Meridian 1 and Succession Communication Server for Enterprise 1000

DECT Messaging

Installation Guide

Document Number: P0989045
Document Release: Standard 1.0
Date: May 2002

Revision history

May 2002

Standard 1.00. This is the first issue of the DECT Messaging Installation Guide.

About this guide

This document supports Meridian 1 and the Succession Communication Server for Enterprise (CSE) 1000 systems.

The DECT Messaging Installation Guide provides information for sales representatives, planners, installers, site maintenance personnel and administrators.

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described are supported in your area.

Identifying Meridian/Succession systems

The following systems are referred to in this guide as large systems:

- Options 51, 61, 71, 81

- Options 51C, 61C, 81C

The following systems are referred to in this guide as small systems:

- Option s 11, 11E, 11C, 11C Mini

- Succession CSE 1000

Understanding DECT Messaging

Contents

This section contains information on the following topics:

Introduction

DECT Messaging is a data system. It operates independently from the DECT voice system.The DECT Messaging system allows users to send and receive text messages on C4040 and C4050 handsets. When there is an incoming message, the handset alerts the user in various ways, depending on the message's priority. Text messages can be received even if the handset is in use. (The only exception is while the handset is ringing.)

Architecture

Figure 1 on page 8 shows the architecture for the DECT Messaging system. The arrows represent the movement of data through the system.

Figure 1
DECT Messaging System Overview
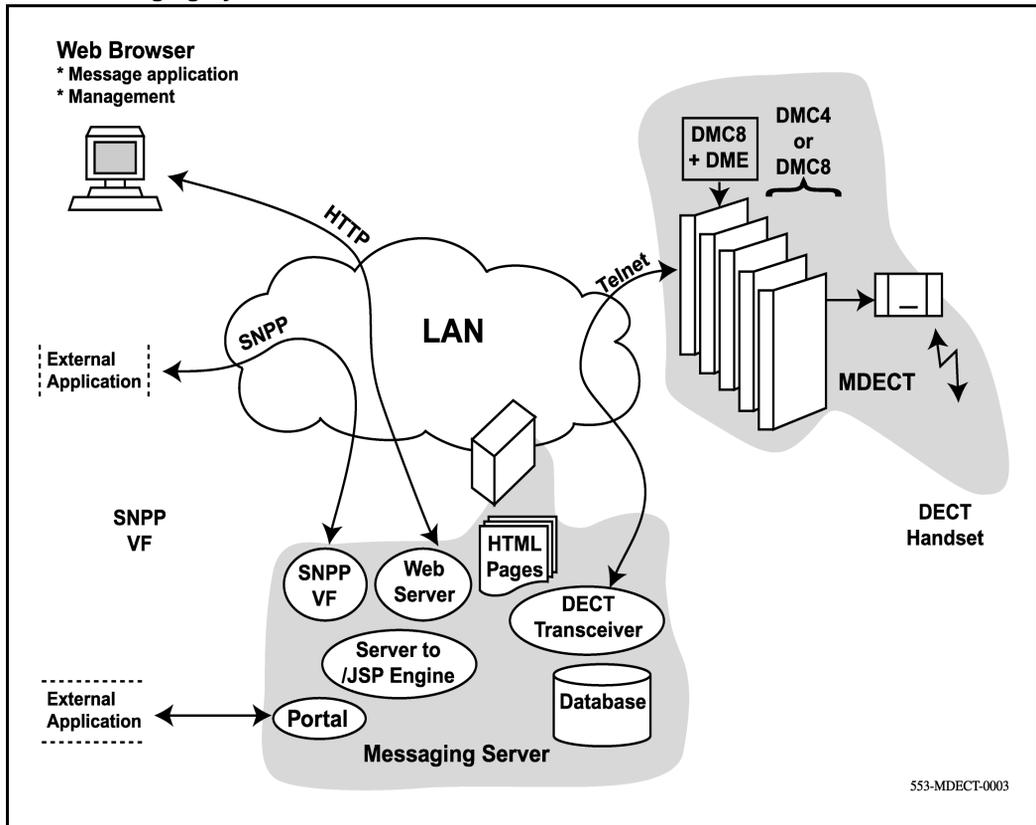
Messaging Server

The DECT Text Messaging system uses a Messaging Server (MS) that interfaces to the DECT system by a DMC 8 card. The Messaging Server software acts as an interface between the DECT System and open standard interfaces to external systems and applications.

The MS supports two standard interfaces for connecting to external systems: Telelocator Alphanumeric Protocol (TAP) over a serial link and Simple Network Paging Protocol (SNPP) over IP.

The MS contains a user database and a web-based administration tool. Predefined groups of DECT handsets can be set up in the server database or, alternatively, the external application can control messages to groups of handsets.

Functionality

The Messaging Server provides the following functionality:

- the ability to send messages to a DECT handset from a standard web browser

- connection from external paging systems into the DECT system using standard protocols and interfaces. It supports both hard-wired serial connections and dial-up over modems.

- handset-to-handset messaging

- connection over the IP network to the DECT system

- standard interfaces to allow external applications to be built

- web management of subscriber information and configuration data

- an audit trail of all messages and responses kept by the system. These can be time-stamped to allow administrators to see what has happened at particular times, and to allow statistics to be generated.

External systems can be connected using TAP and SNPP protocols.

Note: Since the text messages system is independent of the voice system, this means that voice call re-direction, such as Call Forward, does not apply to text messages. If Call Forward is implemented, the text messages are not forwarded. They are still received at the handset.

SNPP interface

The SNPP interface allows the MS to communicate with external systems that use the access protocol over TCP/IP. See "SNPP" on page 11.

TAP interface

The TAP interface allows legacy paging systems to connect into the system through either a serial link or modem. See "TAP" on page 11.

Web application

The standard text messaging application is web based. After the DECT Messaging System is installed and configured, the web-based application enables users to send messages from a standard web browser to a handset.

External applications

External applications, such as radio paging replacement and alarms, are supported by DECT Messaging.

A simple web based Text Messaging application is included with the DECT Messaging software. This enables a complete messaging system to be installed without additional software.

Protocols and external interfaces

Using the TAP and SNPP protocols, the DECT Messaging System can be connected to external systems.

An example of an external system is an alarm system. An external alarm is triggered from the alarm system. This alarm sends a text message to the DECT messaging system. The DECT messaging system forwards the text message to the DECT handset.

The supported protocols are:

- SNPP RFC1861 – Simple Network Paging Protocol, for LAN access

- TAP V1.8 – Telelocator Alphanumeric Protocol, for external paging systems

LAN access protocols

SNPP

SNPP is a simple way to deliver one-way and two-way wireless messages to receiving devices, such as pagers and cellular telephones. SNPP provides a way to implement a gateway between the Internet and the DECT Messaging Server. It allows end-to-end acknowledgments to be sent through the Messaging Server.

SNPP is the recommended protocol for new applications because it supports acknowledgement and allows urgent and non-urgent messages.

Protocols for external paging systems

TAP

TAP is a widely used public paging access protocol administered by the Personal Communications Industry Association (PCIA). TAP allows external equipment to connect into a paging network, allowing DECT Messaging to easily replace a radio paging system. TAP runs on a serial connection.

DECT Messaging web architecture

Intranet server

The company's intranet server provides access to the static HTML pages that host the web application. The intranet server redirects some requests to the DECT Messaging web server for it to handle.

DECT Messaging web server

The web server on the DECT Messaging Server handles the following:

- requests for data from the database
- messages sent to the DECT system

DECT Messaging system architecture

The DECT System must have at least one DMC8 card or DMC8-E card with accompanying DME Ethernet daughterboard to provide Ethernet access. For a DECT System with multiple DMC8's cards, only one DME daughterboard is required.

The DMC4 is the original DMC card with four base stations. For a DECT system with only DMC4's, a DMC8 card must be added to provide DECT Messaging functionality.

Each DMC card must be running the Messaging-specific version of firmware in order to be able to interact with the Messaging server. The valid versions of Messaging firmware are 451002XX for DMC4 and 470002XX for DMC8 and DMC8-E.

