Please leave a detailed message after the tone".

Status - Out of Office, returning Wed 6-Nov-2002 1:30pm

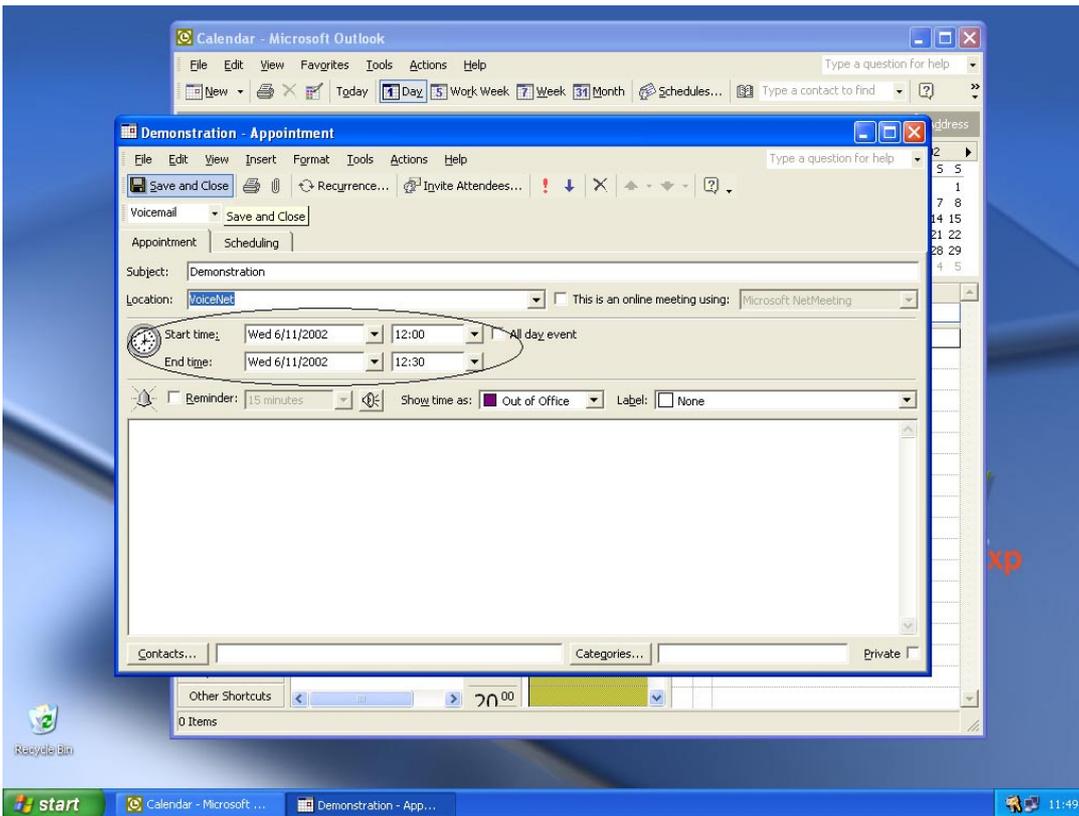
When the Return Date/Time expires the Presence application will use the value in PRESENCE.INI in the root directory of the voicemail server:

[NTerprise]
ReturningExpiryMinutes=xx where xx is a value in minutes

to decide how long after the Return Date/Time has expired before returning your status to available and your mailbox greeteing back to your normal active greeting. Note that your destination will remain as it was defined when you where not available.



DP 207

Task **Change Presence Start and Return Date/Time***Reference***Change Presence Start and Return Date/Time – Method Two**

The second method is to set up an appointment within Outlook and nominate your Start and End Date/Times from the Appointments window.

**IMPORTANT:**

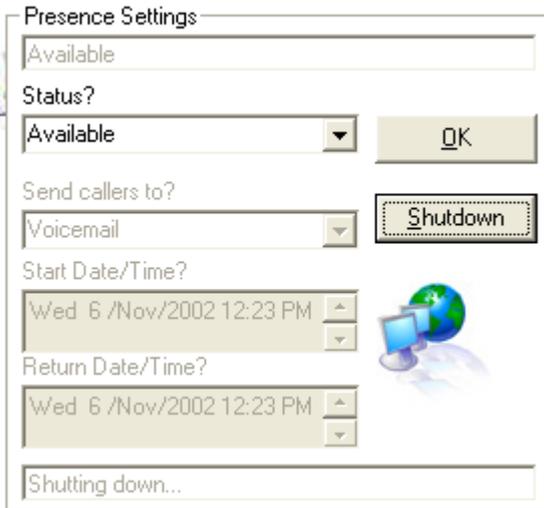
Your computer **MUST** be connected to your network and **MUST** be able to “see” the voicemail server **BEFORE** you run Outlook. Typically the voicemail server computer name will be “VM”. If your computer can’t “see” the voicemail server across your network the Outlook COM Addin used to send Presence changes to the voicemail server will not be able to Log On.

VoiceNet

DP 208

Task Shutdown Presence

Reference



To shutdown your Presence application you should left click on the Presence Settings icon button to display the Settings window, and then click on the Shutdown button. The mouse cursor will change to an hourglass while Presence logs off from the voicemail server.

Presence has also been configured so that if you forget to go through this shutdown procedure and simply turn off your computer it will still send a message to the voicemail server requesting that you be logged off.

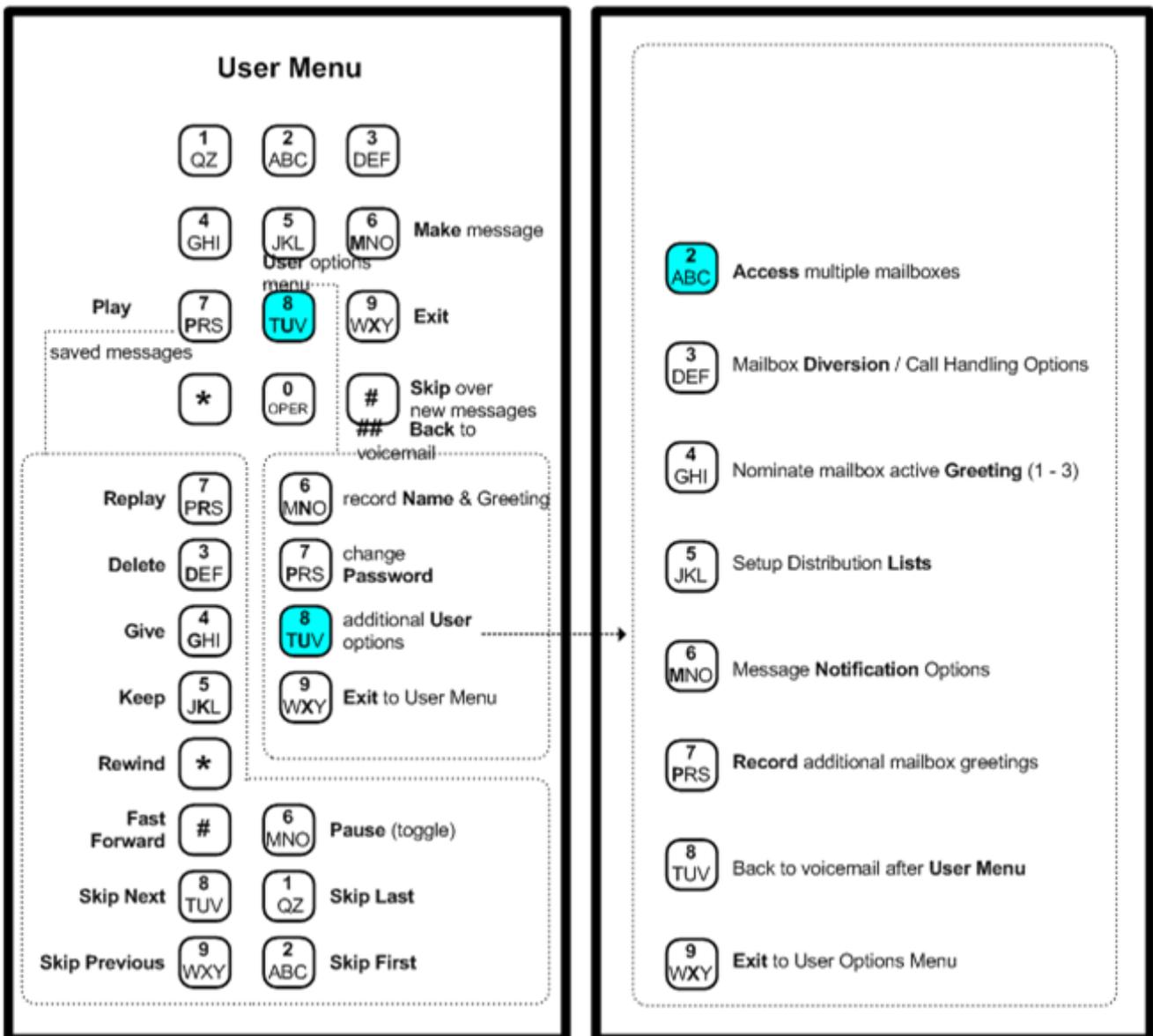


DP 300

Task Access Multiple Mailboxes

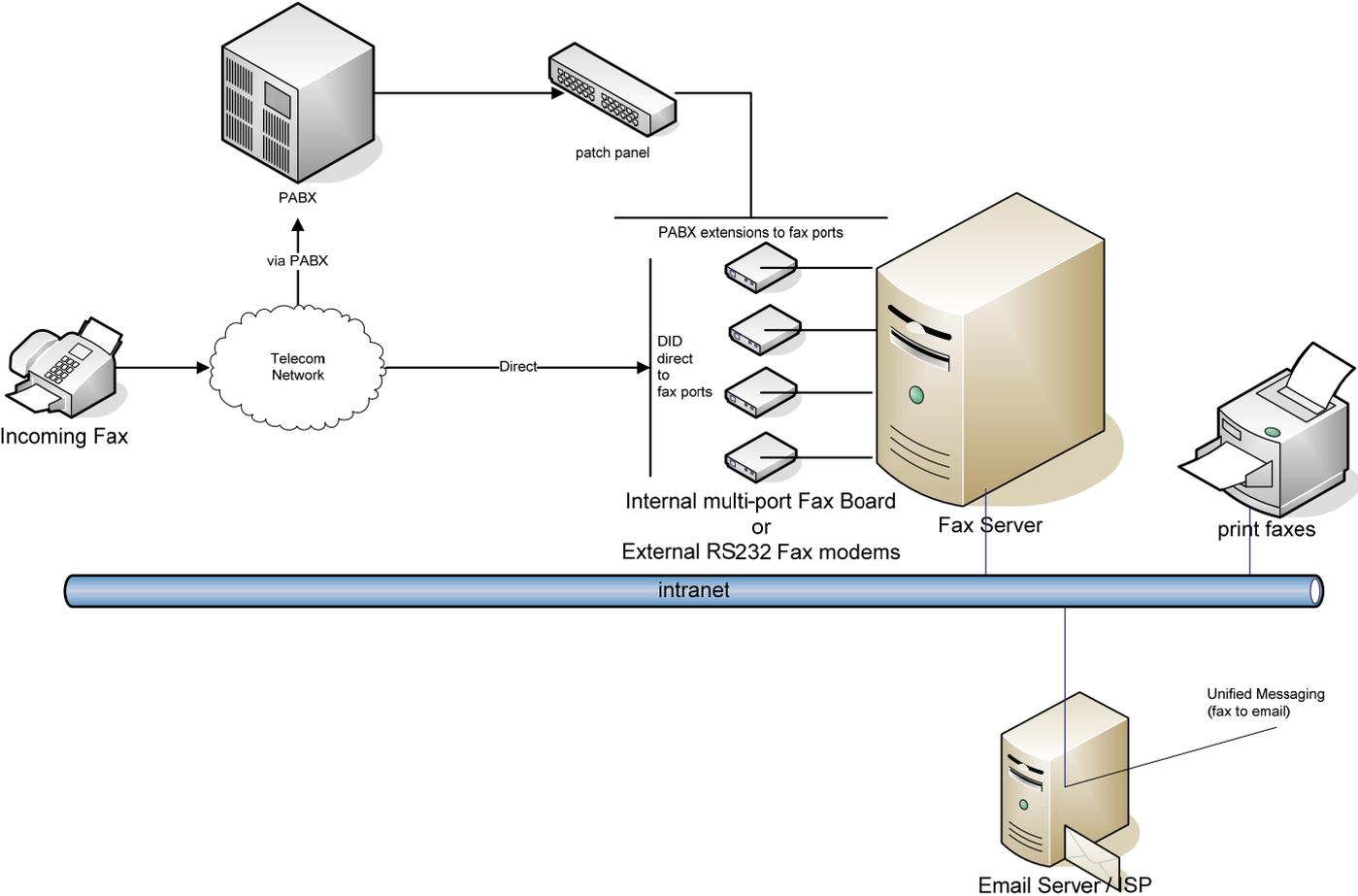
Reference

To access another mailbox from within your own mailbox, while listening to the User Menu, you should enter 8 – 8 – 2. If you are permitted to access multiple mailboxes you will be asked to enter another mailbox number. If that mailbox exists, you will find yourself in the new mailbox at the pre-User Menu prompt where the mailbox asks you for it's password (if it has one).



DP 310

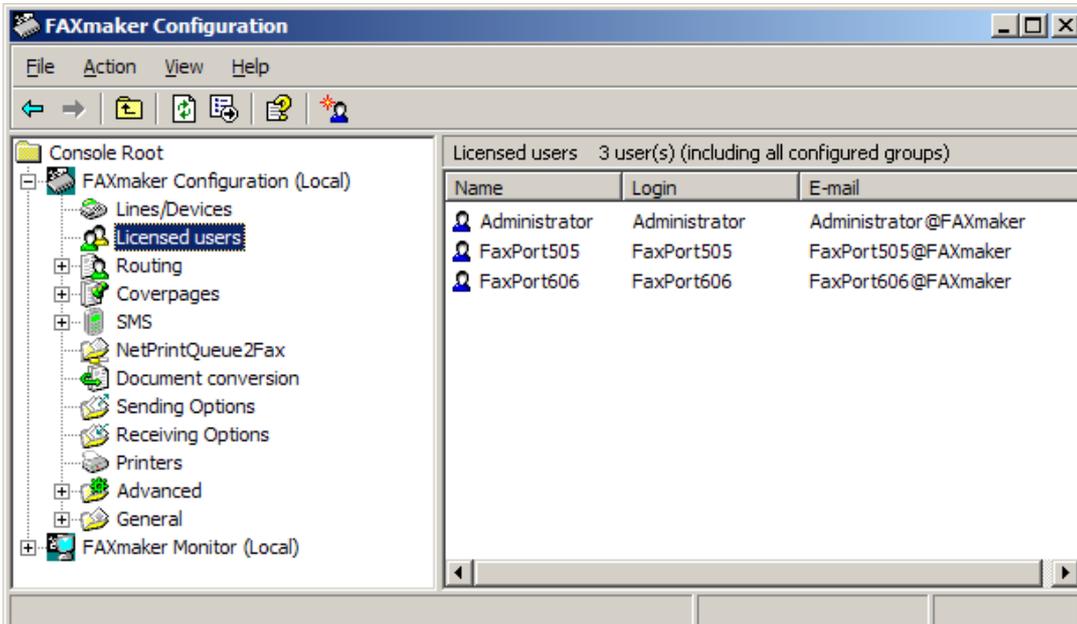
Task Reference Fax Server Architecture



DP 311

Task Configure GFI FAXmaker Fax Server for Networks*Reference*

1. Instal GFI FAXmaker for Networks/SMTP. Refer FAXmaker Version 11 Manual page 6 section 7. Select “No” when asked if you have a mail server installed or if you wish to use the Email2Fax gateway. We want Setup to instal and use the FAXmaker Fax Clients to send and receive faxes.
2. From the InstalShield wizard, refer FAXmaker Version 11 Manual page 10 section 2 “Configuring the FAXmaker users”. Select one user with Administrator priviledges.
3. Open FAXmaker Configuration. Set up users corresponding to each fax port. Try to use the nomenclature illustrated below, i.e. each fax port has a user whose name is prefixed with “FaxPort” and has a suffix corresponding to the analog fax line supplied from the PABX. The user names assigned here will be used by FAXmaker when it creates fax mailboxes for receiving incoming faxes on each fax line, and the FAXparser program will use these names when searching for new faxes.

