DMC DECT Fundamentals
Avaya Communications Server 1000

Release 7.5
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March 2012

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Contents

Chapter 1: New in this release

This document has been up-issued for Release 7.5:

- All DECT Messenger material has been removed. See *DECT Messenger Fundamentals (NN43120-120)*.
- DSP provisioning information has been added to System hardware parameters on page 39 and Installing DMC8 and DMC8-E in an Avaya Communication Server 1000E on page 170 and now aligns with the provisioning rules implemented in the ordering tools.
- Configuration information has been added to Installing DMC8 and DMC8-E in an IPE Module Controlled by MGXPEC (CS 1000E) on page 168 for IPE shelves upgraded to the MG XPEC controller.

Chapter 2: Product description

Contents

This section contains information on the following topics:

Overview

Avaya Integrated DECT (DECT) allows users to move freely about their work sites while conducting telephone conversations using wireless handsets. DECT is an acronym for Digital Enhanced Cordless Telecommunications.

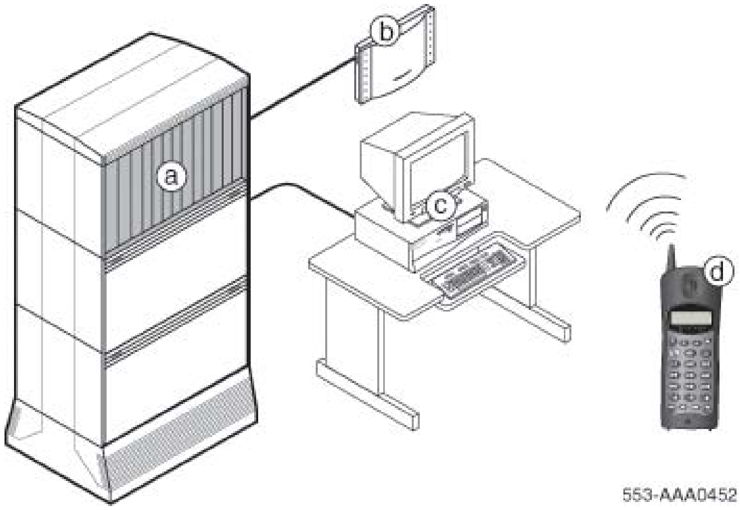


Figure 1: Main parts of the DECT system

The DECT system is in a CS 1000M IPE shelf or a CS 1000E cabinet or chassis. DECT has four main components:

a	DECT mobility cards
b	Basestation
c	Handsets
d	DMC DECT Manager with DECT application

Clock requirements

The following clock controller cards are mandatory:

- NTRB53 Clock Controller card for a CS 1000M SG or MG
- NTAK20BD Clock Controller daughterboard or NTAK79AA card with a built-in clock controller for an Option 11C and CS 1000E Media Gateways

If there is no digital connection to the network, the appropriate clock controller must be installed and operated in free run mode.

Note:

On EMC-hardened Cabinet systems, the clock controller must be in one of the first three slots of the CPU cabinet.

CS 1000E

The NTDW63AAE5 Ethernet & Clock Reference Breakout Adapter for Option 11C cabinet used with MGC and the NTDW67AAE5 MGC DECT clock reference cable, used to synchronize the backplane clock between two MG1000 chassis, MG 1010 chassis, or Option 11C cabinets, are shown in the figures below.

For CS 1000E DECT installations that span more than 1 cabinet, the NTDW63AAE5 (Option 11C Cabinet Ethernet & Clock Reference Breakout Adapter) is used with the NTDW67AAE5 (Clock Reference Cable) to synchronize the backplane clock between two Option 11C cabinets. For DECT installations that span more than 1 MG 1000 or MG 1010 main and expander chassis, the NTDW67AAE5 cable is used to synchronize the backplane clock between two MG 1000 or MG 1010 chassis. This is in addition to the clock controller requirement identified above.

Figure 2: MGC Breakout Adapter for Option 11C

Figure 3: MGC DECT Clock Reference Cable

Synchronization port

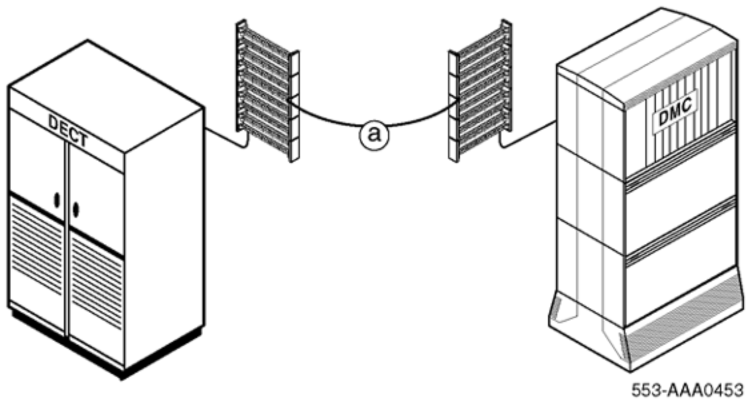


Figure 4: DECT synchronization

Where multiple DECT systems share the same radio coverage area, the DECT synchronization port must be used. The DECT synchronization port is accessed through a Main Distribution Frame (MDF) connection. Failure to connect the DECT synchronization ports of each system can lead to service interruptions.

Mobility card (DMC8)

The NTCW00AB DMC8 DECT Mobility Card provides an interface between the basestations and the Meridian 1, or CS 1000M.

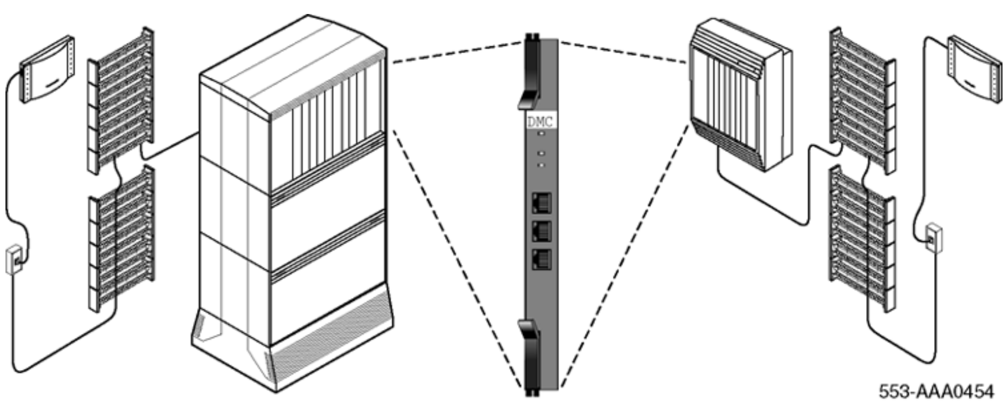


Figure 5: DECT Mobility Card

The DECT system supports a mix of DMCs and DMC8s. A DMC8 supports up to eight basestations.

All DMC8s support a Point-to-Point Protocol (PPP) connection to the DECT Manager with an NTCW12DA cable. The DMC8 card requires a NTCW25AA DECT Manager Ethernet (DME) daughterboard installed to support an Ethernet connection.

Each DMC8 is programmed in the database using LD 10.

The DMC8s are interconnected by faceplate cables, allowing them to pass information to each other.

DMC8s must be in an IPE shelf or in a cabinet or chassis.

There is no call switching in the DMC8 card. All call switching occurs within the Meridian 1, CS 1000M, or CS 1000E.

DMC8 options

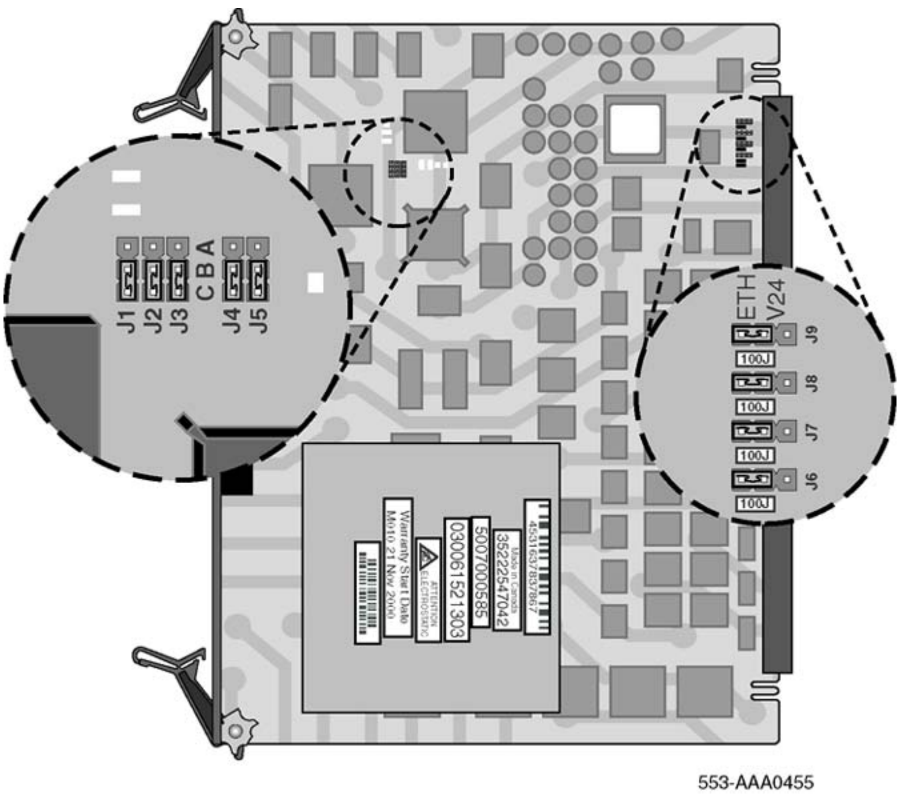


Figure 6: DMC8 options

The component side of the DMC8 contains jumpers J1, J2, and J3. The jumpers indicate card status.

DMC8 - Expander (DMC8-E)

The NTCW01AB DMC8-E DECT Mobility Card – Expander provides the same functions as a DMC card.

The DMC8-E has additional circuitry required to regenerate faceplate cable signals when a system contains more than eight DMC8s. The DMC8-E connects two shelves or cabinets in a DECT system.

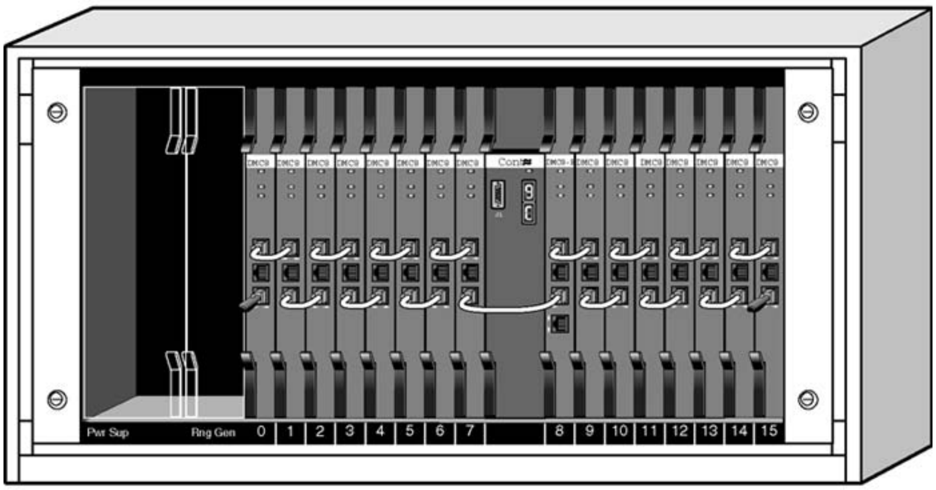


Figure 7: DECT Mobility Card - Expander

If the DMC8-E is used in an IPE module, it must be located in card slot 8. Do not install a DMC8 in slot 8 of an IPE module.

If the DMC8-E is used in a CS 1000E cabinet or chassis, it must be located in card slot 9, 19 or 29. Do not install a DMC8 in slot 9, 19 or 29 of a CS 1000E cabinet or chassis.

An NTCW25AA DME daughterboard is required to provide Ethernet DMC DECT Manager access. The daughterboard is also required to enable DECT Messaging. The DME daughterboard is not required for serial DMC DECT Manager access. Only one DME daughterboard is required per system.

Faceplate features

Figure 8: DMC8 and DMC8-E faceplate features on page 20 shows the following DMC8 and DMC8-E faceplate features:

a Red LED (indicates the same status as all IPE cards)

b Yellow LED (indicates DECT sub-system status)

c	Green LED (indicates DECT sub-system status)
d	DMC8 to DMC8 faceplate cable port
e	DMC8 bypass faceplate cable port
f	DMC8-E to DMC8-E faceplate cable port
g	For future use

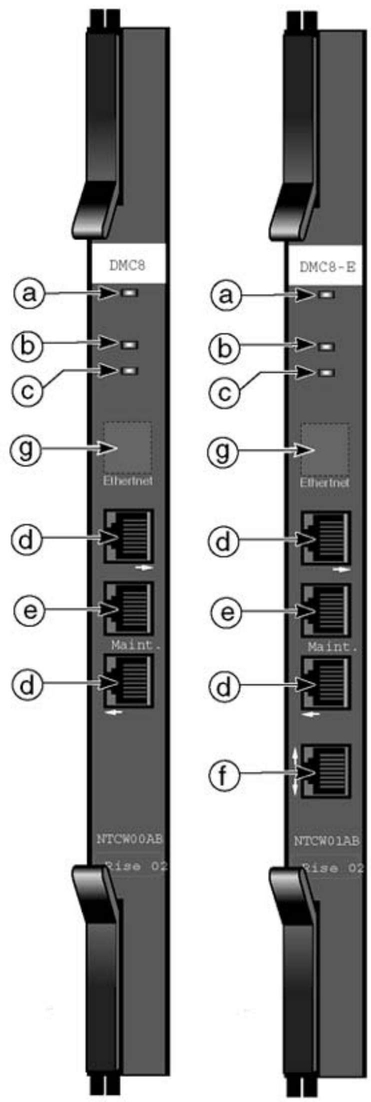


Figure 8: DMC8 and DMC8-E faceplate features

DMC Faceplate cables

The faceplate cables form the 20 Mb/s bus that connects all DMCs in a DECT system. The faceplate cables meet the standard for Unshielded Twisted-Pair category of performance 5 (UTP CAT 5).

Signaling and PCM are sent to all DMCs over the faceplate cables, allowing a DMC8 to pass a call to another DMC8.

The following faceplate cables are used in DECT systems:

1. DMC to DMC faceplate cable (NTCW11AA)

   The cable extends the 20Mb/s bus to all DMCs.

2. DMC to DMC-E faceplate cable (NTCW11BA)

   The DMC to DMC-E cable extends the 20Mb/s bus past the XPEC card in the IPE shelf.

3. DMC bypass faceplate cable (NTCW11CA)

   The DMC bypass faceplate cable bypasses DMCs to be inserted in or removed from an operational DECT system.

4. DMC faceplate termination (NTCW11DA)

   The DMC faceplate termination balances the impedance at either end of the 20Mb/s bus.

5. DMC-E to DMC-E intershelf faceplate cable (NTCW11EA)

   This faceplate cable connects DMC-Es in two shelves or two cabinets.

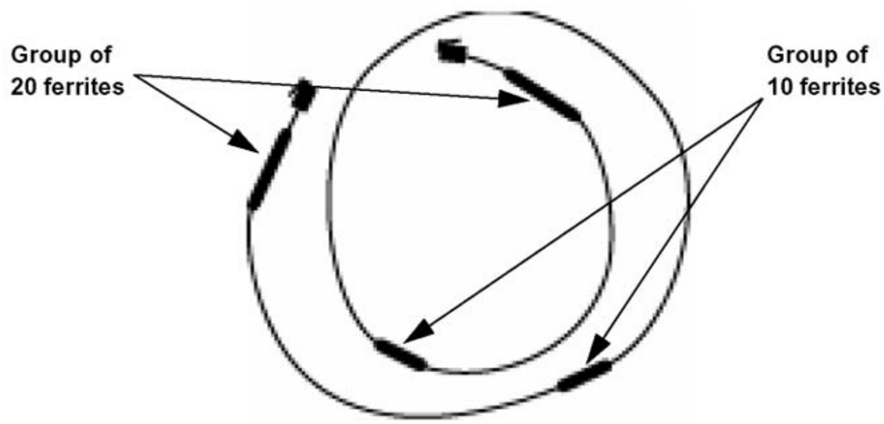


Figure 9: DMC-E to DMC-E intershelf faceplate cable

> ⚠ **Caution:**
>
> Service Interruption
>
> The DMC-E to DMC-E faceplate cable has four sets of movable ferrites. The position of the ferrites on the cable is important. Each end of the cable must have a group of 20 ferrites. One quarter the distance from each end of the cable must have a group of 10 ferrites. The maximum length of the cable is 1.5 meters, limiting the position of DECT shelves 0 and 1 to adjacent IPE modules or CS 1000E cabinets/chassis.

6. DMC to DMC 1-meter faceplate cable with four ferrites (NTCW11FA)

   This cable extends the 20Mb/s bus to all DMCs and is used in Avaya Communication Server 1000E systems to connect DMC cards in MG1000E Main Chassis and MG1000E Expander Chassis.

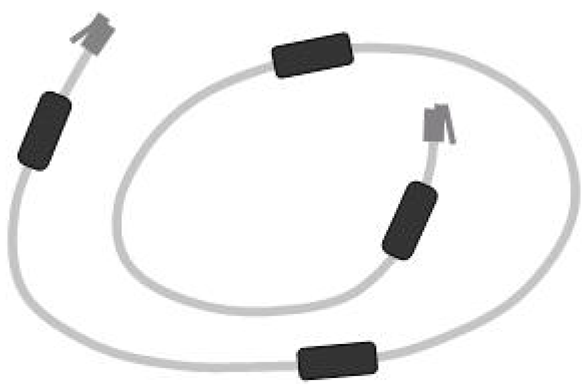


Figure 10: DMC to DMC 1 meter faceplate cable with four ferrites

> ⚠ **Caution:**
>
> Service Interruption
>
> Customers must use UTP Cat 5 faceplate cables supplied by Avaya. Faceplate termination must be used on the DMCs at both ends of the faceplate cabling.

Faceplate cabling between DMC(-E) cards is slightly different for different Avaya CS 1000 system types. The following are the examples:

IPE Shelves Faceplate Cabling

The following figure describes the faceplate cabling within one IPE shelf.

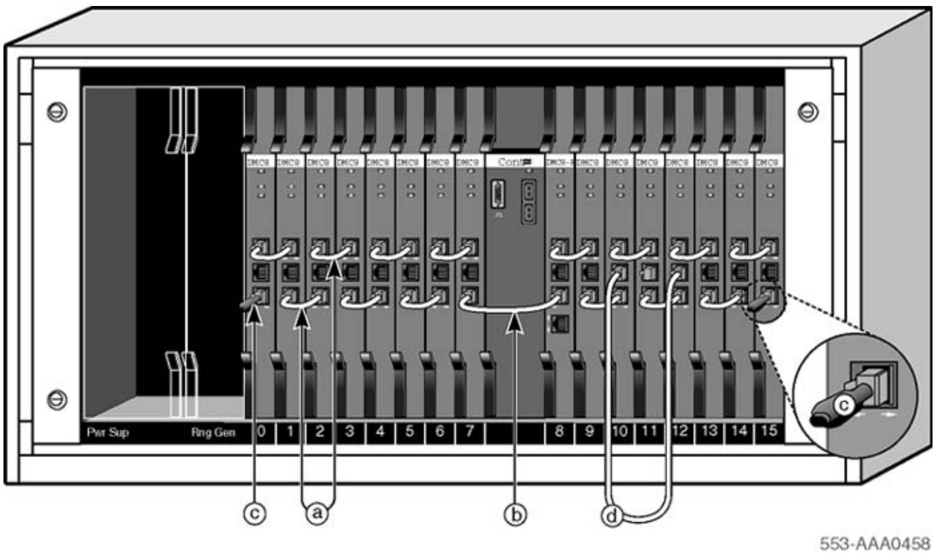


Figure 11: Faceplate cabling within one IPE shelf

Faceplate cables shown in the picture are:

a	DMC to DMC faceplate cable (NTCW11AA)
b	DMC to DMC-E faceplate cable (NTCW11BA)
c	DMC faceplate termination (NTCW11DA)
d	DMC bypass faceplate cable (NTCW11CA

Inter-shelf faceplate connections

The following figure describes the IPE inter-shelf faceplate cabling.

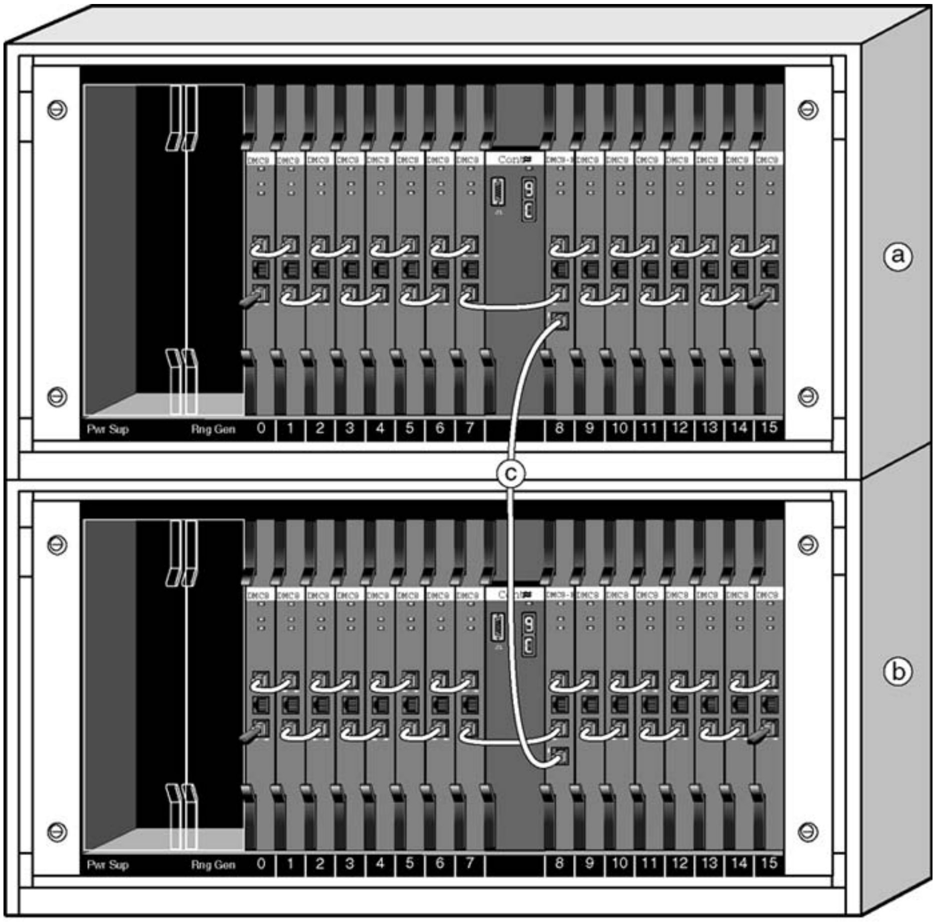


Figure 12: IPE inter-shelf faceplate cabling

The above figure shows:

a	IPE DECT shelf 0
b	IPE DECT shelf 1
c	DMC-E to DMC-E faceplate cable connection between DMC-Es on DECT IPE shelves (NTCW11EA)

Cabinet faceplate cabling

The following figure describes the inter-cabinet faceplate cabling.

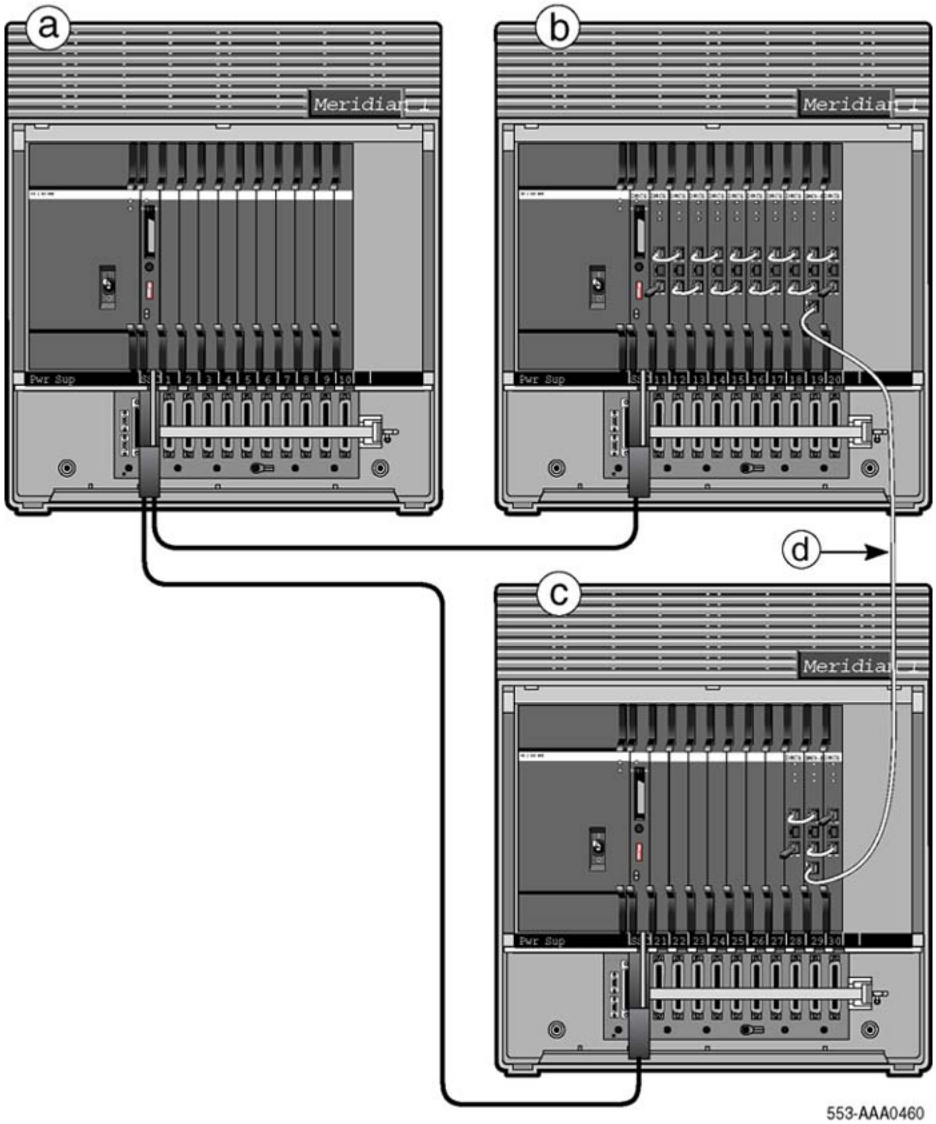


Figure 13: Inter-cabinet faceplate connections

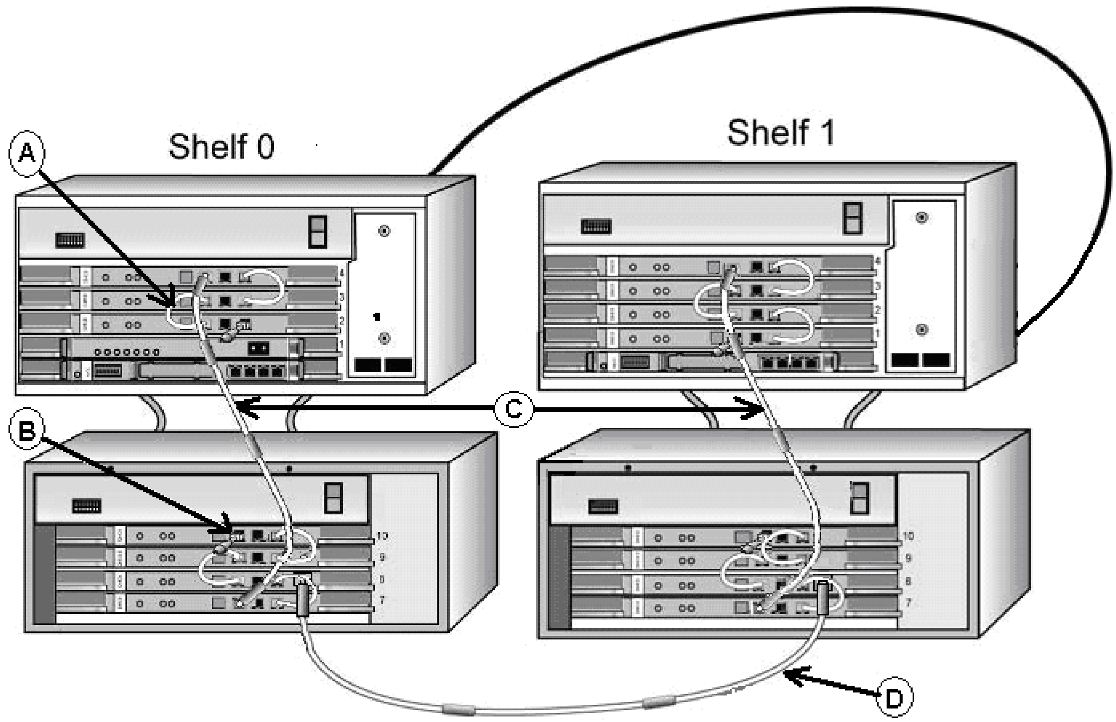
Faceplate cables shown on the figure are:

- a Main cabinet
- b Expansion cabinet
- c Second expansion cabinet
- d DMC-E to DMC-E faceplate cable connection between the DMC-Es on the first and second expansion cabinets (NTCW11EA)

MG1000E Chassis faceplate cabling

The following figure describes the MG1000E Chassis faceplate cabling.

Figure 14: MG1000E Chassis faceplate cabling



Faceplate cables shown on the figure are:

a	DMC to DMC faceplate cable (NTCW11AA)
b	Faceplate termination (NTCW11DA)
c	DMC to DMC 1-meter faceplate cable with four ferrites (NTCW11FA)
d	DMC-E to DMC-E faceplate cable connection between two shelves (NTCW11EA)

Basestations

There are three basestation models available:

- C4600 – supports six active call radio links
- C4610 – supports 12 active call radio links
- C4610E (with external antenna) – supports 12 active call radio links

Basestations are IP40-compliant wall-mounted transceivers that provide digital radio links to handsets.

Caution:

Service Interruption

For maximum line length before signal degradation occurs, use UTP Cat 5 cabling between the basestation and the shelf or cabinet. If the line length exceeds 100 ohms for the 4610 basestation, an external power supply must be used. The maximum distance when using external power with UTP Cat 5 cabling is approximately 1.7 km.

The basestation has the following features:

- RJ45 socket connection to a one meter UTP Cat 5 cable
- RJ45 socket connection to an external or local power supply
- Green LED (C4600) or a yellow LED (C4610), indicates synchronization to its DMC8
- One meter UTP Cat 5 cable connected through an RJ45 Connect Box and MDF to an IPE I/O panel or CS 1000E cabinet I/O panel

Two sources can power the basestation:

- The DMC8 and DMC8-E feeding phantom power over the UTP Cat 5 cable signaling pairs, connected to (a) in Figure 15: Basestation on page 27
- A local power supply, connected to (b) in Figure 15: Basestation on page 27

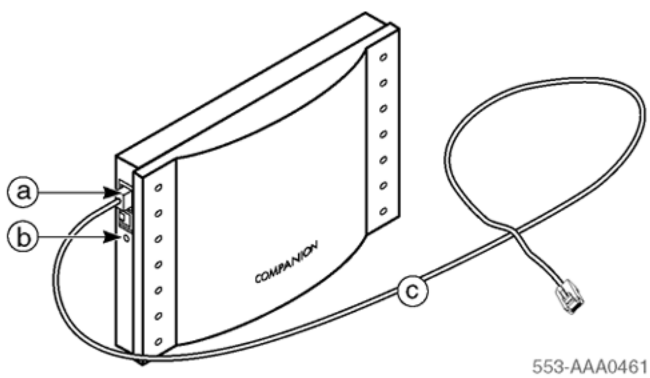


Figure 15: Basestation

Basestations connected to a DMC8 or DMC8-E card can use phantom power in some conditions, and must use local power in other conditions. An application on the DMC DECT Manager can enable or disable phantom power.

Note:

The maximum line length for a twelve-channel basestation using phantom power is 1.0 km. The maximum line length for a six-channel basestation, regardless of power, or a twelve-channel basestation using external power, is 1.7 km.

Basestation housing

The basestation environmental housing is IP66 compliant. The housing must be used indoors if a basestation is subject to conductive pollution, or outdoors if basestations are mounted externally.

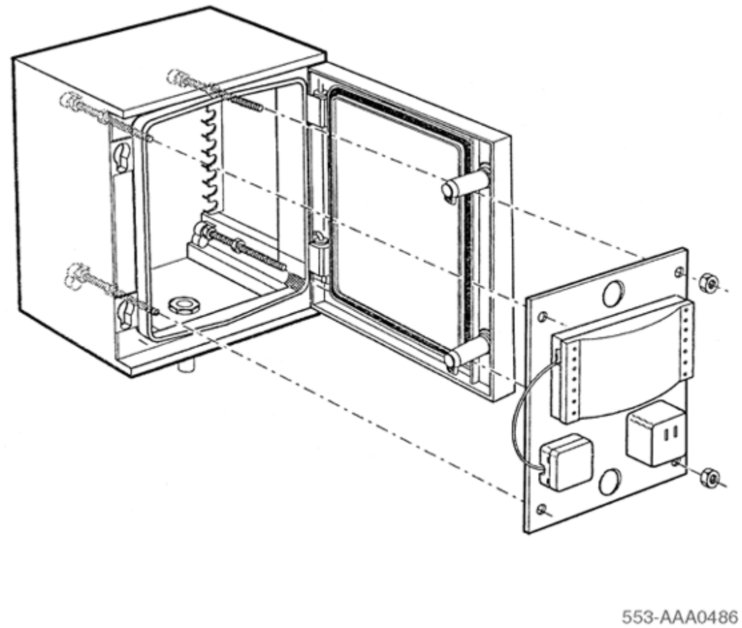


Figure 16: Basestation environmental housing

The environmental housing kit includes all of the relevant cables and installation material. The environmental housing mounts to existing walls. Signaling lines provide power to the external basestations.

Basestation cell

A basestation cell is the radio signal area covered by a single basestation. The basestations are positioned so the cells overlap. A DECT handset can make and receive calls when within a basestation cell. When the handset moves from one cell to another, the cell overlap allows the handset to move without interruptions.

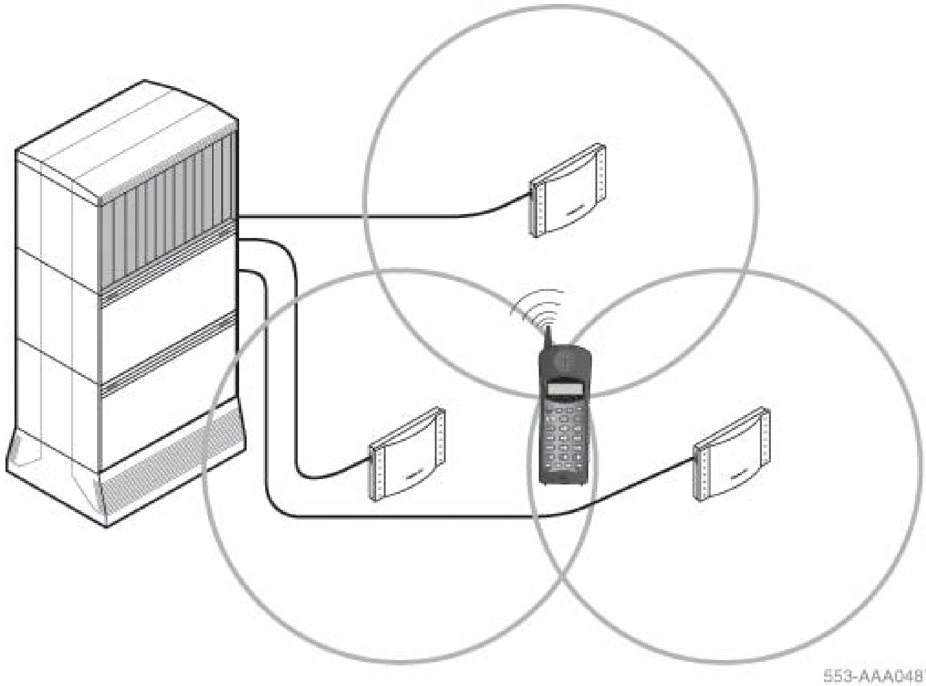


Figure 17: Basestation cell

The cell radius varies from 20m to 100m.

The number of basestations required to cover a certain area depends on many factors, such as the following:

- Size of the area of coverage
- Radio propagation characteristics of the buildings
- Materials used for walls, floors, lift shafts, reinforced glass, doors
- Strong magnetic fields from radar, welding equipment, manufacturing equipment, and high energy electronic devices
- Density of telephone users in an area, and amount of telephone traffic

DECT handset subscription and de-subscription

Subscription is the process of adding a handset to a DECT system. The handset can then make and receive calls.

A user can subscribe a handset to more than one DECT system. This feature is useful for a company that has multiple DECT sites.

De-subscription is the process of removing a handset from a DECT system. The handset user is then prevented from making and receiving calls.

Note:

Refer to each DECT Handset User Guide for a detailed description of how to use handset features and system features.

DMC DECT Manager

The DMC DECT Manager provides a point of access and control to manage DECT system on an Avaya CS system. DMC DECT Manager runs on Windows 2000 Server, Windows 2000 Professional, Windows XP Professional and Windows Server 2003.

Note:

For an overview of the DMC DECT Manager, see *Using the DMC DECT Manager Avaya Communication Server 1000 (NN43001-142)*.

DECT Application features

The DECT Application allows a user to:

- Launch the Application from DMC DECT Manager using Windows and Web navigators
- View DECT provisioning using the DECT Systems window
- View the DMC8 configuration using the Boards window
- View basestation configuration using the Radio Fixed Part window
- View subscription information using the Subscriptions window
- Upgrade firmware using the DECT Systems window
- Subscribe handsets using the Subscription window
- Support DMC8 and DMC (serial only) cards
- Synchronize (update) the DECT Application database to the DECT system configuration when the DMC DECT Manager connects to the DECT system
- Collect performance data using the Performance Collection window
- View On-line Help

Common Services

The following DECT management features are provided by DMC DECT Manager Applications:

- DMC DECT Manager Alarm Management provides alarm collection and alarm processing, as well as the following:
  - a Windows-based alarm browser to view alarms that occur while the browser is open
  - an Alarm Notification application to notify personnel of an alarm occurrence by pager or e-mail. This application can forward the alarm to an upstream processor
  - a PC Event log and Viewer to view events and alarms generated from the DECT Application in a report layout
- Backup and restore to create and restore a DMC DECT Manager backup file of the DECT application data
- User profiles to enable configuration of different types of DECT users
- On-line help to provide help for common services features

For more information about the Common Services features, see Using the DMC DECT Manager Avaya Communication Server 1000 (NN43001-142).

Remote Access Service (RAS)

A computer in a network provides access to remote users through analogue modem or ISDN connections. The computer includes the dial-up protocols and access control (authentication), and can be a regular file server with remote access software or a proprietary system. The modems can be internal or external to the device.

ISDN is an international telecommunications standard for providing a digital service from the customer's premises to the dial-up telephone network.

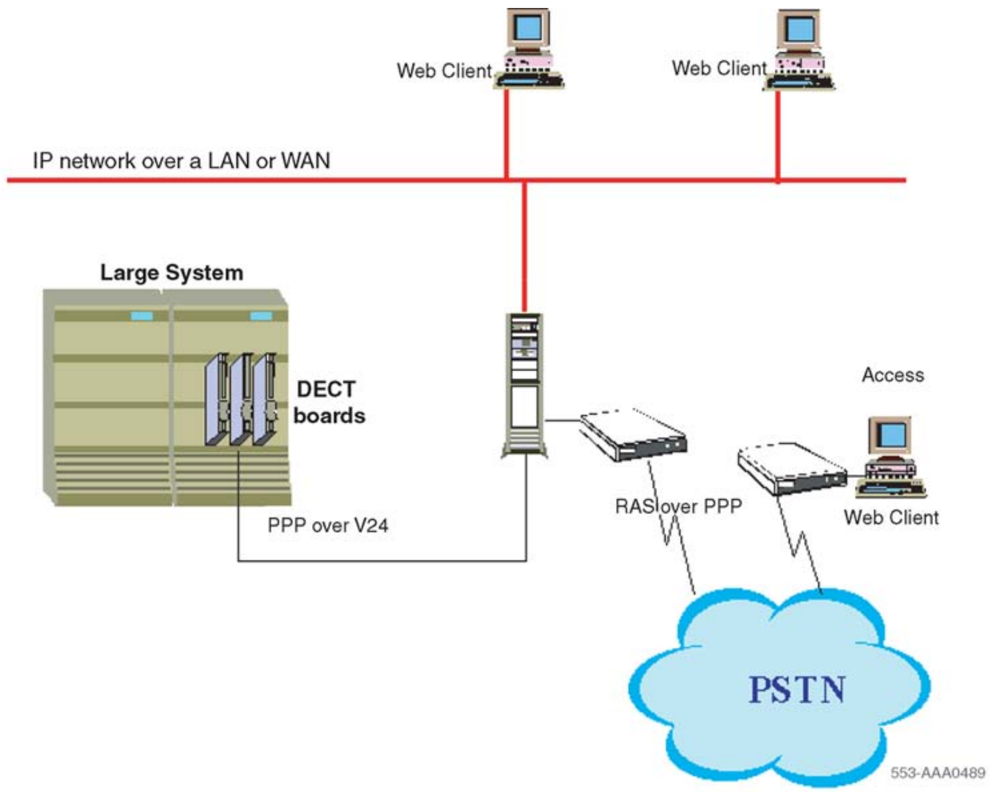


Figure 18: Local DMC DECT Manager server access to a DECT system by V.24

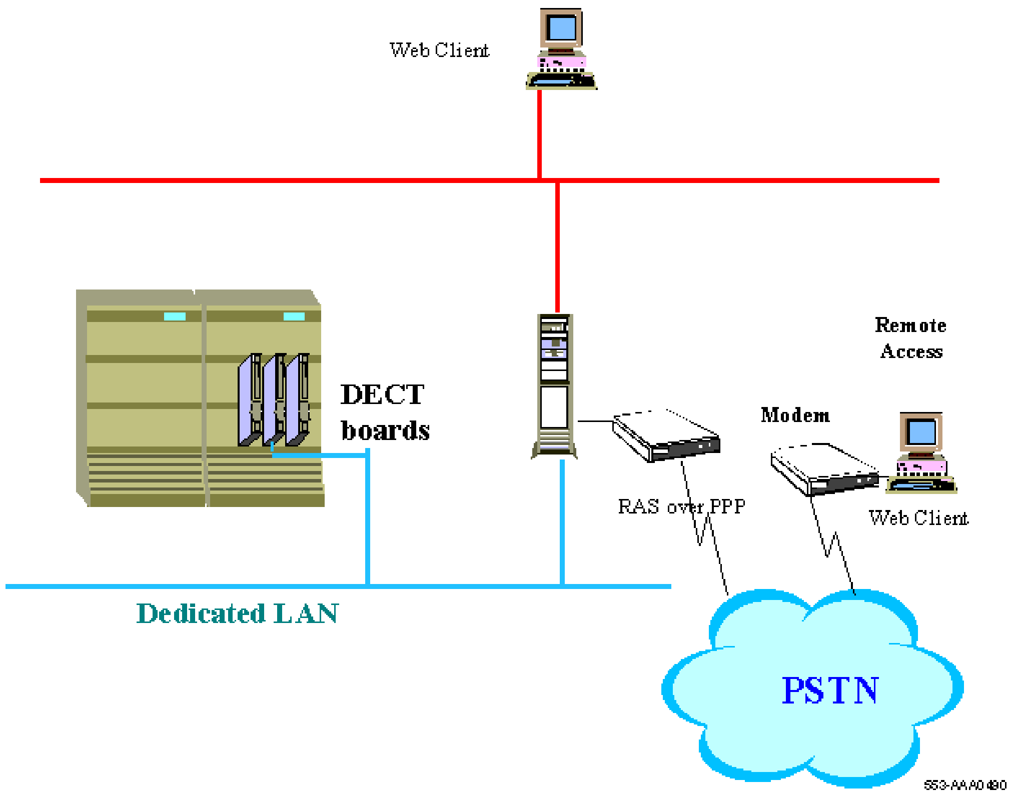


Figure 19: Local DMC DECT Manager server access to a DECT system by dedicated LAN

Multi-site Mobility Networking subscriptions

In Multi-site Mobility Networking (MSMN), users can take their DECT handsets to other sites in the network, and make and receive calls as if they were at their home location. A handset is subscribed in a given DECT system and can be used in one or many DECT systems.

For information on MSMN feature description, feature interaction, feature packaging, and operating parameters. For information on MSMN feature implementation and operation.

Every handset has a Portable Access Rights Key (PARK). Every DECT system has a Primary Access Rights Identifier (PARI), and can have a Secondary Access Rights Identifier (SARI).

The handset PARK and DECT system PARI and SARI are used by the handset and DECT system to identify each other. The PARK and PARI/SARI match allow the handset to work with a DECT system.

In an MSMN network, for example, DECT system A" has a PARI matching a handset PARK while DECT systems B," C," and D" have a SARI matching the handset PARK.

The DECT Manager user programs the SARI in the DECT system. The DECT Manager provides the PARK during the on-air subscription, and the PARK is programed into the handset at subscription time.

For example, a handset can be subscribed to a DECT system on the premises of a distributor, where the handset is not to be in operation. Then the subscription data is downloaded to a DECT system where the handset is to be in operation. The PARI, where the handset is subscribed, and the SARI, where the handset is used, are not always the same. The PARK matching the destination DECT system to the handset is provided during the on-air subscription.

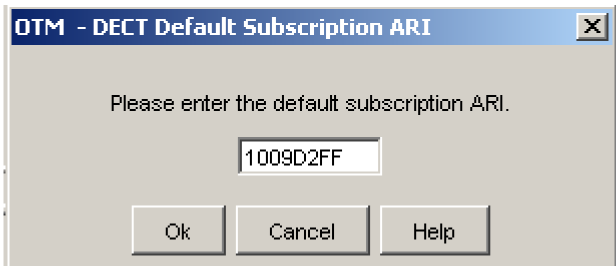


Figure 20: DECT Default Subscription ARI dialog box

The DECT Manager provides the ability to specify the ARI given to the handset, to support Multi-site Mobility Networking and Subscription on the distributor premises. The ARI normally defaults to the ARI of the system where the on-air subscription occurs. For MSMN, the default ARI must be equal to the network SARI value for any subscription activity to take place.

Multi-site Mobility Networking

Multi-site Mobility Networking (MSMN) allows a DECT handset user to make and receive calls at any MCDN node. When the handset user visits a MCDN node, the MSMN feature automatically performs the following actions:

- Detects the visiting handset when it is on.
- Forwards calls to the visiting handset from the users home node.

The Call Forward dial tone indicates when MSMN activation was not successful. Turn the handset off and on again to re-activate the MSMN feature.

The MSMN feature requires concentrated DMCs. A concentrated system has each handset configured to a Virtual TN (VTN) on phantom loops. Concentration allows up to 510 handsets to share the DMCs 32 time slots and is a blocking system. See System concentration traffic on page 37.

Operating parameters

All DMCs, either new, empty for redundancy, or used for basestation coverage, must have at least one handset configured to ensure system operation.

Call forward from a MADN handset

A MADN handset at a remote node can activate Call Forward (CFW) at the home node. When the handset shares a DN with another sets, the CFW lamp lights on the shared DN sets. If the handset is not the MARP, the shared DN MARP set can cancel call forward. If the handset is the MARP, the handset overrides any call forward that is set up from other shared DN sets.

Card audit

Card audit does not work with VTNs.

Network Message Service

The MSMN feature does not change the handling of unanswered network calls. The Meridian Mail or CallPilot network mail service does not change with multiple DNs configured against a single mailbox. The visiting DN receives the Message Waiting Indication (MWI) at the visited site.

Feature packaging

The MSMN feature requires the following packages:

- Multi-site Mobility Networking (MSMN) package 370.
- Meridian 1 Companion Option (MCMO) package 240.
- Phantom TN (PHTN) package 254.
- Meridian Companion Enhanced Capacity (MC32) package 350.
- Flexible Feature Codes (FFC) package 139.

Messaging and Alarms

DECT Messenger provides text messaging from many different sources to various output devices, including DECT handsets. Messages can be sent from the following sources:

- external alarm systems, for example nurse call, building alarms, process control
- a mechanical system
- the web or email
- a DECT handset
- contact panels, door switches etc.

It is possible to send the messages to e-mail, pagers and GSM handsets as well as to DECT handsets, either as escalations if the DECT handset is not available or in parallel.

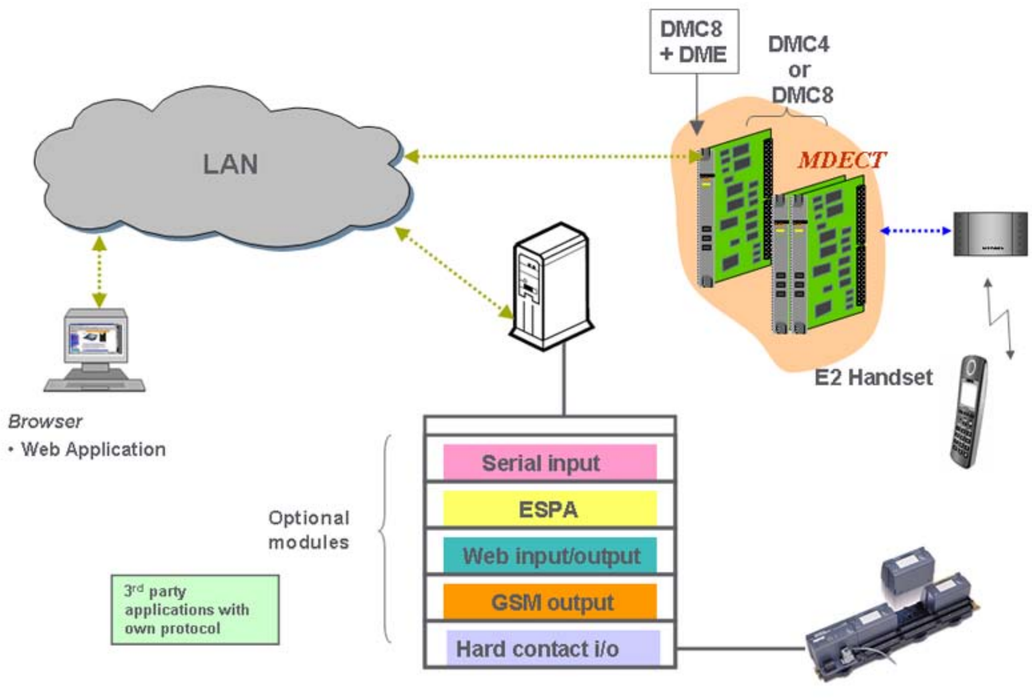


Figure 21: DECT Messager connections

Chapter 3: Engineering guidelines

Contents

This section contains information on the following topics:

System capabilities and limits

This section examines several issues surrounding DECT capabilities and limits. Information about system hardware and software parameters is also provided.

System concentration traffic

A DECT system without concentration supports a maximum number of 1024 handsets. With the concentration feature, in theory, the handset limit is 510 per DECT Mobility Card x 32 cards = 16320 handsets. However, in practice, traffic limits the number of handsets per card.

Each IPE card slot supports 32 channels of voice and data at the same time through the DS30X interface. Concentration removes the existing fixed ratio of 32 handsets per DMC.

Blocking

Calls in DECT can be blocked at many stages, including the following:

- At the basestation – when all channels (6 or 12) of an basestation are in use, calls through that basestation (both to and from a Portable Part [PP]) are rejected.
- At the Backbone interface – when the basestations of one DMC together have 32 radio connections, calls through those basestations (both to and from a handset) are rejected.

- At the IPE backplane interface – when all 32 speech channels to the DS30X interface on the a DMC8 are occupied, calls to and from handsets that have that specific DMC8 as their home DMC8 are rejected.
- At the Network interface – usually the IPE shelf connectivity is a blocking configuration, where the number of network timeslots provided for a shelf is less than the actual number of terminals configured on that shelf.

Traffic definitions

Busy hour traffic – Busy hour traffic is the hour of the day during which a telephone system carries the most calls, voice or data. The unit for busy hour traffic is the Erlang or Centi Call Second (CCS).

Erlang – One Erlang is equal to the continuous use of a circuit for one hour.

CCS – One hundred Call Seconds (CCS) or 100 seconds of continuous use of a circuit. Normally referred to as CCS per hour. For example, a call on a circuit for one hour is equal to 36 CCS. (60 minutes x 60 seconds = 3600/100 = 36 CCS)

Blocking – A condition when a telephone call does not complete, and the calling party normally hears a busy signal.

Grade of Service – Grade of Service, given as a decimal fraction, indicates the probability of call blocking. For most applications, acceptable figures for blocking are between 0.01 and 0.03.

Traffic assumptions used for table calculations

The following are traffic assumptions used for table calculations:

- A handset that always has good radio contact with a basestation assumes that the radio deployment is acceptable.
- The Grade of Service used in all calculations is 1%.
- There is little or no overlap between basestations. (In practice, there is overlap, but to apply standard traffic calculations, it is necessary to simplify the calculation). For example, two 6-channel basestations in the same cell deliver a higher traffic flow.
- Ignore radio channels for handover. The traffic calculations allocate a slightly higher traffic capability to a basestation than it can have in practice.
- Blocking occurs at three main areas: the basestations, the backplane, and the network loops. The traffic calculations only use the Erlang values where blocking occurs. For example, if there are three areas each delivering 10 Erlangs, traffic calculations take the total traffic capability as 10 Erlangs, not as 30 Erlangs. Real traffic capacity in this example is possibly more than 10 Erlangs.

- Handset handover continues without interruption.
- Handsets are distributed equally between the system DMC cards.
- All calculations are based on resident handset users. Visiting handset users have a negligible effect on traffic. In unusual circumstances where a site has a large number of visiting handset users, traffic capacity can require adjustments.

System hardware parameters

The tables in this section detail the minimum and maximum configurations for DECT with the Concentration feature.

Table 1: Minimum configuration

System type	Cabinets	DMC8	DMC8-E	Basestation	Handset
All systems	1	1	0	1 to 8††	1 to 510†
† Due to the maximum number of DCS sets per DMC card. Subject to engineering rules and constraints. †† Due to the maximum number of basestations per DMC card. Subject to engineering rules and constraints.					

Table 2: Maximum CS 1000M (Large System) configuration

System type	Cabinets	DMC8	DMC8-E	Basestation	Handset
CS 1000M	2	30	2	256††	16 320†
† Due to the maximum number of DCS sets per DMC card. Subject to engineering rules and constraints. †† Due to the maximum number of basestations per DMC card. Subject to engineering rules and constraints.					

Table 3: Maximum CS 1000E configuration

System type	Cabinets	DMC8	DMC8-E	Basestation	Handset	PRI Cards	MC32 Cards
MG 1000E Cabinet / MG 1010E Chassis (one-shelf configuration)	1	5	1	48††	3060†	1	3
MG 1000E Cabinet / MG 1010E Chassis (two-shelves configuration)	2**	11	2	104††	6630†	1	6

System type	Cabinets	DMC8	DMC8-E	Basestation	Handset	PRI Cards	MC32 Cards
MG 1000E Chassis with Expander (one-shelf configuration)	2	4	1	40††	2550†	1	2
MG 1000E Chassis with Expander (two-shelves configuration)	4**	9	2	88††	5610†	1	4
MG 1000E IPE shelf –MG XPEC (one-shelf configuration)	1	13	1	112††	7140†	0	2
MG 1000E IPE shelf –MG XPEC (two-shelves configuration)	2**	26	2	224††	14280†	0	4
** Clock synchronization with the main cabinet or MG is mandatory. ** Clock synchronization with the main cabinet or MG is mandatory. See section “Overview Avaya Communication Server 1000E” for details. † Due to the maximum number of DCS sets per DMC card. Subject to engineering rules and constraints. †† Due to the maximum number of basestations per DMC card. Subject to engineering rules and constraints.							

For CS 1000E systems (MGC based), a clock controller must be installed in the cabinet. Therefore you must install a PRI card with a NTAK20 Clock Controller Daughterboard.

A Media Gateway Card (MGC) installed in an MG 1000 chassis (with MG 1000E Expander), or an MG 1010E chassis provides 128 DSP ports. The maximum number of simultaneous calls between the trunks or lines connected to this Media Gateway, including DECT sets subscribed to DMC cards in this chassis, and any endpoints outside the Media Gateway is limited to 128.

Each DMC card supports up to 32 DSP ports. For a non-blocking call solution, the maximum number of DMC cards that can be installed in an MG 1000 / MG 1010E is limited to four. If four are not sufficient, an extra MC 32 card is required for each additional DMC card. A non-blocking solution for a DECT system requires special planning in terms of the available channels on the basestations covering certain areas as well as the distribution of DCS blocks among the DMC cards available in the system.

If a cabinet or Media Gateway has a number 9 slot, it must be provisioned with a DMC8-E card. All other cards are DMC8s.

The DECT system components have the following capacities:

- One NTCW00AB DMC8 or one NTCW01AB DMC8-E can support up to 8 basestations.
- One C4600 basestation can support 6 active calls.
- One C4610 basestation can support 12 active calls.
- One C4610E basestation can support 12 active calls.

Multiple DECT systems can co-exist in the same PBX system if they are synchronized to the same clock source. However, from a user perspective, the DECT systems are separate.

System software parameters

The software that operates the DECT system resides as firmware in the DMCs. The firmware consists of an operating program and a system database configuration. The operating program controls basestation and handset functions. The operating program also communicates with the system and the DMC DECT Manager. The system data defines hardware and hardware addressing.

The DMC8/DMC8-E with the ensuing software releases supports the following:

- Release 23 can support basic configuration, CLID and CPND, DECT card addressing within OA&M, and 16 users on each card.
- Release 24.2x can support up to 32 handsets on each card.

Release 25.xx can support up to 510 handsets with Concentration and MSMN.

The firmware on the DMCs will support CLID, but there is no official way in DECT to tell that the connected party or CLID has changed. This is a limitation to the DECT standard.

DMC8 engineering guidelines

This section describes the recommended engineering guidelines for the installation of phantom powered basestations.

The optimum capacity mix of 6-channel and 12-channel basestations is six 6-channel and two 12-channel basestations. Using three or more 12-channel basestations per DMC8 is possible but is not an efficient use of the 32 channels of the DMC8.

Avaya recommends that the 12-channel basestations be distributed over the DMC8s.

Table 4: DMC8 engineering guidelines for 6-channel RFP (basestation) and 12-channel RFP (basestation) on page 42 The following table lists engineering guidelines for various deployments of phantom-powered basestations.

Table 4: DMC8 engineering guidelines for 6-channel RFP (basestation) and 12-channel RFP (basestation)

System	Number of basestations that can be phantom powered per shelf or cabinet	Total
Large System	eight 6-channel or six 6-channel + two 12-channel @ 0.5 km	128
	seven 6-channel or five 6-channel + two 12-channel @1.0 km	112
	seven 6-channel @ 1.7 km	112
	new basestations – any mix at 1.7 km	128
Cabinet	seven 6-channel or five 6-channel + two 12-channel @ 0.5 km	70
	six 6-channel or four 6-channel + two 12-channel @1.0 km	60
	six 6-channel @ 1.7 km	60
	new basestations – any mix at 1.7 km	80
Chassis	eight 6-channel or six 6-channel + two 12-channel @ 0.5 km	32
	eight 6-channel or six 6-channel + two 12-channel @ 1.0 km	32
	eight 6-channel @ 1.7 km	32
	new basestations – any mix at 1.7 km	32
CS 1000E	eight 6-channel or six 6-channel + two 12-channel @ 0.5 km	32
	eight 6-channel or six 6-channel + two 12-channel @ 1.0 km	32
	eight 6-channel @ 1.7 km	32
	new basestations – any mix at 1.7 km	32

Using the maximum of eight basestations on a DMC8 imposes engineering restrictions on the remaining slots, as listed in Table 5: DMC8 Ordering Tool - system slot restrictions for different basestation lengths on page 42.

Table 5: DMC8 Ordering Tool - system slot restrictions for different basestation lengths

System	Basestation average line length	Required number of unoccupied slots
Large System	0.5 km	no restrictions
	1.0 km	for every 1 – 15 slots, one slot must be unoccupied

System	Basestation average line length	Required number of unoccupied slots
	1.7km	for every 1 – 6 slots, one slot must be unoccupied
Cabinet	0.5 km	for every 1 – 9 slots, one slot must be unoccupied
	1.0 km	for every 1 – 8 slots, one slot must be unoccupied
	1.7km	for every 1 – 15 slots, one slot must be unoccupied
Chassis	0.5 km	no restrictions
	1.0 km	no restrictions
	1.7km	no restrictions
CS 1000E	0.5 km	no restrictions
	1.0 km	no restrictions
	1.7km	no restrictions

Netprice Order Tool

The Netprice Order Tool makes certain approximations in provisioning DMC8. This provides a simplified configuration that meets the needs of most sites.

DECT on Large Systems

The Order Tool allows the first 80 basestations to be phantom powered. When more than 80 basestations are requested, the extra basestations are assumed to be local powered. Power adapters are provided as follows:

- C4610 AC adapters = (sum of 6-channel and 12-channel basestations) – 80
- Adapters must be purchased separately

Note:

Because it is not possible to determine how the cards are spread over the two shelves, it is assumed that there are 80 phantom powered basestations per system.

DECT on Cabinet system

The Order Tool allows the first 40 basestations to be phantom powered. When more than 40 basestations are requested, the extra basestations are assumed to be local powered. Power adapters are provided as follows:

- C4610 AC adapters = (sum of 6-channel and 12-channel basestations) – 80
- Adapters must be purchased separately

DECT on Chassis system

All basestations can be powered from the cabinet power supply.

DECT on CS 1000E

All basestations can be powered from the Media Gateway power supply.

Rules with new basestations

With the new basestations, the provisioning rules are relaxed to allow the maximum number of basestations to be provisioned for each shelf, without the requirements.

Basestation combinations for handsets on a DMC8

Low traffic for a 0.1 Erlang capacity

Table 6: Number of handsets for a 0.1 Erlang capacity on page 44 shows the 6-channel and 12-channel basestation combinations required to support a maximum number of handsets on a DMC card. The calculations are based on each handset generating 0.1 Erlangs of traffic.

Table 6: Number of handsets for a 0.1 Erlang capacity

Number of 6-channel base stations	Number of 12-channel basestations								
	0	1	2	3	4	5	6	7	8

	0	0	58	117	176	176	220	220	220	220
	1	19	77	136	195	220	220	220	220	
	2	38	97	155	214	220	220	220		
	3	57	116	174	220	220	220			
	4	76	135	194	220	220				
	5	95	154	213	220					
	6	114	173	220						
	7	133	192							
	8	152								

Medium traffic for a 0.15 Erlang capacity

Table 7: Number of handsets for a 0.15 Erlang capacity on page 45 shows the 6-channel and 12-channel basestation combinations required to support a maximum number of handsets on a DMC card. The calculations are based on each handset generating 0.15 Erlangs of traffic.

Table 7: Number of handsets for a 0.15 Erlang capacity

		Number of 12-channel basestations								
		0	1	2	3	4	5	6	7	8
	0	0	0	39	78	117	146	146	146	146
	1	12	51	91	130	146	146	146	146	
	2	25	64	103	143	146	146	146		
	3	38	77	116	146	146	146			
	4	50	90	129	146	146				
	5	30	102	146	146					
	6	76	115							
	7	89	128							
Number of 6-channel base stations	8	101								

High traffic for a 0.2 Erlang capacity

Table 8: Number of handsets for a 0.2 Erlang capacity on page 46 shows the 6-channel and 12-channel basestation combinations required to support a maximum number of handsets on a DMC card. The calculations are based on each handset generating 0.2 Erlangs of traffic.

Table 8: Number of handsets for a 0.2 Erlang capacity

		Number of 12-channel basestations								
		0	1	2	3	4	5	6	7	8
Number of 6-channel base stations	0	0	0	29	58	88	110	110	110	110
	1	9	38	68	97	110	110	110	110	
	2	19	48	77	107	110	110	110		
	3	28	58	87	110	110	110			
	4	38	67	97	110	110				
	5	47	77	106	110					
	6	57	86	110						
	7	66	96							
	8	76								

Superloop and IPE shelf calculations

Table 9: Handset capacity/DMC8 for Superloop/IPE on page 46 shows the maximum number of handset users on a DMC8 card for varying traffic levels.

Table 9: Handset capacity/DMC8 for Superloop/IPE

Superloops per IPE shelf	Low traffic 0.1 Erlang	Medium traffic 0.15 Erlang	High traffic 0.2 Erlang
2	138 handsets/DMC	92 handsets/DMC	69 handsets/DMC
1	69 handsets/DMC	46 handsets/DMC	34 handsets/DMC
0.5	34 handsets/DMC	23 handsets/DMC	17 handsets/DMC
Cabinet system	220 handsets/DMC	146 handsets/DMC	110 handsets/DMC

Note:
Superloops do not apply to Chassis systems or CS 1000E systems.

Simplified guidelines

Use Table 9: Handset capacity/DMC8 for Superloop/IPE on page 46 to calculate the superloop capacity.

Low traffic example of one superloop on each IPE shelf

- Sixty-nine (69) handsets per DMC8 card x 16 DMC8 cards per shelf = 1104 (1000)

Medium traffic example of one superloop on each IPE shelf

- Forty-six (46) handsets per DMC8 card x 16 DMC8 cards per shelf = 736 (750)

High traffic example of one superloop on each IPE shelf

- Thirty-four (34) handsets per DMC8 card x 16 DMC8 cards per shelf = 544 (500)

Chapter 4: Site planning

Contents

This section contains information on the following topics:

Overview

Site planning starts with a site survey and ends with deployment. The site survey process is an information gathering process. The information received in the site survey determines customer requirements and the number of cells required to support traffic.

Deployment is the process of locating basestations at the site. The module titled Installing the basestation on page 128 contains general information about the deployment process. This module includes information about a key piece of deployment equipment, the DECT Radio Deployment Tool. The section titled Preparing the tool for deployment on page 78 explains how to prepare equipment for deployment.

Other modules describe in detail the procedures related to deployment. These procedures vary according to site details and user requirements.

Site survey

The site survey begins by researching the customer requirements. The research identifies a variety of information such as contact names, the number of handset users, and building details.

Customer requirements

The customer must provide:

1. a site contact name and telephone number;
2. site plans;
3. building details;
4. information on available house cabling;
5. radio coverage requirements; and,
6. number of users.

On-site contact

The on-site contact provides:

1. time and date scheduling;
2. access to restricted or locked areas; and,
3. additional information when required.

Site plans

A complete set of site plans are required. Dimensions must be clearly stated on the plans.

Building details

System deployment and installation depends upon the following building details.

- Building identification
- Construction materials, such as walls, floors, ceilings
- Type of use, such as an office, hotel, factory, or store
- Dimensions
- Number of floors
- Height of floors
- Partitioning of floors

Position and use of available cabling

Cables that connect the basestation to the DECT system must meet or exceed the UTP Cat 3 standard. Avaya recommends UTP Cat 5, as it provides a greater line length before signal degradation occurs. New cabling is required if the existing cabling does not meet the standard.

Radio coverage

A basestation coverage list is required to indicate:

a areas where radio coverage is required;

b areas excluded from radio coverage due to the proximity of sensitive electronic equipment;

c areas where radio coverage is not required;

d areas where radio coverage is not feasible or requires specific basestations;

e objects inside buildings; and,

f details of furniture, cupboards, and machinery on every floor of the building

Basestation installations can be required to be out of sight. A customer can request basestations to be mounted in unsuitable locations, such as stone columns, air ducts or horizontally on the ceiling. Radio coverage cannot be guaranteed when basestations are mounted in unsuitable locations.

Know in advance where coverage is required. Some examples of coverage areas are:

- elevators
- stairwells
- toilets
- outdoor areas

Number of handset users

The following information must be available.

1. The number of handset users
2. The potential growth of handset users
3. The areas of above average and below average traffic density Number of cells required to support traffic

Traffic requirements are determined for each cell. The deployer calculates system requirements to support user traffic.

Customer review

After the site survey and before the deployment process, the person deploying the site must review coverage requirements with the customer representative. The person deploying the site must explain to the customer representative how the survey is conducted. The customer representative must tell fellow employees that a person deploying the site is taking measurements in their work place.

Site survey example

The site survey process is an information gathering process. The information received in the site survey determines customer requirements and the number of cells required to support traffic.

A normal site survey

The site survey process includes gathering:

1. Survey materials
2. Site contact information
3. Site plans or maps

4. Building information
5. Existing cable information
6. Basestation radio coverage information
7. Handset user information
8. Reviewing the work

Methods and examples for surveying more detailed sites are shown in the Detailed Site Planning section of this guide. Use one or more of the following surveying methods in the site survey:

- Single floor
- Subsequent system installation
- High handset density area
- Multiple systems installation

Site planning example: Able-Studio

This section describes a site survey for Able-Studio, a fictitious company. Follow this example to conduct the site survey.

The facts for Able-Studio

- The contact is Rolf Sundby at 555-0000. A guest lab coat is necessary to be on the site. Get this lab coat from Rolf.
- The sales representative has recommended DECT.
- The location of the user offices (and their wired telephones) often changes within the coverage area.
- Not all users have offices and desk telephones. Some users only have handsets.
- The customer does not need coverage in the toilet facility.
- The telephone switch room is next to the toilet facility.
- The customer has no installation restrictions.

The site survey process for Able-Studio

The technician must gather the following information to conduct a site survey:

1. Gather survey items on page 54
2. Identifying site contacts on page 54

3. Obtaining site plans on page 55
4. Gathering building information on page 55
5. Identifying existing cabling on page 56
6. Profiling handset use on page 57

Gather survey items

Obtain the following items before beginning the site survey. The items are not customer supplied.

- Pick up the DECT tool kit (consisting of tripod and deployment tool kit).
- Get the appropriate DECT Provisioning Record.
- Gather a pencil, an eraser, a ruler, and coloured pencils.

Identifying site contacts

Gather the following information and enter it into the work-order and the Provisioning records. The installer requires the following information.

Identifying site contacts

1. Get the company name.

   Record this information.
2. Get the company address.

   Record this information.
3. Contact name.

   Record this information.
4. Obtain the contact telephone number.

   Record this information.
5. Obtain scheduling times and date.

   Record this information.
6. Access to controlled areas.

   Record this information.
7. Obtain any keys or codes needed for secured site areas where radio coverage is required.
8. Obtain additional contact information, if required.

   Record this information.
9. Obtain any required safety equipment, such as a hard hat or safety glasses.
10. Find out if there is an another DECT system within the radio coverage area.

    Record this information.

Obtaining site plans

Obtain two scaled plans. The scale is required to check wiring distances from the controller to the basestations. The scale is in the form of a measured line so that it remains in proportion to the floor plan through reduction copiers.

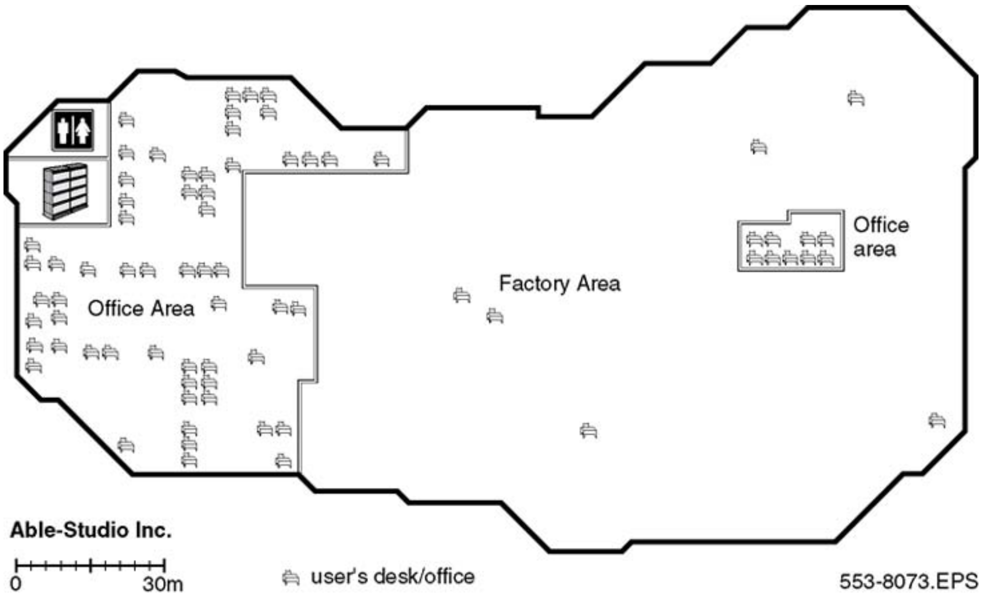


Figure 22: Example of a site coverage floor plan

Obtaining site plans

Obtain two site plans/maps, with dimensions marked.

One working copy to identify critical points, cell centres, and cell boundaries. One clean copy to attach to the site Provisioning Record for the installer, customer, or maintenance.

Gathering building information

Gather the following information and enter it into the work-order.

Gathering building information

1. Obtain building identification.

   Record this information.
2. Obtain information on construction materials, such as walls, floors, ceilings.

   Record this information.
3. Note the type of use of facilities, such as office, hotel, factory, store.

   Record this information.
4. Find the number of floors.

Record this information. If the building contains atriums, multiple floors, floors not all the same shape or any unusual conditions, see Multiple floor deployment on page 102.

5. Find the height of floors.

   Record this information.

6. Ask about the partitioning of floors.

   Record this information.

7. Discuss the details of furniture, cupboards, and machinery in the interior of buildings on every floor.

   Record this information.

8. Ask about other building details, as necessary.

   Record this information.

Identifying existing cabling

Gather the following information and enter it into the work-order.

Identifying existing cabling

1. Obtain the location of the telephone switching room.

   Determine the total length of the cable.

2. Ask about the existing cabling for basestation to MDF wiring.

   Wiring from the basestation to the shelf or cabinet must be at least UTP Cat 3. Avaya recommends UTP Cat 5, as it provides greater line length before signal degradation occurs.

3. Review the possibility of new UTP Cat 5 cabling required.

   If the cabling is not at least UTP Cat 3, have UTP Cat 5 installed.

Assessing radio coverage

Note:

If the customer requires the basestations be installed out of sight, this can reduce the coverage capability of each basestation. It can limit the performance of the system and substantially increase the cost.

Gather the following information and enter it into the work-order.

Assessing radio coverage

1. Inquire about areas where radio coverage is required.

   Record this information.

2. Ask about areas where radio coverage is not required.

   Record this information.

3. Ask about external or outdoor radio coverage.

Record this information.

4. Discuss areas where radio coverage is not feasible or requires specific basestations.

   Record this information.

5. Discuss areas excluded from radio coverage due to the proximity of sensitive electronic equipment.

   Record this information.

6. Ask about objects inside buildings that can affect radio coverage.

   Record this information.

7. Discuss unsuitable basestation locations, such as stone columns, air ducts or horizontally on the ceiling.

8. Discuss what basestations are to be installed out of sight.

   Discuss with the customer. See the preceding note.

9. Inquire about areas of special coverage, such as, elevators, stairwells, toilets.

Profiling handset use

Areas of above average traffic density can have a low number of incumbent users but many incoming users. These can include areas such as cafeterias, restaurants, canteens, and meeting room areas where handset users tend to gather.

A further example of above average traffic density is an environment where all occupants of a given area are provided with handsets. This area requires special planning.

Areas of below average traffic density are areas infrequently accessed by users, such as store rooms and maintenance areas.

Obtain the following information and enter it into the work-order.