The Messaging server does not require a separate DMC8 card. It can be connected to the DMC8 card used by OTM as a relay card. All DMC cards in the DECT system must be backboned in series

The DECT Messaging Server manages only the messaging aspect of the DECT System. The DECT System is still managed by its OTM.

The Messaging Server works for both concentrated and non-concentrated DECT systems. Only one DECT system is served by the Messaging Server at a time.

Handsets

DECT Messaging supports the Nortel Networks C4040 handset with software Version 11 (and later), and the C4050 handset. Both handsets support text messaging for messages to a maximum of 48 characters in length.

The handsets are subscribed to the DECT system using OTM. See "Subscribe the handsets to the system cards" on page 51.

DECT Messaging dongle

The security dongle supplied with the system is required in order for DECT Messaging to operate. It must be attached to the parallel port of the Messaging Server.

Installing the DECT Messaging software

Contents

This section contains information on the following topics:

This chapter describes the following:

- System requirements – provides a list of requirements to be met before installing the DECT Messaging System

- System installation – describes how to install the DECT Messaging System onto a Windows NT and Windows 2000 platform

- Uninstallation

Introduction

The DECT Messaging System provides the capability to send messages to one or more handsets from another handset, the web, or the paging protocols TAP and SNPP.

To install the DECT Messaging System successfully, the instructions in this chapter must be followed in the order specified.

Installation requirements

Before proceeding with the installation of a DECT Messaging system, the following components must be available:

- a PC connected to the company intranet, with the following minimum requirements:

    — CD-ROM drive

    — 250MB free hard disk space

    — minimum 128 MB RAM, recommended 256 MB RAM

    — 600Mhz processor

    — network card and assigned IP address

    — Internet Explorer v5.5 or Netscape v4.7 installed

    — Windows 2000 or Windows NT4 Workstation or Server, with Service Pack 6 installed

    — DECT Messaging dongle

- an installation CD, which contains the necessary installation files and a copy of this Installation Guide

- an internal/external modem to enable the TAP software

- NT Administrator password for the PC

Installing the DECT Messaging system

> **CAUTION**
>
> If, at any time during the installation, the computer prompts for the system to be rebooted, do **not** reboot. Select the Restart Later option, when available. Reboot the system **only** at the end of the installation process.

To install the DECT Messaging system, follow the steps in Procedure 1.

Procedure 1
Install the DECT Messaging system

1   Browse the root directory of the installation CD and double click on Setup.exe. After a few minutes, the welcome screen for the InstallShield wizard is displayed. See Figure 2 on page 15.

Figure 2
Welcome Screen
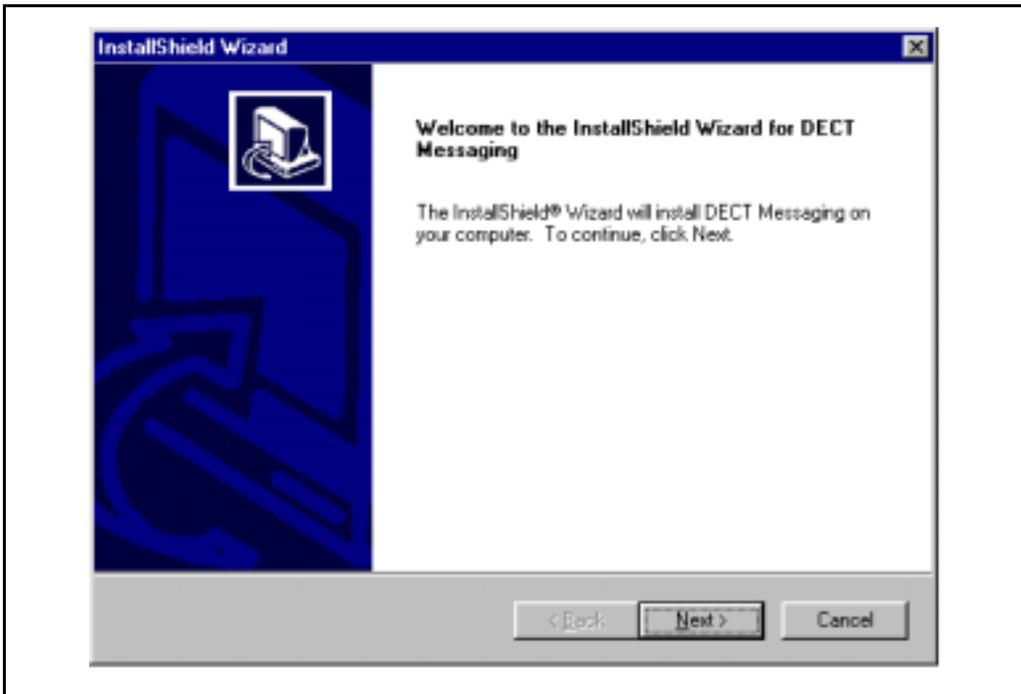
2   Click **Next**. Continue to follow the prompts in the InstallShield wizard until the Setup Type Screen is displayed. The Setup Type Screen is shown in Figure 3 on page 16.

Figure 3
Setup Type Screen
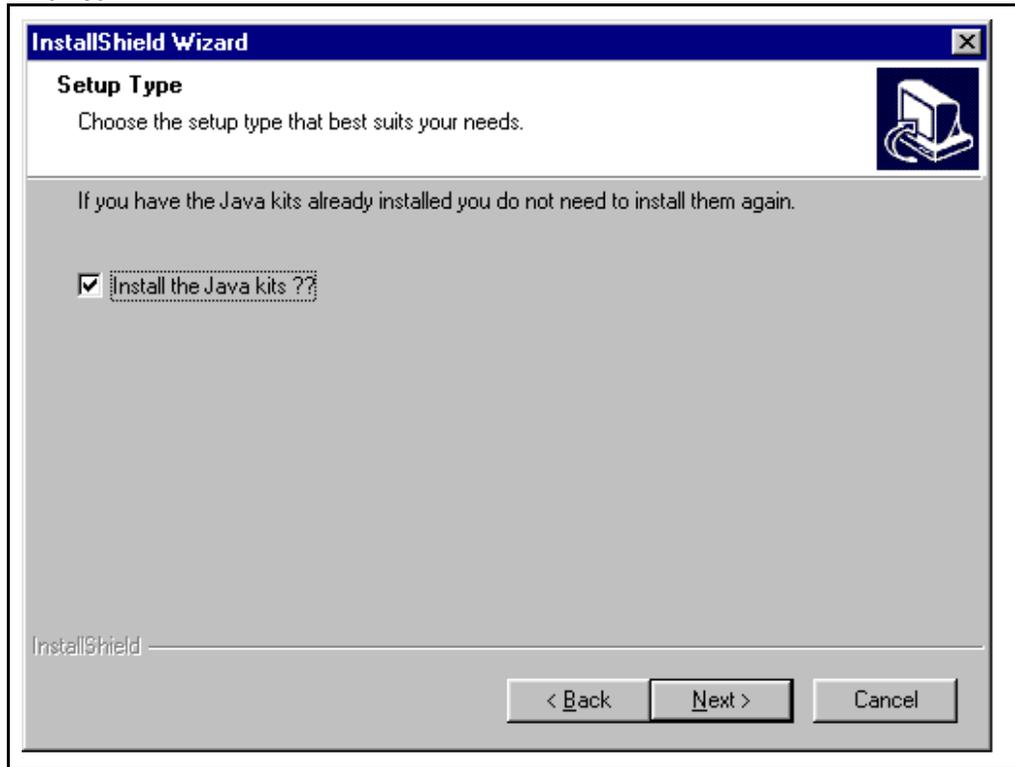
3   Before proceeding, it is necessary to determine whether or not the Java kits have been installed.

a.   If the exact Java development kits has already been installed, de-select the **Install the Java kits** option, then go directly to Step 4.

b. If the Java development kits are not yet installed onto the PC, leave the **Install the Java kits** option selected and click **Next**.

Follow the prompts in the wizard until the Java development kits are installed. If prompted by the Java development programs to perform a Restart, select Restart Later to finish installing DECT Messaging.

4 Set the JDK v1.3 environment variables for the Java Software Development Kit (JDK) Enterprise Edition for Windows NT or Windows 2000 (depending on which operating system is in use).