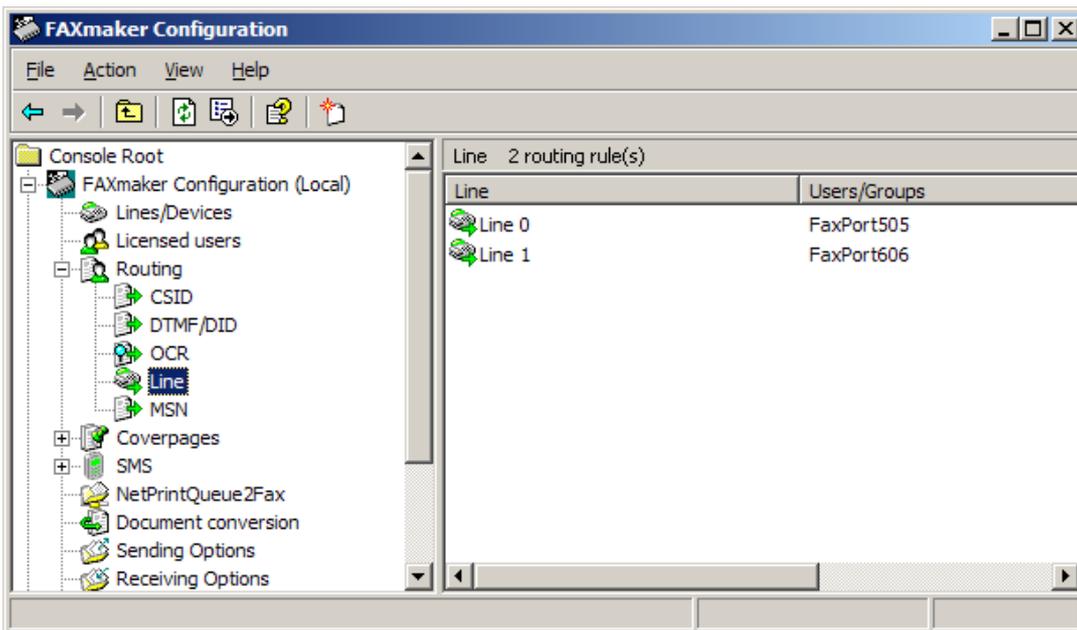


DP 311

Task Configure GFI FAXmaker Fax Server for Networks

Reference

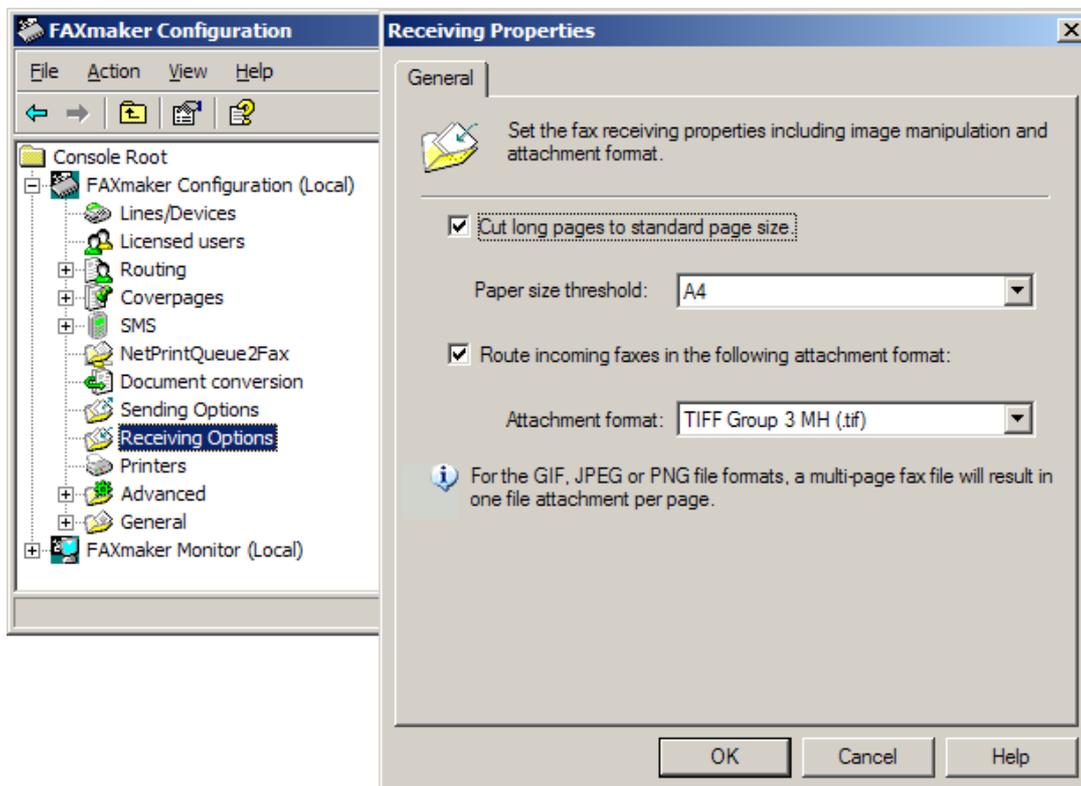
4. In FAXmaker Configuration, open Routing, select Line, right click and select "New". Assign the user you have previously created for each fax port, to the appropriate line (generally their numbering will be in ascending order).



DP 311

Task Configure GFI FAXmaker Fax Server for Networks*Reference*

- In FAXmaker Configuration, open or right click on Receiving Options, and in Receiving Properties nominate to “Route incoming faxes in the following attachment format:” TIFF Group 3 MH (.tif). You don’t have to use this format, it is however preferred because later when email users want to open fax attachments any Windows operating system will be able to view a TIF file. If you nominate a different format, you will need to adjust some INI parameters (which will be explained later) when configuring the FAXparser and SendEmail programs.



- In FAXmaker Configuration, repeat the above step for Sending Options.
- Other configuration parameters can be setup following the instructions in the FAXmaker Version 11 Manual.
- In FAXmaker Monitor, select Fax Server, and in the top right hand window click on the “Restart server” command button in order for the changes you have made to take effect.

DP 312

Task Configure GFI FAXmaker Fax Clients for Networks

Reference

1. After installing the Fax Server, you need to install the FAXmaker client software on the user's workstations – you will need administrator rights to do so because it includes a fax printer driver. Refer to the FAXmaker Version 11 Manual page 16 section 2 "Choose an E-Mail Client". Select the FAXmaker Fax Message Form.
2. All other installation parameters can be entered as per the instructions in the FAXmaker manual. Ensure that you have the necessary details beforehand, including the email address of the general fax mailbox (generally "fax@<your domain>"), and your SMTP server and port settings.

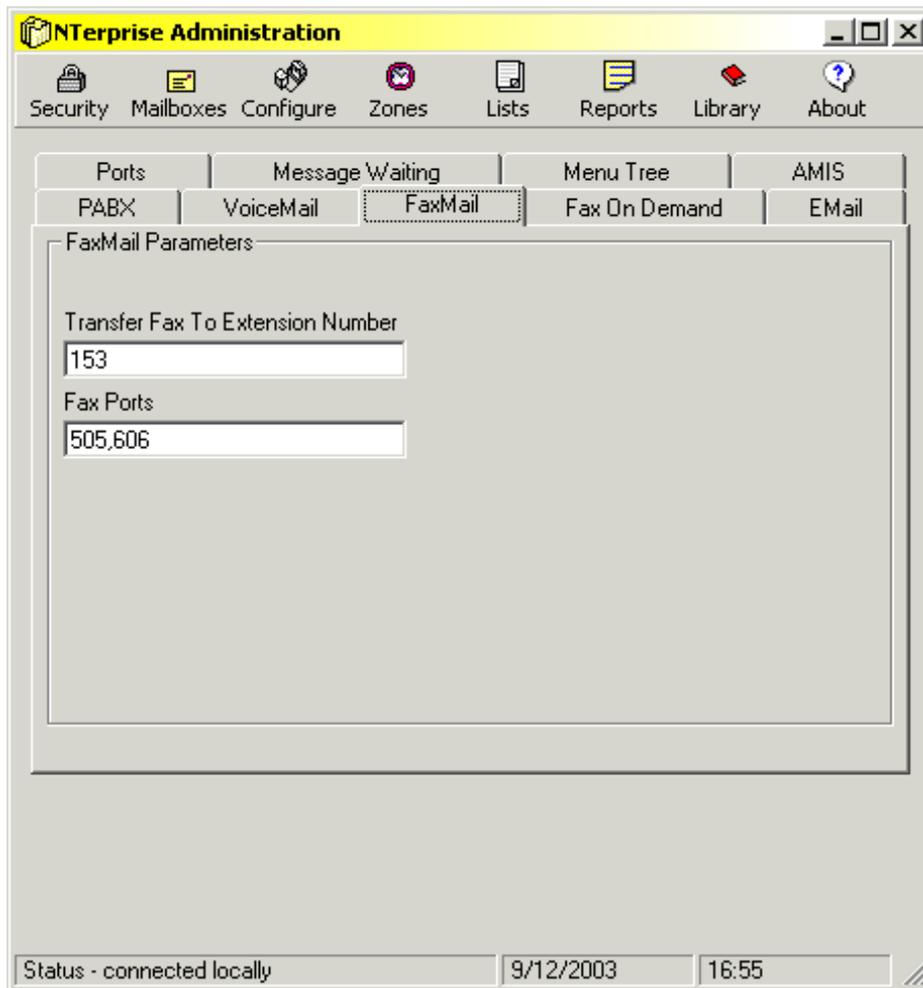
DP 313

Task Configure Fax Ports in Voicemail Administration

Reference

1. Open the Voicemail Administration program to the Configure tabs.
2. Select Configure – Faxmail.

DP 150



3. In the “Fax Ports” field, enter the fax port analog extension numbers supplied from your PABX integrator either in the form of a range (e.g. 100-103) or as comma-delimited individual numbers (e.g. 100,101,102,103) if the numbers are not consecutive. The PABXHLI program uses this data when receiving call information from the PABX to determine whether an incoming call is a fax call or a voice call.
4. Select Configure – Email, select “Intranet” and define the Outlook Express mail account name, password and VM server email name.

DP 155

DP 313

Task Configure Fax Ports in Voicemail Administration*Reference*

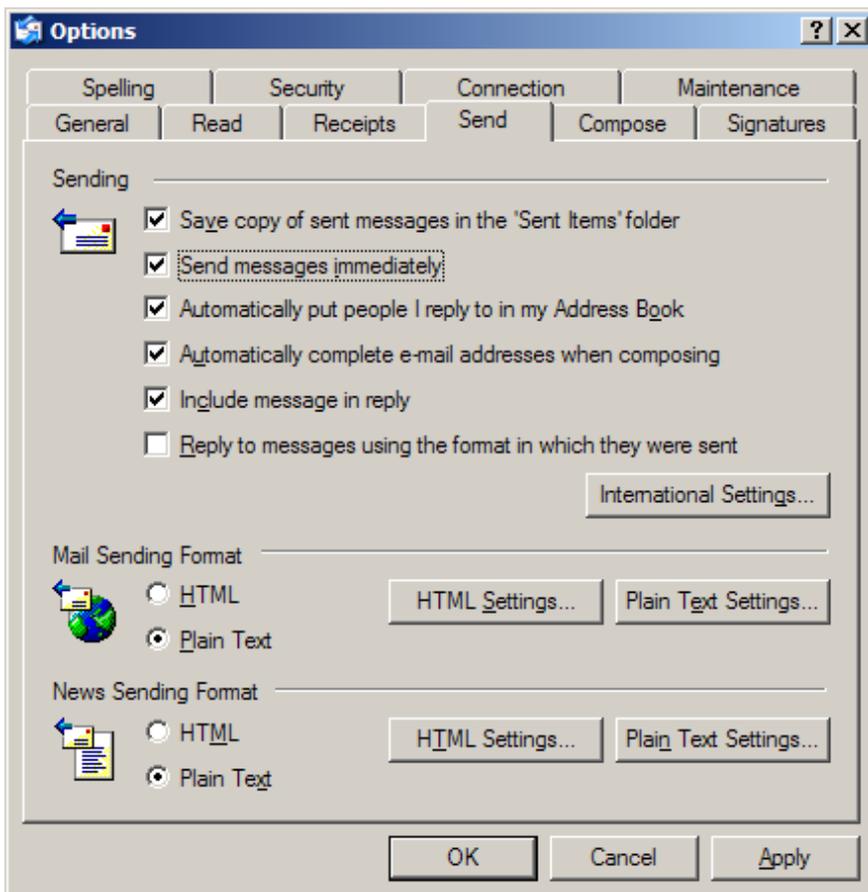
5. Select Mailboxes – General, select the default autologin mailbox number, go to the Attributes tab, and enable “MailAlert global priviledges” so that it can monitor ALL mailboxes for new faxes.
6. Select Mailboxes – Notification, and set up all mailboxes which are FAXmaker clients with valid email addresses, faxfile extensions, email and fax notification priviledges.

[DP 172](#)[DP 174](#)

DP 315

Task **Configure Outlook Express to send email notification***Reference*

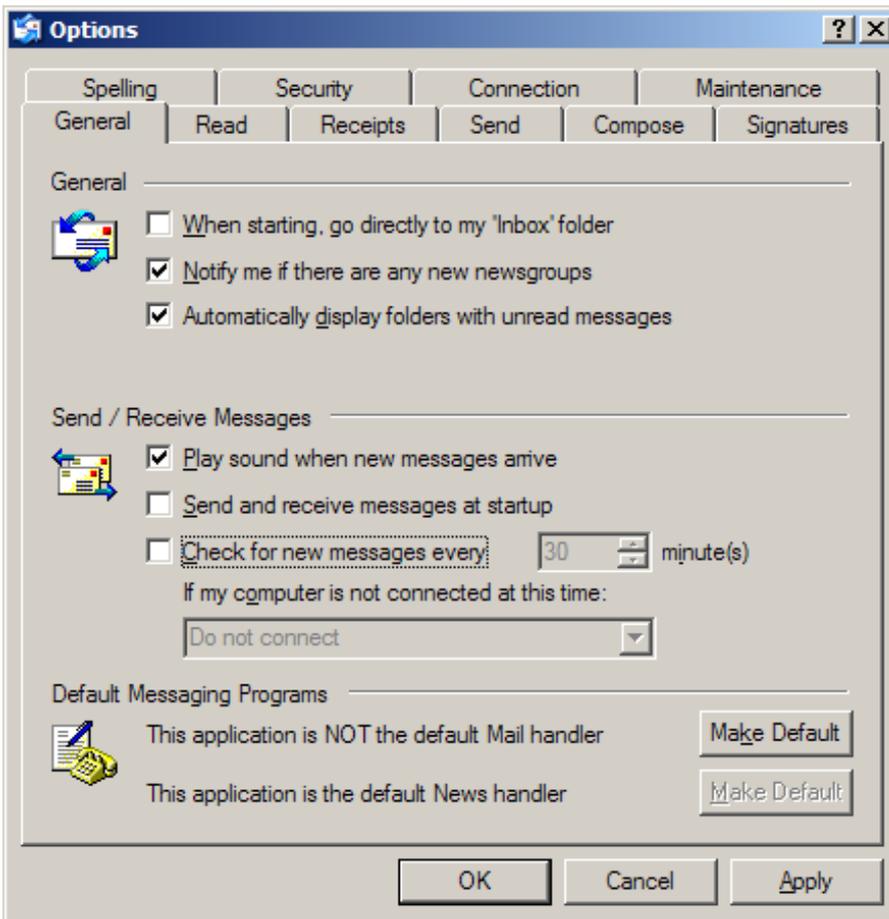
1. In Outlook Express, turn **on** – Tools – Options – Send to “Send messages immediately”.



DP 315

Task **Configure Outlook Express to send email notification***Reference*

2. Turn **off** Tools – Options – General “Send and receive messages at startup” and “Check for new messages every” xx minutes.

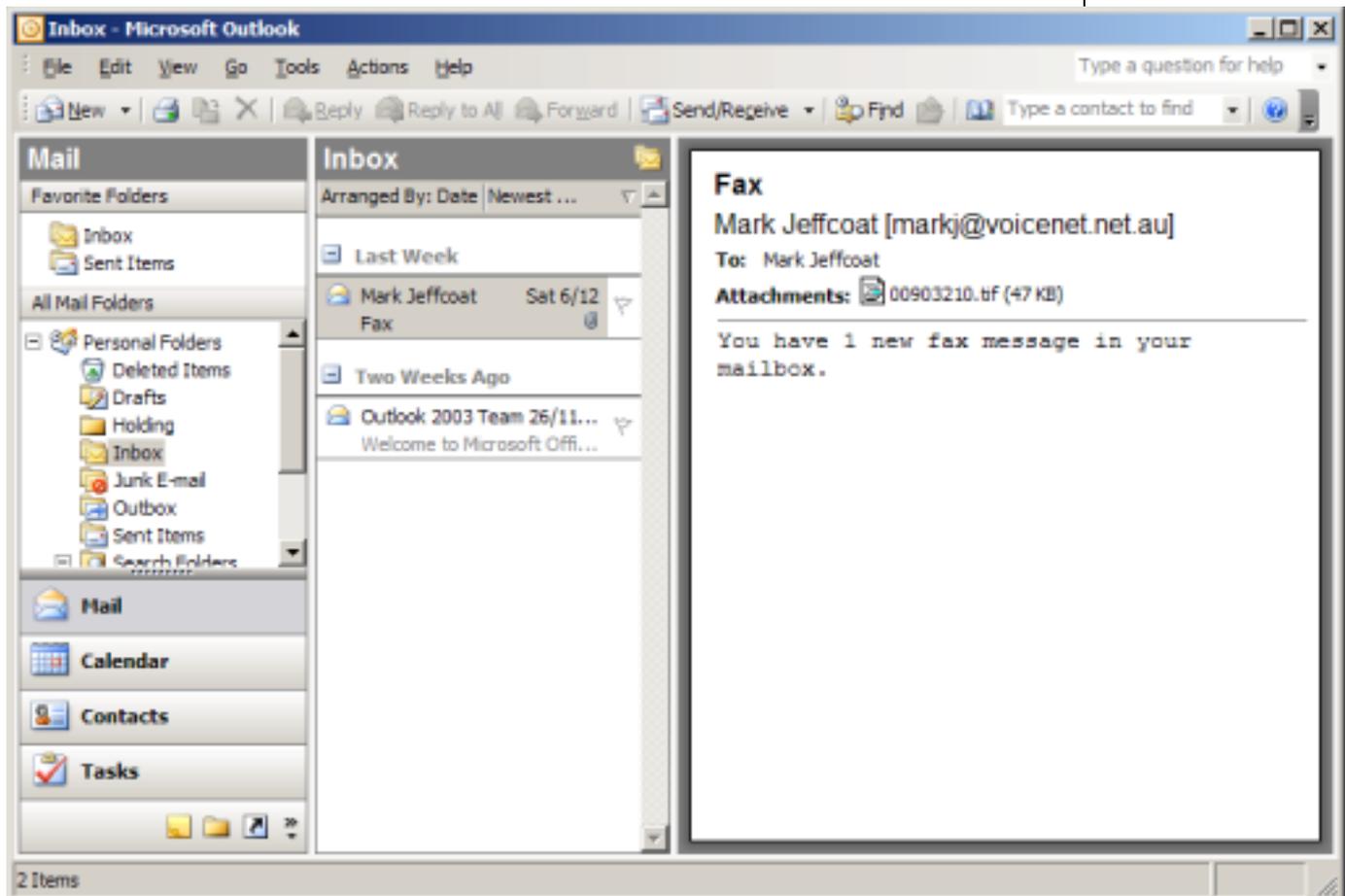


DP 316

Task Faxmail Unified Messaging

Reference

1. After the SendEmail program has sent an email notification of a new fax via intranet or internet, the recipient will receive in their email client (Microsoft Outlook, Lotus Notes, etc) inbox a new email with Subject: Fax and an attachment which is the fax document saved in the format specified in the Fax Server.
2. Double-clicking on the attachment will open the fax document using the default viewer specified in Windows Explorer e.g. for attachments with tif extensions Windows should open them using Image Viewer.



