System Description
Ascom Unite System
About this document

A Unite system can be built by stand-alone Elise modules only, for example Unite CM, or by a combination of Elise modules and the Ascom Unite Application Manager (Unite AM).

This document is intended to provide a general overview of a Unite system built by stand-alone Elise modules. For systems built by a combination of Elise modules and the Unite AM, please refer to System Description, Ascom Unite Messaging Suite TD 92980EN.

Cross-references in the document

Throughout this document you will find cross-references in the text which indicate further details that can be found in other sections of this document. The cross-references are colored blue and linked to the relevant place in the document (example: see chapter 7. Document History on page 25). Positioning your cursor over the cross-reference text and clicking the left mouse button will take you to the relevant section.
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1. Introduction

Ascom Unite is a communication platform that links Ascom messaging systems with mission-critical work processes and tasks. Depending on customer requirements, it provides the possibility to tailor customized client solutions with appropriate applications and features for different types of key segments, such as healthcare, manufacturing industries, secure establishments, retail and hotels.

**Designed to Communicate**

High-performance, flexible and reliable communication is of paramount importance in distributed messaging systems. Communication is the central component to provide the necessary flexibility and safety of personnel, patients, equipment and to minimize production stops.

In addition to all alarm, voice and messaging features, Ascom Unite has a centralized web-based GUI for device management which allows you to update and configure devices in the system over the air.

Applications and feature levels in the Unite system are controlled by different licenses.

1.1 Abbreviations and Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-bus</td>
<td>Serial communication between modules in the Ascom Paging system</td>
</tr>
<tr>
<td>DECT</td>
<td>Digital Enhanced Cordless Telecommunications: Global standard for cordless telephony.</td>
</tr>
<tr>
<td>Elise</td>
<td>Embedded Linux Server: Hardware platform used for Unite modules.</td>
</tr>
<tr>
<td>ESPA 4.4.4</td>
<td>A message-based serial protocol intended for communication with external equipment. Built upon the ISO1745 transport specification.</td>
</tr>
<tr>
<td>GSM</td>
<td>Global System for Mobile communication</td>
</tr>
<tr>
<td>GUI</td>
<td>Graphical User Interface</td>
</tr>
<tr>
<td>IM</td>
<td>Interactive Messaging: A client application can have a two way communication in plain language with a user of a handset.</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol: Global standard that defines how to send data from one computer to another over the Internet.</td>
</tr>
<tr>
<td>Java</td>
<td>Network-oriented programming language invented by Sun Microsystems.</td>
</tr>
<tr>
<td>OAP</td>
<td>Open Access Protocol: XML-based protocol via TCP/IP used as an interface between external applications and Unite (for example DECT-systems and Ascom Paging system).</td>
</tr>
<tr>
<td>PBX</td>
<td>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.</td>
</tr>
<tr>
<td>SMS</td>
<td>Short Messaging Service: Global protocol for sending messages between cordless handsets.</td>
</tr>
<tr>
<td>SMTP</td>
<td>Simple Mail Transfer Protocol: Global IP protocol used when sending and receiving e-mail.</td>
</tr>
</tbody>
</table>
### 1. Introduction

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TAP</strong></td>
<td>Telocator Alphanumeric Protocol: Industry standard protocol for the input of paging request.</td>
</tr>
<tr>
<td><strong>TCP</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>WLAN</strong></td>
<td>Wireless Local Area Network (LAN).</td>
</tr>
<tr>
<td><strong>XML</strong></td>
<td>eXtensible Markup Language: Standard language used to store and share information.</td>
</tr>
</tbody>
</table>
2. Ascom Unite Platform

The Ascom Unite platform is built by Unite modules with different types of customer applications and features for system configuration and administration. Unite modules are equipped with interfaces to Ascom Messaging systems and to external systems.

Figure 1. Ascom Unite platform

The Unite modules are built upon the Elise hardware, which is an embedded Linux server and the basis for integrations and messaging.

Every Unite module has a web based Graphical User Interface (GUI) for configuration and operation.

