

System Planning Unite

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1 Introduction

When planning a Unite system, there are areas that has to be considered. This document gives an overview of the Unite system and handles aspects, for example security aspects, that have to be regarded when planning the system. It includes examples of Unite system, from the minimum configuration and basic functions only to a system with complete functionality.

The document also handles how to migrate an existing system into a Unite system with functions like remote management and message routing.

The document assumes that the reader has basic TCP/IP knowledge. The reader also has to be familiar with the Unite system, a level corresponding to the *System Description, Unite, TD 92243GB*.

1.1 Abbreviations and Glossary

9dMMS	9d Message Mobility Server: PC based tool that enables messaging to and from the connected System 9d
A-bus	serial communication between modules in System 900
AMC	Alarm Management Client: operator's panel with graphical alarm presentation
AMS	Alarm Management Server: Unite module that enables advanced event handling
BAM	Basic Alarm Handler: tool in the IMS that can be used to handle triggered inputs and alarms and user data from handsets
Broadcast	One message is sent to all users in a single transmission
CSM	Cordless System Manager: PC based tool used to configure System 9d
CSV	Comma Separated Values: commonly used format to transfer data from one table-oriented application to another, for example relational database applications
DECT	Digital Enhanced Cordless Telecommunications: global standard for cordless telephony
DMZ	Demilitarized Zone: a neutralized zone between company's private LAN and the Internet
DNS	Domain Name System: the way that Internet domain names, for example bbc.com, are located and translated into IP addresses
ESS	Enhanced System Services: Unite module that supports advanced message routing, Group Handling, centralised fault handling and logging
Firewall	A firewall protects against unauthorized access to the network.
FTP	File Transfer Protocol: a protocol to transfer and copy files over the Internet.
GSM	Global System for Mobile communication

GUI	Graphical User Interface: the interface between a user and computer application
IAM	Intelligent Address Module: teleCARE M module used as the interface between the LON and the teleCARE M peripherals
IANA	Internet Assigned Numbers Authority: global Internet coordinator
IM	Interactive Messaging: enables a client application to have a two-way communication in plain language with a user of a cordless handset
IMS	Integrated Message Server: Unite module that enables messaging to and from the connected cordless telephone system
IP	Internet Protocol: global standard that defines how to send data from one computer to another through the Internet
IPsec	Internet Protocol Security: global standard with a set of IP protocols for security used when implementing for example virtual private networks
ISC	Internetworking System Controller: Unite module that enables nurse calls to be transferred from the teleCARE M system to for example System 900 or a cordless telephone system
LAN	Local Area Network: a group of computers and associated devices that share a common communication line
LON	Local Operating Network: platform for connection of devices, used in teleCARE M for communication
Multicast Group	One message is sent to several users in a single transmission
NSS	Nurse Station Server: Unite module used in the teleCARE M system to process nurse call system information which can be viewed on its internal web site
OAC	Open Access Components: COM objects included in OAT that can be used in the application development to communicate with the Ascom system
OAJ	Open Access Javasever: development kit for OJS used to develop customized applications
OAP	Open Access Protocol: XML based protocol used to create customized applications for Unite access
OAS	Open Access Server: Unite module that enables communication with customized applications created with the Open Access Toolkit
OAT	Open Access Toolkit: framework that enables customized Windows™ based applications for Unite access
OJS	Open Java Server: Unite module that is an embedded environment for customized Java applications

PBX	Private Branch Exchange: telephone system within an enterprise that switches calls between local lines and allows all users to share a certain number of external lines
PPP	Point-to-Point Protocol: global protocol used for IP communication between two computers using a serial interface
PSTN	Public Switched Telephone Network: the world's collection of interconnected voice-oriented public telephone networks
PWT	Personal Wireless Telecommunication: US standard for cordless telephony
RMC	Remote Management Client: PC tool that enables remote access to the Unite system
SLA	Serial LON Adapter: used to connect a PC to the LON network when installing and configuring a teleCARE M system
SMM	System Monitoring Module: supervises the modules connected to the LON network in the teleCARE M system
SMS	Short Messaging Service: global protocol for sending messages between cordless telephones
SMTP	Simple Mail Transfer Protocol: global IP protocol used when sending and receiving e-mail
System 900	generic term for telePROTECT, teleCOURIER, and CTS 900 systems
System 9d	generic term for Ascom DECT System
TCP	Transmission Control Protocol: standard IP protocol that enables two hosts to establish connection and exchange streams of data with guarantee of data delivery and that data packets will be delivered in the same order that they were sent
TIP	teleCARE M Installation Program: PC tool used to install and configure the teleCARE M system
TLM	Telephone Line Module: teleCARE M module that enables connection of analogue telephone lines and controls the speech communication in the teleCARE M system
UDP	User Datagram Protocol: standard IP protocol that enables two hosts to establish connection and exchange data with limited services regarding data delivery
Unite	generic term for messaging system that unites different systems, for example System 900, System 9d, and teleCARE M
UNS	Unite Name Server: Unite module component that holds the Unite number plan and Unite destinations
VLAN	Virtual Local Area Network (LAN): technique in switches to segment a local area network without extra equipment, i.e. a virtual switch is created
VPN	Virtual Private Network: a way to use, for example, the Internet to create secure remote access
WinBK	PC based tools for installation and configuration of System 900
XML	eXtensible Markup Language: standard language used to store and share information

1.2 System Overview

The Unite system is built up by modules connected to each other over an IP backbone. The various modules are interacting as one system by using the Unite protocol as a common platform. The Unite protocol is proprietary and built on IP.

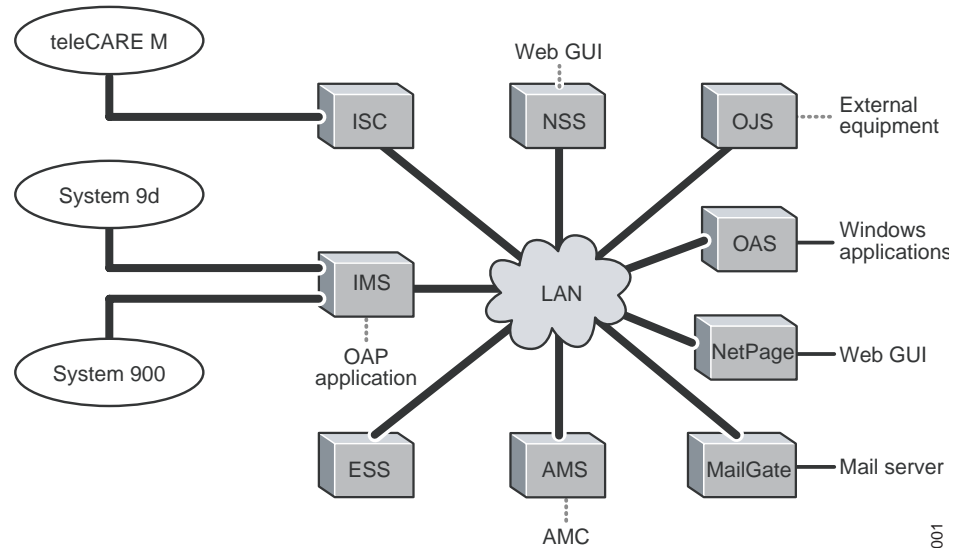


Figure 1. Unite system overview

In order to avoid misunderstandings and late upcoming problems, it is important to early identify and involve persons responsible for the administration and running of the IT environment at the customer site.

If the Unite system includes critical functions, such as alarms, it is very important to raise demand on the customer's network regarding uptime and power redundancy. A possible solution is to place Unite or critical parts of Unite in an own network.

1.3 Functions

- Remote management of all modules, see *Function Description, Remote Management, TD 92257GB* for more information.
- Centralised number planning and advanced message routing, see *Function Description, Number Planning and Message Routing in Unite, TD 92254GB* for more information.
- Group Handling, see *Function Description, Unite Group Handling, TD 92252GB* for more information.
- System supervision and advanced fault handling, see *Function Description, System Supervision and Fault Handling in Unite, TD 92252GB* for more information.
- Centralised Fault Logging, see *Installation and Operation Manual, Enhanced System Services, TD 92253GB* for more information about the log.
- System Activity Logging, see *Function Description, Activity Logging in Unite, TD 92341GB* for more information about activity logging.
- User Access Administration, see *Authorisation* in the *Installation and Operation Manual, Enhanced System Services, TD 92253GB* for more information about the access administration of users.
- Synchronized Time within the system, see *Installation Guide, ELISE2, TD 92232GB* for more information.

2 Unite System Examples

In this chapter, Unite system examples are shown using different sizes of configuration.

The functions enabled in the examples for the different configurations are:

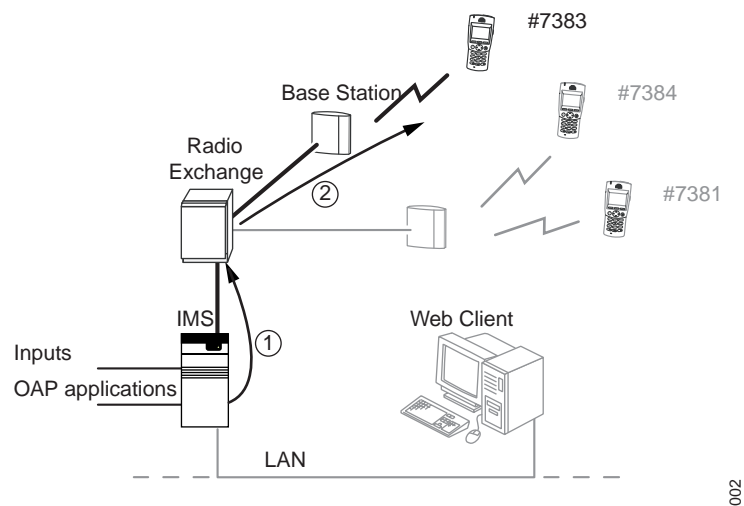
- send messages to handsets, for example paging, e-mail
- receive/handle messages from handsets, i.e. user data or personal alarm.

2.1 System with one Unite Module

This minimum Unite system consists of an IMS. The IMS is chosen as an example since it includes many basic functions and is in some respect a small complete system in one module.

2.1.1 Message to Handset

In this example, the enabled function is to send a message to a handset.



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Figure 2. Message to handset, minimum configuration

A message to handset #7383 is generated either from:

- the web based message tool in the IMS
- contact inputs on the IMS, using the BAM
- a SMS from a handset
- an OAP application.

The message is sent from the IMS to the Radio Exchange (1) and further out to the handset (2). The computer is used for configuration of the IMS.

The default settings in the IMS is to send messages to the DECT interface. In this example, no change of the default settings for message addressing in the IMS is needed.

2.1.2 Message from Handset

In this example, the enabled function is to receive unaddressed messages from a handset, i.e. user data or personal alarm.

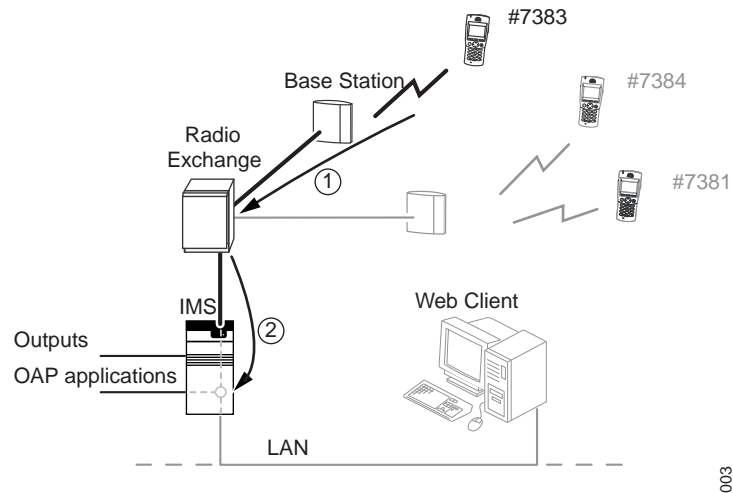


Figure 3. Message from handset, minimum configuration

The IMS receives an alarm (2) generated from one of the handsets (1).

The alarm can be handled in the following ways:

- The default settings in the IMS distribution list, is to direct the alarm to the BAM. Different actions can then be performed. Use the computer to configure the BAM to generate a message to a handset or to activate external equipment connected to an output.
- The alarm can be directed to an OAP application. If the OAP application shall be able to receive an alarm, the OAP server has to be added to the distribution list in the IMS.

2.2 System with one Unite Module and System 900 Modules

In this example, the minimum configuration is extended with System 900 modules on the A-bus.

2.2.1 Message to Handset

The enabled function is to send a message to a handset. In this example, the number of inputs have been extended by connecting an Alarm Module to the IMS via the A-bus.

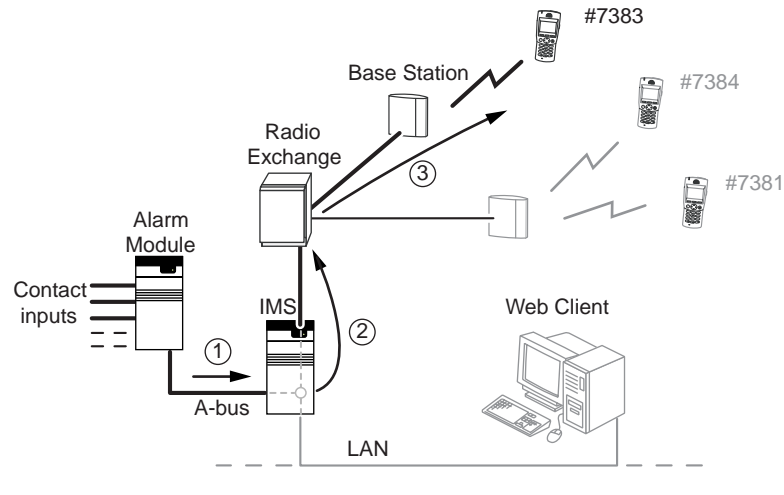


Figure 4. Message to handset generated by an activated input on an Alarm Module in System 900

When an input is activated, the Alarm Module reports it to the IMS (1). The IMS sends a message addressed to handset #7383 to the Radio Exchange (2) and further out to the handset (3).