DP 317

Task Reference Fax Server Configuration Template

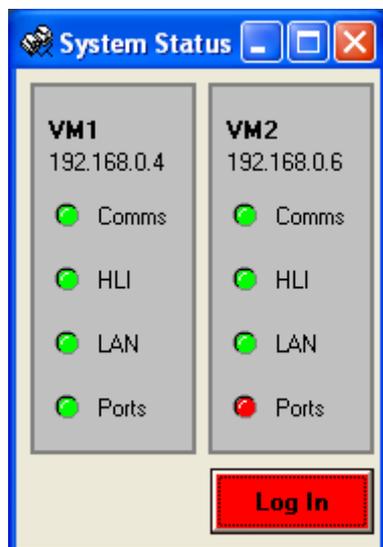
1 File name: ..\NTerprise\Library\FaxServer\FaxServerConfigTemplate.xls

FAX SERVER CONFIGURATION (PRINT TO) SHARENAME:					
FAX PORT	PABX EXTENSION	INDIAL NUMBER	ROUTING: EMAIL FOLDER PRINTER	INCOMING ARCHIVE CSID:	OUTGOING ARCHIVE TSID:
				Folder:	Folder:
				Automatic Deletion after X days	Automatic Deletion after Y days
				High Watermark = XXXMB	High Watermark = YYYYMB
				Low Watermark = XXMB	Low Watermark = YYMB

2 Sample configuration

FAX SERVER CONFIGURATION (PRINT TO) SHARENAME: FAXSERVER					
FAX PORT	PABX EXTENSION	INDIAL NUMBER	ROUTING: EMAIL FOLDER PRINTER	INCOMING ARCHIVE CSID: 9997 0000	OUTGOING ARCHIVE TSID: companyname
1	70012	9997 00 12	faxport1@company.com ..\FaxPort1 \\PrintServer\DeskJet1	..\Fax\Incoming	..\Fax\Outgoing
2	70013	9997 00 13	faxport2@company.com ..\FaxPort2 \\PrintServer\DeskJet2	Automatic Deletion after 14 days	Automatic Deletion after 7 days
3	70014	9997 00 14	faxport3@company.com ..\FaxPort3 \\PrintServer\DeskJet3	High Watermark = 200MB	High Watermark = 100MB
4	70015	9997 00 15	faxport4@company.com ..\FaxPort4 \\PrintServer\DeskJet4	Low Watermark = 80MB	Low Watermark = 60MB

Task Reference Using SwitchHLI application



General Description

The SwitchHLI application is used to manually switch dual server voicemail PABX High Level Interface (HLI) roles. Under normal operating conditions, dual voicemail servers (VM1 and VM2) establish an RS232 HLI serial connection between the PABX and the VM1 server. Input from the PABX is received by the serial port on VM1 and relayed to VM2 via the ethernet LAN connection between the servers.

Switching the server HLI roles means that VM2 becomes the recipient of serial RS232 signalling from the PABX and relays that signalling over the ethernet LAN connection to VM1. Running the SwitchHLI application achieves this switching function without any need for low-level intervention by the voicemail administrator.

Screen Graphics

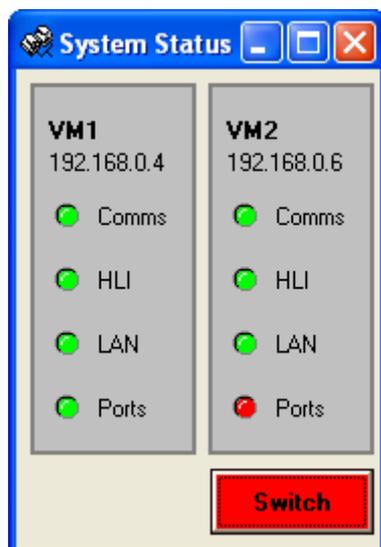
The screen graphics show the following information about the current state of the dual server voicemail system:

VM1	the server's current role
0.0.0.0	the server's IP address
Comms	the state of the TCP connection between the SwitchHLI application and the server
HLI	the state of the HLI application running on the server
LAN	the state of the ethernet LAN connection between servers
Ports	the state of the voicemail ports running on the server

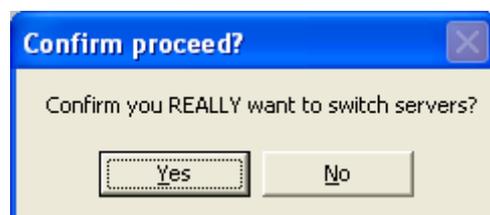
where **GREEN** is active and **RED** is inactive.

Task Reference **Using SwitchHLI application****Login**

Before running the Switch function you need to login to the SwitchHLI application i.e. unauthorised operation is prevented. Login by clicking on the red “Log In” command button. The screen displayed above is presented, where you need to enter your user password. By default the user password will be “VoiceNet” followed by the site number for the installation. Click on “OK” to proceed.

**Switch roles**

Click on the red “Switch” command button to commence the switching of HLI roles. You will be asked to confirm.

Task Reference **Using SwitchHLI application****Confirm**

Select “Yes” to confirm it is OK to proceed with switching HLI roles, or “No” to cancel the function.

Procedures executed during Switch HLI Roles

The following steps or procedures are executed (in order) during the switch HLI roles operation:

- 1 A request is passed to VM1 to order a “Courtesy Down” on its voicemail ports.
- 2 Once VM1 has reported back that all voicemail ports have closed down, individual requests will be sent to VM1 to shut down any other applications associated with voicemail, such as PABXHLI (the serial interface to the PABX) and IPBHLI (the interface over LAN between servers).
- 3 A request is passed to VM2 to order a “Courtesy Down” on its voicemail ports.
- 4 Once VM2 has reported back that all voicemail ports have closed down, individual requests will be sent to VM2 to shut down any other applications associated with voicemail, such as PABXHLI (the serial interface to the PABX) and IPBHLI (the interface over LAN between servers).
- 5 A request is passed to both VM1 and VM2 asking them to close down their “Watchdog” Wdg32 applications.
- 6 Once it is confirmed that the Watchdog applications on both servers have closed, the necessary changes to each server’s initialisation (INI) files will be made in order that when the server applications are restarted their roles will be reversed.
- 7 Following the successful completion of this step, the current voicemail database will be copied over from VM1 to VM2.
- 8 Following the successful completion of this step, the current voicemail greetings and messages for every mailbox will be copied over from VM1 to VM2.

Task Reference **Using SwitchHLI application****Restart Applications**

At this stage the server HLI roles have been successfully switched and it is time to restart the voicemail applications. Depending on the reason for switching HLI roles in the first place, you may restart the new VM1 alone, or restart both VM1 and then VM2. (For example, you may have switched HLI roles in order to perform maintenance on the original VM1 server, while still keeping 50% of your voicemail system capacity running. Alternatively, you may have switched HLI roles because of a fault on the serial interface side of the original VM1 server).

Task Reference **Prepare Replacement Server****General Description**

This is normally a simple (hopefully) job of putting in a clean replacement loan system while the client gets their system repaired. Normally we will take away their old system and give them a quote for repair or replacement, so you will need to take their old PC with you when you leave. There will be a dongle in the back, possibly parallel port, so you will need to ensure that their old dongle goes with the old PC - the loan/replacement PC will use the dongle that came with it.

Preparation of the loan/replacement PC

1. Creating the client's mailbox range

The client will be asked to email their mailbox range to VoiceNet if it is not on record or has significantly changed. To create a mailbox range, open the Voicemail Administration program (icon on the desktop), password is "VoiceNet" - user doesn't matter, and select the Mailboxes icon button. On the General Tab use the pull-down "Select Mailbox" control to select mailbox 100, which should be setup with default values (if there isn't a mailbox 100, simply select any other user's mailbox you would like to use as the copy template). On the General Tab enter the "Mailbox Range From" and "Mailbox Range To" values for the mailbox range you wish to create and press the "Copy Range" button. The system uses the current mailbox you are in as the template for creating the new mailboxes. A progress bar will be displayed until the task has finished.

2. Assigning the client's voicemail port numbers

The client's voicemail system normally uses the NEC MCI RS232 serial interface for passing information to and from the voicemail system. Most likely this will be a DB9 connection from the PABX end into the voicemail PC. In order for the info voicemail receives from the PABX to be meaningful, you need to assign in the Admin program the voicemail port numbers which the PABX is using (in the PABX it treats these as analog extensions). This is done under Configure in the Voicemail Administration program. Go to the Ports tab and you will see a field called "Port Extension Number". You can scroll up and down through the ports (e.g. 1 to 4). The value in the "Port Extension Number" field must match the analog voicemail extensions coming from the PABX.

Task Reference **Prepare Replacement Server**

3. Other Configuration settings

These should all be OK or able to be set up through remote dialup but there might be something we need to do onsite.

4. Switch Dialogic voiceboards.

The replacement PC normally has an ISA-slot Dialogic voiceboard in it (in case the faulty PC is very old), otherwise you could safely remove the ISA board and when you get to site you will need to take their PCI-slot Dialogic voiceboard(s) out of the faulty PC and install into the loan PC. The PCI-slot Dialogic voiceboards are self-addressing so no drama there. Then run the Intel Dialogic Configuration Manager (DCM) from the Programs Menu - it should have already found the PCI board. Select "Service - Startup Mode" and assign "Automatic" if it isn't already done. Then double click on the Dialogic board and select the Country tab, and assign the Country value as "Australia/NZ".

5. Run Carbon Copy RDA

The Carbon Copy Remote Access icon will be on the desktop. Double left click to run, it should minimise to the taskbar with status "Waiting for call – Active".

That's about it, if anything else comes up we should be able to handle it at the time. When you get to site and are ready for VoiceNet to call your mobile just ring the office on 9997 7109 and press "1" to leave a message in the default service "interview" mailbox (mbx 777). Don't bother answering all the interview questions, just one will suffice and then simply keep pressing hash (#) to proceed to the next question (there are 5 in total). Once done it will dial the current on-call mobile number and play your message.

Task Reference **NTERPRISE.INI****[Visual Voice]**

;parameters used by the interface to the Dialogic board, do not change

; AutoAllocateLine=Optional. If 0, no phone line is allocated when the Voice control loads. If 1, allocation occurs according to the value in the PhoneLine property.

;PhoneLine= Optional. The telephone line used by the Prompt Manager and Code Wizard. The default is 1.

;ServerMode= Optional. Specifies whether Visual Voice should operate using a centralized server to manage the connection between Visual Voice applications and the voice board. Valid values are 1 (on) and 0 (off).

; VisualVoicePath= Required. The location of Visual Voice, only change if NEnterprise has been installed in a different partition than E:

; SystemFilePath= Required. The location of the system voice files used by Visual Voice, only change if NEnterprise has been installed in a different partition than E:

;ConserveThreads= Optional. If 1, the default, decreases the number of threads used to communicate with the Dialogic driver. This may improve performance when running a large number of lines. If 0, Visual Voice uses its original threading model.

AutoAllocateLine=0

PhoneLine=1

ServerMode=0

VisualVoicePath=E:\NEnterprise

SystemFilePath=E:\NEnterprise\VoiceFiles

ConserveThreads=1

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Task Reference **NTERPRISE.INI****[Channel Parameter Block]**

;used by the interface to the Dialogic board, do not change

The following table lists parameters that can be included in the [Channel Parameter Block] section of your INI file to fine tune Call Progress Analysis. These parameters are loaded when the LoadLineParameters method is initiated, when the PerfectCall property is set to true, and when a timeslot is registered.

Parameters that apply to basic Call Progress Analysis are marked CPA.

Parameters that apply to PerfectCall Progress Analysis are marked PCA.

Parameter	Default Value	Units	Description
alowmax	700	10 ms.	A Low Maximum: Maximum Low before connect if high > hisiz. (CPA)
ansrdgl	-1	10 ms. (-1 to disable)	Answer Deglitcher: Maximum silence period allowed between words in a salutation. This parameter should be enabled only when you are interested in measuring the length of a salutation. (CPA/PCA)To determine the salutation length with the ConnectLength property, set this parameter to 50. Ansrdbl must be disabled (-1) to use PerfectCall (PerfectCall
blowmax	530	10 ms.	B Low Maximum: Maximum low before connect if high < hisiz. (CPA)
cnosig	4000	10 ms.	Continuous No Signal: Maximum time of silence (no signal) allowed immediately after Cadence

DP 400

Task Reference NTERPRISE.INI

			Detection begins. If exceeded, a no ringback is returned (CPA/PCA).
cnosil	650	10 ms.	Continuous Nonsilence: Maximum length of the first or second period of nonsilence allowed. If exceeded, a no ringback is returned. (CPA/PCA)
dtn_deboff	10	10 ms.	Dial Tone Debounce: Maximum gap allowed in an otherwise continuous dial tone before it is considered invalid. (PCA)
dtn_npres	300	10 ms.	Dial Tone Not Present: Maximum length of time to wait before declaring dial tone failure. (PCA)
dtn_pres	100	10 ms.	Dial Tone Present: Length of time that a dial tone must be continuously present. (PCA)
hedge	2	1 (rising edge) 2 (falling edge)	Hello Edge: Point at which a connect is returned to the application. (CPA/PCA)
hi1bmax	90	10 ms.	High 1 Busy Maximum: Maximum interval for first high for busy. (CPA)
hi1ceil	78	10 ms.	High 1 Ceiling: Maximum 2nd high duration for a retrain. (CPA)
hi1tola	13	%	High 1 Tolerance Above: Percent

DP 400

Task Reference NTERPRISE.INI

			acceptable positive deviation of high signal. (CPA)
hi1tolb	13	%	High 1 Tolerance Below: Percent acceptable negative deviation of high signal. (CPA)
higlth	19	10 ms.	High Glitch: Maximum nonsilence period to ignore. Used to help eliminate spurious nonsilence intervals. (CPA/PCA)
Hisiz	90	10 ms.	High Size: Used to determine whether to use alowmax or blowmax. (CPA)
intflg	none	1, 2, 3, 4, 5, 6, 7, 8	Operator Intercept Mode. Enables or disables various call progress detection methods. This parameter also determines whether a salutation length is returned. See the Call Progress Analysis help topic for a table of valid values." (CPA/PCA)
lcdly	400	10 ms. (-1 to disable)	Loop Current Delay: Delay (after dialing has completed) before beginning Loop Current Detection (CPA/PCA)
lcdly1	10	10 ms.	Loop Current Delay 1: Delay after Loop Current Detection detects a transient drop in loop current and before Call

DP 400

Task Reference NTERPRISE.INI

			Analysis returns a connect to the application. (CPA/PCA)
lo1bmax	90	10 ms.	Low 1 Busy Maximum: Maximum interval for short low for busy. (CPA)
lo1ceil	58	10 ms.	Low 1 Ceiling: Maximum 1st low duration for a retrain. (CPA)
lo1rmax	90	10 ms.	Low 1 Ring Maximum: Maximum short low duration of double ring. (CPA)
lo1tola	13	%	Low 1 Tolerance Above: Percent acceptable positive deviation of short low signal. (CPA)
lo1tolb	13	%	Low 1 Tolerance Below: Percent acceptable negative deviation of short low signal. (CPA)
lo2bmax	90	10 ms.	Low 2 Busy Maximum: Maximum interval for long low for busy. (CPA)
lo2rmin	225	10 ms.	Low 2 Ring Minimum: Minimum long low duration of double ring. (CPA)
lo2tola	13	%	Low 2 Tolerance Above: Percent acceptable positive deviation of long low signal. (CPA)
lo2tolb	13	%	Low 2 Tolerance Below: Percent acceptable negative deviation of long low

DP 400

Task Reference NTERPRISE.INI

			signal. (CPA)
logltch	15	10 ms.	Low Glitch: Maximum silence period to ignore. Used to help eliminate spurious silence intervals. (CPA/PCA)
lower2frq	0	Hz.	Lower Bound for 2nd Frequency: Lower bound for 2nd tone in an SIT.
lower3frq	0	Hz.	Lower Bound for 3rd Frequency: Lower bound for 3rd tone in an SIT.
lowerfrq	900	Hz.	Lower Frequency: Lower bound for 1st tone in an SIT. (CPA/PCA)
Maxansr	1000	10 ms.	Maximum Answer: Maximum allowable length of answer size. When answer size exceeds maxansr, a connect is returned to the application (CPA/PCA)
maxintering	800	10 ms.	Maximum Inter-ring Delay: Maximum time to wait between consecutive ringback signals before deciding that the call has been connected. (PCA)
mxtime2frq	0	10 ms.	Maximum Time for 2nd Frequency: Maximum allowable time for 2nd tone in an SIT to be present.
mxtime3frq	0	10 ms.	Maximum Time for 3rd Frequency: Maximum allowable time for 3rd

DP 400

Task Reference NTERPRISE.INI

			tone in an SIT to be present.
mxtimefrq	0	10 ms.	Maximum Time Frequency: Maximum allowable time for 1st tone in an SIT to be present.
nrbeg	1	rings	Number Before Beginning: Number of nonsilence periods before analysis begins. (CPA)
noanswer	3000	10 ms.	No Answer: Length of time to wait after first ringback before deciding that the call is not answered. (PCA)
nsbusy	0	neg. numbers are valid	Nonsilence Busy: Number of nonsilence periods in addition to nbrdna to wait before returning busy
pamd_failtime	400	10 ms.	PAMD Fail Time: Maximum time to wait for Positive Answering Machine Detection or Positive Voice Detection after a cadence break. (PCA)
pamd_minring	190	10 ms.	Minimum PAMD Ring: Minimum allowable ring duration for Positive Answering Machine Detection. (PCA)
pamd_spdval	1	1 (Full eval.) 2 (Quick (CA: Enh. only))	PAMD Speed Value: Quick or full evaluation for PAMD detection.
stdely	25	10 ms.	Start Delay: Delay (after dialing has completed) before starting analysis for Cadence Detection,

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Task Reference NTERPRISE.INI

			Frequency Detection, and Positive Voice Detection. (CPA/PCA)
time2frq	0	10 ms.	Time for 2nc Frequency: Minimum time for 2nd tone in an SIT to remain in bounds.
time3frq	0	10 ms.	Time for 3rd Frequency: Minimum time for 3rd tone in an SIT to remain in bounds.
timefrq	5	10 ms.	Time Frequency: Minimum time for first tone in an SIT to remain in bounds. The minimum amount of time required for the audio signal to remain within the frequency detection range specified by upperfrq and lowerfrq for it to be considered valid.
upper2frq	0	Hz.	Upper Bound for 2nd Frequency: Upper bound for 2nd tone in an SIT to remain in bounds.
upper3frq	0	Hz.	Upper Bound for 3rd Frequency: Upper bound for 3rd tone in an SIT.
upperfrq	1000	Hz.	Upper Frequency: Upper bound for 1st tone in an SIT. (CPA/PCA)

Task Reference **NTERPRISE.INI**

[Channel Parameter Block]

ansrdgl=10

intflg=7

noanswer=1200

lo1tola=21

lo1tolb=25

lo2tola=21

lo2tolb=11

hi1tola=18

hi1tolb=16

lo1bmax=44

lo2bmax=44

hi1bmax=47

logltch=15

higtch=6

lo1rmax=27

lo2rmin=173

alowmax=209

blowmax=209

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[Control Block]

;used by the interface to the Dialogic board, do not change

Parameter	Default value	Units	Description
flashchr	&	characters	Flash Character: Character that causes a flash hook when detected.
flashtm	50	10 ms.	Flash Time: Length of time onhook during a flash.
maxpdoff	50	10 ms.	Maximum Pulse Digit Off: Maximum time loop current may be off before the existing loop pulse digit is considered invalid and reception is reinitialized.
minipd	25	10 ms.	Minimum Loop Interpulse Detection: Minimum time for silence to be on between pulse digits for audio pulse detection.
minlcoff	0	10 ms.	Minimum Loop Current Off: Minimum time before loop current drop message is sent.
Minoffhktm	250	10 ms.	Minimum Offhook Time.
minpdoff	2	10 ms.	Minimum Pulse Detection Off: Minimum break interval for valid loop pulse detection.
minpdon	2	10 ms.	Minimum Pulse Detection On: Minimum make interval for valid loop pulse detection.

