

DECT Server 8000 & DECT Server 2500

Application note:

- Handset Sharing
- Automatic Alarm Call Application
- Telocator Alphanumeric Protocol (TAP) 1.8

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1. Introduction

A short description of three different facilities in DECT Server 8000 & DECT Server 2500. Each facility requires a licence.

- Handset Sharing.
- Alarm Call Application.
- Telocator Alphanumeric Protocol (TAP).

This description is base on firmware14136890 PCS13__.

Firmware part number 14136899 contains both firmware 14136800 [the old CPU card] and firmware 14136820 [the new CPU-II card].

2. Handset Sharing.

If a function or a location extension is used 24 hours 7 days a week, then there is no time for charging the phone. If it is not possible to swap batteries, then Handset Sharing can be necessary.

Normally a data set in the user data base describes handset and line/phone number information. For handset sharing a data set for each phone in a group and a data set for each line in the group has to be configured in the data base. You can have up to 255 different groups; each group has a number of handsets and a number of lines.

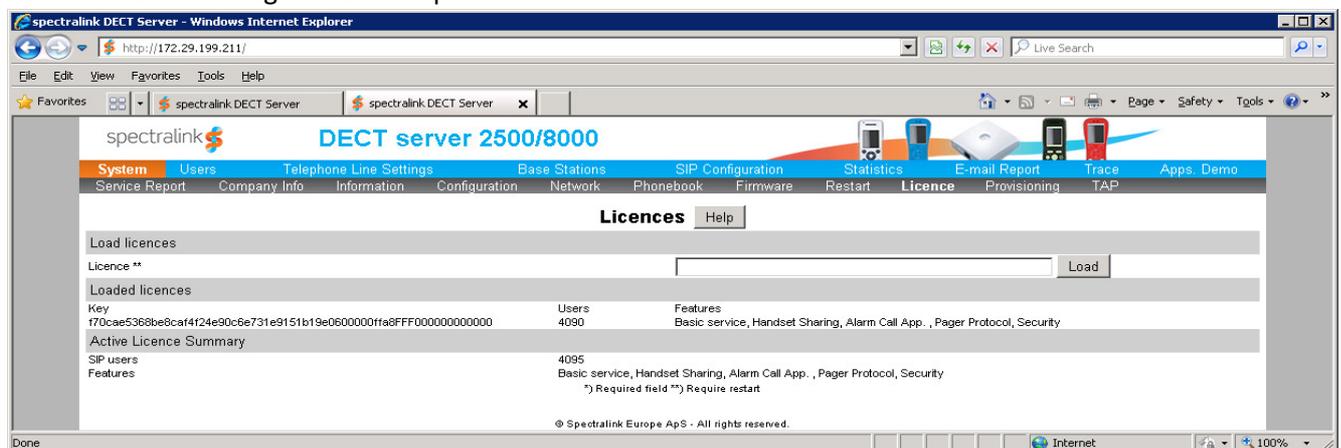
The user can assign and deassign the handset to a certain extension (DN/phone number/line number) in 3 different ways. Either in or out of a charger, Power the handset off/on or long-press the 8 key. First the handset will prompt for an extension number to be assigned to. If a password exist the handset will also ask for a password. The handset is now assigned to an extension.

Sometime a overlap between two shifts is required, therefore the DECT SERVER can be set to allow two or even three phones on the same number, either for a short period or permanent.

DECT Server 6500 and DECT Server 400 do also have a handset sharing facility however the functionality is different than that on DECT 8000 and 2500.

2.1 Handset Sharing configuration in DECT Server.

First a handset sharing licence is required:



The licence is stored on back plan of the master DECT Server. When you order a Handset Sharing licence you have to supply the ARI code of the master DECT Server.

Configuration of handset sharing is found in “Configuration | DECT Server” .