The following configuration is needed:

- Configure the Alarm Module to transmit information about activated inputs to the IMS.
- Configure the BAM to generate a message to a handset.

The default settings in the IMS is to send messages to the DECT interface. In this example, no change of the default settings for message addressing in the IMS is needed.

2.3 System with several Unite Modules but without an ESS

In the following examples, the system is extended with one or several Unite modules, but an ESS is not included in the system.

2.3.1 Sending E-mail to a Handset

The enabled function in this example is to send an e-mail to a handset.

The intention is to be able to forward the information in an incoming e-mail to handsets. A Unite module with mail server functionality has to be included to enable this function, providing each Pocket Unit with a unique e-mail address. In this case, a MailGate has been connected to the LAN.

The example shows a Unite system with an IMS and a MailGate.

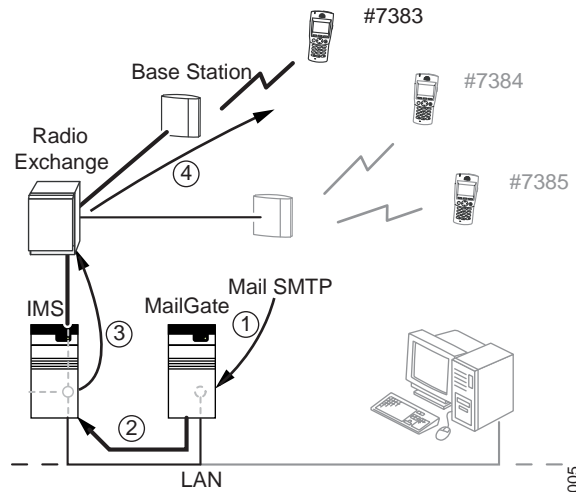


Figure 5. Forwarding e-mails to handsets

An SMTP e-mail is received by MailGate (1) which converts the information into a message and sends it to the IMS (2). The IMS sends the message to the Radio Exchange (3) and further out to the handset (4).

The following configurations have to be made:

- Configure the MailGate to send a message to the IMS DECT interface on an incoming e-mail.

2.3.2 Message from Handset

This example illustrates the case when unaddressed messages are directed to pre-configured addresses. The enabled function is to receive a message from a handset, i.e. user data or personal alarm.

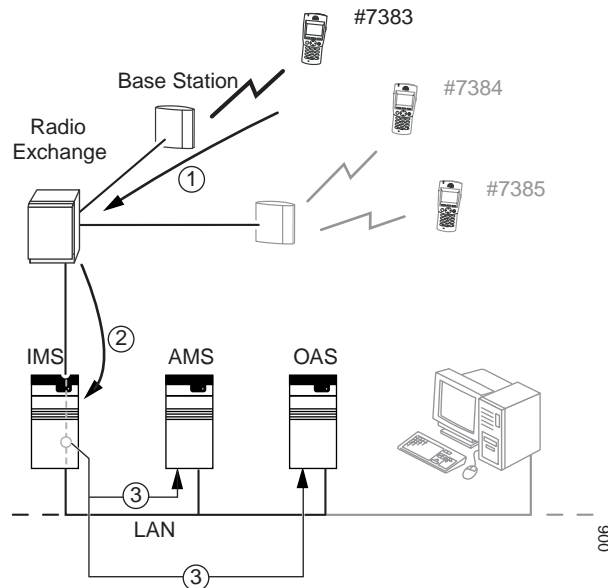


Figure 6. Making an AMS and/or OAT application handle incoming information

Distribution lists for messages from handsets are set up in each interface module. A typical scenario is that the message generated from a handset (1), for example an alarm, which reaches the IMS (2) is distributed to an AMS and/or OAS (3) for further action. If the information is distributed to an AMS, a chain of predefined events can be started up.

The following configurations have to be made:

- Update the Message Distribution List in the IMS to forward incoming messages, i.e. alarm and user data to the AMS and/or OAS. See also *Installation Guide, ELISE2, TD 92232GB*.
- Configure the AMS to handle the incoming information, see *Installation and Operation Manual, Alarm Management Server, TD 92047GB*.
- Start an OAT application that communicates with the OAS and handles the information that is received.

2.4 System with an ESS

2.4.1 Message to Handset

This example includes the same scenario as in [2.3.1 Sending E-mail to a Handset](#) on page 9, but in this case the information is sent to a DECT handset, and diverted to a GSM mobile phone if the DECT handset is absent.

To be able to handle diversions, the message routing function in the ESS is needed. When a receiving unit is out of range or absent, the message can be diverted to other systems or users.

This example shows a Unite system with an IMS, a MailGate, an OJS and an ESS. A Java application for GSM connection is included in the OJS.

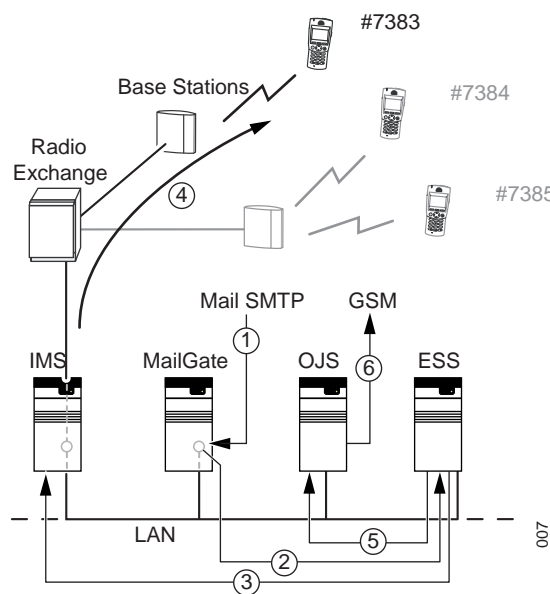


Figure 7. Message to handset using the number plan in the ESS

The MailGate receives an incoming SMTP e-mail (1) aimed for a handset #7383. Then the MailGate transfers the message to the ESS (2). The ESS is configured to send the message to the IMS (3) and further to the DECT handset (4). If the handset is absent, the message is diverted to the OJS (5). The OJS sends the message to the GSM system (6).

The following configurations have to be made:

- Configure all Unite modules to use the number plan in the ESS.
- The ESS number plan should include the DECT handsets and GSM mobile phones, see *Installation and Operation Manual, Enhanced System Services, TD 92253GB*.
- Set up diversion conditions in the ESS, see *Function Description, Number Planning and Message Routing in Unite, TD 92254GB*.
- Configure the OJS to send the message on to the GSM system, see *Function Description, GSM/SMS Application on the Open Java Server, TD 92187GB*.

2.4.2 Message from Handset

This application example illustrates the case when unaddressed messages are directed to pre-configured addresses. Even though an ESS is added to the Unite system, the information distribution is the same as in [2.3.2 Message from Handset](#) on page 10.

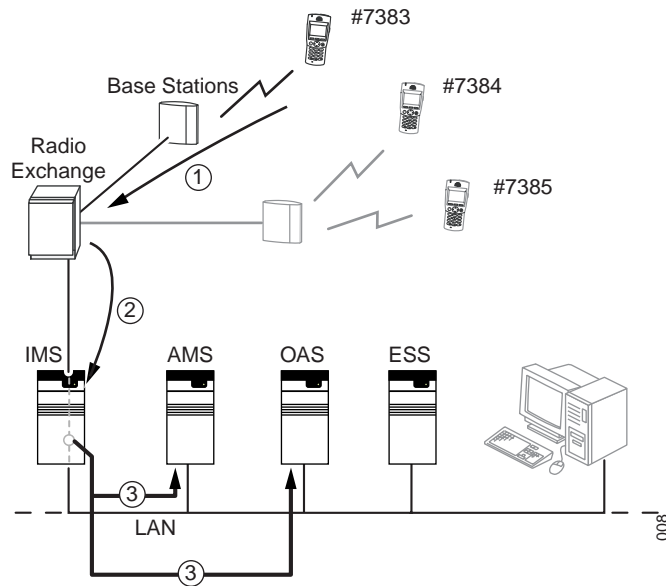


Figure 8. Message from handset including an ESS

2.5 teleCARE M with Interactive Messaging and Speech

This example shows a Unite system with teleCARE M in combination with interactive messaging and speech using System 9d. Functions such as logging and remote management of the teleCARE M system are also available.

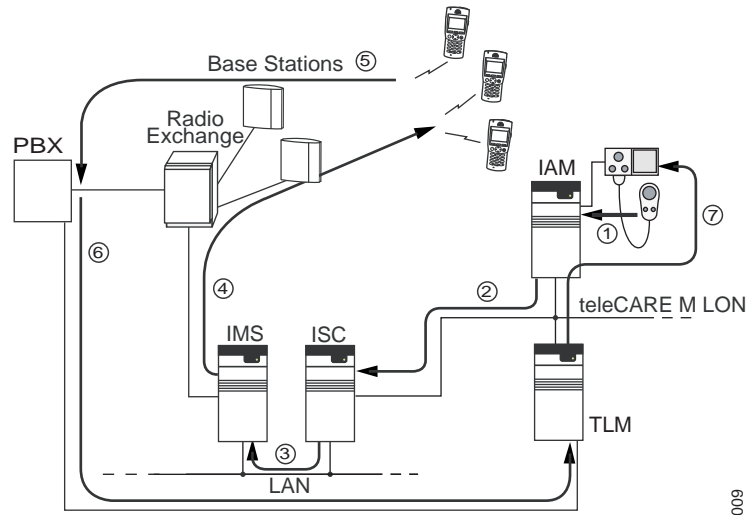


Figure 9. Unite and teleCARE M including speech, messaging and remote management

The scenario illustrates the sequence of events relating to a call in the teleCARE M nurse call system.

A call is activated from a teleCARE M mini handset to the IAM (1). From the IAM, it is sent to the ISC via the LON (2). The call information is transmitted from the ISC to the IMS via the LAN (3). The IMS generates a message through the radio exchange and base station to the addressed handset (4).

The addressed handset can accept the call. If the handset is absent or if the call is not accepted by the user, the call can be diverted to another handset by the ISC.

After the call has been accepted a speech connection will be established via the PBX (5), the TLM (6) and the IAM (7). When the call is completed it can be cancelled or parked from the handset.

The following installation and configuration is required:

- Physical installation according to *Installation Guide, teleCARE M, TD 91868GB*
- System configuration according to *Setup and Application Guide, teleCARE M, TD 91791GB*

2.6 System Expansion

The Unite system may easily be expanded by adding modules enabling enhanced functionality. The expansion can be made via the LAN and/or other connections such as the A-bus. Installation and configuration is made according to the installation instructions for each module.

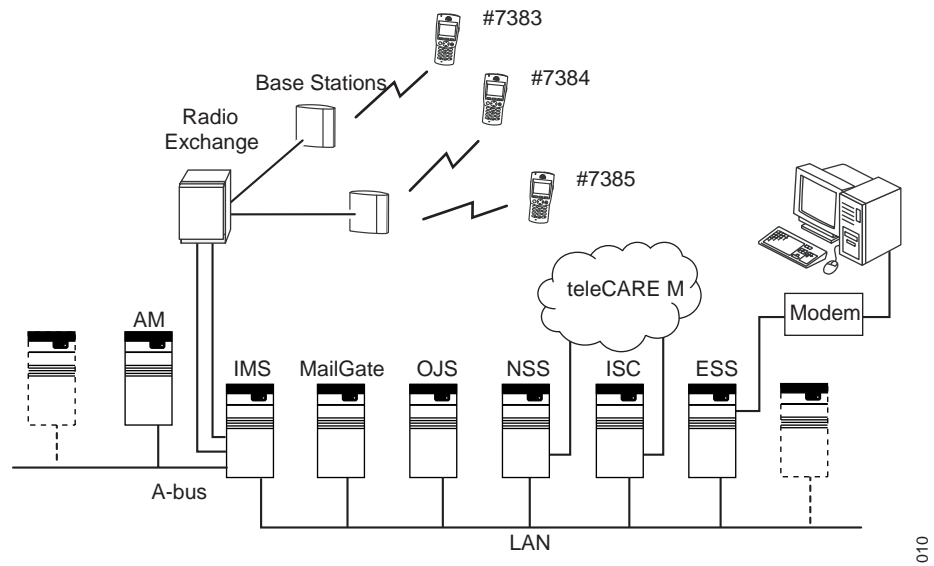


Figure 10. Expansion of a Unite system

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3 Security

3.1 Recommended Network Configuration

This section describes different installation scenarios. The recommendation is to always use the configuration with the highest possible network security.

Other measures taken to prevent automatic scripts, or similar, to force a way into the Unite system are:

- Incoming IP traffic is only allowed on selected ports in use
- No services, (such as web server, mail server etc.) show type and version
- Protection against modification of executable files

It is possible to manage the Unite system remotely and there are two common ways to secure a remote IP connection:

- Serial connection using the telephone line (PSTN) with the Point-to-Point Protocol (PPP) which results in a point-to-point connection.
- Creating secure tunnels, for example by using VPN

Internet traffic to Unite Modules

This configuration focuses on high security. The configuration is used if Unite modules are accessed from the Internet. Unite and LAN is recommended to be built as separate subnets and NetPage/MailGate should be connected to the DMZ zone. To obtain high security, the basic rule is to expose as little as possible.

