Compatibility Report

NEC Unified Solutions is pleased to announce that:

has been successfully tested for compatibility with
DECT Messaging and Location Service.

Doc Version: 1.1, 2013-09-30

The following releases were tested:

Test Completion Date	2013-June	
Provider	IndigoCare	
System	Netrix 2.0.0.31	
DMLS version	3.0.0.7	
DECT system	IP-DECT >6.00	
DECT portables	I755	3.09 or higher
	G955	3.09 or higher
	M155	3.09 or higher
PABX	All PABX systems	

Please refer to Configuration Notes below for further information.

Disclaimer:
NEC Unified Solutions and IndigoCare have performed Interoperability Testing for the mentioned systems. The results of these tests proved satisfactory.

IMPORTANT: NEC Nederland B.V. cannot be held responsible for any future compatibility issues that may arise, as Providers may make changes to their systems which are outside of NEC's control.

1. Introduction

This compatibility report indicates the level of compatibility between the DECT Messaging and Location Services interface (DMLS) and the Client application 'Netrix', as tested by supplier IndigoCare.

2. DMLS

The DECT Messaging and Location Services interface (DMLS) provides an open and documented interface to connect an NEC DECT or IP DECT system to a third party Messaging client application. The Client application can communicate with DMLS via a TCP/IP socket. DMLS can be used to connect to multiple clients applications such as a message- and an alarming server. DMLS is the successor for DMS-API.

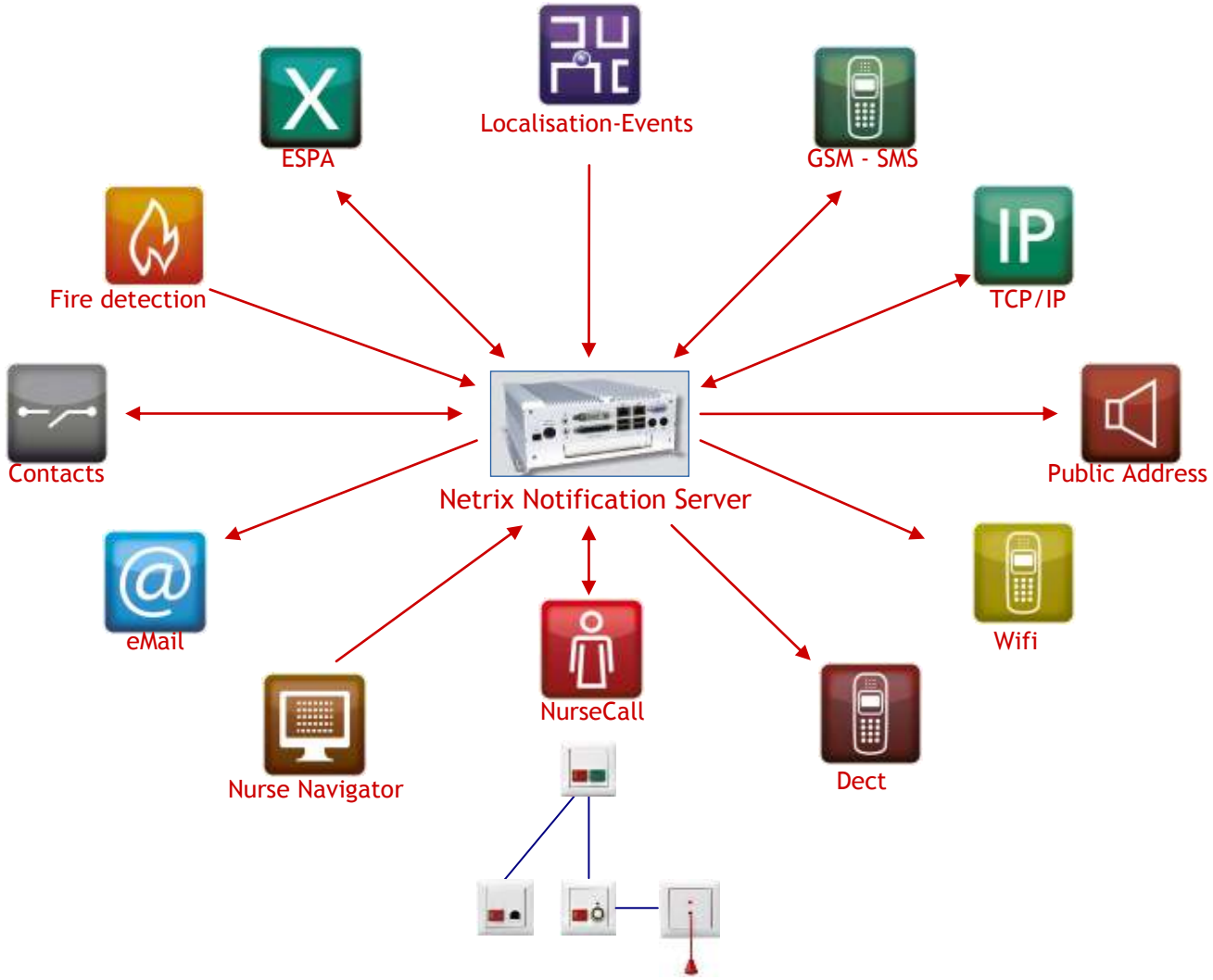
- For Messaging, Alarming and Location detection to/from DECT handsets
- Supports user messages, broadcast messages, message confirmation by the user, various urgency levels
- Provides DECT Access Point status
- Provides status of the handsets, presence, battery status, firmware level, in charger
- Provides forced handset loudspeaker call
- Provides Location information based of RSSI of multiple Access Points
- Provides interface for multiple applications (DMS-API could only deal with one connected application)