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mintioff	5	10 ms.	Minimum DTI Off: Minimum time required between rings received.
mintion	5	10 ms.	Minimum DTI On: Minimum time required for rings received event.
on_dly	50	10 ms.	Offhook Delay: Period after offhook during which no events are generated. (No DTMF digits are detected during this period.)
p_bk	6	10 ms.	Pulse Dial Break: Duration of pulse dial offhook interval.
p_idd	100	10 ms.	Pulse Interdigit Delay: Time between digits in pulse dialing.
p_mk	4	10 ms.	Pulse Dial Make: Duration of pulse dial offhook interval.
pausetm	200	10 ms.	Pause Time: Delay caused by a comma in the dialing string during a Call or Dial method.
r_ird	80	100 ms.	Inter-ring Delay: Maximum time to wait for the next ring. Used to distinguish between calls. Set to 1 for T-1 applications.
r_off	5	100 ms.	Ring-off Interval: Minimum time for ring not to be present before qualifying as "not ringing."
r_on	3	100 ms.	Ring-on Interval: Minimum time ring must be present to qualify as a ring.

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redge	2	10 ms.	Ring Edge: Detection of ring edge. Valid values are: 1 (beginning of ring) and 2 (end of ring)
s_bnc	4	10 ms.	Silence and Non-silence Debounce: Length of a changed state before Call Status Transition message is generated.
t_idd	5	10 ms.	DTMF Interdigit Delay: Time between digits in DTMF dialing.
ttdata	10	10 ms.	Duration of DTMF digits for dialing.

flashtm=10

pausetm=100

;off hook delay period during which the Dialogic board will collect DTMF for inband signalling, not used when operating with MCI or other PABX high level interface signalling

;oh_dly=01

Task Reference NTERPRISE.INI**[Tone Definitions]**

; Custom tone definition for detecting a fax machine 'send' signal

T1=1100, 20, 50, 10, 300, 10, 2

; Custom tone definition for detecting a fax machine 'receive' signal

T2=2085, 20, L

;USED: Custom Tone 3 - definition for detecting INTERNAL hangup from an NEAX ICS 7400 series

;BUSY TONE

;T3=423, 10, 35, 5, 40, 5, 2

;NU TONE and SDS

T3=425, 80, 270, 60, 35, 20, 2

;NEC MW PARAMETERS: Set MW=*8 / , Clear MW = *9 / not used

;Telstra /Optus, also works for Russian telecoms!

T4=424, 40, 35, 20, 41, 20, 2

;define same tones for hangup as opposed to linedropped

T5=425, 80, 270, 60, 35, 20, 2

T6=424, 40, 35, 20, 41, 20, 2

[Tone Presentation]

;tell voicemail how to treat the tones defined above

T1=ToneDetected

T2=ToneDetected

T3=LineDropped

T4=LineDropped

T5=ToneDetected

T6=ToneDetected

[Security]

;the unique security dongle number assigned to each NEnterprise installation

Password=1396767516

[Application]

;this sub section is used by custom IVR applications only, it is not applicable to NEnterprise voicemail

Path=E:\NEnterprise

XPosition=-60

YPosition=-60

WavFormat=0

VoiceFilePath=C:\IVRhome\Vox\

Task Reference **NTERPRISE.INI**

```
NameVoiceFilePath=C:\IVRhome\Names\  
WdgXPosition=555  
WdgYPosition=1170  
PortXPosition=525  
PortYPosition=7125
```

Task Reference NTERPRISE.INI

;the most important section of NTERPRISE.INI

[NTERprise]

DetailedLogging=True	;used by VM32.exe to log all call transactions, used by Wdg32.exe to send transactions to the trace log, used by PABXHLI.exe to write transactions to the trace log file
RGreetingAllSame=False	;used by VM32.exe, copies recorded greeting1 as greetings2 and 3
ShortUserOption=True	;legacy setting, no longer in use by any applications
EnableMessageReceipt=True	;used by VM32.exe in conjunction with the OutboundNotification privilege to permit the use of the message receipt function, whereby a caller who has left a message can request a callback from voicemail letting them know when their message has been played by the mailbox owner.
EnableUrgentMessage=True	;used by VM32.exe to permit a caller who has left a message to stamp their message as urgent thereby telling voicemail to move this message to the front of the message queue for the destination mailbox
EnableTimedMessageDelivery=True	;used by VM32.exe to permit a caller who has left a message to specify a future date/time when their message will be delivered to the destination mailbox, checks for valid future dates/times
SimulateErrors=False	;legacy setting, no longer in use by any applications
Hotel_System=True	;used by VM32.exe and Wdg32.exe to identify a system which is in use as a Hotel application, in which case mailboxes can be defined as Staff (with full privileges) or Room Guests (with limited privileges). Also used to limit other menus played by voicemail based on mailbox privileges and features available to mailboxes.
CheckInMbxDiversion=True	;legacy setting, no longer in use by any applications
MsgReplayFIFO=False	;used by VM32.exe to globally (all mailboxes) adjust the order in which messages are played back to the mailbox owner, if False the LIFO order is used
ArchiveDir=\Archive\	;path used by Wdg32.exe to store archived transaction log files. Is created as a sub folder under the application folder ..\NTERprise
VoiceFileDir=\VoiceFiles\	;path used by VM32.exe to play voice prompts. Is created as a sub folder under the application folder ..\NTERprise. Further sub folders under ..\VoiceFiles\.. are created for each language prompt set e.g. ..\English, ..\Russian, etc
FaxFileDir=\Fax\	;path used by VM32.exe and Wdg32.exe to create fax mailbox sub folders, to copy received faxes into these fax mailbox sub folders, and to purge these received faxes at a

Task Reference NTERPRISE.INI

RecoverMsgOption=False	later date. Is created as a sub folder under the application folder ..\NTerprise. e.g. voice mbx 100 might have fax mailbox 100 which would be located at ..\NTerprise\Fax\100 ;used by VM32.exe (if True) to play an additional prompt each time after a mailbox owner has deleted a message, asking them if they wish to recover their deleted message.
DoNotRunPort=0	;used by Wdg32.exe to tell it which ports to run, default (0) tells Wdg32 to run ALL permitted ports, if only some ports should be run, then the value should be a pipe-delimited string e.g. if you are permitted (by the security dongle) to run 4 ports, but you only wish to run ports 1-3, then the string should be 1 2 3
ValidRecordingLength=30	;used by VM32.exe to determine whether a message length is valid. Value is in KB. Disk storage is 7KB per second of speech storage, 8KB per second of silence storage. Therefore a value of 30 = 30KB = 3 seconds. If a recording is under this length it is assumed that the caller has hung up before leaving a message, and voicemail has recorded the hangup tone. Therefore this value can be used to erase underlength messages and not send them to the mailbox.
CommPort=0 PMSHLI=0	;legacy setting, no longer in use by any applications ;Valid values are 1 LANMARK/SULCUS/ELTRAX/PORTFOLIO/AREMISOF T 2 MICROSFIDELIO 3 TRILOGY 4 MAESTRO 5 TRILOGY LTI ← → CPS 6 VOICENET/LOTTE
WdgPresent=False	Used by VM32.exe to send Set/Clear MW link message to PMSHLI.exe. Used by Wdg32 to pass on messages to PMSHLI.exe.
UseLoopCurrentSupervision=True	;legacy setting, used by Wdg32 to determine if a hardware watchdog board is in use.
UseToneDefinitions=True	;Used by VM32, specifies whether Visual Voice generates line drop events and errors when a line drop is indicated by the drivers. Line drop events should only be disabled when your application is experiencing line drop problems that can not be resolved by other means (e.g., by adjusting the line drop parameters in the Dialogic driver configuration file).
	;Used by VM32 to perform additional actions to close off the call if one of the pre-defined tones listed in the [Tone Definitions] section is heard.

Task Reference NTERPRISE.INI

UseCallSupervision=True	;Used by VM32 to supervise (i.e. determine from human voice) whether a dialout has been successfully answered.
MessagesPath=\Messages\	;Used by all applications to identify the sub folder under ..\NTERprise in which voicemail messages are stored
GreetingsPath=\Greetings\	;Used by all applications to identify the sub folder under ..\NTERprise in which voicemail greetings are stored
VMServerPath=	;Used by VM32, Wdg32 and SendEmail applications. If this value is not "" then it indicates that the system has a multi-server architecture. The path nominated here is the path back to the primary voicemail server, where the database, messages and greetings are stored.
RROK=False	;legacy setting, no longer in use by any applications
VoiceNetwork=False	;legacy setting, no longer in use by any applications
UseInternalCallerID=True	;Used by VM32 to tell a mailbox owner the "internal" identity (i.e. PABX extension number or recorded mailbox name if known e.g. through MCI) of the sender of the message they are listening to.
UseExternalCallerID=False	;Used by VM32 to tell a mailbox owner the "external" identity (i.e. CallerID if known e.g. through MCI) of the sender of the message they are listening to.
PCIwdg=False	;Used by Wgd32 to identify if a Watchdog board of PCI-type slot is installed.
Win2000=False	;legacy setting, no longer in use by any applications
WdgCheckDataPeriod=5	;Used by Wdg32 as a periodic timer (value in minutes) to perform routine checks on system health e.g. are all required applications running
MsgStoreDays=180	;legacy setting, no longer in use by any applications
MaxSilence=5	;Value in seconds, used by VM32 to determine the timeout period for silence in a call after which the application will default to the previous menu or hangup the call
BackupPath=E:\Backup	;used by Scout application (which runs from the Startup programs folder) to determine the path(s) for creating system backups in. Multiple paths can be defined by separating them with a pipe " " e.g. E:\Backup \backupserver\c\backup \removeable_device\dfiles\backup. If the destination paths/folders are not found, Scout will create them if the nominated drive can be accessed. Files backed up are the database (NTERprise.mdb), the system INI (NTERPRISE.INI), all messages and all greetings. Backups are performed by Scout each time the server restarts. Server restart frequency is defined in the voicemail administration application under Configure-Voicemail. Backup time is defined in the

Task Reference NTERPRISE.INI

MatchEmailAddress=True	NTERPRISE.INI file under the section header [House Keeping Times]. ;used by Wdg32 if Outlook integration with Unified Messaging is in use. Legacy setting, unified messaging through an independent web service is now used, integration with individual email programs is no longer necessary.
EnforcePassword=False	;used by VM32, if True then mailbox owners cannot access their mailbox until they have setup a password.
NewMsgPurgeDays=90	;used by Wdg32 to determine the maximum age (in days) of NEW messages stored in the NTERprise messages path ..\Messages\.., after which they are purged (killed) from the server. Maximum value 720 (i.e. maximum storage approx. 2 years)
SavedMsgPurgeDays=180	;used by Wdg32 to determine the maximum age (in days) of SAVED messages stored in the NTERprise messages path ..\Messages\.., after which they are purged (killed) from the server. Maximum value 720 (i.e. maximum storage approx. 2 years)
ReviewEachInterviewSegment=True	;used by VM32 when recording an interview (multi-greeting/question) message, if True permits the caller to replay/rerecord each question during the message recording.
PlayGoodbye=True	;used by VM32 if True plays the “goodbye” prompt to callers and mailbox owners at the end of each call.
FrontDeskLocal=True	;legacy setting, no longer in use by any applications
UseOldAlert=False	;legacy setting, used by VM32, if True then creates text file in ..\NetMW sub folder which contains information for each mailbox on the number of new and saved messages they have, was originally used to provide network-based message notification before internet usage became widespread.
D4PCIU=False	;used by VM32 to adjust some board settings specific to this type of Dialogic board. Do not set to True unless you have a legacy board of this type.
DELMsgPurgeDays=2	;max value 7 (days), min value 1 (day). Used by Wdg32 to assess whether messages which have been deleted by the mailbox owner (therefore have been marked for DELETION by the system) can actually be deleted from the server. Messages marked for Deletion and with dates + DELMsgPurgeDays value will be deleted from the server.
UseRetrieveAllPrompt=True	;used by VM32 when playing message handling options to mailbox owner, voicemail then determines which options to logically provide.

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ScoutHasRunWdg32=True	;value written True by Wdg32 and False by Scout on startup, used by Wdg32 and Scout to determine server environment.
MinimumPasswordLength=1	;used by VM32 when mailbox owner is entering / changing password to enforce varying password strength
UseGenericPrompt=False	;used by VM32, if False calls to voicemail pilot without routing information attached will hear “NEnterprise voicemail .. “ prompt, if True calls (same scenario) will hear “This is the voicemail system, enter hash and your mailbox number”.
UseMsgJump=True	;used by VM32, if True permits mailbox owner to press hash (#) after their password in order to “jump” over any new unplayed messages and proceed straight to the User Menu of their mailbox. Useful if you have many new messages you don’t want to have to handle (keep/delete) before adjusting some other parameter of your mailbox.
PermitCreateNewMbxButton=False	;used by Admin32 voicemail administration program to enable/disable the “New” button in the General tab under Mailboxes.
GiveMsg2ListFilter=	;used by VM32. Should be a boolean-type field name in the MailBoxes table which can be used to selectively filter the mailboxes in a list which will receive the message being “Given” to that list. For advanced use only.
Wdg32running=True	;written by Wdg32 on startup, legacy setting, no longer in use by any applications.
DisplayLanguage=English	; legacy setting, no longer in use by any applications. The display language is now determined from Windows Regional Settings.
SystemWideLanguage=04	;used by VM32 to determine which language to play system (non-mailbox) prompts. Language numbering is 00 English 01 Japanese 02 Mandarin 03 Korean 04 Russian 05 Polish 06 German 07 French
UseBroadcastTransactionsOption=False	;used by Wdg32, if True enables the Broadcast Transactions checkbox on the Wdg32 window.
WdgBroadcastTransactions=False	;used by VM32 to determine whether to send transaction to Wdg32. Used by Wdg32 to broadcast transactions to RemoteLogger application. NOTE: this process can use extra CPU cycles and should not be left ON under normal operating conditions.

Task Reference NTERPRISE.INI

[House Keeping Times]	
OnTime=2:00:00 AM	;used by Wdg32 as start of period to commence housekeeping tasks
OffTime=2:00:32 AM	;used by Wdg32 as end of period to commence housekeeping tasks
[Server]	
DBPath=e:\NTerprise\	;used by ALL APPLICATIONS as path to primary database
DBName=NTerprise.mdb	;used by ALL APPLICATIONS as name of primary database
[Fax On Demand]	; legacy settings (ALL), no longer in use by any applications
FaxPath=C:\Progra~1\Symantec\WinFax	
FaxApp=FAXMNG32	
FaxBanner=WinFax PRO	
Version4+=1	
CoverPageFileName=C:\Progra~1\Symantec\WinFax\COVER\basic1.cvp	
CoverPageTextFile=catalog.txt	
[VoiceNet]	
TransferCPD=True	;used by VM32, toggles BasicCallProgress detection
DialOutCPD=True	;used by VM32, toggles DialoutCallProgress detection
IgnoreCallProgress=False	; used by VM32, if True, disables detection of Tone 6 in [Tone Definitions]
ForceDialOut=False	;used by VM32, if True then forces blind dialout instead of detecting call progress
PauseAfterForceDialOut=,,,,,,	;used by VM32 if ForceDialOut=True, each comma has pause value = [Control Block] pausetm
[Launch]	
Delay=5	; legacy setting, no longer in use by any applications
[Hammer]	
Run=False	;used by VM32, runs test program to continuously make test calls from voicemail ports to destination mailbox, optionally leaving a message.
HammerCycleMinutes=5	;period between calls
HammerMbx=	;destination mailbox to receive dialouts from Hammer port
LeaveHammerMsg=False	;True = HammerMbx records the message played by Hammer port.