2.1 Logical Structure

The Unite platform can be divided into three logical layers; Customer applications, System services and Carrier systems.

Figure 2. Logical structure of the Unite platform

The customer applications are Linux-based client applications.
2. Ascom Unite Platform

The system services handle routing of messages, system supervision, logging and address resolving etc.

The Carrier system interfaces handle data bearer dependent communication with mobile terminals, input/output hardware and other systems. There can be a range of different carrier systems, all from small simple devices connected directly to the backbone, to complex interacting subsystems.

2.2 The Unite Protocol

The Unite Protocol is built in three layers on top of TCP/IP and is an encrypted, proprietary protocol.

*Figure 3. Unite protocol*

- **Transport Layer (Unite Transport Protocol, UTP)**
The UTP layer is a low-level transport layer that enables a safe encrypted transmission channel between the Unite components.

- **Mobility Layer (Unite Service Delivery, USD)**
The USD layer is a high transport layer that handles the addressing and delivery of messages. It contains unavailability, message diversion and common delivery status.

- **Application Layer (Unite Service Protocol, USP)**
This layer defines the Unite services and their contents:
  - Messages to users and event communication, for example paging, interactive messages, input events, output actions etc.
  - Services registration and supervision communications, for example presence status, availability profiles, personal mobility services. The availability service handles information such as absence handling, spontaneous availability reports, availability status requests and answers.
  - System internal communications, for example system control, data updates, error handling.
3. **Unite Building Blocks**

Each Unite module is a specific combination of different software components running on a single hardware module.

Depending on customer requests, the module can be licensed to have a certain level of functionality.

The following types of Unite modules exist:

- **Carrier system interfaces:**
  - Unite Connectivity Manager (Unite CM)
  - Integrated Wireless Messaging & Services (IMS3)
  
  The carrier system interfaces connect to Ascom messaging systems and to external customer systems.

- **Healthcare system Interfaces:**
  - Mobile Monitoring Gateway (MMG)
  - Cardiomax
  - teleCARE IP System Manager (NISM2)
  
  The healthcare system interfaces connect to different nurse call- and patient monitoring systems.

- **Serial Interface:**
  - Unite Serial Interface (USI)
  
  In existing Ascom Paging systems, it adds the possibility to receive pagings from external equipment and send the pagings to handsets in the systems.

3.1 **Carrier System Interfaces**

The carrier interfaces adapt the Unite system to different communication systems such as radio technologies and PBX manufactures.

Two Unite modules, Unite CM and IMS3, can be used as interface modules to different carrier systems. Both modules have applications for messaging and for device management and can interface with Ascom systems, i.e. DECT, IP-DECT, VoWiFi and Paging.

The main difference between them, is that IMS3 is intended for small customer sites and lacks features, such as system supervision and advanced alarm handling, which are included in Unite CM, see 3.1.3 **Unite CM / IMS3 Feature Matrix** on page 11.

IMS3 and Unite CM are built on the Elise3 hardware. Each module can be used independently but also work in combination with other Unite modules or System 900 modules.
3.  Unite Building Blocks

3.1.1  Ascom Unite Connectivity Manager – Unite CM

The Unite CM is used for messaging and advanced alarm handling. It is also used for the administration of users and groups, for supervision, activity logging and fault logging etc. The Unite CM can also be used in combination with a Unite Application Manager (Unite AM), refer to System Description, Ascom Unite Messaging Suite TD 92980EN.

Figure 4. The start page of a full licensed Unite CM

Two Unite CM variants exists; a Standard variant that supports all features, and a limited Lite variant. The Standard and Lite variant use different Elise3 hardware. For specifications, refer to Data Sheet, Unite Connectivity Manager TD 92739EN.