Profiling handset users

1. Document the number of handset users.

   Record this information.

2. Get an estimate of the potential growth of handset users.

   Record this information.

3. Locate areas of above average and below average traffic density.

   Record this information. See the preceding note.

4. Determine which users have a wired telephone in their office.

   Record this information.

5. Determine the locations of user offices.

Record this information.

6. Ask about the mobility of the users. For example, do the users move from cell to cell, or is the area of movement restricted, such that the users remain within one cell?

   Record this information.

Deployment

A deployment determines the locations of basestations and cells. The deployment process consists of the following steps.

- Identifying initial critical points on the floor plan on page 58.
- Locating cell centres on page 59.
- Determining cell boundaries on page 61.
- Identifying critical points and cell boundaries on page 62.
- Marking the points, centres, and boundaries on the floor plan on page 63.

Identifying initial critical points on the floor plan

A critical point is a place that can be difficult for the radio signal to reach, such as a corner of a room, lifts and stairwells. Initial critical points are shown in Figure 23: Critical points on page 59 as P1, P2, P3, and P4.

Figure 23: Critical points on page 59 shows the following:

- stairwell
- second floor plan

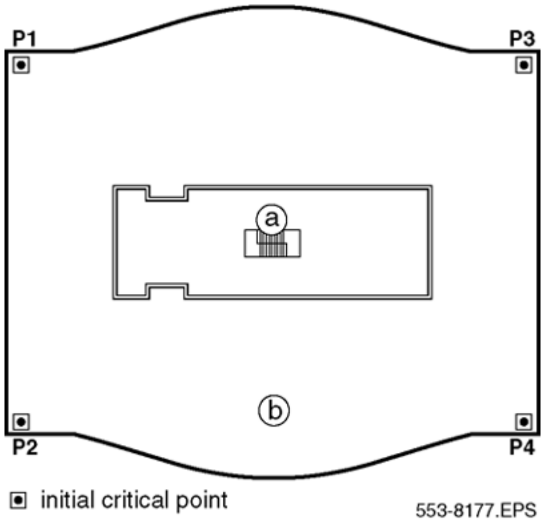


Figure 23: Critical points

Locating cell centres

Figure 24: Cell centres on page 60 shows the following:

- stairwell
- second floor plan

A cell centre is located by placing the deployment tool at one critical point, for example P1, then using the deployment handset to obtain a change in audio quality. The audio quality change determines the cell boundary contour. This process is repeated at an adjacent critical point, for example P2. Where the cell boundaries of both critical points meet is the cell centre. The cell centre position is marked on a floor plan. The cell centre determines the location of a basestation, shown in Figure 24: Cell centres on page 60, as arc 2C1.

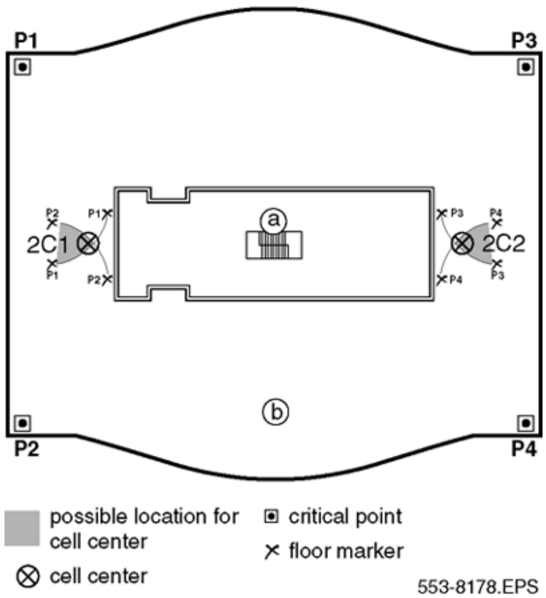


Figure 24: Cell centres

Rules and guidelines for selecting cell centres

Comply with the following when selecting cell centres.

- Ensure that the installation complies with local electrical codes.
- Install basestations indoors where there is no condensation and the temperature remains between 0°C and 50°C.
- Install basestations within 1500 metres of the MDF. Wiring from the basestation to the shelf or cabinet must be at least UTP Cat 3. Avaya recommends UTP Cat 5, as it provides a greater line length before signal degradation occurs.
- Position basestations upright on walls. Basestations must be at least 30 centimeters from the ceiling.
- Position basestations at least 1 m from large concrete or stone columns and from any major building structural members such as support beams or columns.
- Position the basestations high enough to clear obstructions between the basestations and the cell edge close to the ceiling.
- Mount the basestations clear of obstacles such as pipes or ducts.
- Do not install basestations in spaces that transport air, such as ducts or plenums.
- Do not mount basestations on the ceiling.

Determining cell boundaries

A specific RSSI value on the handset defines the cell boundary range. Links can be made outside the cell boundary but the audio quality of the link is poor. The link drops when the handset and the basestation are too far apart.

As shown in Figure 25: Cell boundary terminology on page 61, the cell boundary is the furthest point from the cell centre where a clear radio signal can be heard.

The range from the cell centre to the cell boundary, or the distance to a potential cell centre from a critical point, is determined by using the cell boundary value and the deployment tool.

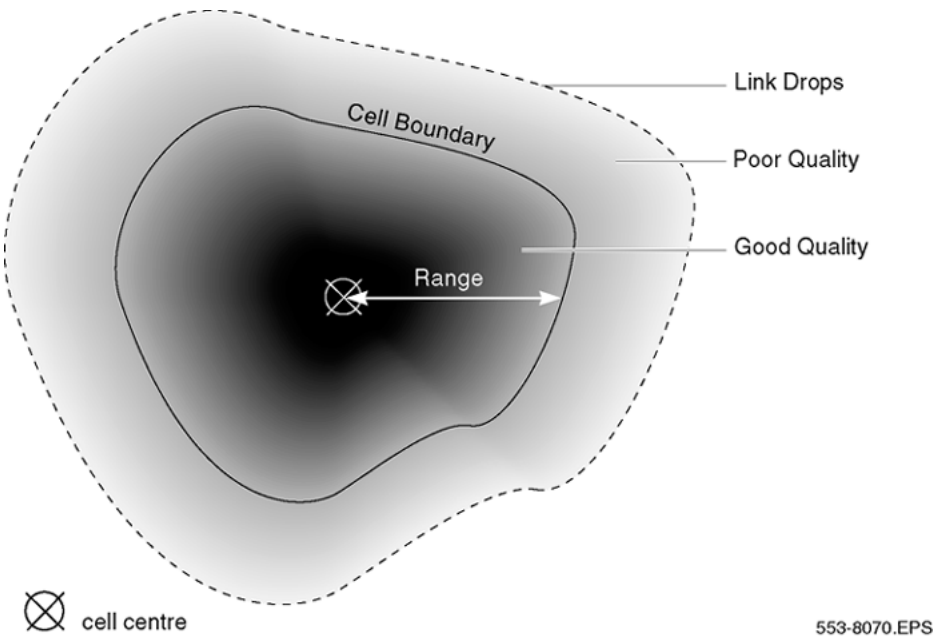


Figure 25: Cell boundary terminology

Figure 26: Cell boundaries on page 62 shows the following:

A cell boundary for the cell centre is determined by placing the deployment tool at the cell centre, for example 2C1, and using the deployment handset to establish the cell boundary. The cell boundary contour is marked on the floor plan, and shown in Figure 26: Cell boundaries on page 62 by a dash-dot line.

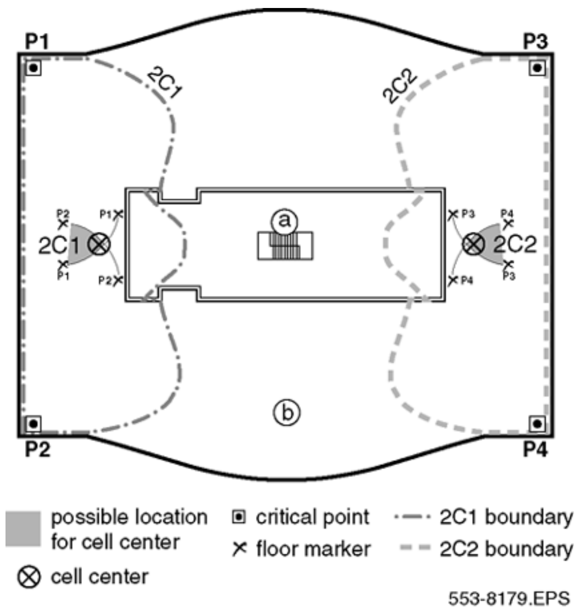


Figure 26: Cell boundaries

Identifying critical points and cell boundaries

Figure 27: Additional critical points and cell boundaries on page 63 shows the following:

- stairwell
- second floor plan

Additional critical points, shown in Figure 27: Additional critical points and cell boundaries on page 63 as P5, P6, P7, and P8, are identified to ensure basestation radio coverage for the entire area.

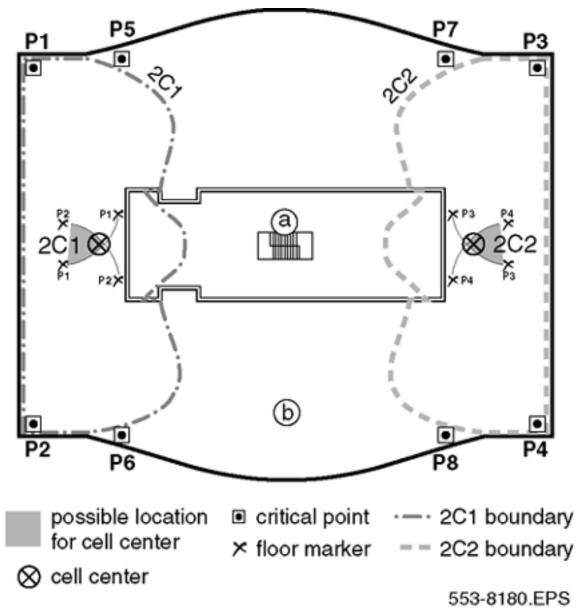


Figure 27: Additional critical points and cell boundaries

Marking the points, centres, and boundaries on the floor plan

This section describes how to label critical points, cell centres, and cell boundaries on the floor plan.

Mark the information clearly on the floor plans during the survey. The customer, the sales group, the installer, and maintenance personnel must read these floor plans.

Use a different colour for each cell. Use the same colour for each cell centre and its corresponding cell boundaries. Indicate the information on the floor plan as follows:

- critical points – mark the following on the floor plan:

  Figure 28: Critical point marker

- cell centres – mark the following on the floor plan:

  Figure 29: Cell centres marker

- cell centre - label each as xCn where x is the floor and n is the next sequential cell centre.
- cell boundaries – mark wide, coloured lines on the floor plan.

For example, label a cell centre on the second floor as 2C3. The 2 before the C indicates that the cell centre is on the second floor. The 3 after the C indicates that this cell is the third cell in sequence in the site planning process.

Table 10: Example cell labels

Floor	Cell label
First floor	2C1, 2C2, 2C3
Ground floor	1C1, 1C2, 1C3
Basement level one	–1C1, –1C2, –1C3
Basement level two	–2C1, –2C2, –2C3

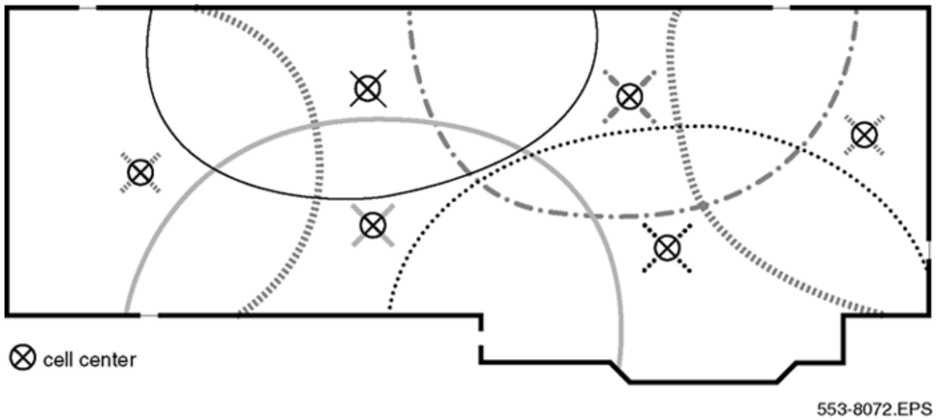


Figure 30: Example cell boundaries

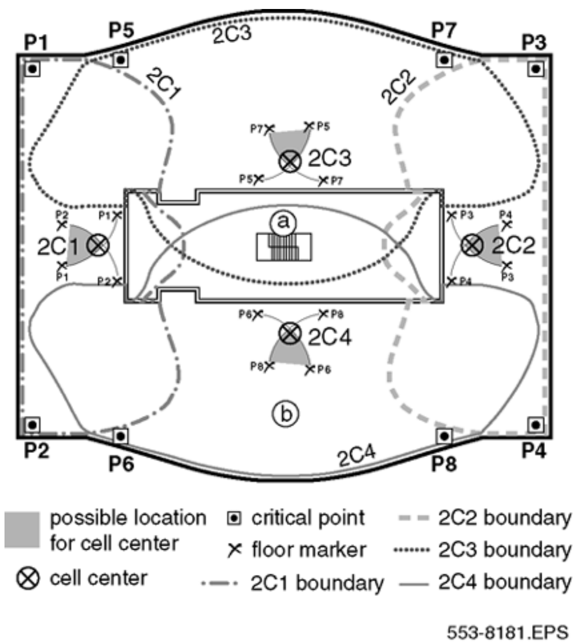


Figure 31: Points, centres, and boundaries on the floor plan

Figure 31: Points, centres, and boundaries on the floor plan on page 65 shows a typical floor plan marked-up after determining subsequent cell boundaries. The completed floor plan would appear as follows:

- Initial critical points are shown at P1, P2, P3, and P4.
- Cell centres are located where arcs from P1/P2, P3/P4 intersect.
- 2C1 and 2C2 show cell centres or basestation locations.
- Dashed and dotted lines show cell boundaries.
- Additional critical points are shown at P5 P6 P7 P8.
- 2C3 and 2C4 cell centres provide full coverage of the floor.

Two copies of the floor plan are required. One copy is used during the site planning. The second copy is marked with the information from the site planning copy and attached to Provisioning records on page 125 for the installer.

Deployment illustrations

The illustrations in this section represent the deployment process from start to finish.

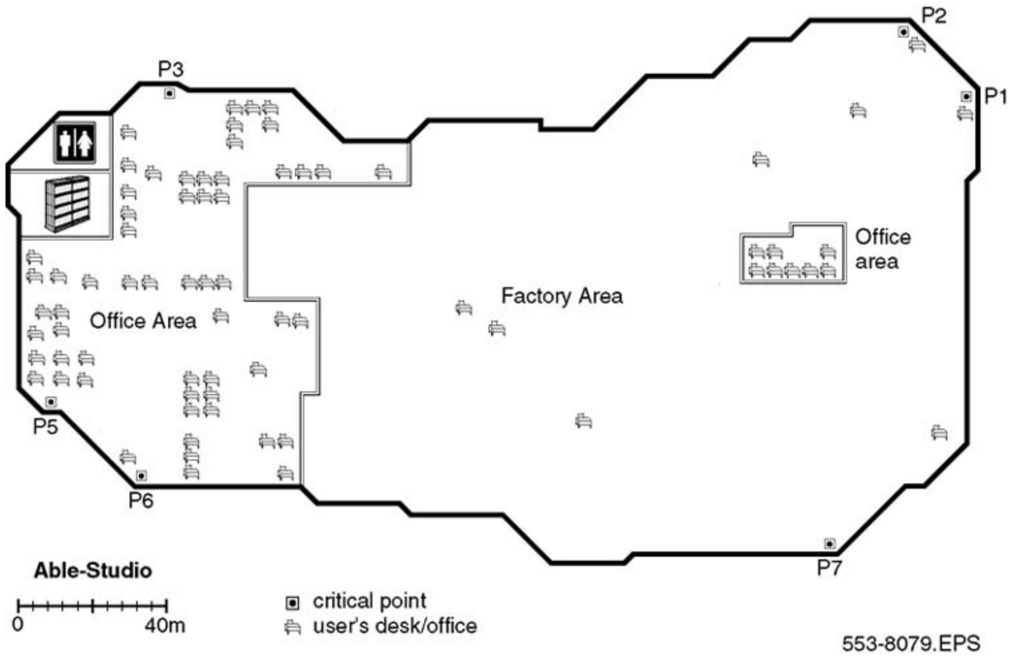


Figure 32: Example of initial critical points

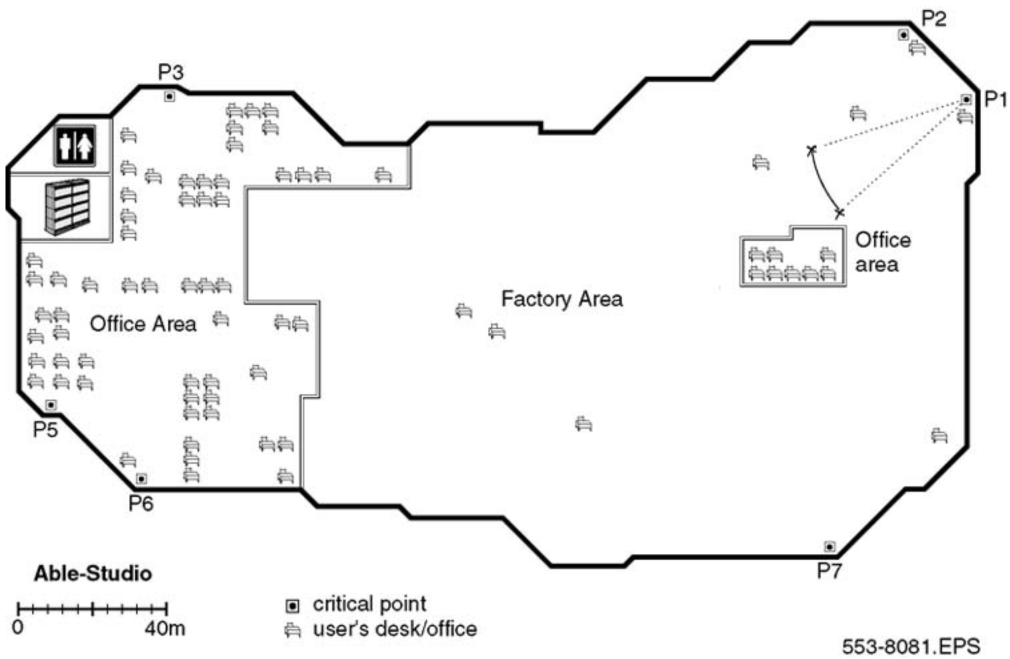


Figure 33: Cell contour of the initial critical point

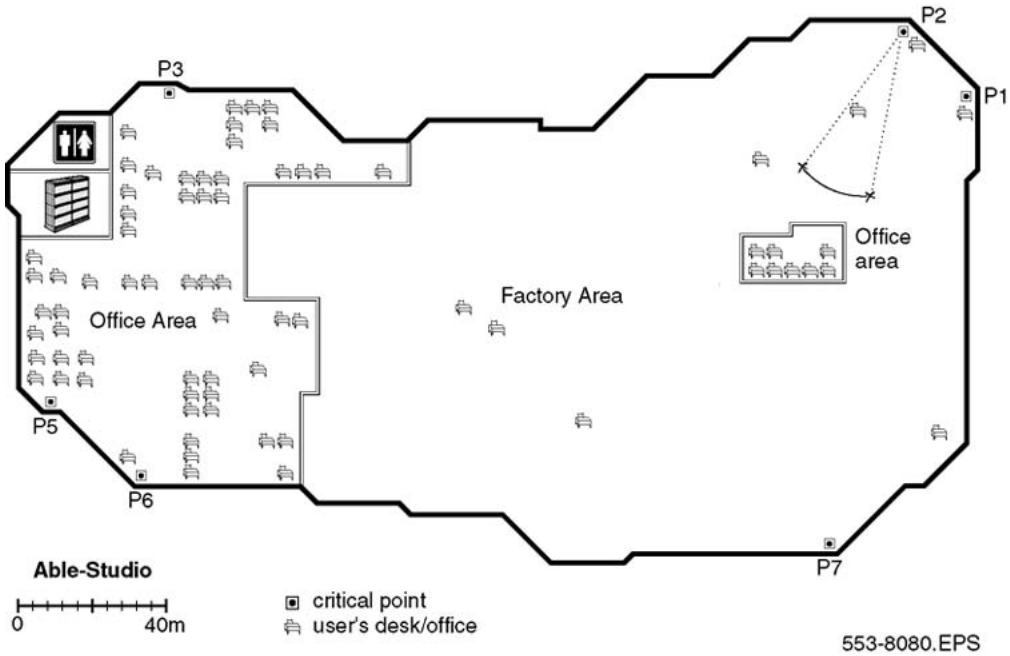


Figure 34: Cell contour of the closest adjacent critical point to the initial critical point

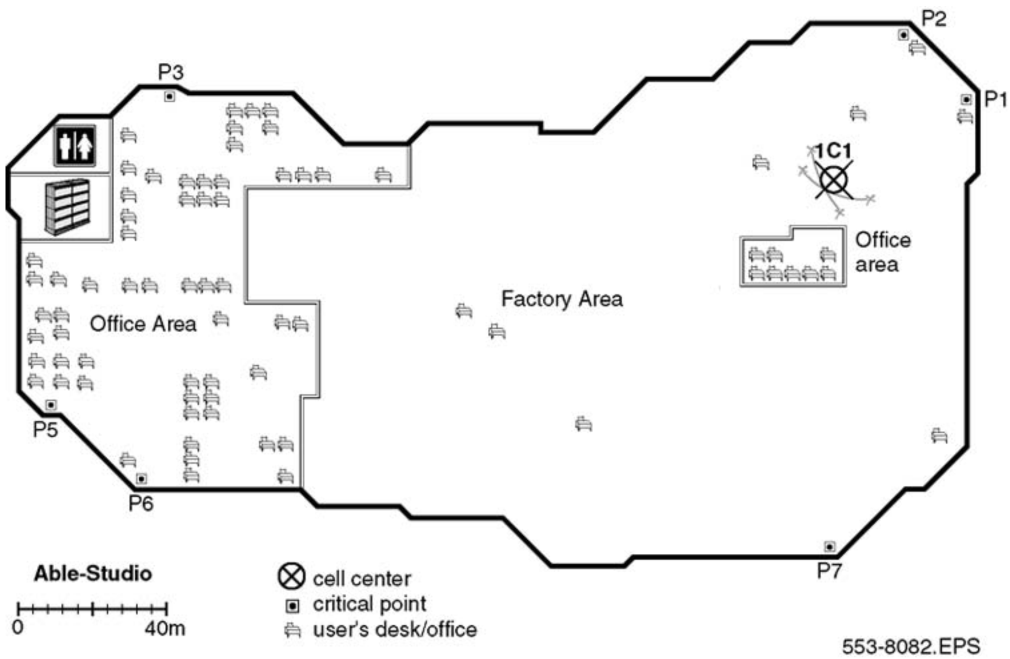


Figure 35: Example of a cell centre

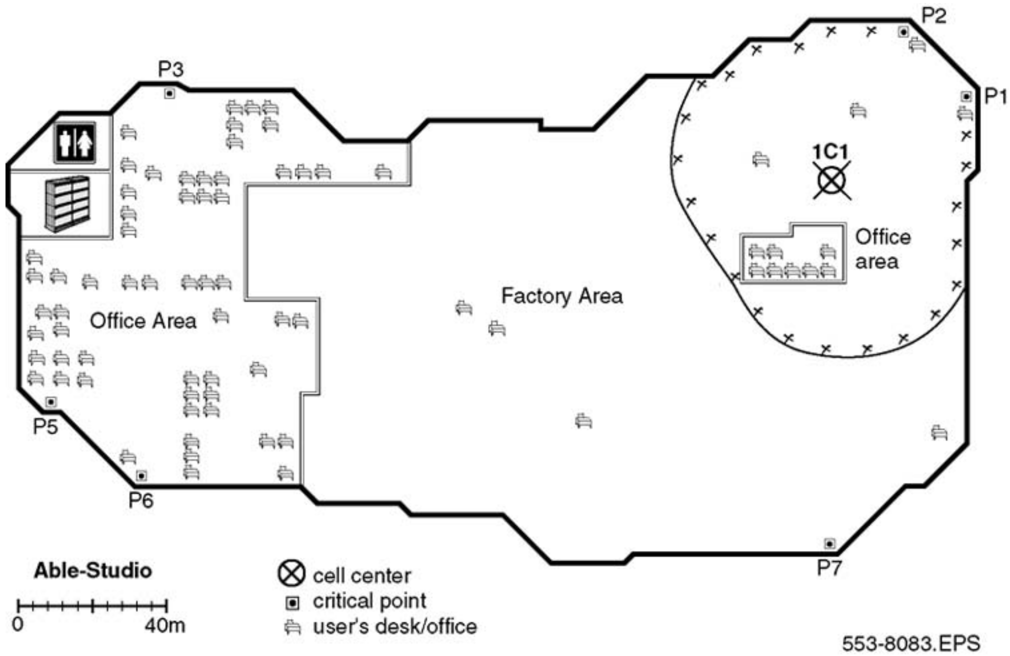


Figure 36: Example of a cell centre boundary

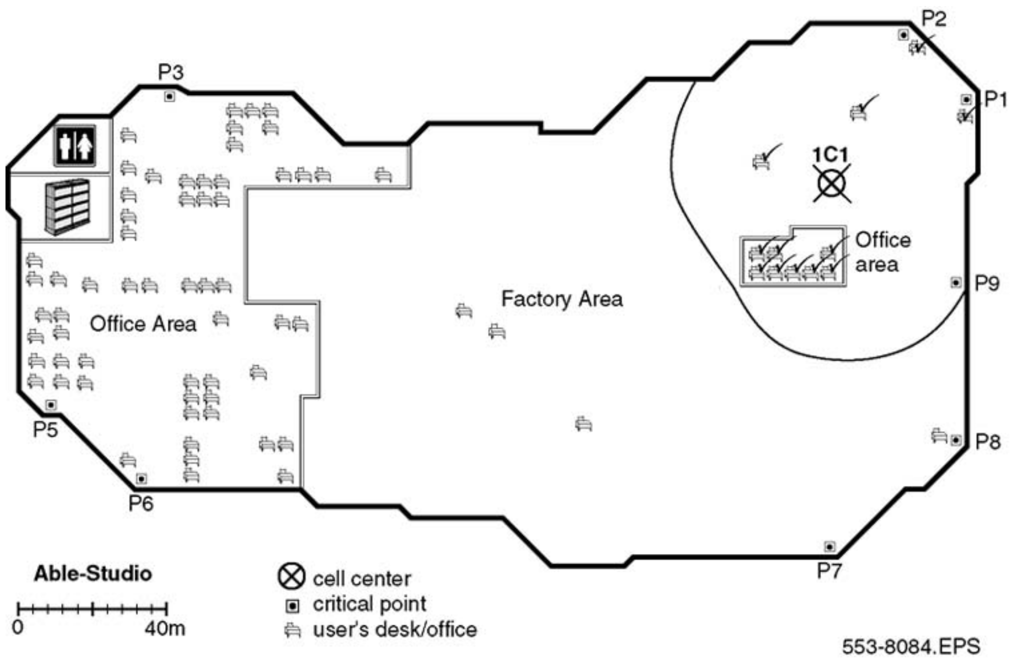


Figure 37: Example of new critical points (P8 and P9)

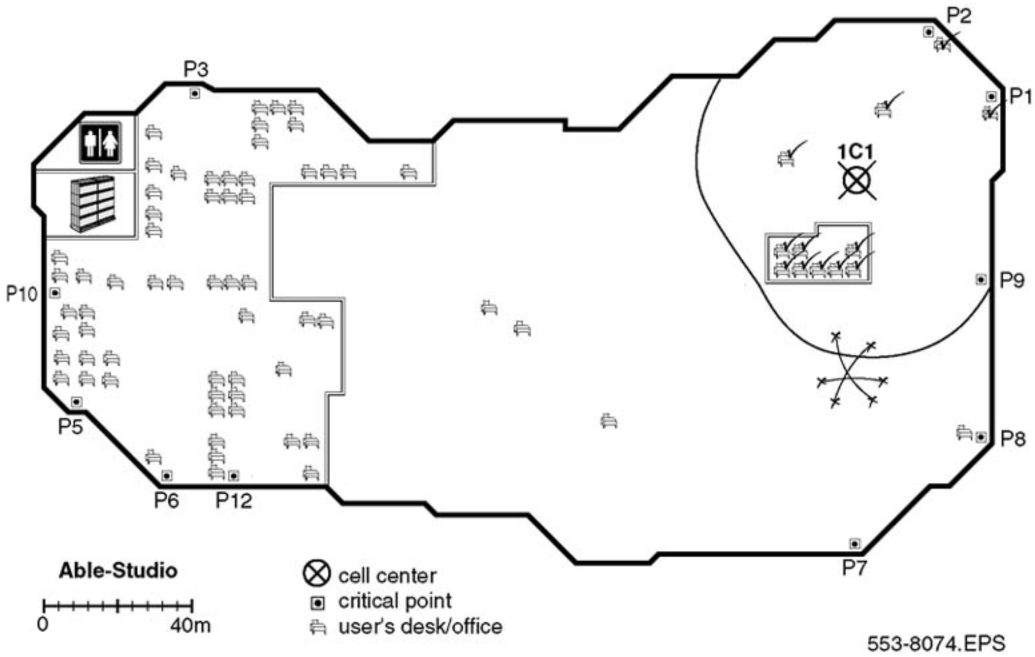


Figure 38: Example of deployment for cell centre 1C2

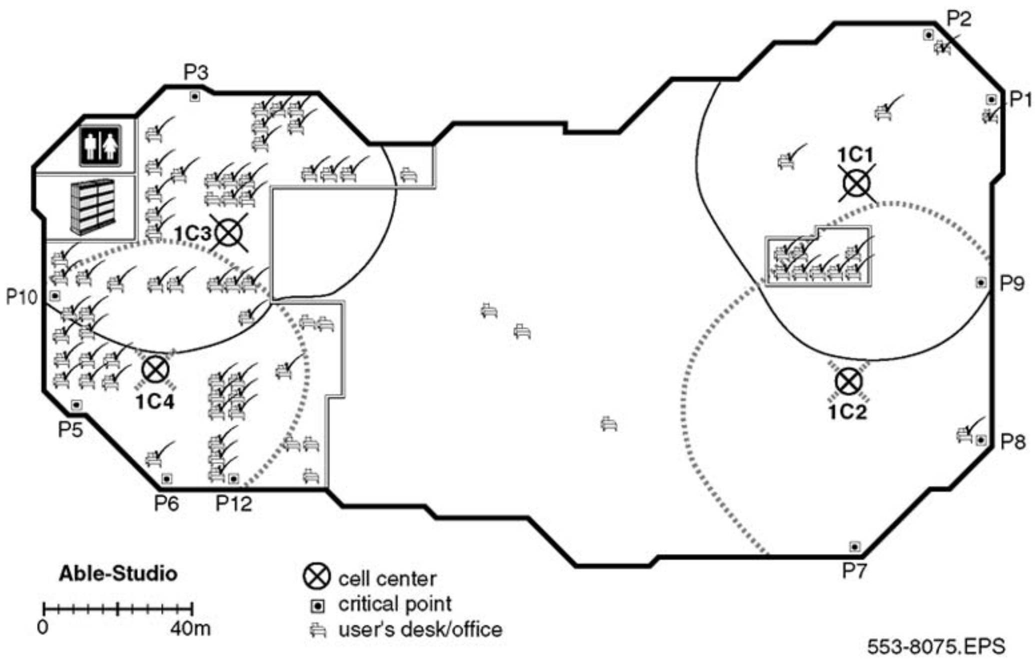


Figure 39: Example of deployment for cells 1C3 and 1C4

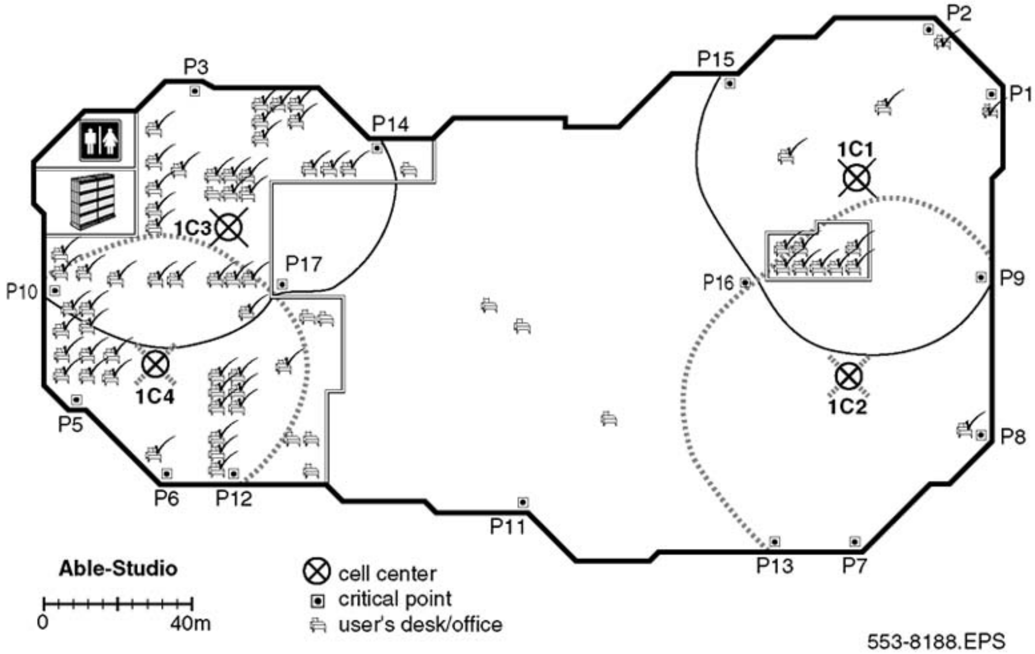


Figure 40: Identify new critical points (P11, P12, P13, P14, P15, P16, P17)

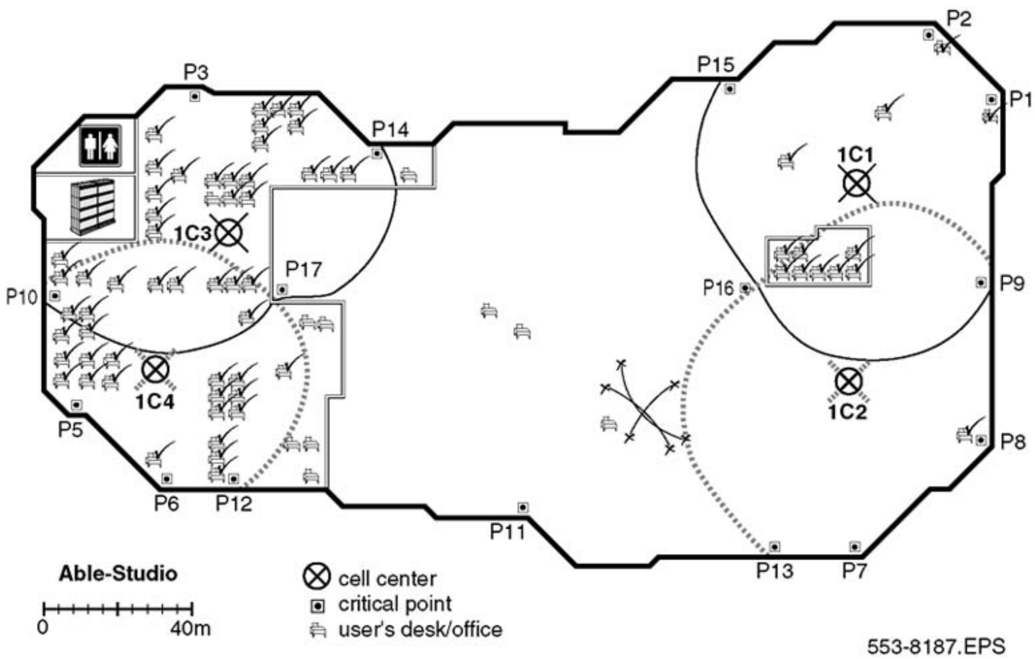


Figure 41: Contours formed by critical points P11, P13 and P16

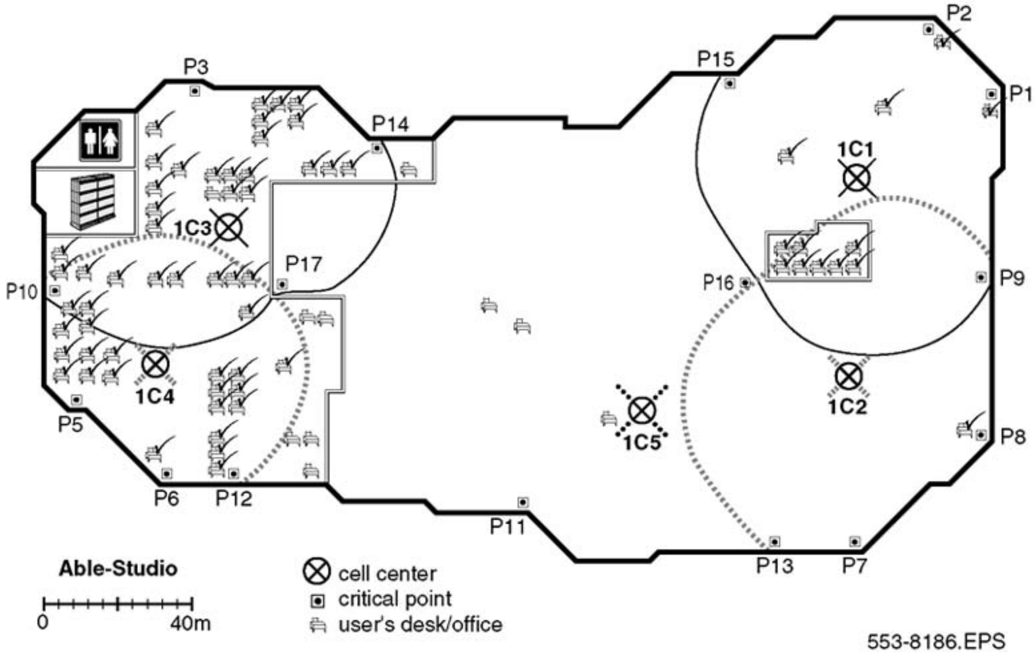


Figure 42: Cell centre 1C5 formed by critical points P11, P13 and P16

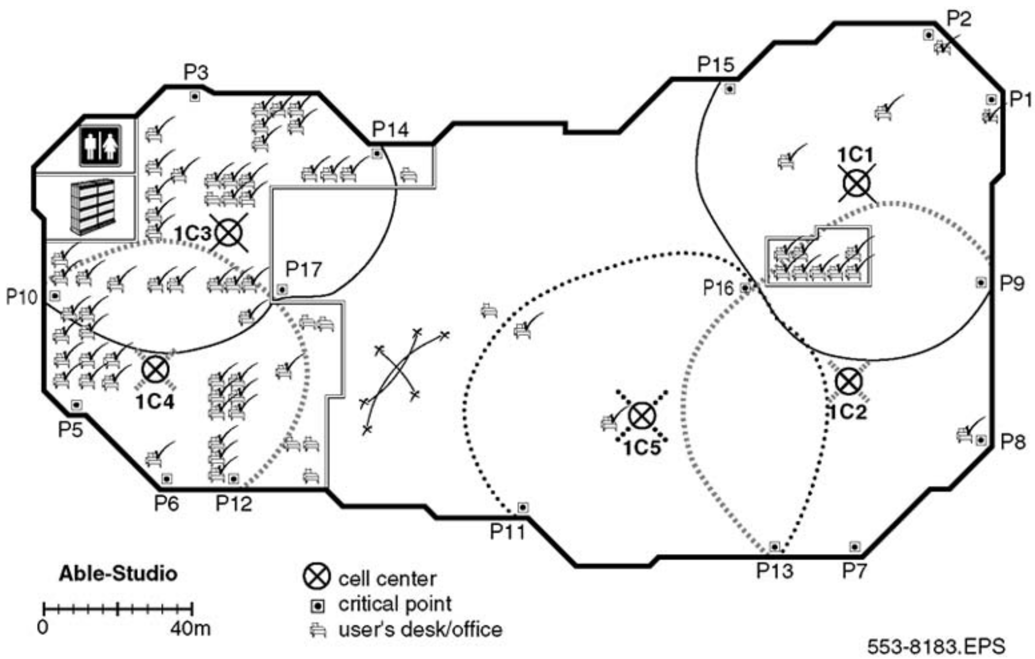


Figure 43: Cell boundary 1C5 formed by critical points P11, P13 and P16

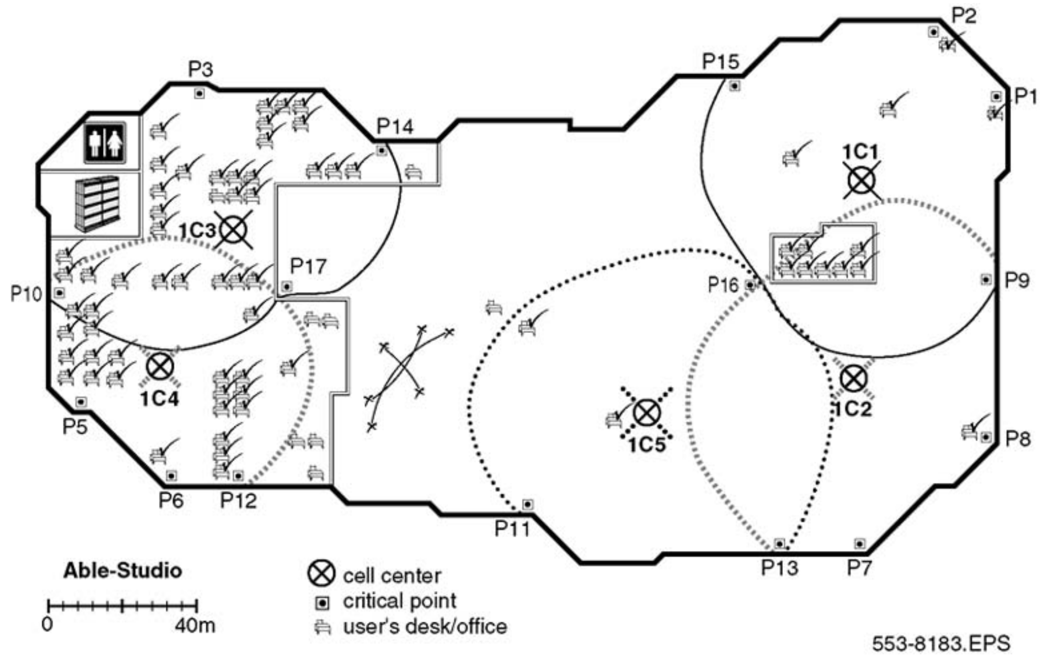


Figure 44: Example of critical point cell boundaries

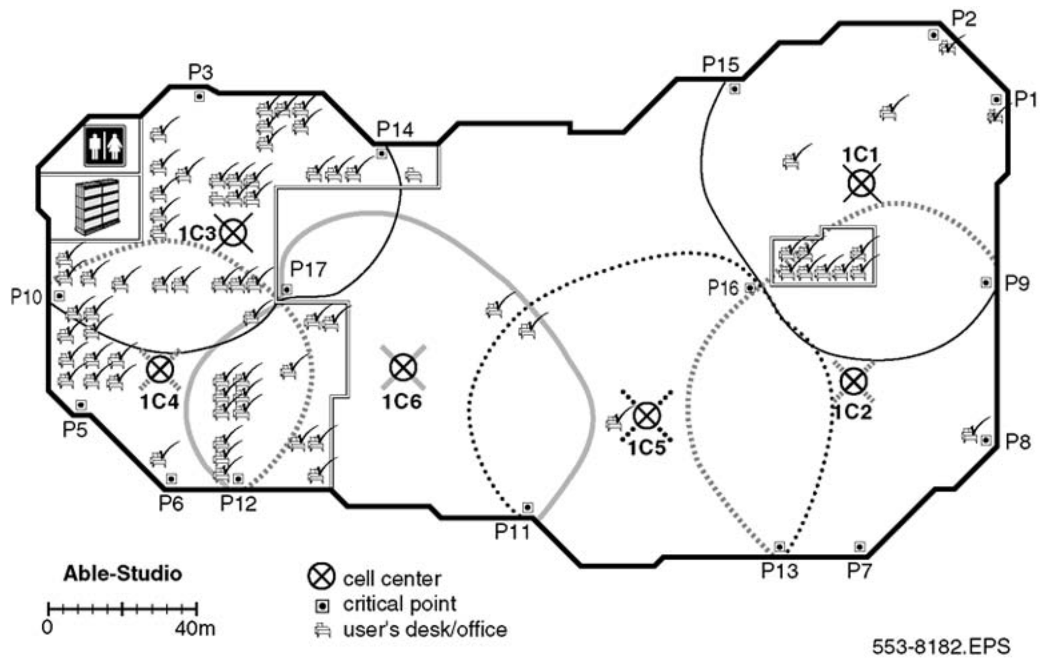


Figure 45: Example of cell centre boundary 1C6

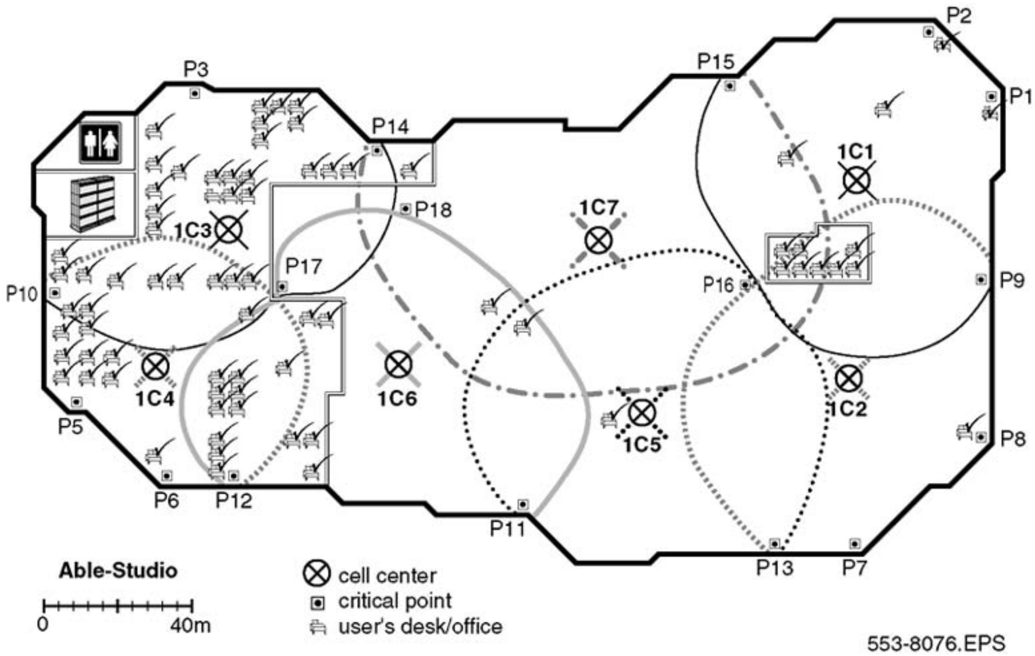


Figure 46: Example of a floor plan showing complete radio coverage

Deployment terms

Terms associated with deployment are listed in the following table.

Table 11: Deployment terms

Term	Definition
Coverage area	An area where a handset can be used to make and receive calls.
Cell	The coverage area provided by the basestation antennas.
Cell boundary	The parameter of a cell coverage area.
Critical point	A point or location defined as the extreme corner of a coverage area that can be difficult for the radio signal to reach.
Cell centre	The installation point of the basestation serving the cell.
Range	The distance from a cell centre to its cell boundary.
Traffic table	Traffic tables record site traffic information from the floor plan and the customer. The traffic table helps to determine the required number of basestations for each cell.

The following figure illustrates these terms.

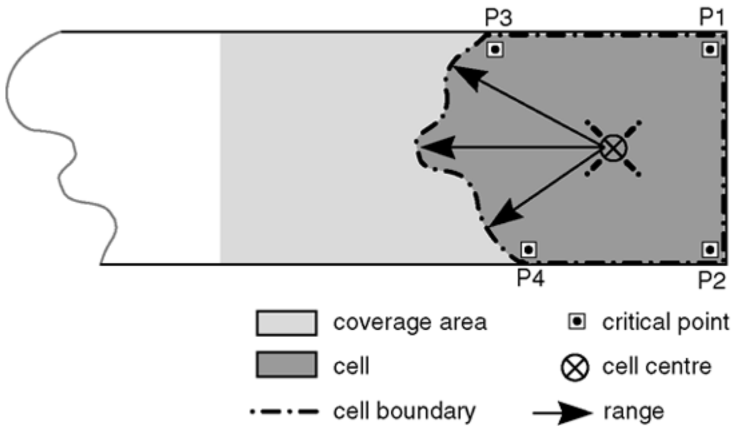


Figure 47: Example showing deployment terms

Coverage terms

The terms used in this guide are described in Table 12: Coverage terms on page 75 and illustrated in Coverage terms.

Table 12: Coverage terms

Term	Definition
Estimated number of handsets	The average number of handsets expected in a particular cell.
Cell	The coverage area provided by a basestation.
Cell boundary	The edge of a cell showing the cell coverage area.
Cell centre	The place where all the basestations are installed.
DECT Radio Deployment Tool	The tool used to determine the radio range of a basestation.
Critical point	A point or location defined as an outer corner of a coverage area, or points that can be difficult for the radio signal to reach.
Coverage area	The area defined by the customer in which a handset user can expect to be able to make and receive calls.
Link	When a handset and a basestation are in radio communication with each other.
Range	The distance from a cell centre to the cell boundary.
Office	The location where a handset user spends the majority of their day.

Term	Definition
Traffic table	Traffic tables record site traffic information from the floor plan and the customer. The traffic table helps to determine the required number of basestations for each cell.

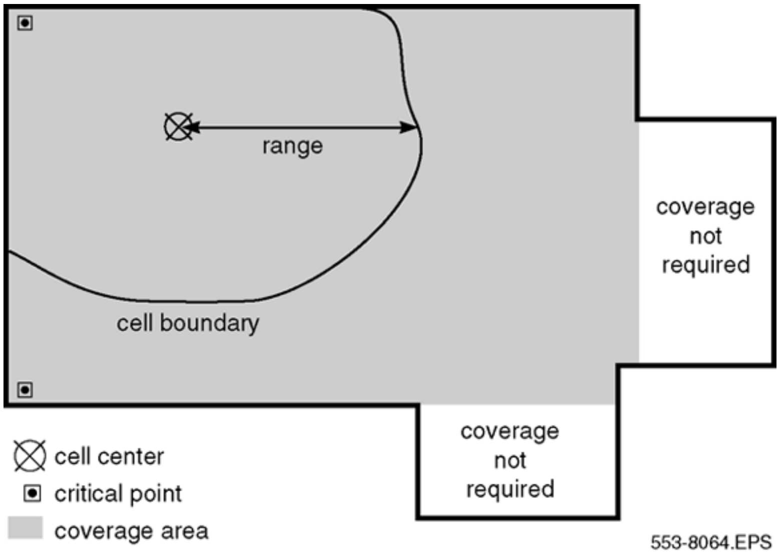


Figure 48: Coverage terms

Deployment tool

The DECT Deployment Tool (deployment tool) determines cell centres and cell boundaries. See Figure 57: Deployment Kit 2 and carrying case on page 88 and Figure 58: Assembled Deployment Kit 2 and DeTeWe handsets on page 90.

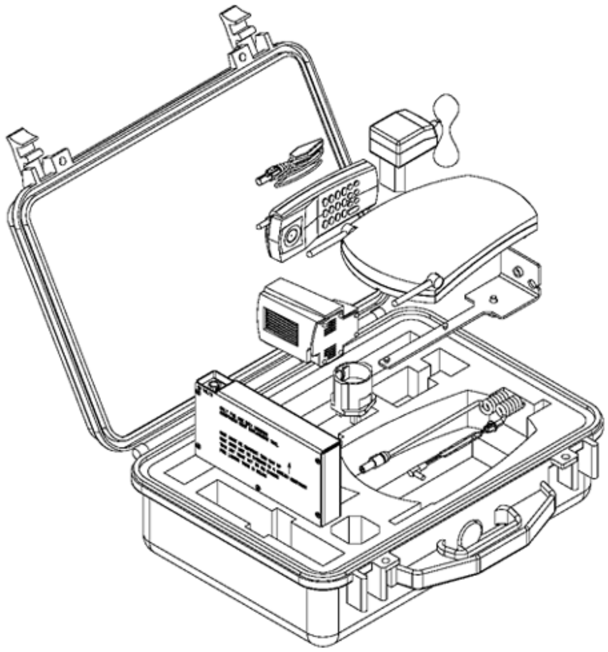


Figure 49: Deployment tool carrying case and packing details

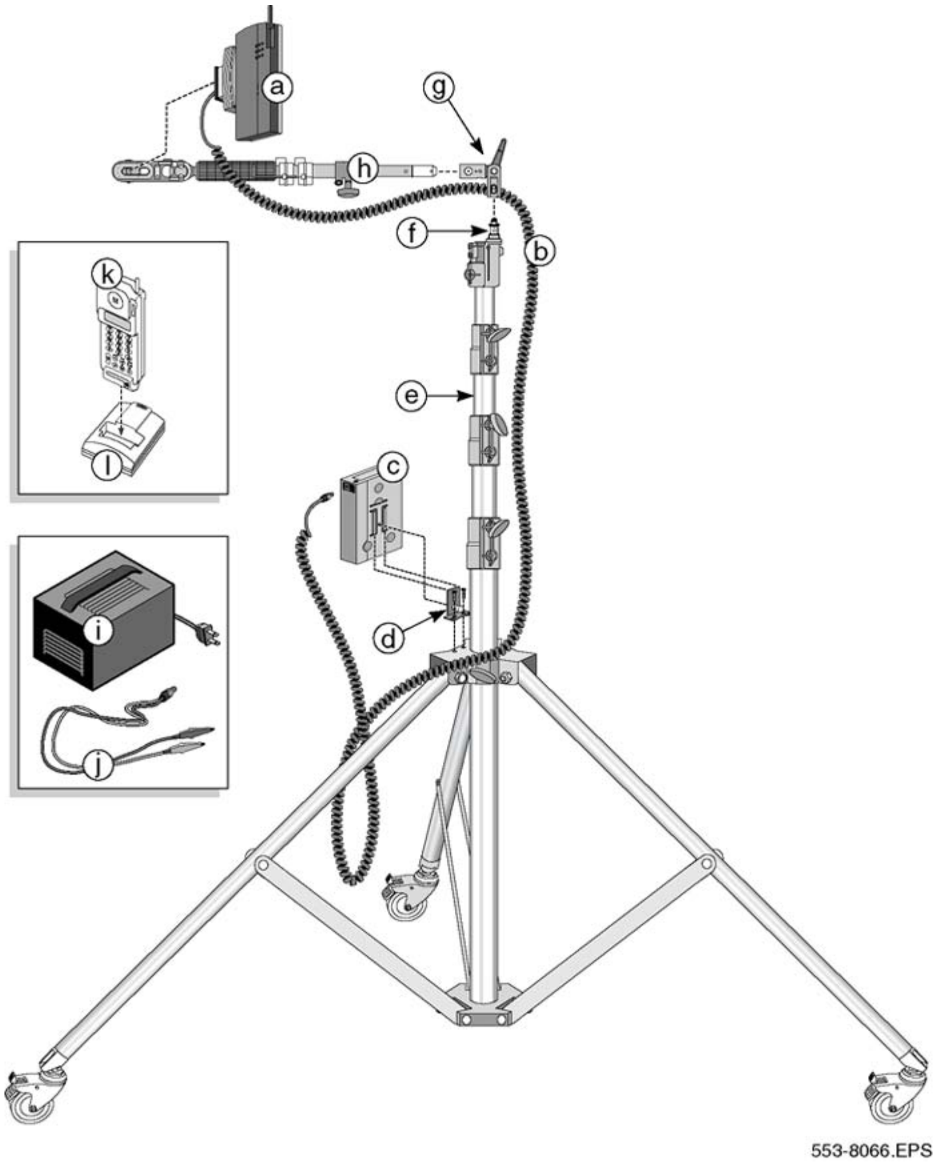


Figure 50: Assembled deployment tool

Preparing the tool for deployment

Preparing the tool for deployment involves:

1. Charging the deployment tool battery on page 79
2. Charging the deployment handset battery on page 80
3. Assembling the deployment tool on page 81
4. Testing the deployment handset on page 84

Charging the deployment tool battery

Charge the deployment tool battery for at least six hours before using.

Caution:

Equipment Damage

Use the Avaya battery charger. This charger is a separately ordered item. Failure to use an automatic shut-off battery charger can damage the battery.

Do not use the battery supplied with the CT2 deployment tool. The CT2 and DECT batteries are not interchangeable.

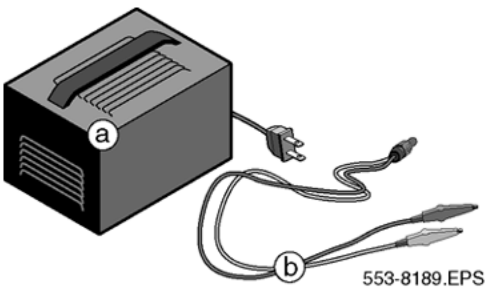


Figure 51: Deployment tool battery charger

Table 13: Deployment tool battery charger key

a	battery charger (must be ordered separately)
b	battery charger cable

Charging the deployment tool battery

1. Set up the deployment tool battery charging equipment.

   Remove the deployment tool battery, charger, and charger cord from the yellow case.
2. Charge the deployment tool battery.

   Connect the charger cord plug into the battery. Connect the red alligator clip to the positive lead of the charger, and the black clip to the negative lead of the charger. Connect the battery charger to the AC mains.
3. Remove the deployment tool battery from the charger after it is charged.

   The battery must charge for at least six hours.

Charging the deployment handset battery

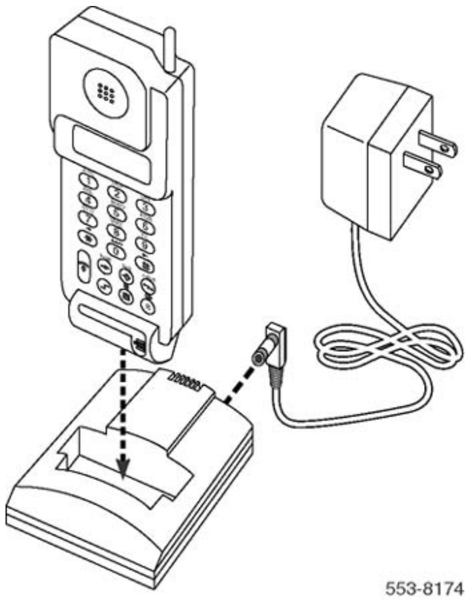


Figure 52: Deployment handset battery charger

Charging time

Charge the deployment handset battery for at least 12 hours before using the first time. Charge the handset at least six hours before any subsequent use.

Charging the deployment handset battery

1. Set up the deployment handset battery charging equipment.

   Remove the deployment handset battery, charger and charger cord from the yellow case.

2. Charge the deployment tool battery.

   Connect the charger cord to the charging stand. Connect the charger cord to the AC mains. Place the handset into the charging stand. The red LED flashes while the handset is charging.

3. Remove the handset from the charger when it is ready for use.

Assembling the deployment tool

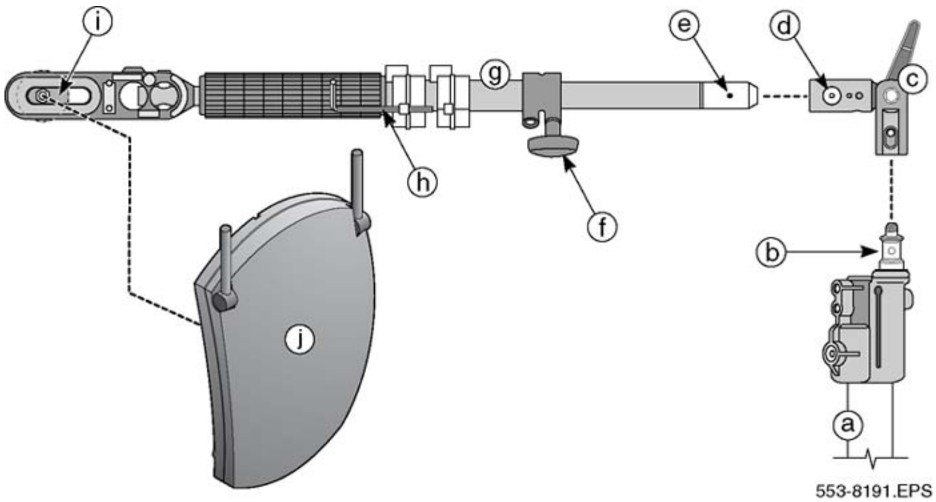


Figure 53: Deployment tool extension details

Table 14: Key for Assembling the deployment tool

a	adjustable tripod
b	extender arm connector
c	extender arm swivel
d	detente stop
e	detente
f	extension thumb screw
g	telescopic extension
h	Allen key
i	basestation attaching thumb screw
j	basestation

Note:

The deployment tool battery and the deployment handset battery must be charged for at least six hours before use.

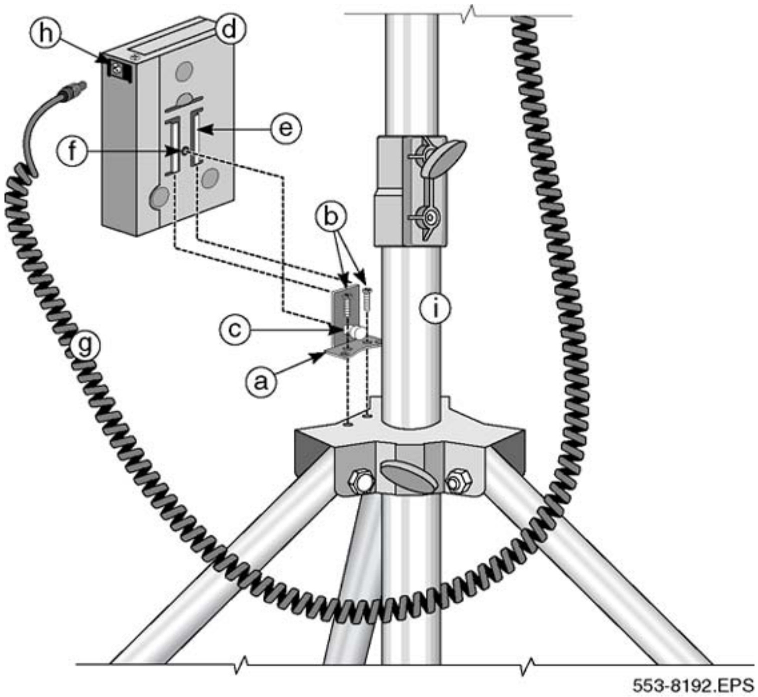


Figure 54: Deployment tool battery details

Table 15: Deployment tool battery details key

a	battery mount
b	Allen screws
c	thumb screw
d	battery pack
e	guides
f	thumb screw nut
g	power cord
h	power cord receptacle
i	tripod

Assembling the deployment tool

1. Set up the tripod.

   Remove the tripod from its carrying case and set upright. Lock the casters.
2. If required, install the extension arm fitting on the tripod. If not required, go to step 4.

   Place the extension arm fitting, shown in Figure 57: Deployment Kit 2 and carrying case on page 88, onto the brass fitting on the top of the tripod.

3. If required, secure the extension arm fitting.

   Use the Allen key attached to the extender arm to secure the extension arm fitting Allen screw.

4. Mount the extension arm on the tripod.

   Place the brass end of the extension arm into the fitting, so that the keying hole of the extension arm mates with the retaining thump screw locking device of the tripod fitting. The thumb screw locking device clicks into the keying hole of the extension arm.

5. Position the extension arm.

   Orient the arm into the proper position. Secure the tripod fitting and the extension arm thumb screw.

6. Affix the basestation to the extension arm.

   Remove the basestation from the yellow case. Mount the basestation onto the end of the arm. Screw the brass thumb screw on the arm into the bottom of the basestation and secure it in place with the grey lock thumb screw.

7. Position the antenna.

   Rotate the antenna from its stowed position, against the body of the basestation, to its upright operating position.

8. Position the basestation. The normal position is with the antenna pointing upwards.

   Secure the basestation with the arm thumb screw.

9. Mount the battery fixture on the tripod.

   Remove the battery bracket, shown in Figure 54: Deployment tool battery details on page 82, from the yellow case. Screw the battery bracket onto the tripod caster brace, with the two machine screws.

10. Mount the battery.

    Pull the release pin on the bracket back and slide the battery grooves on to the bracket. Ensure the bracket pin locks into the battery.

11. Connect the basestation to the battery.

    Plug the basestation power cord connector into the upper right edge of the battery.

Testing the deployment handset

Figure 55: Handset display and keypad details

Testing the deployment tool handset

1. Start the test and establish a link with the basestation.

   Remove the handset from its charger.
2. Turn on the handset.

   Press the shift key and press the ON/OFF button. The handset displays DECT HANDSET.

   
3. Select system mode.

   Press the shift key and press the local key. The handset displays SYSTEM.
4. Select the monitor mode.

   Press the star key. The handset displays MONITOR MODE.
5. Select the monitor mode code.

Press the lock button. The handset displays CODE.

6. Enter the monitor mode code.

   On the dial pad, enter 2530. Press the lock button.

7. Interpret the handset RSSI display and test tone.

   Follow the explanation in How the deployment tool works on page 85 and How to use the deployment tool on page 86.

How the deployment tool works

The deployment tool basestation and the deployment handset establish a radio link when:

- the handset is in the deployment mode; and,
- the handset and basestation are within range of one another.

The closer the handset is to the basestation the stronger the link. As the handset moves away from the basestation, a point is reached where the signal is no longer reliable for telephone conversations.

When a link is established, the handset emits a continuous 1.4kHz tone and displays a Radio Signal Strength Indication (RSSI).

Figure 56: Deployment handset link display

The display, shown in Figure 56: Deployment handset link display on page 85, means as follows:

- A circle and dot indicates a locked signal.
- The antenna symbol indicates a link establishment.
- The number 10 indicates an RSSI value.
- The dash, equal sign and shaded box icons indicate signal strength.

The maximum RSSI is 10. As signal strength diminishes, the number 10 decreases and the icons disappear. For example, at signal strength 7, the three shaded boxes that are on the right side of the display disappear. At signal strength 5, all the shaded boxes and one of the equal sign icons disappear.

The signal strength diminishes as the distance between the handset and the basestation increases. The tone remains unchanged until the handset is out of range of the basestation.

How to use the deployment tool

The deployment tool is assembled as shown in Figure 50: Assembled deployment tool on page 78, with the extension arm parallel to the floor. Position the basestation antenna upwards. Place the basestation as close to the wall as possible and at the height recommended for basestations.

To test the deployment tool, stand in an open area approximately three to five metres away from the deployment tool on its tripod. Establish a link between the basestation and the handset. Keep the deployment tool basestation in plain view. Ensure there are no obstructions (including people).

Walk away from the basestation and observe the deployment handset link display. As the deployment handset moves away from the basestation, the RSSI value changes. When the RSSI value changes from 7 to 6 and the last shaded block disappears, the cell boundary has been reached.

When the cell boundary is reached, stop and listen to the tone. Ensure the tone is clear with no tone changes, tone breakup, modulation, mutes or clicks.

Do not select a cell edge that has an RSSI reading of less than 6. However, keep the following in mind.

- There can be environments that cause poor tone at a RSSI meter reading of between 7 and 10. In this case, contact Avaya support team for assistance.
- The tone stops when the radio link is lost.

Interpreting handset tones

The handset tones indicate how close the handset is to the deployment tool basestation.

- Steady tone – the handset is within the cell boundary, or at the cell boundary edge.
- Tone change, tone break-up, modulation, mute or click – the handset is beyond cell boundary edge.

Rules for outdoor deployment

1. Cover outdoor areas before covering indoor areas. Use the deployment tool to determine outdoor cell centres.
2. Use the deployment handset to determine the outdoor coverage provided by a basestation located indoors.
3. External housings for outdoor basestations must be mounted directly on walls or similar vertical surfaces.
4. When using the deployment tool outdoors, ensure that the deployment tool does not fall over or come in contact with electrical wires and cables.
5. If an outdoor critical point cannot be reached, inform the customer.
6. Do not use the deployment tool on windy days.
7. Do not use the deployment tool in bad weather.
8. Keep all personnel away from the apparatus.
9. Follow all safety requirements.
10. Use batteries to power the deployment tool.
11. Charge the batteries indoors.

DECT Deployment Kit 2

The DECT Deployment Kit 2 is shown in Figure 57: Deployment Kit 2 and carrying case on page 88. Refer to the DeTeWe User Manual that accompanies each kit for additional information.

Figure 57: Deployment Kit 2 and carrying case

The following information can be used in conjunction with the DeTeWe User Manual that accompanies the deployment tool.

1. The two DeTeWe handsets with the kit are subscribed to the basestation and are numbered 13 and 15. Refer to Figure 58: Assembled Deployment Kit 2 and DeTeWe handsets on page 90 to view the assembled basestation and the DeTeWe handsets.
2. The key on the handset is the Off-Hook key.

3. To enter Site Survey Mode on the handset:
   - Press Menu
   - Scroll to System
   - Dial ***76#
   - Scroll to Site Survey
   - Press OK
4. The FE value for the PP is the number of detected Sync/ACRC errors within the last 100 receiving frames (i.e., 1 sec.). For proper deployment, the FE value must not exceed 5.

5. The FE value is for the FP is the number of received Q1/Q2 bit information within the last 100 receiving frames (i.e., 1 sec.). For proper deployment, the FE value must not exceed 5.
6. An RSSI value of -70dBm is used to indicate the cell boundary.
7. Use the following procedure to subscribe a handset that has de-subscribed in error:
    a. Long-press the button on the basestation to open the DECT system.
    b. On the handset, navigate to Menu > System > Subscription > New.
    c. Enter the PARK number provided at the bottom of the basestation.
    d. Enter the authorization code (the last 4 digits of the serial number located at the bottom of the basestation).

       The handset subscribes with the basestation.

Figure 58: Assembled Deployment Kit 2 and DeTeWe handsets

Figure 59: Deployment Kit 2 basestation

Deploying DECT

To deploy a DECT system follow Deploying a DECT system on page 91.

Deploying a DECT system

1. Identify and mark initial critical points.

   Mark critical initial points on the floor plan with the symbol:

   •

   Figure 32: Example of initial critical points on page 67 shows the initial critical points: P1, P2, P3, P5, P6 and P7.

2. Demarcate the cell contour for the critical point farthest from the centre of the full coverage area.

   To demarcate a cell contour:

   a. Set up the deployment tool basestation. Raise the deployment tool basestation as high as possible, or until it is at the height recommended for basestations.

   b. Establish a link. See Deployment tool on page 76 for details.

   c. Measure the range into the coverage area in a few directions to determine where a cell centre can be located and still be within range of the critical point. Listen to the deployment tool handset while moving away from the basestation. When the RSSI value changes from 7 to 6, the cell boundary has been detected.

    d. Mark the cell boundary on the floor plan with a small x.

    e. Repeat step c and step d until there are enough Xs to draw a thin contour arc through the Xs.

   In Figure 33: Cell contour of the initial critical point on page 67, P1 is the initial critical point.

3. Demarcate the cell contour of the closest adjacent critical point to the first critical point.

   See step 2 on page 91 for details. In Figure 34: Cell contour of the closest adjacent critical point to the initial critical point on page 68, P2 is the closest adjacent critical point to the first critical point.

4. Use the cell contours to locate a cell centre.

   Locate the cell centre where the cell contours meet. Choose a position on the floor plan that:

   - is furthest from the critical points,
   - still provides good audio quality at the critical point,
   - complies with the Rules and guidelines for selecting cell centres on page 60, and
   - is in the coverage area.

   With a pencil, label the cell centre on the floor plan with the symbol: xCn, where x = the floor and n = is the cell number in sequence of the entire plan.

   In Figure 35: Example of a cell centre on page 68, IC1 is a cell centre.

5. Demarcate a cell boundary.

   To demarcate a cell boundary:

    a. Set up the deployment tool basestation at the cell centre.

    b. Establish a link.

    c. Refer to the floor plan and check audio quality in user offices within the cell. If a user office is in a zone where audio quality deteriorates, relocate the cell centre closer to the critical point or the office.

    d. Walk into all of the areas (rooms) necessary to demarcate the complete cell boundary. Radio signals travel further in uncluttered areas than in cluttered areas. Record the cell boundary.

    e. Find the cell boundary by measuring the range and marking it on the floor plan with a small x. Repeat steps 5.c on page 92 and step 5.d on page 92 until there are enough Xs so that a contour arc can be drawn around the cell centre.

See Figure 36: Example of a cell centre boundary on page 69 for an example of a cell boundary.

6. Mark and label the cell boundary on the floor plan

   Follow these steps:

   a. Mark each office within the cell that is isolated from the office area.
   b. Label any subsequent critical point on the floor plan the following symbol:

   c. Mark the cell contour on the floor plan. Trace a contour line through the Xs with a marker.
   d. Trace the cell boundaries and cell centres with coloured markers.

7. Identify new critical points.

   Follow these steps:

   a. Identify one new critical point slightly inside of where the cell boundary meets the outside wall. In Figure 37: Example of new critical points (P8 and P9) on page 69, this new critical point is P9.
   b. Identify another new critical point which is adjacent to the first new critical point. Locate this critical point on the opposite side of the cell boundary area. In Figure 37: Example of new critical points (P8 and P9) on page 69, the cell boundary area is IC1 and the new critical point is P8.

8. Mark and label these new critical points on the floor plan with the symbol:

   See step 6 on page 93 for details.

9. Using the critical points from step 7 on page 93, demarcate new cell contours, a new cell centre and a new cell boundary.

   See step 2 on page 91 to step 5 on page 92 starting on step 2 on page 91 for details.

   Note:

   Cell contour arcs must pass near the cell boundary of adjacent cells. For an example of this, see Figure 38: Example of deployment for cell centre 1C2 on page 70.

10. Demarcate additional cell contours, centres and boundaries at the other end of the building.

    Repeat step 1 on page 91 to step 8 on page 93 as necessary to demarcate new cell boundaries at the other end of the building. In Figure 39: Example of deployment for cells 1C3 and 1C4 on page 70, new cells are formed around cell centres IC3 and IC4.

11. Identify new critical points:

These critical points must be:

- adjacent to a critical point and on the opposite side of the cell boundary area. (critical point = P11 in Figure 40: Identify new critical points (P11, P12, P13, P14, P15, P16, P17) on page 71, where cell boundary area = IC2),
- just inside of where the cell boundary meets the outside wall (P12, P13, P14 and P15 in Figure 40: Identify new critical points (P11, P12, P13, P14, P15, P16, P17) on page 71), and
- where cell boundaries meet (P16 and P17 in Figure 40: Identify new critical points (P11, P12, P13, P14, P15, P16, P17) on page 71).

12. Demarcate additional cell boundaries to cover all areas of the building.

    Repeat step 1 on page 91 to step 8 on page 93 as necessary to demarcate new cell boundaries in the middle of the building.

    Refer to Figure 41: Contours formed by critical points P11, P13 and P16 on page 71, Figure 42: Cell centre 1C5 formed by critical points P11, P13 and P16 on page 72, and Figure 43: Cell boundary 1C5 formed by critical points P11, P13 and P16 on page 72. Critical points P11, P13 and P16 form:

    - contours in Figure 41: Contours formed by critical points P11, P13 and P16 on page 71
    - the cell centre 1C5 in Figure 42: Cell centre 1C5 formed by critical points P11, P13 and P16 on page 72
    - a new cell boundary in Figure 43: Cell boundary 1C5 formed by critical points P11, P13 and P16 on page 72

    Refer to Figure 44: Example of critical point cell boundaries on page 73 and Figure 45: Example of cell centre boundary 1C6 on page 73. Critical points P11, P12 and P17 form:

    - contours in Figure 44: Example of critical point cell boundaries on page 73
    - a new boundary based on cell centre 1C6 in Figure 45: Example of cell centre boundary 1C6 on page 73

    Figure 41: Contours formed by critical points P11, P13 and P16 on page 71 shows a floor plan with complete radio coverage. The floor plan is made complete by cell boundary 1C7.