The firewall protects against unauthorized access to the network. The DMZ is a neutralized zone between the company's private LAN and the Internet. If NetPage and MailGate is connected to the Internet, it is recommended to connect them to the DMZ.

Configuration in the firewall shall only allow communication between the DMZ and Unite subnet if:

- The communication uses the Unite port (UDP)
- The address of the module in the DMZ is approved for communicating with the Unite subnet.

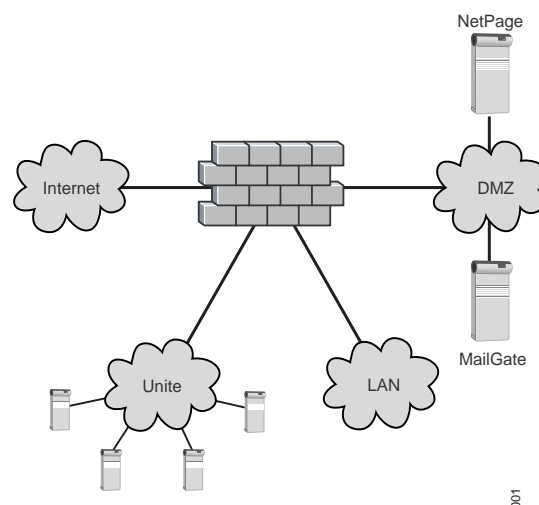


Figure 11. NetPage and MailGate connected to the DMZ

To communicate with the Unite system, only the Unite port¹ needs to be open in the firewall, see [Appendix B: IP Ports](#) on page 49.

No connection to the Internet

For a network which is not accessible from Internet, it is recommended that the Unite and the LAN are built as separate subnets.

Advantages:

- Protects Unite from the LAN
- Broadcasts in the LAN will not load the CPU of the Unite device
- Less traffic for the Unite modules

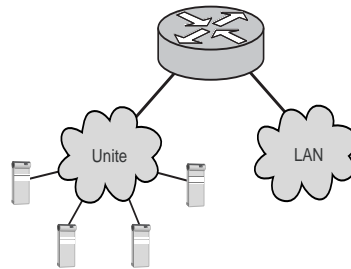


Figure 12. The Unite modules separated from the LAN

Small simple Configuration

For minor networks it is common to connect the Unite modules directly to the LAN.

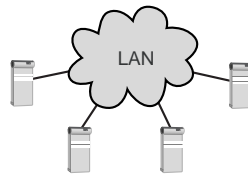


Figure 13. The Unite modules connected to the LAN

3.2 Encryption

All information transferred by Unite is encrypted with a 128 bit encryption algorithm.

3.3 IP Load

The IP load generated by the Unite system is very small and has in normal conditions low impact on the IP traffic on a Local Area Network (LAN). For example, a message with 100 characters from an IMS generates 3600 bytes divided into 10 UDP blocks. Unite is built on direct addressing and do not use broadcast to communicate except to survey the system at installation.

The Unite system could however, as all other IP based systems, under some circumstances be affected by large amount of data sent on the LAN, for exampe a large file transfer. If the Unite system includes realtime critical applications, it is important to take preventive measures to protect these against the effects of high IP load generated from other parts of

1.The Unite port 3217 is registered at the Internet Assigned Numbers Authority (IANA).

the LAN. One solution could be to place the Unite system in its own Ethernet subnet or VLAN. Normally, this should not be a problem in a modern switched network.

3.4 Access Levels

All Unite modules have got several user levels for access. Every user level has specified authorities for every module respectively. The most common levels are as follows:

Level	Description
sysadmin	Used for advanced troubleshooting including administration
admin	Used for administration and troubleshooting
user	Used for additional administration in some modules
ftpuser	Used to access the modules FTP area

Additional users can exist in the different Unite modules.

Password is set individually for each level, see the administration pages for the corresponding module.

When setting up a Unite system, it is recommended to have a well defined strategy for distributing passwords for the user levels in the modules included.

In the ESS there is a different authorisation level for users to set up messaging rights and log view rights. For more information about the authorisation levels, see *Authorisation* in the *Installation and Operation Manual, Enhanced System Services, TD 92253GB*.

4 Supervision of the Unite System

The ESS can supervise the modules within the Unite system and connected systems, for example System 900. It can also supervise IP equipment, auxiliary equipment and receive SNMP traps.

The ESS can collect faults from the connected modules in a complete log and also take actions upon certain faults. Actions that can be taken are sending a message to a pocket unit, activating an output, sending e-mail and sending SNMP trap.

The ESS is equipped with two open-collector outputs and one error relay output that can be used to indicate faults in the Unite system by connecting external equipment, for example a siren or a lamp. Additional outputs can be used by connecting 941OM to the A-bus.

The error relay releases if there is a voltage drop in the ESS or if the module restarts and can therefore be used to supervise the ESS itself. By using the error relay also for other system critical faults, it can be used to indicate severe system malfunctions.

5 Migrating an existing System to a Unite System

This chapter gives examples of migrations from existing systems to Unite systems. Recommendations about which information to migrate and how to do it is given. The chapter also describes how existing functions are changed and lists which functions in existing systems that are not available in Unite.

The system requires certain module software versions and licence options to achieve all functionality within Unite, see [Appendix A](#) for more information.

5.1 Migration Examples

For each example in this chapter, a list with possible advantages with migration to Unite, the recommended changes to the systems, and the matters that need special attention are included. In each example, there is one figure of the system before the migration and one figure of the system after the migration. In the figures of the migrated systems the modules and connections that already existed in the original system are drawn with grey lines and the added modules and the added or redrawn connections drawn with black lines.

All example systems include an Alarm Module as an example of a System 900 module. Other System 900 modules can be handled similarly at migration. The modules AMS, NetPage, and MailGate are included in the example systems to illustrate how to handle Unite modules in general. Other Unite modules can be handled similarly at migration.

All example systems include a modem for remote management, but management can also be made directly, via the LAN, or via a VPN connection.

Information about installation and configuration of the system can be found in [5.3 Configuration Guide](#) on page 38 and in the documents found in [6 Related Documents](#) on page 45.

5.1.1 Paging System Migration to Unite

In this example, the existing system is a paging system with alarm management. The system consists of System 900 modules and Unite modules interconnected via the A-bus.

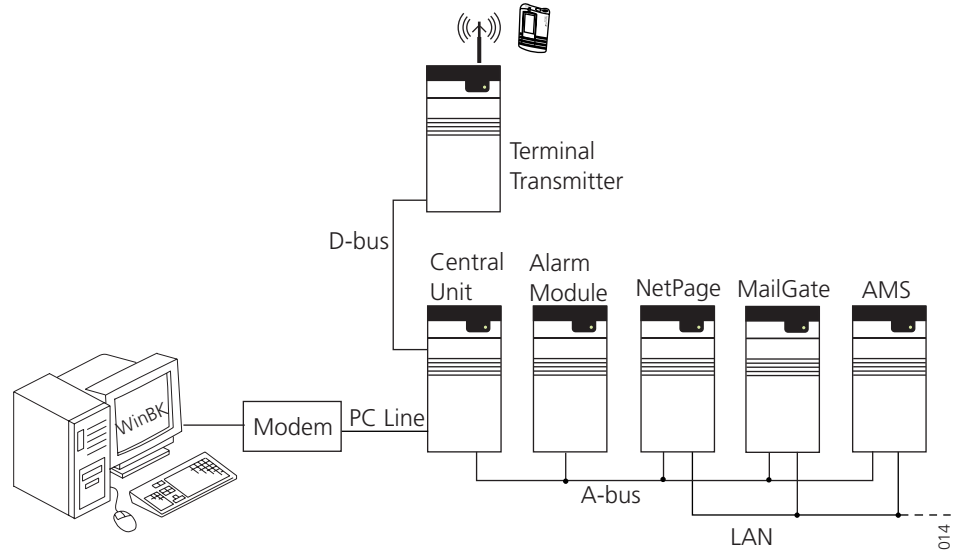


Figure 14. Paging System before Migration

The following functions and improvements are made possible through migration to Unite:

- Remote Management of all modules
- Improved Message Routing
- Improved System Supervision
- Improved Fault Handling
- Improved Fault Logging
- Improved Activity Logging
- Improved User Access Administration
- Synchronized Time with external NTP server

Recommended Migration Changes

After the migration, the paging system can have the configuration shown in the figure below.

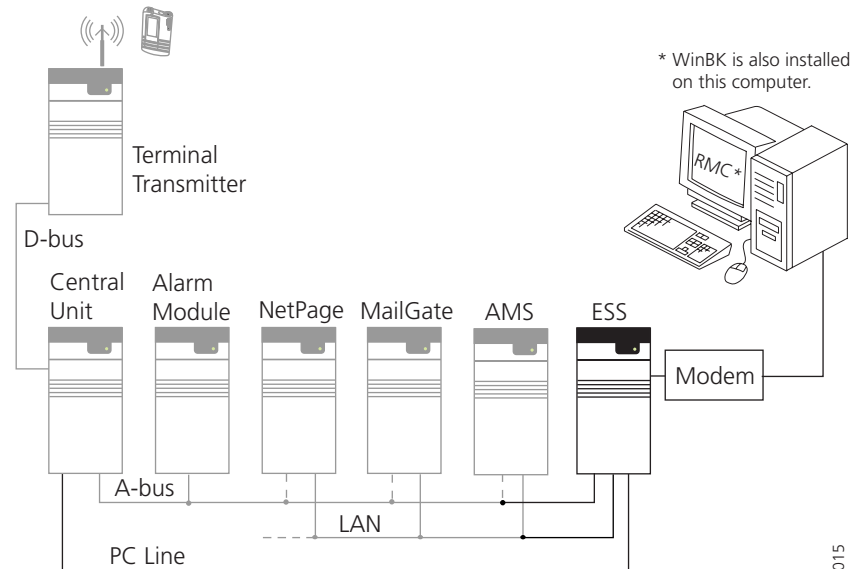


Figure 15. Paging System after Migration to Unite

The following general changes are recommended:

- Install an ESS in the system.

The following changes are recommended to use Remote Management:

- Connect a modem to the ESS or move the existing modem connection to the ESS.
- Connect PC line between the Central Unit and the ESS, for remote management of System 900 modules.

The following changes are recommended for improved Message Routing:

- Connect the ESS to the A-bus.
Only one Unite module is required on the A-bus. Additional Unite modules may be connected to the A-bus, if desired.
- Configure the Unite modules to forward Unite Name Server (UNS) queries to the ESS.
- Configure a category in the Central Unit that transmits messages to the ESS.
- Set up a Unite category in the ESS for each System 900 category to use.
- Add relevant Call IDs in the ESS number plan.
- Set diversions for the Call IDs.

The following changes are recommended for improved Fault Handling and Logging:

- Configure the Unite modules to forward the Status logs to the ESS.
- If more than one Unite module is connected to the A-bus, exclude the A-bus faults from the Status log for all except one Unite module.
- Program actions in the ESS for the different faults.

The following changes are recommended for improved Activity Logging

- Configure the Unite Modules to forward the activity logs to the ESS.

The following changes are recommended for Synchronized Time:

- Configure the Unite modules to use the ESS as time server.
- Configure the ESS to distribute the time to System 900.

Matters of Attention

Pay special attention to the following issues:

- System 900 category planning. See [Appendix A](#) for information about the required Central Unit software version to handle the category information from the ESS.
- If WinPage is used, it is recommended to replace it with NetPage.
- NetPage and MailGate - depending on hardware and RAM size, see [5.2 Hardware and RAM size](#) on page 38.

5.1.2 IMS DECT/PWT System Migration to Unite

In this example, the existing system is a DECT system with messaging and alarm management. The system consists of DECT modules, Unite modules and an Alarm Module connected to the A-bus on the IMS. A PWT system is handled similarly.

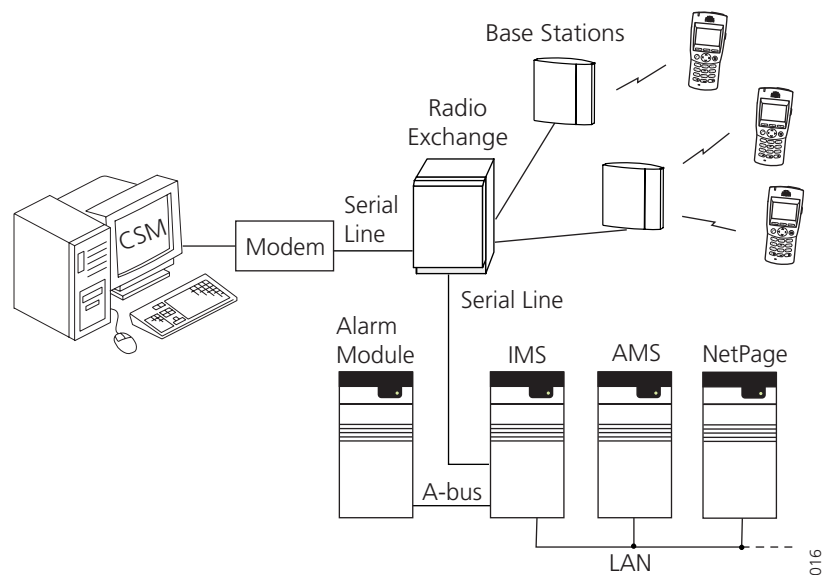


Figure 16. IMS DECT System before Migration

The following functions and improvements are made possible through migration to Unite:

- Remote Management of all modules
- Number Planning possibilities
- Improved Message Routing
- Improved System Supervision
- Improved Fault Handling
- Improved Fault Logging
- Synchronized Time
- Multicast and Broadcast possibilities
- Improved Activity Logging
- Improved User Access Administration

Recommended Migration Changes

After the migration, the DECT system can have the configuration shown in the figure below.

