Kamstrup DES

INSTALLATION AND OPERATION MANUAL

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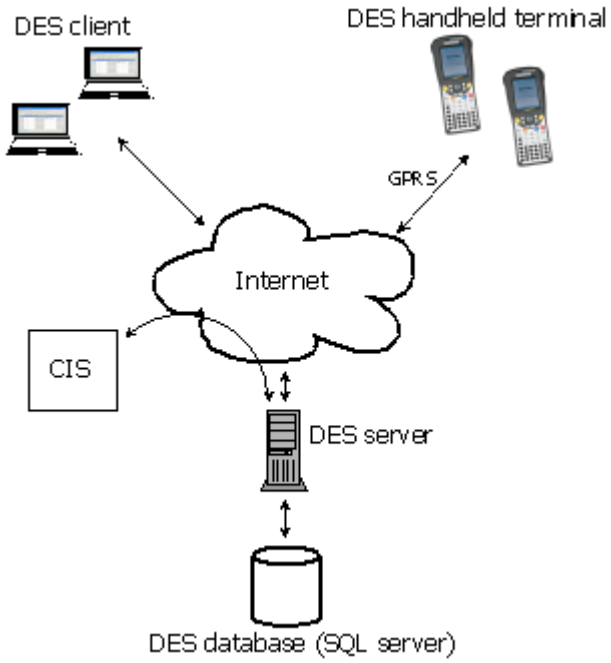
1 The system

Kamstrup Device Exchange System (DES) is the system for supporting procedures in connection with the roll-out of a new meter network.

1.1 Parts and functions of the system

The system is built up around the DES server – a centrally placed server containing information about installations, service engineers, and replacements. Information about installations where new meters should be installed comes from the Customer Information System (CIS) and has been transferred to the DES server via a Microsoft Excel file that contains structure data such as installation number, meter number, address, and time of replacement and other information, if required. It is possible to customise other integration solutions.



The DES client is the user's tool for registering the time (interval) of a replacement and the service engineer who should carry out the replacement. The DES client makes use of the web services that the DES server offers. The DES client can "export" to Microsoft Excel – a function that Kamstrup A/S (in the following referred to as Kamstrup) uses in connection with the alignment of the network that takes place in Kamstrup GIS (Graphical Information System). The export to Microsoft Excel can also be applied for other systems, e.g. the customer might import the file into the information system, if required.

The service engineer uses a DES hand-held terminal with special software that also uses the web services that the DES server offers. The DES hand-held terminal contains a list of the tasks that service engineers are to perform and where the service engineers can do the electronic registrations that were previously registered on paper.

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In principle, the DES server offers a number of services that simplify the interaction of the external systems with the DES server, i.e. the customer's own systems can collect information directly from the DES server. This requires that the system can call a web service and, of course, a correct user ID and password.

The individual parts of the system are described in details in the following paragraphs.

1.2 DES server

The DES server is the place where the work procedures in connection with the roll-out of a network are gathered.

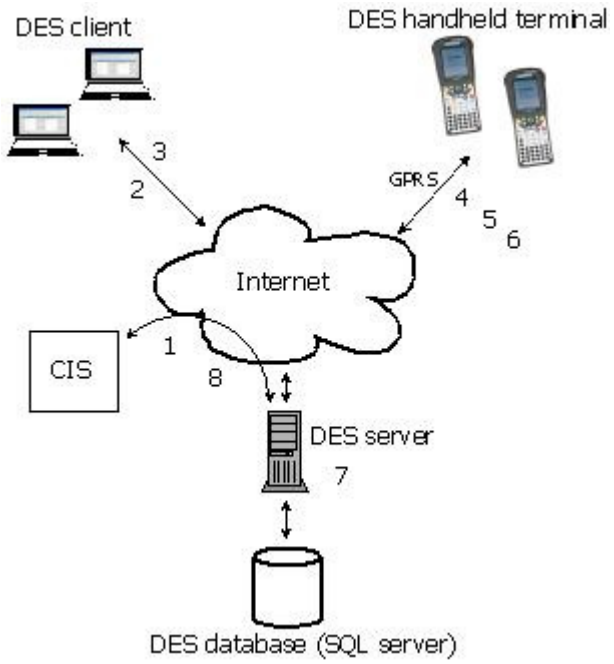
1.2.1 Installation

The DES server is placed at Kamstrup, and Kamstrup is responsible for the server. This provides the advantage that backups, updates of operative systems etc. have been taken care of. The target is 100 % uptime for the system on weekdays from 8.00 to 17.00. Outside this time period, the system will – as a main rule – be available, and experience shows an uptime of 99.9 % round the clock.