Correcting problems with audio quality

If a user office is near the critical point and the audio quality deteriorates within the user office, then the deployment tool and the cell centre are not properly located.

Correcting problems with audio quality

1. Move the cell centre closer to the office or work area in question.
2. Repeat the coverage test in that area and ensure that coverage is sufficient.

   This can impact the coverage at other points, and you must ensure that all critical points are still properly covered by the new location.
3. Go into every location where users make and receive calls.

   This includes washrooms, coffee areas, and meeting rooms. Do not speculate where users can make calls.

Deploying an external basestation

To deploy an external basestation follow Deploying an external basestation on page 95 to deploy an external basestation.

Deploying an external basestation

1. On the site plan, note each of the critical points that are to be reached.
2. Position the deployment tool at the potential location for a cell centre that is closest to the critical point.
3. Check for outdoor coverage to the critical point with the deployment handset.
4. If the critical point is reached, your cell centre is at the position of the deployment tool. Determine the cell boundary. If you cannot reach the critical point, determine and record the cell boundary that you did reach on the site plan.
5. For each critical point, determine the potential location of external basestations. The location must be:

   a. outdoors,

   b. as close as possible to the critical point that you need to reach, and

   c. more than 4 m above the highest ground to be covered.

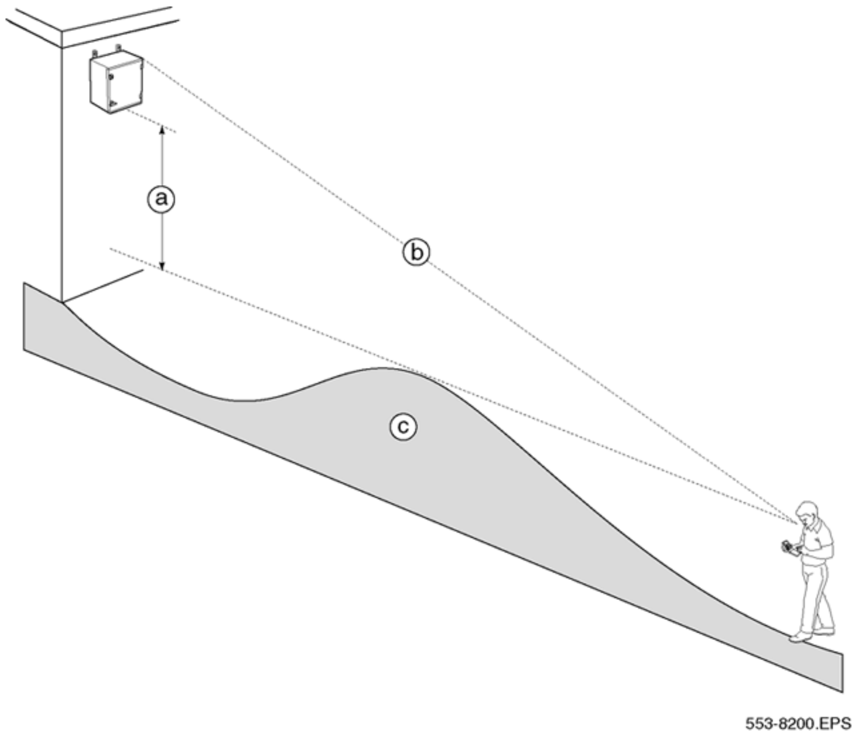


Figure 60: Elevation of external basestation and terrain

Key

- a External housing positioned at least 4 m from the ground.
- b Clear line of sight to the external housing at the cell boundary.
- c The range does not encompass any structures or earth mounds more than 2 m tall and more than 2 m wide.

6. If the critical point cannot be reached, inform the customer to determine if planning must continue.
7. Repeat this procedure until all of the outdoor areas have been completely covered.

Single and multiple floor deployment

Whether the deployment situation involves a single floor or multiple floors, the deployment process uses basic rules:

1. Deploy the external or outdoor areas first.
2. Deploy from one side of the coverage area, then deploy the opposite side of the coverage area.
3. Finish by deploying the middle of the coverage area.

Follow these rules to prevent cell centres from clustering at one end of the site.

Check the floor plan to be sure that there are no areas where a handset in the required coverage area can be outside the range of a cell centre.

Defining a cell typically takes 25 to 40 minutes.

Single-floor deployment

Deploying a single floor coverage area involves methods that apply to all other applications of coverage. For multi-floor deployment, see Multiple floor deployment on page 102.

Use one or all of the following methods of deploying cells.

When determining a cell centre, one or all of the following methods of deploying cells are used:

- Single cell deployment on page 97 – covers the distance between two outside corners at the end of a coverage area with one cell.
- Double cell deployment on page 99 – covers the distance between two outside corners at the end of a coverage area with two cells.
- Multi cell deployment on page 100 – covers the distance between two outside corners at the end of a coverage area with more than two cells.

Always begin with the single-cell method, because the range is not always known; therefore, it is not known how many cells are needed to cover the area between the critical points.

Start at the short" side of the coverage area. First cover the corners, then the side between those corners, and finally inward to the centre of the coverage area. Repeat the process for the other end of the coverage area.

By deploying the site using this method, cell centres are distributed throughout the site. If the site is deployed from one end to the other, cell centres can be clustered at one end of the site.

Single cell deployment

Always start with the single-cell technique regardless of the width between the two critical points. using this technique, one cell centre is found that serves two critical points, as shown in Figure 61: Single cell distance on page 98.

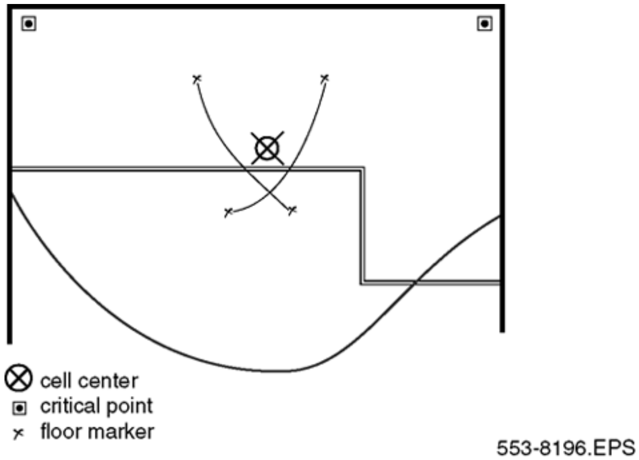


Figure 61: Single cell distance

Single cell deployment

1. Identify the initial critical points. Mark them on thefloor plan with a . Use different colour pencils for each critical point.

2. Choose the first critical point at the edge of the coverage area furthest away from the centre of the coverage area. Place the deployment tool at this critical point.
3. Establish a link. Refer to Deployment tool on page 76 for details.
4. Measure the range into the coverage area in a few directions to determine where a cell centre can be located, and still remain within range of the critical point. Observe the deployment tool handset RSSI value while moving away from the basestation. When the display value changes from 7 to 6, the cell boundary has been detected.
5. Record the cell boundary by marking a small X on the floor plan where the cell boundary value was reached. Use a pencil that is the same colour as the critical point where the deployment tool is located.
6. Repeat step 4 and 5 several times, walking in different directions to determine where the cell centre can be located and still remain within range of the critical point.
7. Draw a thin contour line through the Xs to mark an arc on the floor plan.
8. Choose the other critical point adjacent to the first critical point and repeat steps 3 to 7.
9. If the contour lines do not cross, or cross close to the edge of the coverage area between the two critical points, then see Double cell deployment on page 99. Choose a position on the floor plan for the cell centre that:
    a. is furthest from the critical points and still provides good audio quality at the critical point,
    b. complies with the Rules and guidelines for selecting cell centres on page 60, and

c. is in the coverage area.

10. With a pencil, label the cell centre on the floor planwith xCn. The x is the floor, and n is the cell number in sequenceof the entire plan.

11. Place the deployment tool at each cell centre to locate the cell boundary.
12. Mark the cell boundary on the floor plan.
13. Repeat this task for the remaining coverage area from the extremes of the coverage area toward the centre until the entire floor has been covered.
14. If the cell boundary covers any other critical points, ignore these critical points when proceeding with coverage deployment.

Note:

If it is not possible to place the basestation at the exact crossover points of the arcs, place the basestation as close as possible to the crossover.

Double cell deployment

Use the double cell technique only if referred here from the single-cell technique. Before beginning this technique, there must be two critical points that one cell centre cannot serve. Using the double cell technique, find two locations for cell centres that cover three critical points, as shown in Figure 62: Double cell distance on page 99.

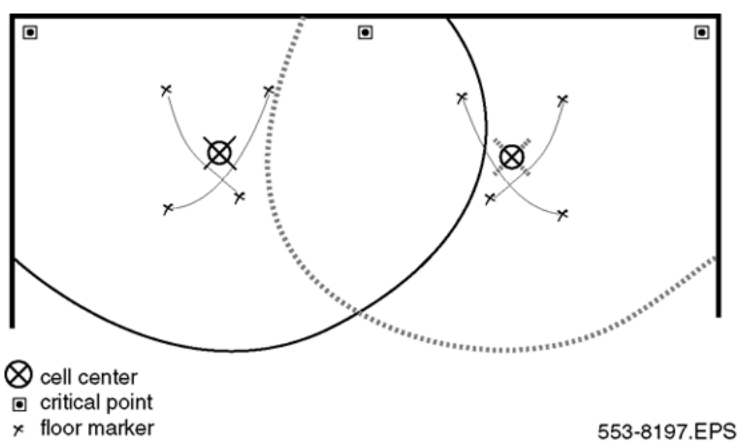


Figure 62: Double cell distance

Double cell deployment

1. Mark a third critical point mid-way between the two critical points already identified.
2. Place the deployment tool at this mid-way critical point.
3. Establish a link.

4. Walk briskly into the coverage area within range of either of the first two critical points until the cell boundary is reached.
5. Record the cell boundary by marking a small X on the floor plan where the cell boundary is located.
6. Repeat step 4 and 5 several times, walking in different directions to determine where the cell centre can be located and still be within range of the critical point.
7. Draw a thin contour line through the Xs to mark an arc on the floor plan.
8. Repeat steps 2 through 5 walking into the coverage area of the other of the first two critical points.
9. If the contour lines do not cross, or if the amount of overlap between the cells is less than 1/2 the distance between the cell centre and the cell boundary, then see Multi cell deployment on page 100.
10. Choose a position on the floor plan for the cell centre that:
    a. is furthest from the critical points and still provides good audio quality at the critical point,
    b. complies with the Rules and guidelines for selecting cell centres on page 60, and
    c. is in the coverage area.
11. Mark each cell centre on the floor plan and label them 1C1 and 1C2.

12. Place the deployment tool at each cell centre to find the cell boundary and mark it on the floor plan.
13. Repeat this technique for the remaining coverage area from the outer extremes of the coverage area toward the centre until the entire floor has been covered. If the cell boundary covers any other critical points, ignore these critical points when proceeding with coverage deploying.

Multi cell deployment

Use the multi cell technique only if referred here from the double cell technique. Before beginning this technique, there must be two critical points that one cell centre cannot serve. Using the multi cell technique, two cell centres, each one serving one of the two critical points, are found, as shown in Figure 63: Multi-cell distance on page 101.

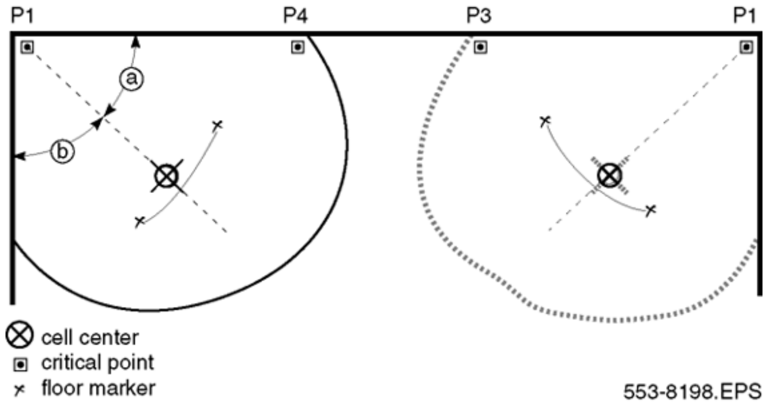


Figure 63: Multi-cell distance

Multi-cell deployment

1. Choose a position on the floor plan for the cell centre that:
    a. is furthest from the critical points and still provides good audio quality at the critical point,
    b. complies with the [Rules and guidelines for selecting cell centres](#) on page 60, and
    c. is in the coverage area.
2. Place the deployment tool at critical point P1.
3. Establish a link.
4. Walk briskly into the coverage area away from the critical point until the cell boundary is reached.
5. Mark a small X on the floor plan where the cell boundary is found.
6. Repeat step 4 and 5 several times, walking in different directions from the critical point to establish an arc. The arc is at the cell boundary and is within range of the critical point.
7. Draw a thin contour line to mark an arc through the Xs on the floor plan.
8. Repeat steps 4 through 7 walking into the coverage area of critical point P2.
9. Locate the cell centre on the arc along a line from the critical point that is equal distant from the adjacent walls.
10. Mark each cell centre on the floor plan and label them 1C1 and 1C2.

11. Place the deployment tool at each cell centre.
12. Locate the cell boundary and mark it on the floor plan. (Mark the contours in different colours for easy differentiation of cell centres.)
13. Define and mark on the plan any subsequent critical points, where each cell boundary crosses the edge of the coverage area.

14. If the cell boundary covers any other critical points, ignore these critical points when proceeding with coverage deploying.
15. Repeat the multi cell technique for the remaining area to be covered, from the extremes of the coverage area toward the centre, until all of the floor is covered.

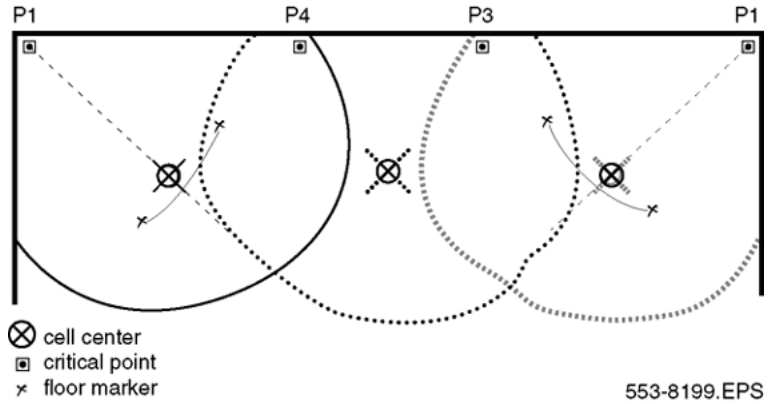


Figure 64: Multi cell distance using the single cell technique

16. Use the subsequent critical points to fill in the coverage area between the first two cells using the Single cell deployment on page 97. An example of this is shown in Figure 64: Multi cell distance using the single cell technique on page 102.

Multiple floor deployment

This applies to deployment scenarios in the following situations:

- The coverage area is on more than one floor.
- The floors are not adjacent to each other.

Checking for through-the-floor coverage

The first step in covering a multi-floor building is assessing the availability of through-the-floor coverage. In buildings mainly constructed of wood, through-the-floor coverage can be used. However, due to the construction of most modern buildings with raised floors, high metal content, and reinforced concrete, through-the-floor coverage with DECT is limited.

Checking for through-the-floor coverage

1. Place the deployment tool in a middle floor of the site.
2. Go to the floor above the deployment tool and establish a link with the deployment handset.

   Follow the procedure on Testing the deployment tool handset on page 84.
3. Measure the deployment contour as if the basestation was on this floor, instead of the floor below.

If only a small area is covered (less than 10 metres radius), then there is effectively no through-the-floor coverage on the floor above an installed basestation.

4. Go to the floor below the deployment tool and repeat the above process.

   If the area that can be covered is small, then there is no through-the-floor coverage below a basestation location.

5. If there is no through-the-floor coverage or coverage is restricted to a small area.

   Deploy each floor using critical points, or if the floors are exactly similar, deploy as multi floors with the same layout.

Assess floor layout

The deployment procedure changes according to the similarities and differences of the floors.

All floors have the same layout

To begin a multi-floor deployment when all of the floors have the same layout, deploy one floor and enter the data on the floor plan. Use the data from the deployed floor for other identical floors.

For example, if floor 2 of an office tower is laid out with cubicle style offices with a perimeter of enclosed offices, and floor 3 is designed and laid out in the exact same manner, then both floors can have the exact same installation profile for basestations.

All floors do not have the same layout

If there are any deviations in the floor plan from floor to floor, use the critical point method to deploy each distinct floor. For more information, see Preparing the tool for deployment on page 78.

Note:

Do not underestimate the importance of changes in floor layout. Simple changes in a room from a meeting room to a storage room can have significant impact on the coverage from a basestation.

Multi-floor coverage situations

The following situations require multi-floor coverage:

1. Atriums on page 103.
2. High rise buildings on page 104.
3. Unusual conditions on page 104.

Use Multi-floor coverage procedure, if instructed to do so, from Gathering building information on page 55.

Atriums

Cells in an atrium, as shown in Figure 65: An atrium on page 104, are usually larger than the cells of the rest of the building. This section gives guidelines on how to plan an atrium. There are no precise steps to follow when deploying an atrium, however there are points to consider. Also see Unusual conditions on page 104.

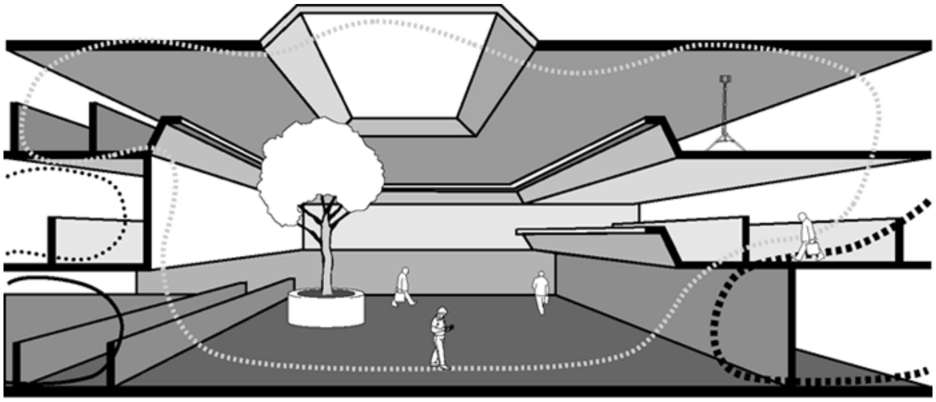


Figure 65: An atrium

Consider the following when deploying an atrium:

- Plan atriums to their full height.
- Plan an atrium as one full size room, not floor by floor.
- Place cell centres within an atrium only when you intend for them to cover the atrium.
- Do not put cell centres in an atrium if you intend for them to serve adjacent areas.
- To serve adjacent areas, put the cell centres into these areas.
- Deploy the atrium first if the atrium is more than a third the size of the building, or more than one cell in size.
- If cell centres in adjacent dense areas serve one floor of an atrium, check the coverage of the cell on all of the floors that meet with the atrium.

High rise buildings

Deploy high rises buildings as unusual conditions of multi-floor deployment.

Test through-the-floor coverage first. If there is no through-the-floor coverage, then deploy each floor. Repeat as many floors as possible where the floor layout is the exact same as any other, in all other cases deploy floor by floor. A floor with many meeting rooms deploys differently from a building with cubicle style offices.

Unusual conditions

There are no precise steps to follow when deploying for an unusual condition; however, there are points to be considered.

To plan an unusual condition, consider the following situations:

1. Cell centres are too close on page 105
2. Cell centres are too far apart on page 105
3. Too many cell centres on page 105

Cell centres are too close

If cell centres are deployed less than 10 metres apart, the handsets can initiate unnecessary hand over. Unnecessary hand over result in excessive internal messaging and degraded speech quality.

Cell centres are too far apart

If cell centres are deployed too far apart, the edge of a cell does not overlap the coverage from another cell.

Cell centres must be located within the edge of other cell centres to provide satisfactory overlap.

Overlap can be difficult to achieve where coverage is received from the floor above or the floor below. Internal structures can cause overlap deficiencies.

It is not necessary that the cell centre be on the same floor or an adjacent floor of the area that it is covering. It is only necessary to be within the cell boundary, as indicated by the deployment tool.

The installation of basestations in places other than the location shown on the plan can cause coverage problems; for example, if the basestation is mounted on the opposite side of a wall from its planned location.

Consider the following when choosing basestation locations:

- Choose locations only where it is possible to mount basestations.
- Install basestations as close as possible to planned locations.
- Follow safety codes or aesthetic considerations.
- Allow sufficient access for installation of basestations.
- Provide clear installation instructions.
- Test the coverage during post-deployment checks.

Too many cell centres

The primary concern with deploying too many cell centres is cost. To deploy the correct number of cell centres and reduce cost, do the following:

- Check the coverage and traffic volume before adding additional cells.
- Remove a cell served by other cells unless it is required for high handset density.
- Check the coverage area of each cell.
- Verify that there is at least one area that each cell serves that is not served by another cell.

In the example shown in Figure 66: Locating redundant cells on page 106, cell 1C3 is redundant unless required for high handset density.

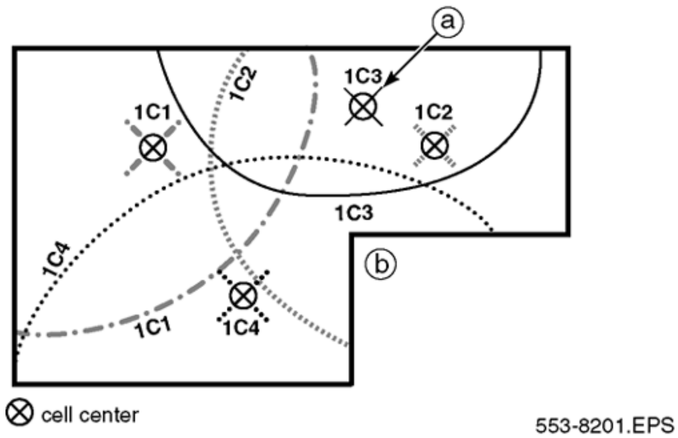


Figure 66: Locating redundant cells

Cell re-engineering for high traffic areas

To accommodate the demand in high traffic areas, follow the The cell re-engineering process on page 107.

Traffic volume

The deployment process ensures coverage throughout the service area. It does not, however, take into account the effect of traffic. In a high traffic area, a shortage of radio channels at the basestation can cause calls to be blocked.

Two options are available to support the volume of telephone calls in cells that carry heavy traffic:

- increase the number of cells deployed
- use 12-channel basestations

The calculation of expected telephone traffic includes an allowance for the user population in a cell, and the roaming user.

About the 12-channel basestation

An optional 12-channel basestation must be used where telephone traffic levels exceed those that can be carried on the standard 6-channel basestation. The radio performance of the 12-channel unit is the same as that of the 6-channel unit so the cell sizes are the same for both units.

Do not connect more than two 12-channel basestations to a DMC card. Two 6-channel basestations can also be attached to a DMC serving two 12-channel units. If loop resistance exceeds 100 ohms, external power must be used.

The cell re-engineering process

The cell re-engineering process involves:

1. Estimating traffic within a cell on page 107.
2. Separating the coverage area and recording the number of offices on page 108.
3. Creating an estimate table on page 108.
4. Calculating the number of users inside the cell with an office on page 110.
5. Calculating the number of users with an office outside the cell who walk into the cell on page 109.
6. Calculating the number of users without an office on page 110.
7. Totalling the estimate for users in a cell on page 111.
8. Calculating the data for all remaining cells on page 112.
9. Creating a table to document telephone types in a cell on page 112.
10. Determining cell re-engineering on page 113.

Estimating traffic within a cell

Modify the previous deployment procedure to adjust the estimated number of users. To carry out this procedure:

- Determine the number of handset users with an office within each cell.
- Determine how many of these users have wired sets.
- Determine how many users without an office are normally in each cell.

Some users have both wired and handset telephones; other users rely on handsets only.

Re-engineered cells for high traffic areas are represented by an adjusted estimate for the two groups: handset and wireless, and handset only. Use the adjusted estimate to determine whether the cell sizes, indicated by the earlier deployment procedure, can handle the telephone traffic.

If the traffic handling capacity of the cells is not adequate, use 12-channel basestations and subdivide them into smaller cells to ensure the traffic is handled properly in accordance with these instructions.

Separating the coverage area and recording the number of offices

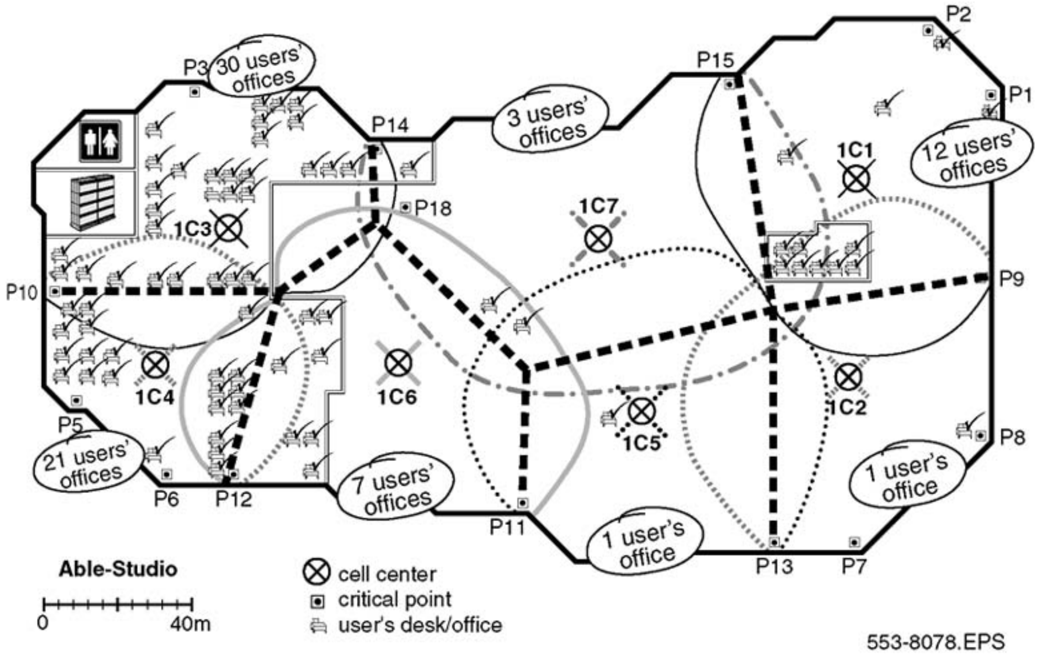


Figure 67: Example of dividing the coverage area and recording offices

Separating the coverage area and record the number of offices

1. Divide the floor plan into cell areas.

   Mark the cell areas on the floor plan, one area for each cell, splitting cell overlap areas in half. Shown in Figure 67: Example of dividing the coverage area and recording offices on page 108 as heavy dotted lines.

2. Count the number of user offices in each cell area.

   Record the number of user offices on the floor plan in each cell area.

Creating an estimate table

Use this table later to estimate the number of handset users for each cell.

Table 16: Estimate users in a cell

Estimate for:	1C1	1C2	1C3	1Cn
Users inside the cell with an office				
Users with an office outside of a cell who walk into the cell				

Estimate for:	1C1	1C2	1C3	1Cn
Users without an office				
Users in a cell				

Creating an estimate table

1. Make an estimate table.

   Include as many columns as there are cell centres.
2. Label the rows.

   Example shown in Table 16: Estimate users in a cell on page 108.
3. Label each column heading with the cell centre indicator.

   Use this table to determine how many times to subdivide each cell to carry the handset telephone traffic.

Calculating the number of users with an office outside the cell who walk into the cell

Table 17: Example of the table second row calculation

Estimate for:	1C1	1C2	1C3	1C4	1C5	1C6	1C7
Users inside the cell with an office	8.4						
Users with an office outside of a cell who walk into the cell	3.2						
Users without an office							
Users in a cell							

Calculating the number of users with an office outside the cell who walk into the cell

1. Calculate the estimate for users in the first cell with an office outside of the cell who walk into the cell.
2. Use the formula:

$$\frac{(\text{Total users with an office} - \text{Users with an office inside the cell}) \times 0.3}{(\text{Total number of cells} - 1)}$$

3. Enter the result in the row, users with an office outside the cell who walk into the cell.

   For the example shown in Figure 67: Example of dividing the coverage area and recording offices on page 108, there are a total of 75 telephone users in Able-Studio, minus the 12 users already in cell 1C1. Therefore, 63 users can walk into cell 1C1. However, the 63 walk in users only spend 30% of their time outside their offices. There are seven cells on the floor plan minus cell 1C1. Accordingly, an estimate of 3.2 walk-in users can be in cell 1C1.

$$\frac{(75 - 12) \times 0.3}{(7 - 1)} = 3.2$$

Calculating the number of users inside the cell with an office

Table 18: Example of the table first row calculation

Estimate for:	1C1	1C2	1C3	1C4	1C5	1C6	1C7
Users inside the cell with an office	8.4						
Users with an office outside of a cell who walk into the cell							
Users without an office							
Users in a cell							

Calculating the number of users inside the cell with an office

1. Calculate the estimate for users in the first cell with an office.

   Use the formula: (Users with an office in the cell × 0.7)

2. Enter the result in the row, users inside the cell with an office.

   In the example shown in Figure 67: Example of dividing the coverage area and recording offices on page 108, twelve users in cell 1C1 spend 70% of their time in their offices. (12 × 0.7 = 8.4)

Note:

Traffic engineering has determined that handset users with an office spend seventy percent of their time within their home cell.

Calculating the number of users without an office

Table 19: Example of the table third row calculation

Estimate for:	1C1	1C2	1C3	1C4	1C5	1C6	1C7
Users inside the cell with an office	8.4						

Estimate for:	1C1	1C2	1C3	1C4	1C5	1C6	1C7
Users with an office outside of a cell who walk into the cell	3.2						
Users without an office	0						
Users in a cell							

Calculating the number of users without an office

1. Calculate the estimate for users in the first cell without an office.

   Use the formula:

   $$\frac{\text{Total number of users without an office}}{\text{Number of cells}}$$

2. Enter the result in the row, users without an office".

   In the example shown in Figure 67: Example of dividing the coverage area and recording offices on page 108, there are no users without an office.

Totalling the estimate for users in a cell

Table 20: Example of the table first column total

Estimate for:	1C1	1C2	1C3	1C4	1C5	1C6	1C7
Users inside the cell with an office	8.4						
Users with an office outside of a cell who walk into the cell	3.2						
Users without an office	0						
Users in a cell	11.6						

Totalling the estimate for users in a cell

1. Total the estimate for the number of users in the first cell by adding the three rows in the first column.
2. Enter the result in the bottom row users in a cell.

   For the example shown in Figure 67: Example of dividing the coverage area and recording offices on page 108, the 1C1 handset estimate equals 11.6.

   8.4 + 3.2 + 0 = 11.6.

Calculating the data for all remaining cells

Table 21: Example of a completed estimate table

Estimate for:	1C1	1C2	1C3	1C4	1C5	1C6	1C7
Users inside the cell with an office	8.4	0.7	21.0	14.7	0.7	4.9	2.1
Users with an office outside of a cell who walk into the cell	3.2	3.7	2.3	2.7	3.7	3.4	3.6
Users without an office	0	0	0	0	0	0	0
Users in a cell	11.6	4.4	23.3	17.7	4.4	8.3	5.7

Calculating the data for all remaining cells

1. Repeat the last four tasks to calculate all the remaining user cell estimates.
2. Enter the result in the estimate table.

   The information contained in Figure 67: Example of dividing the coverage area and recording offices on page 108, is shown entered into Table 21: Example of a completed estimate table on page 112. This table is used to note the results of the calculations for cells that require re-engineering.

Creating a table to document telephone types in a cell

Use a table like Table 22: Telephone types in a cell on page 112 to record the different telephone types in each cell.

Table 22: Telephone types in a cell

Telephone type	1C1	1C2	1C3	1Cn
User telephone types				

Use the following symbols in each cell to denote the type of telephones in use in the cell:

- H&W refer to a cell in which all the users have both wired and handsets (wireless sets).
- H refers to a cell in which users have only handsets (wireless sets).
- M refers to a mix of H and H&W users

Creating a table to document telephone types in a cell

1. Make a Telephone types table.
2. Label the row, User telephone types and include as many columns as there are cell centres.
3. Label each column heading with the cell centre indicator.

   The information in this table is used to determine the number of cells that require re-engineering.

Determining cell re-engineering

Table 23: Example of a completed estimate table

Estimate for:	1C1	1C2	1C3	1C4	1C5	1C6	1C7
Users inside the cell with an office	8.4	0.7	21.0	14.7	0.7	4.9	2.1
Users with an office outside of a cell who walk into the cell	3.2	3.7	2.3	2.7	3.7	3.4	3.6
Users without an office	0	0	0	0	0	0	0
Users in a cell	11.6	4.4	23.3	17.7	4.4	8.3	5.7

Table 24: Example of a completed telephone types table

Telephone type	1C1	1C2	1C3	1C4	1C5	1C6	1C7
User telephone types	H&W	H&W	M	M	H&W	H&W	H&W

Table 25: Cell re-engineering

Estimate for:		
Users with both a handset and a wired telephone	**Users with only a handset**	**Action**
From 0 up to 20	From 0 up to 12	Keep cell size as deployed.
Greater than 20 but no more than 80	Greater than 12, but no more than 40	Install a 12-channel basestation or sub divide the cell[a].
Greater than 80	Greater than 40	Sub divide the cell[a] to meet the above conditions.

Estimate for:		
Users with both a handset and a wired telephone	Users with only a handset	Action
a. For details on how to subdivide cells, refer to High handset density deployment on page 117. Use a 12-channel basestation in areas of high traffic capacity. Cell subdivision is appropriate when it helps to improve coverage where the loop resistance exceeds 100 ohms or when a DMC cannot support more than two 12-channel units.		

Note:

Use Table 25: Cell re-engineering on page 113 only for user types H&W and H. For user type M see A mix of users with and without wired telephones in a cell on page 115.

Determining cell re-engineering

1. Locate the estimate for users in the first cell.

   In the example shown in Table 23: Example of a completed estimate table on page 113, the handset estimate is 11.6.
2. Determine the telephone types in the first cell.

   In the example shown in Table 23: Example of a completed estimate table on page 113, the telephone type is H&W.
3. Locate the telephone type column in Table 23: Example of a completed estimate table on page 113.

   In the example H&W is the users with both a handset and a wired telephone.
4. Find the handset estimate range in Table 25: Cell re-engineering on page 113.

   In the example, 11.6 falls within the From 0 up to 20 category.
5. Determine if a cell requires division or uses a 12-channel basestation.

   In the example From 0 up to 20, division is not required.
6. Repeat the above steps to determine the required number of cells that need subdivision, except for telephone types M. For M see A mix of users with and without wired telephones in a cell on page 115.
7. Transfer the results into the Provisioning records.

Cell division requirements in special cases

This section describes how to determine cell division in the following special cases where:

1. no office information is available; and,
2. there is a mix of handset users with and without wired telephones.

No office information

If it is not known where any of the users offices are, calculate the estimated number of handsets for each cell using this formula:

$$\frac{\text{Number of handsets}}{\text{Number of cells}}$$

The formula assumes that users are located evenly throughout the cells. However, most users offices are clustered in specific areas of a building.

The formula has limitations, as cells can vary in size. The method described starting on The cell re-engineering process on page 107 gives more accurate cell division results.

A mix of users with and without wired telephones in a cell

Use this procedure for mixed handset users. This procedure then enables the telephone traffic generated by handset users, to be equated to that of handset and wired users. Combine the two groups for cell size recalculation purposes.

Table 26: Adjustment for users without wired telephones

Estimated number of handsets for users without wired telephones	Adjusted estimated number of handsets for each cell
0	0
1	2
2	3
3	5
4	7
5	9
6	11
7	12
8	14
9	16
10	18
11	20
12	22
13	24
14	25

Estimated number of handsets for users without wired telephones	Adjusted estimated number of handsets for each cell
15	27
16	29
17	31
18	34
19	36
20	38
21	40
22	42
23	44
24	46
25	48
26	49
27	50
28	53
29	55
30	57
31	60
32	62
33	64
34	66
35	69
36	71
37	73
38	76
39	78
40	80

Adjusting for users without wired telephones

1. Count the number of user offices that have handsets and wired telephones (H&W), and record the number.
2. Count the number of user offices that have only wireless handsets, (H).

3. Use Table 26: Adjustment for users without wired telephones on page 115 to determine the equivalent number of H&W users and record this number.
4. Add the numbers received from steps 1 and 3 to determine and adjust the value for the number of users with wired telephones.
5. Use Table 26: Adjustment for users without wired telephones on page 115 to determine the criteria shown in the left column to determine if the cell has to be resized in the same manner described in the section Determine cell re-engineering.

High handset density deployment

The high handset density deployment includes limiting the expected number of handsets for each cell centre.

Note:

Use the high handset density procedure if instructed to do so from Table 25: Cell re-engineering on page 113. Do not use more than one basestation for each cell centre.

Limiting the anticipated number of handsets

Limit the anticipated number of handsets for each cell centre to the limits shown in Table 25: Cell re-engineering on page 113. Only subdivide high handset density areas. If a cell falls into the category of a high density area, use the procedure on the following page to subdivide the cell.

Subdividing a cell

To subdivide the area for smaller cells, divide the cell into as many smaller cells as necessary to provide for the number of users in the area.

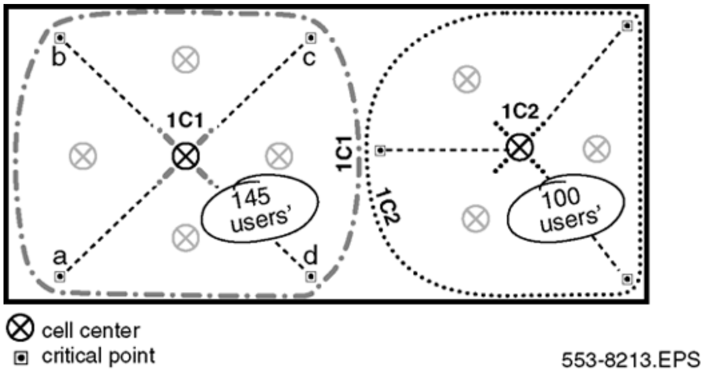


Figure 68: Example of a subdivided cell

In Figure 68: Example of a subdivided cell on page 118, cell 1C1 has 140 handset users and cell 1C2 has 100 handset users. For example, Table 25: Cell re-engineering on page 113 indicates the following:

- If the handset users in cell 1C1 are all handset only users, one cell can support 39 handset only users. Therefore, four cells are needed to support 140 users (140÷39 = 3.5 cells).
- If the handset users in cell 1C1 are handset and wired telephone users, and one cell can support 83 users, then two cells are needed to support 140 handset and wired telephone users (140÷83 = 1.6 cells)

High handset density deployment

1. Determine the number of handset users in the high handset density cell.

   Count the number of users. Include users served by through-the-floor coverage of this cell.

2. Calculate the cell subdivisions as required.

   Divide the number of users by the appropriate value (12 or 20) shown in Table 25: Cell re-engineering on page 113. Round up the result to the next whole number. The result equals the number of cells required after subdividing the cell.

3. Divide the cell.

   Draw lines from the cell centre to the critical points on the cell boundary. Shown in Figure 68: Example of a subdivided cell on page 118, the cell 1C1 divides into four sectors and cell 1C2 divides into three sectors.

4. Relocate new cell centres.

   Mark new cell centres within the sectored areas.

5. Check the number of handset users in the new cell areas.

   Count the number of user offices within each smaller sector. Ensure there are fewer user offices within the cell than the traffic limit.

6. Check the locations.

Take the deployment tool to the locations that have been calculated on the floor plan. Ensure that there is a location that meets the guidelines on Rules and guidelines for selecting cell centres on page 60.

7. Check the new cells for complete coverage.

   Use the deployment handset to check coverage.

8. Repeat the anticipated handsets for each cell calculation to ensure that each smaller cell provides appropriate traffic coverage to the users in the area.

Deployment review

Review the plan to ensure that the sales group can use it. The plan must be complete for the installer, legible for maintenance purposes, and acceptable to the customer.

Completing a floor plan

Completing a floor plan

1. Record the name and telephone number of the planner on the floor plans.
2. Record the name of the customer company on the floor plans.
3. Record the site contact name and telephone number on the floor plans.
4. Record any installation restrictions.
5. Record the details of the installation of an identified cell on the floor plans, recording any 12-channel basestations.
6. Record the positions of user offices on the floor plans.

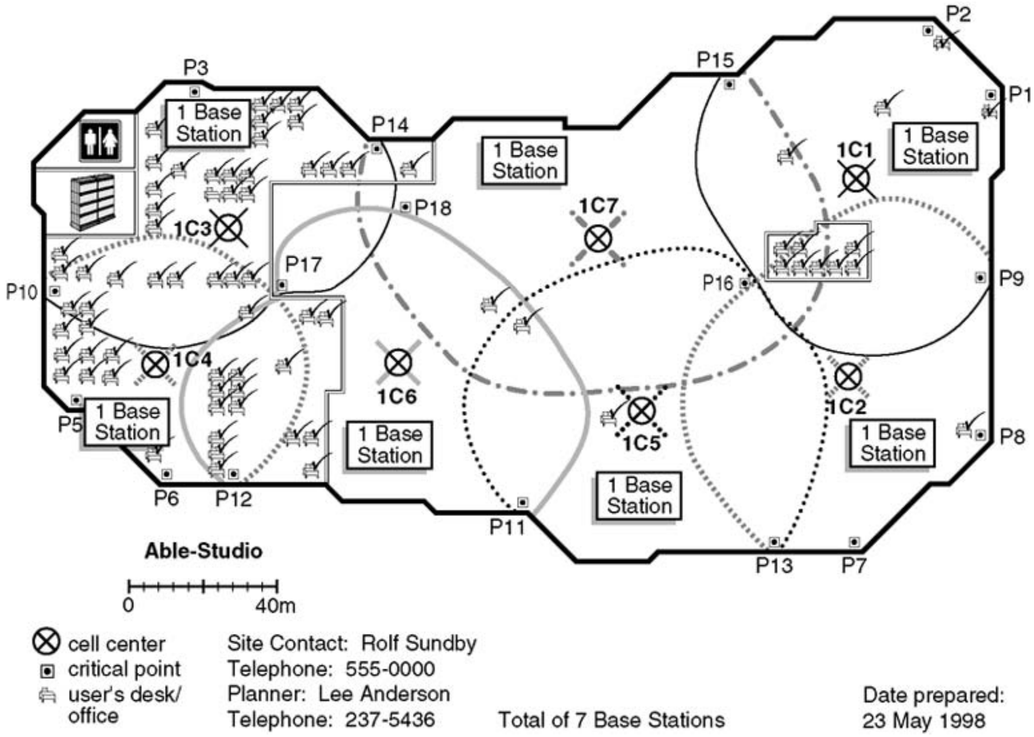


Figure 69: Example of a completed floor plan

Checking system capacity

Checking system capacity

1. Check that the system does not exceed the DECT system capacity: that is, no more than 512 handsets or 128 basestations for the system with no more than sixty-four 12-channel basestations.
2. Check that there is no cell limit for a DECT system. The limit is the total count of the basestations.
3. Check that the limits on basestations and handsets are independent of each other. Increasing the handset count does not decrease the number of basestations available to install.
4. If more than 128 basestations are deployed, it is necessary to replan the site with multiple systems. See the Detailed Site Planning section.
5. Ensure that the location of the controller is not more than 1500 m (wiring length for Category 5 UTP) from all 6-channel basestations or 1000 m from 12-channel basestations (unless external power is used). If the location is farther than the allowed distance, the customer must examine other installation and equipment configurations with the sales representative and Avaya support personnel.

Review with the customer

When the planning is finished, show the customer:

1. the final positions of the basestations with a walk-about; and,
2. the areas, if any, where the coverage requirements cannot be met.

Record floor plan information

Provide the planning information to the installer or the sales group. It is important that this information be communicated in a clear and accurate way.

Neatly transfer the information from the working copy to the clean copy of the floor plan. Use the coloured markers to mark the cell boundaries and matching cell centres.

Record or attach the following information to the floor plans.

1. All areas needing coverage.
2. The location of the controller.
3. The total number of all basestations.
4. All the named cell centres (for example, 2C5) and their matching cell boundaries.
5. All the critical points that were used.
6. Any installation restrictions.
7. Any notes detailing the installation at a identified cell, recording any 12-channel basestations.
8. The location of any basestation servicing outdoor areas, and the current restrictions on the placing of those basestations.
9. Attach a completed traffic table with the floor plans.

Record provisioning record information

Record the following information on the applicable provisioning record.

1. The date prepared
2. The Customer information
3. The Deployer information (name)
4. The cell numbers
5. The location of the basestations (cell centres)

6. The calculated number of users in each cell
7. Include some notes on the agreed coverage area of the site and any information for the installer

Review the work

At the completion of the site plan, ensure that you have:

1. a customer, satisfied with the plan for a DECT system;
2. a clean floor plan with all the information, as shown in Figure 69: Example of a completed floor plan on page 120;
3. a traffic table; and,
4. a completed provisioning record.

Chapter 5: Installation and configuration

Contents

This chapter contains information on the following topics:

Before you begin

The following three tasks must be completed before DECT is installed.

1. The site survey
2. The deployment
3. The installation of the house wiring for basestations

After these tasks have been completed, the following information and materials are required before continuing with DECT installation.

- Site work order
- List of equipment to be installed, showing quantities
- A marked-up floor plan

- A volt/ohm meter
- Hand tools and hardware, such as:
    - screwdrivers and pliers
    - spanners and socket wrenches
    - drill and drill bits
    - screws and screw anchors
    - punch-down tools for MDF and RJ45 Connect Box
    - cable continuity checking equipment

Unpacking the equipment

To unpack the equipment, complete the steps in the following table.

Unpacking and examining the equipment

1. Check the items shipped for discrepancies against the list of equipment required for the installation.

   If any items are missing, take the action that is appropriate for this situation.
2. Carefully unpack and examine the equipment for damage.

   If any items are missing, take the action that is appropriate for this situation.

Note:
Store the equipment containers away from the installation area. Use the containers to return damaged equipment.

Using the Provisioning Records, marked-up floor plans, and the site work order, the installation proceeds in this sequence:

1. Install basestation
2. Install additional IPE shelves or cabinets
3. Install DMC8 cards and faceplate cables
4. Install DMC DECT Manager application
5. Configure DECT on the DMC DECT Manager server
6. Configure handsets and retrieve subscription data
7. Handset subscription
8. Basestation Power and Muting
9. Add a V.24 serial connection

Provisioning records

The DECT Provisioning Records consist of the following:

- System Site Information Record
- Provisioning Information Record
- Installation Record
- System Programming Record
- Handset User Information Record

A copy of these records must be kept at the customer site. Vendors involved in maintaining DECT must also have a copy of these records.

Note:
Use a pencil to record information that can vary. Make photocopies of the tables as necessary.

System information record

Contacts

Table 27: System information record - contacts

Client	
Company name	
Address	
Contact name	
Telephone number	
Billing number	
Date received	

Table 28: System information record - supplier sheet

Supplier	
Company name	
Address	

Supplier	
Contact name	
Telephone number	
Invoice number	
Date shipped	

Table 29: Installer sheet

Installer	
Name	
Installation date	

Provisioning information record

Basestation cell

Sheet ______

Table 30: Basestation cell sheet

Cell label	Basestation location	Number of Basestation	Basestation number

Installation record

Basestation connection

Sheet ______

Table 31: Basestation connection sheet

Basestation number	MDF designator or I/O panel label	MDF RJ45 number

TN to DECT TN assignment

Sheet ______

Table 32: TN to DECT TN assignment sheet

TN	DECT TN	TN	DECT TN

System programming record

System name: ___________________________

PARI licence string: ___________________________

Handset user information record

Sheet__________

Table 33: Handset user information record sheet

username	DN	WRLS TN	MCRD/ MCRA	CLS	CNDD/ CNDA

Installing the basestation

Following the DECT basestation rules, installation involves the following tasks:

- Install C4600 and C4610 basestations:
  - Install basestation wiring to the MDF.
  - Install the C4610 basestation external power supply.
- Install basestation in the external housing.
- Attach the external housing to a wall.
- Connect the external housing wiring to the MDF.

Rules and guidelines

The following rules and guidelines apply to basestation installation.

- For DC-powered systems, an input voltage of at least –48 volts is required for maximum basestation line length.
- One hundred ohms is the maximum line length for a C4610 high traffic basestation. If the line measurement approaches 100 ohms, use an external power supply.
- If the exact location is not accessible, mount the basestation as close as possible to the location in the site survey.
- Mount the basestation in a vertical position, not horizontally, on a ceiling.
- Lead the basestation cable directly away from the basestation. Surplus cable can cause basestation malfunctions.
- Place the basestation where it is unlikely to be damaged. For example, a basestation in a warehouse must be placed where it cannot be damaged by a forklift truck.
- Surrounding objects must not affect the basestation. For example, a basestation in a car park must be placed higher than any vehicle parked next to it.
- The minimum distance between two basestations must be greater than two metres.
- Do not mount basestations on large concrete or stone columns, air ducts or large metal objects.
- The external basestation is powered from the line connection and does not require a mains connection.
- Use the external housing kit to mount any basestation out-of-doors.
- Use the external housing kit for any basestation subject to conductive pollution or dust that can become conductive due to condensation.

Compatibility

The C4600, C4610, and C4610E basestations are compatible with all software releases for DECT, Meridian 1, CS 1000E and CS 1000M systems. The basestations are backward compatible.

C4610E and external antenna

The C4610E 12-channel basestation has an adaptor to support an external antenna. The external antenna increases the operating distance between the basestation and the DECT handset. Avaya recommends the use of a Huber & Suhner dual-planar directional antenna. Directional antennas are suitable for use in places such as large halls, outside parking lots, and between buildings. See Figure 70: A Huber and Suhner dual-planar directional antenna on page 130.

Note:

The Huber & Suhner 8.0dBi and 10.5dBi antenna packages were tested with the C4610E basestation. Other third-party directional antenna are available, but have not been tested with this basestation.

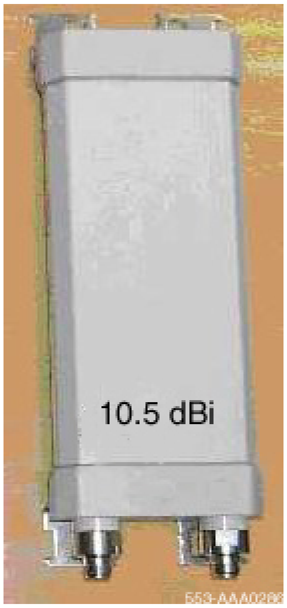


Figure 70: A Huber and Suhner dual-planar directional antenna

Installing C4600, C4610, and C4610E basestations

Consult the work order and marked-up floor plan to determine the position of the basestation, then perform the steps in Installing C4600, C4610, and C4610E basestation on page 131.

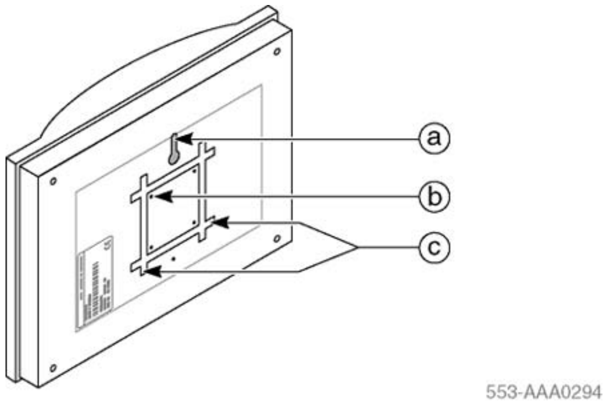


Figure 71: Basestation mounting details

Table 34: Basestation mounting details key

a	screw mounting slot
b	screw and cable tie retaining washer hole
c	cable tie grooves

Installing C4600, C4610, and C4610E basestation

1. Locate the basestation mounting position.
2. Install the basestation mounting screw.

   If required, drill the holes for a screw anchor and install the anchor.
3. Fasten the basestation on the wall or a building protrusion.

   Hang the basestation on the screw or use cable ties to mount the basestation. Insert the cable ties in the vertical or horizontal grooves on the back of the basestation. Secure the cable ties to the basestation with the retaining washers and screws provided. Fasten the cable ties to the building protrusion.
4. If installing the C4610E basestation, install the external antenna according to the instructions provided by the manufacturer.

Installing the wiring to the MDF

Consult the work order and marked-up floor plan to determine the basestation to MDF connections, then follow the steps in Installing basestation wiring to the MDF on page 132.

Caution:
Service Interruption

For maximum line length before signal degradation occurs, use UTP Cat 5 cabling between the basestation and the shelf or cabinet. If the line length exceeds 100 ohms for the 4610 basestation, an external power supply must be used.

The maximum distance when using external power with UTP Cat 5 cabling is approximately 1.7 km.

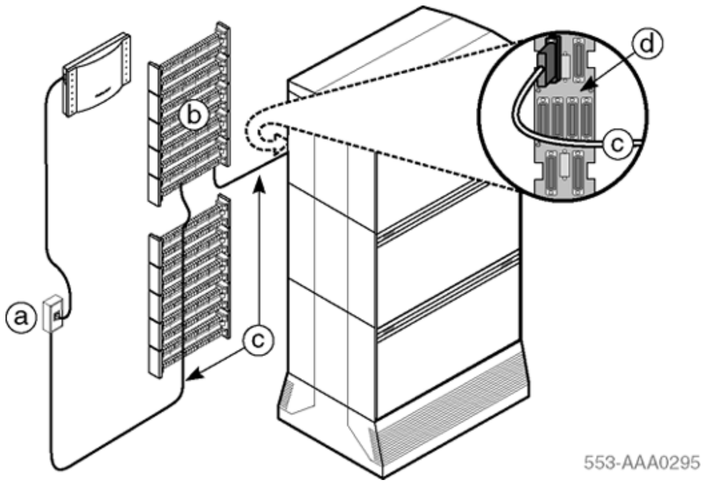


Figure 72: Basestation, MDF, and I/O panel details

Key

a	RJ45 Connection Box
b	MDF
c	recommended UTP Cat 5 cable
d	IPE shelf I/O connector panel

Installing basestation wiring to the MDF

1. Connect one end of the NTCW10 cable into the basestation RJ45 jack.

   Use the supplied cable.
2. Install the RJ45 Connection Box.

   Use the NTCW10 cable length to measure the location of the RJ45 Connection Box.
3. See Table 35: Basestation RJ45 to BIX MDF connections on page 133 for connection details.

   Note:
   Ensure that the cable is twisted pair from beginning to end.

Note:

If there are other twisted pairs available then ensure that the other pairs in the cable are not used for analogue interfaces.

4. Connect the free end of the NTCW10 cable into the RJ45 Connection Box.

Note:

The BIX tip and ring connections shown in Table 35: Basestation RJ45 to BIX MDF connections on page 133 correspond to standard BIX designation. The first pair are labeled T0 and R0. See Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310), chapter Planning and designating the Modular Distribution Frame (MDF).

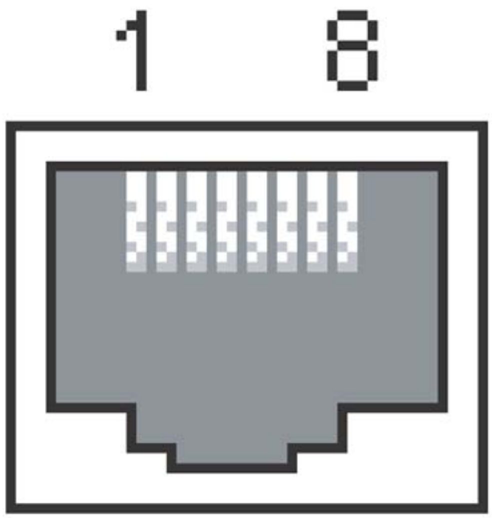


Figure 73: RJ45 Connection Box pin-out

Table 35: Basestation RJ45 to BIX MDF connections

Basestation number	RJ45 Connection Box	MDF connection
Basestation 1	5	T8
	4	R8
	6	T9
	3	R9
Basestation 2	5	T10
	4	R10

Basestation number	RJ45 Connection Box	MDF connection
	6	T11
	3	R11
Basestation 3	5	T12
	4	R12
	6	T13
	3	R13
Basestation 4	5	T14
	4	R14
	6	T15
	3	R15
Basestation 5	5	T16
	4	R16
	6	T17
	3	R17
Basestation 6	5	T18
	4	R18
	6	T19
	3	R19
Basestation 7	5	T20
	4	R20
	6	T21
	3	R21
Basestation 8	5	T22
	4	R22
	6	T23
	3	R23

Installing the external power supply

For the C4600, C4610, and C4610E basestations, an external power supply must be installed if the UTP Cat 5 line resistance exceeds 100 ohms.

Figure 74: C4610 basestation external power

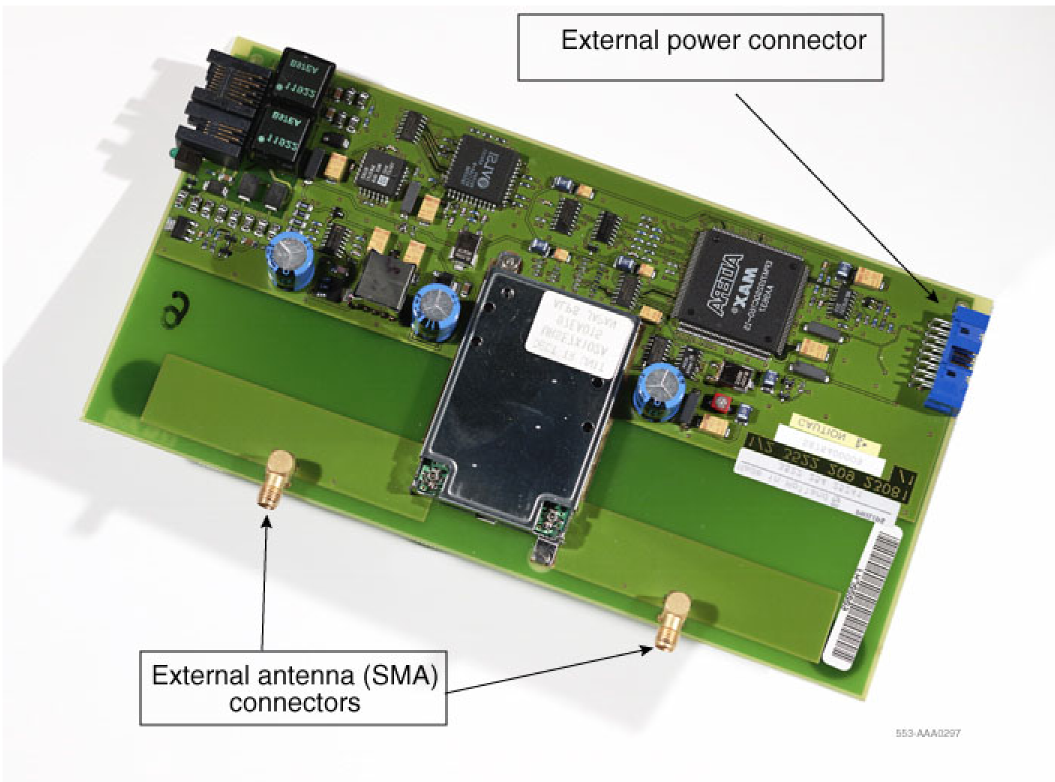


Figure 75: C4610E external power and external antenna connectors

Installing the C4610 basestation external power supply

1. Remove the plastic stopper from the C4610 basestation power socket.

   The power socket is located next to the yellow LED.

2. Plug the external power supply jack into the C4610 basestation power socket.
3. Connect the external power supply to the ac mains outlet.

Installing the external housing

Consult the work order, then perform the steps in Installing the basestation in the external housing on page 137.

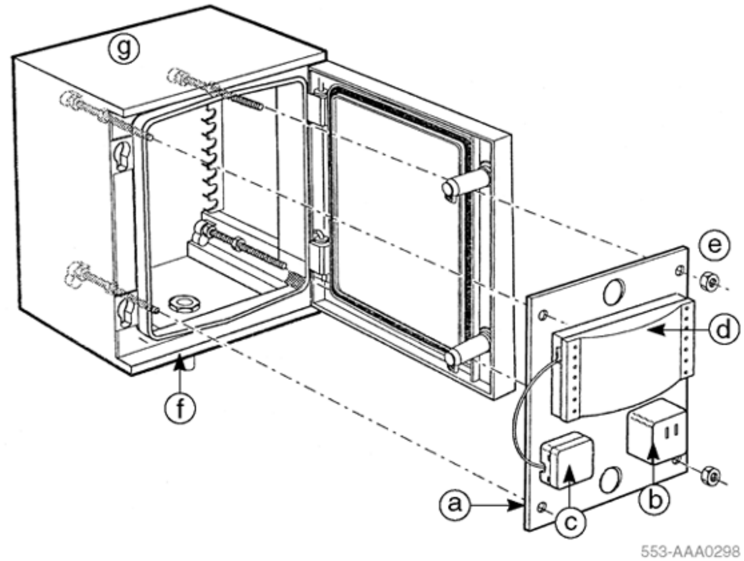


Figure 76: External housing details

Key

a	component mounting plate
b	power transformer (not used)
c	cable connecting box
d	basestation
e	plate retaining nuts
f	cable outlet
g	external housing cabinet

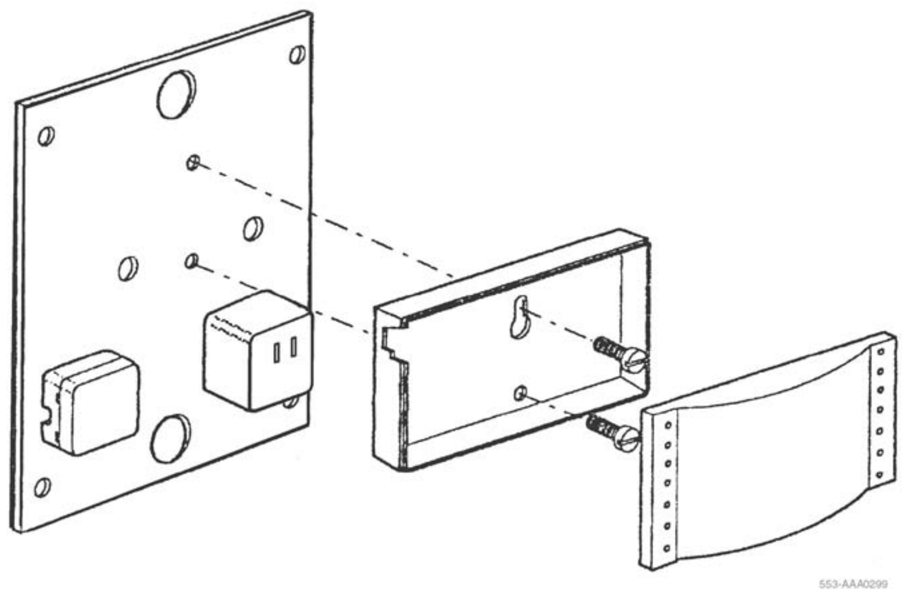


Figure 77: Basestation mounting details

⚠ **Caution:**

Equipment Damage

The following procedure requires the removal of the basestation cover. The circuit board is attached to the basestation cover. Do not damage the circuit board or bend the two antennas on the bottom of the circuit board.

Installing the basestation in the external housing

1. Open the external housing cover.

   Insert the external housing key and turn clockwise.

2. Remove the basestation mounting plate.

   Unscrew the four nuts securing the plate and pull the plate from the cabinet.

3. Remove the basestation cover. See the preceding caution note.

   Carefully pry one corner of the cover from the basestation, then the other corner.

4. Remove the basestation lower screw hole cover.

   Push the screw hole cover out of the basestation.

5. Mount the basestation to the housing plate.

   Affix with the screws as shown in Figure 71: Basestation mounting details on page 131.

6. Replace the basestation cover.

   Snap the cover in place.

7. Connect the connecting box cable to the basestation.

Snap the connecting box cable into the basestation RJ45 Connection Box. Lead the cable away from the basestation for optimal performance of the antennas.

8. Replace the basestation mounting plate.

   Secure the plate with the four nuts.

Attaching the external housing to a wall

Consult the work order and marked-up floor plan to determine the mounting position of the basestation external housing, then perform the steps listed in Installing the basestation in the external housing on page 137.

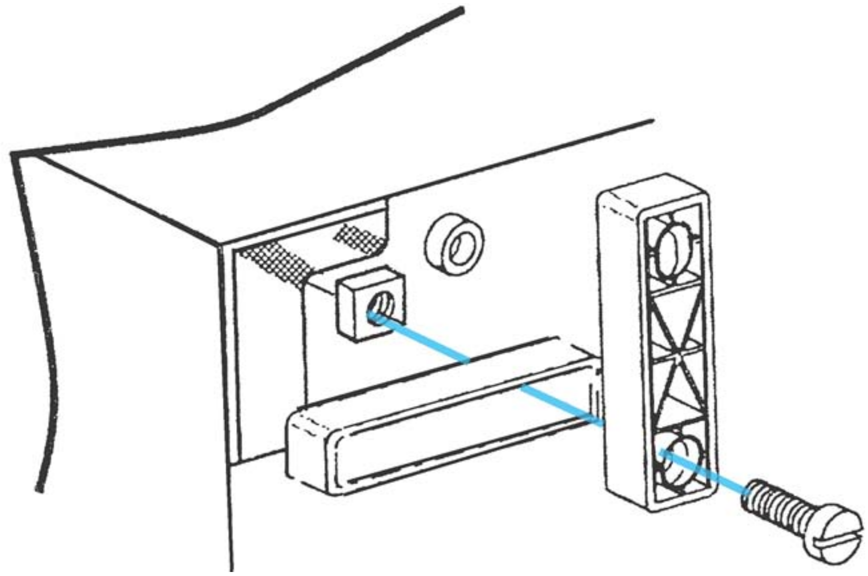


Figure 78: External housing mounting lugs

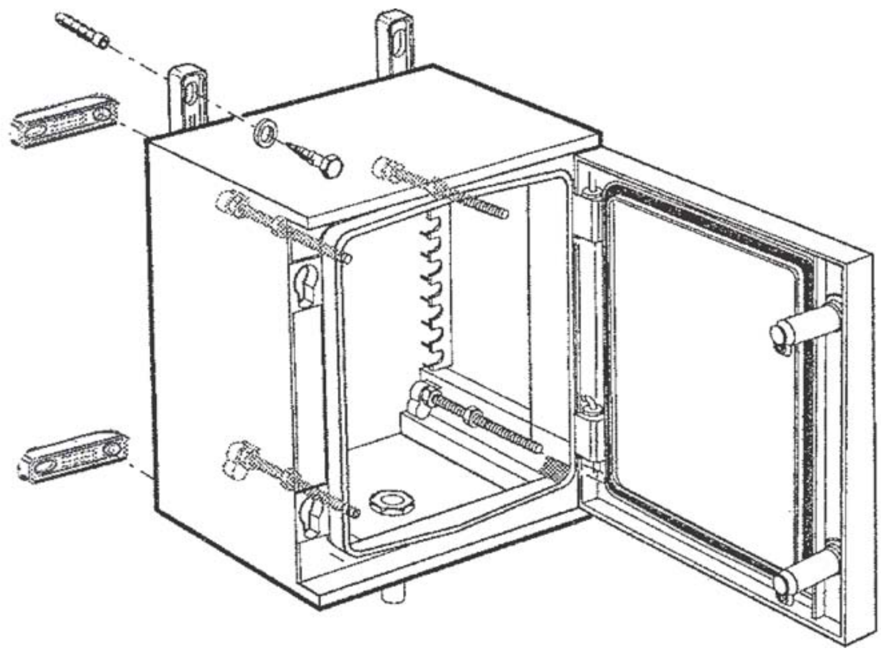


Figure 79: External housing wall mounting

⚠ **Voltage:**

Electric Shock

Do not drill into electrical wires that are embedded in the wall.

Attaching the external housing to a wall

1. Choose the vertical or horizontal mounting position.

See Figure 78: External housing mounting lugs on page 139 for details. Reposition mounting lugs if necessary.

2. Drill mounting holes in the wall.

   Use the drilling jig to align the holes.

3. Mount the external housing to the wall.

   See Figure 79: External housing wall mounting on page 139 for details. Use the screws, and appropriate inserts, to fasten the housing to the wall.

Connecting the external housing wiring to the MDF

Consult the work order, then perform the steps in Connecting the external housing wiring to the MDF.

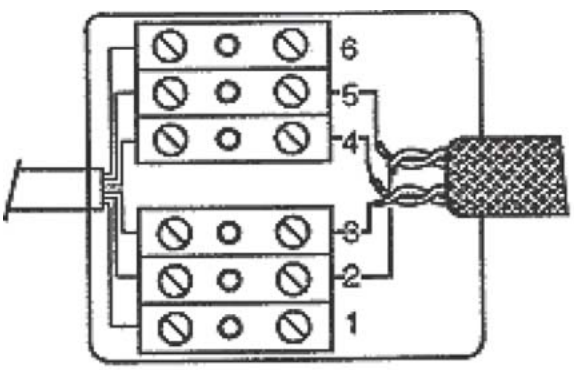


Figure 80: External housing MDF connection details

> **Note:**
> The BIX tip and ring connections shown in Table 36: External housing basestation to BIX MDF connections on page 141 correspond to standard BIX designation. The first pair are labelled T0 and R0. See Avaya Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310), chapter Planning and designating the Modular Distribution Frame (MDF).

Connecting the external housing wiring to the MDF

1. Lead the building cable into the external housing.

   Route the cable through the cable outlet in the external housing.

2. Secure the cable in the connecting box.

   Use a cable tie-wrap.

3. Connect the external housing wiring from the connecting box to the MDF.

   > **Note:**
   > See Figure 80: External housing MDF connection details on page 140 and Table 36: External housing basestation to BIX MDF connections on page 141 for wiring

connections. For DMC8 types NTCW00AB and NTCW01AB, connect from basestation 1 to basestation 8.

Note:

To support basestations 5, 6, 7, and 8 on NT8D37 (AA and DC) IPE modules requires 24 tip and ring pair backplane to I/O panel connections. To re-cable NT8D37 from 16 pair to 24 pair, see Avaya Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310), Appendix B.

Table 36: External housing basestation to BIX MDF connections

External housing base station number	External housing connector box in number	MDF connection
Basestation 1	3	T8
	4	R8
	2	T9
	5	R9
Basestation 2	3	T10
	4	R10
	2	T11
	5	R11
Basestation 3	3	T12
	4	R12
	2	T13
	5	R13
Basestation 4	3	T14
	4	R14
	2	T15
Basestation 5	4	T16
	5	R16
	6	T17
	3	R17
Basestation 6	4	T18
	5	R18
	6	T19
	3	R19

External housing base station number	External housing connector box in number	MDF connection
Basestation 7	4	T20
	5	R20
	6	T21
	3	R21
Basestation 8	4	T22
	5	R22
	6	T23
	3	R23

Installing the external housing

Consult the work order, then perform the steps in this section as required.

The section provides the following procedures:

- Installing C4600 and C4010 basestations in the external housing
- Installing a C4010E basestation in external housing with an external antenna
- Mounting the cabinet

Installing C4600 and C4010 basestations in the external housing

1. Open the cabinet by inserting the cabinet key and turn right.
2. Remove the foam from the cabinet as far as is shown Figure 110
3. Mount the swivel, and lead the incoming cable through it. Make sure that the cable inlet is waterproof. Connect the incoming cable to the connection box that is delivered with the outdoor cabinet. Also connect the CAT5 cable that is inside the outdoor cabinet to the connector box. See pictures below.

Figure 81: Connector box

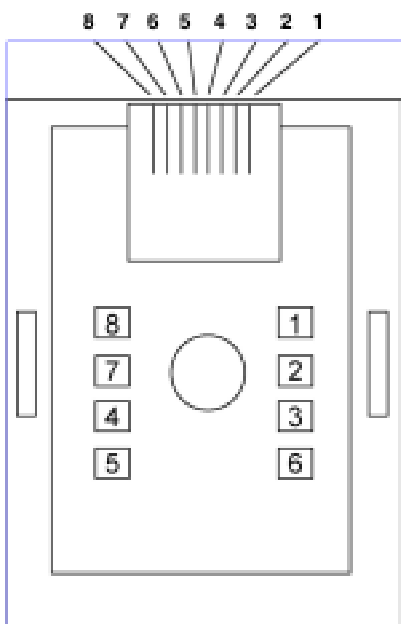


Figure 82: Diagram of connector box

4. Place the foam below the foam blocks.

Figure 83: Foam placement

5. Connect the Ethernet CAT5 to the C4600/C4010 basestations as shown.

Figure 84: Ethernet connection

6. Push the C4600/C4010 basestations in the foam as shown.

Figure 85: Basestations foam installation

7. Place the cover foam into position.

Figure 86: Foam cover installation

8. Close and lock the cabinet.

Installing a C4010E basestation in external housing with an external antenna

1. Unpack the C4010E basestation.
2. Open the cabinet of the C4010E basestation.

   To open the cabinet remove the two screws at the rear side of the cabinet. Then separate the cover and the rear side from each other.

   The cabinet is closed by four 'click' parts, two at each long side of the cabinet. If necessary, use a small screwdriver to carefully open the click parts one-by-one.
3. Drill two holes (10 mm in diameter) in the rear side of the cabinet.

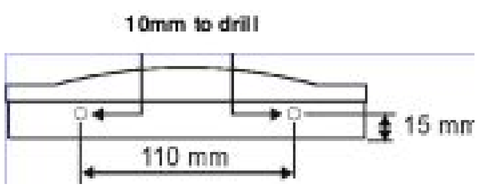


Figure 87: Hole placement

4. Connect the antenna cables to the connectors on the printed circuit board. Secure the nuts with an SMA Torque Wrench.

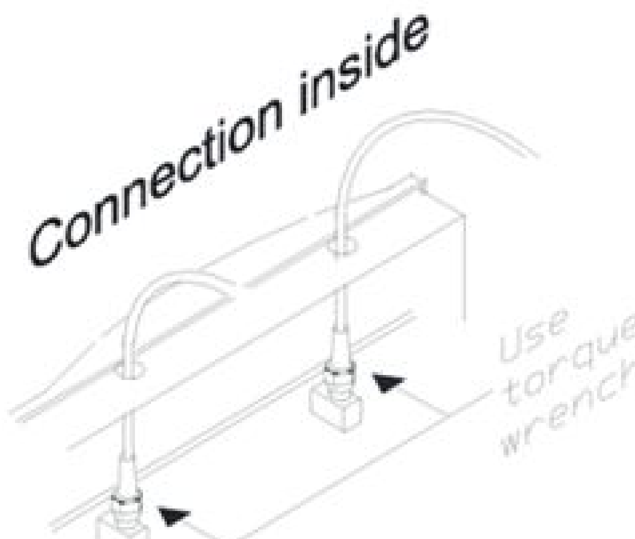


Figure 88: Connecting and securing the board

5. Snap the cover of the C4010E basestation to the rear side, to close the C4010E basestation cabinet. Fasten the cabinet by mounting the two screws into the two holes in the rear side of the cabinet.
6. Insert the cabinet key and turn right to open the outdoor isolated cabinet.
7. Remove the foam blocks from the cabinet.
8. Mount the swivel, and lead the incoming cable through it. Make sure that the cable inlet is waterproof. Connect the incoming cable to the connection box that is

delivered with the outdoor cabinet. Also connect the CAT5 cable that is inside the outdoor cabinet to the connector box.