Windows NT

a. Right click on the **My Computer** icon on desktop and select the **Properties** option.

b. Select **Environment** tab.

c. Enter JAVA_HOME environment variable and set it to where jdk v1.3.1 is installed; for example, c:\jdk1.3.1. The Java install directory will be referenced as $JAVA_HOME in this document.

d. Click on **set**.

e. Click on the PATH environment variable. Add a semicolon to the end of the current value followed by C:\jdk1.3.1\bin.

f. Click **Set**.

g. Click on **Apply** and then **OK**.

Windows 2000

a. Right click on the **My Computer** icon on the desktop and select the **Properties** option.

b. Select the **Advanced** tab.

c. Click the **Environment Variables** button.

d. Under the **System variables** window, click **New**.

e. In the **Variable Name** box, enter **JAVA_HOME**.

f. In the **Variable Value** box, enter the path to where the java kits were installed; for example –
   c:\jdk1.3.1\.

g. Click **OK**.

h. In the **System variables** window, click to highlight the **Path** variable. Click the **Edit** button under the window.

    i.   In the **Variable value** box, type the path to where the java kits were installed at the end of the existing text; for example –
    ;c:\jdk1.3.1\bin

    j.   a semicolon (;) must separate the new information being entered from the existing information).

    k.   Click **OK** to set the value.

    l.   Click **OK** to finish setting the environment variables.

    m.   Click **OK** to close the **Advanced** system properties dialogue window.

After the Java development kits are installed, the Destination Location screen is displayed. See Figure 4 on page 19.

5   Follow the prompts and select the default options. The DECT Messaging System will be installed in the C:\dectms directory if all default options are chosen. The directory in which it is installed will be referred to as $DECT.

6   . Restart the PC when prompted. Installation is complete

———————————— *End of Procedure* ————————————

Figure 4
Destination Location
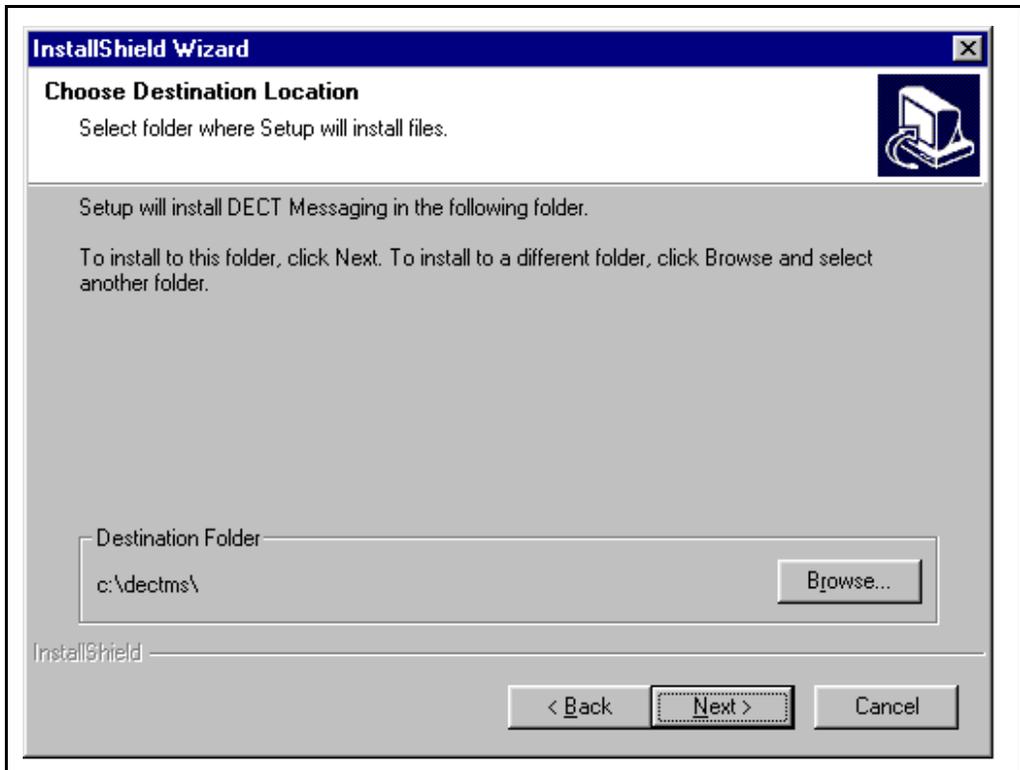
Installing the serial port file

Install the serial port file to enable the DECT Messaging System to accept external messages from the TAP interface.

To install the serial port file, follow the steps in Procedure 2.

Procedure 2
Install the serial port file

1   Browse the install CD and copy the win32com.dll file to the $JAVA_HOME\jre\bin, $JAVA_HOME\bin and to the C:\Program Files\JavaSoft\jre\1.3.1\bin directories.

2   Browse the install CD and copy the javax.comm.properties file to the $JAVA_HOME\jre\lib, $JAVA_HOME\lib and to the C:\Program Files\JavaSoft\jre\1.3.1\lib directories.

3   If necessary update the modem settings as detailed in "Recommended modem settings" on page 50.

—————————— *End of Procedure* ——————————

Checking the installation

Before starting up the DECT Messaging system, make sure that the following components are installed:

*   JDK v1.3.1

*   Java Development Kit Enterprise Edition v1.2.1

*   DECT Messaging System

*   environment variables

*   Serial Port Files (optional)

If these components are properly installed, proceed to "Using the DECT Messaging system" on page 23.

Uninstalling the DECT Messaging system

To uninstall the DECT Messaging system, follow the steps in Procedure 3.

Procedure 3
Uninstall the DECT Messaging system

1   From the PC's Start button, select Control Panel. Select DECT Messaging from the Add/Remove dialog in the Control Panel, then click Add/Remove. Alternatively, insert the installation CD and run the setup program.

The Confirm File Deletion dialog appears. See Figure 5.

Figure 5
Confirm File Deletion dialog
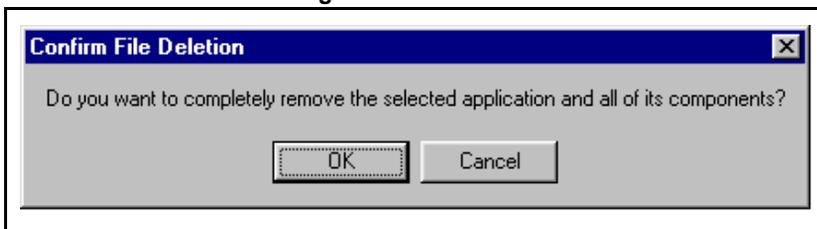
2   Click **OK** to remove the DECT Messaging application.

Note: If **OK** is clicked, only the DECT Messaging software is removed. The Java development kits or Java directories are not removed.nbn

The Setup Type dialog appears. See Figure 6 on page 22.

3   The Setup Type dialog box provides the option of keeping or removing the subscription information:

a.   Select **Remove Subscriptions** to clear all handset entries. The handset entries will have to be re-entered the next time DECT Messaging is installed on the PC.

> **b.** In order to retain existing subscription information, including system information and group information, do not select **Remove Subscriptions**

Note: For future installations, it will be necessary to install the DECT Messaging application in the same directory as the previous installation; otherwise, the subscription information will not be available for the future installation.