The updates of the operative systems will take place every second Tuesday every month, and at this time minor interruptions might occur when restarting the DES server.

1.2.2 Work procedures

The typical work procedure (best-case scenario) is as follows:



1. Import data to the DES server
2. Collect tasks from the DES client
3. Plan tasks on the DES client, and send to DES server
4. Collect tasks from the DES hand-held terminal
5. Carry out tasks on and enter data into the DES hand-held terminal
6. Return tasks to the DES server
7. Store data in the DES database
8. Export data to the customer system.

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1.2.2.1 Import

Kamstrup receives a Microsoft Excel file with customer information data from the customer. Typically, a roll-out is divided into several phases, and Kamstrup receives and loads a file with one or more phases at a time. Kamstrup loads data into the server, and afterwards, the users of the system can use the DES client and the DES hand-held terminal for planning and execution, respectively, of tasks related to a roll-out. It is also possible to import automatically from the customer's system into the DES server. This can be done by using a Kamstrup standard format, which can be either file-based or a web service. If required, it is possible to buy a customer adapted import format.

1.2.2.2 Template

On the server, there is a template for the replacement. This template is a central registration of how to load the information and of the registrations that the service engineers must make in connection with the replacements. Typically, there will be one template per consumption type to be replaced. A change in the template will affect all replacement tasks that have not yet been sent to the hand-held terminals.

1.2.3 Security

All access to the DES server from the Internet is done through HTTP(S).
Kamstrup has developed the DES client as an interface above the DES server, but since all access control in the system is implemented in the DES server, it is possible to allow subcontractors to develop other clients at the same time as protecting the customer's data against unauthorized access.

Access to the customer's data requires that the user authenticate oneself with user name and password. All functions require authorization, and the customer can give the users of the system this authorization dependent on the user group.

Without risk of losing data, several users can work with planning at the same time, even though they work with the same data.

All access will be logged, and a daily backup of data is made.

1.3 DES client

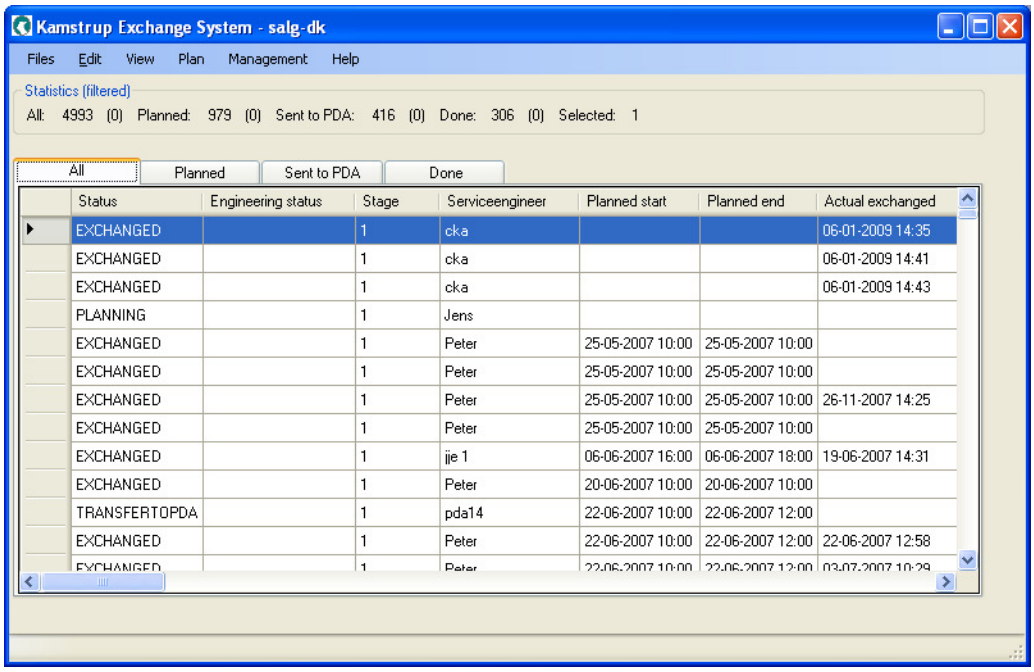
The DES client is the application that planners, call centre staff, if any, and Kamstrup use to control the replacement process.