9. Connect the Ethernet CAT5 cable to the C4010E basestation. Place the C4010E basestation in the outdoor cabinet and install the foam.
10. Connect the antenna cables to the antenna.
11. Place the cover foam in position then place the antenna in the foam.
12. Close and lock the outdoor cabinet.

Important:
Ensure that the C4010E basestation is line powered through the Ethernet cable. Local power provision is not possible in this outdoor cabinet.

Mounting the cabinet

This section describes the following procedures:

- Mounting the cabinet to the wall
- Mounting the cabinet to a pole

Mounting the cabinet to the wall

1. Mount the wall mount set on the back of the cabinet.

   Choose for horizontal or vertical mounting of the wall mount set.
2. Use the drilling jig (suitable for horizontal or vertical configuration) for the position of the drill holes.
3. Mount the cabinet to the wall.

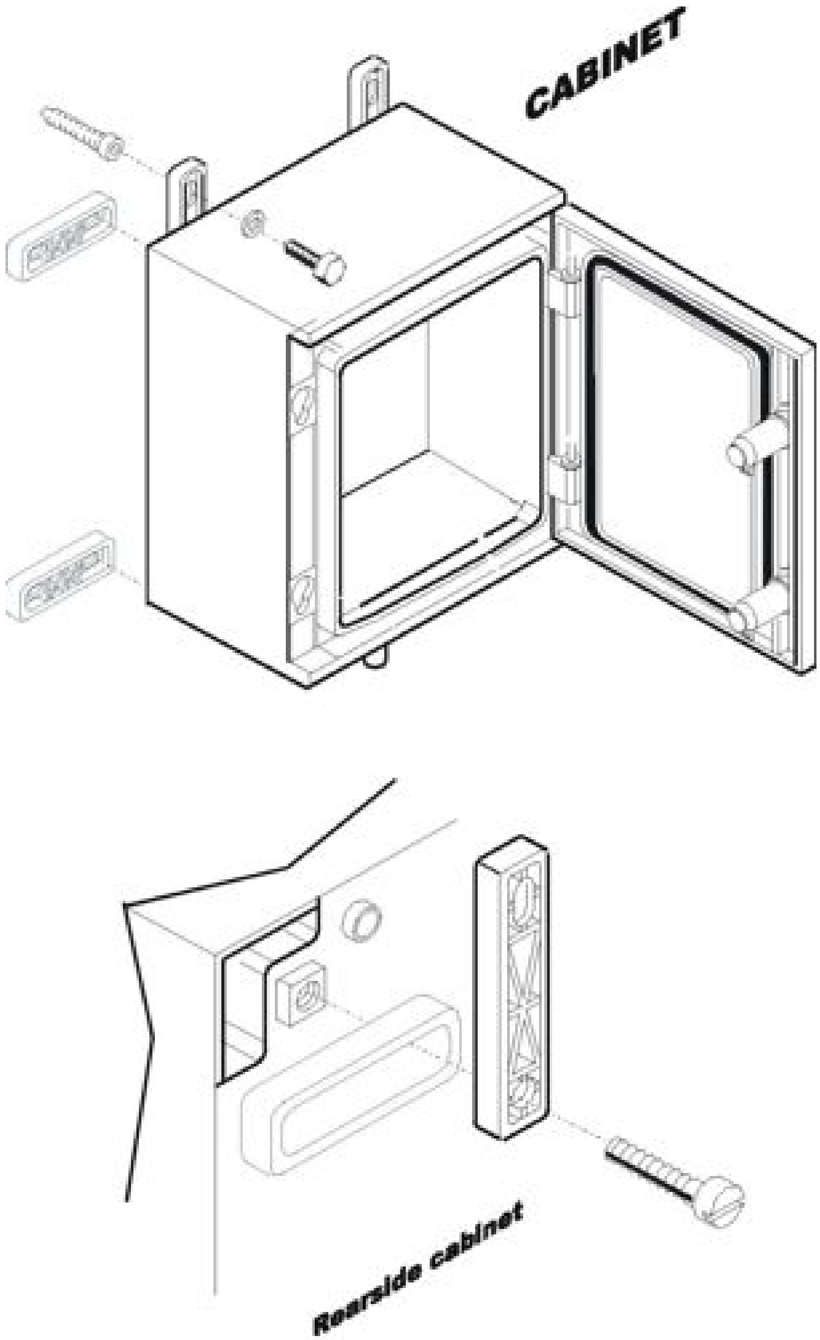


Figure 89: Mounting the cabinet

Mounting the cabinet to a pole

1. Mount the bracket to the back of the cabinet.
2. Connect the metal strip with the special bolt to the bracket.
3. Place the cabinet against the pole.

4. Lead the strip around the pole and connect the metal strip to the other side of the bracket (also with a special bolt).
5. Keep the cabinet at the right height and tighten the metal strip around the pole by twisting the special bolt.
6. Secure the metal strip with the lock-nuts.

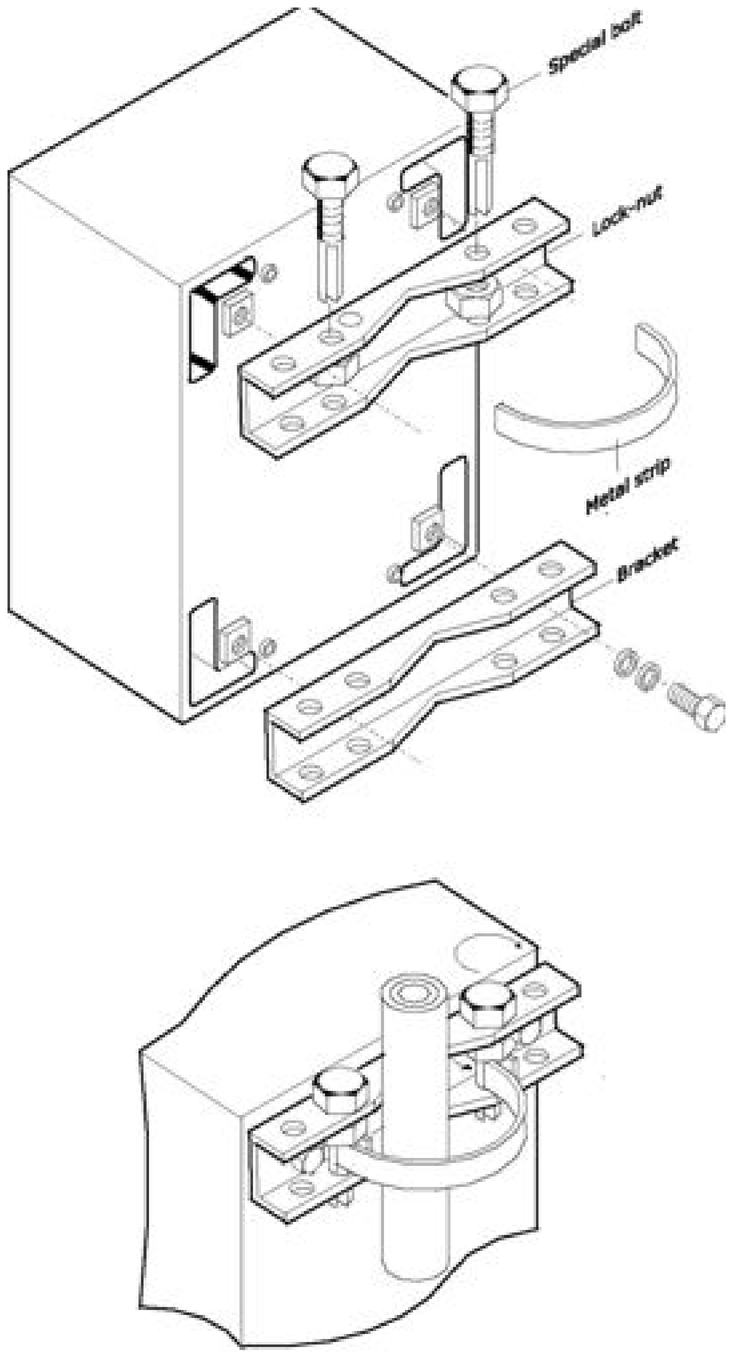


Figure 90: Installing the cabinet

Installing additional IPE shelves or CS 1000E cabinets

Installing additional IPE shelves or cabinets includes the following tasks:

- Install additional IPE modules.
- Install additional cabinets:
    - Install IPE module wiring to the MDF.
    - Install cabinet wiring to the MDF.

Installing additional IPE modules

Consult the work order and marked-up floor plan to determine if additional IPE modules are required, then perform the steps in Installing additional IPE modules on page 152.

Note:
If unfamiliar with this process, refer to Avaya Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310).

Installing additional IPE modules

1. Remove the IPE module front and rear covers.

   Remove the covers from the module on which the DECT module will sit.
2. Remove the air grills.

   Release the air grill tabs or Southco® fasteners and lift the air grill off.
3. Remove the top cap.

   Loosen and remove the three front and rear top cap bolts. Lift off top cap.
4. Unfasten the column LED.

   Remove the LED bracket bolts.
5. Remove the I/O back panel cover.

   Unlock the four Southco fasteners.
6. Disconnect the column LED.

   Unlock LED wiring connector latches on the module backplane. Detach the LED wiring connector.
7. Disconnect the thermal sensor connector.

   Unlock the sensor connector latches on the 36 pin orange/brown coloured connector, located to the left of the LED connector. Unplug the sensor connector.

8. Remove the EMI perf panel.

   Lift directly up.

9. Place the new module on top of the column.

   Keep hands and fingers out from under the module when placing the module on top of the equipment column.

10. Connect the new module wiring.

    Install the sensor connector of the new module into the vertical connector housing of the module below.

11. Secure the new module.

    Insert the five bolts and lock washers into the base of the new module. Tighten the bolts into the original module.

12. Attach the power cable.

    Connect the ribbon cable of the new module to J2 of the module below.

13. Reinstall the EMI perf panel and the LED.

    Install the LED connector and the sensor connector on the new module.

14. Replace the air grills and covers.

    Reverse the procedure for steps 1 to 4.

Installing IPE module wiring to the MDF

Consult the work order to determine the layout of the module I/O panel to MDF cabling route, then perform the steps in Installing IPE module wiring to the MDF on page 155.

Caution:

Service Interruption

The existing MDF cabling can be used; however, Avaya recommends UTP Cat 5 – NTCW15, NTCW16, or NTCW17 MDF to PBX cabling, as it provides a greater line length before signal degradation occurs.

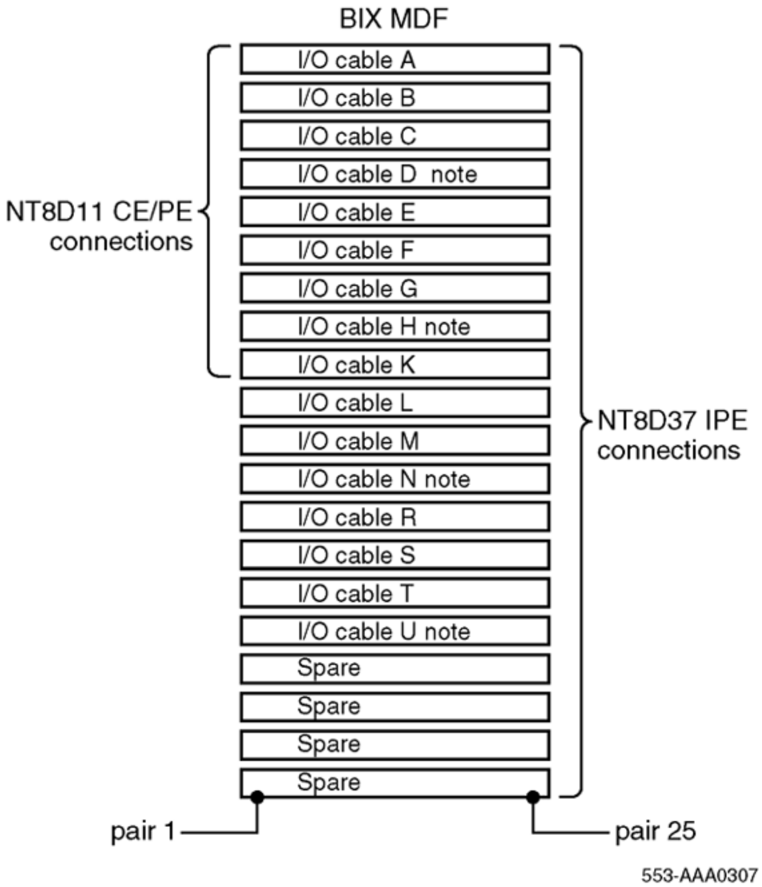


Figure 91: IPE I/O cable to BIX MDF termination

Note:

The BIX connectors shown in Figure 91: IPE I/O cable to BIX MDF termination on page 154 are not used in NT8D11AC or NT8D11DC CE/PE and NT8D37AC or NT8D37DC IPE modules, but are used in the NT8D11BC or NT8D11EC CE/PE and NT8D37BA or NT8D37 EC IPE modules.

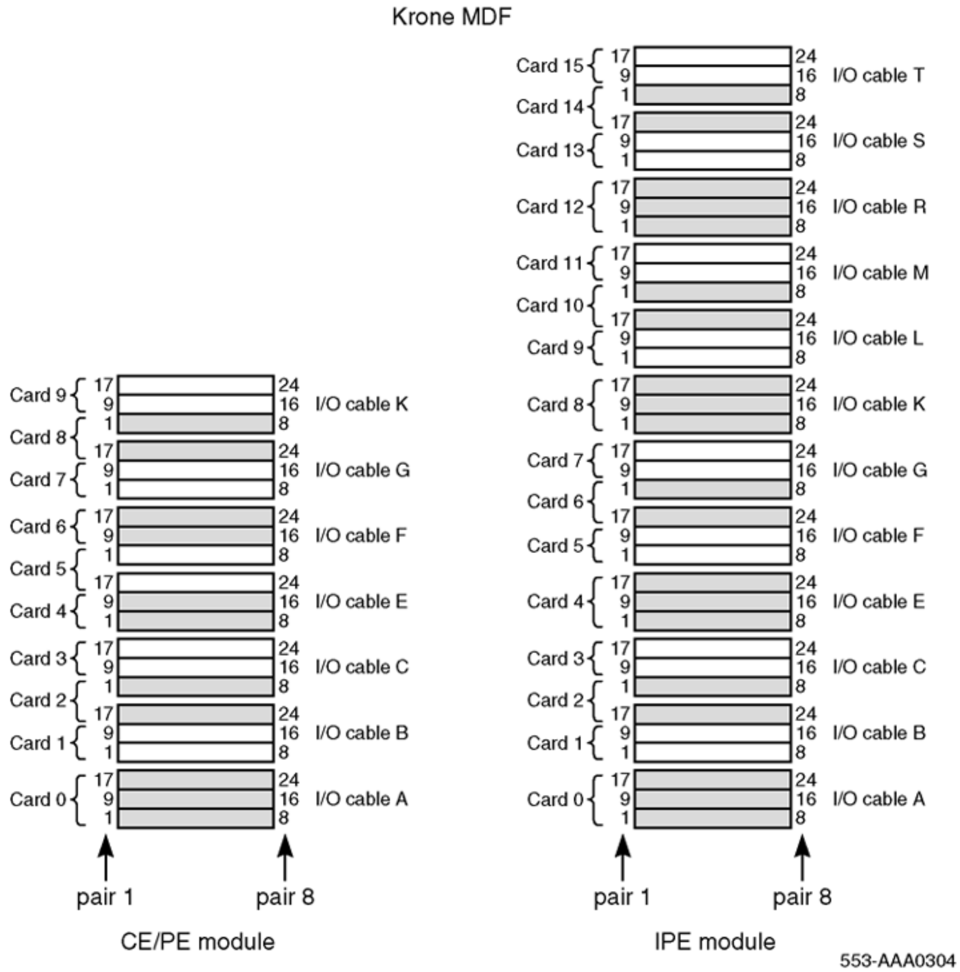


Figure 92: IPE I/O cable to Krone MD termination

Installing IPE module wiring to the MDF

1. Identify the UTP Cat 5 twenty-five pair MDF cable.

   Label both ends of the cable with the IPE module number and the I/O panel letter designation.

2. Connect the IPE or cabinet end of the cable.

   Insert the Amphenol® connector on the cable into the appropriate I/O panel connector. See Table 37: Colour code for 25 pair cable on page 156.

3. Run the cable to the MDF.

4. Terminate the cable on the MDF.

   For BIX MDF, refer to Figure 91: IPE I/O cable to BIX MDF termination on page 154 to locate the BIX connectors and Table 37: Colour code for 25 pair cable on page 156 to locate the cable colour code.

For Krone MDF, refer to Figure 92: IPE I/O cable to Krone MD termination on page 155 to locate the Krone connectors and Table 37: Colour code for 25 pair cable on page 156 to locate the cable colour code.

Table 37: Colour code for 25 pair cable

Amphenol pin number	Tip	Ring
	Body/Band	**Body/Band**
26/1	White/Blue	Blue/White
27/2	White/Orange	Orange/White
28/3	White/Green	Green/White
29/4	White/Brown	Brown/White
30/5	White/Slate	Slate/White
31/6	Red/Blue	Blue/Red
32/7	Red/Orange	Orange/Red
33/8	Red/Green	Green/Red
34/9	Red/Brown	Brown/Red
35/10	Red/Slate	Slate/Red
36/11	Black/Blue	Blue/Black
37/12	Black/Orange	Orange/Black
38/13	Black/Green	Green/Black
39/14	Black/Brown	Brown/Black
40/15	Black/Slate	Slate/Black
41/16	Yellow/Blue	Blue/Yellow
42/17	Yellow/Orange	Orange/Yellow
43/18	Yellow/Green	Green/Yellow
44/19	Yellow/Brown	Brown/Yellow
45/20	Yellow/Slate	Slate/Yellow
46/21	Violet/Blue	Blue/Violet
47/22	Violet/Orange	Orange/Violet
48/23	Violet/Green	Green/Violet
49/24	Violet/Brown	Brown/Violet
50/25	Violet/Slate	Slate/Violet

Installing CS 1000E cabinet wiring to the MDF

Consult the work order to determine the CS 1000E cabinet-to-MDF cabling route, then perform the steps in Installing CS 1000E cabinet wiring to the MDF on page 157.

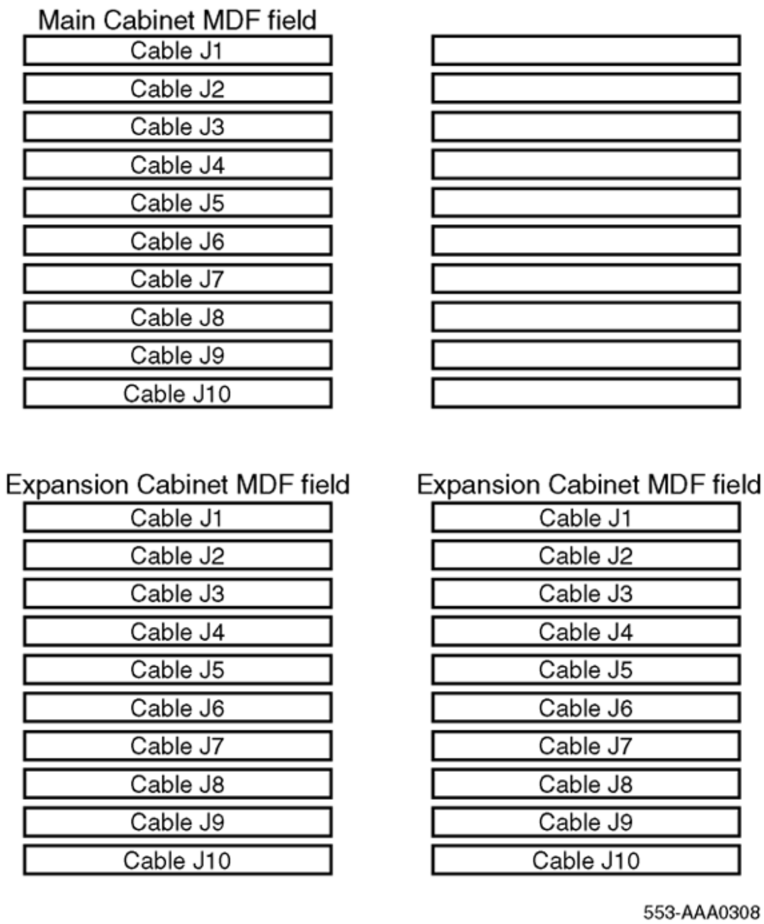


Figure 93: Meridian 1 PBX 11C Cabinet

Installing CS 1000E cabinet wiring to the MDF

1. Identify the UTP Cat 5 twenty five pair MDF cable.

   Label both ends of the cable with the cabinet jack number.
2. Connect the cabinet end of the cable.

   Insert the Amphenol connector on the cable into the appropriate cabinet connector jack.
3. Run the cable to the MDF.
4. Terminate the cable on the MDF.

For BIX MDF, refer to Figure 93: Meridian 1 PBX 11C Cabinet on page 157 to locate the BIX connectors and Table 37: Colour code for 25 pair cable on page 156 to locate the cable colour code.

Expander installation

For information on installing an Expander, refer to Avaya Communication Server 1000M and Meridian 1: CS 1000E Installation and Commissioning (NN43011-310).

Installing DMC8 and faceplate cables

Installing the DMC8 cards and faceplate cables involves the following tasks:

1. Cross-connect basestations to the DMC8 positions.
2. Cross-connect basestations to the DMC8 Relay card.
3. Install DMC8 and DMC8-E in an IPE shelf.
4. Install DMC8-E in a Cabinet system.
5. Install faceplate cables and inter-shelf/cabinet cable.

Compatibility

The NTCW00AB DMC8 and NTCW01AB DMC8-E are compatible with the following software releases:

- Release 23 and later supports basic configuration, CLID and CPND, DECT card addressing within OA&M, 16 users per card.
- Release 24B and later supports 32 users per card.
- Release 25 and later supports MSMN and Concentration.

Cross-connecting basestations to the DMC8 positions

Consult the work order to determine the cross-connect details and perform the following steps.

⚠ **Caution:**

Service Interruption

The jumper wire on the MDF must be at least UTP Cat 3. Avaya recommends UTP Cat 5, as it provides a greater line length before signal degradation occurs.

Cross-connecting basestations to the DMC8 positions

1. Cross-connect from the basestation house side connector to the DMC8 equipment side connector.

   Connect a jumper wire from the tip and ring of the house side connector to the tip and ring of the equipment side connector. Refer to Table 38: Basestation tip and ring connections on page 159 for the tip and ring designators. For DMC8s type NTCW00AB and NTCW01AB, connect from basestation 1 to basestation 8.

   Note:

   To support basestations 5, 6, 7, and 8 on NT8D37 (AA and DC) IPE modules, use 24 tip and ring pair backplane to I/O panel connections. To re-cable NT8D37 from 16 pair to 24 pair, see Avaya Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310).

2. Cross-connect the remaining basestations.

   Repeat step one until all basestations are cross-connected.

Note:

The BIX tip and ring connections shown in Table 38: Basestation tip and ring connections on page 159 correspond to standard BIX designation. The first pair are labeled T0 and R0. See Avaya Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310), chapter Planning and designating the Modular Distribution Frame (MDF).

Table 38: Basestation tip and ring connections

Basestation number	Basestation MDF connection	DMC8 MDF connection
Basestation 1	T8	T8
	R8	R8
	T9	T9
	R9	R9
Basestation 2	T10	T10
	R10	R10
	T11	T11
	R11	R11
Basestation 3	T12	T12
	R12	R12
	T13	T13
	R13	R13

Basestation number	Basestation MDF connection	DMC8 MDF connection
Basestation 4	T14	T14
	R14	R14
	T15	T15
	R15	R15
Basestation 5	T16	T16
	R16	R16
	T17	T17
	R17	R17
Basestation 6	T18	T18
	R18	R18
	T19	T19
	R19	R19
Basestation 7	T20	T20
	R20	R20
	T21	T21
	R2	R21
Basestation 8	T22	T22
	R22	R22
	T23	T23
	R23	R23

Cross-connecting basestations to the DMC8 Relay card

Consult the work order to determine the cross-connect details, then perform the steps in Cross-connecting basestations to the DMC8 positions on page 161.

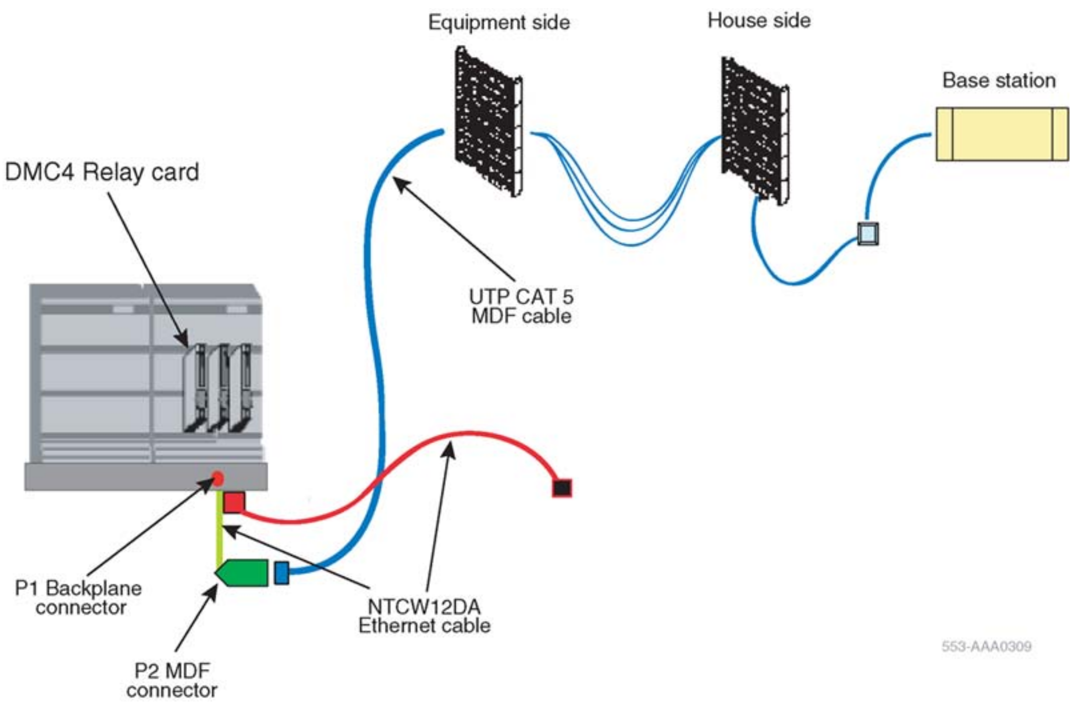


Figure 94: DMC8 Relay card to basestation connections

Cross-connecting basestations to the DMC8 positions

1. Connect the NTCW12DA cable to the DMC8 Relay card.

   Insert P1 into the DMC8 Relay card backplane connector located on the PBX shelf/ module or the Cabinet.

2. Connect the MDF cable to the NTCW12DA cable.

   Insert the MDF cable connector into P2.

3. Connect the MDF cable to the equipment side MDF cross-connect terminal block.

   See the chapter in Avaya Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310) that discusses cabling lines and trunks. See the chapter in Avaya Communication Server 1000M and Meridian 1: CS 1000E Installation and Commissioning (NN43011-310) that discusses installing and connecting cross-connect terminal to cabinets.

4. Cross-connect from the basestation house-side connector to the DMC8 Relay card equipment side connector.

   Connect a jumper wire from the tip and ring of the house-side connector to the tip and ring of the equipment-side connector. Refer to Table 38: Basestation tip and ring connections on page 159 for the tip and ring designators. For DMC8s, type NTCW00AB and NTCW01AB connect from basestation 1 to basestation 8.

   To support basestations 5, 6, 7, and 8 on NT8D37 (AA and DC) IPE modules requires 24 tip and ring pair backplane to I/O panel connections. To re-cable

NT8D37 from 16 pair to 24 pair, see Avaya Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310).

Installing DMC8 and DMC8-E in an IPE shelf

Refer to the work order and marked-up floor plan to determine the position of the DMC8 and DMC8-E, then perform the steps in Installing DMC8 and DMC8-E in an IPE shelf on page 163.

Voltage:

Electrostatic Sensitive Device

Wear a properly connected antistatic wrist strap to handle circuit cards. Only touch the edges. Do not touch the contacts or components. Set the cards on a protective antistatic bag, whenever possible. If an antistatic bag is not available, hand-hold the card, or set it in a card cage removed from the connectors.

Caution:

Service Interruption

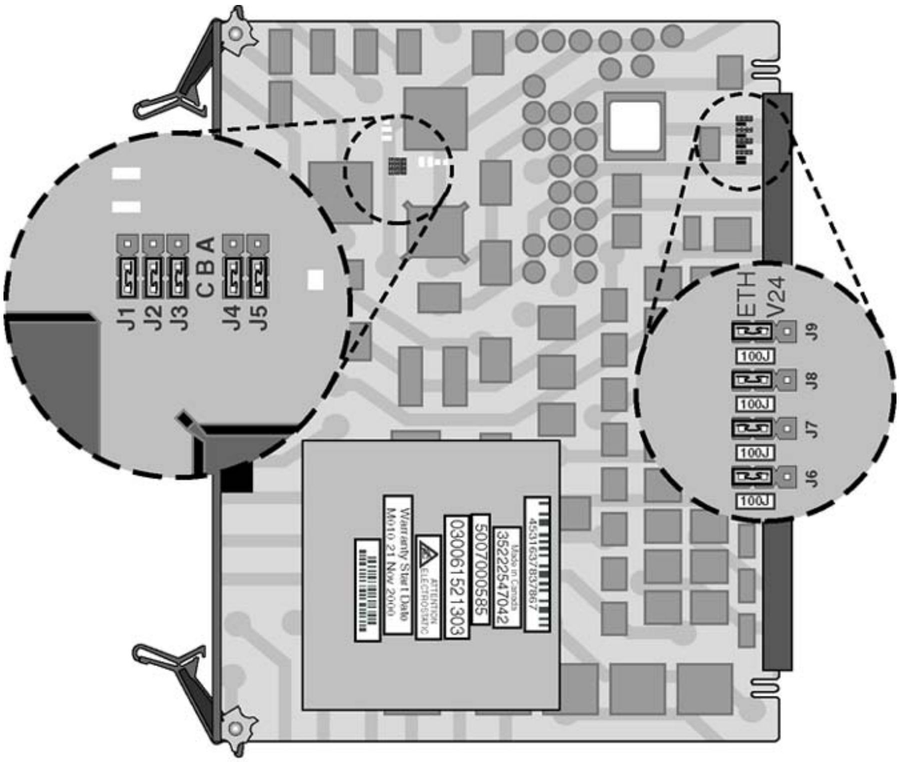
Only install DMC8-Es in slot 8.

Note:

Install the DMC8s next to each other so the faceplate cables connect to the ports.

Note:

See System software parameters on page 41 for DMC8 and DMC8-E software package compatibility.



553-AAA0310

Figure 95: DMC8/DMC8-E jumper details

See Installing DMC8 and DMC8-E in an IPE shelf on page 163 for card jumper settings.

> ⚠ **Caution:**
>
> **Service Interruption**
>
> Ensure that the DMC8/DMC8-E Relay card jumpers J6 to J9 are in the ETH position for operation on a dedicated LAN.
>
> Ensure that the DMC8/DMC8-E Relay card jumpers J6 to J9 are in the V.24 position for operation on a serial connection to the DMC DECT Manager server.

Installing DMC8 and DMC8-E in an IPE shelf

1. Install J1 jumper straps on the DMC8 and the DMC8-Es for Card ID.

   For pre-Release 23 software, strap A B. For post-Release 23 software, and Multi-Site Mobility Networking, strap B C.

2. Install J2 jumper straps on the DMC8 and the DMC8-Es for the system type.

   Strap A B for IPE shelf.

3. Install J3 jumper straps on the DMC8 and the DMC8-Es for cabinet or IPE shelf number.

   For shelf 0, the lower TN IPE shelf, strap B C. For shelf 1, the higher TN IPE shelf, strap A B.

4. Install J6 to J9 jumper straps on the DMC8 and the DMC8-Es used as the Relay card for either V.24 connection or Ethernet connection.

   For the V.24 connection, strap jumpers J6 to J9 to the V24 position. For the Ethernet connection, strap jumpers J6 to J9 to the ETH position.

5. Insert DMC8-Es, if required.

   Place DMC8-Es in slot 8.

6. Insert DMCs.

   Place DMC8s in the slots as indicated on the work order. Do not place DMC8s in slot 8.

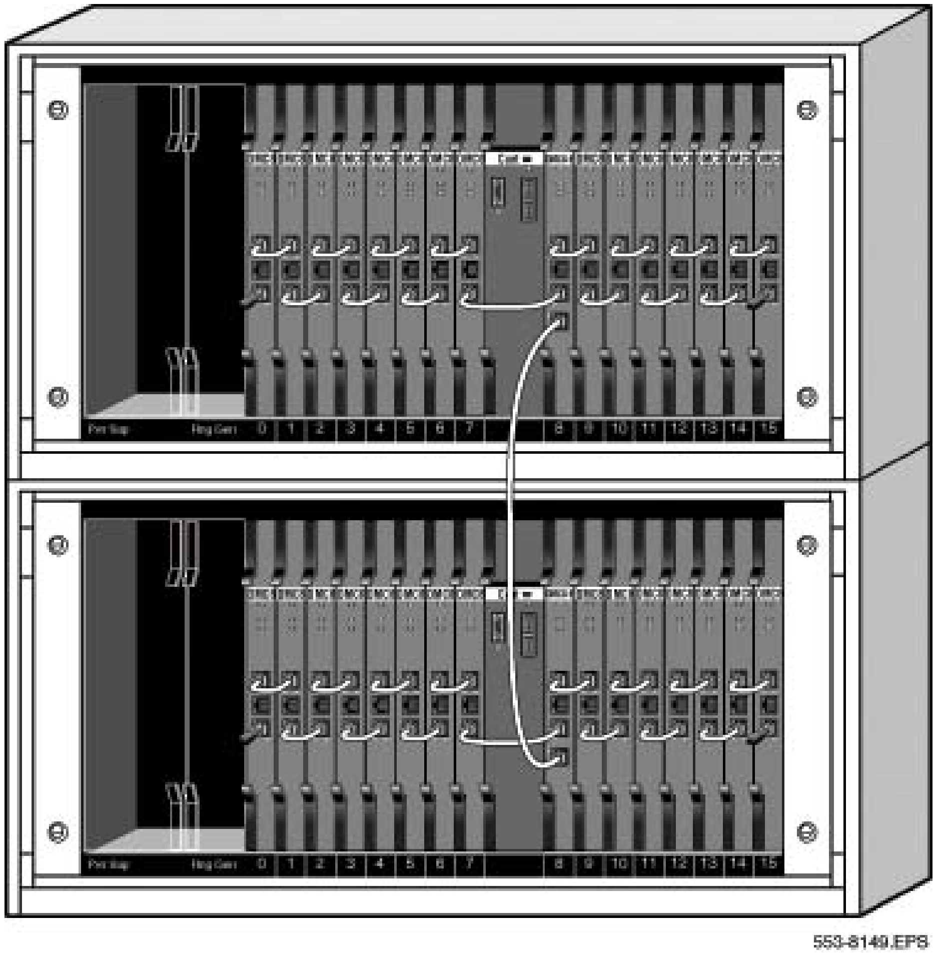


Figure 96: Example of a full system housed in two IPE shelves

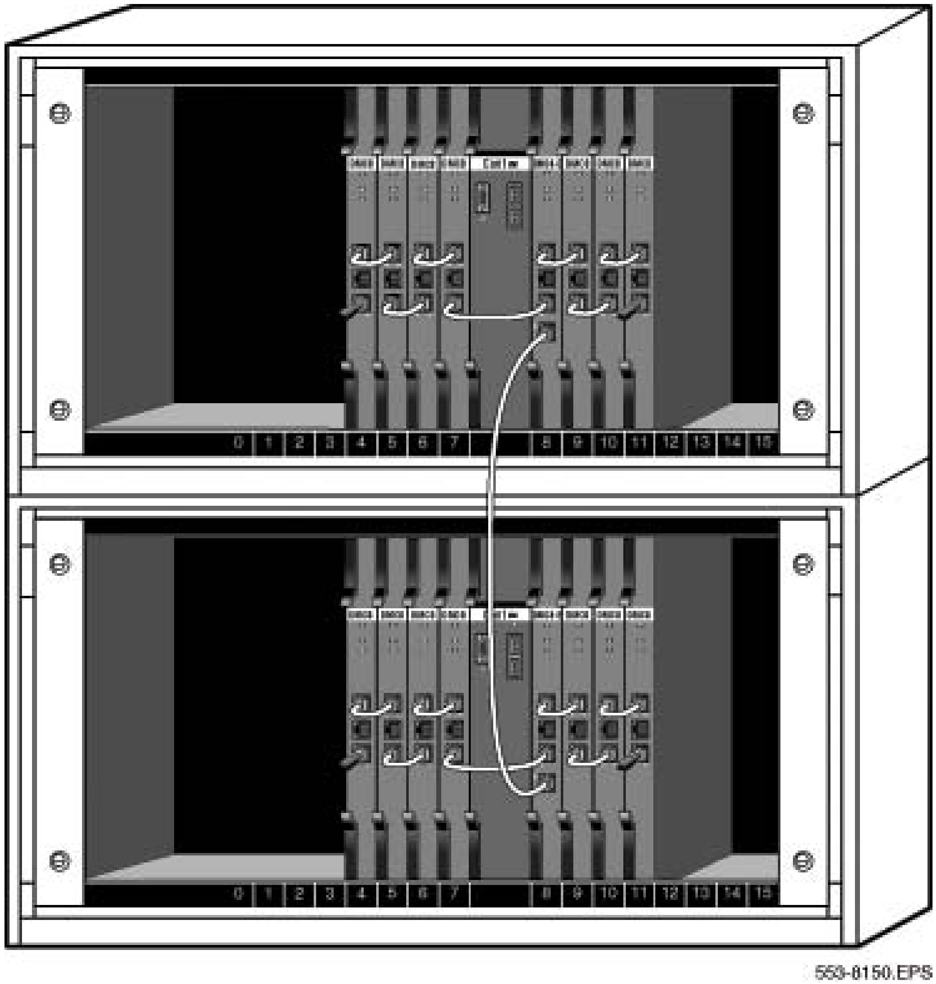


Figure 97: Example of a 16 card system housed in two IPE shelves

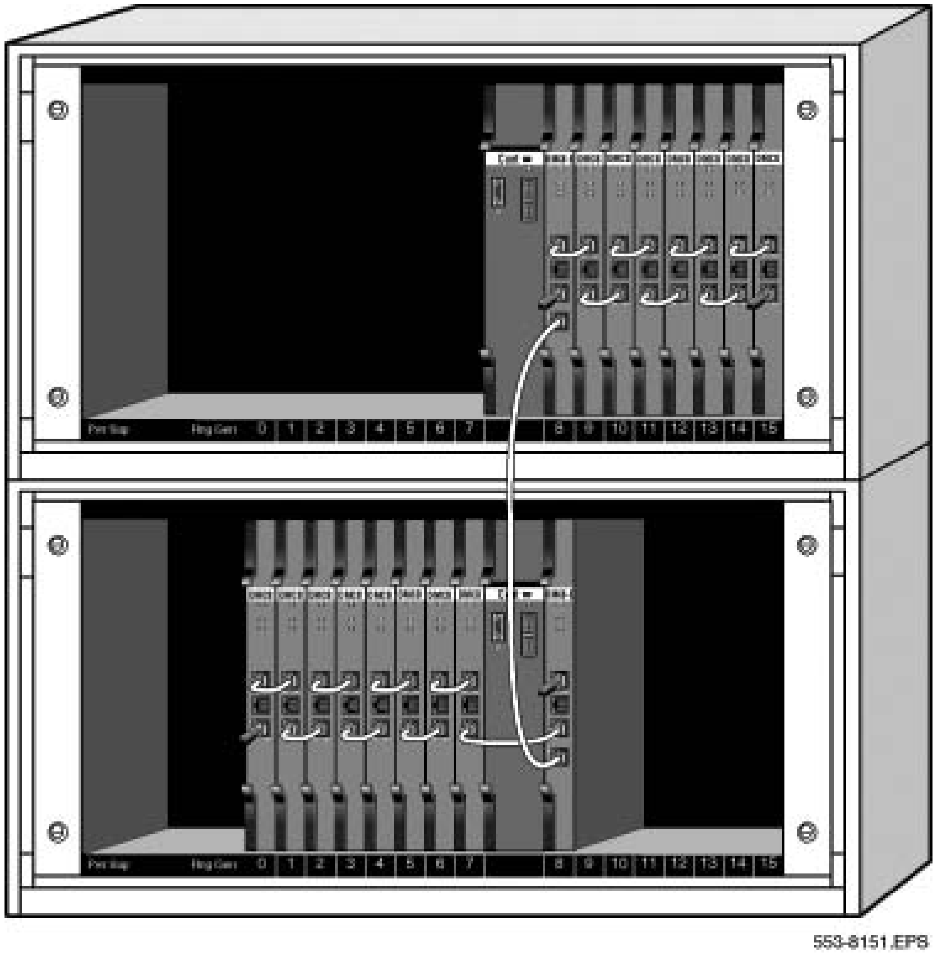


Figure 98: Example of a 17 card system housed in two IPE shelves

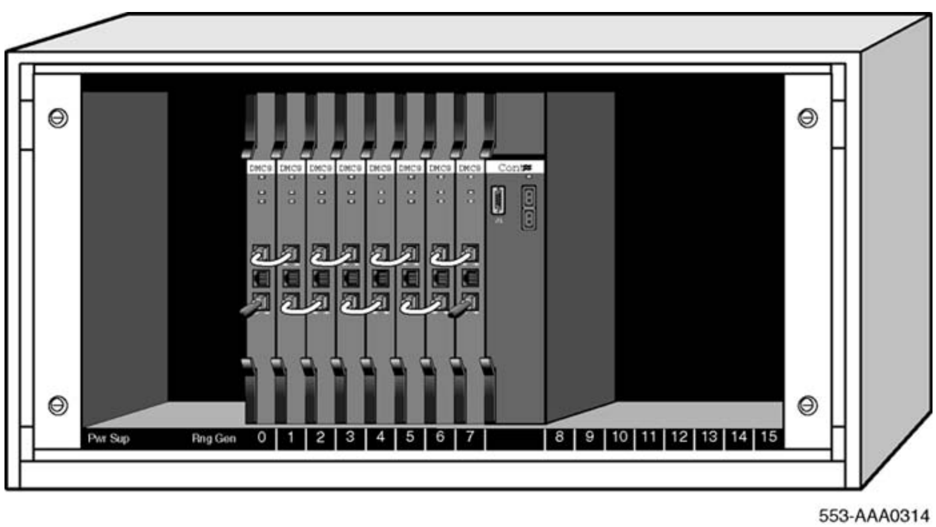


Figure 99: Example of an eight card system housed in one IPE shelf

Installing DMC8 and DMC8-E in an IPE Module Controlled by MGXPEC (CS 1000E)

The MG XPEC is a double wide, dual card Gateway Controller assembly based on the MGC hardware. It is used to control line cards in an NT8D37 IPE module. The MG XPEC features a motherboard and daughterboard architecture. The two halves of the MG XPEC card act independently to control separate Media Gateway shelves, providing the same hardware functionality of an MGC.

The MG XPEC can be thought of as two separate MGC cards bolted together. The left board (motherboard) controls the left half of the IPE module and the right board (daughterboard) controls the right half of the IPE module.

Each board of the dual card assembly controls eight slots of the IPE module, for a total of 16 slots. The motherboard controls the 8 IPE slots to the left of the MG XPEC and the daughterboard controls the 8 IPE slots to the right of the MG XPEC. Card slots are numbered from 0 to 7 for the motherboard and 0 to 7 for the daughterboard.

Voltage:

Electrostatic Sensitive Device

Wear a properly connected antistatic wrist strap when handling circuit cards. Handle cards by the edges only. Do not touch the contacts or components. Set the cards on a protective antistatic bag, whenever possible. If an antistatic bag is not available, hand-hold the card, or set it in a card cage unseated from the connectors.

Caution:

Service Interruption

Do not install DMC8-Es into any slot except slots 9, 19, or 29.

Note:

The DMC8s must be adjacent to each other so the faceplate cables can be connected to the ports.

To install DECT in an IPE module controlled by MGXPEC follow the guidelines.

1. Configure DMC TN (DMC prompt in LD 10/11) in DCS blocks according to the new slot numbering.
2. Insert a DMC-E card in slot 8 according to the old numbering or in slot 0 of the right half of the IPE module according to the new numbering.
3. Install J3 jumper straps on the DMC8 and the DMC8-Es for IPE module number. For shelf 0, the lower TN IPE shelf, strap B C. For shelf 1, the higher TN IPE shelf, strap A B.

Note:

Note: all DMC8 (DMC8-E) cards in one IPE module should have the same configuration for J3 jumpers.

For example, it's possible to configure:

- IPE shelf 0 (all DMC8 cards J3 jumper B C)
- left half of the shelf – 8 0 (superloop shelf)
- right half of the shelf – 12 0 (superloop shelf)
- IPE shelf 1 (all DMC8 cards J3 jumper A B)
- left half of the shelf – 8 1 (superloop shelf)
- right half of the shelf – 12 1 (superloop shelf)

4. Use the old numbering of the cards for configuring devices in DECT Messenger if required.

   Strap B C for Cabinet, Chassis, MG 1000E, or MG 1000E Expander.

5. Connect a Cat-5 or Cat-5e straight through cable to the faceplate CLK-OUT port of the MG XPEC in IPE module 0 (clock master), route this cable to the MG XPEC in the IPE module 1 and connect to the CLK-IN port.

   Note:

   Avaya recommends you to use Ethernet cables shorter than 5 meters for clock referencing.

The MG XPEC motherboard and daughterboard each provide 192 DSP ports. It means that the maximum number of simultaneous calls between the trunks or lines connected to each half of the IPE module, including DECT sets subscribed to DMC cards, and any endpoints outside the this half of the IPE module is limited to 192.

If you upgrade a Controller in the IPE module with DECT system to MG XPEC, the following recommendations can be taken into consideration:

1. Configure the left half of the IPE module with the same TN as it was configured for the Controller card – in this case you won't need any configuration changes for handsets (DCS blocks) subscribed on DMC cards in this half of the IPE module.
2. For the right part of the IPE module configure a new superloop and shelf number and change the DMC prompt in every DCS block according to the new slot numbering.
3. After making changes in DCS blocks perform the synchronization from DMC cards, so that existing subscription become available.
4. Do not change the order of the cards (e.g. DMC-E card slot) and jumper settings.
5. If DECT system is installed in 2 IPE modules, connect the MG XPEC cards with a cable for clock referencing.

Installing DMC8 and DMC8-E in an Avaya Communication Server 1000E

Consult the work order and marked-up floor plan to determine the position of the DMC8 and DMC8-Es, then perform the steps in Installing DMC8 and DMC8-E in a Cabinet or Chassis on page 171.

Voltage:

Electrostatic Sensitive Device

Wear a properly connected antistatic wrist strap when handling circuit cards. Handle cards by the edges only. Do not touch the contacts or components. Set the cards on a protective antistatic bag, whenever possible. If an antistatic bag is not available, hand-hold the card, or set it in a card cage unseated from the connectors.

Caution:

Service Interruption

Do not install DMC8-Es into any slot except slots 9, 19, or 29.

Note:

The DMC8s must be adjacent to each other so the faceplate cables can be connected to the ports.

Note:

See System software parameters on page 41 for DMC8 and DMC8-E software package compatibility.

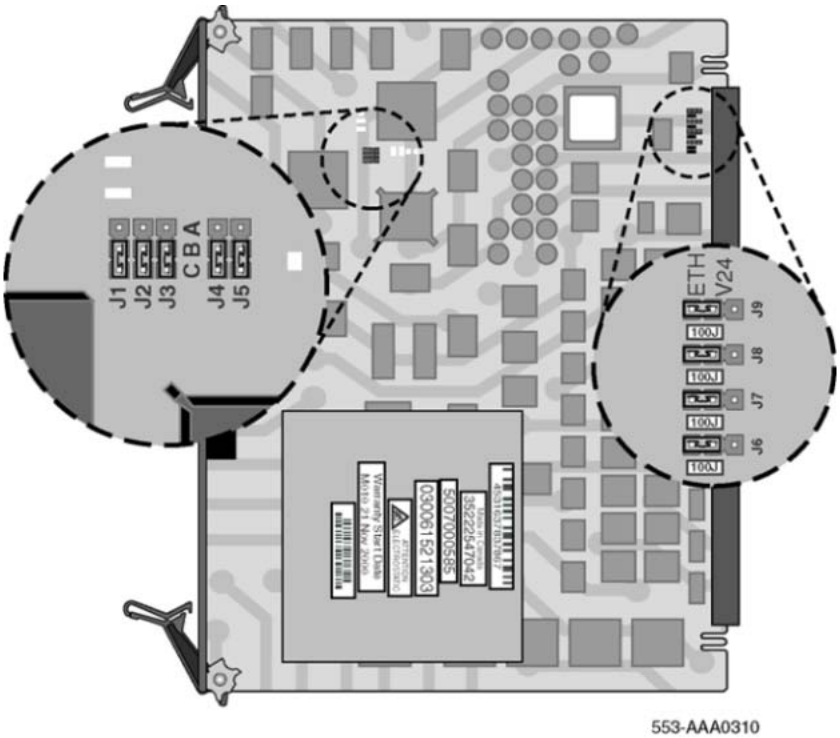


Figure 100: DMC8/DMC8-E jumper details

See Installing DMC8 and DMC8-E in an IPE shelf on page 163 for card jumper settings.

⚠ Caution:

Service Interruption

Ensure that the DMC8/DMC8-E Relay card jumpers J6 to J9 are in the ETH position for operation on a dedicated LAN.

Ensure that the DMC8/DMC8-E Relay card jumpers J6 to J9 are in the V.24 position for operation on a serial connection to the DMC DECT Manager server.

Installing DMC8 and DMC8-E in a Cabinet or Chassis

1. Avaya CS 1000E cabinet installation only - install MGC Breakout Adapter
2. CS 1000E only -- install clock sync cable if you use a two-shelf configuration. For an example see Figure 106: Example of two-shelf 15-card system in two MG1000E Chassis and Expanders on page 175
3. Install J1 jumper straps on the DMC8 and the DMC8-Es for Card ID.

   For pre Release 23 software strap A B. For post Release 23 software, and Multi-Site Mobility Networking, strap B C.
4. Install J2 jumper straps on the DMC8 and the DMC8-Es for system type.

   Strap B C for Cabinet, Chassis, MG 1000E, or MG 1000E Expander, or MG 1010E
5. Install J3 jumper straps on the DMC8 and the DMC8-Es for shelf number.

For the lower TN cabinet, strap B C. For the higher TN cabinet, strap A B.

6. Insert DMC8-Es, if required.

   Place DMC8-Es in slot 9, slot 19 or slot 29. See examples in:

   Figure 101: Example of full CS 1000E on page 173

   Figure 102: Example of an 8-card system in two Cabinets on page 173

   Figure 105: Example of one-shelf 7-card system in MG1000E Chassis and Expander on page 175

   Figure 106: Example of two-shelf 15-card system in two MG1000E Chassis and Expanders on page 175

   A Media Gateway Card (MGC) installed in an MG 1000 chassis (with an MG 1000E Expander) or an MG 1010E Chassis provides 128 DSP ports. The maximum number of simultaneous calls between the trunks or lines connected to the Media Gateway, including DECT sets subscribed to DMC cards in the chassis, and any endpoints outside the Media Gateway is limited to 128. Each DMC card requires up to 32 DSP ports. For a non-blocking call solution the maximum number of DMC cards that can be installed in an MG 1000 / MG 1010E is limited to four. If four are not sufficient, an extra MC 32 card is required for each additional DMC card. A non-blocking solution for a DECT system requires special planning in terms of the available channels on the basestations covering certain areas, as well as the distribution of DCS blocks among the DMC cards available in the system. Refer to System hardware parameters on page 39 for details.

7. Install J6 to J9 jumper straps on the DMC8 and the DMC8-Es used as the Relay card for either V.24 connection or Ethernet connection.

   For the V.24 connection strap jumpers J6 to J9 to the V24 position. For the Ethernet connection strap jumpers J6 to J9 to the ETH position.

8. Insert DMC8s.

   Place DMC8s in the slots as indicated on the work order. Do not place DMC8s in slot 9, slot 19 or slot 29. See examples given in Step 6 and Figure 104: Example of one-shelf 3-card system in one MG1000E Chassis on page 174.

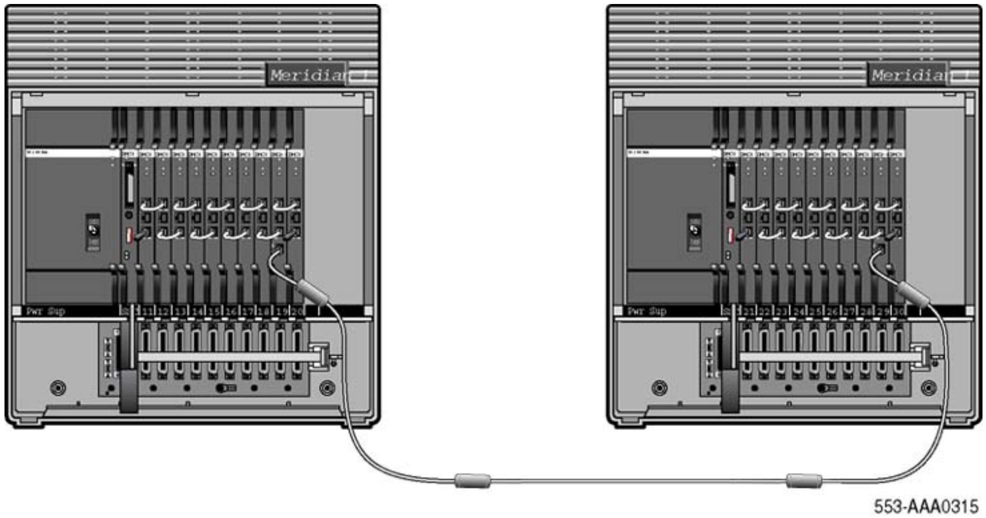


Figure 101: Example of full CS 1000E

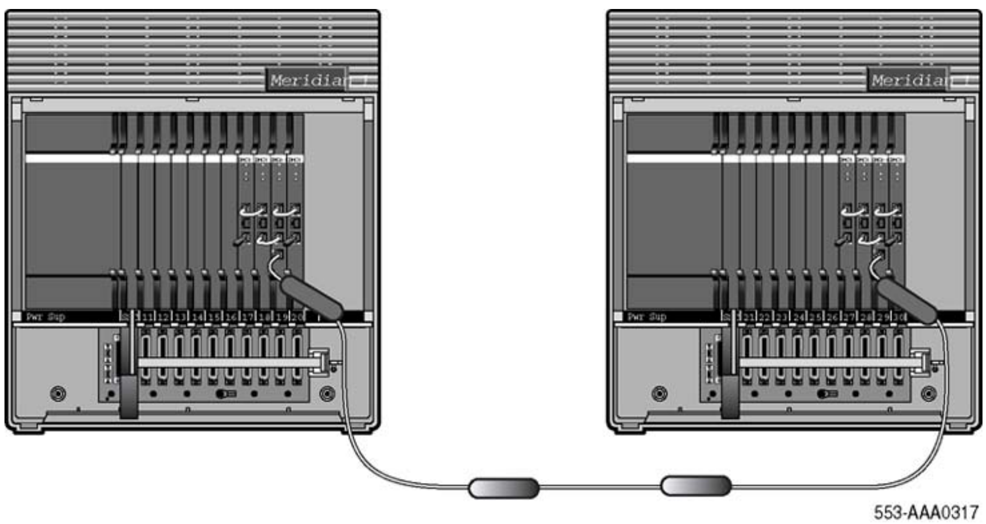


Figure 102: Example of an 8-card system in two Cabinets

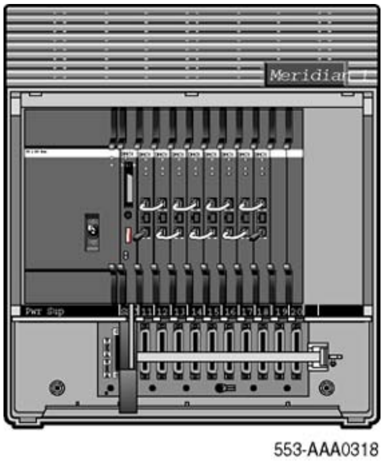


Figure 103: Example of an 8-card system in one Cabinet

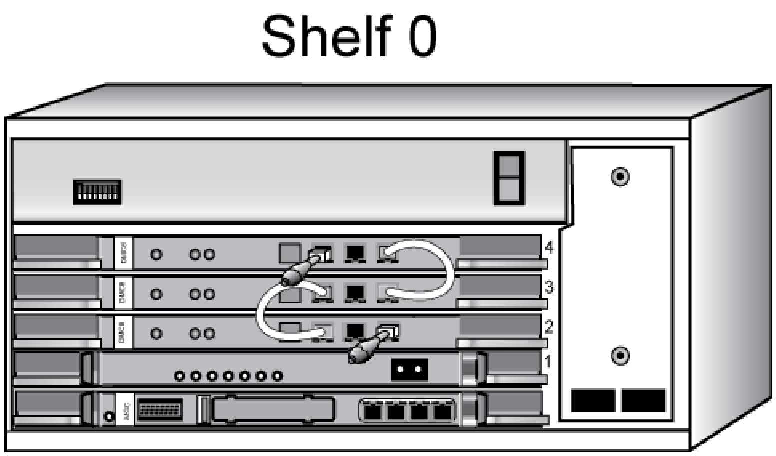


Figure 104: Example of one-shelf 3-card system in one MG1000E Chassis

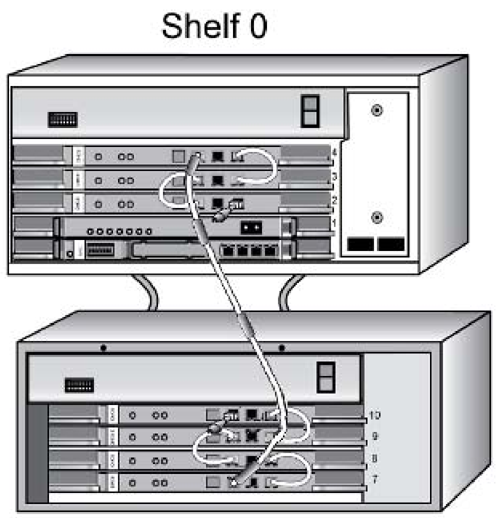


Figure 105: Example of one-shelf 7-card system in MG1000E Chassis and Expander

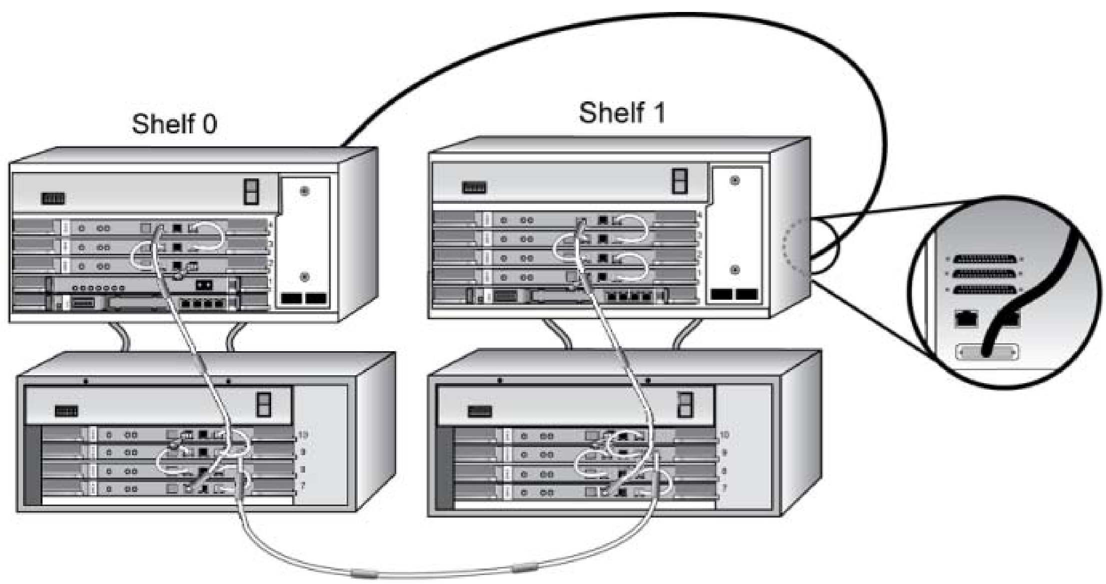


Figure 106: Example of two-shelf 15-card system in two MG1000E Chassis and Expanders

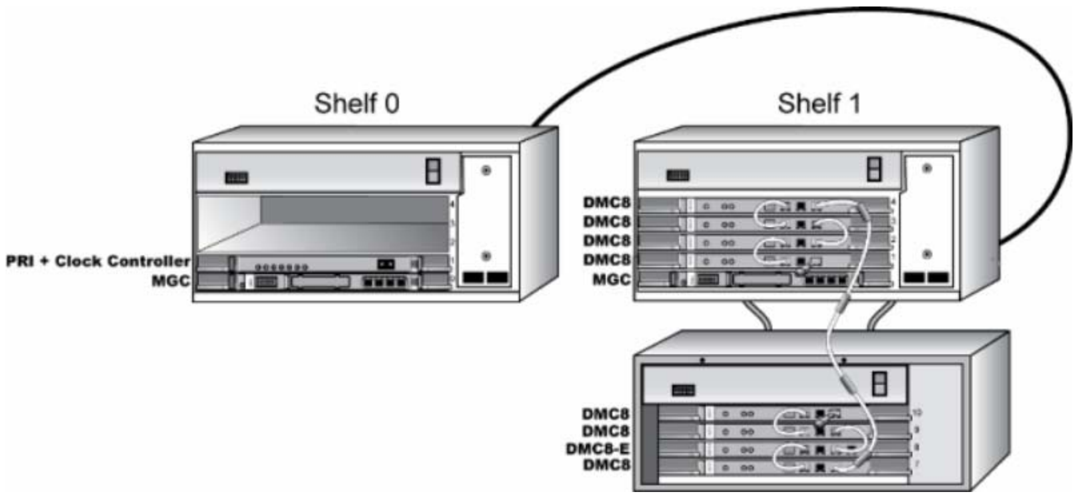


Figure 107: Example of one-shelf 8-card system with clocking taken from another shelf

Chassis installation

For information on installing circuit cards, refer to Avaya Communication Server 1000M and Meridian 1: CS 1000E Installation and Commissioning (NN43011-310).

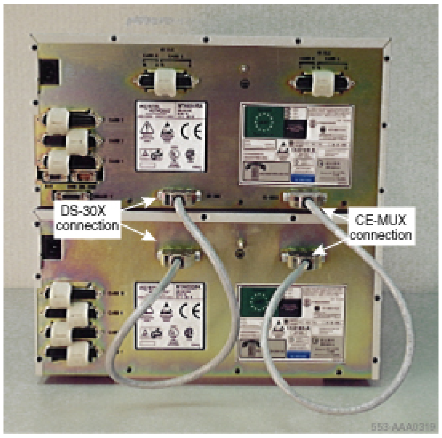


Figure 108: Chassis and Expander connected with 2 NTDK95 and CE-MUX/DS-30SX bus cables

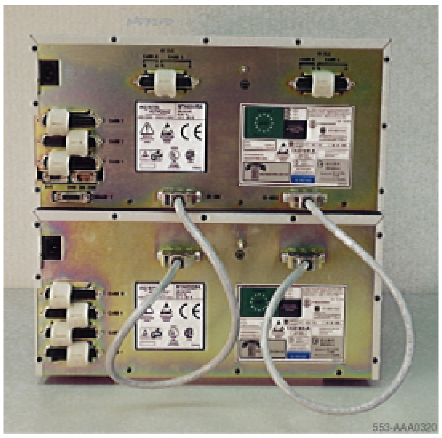


Figure 109: MG 1000S and MG 1000S Expander cabling

Installing faceplate cables and inter-shelf/cabinet cable

Consult the work order to determine the position of the faceplate cable layout and NTCW11EA DMC8-E to DMC8-E inter-shelf cables, then perform the steps in Installing faceplate cables and inter-shelf/cabinet cable on page 178.

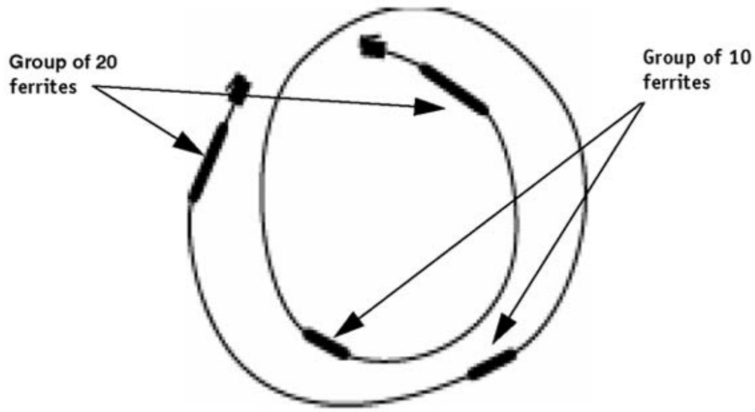


Figure 110: NTCW11EA DMC8-E to DMC8-E faceplate cable

Caution:

Service Interruption

The NTCW11EA DMC8-E to DMC8-E faceplate cable has four sets of movable ferrites. The position of the ferrites on the cable is important.

Each end of the cable must have a group of 20 ferrites. One quarter of the distance from each end of the cable must have a group of 10 ferrites. The maximum length of the cable is 1.5 meters, limiting the position of DECT shelves 0 and 1 to adjacent IPE modules or CS 1000E cabinets.

Consult the work order to determine the position of the terminator plugs, then perform the following steps.

Installing faceplate cables and inter-shelf/cabinet cable

1. Connect the DMC8 to DMC8 faceplate cables.

   Arrange the NTCW11AA DMC8 to DMC8 cables so that the DMC8 to DMC8-E cable is connected into the ports shown in:

   Figure 96: Example of a full system housed in two IPE shelves on page 165 and

   Figure 99: Example of an eight card system housed in one IPE shelf on page 167.

2. If required, connect the NTCW11FA DMC8 to DMC8 1m faceplate cable between MG1000E Chassis and Expander.

   For examples see Figure 105: Example of one-shelf 7-card system in MG1000E Chassis and Expander on page 175 and

   Figure 106: Example of two-shelf 15-card system in two MG1000E Chassis and Expanders on page 175.

3. If required, connect the NTCW11BA DMC8 to DMC8-E cable on the IPE shelf. Not required on Option 11C Cabinet.

Plug the cable into the lower port of the DMC8 in slot 7. Plug the other end of the cable into the arrow pointing left port of the DMC8-E in slot 8. See the following examples:

Figure 96: Example of a full system housed in two IPE shelves on page 165

Figure 97: Example of a 16 card system housed in two IPE shelves on page 166, and

Figure 98: Example of a 17 card system housed in two IPE shelves on page 167.

4. Connect the NTCW11EA DMC8-E to DMC8-E inter-IPE shelf or inter-cabinet cable, if required.

   Plug the DMC8-E to DMC8-E cable into each DMC8-E lower port. See the examples given in the previous step as well as the following examples:

   Figure 102: Example of an 8-card system in two Cabinets on page 173, and

   Figure 106: Example of two-shelf 15-card system in two MG1000E Chassis and Expanders on page 175.

Installing the DMC DECT application

Refer to Using the DMC DECT Manager Avaya Communication Server 1000 (NN43001-142) for information about installing DMC DECT Manager.

Connecting to a DECT system

Refer to section PBX system configuration of the NTP Using the DMC DECT Manager Avaya Communication Server 1000 (NN43001-142).

for information about connecting DMC DECT Manage to a DECT system.

Synchronizing the DECT Application to a DECT system

When the DECT Manager connects to DECT, synchronization occurs. Synchronization compares the database on the DECT Manager to the DECT system. Database mismatches are flagged by dialog boxes. The opportunity is then given to change either the system data or manager data.

A number of synchronization steps occur during connection. The Synchronization process flags changes made to a DECT system database by other managers.

Two types of synchronization occur when the connection state goes from Disconnected to Connected:

1. When the File menu or tool button is used to connect. The synchronization can be controlled through dialog boxes.
2. When the DMC DECT Manager re-establishes a permanent connection to DECT. A synchronization report is available in the Event log in the DMC DECT Manager server.

When connecting to a DECT system that has data that does not match the DMC DECT Manager Application data, do one of the following:

- Update the DMC DECT Manager Application database from DECT data.
- Update DECT data with the DMC DECT Manager Application database.

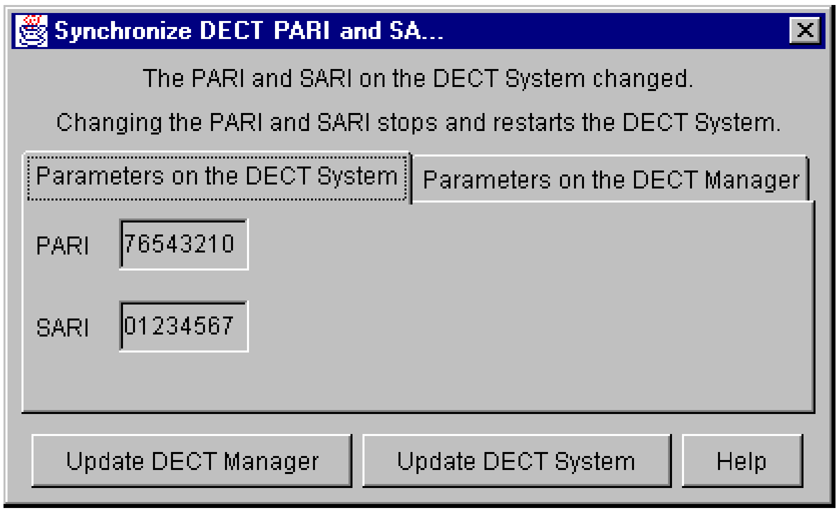


Figure 111: Synchronize DECT PARI and SARI Mismatch dialog box

If there is a PARI or SARI mismatch between the DMC DECT Manager Application database, and the DECT database, the mismatch dialog box enables the update of PARI and SARI parameters on both the connected DECT system and the DMC DECT Manager Application. See Figure 111: Synchronize DECT PARI and SARI Mismatch dialog box on page 180.

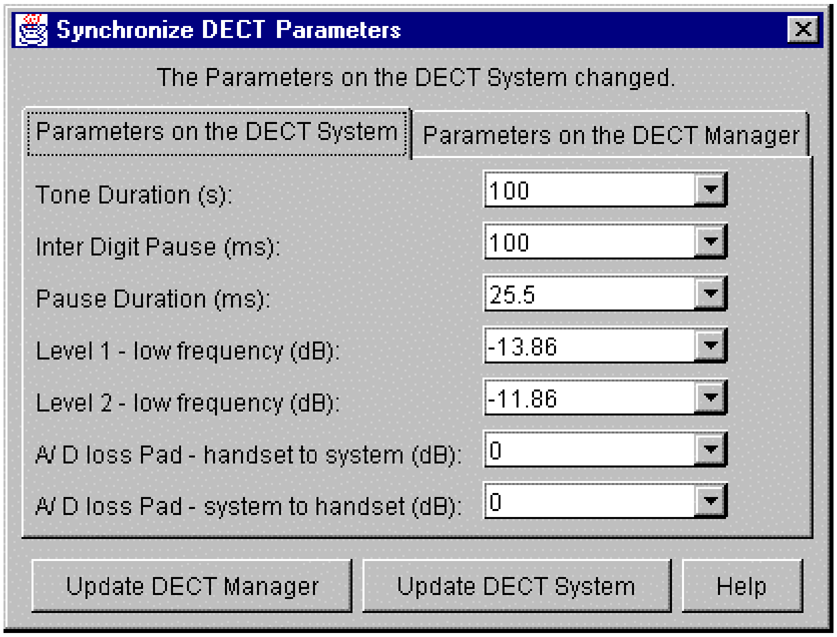


Figure 112: Synchronize DECT Parameters Mismatch dialog box

If there is a Parameter mismatch between the DMC DECT Manager Application database, and the DECT system database, the mismatch dialog box enables the update of Parameters on both the connected DECT system and the DMC DECT Manager Application. See Figure 112: Synchronize DECT Parameters Mismatch dialog box on page 181.

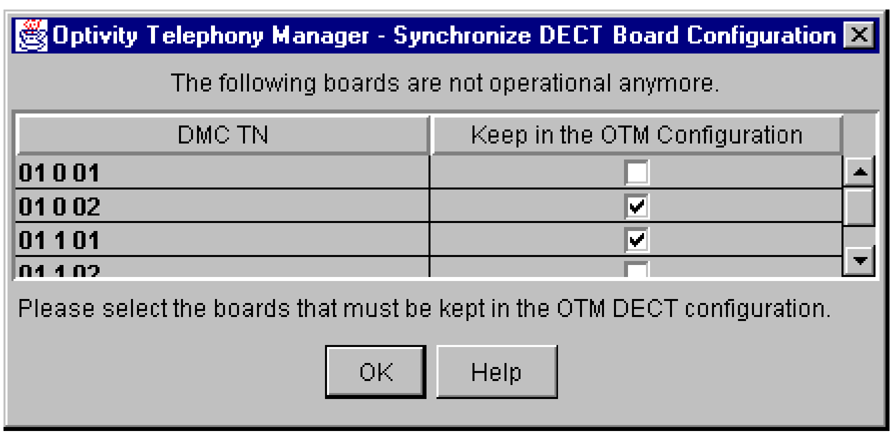


Figure 113: Synchronize DECT Board Configuration Mismatch dialog box

Figure 113: Synchronize DECT Board Configuration Mismatch dialog box on page 181 shows DMC TNs (Boards) listed in the DMC DECT Manager Application database that are not operational on the DECT system. Delete the check in the check boxes. This allows the DMCs that are no longer required in the DMC DECT Manager Application database to be removed.

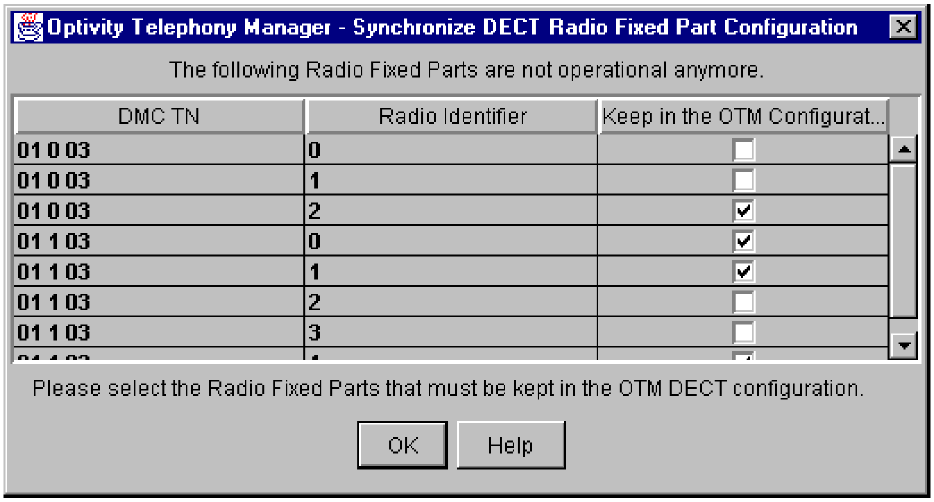


Figure 114: Synchronize DECT Radio Fixed Part Configuration Mismatch dialog box

Figure 114: Synchronize DECT Radio Fixed Part Configuration Mismatch dialog box on page 182 shows Radio Fixed Parts (basestations) listed in theDMC DECT Manager Application database that are not operational on DECT. Delete the check in the check boxes. This allows the basestations no longer required in the DMC DECT Manager Application database to be removed.