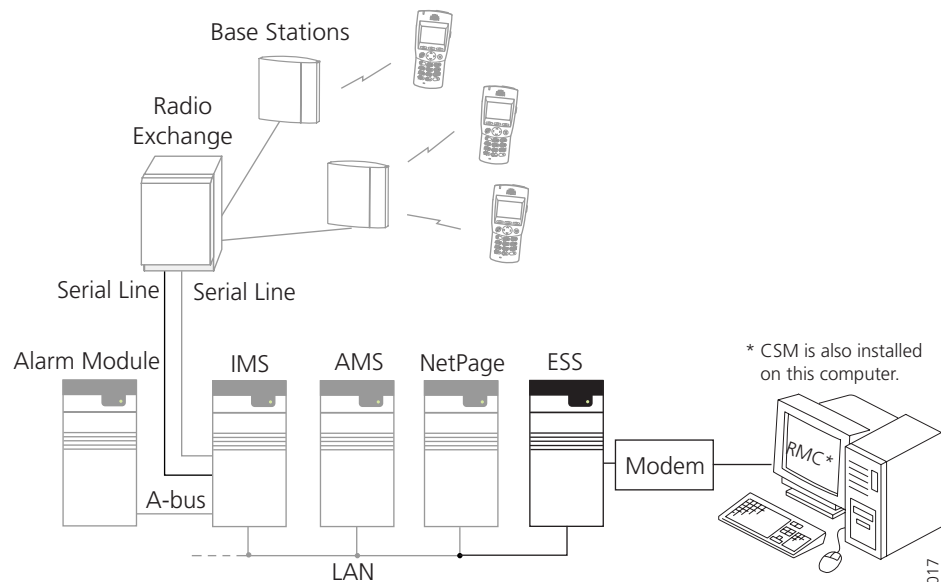


Figure 17. DECT System after Migration to Unite

The following general changes are recommended:

- Install an ESS in the system.

The following changes are recommended to use Remote Management:

- Connect a modem to the ESS or move the existing modem connection to the ESS.
- Move the serial line connection for configuration of the DECT system from the computer to a Unite module (for example the IMS or ESS).

The following changes are recommended for improved Message Routing:

- Configure Unite modules to forward UNS queries to the ESS.
- Copy the relevant UNS information from the IMS to the ESS. An example is if the default address is not used for the IMS phonebook.

The following changes are recommended for improved Fault Handling and Logging:

- Configure the Unite modules to forward the Status logs to the ESS.
- If more than one Unite module is connected to the A-bus, exclude the A-bus faults from the Status log for all except one Unite module.
- Program actions in the ESS for the different faults.

The following changes are recommended for improved Activity Logging

- Configure the Unite Modules to forward the activity logs to the ESS.

The following changes are recommended for Synchronized Time:

- Configure the Unite modules to use the ESS as time server.

Matters of Attention

Pay special attention to the following issues:

- The time in the Radio Exchange can only be synchronized with the DCT 1800 GAP CPU2 version, see [5.4 Excluded Functions](#) on page 44.
- IMS and NetPage - depending on hardware and RAM size, see [5.2 Hardware and RAM size](#) on page 38.

5.1.3 9dMMS DECT System Migration to Unite

In this example, the existing system is a DECT system with messaging and alarm management. The system consists of DECT modules, a 9dMMS, MailGate and an Alarm Module connected to the Central Unit.

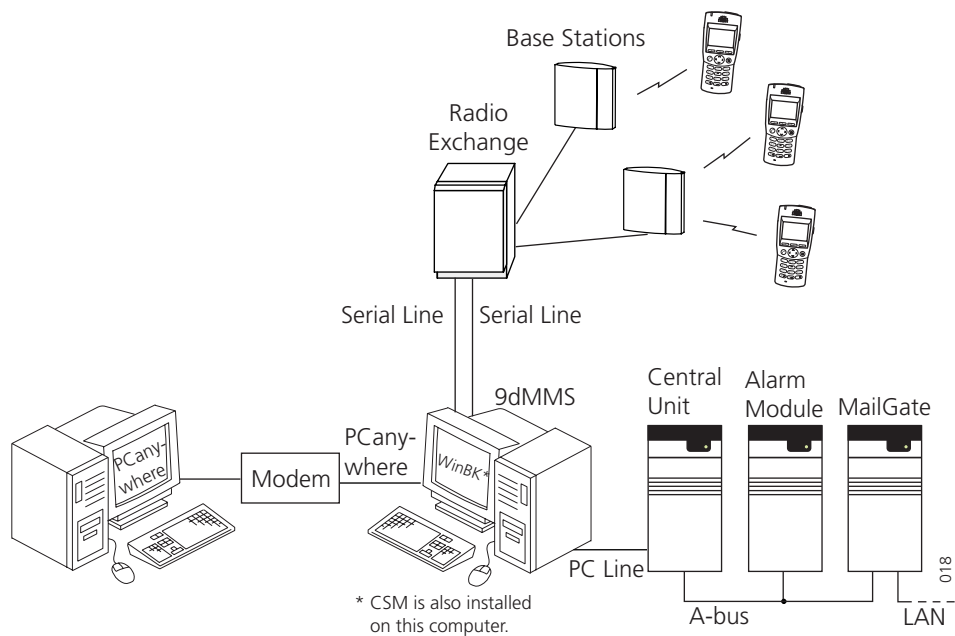


Figure 18. 9dMMS DECT System before Migration

The following functions and improvements are made possible through migration to Unite:

- Remote Management of all modules (This is already possible for the modules connected to the 9dMMS)
- Number Planning possibilities
- Improved Message Routing
- Improved System Supervision
- Improved Fault Handling
- Improved Fault Logging
- Synchronized Time
- Multicast and Broadcast possibilities
- Improved Activity Logging (IMS alternative)

The recommendation is to replace the 9dMMS with an IMS, as the IMS can report faults from the DCT1800 GAP system and also supports more messaging functions, for example longer messages and interactive messaging. If conference call is required, the 9dMMS must be kept but that will limit the improvements above. Both alternatives are described below.

IMS Alternative - Recommended Migration Changes

After the migration, the DECT system can have the configuration shown in the figure below, if the 9dMMS is replaced by an IMS.

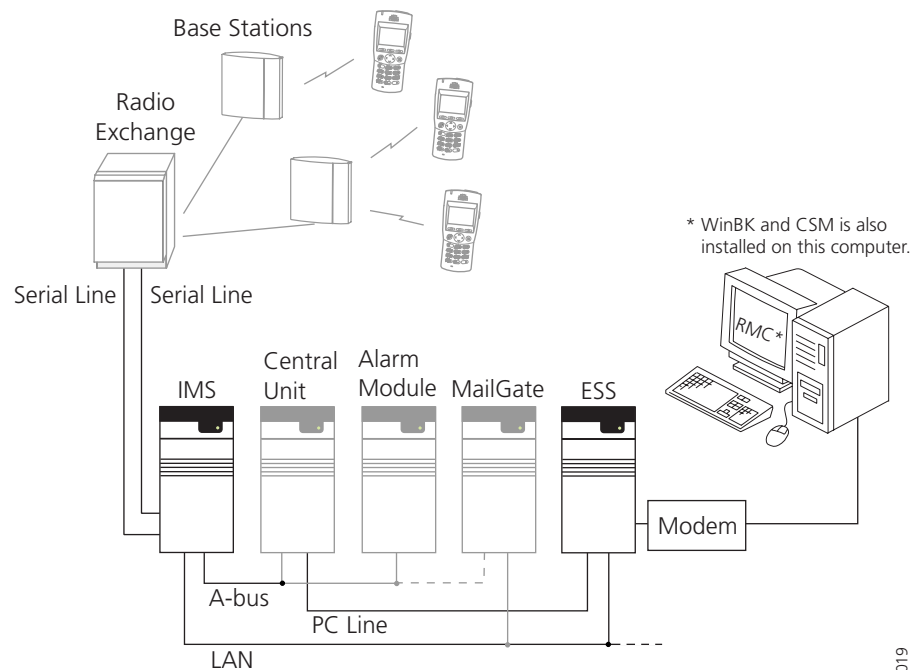


Figure 19. IMS Alternative - DECT System after Migration to Unite

The following general changes are recommended:

- Replace the 9dMMS with an IMS.
- Move the serial line for messaging from the 9dMMS to the IMS.
- Install an ESS in the system.
- Copy relevant parts of the Pocket Units information to the ESS.

The following changes are recommended to use Remote Management:

- Connect a modem to the ESS or move the existing modem connection to the ESS.
- Move the serial line for configuration of the DECT system from the 9dMMS to the IMS
- Connect PC line between the Central Unit and the ESS, for remote management of System 900 modules.
- Copy the WinBK site database to the Remote Management Client (RMC) PC.

The following changes are recommended for improved Message Routing:

- Configure Unite modules to forward UNS queries to the ESS.
- Set diversions for the Call IDs.

The following changes are recommended for improved Fault Handling and Logging:

- Configure the Unite modules to forward the Status logs to the ESS.
- If more than one Unite module is connected to the A-bus, exclude the A-bus faults from the Status log for all except one Unite module.
- Program actions in the ESS for the different faults.

The following changes are recommended for improved Activity Logging

- Configure the Unite Modules to forward the activity logs to the ESS.

The following changes are recommended for Synchronized Time:

- Configure the Unite modules to use the ESS as time server.
- Configure the IMS to distribute the time to System 900.

IMS Alternative - Matters of Attention

Pay special attention to the following issues:

- The Central Unit in the system for configuration of the Alarm Module.
- If WinPage is used, it is recommended to replace it with NetPage or to use the messaging tool in the IMS.
- Conference Call is not supported in the IMS, see [5.4 Excluded Functions](#) on page 44.
- Keep the central telephone book on the PC (previously used for 9dMMS) or import the information to the IMS.
- The time in the Radio Exchange can only be synchronized with the DCT 1800 GAP CPU2 version, see [5.4 Excluded Functions](#).
- MailGate - depending on hardware and RAM size, see [5.2 Hardware and RAM size](#) on page 38.

9dMMS Alternative - Recommended Migration Changes

After the migration, the DECT system can have the configuration shown in the figure below, if the 9dMMS is kept.

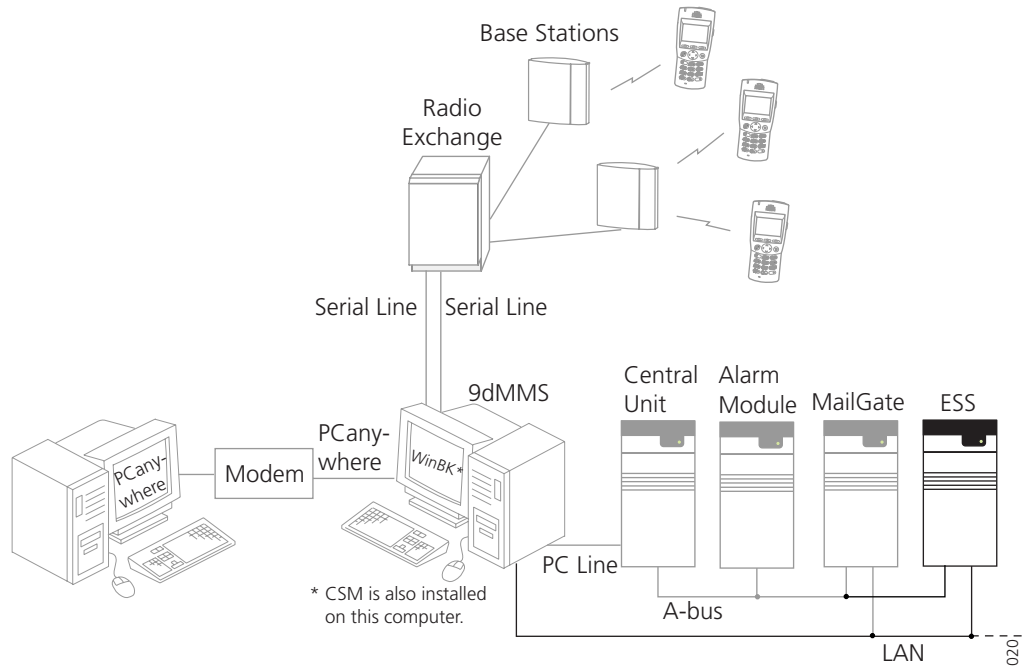


Figure 20. 9dMMS Alternative - DECT System after Migration to Unite

The following general changes are recommended:

- Install an ESS in the system.
- Connect the 9dMMS and the ESS to the LAN.

The following changes are recommended to use Remote Management:

- No changes are required, as the mdb-file in the 9dMMS PC is still used.

The following changes are recommended for improved Message Routing:

- Connect the ESS to the A-bus.
Only one Unite module is required on the A-bus. Additional Unite modules may be connected to the A-bus, if desired.
- Configure the Unite modules to forward UNS queries to the ESS.
- Configure a category in the Central Unit that transmits messages to the ESS.
- Set up a Unite category in the ESS for each System 900 category to use.
- Add relevant Call IDs in the ESS number plan.
- Set diversions for the Call IDs.