Handset Sharing

Action trigger (When to start login/logout procedure)

-Charger All chargers

-Power on/off

-Long press 8

Number of simultaneous users 2

Timeout for simultaneous users (minutes) 0

Timeout for line assignment (hours) 0

Out of charger text. Default: 'Enter Extension' Enter extension

Out of charger text. Default: 'Failed: re-enter extension' re-enter extension

Out of charger text. Default: 'Enter password' Enter password

Out of charger text. Default: 'Failed: re-enter password' re-enter password

Warning Message. Default: 'Extension busy' Extension busy

Warning Message. Default: 'Logged out by other user' Logged out by another user

Warning Message. Default: 'Logged out by coexist timer' Logged out by coexist timer

Warning Message. Default: 'Logged out by charger' Logged out by charger

*) Required field **) Require restart

Save

Action Trigger (When to start login/logout procedure):

Charger: Via the dropdown menu “chargers”, you have 3 choices on how to react on different chargers:

- 1) “All Chargers” - Shared handsets will login/logout in all chargers.
- 2) “Multi charger only” - Shared handsets will login/logout in multi chargers only.
- 3) “No action” - Shared handsets will NOT login/logout if placed in any charger type.

Power on/off: If the checkbox “Power on/off” is ticked, the shared handset will login/logout if the handset is respectively powered up or down.

Long press 8: If the checkbox “Long press 8” is ticked, the shared handset will start the login/logout procedure when the “8” key on the shared handset is pressed for about 2 seconds.

Number of simultaneous users: how many (1, 2 or 3) phone on the same line. (All assigned phone on a line will ring on incoming calls, all phones will receive incoming MSF; If one phone have an active call, then the other phone on that line can’t make calls.

Timeout for simultaneous users: Max value is 240 minutes. Disable if set to zero. Otherwise for how many minutes you can have more than one phone assigned to a line, before the oldest assignment is removed. If two shifts overlap for 15 minutes, then you can set this time to 20 minutes to insure that phones of the leaving shift will be removed, even if somebody forgets to place the phone in a charger, and the phone number isn’t taken over by somebody else. It gives a better service/performance.

Timeout for line assignment: Disabled if set to zero. Max value is 240 hours. The handset will automatically be de-assigned from the line (extension) after “line assignment” timer has expired.

Out of charger text (enter DN/Extension): Text to ask the user for the wanted DN.

Out of charger text (Failed re-enter DN): In case the number doesn't match available number (or not in same group), then the user will be ask to re-enter the extension.

Out of charger text (Enter password): The AC code for the wanted extension is used as password. If no AC code is programmed, the user will not be prompted for this text.

Out of charger text (Failed re-enter password): Text in case of an error in typed password.

Warning Message (extension busy): This text will be displayed if the extension you are trying to assign your handset to is busy/occupied.

Warning Message (Logged out by another user): If another user is taking over the line/extension you currently have, your handset will by de-assigned and this text will be displayed in your handset.

Warning Message (Logged out by coexist timer): If "Number of simultaneous users" is set to (2 or 3) and "Timeout for simultaneous users" are different from 0, this text will be displayed in the "oldest" handset(s) after they are de-assigned from the line/extension.

Eg. If "Number of simultaneous users" is set to two, "Timeout for simultaneous users" is set to 5 minutes. Handset1 is assigned to extension 1234. After a while user2 assigns handset2 to the extension 1234. In the next 5 minutes all voice calls and text messages will be send to both handsets. Only one active call on extension 1234 is possible. When the timer "Timeout for simultaneous users" expires handset1 will be de-assigned and the text "Logged out by coexist timer" will be displayed in handset1.

Warning Message (Logged out by charger): This text will be displayed if the handset is placed in charger depending of the seetings in "Action trigger/charger".

Configuring the line.

The important parameters are:

Handset Sharing, If not checked then it is normal set of data for a combined line & phone.

Line Type, Analogue line, SIP line or a phone.

Service Status,

Extension (DN), Then number for that line,

Name,

Standby text, This idle text will be shown in a phone, when it is assign to this line.

Presentation text, Use in some installations as an improved CLIP info for call between two phone on a DECT SERVER.

Handset sharing group Handsets can choose between line with same group number as them self.

SIP user name: Important for SIP lines.

SIP Auth User name & password: Important for SIP lines.

Configuring the phone:

spectralink DECT Server - Windows Internet Explorer
http://172.29.199.211/edituser.html?pid=2&uindex=13

< >

HS 1012

Handset sharing	<input checked="" type="checkbox"/>
Line Type	Shared handset ▾
Service Status	Disable ▾
IPEI	00077 0594606
Local Number (DN)	1012
Name	HS 1012
Standby Text	Grp 120
Access Code	
Handset sharing group	1

Save Delete Close

Done Internet 100%

The important parameters are:

Handset Sharing, If not checked then it is normal set of data for a combined line & phone.