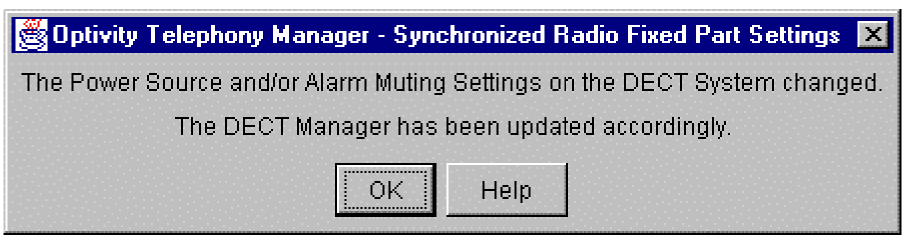


Figure 115: Synchronize Radio Fixed Part Settings Mismatch dialog box

A Power Source/Alarm Muting setting was changed by another manager. Figure 115: Synchronize Radio Fixed Part Settings Mismatch dialog box on page 182 says that the DMC DECT Manager Application database automatically updates to match the changed settings.

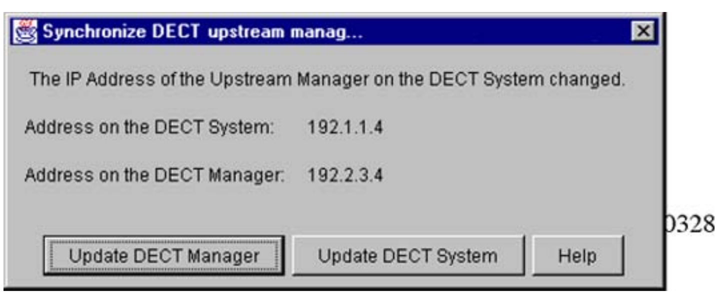


Figure 116: Synchronize DECT Upstream Manager IP Address Mismatch dialog box

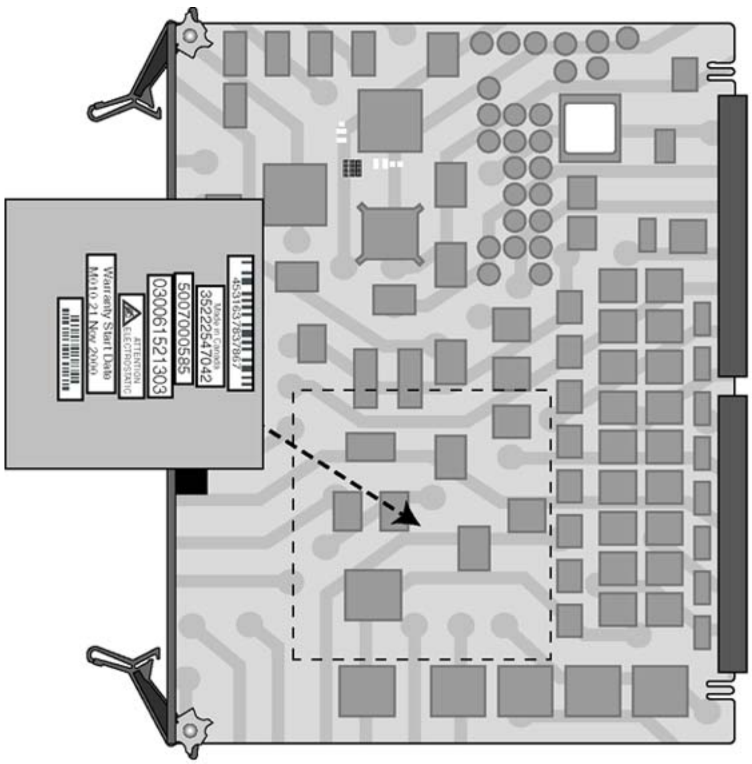
If there is an Upstream Manager IP address mismatch between the DMC DECT Manager Application database and the DECT system database, the mismatch dialog box enables an update of the Upstream Manager IP address on both the connected DECT system and the

DMC DECT Manager Application. See Figure 116: Synchronize DECT Upstream Manager IP Address Mismatch dialog box on page 182.

Figure 35 DECT Subscription Configuration Mismatch dialog box

The dialog box warns of a DMC mismatch between DECT and the DMC DECT Manager server database. The manager cannot automatically solve the mismatch. The mismatch must be solved manually.

Installing the DME on the DMC8 Relay card



553-AAA0334

Figure 117: NTCW25AA DECT Manager Ethernet (DME) daughterboard location

The NTFZ38AA Ethernet Management Connection package is available, containing the following:

1. one NTCW25AA DECT Mobility Ethernet (DME) card, and
2. one NTCW12DA DMC8 I/O cable.

Installing the DME on the DMC8 Relay card

1. Unpack the NTCW25AA DECT Manager Ethernet (DME) daughterboard.

Remove the packing material.

2. Install the DME.

   Carefully position the daughterboard over the four standoff posts and press onto the DMC8 relay card.

Changing the DMC8 Relay card default IP address

Connecting the DMC8 Relay card to a configuring PC

Caution:

Service Interruption

The DMC8 is shipped with a default IP address 192.168.1.1. The default address must be changed to conform to the network IP address plan.

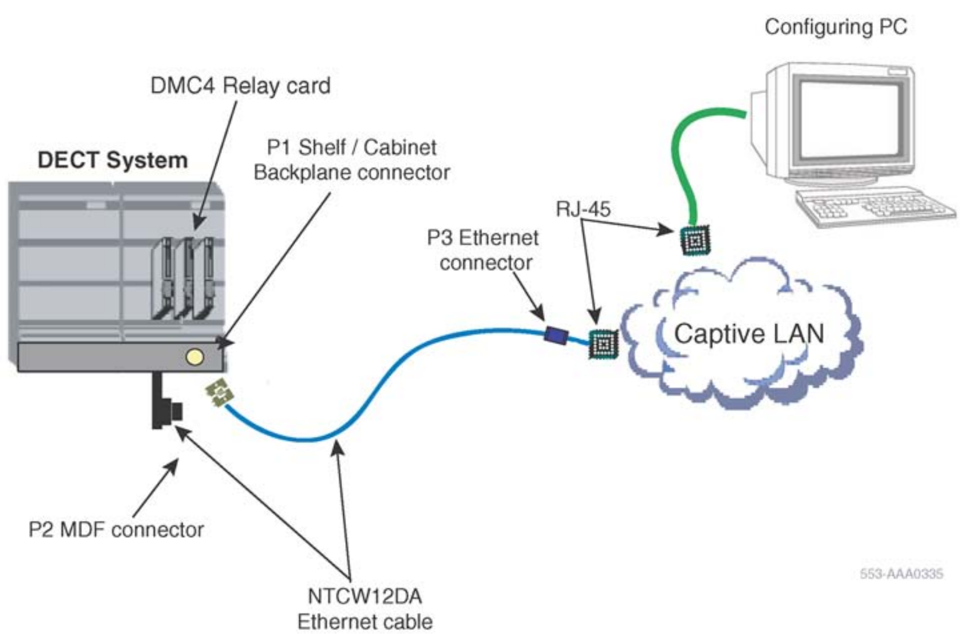


Figure 118: NTCW12DA Ethernet cable to configuring PC connections

Note:

The configuring PC can be the DMC DECT Manager server or another PC. If the configuring PC is the DMC DECT Manager server, the Captive LAN shown in Figure 118: NTCW12DA Ethernet cable to configuring PC connections on page 184 is the DMC DECT Manager Server Dedicated LAN shown in Figure 94: DMC8 Relay card to basestation connections on page 161.

Consult the work order to determine the DMC8 Relay card location, then perform the steps in Connecting the DMC8 Relay card to a configuring PC on page 185.

Note:

The Relay card can be any of the DMC8 or DMC8-E cards. Usually, the lowest-numbered card is used.

Connecting the DMC8 Relay card to a configuring PC

1. Connect the NTCW12DA cable to the connector on the backplane of the DMC8 Relay card.

   Insert P1 into the DMC8 Relay card backplane connector located on the PBX shelf/ module or Cabinet.

2. If the Configuring PC is on a captive LAN, link the DMC8 Relay card to the Configuring PC.

   Insert P3 into the captive LAN RJ45 connector.

3. If the Configuring PC is on the DMC DECT Manager server dedicated LAN,

   Insert P3 into the DMC DECT Manager server dedicated LAN RJ45 connector. See Connecting the DMC8 Relay card to the DMC DECT Manager server on page 186.

Resetting the DMC8 Relay card default IP address to the LAN IP address

The DMC8 Relay card default IP address 192.168.1.1 must be changed to conform to the server network IP address plan.

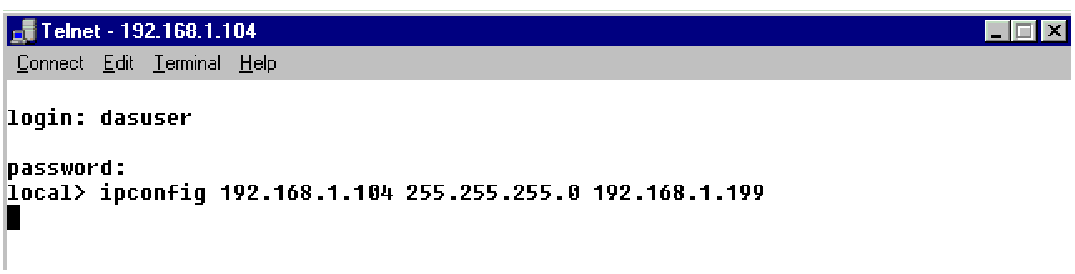


Figure 119: Telnet 192.168.1.1

Complete the following steps.

Resetting the DMC8 Relay card default IP address to the LAN IP address

1. Open the Telnet dialog box.

   Click Start on the Windows taskbar and choose Accessories > Telnet.

2. Enter username and password.

   Type username dasuser and password dasuser.

3. When the connection prompt local appears, change the DMC8 Relay card address.

Enter the following command:

```
ipconfig xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy zzz.zzz.zzz.zzz
```

xxx.xxx.xxx.xxx = new IP address of the DMC8 Relay card.

yyy.yyy.yyy.yyy = subnet mask, usually 255.255.255.0

zzz.zzz.zzz.zzz = IP address if this is the gateway for the network.

Note:

zzz.zzz.zzz.zzz must be set to the IP address of the DMC DECT Manager server Ethernet interface. If there are two Ethernet interfaces on the DMC DECT Manager server, zzz.zzz.zzz.zzz must be set to the IP address of the interface that is on the same network as the DMC8 Relay card.

Connecting the DMC8 Relay card to the DMC DECT Manager server

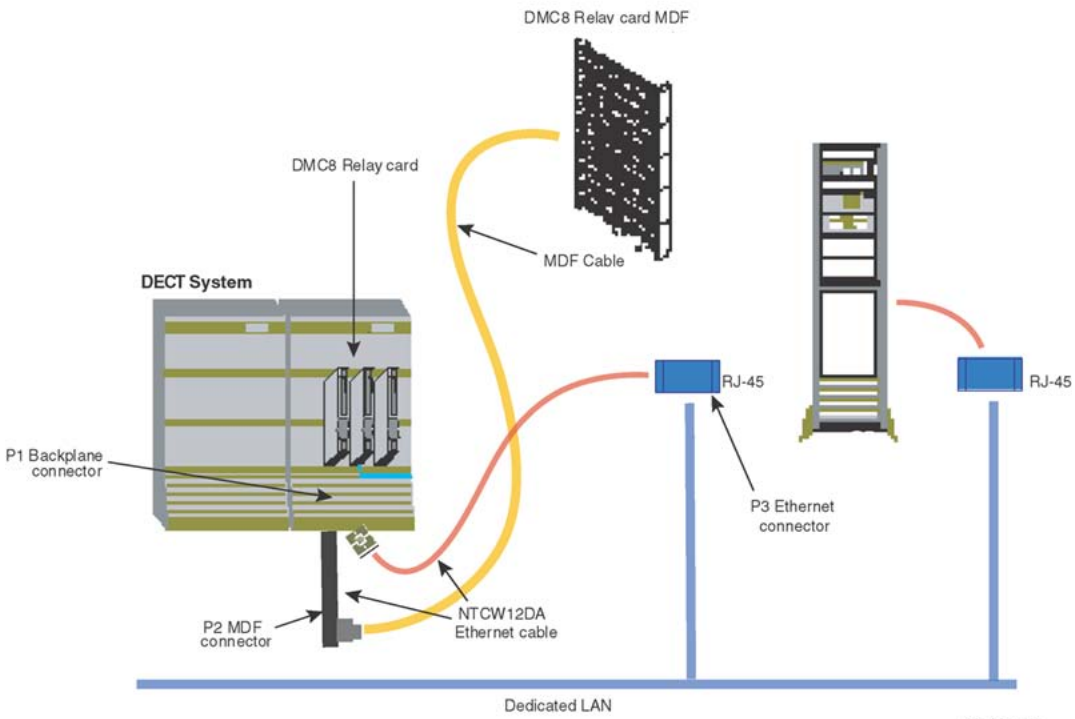


Figure 120: NTCW12DA Ethernet cable to DMC DECT Manager Server LAN connections

Complete the following steps.

Connecting the DMC8 Relay card to a Captive LAN

1. If the DMC8 Relay card was configured on a captive LAN, remove the NTCW12DA Ethernet cable from the captive LAN.

Disconnect P3 from the captive LAN RJ45 connector.

2. Connect the NTCW12DA cable to the DMC DECT Manager Server Dedicated LAN.

   Insert P3 into the Dedicated LAN RJ45 connector.

Launching the DECT application

Launching the DECT application

1. Launch the DMC DECT Manager
2. Select an existing PBX and click OK.

Adding DECT

Adding General System Properties

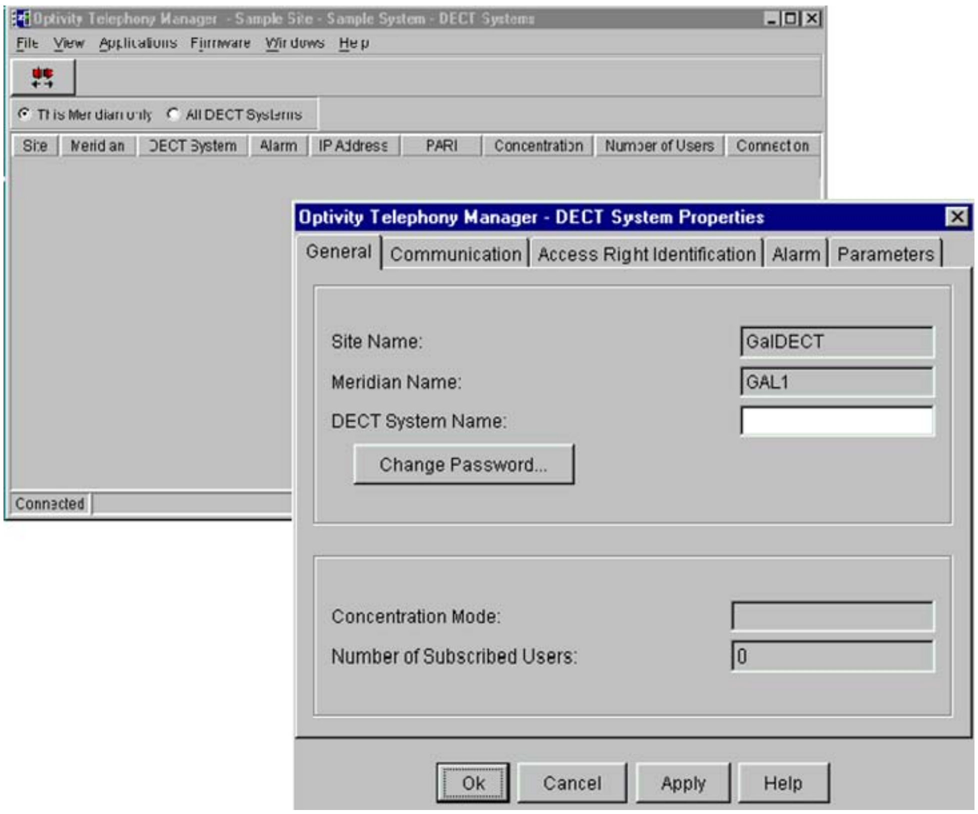


Figure 121: DECT Systems and DECT System Properties windows

Complete the following steps.

Adding DECT

1. Open the DECT System Properties dialog box.

   Pull down File > Properties.
2. Enter the DECT system name.

   Type the system name in the DECT System Name box.
3. Accept the changes.

   Click the Apply button.

Setting the DECT system IP address to match the DMC8 Relay card

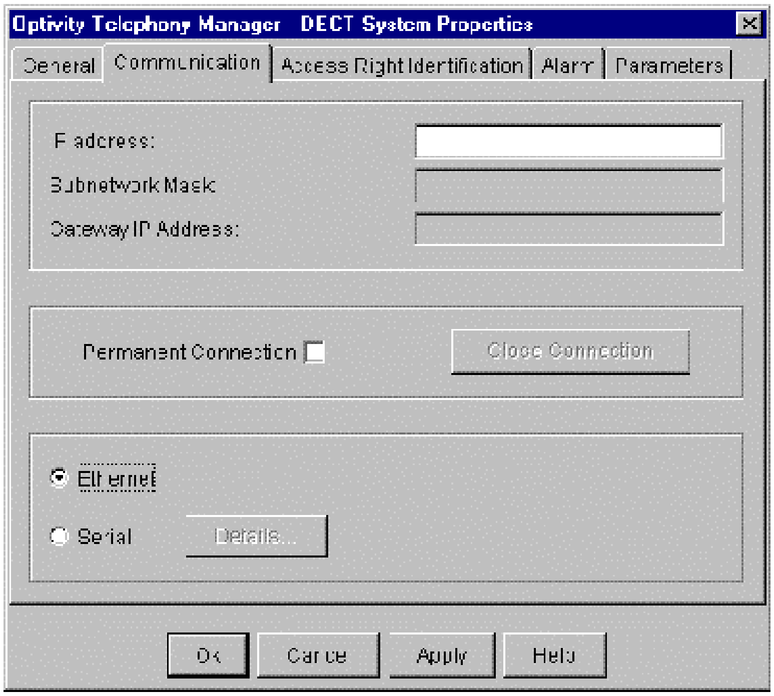


Figure 122: System Properties - Communication

Complete the following steps.

Setting the IP address of the DMC8 Relay card in the manager

1. Open the Communications dialog box.

   Click the Communications tab.

2. Enter the IP address.

   Type the IP address that was entered in Resetting the DMC8 Relay card default IP address to the LAN IP address on page 185.

3. If the communication link is Ethernet, select Ethernet.

   Click the Ethernet radio button.

4. If the communication link is Serial, select Serial.

   Click Serial radio button.

5. Accept the changes.

   Click the OK button.

Note:

When the OK button or Apply button is clicked at this point, the manager attempts to connect to the DECT system to write the MIB2 system name.

6. If required, program an Upstream Manager.

   Go to Adding the upstream manager IP address, if required on page 190.
7. If an Upstream Manager is not required.

   Go to Synchronizing data with DECT on page 191.

Adding the upstream manager IP address, if required

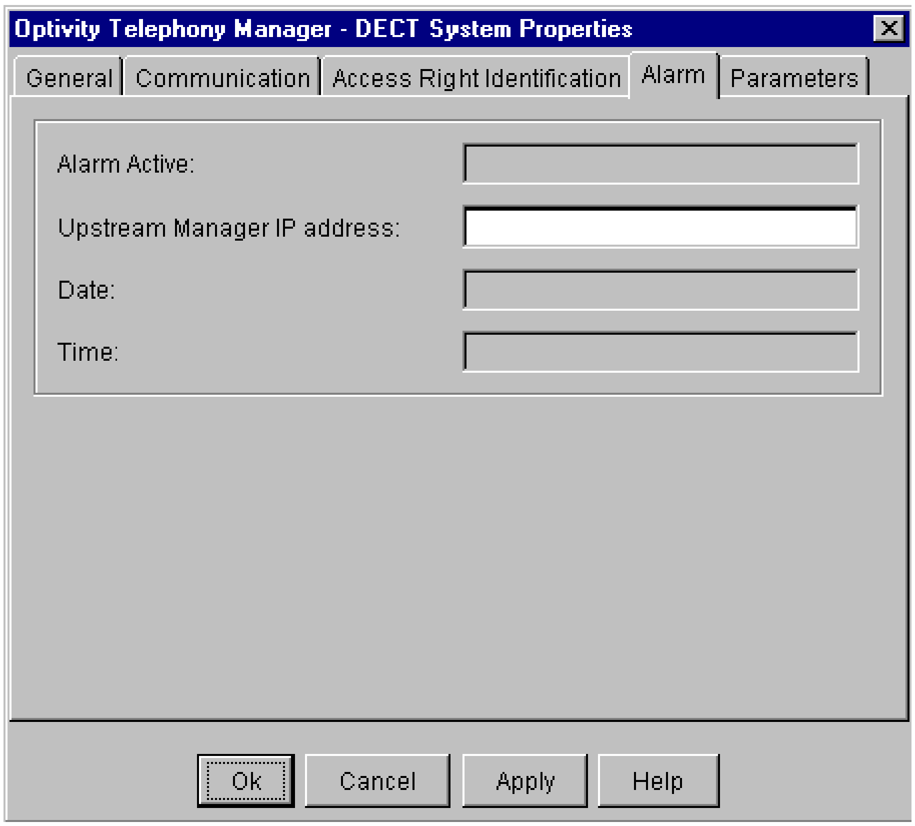


Figure 123: System Properties - Alarm

Complete the following steps.

Adding the upstream IP address, if required

1. Open the DECT System Properties dialog box.

   Pull down File>Add.
2. Open the Alarm dialog box.

Click the Alarm tab.

3. Enter the IP address.

   Type the Upstream manager IP address.

4. Accept the changes.

   Click the OK button.

Synchronizing data with DECT

When the DECT manager connects to DECT, synchronization occurs. Synchronization compares the database on the manager to the database of the DECT system. Database mismatches are flagged by dialog boxes. The opportunity to change either the DECT system data or the manager data is given.

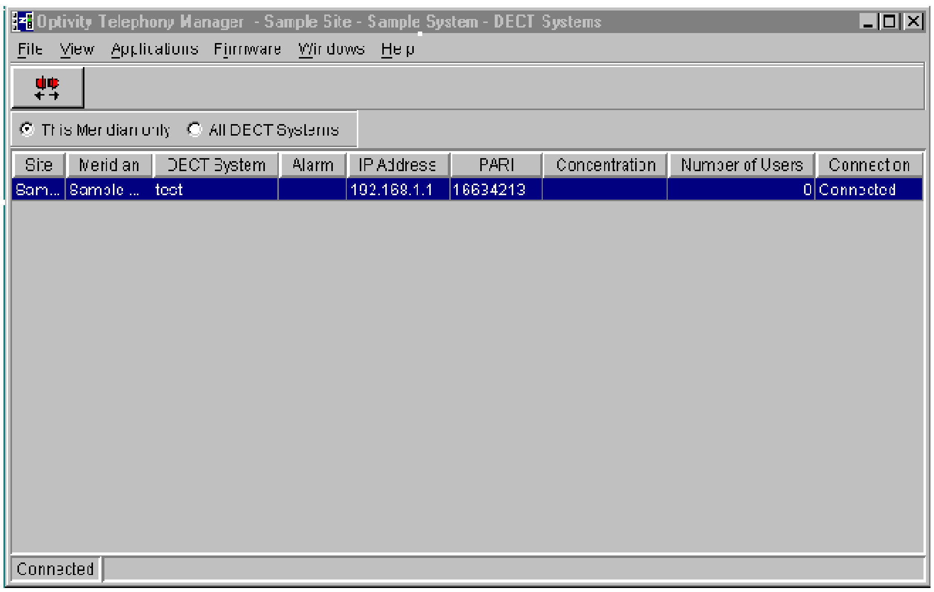


Figure 124: DECT Systems

Complete the following steps:

Synchronizing data with the DECT system

1. If the toolbar icon is red, the connection to the DECT system is enabled. Disconnect from the DECT system.

   Double-click the icon, or use File>Disonnect. Go to Synchronizing DECT PARI and SARI on page 192.

2. If the toolbar icon is green, re-connect to the DECT system

   Double-click the red icon, or use File>Connect.

Synchronizing DECT PARI and SARI

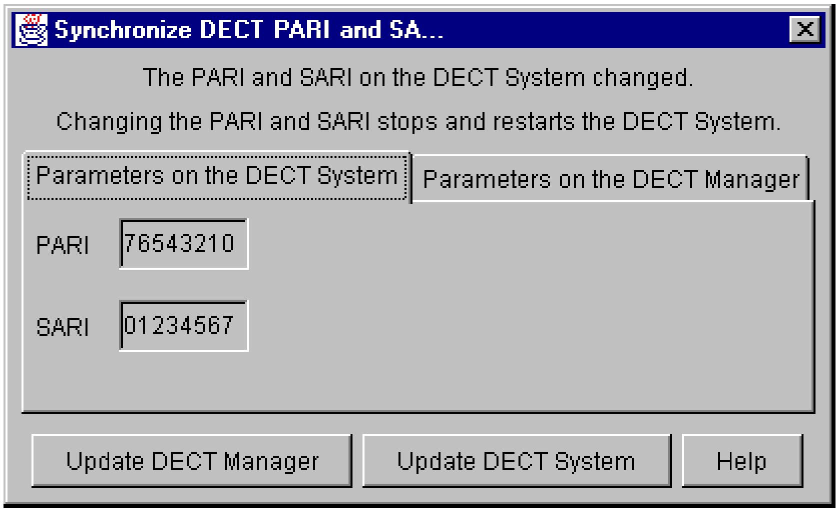


Figure 125: Synchronize DECT PARI and SARI Mismatch dialog box

Complete the following step:

Synchronizing DECT PARI and SARI

Store the DECT system PARI SARI parameters in the DMC DECT Manager database.

Click the Update DECT Manager button.

Synchronizing DECT parameters

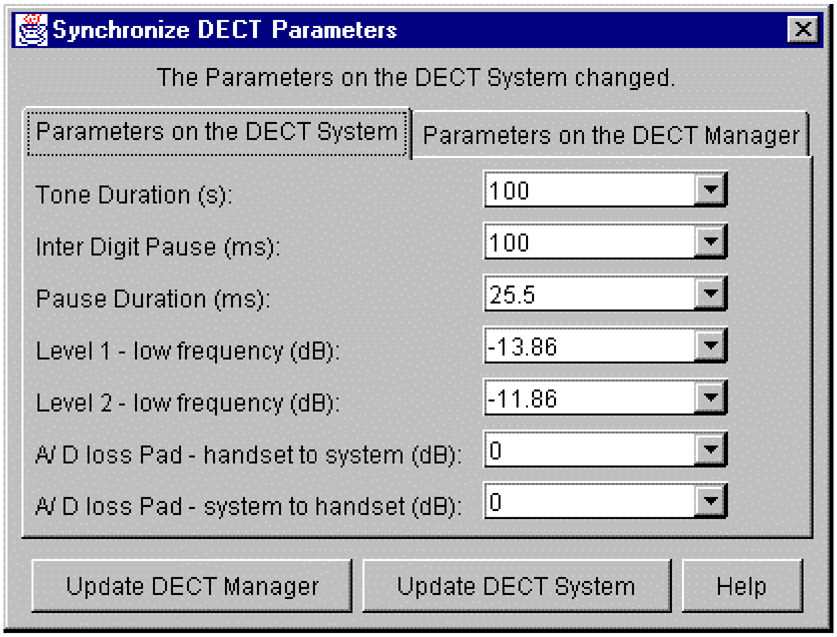


Figure 126: Synchronize DECT Parameters Mismatch dialog box

Complete the following step:

Synchronizing DECT Parameters

Store the DECT system DECT Parameters in the DMC DECT Manager database.

Click the Update DECT Manager button.

Synchronizing DECT Upstream Manager IP address

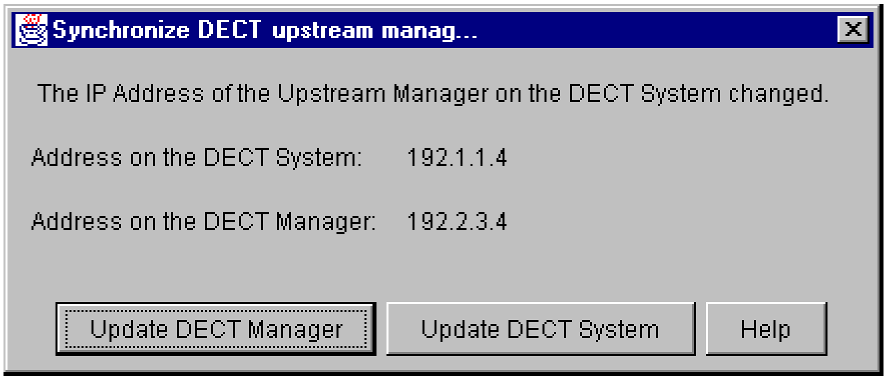


Figure 127: Synchronize DECT Upstream Manager IP address mismatch dialog box

Complete the following step:

Synchronizing DECT Upstream Manager IP address

Store the DECT system Upstream Manager IP address in the DMC DECT Manager database.

Click the Update DECT Manager button.

Configuring handsets and retrieve subscription data

Retrieving subscription data for handsets

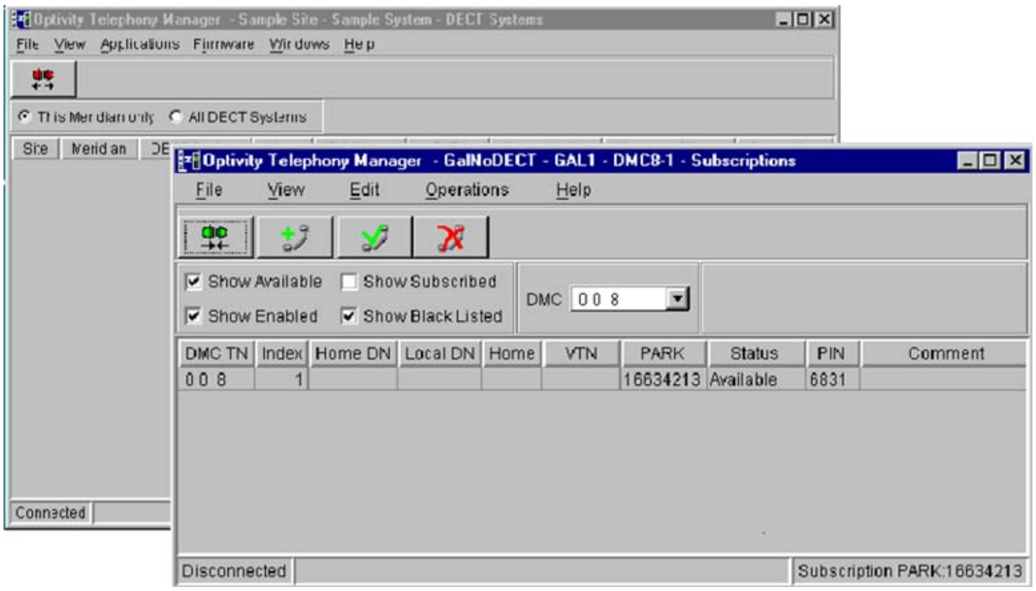


Figure 128: DECT Systems window and Subscriptions window

Complete the following steps.

Subscribing handsets

1. Launch the Subscriptions window from the DECT Systems window.

   Click the Applications menu, click Subscriptions.

2. Retrieve the subscription configuration data from the DMC DECT Manager Station Administration database.

   Note:
   At this point, no handset data appears in the Subscriptions window.

   In the Subscriptions window, click the Operations menu, click Retrieve DMC DECT Manager Configuration.

3. Open the Configure DECT Subscription dialog box.

Note:

At this point, all handsets configured on DMC DECT Manager Station Administration are shown in the Subscriptions window

Click the File menu, click Add or click:

Enabling subscription

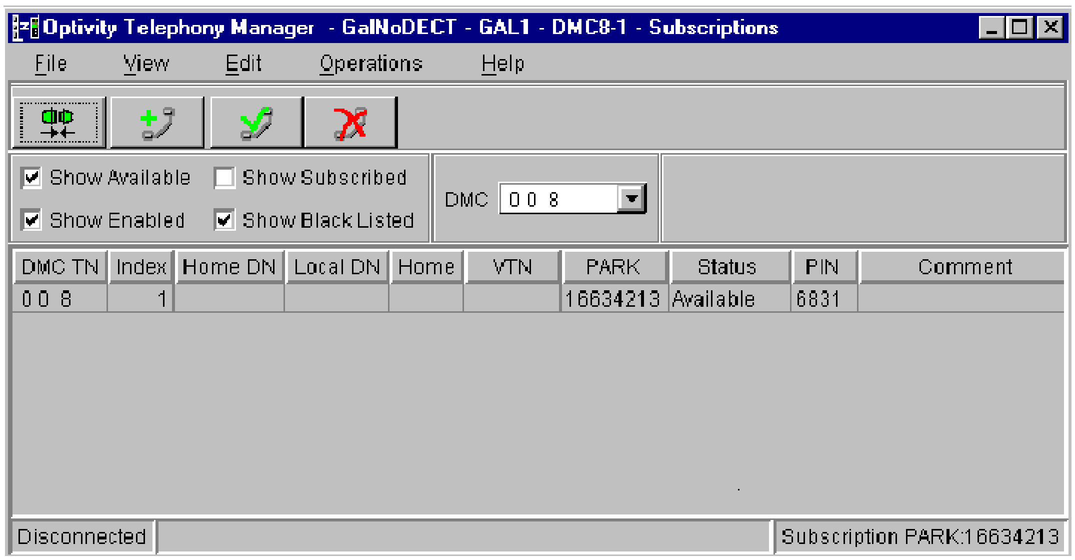


Figure 129: Subscriptions window

Complete the following steps for each handset

Configuring handsets

1. **Note:**

   At this point, there are no PINs shown in the Subscriptions window.

   Select a handset from the list.

   Click a handset in the list to highlight a row.

2. Enable handsets.

   Click the Operations menu, click Enable or click:

Activating the PIN on the handsets

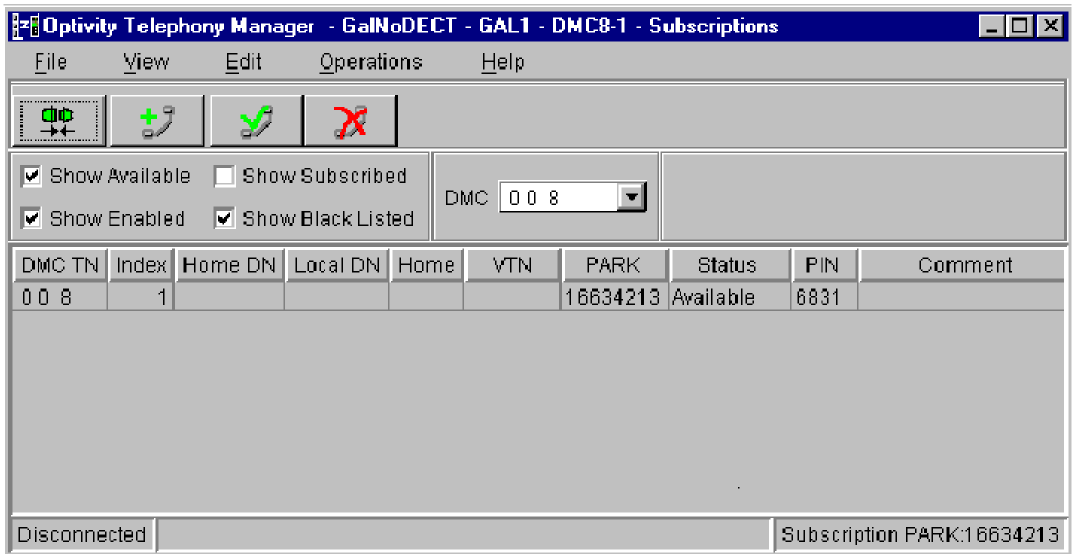


Figure 130: Subscriptions window

Complete the following step:

Obtaining the PIN

Note:

At this point, in the Subscriptions window, the PINs are shown and the Status is Enabled.

Subscribe the DECT handsets.

See Handset subscription on page 197.

Note:

When a handset is subscribed, the Subscription window shows the Status column as Subscribed and does not show a PIN.

Handset subscription

For detailed information on subscribing a handset, refer to the DECT Handset user guides.

Basestation Powering and Muting

Opening RFP window

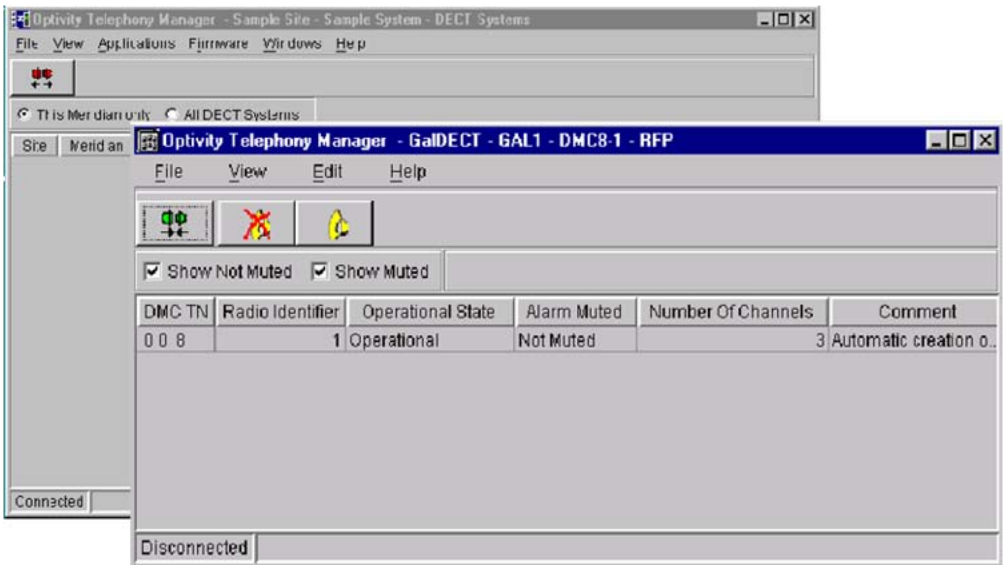


Figure 131: DECT Systems main window and RFP window

Complete the following steps:

Opening RFP window

1. Launch the DECT Systems window.
2. Launch the Boards window.

   On the DECT Systems window, click the Applications menu, click Boards.
3. Select a basestation from the list.

   Click RFP in the list to highlight a row.
4. Open the Radio Fixed Part properties dialog box.

   Click the File menu, click Properties.

Setting basestation alarm muting, line power, and comments

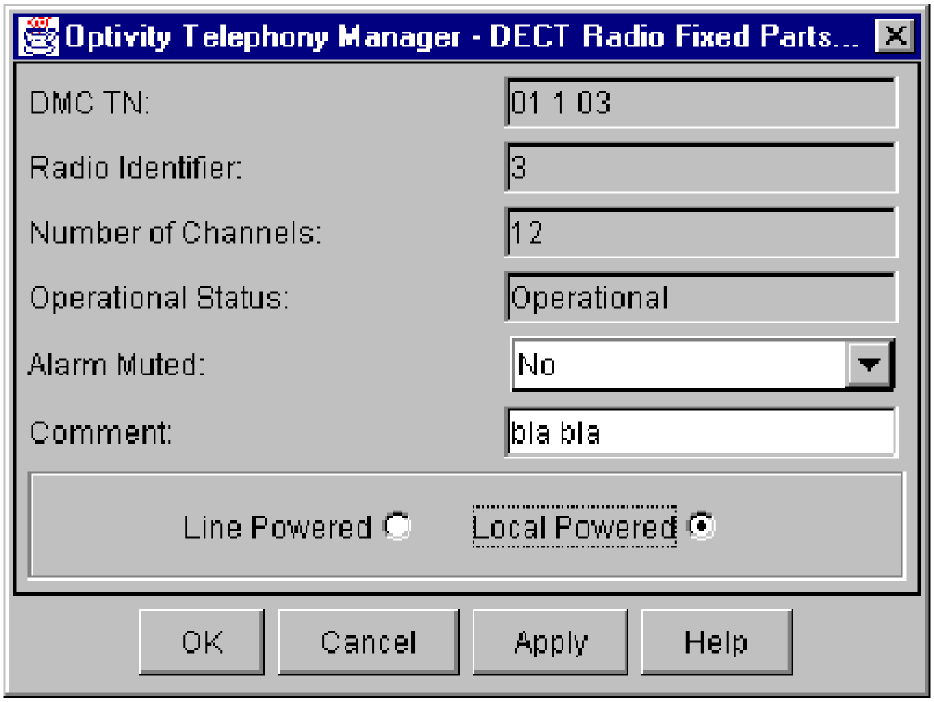


Figure 132: DECT Radio Fixed Parts

Complete the following steps:

Setting alarm muting, line power, and comments for basestations

1. Set alarm muting. Select No to deny alarm muting or Yes to allow alarm muting.

   Click No or Yes.
2. Enter up to 80 characters for comments.

   Type comments.
3. Select local powered or line powered for the selected basestation.

   Click the Line Powered or Local Powered radio button.
4. Apply the selections.

   Click the OK button.

Upgrade a DECT system to an SNMP-managed system

There are two types of managers for DECT systems:

- Windows Manager
- DMC DECT Manager application

The Windows Manager, a non-SNMP device, is used to manage the first generation of DECT systems. A DMC DECT Manager manages the present generation of DECT systems.

The following terms are used:

- The DMC (NTCW00AA) and DMC-E (NTCW01AA) are referred to as DMC4 and DMC4-E.
- A DECT system equipped with both DMC4/DMC4-E and DMC8/DMC8-E is referred to as a Mixed DECT system.

An DMC DECT Manager can manage a DMC4/DMC4-E DECT system or a Mixed DECT system.

In a DMC4/DMC4-E DECT system, or a Mixed DECT system managed by an DMC DECT Manager, the DMC cards must run SNMP software.

A Mixed DECT system must be managed by a DMC DECT Manager. In a Mixed DECT system, a DMC8/DMC8-E must be the relay card.

In a DMC4/DMC4-E DECT system, or a Mixed DECT system managed by DMC DECT Manager, the DMC4 cards must run 45100xxx.dwl software, and the DMC8 cards/ DMC8-E cards must run 47000xxx.dwl software.

Connecting a DMC DECT Manager to a DMC4 relay card using an Ethernet connection is not supported. Only a V.24 connection can be used.

Configure a local connection

Complete the following steps to configure a local connection.

Configuring a local connection

1. Connect the NTCW12AA cable to the DMC4 relay card MDF connector.
2. Choose the DMC DECT Manager Server COM port.
3. Install the null modem plug.

Connect the DB-25 connector end and the NTCW12AA cable end into the A0773252 null modem adapter.

4. Connect the DB-9 end into the chosen PC COM port.

Refer to Table 39: NTCW12AA cable to MDF connections on page 201 when connecting the NTCW12AA cable to the MDF.

Table 39: NTCW12AA cable to MDF connections

DMC Relay card MDF connection	Cable colour	DB-25 connector pin number	Signal designator
T1	Gray	8	V.24DCD
R2	Yellow	4	V.24RTS
T3	Blue	2	V.24TXD
R3	Red	3	V.24RXD
T4	Pink	7	V.24GND

Note:

The BIX tip and ring connections shown in Table 39: NTCW12AA cable to MDF connections on page 201 correspond to standard BIX designation. The first pair is labeled T0 and R0.

Dial-up configuration

For the DMC DECT Manager to communicate over PPP with the DECT system, a RAS service must be configured for dial-out using the appropriate modem.

Note:

The DECT system can also communicate directly over a modem to a remote DMC DECT Manager.

Note:

It is also possible to connect to DMC8 relay cards using PPP (serial connect). When connecting to a DMC8 relay board using PPP, Avaya recommends that jumpers J6, J7, J8, and J9 be strapped for V.24 on the DMC.

Complete the following steps to configure the dial-up connection.

Configuring a dial-up connection

1. Open Control Panel > Phone and Modem Options. Click the Modems tab, if not selected. See Figure 133: Phone and Modem Options window on page 202.

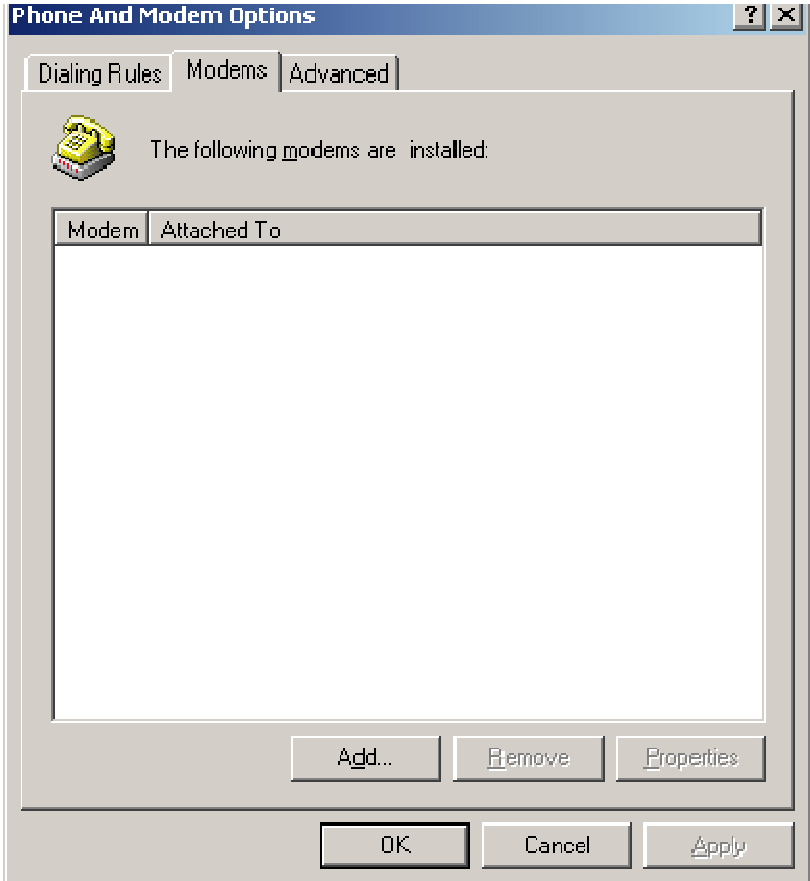


Figure 133: Phone and Modem Options window

2. Click Add.

   The Install New Modem window opens. See Figure 134: Modem detection on page 203.

3. Select the Don't detect my modem check box.

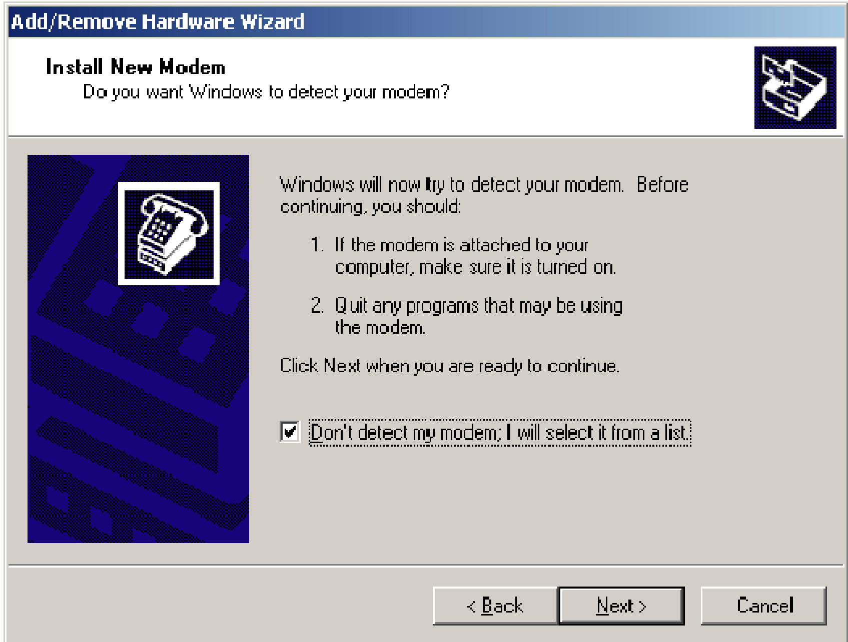


Figure 134: Modem detection

4. Click Next.

   The Wizard displays a list of modem manufacturers and a list of the corresponding modem models. See Figure 135: Manufacturers and Models lists on page 203.

5. From the Manufacturers list:, select (Standard Modem Types).

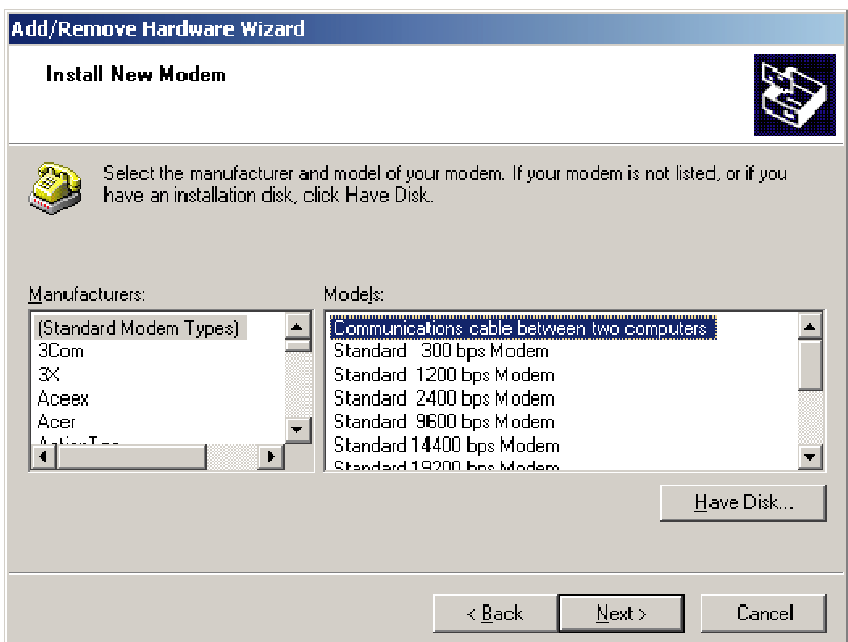


Figure 135: Manufacturers and Models lists

6. From the Models list:, select Communications cable between two computers.

7. Click Next.

   The Wizard requests information about the ports on which the selected modem is installed. See Figure 136: Port selection on page 204.

8. Select a COM port that your PC supports.

   Note:

   Choose the COM port where you made the DB-9 connection.

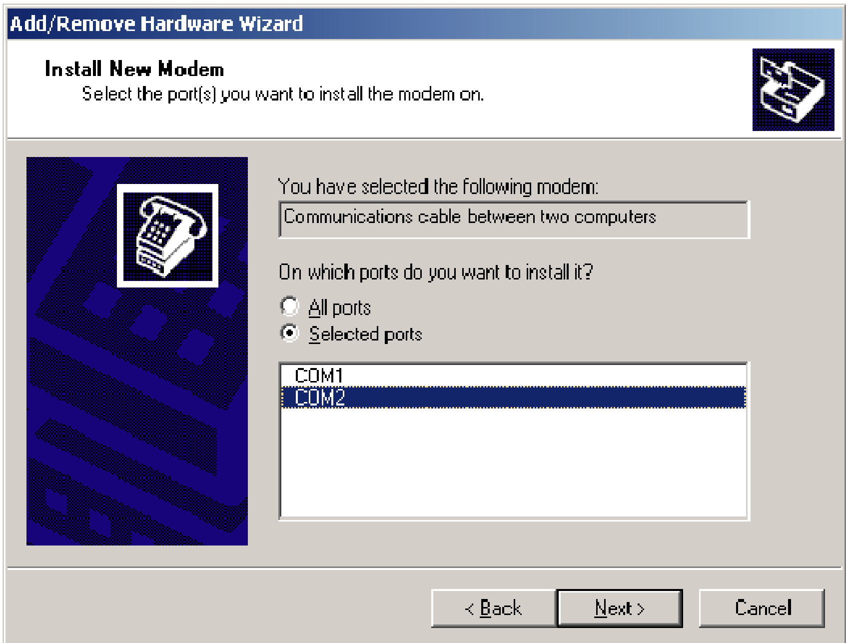


Figure 136: Port selection

9. Click Next.

   The Wizard states that modem installation is successful. See Figure 137: Successful modem installation window on page 205.

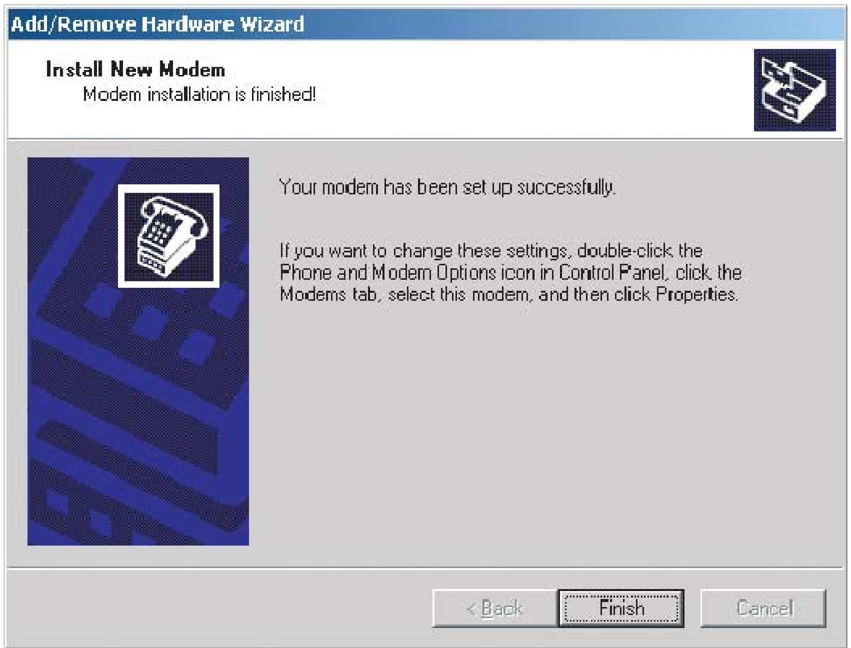


Figure 137: Successful modem installation window

10. Click Finish.

Once installed, the properties of the modem must be configured to communicate serially to the DECT system.

Configuring the modem

1. Open Control Panel > Phone and Modem Options. Click the Modems tab, if not selected. See Figure 138: Control Panel - Phone and Modem Options - Modems tab on page 206.

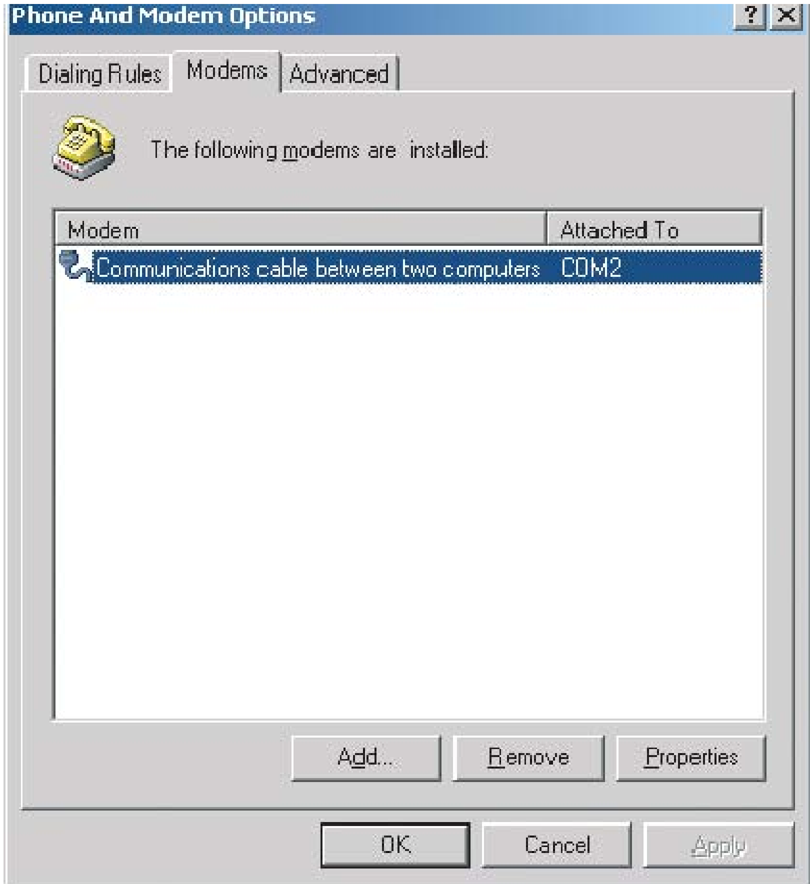


Figure 138: Control Panel - Phone and Modem Options - Modems tab

2. Select Communications cable between two computers.
3. Click Properties.

   The Communications cable between two computers Properties window opens. See Figure 139: Properties window - General tab on page 207.

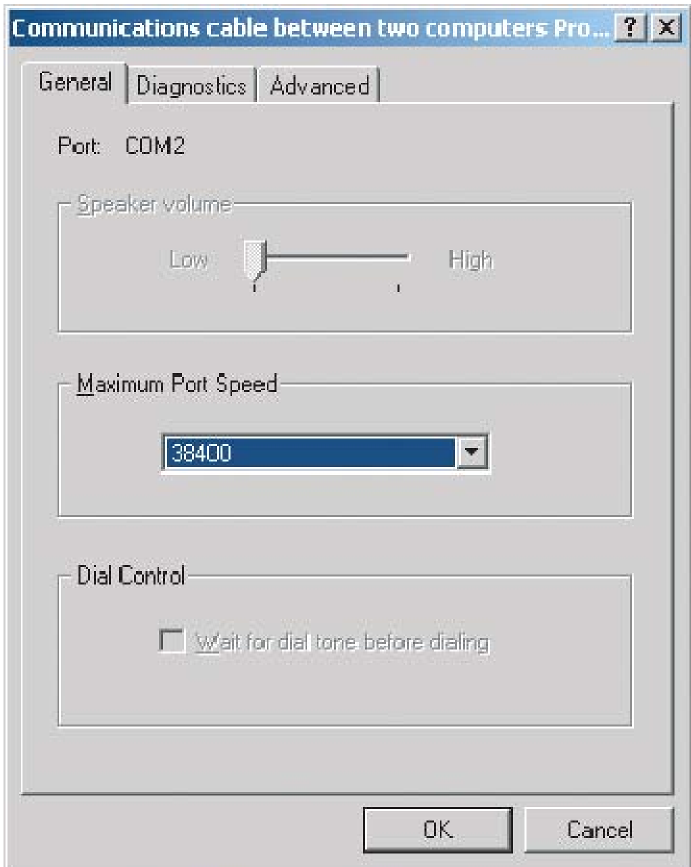


Figure 139: Properties window - General tab

4. Select 38400 from the Maximum Port Speed drop-down list.
5. Click the Advanced tab. See Figure 140: Properties window - Advanced tab on page 208.

Figure 140: Properties window - Advanced tab

6. Click Change Default Preferences.

   The Communications cable between two computers Default Preferences window opens. See Figure 141: Change Default Preferences - General tab on page 209.

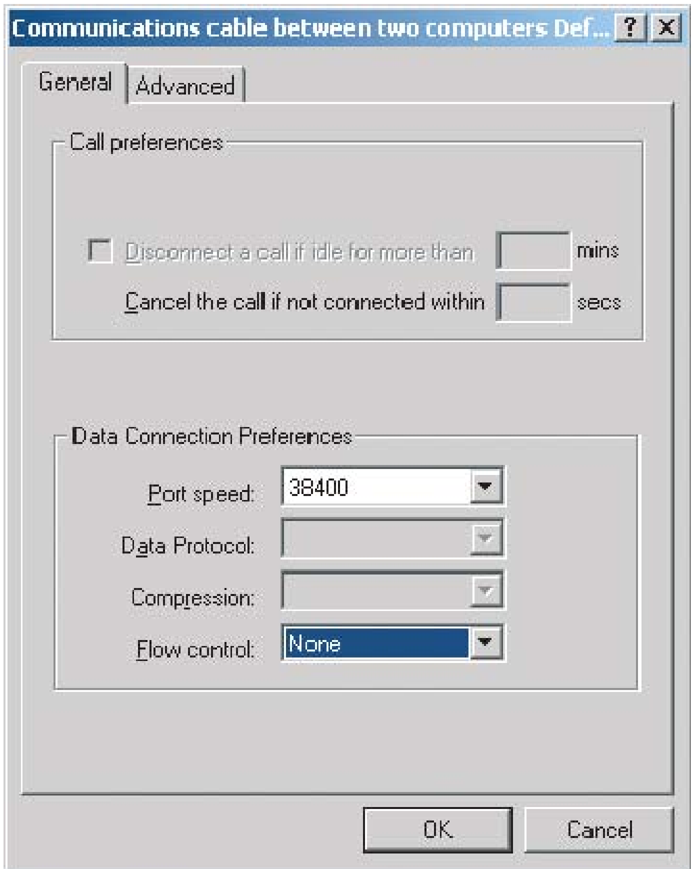


Figure 141: Change Default Preferences - General tab

7. Select None from the Flow control: drop-down list in Data Connection Preferences.
8. Click the Advanced tab. See Figure 142: Change Default Preferences - Advanced tab on page 210.

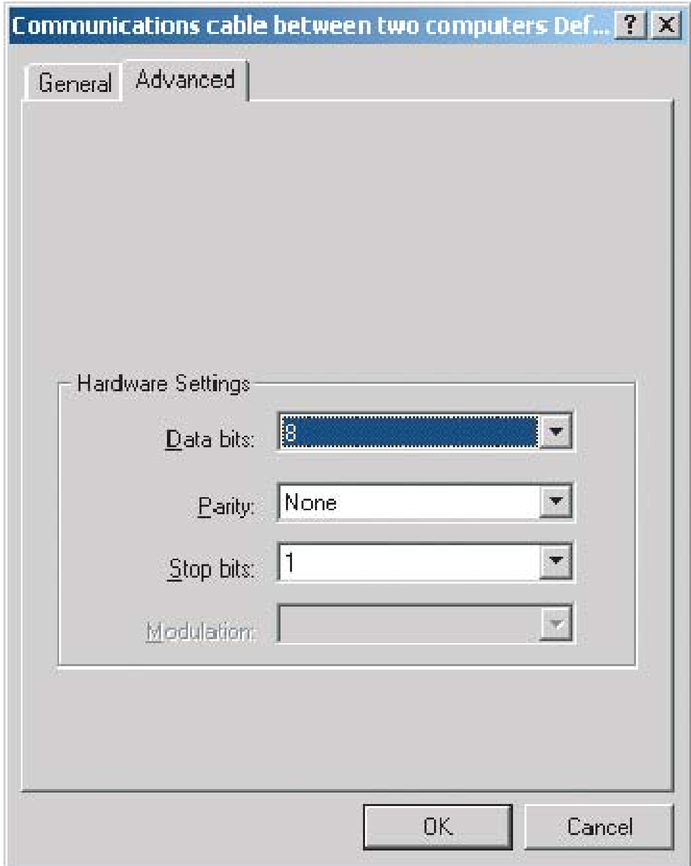


Figure 142: Change Default Preferences - Advanced tab

9. Define Hardware Settings on the Advanced tab:
   a. Set the Data bits to 8.
   b. Set the Parity bits to None.
   c. Set the Stop bits to 1.
10. Click OK.

    The modem configuration windows close.

Network and dial-up connections configuration

Configuring the network and dial-up connections

1. Select Control Panel > Network and Dial-up Connections.
2. Double-click the Make New Connection icon.

   The Connection Wizard starts. See Figure 143: Network Connection Wizard on page 211.

Figure 143: Network Connection Wizard

3. Click Next.

   The Network Connection Type window opens. See Figure 144: Network Connection Type window on page 211.

4. Select the Connect directly to another computer radio button.

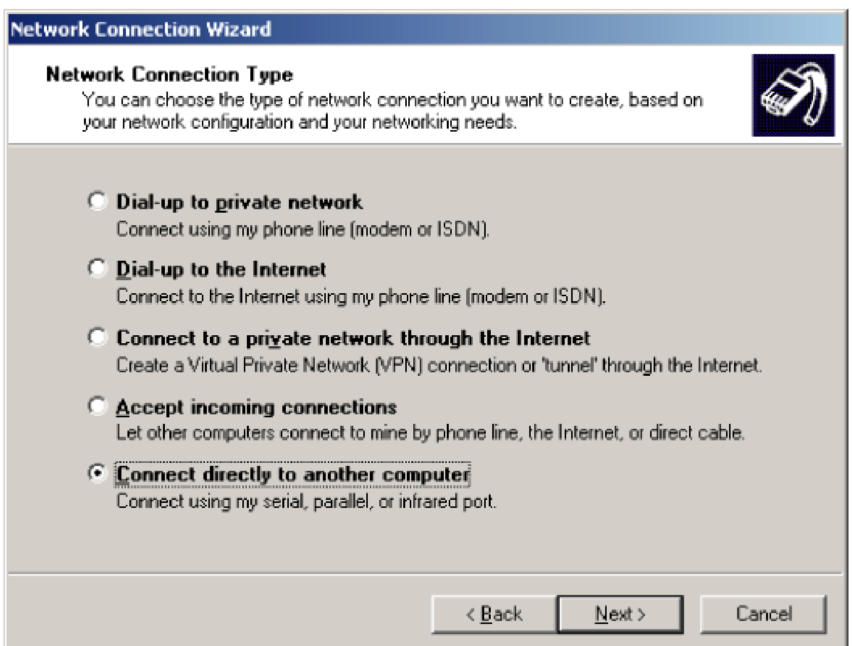


Figure 144: Network Connection Type window

5. Click Next.

The Host or Guest window opens. See Figure 145: Host or Guest window on page 212.

6. Select the Guest radio button.

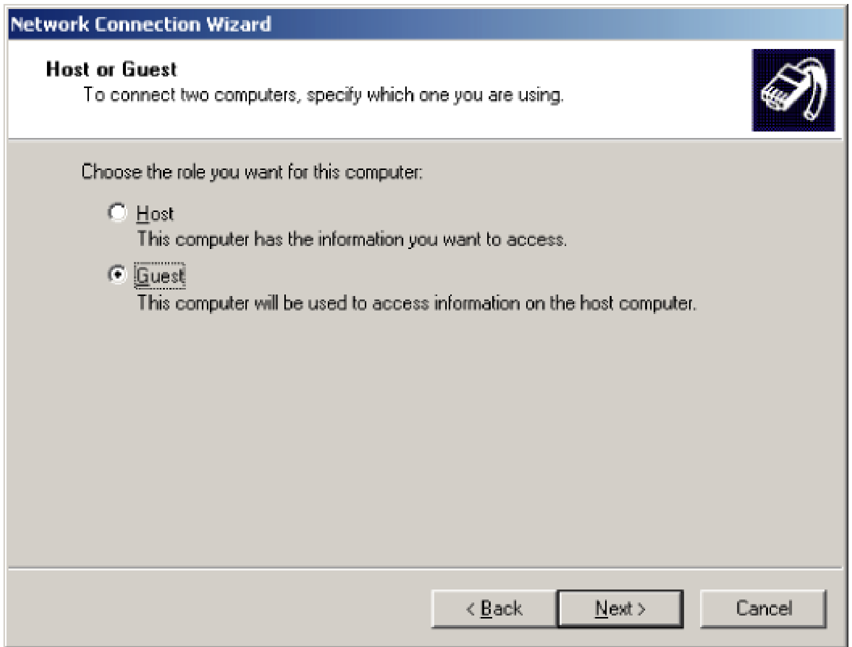


Figure 145: Host or Guest window

7. Click Next.

The Select a Device window opens. See Figure 146: Select a Device window on page 213.

8. Select Communications cable between two computers from the Select a device: drop-down list.

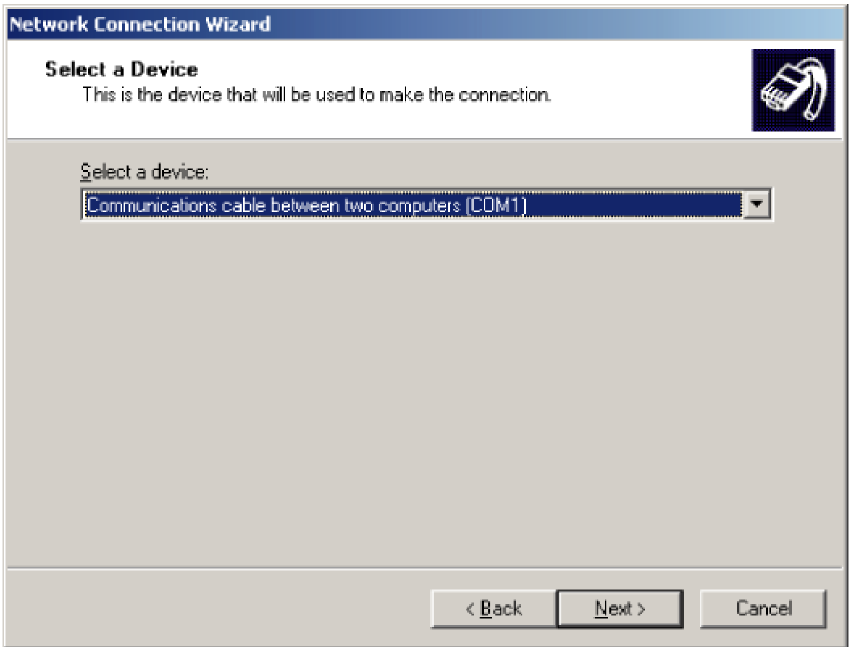


Figure 146: Select a Device window

9. Click Next.

   The Connection Availability window opens. See Figure 147: Connection Availability window on page 213.

10. Select the For all users radio button.

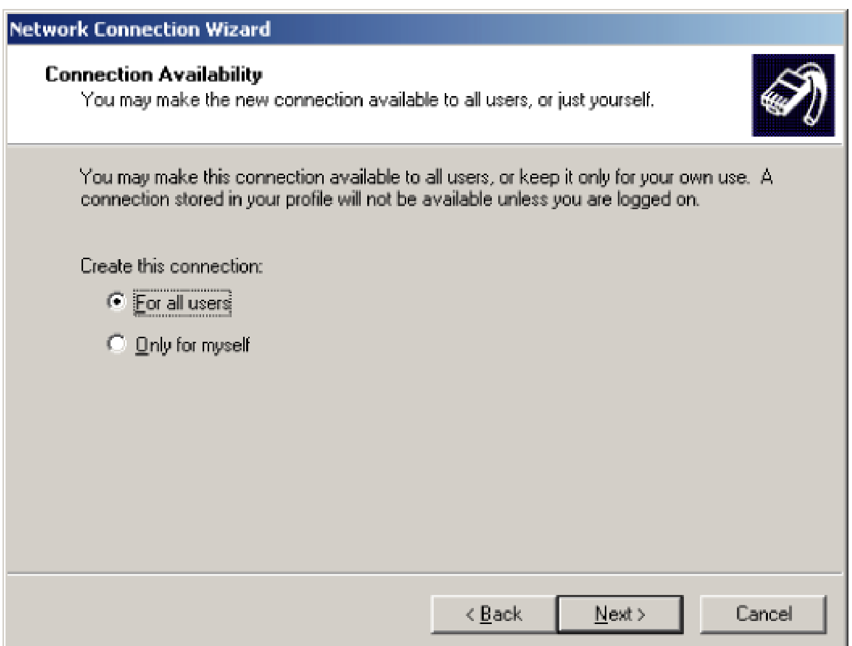


Figure 147: Connection Availability window

11. Click Next.

The Completing the Network Connection Wizard window opens. See Figure 148: Completing the Network Connection Wizard on page 214.

12. Type a name for the connection.

Figure 148: Completing the Network Connection Wizard

13. Click Finish.
14. Choose a username and password for the connection.
15. Click Close.
16. Restart the PC.

Change the DMC4 relay card default IP address

Important:

The DMC4 card has a default IP address of 192.168.1.1. This DMC4 address must be changed to conform to the network IP address plan.

Reset the DMC4 relay card to the server IP address

Open Telnet on the PC that is used for configuring. Connect to the default DMC4 IP address (192.168.1.1). Figure 149: Telnet to 192.168.1.1 on page 215 shows the Telnet session.

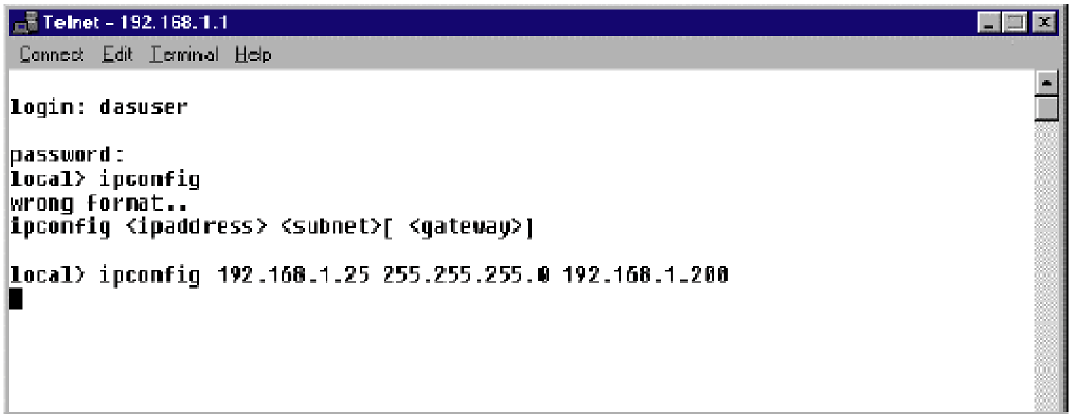


Figure 149: Telnet to 192.168.1.1

Complete the following steps to reset the DMC4 relay card to the server IP address.

Resetting the DMC4 relay card to the server IP address

1. Open the Telnet dialog box.

   Click Start on the Windows taskbar and choose Accessories > Telnet.
2. Enter the username and password.

   Username: dasuser Password: dasuser
3. Change the relay DMC4 card address when the connection prompt local appears.

   Enter the following command:

   ipconfig xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy zzz.zzz.zzz.zzz

xxx.xxx.xxx.xxx	= new IP address of the DMC4 relay card
yyy.yyy.yyy.yyy	= subnet mask (usually 255.255.255.0)
zzz.zzz.zzz.zzz	= IP address if this is the gateway for the network.

Note:
Set zzz.zzz.zzz.zzz to the IP address of the DMC DECT Manager server Ethernet interface. If there are two Ethernet interfaces on the DMC DECT Manager server, set zzz.zzz.zzz.zzz to the IP address of the interface that is on the same network as the DMC4 relay card.

Launch the DMC DECT Manager back-end process

The back-end process must be visible to establish a connection. If the back-end is closed in error, DMC DECT Manager does not run.

Important:

Always ensure the Windows Registry is backed up before opening the Registry and Registry keys.

Complete the following steps to launch the DMC DECT Manager back-end process.

Launching the DMC DECT Manager back-end process

1. Open the registry window.

   Click Start on the Windows taskbar, and select Run > regedit.

2. Copy the value of the key to the clipboard.

   Highlight HKEY_LOCAL_MACHINE\SOFTWARE\NorMat\SMP\OTMServices \DECT\Args, right-click the highlighted text, and select Copy.

3. Paste the value of the registry key (that you copied in Step 2) to the Command Prompt window.

   Open the Command Prompt window. At the command prompt, type java, press the space bar once (to enter a space), and then paste the text you copied from the registry. See Figure 150: Command Prompt window with registry key value entered on page 216.

4. Press Enter.

   The DMC DECT Manager back-end is launched.