Figure 6
Setup Type
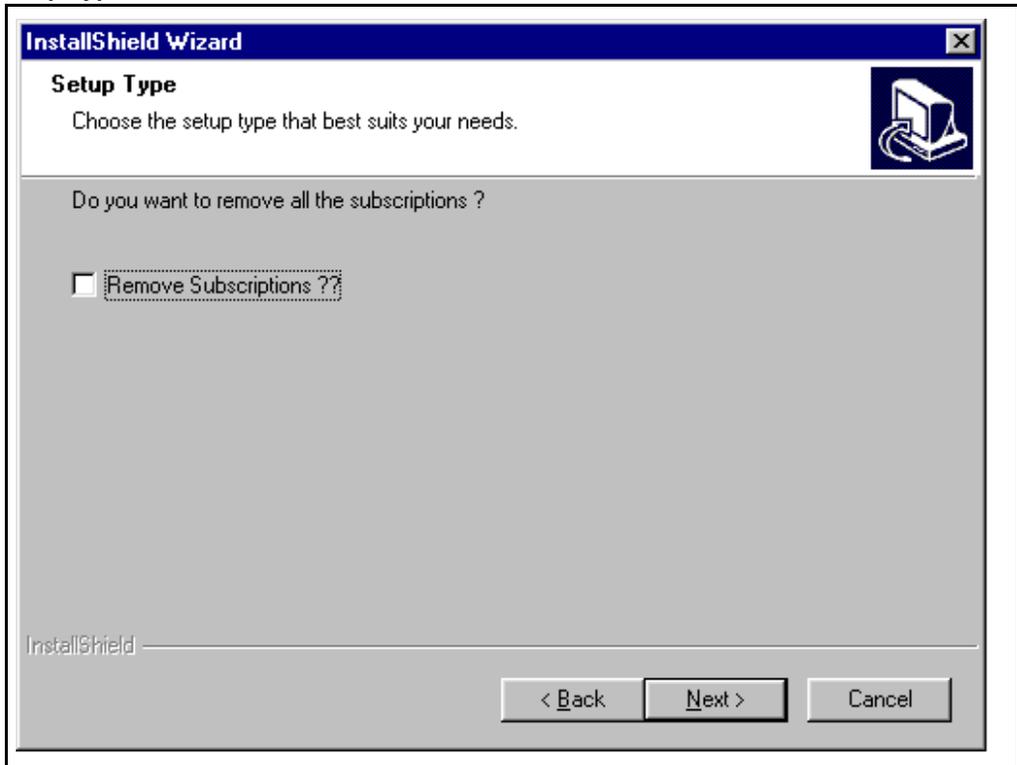
> **4** To remove the Java development kits, select the appropriate Java entries from the Add/Remove application in Control Panel and follow the prompts.

————————— *End of Procedure* —————————

Using the DECT Messaging system

Contents

This section contains information on the following topics:

The section "Setting up the DECT Messaging user interface" on page 24 is intended for the administrator.

The section "Messages" on page 25 is intended for the handset user.

Setting up the DECT Messaging user interface

To send and receive text messages on the C4040/C4050 handsets, the DECT Messaging user interface must be configured with the names of users, user groups and handsets.

To configure the DECT Messaging user interface, follow the steps in Procedure 4.

Procedure 4
Set up users, groups, and handsets

1   Access the Messaging Server intranet site from the Start Menu, or from the web browser shortcut on the desktop. If this is the first time the server has been accessed by a web client, it can take several seconds to display the pages in the client screen, while the Java server pages are compiled.

2   Log into the DECT Messaging Administration Tool, as shown in Figure 7 on page 25. After logging in, any of the following actions can be performed from the DECT Messaging Administration Tool:

   a.   add new users to a group

   b.   add new groups

   c.   modify handsets

   d.   modify groups

3   After the users, groups, and handsets are configured by the administrator, messages can be sent to and from a handset.

Figure 7
Administrator Log In

——————————— *End of Procedure* ———————————

DECT Messaging and the handset

The following information applies only to the C4040 and C4050 handsets. For information on using other types of handsets, refer to the user guide for that handset.

Messages

All messaging on a handset is accessed by pressing the following softkeys in order:

Menu ☎ Message OK

Receiving messages on a handset

The C4040 and C4050 handsets can receive text messages containing a maximum of 48 characters, if the handset is configured for DECT Messaging by an administrator.

The incoming messages are designated either Normal or Urgent. If the message priority is normal, the message text is displayed on the screen and the handset alerts the user once. If the message priority is urgent, the message text is displayed on the screen and the handset continues to alert the user until the message is acknowledged with a keypress. See "Incoming message priority" on page 26 for further information.

An incoming message can be received while the user is on a voice call.

The following conditions prevent a message from being sent or received:

•   if the handset is out of range of the system

•   if the handset is ringing

•   if **Silent Charging** is switched on while the handset is in the charger

   Note: If a message is received while menu changes are being made on a handset, all unsaved menu changes are lost. This includes telephone numbers being entered and message text that is being written.

Incoming message priority

Incoming messages have a **normal** or **urgent** priority. The message priority determines how it is signalled on the handset.

Urgent messages

Upon receipt of an urgent message, the user is immediately notified in the following manner:

•   The message appears on the display screen.

•   The urgent messages melody is heard (if the ringer is on) and the volume gradually increases with each repetition of the melody, until maximum volume is reached. See the handset user guide for information on how to configure an urgent message melody.

- The earpiece LED light ring flashes red.

- A repeated alert tone sounds if an urgent message is received while on a call.

If an urgent message is received, it must be confirmed. See "Confirming an urgent message" on page 27.

If Keylock is activated, it is temporarily de-activated when an urgent message is received, so that the message can be acknowledged.

Confirming an urgent message

It is necessary to confirm the receipt of an urgent message quickly. If an urgent message is not confirmed within 60 seconds, the an error code 7 (timeout) is generated. The Message server tries to send the message again as determined by the retry profile that was configured for error code 7. For more information on configuring retry profiles, see "Configuring the system properties files" on page 42.

Figure 8 on page 27 shows an example of an urgent message.

Figure 8
Urgent message screen


```
           ┌─────────────────────────┐
           │         Message         │
           ├─────────────────────────┤
           │  MEETING HAS BEEN       │
           │  POSTPONED UNTIL        │
           │  11:00                  │
           │                         │
           │  OK        ↑↓    Delete │
           └─────────────────────────┘
                     ▲
                     ▼
                          553-MDECT0001
```

To confirm an urgent message, do one of the following actions:

• Press the softkey under **OK**. See Figure 8 on page 27.

• Press the softkey under **Delete**. This confirms receipt of the urgent message and deletes it at the same time.

All other handset keys are locked until **OK** or **Delete** is pressed.

Press ⬍ under the display screen to display more information about the message. Figure 9 on page 28 shows an example of a switched-over display screen. The information about the message includes the following:

• date and time the message was sent

• telephone or name of the message sender (the name is displayed only if the sender is listed in the handset's Telephone Book)

Figure 9
Example of a switched-over display
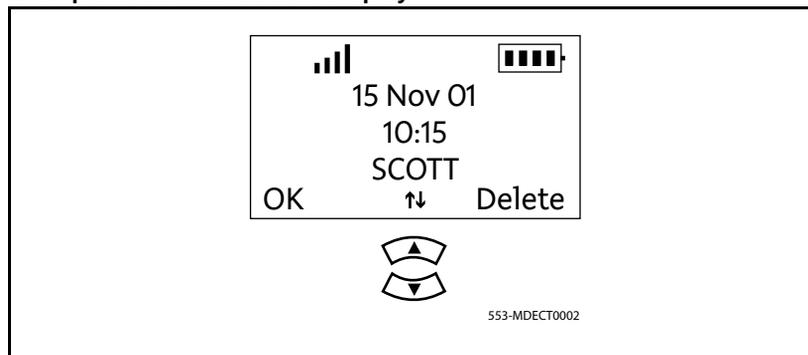
Normal messages

Normal messages cannot be confirmed.

An alert for an incoming normal message is optional. To configure alerts for normal messages, press the following softkeys in order:

Menu   Telephone Options   OK   Normal Msg.   OK   Display   OK

Upon receipt of a normal message, the user is immediately notified in the following manner:

• The message text is displayed on the display screen.

• The LED light ring around the earpiece flashes green for 3–5 seconds.

• If the ringer is set to indicate incoming messages, the tone for normal messages sounds.

• If a normal message is received while the handset is in use, a short alert tone sounds.

• ✉ on the display screen indicates unread normal priority messages.

Storing messages

A C4050 handset can store up to ten text messages, along with the date and time received and the caller's identification, if the message was sent from another handset. A C4040 handset can store up to six text messages, along with the date and time received and the caller identification, if the message was sent from another handset.