Table 1. Depending on license, the functions below are included in the Unite CM module.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Logging</td>
<td>Logs of various activities in the Unite system, for example activities such as messaging, alarm, location, responses and status logs are stored in Unite CM.</td>
</tr>
<tr>
<td>Action Assignment</td>
<td>An application for configuration of actions related to a specific event and for the administration of events.</td>
</tr>
</tbody>
</table>
### 3. Unite Building Blocks

**Advanced Event Handler**
Actions on incoming events such as mobile data, alarm, activation of an input, etc. can be set. The Event Handler converts events to actions in the Unite system, such as sending messages, activating outputs or forward to other applications, e.g. Action Assignment. It is used to integrate Nurse Call Systems, Patient Monitoring Systems, Laboratory Information Systems, Hospital Information Systems, Radiology Information System, Building Management Systems, Security Management Systems, etc.

**Alarm Management**
The Event Handler includes a presentation server that can distribute information to several Alarm Management Clients (AMC) running on Windows PC.

**Ascii interface**
The Ascii interface can interpret alarm and messages from different systems, receive messages via serial ports and network connections, and enable access to external servers over HTTP.

**Basic Alarm Handler**
An alarm action can be triggered by alarms and data from handsets in the messaging system. Activated internal inputs, or a module connected to the A-bus in the Paging system, can also be used as a trigger.

As a reaction to the incoming information, messages can be sent to handsets and it is also possible to activate outputs on Unite CM or other modules connected to the A-bus.

**Basic Web Messaging**
A simple messaging tool used for sending text messages from a web browser to handsets.

**Carrier interface: DECT / IP-DECT**
Interface to add-on DECT or IP-DECT radio exchange

**Carrier interface: WLAN**
Interface to add-on messaging in the VoWiFi system

**Carrier interface: 900**
Interface to Ascom Paging System via the A-bus connection.

**Central Phonebook**
Users can search and find phonebook entries from a handset in the system.

**Cisco interface**
Unite CM can interact with the Cisco Unified Communications Manager (CUCM) and the Cisco IP phones.

**Device Management**
The included Device Manager is used for management of devices such as handsets, desktop chargers and charging racks, that is, handling parameters and software for the devices.

**Duty Assignment**
Duty Assignment determines who to take care of an event depending on type of event and the location of the event. The events are configured in the Action Assignment.

**Fault Handler**
Trigger conditions and actions can be set for faults logged in the system.

**Fault Logging**
Creates a centralized log file that shows a complete log of faults in the system.

**Group Handling**
Messaging groups can be created in Unite CM

**IM (Interactive Messaging)**
Messages sent with different response options included. The response is sent back for interpretation.
### 3. Unite Building Blocks

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Java Server / GSM</strong></td>
<td>Unite CM contains a JVM (Java Virtual Machine) and supports downloading of customized applications based on Java. The GSM/SMS interface is an example of a Java application.</td>
</tr>
<tr>
<td><strong>NetPage</strong></td>
<td>An advanced web messaging tool. The user interface can be customized.</td>
</tr>
<tr>
<td><strong>Open Access Protocol</strong></td>
<td>The Open Access Protocol (OAP) enables exchange of data between external applications/systems and the Unite system, for example sending messages to handsets and receiving alarms.</td>
</tr>
<tr>
<td><strong>-&quot; (OAP) basic</strong></td>
<td>Support for Standard OAP with basic one-way messaging.</td>
</tr>
<tr>
<td><strong>-&quot; (OAP) advanced</strong></td>
<td>Support for advanced OAP with interactive messaging, user data and alarm, location, remote change of profile, availability and poll location.</td>
</tr>
<tr>
<td><strong>Remote Management</strong></td>
<td>Configuration and maintenance of a customer site, independent of distance, can be done via a remote connection established via the Remote Management Client (RMC), a Windows based tool.</td>
</tr>
<tr>
<td><strong>Serial Interface Inbound</strong></td>
<td>The input serial interface can receive pagings from external equipment and send them to handsets in the system. Supported protocols: ESPA, Line Protocol and TAP.</td>
</tr>
<tr>
<td><strong>Serial Interface Outbound</strong></td>
<td>The output serial interface can send messages to external paging systems. Supported protocols are ESPA and TAP.</td>
</tr>
<tr>
<td><strong>SMS via GSM modem</strong></td>
<td>SMS can be sent from Unite CM to GSM phones and also between GSM phones and handsets in the system.</td>
</tr>
<tr>
<td><strong>SMTP Mail Interface</strong></td>
<td>Unite CM can receive e-mails from any application capable of sending SMTP e-mails, and forward them as messages to handsets in the system. Unite CM can also send e-mails.</td>
</tr>
<tr>
<td><strong>Supervision</strong></td>
<td>Unite CM can supervise Unite modules in the system, IP equipment and auxiliary equipment, and also receive SNMP trap information from network equipment.</td>
</tr>
<tr>
<td><strong>Text Displays over IP</strong></td>
<td>Messages can be sent to external displays, such as corridor displays, LED signs etc.</td>
</tr>
<tr>
<td><strong>Unite Name Server (UNS)</strong></td>
<td>Component that holds the number plan and destinations in the Unite system. UNS works for Unite in a similar way as a Domain Name Server (DNS) works for Internet.</td>
</tr>
<tr>
<td><strong>Module Redundancy</strong></td>
<td>A secondary module can be used as backup, and will take over in the case of a failure on the primary module.</td>
</tr>
</tbody>
</table>
3. Unite Building Blocks