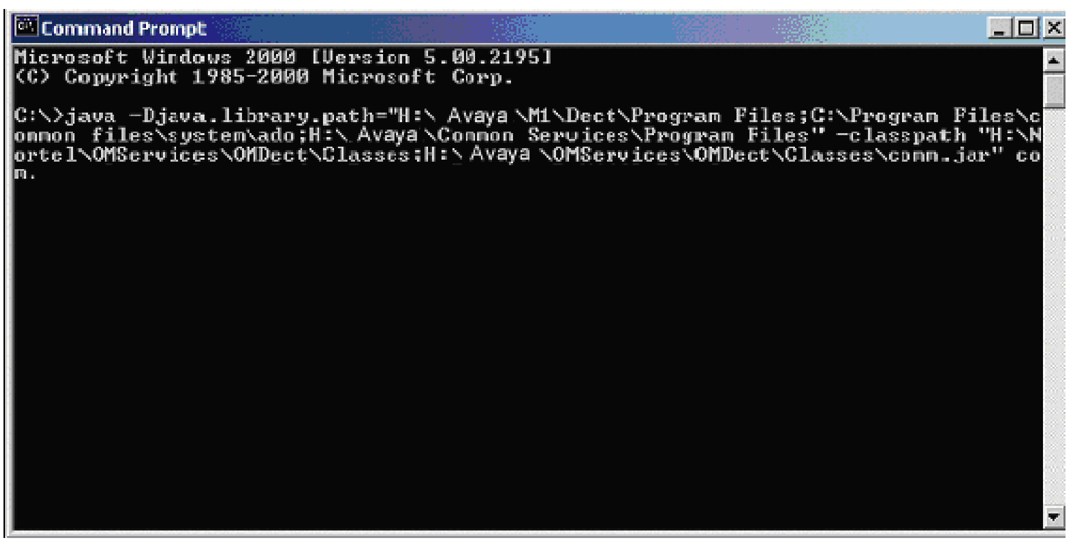


Figure 150: Command Prompt window with registry key value entered

DAS configuration

It is necessary to configure the DECT Access System (DAS). You must first add the DECT system to DMC DECT Manager.

Adding the DECT system to DMC DECT Manager

1. Launch the DMC DECT Manager application.
2. Select File > Add.
3. Enter the DECT System Name on the General tab of the DMC DECT Manager - DECT System Properties window. See Figure 151: DMC DECT Manager - DECT System Properties window on page 217.

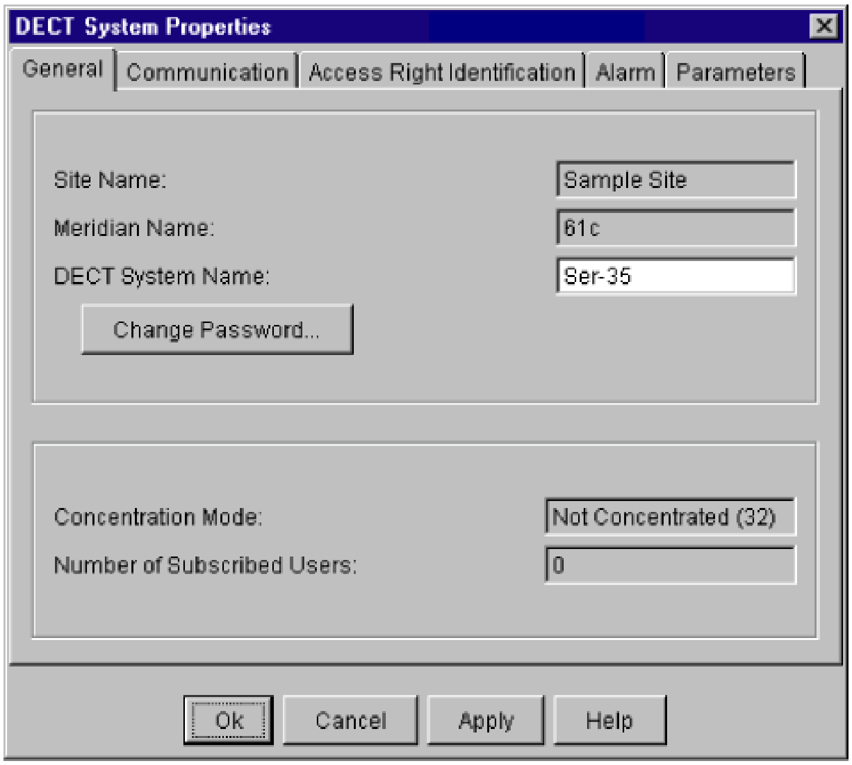


Figure 151: DMC DECT Manager - DECT System Properties window

4. Click Apply.
5. Click the Communication tab to select it. See Figure 152: DECT System Properties - communication tab on page 218.

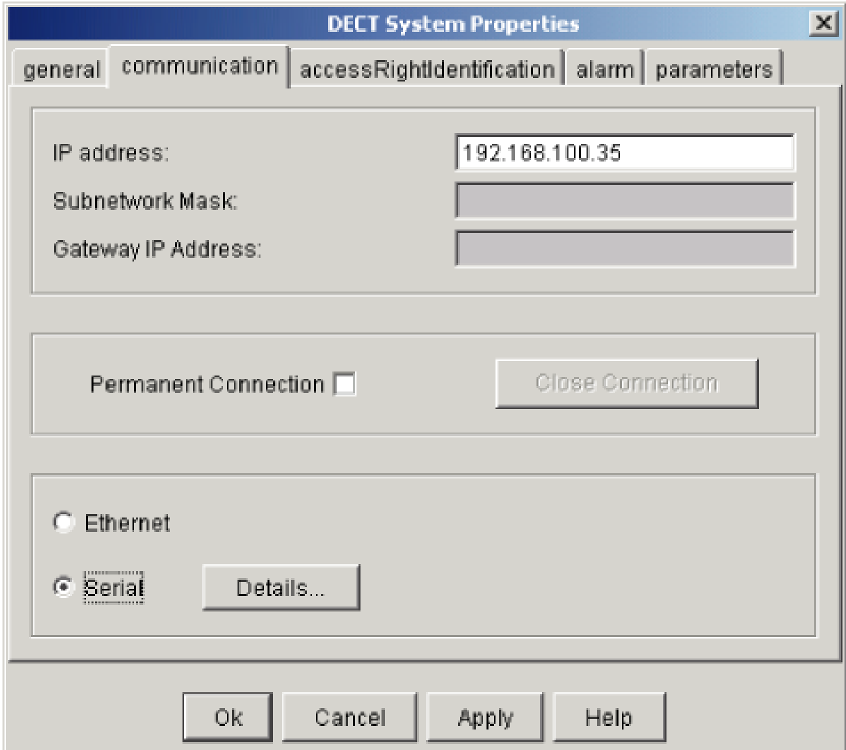


Figure 152: DECT System Properties - communication tab

6. Enter the IP address of this DMC4 card (use the address that you configured in Resetting the DMC4 relay card to the server IP address on page 215).
7. Select the Serial radio button.
8. Click Details.

   The DMC DECT Manager System Detailed Connection settings properties window opens.
9. Select the COM port that DAS uses to connect to the PC.

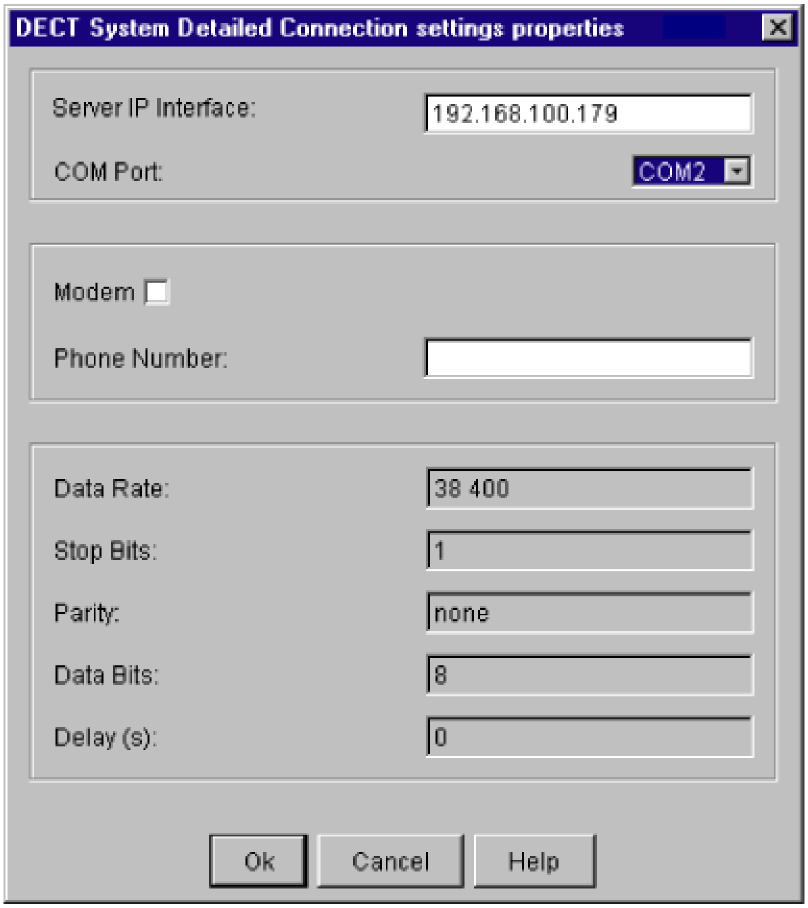


Figure 153: DMC DECT Manager - DECT System Detailed Connection settings properties window

10. Enter the IP address of the DMC DECT Manager Server (for example, 192.168.100.179) in the DMC DECT Manager Server IP Interface text box.

After you successfully added the DECT system to the DMC DECT Manager, a new icon appears in the Network and Dial-up Connections window as shown in Figure 154: New connection icon in the Network and Dial-up Connections window on page 220.

Note that the icon represents a Direct PC to PC cable connection. If you are connected using a modem, the icon shows a telephone, which represents a dial-up connection.

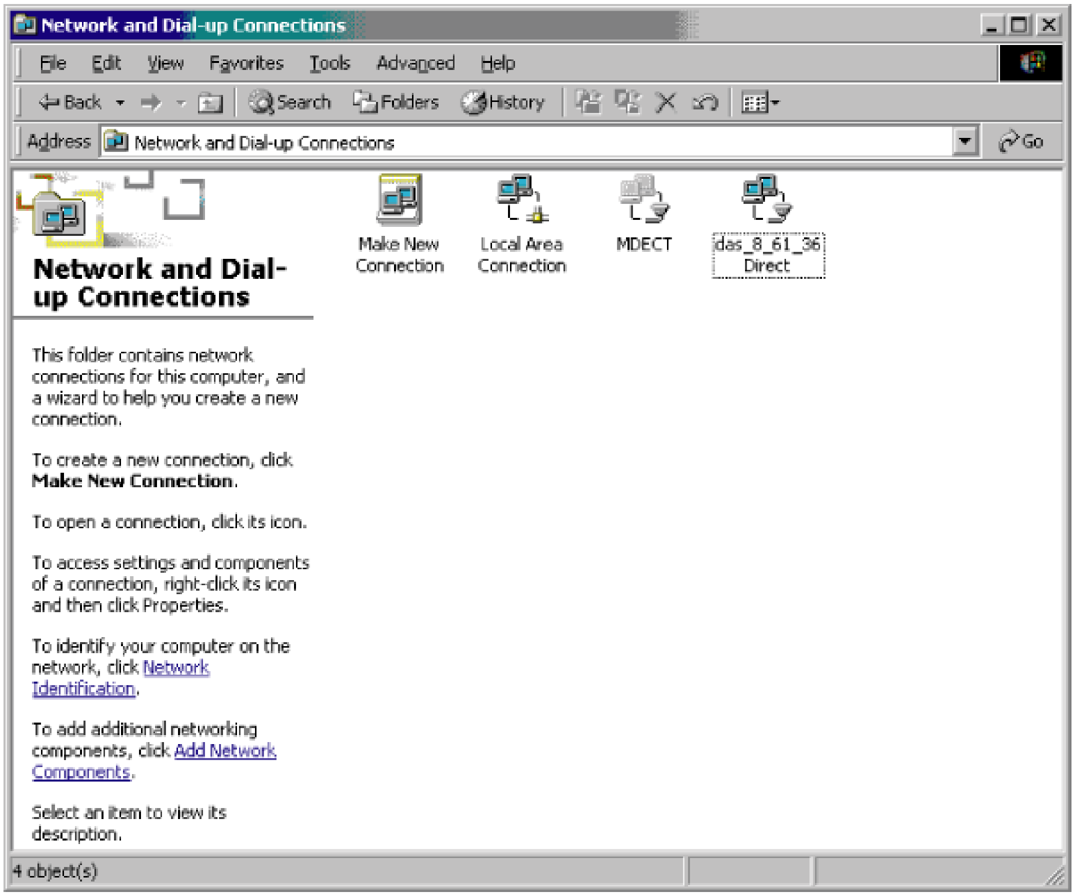


Figure 154: New connection icon in the Network and Dial-up Connections window

Note:

At this stage, disable the LAN. If it is in the enabled state, it can cause an error when attempting to connect to the DECT system using the RAS connection.

The following figure shows an example of the DOS window running the DECT back-end process after a new DECT site has been added using a serial connection.

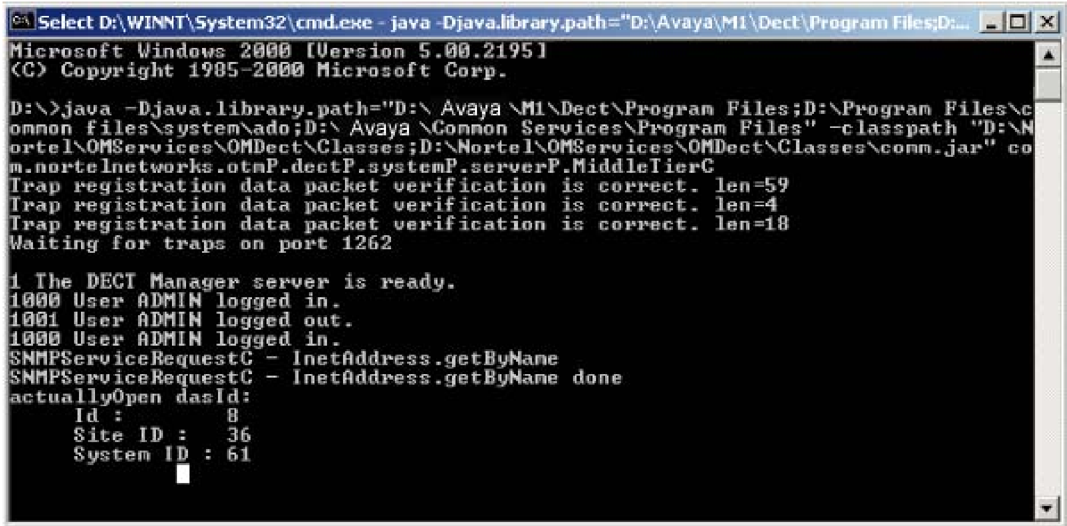


Figure 155: DOS window running the back-end process - new DECT site using serial connection

You can now connect to the new DECT system.

When connecting, the following sequence of messages appear at the bottom of the DECT systems window:

Connecting	The connection to the remote MODEM has been established successfully
Connecting	Authenticating onto the DECT system
Connected	Connections opened
Connected	Synchronization with the DECT System completed

Note:

If there is a problem connecting to the system and the error seen on the back-end process window is related to the Authentication process, try resetting the DMC4 relay card password to correct the error.

Synchronize data with the DECT system

When the DMC DECT Manager connects to the DECT system, synchronization occurs. The DMC DECT Manager database can be updated with the DECT system data.

When the DECT system is connected, there is a red icon on the toolbar. See Figure 156: DECT Systems window and a synchronize dialog box on page 222.

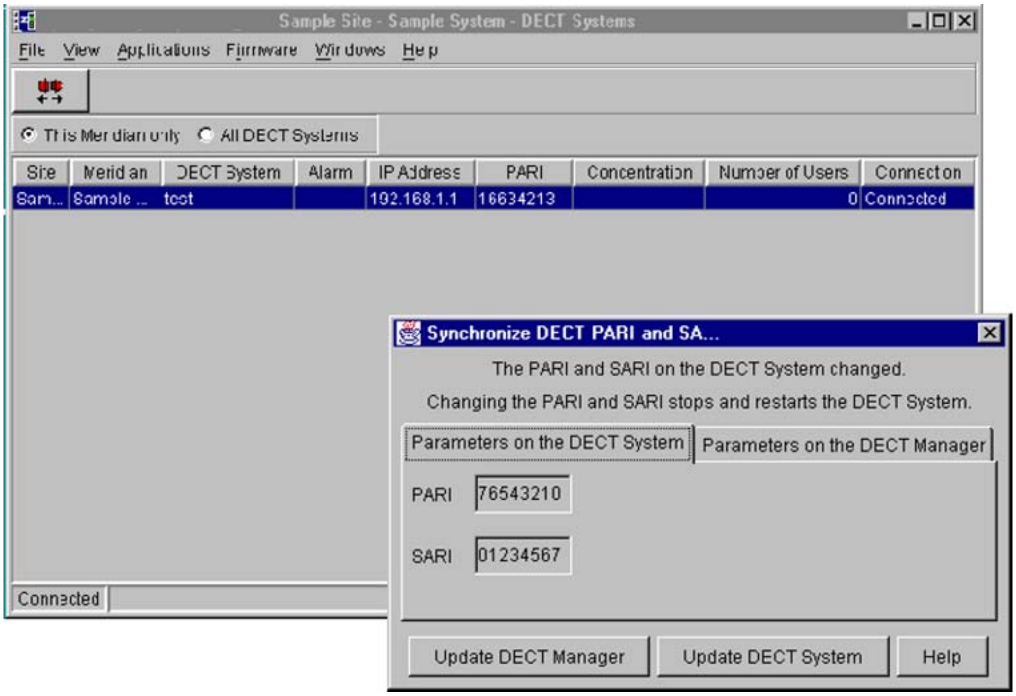


Figure 156: DECT Systems window and a synchronize dialog box

With the DMC DECT Manager connected to the system, store the system data in the DMC DECT Manager database by clicking the Update DECT Manager button on all synchronization dialog boxes.

Activate the firmware on all DMC4 cards

Confirm the active software package on the DMC4 relay card (see Figure 157: DMC window and DECT Board properties dialog box on page 223). This must be the same 45100xxx.dwl firmware that was loaded earlier.

If it is not the 45100xxx.dwl firmware, you must reload the firmware by selecting Upload from the Firmware menu on the DECT Systems window (see Figure 158: DECT Systems window on page 224). Choose the file you want to upload. The DMC4 card reboots. You must then re-connect to the DECT system.

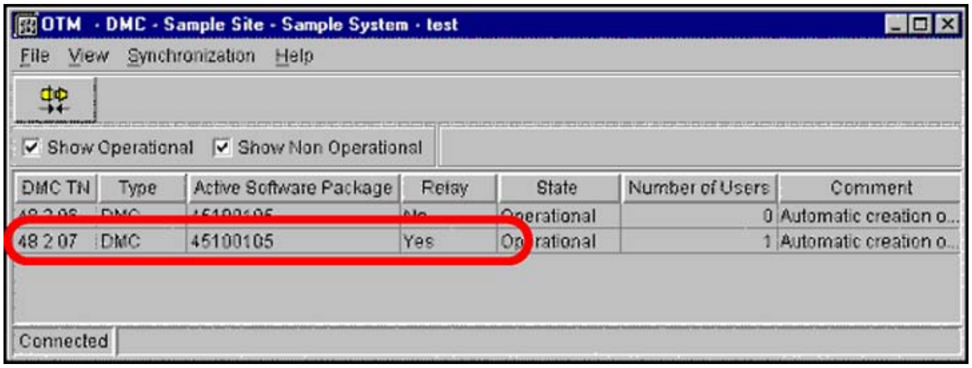


Figure 157: DMC window and DECT Board properties dialog box

When you have confirmed that the software package on the DMC4 relay card is correct, activate this firmware on all DMC4 cards. Complete the following steps to activate the firmware on the DMC4 cards.

Activating the firmware on DMC4 cards

1. Re-connect the faceplate cables from the relay card to the adjoining DMC4 cards.
2. From the Firmware menu, select Activation.

   After the firmware has been activated, ensure that the Active Software Package on all DMC4 cards corresponds to the 45100xxx.dwl firmware. See Figure 159: DMC window on page 224.

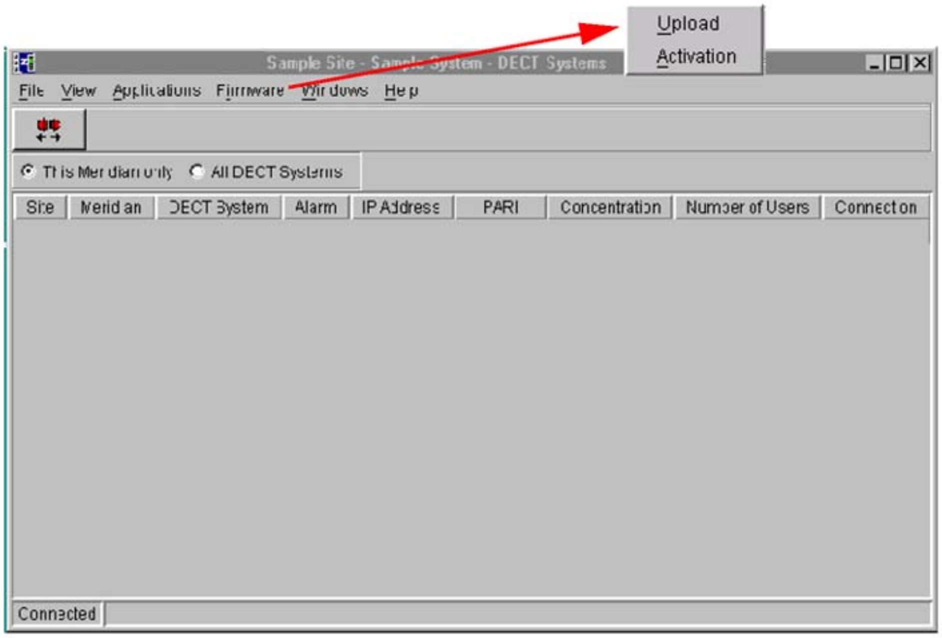


Figure 158: DECT Systems window

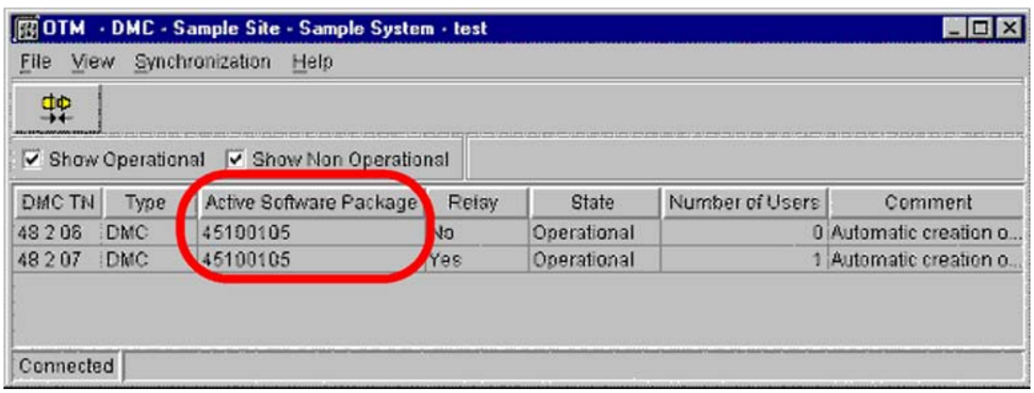


Figure 159: DMC window

Your DECT system is now complete and fully configured.

Implementing and operating MSMN

Implementing the MSMN feature

The sequence of actions required to configure this feature are as follows:

1. Configure a phantom superloop using LD 97, if required.
2. Create the new DCS sets in LD 10.
3. Configure the RCFW data in LD 57 and LD 15 for handsets assigned as a visitor.
4. Use the DECT manager to configure sets on the DMC8.
5. Pre-subscribe the visiting handset one time at the MCDN node.

Note:

Subscription includes both overlay configuration and DECT Manager configuration. For DECT Manager configuration.

Table 40: LD 10 - Add/Change DCS data block or data blocks.

Prompt	Response	Description
REQ:	NEW NEW 1-255 CHG ECHG	NEW = Add a Digital Cordless Set NEW X = The generation of new DCS units stop when the maximum Index of 509 is reached on a single DMC8 or VTNs on the system run out or WRLS Licence limits reached. All new DCS must be on the same DMC8. CHG = Allows the DCS configuration to change to another DMC8. All new DCS must be on the same DMC8. ECHG = This command can change either the VSIT response or the HMDN response.
TYPE:	DCS	Digital Cordless Set. Differentiates between analogue sets and concentrated digital DECT handsets. If TYPE=DCS, the system allocates the next available VTN, and WRLS defaults to YES and WTYP defaults to DECT. If package #350 is included, MWUN defaults to 32. CLS defaults to ERCA, allowing the Enhanced RCFW feature.
TN		Terminal Number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit
		The system provides the Virtual TN for the handset.
CDEN	(4D)	Card Density. Only valid value for IPE is 4D. Normal input is <CR>.
WRLS	YES	WiReLess analogue Set – entry defaults to YES with no user input; value cannot be CHG'ed.
WTYP	DECT	Wireless TYPe – entry defaults to DECT with no user input; value cannot be CHG'ed.

Prompt	Response	Description
MWUN	32	Maximum number of Wireless UNits – entry defaults to 32 with no user input – value cannot be CHG'ed. **Note:** If MWUN = 32, CDEN automatically changes to 8D, and prints as an 8D unit.
DMC8		Location of the actual DMC8. Assigns a TN to a DECT Mobility Card located on an IPE shelf or cabinet.
	l s c	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card
INDX	0. 509	DMC8 index to map the Virtual TN to a DMC8 TN. Starting index on DMC8, each unit increments to the next available unit.
VSIT	(NO) YES	ViSITing DECT set. Determines the difference between a local handset and a visiting handset. VSIT available if the MSMN Package is unrestricted. YES = visiting DECT set. NO = local DECT set.
HMDN	x...x	HoMe Directory Number. Sets the DN as a valid MCDN network DN. NMDN available if VSIT = YES.

Table 41: LD 10 - Copy DCS data block or data blocks.

Prompt	Response	Description
REQ:	CPY 1 – 32	CPY n = The generation of new units stop when the following occurs: maximum index of 509 is reached on a single DMC8 or VTNs on the system run out or WRLS Licence limits reached. All DCS must be on the same DMC8.
DMC8	l s c l	Location of the actual DMC8 to copy on an IPE shelf or cabinet.

Table 42: LD 10 - Remove DCS data block or data blocks.

Prompt	Response	Description
REQ:	OUT 1-255	OUT X = Removing units stops when the maximum index of 509 is reached on a single DMC8. All new DCS must be on the same DMC8.
DMC8	l s c l	Location of the actual DMC8 to out on an IPE shelf or cabinet.

Table 43: LD 10 - Convert handset type 500 to DCS

Prompt	Response	Description
REQ	CDCS	Convert Digital Cordless Set – always convert from a non-concentrated to a concentrated system after software upgrade. Non-concentrated mode is not supported now. The conversion routine converts the 500 units to DCS units and moves them from the actual TN to a virtual TN.

The CDCS conversion routine prints each TN as it is moved, in the following format:

```
500 TN l s c 00 = DCS TN L S C Index#.
```

where: L S C = virtual TN

Example

Index# = default of the unit number of the 500 type set.

Table 44: LD 20 - Print actual DMC8 TN and virtual DMC8 TN list.

Prompt	Response	Description
REQ	PRT	Request.
TYPE	DCS	Digital Cordless Set.
TN	l s c l l s c u	Terminal Number for DMC8 card on IPE shelf or Cabinet Virtual Terminal Number on an IPE shelf or Cabinet Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit

The print routine outputs the following format:

```
INDX    Index #    VTN lll s cc uu
```

where: Index # = Index number of virtual TN.

Example

lll s cc uu = Virtual TN of unit.

Table 45: LD 81 - Print DCS features.

Prompt	Response	Description
REQ	LST	Request.
FEAT	VSIT	Feature Request - DECT visitors.
HMDN	Xx / <cr>	HoMe Directory Number. Specify a single HMDN or print all HMDN on system.

The LD 81 output format is as follows:

```
DCS   Cust#   Local DN   TN lll s cc uu   HMDN   Home DN   Last Activity Date.
```

where:

- Cust# = Customer Number
- Local DN = Local Directory Number of user
- lll s cc uu = TN of unit
- Home DN = Home directory number of user
- Last Activity Date = Last date of service change activity for user

LD 83 – Prints DCS terminal numbers with a unit type of DCS instead of 500.

Operating the MSMN feature

To activate the MSMN feature, perform the following steps.

1. Turn the handset on within the coverage range of a visited DECT system.
2. Enter the coverage range of a visited DECT system from another DECT system with the handset turned on.

To deactivate the MSMN feature, perform the following steps.

1. Turn the handset off within coverage range of the visited DECT system. (The handset must have the DECT Detach feature.)
2. Turn the handset on at the home DECT system. (Any CFW related to the handset is cancelled.)
3. Enter the coverage range of the home DECT system with the handset on. (Any CFW related to the handset is cancelled.)

Chapter 6: System administration

Contents

This section contains information on the following topics:

Logging into the DMC DECT Manager

Refer to section PBX system configuration of the NTP Using the DMC DECT Manager Avaya Communication Server 1000 (NN43001-142).

for information about connecting DMC DECT Manager to a DECT system.

Selecting the PBX that supports DECT

Refer to section PBX system configuration of the NTP *Using the DMC DECT Manager Avaya Communication Server 1000 (NN43001-142)* for information about connecting the DMC DECT Manager to a DECT system.

DECT Systems window

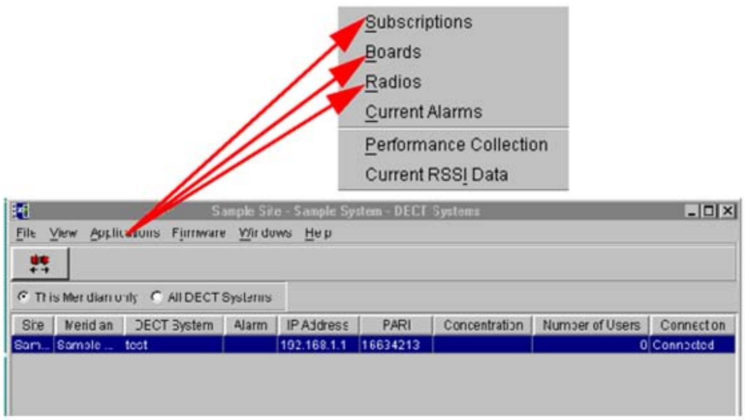


Figure 160: DECT Systems window

Opening Subscriptions, Boards, and RFP windows

Opening Subscriptions, Boards, and RFP windows

1. Select a DECT system.

   Highlight a system from the list.
2. Open one of the following from the DECT Systems window:
   - Subscriptions window
   - Boards (DMC) window
   - Radios (basestation) window

   Click on the appropriate entry in the Applications menu.

Connecting to a DECT system

Complete the following steps.

Connecting to a DECT system

1. Select a DECT system from the DECT Systems window list.

   Highlight a DECT system.

2. Perform one of the following actions from the DECT Systems window:

   a. connect to a DECT system

   b. disconnect from a DECT system

   c. lock a connection to a DECT system

   d. unlock a connection from a DECT system

   From the Applications menu click on the following items, or click on the following icon:

   a. Connect or (green)

   b. Disconnect or (yellow)

   c. Lock or (red)

   d. Unlock or (yellow)

Note:

While the Connection status is Connecting or Disconnecting, the Connect/Disconnect tool is disabled. The status bar shows the connection progress.

Establishing a permanent connection to a DECT system

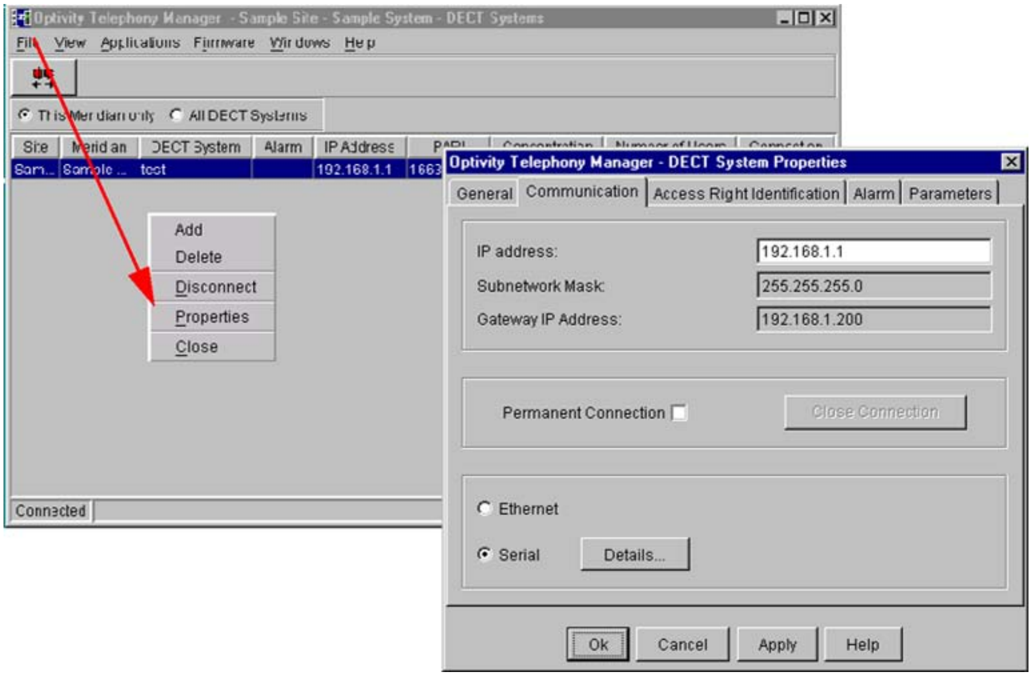


Figure 161: DECT Systems window and DECT System Properties window

Complete the following steps.

Establishing a permanent connection to a DECT system

1. Select a DECT system from the DECT Systems window list.

   Highlight a DECT system.
2. Connect to a DECT system.

   From the Applications menu, click on Connect or click on the(green) icon.

   
3. Open the Properties dialog box.

   From the File menu, click on Properties.
4. Select Permanent Connection.

   Check the Permanent Connection box.
5. Accept the changes.

   Click on the OK button.

Deleting DECT systems

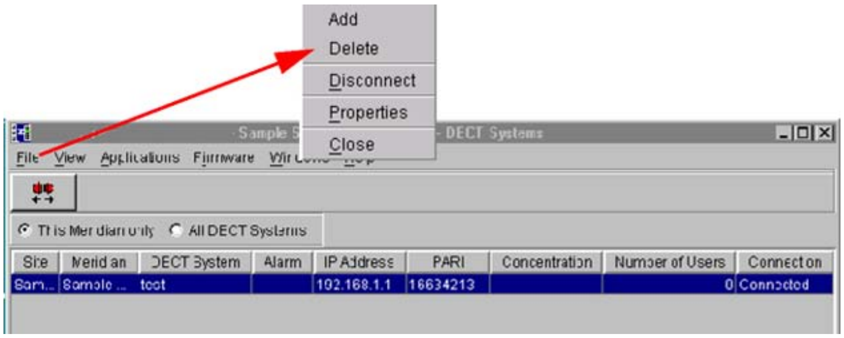


Figure 162: DECT Systems window

Complete the following steps.

Deleting DECT systems

1. Using Windows, log in to DMC DECT Manager. Select the system that supports DECT. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Selecting the PBX that supports DECT on page 230.

2. Select a DECT system to delete.

   Highlight a DECT system from the list.

3. Delete the DECT system.

   From the File menu, click on Delete.

Retrieving subscription data for DECT handsets

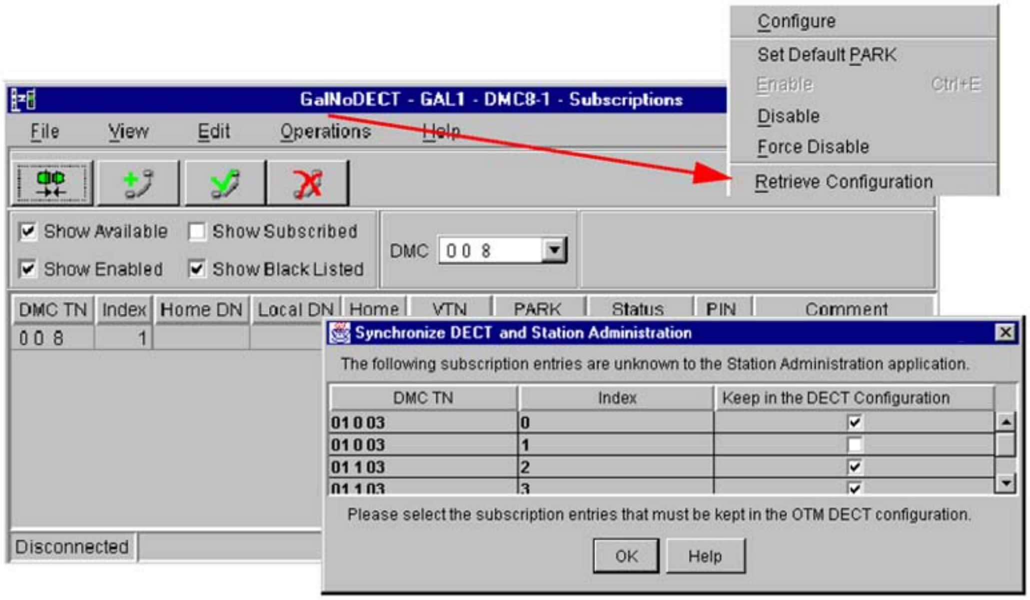


Figure 163: DECT Subscriptions window, Synchronize DECT and Administration Config window

Complete the following steps.

Retrieving subscription data for DECT handsets

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Selecting the PBX that supports DECT on page 230.

2. Open the Subscriptions window.

   Follow the instructions in DECT Systems window on page 230.

3. Retrieve the subscription configuration data from the DMC DECT Manager Station Administration database.

   In the Subscriptions window, click on the Operations menu, click on Retrieve DMC DECT Manager Configuration.

   Note:

   At this point, all DECT handsets configured on DMC DECT Manager Station Administration are shown in the Subscriptions window.

4. Open the Configure DECT Subscription dialog box.

5. Click the File menu.
6. Click Add or

   .

Enabling subscriptions

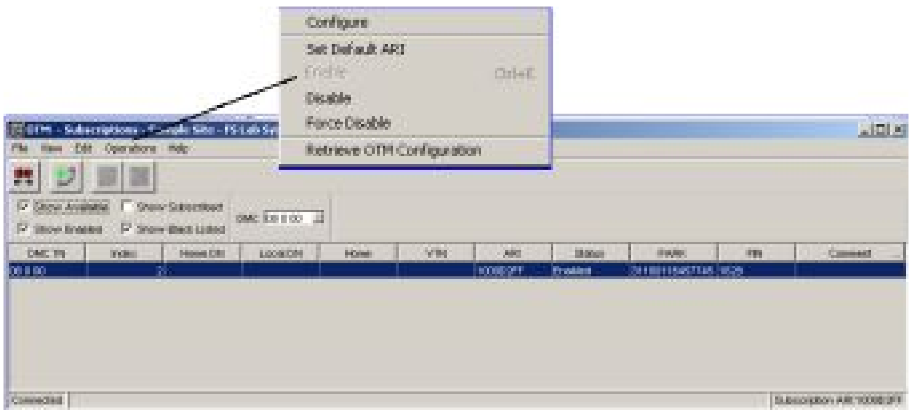


Figure 164: Subscriptions window

Complete the following steps for each DECT handset:

Enabling DECT handsets

Note:

At this point, there are no PINs shown in the Subscriptions window.

1. Select a DECT handset from the list.

   Click on one DECT handset in the list to highlight a row.
2. Enable DECT handsets.

   Click on the Operations menu. Click Enable or click

   .

Activating the PIN on the DECT handsets

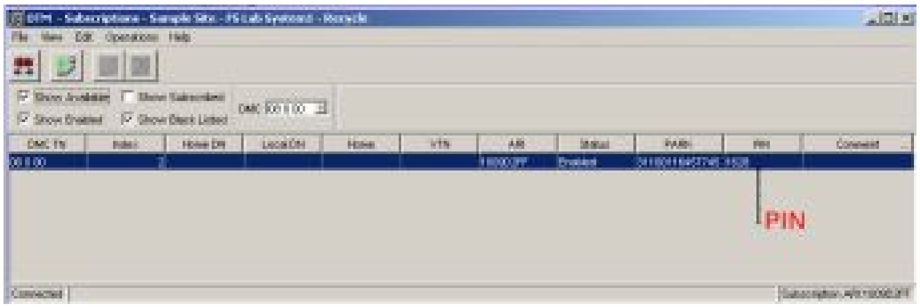


Figure 165: Subscriptions window

Complete the following step:

Obtaining the PIN

> **Note:**
> At this point, in the Subscriptions window, the PINs are shown and the Status is Enabled.

Subscribe the DECT Handsets.

For information on subscribing and provisioning handsets refer to the DECT Handset user guides.

> **Note:**
> When a DECT handset is subscribed, the Subscription window shows the Status column as Subscribed and does not show a PIN.

Working with DECT handset subscriptions

Procedures are available for:

1. Disabling a DECT handset subscription on page 237
2. Copying a DECT handset subscription on page 238
3. Moving a DECT handset subscription on page 239
4. Finding a DECT handset subscription on page 240
5. Importing a DECT handset subscription on page 241
6. Exporting a DECT handset subscription on page 243
7. Force disabling a DECT handset subscription on page 244

Disabling a DECT handset subscription

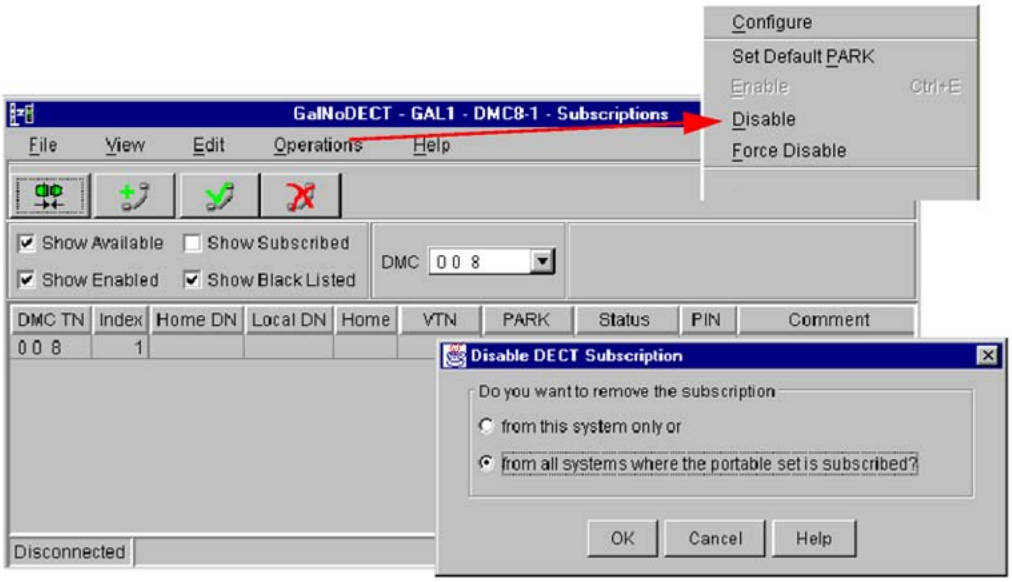


Figure 166: DECT Subscriptions window and Disable DECT Subscription window

> **Note:**
> For further information, refer to Multi-site Mobility Networking subscriptions on page 33.

Complete the following steps.

Disabling DECT handset subscription

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Selecting the PBX that supports DECT on page 230.
2. Open the Subscriptions window.

   Follow the instructions in DECT Systems window on page 230.
3. Select a DECT handset subscriptions for disabling.

   > **Note:**
   > A single DECT handset, a list of DECT handsets, or all DECT handsets on a DMC can be selected.

   Highlight a DMC TN and an Index, or several indexes in the list.
4. Disable the DECT handset subscriptions.

   From the Operations menu, click Disable.

5. Disable from this system only.

   Click OK.

6. Disable from all systems where the portable set is subscribed.

   Click OK.

Copying a DECT handset subscription

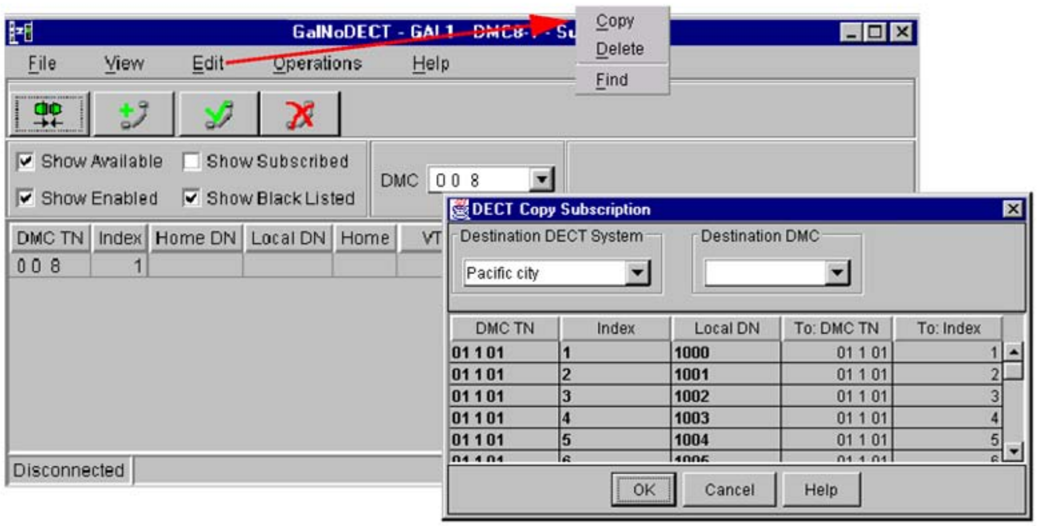


Figure 167: DECT Subscriptions window and DECT Copy Subscription window

Complete the following steps.

Copying a DECT handset subscription

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Selecting the PBX that supports DECT on page 230.

2. Select the source DECT system to copy the subscription.

   Highlight the DECT system in the DECT Systems window.

3. Open the Subscriptions window.

4. Open the DECT Copy Subscription dialog box.

   From the Edit menu, click on Copy.

5. Select a DECT system where the copied subscription is to be stored

   Pull-down the Destination DECT System list and highlight a system name.

6. Select DMC on the DECT system where the copied subscription is to be stored.

Pull-down the Destination DMC list and highlight a DMC.

7. Select a DECT handset subscriptions to copy.

   Note:

   Select a single DECT handset, a list of DECT handsets, or all DECT handsets on a DMC.

   Highlight a DMC TN and an Index (or more than one index) in the list.

8. Select a DMC or Index for the subscriptions.

   Highlight a To: DMC TN or a To: Index (or more than one index) in the list.

9. Accept the changes.

   Click on the OK button.

Moving a DECT handset subscription

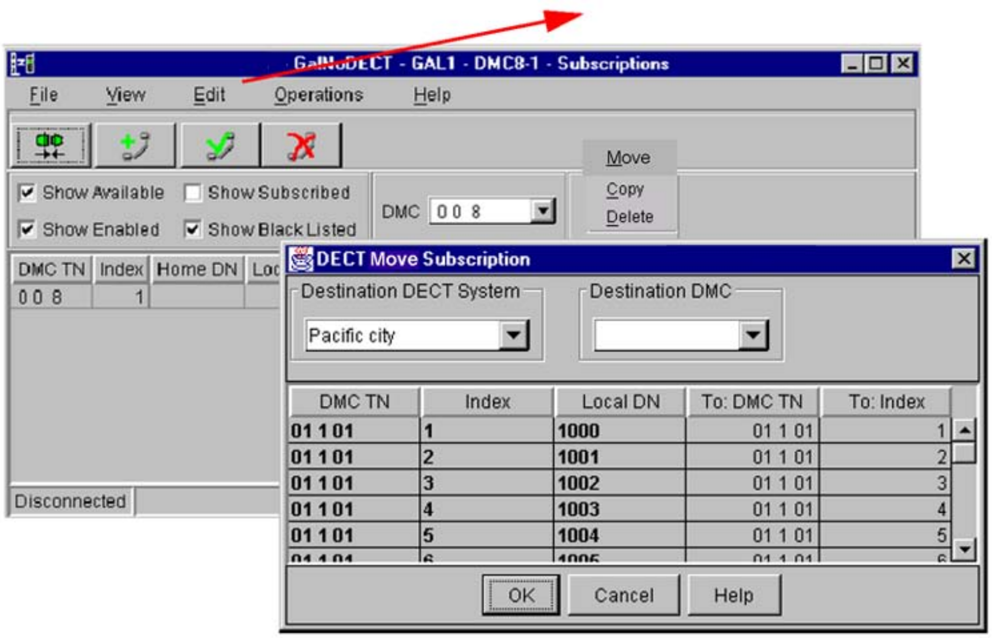


Figure 168: DECT Subscriptions window and DECT Move Subscription window

Complete the following steps.

Moving a DECT handset subscription

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

Follow the instructions in Logging into the DMC DECT Manager on page 229 and Selecting the PBX that supports DECT on page 230.

2. Open the Subscriptions window.
3. Open the DECT Move Subscription dialog box.

   From the Edit menu, click on Move.
4. Select a DECT system where the moved subscription is to be put.

   Pull-down the Destination DECT System list and highlight a system name.
5. Select DMC on the DECT system where the moved subscription is to be put.

   Pull-down the Destination DMC list and highlight a DMC.
6. Select DMC on the DECT system the moved subscription is to be put.

   Pull-down the Destination DMC list and highlight a DMC.
7. Select a DECT handset subscriptions to move.

   Note:

   Select a single DECT handset, a list of DECT handsets, or all DECT handsets on a DMC.

   Highlight a DMC TN and an Index (or more than one index) in the list.
8. Select a DMC or Index for the subscriptions.

   Highlight a To: DMC TN or a To: Index (or more than one index) in the list.
9. Accept the changes.

   Click OK.

Finding a DECT handset subscription

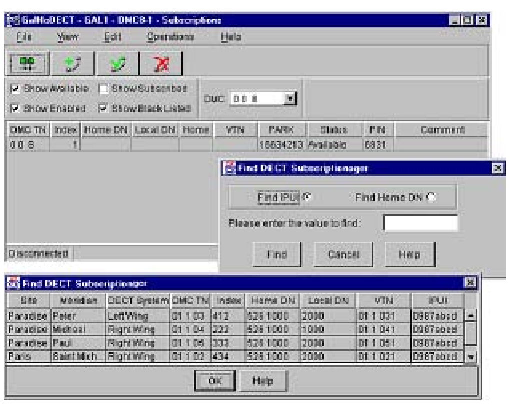


Figure 169: DECT Subscriptions window and Find DECT Subscription window

Complete the following steps.

Finding a DECT handset subscription

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Selecting the PBX that supports DECT on page 230.
2. Open the Subscriptions window.
3. Open the Find DECT Subscription dialog box.

   From the Edit menu, click on Find.
4. Select find criteria.

   Click on Find IPUI or Find Home DN, enter the value, and click on the Find button.
5. View the results.

Importing a DECT handset subscription

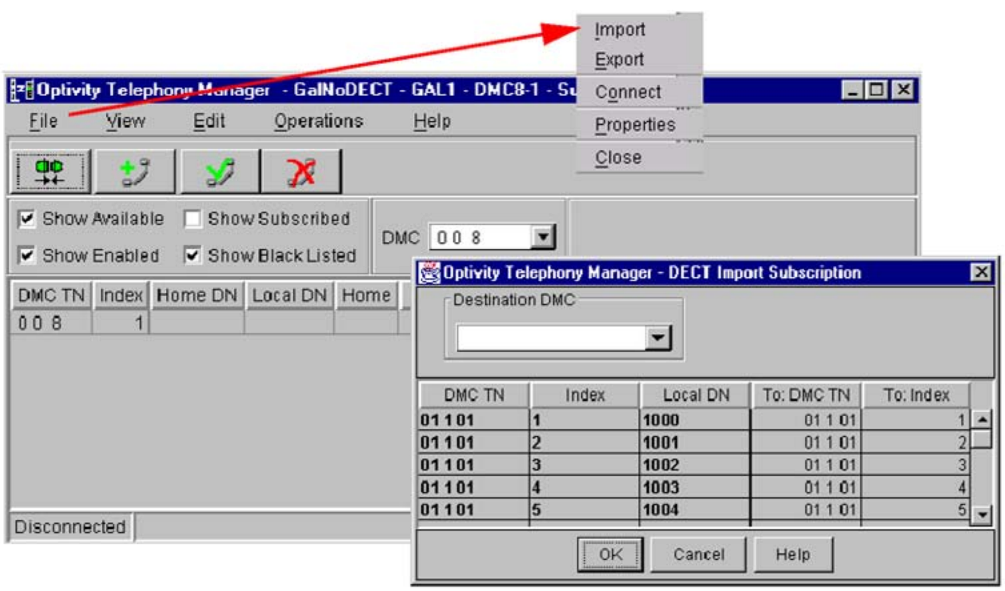


Figure 170: DECT Subscriptions window and DECT Import Subscription window

Complete the following steps.

Importing a DECT handset subscription

1. Access the DECT Application.

   Follow the instructions in Logging into the DMC DECT Manager on page 229
2. Open the Subscriptions window.

3. Open the DECT Import Subscription dialog box.

   From the File menu, click on Import.
4. Select a DECT system where the imported subscription is to be put.

   Pull-down the Destination DMC list and highlight a DMC.
5. Select DMC to be imported.

   Pull-down the Destination DMC list and highlight a DMC.
6. Select a DECT handset subscriptions to import.

   Note:
   Select a single DECT handset, a list of DECT handsets, or all DECT handsets on a DMC.

   Highlight a DMC TN and an Index, or several indexs in the list.
7. Select a DMC or Index for the subscriptions.

   Highlight a To: DMC TN or a To: Index, or several To: indexs in the list.
8. Accept the changes.

   Click OK.

Exporting a DECT handset subscription

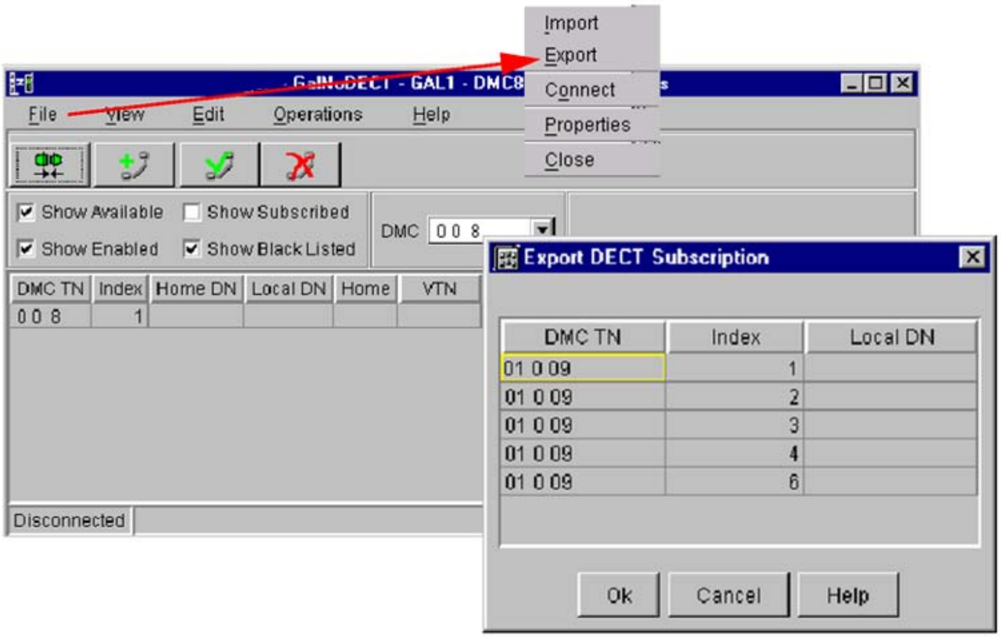


Figure 171: DECT Subscriptions window and Export Subscription window

Complete the following steps.

Exporting a DECT handset subscription

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Selecting the PBX that supports DECT on page 230.

2. Open the Subscriptions window.
3. Open the Export DECT Subscription dialog box.

   From the Find menu, click on Export.

4. Select a DECT handset subscriptions to export.

   Note:
   A single DECT handset, a list of DECT handsets, or all DECT handsets on a DMC can be selected.

   Highlight a DMC TN and an Index, or several indexes in the list.

5. Select a DMC or Index for the subscriptions.

   Highlight a To: DMC TN or a To: Index, or several To: indexes in the list.

6. Accept the changes.

   Click on the OK button.
7. Paste the subscriptions into a file.

Force disabling a DECT handset subscription

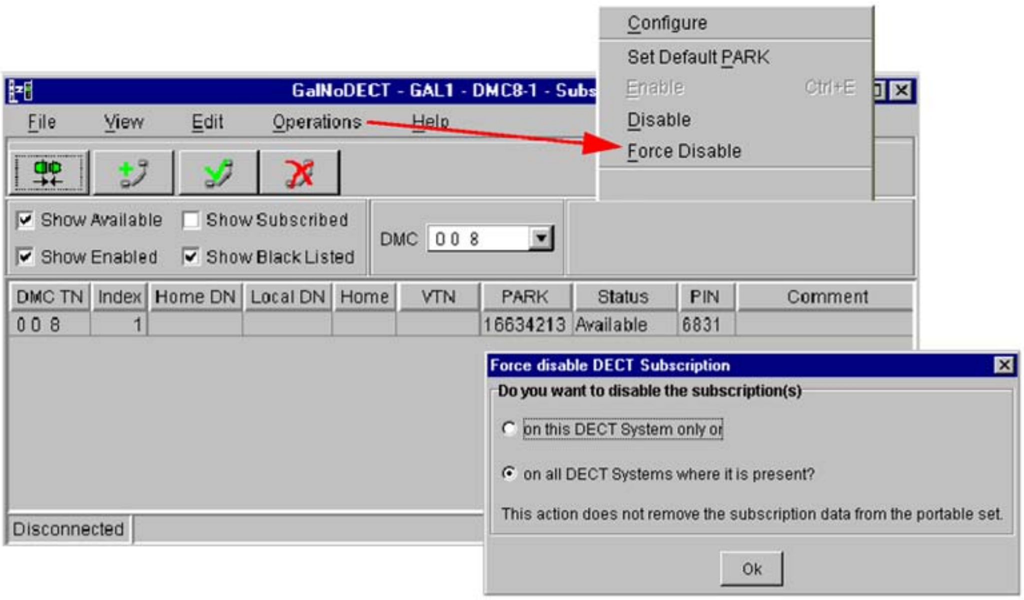


Figure 172: DECT Subscriptions window and Force disable DECT Subscription window

Complete the following steps.

Force disabling a DECT handset subscription

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in:

   • Logging into the DMC DECT Manager on page 229
   • Selecting the PBX that supports DECT on page 230
   • Launching the DECT application on page 187
2. Open the Subscriptions window.
3. Open the Force Disable DECT Subscription dialog box.

   From the Operations menu, click on Force Disable.
4. Select a DECT handset subscriptions for Force Disabling.

Note:

Select a single DECT handset, a list of DECT handsets, or all DECT handsets on a DMC.

Highlight a DMC TN and an Index (or more than one index) in the list.

5. Disable the DECT handset subscriptions.

   From the Operations menu, click on Force Disable.

6. Disable from this system only.

   Click on OK button.

7. Disable from all systems where the portable set is subscribed.

   Click OK.

Deleting TNs that are not on the switch

To remove configured sets (TRN status) that are no longer on the switch, perform the following steps

Removing configured sets

1. Using Windows, log in to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Selecting the PBX that supports DECT on page 230.

2. Open the Subscriptions window.
3. Open the DECT Move Subscription dialog box.

   From the Edit menu, click Global update.

4. Select the sync status SSTAT.

   Set Old value to the current status. Set New value to NEW.

5. Delete the TNs from the switch.

Note:

Perform this procedure after 500 analogue TNs have been converted to concentrated TNs.

Updating data on DMC DECT Manager or updating data on a DECT system

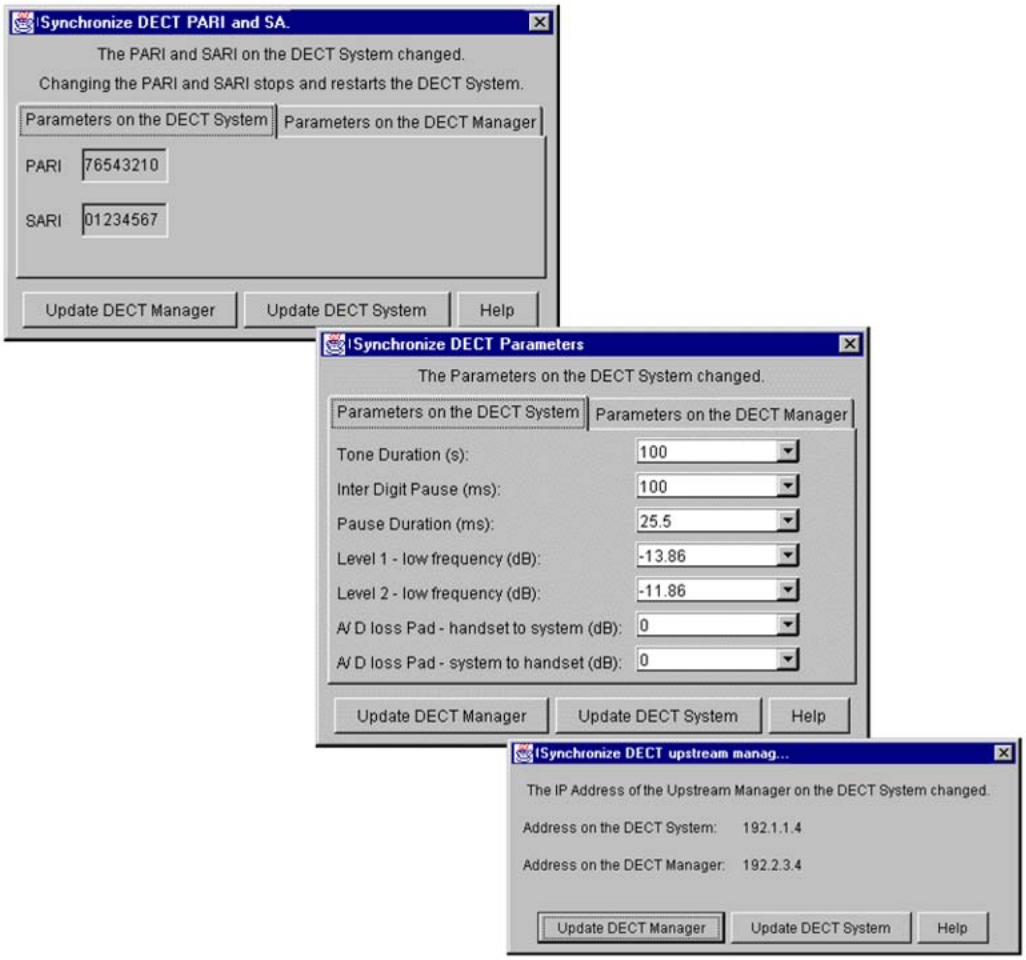


Figure 173: Mismatch dialog boxes

When the DECT manager connects to a DECT system, synchronization flags any differences between the DECT manager database and the DECT system database with mismatch dialog boxes. These dialog boxes are useful when provisioning DECT systems off-site.

See Provisioning a DECT system remotely on page 247 and Subscribing a DECT system remotely on page 249.

Complete the following steps.

Updating data on DMC DECT Manager

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230
   - Launching the DECT application on page 187

2. Using a web-based navigator, open the Administrator login screen and login. Select the System Navigator. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in:

   - Web-based browser access to the DECT application
   - Web Administrator Login
   - Opening the Web current Status
   - Opening the web System navigator

3. Select a DECT system.

   Highlight a DECT system from the list.

4. Connect to a DECT system.

   From the Applications menu, click Connect or click the (green) icon:

5. If any of the dialogs in appear, it is necessary to decide to update either the DECT Manager or the DECT system.

   Click on either the Update DECT Manager button, or Update DECT System button.

Provisioning a DECT system remotely

A distributor can use a DECT system to configure a system and subscribe sets on it. If the DECT Access System and board configuration are the same on both the distributor and the customer DECT systems, and if the DECT handsets are properly programmed on the customer-PBX-side, then the DMCs can be placed in the customer system and the DECT handsets function properly.

Remote DMC8 provisioning where the customer site has a DECT manager

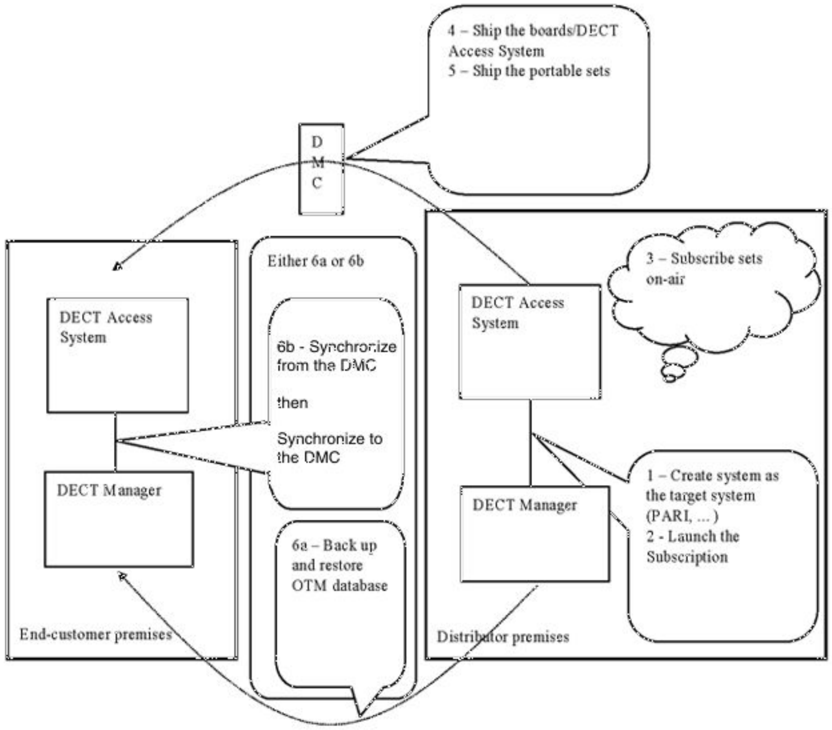


Figure 174: Remote DMC8 provision where the customer site has a DECT manager

Complete the following step.

Provisioning remotely - the customer site has a DECT manager

Remotely provision DMC8s for a customer site.

Follow steps 1 to 6a/6b shown in Figure 174: Remote DMC8 provision where the customer site has a DECT manager on page 248.

Remote DMC8 provisioning where the customer site does not have a DECT manager

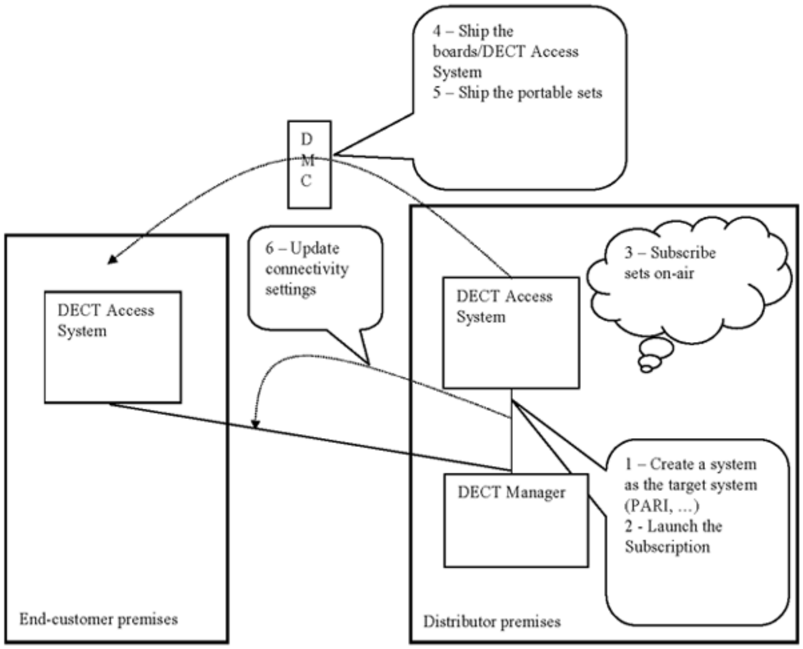


Figure 175: Remote DMC8 provision where customer site does not have a DECT manager

Complete the following step.

Provisioning remotely - the customer site does not have a DECT manager

Remotely provision a customer site.

Follow steps 1 to 6 shown in Figure 175: Remote DMC8 provision where customer site does not have a DECT manager on page 249.

Subscribing a DECT system remotely

A DECT handset can subscribe itself to any DECT system, regardless of the DECT system Primary Access Rights Identifier (PARI) and Secondary Access Rights Identifier (SARI). In other words, from the DECT handset itself, the DECT handset can be subscribed to a DECT system where the DECT handset is not necessarily intended to be operational. The customer does not always have a DECT manager on site.

Remote DECT handset subscription where the customer site has a DECT manager

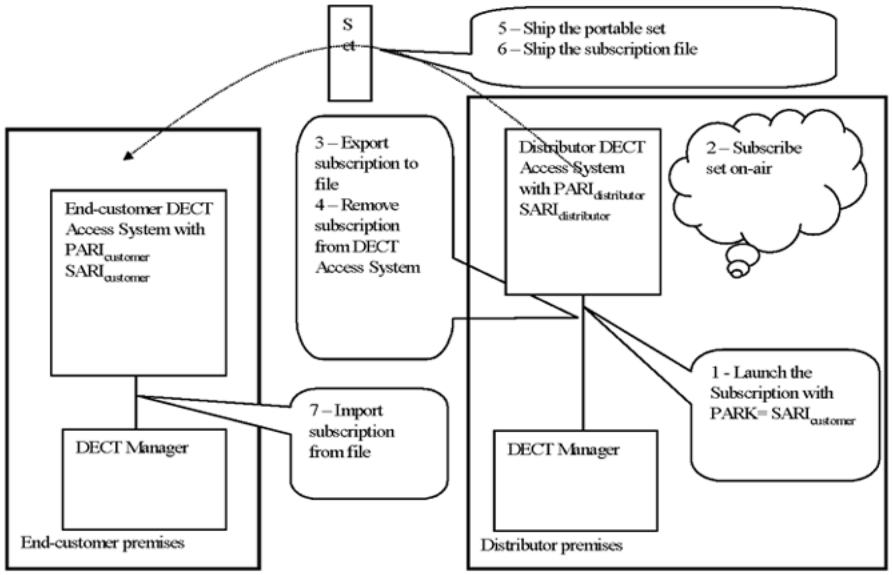


Figure 176: Remote DECT handset subscription where the customer site has a DECT manager

Complete the following step.

Updating IP address on DMC DECT Manager

Remotely provision a customer site.

Follow steps 1 to 7 shown in Figure 176: Remote DECT handset subscription where the customer site has a DECT manager on page 250.

Remote DECT handset subscription where the customer site does not have a DECT manager

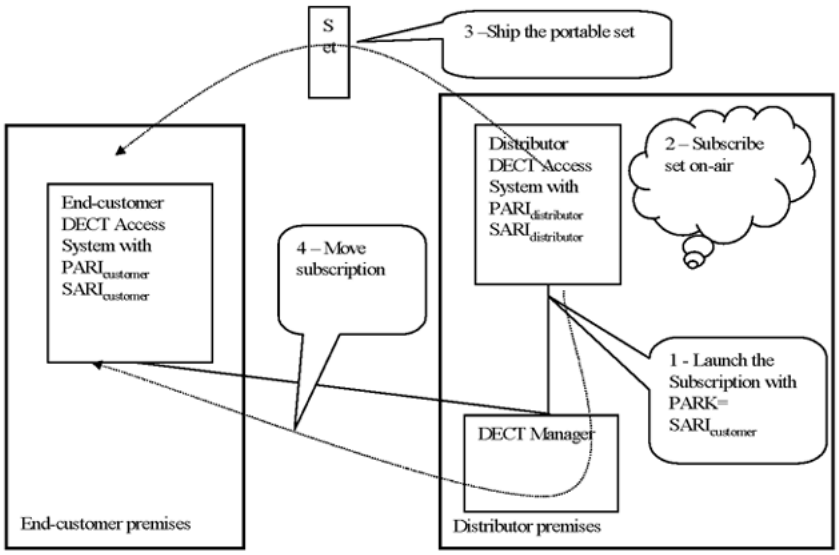


Figure 177: Remote DECT handset subscription where customer site does not have a DECT manager

Complete the following step.

Updating IP address on DMC DECT Manager

Remotely provision a customer site.

Follow steps 1 to 4 shown in Figure 177: Remote DECT handset subscription where customer site does not have a DECT manager on page 251.

Modifying system properties

Several system properties can be modified. Procedures are included for:

• Changing passwords on page 252
• Changing the DECT system name on page 253
• Changing the IP address on DMC DECT manager on page 254
• Changing the IP address on the DECT system DMC8 Relay card on page 255
• Changing a PARI or SARI on page 257

- Changing the Upstream Manager IP address on page 258
- Changing the time and date on page 259
- Changing parameters on page 260

Changing passwords

Note:

For lost passwords, see Recovering a password on page 310.

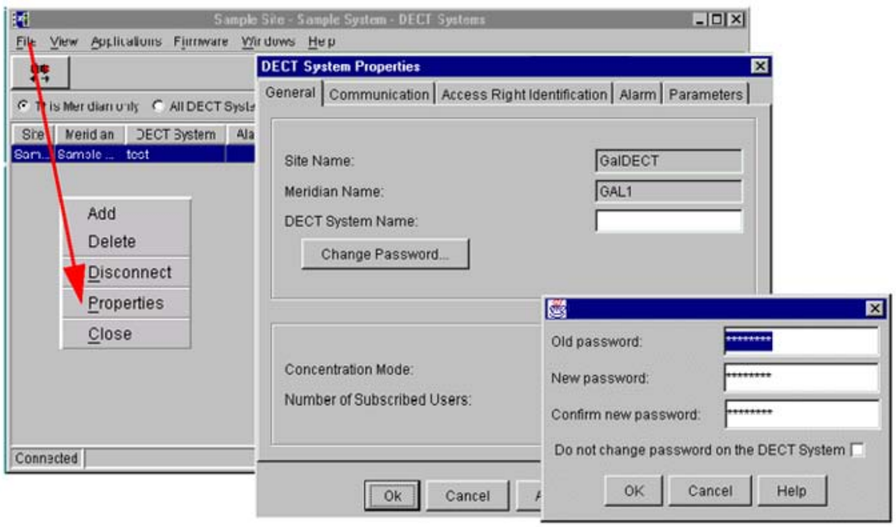


Figure 178: DECT Systems window and Change DECT Password

Complete the following steps.

Changing passwords

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Launching the DECT application on page 187.

2. Using a web-based navigator, open the Administrator login screen and login. Select the System Navigator. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in:

   - Web-based browser access to the DECT application
   - Web Administrator Login
   - Opening the Web current Status
   - Opening the web System navigator

3. Open the DECT Systems Properties dialog box.

   From the File menu, click on Properties, and click on the General tab.

4. Select Change Password.

   Click on the Change Password button.

5. Change the password.

   Enter the Old Password, enter the New Password, confirm the New Password, and click OK.

