Feature Specification- Software

Document information

Project :	Beatus
Epic :	Text message and alarm key
Status :	Accepted
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The design presented herein is at the time of writing a prototype that is not governed by controlling specifications or product requirements. It is anticipated that the design presented here will be a base for further specification and standardization work. Nevertheless, it is anticipated that the design will have to be refactored and updated during the life cycle of the project.

Contents

History

Revision	Author	Date	Comment
0001	LH	2014-02-27	Initial Revision
0002	LH	2014-03-18	Updated according to final specification from MobiCall
0003	LH	2014-05-05	Updated according to new specification from MobiCall
0004	LH	2016-05-24	Clarify the XML header needed in the XML signaling and persondata and senderdata use corrected
0005	LH	2016-09-29	AlarmDataDef corrected
0006	BFE	2017-06-20	Document updated with latest information
0007	BFE	2017-07-04	Number of rings has been updated
0008	BFE	2017-07-09	Added auto test cases, updated chapter "**Error! Reference source not found.**"
0009	BFE		Added beacon messages
0010	BFE	2018-01-26	Added documentation for CISS interface between handset and base Updated "send alarm from Handset" with beacon info.
0011	BFE	2018-02-6	Updated Beacon and general information
0012			Beacon field has been updated
0013	BFE	2018-02-19	Updated interface for beacon
0014	BFE	2018-02-20	Added information about multi cell handling
0015	BFE	2018-02-21	Added extension info for all handsets to the system info packet Working from release 410 and forward
0016	BFE	2018-02-27	Changes interface for beacon
0017	LH	2018-10-31	rssidata added
0018	DBA	2018-01-23	Added description of Raffle max text length.
0019	BFE	2019-02-25	Updated Alarm send from handset
0020	DBA	2020-03-17	Updated HS overwrite old items description
0021	BFE	2020-03-27	Reference Number - deleting an alarm, it is not possible to delete an alarm with confirmation type 1 (the reference number is now stored in the handset for confirmation type 1)
0022	BFE	2020-05-05	Reference Number - deleting an alarm, it is now possible to delete an alarm with confirmation type 1 (the reference number is now stored in the handset for confirmation type 1) Spelling mistake in version 0021
0023	HEU	2020-05-20	Fixed type="alarm" example: rssi was unsigned due to a bug (now fixed in releases V480 and later). For each BLE beacon, specified which part of the payload are used for broadcastdata.
0024	MNB	2020-08-05	Section "HANDSET USER INTERFACE FOR ALARM RECEPTION" has been removed. Instead separate feature specification describing the UI on the handset has been mad
0025	MUK	2020-10-01	Added "callbacknumber" to JobData + update of XML Schema Description and description of Callbacknumber functionality
0026	JON	2021-06-02	Updated with "SMS & Alarm sent to/from FP/Handset via Sip" describing using SIP as the transport layer.
0027	JON	2022-02-09	Updated formatting in some areas of Alarms/SMS sections in regards to make headers better organized. Rewrote Response Handling to match new behavior (Proper rejections when alarms do not go through).
0028	CWD	2022-06-20	Added description about external id cannot be longer than 32 chars long. The handset do not store characters after the first 32 chars.

			Changes added to section “Schema Description Explanation” and added section “External Id”.

References

There are no sources in the current document.

NVINTF3036_XML_Out_EN_V0503214.pdf

Ref	Description
[1]	NVINTF3036_XML_Out_EN_V15042014.pdf
[2]	Feature Specification - Handset Alarm UI.docm

Terms & Abbreviations

Term	Description
DECT	Digital Enhanced Cordless Telecommunications
PP	Portable Part (Handset)
FP	Fixed Part (Base station)
PI	Protocol Interface
MM	Mobility Management
CC	Call Control
DLC	Data Link Control
LCE	Link Control Entity
HLD	High Level Design
Alarm	Alarm messages that will be placed under the exclamation mark icon in the handset.
SMS	Simple message that will be placed under the envelope icon in the handset.
MS	Message server. Is a server that is connected to a basestation that can sent and received messages from a basestation.
Message	Information in XML format send between the FP and MS
FWU	Firmware Update

Feature highlights and Problem Statements

- Send and receive SMS and alarms with different priority.
- Support up to 50 alarms that can wait in the handset for user confirmation/rejection
- Delete alarms and SMS in the handset
- Delete and substitute unacknowledged Alarm from a message server (MS)
- Receive and see more than one alarm at the same time in a list mode

Limitations

- It is not allowed to send multiple alarms to a handset. If a new alarm is received in the base while the previous is still being processed it will result in the new alarm being rejected
- Up to 10 alarms from a MS can be processed in the base at a time. This number is highly dependent on the load of the base. Calls and data (for example FWU) send to / from the handsets will limit this number. If a message was not sent because the base was too busy a rejected message will be sent to the MS.
- There is no prioritization of alarm messages from the MS. They are only processed if there are available resources.

Introduction

This document describes the functionality of an Alarm/SMS/Beacon system between a RTX basestation (FP) and a message server (MS).

The system is used to the following:

- Send/receive SMS on the handset
- Send alarms from the handset to a MS
- Receive alarms on the handset from a MS
- Send Beacon information to a MS

The system is based on sending UDP packets and send an acknowledge that the UDP packet has been received. In Figure 1 is shown an example of sending beacon information from a beacon to a MS through the handset and basestation. In Figure 2 is shown an example of sending an alarm from a messages server to a handset.

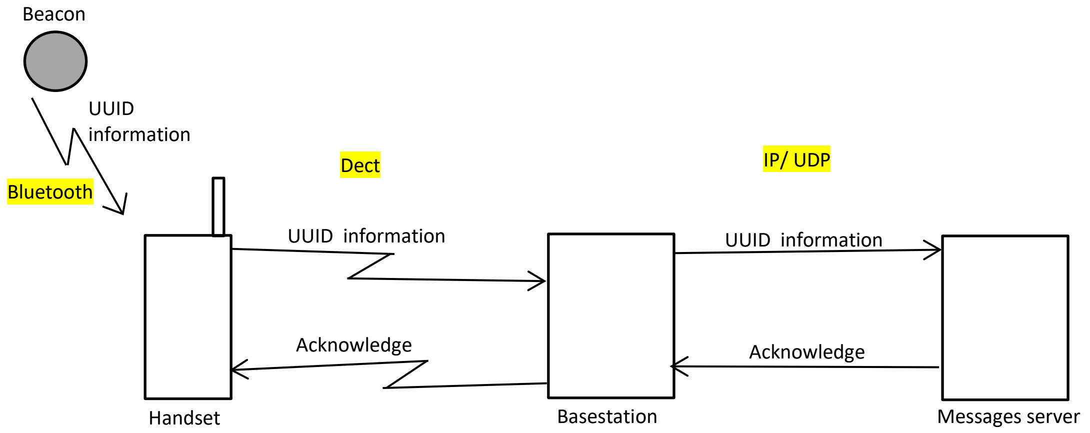


Figure 1: Example of sending Beacon information from a beacon via handset and basestation to a messages server.

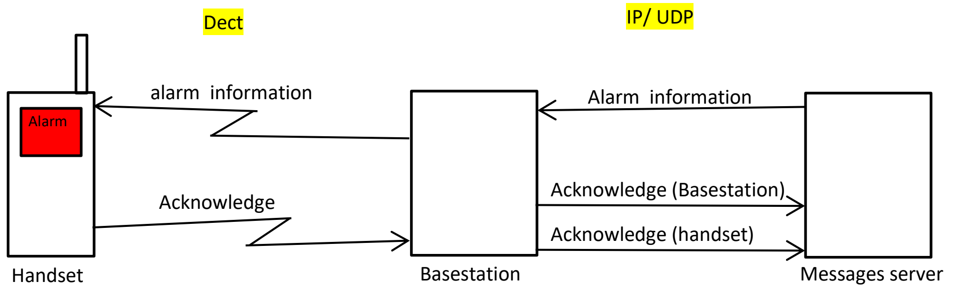


Figure 2: Example of sending an alarm from a message server to a handset.

There are 5 different message types that can be used between a MS and a FP.

XML tag	Description	Direction
Systeminfo	Messages that handle synchronization between FP and MS	MS -> FP FP -> MS
Login	Messages that inform the MS about which handset that is located at the FP.	FP->MS
Job	Alarms send from the MS to the FP and will pop up at the handset and be placed under the alarm icon.	MS->FP
	SMS send from the MS to the FP and will pop up at the handset and be placed under the SMS icon.	MS->FP

	SMS send from FP/handset to another FP/handset via a messages server	FP->MS
alarm	Alarm sends from FP/handset to a messages server	FP->MS
beacon	Beacon information from FP/handset to a messages server	FP->MS

In the following the messages format between the MS and FP is described followed by the different messages types. Finally, the handset UI is briefly described for alarms.

System info and Login are only used when the messages server need to send alarms/SMS to the basestation/handset.

For messages servers where only receiving beacons or alarms from the basestation/handset the Systeminfo and Login procedures can be skipped in the messages server.

Message format

Below the XML format is described and a brief description of the different parameters are described.

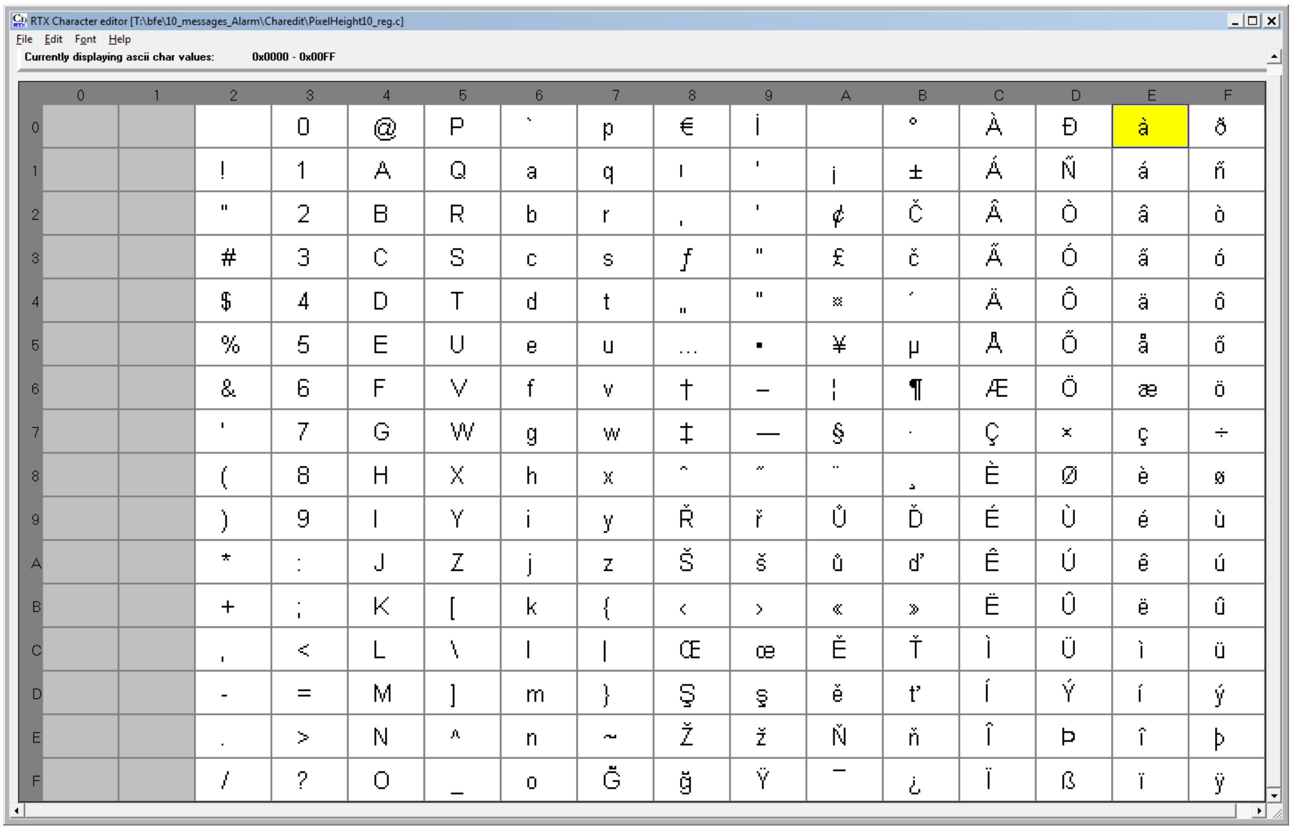
XML interface.

Total length of XML packet is 4096 bytes.

The interface follows the XML standards. Here are some basic rules:

- All Xml packets need to start with this XML header:
  `<?xml version="1.0" encoding="UTF-8"?>`
- No spaces in the < > elements except for separating attributes. Examples:
  `<element>` is valid
  `< element >` is not valid (spaces before and after “element”)
  `<element >` is not valid (space after “element”)
  `<element attribute=”attribute1”>` is valid
  `<element attribute = “attribute1” >` is not valid
  (spaces before and after = and after the second “)
  `<element />` is not valid (space before /)
- All elements have to be properly closed.

At the moment UTF-8 is not supported. Only the below extended ASCII table is supported:



RTX Character editor [T:\bfe\10_messages_Alarm\Charedit\PixelHeight10_reg.c]

Currently displaying ascii char values: 0x0000 - 0x00FF

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p	€	İ		°	À	Đ	à	ð
1			!	1	A	Q	a	q	ı	'	¡	±	Á	Ñ	á	ñ
2			"	2	B	R	b	r	‚	'	¢	Č	Â	Ò	â	ò
3			#	3	C	S	c	s	ƒ	"	£	č	Ã	Ó	ã	ó
4			$	4	D	T	d	t	„	"	¤	´	Ä	Ô	ä	ô
5			%	5	E	U	e	u	…	▪	¥	µ	Å	Õ	å	õ
6			&	6	F	V	f	v	†	–	¦	¶	Æ	Ö	æ	ö
7			'	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
8			(	8	H	X	h	x	ˆ	˜	¨	¸	È	Ø	è	ø
9			)	9	I	Y	i	y	Ř	ř	Ů	Ď	É	Ù	é	ù
A			*	:	J	Z	j	z	Š	š	ů	ď	Ê	Ú	ê	ú
B			+	;	K	[	k	{	‹	›	«	»	Ë	Û	ë	û
C			,	<	L	\	l	|	Œ	œ	Ě	Ť	Ì	Ü	ì	ü
D			-	=	M	]	m	}	Ş	ş	ě	ť	Í	Ý	í	ý
E			.	>	N	^	n	~	Ž	ž	Ň	ň	Î	Þ	î	þ
F			/	?	O	_	o	Ğ	ğ	Ÿ	¯	¿	Ï	ß	ï	ÿ

XML Schema Description (Please refer to XMLSchemaDefinition.xsd included)