1.3.1 Installation

Installation and maintenance of the DES client are carried out on the Internet: https://des.kamstrup.dk . On this website, help is given on how to install any prerequisites for the installation of the DES client. When the DES client has been installed, the user can start it either from the *Start* menu or via https://des.kamstrup.dk, but no matter how, the DES client itself manages to install any new versions.

1.3.2 Work procedure

The emphasis is on a simple and intuitive user interface inspired by Microsoft Windows and Microsoft Excel. Thus, the DES client is a client that users can use without prior instruction, and which includes a number of procedures that are specific to a roll-out without adapting the client. For instance, filtration and sorting of replacements are done by clicking on a column heading. The size of the client's window can be changed by maximizing, minimizing, or dragging the window, and the DES client will automatically use the size of the window. The information that the DES client shows is determined by the template that is registered on the server.



Status	Engineering status	Stage	Serviceengineer	Planned start	Planned end	Actual exchanged
EXCHANGED		1	cka			06-01-2009 14:35
EXCHANGED		1	cka			06-01-2009 14:41
EXCHANGED		1	cka			06-01-2009 14:43
PLANNING		1	Jens			
EXCHANGED		1	Peter	25-05-2007 10:00	25-05-2007 10:00	
EXCHANGED		1	Peter	25-05-2007 10:00	25-05-2007 10:00	
EXCHANGED		1	Peter	25-05-2007 10:00	25-05-2007 10:00	26-11-2007 14:25
EXCHANGED		1	Peter	25-05-2007 10:00	25-05-2007 10:00	
EXCHANGED		1	jje 1	06-06-2007 16:00	06-06-2007 18:00	19-06-2007 14:31
EXCHANGED		1	Peter	20-06-2007 10:00	20-06-2007 10:00	
TRANSFERTOPDA		1	pda14	22-06-2007 10:00	22-06-2007 12:00	
EXCHANGED		1	Peter	22-06-2007 10:00	22-06-2007 12:00	22-06-2007 12:58

Even though the application is installed through the Internet, it is a real application and thus not a web application and the update rate is the same as on any other application since the work is done on a local copy of data.

Export to e.g. Microsoft Excel is done by copying/pasting, i.e. by selecting the replacements to export, copying them, and pasting them into the application to which to export. It is possible to export data automatically to the customer's system, e.g. once a day. As when importing, this can be done by using a Kamstrup standard format, which can be either file-based or a web service. Likewise, it is possible to buy a customer adapted export format.

1.3.2.1 Booking

The client covers the basic needs for booking times for replacements. The planner selects one or more replacements and selects the replacement interval for the selected replacement(s). Later, or in the same step, the planner selects a service engineer for the replacements and prepares the replacement tasks for the service engineer to collect. The time of replacement might be received together with customer information data in an import from the customer's information system. The information about the replacements, including the time of replacement and address

information, can be exported to Microsoft Excel from which the customer can create a chained file for mail merge.

1.3.2.2 Rebooking

If the customer is not at home on the booked time, or if a service engineer is ill and another engineer must assume his tasks, it is possible to make a rebooking. When rebooking, the service engineer's list of replacement task will be changed the next time the engineer collects tasks on the DES server. If the rebooking implies that another service engineer must make the replacement, the DES server removes the task from the list of replacement tasks of the first service engineer and creates the task on the list of replacement tasks of the other service engineer.

1.4 DES hand-held terminal

The service engineers can view their tasks on the hand-held terminal and make the necessary registrations in connection with a replacement. The emphasis is on a solid and very simple use of the hand-held terminal. The hand-held terminal communicates with the DES server via GPRS, and therefore, in case of GPRS coverage, the service engineer can continuously receive new tasks and send information from executed tasks to the DES server.