Changing the DECT system name

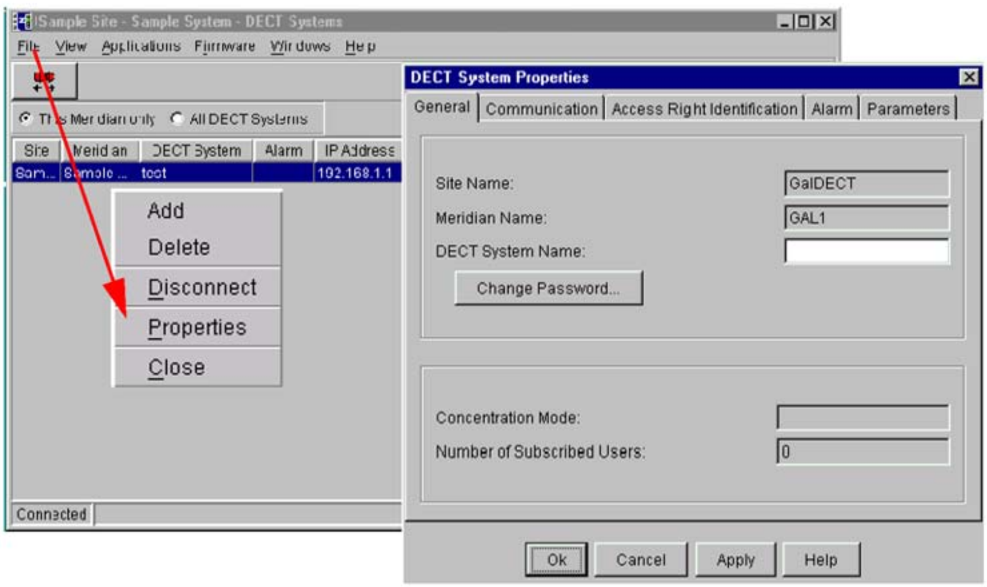


Figure 179: DECT Systems window and DECT System Properties - General tab

Complete the following steps.

Changing the DECT system name

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Launching the DECT application on page 187.

2. Using a web-based navigator, open the Administrator login screen and login. Select the System Navigator. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions:

   - Web-based browser access to the DECT application

- Web Administrator Login
- Opening the Web current Status
- Opening the web System navigator

3. Open the DECT Systems Properties dialog box.

   From the File menu, click on Properties, and click on the General tab.

4. Change the DECT system name.

   Enter the new name in the DECT System Name box.

Changing the IP address on DMC DECT manager

Before changing the IP address on the DMC DECT manager, close the connection. After the change on the DECT system, open the connection as a safety check.

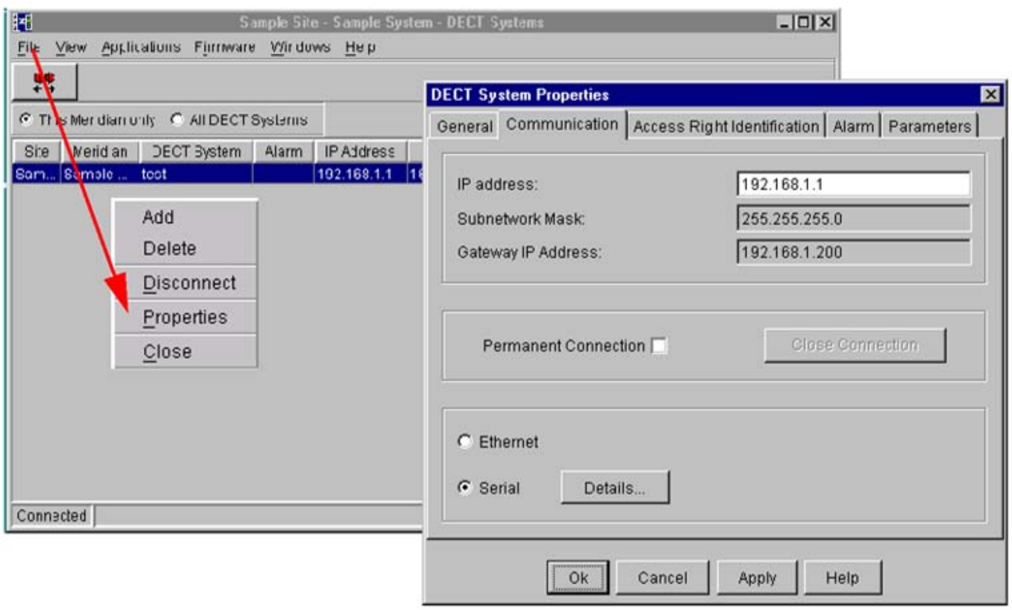


Figure 180: DECT Systems window and DECT System Properties - Communication tab

Complete the following steps.

Changing the IP address on the DECT system

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

Follow the instructions in Logging into the DMC DECT Manager on page 229 and Launching the DECT application on page 187.

2. Using a web-based navigator, open the Administrator login screen and login. Select the System Navigator. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions:

   - Web-based browser access to the DECT application
   - Web Administrator Login
   - Opening the Web current Status
   - Opening the web System navigator

3. Open the DECT Systems Properties dialog box.

   From the File menu, click on Properties, and click on the Communication tab.

4. Select Ethernet.

   Click on the Ethernet radio button.

5. Accept the changes.

   Click OK.

Changing the IP address on the DECT system DMC8 Relay card

Before changing the IP address of the DMC8 Relay card through Telnet, close the connection. After the change on the DECT system, open the connection as a safety check.

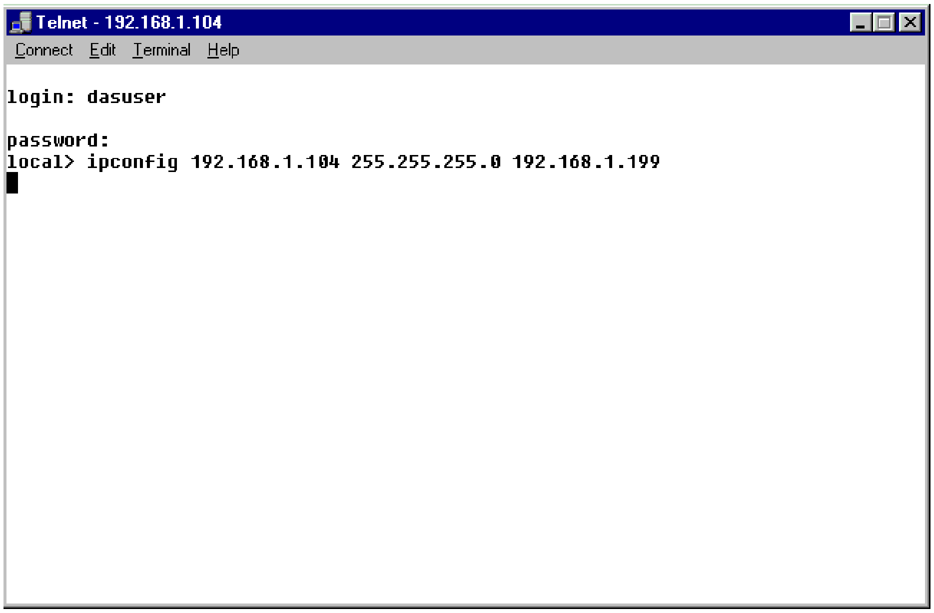


Figure 181: Telnet 192.168.1.1

Complete the following steps.

Changing the IP address on DECT system DMC8 Relay card

1. Open the Telnet dialog box.

   Click Start on the Windows taskbar and choose Accessories > Telnet.

2. Enter username and password.

   Type username dasuser and password dasuser.

3. When the connection prompt local appears, change the DMC8 Relay card address.

   Enter the following command:

   `ipconfig xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy zzz.zzz.zzz.zzz`

   xxx.xxx.xxx.xxx = new IP address of the DMC8 Relay card.

   yyy.yyy.yyy.yyy = subnet mask, usually 255.255.255.0

   zzz.zzz.zzz.zzz = IP address if this is the gateway for the network.

   Note:

   Set zzz.zzz.zzz.zzz to the IP address of the DMC DECT Manager server Ethernet interface. If there are two Ethernet interfaces on the DMC DECT Manager server, set zzz.zzz.zzz.zzz to the IP address of the interface, which is on the same network as the DMC8 Relay card.

Changing a PARI or SARI

Note:

When the PARI or SARI changes, the DECT system resets and the connection closes. If the connection is permanent, the DMC DECT Manager attempts to open in the background.

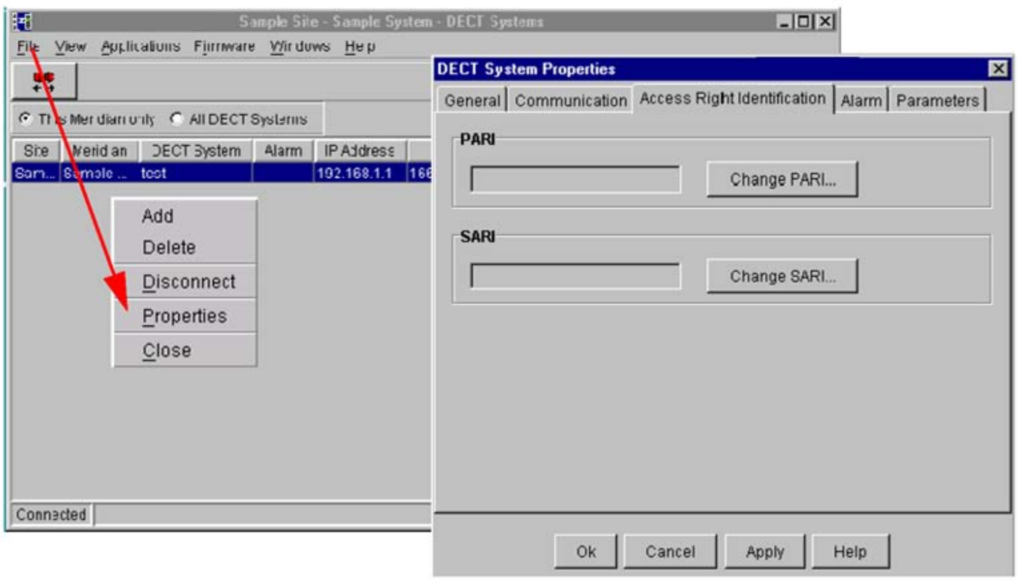


Figure 182: DECT Systems window and DECT System Properties - Access tab

Complete the following steps.

Changing a PARI or SARI

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Launching the DECT application on page 187.

2. Using a web-based navigator, open the Administrator login screen and login. Select the System Navigator. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions:

   - Web-based browser access to the DECT application
   - Web Administrator Login

3. Open the DECT Systems Properties dialog box.

From the File menu, click on Properties, and click on the Access Right Identification tab.

4. Change the PARI or SARI.

   Enter the PARI or SARI.

5. Accept the changes.

   Click on the OK button.

Changing the Upstream Manager IP address

Note:
An upstream manager IP address can only be programmed on the DMC8 Relay card.

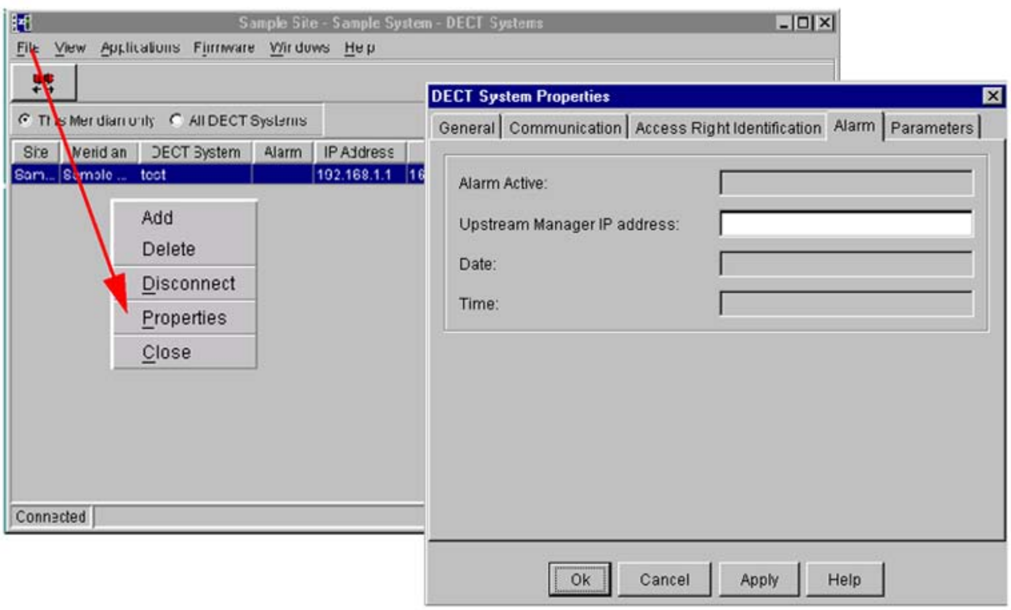


Figure 183: DECT Systems window and DECT System Properties - Alarm tab

Complete the following steps.

Changing the Upstream Manager IP address

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Launching the DECT application on page 187.

2. Using a web-based navigator, open the Administrator login screen and login. Select the System Navigator. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

Follow the instructions:

- Web-based browser access to the DECT application
- Web Administrator Login
- Opening the Web current Status
- Opening the web System navigator

3. Open the DECT Systems Properties dialog box.

   From the File menu, click on Properties. Click the Alarm tab.

4. Change the Upstream Manager IP address.

   Enter the Upstream Manager IP address.

5. Accept the changes.

   Click on the OK button.

Changing the time and date

The time and date is used to time stamp the alarms.

Note:
The time and date must be changed when the DECT system reboots or a DMC resets.

Complete the following steps.

Changing time and date

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Launching the DECT application on page 187.

2. Using a web-based navigator, open the Administrator login screen and login. Select the System Navigator. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in:

   - Web-based browser access to the DECT application
   - Web Administrator Login
   - Opening the Web current Status
   - Opening the web System navigator

3. Connect to a DECT system.

   From the Applications menu click Connect or the green icon:

4. Open the DECT Systems Properties dialog box.

   From the File menu, click on Properties. Click the Alarm tab.

5. Change the time and date.

   Enter the Date and Time.

6. Accept the changes.

   Click the OK button.

Changing parameters

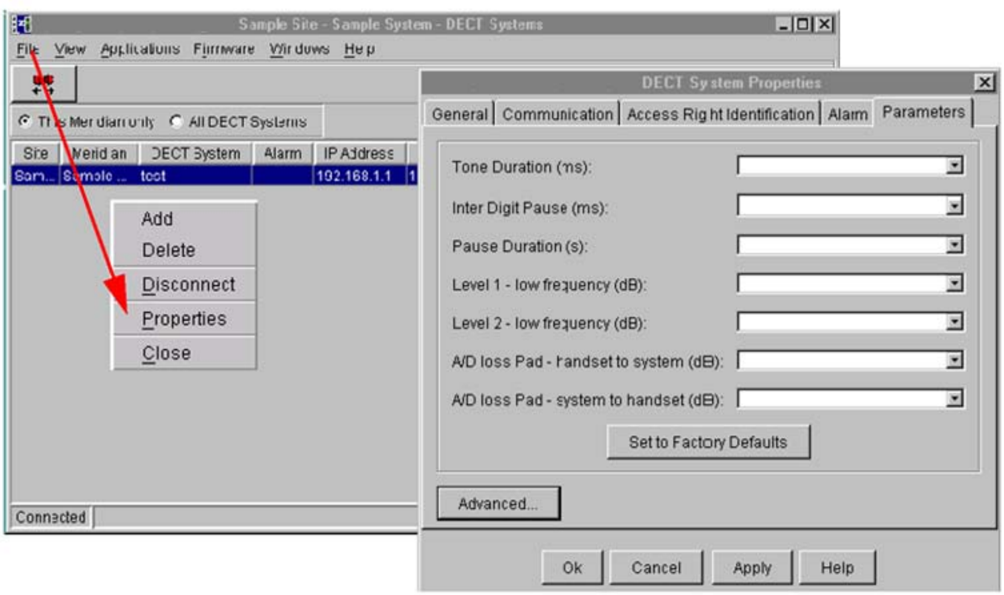


Figure 184: DECT Systems window and DECT System Properties - Parameters tab

Complete the following steps.

Changing parameters

1. Using Windows, log in to DMC DECT Manager Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in Logging into the DMC DECT Manager on page 229 and Launching the DECT application on page 187.

2. Using a web-based navigator, open the Administrator login screen and login. Select the System Navigator. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

Follow the instructions:

- Web-based browser access to the DECT application
- Web Administrator Login
- Opening the Web current Status
- Opening the web System navigator

3. Open the DECT System Properties dialog box.

   From the File menu, click on Properties. Click the Parameters tab.

4. Change the parameters.

   From the appropriate menus, highlight the parameter time/level.

5. Accept the changes.

   Click the OK button.

Keeping or removing non-operational DMC8 cards from DMC DECT Manager

Note:

xx only appears when a connection is established and there is a mismatch. If there is a permanent connection and the DECT system configuration changes, the DMC DECT Manager is updated automatically. The change is noted in the DMC DECT Manager event log.

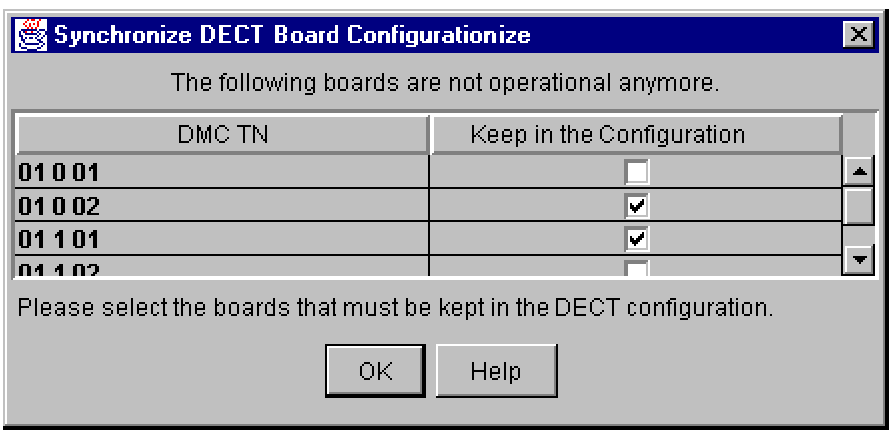


Figure 185: Synchronize DECT Board Configuration window

Complete the following steps.

Keeping or removing non-operational DMC8 cards from DMC DECT Manager

1. To keep DMC8 cards,

Delete the check mark from the appropriate box.

2. To remove DMC8 cards,

   Put a check mark in the appropriate box.

3. Accept the changes.

   Click the OK button.

Keeping or removing non-operational basestations from DMC DECT Manager

Note:

Figure 186: Synchronize DECT Radio Fixed Part Configuration window on page 262 only appears when a connection is established and there is a mismatch. If there is a permanent connection and the DECT system configuration changes, the DMC DECT Manager is updated automatically and the change is noted in the DMC DECT Manager event log.

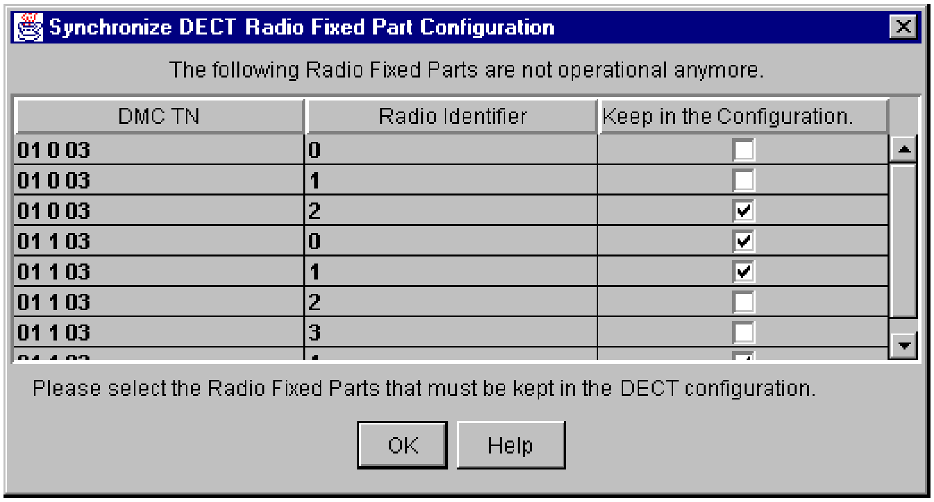


Figure 186: Synchronize DECT Radio Fixed Part Configuration window

Complete the following steps.

Keeping or removing non-operational basestations from DMC DECT Manager

1. To keep basestations,

   Delete the check mark from the appropriate box.

2. To remove basestations,

   Put a check mark in the appropriate box.

3. Accept the changes.

Click the OK button.

Resolving a subscription configuration mismatch

Note:

The window shown in Figure 187: DECT Subscriptions Configuration Mismatch window and DMC window on page 263 opens when subscriptions are enabled with the Subscriptions window Operation pull-down menu and clicking on Configure.

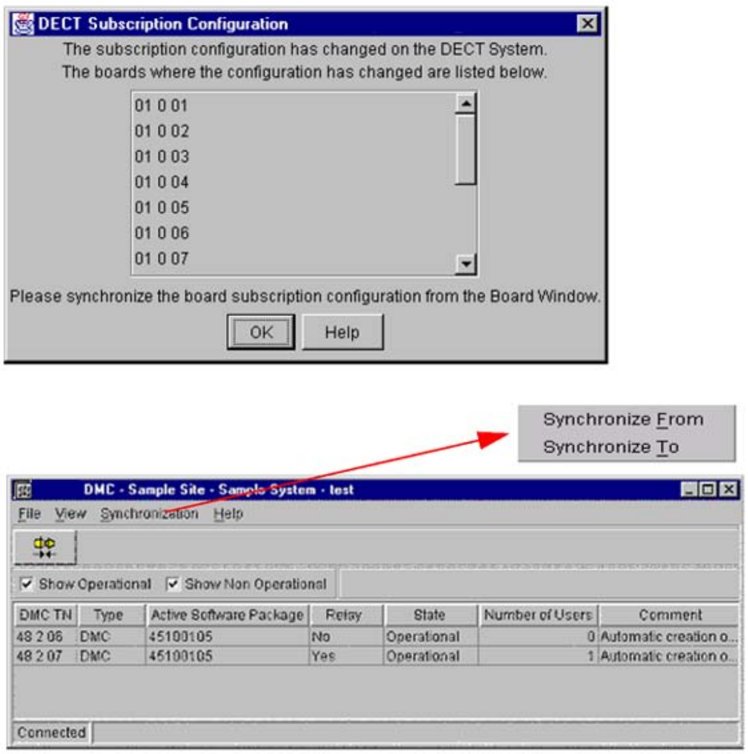


Figure 187: DECT Subscriptions Configuration Mismatch window and DMC window

Complete the following steps.

Selecting login options

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230

- Launching the DECT application on page 187

2. Using a web-based navigator, open the Administrator login screen and login. Select the System Navigator. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions:

   - Web-based browser access to the DECT application
   - Web Administrator Login
   - Opening the Web current Status
   - Opening the web System navigator

3. Open the DMC window.
4. Store DMC changes from the DECT system in the DMC DECT Manager server,

   From the Synchronization menu, click on Synchronize From.

5. Make DMC DECT Manager server changes to the DMCs in the DECT system,

   From the Synchronization menu, click on Synchronize To.

Troubleshooting

This section provides information to help solve common problems.

Disconnecting

The passwords on a DMC8 Relay card and a system on the DMC DECT Manager must match.

The default password for both a DMC8 Relay card and an DMC DECT Manager system is Arsenal.

If the password on a DMC8 Relay card is not the same as the DMC DECT Manager password, DMC DECT Manager is not able to connect to the relay card. If the DMC8 Relay card is rebooted, the mismatched password is accepted for only five minutes. Then the card disconnects again.

To solve the problem, ensure the password on the system in DMC DECT Manager and the password on the DMC8 Relay card are the same.

Avaya recommends that the passwords be reset to the default Arsenal.

To change the DMC DECT Manager password, see Changing passwords on page 252.

Note:

Select the option Do not change password on the DECT system.

To change the password on the DMC8 relay card, see Recovering a password on page 310.

Note:

Do not select the option Do not change password on the DECT system."

Chapter 7: System maintenance

Contents

This section contains information on the following topics:

Alarm Code maintenance actions

Alarm Codes can be viewed with one of the following:

- Windows Alarm Snapshot on page 268

Windows Alarm Snapshot

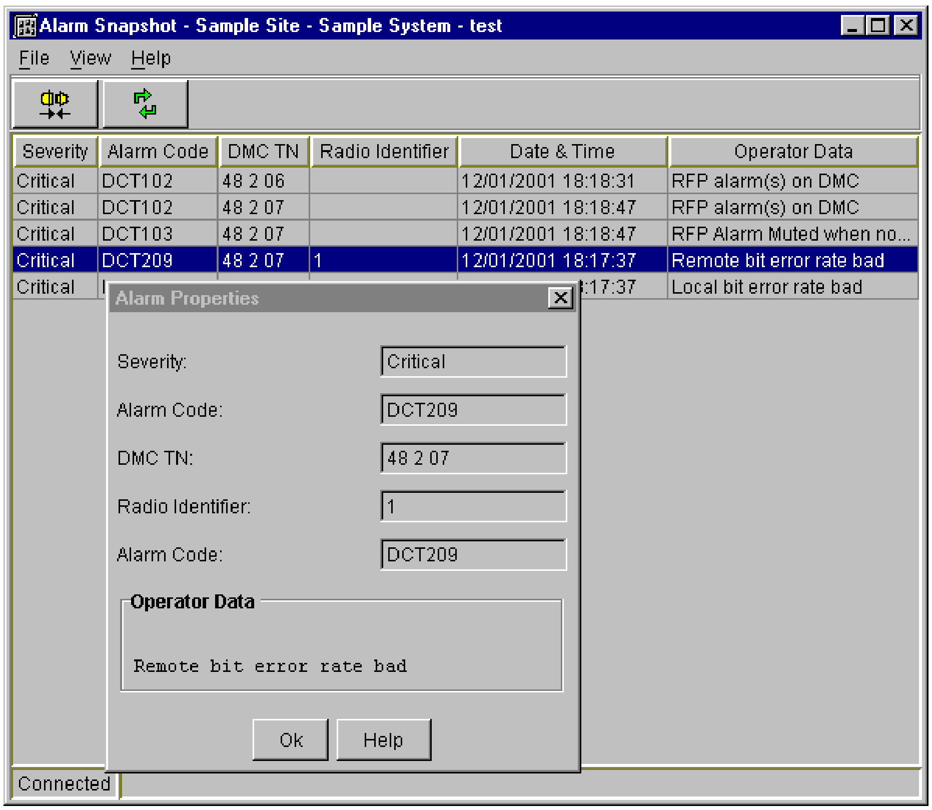


Figure 188: Alarm Snapshot window and Alarm Properties window

Note:

The Alarm Snapshot window is a static display. The Alarm Snapshot window only shows the alarms present at the time the window was opened. The window must be refreshed for an up-to-date display. The web-based alarm browser displays alarm history and occurring alarms.

Complete the following steps.

Alarm Code maintenance actions

1. Using Windows, and login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window. Open the Current Alarms window.

   Follow the instructions in:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230
   - Launching the DECT application on page 187

2. Refresh the Alarm Snapshot window.

   Click on the icon:

3. Examine the alarm code, and take the appropriate maintenance action.

   See Alarm Code maintenance actions on page 268.

Note:

The Windows Alarm Notification only displays alarms that have occurred since the window was opened. The Web Alarm Browser has a circular log that provides information on a limited history of alarms. The Web Alarm browser records alarms at all times.

Table 46: Alarms

Alarm code	Alarm description	Maintenance action
DMC8 operational state Synthesis		
DCT001	All DMC8 cards are operational. (DCT001 only displayed in the Alarm browsers. DCT001 does not show in the Alarm Snapshot list.)	Information only, no action needed.
DCT002	At least one DMC8 card is not operational. (DCT002 only displayed in the Alarm browsers. DCT002 does not show in the Alarm Snapshot list.)	Remove the DMC8 and insert the DMC8 again to reboot. If the reboot fails, replace the DMC8.
Note: When at least one DMC8 card becomes inoperable, DCT002 appears in the alarm browser history. When all the DMC8 cards become operational again, DCT001 appears in the browser history.		
Presence of an alarm		
DCT101	No alarms. (DCT101 only displayed in the Alarm browsers).	Information only, no action needed.

Alarm code	Alarm description	Maintenance action
DCT102	1. DCT102 displayed in the Alarm browsers is an alarm on a DMC8. 2. DCT102 displayed in the Alarm Snapshot is an alarm on a basestation.	1. Open the Alarm Snapshot window for alarm details and perform the corresponding maintenance actions. 2. Look for one or more DCT202 to DCT215 alarms in the Alarm Snapshot window, and perform the corresponding maintenance actions.
DCT103	Basestation alarm muted when no alarms. Look for one or more DCT501 alarms for details. (DCT103 only displayed in the Alarm Snapshot window.)	Configure the basestation using the DMC DECT Manager, or disconnect the basestation.
DCT104	Faceplate cable alarms on DMC8. Look for one or more DCT302 to DCT307 alarms for details. (DCT104 only displayed in the Alarm Snapshot window.)	Perform the DCT302 to DCT307 maintenance action.
DCT105	Software alarms on DMC8. Look for one or more DCT401 to DCT403 alarms for details. (DCT105 only displayed in the Alarm Snapshot window.)	Perform the DCT402 to DCT407 maintenance action.
Basestation alarms		
DCT201	No basestation alarm. (DCT201 only displayed in the Alarm browsers.)	Information only, no action needed.
DCT202	Local receiver signal missing (basestation disconnected). If a re-connection does not solve the problem, check: 1. the basestation 2. the DMC8 cards in the basestation 3. for a cable problem between the basestation and a DMC8 card.	Disconnect the basestation for 30 seconds. 1. Replace the basestation. 2. Replace the DMC8 cards in the basestation. 3. Check the faceplate cabling.
DCT203	Local loss of receiver slot synchronization.	Perform the DCT202 maintenance action.
DCT204	Local loss of receiver frame synchronization.	Perform the DCT202 maintenance action.

Alarm code	Alarm description	Maintenance action
DCT205	Local bit error rate bad.	Perform the DCT202 maintenance action.
DCT206	Remote receiver signal missing.	Perform the DCT202 maintenance action.
DCT207	Remote loss of receiver slot synchronization.	Perform the DCT202 maintenance action.
DCT208	Remote loss of receiver frame synchronization.	Perform the DCT202 maintenance action.
DCT209	Remote bit error rate bad.	Perform the DCT202 maintenance action.
DCT210	Synthesizer out of synchronization.	Perform the DCT202 maintenance action.
DCT211	Power amp out of order.	Perform the DCT202 maintenance action.
DCT212	Round-trip delay changed.	Perform the DCT202 maintenance action.
DCT213	RFP synthesizer type changed.	Perform the DCT202 maintenance action.
DCT214	LFC out of synchronization with BMC.	Disconnect and reinsert the DMC8.
DCT215	Error due to synchronization-port mutation.	Can affect the interpretation of the alarm snapshot or alarm browser applications; however, the alarm must clear automatically within 200 seconds.
Faceplate cable alarms		
DCT301	No faceplate cable alarm. (DCT301 only displayed in the Alarm browsers.)	Information only, no action needed.
DCT302	The DMC8 card is working; however, there is a loss of faceplate cable synchronization.	Remove all the DMC8s. Check the strap setting on the DMC8s. Check the faceplate cabling. Reinsert all the DMC8 cards. If the above procedure does not solve the problem, try to find which DMC8 card gives the error condition by inserting the DMC8 cards one at a time with a minute in between insertions.

Alarm code	Alarm description	Maintenance action
		If needed, replace the defective DMC8 card or the defect faceplate cables.
DCT303	No faceplate cable synchronization found. The DMC8 card responsible for this alarm cannot pass the alarm on to the DMC8 Relay card.	Perform the DCT302 maintenance action.
DCT304	The DMC8 card is working; however, a user connected a faceplate cable section to the DMC8, causing a counter difference.	Do not connect faceplate cables to a DMC8 on an active DECT system.
DCT305	The DMC8 card is working; however, there is a timing signal loss within the DMC8.	Perform the DCT302 maintenance action.
DCT306	The DMC8 card is working; however, the input of the faceplate cable controller is locked.	Perform the DCT302 maintenance action.
DCT307	The DMC8 card is working; however, the processor is overloaded with too many faceplate cable messages, causing an I/O transmit overflow.	Perform the DCT302 maintenance action. If the DCT302 action does not solve the problem, try provisioning an additional DMC8.
Software alarms		
DCT401	The DMC8 card is working; however, there is a subscription database corruption.	In the Boards window, Synchronize From the DMC8, then Synchronize To the DMC8.
DCT402	The DMC8 card is located in a card slot position that does not match the DMC8 card subscription data card slot address. The mismatch is due to one of the following: • the DMC8 card is placed in the wrong card slot position • the DMC8 card does not come into service	Perform the DCT401 maintenance action.
DCT403	Duplicate subscription in the system. A subscription is moved from a source DMC8 card to a destination DMC8 card; however, the original subscription is still present on the source DMC8 card.	Perform the DCT401 maintenance action. If the problem does not clear, look for duplicated subscription IPUI in the Subscription Property dialog box. Delete the unnecessary subscription from the source DMC8.

Alarm code	Alarm description	Maintenance action
	The DCT403 alarm must always come from both the source and destination DMC8 cards.	
DCT404	(DCT404 only displayed in the Alarm browsers.) One of the following events occurred: • the power was turned on • the DMC8 was inserted into the shelf backplane • a software exception restarted the DMC8	If this alarm was caused by a software exception, examine the alarm browsers for details.
Radio Fixed Part alarm muted		
DCT501	Alarms are muted in the RFP window, however the basestation does not have any intrinsic alarms.	Use the RFP window to Cancel Mute Alarms.
Backplane controller unit		
DCT601	This alarm is used by Avaya designers.	Information only, no action needed.

LED status for DMC8/DMC8-E and basestation

The system LED status indicates the functioning of the DMC8/DMC8-E, basestation power and card subsystem operation.

Table 47: DMC8/DMC8-E red LED status

Red LED State	Description	Action
On	The card is in one of the following states: 1. not programmed 2. disabled 3. has faults	1. Program the card. See Resolving a subscription configuration mismatch on page 263. 2. Re-enable the card. Use LD 32 ENLC l s c. 3. Replace the card. See Removing and inserting a DMC8 for maintenance on page 275.

Red LED State	Description	Action
Flashes three times	Card is doing a self test.	Wait.
Off	1. The card is in service if the yellow LED is off and the green LED is on. 2. The card has no power if all LEDs are off.	1. No action. 2. Restore power.

Table 48: DMC8/DMC8-E yellow/green LED status

Yellow LED Status	Green LED Status	Description	Action
Off	Off	Power down.	Restore power.
On	Off	Hardware testing by boot program.	Wait.
On	On	Wait for download command by the boot program.	Wait.
On	Loop‡	No valid main program found by the boot program. Card is continuously restarting.	Start firmware distribution with the DECT Manager.
Slow flash†	On	Faults caused by one of the following: • software download in progress • software distribution in progress • subscription or configuration data is saving to the flash ROM	Wait. Do not remove the card, removal corrupts the flashROM data.
Off	Fast flash††	Card is synchronizing to the faceplate cable bus.	Wait.
Off	Slow flash†	1. Card has no PARI, or has an incomplete PARI. 2. Card has detected an error.	1. Contact the technical support group. 2. Replace the card. See Removing and inserting a DMC8 for maintenance on page 275.
Off	On	Card is in service.	No action required.
Slow flash†	Slow flash†	Simultaneous occurrence of:	Contact the technical support group.

Yellow LED Status	Green LED Status	Description	Action
		• card has no PARI, or incomplete PARI and • either software distribution is in progress or subscription or configuration data is saving to the flashROM	
Legend for LED action: †Slow flash = 2 seconds On and 2 seconds Off ††Fast flash = 1 second On and 1 second Off ‡Loop for no program = 3 seconds On and 0.25 seconds Off ‡Loop for corrupted program = 12 seconds On and 0.25 seconds Off			

Table 49: Basestation LED status

Green	Description	Action
Off	No power.	Check DMC8 to basestation cables.
Flashes	Input power present but no output power.	Check DMC8 LED Status and Alarm Reports. Check DMC8 to basestation cables.
On	Power present and communication with DMC8 established.	No action required.

Removing and inserting a DMC8 for maintenance

⚠ **Caution:**

Service Interruption

Do not bypass the DMC8-E or the DMC8 immediately to the left of the DMC8-E. A bypassed DMC8-E cannot regenerate the faceplate bus signals in the left half of the shelf.

Although the separated left half of the shelf remains in synchronization, system performance decreases as follows:

- Any calls passing through the separated part of the faceplate bus are dropped.
- Handsets configured on a DMC in the separated half cannot make or receive calls through a basestation in the other half.

To remove, re-seat, or insert DMC8 card, perform the following actions:

- Backup the data from the DMC8 card to be removed.
- Remove the faulty DMC8 card.
- Insert a working DMC8 card.
- Restore the data to the DMC8 card that was replaced.

Backing up a DMC8 card configuration and subscription information

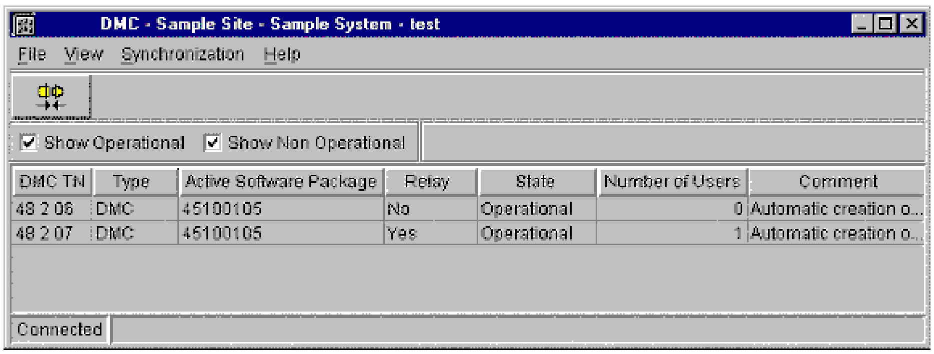


Figure 189: DMC window

Complete the following steps.

Backing up a DMC8 card configuration and subscription information

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window. Open the Boards window.

   Follow the instructions:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230
   - Launching the DECT application on page 187
2. Select the DMC8 card.

   Highlight the DMC8 card in the list.
3. Save the DMC8 data on the DMC DECT Manager.

   From the Synchronization menu, click on Synchronize From.

Removing a faulty DMC8 card

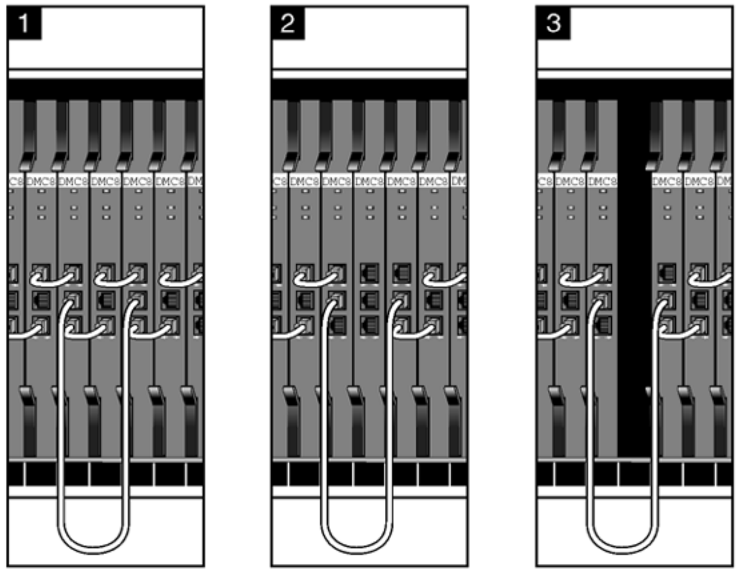


Figure 190: DMC8 card removal

Complete the following steps.

Removing a faulty DMC8 card

1. Connect the maintenance bypass cable.

   Plug the maintenance bypass cable into the Maint port of the DMC8 cards on either side of the DMC8card to be removed.

2. Disconnect the faceplate cables.

   Detach the faceplate cables from the DMC8 card to be removed and from the cards on either side of it.

3. Remove the DMC8.

   Release the card locking devices and lever the card out of the shelf backplane.

Inserting a serviceable DMC8 card

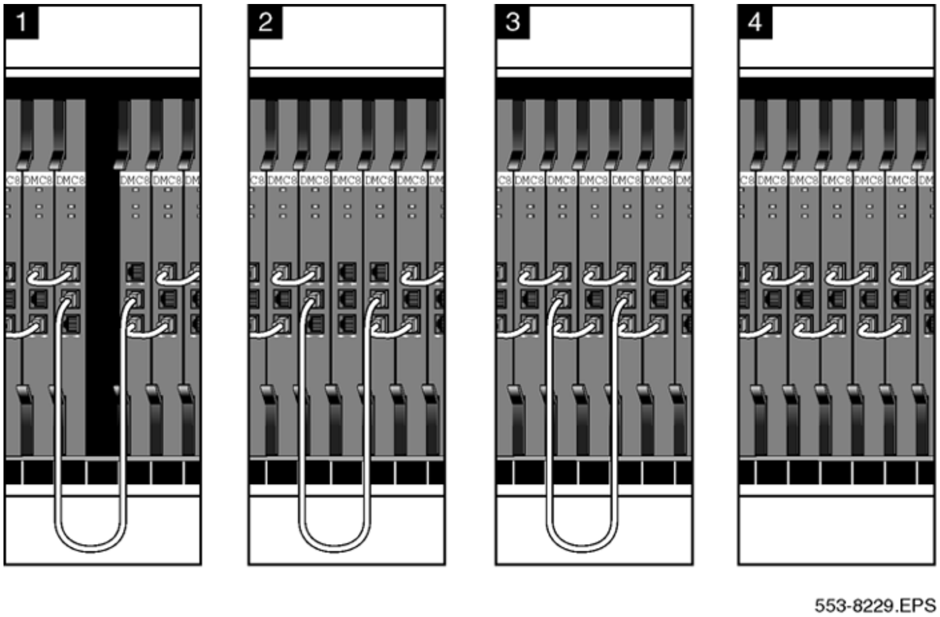


Figure 191: DMC8 card insertion

Complete the following steps.

Inserting a serviceable DMC8 card

1. Insert the DMC8 card.

   Lever the card into the shelf backplane and latch the card locking devices.
2. Connect the faceplate cables.

   Insert the faceplate cables into the DMC8 card, and into the cards on either side of it.
3. Disconnect the maintenance bypass cable.

   Remove the maintenance bypass cable from the Maint port of the DMC8 cards on either side of the replaced DMC8 card.

Restoring subscription data to the serviceable DMC8 card

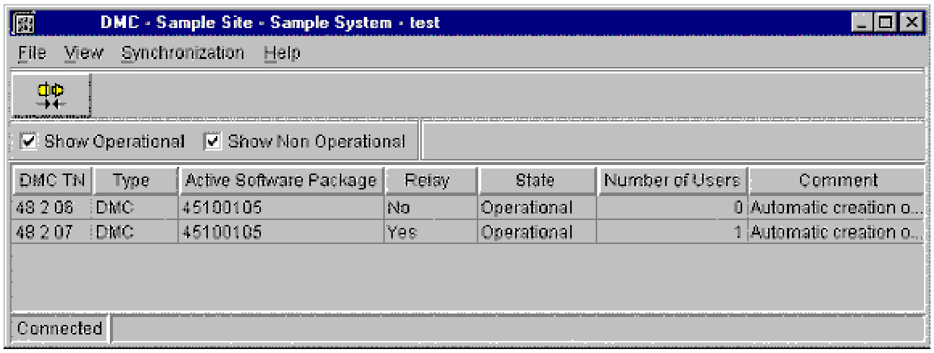


Figure 192: DMC window

Complete the following steps.

Restoring subscription data to the serviceable DMC8 card

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window, and open the Boards window.

   Follow the instructions in:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230
   - Launching the DECT application on page 187

2. Select the DMC8.

   Highlight the DMC8 in the list.

   Save the DMC8 data on the DMC DECT Manager.

   From the Synchronization menu, click on Synchronize To.

Note:

Restore only one DMC (Board) at a time.

Adding a DMC8 card to a DECT system

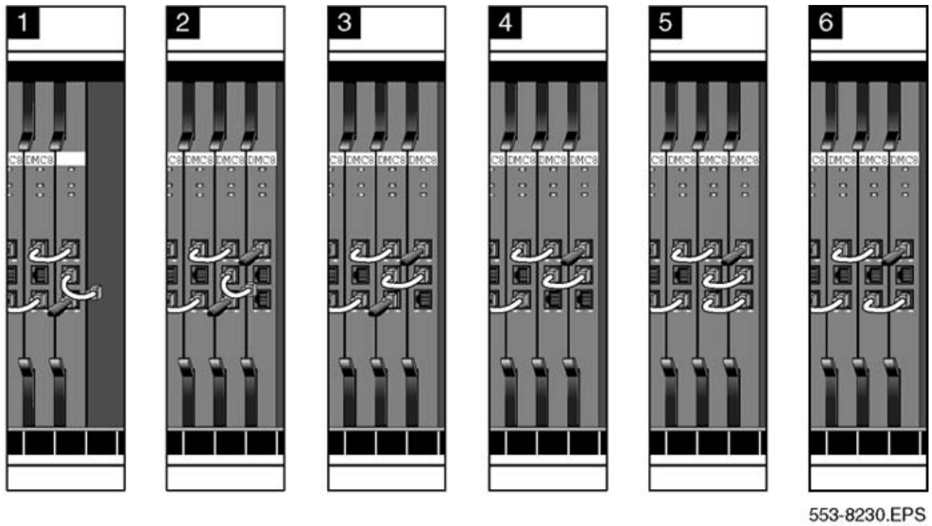


Figure 193: Add a DMC8 card to the system

Complete the following steps.

Adding a DMC8 card to a DECT system

1. Connect the bypass cable.

   Plug the bypass cable into the Maint port of the existing DMC8.
2. Insert the DMC8 card, with a terminating plug installed,into the top port.

   Lever the card into the shelf backplane and latch the card locking devices.
3. Connect the bypass cable to the added DMC8 card.

   Plug the bypass cable into the Maint port of the added DMC8 card.
4. Remove the terminating plug from the existing card.

   Remove the terminating plug from the bottom port of the existing DMC8 card.
5. Connect the faceplate cable.

   Insertthe faceplate cables into the bottom port of the existing DMC8 card and the added DMC8 card.
6. Disconnect the bypass cable.

   Remove the maintenance bypass cable from the Maint port of the existing DMC8 card and the added DMC8 card.
7. Add the DMC8 card to the database.

   Use the procedure: Inserting a serviceable DMC8 card on page 278.

Reusing a DMC8 card in another DECT system

Open the DMC window.

Complete the following steps.

Reusing a DMC8 card in another DECT system

1. Select the DMC8card to be reused.

   Highlight the DMC8 in the list.
2. Delete the subscriptions from the DMC8 card memory.

   From the File menu, click on Clear.

Removing and reinstalling a basestation for maintenance

Removing and reinstalling a basestation for maintenance involves:

1. Muting alarms on a basestation on page 281
2. Canceling mute alarms on a basestation on page 282
3. Disconnecting and reinstalling a basestation on page 283

Muting alarms on a basestation

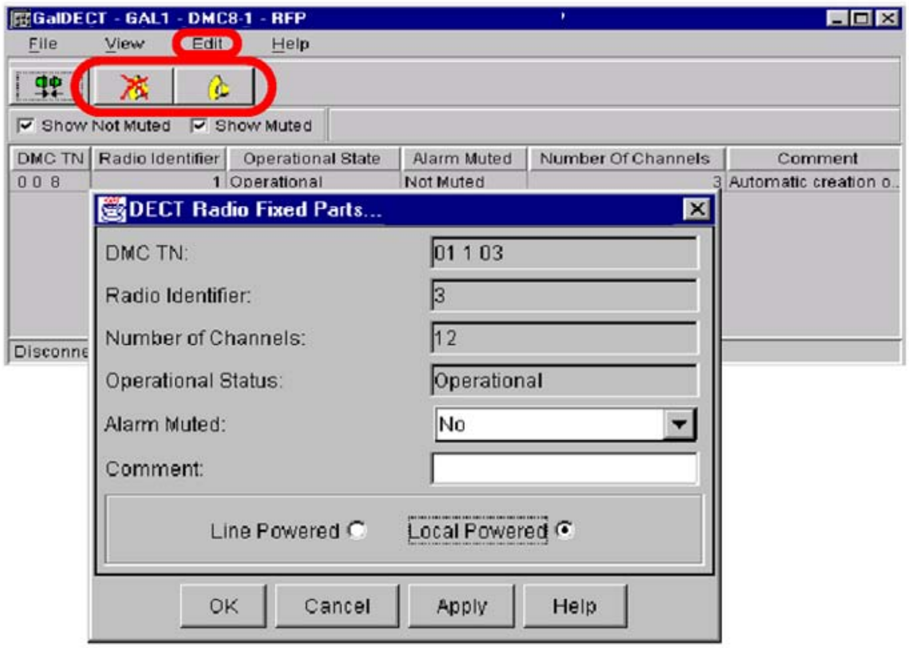


Figure 194: RFP window and DECT Radio Fixed Parts properties window

Complete the following steps.

Muting alarms on a basestation

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window, and open the RFP window.

   Follow the instructions in:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230
   - Launching the DECT application on page 187

2. Select the DMC8 to mute.

   Highlight the DMC8 in the list.

3. Mute the alarms.

   From the File menu, click Mute Alarms.

Canceling mute alarms on a basestation

Complete the following steps.

Canceling mute alarms on a basestation

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window, and open the RFP window.

   Follow the instructions in:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230
   - Launching the DECT application on page 187

2. Select the DMC8 to cancel mute alarms.

   Highlight the DMC8 in the list.

3. Cancel mute alarms.

   From the File menu, click Cancel Mute Alarms, or click:

Disconnecting and reinstalling a basestation

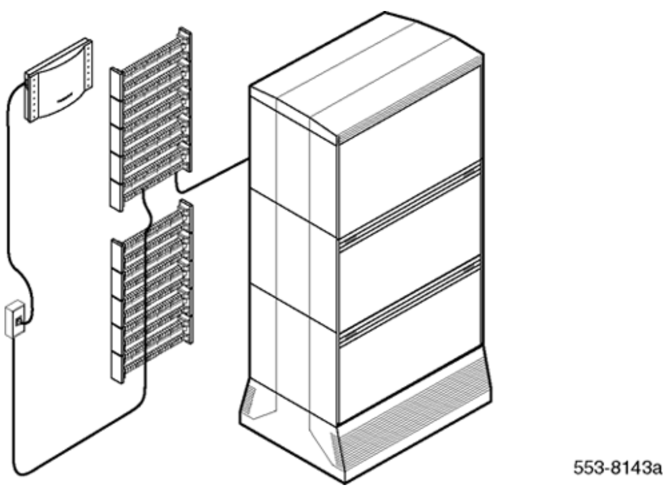


Figure 195: Disconnect reinstall the basestation

Note:
After disconnecting the cable to the basestation, wait for 60 seconds before reconnecting another basestation.

Complete the following steps.

Disconnecting/reinstalling a basestation

1. Disconnect the RJ45 cable, MDF side.

   Unplug the RJ45 cable from the wall socket of the RJ45 Connection Box.
2. Disconnect the RJ45 cable, basestation side.
3. Remove the unserviceable basestation from the mounting plate.
4. Reinstall a serviceable basestation on the mounting plate.
5. Re-connect the RJ45 cable to the basestation.
6. Re-connect the RJ45 cable, MDF side.

Uploading and activating firmware

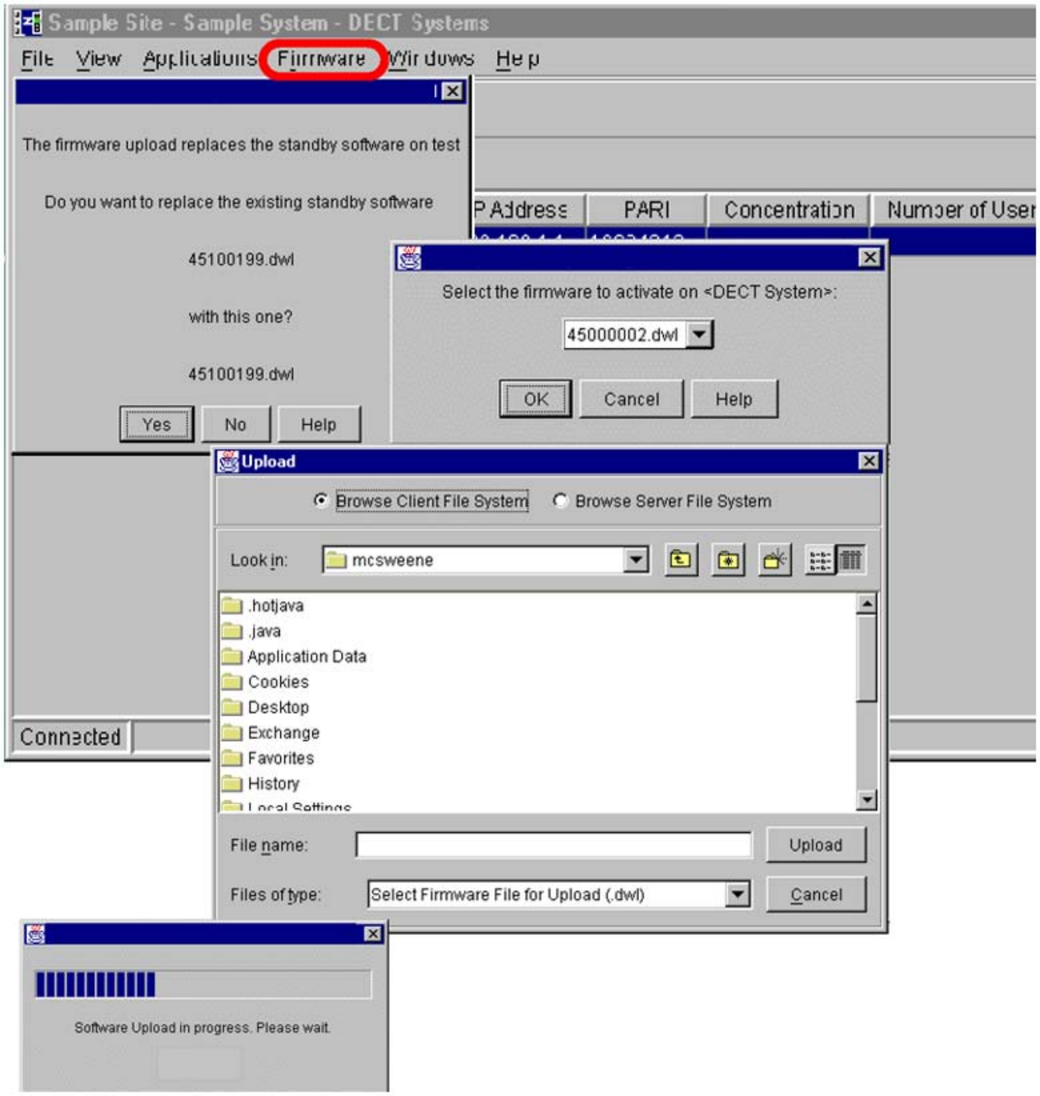


Figure 196: DECT systems, DECT Firmware Upload, DECT Firmware Activation Upload

Complete the following steps.

Uploading and activating firmware

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window.

   Follow the instructions in:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230
   - Launching the DECT application on page 187

2. Open the Firmware upload dialog box.

Select the Firmware menu, and click on Upload.

Recovering from a firmware upload failure

It is possible to upload DMC firmware with the V.24 port of a DMC8 card using a PC equipped with Z-modem protocol. During the upload, the DMC8 card deletes the active and standby firmware, and stores the uploaded firmware as the active firmware. When the upload completes, the boot program starts the uploaded firmware.

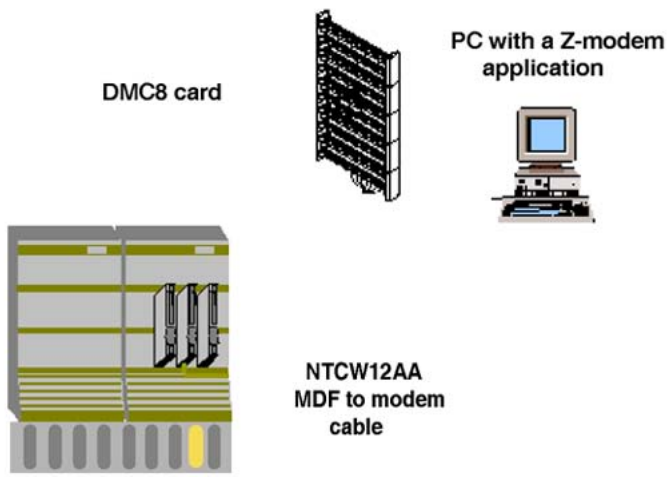


Figure 197: Recovery upload to a DMC8 card

Complete the following steps.

Recovering from a firmware upload failure

1. Configure the COM port settings.

   baud rate = 19200

   data bits = 8

   parity = no parity

   stop bit = no flow control
2. Connect the NTCW12AA cable to the DMC8 card to be uploaded.

   Refer toTable 39: NTCW12AA cable to MDF connections on page 201 for the NTCW12AA cable tip and ring connections.
3. Locate the DMC DECT Manager server COM port.

   Connect the NTCW12AA cable connector into the PC COM port.

4. Unseat the DMC8 card.

   Disconnect the DMC8 card from the shelf backplane.
5. Access Z-modem application; for example, Windows HyperTerminal.

   Click Start on the Windows taskbar and choose Programs > Accessories > HyperTerminal.
6. Initiate the file transfer.

   Start the Z-modem application on the PC.
7. Activate the boot program.

   Insert the DMC8 card into the shelf backplane.

Note:

The BIX tip and ring connections shown in Table 39: NTCW12AA cable to MDF connections on page 201 correspond to standard BIX designation. The first pair are labeled T0 and R0. See the section in Avaya Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310) that deals with planning and designating the MDF.

Table 50: NTCW12AA cable to MDF connections

DMC8 Relay card MDF connection	Cable colour	DB25 connector pin number	Signal designator
T1	Grey	8	V.24DCD
R2	Yellow	4	V.24RTS
T3	Blue	2	V.24TXD
R3	Red	3	V.24RXD
T4	Pink	7	V.24GND

Retrieving current RSSI data

The Radio Signal Strength Indication (RSSI) shows interference and usage by a certain basestation. A snapshot of the RSSI data is retrieved and stored in a file when the user requests it. If the file already existed, the new snapshot data is appended to the last snapshot data in the file.

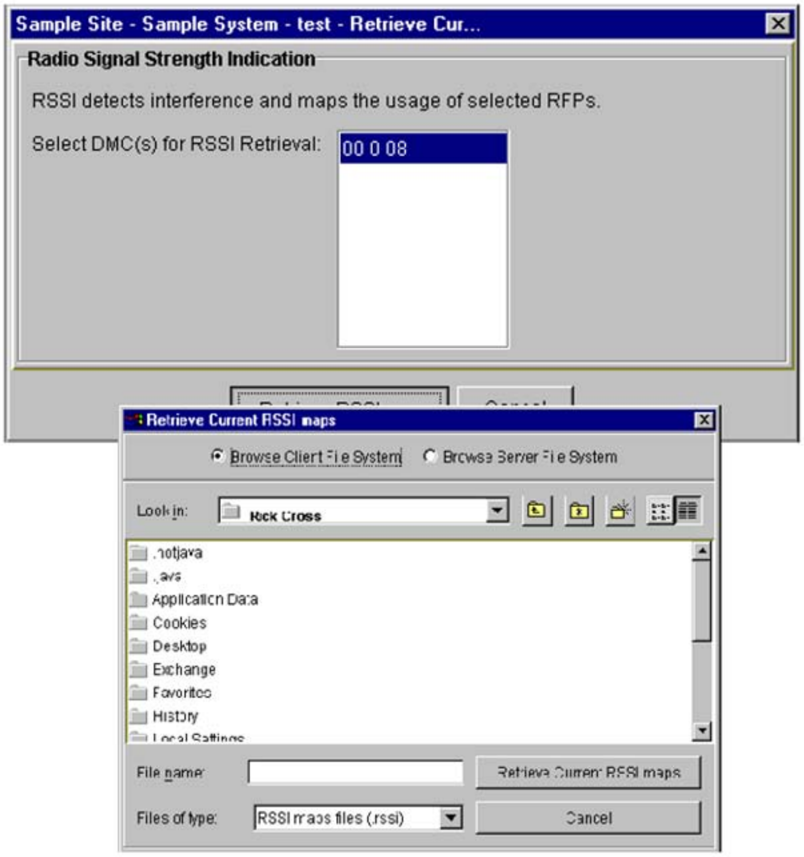


Figure 198: Retrieve Current RSSI window, and Retrieve Current RSSI maps window

Complete the following steps.

Retrieving current RSSI data

1. Using Windows, login to DMC DECT Manager. Select the system that supports the DECT system. Launch the DECT application. Open the DECT Systems window, and open the Current RSSI Data window.

   Follow the instructions in:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230
   - Launching the DECT application on page 187

2. Select a DMC8 card or cards for RSSI information retrieval.

   Scroll and highlight a TN in the Select DMCs for RSSI Retrieval: box.

3. Retrieve the RSSI data.

   Click on the Retrieve RSSI now button.

4. Store the RSSI data.

Select a file location.

RSSI file format

The data for each RFP is a nibble for indication of the RSSI value for each slot (24) for each carrier (10). This results in 10 (number of carriers) times 24 (number of slots) nibbles equal to 240 nibbles (120 octets).

```
--------------------------------------------------------------------------------
--------------------------------------------------------

Wed Apr 18 16:00:42 CEST 2001
--------------------------------------------------------------------------------
--------------------------------------------------------

DMC TN :  48 1 07

RFP 1 :
0F0F0FFF0FFF0F0F0FFF0FFF0F0F0FFF0FFF0F0F0FFF0FFF0F0F0FFF0FFF5F0F0FFF0FFF0F0F0FFF0FFF0F0F0FFF0F
FF0F3F5FFF5FFF0F0F0FFF0FFF0F1F0FFF0FFF0F0F0FFF0FFF0F0F0F0F0F1F0F0F0F0F0F0F0F0F0F0FFF0FFF0F0F0FFF
0FFF0F0F0FFF0FFF0F0F0FFF0FFF0F0F0FFF0FFF0F0F0FFF0FFF

RFP 2 :
F0FFF0F0F0FFF0FFF4F0F0FFF0FFF0F0F0FFF0FFF8F0F0FFF0FFF0F0F0F0F0FFF3F0F0F0F0FFF0F0F0FFF0FFF0F0F0
FFF0F0F0F0F0FFF0F0F0F0F0FFF0FFF0F0F0FFF0FFF0F0F0FFF0FFF3F5F5FFF0FFF0F0F0FFF0FFF0F0F0FFF0FFF0F0
F0FFF0FFF0F0F0FFF0FFF0F0F0FFF0FFF0F0F0FFF0FFF0F0F0FF
```

Figure 199: RSSI file format

Performance Collection

The DECT Performance Manager is an application developed specifically to help with investigations in the following areas:

- deployment
- engineering
- configuration
- traffic
- call and non-call associated issues

The DECT Performance Manager does not work on non-SNMP firmware. Users of the Performance Manager must have a basic understanding of the DECT product.

Every DMC board has two performance files, the Equipment Performance Management (epm) file and the User Performance Management (upm) file. The epm file contains the counters and timers for DMC board and RFP information. The upm files contain the counters and timers for PP information.

The DECT Performance Manager uses a database created from upm and epm files retrieved from the DMC boards on the DECT system. Using the database, the DECT Performance Manager can generate Reports and Trends. The upm and epm files are collected from the boards on the DECT system using the Performance collection application on DMC DECT Manager. See Figure 200: Performance Collection window and Select location dialog box on page 290.

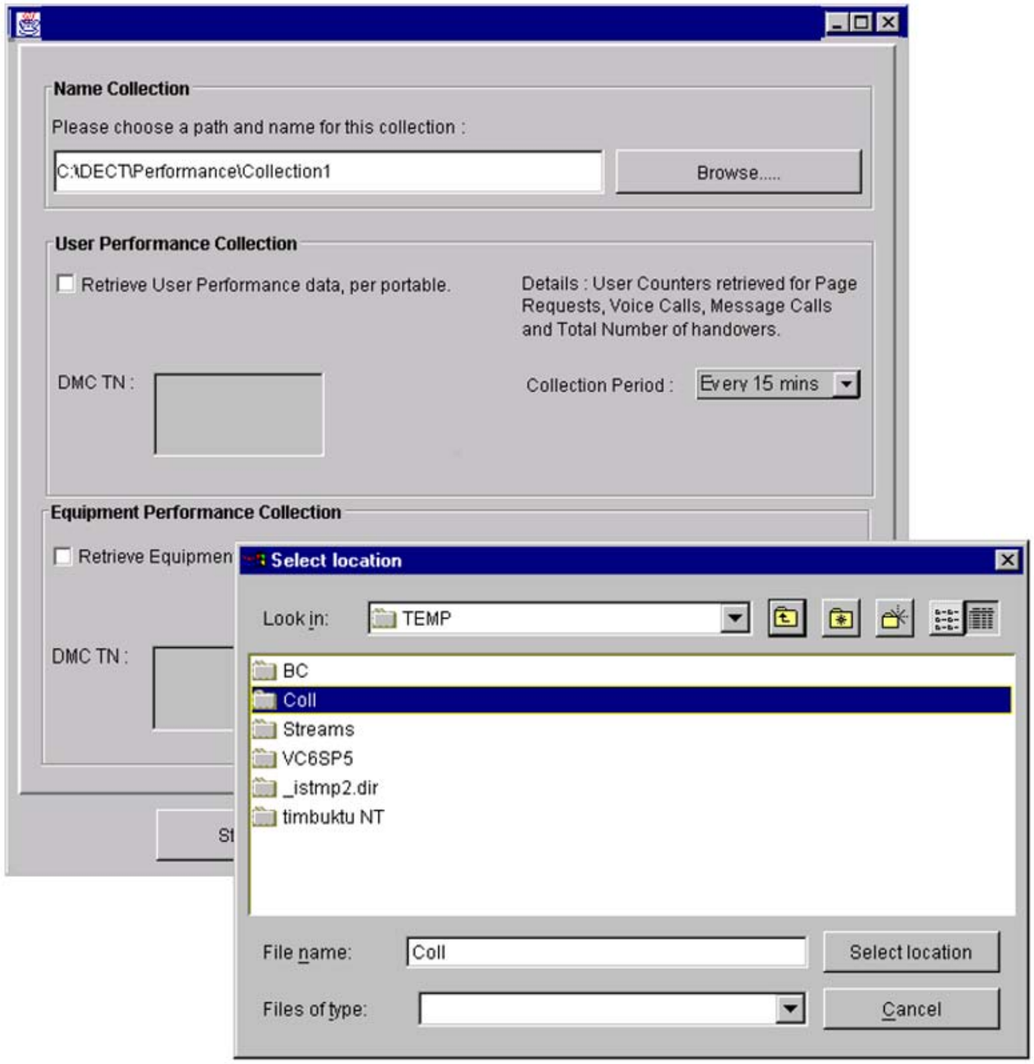


Figure 200: Performance Collection window and Select location dialog box

The DECT Performance Manager is capable of generating Reports and Trends for the following:

- B-channel occupation
- S-channel occupation
- basestation (RFP) channel occupation
- board statistics

- portable statistics
- basestation statistics

For more information on the Reports, see DECT Performance Manager installation on page 291.

Complete the following steps in sequence:

1. DECT Performance Manager installation on page 291
2. Set date and time on DMC DECT Manager on page 293
3. Retrieving upm and epm files on page 294
4. Creating a new directory structure on page 295
5. Rename upm and epm files on page 296
6. Creating a database on page 298
7. Using the database on page 299
8. DECT Performance Manager data on page 301

Note:

Omit the steps in Creating a new directory structure on page 295 and Rename upm and epm files on page 296 if you are using DMC DECT Manager 2.2 (the directory structure and file names are correct).

Caution:

Service Interruption

Check to ensure the Performance Collection is not using all the DMC DECT Manager server storage space.

DECT Performance Manager installation

You must have Windows Internet Explorer™ 6.x installed to run the DECT Performance Manager. The application software zip file is 14.5 Mbits. The extracted file is 54 Mbits.

Installing DECT Performance Manager

1. Download the DECT Performance Manager application software from the Avaya technical support website: www.avaya.com/support
2. Extract the application software.

   Use the application installed on your computer for extracting files and directories from a zip file.
3. Open the folder labeled Disk 1. See Figure 201: DECT Performance Manager application software on page 292.

   Double-click the folder labeled Disk 1.

4. Run Setup.exe.

   Double-click the Setup.exe icon. See Figure 202: DECT Performance Manager installation file on page 292.

5. Follow the Install Wizard.

   After installation is complete, open the DECT Performance Manager by double-clicking the DECT Performance Manager icon located in the Programs folder (accessed through the Start menu).

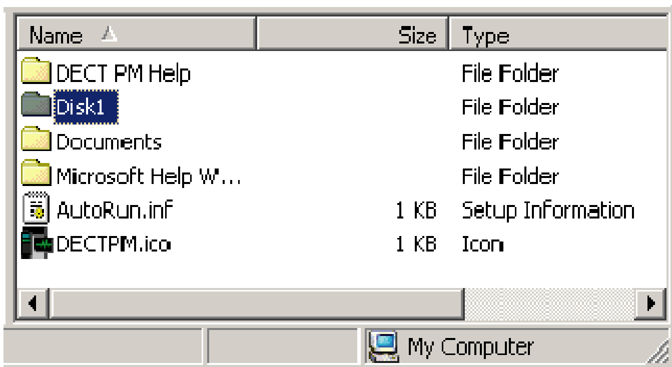


Figure 201: DECT Performance Manager application software

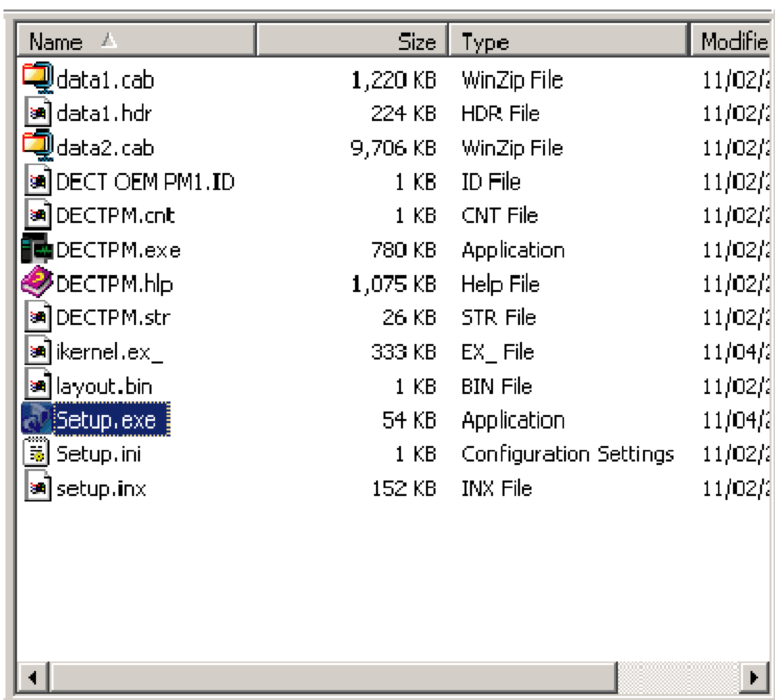


Figure 202: DECT Performance Manager installation file

Set date and time on DMC DECT Manager

You must set the date and time on the DMC DECT Manager before retrieving upm and epm files from the DECT system. This ensures a more accurate Report or Trend when using the DECT Performance Manager.

Setting the date and time on the DMC DECT Manager

1. Connect to the DECT system.
2. Select File > Properties.

   Select File on the toolbar, and select Properties from the File menu. The Properties window opens. See Figure 203: DMC DECT Manager-DECT System Properties window - Alarm tab on page 293.
3. Click the Alarm tab.
4. Change the date and time.
5. Save changes.

   Click the Apply button, then click OK.

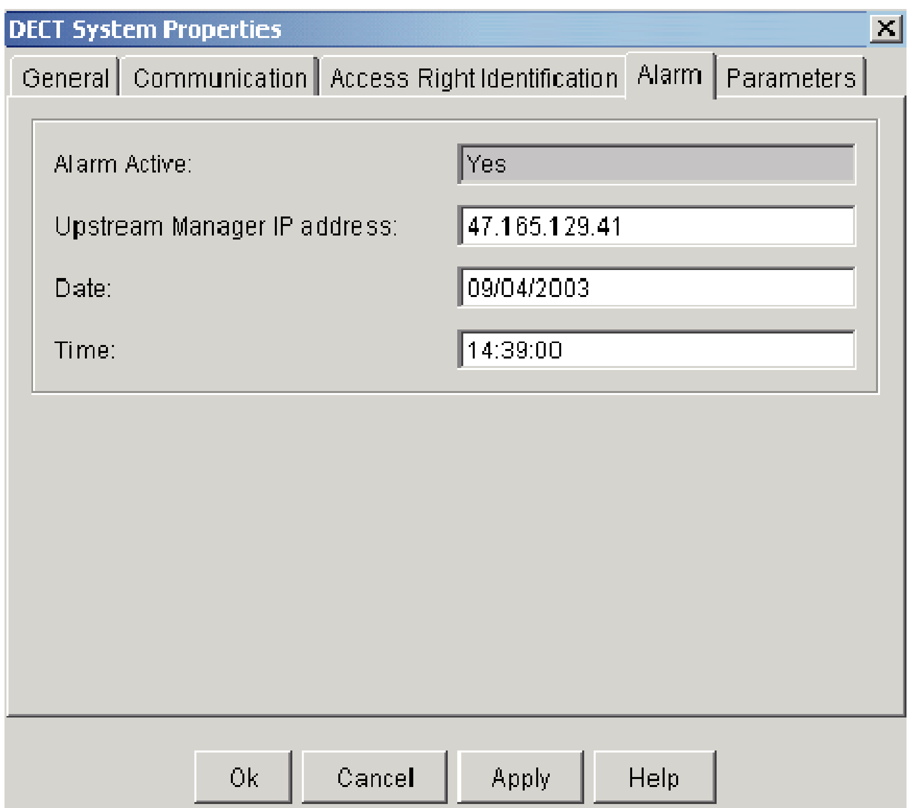


Figure 203: DMC DECT Manager-DECT System Properties window - Alarm tab

Retrieve upm and epm files

Use the Performance Collection application on DMC DECT Manager to retrieve upm and epm files.

Note:
The Performance Collection application (used with DMC DECT Manager up to and including Release 2.0) allows files to be collected from a single board only at one time. However, it is possible to collect from multiple boards on the DECT system if the DMC DECT Manager patch 20050su1 is installed. The patch is available on the MPL.

Retrieving upm and epm files

1. Create a folder to be the Collection Location.

   Use this folder to store the retrieved upm and epm files.

2. Connect to the DECT system.

   Follow the instructions on Logging into the DMC DECT Manager on page 229 to Connecting to a DECT system on page 179.

3. Select Applications > Performance Collection.

   Select Applications on the toolbar, and select Performance Collection from the Applications menu.

4. Browse for the folder in which to store the upm and epm files.

   Click the Browse button under Collection Location and navigate to the folder you created in Step 1.

5. Select the Retrieve User Performance Collection data, per portable and Retrieve Equipment Performance Collection data, per DECT System check boxes.

6. Select the board or boards from which to collect the upm and epm files.

   Enter the DMC TNs of the boards.

7. Select the collection period from the Collection Period: drop-down list.

   Use a 15-minute collection period for the most detailed results. For less detailed results, use a longer collection period. A minimum of two files is required for the Performance Manager to work.