This is the XML Schema Description for the generic outgoing XML-based interface from the messages server.
The FP shall ignore unknown fields and packages received by the MS, to make sure that upgrading the MS to a newer version with new features does not cause the FP to crash.

```
<xs:element name="request" type="FrameDef"/>
<xs:element name="response" type="FrameDef"/>
<xs:complexType name="FrameDef">
    <xs:sequence>
        <xs:element name="externalid" type="xs:string" minOccurs="1"/>
        <xs:element name="status" type="xs:integer" minOccurs="0"/>
        <xs:element name="statusinfo" type="xs:string" minOccurs="0"/>
        <xs:element name="systemdata" type="SystemDataDef" minOccurs="1"/>
        <xs:element name="jobdata" type="JobDataDef" minOccurs="0"/>
        <xs:element name="alarmdata" type="AlarmDataDef" minOccurs="0"/>
        <xs:element name="beacondata" type="BeaconDataDef" minOccurs="0"/>
        <xs:element name="rssidata" type="RssiDataDef" minOccurs="0"/>
        <xs:element name="logindata" type="LoginDataDef" minOccurs="0"/>
        <xs:element name="persondata" type="PersonDataDef" minOccurs="0"/>
        <xs:element name="senderdata" type="PersonDataDef" minOccurs="0"/>
    </xs:sequence>
    <xs:attribute name="version" type="xs:string"/>
    <xs:attribute name="type" type="xs:string"/>
</xs:complexType>

<xs:complexType name="SystemDataDef">
    <xs:sequence>
        <xs:element name="name" type="xs:string" minOccurs="1"/>
        <xs:element name="datetime" type="xs:string" minOccurs="1"/>
        <xs:element name="timestamp" type="xs:string" minOccurs="1"/>
        <xs:element name="status" type="xs:integer" minOccurs="0"/>
        <xs:element name="statusinfo" type="xs:string" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="JobDataDef">
    <xs:sequence>
        <xs:element name="alarmnumber" type="xs:integer" minOccurs="0"/>
        <xs:element name="referencenumber" type="xs:string" minOccurs="0"/>
        <xs:element name="callbacknumber" minOccurs="0">
          <xs:complexType>
            <xs:simpleContent>
              <xs:extension base="xs:string">
                <xs:attribute name="type" type="xs:string" use="optional"/>
              </xs:extension>
            </xs:simpleContent>
          </xs:complexType>
        </xs:element>
        <xs:element name="priority" type="xs:integer" minOccurs="0"/>
        <xs:element name="flash" type="xs:integer" minOccurs="0"/>
        <xs:element name="rings" type="xs:integer" minOccurs="0"/>
        <xs:element name="confirmationtype" type="xs:integer" minOccurs="0"/>
        <xs:element name="messages" type="MessagesDef" minOccurs="0"/>
        <xs:element name="status" type="xs:integer" minOccurs="0"/>
        <xs:element name="statusinfo" type="xs:string" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="MessagesDef">
    <xs:sequence>
        <xs:element name="message1" type="xs:string" minOccurs="0"/>
        <xs:element name="message2" type="xs:string" minOccurs="0"/>
        <xs:element name="messageuui" type="xs:string" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="AlarmDataDef">
    <xs:sequence>
        <xs:element name="type" type="xs:integer" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="BeaconDataDef">
  <xs:sequence>
    <xs:element name="eventtype" type="xs:integer" minOccurs="0"/>
    <xs:element name="beacontype" type="xs:integer" minOccurs="0"/>
    <xs:element name="broadcastdata" type="xs:string" minOccurs="0"/>
    <xs:element name="bdaddr" type="xs:string" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="RssiDataDef">
    <xs:sequence>
        <xs:element name="rfpi" type="xs:string" minOccurs="1"/>
        <xs:element name="rssi" type="xs:integer" minOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="LoginDataDef">
    <xs:sequence>
```

```
        <xs:element name="status" type="xs:integer" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="PersonDataDef">
  <xs:sequence>
    <xs:element name="address" minOccurs="0">
      <xs:complexType>
        <xs:simpleContent>
          <xs:extension base="xs:string">
            <xs:attribute name="type" type="xs:string" use="optional"/>
          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
    </xs:element>
    <xs:element name="name" type="xs:string" minOccurs="0"/>
    <xs:element name="location" type="xs:string" minOccurs="0"/>
    <xs:element name="status" type="xs:integer" minOccurs="0"/>
    <xs:element name="statusinfo" type="xs:string" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

Schema Description Explanation

Child description for (request / response)

- “version” (request / response)
  - only “1” supported

- “type” (request / response)
  - “systeminfo”: Watchdog frame / system error information (MUST be contained in all frames)
  - “job”: alarm job sent from messages server.
  - “alarm”: 3rd party alarms to the messages server (e.g. redbutton)
  - “beacon”: beacon message with uuid from a beacon
  - “login”: Login / Logout of persons

- “externalid” (request / response)
  - unique notification external ID
  - should not be longer than 32 chars long as this is the limitation set by the handset.

- “status”, “statusinfo” (request / response)
  Note! Not used in request.
  - “status” is the decimal value the following values.
  - “statusinfo” is the string values the following values:
   0: Not accepted by external system
   1: Accepted by external system

- “systemdata” (request / response)
  Must be contained in all frames.
  - See “**Error! Reference source not found.**”

- “jobdata” (request / response)
  Only used when frame type is “job”, then this sequence must be contained.
  - See “**Error! Reference source not found.**”

- “alarmdata” (request / response)

Only used when frame type is “alarm”, then this sequence must be contained.
This sequence will only be relevant in direction to MS system.
- See “**Error! Reference source not found.**”

- “beacondata” (request / response)
  Only used when frame type is “beacon”, then this sequence must be contained.
  This sequence will only be relevant in direction to MS system.
  - See “**Error! Reference source not found.**”

- “logindata” (request / response)
  Only used when frame type is “alarm”, then this sequence must be contained.
  This sequence will only be relevant in direction to MS system.
  - See “**Error! Reference source not found.**”

- “persondata”, “senderdata” (request / response)
  “persondata” is used with frame types: “job”, “alarm”, “login”.
- If “senderdata” is not present in frame, the “persondata” is related to the handset which has logged in to MS.
- If “senderdata” is present, then “senderdata” will contain calling party information and “persondata” will contain called party information.
- See “**Error! Reference source not found.**”

Child description for (SystemDataDef)

This sequence MUST be present in all frames.

- “name” (SystemDataDef)
  - System name eg. base name or messages server system name.

- “datetime” (SystemDataDef)
  - “2014-03-04T10:16:20” is local date and time for log-reason and can be individual formatted between the systems. Notice: this timestamp is not used when presenting the alarm in the handset.

- “timestamp” (SystemDataDef)
  - UTC time in HEX format.

- “status”, “statusinfo” (SystemDataDef)
  - “status” is the decimal value the following values.
  - “statusinfo” is the string values the following values:
    0: System not running
    1: System running

Child description for (JobDataDef)

- “alarmnumber” (JobDataDef)
  - decimal value from 10 to 9999
  Not used at the moment.

- “referencenumber” (JobDataDef)
  When the string referencenumber is present in the message from a message server the message is interpreted as an alarm in the handset.
  If the referencenumber string is not present, the message is interpreted as a SMS.
  Please read further description of the referencenumber in the chapters below.

- “callbacknumber” (JobDataDef)

This string is used to enable the possibility of passing a callback number via an alarm message.
The number in this string will not be shown on the handset, but will make a call button visible on the handset making it possible to call directly to the number included.
Max numberlength is 15 characters

- “priority” (JobDataDef)
  It is possible to set an alarm with different priority. Further description is placed in the chapters below.

- “flash” (JobDataDef)
  - values 0 or 1, popup (like flash-SMS).
  This is only supported for SMS not Alarms.

- “rings” (JobDataDef)
  - values 0..9, number of ring tone alerts, where 0 means endless ringing.
  Only valid for Alarms

- “beepcode” (JobDataDef)
  - values 0..19, type of alert tone. Decimal values are individual depending on external system.
  Not used at the moment. If used, then the string is ignored.

- “confirmationtype” (JobDataDef)
  Please see the sections “Alarms sent to the FP/handset from MS” and “SMS sent to the FP/handset from MS” for further description.

- “messages” (JobDataDef)
  Only used in request and MUST always be present in frame type “job”.
  - See “**Error! Reference source not found.**”
- “status”, “statusinfo” (JobDataDef)
  - “status” is the decimal value the following values.
  - “statusinfo” is the string values the following values:

0: No answer	Comment: The end user has not answered
1: Answer	Comment: The end user has answered -> Delivered to handset
2: Busy	Comment: The end user was busy
3: Error	Comment: The end user an error
4: Confirmed	Comment: The end user has confirmed the alarm positive
5: Rejected	Comment: The end user has rejected the alarm
6: Dialing	Comment: The remote system is dialing the number -> Base is paging handset
10: Canceled	Comment: The remote system cancelled the job
11: Not reached	Comment: The end user was not reachable
21: Read	Comment: The end user read the job

Child description for (MessageDef)

- “message1” (MessageDef)
  - “message1” can be shown as pre message when device is receiving a message.
  Not used at the moment. If used, then the string is ignored.

- “message2” (MessageDef)
  - “message2” can be used as used as message title when user opens a message.
  Not used at the moment. If used, then the string is ignored.

- “messageuui” (MessageDef)
  - “messageuui” is allways the bodytext of the message.

Child description for (AlarmDataDef)

- “type” (AlarmDataDef)
  - values 0..9
  - 0: Man Down
  - 1: No Movement
  - 2: Running
  - 3: Pull Cord
  - 4: Red Key
  - 5-9 Reserved

Child description for (BeaconDataDef)

- “type” (BeaconDataDef)
  - values 0..1
  - 0: entering proximity of the beacon
  - 1: leaving proximity of the beacon
- “uuid” (BeaconDataDef)
  - string holding the uuid of the beacon

Child description for (LocationDataDef)

- “rfpi” (LocationDataDef)
  - 12a876543
  - RPFI: 5 byte RPFI printed as 10 hex values in a string

- “rssi” (LocationDataDef)
  - value the rssi of the base station seen

  Note: the LocationDataDef can be present multiple times
  First RFPI is the RFPI of the base current locked to
  Next RFPI’s are listed with the strongest base data first

Child description for (LoginDataDef)

- “status” (LoginDataDef)
  - “status” is the decimal value the following values.

    0: Logout
    1: Login

Child description for (PersonDataDef)

- “address” (PersonDataDef)
  - Called party number (handset SIP account).
    - Sometimes, an address is not a SIP account, and in that case, the address will have a type attribute describing the nature of the address. This can be
      - “IPEI” - This is used when the addressed device has no SIP account.
      - “ALARM”, ”BEACON”, and “CONFIG” - These can be used to distinguish if the message is addressed to a specific server, i.e. alarm server or beacon server.
      - If no type attribute is present, the address should be interpreted as SIP account.

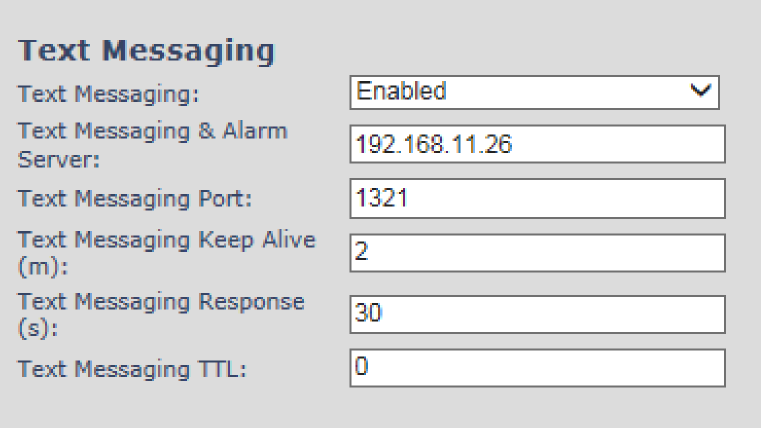
- “name” (PersonDataDef)
  - Called party display name (handset SIP account display name).

- “location” (PersonDataDef)
  - Can be handset current location if avail (Base name).

This is the name of the base station where the handset first time was registered after startup (SIP registration), so the location cannot be used located where the handset actually has the DECT connection, when walking around between different basestations.

Setup and Synchronization between FP and MS

On the FP webpage, the text messaging is configured. In Figure 3 the webpage setup is shown.



Text Messaging

Text Messaging:	Enabled
Text Messaging & Alarm Server:	192.168.11.26
Text Messaging Port:	1321
Text Messaging Keep Alive (m):	2
Text Messaging Response (s):	30
Text Messaging TTL:	0

Figure 3: Text messaging setup.

Text Messaging:

Disabled: SMS and alarm cannot be used
Enabled without server: Used to send SMS between handsets that is located on the same FP or multicell system, but without using a MS. This feature is not described in this document.
Enabled: The FP is connected to a MS and the MS is handling all SMS/Alarms.
Enabled with SIP SIMPLE: Uses SIP SIMPLE as transport method instead of UDP. See "SMS & Alarm sent to/from FP/Handset via SIP".

Target Extension: Target extension for SIP SIMPLE to send messages to. Requires "Enabled with SIP SIMPLE" to be visible.

Text messaging & Alarm server: This is the MS the FP is connected to.

Text messaging port: This is the IP port that is used by the MS and FP.

Text Messaging Keep Alive: Minutes between the FP will send a keep alive signal to the MS

Text messaging response: If the FP does not receive a response from the MS within 30 seconds, when the FP/handset has sent a SMS to the MS, then the FP will inform the handset that the messages was not delivered.

FP to MS synchronization with example

When the FP is started with the configuration set in Figure 3 there is sent a sync messages followed by a sync message for each phone that is locating to the FP.

FP to MS sync:

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="17.6.15.1526" type="systeminfo">
<externalid>0352675351</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>1970-01-01 00:00:09</datetime>
<timestamp>00000009</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
</request>
```

MS confirm response to FP:

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="1.0" type="systeminfo">
<systemdata>
<name>Micromedia-Alert</name>
<datetime>2017-06-15T16:07:10</datetime>
<timestamp>5942948e</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<externalid>0352675351</externalid>
<status>1</status>
<statusinfo>Accepted by external system</statusinfo>
</response>
```

FP information to MS about registered handset (login) – notice the extension number:

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="17.6.15.1526" type="login">
<externalid>3294079664</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-15 09:07:51</datetime>
<timestamp>594294b7</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<logindata>
<status>1</status>
</logindata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
</request>
```

MS confirm response to FP:

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="1.0" type="login">
<systemdata>
<name>Micromedia-Alert</name>
<datetime>2017-06-15T16:07:54</datetime>
<timestamp>594294ba</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<externalid>3294079664</externalid>
<status>1</status>
<statusinfo>Accepted by external system</statusinfo>
</response>
```

The FP and MS has now informed each other that they exist. Now both the MS and FP can send a “keep alive” signal to each other. In the “keep Alive” messages from the FP there is also added all the handset located to the FP. So the MS can always request this info in case it is lost for example if the MS has been restarted For the FP it can be set at the homepage how often there is send a keep alive signal to the MS. In Figure 3 it is set to 2 minutes.

FP to MS keep alive example

Below is shown the “keep alive” signals. Notice that the response signal always use the same external Id as the request.

FP send “keep alive” to MS:
Notice that the name field can be empty.

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="18.2.21.1359" type="systeminfo">
<externalid>1528744172</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2018-02-21 07:34:45</datetime>
<timestamp>5a8d7575</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<senderdata>
<address>400</address>
<name></name>
<address>401</address>
<name>Bob Andersen</name>
<address>402</address>
<name>Hansi</name>
<address>403</address>
<name>George Lucas</name>
<address>404</address>
<name>Michael Jensen</name>
<address>406</address>
<name>406</name>
<address>407</address>
<name>Fenger</name>
<address>408</address>
<name>408</name>
<address>410</address>
<name>410</name>
</senderdata>
</request>
```

MS confirm response to FP:

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="1.0" type="systeminfo">
<systemdata>
<name>Micromedia-Alert</name>
<datetime>2017-06-15T16:13:10</datetime>
<timestamp>594295f6</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<externalid>5a8d7575</externalid>
<status>1</status>
<statusinfo>Accepted by external system</statusinfo>
</response>
```

MS send “keep alive” to FP:

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="1.0" type="systeminfo">
<systemdata>
<name>Micromedia-Alert</name>
<datetime>2017-06-15T16:17:59</datetime>
<timestamp>59429717</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<externalid>mmi59427f9a-0</externalid>
</request>
```

FP confirm response to MS:

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="18.2.21.1359" type="systeminfo">
<externalid> mmi59427f9a-0</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2018-02-21 07:39:03</datetime>
<timestamp>5a8d7677</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<senderdata>
<address>400</address>
<name>hej400</name>
<address>401</address>
<name>Bob Andersen</name>
<address>402</address>
<name>Hansi</name>
<address>403</address>
<name>George Lucas</name>
<address>404</address>
<name>Michael Jensen</name>
<address>406</address>
<name>406</name>
<address>407</address>
<name>Fenger</name>
<address>408</address>
<name>408</name>
<address>410</address>
<name>410</name>
</senderdata>
</response>
```

FP to MS Logout example

If a handset is turned off there is sent a logout signal to the MS – the following XML messages describe such a use case scenario.

FP information to MS about deregistered handset (logout)

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="17.6.15.1526" type="login">
<externalid>0587227135</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-16 02:07:02</datetime>
<timestamp>59438396</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<logindata>
<status>0</status>
</logindata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
</request>
```