3.1.2 Integrated Message Wireless Messaging & Services – IMS3

IMS3 mainly contains support for alarms and messages from different types of DECT and VoWiFi systems. Basic versions of customer applications such as a web based messaging tool, alarm handling and a message group handler are also included in IMS3. Messaging from a customized application is possible with OAP (Open Access Protocol).

*Figure 6. The start page of a full licensed IMS3*

IMS3 can be described as a simplified version of Unite CM. It is suitable for customers needing basic alarm and messaging features and centralized management of devices, and with no need for advanced alarm handling and system supervision.

*Figure 7. IMS3 connection possibilities*

Two IMS3 variants exists; a *Standard* variant that supports all features and a limited *Lite* variant. The Standard and Lite variant use different Elise3 hardware. For specifications, refer to *Data Sheet, Integrated Wireless Messaging & Services (IMS3) TD 92779EN*.

*Table 2. Depending on license, the functions below are included in the IMS3 module.*

- **Activity Logging**: Logs of various activities in the Unite system can be sent as text messages to a Syslog server.
3. Unite Building Blocks

**Device Management**
The included Device Manager is used for management of devices such as handsets and chargers, that is, handling parameters and software for the devices.

**Basic Alarm Handler**
An alarm action can be triggered by alarms and data from handsets in the messaging system. Activated internal input, or a module connected to the A-bus in the Paging system, can also be used as a trigger.
As a reaction to the incoming information, messages can be sent to handsets and it is also possible to activate outputs on the IMS3 module or other modules connected to the A-bus.

**Basic Web Messaging**
A simple messaging tool used for sending text messages from a web browser to handsets.

**Phonebook**
Users can search and find phonebook entries from a handset in the system.

**Remote Management**
Configuration and maintenance of a customer site, independent of distance, can be done via a remote connection established via the Remote Management Client (RMC), a Windows based tool.

**Serial Interface**
The input serial interface can receive pagings from external equipment and send them to handsets in the system. Supported protocols: ESPA, Line protocol and TAP.

**NetPage**
An advanced web messaging tool. The user interface can be customized.

**Open Acess Protocol**
The Open Access Protocol (OAP) enables exchange of data between external applications/systems and the Unite system, for example sending messages to handsets and receiving alarms.

- **-""- (OAP) basic**
  Support for Standard OAP with basic one-way messaging.

- **-""- (OAP) advanced**
  Support for advanced OAP with interactive messaging, user data and alarm.

**DECT Interface**
Interface to add-on DECT or IP-DECT radio exchange.

**WLAN Interface**
Interface to add-on messaging in the VoWiFi system.

**900 interface**
Interface to Ascom Paging System via an A-bus connection connection.

**Module Redundancy**
A secondary module can be used as backup, and will take over in the case of a failure on the primary module.