Every stored message is displayed in the message list with the first few words of the message displayed. The following symbols in front of the message indicate its status:

⚡ – urgent message

✉ – normal message read

✉ – normal message unread

✓ – transmitted message confirmed

↪ – transmitted message not yet confirmed

✗ – message was not transmitted successfully

If new messages are received after the message limit is reached, the new messages overwrite the old messages, starting with the oldest message.

The handset can be configured to not overwrite old messages. Press the following softkeys in the order indicated:

Menu   Telephone Options   OK   Normal Msg.   OK   Overwrite

In the menu, select one of the Overwrite options:

1   **Overwrite On** – the oldest message is deleted to make room for the new message. ✓ indicates the oldest message will be overwritten. This is the default setting.

2   **Overwrite Off** – the new message is not stored if there is no room. In this case, it is necessary to clear the message queue regularly to make room for new messages.

A full Message Memory is indicated by the flashing ✉ symbol on the display screen.

How to read a message

See "Messages" on page 25 for information on how to access the messages screen.

1   Press ⬍ to scroll through the list and find the message to be read. The first few words of each message is displayed.

2   Press **Options Read OK**. The complete message is displayed.

3   Select **Options**, then **Details**, to display the date and time the message was sent and the name and telephone number of the sender, if the message was sent by another handset.

How to delete a message

See "Messages" on page 25 for information on how to access the messages screen.

1   Press ⬍ to scroll through the list and select the message to be deleted.

2   Press **Options Delete OK**. The message is deleted.

3   If the ✉ icon had been flashing due to full message storage, the ✉ icon switches off.

How to delete all messages

See "Messages" on page 25 for information on how to access the messages screen.

1   Press the **Options** softkey.

2   Select **Delete all**. Press **OK**.

All messages are deleted.

Sending messages

Sending messages to a handset

Text messages can be sent to a handset in the following ways:

• from another handset. SNPP messages and messages sent from a handset can be flagged as Normal or Urgent.

• over the intranet, from a PC accessing a web-based user interface. Messages sent from the web can only be flagged as Normal.

• from an external application, if enabled

How to send a message from a handset

Create a new message, or use an existing message, for handset-to-handset messaging.

New message

See "Messages" on page 25 for information on how to access the messages screen.

CAUTION

To send a message, the stored message list must not be full. If the stored message list is full, delete one or more messages. See "How to delete a message" on page 30.

To send a new message from handset to handset:

1   If there are no messages in the menu, press **New**.
If there are messages in the menu, press **Options New.**

2   Type the message. Press **OK**.

3   Enter the telephone number where the message is to be sent. Press **OK**.

4   Select either **Normal** or **Urgent** for the message priority. Press **OK**.

5   The message is sent. The handset returns to the idle display.

Existing message.

	CAUTION
	To send a message, the stored message list must not be full. If the stored message list is full, delete one or more messages. See "How to delete a message" on page 30.

To send an existing message from a handset to another handset:

1   Select the existing message.

    a.   If using a C4050 handset, press **Options** and **Send**.

    b.   If using a C4040 handset, press **Next** until Send appears, then press **Send**.

2   The complete message is displayed. Edit the text if required. Press **OK**.

3   Edit the telephone number to which the message will be sent (optional).

    a.   For the C4050 handset, edit the telephone number to which the message is to be sent. Press **OK**.

    b.   For the C4040 handset, enter the telephone number to which the message is to be sent. Press **OK**.

4 Select either **Normal** or **Urgent** for the message priority. Press **OK**.

> **CAUTION**
>
> If an Urgent priority message is sent, the handset waits 60 seconds for the recipient's confirmation. During this time, other messages cannot be sent or received.

5 The message is sent. The handset returns to the idle display.
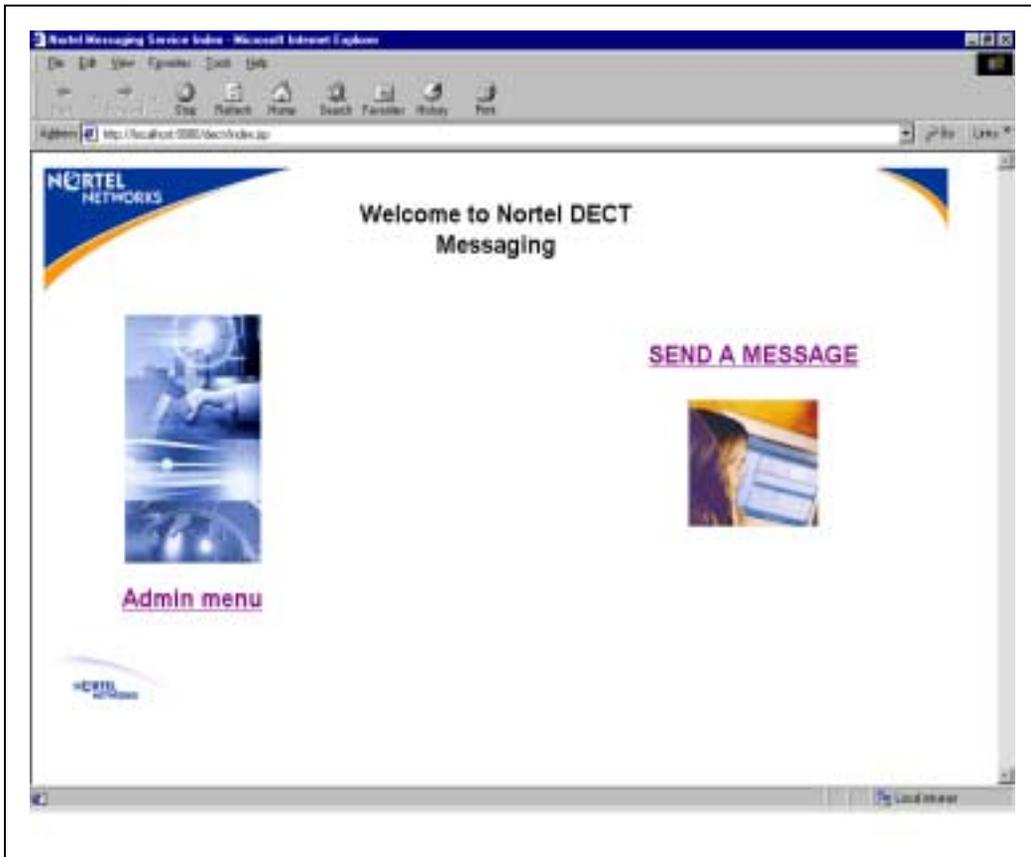
How to send a message from a PC

To send messages from the web, follow the steps in Procedure 5:

Procedure 5
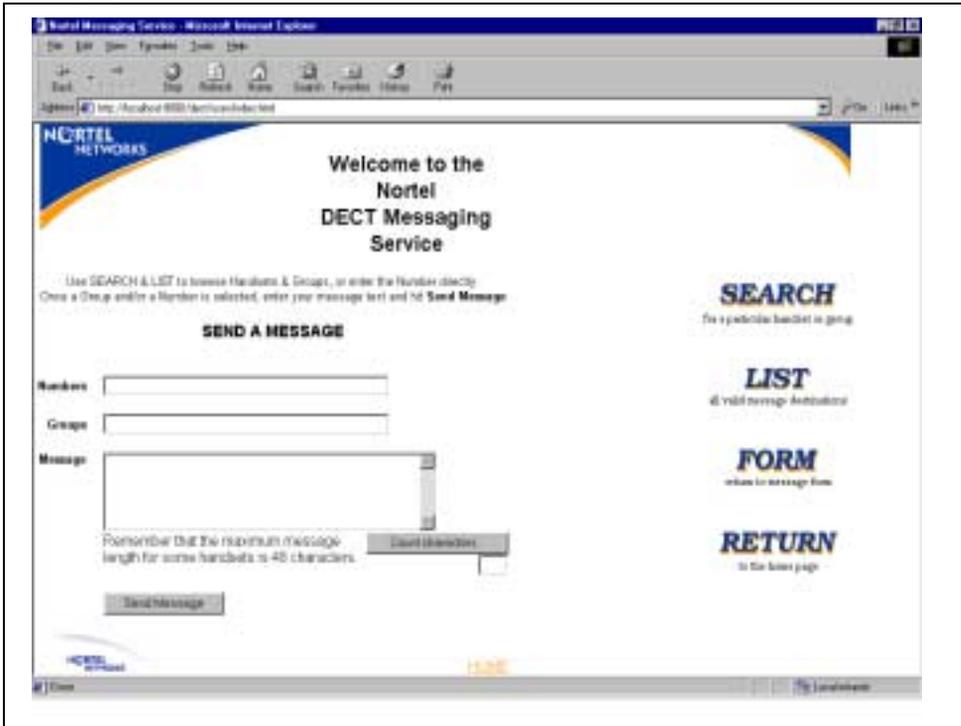**Send a message from a PC over the intranet**

1   Use the PC's web browser to access the DECT Messaging intranet site. The Welcome Screen for the DECT Messaging web interface is displayed. See Figure 10 on page 34.