The following changes are recommended for improved Fault Handling and Logging:

- Configure the Unite modules to forward the Status logs to the ESS.
- If more than one Unite module is connected to the A-bus, exclude the A-bus faults from the Status log for all except one Unite module.
- Program actions in the ESS for the different faults.

The following changes are recommended for Synchronized Time:

- Configure the Unite modules to use the ESS as time server.
- Configure the IMS to distribute the time to System 900.

9dMMS Alternative - Matters of Attention

Pay special attention to the following issues:

- System 900 category planning. See [Appendix A](#) for information about the required Central Unit software version to handle the category information from the ESS.
- If WinPage is used, it is recommended to replace it with NetPage or to use the WebPage.
- Faults from DCT1800 GAP system will not be listed in the centralised log in the ESS and handling of these faults is not possible.
- Time synchronization between the ESS and the 9dMMS and its connected DECT modules is not supported. The time can only be synchronized with the DCT 1800 GAP CPU2 version, see [5.4 Excluded Functions](#).
- MailGate - depending on hardware and RAM size, see [5.2 Hardware and RAM size](#) on page 38.

5.1.4 Integrated DECT and Paging System Migration to Unite

When messages should be sent to several carriers, for example DECT, Paging and GSM systems, the ESS is essential for the routing of messages.

In this example, the existing system is an integrated paging and DECT system with alarm management. The system consists of System 900 paging modules, DECT modules, Unite modules and an Alarm Module connected to the A-bus.

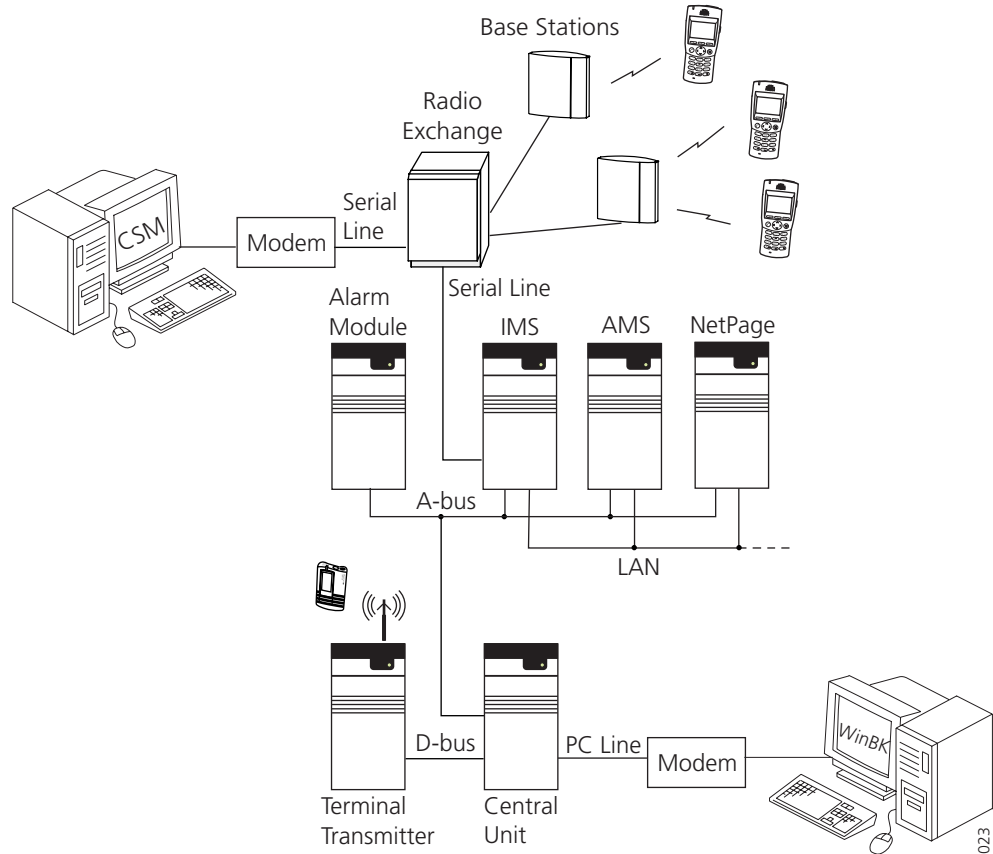


Figure 21. Integrated DECT and Paging System before Migration

The following functions and improvements are made possible through migration to Unite:

- Remote Management of all modules over one modem connection
- Number Planning possibilities
- Improved Message Routing
- Improved System Supervision
- Improved Fault Handling
- Improved Fault Logging
- Synchronized Time
- Multicast possibilities in DECT
- Complete system Broadcast
- Improved Activity Logging
- Improved User Access Administration

Recommended Migration Changes

After the migration, the integrated DECT and paging system can have the configuration shown in the figure below.

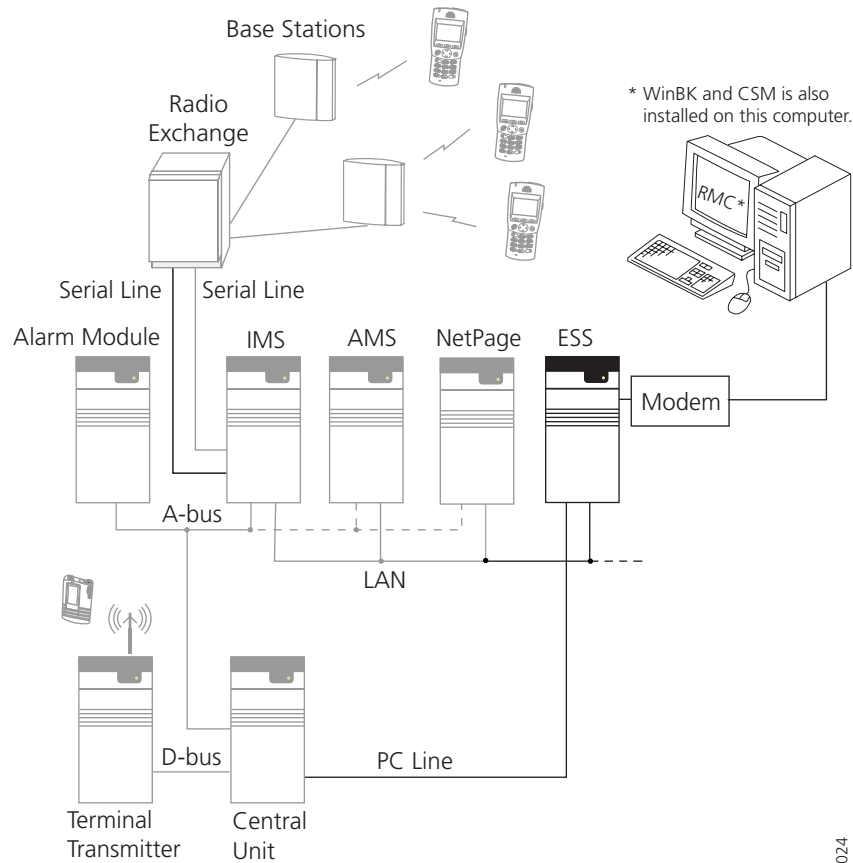


Figure 22. Integrated DECT and Paging System after Migration to Unite

The following general changes are recommended:

- Install an ESS in the system.

The following changes are recommended to use Remote Management:

- Connect a modem to the ESS or move one of the existing modem connections to the ESS and disconnect the other.
- Move the serial line connection for configuration of the DECT/PWT system from the computer to a Unite module (for example the IMS or ESS).
- Connect the PC line on the Central Unit to the ESS, for remote management of System 900 modules.

The following changes are recommended for improved Message Routing:

- Configure Unite modules to forward UNS queries to the ESS.
- Copy the relevant UNS information from the IMS to the ESS. An example is if the default address is not used for the IMS phonebook.
- Configure a category in the Central Unit that transmits messages to the ESS.
- Set up a Unite category in the ESS for each System 900 category to use.
- Add relevant Call IDs in the ESS number plan.
- Set diversions for the Call IDs.

The following changes are recommended for improved Fault Handling and Logging:

- Configure the Unite modules to forward the Status logs to the ESS.
- If more than one Unite module is connected to the A-bus, exclude the A-bus faults from the Status log for all except one Unite module.
- Program actions in the ESS for the different faults.

The following changes are recommended for improved Activity Logging

- Configure the Unite Modules to forward the activity logs to the ESS.

The following changes are recommended for Synchronized Time:

- Configure the Unite modules to use the ESS as time server.
- Configure the IMS to distribute the time to the System 900 modules on the A-bus.

Matters of Attention

Pay special attention to the following issues:

- System 900 category planning. See [Appendix A](#) for information about the required Central Unit software version to handle the category information from the ESS.
- If WinPage is used, it is recommended to replace it with NetPage or to use the messaging tool in the IMS.
- The time in the Radio Exchange can only be synchronized with the DCT 1800 GAP CPU2 version, see [5.4 Excluded Functions](#) on page 44.
- IMS and NetPage - depending on hardware and RAM size, see [5.2 Hardware and RAM size](#) on page 38.

5.1.5 CTS 900 System Migration to Unite

In this example, the existing system is a CTS system with messaging and alarm management. The system consists of CTS modules, Unite modules and an Alarm Module connected to the A-bus on the OSP Central Unit.

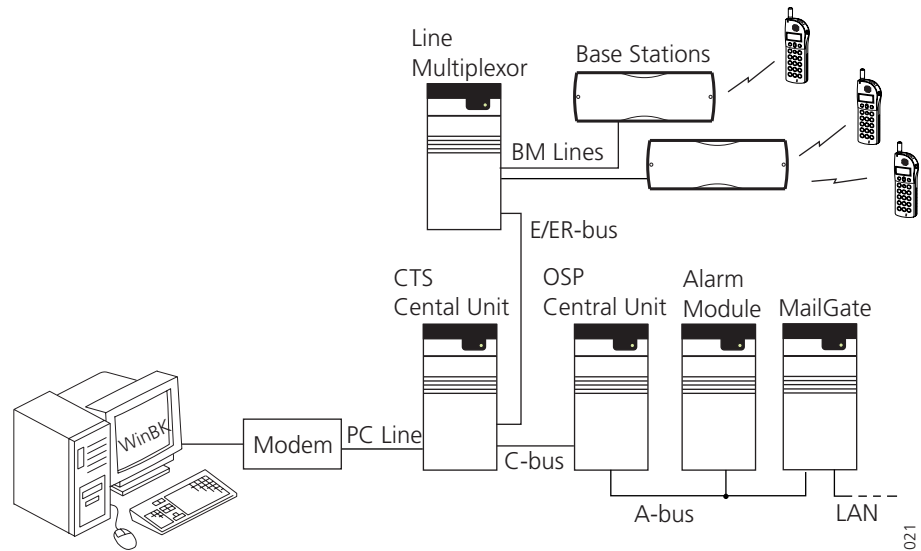


Figure 23. CTS 900 System before Migration

The following functions and improvements are made possible through migration to Unite:

- Smooth migration to DECT telephony by easy expansion with an IMS module.
- Remote Management of all modules
- Number Planning possibilities
- Improved Message Routing
- Improved System Supervision
- Improved Fault Handling
- Improved Fault Logging
- Synchronized Time
- Improved Activity Logging

Recommended Migration Changes

After the migration, the CTS 900 system can have the configuration shown in the figure below.

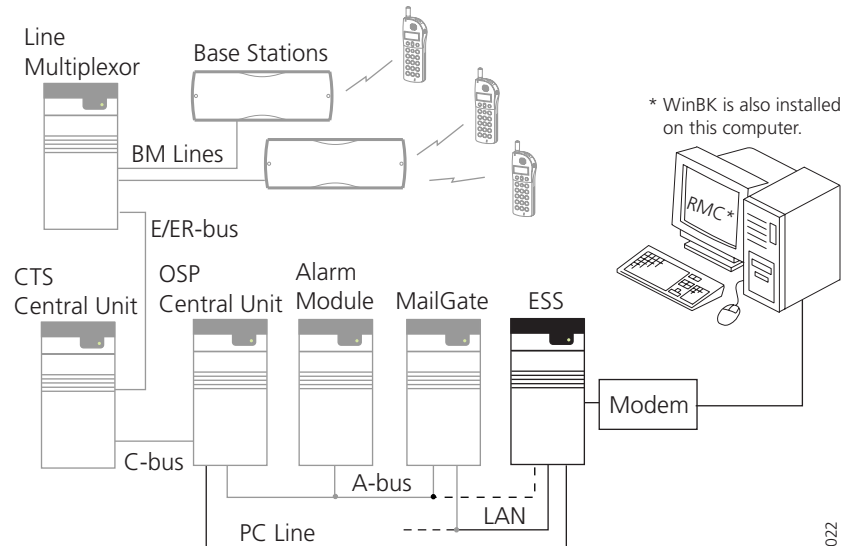


Figure 24. CTS 900 System after Migration to Unite

The following general changes are recommended:

- Install an ESS in the system.

The following changes are recommended to use Remote Management:

- Connect a modem to the ESS or move the existing modem connection to the ESS.
- Connect PC line between a Central Unit and the ESS, for remote management of System 900 modules.