- Line Type, Analogue line, SIP line or a phone.
- IPEI, Unique ID number of the phone.
- Standby Text, idle text shown in phone, when is not assigned to a line.
- Extension (DN), Then number for the phone to be used when the phone ,
- Handset sharing group Handsets can choose between line with same group number as them self.

PS: A MSF can be send to the phone a number configured under the phone itself. (in this example 1012)
The shared phones must have an extension. Example: if somebody else assigns another phone to your line and after "Timeout for simultaneous users" you phone does no longer have an extension from a line, if you then have to press the Alarm key or the no movement detect goes active, then the phone own local number (extension) is use as ID of the handset in the message to alarm application.

2.2 Handset Sharing user interface.

Example of assigning of a phone with standby text "Group 1" to line/DN 5121 and the line has Access Code "1".

Below steps after taking handset out of charger:



2.3 Handset Sharing requirement.

Handset: 75XX, 76XX, 77XX and Butterfly must have at least firmware PCS12T_.

DECT Ssrever 2500 / 8000: must have firmware at least PCS12M_.

Non Spectralink handsets do not support handset sharing and some features may only be available in some handset models.

<i>Handset model</i>	<i>Handset sharing support</i>	<i>Clear Call/Message list</i>
Non-Spectralink handsets	Not supported.	Not supported.
Spectralink 7420	Not supported.	Not supported.
Spectralink 7440	Not supported.	Not supported.
Spectralink 7480	Not supported.	Not supported.
Spectralink 7520	Supported.	Not supported.
Spectralink 7540	Supported.	Not supported.
Spectralink 7620	Supported.	Supported.
Spectralink 7640	Supported.	Supported.
Spectralink 7710	Supported.	Supported.
Spectralink 7720	Supported.	Supported.
Spectralink 7740	Supported.	Supported.
Spectralink Butterfly	Supported	PCS14__ or newer.
Spectralink 7000 Site Survey	Not supported.	Not supported.
Spectralink 75x2, 76x2 & 77x2	Supported	Supported
Spectralink 72x2	Supported	Supported

3. Automatic Alarm Call Application.

Normally Alarm key press goes to a third party application, either via RS232, EMD on TCP/IP or XML-RPC. It is possible to program the handset to dial a preconfigured number.

Handset equipped with tear-off and/or motion sensors normally requires a third party application to enable those facilities and the alarm will go to a third party application. If the spectralink wireless server has an Alarm Call Application licence installed, then users can configure an alarm number that the handset will dial automatic when one of those sensors gets triggered.

To configure handset: Get the handset userguide.

The Alarm Call Application works independent of chosen line type.

3.1 Automatic Alarm Application requirement.

Handset: 7640 and 7740 and Butterfly must have at least firmware PCS12Pa.

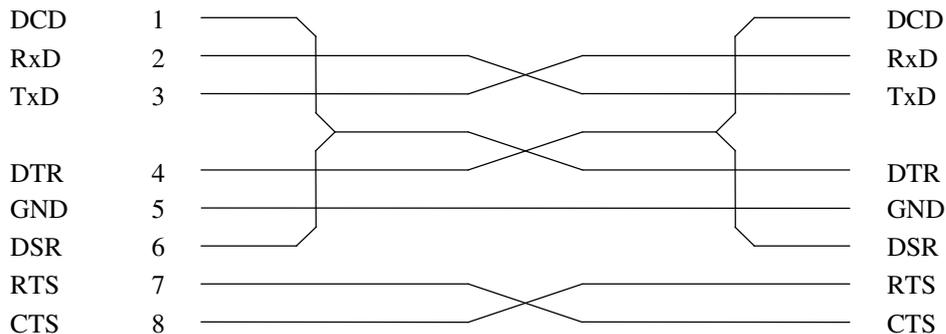
DECT Server 2500 / 8000: must have firmware at least PCS12C_.

4. Telocator Alphanumeric Protocol.

The RS232 interface on the CPU card for DECT Server 8000 / 2500 can be configured to run Telocator Alphanumeric Protocol. The spectralink wireless server will translate the TAP message into a MSF.