MS confirm response to FP:

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="1.0" type="login">
<systemdata>
<name>Micromedia-Alert</name>
<datetime>2017-06-16T09:07:05</datetime>
<timestamp>59438399</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<externalid>0587227135</externalid>
<status>1</status>
<statusinfo>Accepted by external system</statusinfo>
</response>
```

Using the alarm system in a multi Cell system

In Figure 4 there is shown a multicell system and how the login information is send to the messages server.
After the login information has been received the MS knowns which BS to send an alarm to if for example the MS need to alert extension 202.

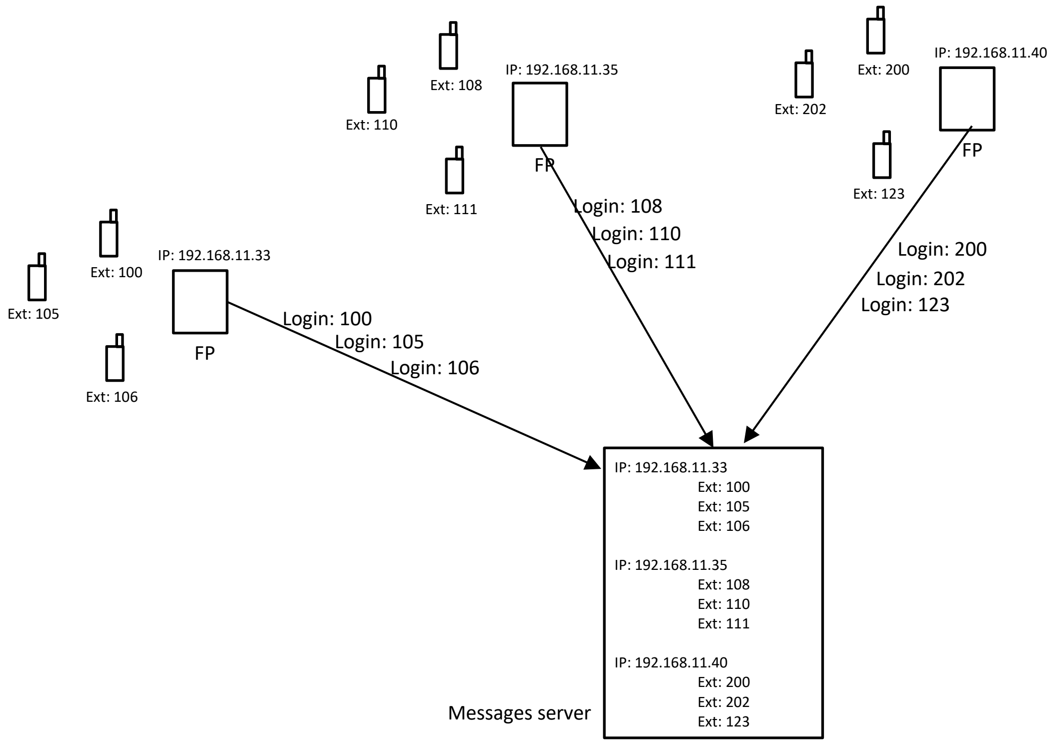


Figure 4: Login information send to MS when handsets are located to a BS.

If a handset is turned off there is send a logout messages to the MS. This is shown in Figure 5.

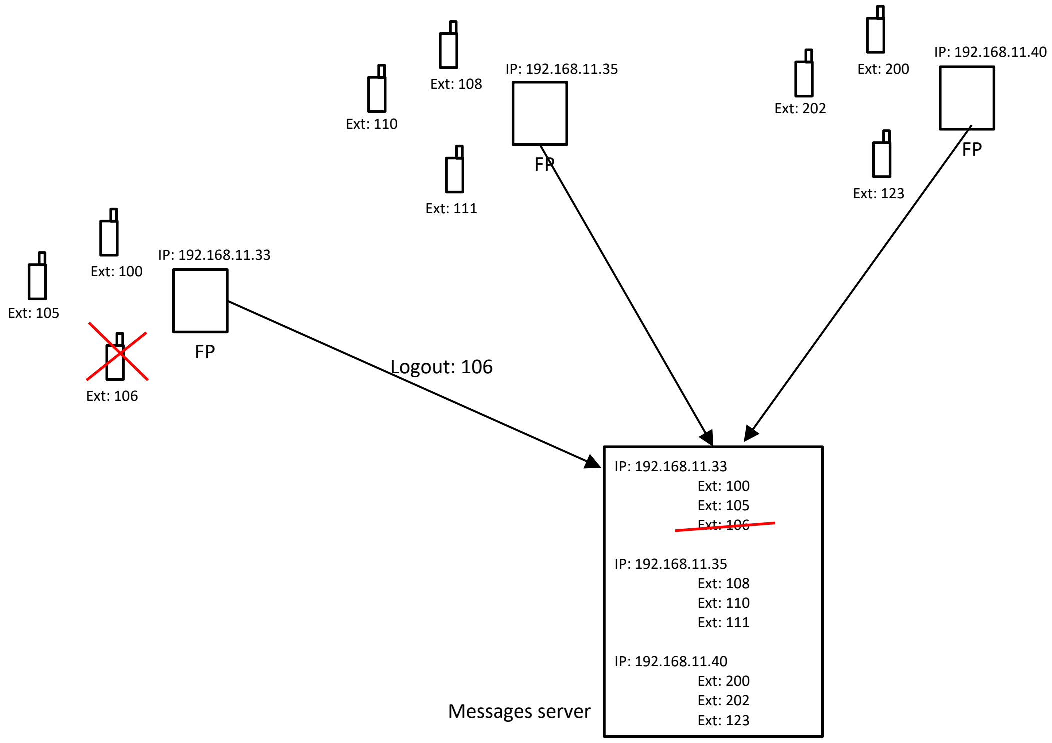


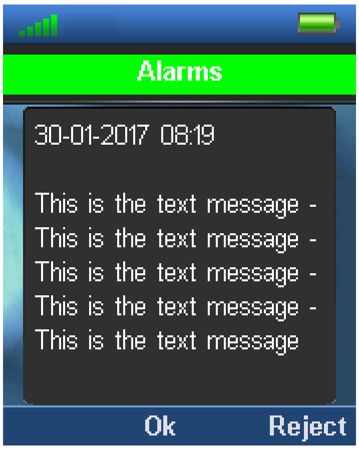
Figure 5: Logout is send to the MS when a handset is turned off.

Known Limitations in Synchronization

1) If the battery is removed from the handset there is not send a logout to the MS. So, if the handset is turned ON and locates on a new BS there is send a new login to the MS. The MS should then remove the extension from the old IP in the list and place the handset extension with the new IP address.
2) If the battery is removed from the handset there is not send a logout to the MS. When the MS is sending an alarm to the handset there will only be send back one response. There will not be send a response that the handset has received the alarm. The MS now knows that there is something wrong with the handset.
3) If the MS is in doubt where the handset extension is located it is also possible just to send the alarm to all FP. All FP will respond with status "11: Not reached" except the FP where the handset is located. This will of cause create some traffic on the network and load the FP with unnecessary traffic – so it is not recommended to use this method.
4) If the UDP packet with handset login information is lost in the network the MS will not know that the handset has been located to a FP, but the MS will also get the information about registered handsets in the "keep alive" message. The MS can also send "keep alive" to the FP and the FP will then respond with information about registered handsets.
5) If the MS is rebooted and the IP/extension list is lost the MS does not know which extension belongs to which FP IP address. In this case the MS can just request the information by sending the "keep alive" request.

Alarms sent to the FP/handset from MS

A messages server (MS) can send a UDP packet to a basestation (FP) with XML information about the alarm. The FP will send the alarm to the handset and a response is sent back to the MS.
In Figure 6 is shown how an alarm is shown in the handset.


Alarms

30-01-2017 08:19

This is the text message -
This is the text message -
This is the text message -
This is the text message -
This is the text message

Figure 6: Alarm displayed in the handset.

Priority

It is possible to set an alarm with different priority, below is shown the different colors that is used in the handset depending on the priority.

1: red
2: red
3: red
4: Yellow
5: Yellow
6: Yellow
7: Green
8: Green
9: Green
All other values: Green

Confirmation type

XML child “confirmationtype” (JobDataDef)

- 0: No User confirmation needed.
  The FP will send back a confirmation to MS that the message has been received in the FP.
- 1: User Received Job confirmation needed.
  The FP will send back a confirmation to MS that the message has been received in the FP.
  The FP will send back a confirmation to MS that the message has been received in the handset.
- 2: User Confirm/Reject Job confirmation needed.
  The FP will send back a confirmation to MS that the message has been received in the FP.
  The FP will send back a confirmation to MS that the message has been received in the handset.
  The FP will send back a confirmation to MS if the user confirm/reject the message

The confirmation message can either contain a positive response or a rejection, depending on the situation.

External Id

When sending a message/alarm from the message server, an external id is sent as a part of the alarm message. This external id is used by the FP to respond to the messages server. When the handset either confirms or rejects an alarm message, it also sends the external id back to the FP, as the FP uses when responding to the message server. The handset is only able to store an external id of a 32 chars’ length. Anything longer than the first 32 chars, will not be stored on the handset.

Reference Number – substituting an alarm

The reference number is unique number per alarm.
When sending an alarm, the reference number always need to be present otherwise the message is interpreted as an SMS.

If there is sent an alarm with the same referencenumber as a previous alarm that has NOT YET been confirmed/rejected (confirmation type 2) the first alarm will be deleted and only the new alarm will be saved and displayed in the handset.

If there is sent an alarm with the same referencenumber as a previous alarm that has been confirmed/rejected then both alarms is shown.

If there is sent an alarm with the same referencenumber as a previous alarm that has confirmation type 0 or 1 then both alarms are shown in the handset.

Reference Number – deleting an alarm

It is possible to delete an Alarm that has NOT YET been confirmed/rejected in the handset. It is possible to delete an alarm with confirmation type 1 and 2.

For deleting an existing alarm the same reference number should be used and the status should be set to 10.

Response handling

The MS should always be notified whether an alarm has reached the base, if it was rejected by the FP and depending on the confirmation type, if the handset has received the alarm message. The FP, will start a timer as soon as an alarm is received, if there is no existing timer running for the same handset. Should an alarm come in while the timer is running, the alarm is rejected. This is followed with a syslog message that an alarm has been rejected on the FP. If the timer times out, depending on confirmation type, a rejection message is sent to the MS. See figure 7.

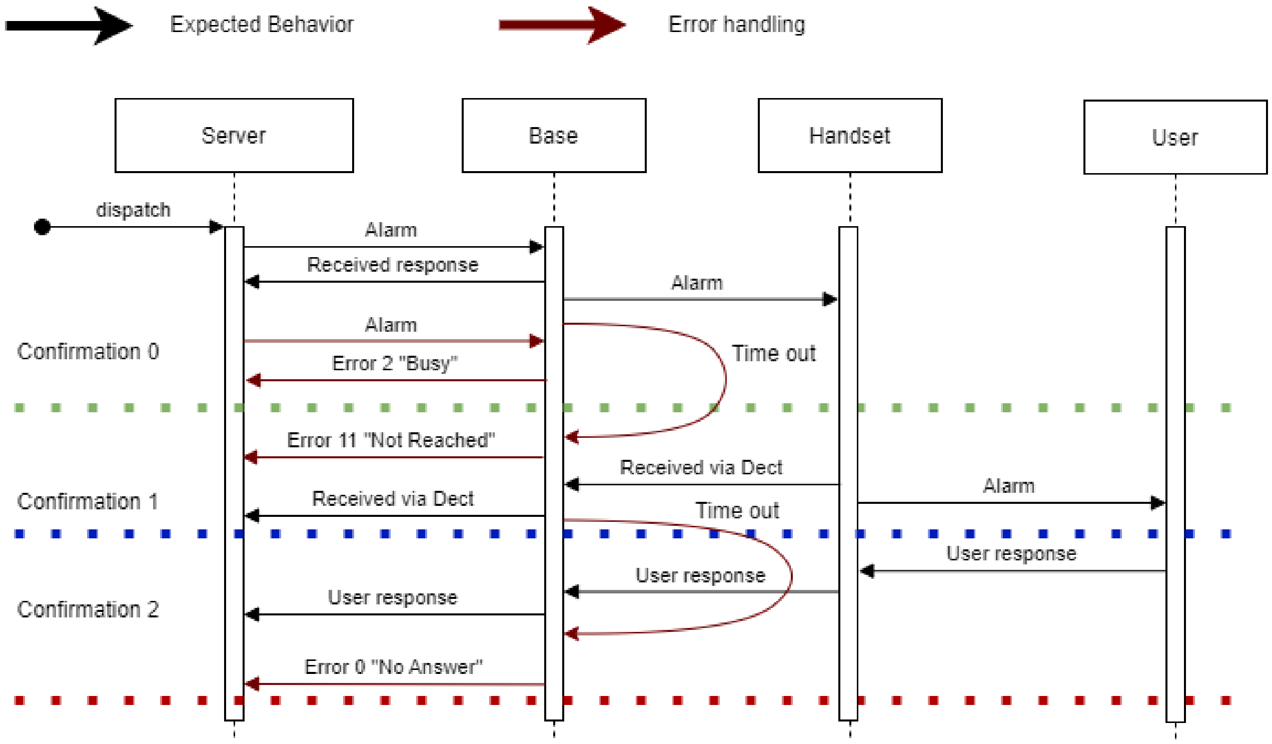


Figure 7 - Overview of possible responses between MS/FP

As the FP is limited to handling one alarm at the time for a given handset, there is error handling in the response setup. The degree of feedback depends on the Confirmation type. In case of negative responses, *"Alarm Rejected"* and *"Could not be delivered via Dect"* will be sent with status: 0 to indicate the end user has not received the alarm.

Confirmation type 0

The base will respond positively if the alarm has been received, and no existing alarm is awaiting delivery / time out. This level does not ensure information regarding if the alarm has been delivered to the handset. It is suggested that alarms are not sent with a lower interval than 10 seconds, as the base has a 5 second timeout to deliver the alarm to the handset.

Confirmation type 1

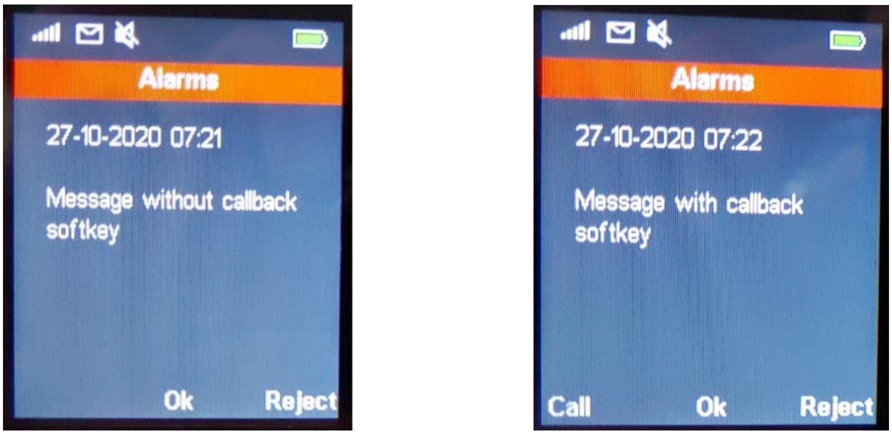
The base will respond with the same behavior as type 0 but will also send a response whether the alarm was delivered to the handset or not, depending on a response from the handset, or the base timing out the alarm. It is suggested to not send or resend an alarm before a response has been received or 10 seconds has passed.

Confirmation type 2

The base will respond with the same behavior as type 1 where the type of response depends on the users input. It is suggested that alarms are not re-sent before a user response or a timeout rejection. The timeout is set to 12 hours, but can be different for some customers.

Alarm with Callback number

When an alarm is sent from an MS to a BS, the BS will as mentioned interpret the message as an alarm message if the reference number is set. Furthermore if a callback number is set. The BS will substitute any number in the address field with this number. In this way, the extension receiving this alarm, has the callback number as a sender of the alarm, giving the possibility to make a direct call to the callback number upon receiving the alarm.
The below figures show the difference of appearance on HS when a callback number is present versus when it is not.



Alarms

27-10-2020 07:21

Message without callback softkey

Alarms

27-10-2020 07:22

Message with callback softkey

Figure 8

Left: *Alarm without Callback Number –* ***Right****: Alarm with Callback Number*

Examples

Alarm with user confirmation

Below example shown an alarm send from the MS with confirmation type 2

MS send alarm to FP:

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="1.0" type="job">
<systemdata>
<name>Micromedia-Alert</name>
<datetime>2017-06-20T09:25:24</datetime>
<timestamp>5948cde4</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<jobdata>
<alarmnumber>5</alarmnumber>
<referencenumber>5</referencenumber>
<priority>1</priority>
<flash>0</flash>
<rings>0</rings>
<confirmationtype>2</confirmationtype>
<messages>
<message1></message1>
<message2></message2>
<messageuui>Alarm1 text</messageuui>
</messages>
<status>0</status>
<statusinfo/>
</jobdata>
<persondata>
<address>991</address>
<status>0</status>
<statusinfo/>
</persondata>
<externalid>mmi5948c09b-5</externalid>
</request>
```