The following changes are recommended for improved Message Routing:

- If the system has no Central Unit with S942C software, install one as the CTS Central Unit has no support for message routing. Connect the Central Units with a C-bus and move the modules from the CTS Central Unit A-bus to the A-bus of the Central Unit with S942C software.
- Configure Unite modules to forward UNS queries to the ESS.
- Configure a category in the Central Unit with S942C software that transmits messages to the ESS.
- Set up a Unite category in the ESS for each System 900 category to use.
- Add relevant Call IDs in the ESS number plan.
- Set diversions for the Call IDs.

The following changes are recommended for improved Fault Handling and Logging:

- Configure the Unite modules to forward the Status logs to the ESS.
- If more than one Unite module is connected to the A-bus, exclude the A-bus faults from the Status log for all except one Unite module.
- Program actions in the ESS for the different faults.

The following changes are recommended for improved Activity Logging:

- Configure the Unite Modules to forward the activity logs to the ESS.

The following changes are recommended for Synchronized Time:

- Configure the Unite modules to use the ESS as time server.
- Configure the ESS to distribute the time to System 900.

Matters of Attention

Pay special attention to the following issues:

- If the CTS 900 system has no Central Unit with S942C software, the recommendation is to add one for message routing purposes.
- System 900 category planning. See [Appendix A](#) for information about the required Central Unit software version to handle the category information from the ESS.
- If WinPage is used, it is recommended to replace it with NetPage.
- MailGate - depending on hardware and RAM size, see [5.2 Hardware and RAM size](#) on page 38.

5.1.6 Integrated teleCARE M and IMS DECT System Migration to Unite

In this example, the existing system is an integrated teleCARE M and a DECT system with speech and interactive messaging. The system consists of DECT modules and teleCARE M modules. For a description of the teleCARE M system, see *System Description, teleCARE M, TD 91867GB*.

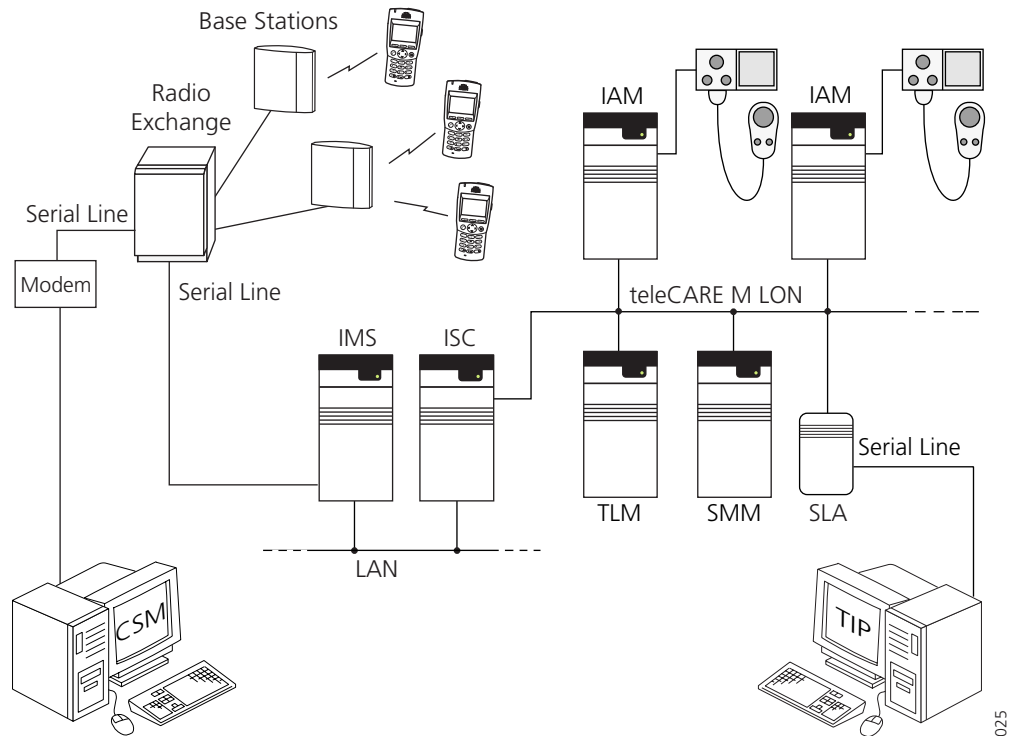


Figure 25. Integrated teleCARE M and DECT System before Migration

The following functions and improvements are made possible through migration to Unite:

- Remote Management of all modules over one modem connection
- Improved Fault Handling
- Improved System Supervision
- Improved Fault Logging
- Synchronized Time

Recommended Migration Changes

After the migration the integrated teleCARE M and DECT system can have the configuration shown in the figure below.

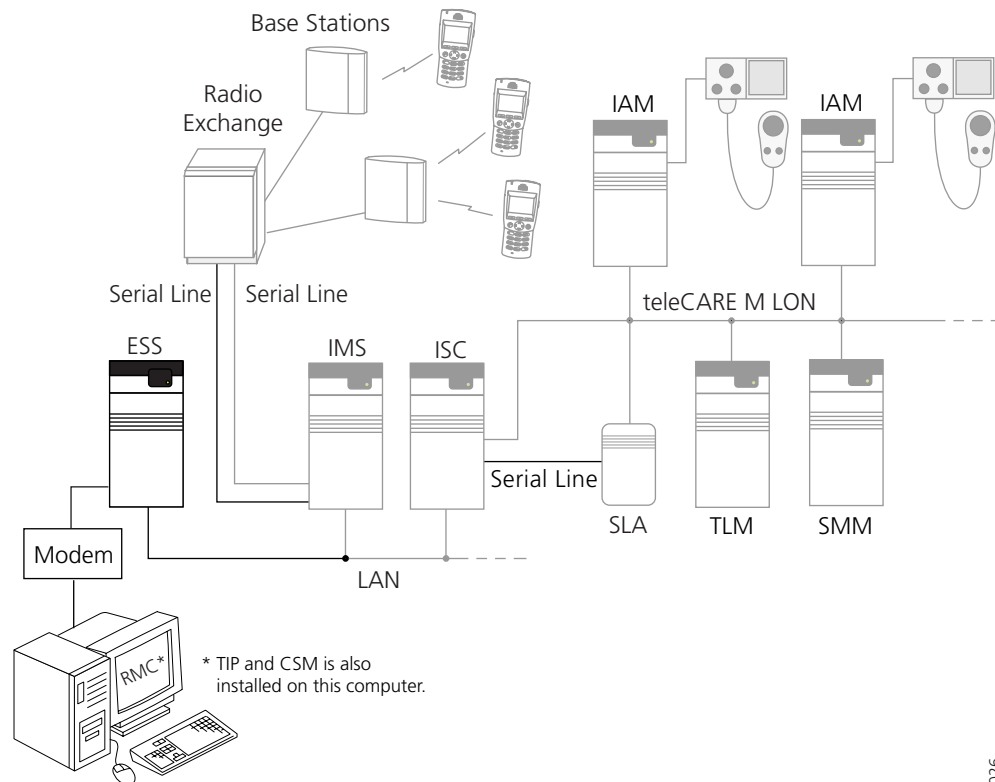


Figure 26. Integrated teleCARE M and DECT System after Migration

The following general changes are recommended:

- Install an ESS in the system.

The following changes are recommended to use Remote Management:

- Connect a modem to the ESS or move the existing modem connection to the ESS.
- Move the serial line connection for configuration of the DECT/PWT system from the computer to a Unite module (for example the IMS or ESS).
- Install TIP on the RMC computer. Copy the existing TIP configuration files.
- Move the serial line for TIP traffic from the computer to a Unite module (for example the ISC, NSS or ESS).

The following changes are recommended for improved Fault Handling and Logging:

- Configure the Unite modules to forward the Status logs to the ESS.
- Program actions in the ESS for the different faults.

The following changes are recommended for Synchronized Time:

- Configure the Unite modules to use the ESS as time server. If the time on the LON bus is set from TIP, the ISC should be used as time server for the ESS.

Matters of Attention

Pay special attention to the following issues:

- The Number Planning, Message Routing, Activity Logging, and User Access Administration functions in the ESS is not supported by teleCARE M, [5.4 Excluded Functions](#) on page 44.
- The time in the Radio Exchange can only be synchronized with the DCT 1800 GAP CPU2 version, see [5.4 Excluded Functions](#) on page 44.
- IMS and ISC - depending on hardware and RAM size, see [5.2 Hardware and RAM size](#) on page 38.

5.1.7 Multi Site System Migration to Unite

In this example, the existing system is a multi site system with two combined security and paging systems interconnected by a C-bus modem connection. The information that are sent over the C-bus are pagings and paging status, including absence and acknowledge.

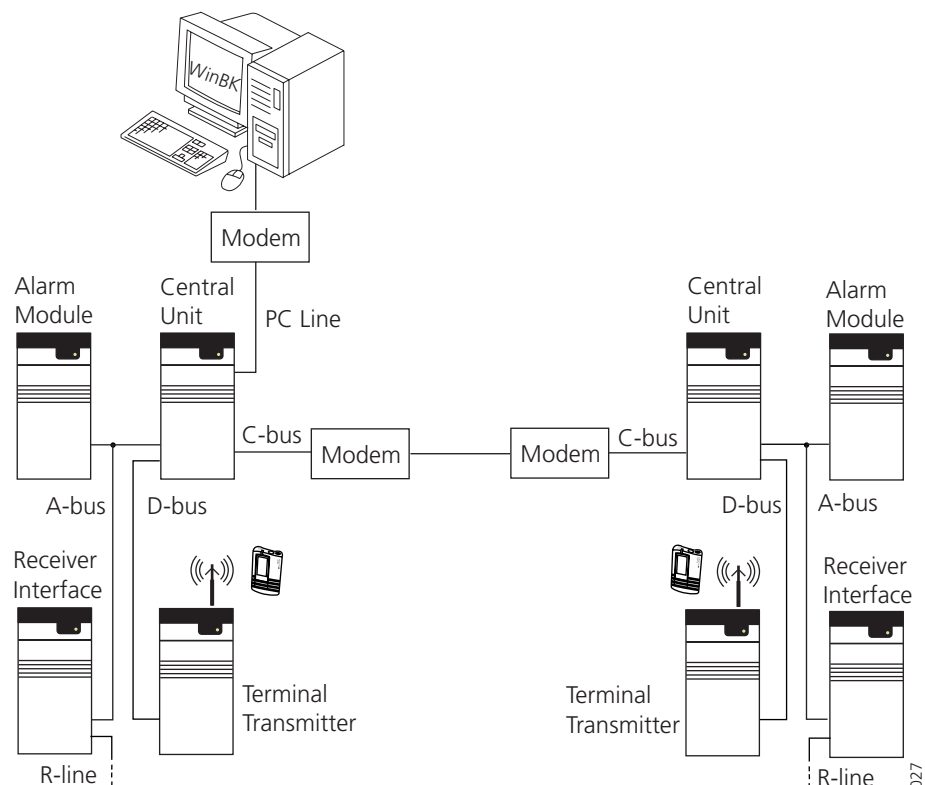


Figure 27. Multi Site System before Migration

The following functions and improvements are made possible through migration to Unite:

- C-bus replacement, see 5.3.3 for functionality not supported by Unite.
- Remote Management of all modules
- Number Planning possibilities
- Improved System Supervision
- Improved Fault Handling
- Improved Fault Logging
- Improved Activity Logging
- Improved User Access Administration
- Synchronized Time

Recommended Migration Changes

After the migration, the multi site system can have the configuration shown in the figure below.

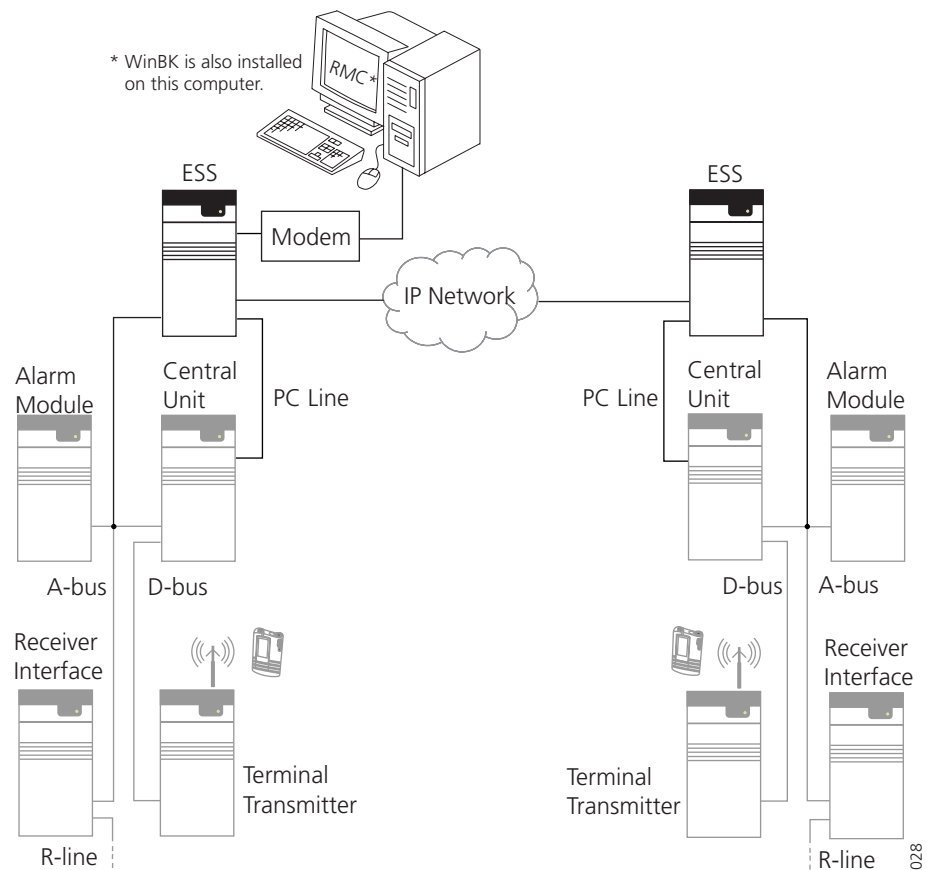


Figure 28. Multi Site System after Migration to Unite

The following general changes are recommended:

- Install an ESS on each site.
- Connect each ESS to the IP network that links the sites.