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Task **NEC SDS Inband Integration Parameters***Reference*

- 1 Setup line connections to voicemail ports.
The voicemail ports are presented as RJ14 SINGLE pair female sockets with the inside pair providing the port connection. The phone system should present the analog voicemail extensions as RJ14 (or RJ45) single pair female sockets mounted as close as possible to the voicemail system. Line connections should be made up on site with male RJ14 connectors at both ends to connect the voicemail ports to the phone system analog voicemail extensions.
- 2 Setup remote modem access (RAS).
The NTerprise voicemail system is provided with a modem and modem connection cable for remote maintenance purposes. The “Line” female connector on the modem should be connected to the phone system remote access extension or indial with the modem connection cable provided. Either a 610 socket or female RJ12 socket can be used for this purpose at the phone system end.
- NOTE: Installers may need to apply padding to ISDN lines where performance is a problem.
- Refer to the software procedure for installation of remote access software on the PC, if it is not already installed.
- 3 Ensure DTMF generation in the phone system is set to 70ms ON and OFF to ensure “cut-through” of voice prompts by the voicemail system.
- 4 Music-On-Hold should be provided with the phone system so that callers placed on hold during transfers by the voicemail system do not experience silence and misunderstand this as having been disconnected.
- 5 Console operators wanting to pick up messages left in the reception mailbox may need to access the SPB button in order to generate a “#” in DTMF to identify themselves as the mailbox owner to the voicemail system.
- 6 If callers to voicemail press “0” to return to reception, voicemail will attempt to blind transfer the caller. Blind transfers to the operator console will cause PABX recall unless the phone system has allowed extension transfers to be blind (08:063:0). Outdial prefix = “,0,”

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Task NEC SDS Inband Integration Parameters

Command	Function	Bit Code	Data	Description
08	028		0	Release before answer
08	063		0	Permit unsupervised transfers to the operator station
08	156		1	Disallow MW to be set by a caller to an extension which is ringing by pressing 6 on their station.
08	208		1	Disallow MW to be set by a caller to an extension which is busy by pressing 6 on their station.
08	233		1	The PABX should NOT clear MW when the extension calls the operator.
08	234		1	The PABX should NOT clear MW when the extension calls the station which set the MW.
08	235		1	The PABX should NOT clear MW for message reminders.
08	333		0	Send extension number on recall from transfer.
08	443		1	VMS with DTMF (0 = MCI)
Number 7 Signalling Only				
08	376		0	Enable "Calling Line Identification to number 7" to send integration data of Number 7 link
13	03	VM ports	1	VM ports - Disallow receipt of MW.
		Stations	0	Extensions - Allow receipt of MW.
13	10	VM ports	0	Designate extensions in the VM hunt group as VM ports.
13	13		1	Stop Clear MW when station calls VM.
For ICS 120				
13	31	VM ports	0	VM ports - Send Busy Tone to VM when station releases.
09	44		0	Hotel Feature Available (permits MW on SDS)
13	23		0	(SDS only) VM ports - send Busy Tone to VM
15	47	00-15	0	Disallows use of Message Reminder for single digits. (only for extn COS, not VM)
20	040		*8	Set MW access code (or code as available onsite)
20	041		*9	Clear MW access code (or code as available onsite)
For ICS 120				
41	044		13	Prepause timer value 0.5 sec
For ICS 120				
41	049		0	Extensions - Send Busy Tone to VM when station releases.
50	00	3	clear	Turn off forwarding predigit passed to VM on Call FWD
51	15			Set to call VM hunt group when message wait button pressed.
For ICS 120				
482		12	0	Supply stutter dial tone to SLT as MW indication.

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Task **NEC ICS120/140 Inband Integration Parameters***Reference*

- 1 Setup line connections to voicemail ports.
The voicemail ports are presented as RJ14 SINGLE pair female sockets with the inside pair providing the port connection. The phone system should present the analog voicemail extensions as RJ14 (or RJ45) single pair female sockets mounted as close as possible to the voicemail system. Line connections should be made up on site with male RJ14 connectors at both ends to connect the voicemail ports to the phone system analog voicemail extensions.
- 2 Setup remote modem access (RAS).
The NTerprise voicemail system is provided with a modem and modem connection cable for remote maintenance purposes. The “Line” female connector on the modem should be connected to the phone system remote access extension or indial with the modem connection cable provided. Either a 610 socket or female RJ12 socket can be used for this purpose at the phone system end.
- NOTE: Installers may need to apply padding to ISDN lines where performance is a problem.
- Refer to the software procedure for installation of remote access software on the PC, if it is not already installed.
- 3 Ensure DTMF generation in the phone system is set to 70ms ON and OFF to ensure “cut-through” of voice prompts by the voicemail system.
- 4 Music-On-Hold should be provided with the phone system so that callers placed on hold during transfers by the voicemail system do not experience silence and misunderstand this as having been disconnected.
- 5 Console operators wanting to pick up messages left in the reception mailbox may need to access the SPB button in order to generate a “#” in DTMF to identify themselves as the mailbox owner to the voicemail system.
- 6 If callers to voicemail press “0” to return to reception, voicemail will attempt to blind transfer the caller. Blind transfers to the operator console will cause PABX recall unless the phone system has allowed extension transfers to be blind (08:063:0)

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Task NEC ICS120/140 Inband Integration Parameters

Command	Function	Bit Code	Data	Description
08	028		0	Release before answer
08	063		0	Permit unsupervised transfers to the operator station
08	156		1	Disallow MW to be set by a caller to an extension which is ringing by pressing 6 on their station.
08	208		1	Disallow MW to be set by a caller to an extension which is busy by pressing 6 on their station.
08	233		1	The PABX should NOT clear MW when the extension calls the operator.
08	234		1	The PABX should NOT clear MW when the extension calls the station which set the MW.
08	235		1	The PABX should NOT clear MW for message reminders.
08	333		0	Send extension number on recall from transfer.
08	443		1	VMS with DTMF (0 = MCI)
08	138		0	Distinctive Ring Analog Extension - normal
08	392		0	Distinctive Ring Analog Extension - normal
Number 7 Signalling Only				
08	376		0	Enable "Calling Line Identification to number 7" to send integration data of Number 7 link
13	03	VM ports	1	VM ports - Disallow receipt of MW.
		Stations	0	Extensions - Allow receipt of MW.
13	10	VM ports	0	Designate extensions in the VM hunt group as VM ports.
13	13		1	Stop Clear MW when station calls VM.
For ICS 120				
13	31	VM ports	0	VM ports - Send Busy Tone to VM when station releases.
09	44		0	Hotel Feature Available (permits MW on SDS)
13	23		0	(SDS only) VM ports - send Busy Tone to VM
15	47	00-15	0	Disallows use of Message Reminder for single digits. (only for extn COS, not VM)
20	040		*8	Set MW access code (or code as available onsite)
20	041		*9	Clear MW access code (or code as available onsite)
For ICS 120				
41	044		13	Prepause timer value 0.5 sec
For ICS 120				
41	049		0	Extensions - Send Busy Tone to VM when station releases.
50	00	3	clear	Turn off forwarding predigit passed to VM on Call FWD
51	15			Set to call VM hunt group when message wait button pressed.
For ICS 120				
482		12	0	Supply stutter dial tone to SLT as MW indication.

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Task **NEC MCI Integration Parameters**

Reference

- 1 Setup line connections to voicemail ports.
The voicemail ports are presented as RJ14 SINGLE pair female sockets with the inside pair providing the port connection. The phone system should present the analog voicemail extensions as RJ14 (or RJ45) single pair female sockets mounted as close as possible to the voicemail system. Line connections should be made up on site with male RJ14 connectors at both ends to connect the voicemail ports to the phone system analog voicemail extensions.
 - 2 Setup remote modem access (RAS).
The NTerprise voicemail system is provided with a modem and modem connection cable for remote maintenance purposes. The “Line” female connector on the modem should be connected to the phone system remote access extension or indial with the modem connection cable provided. Either a 610 socket or female RJ12 socket can be used for this purpose at the phone system end.
- NOTE: Installers may need to apply padding to ISDN lines where performance is a problem.
- Refer to the software procedure for installation of remote access software on the PC, if it is not already installed.
- 3 Ensure DTMF generation in the phone system is set to 70ms ON and OFF to ensure “cut-through” of voice prompts by the voicemail system.
 - 4 Music-On-Hold should be provided with the phone system so that callers placed on hold during transfers by the voicemail system do not experience silence and misunderstand this as having been disconnected.
 - 5 Console operators wanting to pick up messages left in the reception mailbox may need to access the SPB button in order to generate a “#” in DTMF to identify themselves as the mailbox owner to the voicemail system.
 - 6 If callers to voicemail press “0” to return to reception, voicemail will attempt to blind transfer the caller. Blind transfers to the operator console will cause PABX recall unless the phone system has allowed extension transfers to be blind (08:063:0)

**Dialogic
Quick Instal
D/4PCI-AN**

DP 147

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Task **NEC MCI Integration Parameters**

Reference

General MCI Notes

The MCI service feature provides an external serial interface to the VMS for Message Centre Information (MCI). The MCI data stream is sent from the RS232 port on the PN-AP00 card when a VMS port is called. This feature also allows the external control of MW indication on stations equipped with MW lamps.

- ICS 120 You must call the VMS hunt group for serial integration to occur.
 ICS 140/240 You can call an individual VMS port and integration will occur.
 IVS 2000 You can call an individual VMS port and integration will occur.

MCI Port Configuration

- 1 The No 3 port on the PN-AP00 card can only be connected to the VMS or printer where the RTS signal from the PN-AP00 card is not needed.
- 2 Connection of the RS232 interface cable from the VMS will be to the next available physical port on the card e.g. Port 1 (where the ports are numbered 0, 1, 2, and 3). Normally the first physical port (Port 0) is used for SMDR and call accounting. *Also refer point 5 below.*
- 3 The interface parameters between the VMS and MCI should be set to 9600,8,none,1.
- 4 The RS232 interface cable should be terminated at the VMS end with a DB9 female connector.
- 5 On the IVS2000 only ports 0 and 2 on the AP00 card will run 9600 baud.
- 6 IVS2000: If having difficulty making MCI programming take effect, clear all programming on the AP00 card follow the following steps in the order given, then retry:
 - A Before power up set SW0-4 ON, SW0-1 to SW0-3 OFF
 - B After power up, change SW0-1 to ON, SW0-2 to 4 as before
 - C Program D101 – 0000 – CCC (clear memory)
 - D Reset AP00 card
 - E Set SW0-1 to 4 ALL ON

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Task NEC MCI Integration Parameters *Reference*

Command	Function	Bit Code	Data	Description
08	025		0	Specify MSG display on DTerm
08	063		0	Permit unsupervised transfers to the operator station
For 7400 / ASFC	140 / 160			
	SFI	103	1	Assign to VM ports
	SFI	104	1	Assign to VM ports
SystemData Index Value	1	1	1	
	17	155	156	
	11	31	31	
08	156		1	Disallow MW to be set by a caller to an extension which is ringing by pressing 6 on their station.
08	208		1	Disallow MW to be set by a caller to an extension which is busy by pressing 6 on their station.
08	233		1	The PABX should NOT clear MW when the extension calls the operator.
08	234		1	The PABX should NOT clear MW when the extension calls the station which set the MW.
08	235		1	The PABX should NOT clear MW for message reminders.
08	267		0	Enable records to be sent to MCI when setting and resetting MW lamp.
Number 7 Signalling				
08	376		0	Enable "Calling Line Identification to number 7" to send integration data of Number 7 link
08	443		0	VMS with MCI
08	444		0	Specify MW control from VMS
13	03	VM ports Stations	1	VM ports - Disallow receipt of MW.
13	10		0	Extensions - Allow receipt of MW.
13	13		1	Designate extensions in the VM hunt group as VM ports.
			1	Stop Clear MW when station calls VM.
For ICS 120				
13	31	VM ports	0	VM Extensions - Send Busy Tone to VM when station releases.
15	47	00-15	0	Disallows use of Message Reminder for single digits.
For ICS 140				
41	049	VM ports	0	VM Extensions - Send Busy Tone to VM when station releases.
51	15			Set to call VM hunt group when message wait button pressed.
482		12	0	Supply stutter dial tone to SLT as MW indication.

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Task	NEC MCI Integration Parameters			Reference
MCI	Port 0	Port 1		
D000	136	136	0	Allow text to be sent to the VMS when resetting the AP00
D000	137	137	0	Assign 3 or 6 digit extensions (APOO)
08	708	708	0	Assign 3 or 6 digit extensions (IPS main processor)
D000	137	137	1	Assign 4 or 8 digit extensions (APOO)
08	708	708	1	Assign 4 or 8 digit extensions (IPS main processor)
D000	138	138	1	Allow MCI/Printer for No 3 port
D001	20	24	5	Baud rate 9600bps
D001	21	25	0	1 stop bit
D001	22	26	0	7 data bits
			1	8 data bits
D001	23	27	0	No parity
D001	80	100	24	MCI
D001	81	101	0	Data processing has 1st Priority
D001	82	102	0	Message format for Port 1 (Not Used)
D001	83	103	0	
D001	84	104	0	Protocol on Port 1 (Not Used)
D001	85	105	48	Station Address (SA) ICS140 format Reset MCI board if changed.
D001	86	106	33	Unit Address (UA)
D001	89	109	5	512 ms timer for detecting end of block
MCI	Port 2	Port 3		
D000	136	136	0	Allow text to be sent to the VMS when resetting the AP00
D000	137	137	0	Assign 3 or 6 digit extensions
			1	Assign 4 or 8 digit extensions
D000	138	138	1	Allow MCI/Printer for No 3 port
D001	28	32	5	Baud rate 9600bps
D001	29	33	0	1 stop bit
D001	30	34	0	7 data bits
			1	8 data bits
D001	31	35	0	No parity
D001	120	140	24	MCI
D001	121	141	0	Data processing has 1st Priority
D001	122	142	0	Message format for Port 1 (Not Used)
D001	123	143	0	
D001	124	144	0	Protocol on Port 1 (Not Used)
D001	125	145	48	Station Address (SA) ICS140 format Reset MCI board if changed.
D001	126	146	33	Unit Address (UA)
D001	129	149	5	512 ms timer for detecting end of block

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Task Interface To Micros.Fidelio PMS

Reference

This interface between the VoiceNet NTerprise® voicemail system and the Micros.Fidelio Property Management System has been written in accordance with the Micros.Fidelio Interface Protocol Specification and the Micros.Fidelio Interface Application Specification.

Hardware:

RS232 Serial Interface, Serial Ports 1 or 2, DB9 or DB25, Full Duplex

Baud Rate: 1200 to 38400

Parity: odd, even, none

Data Bits: 7, 8

Stop Bits: 1

Software:

VM = Voicemail System

PMS = Property Management System

ACK/NAK used by VM, PMS

LRC check used by VM, PMS

Data sent by VM to PMS

LS Link Start sent to PMS

(Chr\$(2) & "LS|DA" & sNowDate & "|TI" & sNowTime & "|" & Chr\$(3) & Chr\$(CalculateXorResult("LS|DA" & sNowDate & "|TI" & sNowTime & "|" & Chr\$(3))))

LD Link Description sent to PMS

(Chr\$(2) & "LD|DA" & sNowDate & "|TI" & sNowTime & "|V#" & sVersion & "|IFVM|" & Chr\$(3) & Chr\$(CalculateXorResult("LD|DA" & sNowDate & "|TI" & sNowTime & "|V#" & sVersion & "|IFVM|" & Chr\$(3))))

Micros.Fidelio

**Interface
Protocol
Specification**

**Interface
Application
Specification**

IP 123

Task Interface To Micros.Fidelio PMS

Reference

Data sent by VM to PMS

LR Link Records sent to PMS

```
(Chr$(2) & "LR|RIGI|FLRNG#GSSF|" & Chr$(3) &  
Chr$(CalculateXorResult("LR|RIGI|FLRNG#GSSF|" & Chr$(3))))
```

```
(Chr$(2) & "LR|RIGO|FLRNG#GSSF|" & Chr$(3) &  
Chr$(CalculateXorResult("LR|RIGO|FLRNG#GSSF|" & Chr$(3))))
```

```
(Chr$(2) & "LR|RIGC|FLRNG#GSROSF|" & Chr$(3) &  
Chr$(CalculateXorResult("LR|RIGC|FLRNG#GSROSF|" & Chr$(3))))
```

```
(Chr$(2) & "LR|RIRE|FLRNVMSF|" & Chr$(3) &  
Chr$(CalculateXorResult("LR|RIRE|FLRNVMSF|" & Chr$(3))))
```

LA Link Alive sent to PMS

```
(Chr$(2) & "LA|DA" & sNowDate & "|TI" & sNowTime & "|" & Chr$(3) &  
Chr$(CalculateXorResult("LA|DA" & sNowDate & "|TI" & sNowTime & "|" &  
Chr$(3))))
```

LE Link End sent to PMS

```
(Chr$(2) & "LE|DA" & sNowDate & "|TI" & sNowTime & "|" & Chr$(3) &  
Chr$(CalculateXorResult("LE|DA" & sNowDate & "|TI" & sNowTime & "|" &  
Chr$(3))))
```

Data accepted by VM from PMS

LS
LD
LA
LE
GI
GO
GC
DR
DS
DE

[Windows Server TechCenter](#) > [Windows Server 2003 Technical Library](#) > [Windows Server 2003: Technical Reference](#) > [Windows Server 2003 Technical Reference](#) > [Technologies Collections](#) > [Networking Collection](#) > [Network Configuration Technologies](#) > [Windows Time Service Technical Reference](#)

How Windows Time Service Works

Updated: March 28, 2003

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- [Windows Time Service Time Protocols](#)
- [Windows Time Service Processes and Interactions](#)
- [Network Ports Used by Windows Time Service](#)

The Windows Time service (W32Time) uses the complex suite of algorithms in Network Time Protocol (NTP) to ensure that clocks on computers throughout a network are as accurate as possible. Ideally, all computer clocks in a Windows Server 2003 domain are synchronized with the time of an authoritative computer. Many factors can affect time synchronization on a network. The following factors often affect the accuracy of synchronization in a Windows Server 2003 domain:

- Network conditions
- The accuracy of the computer's hardware clock
- Amount of CPU and network resources available to the Windows Time service

Computers that synchronize their time less frequently, such as computers running Windows XP Home Edition, computers with intermittent network connections, or computers that are not joined to a domain, are configured by default to synchronize with time.windows.com. Because they do not synchronize their clock frequently and because the factors that affect time accuracy may not be known, it is impossible to guarantee time accuracy on computers that have intermittent or no network connections.