The DMLS is described in detail in document "DMLS Client Interface".

3. The Netrix platform

3.1. Full IP notification gateway

The IP-based Netrix notification gateway is designed specifically to bundle and pass alarms from any kind of alarm- or nursecall system towards NEC's DMLS interface.
Different types of alarms can be handled: alarms coming from Essec's Full-IP Nursecall system (iCall), other vendors' nursecall systems, fire detection systems and any kind of alarm system using ESPA 4.4.4.-protocol, any RS232 input, or IP-input messages. By using coupler heads, dry alarm contacts can be connected to the Netrix.



3.2. Architecture – notification gateway

3.2.1. Reliability

The Netrix is built in a reliable system architecture and is able to function independently, without external interaction. Absolutely no action whatsoever from the staff is necessary to guarantee proper operation. In case of a power breakdown, all functions will restart automatically and be fully operational without the intervention of staff members or a technical employee. It is also possible to perform remote diagnosis and configuration changes over an IP-connection via VPN or an analogue modem.

3.2.2. Routines for call processing

Various routines can be programmed for the processing of messages, depending on the time of day. Moreover, one can define a profile for each type of call based on the nature of the destination (e.g. a message to an external mobile phone requires more information than a message to an internal DECT phone). In escalation, each message might be repeated on programmable number of times.

3.2.3. Call processing to groups
Every room call or alarm call can be sent to a group of users, regardless of the types of communication equipment assigned to these users. For example, DECT- handsets, smartphones or mobile phones can be included in a single group. 10.000 groups can be programmed, and each group can include up to 250 user addresses. Since a group can be defined as a user in another group, the number of receivers to send a message to is almost unlimited.

3.2.4. Hardware connections
Besides the handling of messages sent over IP, the Netrix can connect alarm- or nursecall systems over RS232. For this purpose, the Netrix has 4 built-in COM ports for the connection of incoming and/or outgoing call modules over RS232. The central processing software is designed in such a way that various input and output modules can be combined as desired and additional modules can be added in a later stage. Every call on any input module can produce a notification on one or more output modules. Both RS232 and ESPA 4.4.4. connections are supported and are made available depending on the licence agreement.

3.2.5. Multi-site
Multiple Netrix message servers can be put into networking using IP by a master/slave principle. The master unit will coordinate all calls which arrive on all slave message servers, and will process the message to the desired output in any of the locations.

3.3. Inputs

3.3.1. Connections using IP
Netrix can connect an incoming IP message, such as Essec's IP nursecall system (iCall). With multiple sites, the different Netrix message servers are connected over IP. For specific connections, contact your local distributor for special applications.