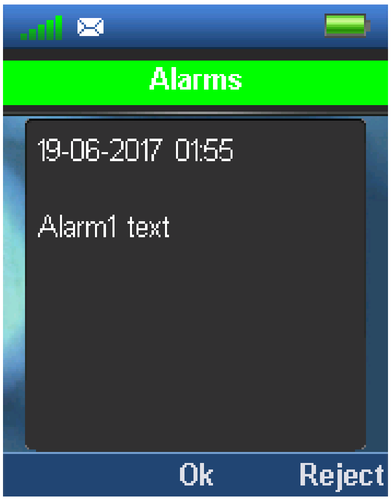
FP response to MS, that FP has received the alarm:

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="17.6.15.1526" type="job">
<externalid>mmi5948c09b-5</externalid>
<status>1</status>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 02:25:22</datetime>
<timestamp>5948cde2</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
</response>
```

FP response to MS, that handset has received the alarm:

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="17.6.15.1526" type="job">
<externalid>mmi5948c09b-5</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 02:25:23</datetime>
<timestamp>5948cde3</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<jobdata>
<priority>1</priority>
<messages>
<message1></message1>
<message2></message2>
<messageuui></messageuui>
</messages>
<status>1</status>
<statusinfo></statusinfo>
</jobdata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
</response>
```

The handset MMI will now look like below:



Alarms

19-06-2017 01:55

Alarm1 text

The user can now press OK or reject

User has pressed OK and FP send response to MS:

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="17.6.15.1526" type="job">
<externalid>mmi5948c09b-5</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 02:25:38</datetime>
<timestamp>5948cdf2</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<jobdata>
<priority>1</priority>
<messages>
<message1></message1>
<message2></message2>
<messageuui></messageuui>
</messages>
<status>4</status>
<statusinfo></statusinfo>
</jobdata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
</response>
```

Delete an Alarm

MS send alarm to FP:

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="1.0" type="job">
<systemdata>
<name>Micromedia-Alert</name>
<datetime>2017-06-20T09:58:25</datetime>
<timestamp>5948d5a1</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<jobdata>
<alarmnumber>5</alarmnumber>
<referencenumber>5</referencenumber>
<priority>1</priority>
<flash>0</flash>
<rings>0</rings>
<confirmationtype>2</confirmationtype>
<messages>
<message1></message1>
<message2></message2>
<messageuui>Alarm1 text</messageuui>
</messages>
<status>0</status>
<statusinfo/>
</jobdata>
<persondata>
<address>991</address>
<status>0</status>
<statusinfo/>
</persondata>
<externalid>mmi5948c0a6-5</externalid>
</request>
```

MS request the FP to delete the alarm – notice that the same reference number is used and status is 10

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="1.0" type="job">
<systemdata>
<name>Micromedia-Alert</name>
<datetime>2017-06-20T09:58:25</datetime>
<timestamp>5948d5a1</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<jobdata>
<alarmnumber>5</alarmnumber>
<referencenumber>5</referencenumber>
<priority>1</priority>
<flash>0</flash>
<rings>0</rings>
<confirmationtype>2</confirmationtype>
<messages>
<message1></message1>
<message2></message2>
<messageuui>Alarm1 text</messageuui>
</messages>
<status>10</status>
<statusinfo/>
</jobdata>
<persondata>
<address>991</address>
<status>0</status>
<statusinfo/>
</persondata>
<externalid>mmi5948c0a6-5</externalid>
</request>
```

SMS sent to the FP/handset from MS

When sending a SMS the reference number string should be removed from the XML message. When this is done, the messages will be interpreted as an SMS instead of an alarm.

It is not possible to send a delete request from a MS to the FP/handset for a SMS.
It is not possible to substitute a SMS with a new SMS.

Priority

An SMS can be sent to a handset with 2 priorities:
0: Normal
1: Urgent
See Figure 13 for screen UI

Confirmation types

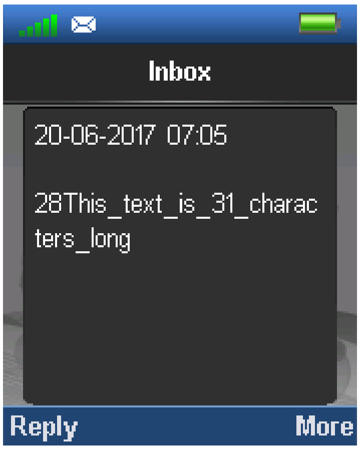
There are 2 confirmations types for SMS

- 0: No User confirmation needed.

  The FP will send back a confirmation to MS that the message has been received in the FP.
  The FP will send back a confirmation to MS that the message has been received in the handset.

- 1: User Confirm/Reject Job confirmation needed.

  The FP will send back a confirmation to MS that the message has been received in the FP.
  The FP will send back a confirmation to MS that the message has been received in the handset.
  The FP will send back a confirmation to MS if the user confirm/reject the message

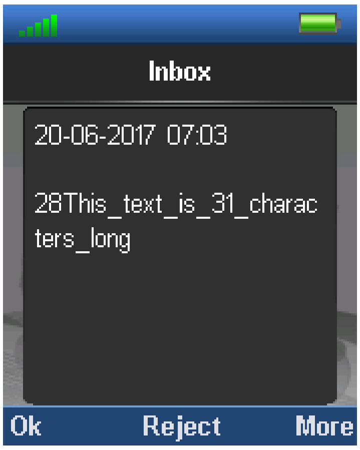


Inbox

20-06-2017 07:05

28This_text_is_31_charac ters_long

Figure 9: Confirmation type 0



Inbox

20-06-2017 07:03

28This_text_is_31_charac ters_long

Figure 10: Confirmation type 1

If the pop up screen is left (using on hook), before pressing ok/reject it is no longer possible to the send an ok/reject back to the MS.

SMS send from FP/handset to another FP/handset via a messages server

It is possible to send a SMS from one handset to another handset via a MS. The MS need to support this.
In Figure 11 the flow for sending a SMS between 2 handsets is shown.

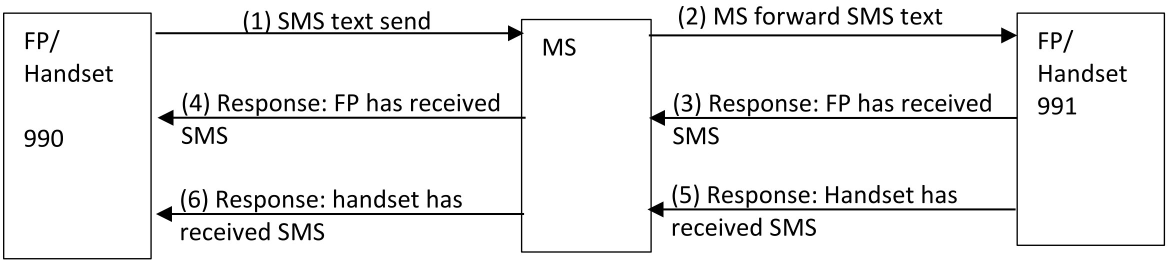
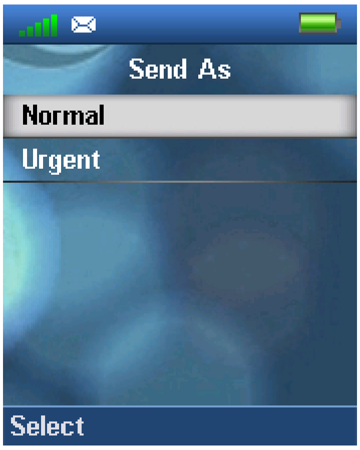

FP/
Handset
990
(1) SMS text send
(4) Response: FP has received SMS
(6) Response: handset has received SMS
MS
(2) MS forward SMS text
(3) Response: FP has received SMS
(5) Response: Handset has received SMS
FP/
Handset
991

Figure 11: Flow for sending a SMS via a MS

After handset 990 has received the last response from handset 991 the text “Message sent” will be shown in handset 990. In case handset 991 does not respond, handset 990 will after 30 sec. show “message not set”. See section “Setup and Synchronization between FP and MS” for further information about timeout.

Priority

An SMS can be sent from a handset with 2 priorities:
0: Normal
1: Urgent



Send As

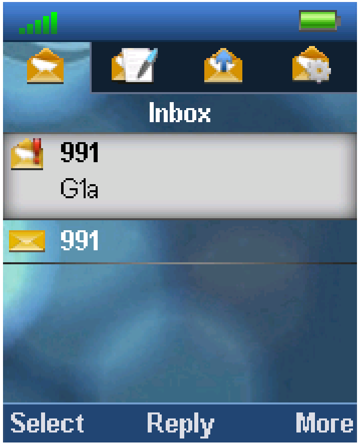
Normal

Urgent

Select

Figure 12: Send options for priority.

Urgent SMS is shown with an exclamation mark as shown below:



Inbox

991
G1a

991

Select Reply More

Figure 13:Sms with different priority.

Examples

Below is shown the 6 messages that is sent between the FP's and MS

(1) SMS text send

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="17.6.15.1526" type="job">
<externalid>0649396368</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 04:12:16</datetime>
<timestamp>5948e6f0</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<jobdata>
<priority>1</priority>
<messages>
<message1></message1>
<message2></message2>
<messageuui>Tw</messageuui>
</messages>
<status>0</status>
<statusinfo></statusinfo>
</jobdata>
<senderdata>
<address>990</address>
<name>990</name>
<location>SME VoIP</location>
</senderdata>
<persondata>
<address>991</address>
</persondata>
</request>
```

(2) MS forward SMS text

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="17.6.15.1526" type="job">
<externalid>0649396368</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 04:12:16</datetime>
<timestamp>5948e6f0</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<jobdata>
<priority>1</priority>
<messages>
<message1></message1>
<message2></message2>
<messageuui>Tw</messageuui>
</messages>
<status>0</status>
<statusinfo></statusinfo>
</jobdata>
<senderdata>
<address>990</address>
<name>990</name>
<location>SME VoIP</location>
</senderdata>
<persondata>
<address>991</address>
</persondata>
</request>
```

(3) Response: FP has received SMS

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="17.6.15.1526" type="job">
<externalid>0649396368</externalid>
<status>1</status>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 04:12:16</datetime>
<timestamp>5948e6f0</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
<persondata>
<address>990</address>
<name>990</name>
<location>SME VoIP</location>
</persondata>
</response>
```

(4) Response: FP has received SMS

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="17.6.15.1526" type="job">
<externalid>0649396368</externalid>
<status>1</status>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 04:12:16</datetime>
<timestamp>5948e6f0</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
<persondata>
<address>990</address>
<name>990</name>
<location>SME VoIP</location>
</persondata>
</response>
```

(5) Response: Handset has received SMS

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="17.6.15.1526" type="job">
<externalid>0649396368</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 04:12:17</datetime>
<timestamp>5948e6f1</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<jobdata>
<priority>1</priority>
<messages>
<message1></message1>
<message2></message2>
<messageuui></messageuui>
</messages>
<status>1</status>
<statusinfo></statusinfo>
</jobdata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
<persondata>
<address>990</address>
<name>990</name>
<location>SME VoIP</location>
</persondata>
</response>
```

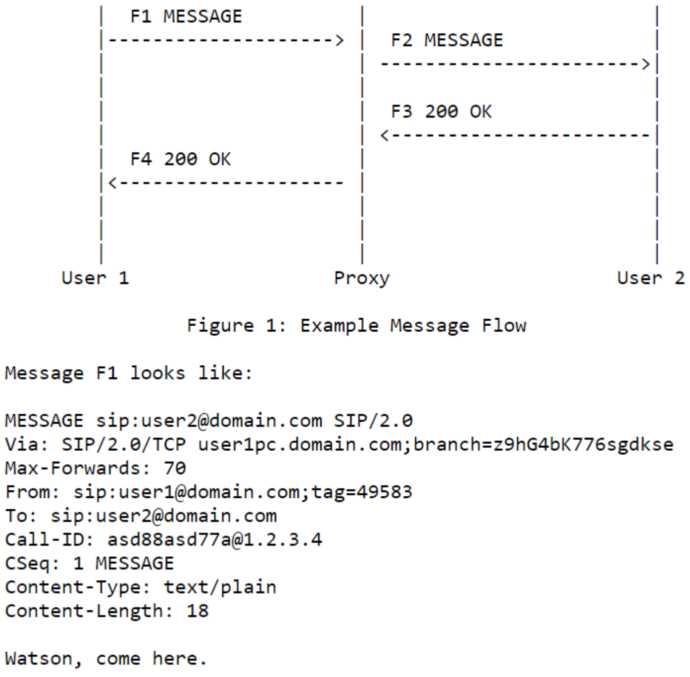
(6) Response: handset has received SMS

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="17.6.15.1526" type="job">
<externalid>0649396368</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 04:12:17</datetime>
<timestamp>5948e6f1</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<jobdata>
<priority>1</priority>
<messages>
<message1></message1>
<message2></message2>
<messageuui></messageuui>
</messages>
<status>1</status>
<statusinfo></statusinfo>
</jobdata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
<persondata>
<address>990</address>
<name>990</name>
<location>SME VoIP</location>
</persondata>
</response>
```

SMS & Alarm sent to/from FP/Handset via Sip

This is an expansion to the feature Text Messaging and requires the feature “text messaging sip”

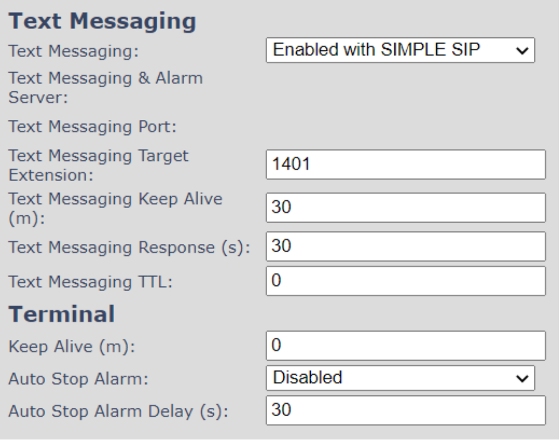
It is possible to have xml payload messages be run over SIP as the transport layer, this makes use of the sip MESSAGE method. SIMPLE SIP paging method described in RFC3428 is used to achieve this where a message is sent over a sip MESSAGE and expect a 200 OK back as confirmation the message is received. See figure 13 for an example:



```
             |  F1 MESSAGE           |                          |
             |--------------------> |  F2 MESSAGE               |
             |                       | ----------------------->|
             |                       |                          |
             |                       |  F3 200 OK               |
             |                       | <-----------------------|
             |  F4 200 OK            |                          |
             |<--------------------  |                          |
             |                       |                          |
             |                       |                          |
          User 1                   Proxy                     User 2