1.4.1 Installation

The installation is managed by Kamstrup, but the flow of the hand-held terminal depends on the template on the DES server, thus changes to drop-down menus, flow etc. do not require a new installation on the hand-held terminal. Typically, there is one flow per type of consumption, and the work procedure of a task depends on the task type. Updates can be carried out via GPRS and the Internet.

1.4.2 Work procedure

1.4.2.1 Collecting and delivering tasks

The service engineer collects a route with tasks via GPRS – alternatively via the hand-held terminal's docking station – and the hand-held terminal shows the service engineer a list with the tasks. The tasks are listed in the sequence determined by the planner by specifying time intervals on the replacements, but the service engineer can choose the tasks on the list freely. When the service engineer has replaced the meter and registered the required information on the hand-held terminal, he sends the replacement to the DES server. The DES server then replies with a new list where there may be changes to times, and where tasks may have been removed or added. To secure against loss of registrations, the registrations are stored on flash disc.

1.4.2.2 Working with replacement

When the service engineer has chosen a task, he must choose a status, e.g. whether the consumer is at home. The values available to the service engineer depend on the template. The service engineer then enters information about the old meter, installs the new one, scans the new meter number, reads the new meter, and makes the registrations determined by the template.

1.4.2.3 Printer

As part of the service engineer's work procedure, after every replacement it is possible to print a label, which can be attached to a replacement slip to the consumer. It is possible to choose which registrations to print, e.g. old meter number, old meter reading, and new meter number. The label is printed on an external transportable Bluetooth label printer.

2 DES client

This chapter covers the DES client version 3.5.1.

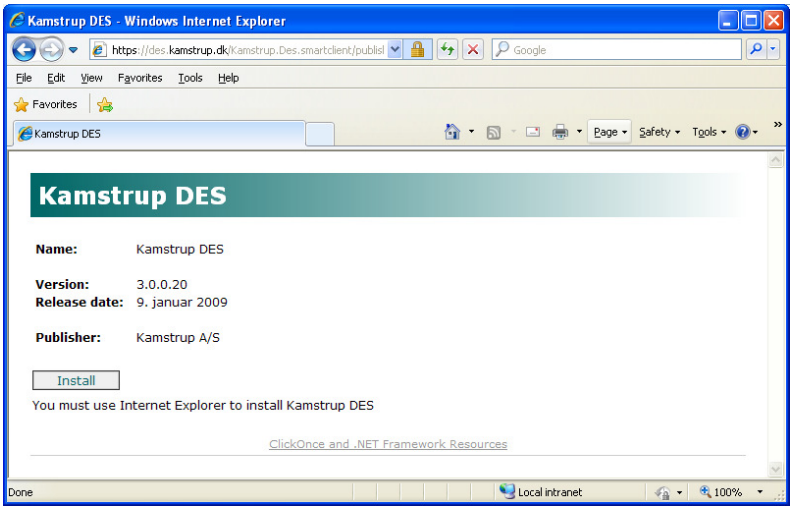
2.1 System requirements

The following is required to install and use the DES client:

- PC with internet connection min. 512 kbit
- Min. 1 GB RAM
- Windows XP SP2
- .NET Framework 3.5 must be installed. To save time at the installation of the DES client, it is recommended to install .NET Framework first. If this is not done, the installation of .NET Framework will take place during the installation of the DES client.

2.2 Installation

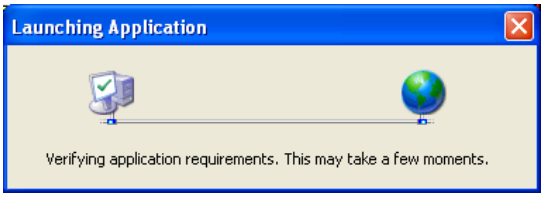
The DES client is installed over the Internet from https://des.kamstrup.dk.



Click on [Install].

Click on [Install] again.

The program starts automatically when the installation has finished.