4.1 RS232 Cable:

The serial port of the DECT Server 8000 is a 9-pin DSUB male type. When connecting a PC to the DECT Server 8000 (or DECT Server 2500) a full connection DTE-DTE as described below must be used, if hardware handshake is chosen:



If XON/XOFF or no handshake is chosen, you can use a RS232 cable with less wires.

If no hardware handshake is chosen then only GND, RxD & TxD are needed.

4.2 DECT Server 2500 / 8000 and the Telocator Alphanumeric Protocol 1.8

The Telocator Alphanumeric protocol 1.8 can handle longer texts than the KIRK messaging protocols, but in all other aspects the KIRK protocols have much more functionality, including feedback from user.

The KIRK implementation of TAP 1.8 uses a single event from the Event Message Default mode protocol to send the text to handset (DECT phone).

The current limit on text length in most Spectralink/KIRK DECT phones is 72 characters.

Key points:

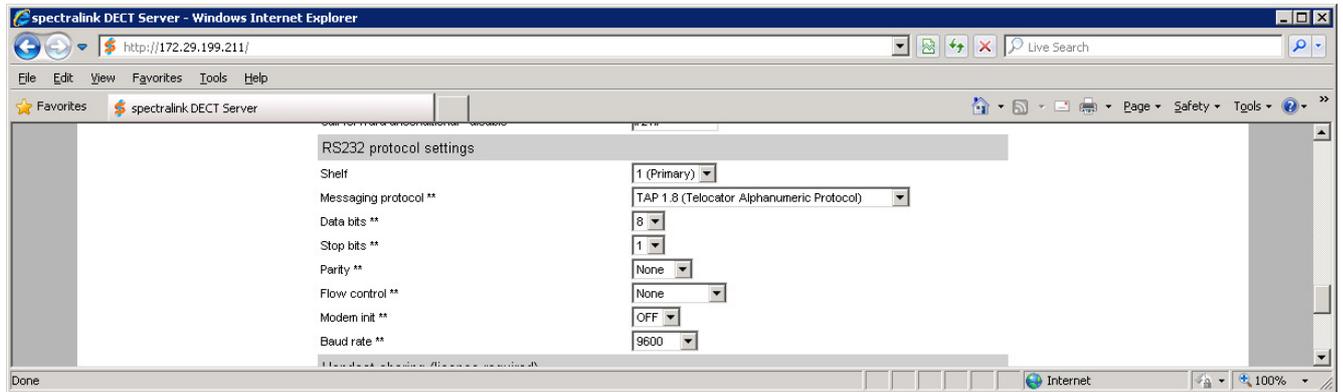
- RS232 parameters: baud rate, data bits, stop, bit, parity, CTS/RTS, XON/XOFF are fully configurable under the System Configuration menu on the WEB interface.
- Under System Tap menu other TAP related parameters must be configured. (Use MSF or SMS facility for transferring messages from DECT Server to handsets, detect call back number or not, display timeout, alert timeout,)
- Time outs and limits on re-try are not implemented.
- So far the implementation ignores the optional password in TAP 1.8 protocol.
- A license is required.
- Be aware: After configuration you must reboot the spectralink wireless server before the new configuration will be active.
- (Stop bit configuration only concerns transmit from DECT Server – not receive)

If you want to test the implementation then contact us for a license key, we need the ARI code from your spectralink wireless server to generate a TAP license.

4.3 How to configure the TAP interface.

Use Firefox or Chrome web browser to configure the spectralink wireless server.

4.3.1 RS232 configuration:



Data bit: 7 or 8.

Stop bit: 1 or 2.

Parity: None, even, odd, mark or space.

Flow control: None, CTS/RTS or XON/XOFF.

Modem init: If on, then if DSR is active and DCD is inactive Spectralink wireless server will send a few sequence of AT<CR>, so the modem can auto detect the aud rate.

Baud rate: 110, 150, 300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, 115200 or 230400.