Figure 10
Welcome Screen

2   Click **Send a Message**. The DECT Messaging Service screen is
          displayed. See Figure 11 on page 35.

Figure 11
**Messaging Service screen**

3   Enter the user number(s) or user group number(s). Separate each
          entry with a comma (,). An example of a user group number would be
          a number for the Technical Support handset rather than the number of
          an individual.

          To search for user and group numbers, click the search button on the
          right side of the screen. Type a name or partial name and press the
          submit button.

          For example, if a list of user numbers includes the names **Mary** and
          Maria, then entering **Mar** would return the number for both names. The
          browser displays either a screen allowing a message to be sent to that
          number or an error screen if the number was not found.

> **4**   Enter the message text. Click **Count Characters** to check the length of the message (optional). The maximum length of the message is 48 characters.
>
> **5**   Click **Send Message** to submit the text message to the Messaging Server. The message acknowledgement is displayed on the web page. See Figure 12 on page 36.

Figure 12
Message Acknowledgement
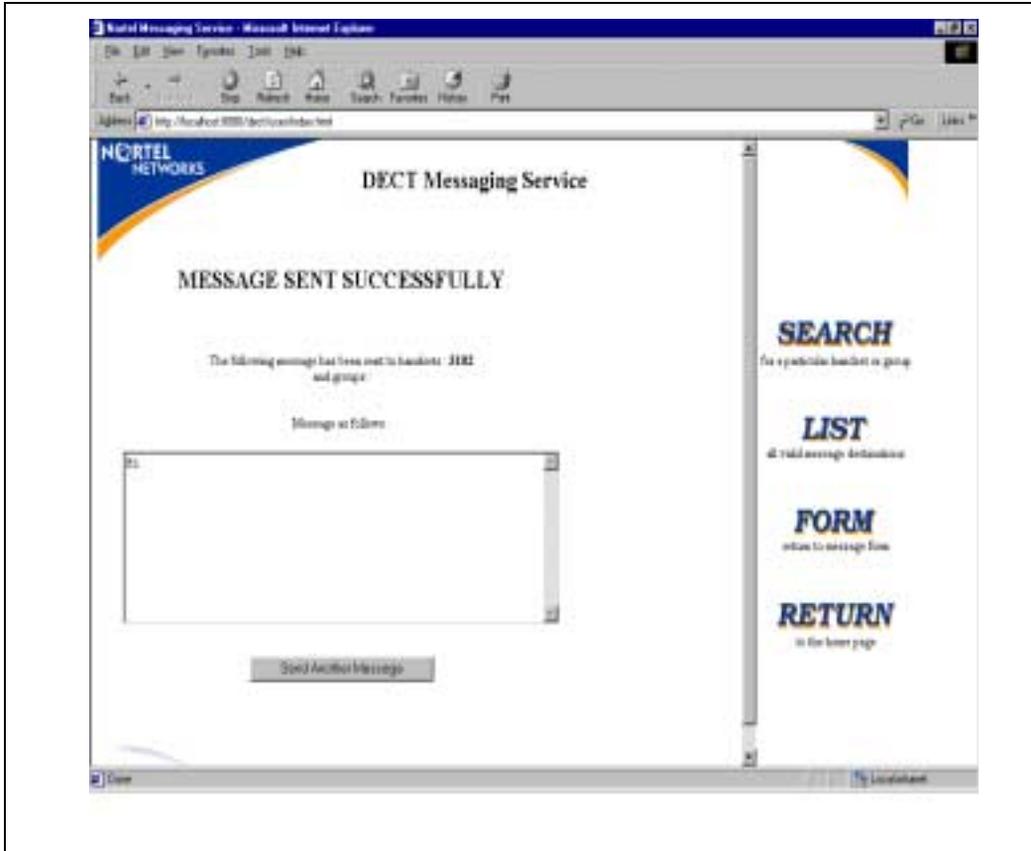
> ***Note:*** Messages sent from a PC are sent with normal priority. Acknowledgement means only that the DECT Messaging system has accepted the message. It does not mean that the user received the message.

6   To send a message to more than one handset, select a pre-defined group as the target, or select more than one handset.

7   If groups are implemented on the system, a specified group can receive a message. Groups are administered from the Messaging Server administrator screens.

Groups are treated as normal targets by external applications. However, external applications cannot change the name of a group or members of a group that they are targeting.

———————————— *End of Procedure* ————————————

Queries that return a large number of responses are split into several screens. This maximizes the performance of the system, and makes the lists more manageable. **Next page** and **Previous page** on the display screen provide a link to the next page of responses.

Message handling

The following section defines message acknowledgements, and explains how messages are handled for each protocol.

Acknowledgement message description

ACK receipt – a message was successfully received at the Messaging server.

ACK message delivery – a message was successfully received at the handset.

ACK user acceptance – a message was read by the user and acknowledged.

All message attempts are recorded on the Message Server (MS) activity log. This information includes basic details about all calls sent and received on the messaging system.

Failure codes

If messages are not successfully sent, a failure code is returned. For more information on Failure codes, see "Failure codes" on page 46.

TAP protocol

A TAP message with normal priority, sent to a either a group or individual user, does not receive an acknowledgement from the MS.

SNPP protocol

An SNPP message to a single destination, normal priority, receives an **ACK message delivery** from the MS.

An SNPP message to a single destination, urgent priority, receives an **ACK user acceptance** from the MS.

An SNPP message to a defined user group, normal priority, receives an **ACK message receipt** from the MS.

An SNPP message to a group of destinations or a defined user group, urgent priority, receives an **ACK user acceptance** from the MS, either when the first user, or the entire group, acknowledges the message. This setting is configured by the administrator on the Messaging Server.

CAUTION

Use caution when configuring **ACK user acceptance** required from all members of the group. If one user does not acknowledge the message, then the sender receives no acknowledgements from anyone in the group.

Groups

If the user enters an invalid number among a number of correct ones, it may or may not be counted as a failure, depending on how the system is configured.

There are two possible configurations:

1   If "dect.snpp.notification=NOTIFYFIRST" is configured in the MSDECT.properties file, then the first person in a group who answers the urgent message sends the reply back to the sender. If one of the numbers in the group is incorrect, an error message is returned, but the message still goes through.

2   If "dect.snpp.notification=NOTIFYALL" is configured in the MSDECT.properties file, then everybody in the group must acknowledge the urgent message before the reply is sent back to the sender. If one of the numbers in the group is incorrect, an error message is returned, and the message still goes through.

To reduce the possibility of errors, administrators can create groups. There is no limit to the number of users in a group. Messages can be sent to groups (rather than to several individual numbers). These groups appear as message targets on the web screens, and can be entered as the destination for an SNPP or TAP message.

Messages are sent in groups of ten. The length of time until the next group of messages is sent is defined as a retry and configured by the system administrator in the Retry Profile. See "Retry Properties" on page 45.

Configuring the software

Contents

This section contains information on the following topics:

Configuring the DECT Messaging system

System properties files are configured automatically during installation. To customize the system, the System properties file can be re-configured.

System data, SNPP, and TAP must be manually configured.

Configuring the system properties files

> **WARNING**
>
> Properties files are system critical. Do not amend these files unless directed to do so by technical support.