### 3.1.3 Unite CM / IMS3 Feature Matrix

<table>
<thead>
<tr>
<th>Features</th>
<th>Unite CM</th>
<th>IMS3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity logging</td>
<td>Yes</td>
<td>Yes^a</td>
</tr>
<tr>
<td>Action Assignment</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Advanced Event Handler</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Alarm Management</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Ascii interface</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Basic Alarm Handler (BAM)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Basic Web Messaging</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Carrier interface: DECT / Ascom IP-DECT</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Carrier interface: WLAN (Ascom VoWiFi system)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Carrier interface: 900 (Ascom Paging system)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Central Phonebook</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### 3. Unite Building Blocks

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco External Carrier Gateway (ECG)</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Device Management, max. No. of devices</td>
<td>Up to 10,000</td>
<td>Up to 2,500</td>
</tr>
<tr>
<td>Duty Assignment</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Fault Handler</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Fault logging</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Group handling</td>
<td>Yes</td>
<td>Yes^b</td>
</tr>
<tr>
<td>IM (Interactive messaging)</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Java Server / GSM</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>NetPage (advanced messaging application)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Open Access Protocol (OAP)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– One-way messaging to handset</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>– Interactive messaging</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>– Manual acknowledge</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>– Alarm and User data</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>– Location</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>– Remote change of profile</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>– Availability</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>– Poll location</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>PTT (Push-to-talk)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Remote management</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Serial Interface Inbound</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Serial Interface Outbound</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>SMS via GSM</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>SMTP Mail Interface</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Supervision</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Support for Ascom Unite Application Manager</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Text Display over IP</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Unite Name Server (UNS)</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Module Redundancy</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*a. Limited. Text messages to a Syslog server only.

*b. Multicast and broadcast groups can only be configured in Unite CM.

*c. Possible via OAP*
3.2 Interfaces to Healthcare Systems

The interface module to the patient monitoring- or nurse call system has a web-based GUI for the assignment of staff members to different shifts and patients.

*Figure 8. Integration to healthcare systems*

The system management is handled by the Unite Connectivity Manager (Unite CM). The Unite CM has interfaces for the connection to Ascom Messaging systems but is dependent on Unite Healthcare interfaces for the connection to the patient monitoring- or the nurse call system.

3.2.1 Mobile Monitoring Gateway – MMG

MMG is the interface between the Ascom Messaging System and the GE Healthcare patient monitoring network. The MMG receives alerts from the patient monitoring system and delivers them as messages to handsets and other notification devices.

*Figure 9. The MMG start page*

A Duty Assignment application for creating and maintaining staff assignments is included in the MMG, which provides the ability to assign nurses to patients on different notification levels.

For details, refer to Data Sheet, Mobile Monitoring Gateway (MMG) TD 92653EN and Installation and Operation Manual, Mobile Monitoring Gateway (MMG) TD 92654EN.
3. Unite Building Blocks

Figure 10. System overview with MMG and Unite CM

3.2.2 Cardiomax

Cardiomax enables integration with third-party patient monitoring systems and forwards alarm information to designated display devices.

Figure 11. The start page of a fully licensed Cardiomax

A Duty Assignment application for creating and maintaining staff assignments is included in the Cardiomax, which provides the ability to assign nurses to patients on different notification levels.

For details, refer to Data Sheet, Cardiomax TD 92905EN and Installation and Operation Manual, Cardiomax TD 92901EN.

Cardiomax is used together with a Unite Connectivity Manager (Unite CM).

Figure 12. System overview with Cardiomax
3. Unite Building Blocks

3.2.3 teleCARE IP System Manager – NISM2

The NISM2 is the management tool for centrally managing the teleCARE IP system. The NISM2 is connected to the IP network and stores the configurations for each of the teleCARE IP Room Controllers and/or Ward Controllers that are connected to the IP network.

A Duty Assignment application for creating and maintaining staff assignments is included in NISM2.

For more information, refer to Data Sheet, teleCARE IP System Manager (NISM2) TD 92856EN and System description, teleCARE IP Nurse Call System TD 92608EN.