3.3.2. Connections via ESPA
Netrix can connect nurse call systems, fire alarm notification systems and burglar detection systems using the ESPA 4.4.4 protocol. The Netrix platform already supports the future Espa-X protocol.

3.3.3. RS232 connections
In addition to the ESPA connections, any other system can be linked to the Netrix server via the RS232 protocol.

3.3.4. Connections with alarm contacts
Using coupler heads, dry contacts can be connected to the Netrix. Each head provides 32 contacts. The various contact heads are interconnected via a two-conductor connection.
The total capacity is 320 contacts. Each block of 32 contacts is independently supplied with 12 V DC. The communication link between the contact head and the message server is made via RS485.

3.4. Outputs

3.4.1. Text messages to NEC's dect handsets

It is possible to send call messages to the M155, I755, G566, I755, M155, G955, G355,… type of DECT phones. Each message may have a text up to 160 characters. Per (type of) message, a different ringtone, volume (also silent mode) and background colour (Green/Red/Yellow/White) can be programmed to get a different interpretation of urgent messages. Furthermore, the Netrix can notify if a message should activate the vibration of the handset and if a message should be stored on the DECT.
Each handset has a memory to store the last received messages, and an option to overwrite old messages. Whenever the handset is busy, users will get a low volume tone to notify the receipt of a message during the call.

3.4.1.1. Mandown and Alarm key

DECT depending, a distinctive SOS alarm key and mandown alarm are available. The Netrix can receive these alarms and forward them to a appropriate receiver.

3.4.1.2. Broadcast messages

It is possible to send broadcast messages to the DECT's. This means it's possible to send an alarm to a group of DECT's at once.

3.4.1.3.Handsfree answerback after alarm

Whenever an alarm is sent to (a group of) dect- or SIP- user(s), the receiver can activate a handsfree intercom conversation with a handsfree deskphone. In an healthcare environment the staff will save
a lot of time; after an alarm, the staff can activate the intercom of the resident's or patient's phone, and they will learn the reason of the call immediately. The complete call control is handled by the staff, there's no need for the resident or the patient to push any button or lift the horn to accept or end the call.

3.4.1.4. Handsfree answerback after alarm with iCall's SIP nursecall station

Whenever an alarm is sent to (a group of) dect- or SIP- user(s), the receiver can activate a handsfree intercom conversation with an iCall's SIP nursecall station in the room. iCall's SIP nursecall stations are registered as a SIP extension on the NEC's PBX.