4.3.2 TAP interface configuration.

The screenshot shows the Spectralink DECT Server configuration interface for TAP (Telocator Alphanumeric Protocol) settings. The interface is displayed in a Windows Internet Explorer browser window. The main title is "DECT server 2500/8000". The navigation menu includes System, Users, Telephone Line Settings, Base Stations, SIP Configuration, Statistics, E-mail Report, Trace, and Apps. Demo. The TAP configuration page is titled "TAP (Telocator Alphanumeric Protocol)" and includes a "Help" button. The configuration is for Shelf 1 (Primary) and is under the "Advanced settings" tab. The configuration is divided into several sections:

- TAP configuration:**
 - Send response codes **:
 - Require login procedure **:
 - Nurse Care line release command **:
- Extract Call Back Number:**
 - Extract Call Back Number **:
 - Remove Call Back Number **:
 - Where to find the Call Back Number **:
 - Position Letter **:
 - Letters between two parts of Call Back number to remove **:
 - String to replace the removed letters **:
 - Call Back Number prefix **:
- DECT messaging configuration (how to transform the TAP 1.8 message into a spectralink DECT text message):**
 - DECT action **:
 - Alert Tone **:
 - Alert Pattern **:
 - Alert Volume **:
 - Alert Timeout(0-127.5 sec) **:
 - Display Timeout(0-127.5 sec) **:
 - SIS - Save in Stack **:
 - LV - Use local Alert Volume **:
 - AV - Always Vibrate **:
 - IC - Ignore SMS if PP in Charger **:
 - IIVC - Ignore SMS if PP in voice call **:
 - SIC - Silent if PP in charger **:

A "Save" button is located at the bottom of the configuration area. Below the "Save" button, there is a note: "*) Required field **) Require restart". The footer of the page reads "© Spectralink Europe ApS - All rights reserved." and the browser status bar shows "Done" and "Internet".

4.3.2.1 TAP configuration.

Send response codes: If checked then DECT Server will send response code & texts. Those texts can be changed under Advanced Settings. Normally this setting should be off.

Require login procedure: If checked the DECT Server will require a response to "ID=" The expected text is "PG1" but it can be changed under Advanced Settings.

Nurse Call line release commando: If configured (default is *9) and a handset have dialled a number with same beginning as a configured Call Back Number Prefix, and the handset releases the line, the DECT Server will first send this command on the line, wait a few seconds and the release the line.

4.3.2.2 Extract Call Back number.

Extract Call back Number: If checked the DECT Server will look into the text of TAP message for a phone number.

Remove Call Back number: Option that the DECT Server shall remove the found phone number from the text before sending the Text to handset.

Where to find Call Back Number: Thee options:

*First Cipher in text is (start of) Call Back number: DECT Server will look though the text until it finds the first cipher and then extract the number.

*Position in text: DECT Server will look on position in text and if a number exist on that position, then it will extract the number.

*Start letter just before the Call Back Number: DECT Server will though the text for a specific letter and if finds it, then it will look on the next position and extract a phone number if there is one.

Position/Letter: Either the position or the ASCII value of a letter.

Letter between two parts of Call Back Number to remove: If Fist cipher in text is Call Back number, then this setting can be used to do some extra decoding so “ Alarm 712E:5 Normal” result in number 7125 in stead of just 712.

If the letter(s) is followed by a ‘.’ then this will also be removed from number.

String to replace the removed letters: Belong to the previous setting so it is possible to replace “Letter between two parts of Call Back Number ..” with ex. a delay.

Call Back Number Prefix: Normally a prefix and a delay are needed in front of the extracted call back number. On analogue lines a ‘s’ gives a delay of ten times the DTMF tone pause time (Settings for the analogue line), so with the standard setting of 80 milliseconds the ‘s’ will give a delay of 0.8 seconds. The prefix can have more than one ‘s’.

4.3.2.3 DECT messaging configuration.

DECT Action: Either DECT MSF SetupReq (MSF format II) or DECT SMS SetupReq (MSF Format II)
DECT MSF will end up as messages in handset. Supported on 74, 75, 76, 77 series handsets.
DECT SMS will end up as task list in handset; supported on 7620, 7640, 7720 & 7740 handsets.

Alert Tone: Specific which alert tone to use, it is handset specific.

Alert Pattern: Specific the alert pattern, it is handset specific.

Alert Timeout (0-127.5 sec):

Display Timeout(0-127.5 sec):

SIS – Save in stack: If check the message will be saved in handset, if DECT MSF is chosen then it is saved in handset EEPROM. If DECT SMS is chosen then the message is saved in handset RAM.