Figure 13. System overview with NISM2

3.3 Unite Serial Interface – USI

Unite Serial Interface (USI) is a product that enables text messaging from external equipment. USI is a Unite module based on the ELISE2 hardware (the predecessor of Elise3) and can be connected to System 900 or work in combination with other Unite modules.

USI includes three serial interfaces for physical connection to external equipment and one System 900 interface for connection to the A-bus in System 900. This enables the possibility to receive pagings from external equipment and send them to handsets in System 900.

The serial interface supports the ESPA 4.4.4 protocol and two ESPA dialects; the Ascom dialect (teleCOURIER) and Ericsson dialect with some limitations, refer to Appendix A in the Installation and Operation Manual, Unite Serial Interface (USI) TD 92563GB. The serial interface also supports the TAP 1.8 protocol and a simplified protocol called the Ascom Line protocol.

For more information, refer to Data Sheet, Unite Serial Interface (USI) TD 92564GB and Installation and Operation Manual, Unite Serial Interface (USI) TD 92563GB.
4. System Examples

4.1 Integration with Ascom IP-DECT and Paging Systems

Customer requirements:
A company wants to have all alarms and faults, coming from the Ascom paging system, presented on handsets in the Ascom IP-DECT system. They want to be able to send predefined messages to different groups of employees and to have SMS communication with GSM phones. They also want to be able to search for entries, in the company’s central phonebook, from the handsets in the IP-DECT system.

Solution:
The solution requires one Unite CM, the advanced Web Messaging application (NetPage) and a GSM modem interface. A GSM modem must also be purchased.

Required Unite CM licenses
Small system (up to a maximum of 100 users)
1 Base license for Unite CM Compact (includes management of 10 users and 20 devices and the NetPage application).
1 Unite CM Compact license for Serial Interface Outbound (includes GSM Modem interface).
x No. of additional device licenses in blocks of 10 users.
Large system (up to a maximum of 10 000 users)
1 Base license for Unite CM Enterprise (includes management of 10 users and 20 devices).
1 Unite CM Enterprise license for NetPage.
1 Unite CM Enterprise license for GSM Modem interface.
4.2 Integration with Philips Patient Monitoring System

Customer requirements:

A hospital wants to use the Ascom IP-DECT system as a distributed messaging system and to forward patient information, collected by a Philips patient monitoring system, to IP-DECT handsets and to text displays in corridors.

They want to use the Duty Assignment application on two clients, and up to 140 monitor locations should be supported. The hospital also wants to use the Device Manager application in Unite CM, to handle licenses and software for 400 handsets in the IP-DECT System. The system should also be redundant.

Solution:

The solution requires four Cardiomax modules and two Unite CM modules. One Cardiomax module supports 100 monitors, but by adding a Cardiomax extension module, up to 200 additional monitors can be supported. The extra Cardiomax and Unite CM modules are required for redundancy.

Required Cardiomax licenses

1. Base (stand-alone) Cardiomax license (includes support for 50 patient monitors and one (1) Duty Assignment client).
1. Base (stand-alone) license supporting Philips system.
1. License (stand-alone) for one additional Duty Assignment client.
2. Licenses (stand-alone) for 50 monitor locations (patient monitors).
Redundancy activated on the base (stand-alone) Cardiomax license.
1. License (stand-alone) supporting Philips extension module (redundancy included).

Required Unite CM licenses

x No. of additional device licenses in blocks of 10 users.
4. System Examples

1 Base license for Unite CM Enterprise
   (includes management of 10 users and 20 devices).
1 Unite CM Enterprise license for Text displays.
Unite CM Enterprise license for Module redundancy.
x No. of additional device licenses, in blocks of 10 users up to a maximum of 10 000 users.
5. **Unite System Functions**

5.1 **Messaging**

**Text Messaging**

Text messages can be sent from an application to a specific destination (pagers, mobile phones, display devices etc.). Messages can be sent with or without confirmation requests. The recipient, message text (can automatically include information from the status log), priority, and beep code can be set.