The administrator can reconfigure the system by changing the values of system properties files, as shown in Table 1:

Table 1
MSDECT.properties file (Part 1 of 3)

Property	Descriptions	Possible values
propsdir	The directory where all the properties files are defined	Any directory structure – default is C:\DECTMS\properties.
retry	Name of the file which retry profiles are listed in	Any value – default is retry.properties.
log4j	Name of the file which log4j configuration parameters are listed in.	Any value – default is log4j.properties.
dect.debug	Whether debug is turned on/off.	True, false – Default is false.
dect.initmessages	The initial number of messages generated by the message factory	Any value – default is 100.
dect.services	The services to be loaded by the system at startup	See "Configuring SNPP and TAP" on page 49. Default is com.aepona.NORG.protocols .TapSession, com.aepona.NORG.protocols .SNPPSocketManager.

Table 1
MSDECT.properties file (Part 2 of 3)

Property	Descriptions	Possible values
dect.messageLengthCheck	Each handset has an associated handset type, which can only accept a maximum number of characters. This is the lowest value of the number on the system.	Default is 48.
sock.monitor	Whether the system should monitor the connection to the Meridian/Succession system.	Default is false.
sock.period	How often the connection to the system is checked.	Default is 200 (10ths of seconds).
auth.timer	How often the authentication is checked with the system.	Default is 840000 milliseconds.
pool.inc	If the system is using more than 100 message objects, this parameter indicates how many more are created.	Default is 10.
SNNP		
dect.snpp.port	Port on which SNPP telnet connections are accepted by DMS.	Any number > 0. Default is 1080.
dect.snpp.help	File which lists the text printed out when a client SNPP connections enters a "help" command	Default is SNPPHelp.properties.
dect.snpp.notification	Whether the system sends a "Message delivered" message to the client when the all or the first member(s) respond to an urgent message.	NOTIFYALL, NOTIFYFIRST Default is NOTIFYFIRST.
dect.snpp.sockettimeout	How long the each SNPP connection stays open when there has been no activity.	Defined the same as retry profiles. See "Retry Properties" on page 45.

Table 1
MSDECT.properties file (Part 3 of 3)

Property	Descriptions	Possible values
dect.messagestatus.timelimit	Defines how old the status of a message is before it is deleted.	Defined the same as retry profiles. See "Retry Properties" on page 45.
dect.snpp.statuscheck	How often the Message Status table gets checked for data which is too old	Defined the same as retry profiles. See "Retry Properties" on page 45.
TAP		
dect.tap.modem	Indicates whether the system is connected to a modem.	If set to true, consult "Recommended modem settings" on page 50. The values defined there must match the properties below in order for the TAP interface to work correctly. Default is false.
dect.tap.portid	Port on which modem is connected to.	Valid serial port name on system. Default is COM1.
dect.tap.bps	Baud Rate for modem	110, 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200. Default is 9600.
dect.tap.databits	Modem settings	Default is 8.
dect.tap.stopbits	Modem settings	Default is 1.
dect.tap.parity	Modem settings	Default is "none".

Log4j Properties

Table 2 lists some Log4j.properties. For a complete list of the properties, consult the online documentation at http://www.jakarta.apache.org/log4/docs/index.html.

Table 2
Log4j.properties

Property	Description	Possible Values
log4j.rootcategory	The levels of debug and details where debug is written.	Any values can be defined as long as their configuration is defined later in the file.
log4j.category.com.aepona.n org	Level of debug for package. Multiple packages can be listed with different levels.	DEBUG, INFO, WARN, ERROR.

Retry Properties

The **retry.properties** file defines when and how often the messages are retried. See Table 3, "Retry.properties," on page 46.

For information on retry for group messages, see "SNPP protocol" on page 38.

Table 3
Retry.properties

Property	Description	Possible Values
1 – 9	The error which the network or handset returns when the system fails to deliver a message to it. See Table 4. The value number to the right of the "=" sign defines how many times the message is retried. The numbers themselves define after what time the message is retried.	The values are defined either in seconds (s) minutes (m) or hours (h).For example 10s - message is retried after 10 seconds,1m - message is retried after 1 minute,2h - message is retried after 2 hours. A retry value of 1s to 2s is recommended.
0	Default value if the error sent back is not recognized.	This can be configured to any time period as defined above. The default value is that the message is immediately discarded

Failure codes

If messages are not successfully sent, a failure code is returned. Table 4 lists the failure codes and their definitions.

Table 4
Failure codes (Part 1 of 2)

Failure code	Definition
1	Congestion. The DECT system is busy.
2	Handset is out of range or turned off.
3	Handset is not subscribed to the DECT system.
4	DECT system is not in service.
5	DECT card is not in service.
6	Dropped call – abnormal release.

Table 4
Failure codes (Part 2 of 2)

Failure code	Definition
7	Timed out.
8	Other errors.
9	Handset rejected the call.

SNPPHelp properties
The Help file contains plain text that is sent to the SNPP client when the client enters a help command on a SNPP connection. This file can be changed at the administrator's discretion.

Configuring system data
Before starting the DECT Messaging System, the data for the DECT system and all handsets must be entered in the database. To configure the DECT system and handsets, follow the steps in Procedure 6.

Procedure 6
Configure DECT system and handsets

1   Start Jboss by double clicking on the shortcut on the desktop. If Jboss starts correctly, then continue with this procedure. If it does not, refer to "Installing the DECT Messaging system" on page 15.

	CAUTION
⚠	This caution applies to DECT Messaging that is installed on a Windows 2000 PC. Left-clicking in a command interpreter window causes it to enter **selection mode**. The DECT Messaging application is halted, and does not function. To cancel the **selection mode**, right-click on the command interpreter window.

2   Load Microsoft Internet Explorer and type the following into the address field

> **http://***hostname***:8080/dect**

where **hostname** is the name or IP address of the machine.

or

http://*localname***:8080/dect**

if using the Messaging Server as the message-sending PC.

This loads the DECT Messaging System Web interface.

3   Click on the **Admin Menu** text on the left-hand side of the window.

4   Log into the screen as the web administrator. The default username is **admin.** The default password is **admin**.

5   Click on the **System** icon on the right-hand side of the window. Click on the **Add_a_System** button.

6   Fill in the details of the DECT system, setting the password to the DECT card password (controlled by OTM), and click on the **Add_System** button.

7   Click on the **Handset Type** icon on the right hand side of the window. Click on the **Add_Type** button.

8   Enter the handset type details and click on **Add** button.

9   Click on the **Handset** icon on the right-hand side of the window. Click on the **Add a New Handset** link.

10   Enter the handset details and click on the **Add Handset** button.

11   Repeat steps 9 and 10 until all the handsets required for the system have been entered.

12   If a group or groups are needed, click on the **Group** icon on the right-hand side of the screen. Click on **Add Group** button.

13   Enter the required group details and select the handsets for the group using the **Select Handsets Button**.

14   Click on the **Return to home page** icon on the right-hand side of the window.

15   Start the DECT Messaging System by double clicking on the shortcut icon on the desktop.

———————————— *End of Procedure* ————————————

Configuring SNPP and TAP

It is necessary to follow the steps in Procedure 7 to allow SNPP and TAP to be accepted by the DECT Messaging System.

Procedure 7
Configure SNPP and TAP

1   Shut down the DECT Messaging System by pressing Control-C. Then close the remaining DOS window.

2   Open the **DECT.properties** file in the $DECT/properties directory.

3   For configuring SNPP only, add the line
`dect.services=com.aepona.NORG.protocols.snpp.SNPPSo`
`cketManager`
into the file.

4   If TAP only is required add the line
`dect.services=com.aepona.NORG.protocols.snpp.TapSes`
`sion`
into the file.

5   If both services are required, then add the line
`dect.services=com.aepona.NORG.protocols.snpp.SNPPSo`
`cketManager, com.aepona.NORG.protocols.`
`snpp.TapSession`
into the file, ensuring that there is only one dect.services line in the file.

6   Restart the DECT Messaging system.

———————————— *End of Procedure* ————————————

Post installation testing

To ensure the DECT Messaging System is working correctly, perform the following tests:

1   Send a message from one handset to another.

2   Send a message from the DECT Messaging System Web Interface to one handset.

3   Send a message from the DECT Messaging System Web Interface to the group of handsets.

4   From another machine on the same network, telnet onto the machine using the **dect.snpp.port** property specified in the **$DECT/properties/DECT.properties** file. Send a paging request to the handset and make sure it is delivered successfully.