8. Click the Start button.

   When the Performance Collection starts, upm and epm files are stored in the Collection Location at intervals specified in the Collection Period.

   To close the Performance Collection window, click the Cancel button. (The Performance Collection continues while the window is closed.)

9. Click the Stop button to stop the Performance Collection.

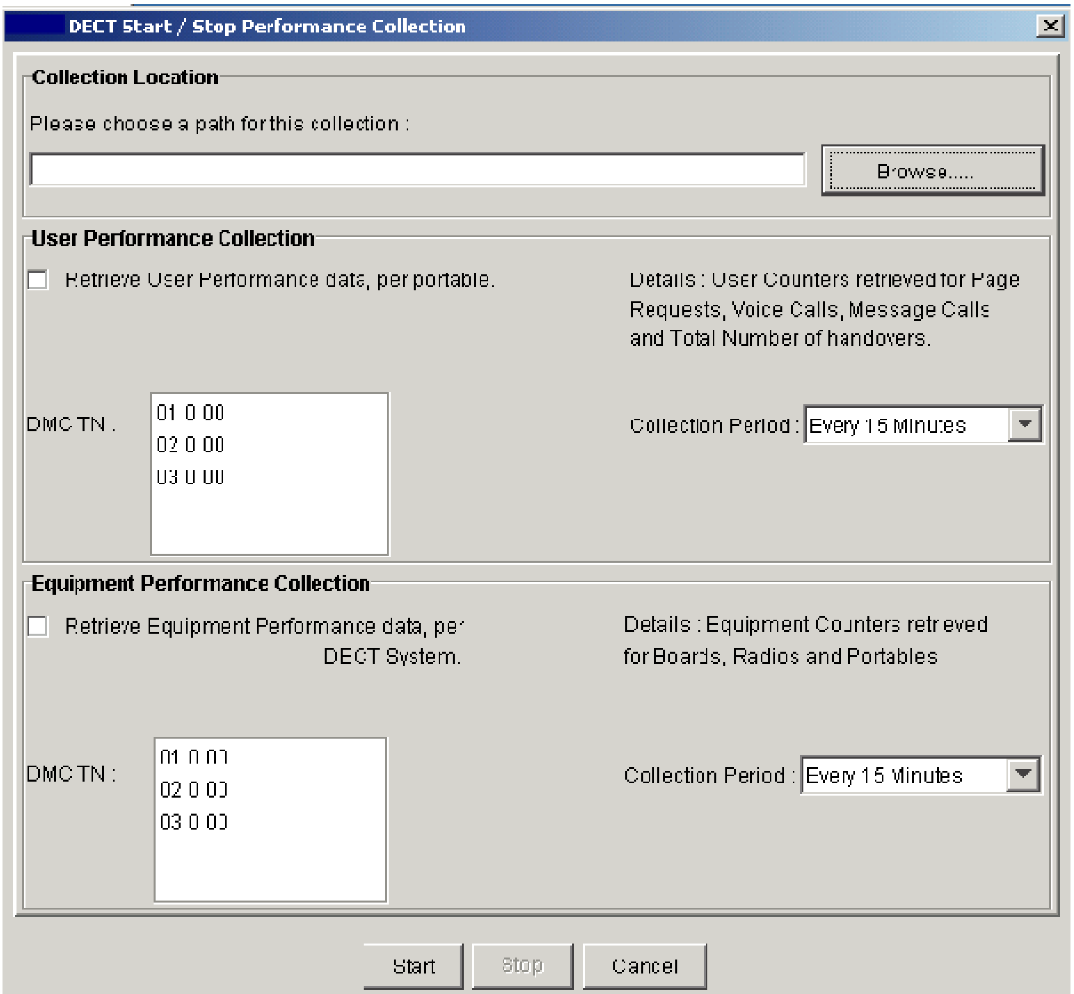


Figure 204: DMC DECT Manager Start/Stop Performance Collection window

Creating a new directory structure

A database must be created before using the DECT Performance Manager. To create the database, the upm and epm files must be located in a defined directory format (see Figure 205: Directory structure on page 296).

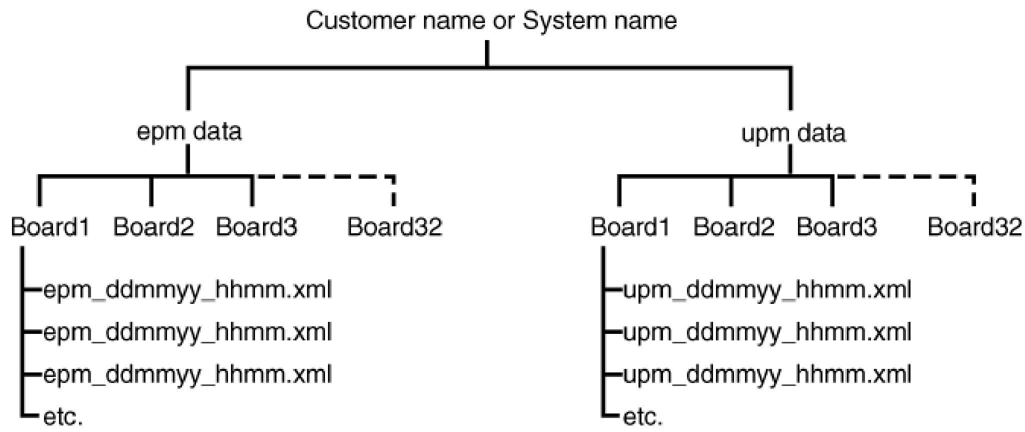


Figure 205: Directory structure

Figure 206: Directory example on page 296 is an example of a directory.

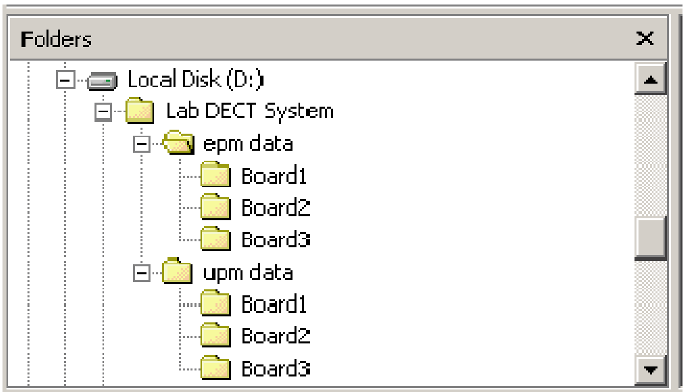


Figure 206: Directory example

Rename upm and epm files

With some versions of DMC DECT Manager, the upm and epm files exist in a format that is not compatible with the Performance Manager. Therefore, all upm and epm files collected must be renamed before either a database can be created, or Reports and Trends can be generated. All the files must be renamed correctly, using the proper format, to create a database for the generation of Reports.

Important:

Place all the upm and epm files in the new directory structure before renaming takes place.

The upm file name format is upm_ddmmyy_hhmm.xml, where:

- ddmmyy=PC date the performance data was requested (day, month, year)
- hhmm=PC time the performance data was requested (hour, minute)

Figure 207: Upm file renamed on page 297 shows an original upm file name and the file renamed.

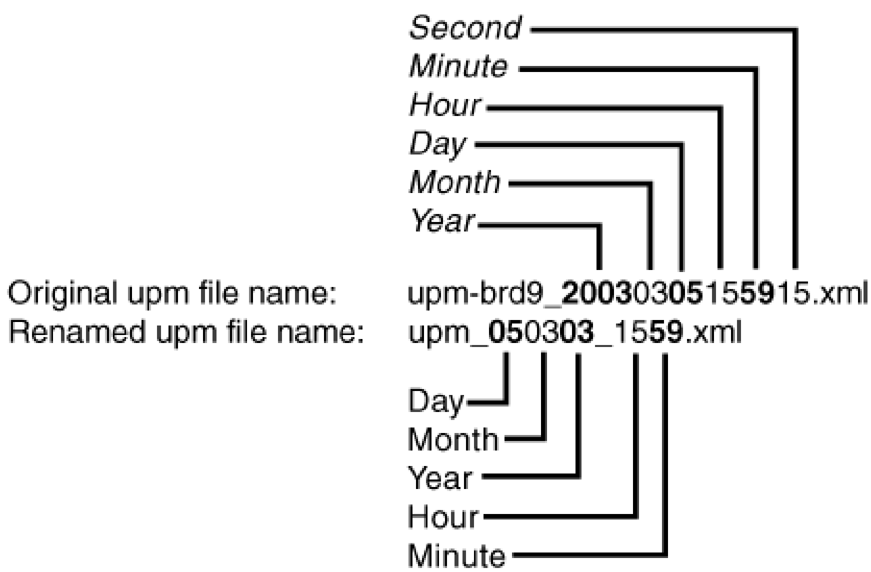


Figure 207: Upm file renamed

The epm file name format is epm_ddmmyy_hhmm.xml, where:

- ddmmyy=PC date the performance data was requested (day, month, year)
- hhmm=PC time the performance data was requested (hour, minute)

Figure 208: Epm file renamed on page 298 shows an original epm file name and the file renamed.

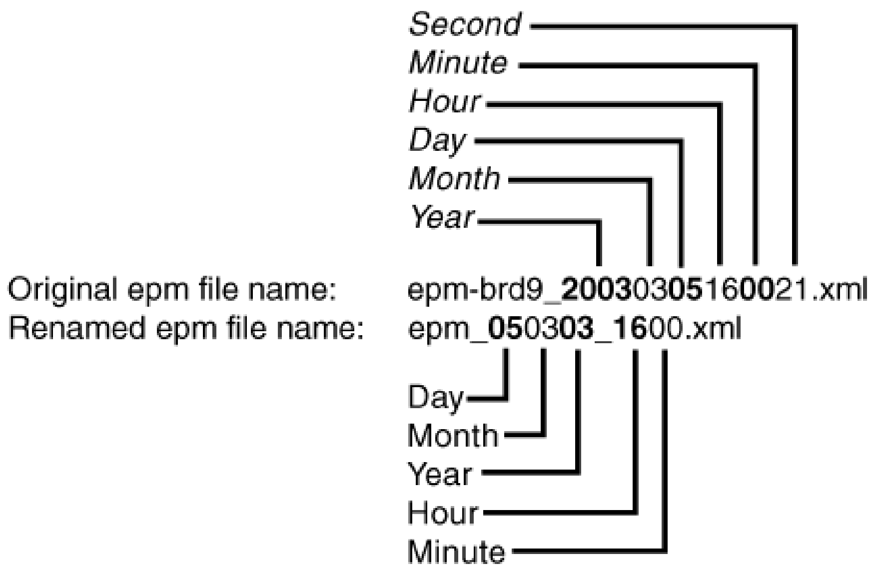


Figure 208: Epm file renamed

Creating a database

You must first create a database as part of the process to generate Reports and Trends. Create the database using the DECT Performance Manager.

Retrieving upm and epm files

1. Open the Performance Manager application.

   Double-click the DECT Performance Manager icon located in the Programs folder.

2. Select Database > New Database.

   Select Database on the toolbar, and select New Database from the Database menu.

3. Enter a description for the database. See Figure 209: New DECT Performance Manager Database description dialog box on page 299.

   Enter the Customer or System name.

4. Click the OK button.
5. Select a location in which to store the database.
6. Name the database.

   Enter the Customer or System name as the database name.

7. Click the Save button.

8. Select File > Import.

   Select File from the toolbar, and select Import from files from the File menu.

9. Select the folder where the upm and epm files are located.

   The upm and epm file folders are at the top of the directory structure. Ensure that both the epm data and upm data check boxes are selected. See Figure 210: Select DECT performance data window on page 299 (DMC is in slot 9).

10. Click the Import Button.

11. Click the Done button.

    The database is created with the name entered in Step 3. The database has a .mbd extension, and is now ready to use for generating Reports and Trends.

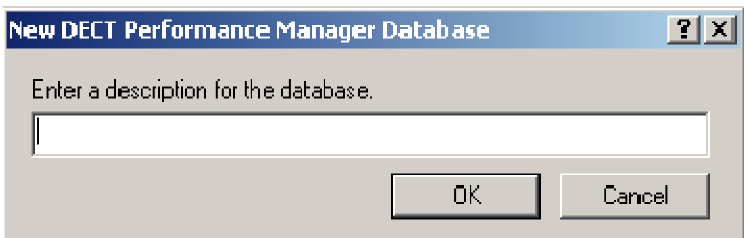


Figure 209: New DECT Performance Manager Database description dialog box

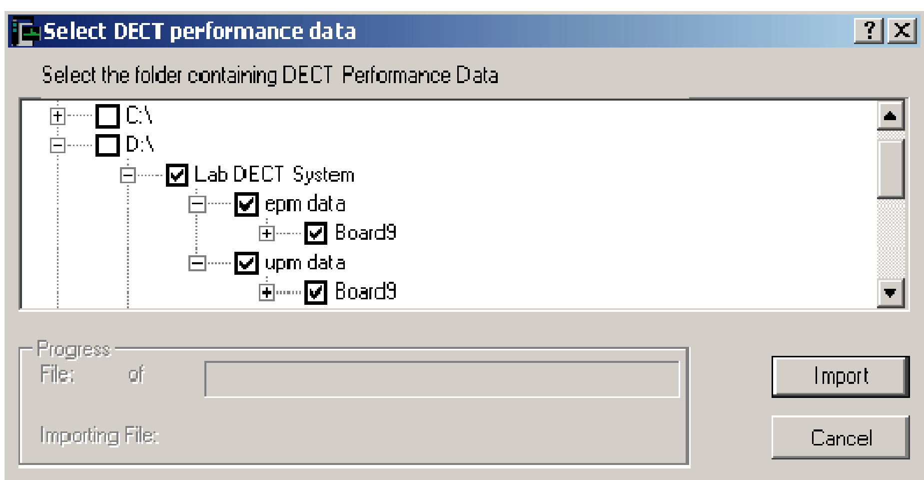


Figure 210: Select DECT performance data window

Using the database

You can generate Reports and Trends after the database is created.

The DECT information contained in the database is very detailed and can be very complex. The Help files included with the DECT Performance Manager application are very comprehensive, and explain in detail all aspects of this tool.

Generating Reports or Trends

1. Select Reports on the toolbar of the DECT Performance Manger application.
2. Select Reports or Trends from the Reports menu.

   The Select A Report window opens (see Figure 211: Select A Report window on page 300). You can now generate Reports and Trends.

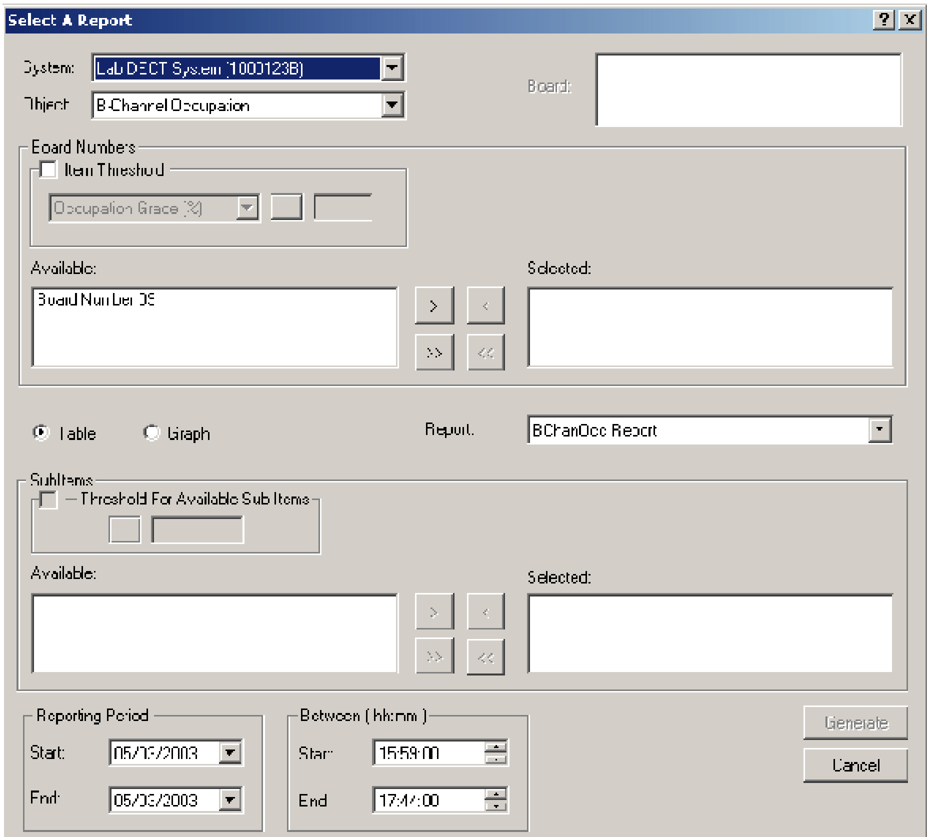


Figure 211: Select A Report window

Previously created databases

It is also possible to use databases previously created to generate Reports and Trends.

Retrieving upm and epm files

1. Open the Performance Manager application.

   Double-click the DECT Performance Manager icon located in the Programs folder.
2. Select a database.

Click the button to the right of the DECT PM Database: field, or select Database on the toolbar, and then Select Database from the Database menu. See Figure 212: Select an existing database on page 301.

3. Open a database.

   Click on a database to select it, and click the Open button.

4. Select Reports > Reports or Trends.

   Select Reports on the toolbar, and select Reports or Trends from the Reports menu.

   You can now generate Reports and Trends.

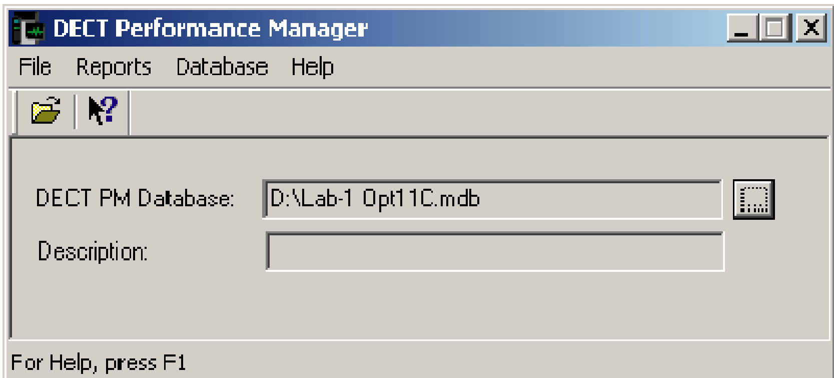


Figure 212: Select an existing database

DECT Performance Manager data

This section describes the most relevant performance data. The data is collected during operation of a DECT system. The performance data is statistical and can be used to identify potential problems. The performance data consists of counters that represent a number of events.

The DECT manager retrieves the data from the DECT system within a defined interval period. During this interval, the Performance Manager measures objects by retrieving events (counters).

Important:

Counters represent a number of events. For example, the 'voice call' counter increments when a PP successfully sets up a voice call. During the voice call, the PP does not increment the counter. If a voice call (in progress) extends beyond the performance data retrieval period, the voice call is not marked in the new retrieval period. It is only marked in the period in which it began. In the new retrieval period, a dropped call can appear, but the continuing voice call is not identified. Avaya recommends making the retrieval period long enough to allow most voice calls to finish within one retrieval period (minimum value is 15 minutes).

The following events are the most relevant performance data:

- paging
- dropped voice call
- dropped message
- handover
- RFP-channel occupation
- S-channel occupation
- B-channel occupation
- degradation of service
- grade of page failures
- grade of page retries
- grade of page rejects

Paging

Paging is the process of broadcasting a message from an RFP to one or more PPs. Paging messages are used to alert a PP (a call setup attempt). The paging message contains the system information and the identifier of a PP. A PP enters the alert phase when it recognizes its own identifier.

The following events (performance data) are associated with paging messages:

- Request: number of call setup attempts
- Retries: number of call setup attempts after the PP did not respond on a page request
- Failure: after a number of page retries (default is two attempts), the call setup attempt is aborted (that is, the paging procedure failed)
- Reject: the PP responds to the request, but rejects the call setup attempt

Dropped voice call

A dropped voice call occurs when the PP loses the connection with the RFP. The PP is no longer able to make or receive a call.

A dropped call can occur during either of the following phases:

- Active phase: the PP loses the synchronization with the RFP with a call in progress
- Call setup phase: the PP loses the synchronization with the RFP, but there is no call in progress

Dropped message

A dropped message occurs when the PP loses the connection with the RFP. The PP is no longer able to receive messages from the RFP.

Handover

Handover is the process of switching a call in progress from one physical channel to another physical channel.

There are two types of handover:

- Inter-cell: A call in progress switches from one RFP to another RFP. This type of handover generally occurs because the user is roaming.
- Intra-cell: A handover that is completely internal to one RFP. This type of handover is generally caused by interference on the carrier frequency to which the call is locked.

RFP-channel occupation

The RFP-channel occupation report indicates how many RFPs are installed and can be helpful when determining if enough RFPs are installed.

The RFP-channel occupation report contains tables that show the number of seconds that RFP channels are free. Figure 213: RFP channel occupation report - 6-channel RFP on page 304 shows an example of an RFP-channel occupation report from a 6-channel RFP. The performance retrieval period is 15 minutes (900 seconds).

Channel	Time	00 RFP Channel Free	01 RFP Channel Free	02 RFP Channel Free	03 RFP Channel Free	04 RFP Channel Free	05 RFP Channel Free	06 RFP Channel Free
RFP1	18:15	0	0	2	37	139	302	417

Figure 213: RFP channel occupation report - 6-channel RFP

The report indicates the following:

- 6 channels were free for 417 seconds. Therefore, at least 1 channel was occupied for 483 seconds (900 - 417 = 483 seconds).
- 5 channels were free for 302 seconds. Therefore, at least 2 channels were occupied for 181 seconds (483 - 302 = 181 seconds).
- 4 channels were free for 139 seconds. Therefore, at least 3 channels were occupied for 42 seconds (181 - 139 = 42 seconds).
- 3 channels were free for 37 seconds. Therefore, at least 4 channels were occupied for 5 seconds (42 - 37 = 5 seconds).
- 2 channels were free for 2 seconds. Therefore, at least 5 channels were occupied for 3 seconds (5 - 2 = 3 seconds).
- 1 channel was free for 0 seconds. Therefore, at least 1 channel was free at any moment.

S-channel occupation

The backbone bus of a DECT system is the interface between the DMC boards. The DMC boards communicate through the bus for the re-routing of calls.

A PP can be synchronized with an RFP that is not connected to the DMC board that contains the subscription information for this PP. The DMC board to which this RFP is connected is called the visitor DMC. The DMC board that contains the subscription information is called the home DMC. The (visitor) DMC board to which the PP is locked (or synchronized) re-routes the PP to the home DMC board.

The DMC board has 32 internal channels between the PRI block and the RFP interfaces. These channels are named S-channels (see Figure 214: Channels within the system on page 305).

The S-channel occupation report contains tables that show the number of seconds that S-channels are free.

The S-channel occupation report mimics the RFP-channel occupation report. Refer to RFP-channel occupation on page 303 for an explanation of how to read the channel occupation reports.

B-channel occupation

There are 32 channels that connect the DMC board to a switching network circuit (Host PBX). These 32 channels are named B-channels or speech-channels. See Figure 214: Channels within the system on page 305.

The B-channel occupation report mimics the RFP-channel occupation report. Refer to RFP-channel occupation on page 303 for an explanation of how to read the channel occupation reports.

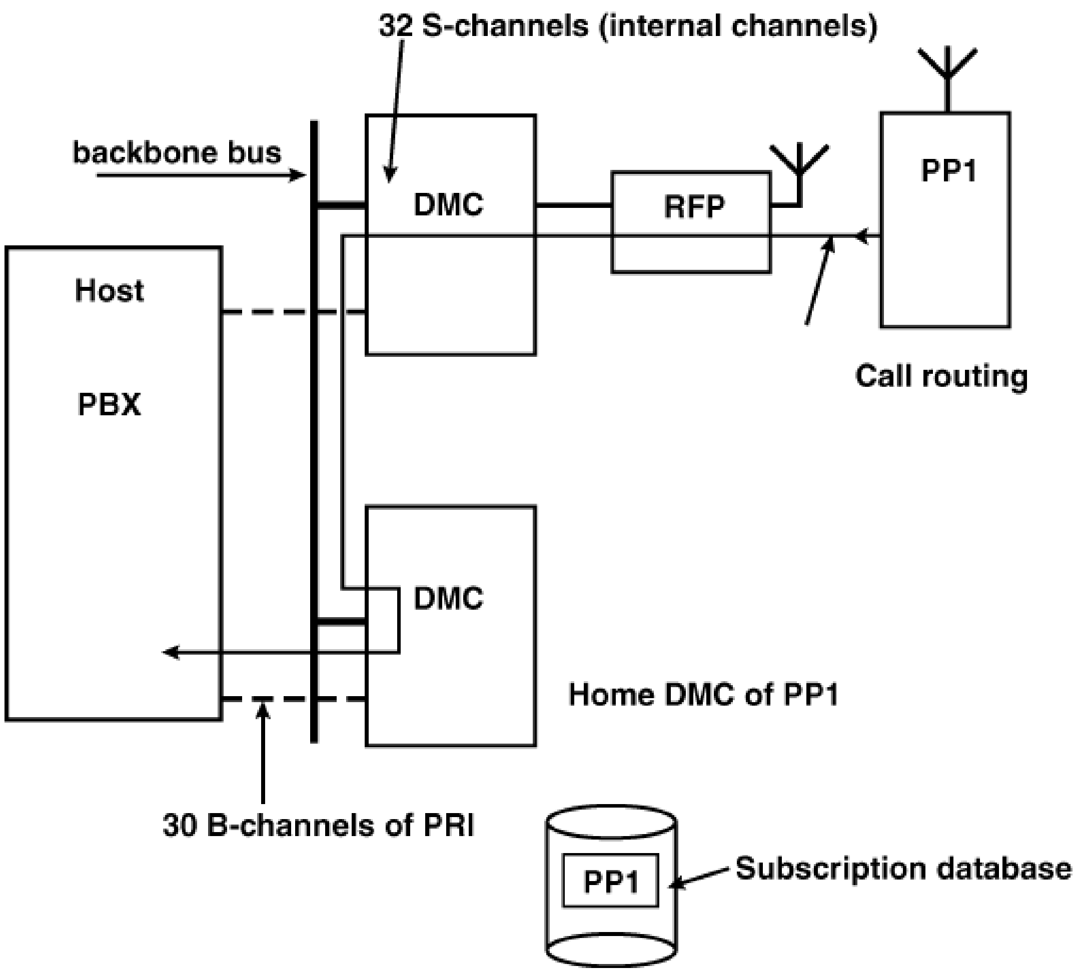


Figure 214: Channels within the system

Degradation of service

The degradation of service report shows the relation between the number of dropped active calls and the number of successful calls.

Grade of page failures

The grade of page failures report shows the relation between the number of page failures and the number of successful calls and messages.

Grade of page retries

The grade of page retries report shows the relation between the number of page retries and the number of successful calls and messages.

Grade of page rejects

The grade of page rejects report shows the relation between the number of page rejects and the number of successful calls and messages

Top-down analysis

Importing performance files to a database can be a time-consuming process. The time the import process consumes depends on the number of files, the number of installed RFPs, the number of subscribed DNRs, the number of boards, and the performance of the PC. The following example demonstrates how many performance files can be generated in a single week.

Example

Company ABC has 10 DMC boards installed on a DECT system. The performance of this DECT system is measured 10 hours a day for one work week (5 days). The Performance Collection application on DMC DECT Manager retrieves the upm and epm files every hour.

The Performance Manager retrieves 2 files from each of the 10 boards every hour (20 files every hour). Therefore, 200 files are collected each day (20 files/hour x 10 hours). This is 1000 performance files each week (200 files/day x 5 days).

Company ABC imports these performance files to a database.

Top-down analysis explanation

The top-down analysis is a troubleshooting strategy that helps you to more efficiently generate a performance file database.

Begin the top-down analysis by generating a database that contains only the first and the last performance data files of the week. Limiting the number of performance data files that are generated helps you to determine which board, RFP, or PP causes problems during the week.

You can also limit the number of files imported to the database. Copy the directory structure that contains all performance files to create the database. Delete the performance files that are not needed by clicking Start on the Windows taskbar and choosing Search > For Files or Folders on the taskbar of Windows 2000™. Use the time and date stamps on files to find the performance files that must be deleted. Press <CRTL + A> to select the files, and press the Delete key.

If you cannot determine what components of the system cause problems, try generating a new database with one data file each day. If you still cannot solve the problem, add more detail, but generate a new database each time. Generating databases with more details (that is, more performance files) substantially increases the duration of the import process. Always consider if there is enough value added in generating more details to compensate for the extra time this takes.

Select the following items for generating a more detailed performance database:

- one board only
- upm files (contain PP information)
- epm files (contain board and RFP information)
- a combination of the above selection criteria

If you cannot verify exactly which board, RFP, or PP causes the problem, import only the data files that contain the relevant information for your problem. For example, if an RFP on a specific board causes the problem, import the epm files of only that board (epm files contain board and RFP counters and timers). You can now efficiently generate a new, detailed database that contains only the relevant information.

Statistical Performance Data

Table 51: Statistical Performance Data

Counter	Description
1	Indicators, not used
2	Number of page failures

Counter	Description
3	Number of page retries
4	Number of page requests
5	Number of page rejects
6	Number of voice calls
7	Number of message calls
8	Number of voice calls, dropped in passive state
9	Number of voice calls, dropped in active state
10	Number of message calls, dropped in passive state
11	Number of message calls, dropped in active state
12	Number of hand overs
13	Number of failed hand overs
14	Number of aborted hand overs
15	Number of delayed hand overs
16	Current Circuit Number (0xFF, if none)

Setting parameters

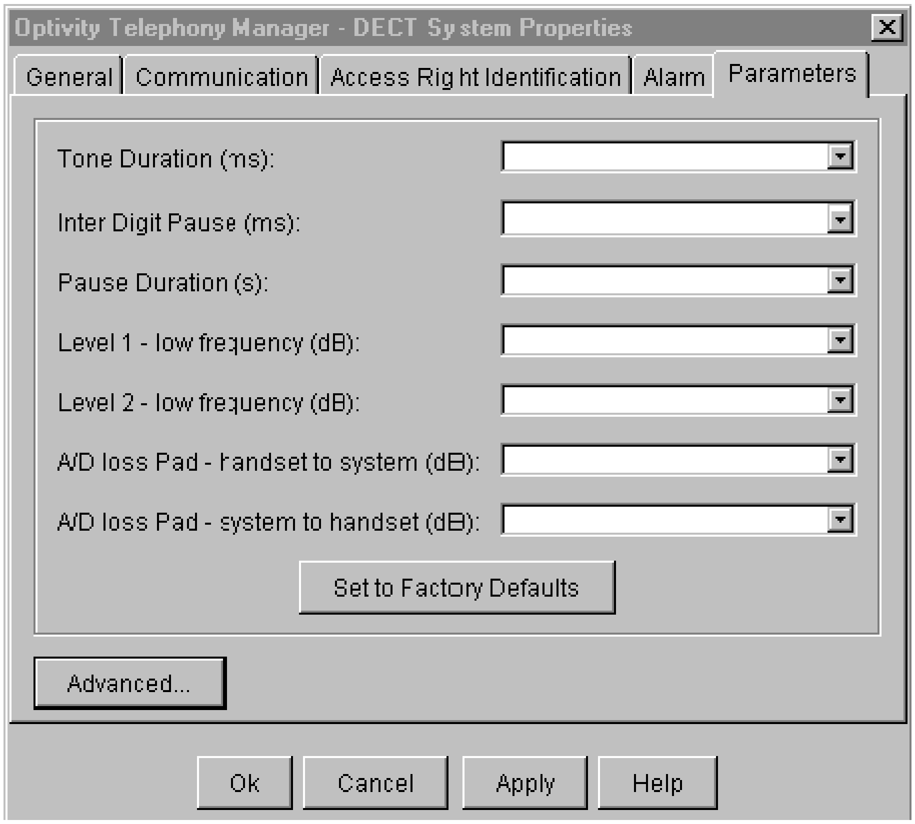


Figure 215: DECT System Properties - Parameters tab

Complete the following steps.

Setting parameters

1. Using Windows, login to DMC DECT Manager Select the system that supports the DECT system, Launch the DECT application. Open the DECT Systems window. Open the Properties dialog box, and click on the Parameters tab.

   Follow the instructions in:

   - Logging into the DMC DECT Manager on page 229
   - Selecting the PBX that supports DECT on page 230
   - Launching the DECT application on page 187

2. Select the parameter.

   Select a menu item, and click Apply.

Recovering a password

Passwords recovery is needed in several instances:

- If the DECT system password is changed by a customer, the distributor managing the system can be left without knowledge of the new password.
- The password can be damaged in the DMC DECT Manager database by a disk crash,
- The password can be forgotten.

Passwords cannot be accessed from the DMC DECT Manager.

The DMC DECT Manager provides a mechanism allowing the password to be reset to the factory password. The password can be changed in the DECT system and the DMC DECT Manager database, or in the DMC DECT Manager database only.

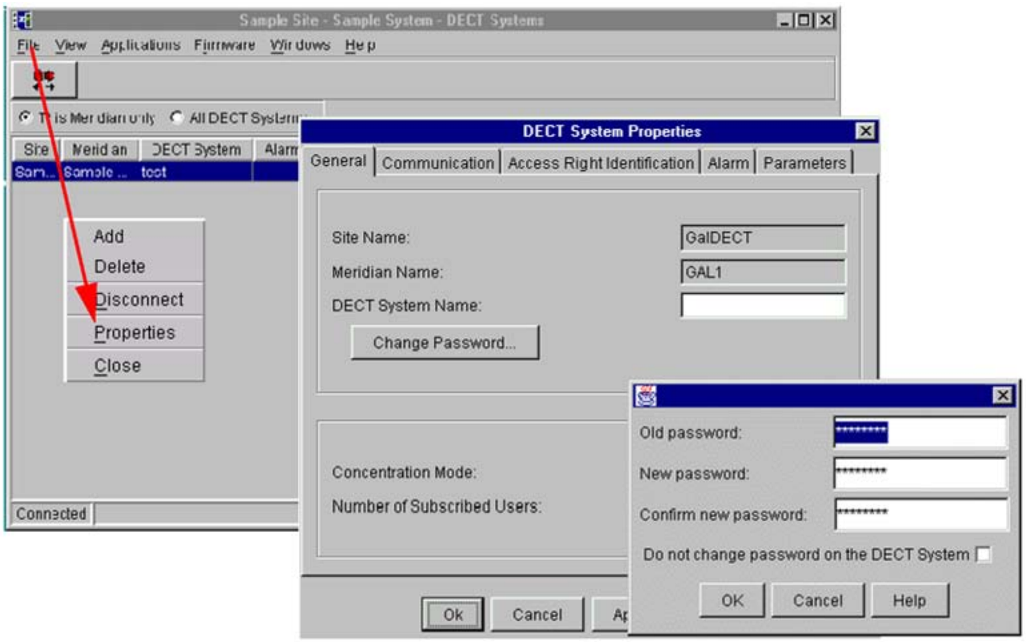


Figure 216: DECT Systems window, DECT Systems Properties, Change DECT Password

Complete the following steps.

Recovering a password

1. Using Windows, login to DMC DECT Manager. Select the system that supports DECT. Launch the DECT application. Open the DECT Systems window. Open the Properties dialog box, and click on the General tab.

Follow the instructions in:

- Logging into the DMC DECT Manager on page 229
- Selecting the PBX that supports DECT on page 230
- Launching the DECT application on page 187

2. Select password change.

   Click on Change Password.

3. Change to the factory default password.

   Note:
   The default is case-sensitive.

   Type Arsenal in the New password box.

4. Confirm the password.

   Type Arsenal in the Confirm new password box.

5. Set up for a password change on the DECT system.

   Remove the DMC8 Relay card, and reinsert the DMC8 Relay card.

6. Connect to the DECT system within five minutes.

   From the Applications menu click Connect or the (green) icon:

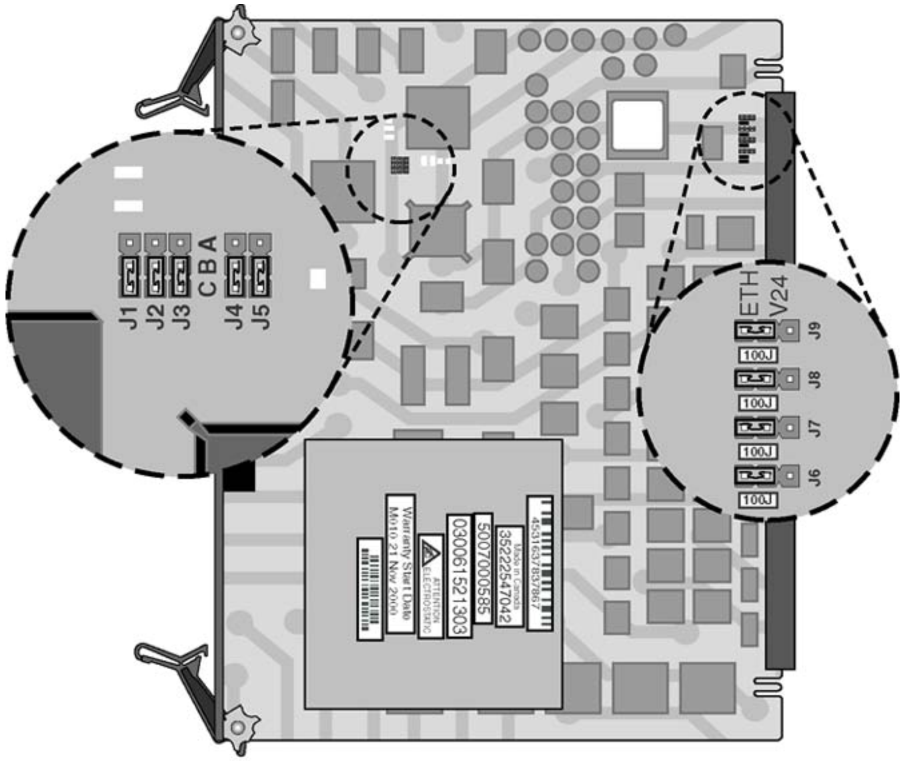
Chapter 8: Changing the DMC8 jumper setting after DECT system upgrade to Release 5.0

During the upgrade from CS 1000M Cabinet using Release 4.5 SSC to CS 1000E Cabinet running Release 5.0 equipped with a DECT system, the DMC TNs listed in the DMC DECT Manager application show up correctly only by modifying the jumper settings of DMC8.

Changing the DMC8 jumper setting

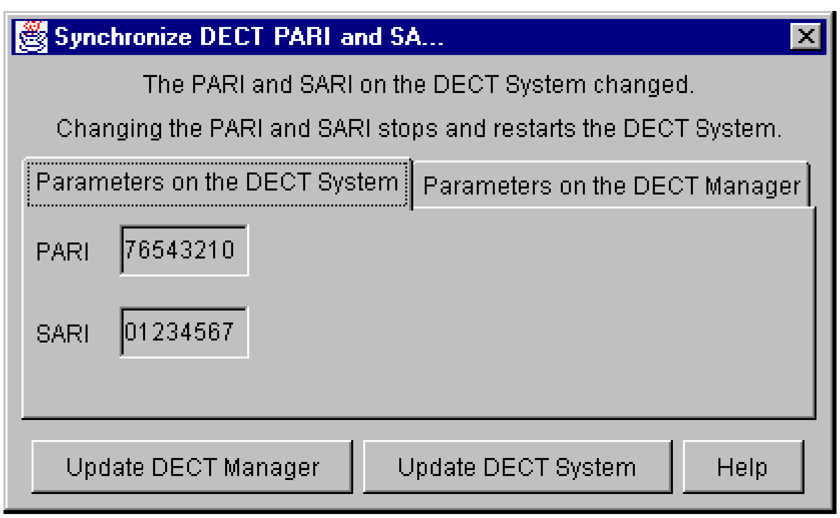
The following procedure outlines how to change the jumper setting of DMC8 cards.

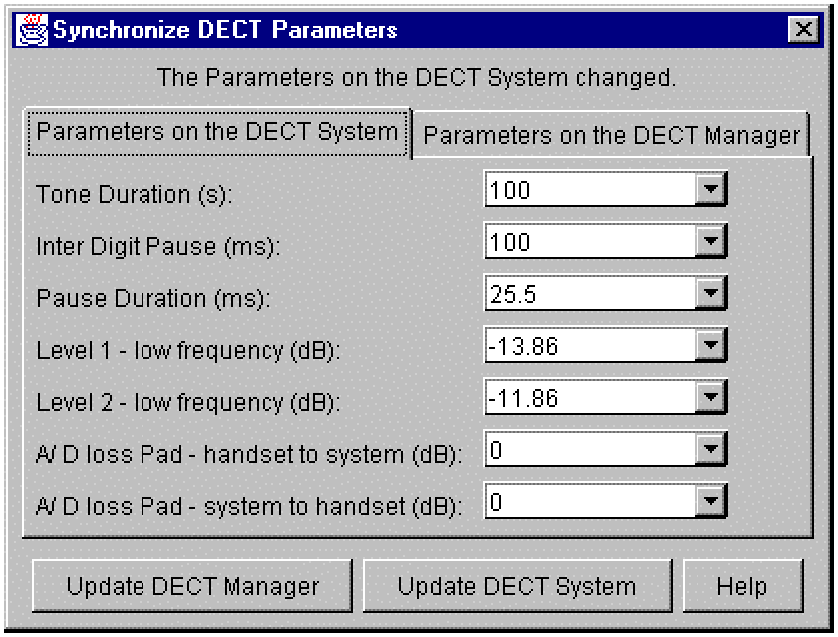
1. Complete the upgrade from SSC to CPPM system
2. Disable all DMC8 cards
3. Unplug each DMC8 and change the JUMPER setting of J2
4. Install J2 jumper straps on the DMC8 and the DMC8-Es for the system type. Use strap A B for IPE shelf, and for IPMG - the CPPM call server with IPMG is considered a large system



553-AAA0310

5. Plug in all DMC8 cards (at this time the DECT system could stop working. The DMC8 LED is flashing green and RFP also.
6. Start the TM DECT application
7. Delete the site in TM DECT
8. Create the site in TM DECT
9. Connect to your DECT system
10. Select Update DECT Manager for PARI number and level parameters





11. Go to application board and do a synchronization from all DMC
12. Synchronize to all DMC

Connecting a DECT system to DMC DECT Manager using remote modems and Windows 2000

Cable setup

It is possible to manage a DECT system remotely with the DMC DECT Manager manager using two modems connected to the Public Switched Telephone Network (PSTN). This works for SNMP DECT systems with a DMC8 or DMC4 relay card. Figure 217: DMC8 relay card connection to a remote DMC DECT Manager server on page 316 shows the DMC8 relay card connected to a remote DMC DECT Manager server.

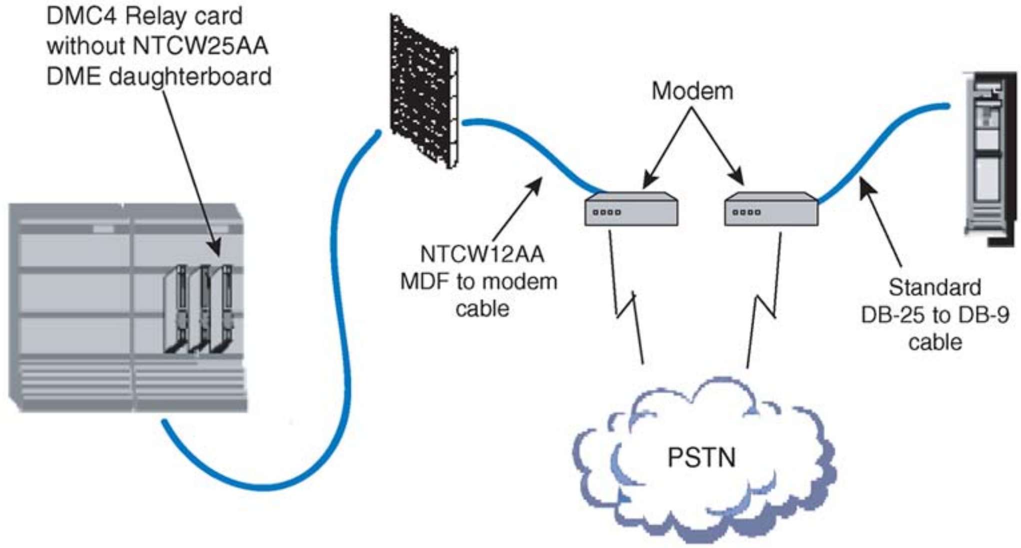


Figure 217: DMC8 relay card connection to a remote DMC DECT Manager server

DECT relay board to remote modem

Refer to Table 52: NTCW12AA cable to MDF connections on page 316 when connecting the NTCW12AA cable to the MDF.

Table 52: NTCW12AA cable to MDF connections

DMC Relay card MDF connection	Cable colour	DB-25 connector pin number	Signal designator
T1	Gray	8	V.24DCD
R2	Yellow	4	V.24RTS
T3	Blue	2	V.24TXD
R3	Red	3	V.24RXD
T4	Pink	7	V.24GND

Note:

The BIX tip and ring connections shown in Table 52: NTCW12AA cable to MDF connections on page 316 correspond to standard BIX designation. The first pair is labeled T0 and R0. See Communication Server 1000M and Meridian 1: Large System Installation and Commissioning (NN43021-310) for more information.

Configuring NetBEUI Protocol

You must first install NetBEUI Protocol if it is not already installed on the DMC DECT Manager Server PC.

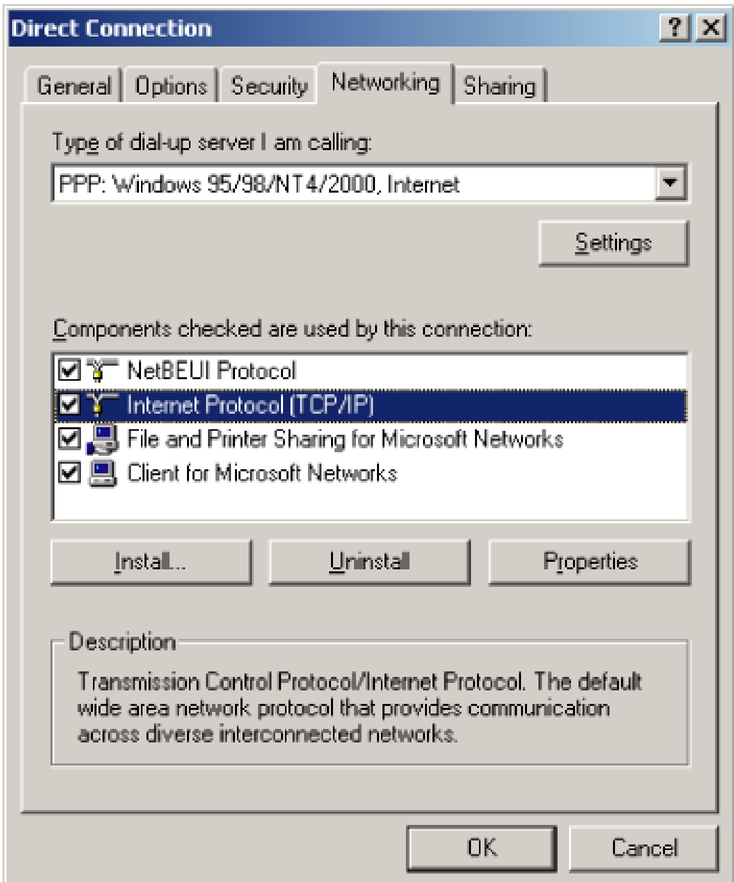


Figure 218: Networking tab of the Local Area Connection Properties

Complete the steps in Configuring NetBEUI Protocol on page 317 to configure NetBEUI Protocol:

Configuring NetBEUI Protocol

1. Open the Network and Dial-up Connections dialog box.

   Select My Network Places, right-click it, and select Properties.

2. Open the Properties dialog box for Local Area Connection.

   Select Local Area Connection, right-click it, and select Properties.

If the NetBEUI Interface Service is already installed, it appears in the Local Area Connection Properties dialog box (see Figure 218: Networking tab of the Local Area Connection Properties on page 317).

If NetBEUI Protocol does not appear in the Local Area Connection Properties dialog box, continue with Steps 3 – 6.

3. Click the Install button.
4. Open the Select Network Protocol dialog box.

   Select Protocol in the Select Network Component Type dialog box, and click Add.
5. Add NetBEUI Protocol.

   Select NetBEUI Protocol, and click OK.

   The PC must be rebooted after installing NetBEUI Protocol.

Configuring a dial-up network on the DMC DECT Manager server

Complete the steps in Configuring a dial-up network on page 318 to configure a dial-up network:

Configuring a dial-up network

1. Click the Start button on the PC taskbar.
2. Select Settings.
3. Select Control Panel.
4. Double-click Network and Dial-up Connections.
5. Double-click Make New Connection.
6. Click Next.
7. Select the network connection type.

   Select the Connect directly to another computer radio button, and click Next.
8. Identify your computer as a Guest machine.

   Select the Guest radio button, and click Next.
9. Select the device to make the connection.

   Select Communications Port (COM x) from the Select a device: drop-down list, and click Next.
10. Identify the connection availability.

    Select the For all users radio button, and click Next.
11. Identify the network connection.

    Enter a name for this connection, and click Finish.

Setting the properties of the new connection

Complete the steps in Configuring connection properties on page 319 to set the properties of the new connection:

Configuring connection properties

1. Click the Properties button.
2. Click the General tab.
3. Select Communications Port (COM x) from the Select a device: drop-down list.
4. Click the Configure button.
5. Choose 38400 from the Maximum speed (bps) drop-down list.
6. Verify the modem configuration settings.

   Ensure that all the Hardware features check boxes are clear, and click OK.
7. Click the Security tab.
8. Select the Security options.

   Click Typical and choose Allow unsecured password in the Security options.
9. Click the Networking tab.
10. Select the dial-up server type.

    Select PPP: Windows 95/98/NT4/2000, Internet
11. Configure settings for the dial-up server.

    Click Settings, select the three check boxes in the PPP settings window, and click OK.
12. Click Internet Protocol (TCP/IP) and Client for Microsoft Networks.
13. Open the Properties dialog box for Internet Protocol.

    Highlight Internet Protocol (TCP/IP) and click Properties.
14. Select the Use the following IP address radio button.
15. Set the IP address.

    Enter an IP address for this connection, and click OK.

    Note:

    The IP address must be unique and in the same range as the IP address of the DECT system. This becomes the Client IP address.
16. Click OK.

Modem setup

Install the local modem on the PC, then configure the modem.

Modem requirements

The modem requirements are:

- 56 Kbits/s
- Baud rate 38 400 Kbits/s fixed.

When using a US Robotics modem, use factory defaults.

Connect the modem to the required COM port on the PC using a standard DB-25 to DB-9 cable.

Configuring the local modem

1. Click the Start button on the PC taskbar.
2. Select Settings.
3. Select Control panel.
4. Double-click Phone and Modems Options.
5. Click the Modems tab.
6. Click the Add button.
7. Follow the Wizard.

Setting the modems to factory defaults

Connect to the local modem using Hyper Terminal. See Figure 219: Local modem connected using Hyper Terminal on page 321. Set the remote modem to the factory defaults.

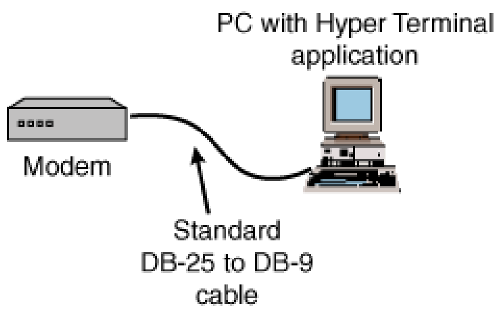


Figure 219: Local modem connected using Hyper Terminal

Use the initialisation commands in Table 53: Initialisation commands on page 321 to configure the modems.

Table 53: Initialisation commands

Initialisation commands	Meaning
US Robotics:	
AT	
AT&F	Set to factory default
AT&W0	Write setting into non-volatile memory 0
ATY0	At power up, start modem with settings in non-volatile memory 0
Dynalink modem:	
AT	
AT&F	Set to factory default
AT&K0	Flow control disabled
AT&W0	Write setting into non-volatile memory 0
ATY0	At power up, start modem with settings in non-volatile memory 0

Adding a new DECT system to DMC DECT Manager

Before adding the DECT system to DMC DECT Manager, the DECT relay card must be added to the network.

Note:
When connecting to the DMC8 relay board using modems, jumpers J6, J7, J8, and J9 must be strapped for V.24 on the DMC.

Open the DMC DECT Manager System window. Complete the steps in Adding a new DECT system on page 322.

Adding a new DECT system

1. Click File.
2. Click Add.
3. Click the General tab.
4. Identify the DECT system name.

   Enter a DECT System Name, and click the Apply button.
5. Click the Communication tab.
6. Enter the IP Address of the DECT relay board.
7. Click Serial.
8. Click the Details button.
9. Enter the DMC DECT Manager Server IP Interface.

   This is the IP address entered as the Client IP address in Configuring connection properties on page 319, Step 15.
10. Choose the COM Port to which the local modem is connected.
11. Enter the Phone Number of the remote modem.
12. Click OK.
13. Enter values in the Access Right Identification and Parameters tabs according to normal operating procedures.
14. Click the Alarm tab.
15. Define the DMC DECT Manager Server IP Interface IP address.

    Enter the DMC DECT Manager Server IP Interface IP address in the Upstream Manager IP addressfield.
16. Click the Apply button
17. Click the OK button.

    The DECT system is now added to DMC DECT Manager. All the DMC DECT Manager features and functions continue to operate normally.

    Note:
    The modem connection can slow the completion time for some operations.

Changing an existing DECT system on DMC DECT Manager from an Ethernet connection to a modem connection

It is possible to manage a DECT system, which was previously managed using an Ethernet connection, using modems.

To change an Ethernet connection to a modem connection, you must first install the modem (see Cable setup on page 315 and DECT relay board to remote modem on page 316), and complete all the steps in Configuring NetBEUI Protocol on page 317. Then complete the steps in Changing an Ethernet connection to a modem connection on page 323.

Note:

When connecting to the DECT relay board using modems, jumpers J6, J7, J8, and J9 must be strapped for V.24 on the DMC.

Complete the following steps to change an Ethernet connection to a modem connection:

Changing an Ethernet connection to a modem connection

1. Select the DECT system that you want to change from an Ethernet connection to a modem connection.

   Open the DMC DECT Manager System window, and select the DECT system to be changed.
2. Select File > Properties.

   Select File on the toolbar, and select Properties from the File menu. The Properties window opens.
3. Click the Communication tab.
4. Select the Serial radio button.
5. Click the Details button.
6. Enter the DMC DECT Manager Server IP Interface.

   This is the IP address entered as the Client IP address in Configuring connection properties on page 319, Step 15.
7. Choose the COM port to which the local modem is connected.
8. Enter the Phone Number of the remote modem.
9. Click OK.
10. Enter values in the Access Right Identification and Parameters tabs according to normal operating procedures.
11. Click the Alarm tab.
12. Enter the DMC DECT Manager Server IP Interface IP address in the Upstream Manager IP addresstext box.

13. Click the Apply button.
14. Click OK.

    It is now possible to manage the DECT system using the modem connection. All the DMC DECT Manager features and functions continue to operate normally.

    Note:
    The modem connection can slow the completion time for some operations.

Chapter 9: Adding a DMC8 to a non-SNMP DECT system

It is possible to add DMC8 cards to a DECT system that previously contained only DMC4 cards. The system becomes an SNMP system. Therefore, DMC DECT Manager is used for management.

Note:

If the DMC8 is not new, ensure that the card has no subscriptions, or PARI/SARI, and has a known IP address. (Default IP address is 192.168.1.1.)

Note:

Avaya recommends that you avoid having the relay card (DMC8) as the lowest card in the system. Additional DMC8 cards can be positioned in lower slots.

Important:

It is very important that all the DMC4 cards in the system have the latest non-SNMP firmware (45000405) before adding a DMC8 to a non-SNMP DECT system.

Adding a DMC8

1. Connect the DMC8 to the DMC DECT Manager.

   ⚠ **Caution:**

   Do not connect the faceplate connectors between the DMC4 and DMC8 at this time.

2. Create a new DECT system.

   Use the DMC DECT Manager standard procedure to create a new DECT system.

   Note:

   The DMC8 is the only board visible on DMC DECT Manager at this time.

   ⚠ **Caution:**

   Ensure that the System Parameters on the DMC8 are the same as the existing DECT system. The System Parameters on the DMC8 become the System Parameters for the complete system.

3. Upload the DMC4 SNMP software (45100xxx).
4. Replace the terminators in their new location.
5. Connect the faceplate connectors.

   Note:

   DMC4 cards can reboot at this point — this is normal. The DMC8 continues to be the only board visible on DMC DECT Manager until the SNMP firmware is activated on all DMC4 cards.

6. Activate the DMC4 SNMP firmware.

   Note:

   If you receive system notifications on DMC DECT Manager (this can occur because the DMC4 cards are rebooting), disconnect from the DECT system and close down DMC DECT Manager. Reconnect to the DECT system and activate the firmware again.

   Note:

   During activation, DMC DECT Manager loses the connection to the DECT system. After activation is complete and the boards reboot a number of times, the green LEDs become solid (stop flashing). Reconnect DMC DECT Manager to the DECT system. You can now see all the DMC4 cards on the DECT system.

7. Synchronize all boards.

   When prompted to synchronize, select all boards and synchronize from DMC. The DECT system is now upgraded.

⚠ Caution:

The DMC8 can reboot frequently if there is not at least one handset subscribed to the system.

Chapter 10: DMC8 debug port

Overview

The ability to monitor messages on the DMC8 card is an important aid to resolving problems on DECT. Monitoring messages is an important part of the Serviceability program for DECT.

Use the information in this Appendix to identify how far messages are travelling, and where they are getting lost in the system.

For example, an investigation of a DMC card lockup problem shows that messages are leaving the PBX through LD 77, coming into the DMC card through the DS30 monitor, and being sent to the Cordless Controller Unit (CCU) through the IPC monitor. It is verified that there is a problem on the CCU because there are no responses from the CCU, although the "Hello messaging" is ok.

DMC card

The DMC is divided into the following sections:

- CCU section that is primarily derived from the existing Philips DAS CCC hardware
- Backplane Conversion Unit (BCU) section that connects to the CCU

The BCU section of the DMC includes software to connect the Philips system to the PBX backplane. It effectively makes the CCU look like an Intelligent Peripheral card to the system. In fact, the DMC emulates an analogue line card with 32 handsets attached.

The CCU (Philips part) is connected to the BCU (Avaya part) through a 2Mbit EuroISDN link.

Figure 220: DECT interface on page 328 shows the components of the DECT interface. For the purposes of this Appendix, the BCU is the key component. For preliminary investigations, the DS30 monitor and Inter Processor Communications (IPC) monitor are the most important points to monitor from the DMC card.

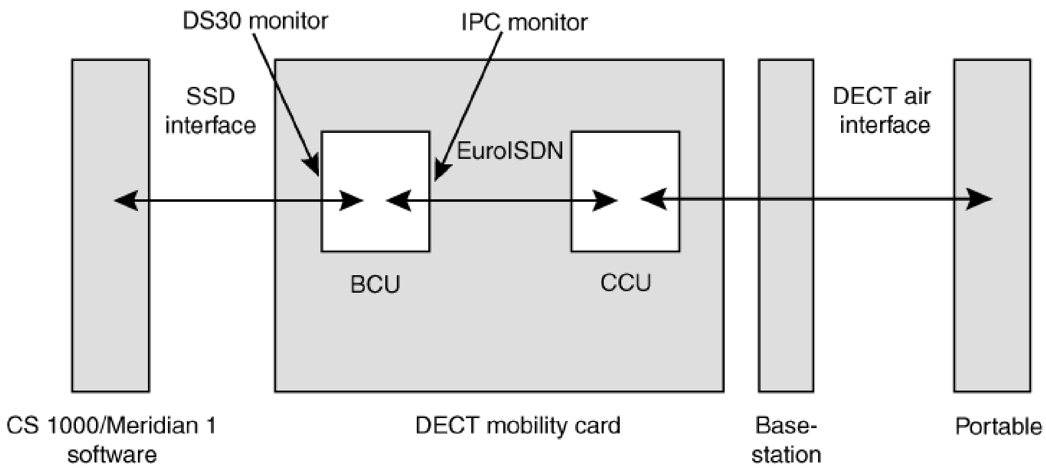


Figure 220: DECT interface

Items to monitor

The DS30 driver and IPC driver tasks are the most informative for preliminary investigation. They track message passing through the debug task. The DS30 driver and IPC driver tasks provide detail on:

- Messages received and sent through the DS30 driver task from/to the PBX, and from/to the BCU software.
- Messages received and sent through the IPC driver task from/to the BCU software, and from/to the EuroISDN link (inter processor link).

Monitor port physical connection

The DMC8 debug port connections allow the DMC8 to be connected as Data Communications Equipment (DCE) to a COM port of a PC (the Data Terminal Equipment [DTE]).

DMC8 debug port

The debug port of the DMC 8 is connected directly from the MDF BIX block.

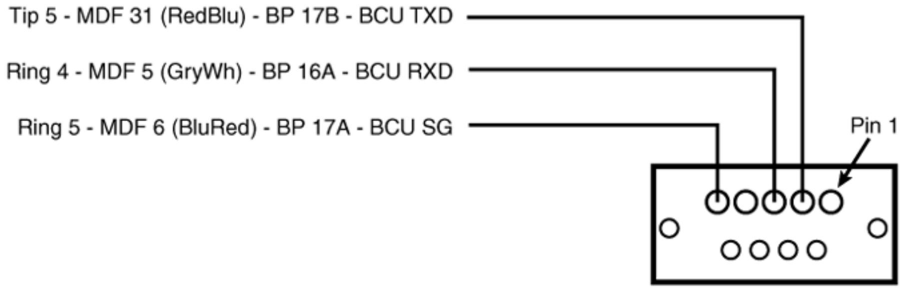


Figure 221: DMC8 debug port connections

Connecting a modem

Figure 221: DMC8 debug port connections on page 329 shows the DMC connected to a PC as DCE. To connect to a modem, the DMC has to act as DTE (because the modem is DCE). This is achieved in one of two ways:

1. Cross the TX and RX of the connections shown in Figure 221: DMC8 debug port connections on page 329 (that is, swap pins 2 and 3 of the DB-9 cable).
2. Use a modem eliminator (null modem).

Before connecting to the DMC, the modem must be configured as follows using Hyper Terminal or similar (19200 baud):

1. ats0=1: s0 (zero) = 1, which enables auto answer after one ringing cycle.
2. at&d0: DTR override; the modem ignores DTR.
3. at&w0: Save settings.

Figure 222: 3COM US Robotics modem settings on page 330 is an example of the settings from a 3COM US Robotics modem. The most important settings are highlighted in bold.

```
ati4

U.S. Robotics 56K Voice EXT Settings...

  B0  E1  F1  L2  M1  Q0  V1  X4  Y0
  SPEED=19200  PARITY=N  WORDLEN=8
  DIAL=TONE      OFFLINE

  &A1  &B0  &C1  &D0  &H0  &I0  &K1
  &M4  &N0  &R1  &S0  &T4  &U0  &Y1

  S00=001  S01=000  S02=043  S03=013  S04=010  S05=008  S06=004
  S07=060  S08=002  S09=006  S10=014  S11=070  S12=050  S13=000
  S15=000  S16=000  S18=000  S19=000  S21=010  S22=017  S23=019
  S25=005  S27=001  S28=008  S29=020  S30=000  S31=128  S32=002
  S33=000  S34=000  S35=000  S36=014  S38=000  S39=011  S40=000
  S41=004  S42=000

  LAST DIALLED #:

OK
```

Figure 222: 3COM US Robotics modem settings

Terminal configuration

Whether connected to the DMC directly, or through modems, terminal configuration is the following:

- 19200 baud
- 8 bits
- no parity
- 1 stop bit UART

Successful connection

When you have successfully connected to the DMC, press d or m to display the main debug menu.

```
[101 /export/ctuohy] tip -19200 /dev/ttyb
connected
at
OK
atdt2000
CONNECT 19200/ARQ/V34/LAPM
(0x45af8)
(0x45af9) ************************************
(0x45af9) *         BCU MAIN DEBUG MENU          *
(0x45afa) ************************************
(0x45afa) * 1 .... 68302 DPRAM Dump    (MENU) *
(0x45afb) * 2 .... ADSP Device Debug   (MENU) *
(0x45afb) * 3 .... Driver Tx/Rx Msgs   (MENU) *
(0x45afc) * 4 .... Main Debug Flags    (MENU) *
(0x45afc) * 5 .... Misc Debug Flags    (MENU) *
(0x45afd) * 6 .... Reset Information          *
(0x45afd) * 7 .... Call Counter Show          *
(0x45afd) * 8 .... Firmware Version Info      *
(0x45afe) * 9 .... Driver Statistics          *
(0x45afe) * a .... PSOS Resource Info (MENU) *
(0x45aff) * b .... Channel Info        (MENU) *
(0x45aff) *                                   *
(0x45b00) ************************************
(0x45b00) * m or d --> Display This Menu      *
(0x45b01) ************************************
(0x45b01)
```

Figure 223: BCU Main Debug Menu

Information collection

Record the following information (see Switching on DS30 and IPC monitors on page 331) with a capture file using Hyper terminal or equivalent before you start monitoring.

Switching on DS30 and IPC monitors

1. Press m or d to open the main menu. See Figure 224: BCU main menu on page 332.

```
(0xabc5) **********************************
(0xabc5) *        BCU MAIN DEBUG MENU      *
(0xabc6) **********************************
(0xabc6) * 1 .... 68302 DPRAM Dump   (MENU) *
(0xabc7) * 2 .... ADSP Device Debug  (MENU) *
(0xabc7) * 3 .... Driver Tx/Rx Msgs  (MENU) *
(0xabc7) * 4 .... Main Debug Flags   (MENU) *
(0xabc8) * 5 .... Misc Debug Flags   (MENU) *
(0xabc8) * 6 .... Reset Information         *
(0xabc9) * 7 .... Call Counter Show         *
(0xabc9) * 8 .... Firmware Version Info     *
(0xabca) * 9 .... Driver Statistics         *
(0xabca) * a .... PSOS Resource Info (MENU) *
(0xabcb) * b .... Channel Info       (MENU) *
(0xabcb) *                                  *
(0xabcc) **********************************
(0xabcc) * m or d --> Display This Menu     *
(0xabcc) **********************************
(0xabcd)
(0xad05)
```

Figure 224: BCU main menu

2. Press 3 from the main menu.

   The Driver Debug Menu displays. See Figure 225: Current debug settings on page 332.

```
(0xad05) **********************************
(0xad06) *        DRIVER DEBUG MENU         *
(0xad06) **********************************
(0xad07) * 0 .... Driver Debug Settings     *
(0xad07) * 1 .... CardLAN Msgs On/Off       *
(0xad08) * 2 .... ADSP Msgs On/Off          *
(0xad08) * 3 .... DS30 Msgs On/Off          *
(0xad09) * 4 .... IPC Msgs On/Off           *
(0xad09) *                                  *
(0xad09) **********************************
(0xad0a) * r -------> Return to MAIN MENU   *
(0xad0a) * m or d --> Display This Menu     *
(0xad0b) **********************************
(0xad0b)
(0xae0f)
```

Figure 225: Current debug settings

3. Press 0 (zero) to display the current debug settings.
4. Press 3 and 4 to switch on the monitors. See Figure 226: Current Driver Debug Flag Settings menu on page 333.

```
(0xae10) Current Driver Debug Flag Settings
(0xae10) ----------------------------------
(0xae11) 1. CardLAN Msg Debug  : OFF
(0xae11) 2. ADSP Msg Debug     : OFF
(0xae11) 3. DS30 Msg Debug     : OFF
(0xae12) 4. IPC Msg Debug      : OFF
(0xae12)
(0xb19c) Turning DS30 Msg Debug ON ....
(0xb1ba) Turning IPC Msg Debug ON ....
(0xb219)
```

Figure 226: Current Driver Debug Flag Settings menu

5. Press 0 (zero) to display the debug settings again. See Figure 227: DS30 and IPC monitors ON on page 333.

```
(0xb21a) Current Driver Debug Flag Settings
(0xb21a) ----------------------------------
(0xb21a) 1. CardLAN Msg Debug  : OFF
(0xb21b) 2. ADSP Msg Debug     : OFF
(0xb21b) 3. DS30 Msg Debug     : ON
(0xb21c) 4. IPC Msg Debug      : ON
(0xb21c)
```

Figure 227: DS30 and IPC monitors ON

Messages on an idle system

IPC interface

After switching on the monitors, it is normal to see ping/pong (Hello messaging) messages on the IPC monitor between the BCU and CCU.

Hello messaging is used to detect errors on the BCU to CCU communication interface. The BCU and CCU are not synchronized with one another. They send Hello messages asynchronously, and there is no acknowledge. On receipt of a Hello message, the receiving unit resets the timer for the receipt of the next Hello message. On sending a Hello message, the sending unit resets the timer for sending the next Hello message. If the timeout for receiving a Hello message is exceeded, the receiving unit resets the DMC.

Table 54: Timeout values for Hello messaging on page 334 shows the timeout values.

Table 54: Timeout values for Hello messaging

Item	Time-out duration
Timeout for sending new Hello	15 seconds for BCU
	16 seconds for CCU
Timeout for receiving a Hello message	40 seconds

The timeout values for sending differ for the BCU and the CCU to create an asynchronous exchange of the Hello messages.

DS30 interface

Audit messages come from the PBX interface every few minutes for audit purposes. You can also view the audit messages using the SSD monitor on the PBX through LD 77.

Message examples

Figure 228: Error message example on page 335 shows typical messages that can be seen during call processing on the DS30 and IPC link. This type of monitoring can impact call processing on a busy site because all 32 channels are monitored together.

```
(0x715d73) IPC Drv To HL : Len (7) Data fc 1 3 2 1 7 f6 (polling message from the CCU)
(0x715e0c) DS30 Rx : Data 0x7f 0xa2 0x05 (Message from the M1)
(0x715e0d) DS30 Rx : Data 0x7f 0x74 0x31
(0x715e0e) DS30 Rx : Data 0x7f 0x71 0x30
(0x715e0e) DS30 Rx : Data 0x7f 0x71 0x36
(0x715e0f) DS30 Rx : Data 0x7f 0x75 0x30
(0x715e10) DS30 Rx : Data 0x7f 0x72 0x20
(0x715e11) DS30 Rx : Data 0x7f 0x71 0x1c
(0x715e11) DS30 Rx : Data 0x7f 0x71 0x20
(0x715e12) DS30 Rx : Data 0x7f 0x73 0x1c
(0x715e12) DS30 Rx : Data 0x7f 0x40 0x08 RING ON
(0x715e1a) HL to IPC Drv : Len (33) Data 2 1 3 8 2 8 2e 5 4 3 80 90 a3 18 3 a1 83
9f 34 1 48 6c 5 80 31 30 3 .. Too Long .. (Message sent to the CCU)
(0x715e22) IPC Drv To HL : Len (15) Data 0 1 3 8 2 88 2e 2 18 3 a9 83 9f ca df
(0x715e9f) IPC Drv To HL : Len (10) Data 0 1 3 8 2 88 2e 1 9 11(Messages from the CCU)
(0x715ea1) HL to IPC Drv : Len (14) Data 2 1 3 8 2 8 2e 7b 28 4 31 30 36 30
(0x715ed5) DS30 Rx : Data 0x7f 0x40 0x09
(0x715ed6) HL to IPC Drv : Len (11) Data 2 1 3 8 2 8 2e 7b 34 1 4f
(0x715f0e) HL to IPC Drv : Len (5) Data fe 1 3 2 1 (polling message to the CCU)
(0x71605d) DS30 Rx : Data 0x7f 0x40 0x08
(0x71605f) HL to IPC Drv : Len (11) Data 2 1 3 8 2 8 2e 7b 34 1 48
(0x716128) DS30 Rx : Data 0x7f 0x40 0x09
(0x71612a) HL to IPC Drv : Len (11) Data 2 1 3 8 2 8 2e 7b 34 1 4f
(0x7161ce) DS30 Rx : Data 0x7f 0x70 0xdf
(0x7161cf) DS30 Rx : Data 0x7f 0x40 0x09
(0x7161d0) DS30 Rx : Data 0x7f 0x40 0x0e DISCONNECT
(0x7161d2) HL to IPC Drv : Len (11) Data 2 1 3 8 2 8 2e 7b 28 1 20
(0x7161d4) HL to IPC Drv : Len (11) Data 2 1 3 8 2 8 2e 7b 34 1 4f
(0x7161d6) HL to IPC Drv : Len (12) Data 2 1 3 8 2 8 2e 45 8 2 80 90
(0x716203) IPC Drv To HL : Len (10) Data 0 1 3 8 2 88 2e 4d 61 99
(0x716204) HL to IPC Drv : Len (8) Data 2 1 3 8 2 8 2e 5a
(0x716205) DS30 Tx : Data 0x9f 0x40 0x03 (Message sent to the M1)
(0x7163a5) IPC Drv To HL : Len (7) Data fc 1 3 2 1 7 f6
```

Figure 228: Error message example

Chapter 11: Performance Collection file samples

Equipment Performance Collection file sample

<?xml version="1.0"?> <file> <header> <systeminfo PARI="44446666"/> <boardinfo boardnumber="24"/> <package package_origId="45100105"/> </header> <data> <boardstat> <dateandtime>2001,1,12,18,17,37,0</dateandtime> <counters>0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0</counters> </boardstat> <rfpinfo> <rfpstat rfp="1"> <dateandtime>2001,1,24,19,50,9,0</dateandtime> <counters>1,0,0,0,8,420,0,1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0</counters> </rfpstat> <rfpstat rfp="2"> <dateandtime>2001,1,24,19,50,13,0</dateandtime> <counters>1,0,0,0,8,420,0,1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0</counters> </rfpstat> <rfpstat rfp="3"> <dateandtime>2001,1,24,19,50,13,0</dateandtime> <counters>0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0</counters> </rfpstat> <rfpstat rfp="4"> <dateandtime>2001,1,24,19,50,19,0</dateandtime> <counters>0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0</counters> </rfpstat> </rfpinfo> <rfpchanocc> <rfpchocc rfp="1"> <dateandtime>2001,1,12,18,17,37,0</dateandtime> <choc>0,0,0,0,0,0,0,0,0,0,0,0,0</choc> </rfpchocc> <rfpchocc rfp="2"> <dateandtime>2001,1,12,18,17,37,0</dateandtime> <choc>0,0,0,0,0,0,0,0,0,0,0,0,0</choc> </rfpchocc> <rfpchocc rfp="3"> <dateandtime>2001,1,24,19,50,6,0</dateandtime> <choc>0,0,0,0,0,0,0,0,0,0,0,0,0</choc> </rfpchocc> <rfpchocc rfp="4"> <dateandtime>2001,1,24,19,50,6,0</dateandtime> <choc>0,0,0,0,0,0,0,0,0,0,0,0,0</choc> </rfpchocc> </rfpchanocc> <bschanocc> <bchanocc> <dateandtime>2001,1,24,19,50,6,0</dateandtime> <choc>0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,434</choc> </bchanocc> <schanocc> <dateandtime>2001,1,24,19,50,6,0</dateandtime> <choc>0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,434</choc> </schanocc> </bschanocc> </data> </file>

User Performance Collection file sample

<?xml version="1.0"?> <file> <header> <systeminfo PARI="44446666"/> <boardinfo boardnumber="24"/> <package package_origId="45100105"/> </header> <data> <ppstat RecNum="2"> <dateandtime>2001,1,12,18,17,37,0</dateandtime>

<ipui>40110000E5A97B7F84</ipui> <dnr>20801</dnr>
<counters>0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,255</counters> </ppstat> </data> </file>

Index

P

R

S

U