LV – Use Local Alert Volume:

AV – Always Vibrate: If checked then vibrator settings in handset setting is overruled.

IC – Ignore SMS if PP in Charger:

IIVC – Ignore SMS if PP in Voice Call.

SIC – Silent if PP in Charger:

The DECT Server tries to find the phone number from TAP message in the user data base, if DECT Server finds the number then the message is sent. If it doesn't find the number then if the number is 255 or lower it will sent it as a broadcast else the message will just get deleted. The broad cast will send as a MSFCImFixedReq if DECT Action is set to DECT MSF; if DECT Action is set to DECT SMS, then the broadcast version of DECT SMS will be used.

4.3.3 Examples (Call Back Number settings):

Example A:

Extract Call back Number: Yes

Remove Call Back number: No

Where to find Call Back Number: First cipher...

Position/Letter: 88, which is 'X'

Letter between two parts of Call Back Number to remove: Bed

String to replace the removed letters: s

Call Back Number Prefix: 911ss

TAP text	Text displayed in PP	Call Back number
Alarm room 756	Alarm room 756	911ss756
Alarm room 123Bed:03	Alarm room 123Bed:03	911ss123s03
Alarm room 23 X765	Alarm room 23 X765	911ss23
X765 Alarm room 23	Alarm room 23	911ss765
X Alarm room 23	X Alarm room 23	911ss
789 Alarm room 123	789 Alarm room 123	911ss789

Example B:

Extract Call back Number: Yes

Remove Call Back number: Yes

Where to find Call Back Number: Start letter

Position/Letter: 90, which is 'Z'

Letter between two parts of Call Back Number to remove: E

String to replace the removed letters: s

Call Back Number Prefix: 911ss

TAP text	Text displayed in PP	Call Back number
Alarm room Z756	Alarm room	911ss756
Alarm room 123Bed:03	Alarm room 123Bed:03	911ss
Alarm room 23 Z765	Alarm room 23	911ss765
Z765 Alarm room 23	Alarm room 23	911ss765
Z Alarm room 23	Z Alarm room 23	911ss
Z789 Alarm room 123	Alarm room 123	911ss789

Example C:**Extract Call back Number:** Yes**Remove Call Back number:** No**Where to find Call Back Number:** Position**Position/Letter:** 8**Letter between two parts of Call Back Number to remove:** E**String to replace the removed letters:** s**Call Back Number Prefix:** 911ss

TAP text	Text displayed in PP	Call Back number
Alarm 7563	Alarm 7563	911ss563
Alarm room 123Bed:03	Alarm room 123Bed:03	911ss
Alarm room 23 Z765	Alarm room 23 Z765	911ss
Z765 Alarm room 23	Z765 Alarm room 23	911ss
Room. : 7563	Room. : 7563	911ss7563
Hello.:1234E:4	Hello.:1234E:4	911ss1234

4.3.4 Capacity:

The DECT Server 2500 (and DECT Server 8000) can handle up to 2800 messages per hour.

Normally handsets are quickly found and the message passed on, but if a handset is out of range, the DECT Server will try for up to 12 seconds before it gives up finding that handset.

If a handset is switched off when it is in coverage area, then a message (detach) is sent from handset to server, and the server then knows the handset is switched off, and the DECT Server will not try to send the message to that handset.

When a handset is switched on it will always inform (make a location registration) the DECT Server before it can make or receive any calls or messages.

If you don't want message to handsets that are charger, then switch the handset off before placing it in the charger. When you then places the handset in the charger, the CPU in the handset will power up so it can control the charging (typical with a black display), but it will not act as it was switched on. For the DECT Server the handset is switched off and messages for that handset will not take any capacity.

When nobody is using the handsets t it would be good practise to switch it off; reserving the capacity for those how actually will benefit from it.

The practical limit of 2800 message or 46 messages per minute can easily be reached if the external equipment just pump paging request into the DECT Server. Therefore consider which messages should be send, example instead of first sending a page that displays the alarm and then one which clear the display, then send one with the alarm text and use the MSF/SMS configuration to let the display stay for 90 or 120

Specifications subject to change without notice.

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