An Active Directory forest has a predetermined time synchronization hierarchy. The Windows Time service synchronizes time between computers within the hierarchy, with the most accurate reference clocks at the top. If more than one time source is configured on a computer, Windows Time uses NTP algorithms to select the best time source from the configured sources based on the computer's ability to synchronize with that time source. The Windows Time service does not support network synchronization from broadcast or multicast peers. For more information about these NTP features, see RFC 1305 in the [IETF RFC Database](#) [<http://go.microsoft.com/fwlink/?linkid=3952>] .

Every computer that is running the Windows Time service uses the service to maintain the most accurate time. In most cases, it is not necessary to configure the Windows Time service. Computers that are members of a domain act as a time client by default. In addition, the Windows Time Service can be configured to request time from a designated reference time source, and can also be configured to provide time to clients. The degree to which a computer's time is accurate is called a stratum. The most accurate time source on a network (such as a hardware clock) occupies the lowest stratum level, or stratum one. This accurate time source is called a reference clock. An NTP server that acquires its time directly from a reference clock

occupies a stratum that is one level higher than that of the reference clock. Resources that acquire time from the NTP server are two steps away from the reference clock, and therefore occupy a stratum that is two higher than the most accurate time source, and so on. As a computer's stratum number increases, the time on its system clock may become less accurate. Therefore, the stratum level of any computer is an indicator of how closely that computer is synchronized with the most accurate time source.

When the W32Time Manager receives time samples, it uses special algorithms in NTP to determine which of the time samples is the most appropriate for use. The time service also uses another set of algorithms to determine which of the configured time sources is the most accurate. When the time service has determined which time sample is best, based on the above criteria, it adjusts the local clock rate to allow it to converge toward the correct time. If the time difference between the local clock and the selected accurate time sample (also called the time skew) is too large to correct by adjusting the local clock rate, the time service sets the local clock to the correct time. This adjustment of clock rate or direct clock time change is known as clock discipline.

Windows Time Service Architecture

The Windows Time service consists of the following components:

- Service Control Manager
- Windows Time Service Manager
- Clock Discipline
- Time providers

The following figure shows the architecture of the Windows Time service.

Windows Time Service Architecture

The Service Control Manager is responsible for starting and stopping the Windows Time service. The Windows Time Service Manager is responsible for initiating the action of the NTP time providers included with Windows Server 2003. The Windows Time Service Manager controls all functions of the Windows Time service and the coalescing of all time samples. In addition to providing information about the current system state, such as the current time source or the last time the system clock was updated, the Windows Time Service Manager is also responsible for creating events in the event log.

The time synchronization process involves the following steps:

- Input providers request and receive time samples from configured NTP time sources.
- These time samples are then passed to the Windows Time Service Manager, which collects all the samples and passes them to the clock discipline subcomponent.
- The clock discipline subcomponent applies all NTP algorithms and selects the best time sample.
- The clock discipline subcomponent adjusts the time of the system clock to the most accurate time by either adjusting the clock rate or directly changing the time.

If a computer has been designated as a time server, it can send the time on to any computer requesting time synchronization at any point in this process.

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Windows Time Service Time Protocols

Time protocols determine how closely two computers' clocks are synchronized. A time protocol is responsible for determining the best available time information and converging the clocks to ensure that a consistent time is maintained on separate systems.

The Windows Time service uses the Network Time Protocol (NTP) to help synchronize time across a network.

NTP is an Internet time protocol that includes the discipline algorithms necessary for synchronizing clocks.

NTP is a more accurate time protocol than the Simple Network Time Protocol (SNTP) that is used in some

versions of Windows; however W32Time continues to support SNTP to enable backward compatibility with computers running SNTP-based time services, such as Windows 2000.

Network Time Protocol

Network Time Protocol (NTP) is the default time synchronization protocol used by the Windows Time Service in Windows Server 2003. NTP is a fault-tolerant, highly scalable time protocol and is the protocol used most often for synchronizing computer clocks by using a designated time reference. The Windows Time service integrates NTP version 3 with algorithmic enhancements from NTP version 4, which provides these benefits:

- Increased accuracy of the time service.
- Better error management.
- A complex filtering system.
- Increased stability.

NTP time synchronization takes place over a period of time and involves the transfer of NTP packets over a network. NTP packets contain time stamps that include a time sample from both the client and the server participating in time synchronization.

NTP relies on a reference clock to define the most accurate time to be used and synchronizes all clocks on a network to that reference clock. NTP uses Coordinated Universal Time (UTC) as the universal standard for current time. UTC is independent of time zones and enables NTP to be used anywhere in the world regardless of time zone settings.

NTP Algorithms

NTP includes two algorithms, a clock-filtering algorithm and a clock-selection algorithm, to assist the Windows Time service in determining the best time sample. The clock-filtering algorithm is designed to sift through time samples that are received from queried time sources and determine the best time samples from each source. The clock-selection algorithm then determines the most accurate time server on the network. This information is then passed to the clock discipline algorithm, which uses the information gathered to correct the local clock of the computer, while compensating for errors due to network latency and computer clock inaccuracy.

The NTP algorithms are most accurate under conditions of light-to-moderate network and server loads. As with any algorithm that takes network transit time into account, NTP algorithms might perform poorly under conditions of extreme network congestion. For more information about the NTP algorithms, see RFC 1305 in the [IETF RFC Database](http://go.microsoft.com/fwlink/?linkid=3952) [http://go.microsoft.com/fwlink/?linkid=3952]

NTP Time Provider

The Windows Time service is a complete time synchronization package that can support a variety of hardware devices and time protocols. To enable this support, the service uses pluggable time providers. A time provider is responsible for either obtaining accurate time stamps (from the network or from hardware) or for providing those time stamps to other computers over the network.

The NTP provider is the standard time provider included with Windows Server 2003. The NTP provider follows the standards specified by NTP version 3 for a client and server, and can interact with SNTP clients and servers for backward compatibility with Windows 2000 and other SNTP clients. The NTP provider in the Windows Time service consists of the following two parts:

- **NtpServer output provider.** This is a time server that responds to client time requests on the network.
- **NtpClient input provider.** This is a time client that obtains time information from another source, either a hardware device or an NTP server, and can return time samples that are useful for synchronizing the local clock.

Although the actual operations of these two providers are closely related, they appear independent to the time service. By default, when a computer that is running Windows Server 2003 is connected to a network, it is configured as an NTP client. Also, computers running the Windows Time service only attempt to

synchronize time with a domain controller or a manually-specified time source by default. These are the preferred time providers because they are automatically available, secure sources of time.

NTP Security

Within a Windows Server 2003 forest, the Windows Time service relies on standard domain security features to enforce the authentication of time data. The security of NTP packets that are sent between a computer running Windows XP Professional or Windows Server 2003 and a local domain controller that is acting as a time server is based on shared key authentication. The Windows Time service uses the computer's Kerberos session key to create authenticated signatures on NTP packets that are sent across the network. NTP packets are not transmitted inside the Net Logon secure channel. Instead, when a computer requests the time from a domain controller in the domain hierarchy, the Windows Time service requires that the time be authenticated. The domain controller then returns the required information in the form of a 64-bit value that has been authenticated with the session key from the Net Logon service. If the returned NTP packet is not signed with the computer's session key or is signed incorrectly, the time is rejected. All such authentication failures are logged in the Event Log. In this way, the Windows Time service provides security for NTP data in a Windows Server 2003 forest.

Generally, Windows XP and Windows Server 2003 time clients automatically obtain accurate time for synchronization from domain controllers in the same domain. In a forest, the domain controllers of a child domain synchronize time with domain controllers in their parent domains. When a time server returns an authenticated NTP packet to a client that requests the time, the packet is signed by means of a Kerberos session key defined by an interdomain trust account. The interdomain trust account is created when a new Active Directory domain joins a forest, and the Net Logon service manages the session key. In this way, the domain controller that is configured as reliable in the forest root domain becomes the authenticated time source for all of the domain controllers in both the parent and child domains, and indirectly for all computers located in the domain tree.

The Windows Time service can be configured to work between forests, but it is important to note that this configuration is not secure. For example, an NTP server might be available in a different forest. However, because that computer is in a different forest, there is no Kerberos session key with which to sign and authenticate NTP packets. To obtain accurate time synchronization from a computer in a different forest, the client needs network access to that computer and the time service must be configured to use a specific time source located in the other forest. If a client is manually configured to access time from an NTP server outside of its own domain hierarchy, the NTP packets sent between the client and the time server are not authenticated, and therefore are not secure. Even with the implementation of forest trusts, the Windows Time service is not secure across forests. Although the Net Logon secure channel is the authentication mechanism for the Windows Time service, authentication across forests is not supported.

Hardware Devices That Are Supported by the Windows Time Service

Hardware-based clocks such as GPS or radio clocks are often used as highly accurate reference clock devices. By default, the NTP time provider in Windows Server 2003 does not support the direct connection of a hardware device to a Windows Server 2003-based computer, although it is possible to create a software-based independent time provider that supports this type of connection. This type of provider, in conjunction with the Windows Time service, can provide a reliable, stable time reference.

Hardware devices, such as a cesium clock or a Global Positioning System (GPS) receiver, provide accurate current time by following a standard to obtain an accurate definition of time. Cesium clocks are extremely stable and are unaffected by factors such as temperature, pressure, or humidity, but are also very expensive. A GPS receiver is much less expensive to operate and is also an accurate reference clock. GPS receivers obtain their time from satellites that obtain their time from a cesium clock. Without the use of an independent time provider, time servers on a Windows Server 2003 network can acquire their time by

connecting to an external NTP server, which is connected to a hardware device by means of a telephone or the Internet. Organizations such as the United States Naval Observatory provide NTP servers that are connected to extremely reliable reference clocks.

Simple Network Time Protocol

The Simple Network Time Protocol (SNTP) is a simplified time protocol that is intended for servers and clients that do not require the degree of accuracy that NTP provides. SNTP, a more rudimentary version of NTP, is the primary time protocol that is used in Windows 2000. Because the network packet formats of SNTP and NTP are identical, the two protocols are interoperable. The primary difference between the two is that SNTP does not have the error management and complex filtering systems that NTP provides. For more information about the Simple Network Time Protocol, see RFC 1769 in the [IETF RFC](#)

[Database](#) [<http://go.microsoft.com/fwlink/?linkid=3952>]

Time Protocol Interoperability

The Windows Time service can operate in a mixed environment of computers running Windows 2000, Windows XP, and Windows Server 2003, because the SNTP protocol used in Windows 2000 is interoperable with the NTP protocol in Windows XP and Windows Server 2003.

The time service in Windows NT Server 4.0, called TimeServ, synchronizes time across a Windows NT 4.0 network. TimeServ is an add-on feature available as part of the *Microsoft Windows NT 4.0 Resource Kit* and does not provide the degree of reliability of time synchronization that is required by Windows Server 2003. The Windows Time service can interoperate with computers running Windows NT 4.0 because they can synchronize time with computers running Windows 2000 or Windows Server 2003; however, a computer running Windows 2000 or Windows Server 2003 does not automatically discover Windows NT 4.0 time servers. For example, if your domain is configured to synchronize time by using the domain hierarchy–based method of synchronization and you want computers in the domain hierarchy to synchronize time with a Windows NT 4.0 domain controller, you have to configure those computers manually to synchronize with the Windows NT 4.0 domain controllers.

Windows NT 4.0 uses a simpler mechanism for time synchronization than the Windows Time service uses. Therefore, to ensure accurate time synchronization across your network, it is recommended that you upgrade any Windows NT 4.0 domain controllers to Windows 2000 or Windows Server 2003.

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Windows Time Service Processes and Interactions

The Windows Time service is designed to synchronize the clocks of computers on a network. The network time synchronization process, also called time convergence, occurs throughout a network as each computer accesses time from a more accurate time server. Time convergence involves a process by which an authoritative server provides the current time to client computers in the form of NTP packets. The information provided within a packet indicates whether an adjustment needs to be made to the computer's current clock time so that it is synchronized with the more accurate server.

As part of the time convergence process, domain members attempt to synchronize time with any domain controller located in the same domain. If the computer is a domain controller, it attempts to synchronize with a more authoritative domain controller.

Computers running Windows XP Home Edition or computers that are not joined to a domain do not attempt to synchronize with the domain hierarchy, but are configured by default to obtain time from time.windows.com.

To establish a computer running Windows Server 2003 as authoritative, the computer must be configured to be a reliable time source. By default, the first domain controller that is installed on a Windows Server 2003 domain is automatically configured to be a reliable time source. Because it is the authoritative computer for

the domain, it must be configured to synchronize with an external time source rather than with the domain hierarchy. Also by default, all other Windows Server 2003 domain members are configured to synchronize with the domain hierarchy.

After you have established a Windows Server 2003 network, you can configure the Windows Time service to use one of the following options for synchronization:

- Domain hierarchy-based synchronization
- A manually-specified synchronization source
- All available synchronization mechanisms
- No synchronization.

Each of these synchronization types is discussed in the following section.

Domain Hierarchy–Based Synchronization

Synchronization that is based on a domain hierarchy uses Active Directory's domain hierarchy to find a reliable source with which to synchronize time. Based on domain hierarchy, the Windows Time service determines the accuracy of each time server. In a Windows Server 2003 forest, the computer that holds the primary domain controller (PDC) emulator operations master role, located in the forest root domain, holds the position of best time source, unless another reliable time source has been configured. The following figure illustrates a path of time synchronization between computers in a domain hierarchy.

Time Synchronization in an Active Directory Hierarchy

Reliable Time Source Configuration

A computer that is configured to be a reliable time source is identified as the root of the time service. The root of the time service is the authoritative server for the domain and typically is configured to retrieve time from an external NTP server or hardware device. A time server can be configured as a reliable time source to optimize how time is transferred throughout the domain hierarchy. If a domain controller is configured to be a reliable time source, Net Logon service announces that domain controller as a reliable time source when it logs on to the network. When other domain controllers look for a time source to synchronize with, they choose a reliable source first if one is available.

Time Source Selection

The time source selection process can create two problems on a network:

- Additional synchronization cycles.
- Increased volume in network traffic.

A cycle in the synchronization network occurs when time remains consistent between a group of domain controllers and the same time is shared between them continuously without a resynchronization with another reliable time source. The Windows Time service's time source selection algorithm is designed to protect against these types of problems.

A computer uses one of the following methods to identify a time source to synchronize with:

- If the computer is not a member of a domain, it must be configured to synchronize with a specified time source.
- If the computer is a member server or workstation within a domain, by default, it follows the Active Directory hierarchy and synchronizes its time with a domain controller in its local domain that is currently running the Windows Time service.

If the computer is a domain controller, it makes up to six queries to locate another domain controller to synchronize with. Each query is designed to identify a time source with certain attributes, such as a type of domain controller, a particular location, and whether or not it is a reliable time source. The time source must also adhere to the following constraints:

- A reliable time source can only synchronize with a domain controller in the parent domain.

- A PDC emulator can synchronize with a reliable time source in its own domain or any domain controller in the parent domain.

If the domain controller is not able to synchronize with the type of domain controller that it is querying, the query is not made. The domain controller knows which type of computer it can obtain time from before it makes the query. For example, a local PDC emulator does not attempt to query numbers three or six because a domain controller does not attempt to synchronize with itself.

The following table lists the queries that a domain controller makes to find a time source and the order in which the queries are made.

Domain Controller Time Source Queries

Query Number	Domain Controller	Location	Reliability of Time Source
1	Parent domain controller	In-site	Prefers a reliable time source but it can synchronize with a non-reliable time source if that is all that is available.
2	Local domain controller	In-site	Only synchronizes with a reliable time source.
3	Local PDC emulator	In-site	Does not apply. A domain controller does not attempt to synchronize with itself.
4	Parent domain controller	Out-of-site	Prefers a reliable time source but it can synchronize with a non-reliable time source if that is all that is available.
5	Local domain controller	Out-of-site	Only synchronizes with a reliable time source.
6	Local PDC emulator	Out-of-site	Does not apply. A domain controller does not attempt to synchronize with itself.

Note

- A computer never synchronizes with itself. If the computer attempting synchronization is the local PDC emulator, it does not attempt Queries 3 or 6.

Each query returns a list of domain controllers that can be used as a time source. Windows Time assigns each domain controller that is queried a score based on the reliability and location of the domain controller. The following table lists the scores assigned by Windows Time to each type of domain controller.

Score Determination

Domain Controller Status	Score
Domain controller located in same site	8
Domain controller marked as a reliable time source	4

Domain controller located in the parent domain	2
Domain controller that is a PDC emulator	1

When the Windows Time service determines that it has identified the domain controller with the best possible score, no more queries are made. The scores assigned by the time service are cumulative, which means that a PDC emulator located in the same site receives a score of nine.

If the root of the time service is not configured to synchronize with an external source, the internal hardware clock of the computer governs the time.

Manually-Specified Synchronization

Manually-specified synchronization enables you to designate a single peer or list of peers from which a computer obtains time. If the computer is not a member of a domain, it must be manually configured to synchronize with a specified time source. A computer that is a member of a domain is configured by default to synchronize from the domain hierarchy, manually-specified synchronization is most useful for the forest root of the domain or for computers that are not joined to a domain. Manually specifying an external NTP server to synchronize with the authoritative computer for your domain provides reliable time. However, configuring the authoritative computer for your domain to synchronize with a hardware clock is actually a better solution for providing the most accurate, secure time to your domain.

Manually-specified time sources are not authenticated unless a specific time provider is written for them, and they are therefore vulnerable to attackers. Also, if a computer synchronizes with a manually-specified source rather than its authenticating domain controller, the two computers might be out of synchronization, causing Kerberos authentication to fail. This might cause other actions requiring network authentication to fail, such as printing or file sharing. If only the forest root is configured to synchronize with an external source, all other computers within the forest remain synchronized with each other, making replay attacks difficult.

All Available Synchronization Mechanisms

The “all available synchronization mechanisms” option is the most valuable synchronization method for users on a network. This method allows synchronization with the domain hierarchy and may also provide an alternate time source if the domain hierarchy becomes unavailable, depending on the configuration. If the client is unable to synchronize time with the domain hierarchy, the time source automatically falls back to the time source specified by the **NtpServer** setting. This method of synchronization is most likely to provide accurate time to clients.