**Interactive Messaging**

Messages can be sent with different response options included. The response is sent back for interpretation.

**Alarm and User Data**

- **Personal alarm handling**
  Alarms from handsets can be received by the system.
- **User data**
  User data from handsets can be received by the system.

5.1.1 **Number Planning**

The web-based interface in Unite CM enables centralized number planning and handling of handsets in different carrier systems.

For more information, refer to *Function Description, Number Planning and Message Routing in Unite TD 92254GB*.

5.1.2 **Users in the Unite Connectivity Manager**

Users are used in the Unite system for individual log in and authorization. It can be used, for example, to give Log View rights to a specific user. The authorization is administrated with help of User Teams; one user can belong to several teams.

Users and User Teams are administrated in the Unite CM, where also messaging and log view rights are set up. Module specific authorization, for example which parts of the GUI a User Team should have access to, is also administrated in the Unite CM.

A user is associated with a messaging number (Call ID) from the number plan, and with a device. One user can have several devices, where one of them is set up as the main device. A message addressed to the user is always transmitted to the main device first; additional devices are used when setting up diversions. All messages and alarms sent to and from a user will include the user ID in the activity log.

A default user team, not connected to a user, is also included in Unite CM. The default user team is used to authorize viewing of activity logs. Examples of such activities are; an alarm sent from a handset not associated to a user, or any activities handled by fixed equipment only, i.e. input activity, status log etc.

The NetPage application in Unite CM, for example, uses messaging- and user rights to limit the number of addresses displayed in the phonebook. When a user logs in to the application, only the members of User Teams authorized in messaging rights, are displayed.
5. Unite System Functions

5.1.3 Groups in the Unite System

Groups are used when the same message is to be sent to several users. In the Unite CM, three different types of groups exist; Sequential Groups, Multicast Groups, and Broadcast. All groups in the Unite system can be gathered in the Unite CM. Handsets in different carrier systems can be included in the same group.

Groups can also be created in the IMS. Multicast and Broadcast groups can only be configured in the Unite CM.

For more information, refer to Function Description, Unite Group Handling TD 92283GB.

5.2 Unite Message Handling

When sending messages to mobile users, there is always a conversion made from the Call ID, known by the applications and human users, to Unite address format. The sending application retrieves the corresponding information from the Unite Name Server (UNS) and uses it as destination address.

For more information, refer to Function Description, Number Planning and Message Routing in Unite TD 92254GB.

The examples in 5.2.1 and 5.2.2, where a user of a web based application sends a message to a certain person, include four different carrier system interfaces, paging, DECT, GSM and E-mail.

5.2.1 User Name Look-up

The conversion of Call ID, such as a call number, into carrier specific addresses is done by the messaging application for each message. In the example below the messaging application requests an address for the Call ID “7123” in message “A”. The UNS responds with the Unite destination “9123@172.23.9.151/DECT” in message B. The Unite destination address is sent to the message router (C) and finally, the user message is sent in message “C”.

*Figure 16. Conversion of Call ID using the Unite Name Server (UNS)*
5.2.2 Message Diversion

Unite CM supports diversion of messages to other carrier systems, or other users, if the receiving handset is out of range or absent. Diversions can also be set up for users depending on active work shift.

In the example below, diversion conditions have been set for the Call ID “9123”. Depending on availability status and diversion conditions, the message can be diverted to other users or carrier systems. Messages can also be diverted to different Call IDs depending on active work shift, and can be programmed to conditionally be sent in sequence or in parallel.

In this example, a message is sent to Call ID “9123”, a handset in the DECT system. The UNS responds with the Unite delivery address. The Unite delivery address is then sent to the message router. The message router first sends the message to the DECT system. If the DECT handset is not available, the message is diverted to the paging system. If that handset is not available either, the message is diverted to the GSM and E-mail systems in parallel.