The following changes are recommended to use Remote Management:

- Connect a modem to the most suitable ESS or move the existing modem connection to the ESS.
- Connect PC line between each Central Unit and its corresponding ESS, for remote management of System 900 modules.

The following changes are recommended for improved Message Routing:

- Select one ESS to be the main ESS, where all UNS and message diversion information is programmed. All other ESS modules will forward all requests to the main ESS.
- Configure all ESS:s to forward UNS queries to the main ESS.
- Configure a category in each Central Unit that transmits messages to the local ESS.
- Set up a Unite category in the main ESS for each combination of Central Unit and System 900 category to use.
- Add relevant Call IDs in the main ESS number plan.
- Set diversions for the Call IDs in the main ESS.
- To make pagers searchable also when there is an IP network connection failure, set up a default category in all ESS:s. In each ESS, set the locally connected System 900 to be the default Unite category. The System 900 category used as default must work properly for all pagers in the system regarding for example display size.

Note: At IP network connection failure, there will be a delay of 5 seconds before the pagers are searched in the system from where the search was initiated, if this was not the system with the main ESS.

The following changes are recommended for improved Fault Handling and Logging:

- Program actions in the ESS for the different faults.

The following changes are recommended for improved Activity Logging

- Configure the Unite Modules to forward the activity logs to the ESS.

The following changes are recommended for Synchronized Time:

- Configure the Unite modules to use the main ESS as time server.
- Configure both ESS:s to distribute the time to their respective System 900.

Matters of Attention

Pay special attention to the following issues:

- System 900 category planning. See [Appendix A](#) for information about the required Central Unit software version to handle the category information from the ESS.
- If WinPage is used, it must be replaced by NetPage to enable remote management.
- It is possible to connect several systems with separate UNS and message diversion configurations. Messages for specific users can be diverted between the systems by setting up diversions to the other systems in their home ESS and adding UNS and diversion information for these users in the ESS of the visited system. However, this requires double administration of the user data.
- Check that Unite supports all C-bus functionality that is used at your particular site. See 5.3.3 for functionality not supported by Unite

5.2 Hardware and RAM size

Depending on available ELISE hardware versions, it might be necessary to upgrade the hardware for; OAS, IMS, NetPage, MailGate, ISC and NSS with a larger size of the RAM memory. The RAM size of the module is printed on a label, which is found inside the module. See also the Data Sheet for each product.

ELISE Versions	RAM size
ELISE:	16 or 32 MB
ELISE2:	32 or 64 MB

5.3 Configuration Guide

5.3.1 Remote Connection

This section describes how to move a modem connection from an existing system to a Unite system. For information about cables and connections and for information about how to install a new remote connection, see *Installation and Operation Manual, Remote Management Client, TD 92256GB*.

For 900 Systems, follow the steps below:

- 1 Move the modem cable from the Central Unit to the ESS.
- 2 Connect PC line between the Central Unit and the ESS.

For DECT systems, follow the steps below:

- 1 Remove the modem from the Radio Exchange or 9dMMS.
- 2 Connect the modem to the ESS.
- 3 Connect a serial line for CSM traffic between the Radio Exchange and the IMS.

5.3.2 Win900 Database Reuse

Number Planning

The following list describes which fields in the ESS GUI that correspond to the columns in the Win900 Database:

Pocket Units Column	ESS Field
Number	Call ID
Category	The System 900 category types can be included in the Service Extension field. See System 900 Category Planning on page 40.
Serial No.	No corresponding field.
Model	No corresponding field. If pagers with different display sizes are used, continue to program System 900 categories in the Central Unit.
Param.	No corresponding field.
Last Name, First Name: ID	The Description field can be used.
ID Code	No corresponding field.
RE Ext. No.	The Number/Address -> Category field can be used.

The Pocket Units information can be manually transferred from the Win 900 database to the ESS number plan. If there is a large amount of information in the Win 900 database, it can be transferred as described in the following steps:

- 1 Export the Pocket Units information from the Win 900 database to a CSV file.
- 2 Export the number plan information from the ESS to a CSV file.
- 3 Open both CSV files, in for example Excel, and copy relevant information from the Win 900 database CSV file into the ESS CSV file. By this procedure, the ESS CSV file retains the correct format.
- 4 Import the updated ESS CSV file to the ESS.

In integrated telephony, security, and paging systems with ESS, it is easy to reprogram the user's Pocket Unit type. If a user changes from, for example, a pager to a DECT handset, the administrator only needs to change the Unite category in the ESS. All other user specific settings are kept.

Group Handling

Normally the ESS is used for definition of groups. More detailed delivery information can then be reported. However, sending messages to group members may be more efficient if groups are set up near the interface, e.g. Central Unit and/or IMS. Multicast and broadcast for DECT must be set up in the ESS.

Message Diversion

Message routing in ESS makes diversions of messages to different types of destinations possible. The messages can be programmed to conditionally send messages on sequence or in parallel depending on availability status. For more information about Message Routing, see *Function Description, Number Planning and Message Routing in Unite, TD 92254GB*.

The following list describes which diversion condition in ESS that correspond to the diversion conditions in Pocket Units:

Description	Condition in ESS	"If Absent" Checkbox in Pocket Units
Unconditional forwarding.	Parallel destinations on top level	Unchecked
Diversion when the Pocket Unit is placed in the charger or in any other way set to absent.	"If absent"	Checked
Diversion when the Pocket Unit is not found in the system.	"If out of range"	Not available in Pocket Units
Diversion when the Pocket Unit is absent, out of range, or for any other reason not reached.	"If not reachable"	Not available in Pocket Units

To use message routing, the Call Diversion database must be manually entered into the ESS. There is no support for export of Call Diversion information from the Win900 database or import to the ESS.

Telephony Call Diversion

The ESS has no support for diversion of telephone calls or other PBX functions so the recommendation is to continue with the same handling as before the migration.

System 900 Category Planning

For systems without message routing and for Call IDs that shall not use message routing, the category planning can continue to be handled in the Central Unit of the carrier systems. However, for the Call IDs to use message routing, the categories in the Central Unit must be modified and the categories must be redefined in the ESS. For more information about System 900 category, see *System Planning, On-site Paging System, TD 90202GB*.

Note: Careful category planning is necessary to avoid loops of messages between the System 900 and Unite.

The following steps are recommended in the Central Unit:

- 1 Use PCPAR to make a System 900 category. In PCPAR, select "parameters for RX-category A-J" and select an unused category. Set the parameters as follows:
 - Enter the ESS bus address in "Send pagings to other module"
 - Set "Send pagings to C-bus" to "No"
 - Set "Send pagings to PC-line" to "No"
 - Set "900-Sequence 0-6" to "Not Permitted" to avoid loading the system
 - Set "Send pagings to storage rack" to "No"

PARAMETERS FOR RX-CATEGORY A - J		03A0:	...
01. Category A	Max. display length	0560:	16
02. Category B	Character set	0561:	910 character set
03. Category C	Add call diversion display message	0563:	Never.
04. Category D	Type of 900 code for paging transmissions	0564:	900 code, not only
05. Category E	Send pagings to other module	0565:	00H 0AH
06. Category F	Send pagings on C-bus	0567:	No
07. Category G	Send pagings on PC-line	0568:	No
08. Category H	Receivers with speech frequency.	0569:*	No
09. Category I	On which transmitter sequences is ...		
10. Category J	900-Sequence 0	056A:	Not Permitted.
	900-Sequence 1	056B:	Not Permitted.
	900-Sequence 2	056C:	Not Permitted.
	900-Sequence 3	056D:	Not Permitted.
	900-Sequence 4	056E:	Not Permitted.
	900-Sequence 5	056F:	Not Permitted.
	900-Sequence 6	0570:	Not Permitted.
	800-Sequence	0571:	Not Permitted.
	Add real time display message	0573:	Never add
	Direct one-button calls to module	0574:	FFH FFH FFH
	Direct two-button calls to module	0577:	FFH FFH FFH
	CTS dual mode paging	057A:	No dual mode
	Pocket receivers display optimization	057B:*	912/922/910D
	Word Wrap (hyphenation)	057C:	No
	Send pagings to storage rack	057D:	No

Figure 29. Set up of a System 900 category for Unite in PCPAR

- 2 Use Pocket Units to change the category for the Call IDs that shall use message routing.

The following steps are recommended in the ESS:

- 3 Use the ESS GUI to set up a Unite category for each combination of Central Unit and used System 900 category. Each Unite category is used for redefinition of different Call ID's categories to a System 900 category with appropriate characteristics for usage in the System 900 system.

For each Unite category, enter a Category Description, the IP address of the Unite module connecting the Central Unit, the Service "S900" and the Service Extension "category=X", where X is the character A to J of the appropriate System 900 category. See [figure 30](#) for an example on this.

- Use the ESS GUI to add new Call IDs for each Call ID or each range of Call IDs that shall use message routing and select the Unite category with the appropriate System 900 category for the Call ID. This category definition will override the category definition that was made for the number in the Central Unit.

Alternatively, all numbers in the System 900 can be redefined in the ESS to simplify future use of diversions.

Example

An existing System 900 uses category A for 912T pagers and category B for 922K transceivers. A couple of pagers from each category shall use message routing. A new category, for example J, that transmits all messages to the ESS is created in PCPAR. The pagers to use message routing are given the new category in Pocket Units.

Two Unite categories are set up in the ESS GUI:

- “912T Pager” defined by the IP Address of the Unite module connected to the A-bus, the Service “S900” and the Service Extension “category=A”.
- “922K Transceiver” with the same IP Address and Service and the Service Extension “category=B”. See [figure 30](#).

Category Setup

Category Description	IP Address	Service	Service Extension	Properties
GSM	172.20.9.125	OAJ		<input type="button" value="Edit"/> <input type="button" value="X"/>
912T Pager	172.20.9.133	S900	category=A	<input type="button" value="Edit"/> <input type="button" value="X"/>
<input type="text" value="922K Transceiver"/>	<input type="text" value="172.20.9.133"/>	<input type="text" value="S900"/>	<input type="text" value="category=B"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="button" value="Save"/> <input type="button" value="Cancel"/>
<input type="button" value="— Fetch information from System Overview"/>				

Figure 30. Unite Category Setup Example

A new Call ID is added for each pager to use message routing and the appropriate Call ID, Description, Number and the “912T Pager” or “922K Transceiver” Unite category are entered. See [figure 31](#).

Add Call IDs to Number Plan

Call ID	Description	Number/Address	→ Category
<input type="text" value="7412"/>	<input type="text" value="John's pager"/>	<input type="text" value="7412"/>	→ <input type="text" value="912T Pager"/> <input type="button" value="X"/>
<input type="button" value="Add row"/> <input checked="" type="radio"/> Empty <input type="radio"/> Copy previous <input type="radio"/> Increment previous <input type="button" value="Save"/> <input type="button" value="Cancel"/>			

Figure 31. Add Call ID Example

5.3.3 Consideration when Removing System900 C-bus

The following functionality is not supported by Unite:

- System service with system survey, synchronized number plan, parameter and software update, pocket unit information etc.
- All kind of paging between central units.
Pagings can be transferred to another system by Unite, but they will be transmitted as a new paging. The paging status for that new paging will be reported back to the first central unit. Since the running numbers will be different for each system, transmitters and receivers must always be within the same system to be able to get paging acknowledge to work.
- Absence information shared between paging central units.

- Action on module status handled by other paging system central unit. Module status can be sent to Unite and actions can be performed by the ESS. It is however not possible to transfer module status to a central unit in another system.
- All kind of CT1 telephone call connections between central units.
- CT1 dual-mode paging.
- CT1 absence handling (sent to T942 Central Unit)
- Speech pagings between central units.

5.3.4 Message Routing

Forwarding UNS Queries to the ESS

To configure the Unite modules to forward UNS queries to the ESS, follow the steps below.

- 1 In the System Setup for the Unite module, select "UNS" from the left menu.
- 2 Select "Setup".
- 3 Set the operating mode to "Forwarding" and enter the IP address of the ESS.

5.3.5 Fault Handling and Logging

Forwarding Status Logs to the ESS

To configure a Unite module to forward the status logs to the ESS, follow the steps below:

- 1 In the System Setup for the Unite module, select "Logging">"Status logs".
- 2 In the "Module log distribution" GUI that appears, enter the IP address of the ESS and the service "FaultHandler" in the "Destinations" field on the format xxx.xxx.xxx.xxx/FaultHandler
- 3 Click "Activate".

Excluding A-bus Faults from the Status Log

To configure a Unite module to exclude A-bus faults from the status logs, follow the steps below:

- 1 In the System Setup for the Unite module, select "System 900" under the "900 Interface" heading.
- 2 In the "System 900 Interface" GUI that appears, select "No" from the "Send module status from A-bus to UNITE?" drop-down list.
- 3 Click "Activate".