Stopping Time Synchronization

There are certain situations in which you will want to stop a computer from synchronizing its time. For example, if a computer attempts to synchronize from a time source on the Internet or from another site over a WAN by means of a dial-up connection, it can incur costly telephone charges. When you disable synchronization on that computer, you prevent the computer from attempting to access a time source over a dial-up connection.

You can also disable synchronization to prevent the generation of errors in the event log. Each time a computer attempts to synchronize with a time source that is unavailable, it generates an error in the Event Log. If a time source is taken off of the network for scheduled maintenance and you do not intend to reconfigure the client to synchronize from another source, you can disable synchronization on the client to prevent it from attempting synchronization while the time server is unavailable.

It is useful to disable synchronization on the computer that is designated as the root of the synchronization network. This indicates that the root computer trusts its local clock. If the root of the synchronization

hierarchy is not set to **NoSync** and if it is unable to synchronize with another time source, clients do not accept the packet that this computer sends out because its time cannot be trusted.

The only time servers that are trusted by clients even if they have not synchronized with another time source are those that have been identified by the client as reliable time servers.

Disabling the Windows Time Service

The Windows Time service (W32Time) can be completely disabled. If you choose to implement a third-party time synchronization product that uses NTP, you must disable the Windows Time service. This is because all NTP servers need access to User Datagram Protocol (UDP) port 123, and as long as the Windows Time service is running on the Windows Server 2003 operating system, port 123 remains reserved by Windows Time.

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Network Ports Used by Windows Time Service

The Windows Time service communicates on a network to identify reliable time sources, obtain time information, and provide time information to other computers. It performs this communication as defined by the NTP and SNTP RFCs.

Port Assignments for the Windows Time Service

Service Name	UDP	TCP
NTP	123	N/A
SNTP	123	N/A

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Task Reference **How to: Disable the Shutdown Event Tracker in Windows 2003****Introduction**

The idea behind the shutdown event tracker is that a server isn't meant to be restarted or shutdown regularly. Therefore, when it is, Administrators should keep a log of exactly why the machine was powered down. Essentially, this can be a good thing since it allows you to store a database of shutdown events for future reference. For some people, especially those that use Windows 2003 as a client operating system or in a test environment - where restarting or shutting down a machine can be a common procedure - it might get to be quite annoying.

Note: This feature does come with Windows XP Professional as well, but is disabled by default. When you click on Shut Down... from the Start menu, the Shutdown Event Tracker pops up asking whether you want to Log Off, Restart or Shut down the computer.



Note:
When logging off, the Shutdown Event Tracker is grayed out.

If you decide to Shut down or Restart the machine, you will be given seven Shutdown Event Tracker options to choose from. These will allow you to best describe why the computer is to be shutdown or restarted. You can also add a comment in the Comment box

Task Reference **How to: Disable the Shutdown Event Tracker in Windows 2003**

which is very useful for helping you to determine the reason for the shutdown. The following are the seven event tracker options available, and an example of what might normally be written in the Comment box.

Other (Planned) – A shutdown or restart for an unknown reason.

This is usually chosen when the other options do not describe why a shutdown or restart of the machine is taking place.

Comment: Shut down virtual test machine. Time to go home!

Hardware: Maintenance (Planned) – A restart or shutdown to service hardware on the system.

Choose this option when you want to carry out planned maintenance on the machine's hardware.

Comment: Change Serial ATA cable.

Hardware: Installation (Planned) – A restart or shutdown to begin or complete hardware installation.

Choose this option when you plan to upgrade or install additional hardware on the machine.

Comment: Install a new 200GB hard drive.

Operating System: Reconfiguration (Planned) – A restart or shutdown to change the operating system configuration.

This option is for when you have made operating system changes that require a restart or shutdown of the machine. When you rename a computer or install an additional component, for example.

Comment: Installation of DNS Server Service.

Application: Maintenance (Planned) – A restart or shutdown to perform planned maintenance on an application.

This option would be chosen when a planned upgrade or re-configuration of an application took place.

Comment: Upgraded to ISA 2004 Service Pack 1. Restart required.

Application: Installation (Planned) – A restart or shutdown to perform application installation.

Choose this option when a planned installation of a new application has taken place.

Comment: Installed SQL Server 2000. Restart required.

Security issue – The computer needs to be shut down due to a security issue.

This option would be chosen when the machine needs to be restarted or shut down for security reasons.

Comment: DOS Attack.

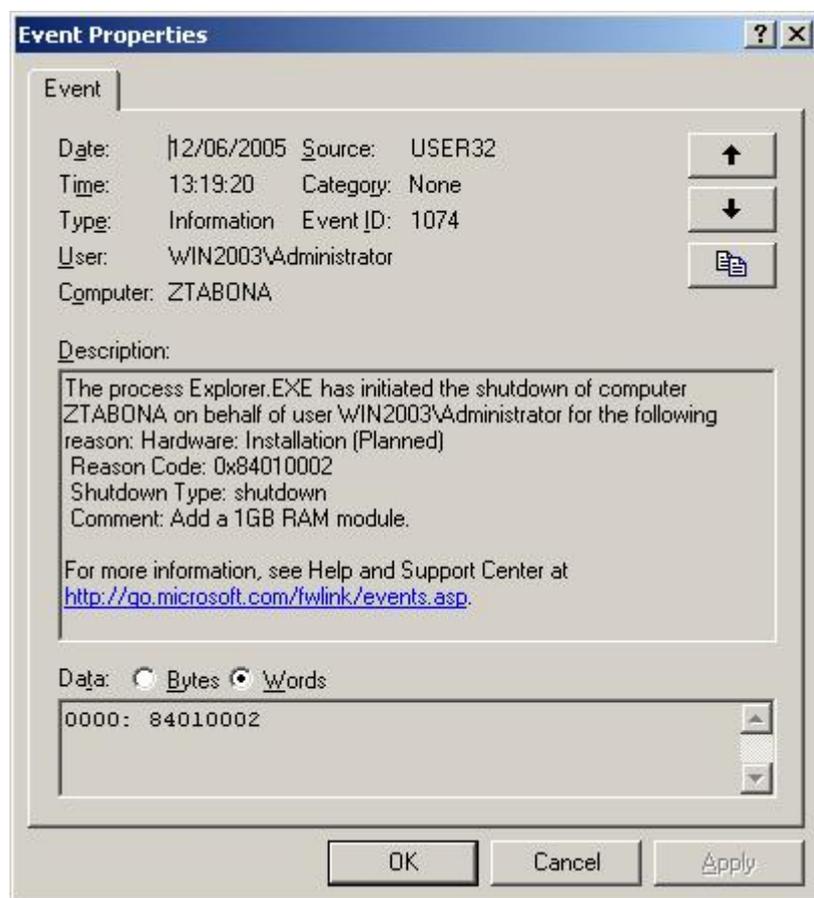
Task Reference **How to: Disable the Shutdown Event Tracker in Windows 2003**

Viewing Shutdown Event Tracker events

To view previous Shutdown Event Tracker event logs, go to the Event Viewer (Start > Programs > Administrative Tools > Event Viewer or Control Panel - Administrative Tools - Event Viewer) and under the System Log, search for Information Events with ID 1074 or 1076. Double click the event to bring up the Event Properties page.

Note:

1074 Events are logged when you manually shutdown the machine using the Event Tracker. 1076 Events are logged when the machine shuts down unexpectedly and the Event Tracker pops up when the Administrator (or first user with shutdown rights) logs on to the machine.



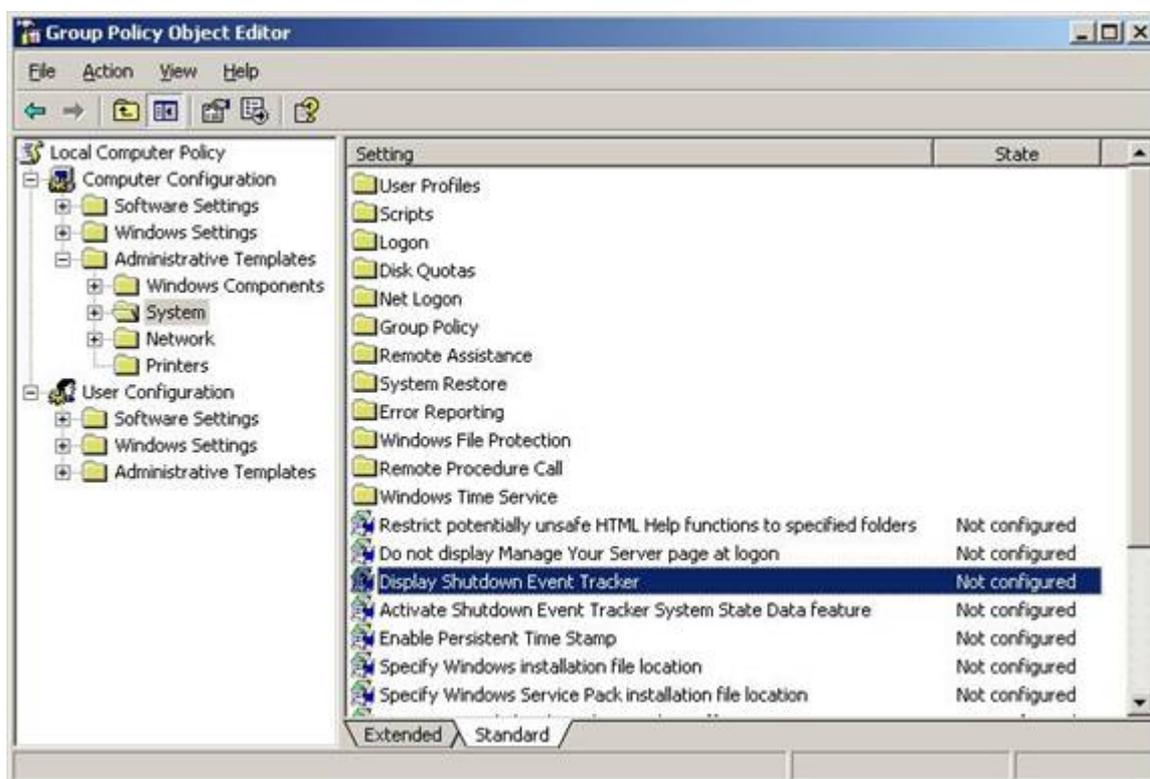
As you can see in the image above, the Description indicates the reason for the shutdown, the time, the user that initiated the shutdown, as well as the comment that was typed in the Comment box.

Task Reference **How to: Disable the Shutdown Event Tracker in Windows 2003**

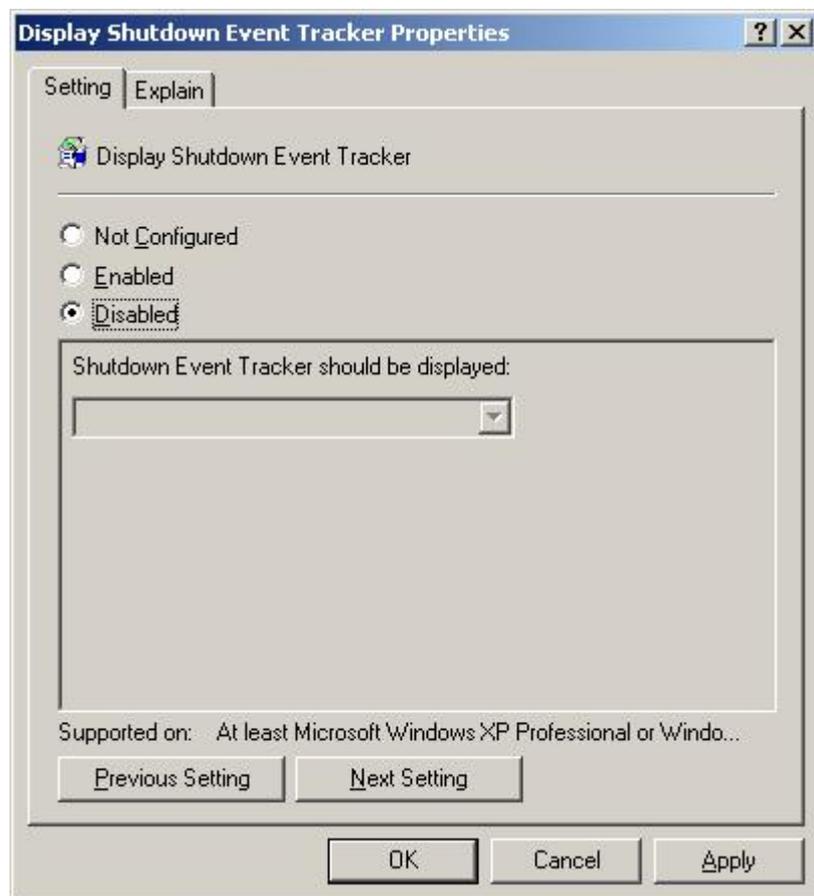
Disable the Shutdown Event Tracker

If the event tracker is of no use to you then you can disable it. To do this, open the Group Policy Object Editor Console. Go to Start > Run..., type gpedit.msc and press OK.

Navigate to Computer Configuration > Administrative Templates > System and in the right hand pane, select the “Display Shutdown Event Tracker” setting.



Double Click this setting to open the Properties page. You are now given the option to leave it in a default state of Not Configured, set it to Always Enabled, Enabled for Servers/Workstations (Windows XP Pro) or Disabled completely (as the image below demonstrates).

Task Reference **How to: Disable the Shutdown Event Tracker in Windows 2003****Note:**

When you enable the Group Policy for Server only, the Shutdown Event Tracker appears when you shut down a computer running Windows 2003, whereas for Workstation only, the Shutdown Event Tracker appears when a computer running Windows XP Professional is shut down.

After you make the change to the Group Policy, open the Command Prompt and run the `gpupdate /force` command to refresh the policy and have your settings be applied straight away. Alternatively you can just restart the machine.

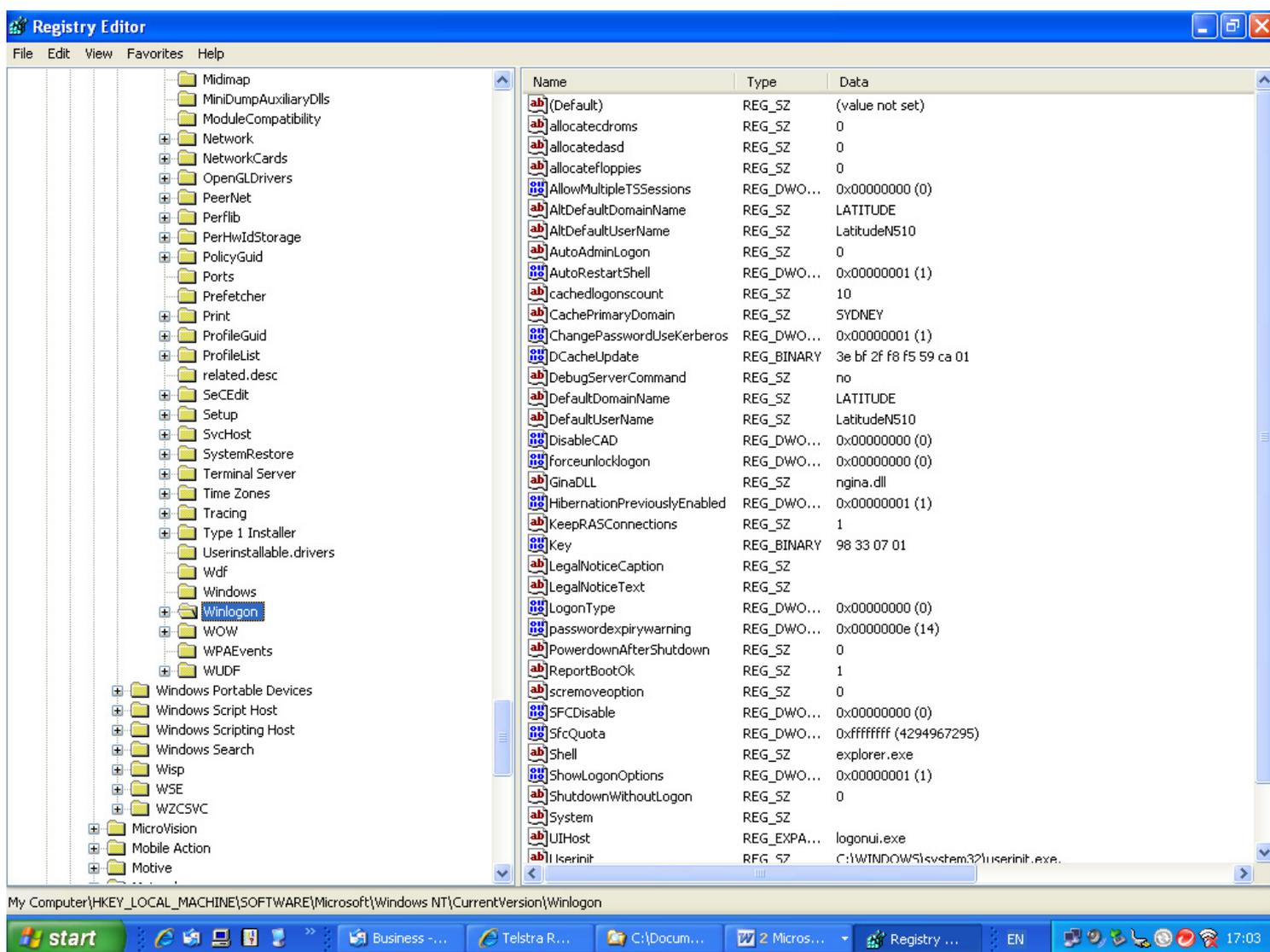
Task Reference How to: Disable the Shutdown Event Tracker in Windows 2003

When you next attempt to shutdown or restart the machine, the Shutdown event tracker will no longer be visible and the normal shutdown prompt will appear (as seen in the image below).