![Figure 17. Message diversion](image-url)

1. A request for 9123 is sent to the UNS.
2. The UNS responds that the destination address for 9123 is 9123.
3. The message is sent to a Message Router.
4. The Message Router forwards the message to the DECT system, but the handset is not available.
5. The message is diverted to the paging system, but the handset is not available.
6a. The message is diverted to the GSM system.
6b. The message is diverted to the e-mail system in parallel with 6a.
5.3 Remote management

Unite supports remote management of all Unite modules over an IP network, a modem connection, or a direct serial connection. For more information, refer to Function Description, Remote Management TD 92257GB.

5.4 System Supervision and Fault Handling

To ensure safety in the message handling, the Unite system is supervised by the Unite CM. The Unite CM is responsible for surveying and supervising specified modules connected to the LAN. The Unite CM can also supervise external IP equipment, by sending ICMP ping requests, and auxiliary equipment that indicates faults via physical outputs.

If a module or equipment is lost, or a fault is detected in the system, a status log is sent to the Fault Handler application in the Unite CM. The status log contains information about warnings, errors etc., sent from the application or the module. The Unite CM can also be configured to generate a status log when receiving an SNMP trap (used by IP equipment to communicate that there are for example faults in the equipment).

The Fault Handler lists all active faults and the last received status logs. Status logs are often spread among different tools and systems, but in a Unite system, a complete status log can be collected in the Unite CM.

The Fault Handler is configured via a web GUI and can be programmed to start actions for each individual received status log.

The Unite CM collects faults from Unite modules and connected systems and can be configured to start actions on incoming faults. Examples of actions can be to activate outputs, activate an error relay, sending messages, and sending fault notifications via E-mail and SNMP Trap. The actions are started depending on trigger conditions.

For more information, refer to Function Description, System Supervision and Fault Handling in Unite TD 92252GB.

Actions:

• Output activity
  A request to remotely set or reset an output (for example to turn on a siren or close a door). Outputs configured in the module can be activated for a defined duration.

• Error Relay
  The error relay can be activated for a defined duration.

• Send E-mail
  Recipients, recipients that should receive a copy, subject and body (can automatically include information from the status log) can be set.

• Send SNMP trap
  The receiving IP address, message text (can automatically include information from the status log) and version to use can be set. Both version 1 and 2C are supported.

5.4.1 Input Activity

Contains a notification that an input has been triggered (normally a switch or a button).

5.4.2 Synchronized Time

All module clocks can be synchronized, which simplifies fault handling and error finding in systems with separate clocks.
5. Unite System Functions

5.4.3 Activity Logging

The Unite CM can store logs of various activities in the Unite system, for example activities such as messaging, alarm, location, responses and status logs. All activity logs are stored in a database for future analysis. Incoming activity logs can be displayed to verify that the system works as it should, specific activity logs can be searched for, and an activity can be traced through the entire system.

The stored activity logs can be exported automatically at a configured interval, and manually within a specified time period. Stored activities can be exported in CSV or XML file format. Automatic export can be sent to an FTP server or attached to an e-mail. The log information can continuously be printed to a locally connected printer.

For more information, refer to Function Description, Activity Logging in Unite TD 92341GB.

Figure 18. Activity Logging in Unite

For more information, refer to Function Description, Activity Logging in Unite TD 92341GB.

5.5 Duty Assignment

An application where users can be assigned to specific alarms and events, and where escalation paths can be set up.

5.6 Action Assignment

Actions can be set up for Events that can occur. What to transmit when the event occurs needs to be defined and also success and failure conditions.

Event Elements (alarm type, location) are set up to correspond to a certain Event.

5.7 Event Handler - Configuration

Makes it possible to add Event Elements and to configure the database of the Event Handler.
### 6. Related Documents

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<td>Data Sheet, Integrated Wireless Messaging &amp; Services (IMS3)</td>
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## 7. Document History

For details in the latest version, see change bars in the document.

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<tbody>
<tr>
<td>E</td>
<td>8 August 2013</td>
<td>Major changes. The document has been adapted to current Unite system structure. Functions, that previously required a separate hardware, are now handled with different licenses.</td>
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