5.3.6 Activity Logging

To configure a Unite module to forward the activity logs to the ESS, follow the steps below:

- 1 In the System Setup for the Unite module, select "Logging">"System Activity log".
- 2 In the "Module log distribution" GUI that appears, enter the IP address of the ESS and the service "ActivityLog" in the "Destinations" field on the format xxx.xxx.xxx.xxx/ActivityLogger
- 3 Click "Activate".

This can also be done in the ESS *System Overview* page where there is a link to the System Setup for Unite modules, i.e. it is possible to forward the activity logs for all modules in

one place. For more information, see the chapter *Changing the Supervision Settings* in the *Installation and Operation Manual Enhanced System Services, ESS, TD 92253GB*.

5.3.7 Time Synchronization

Unite Modules

To configure a Unite module to use the ESS as time server, follow the steps below:

- 1 In the System Setup for the Unite module, select "Settings" under the "Time" heading.
- 2 In the "Time Settings" GUI that appears, set "Time source" to "Time server" and enter the IP address of the ESS in the "Time server address" field.
- 3 Click "Activate".

System 900

To configure a Unite module to distribute the time to System 900, follow the steps below:

- 1 In the System Setup for the Unite module, select "Settings" in the "Time" heading.
- 2 In the Time Settings GUI that appears, click "Setup System 900 time".
- 3 In the System 900 Interface GUI that appears, set "Set time in system 900" to "Yes".
- 4 Click "Activate".

5.4 Excluded Functions

The following list describes which functions in the System 900 and DECT systems that are not available in Unite:

Function	Description
Conference Call	It is not possible to set up a cordless telephone conference for a group of users. Conference call will be supported in a future release of the IMS.
InfoPage/Mailbox	Unite does not support this paging functionality.
Absent Information Overview	There is no collected view of all absent Pocket Units in the system.
System 900 Module Overview	The ESS can supervise the Unite modules, but there is no collected view of the modules in other systems.
WinPage	WinPage cannot be used when Remote Management via the ESS is used.
Synchronized Time of DECT system	Synchronized Time in DECT system is only supported in the Radio Exchange DCT 1800 GAP CPU2, Ver. R2A.
Number Planning and Message Routing, Activity Logging and User Access Administration in a teleCARE M system	Number Planning and Message Routing, Activity Logging and User access administration functions are included in the teleCARE M system. Currently the teleCARE M system does not support these functions in the ESS.

6 Related Documents

Data Sheet, Enhanced System Services	TD 92250GB
Function Description, Number Planning and Message Routing in Unite	TD 92254GB
Function Description, Unite Group Handling	TD 92283GB
Function Description, Remote Management	TD 92257GB
Function Description, System Supervision and Fault Handling in Unite	TD 92252GB
Function Description, Activity Logging In Unite	TD 92341GB
Function Description, MailGate	TD 92026GB
Function Description, GSM/SMS Application on the Open Java Server	TD 92187GB
Installation and Operation Manual, Enhanced System Services	TD 92253GB
Installation and Operation Manual, Remote Management Client	TD 92256GB
Installation and Operation Manual, Integrated Message Server	TD 92161GB
Installation and Operation Manual, Alarm Management Server	TD 92047GB
Installation and Operation Manual, NetPage	TD 92198GB
Installation and Operation Manual, Open Access Server	TD 92204GB
Installation and Operation Manual, Open Java Server	TD 92185GB
Installation Guide, ELISE2	TD 92232GB
Installation Guide, teleCARE M	TD 91868GB
Installation Guide, T942C- and T942C/2 Central Unit	TD 91684GB
Setup and Application Guide, teleCARE M	TD 91791GB
Setup and Application Guide, Nurse Station Server	TD 92214GB
System Description, Unite	TD 92243GB
System Description, teleCARE M	TD 91867GB
System Planning, On-site Paging System	TD 90202GB

Appendix A: Required Software Versions

This section lists which module software versions that are required to handle different functions and improvements. Depending on functionality different licence options are required for the ESS, see *Data Sheet, Enhanced System Services, TD 92250GB*.

Remote Management

- ESS software version 1.03 or later
- RMC software version 1.00 or later
- SIM Card Programmer software version 3.0b
- SLA software version 2.3 or later
- TIP software version 1.2.66 or later

To be able to use the RS232 ports on other Unite modules for remote management connections, the following software versions are required:

- AMS software version 5.01 or later
- IMS software version 2.33 or later
- ISC software version 3.01 or later
- MailGate software version 2.10 or later
- NetPage software version 3.50 or later
- NSS software version 3.00 or later
- OAS software version 3.50 or later
- OJS software version 2.10 or later
- XGate software version 1.00 or later

Number Planning

- ESS software version 1.00 or later
- S942C Central Unit software version 6.11 or later
- S942CEN Central Unit software version 4.01 or later

Improved Message Routing

- AMS software version 5.01 or later
- ESS software version 1.00 or later
- IMS software version 2.32 or later
- MailGate software version 2.10 or later
- NetPage software version 3.50 or later
- OAS software version 3.50 or later
- OJS software version 2.10 or later
- S942C Central Unit software version 6.11 or later
- S942CEN Central Unit software version 4.01 or later
- XGate software version 1.00 or later

DECT Multicast/Broadcast

- ESS software version 1.10 or later
- DCT 1800 GAP Stand alone system with CPU2 software version R2A or later
- DCT 1800 GAP EMN with CPU2 software version R1A or later
- 9d23 MkII Cordless Handsets (all versions except 9d23 Talker) - Software version 2.0 or later.
9d23MkII can be used in the system but the cordless phone does not have support for multicast or broadcast.
- DECT Handset 9d24 software version 3.00 or later
- IMS software version 2.40 or later (EMN, broadcast, require software version 2.60)

Note: Broadcast and Multicast Groups are not supported by PWT systems.

Improved System Supervision

- AMS software version 5.01 or later
- ESS software version 1.00 or later
- IMS software version 2.32 or later
- ISC software version 3.01 or later
- MailGate software version 2.10 or later
- NetPage software version 3.50 or later
- NSS software version 3.00 or later
- OAS software version 3.50 or later
- OJS software version 2.10 or later
- XGate software version 1.00 or later

Improved Fault Handling

- AMS software version 5.01 or later
- ESS software version 1.00 or later
- IMS software version 2.32 or later
- ISC software version 3.01 or later
- MailGate software version 2.10 or later
- NetPage software version 3.50 or later
- NSS software version 3.00 or later
- OAS software version 3.50 or later
- OJS software version 2.10 or later
- Radio Exchange DCT 1800 GAP software version R1E or later
- TIP software version 1.2.66 or later
- SLA software version 2.3 or later
- SMM software version 1.11 or later
- XGate software version 1.00 or later

Improved Fault Logging

The same requirements as for improved Fault Handling.

Improved Activity Logging

- AMS software version 5.20 or later
- ESS software version 2.00 or later
- IMS software version 2.60 or later
- MailGate software version 2.20 or later
- NetPage software version 3.60 or later
- OAS software version 3.60 or later
- OJS software version 2.20 or later
- XGate software version 1.00 or later

Improved User Access Administration

The same requirements as for improved Activity Logging.

Synchronized Time

- AMS software version 5.01 or later
- ESS software version 1.00 or later
- IMS software version 2.32 or later
- ISC software version 3.01 or later
- MailGate software version 2.10 or later
- NetPage software version 3.50 or later
- NSS software version 3.00 or later
- OAS software version 3.50 or later
- OJS software version 2.10 or later
- Radio Exchange DCT 1800 GAP CPU2 software version R2A
- XGate software version 1.00 or later

C-bus Replacement

- ESS software version 1.00 or later

Appendix B: IP Ports

This appendix describes which IP ports that are used for communication in the Unite system.

Common ports

The ports below are used for communication to and from all Unite modules:

Port	Application or unit	Transport Protocol
22	SSH (Secure Shell)	TCP
80	Web configuration of the module	TCP
123	Network Time Protocol (NTP)	UDP
3217	Communication between Unite modules	UDP
10101	Remote connection - TCP and RS232 conversion	TCP

The modules also responds to ICMP packets (ping requests).

Alarm Management Server (AMS)

The appearance of the AMS log is determined by an XSL stylesheet. The stylesheet can be downloaded from the FTP area on the AMS. A modified stylesheet can be uploaded to the FTP area.

Port	Application or unit	Transport Protocol
20	File Transfer Protocol (FTP)	TCP
21	File Transfer Protocol (FTP)	TCP

Enhanced System Services (ESS)

The ESS includes a server that handles remote access.

Port	Application or unit	Transport Protocol
20	File Transfer Protocol (FTP)	TCP
21	File Transfer Protocol (FTP)	TCP
25	Simple Mail Transfer Protocol (SMTP)	TCP
53	Domain Name Server (DNS)	UDP
113	Authentication	TCP
162	Simple Network Management Protocol (SNMP)	UDP
10103	Remote connection - Communication between Remote Access Client and Remote Access Server	TCP
10130	Applet communication (Activity Log Viewer)	TCP

Additional ports can be opened. It is possible to choose any port number higher than 1024. For security reason a switch on the hardware has to be turned on to be able to open additional ports in the firewall.

The ESS forwards ICMP packets (ping requests) and also permits traffic to be forwarded to the requested IP address on ports 80 and opened ports.

Integrated Message Server (IMS)

The IMS communicates on different ports depending on PBX.

Port	Application or unit	Transport protocol
1814	MD110	TCP
1815	MD110	TCP
10089	Ascotel I6	UDP
2555	Alcatel OmniPCX Enterprise	TCP
1200	Alcatel CMP board (Also called Mobile Worker Protection Gateway board (MWP GW board))	UDP
2775	DECT Phonebook Service - Short Message Peer to Peer (SMPP)	UDP
1321	OAP Server	TCP
1322	OAP Server	TCP

Internetworking System Controller (ISC)

The ISC communicates directly with the messaging systems, for example System 900 and a DECT system.

Port	Application or unit	Transport protocol
10050	Messaging interface	UDP

MailGate

MailGate can receive and send e-mail. MailGate has to be able to authenticate itself when communicating with an e-mail server.

Port	Application or unit	Transport protocol
25	Simple Mail Transfer Protocol (SMTP)	TCP
53	Domain Name System	UDP
113	Authentication	TCP

NetPage

The standard GUI for NetPage includes an applet that gives delivery information for transmitted messages. The user interface can be customised, and therefore the GUI is stored on an FTP area that can be accessed.

Port	Application or unit	Transport Protocol
20	File Transfer Protocol (FTP)	TCP
21	File Transfer Protocol (FTP)	TCP
5891	Applet communication (Delivery information)	TCP

Nurse Station Server (NSS)

The NSS application uses an applet as call organiser. Two NSS:s within a system can communicate with each other. It is also possible to upload information, for example ward maps, to the FTP area.

Port	Application or unit	Transport Protocol
20	File Transfer Protocol (FTP)	TCP
21	File Transfer Protocol (FTP)	TCP
7797	Applet communication (Call organiser)	TCP
10057	Communication with other NSS modules	UDP
10058	Communication with other NSS modules	UDP

Open Access Server (OAS)

The OAS is a server for client applications built with the Open Access Toolkit (OAT).

Port	Application or unit	Transport protocol
10072	Communication to/from applications built with OAC	UDP

Open Java Server (OJS)

The OJS is a server for customised Java applications. The application is uploaded to the OJS with help of FTP. The applications can communicate with other applications over the LAN.

Port	Application or unit	Transport Protocol
20	File Transfer Protocol (FTP)	TCP
21	File Transfer Protocol (FTP)	TCP
1024-	Communication to/from the Java applications	TCP
12000-12999	Communication to/from the Java applications	UDP

XGate

The XGate handles different types of protocol. It receives input from other Unite modules or from external equipment.

Port	Application or unit	Transport protocol
20	File Transfer Protocol (FTP)	TCP
21	File Transfer Protocol (FTP)	TCP
22	Secure Shell (SSH)	TCP
25	Simple mail Transfer Protocol (SMTP)	TCP
53	Domain Name Server (DNS)	UDP
113	Authentication	TCP
10132	Applet communication (Event Assignment)	TCP
10133	Applet communication (Duty Assignment)	TCP
10134	Applet communication (Access Rights)	TCP
10135	Applet communication (Action Handler)	TCP

The IP-ports that opens for the Ascii Input Module are chosen and set up in the System Setup > Input Interfaces > Ascii. Any port number can be chosen as long as it is not used by another application or unit.

Appendix C: Services

The services in Unite are used to address a message to a component within a module. Which services that are available for a module, can be found in the System Overview in the ESS. Note that the service is case sensitive and has to be written exactly as in the table below.

Service Name	Description
S900	Messages that should be transmitted on the modules A-bus
DECT	Messages that should be transmitted to the DECT/PWT system via the IMS.
Phonebook	Service that handles requests to the Central phonebook (this can be located on IMS or MS Windows desktop).
mailgate	Messages that should be transmitted as an e-mail via the MailGate.
OAS	Messages that should be transmitted to an OAT application via the OAS.
OAJ	Messages that should be handled by an OJS application
OAP	Messages that should be transmitted to an OAP application via the IMS.
isc	Messages that should be handled be the ISC
ESPA	Messages that should be handled be the ISC
EventHandler	Messages that should be handled by the AMS/XGate
TaskAssignment	Service in the XGate that handles actions and duty assignments.
FaultHandler	Service that handles the status log (typically located on ESS)
ActivityLogger	Service that handles application system activity logs (typically located on ESS).
Printer	Messages that shall be printed on a connected serial printer (typically located on ESS).
WLAN	Messages that should be transmitted to the WLAN system via the IMS-IP.
ECG	Messages that should be transmitted to an external carrier gateway. Typically for Cisco IP phones.