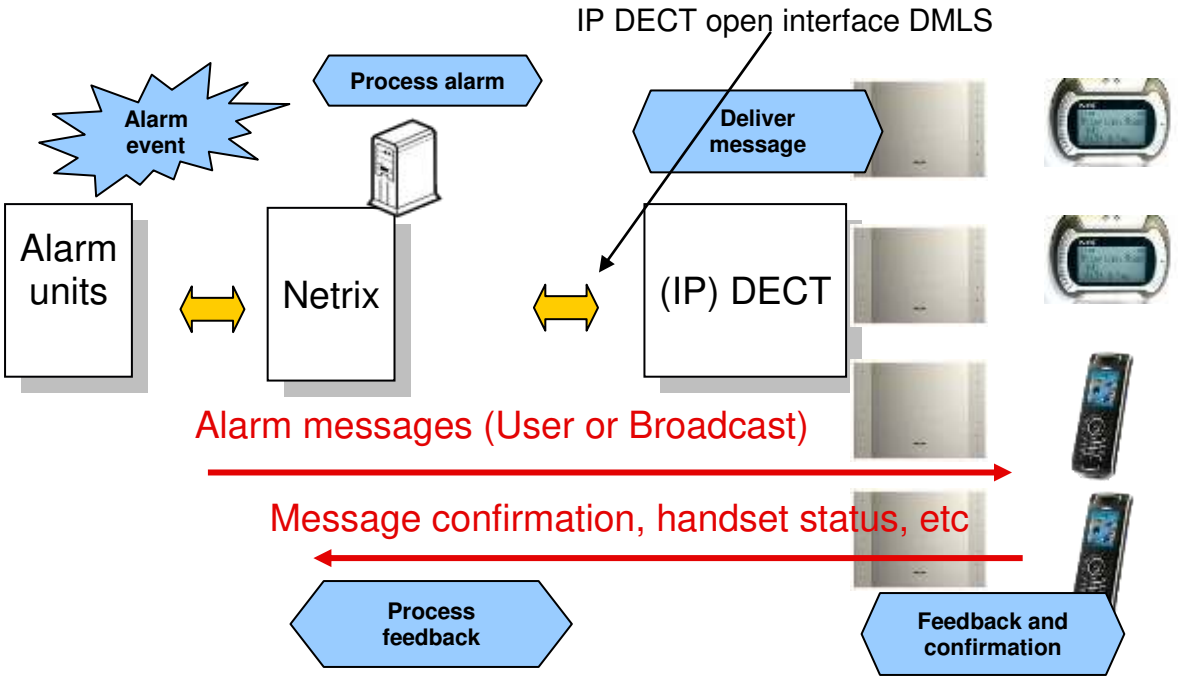
3.4.2. Alarms to mobile phones

It is possible to send call messages to cellphones as an SMS text message. For this purpose, messages of up to 160 characters can be sent. The average processing time per message is 6 seconds. The connection to the mobile phone network occurs via a SIM interface; the quality of the connection to the network is continuously monitored. Passwords and PIN codes are generated by the Netrix.

3.4.3. Alarms to other servers or modules via ESPA

The Netrix can be connected to other brands of notification servers using the ESPA 4.4.4. protocol. This allows users to keep their former investments and migrate fluently towards new applications. The Netrix will act as an interface, combining different alarm- or nursecall systems towards one single Espa-Out connection.

4. Test setup



5. Compatibility result

Functionality	DMLS client interface description:		Client Application
Send message to DECT terminal (normal, urgent and very urgent levels)	2.1.1	Normal	OK
	2.1.2	Urgent	OK
	2.1.3	Very Urgent	OK
Send broadcast to group of terminals	2.1.6	Normal	OK
	2.1.7	Urgent	OK
	2.1.8	Very Urgent	OK
Send broadcast logon/logoff to terminals	2.1.9	Broadcast logoff	OK
	2.1.10	Logon	OK
	2.1.11	Logoff	N/A
Get Access Point alive status (all APs)	2.1.5, 2.2.2		N/A
Receive Access Point alive status (all changes)	2.1.12 2.3.2		N/A
Receive Link status	2.1.12 2.3.1		N/A
Receive message from terminal	2.1.12 2.3.4		OK
Portable to portable messaging via application	2.1.12 2.3.4		OK
Get terminal status, like on charger and available/not available, battery status, portable type and SW version	2.1.16, 2.2.3		N/A
Receive terminal status switched on/off or absent	2.1.12 2.3.3		N/A
Get Location information, based on initial AP	2.1.14, 2.2.3		OK
Get Location information based on multiple AP and RSSI values	2.1.15, 2.2.3		N/A
Ask location information to be sent to location engine	2.1.18		N/A
Send silent message to portable, vibrating only (<<S>>)	2.1.1, 2.1.2, 2.1.3 4		OK
Send message + phone number, recall on this number (<<number>>)	2.1.1, 2.1.2, 2.1.3 4		OK
Force portable to setup loud speaking call to a destination (only via very urgent message) (<<A?number>>)	2.1.3 4		N/A

6. About IndigoCare

IndigoCare is a spin-off from Essec Healthcare Telecom, a Belgian leader in telecommunications founded in 1977. With 90 employees, Essec integrates On- and Off-site telecom solutions for healthcare and industry. Main product ranges are: PBX, (IP-)Dect, NUrsecall and Wifi networks.

In 2005, Essec's Healthcare division created its own nursecall product line: iCall. It is the first full-IP nursecall system in the world, based on open standards and very strong in new and retrofit projects.

With active sales in Europe, Middle East and North America, IndigoCare offers its nursecall- and notification range to PBX resellers who offer a complete E2E solution for the healthcare market, including PBX, messaging and nursecall as a one-stop-shop solution.

IndigoCare is continuously expanding its dealer network in the mentioned areas.