5   If configured and installed, send the appropriate TAP command to a handset and ensure the message is delivered successfully to the handset.

Changing web interface security

To change the username and password for the DECT Messaging System administrator, follow the steps in Procedure 8:

Procedure 8
Change the username and password for the Administrator

1   Open the **$JBOSS_HOME\tomcat\conf\tomcat-users.xml** file using Notepad.

2   Change the username and password tags to the required settings.

3   Save and close the file to confirm the username and password update.

———————————— *End of Procedure* ————————————

Recommended modem settings

Set up the modem as specified in the **MSDECT.properties** file. Procedure 9 on page 51 provides the recommended modem settings:

Procedure 9
Configure modem settings

1   Open the control panel window and double click the modem icon.

2   Select the modem and click the **Properties** button.

3   Set the maximum speed to 9600. Also, check the box **only connect at this speed**.

4   Select the connection tab and set the **Databits** to **8**, **Parity** to **none** and the **Stopbits** to **1**.

5   Click **OK**.

———————————— *End of Procedure* ————————————

Subscribe the handsets to the system cards

Options 51C – 81C

A handset is configured in software by its card slot number and its index number.

Card slot number

The maximum system size is 32 cards, 16 on each shelf.

On Option 51C – 81C systems, the card slots on both Shelf 0 and Shelf 1 are physically labelled 0-15. However, the card slots on Shelf 0 are addressed by the DECT Messaging Server as 1 – 16 and the card slots on Shelf 1 are addressed by the DECT Messaging Server as slots 17-32. See Table 5.

Table 5
Slot numbers for Options 51C-81C

Shelf	System card slot numbering	DECT card slot numbering
0	0 – 15	1 – 16
1	0 – 15	17 – 32

Index number

The handset's index number on a card in Options 51C-81C can be from 1 – 32 for non-concentrated, or 1 – 510 for concentrated.

Option 11C

A handset is configured in software by its card slot number and its index number.

Card slot number

The maximum system size is 20 cards, 10 in each cabinet.

On Option 11C systems, the card slots on both Cabinet 0 and Cabinet 1 are physically labelled 1-10. However, the card slots on Cabinet 1 are addressed by the DECT Messaging Server as slots 17-26.See Table 6.

Table 6
Slot numbering for Option 11C

Cabinet	System card slot numbering	DECT card slot numbering
0	1 – 10	1 – 10
1	1 – 10	17 – 26

Index number

The handset's index number on a card in Option 11C can be from 1-510.

Option 11C Mini

Card slot number

The maximum system size is 9 cards, 5 slots in the Main Chassis (Cabinet 0) and 4 slots in the Chassis Expander (Cabinet 1).

On Option 11C Mini systems, the card slots on Cabinet 0 are physically labelled 0 – 5 and addressed by the DECT Messaging Server as slots 0 – 5. The card slots on Cabinet 1 are physically labelled 7 – 10. However, the card slots on Cabinet 1 are addressed by the DECT Messaging Server as slots 17 – 20. See Table 7 on page 54.

Table 7
Slot numbering for Option 11C Mini

Cabinet	System card slot numbering	DECT card slot numbering
0 (Main Chassis)	0 – 6	0 – 6 *Note:* Slot 0 is reserved for the system controller card. Slots 4-6 are reserved for the digital line card.
1 (Chassis Expander)	7 – 10	17 – 20

Succession CSE 1000 Release 1.1

DECT capacity on Succession CSE 1000 Release 1.1

Table 8 lists DECT capacity on the Succession CSE 1000 Release 1.1 Media Gateway.

Table 8
DECT capacity on the Succession CSE 1000 Release 1.1 Media Gateway

Maximum number of DMC8 cards per Media Gateway	= 3
Maximum number of base stations per DMC8 card	= 8
Maximum number of base stations per Media Gateway	= 24
Maximum number of handsets per Succession Call Server	= 640

Table 9 lists DECT capacity on the Succession CSE 1000 Release 1.1 Media Gateway Expansion.

Table 9
DECT capacity on the Succession CSE 1000 Release 1.1 Media Gateway Expansion

Maximum number of DMC8 cards per Media Gateway Expansion	= 4
Maximum number of base stations per DMC8 card	= 8
Maximum number of base stations per Media Gateway Expansion	= 32
Maximum number of handsets per Succession Call Server	= 640

Media Gateway/Expansion card slot assignment

The Media Gateway and Media Gateway Expansion chassis contain physical card slots, numbered 1 to 10.When configuring the Succession CSE 1000 system, the physical card slot numbers must be transposed to "logical" card slot numbers. For example, to configure a card physically located in Slot 2 of the first Media Gateway, use logical Slot 12. To configure a card physically located in Slot 2 of the second Media Gateway, use logical Slot 22.

Card slot numbers

The Media Gateway has five card slots. The Media Gateway Expansion has four card slots. Slot 0 is reserved for the System Controller Card.

On Succession CSE 1000 Release 1.x systems, the card slots on the Media Gateway are physically labelled 1 – 3 and addressed by the DECT Messaging Server as slots 11–13. (Slots 4,5, and 6 are not supported in Succession CSE 1000 Release 1.x.). The card slots on the Media Gateway Expansion are physically labelled 7 – 10. However, the card slots on the Media Gateway Expansion are addressed by the DECT Messaging Server as slots 17 –20. Up to four Media Gateways and four Media Gateway Expansions are allowed in each Succession CSE 1000 system.

DMC8 cards

DMC8 cards can be installed in Slots 1, 2, and/or 3 of a Media Gateway.

> *Note:* DMC8-E cards cannot be installed in a Media Gateway.

DMC8 cards can be installed in Slots 7, 8, and/or 10 of a Media Gateway Expansion.

> *Note:* A DMC8-E card must be installed in Slot 9 of a Media Gateway Expansion.

Table 10 on page 57 lists all the card slot addresses for a Succession CSE 1000 Release 1.x system.

Table 10
Media Gateway and Media Gateway Expansion slot assignments – Release 1.1

	First Media Gateway		Second Media Gateway		Third Media Gateway		Fourth Media Gateway	
	Physical card slot	Logical card slot	Physical card slot	Logical card slot	Physical card slot	Logical card slot	Physical card slot	Logical card slot
Media Gateway	0	Slot 0 reserved for Small System Controller (SSC) card						
	1	11	1	21	1	31	1	41
	2	12	2	22	2	32	2	42
	3	13	3	23	3	33	3	43
	4,5,6	Not supported at this time						
	First Media Gateway Expansion		Second Media Gateway Expansion		Third Media Gateway Expansion		Fourth Media Gateway Expansion	
Media Gateway Expansion	7	17	7	27	7	37	7	47
	8	18	8	28	8	38	8	48
	9	19	9	29	9	39	9	49
	10	20	10	30	10	40	10	50

Appendix A: Using Telnet to send messages through SNPP

Using Telnet to send messages through SNPP

Telnet can be used to send text messages to a handset through an SNPP interface. A PC connected to the Ethernet port on the DECT Messaging server can be used to send text messages using simple Telnet commands.

Telnet commands are explained in more detail in the SNPP standard, RFC 1861.

Note: The Telnet commands cannot be typed into the Telnet window. It is necessary to first type the commands into Notepad (or similar application), copy them to the clipboard, then paste them into the Telnet window, using the "Paste" command from the "Edit" menu.

> **CAUTION**
>
> It is necessary to Telnet to the port configured in the MSDECT.properties file. The default port is port 6666.

Example 1

Send a normal priority message to a handset DN 3000. The message is "Hello Bob". The Telnet commands are as follows:

```
PAGE 3000
MESS Hello Bob
SEND
```

Example 2

Send an urgent priority message to handsets DN 4000 and 4001, and the administrator-defined group DN 5555. The message is "Dinner is ready." The Telnet commands are as follows:

```
PAGE 4000
PAGE 4001
PAGE 5555
MESS Dinner is ready.
ACKRead 1
SEND
```

DECT Messaging

Installation Guide

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