                   Figure 1: Example Message Flow

   Message F1 looks like:

   MESSAGE sip:user2@domain.com SIP/2.0
   Via: SIP/2.0/TCP user1pc.domain.com;branch=z9hG4bK776sgdkse
   Max-Forwards: 70
   From: sip:user1@domain.com;tag=49583
   To: sip:user2@domain.com
   Call-ID: asd88asd77a@1.2.3.4
   CSeq: 1 MESSAGE
   Content-Type: text/plain
   Content-Length: 18

   Watson, come here.
```

Figure 14 rfc example of MESSAGE method used for messaging

SIP is used as a party-to-party, however to have the XML properly parsed a receiving extension on the PBX will be required. The base will use the first indexed server in the server list as its “text messaging and alarm server” and send messages to the extension set on the webpage in the field *“Text Messaging Target Extension:”* or provisioned as *“TEXT_MSG_SIP_EXTENSION”* `with a limitation of a 36 character ASCII string.`



Text Messaging

Text Messaging:	Enabled with SIMPLE SIP
Text Messaging & Alarm Server:	
Text Messaging Port:	
Text Messaging Target Extension:	1401
Text Messaging Keep Alive (m):	30
Text Messaging Response (s):	30
Text Messaging TTL:	0

Terminal

Keep Alive (m):	0
Auto Stop Alarm:	Disabled
Auto Stop Alarm Delay (s):	30

Target Extension requires a reboot in order to take effect, as it is set during the initialization of the base.

Content-type is kept at Text/xml as it is expected that the receiving extension is set up to parse the payload. The from field will be populated based on the base station and not any extension using text messaging as the SIP layer is only used as a simple transport layer. The naming scheme is described below:

RTX8660, 63,64 & 67 will use <ChainId>@<domain>, where the domain is that of the first server in the server list.

RTX9430,31 will use Will add “TIA” before the ChainId, TIA is short for Texting Identification Account.

Any message from the PBX should go to a known extension on the base, to which the base will respond with a 200 OK. The payload will then be sent to be parsed as with regular UDP packages, with the correlated response sent out via SIP again. As the SIP method only changes the transport layer, functionality such as keep alive and response time are the same as previously described.

Known Limitations

- Text messaging is set up originally to function with a single server, as such all SIP traffic is sent to the first server in the server list as set up on the FP.
- During startup, some messages may receive a "not found" response from the FP, as not all SIP information is done setting up.
- Text Messaging does not take into consideration the response of the server past regular SIP handling. If the server responds by denying the message a text message will simply time out and tell the sending handset it failed to send the message.

Alarm send from FP/handset to a MS

A handset can be configured so it sends an alarm to the MS for the following cases:

- 0: Man Down
- 1: No Movement
- 2: Running
- 3: Pull Cord
- 4: Red Key
- 5-9 Reserved

Furthermore, the latest available beacon data is added to the alarm messages.
If no beacon UUID is available, the field is empty.

beacontype can be:
0: Unknown
1: iBeacon
2: AltBeacon
3: Eddystone

broadcastdata: HEX encoded raw beacon BLE broadcast payload. Maximum 64 characters (32 bytes). In Figure 16, Figure 17 and Figure 18 are shown an overview of the broadcastdata for the 3 supported beacon types.

bdaddr; HEX encoded permanent Bluetooth address for the received beacon. Maximum 12 characters (6 bytes).

Below is shown the XML messages when a handset is sending an alarm for "man down". Notice the message type is alarm.

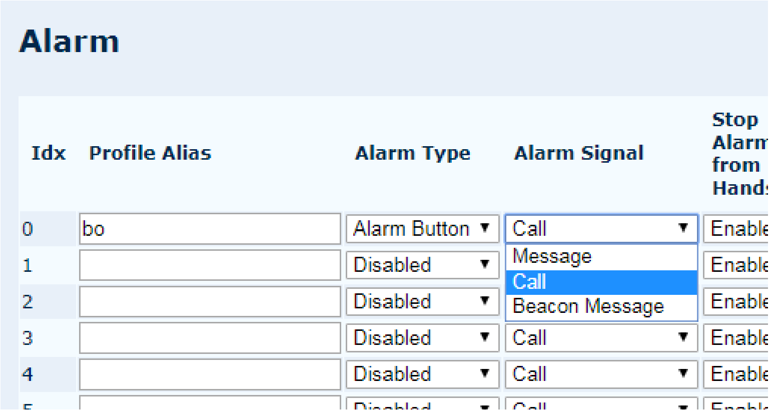
FP sends Alarm to MS

```
<?xml version="1.0" encoding="UTF-8"?>
<request version="17.6.15.1526" type="alarm">
<externalid>0623295349</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 05:55:51</datetime>
<timestamp>5948ff37</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<alarmdata>
<type>0</type>
</alarmdata>
<beacondata>
<beacontype>X</beacontype>
<broadcastdata>54235663af54235663af54235663af54235663af54235663af54235663af</broadcastdata>
<bdaddr>12AFCE98BEDE</bdaddr>
</beacondata>
<rssidata>
<rfpi>116e61fc00</rfpi>
<rssi>-28</rssi>
<rfpi>116e61fc02</rfpi>
<rssi>-36</rssi>
</rssidata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
</request>
```

Response from the MS to the FP

```
<?xml version="1.0" encoding="UTF-8"?>
<response version="v.3.4.7.1047" type="alarm">
<externalid>0623295349</externalid>
<status>1</status>
<statusinfo>Accepted by New Voice XML outgoing interface</statusinfo>
<systemdata>
<name>Mobicall</name>
<datetime>2017-06-20T12:55:55</datetime>
<timestamp>5948ff3b</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
</response>
```

Notice: When there an alarm is triggered from the handset any ongoing call is terminated. This is done for all types even though it is not necessary for “message types” as shown on figure 15.



Alarm

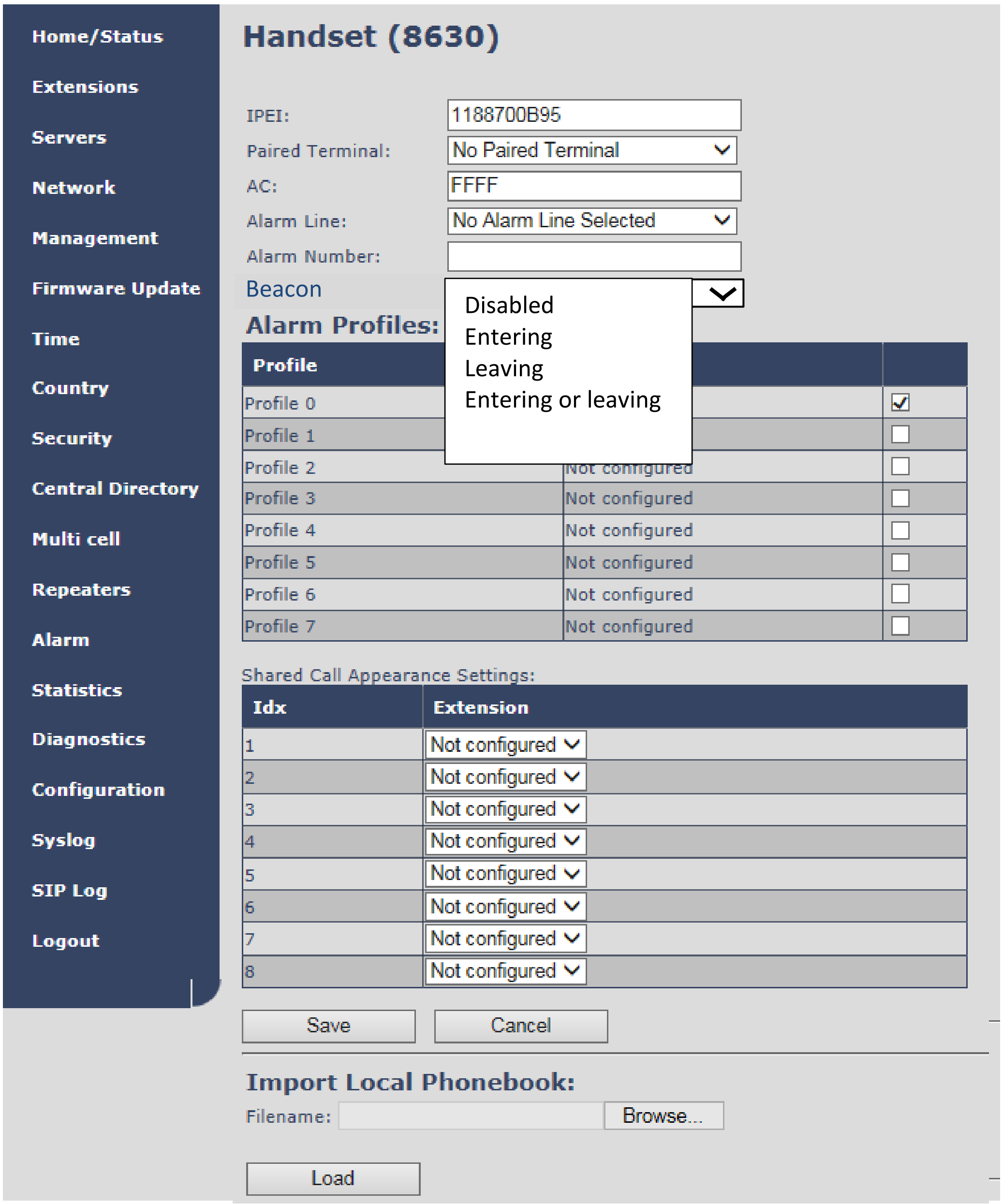
Idx	Profile Alias	Alarm Type	Alarm Signal	Stop Alarm from Hand:
0	bo	Alarm Button ▾	Call ▾	Enable
1		Disabled ▾		Enable
2		Disabled ▾		Enable
3		Disabled ▾	Call ▾	Enable
4		Disabled ▾	Call ▾	Enable
5		Disabled ▾	Call ▾	Enable

Figure 15 - alarm signal as seen on website

Beacon message sent from FP/handset to a MS

A handset can receive beacons messages from a beacon and send a message to the MS via the base with the information received.

Reception of beacons can be enabled via the webpage of the basestation in the Extension section:



Handset (8630)

IPEI: 1188700B95

Paired Terminal: No Paired Terminal

AC: FFFF

Alarm Line: No Alarm Line Selected

Alarm Number:

Beacon

Alarm Profiles:

Profile		
Profile 0		☑
Profile 1		□
Profile 2	Not configured	□
Profile 3	Not configured	□
Profile 4	Not configured	□
Profile 5	Not configured	□
Profile 6	Not configured	□
Profile 7	Not configured	□

Shared Call Appearance Settings:

Idx	Extension
1	Not configured
2	Not configured
3	Not configured
4	Not configured
5	Not configured
6	Not configured
7	Not configured
8	Not configured

Import Local Phonebook:

Filename:

Beacon Alarm Configuration

The beacon alarm can be configured in 4 different ways when sending beacon alarms to the MS:

1. When entering the proximity of a beacon
2. When leaving the proximity of a beacon
3. When entering, or leaving the proximity of a beacon
4. Or disabled

Please read the specification: *"BTLE smart Beacon alarms"* for detailed information about when there is sent entering/leave messages, default thresholds etc.

The eventtype can be:

0. Entering proximity of the beacon

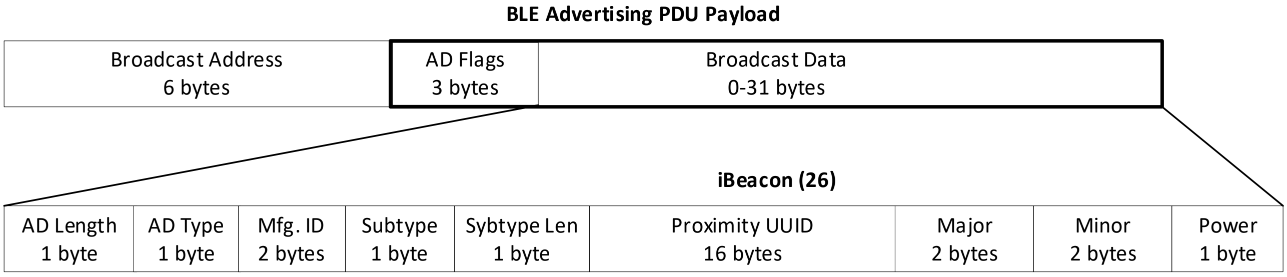
1. Leaving proximity of the beacon

beacontype can be:

0. Unknown
1. iBeacon
2. AltBeacon
3. Eddystone

broadcastdata: HEX encoded raw beacon BLE broadcast payload. Maximum 64 characters (32 bytes). In Figure 16, Figure 17 and Figure 18 are shown an overview of the broadcastdata for the 3 supported beacon types.

Bdaddr: HEX encoded permanent Bluetooth address for the received beacon. Maximum 12 characters (6 bytes).



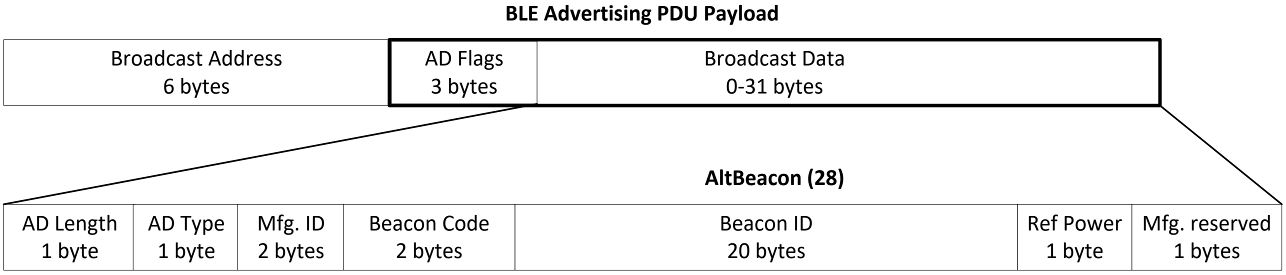
BLE Advertising PDU Payload

Broadcast Address	AD Flags	Broadcast Data
6 bytes	3 bytes	0-31 bytes

iBeacon (26)

AD Length	AD Type	Mfg. ID	Subtype	Sybtype Len	Proximity UUID	Major	Minor	Power
1 byte	1 byte	2 bytes	1 byte	1 byte	16 bytes	2 bytes	2 bytes	1 byte

Figure 16: iBeacon. broadcastdata consist of UUID, Major, Minor, and Power.



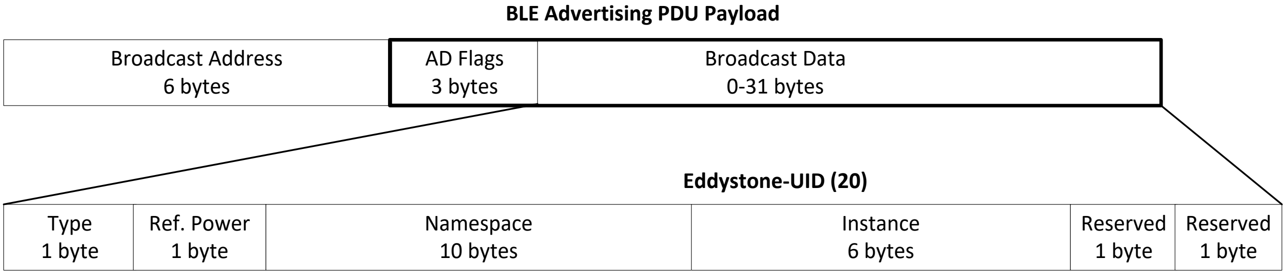
BLE Advertising PDU Payload

Broadcast Address	AD Flags	Broadcast Data
6 bytes	3 bytes	0-31 bytes

AltBeacon (28)

AD Length	AD Type	Mfg. ID	Beacon Code	Beacon ID	Ref Power	Mfg. reserved
1 byte	1 byte	2 bytes	2 bytes	20 bytes	1 byte	1 bytes

Figure 17: AltBeacon. broadcastdata consist of Beacon ID, Mfg. reserved and Ref Power.



BLE Advertising PDU Payload

Broadcast Address	AD Flags	Broadcast Data
6 bytes	3 bytes	0-31 bytes

Eddystone-UID (20)

Type	Ref. Power	Namespace	Instance	Reserved	Reserved
1 byte	1 byte	10 bytes	6 bytes	1 byte	1 byte

Figure 18: Eddystone beacon. broadcastdata consist of Namespace, Instance and Ref. Power.

Beacon Alarm message Example

Below is shown the XML messages when a handset/base is sending a beacon alarms.

FP/handset sends an alarm to the MS:

```
 <?xml version="1.0" encoding="UTF-8"?>
<request version="17.6.15.1526" type="beacon">
<externalid>0623295349</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2017-06-20 05:55:51</datetime>
<timestamp>5948ff37</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<beacondata>
<eventtype>0</eventtype>
<beacontype>X</beacontype>
<broadcastdata>54235663af54235663af54235663af54235663af54235663af54235663af</broadcastdata>
<bdaddr>12AFCE98BEDE</bdaddr>
</beacondata>
<senderdata>
<address>991</address>
<name>991</name>
<location>SME VoIP</location>
</senderdata>
</request>
```

Response from the MS to the FP:

```
 <?xml version="1.0" encoding="UTF-8"?>
<response version="v.3.4.7.1047" type="beacon">
<externalid>0623295349</externalid>
<status>1</status>
<statusinfo>Accepted by New Voice XML outgoing interface</statusinfo>
<systemdata>
<name>MessagesServerName</name>
<datetime>2017-06-20T12:55:55</datetime>
<timestamp>5948ff3b</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
</response>
```

Handset user interface for alarm reception

See [2] for details about the UI in the handset

Provisioning of beacon settings

Handset setup for beacon

In this chapter it is described which parameters that is transferred from the FP to the beacon handset application.

The handset has 2 modes for beacon, active and passive.
Active mode: Here is the handset acting as a beacon itself and transmits beacon information to the surroundings.

Passive mode: Here the handset is listening for beacon and report the received beacons to the messages server.
In Figure 19and Figure 20 are the 2 modes shown.

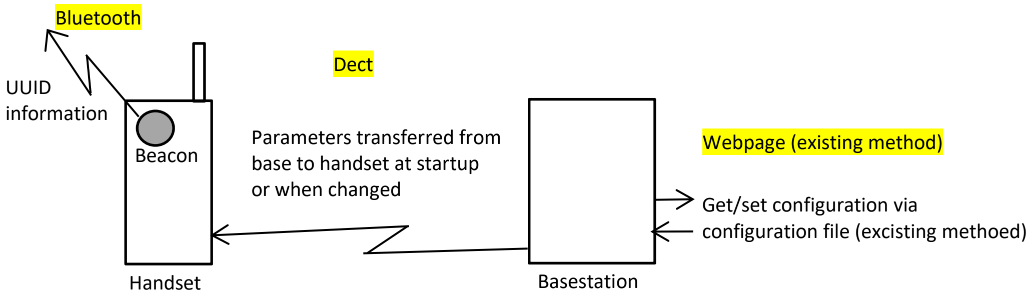

Bluetooth
UUID information
Beacon
Dect
Parameters transferred from base to handset at startup or when changed
Webpage (existing method)
Get/set configuration via configuration file (excisting methoed)
Handset
Basestation

Figure 19: Active mode: handset is acting as a beacon itself.

.

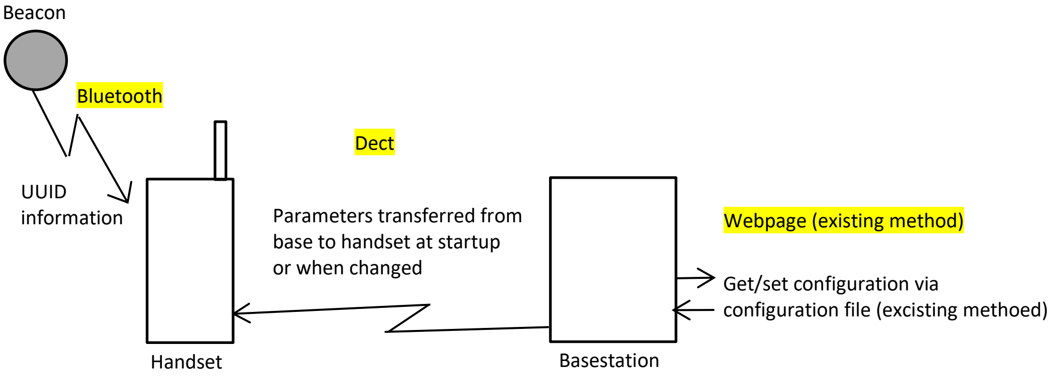

Beacon
Bluetooth
UUID information
Dect
Parameters transferred from base to handset at startup or when changed
Webpage (existing method)
Get/set configuration via configuration file (excisting methoed)
Handset
Basestation

Figure 20: Passive mode. Handset is listening for beacons.

Parameters are stored in the base and transferred to the handset when the handset is located to the base (existing method).
Parameters are transferred from the base to the handset when they are changed on the base (existing method).
It is not possible to change the parameters in the handset.

Some parameters are only relevant for active mode and some only for passive mode. Below is listen the different parameters:

Table 1: Parameters transferred from base to the handset.

Name	**Setting**	**Comment**
Handset mode (2 bit)	Receive beacon, Transmit beacon, receive and Transmit beacon	1 selectable (drop down)
Passive mode		
Receive mode (2 bit)	report beacon information: Disabled, enter proximity, leave proximity, enter/leave proximity.	1 selectable (drop down)
~~Receive Sensitivity (2 bit)~~	~~Full, +8 or +16 dBm receiver sensitivity.~~	~~1 selectable (drop down)~~
Receive selection (4 bit) 1 extra bit reserved	Select which beacons to receive. iBeacon, AltBeacon, Eddystone.	All 3 can be selected

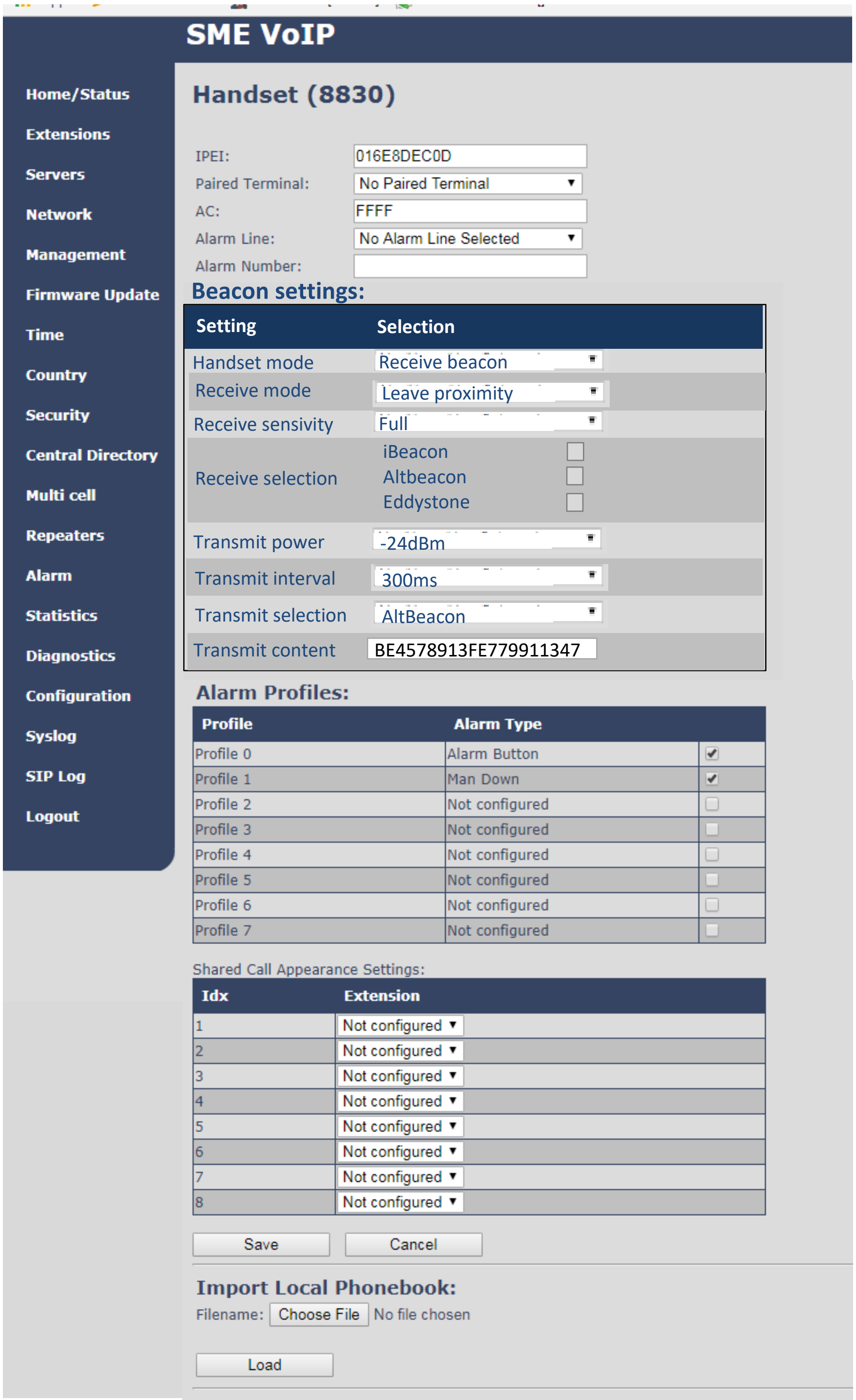
Active mode		
Transmit power (6 bit)	0 to -46dBm in 2 dB steps	1 selectable (drop down)
Transmit selection (2 bit)	Select which beacon type to transmit: iBeacon, AltBeacon, Eddystone.	1 selectable (drop down)
Transmit interval (2 bit)	Interval between each beacon transmit. 100ms 300ms 500ms	1 selectable (drop down)

In the multicell Voip System there is space for 1000 handsets. It is therefore important to use as little space as possible for the parameters.

It is therefore not recommended to store the broadcast for each handset as this will fill 32kByte in the base.
We should use the IPEI number as part of the UUID number together with a costumer selectable value that is the same for all handsets.

Transmit beacon content (32 bytes)	Broadcast data of the transmitted beacon (space reserved 32 bytes) iBeacon: 26 bytes AltBeacon: 28 bytes EddyStone: 20 bytes	Input of up to 32 bytes

The parameters are set following place in the webpage (same place as other parameters that are send to the handset at startup)



Handset (8830)

IPEI:	016E8DEC0D
Paired Terminal:	No Paired Terminal ▾
AC:	FFFF