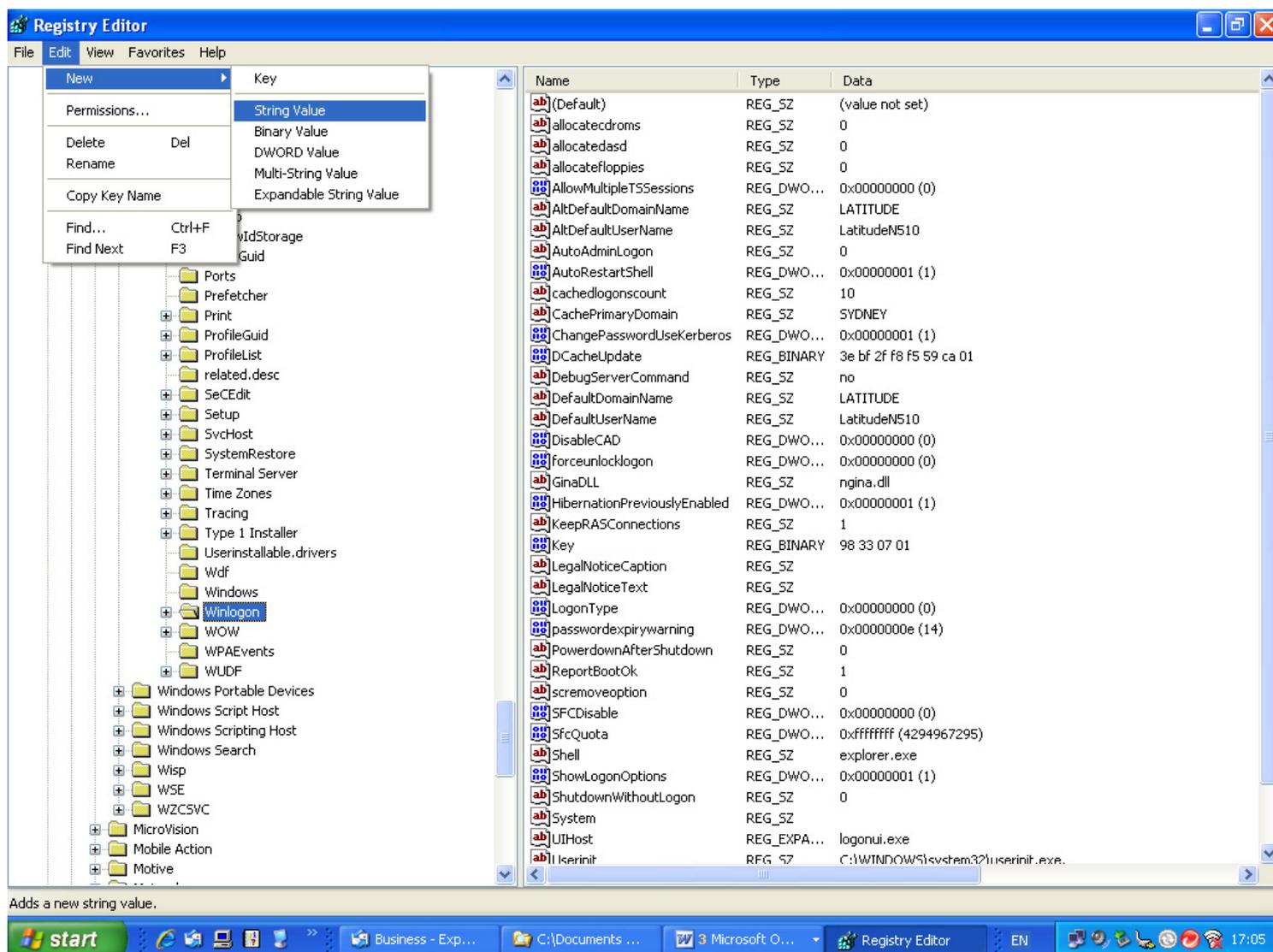
Task Reference **How to setup AutoAdminLogon in Server 2003**

- 1 Open the registry editor. Select Start – Run, enter “regedt32” and press Enter.
- 2 Open the registry key
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\Winlogon.



Task Reference **How to setup AutoAdminLogon in Server 2003**

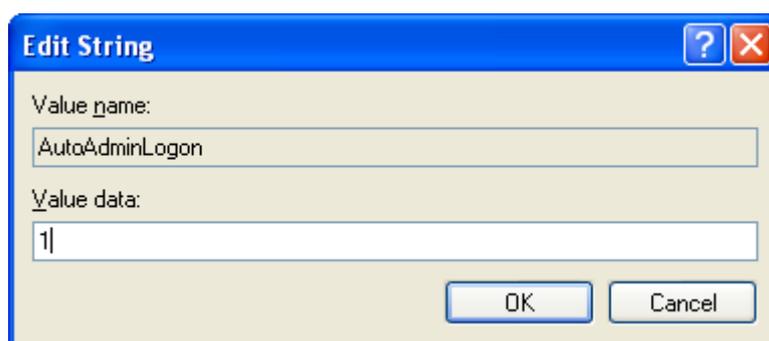
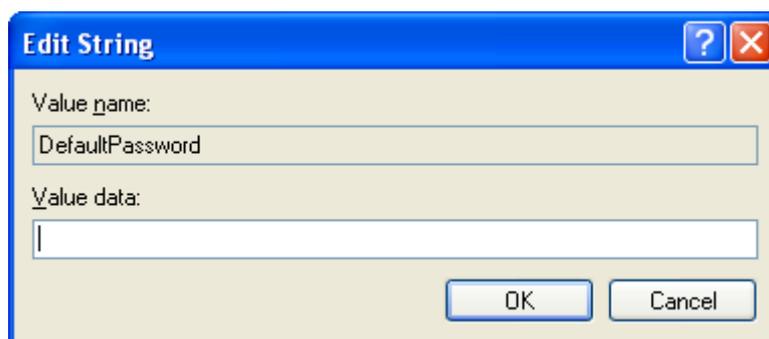
3 Add new string values. Select Edit – New – String Value.



Task Reference **How to setup AutoAdminLogon in Server 2003**

4 Add new string values

DefaultPassword (value: the Admin user password)
AutoAdminLogon (value: 1)



5 Select File – Exit to close the registry editor and save your changes.

How to configure an authoritative time server in Windows XP

This article was previously published under Q314054

For a Microsoft Windows 2000 version of this article, see [216734](#).

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SUMMARY

*This step-by-step article describes how to configure the Windows Time service in Windows XP to use an internal hardware clock and an external time source. This article also discusses reliable time source configuration, manually-specified synchronization, all available synchronization, and some of the key Windows Time service registry entries, such as the **MaxNegPhaseCorrection** and the **MaxPosPhaseCorrection** registry entries.*

INTRODUCTION

This step-by-step article describes how to configure the Windows Time service in Windows XP to use an internal hardware clock and an external time source.

We highly recommend that you configure the authoritative Time Server to gather the time from a hardware source. When you configure the authoritative Time Server to sync with an Internet time source, there is no authentication. We also recommend that you lower your time correction settings for your servers and for your stand-alone clients. These recommendations provide more accuracy and security to your domain.

This article contains troubleshooting tips for the most common problems and discusses reliable time source configuration, manually-specified synchronization, all available synchronization, and the **MaxNegPhaseCorrection** and **MaxPosPhaseCorrection** registry entries.

How to configure an authoritative time server in Windows XP

Configuring Windows Time service to use an internal hardware clock

To configure the Windows Time service to use an internal hardware clock, you can change the announce flag on the authoritative time server. Changing the announce flag forces the computer to announce itself as a reliable time source and to use the built-in complementary metal oxide semiconductor (CMOS) clock. To configure the Windows Time service to use an internal hardware clock, follow these steps.

Warning Serious problems might occur if you modify the registry incorrectly by using Registry Editor or by using another method. These problems might require that you reinstall your operating system. Microsoft cannot guarantee that these problems can be solved. Modify the registry at your own risk.

1. Click **Start**, click **Run**, type **regedit**, and then click **OK**.
2. Locate and then click the following registry entry:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config\
 - a. In the right pane, right-click **AnnounceFlags**, and then click **Modify**.
4. In the **Edit DWORD Value** dialog box, under **Value data**, type **5**, and then click **OK**.
5. Enable NtpServer.
 - a. Locate and then click the following registry subkey:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\TimeProviders\NtpServer\
 - b. In the right pane, right-click **Enabled**, and then click **Modify**.
 - c. In the **Edit DWORD Value** dialog box, type **1** under **Value data**, and then click **OK**.
6. Exit Registry Editor.
7. At the command prompt, type the following command to restart the Windows Time service, and then press ENTER:
net stop w32time && net start w32time
8. To reset the local computers' time against the time server, run the following command on all the computers except the time server:
w32tm /resync /rediscover

Note You must not configure the time server to synchronize with itself. If you configure the time server to synchronize with itself, the following events are logged in the Application log:

```
The time provider NtpClient cannot reach or is currently receiving invalid time data from 192.168.1.1 (ntp.m|0x0|192.168.1.1:123->192.168.1.1:123).
```

No response has been received from Manual peer 192.168.1.1 after 8 attempts to contact it. This peer will be discarded as a time source and NtpClient will attempt to discover a new peer from which to synchronize.

The time provider NtpClient is configured to acquire time from one or more time sources. However, none of the sources are currently accessible. No attempt to contact a source will be made for 960 minutes. NtpClient has no source of accurate time.

When the time server runs by using an internal time source, the following event is logged in the Application log:

```
Time Provider NtpClient: This machine is configured to use the domain hierarchy to determine its time source, but it is the PDC emulator for the domain at the root of the forest, so there is no machine above it in the domain hierarchy to use as a time source. We recommend that you either configure a reliable time service in the root domain, or that you manually configure the PDC to synchronize with an external time source. Otherwise, this computer will function as the authoritative time source in the domain hierarchy. If an external time source is not configured or used for this computer, you may choose to disable the NtpClient.
```

This text notifies you that the time server is configured not to use an external time source and that the time server can be ignored.

For more information about the **w32tm** command, type the following command at a command prompt: **w32tm /?**

How to configure an authoritative time server in Windows XP

Configuring the Windows Time service to use an external time source

To configure the Windows Time service to synchronize with an external time source, follow these steps:

1. Change the server type to NTP. To do this, follow these steps:
 - a. Click **Start**, click **Run**, type **regedit**, and then click **OK**.
 - b. Locate and then click the following registry subkey:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Parameters\
 - c. In the right pane, right-click **Type**, and then click **Modify**.
 - d. In the **Edit Value** dialog box, under **Value data**, type **NTP**, and then click **OK**.
2. Set **AnnounceFlags** to 5. To do this, follow these steps:
 - a. Locate and then click the following registry subkey:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config\
 - b. In the right pane, right-click **AnnounceFlags**, and then click **Modify**.
 - c. In the **Edit DWORD Value** dialog box, under **Value data**, type **5**, and then click **OK**.
3. Select the poll interval. To do this, follow these steps:
 - a. Locate and then click the following registry subkey:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\TimeProviders\NtpClient\
 - b. In the right pane, right-click **SpecialPollInterval**, and then click **Modify**.
 - c. In the **Edit DWORD Value** dialog box, under **Value data**, type **TimeInSeconds**, and then click **OK**.

Note *TimeInSeconds* is a placeholder for the number of seconds that you want between each poll. A recommended value is 900 Decimal. This value configures the time server to poll every 15 minutes.

4. Enable **NTPServer**. To do this, follow these steps:
 - a. Locate and then click the following registry subkey:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\TimeProviders\NtpServer\
 - b. In the right pane, right-click **Enabled**, and then click **Modify**.
 - c. In the **Edit DWORD Value** dialog box, under **Value data**, type **1**, and then click **OK**.
5. Specify the time sources. To do this, follow these steps:
 - a. Locate and then click the following registry subkey:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Parameters\NtpServer
 - b. In the right pane, right-click **NtpServer**, and then click **Modify**.
 - c. In **Edit Value**, in the **Value data** box, type **Peers**, and then click **OK**.
6. Configure the time correction settings. To do this, follow these steps:
 - a. Locate and then click the following registry subkey:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config\
 - b. In the right pane, right-click **MaxPosPhaseCorrection**, and then click **Modify**.
 - c. In the **Edit DWORD Value** dialog box, under **Base**, click **Decimal**.
 - d. In the **Edit DWORD Value** dialog box, under **Value data**, type **TimeInSeconds**, and then click **OK**.

Note *TimeInSeconds* is a placeholder for a reasonable value such as one hour (3600) or 30 minutes (1800). The value that you choose will depend on the poll interval, the network condition, and the external time source.

- e. Locate and then click the following registry subkey:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config\
- f. In the right pane, right-click **MaxNegPhaseCorrection**, and then click **Modify**.
- g. In the **Edit DWORD Value** dialog box, under **Base**, click **Decimal**.
- h. In the **Edit DWORD Value** dialog box, under **Value data**, type **TimeInSeconds**, and then click **OK**.

Note *TimeInSeconds* is a placeholder for a reasonable value such as one hour (3600) or 30 minutes (1800). The value that you choose will depend on the poll interval, the network condition, and the external time source.

7. Exit Registry Editor.
8. At the command prompt, type the following command to restart the Windows Time service, and then press ENTER:
net stop w32time && net start w32time

How to configure an authoritative time server in Windows XP

9. Run the following command on computers other than the domain controller to reset each computer's time against the time server:

```
w32tm /resync /rediscover
```

For more information about the **w32tm** command, type the following command at a command prompt:

```
w32tm /?
```

Note SNTP uses User Datagram Protocol (UDP) port 123. If this port is not open to the Internet, you cannot synchronize your server to Internet SNTP servers.

MORE INFORMATION

Reliable time source configuration

A computer that is configured to be a reliable time source is identified as the root of the time service. The root of the time service is the authoritative server for the domain. Typically, the authoritative server is configured to retrieve time from an external NTP server or from a hardware device. A time server can be configured as a reliable time source to optimize how time is transferred throughout the domain hierarchy. If a domain controller is configured to be a reliable time source, Net Logon service announces that domain controller as a reliable time source when it logs on to the network. When other domain controllers look for a time source to synchronize with, they choose a reliable source first if one is available.

Manually-specified synchronization

With manually-specified synchronization, you can designate a single peer or a list of peers that a computer obtains time from. If the computer is not a member of a domain, that computer must be manually configured to synchronize with a specified time source. By default, a computer that is a member of a domain is configured to synchronize from the domain hierarchy. Manually-specified synchronization is most useful for the forest root of the domain or for computers that are not joined to a domain. Manually specifying an external NTP server to synchronize with the authoritative computer for your domain provides reliable time. However, configuring the authoritative computer for your domain to synchronize with a hardware clock is actually a better solution for providing high accuracy and security to your domain.

Without a hardware time source, W32time is configured as an NTP type. You must reconfigure the MaxPosPhaseCorrection and the MaxNegPhaseCorrection registry entries. The recommended value should be 15 minutes or even less, depending on the time source, the network condition, and the security requirement. This is also true for any reliable time source that is configured as the forest root time source in the time sync subnet. More information about these registry entries may be found in the "[Windows Time service registry entries](#)" section later in this article.

Note Manually-specified time sources are not authenticated unless a specific time provider is written for them, and they are therefore vulnerable to attacks. Also, if a computer synchronizes with a manually-specified source instead of its authenticating domain controller, the two computers might be out of synchronization, and Kerberos authentication would therefore fail. Other actions that require network authentication, such as printing or file sharing, could also fail. If only the forest root is configured to synchronize with an external source, all other computers within the forest remain synchronized with each other, making replay attacks difficult.

All available synchronization mechanisms

The "all available synchronization mechanisms" option is the most valuable synchronization method for users who are on a network. This method enables synchronization with the domain hierarchy and may also provide an alternative time source if the domain hierarchy becomes unavailable, depending on the configuration. If the client cannot synchronize time with the domain hierarchy, the time source automatically falls back to the time source that is specified by the **NtpServer** setting. This method of synchronization is most likely to provide accurate time to clients.

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How to configure an authoritative time server in Windows XP

Windows Time service registry entries

The following registry entries are located under
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\

Registry Entry	MaxPosPhaseCorrection
Path	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config
Notes	This entry specifies the largest positive time correction in seconds that the service makes. If the service determines that a change larger than this is required, it logs an event. Special case: 0xFFFFFFFF means always make time correction. The default value for domain members is 0xFFFFFFFF. The default value for stand-alone clients and servers is 54,000 (15 hours).
Registry Entry	MaxNegPhaseCorrection
Path	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config
Notes	This entry specifies the largest negative time correction in seconds that the service makes. If the service determines that a change larger than this is required, it logs an event instead. Special case: -1 means always make time correction, The default value for domain members is 0xFFFFFFFF. The default value for stand-alone clients and servers is 54,000 (15 hours).
Registry Entry	MaxPollInterval
Path	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config
Notes	This entry specifies the largest interval, in log seconds, allowed for the system polling interval. Note that while a system must poll according to the scheduled interval, a provider can refuse to produce samples when requested. The default value for domain members is 10. The default value for stand-alone clients and servers is 15.
Registry Entry	SpecialPollInterval
Path	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\TimeProviders\NtpClient
Notes	This entry specifies the special poll interval in seconds for manual peers. When the SpecialInterval 0x1 flag is enabled, W32Time uses this poll interval instead of a poll interval determine by the operating system. The default value on domain members is 3,600. The default value on stand-alone clients and servers is 604,800.
Registry Entry	MaxAllowedPhaseOffset
Path	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config
Notes	This entry specifies the maximum offset, in seconds, for which W32Time attempts to adjust the computer clock by using the clock rate. When the offset exceeds this rate, W32Time sets the computer clock directly. The

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default value for domain members is 300. The default value for stand-alone clients and servers is 1.

REFERENCES

For more information about the Windows Time service, click the following article numbers to view the articles in the Microsoft Knowledge Base:

[884776](#) Configuring the Windows Time service against a large time offset

[816042](#) How to configure an authoritative time server in Windows Server 2003

[216734](#) How to configure an authoritative time server in Windows 2000

For additional information about the Windows Time service on a Windows Server 2003-based forest, visit the following Microsoft Web site:

<http://technet2.microsoft.com/WindowsServer/f/?en/Library/a0fcd250-e5f7-41b3-b0e8-240f8236e2101033.msp>

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