Alarm Line:	No Alarm Line Selected ▾
Alarm Number:	

Beacon settings:

Setting	Selection
Handset mode	Receive beacon ▾
Receive mode	Leave proximity ▾
Receive sensivity	Full ▾
Receive selection	iBeacon □ Altbeacon □ Eddystone □
Transmit power	-24dBm ▾
Transmit interval	300ms ▾
Transmit selection	AltBeacon ▾
Transmit content	BE4578913FE779911347

Alarm Profiles:

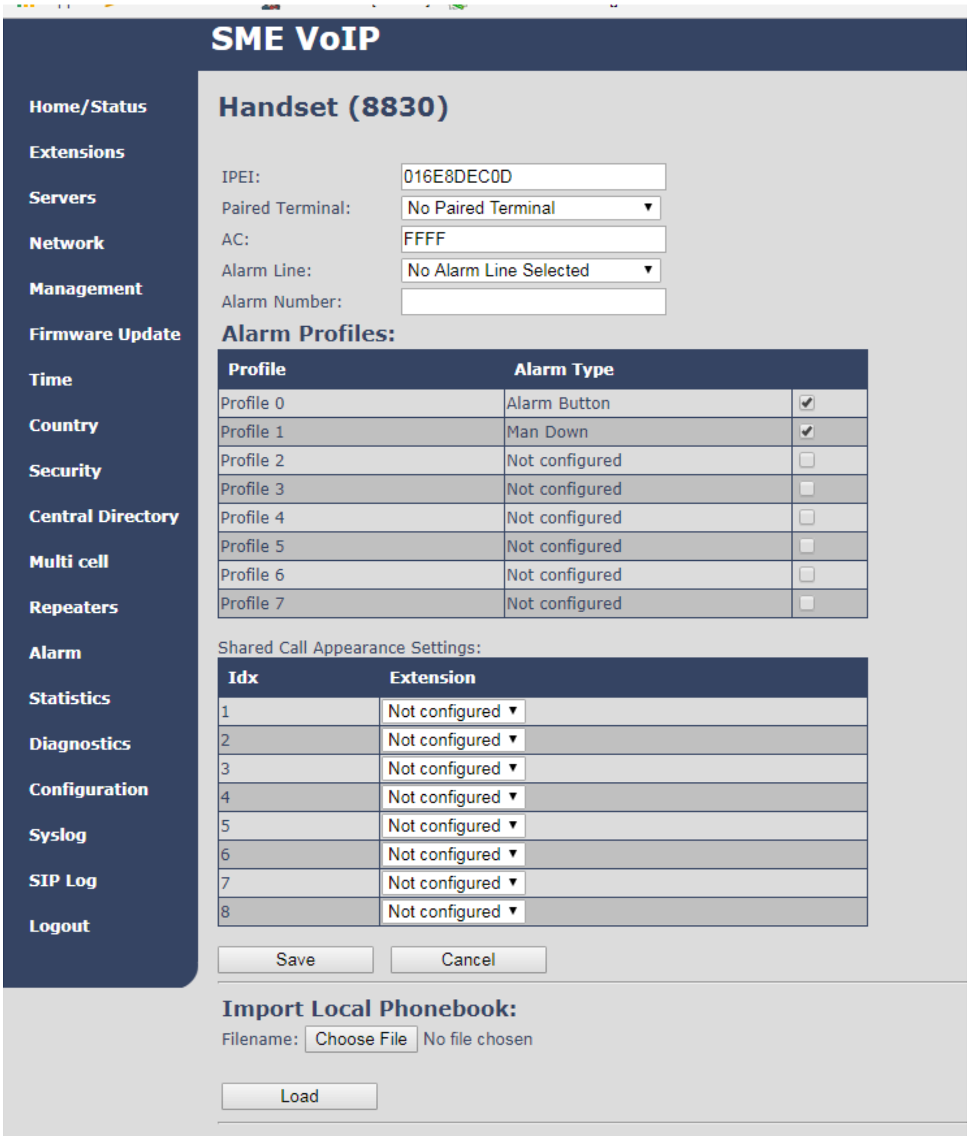
Profile	Alarm Type	
Profile 0	Alarm Button	☑
Profile 1	Man Down	☑
Profile 2	Not configured	□
Profile 3	Not configured	□
Profile 4	Not configured	□
Profile 5	Not configured	□
Profile 6	Not configured	□
Profile 7	Not configured	□

Shared Call Appearance Settings:

Idx	Extension
1	Not configured ▾
2	Not configured ▾
3	Not configured ▾
4	Not configured ▾
5	Not configured ▾
6	Not configured ▾
7	Not configured ▾
8	Not configured ▾

Import Local Phonebook:

Filename: Choose File No file chosen



Handset (8830)

IPEI:	016E8DEC0D
Paired Terminal:	No Paired Terminal ▾
AC:	FFFF
Alarm Line:	No Alarm Line Selected ▾
Alarm Number:	

Alarm Profiles:

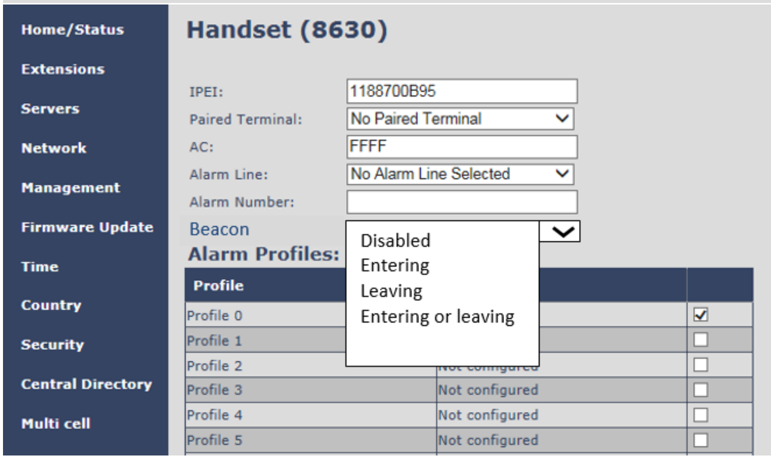
Profile	Alarm Type	
Profile 0	Alarm Button	☑
Profile 1	Man Down	☑
Profile 2	Not configured	□
Profile 3	Not configured	□
Profile 4	Not configured	□
Profile 5	Not configured	□
Profile 6	Not configured	□
Profile 7	Not configured	□

Shared Call Appearance Settings:

Idx	Extension
1	Not configured ▾
2	Not configured ▾
3	Not configured ▾
4	Not configured ▾
5	Not configured ▾
6	Not configured ▾
7	Not configured ▾
8	Not configured ▾

Import Local Phonebook:

Filename: Choose File No file chosen



Handset (8630)

IPEI:	1188700B95
Paired Terminal:	No Paired Terminal
AC:	FFFF
Alarm Line:	No Alarm Line Selected
Alarm Number:	
Beacon	

Alarm Profiles:

Profile		
Profile 0		☑
Profile 1		□
Profile 2	Not configured	□
Profile 3	Not configured	□
Profile 4	Not configured	□
Profile 5	Not configured	□

RTX8200 setup

The RTX8200 has also as the handset 2 mode, active or passive.
The setup is almost done the same way for the RTX8200 as for the handset except for the following differences.

The setting for the RTX8200 can be setup either via the base or via a Bluetooth interface. In Figure 21 and Figure 22 the 2 ways are shown.

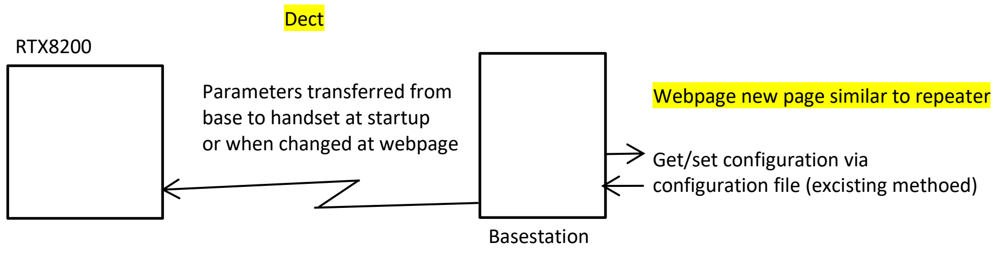

Dect
RTX8200
Parameters transferred from base to handset at startup or when changed at webpage
Webpage new page similar to repeater
Get/set configuration via configuration file (excisting methoed)
Basestation

Figure 21: Setting parameters in the RTX8200 from the base.

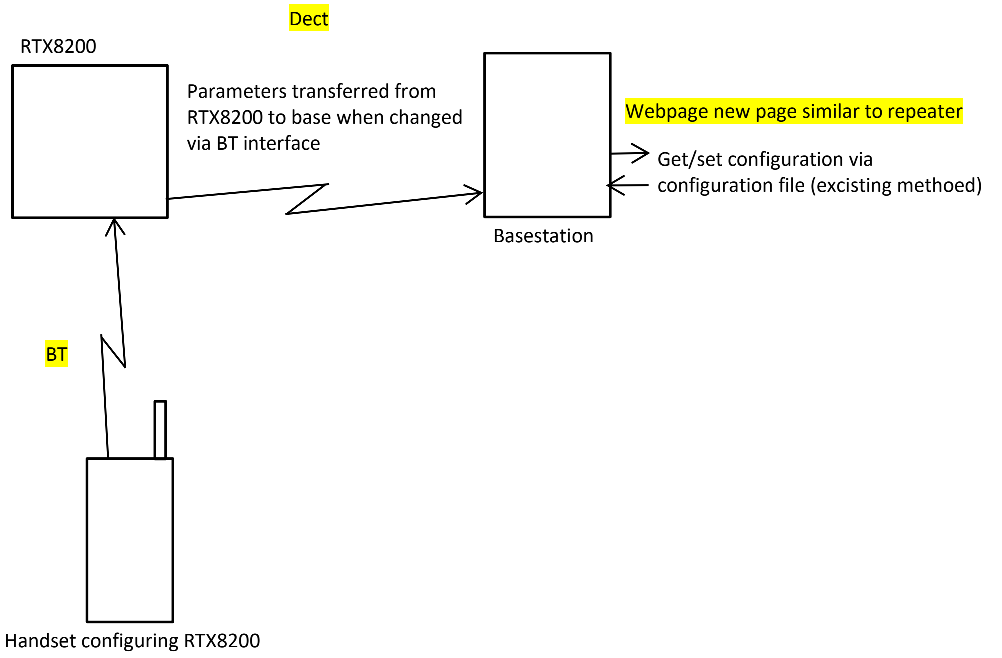

Dect
RTX8200
Parameters transferred from RTX8200 to base when changed via BT interface
Webpage new page similar to repeater
Get/set configuration via configuration file (excisting methoed)
Basestation
BT
Handset configuring RTX8200

Figure 22: Setting parameters in the RTX8200 via a BT interface from a handset.

When the RTX8200 are updated via the BT interface the parameters are pushed back to the base and stored in the base NVS, so they are used next time the RTX8200 is restarted.

The RTX8200 has the same parameters as the handset (see Table 1) except that the antenna beamform can be set.

Name	**Setting**	
Antenna beamform	3 choises: left, right, cross	

Beacon test interface

There has been developed a AT interface for testing interface between the handset and base/message server

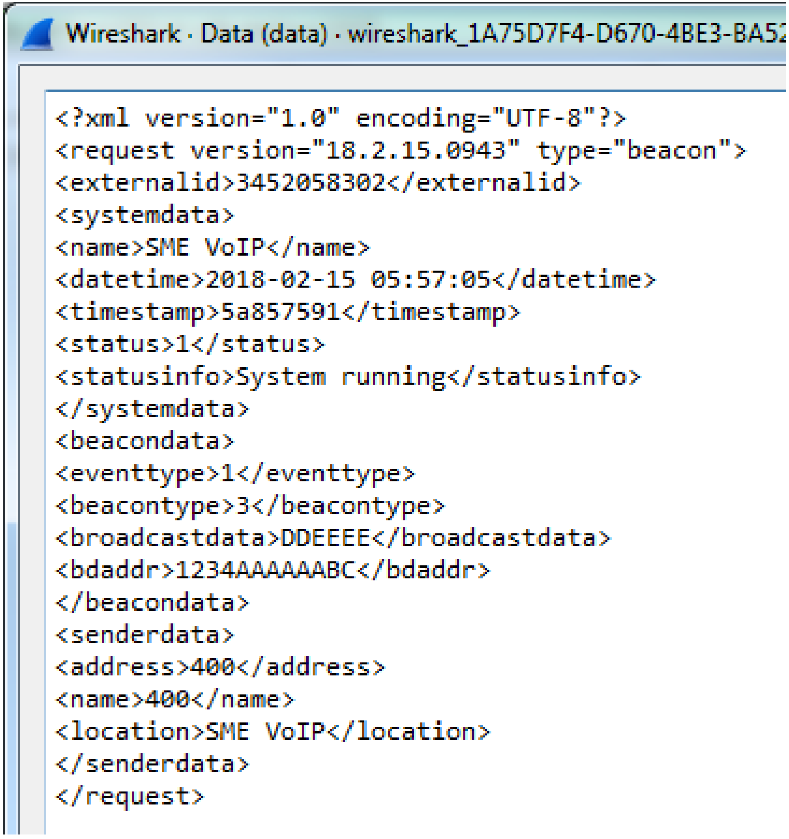
This test interface is emulating the application that will normally send the beacon request to the sms module in the handset.

Parameters: - remember that all input is in HEX

rsbool ContiniousMode - True: there will be send a beacon at each timeinterval. False: there is only send 1 beacon.
rsuint16 TimeInterval - Interval in ms between each beacon request.
rsbool KeepCissOpen - True if the ciss connection should be left open.
rsuint16 BeaconRefNum - Reference number for the beacon.
rsuint8 eventtype - Eventtype: 0: enter. 1: leaving.
rsuint8 beaconType - BeaconType: 0: Unknown, 1: iBeacon, 2:AltBeacon , 3:Eddystone
rsuint8 bdaddr[12] - BT MAC address, always 12 characters.
rsuint8 broadcastLen - Length of broadcastdata. Max 64 characters
rsuint8 broadcastdata[1] - broadcastdata from the beacon.

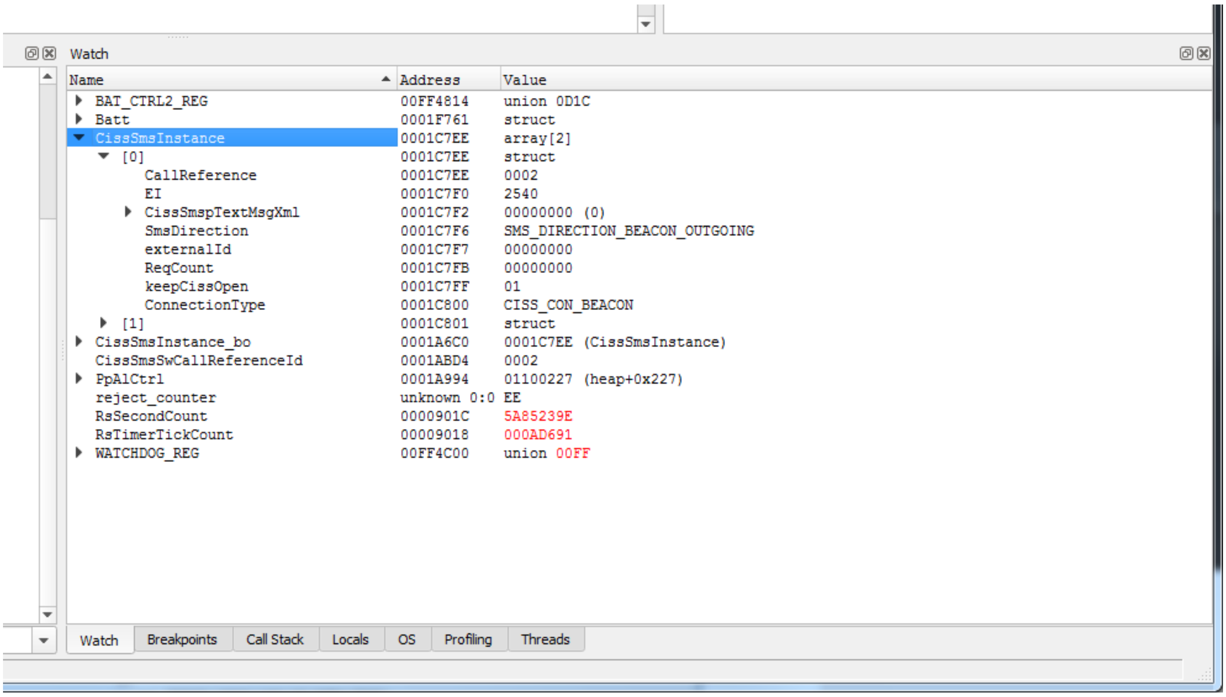
Example of AT command:
BeaconAutotest.bat 0 1000 1 9 1 3 31 32 33 34 41 41 41 41 41 41 42 43 6 44 44 45 45 45 45

The above command will result in the below UDP packet from the base:



```
<?xml version="1.0" encoding="UTF-8"?>
<request version="18.2.15.0943" type="beacon">
<externalid>3452058302</externalid>
<systemdata>
<name>SME VoIP</name>
<datetime>2018-02-15 05:57:05</datetime>
<timestamp>5a857591</timestamp>
<status>1</status>
<statusinfo>System running</statusinfo>
</systemdata>
<beacondata>
<eventtype>1</eventtype>
<beacontype>3</beacontype>
<broadcastdata>DDEEEE</broadcastdata>
<bdaddr>1234AAAAAABC</bdaddr>
</beacondata>
<senderdata>
<address>400</address>
<name>400</name>
<location>SME VoIP</location>
</senderdata>
</request>
```

When testing with the test interface it is interesting to watch the CissSmsInstance, where the ReqCount is indicating how many outstanding requests there is currently in the handset.



```
Name                                  Address        Value
▸ BAT_CTRL2_REG                       00FF4814       union 0D1C
▸ Batt                                0001F761       struct
▾ CissSmsInstance                     0001C7EE       array[2]
   ▾ [0]                              0001C7EE       struct
       CallReference                  0001C7EE       0002
       EI                             0001C7F0       2540
     ▸ CissSmspTextMsgXml             0001C7F2       00000000 (0)
       SmsDirection                   0001C7F6       SMS_DIRECTION_BEACON_OUTGOING
       externalId                     0001C7F7       00000000
       ReqCount                       0001C7FB       00000000
       keepCissOpen                   0001C7FF       01
       ConnectionType                 0001C800       CISS_CON_BEACON
   ▸ [1]                              0001C801       struct
▸ CissSmsInstance_bo                  0001A6C0       0001C7EE (CissSmsInstance)
  CissSmsSwCallReferenceId            0001ABD4       0002
▸ PpAlCtrl                            0001A994       01100227 (heap+0x227)
  reject_counter                      unknown 0:0    EE
  RsSecondCount                       0000901C       5A85239E
  RsTimerTickCount                    00009018       000AD691
▸ WATCHDOG_REG                        00FF4C00       union 00FF
```

Interface specification for transfer data from handset to base via CISS

Below is described the interface between the handset application handling Beacons to SMS module in the handset. In Figure 23 to Figure 27 is shown how the application in interfacing with the SMS module in the handset.

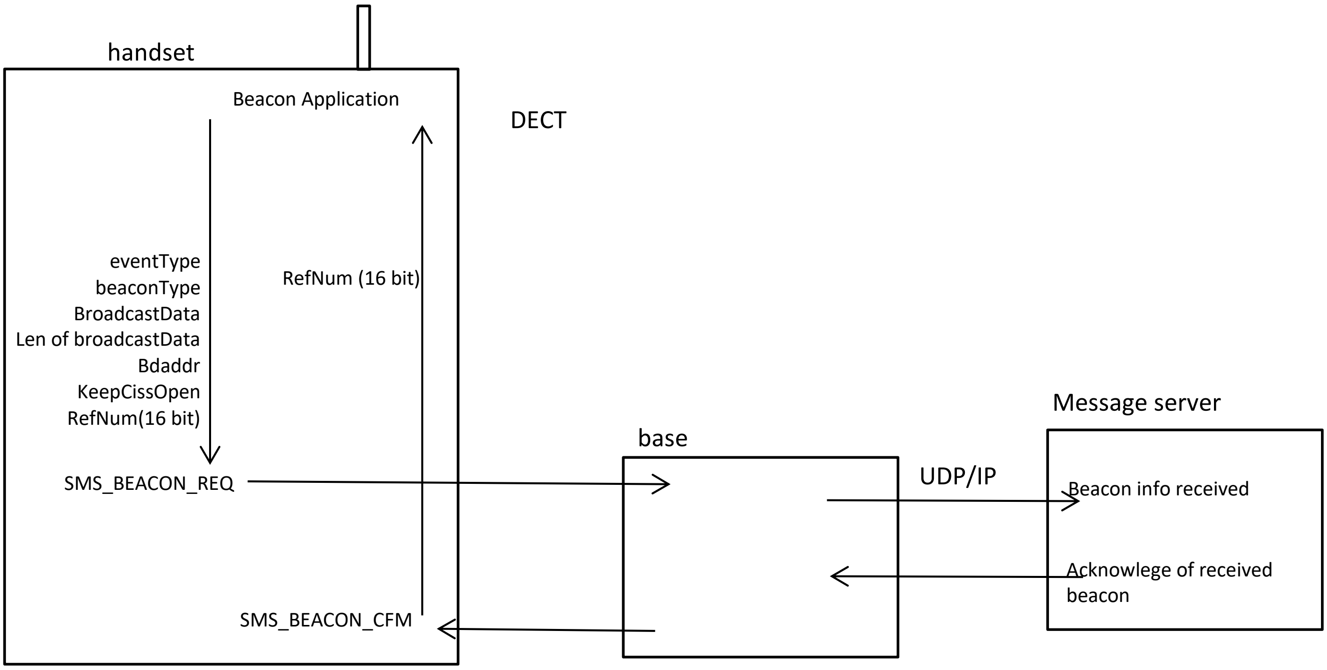


Figure 23: Interface between beacon application and the SMS module

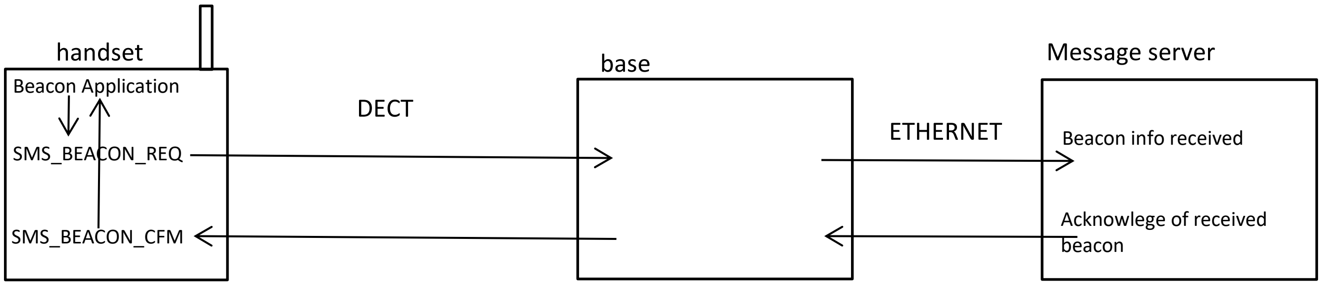


Figure 24: Successful beacon send to a message server.

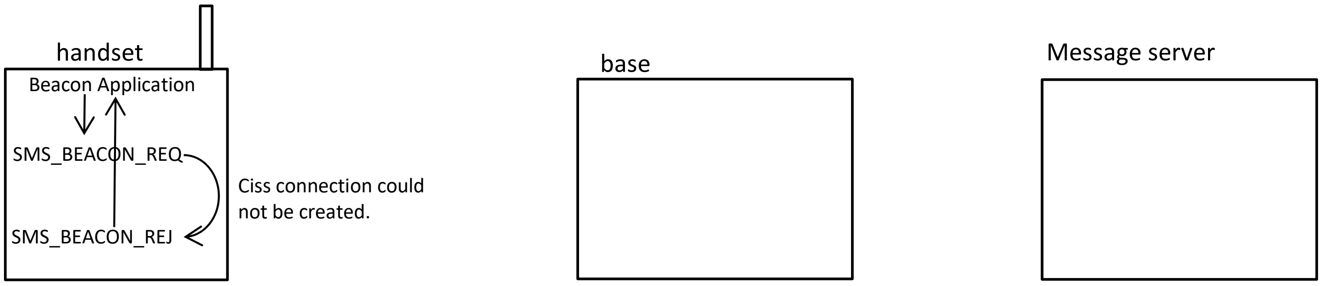


Figure 25: Creating Ciss connection from handset to base failed.

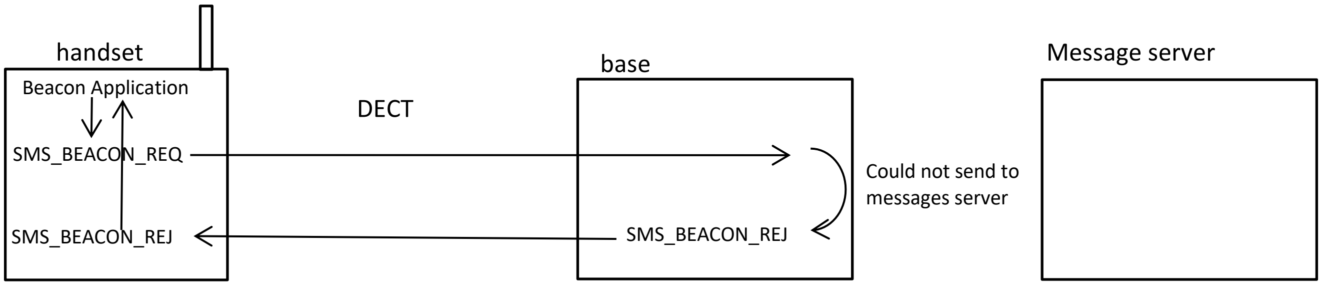


Figure 26: Sending beacon from base to messages server failed.

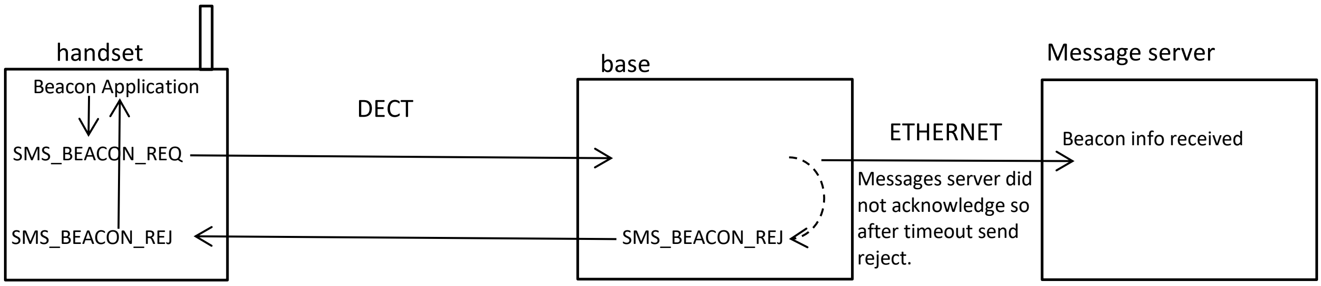


Figure 27:Messages server did not acknowledge the revived beacon.

The interface header is places in sms.h:

void SendSmsBeaconReq(RosTaskIdType Src, rsuint8 eventtype, BeaconType beacontype, rsuint8 *broadcastData, rsuint8 broadcastDataLen, rsuint8 *bdaddr, rsbool KeepCissOpen, rsuint16 beaconRefNum);

```
* eventtype:
*    0: entering proximity of the beacon
*    1: leaving proximity of the beacon

* beacontype:
*   BEACON_TYPE_UNKNOWN      = 0x00,
*   BEACON_TYPE_IBEACON      = 0x01,
*   BEACON_TYPE_ALTBEACON    = 0x02
*   BEACON_TYPE_EDDYSTONE    = 0x03
*
* broadcastData:
* (max 32 bytes -will be converted to a 64 byte string in the base before send to the messages server)
*
*
* broadcastDataLen:
*   length of broadcastData.
*
* bdaddr:
*  always 6 bytes - -will be converted to a 12 byte string in the base before send to the messages server
*
* KeepCissOpen:
*   TRUE: the ciss connection is keep open until informed by the application to be closed
*   FALSE: the ciss connection is closed when all outstanding request has either been confirmed or rejected ( there is a counter for request and confirm/reject messages)

* beaconRefNum:
*   reference number that will be returned in the confirm or reject mail
*   it is not allowed to use reference number 0xFFFF as this is reserved, see more info in SendBeaconSendRej
```

The structure for confirmation SMS_BEACON_CFM is:

```
typedef struct SmsSendBeaconCfmType
{
  RosPrimitiveType Primitive;          /*!< SMS_BEACON_CFM */
  rsuint16 beaconRefNum;               /*!< Reference number of the beacon that has been sent from the application to the SMS module. Used for
identification in CFM and REJ messages */
} SmsSendBeaconCfmType;
```

The structure for rejection SMS_BEACON_REJ is:

```
typedef struct SmsSendBeaconRejType
{
  RosPrimitiveType Primitive;          /*!< SMS_BEACON_REJ */
  SmsRejectReasonType RejectReason;    /*!< Reason that the message is rejected. */
  rsbool Resend;                  /*!<Info if the information should be resend */
  rsuint16 beaconRefNum;               /*!< Reference number of the beacon that has been sent from the application to the SMS module. Used for
identification in CFM and REJ messages */
} SmsSendBeaconRejType;
```

Special case for beaconRefNum: 0xFFFF

If the handset is out of range of the basestation (in searching mode) or if all resources are used (8 ongoing calls on the basestation) the beaconRefNum is 0xFFFF in SMS_BEACON_REJ. When this happens all beacon requests that has yet not been confirmed or rejected should be resend. It is recommended to wait a little time before trying to resend.

Even though there have been several requests there will only be send one SendBeaconSendRej with reference number 0xFFFF.

Timing constrains

If the message server does not answer the request it takes some time for the base to timeout the beacon request from the handset. Every request that is not confirmed or rejected in the handset will fill the heap until it is rejected/confirmed. In case message server does not respond it takes some time before the base is sending a reject to the handset. In case the application continues to receive reject from the base the application should not send request at a higher interval than 100 ms between each other, otherwise the heap will run full at the handset. This has only been tested with Rocket/Beatus and could be differently for other combinations.

Furthermore, there has been created a new interface for sending alarms where the latest beacon broadcast data can be included in the messages:

```
void SendSmsAlarmAndBeaconReq(RosTaskIdType Src, EmergencyTypeOfAlarmType Alarm, BeaconType beacontype, rsuint8 *broadcastData,
rsuint8 broadcastDataLen, rsuint8 *bdaddr);
```

```
* beacontype:
*   BEACON_TYPE_UNKNOWN      = 0x00,
*   BEACON_TYPE_IBEACON      = 0x01,
*   BEACON_TYPE_ALTBEACON    = 0x02
*   BEACON_TYPE_EDDYSTONE    = 0x03
*
* broadcastData:
* (max 32 bytes -will be converted to a 64 byte string in the base before send to the messages server)
*
*
* broadcastDataLen:
*   length of broadcastData.
*
* bdaddr:
*  always 6 bytes -will be converted to a 12 byte string in the base before send to the messages server
```

Open issues to discuss

How should the handset react in case the beacon is not received in the messages server – pop up on the screen ?
When an alarm is triggered should we automatically turn on reception of beacons

Test:

when sending SMS_ALARM_REQ more often than every 64ms will slowly increase the heap on Rocket.

Auto test

The following is auto test that is used for Jenkins/robot framework.

Alarm test 1 – ConfirmationType 0

Inputs:
Priority: 1
ReferenceNo:1
Confirmationtype: 0
Text: Alarm test 1
Status: 0
ExternalId:1

Verify:
that only 1 response is received from the base
delete the alarm and verify that there are 0 alarms in the list

Alarm test 2 – ConfirmationType 1

Inputs:
Priority: 1
ReferenceNo:1
Confirmationtype: 1
Text: Alarm test 1
Status: 0
ExternalId:1

Verify:
that 2 responses are received from the base
delete the alarm and verify that there are 0 alarms in the list

Alarm test 3 – ConfirmationType 2 - OK

Inputs:
Priority: 1
ReferenceNo:1
Confirmationtype: 2
Text: Alarm test 1
Status: 0
ExternalId:1

Verify:
that 2 responses are received from the base

Inputs:
Press ok

Verify:
that 1 responses are received from the base
delete alarm and verify that the alarm list is empty

Alarm test 4 – ConfirmationType 2 - reject

Inputs:
Priority: 1
ReferenceNo:1
Confirmationtype: 2
Text: Alarm test 1
Status: 0
ExternalId:1

Verify:
that 2 responses are received from the base

Inputs:
Press reject

Verify:
that 1 responses are received from the base
verify that the alarm list is empty

Alarm test 5 – ConfirmationType 2 – substitude Alarm

Inputs:
Priority: 1
ReferenceNo:1
Confirmationtype: 2
Text: Alarm test 1
Status: 0
ExternalId:1

Verify:
that 2 responses are received from the base
the text received in the handset

Inputs:
Priority: 1
ReferenceNo:1
Confirmationtype: 2
Text: Alarm test 1 é NEW alarm
Status: 0
ExternalId:15

Verify:
that 2 responses are received from the base
that there is only 1 alarm in the list
delete alarm and verify that the alarm list is empty

Alarm test 6 – confirmation type 1 -delete

Inputs:
Priority: 1

ReferenceNo:1
Confirmationtype: 1
Text: Alarm test 1
Status: 0
ExternalId:1

Verify:
that 2 responses are received from the base
that there is 1 alarm in the list

Input (delete alarm):
Priority: 1
ReferenceNo:1
Confirmationtype: 1
Text: Alarm test 1
Status: 10
ExternalId:

Verify:
that 2 responses are received from the base
that there is 1 alarm in the list
delete alarm and verify that there are 0 alarms in the alarm list

Alarm test 7 – confirmation type 2 -delete

Inputs:
Priority: 1
ReferenceNo:1
Confirmationtype: 2
Text: Alarm test 1
Status: 0
ExternalId:1

Verify:
that 2 responses are received from the base
that there is 1 alarm in the list

Inputs2 (delete alarm):
Priority: 1
ReferenceNo:1
Confirmationtype: 2
Text: Alarm test 1
Status: 10
ExternalId:

Verify:
that 2 responses are received from the base
that there is 0 alarm in the list

Alarm test 8 – 50 alarms confirmation type 2

50 alarms with
Inputs:

Priority: 1
ReferenceNo:1
Confirmationtype: 2
Text: Alarm test 1
Status: 0
ExternalId:1

Verify:
that there are 50 alarms in the list
delete 49 alarms and verify that there is 1 alarm left
delete 1 alarm and verify that there is 1 alarm left

Alarm test 9 – Send multiple alarms fast to the handset

2 alarms with
Inputs:
Priority: 1
ReferenceNo:1
Confirmationtype: 2
Text: Alarm test 1
Status: 0
ExternalId:1

Send with no delay between messages
Verify:
that there are 1 alarm in the list
There is send a message to the message server with negative ack

Alarm test 10 – Send alarms to 11 handsets

1 x BS
11 x HS
11 alarms with
Inputs:
Priority: 1
ReferenceNo:1
Confirmationtype: 2
Text: Alarm test 1
Status: 0
ExternalId:1

Base should be idle. (No calls / FWU etc)
Send alarms to all 11 handsets.

Verify:
10 handsets receive an alarm
1 handset doesn’t receive an alarm

SMS test 1 – confirmation type 0

Inputs:
Priority: 0

Sender: 888
Confirmationtype: 0
Text: Sms test 1
Status: 0
ExternalId:1

Verify:
The received text
The received sender
That there is 1 SMS. Delete the SMS and verify that there is 0 SMS

SMS test 2 – confirmation type 1 - OK

Inputs:
Priority: 0
Sender: 888
Confirmationtype: 1
Text: Sms test 1
Status: 0
ExternalId:1

Input 2:
Press OK

Verify:
There is received a status 4 response
The received text
The received sender
That there is 1 SMS. Delete the SMS and verify that there is 0 SMS

SMS test 3 – confirmation type 1 - REJECT

Inputs:
Priority: 0
Sender: 888
Confirmationtype: 1
Text: Sms test 1
Status: 0
ExternalId:1

Input 2:
Press REJECT

Verify:
There is received a status 5 response
The received text
The received sender
That there is 1 SMS. Delete the SMS and verify that there is 0 SMS

SMS test 4 – 50 SMS confirmation type 0

Sent 50 SMS to the handset
Inputs:

Priority: 0
Sender: 888
Confirmationtype: 0
Text: Sms test 1
Status: 0
ExternalId:1

Verify:
that there are 50 SMS in the list
delete all 50 SMS with “delete all” and verify that there is 0 SMS left