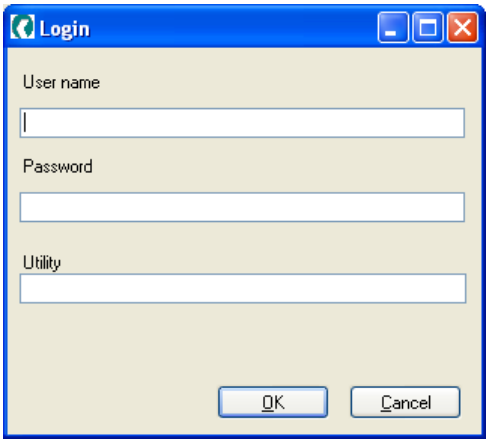


A menu called *Kamstrup* is created under *Start -> Programs* where a short cut to *Kamstrup DES* also can be found. This short cut is subsequently used to start the DES client.

When the DES client is started, by default, it automatically checks for updates. If updates are found, they will be installed before the program starts. In this way, it is secured that the user is always using the latest version of the DES client.

2.3 Login

To use the program, the user needs to log in.

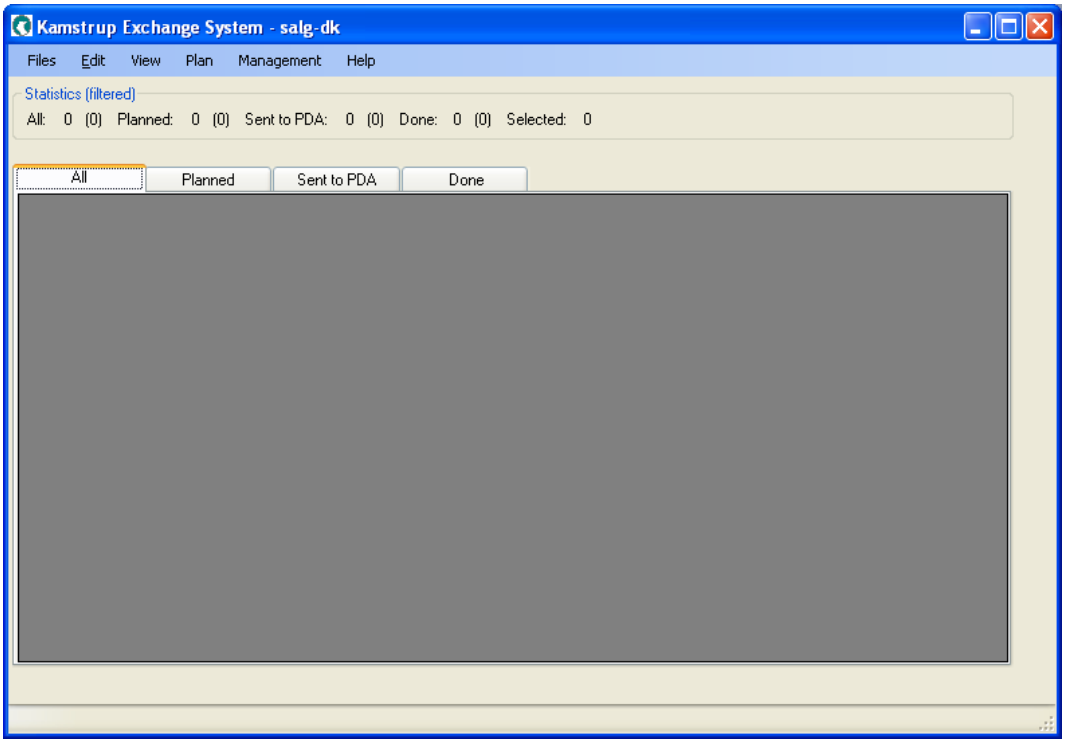


Enter *User name*, *Password* and *Utility* to log in. The entered values for *User name* and *Utility* are remembered the next time the user logs in to the same computer. *Password* must always be entered.

2.4 Using the DES client

2.4.1 User interface structure

After login, the following display is shown:



The display is built up as most other Windows applications.

At the top, a menu bar with various drop-down menus is placed. The contents may vary from user to user dependent on the allocated user rights. The most commonly used features can also be started via a short cut or a right-click menu. Short cuts and right-click menus are described later.

Under the menu bar, a statistics bar is displayed showing the number of tasks under each standard tab described below and the number of tasks currently marked.

The tasks list that takes up most of the display is divided into four standard tabs. It is possible to create new tabs, and this will be described later.

All:
Shows all changes searched for.

Planned:
Shows all planned replacements. The status of these replacements is *Planned* which means that they are under planning, and both the service engineer and the time of replacement have been stated.

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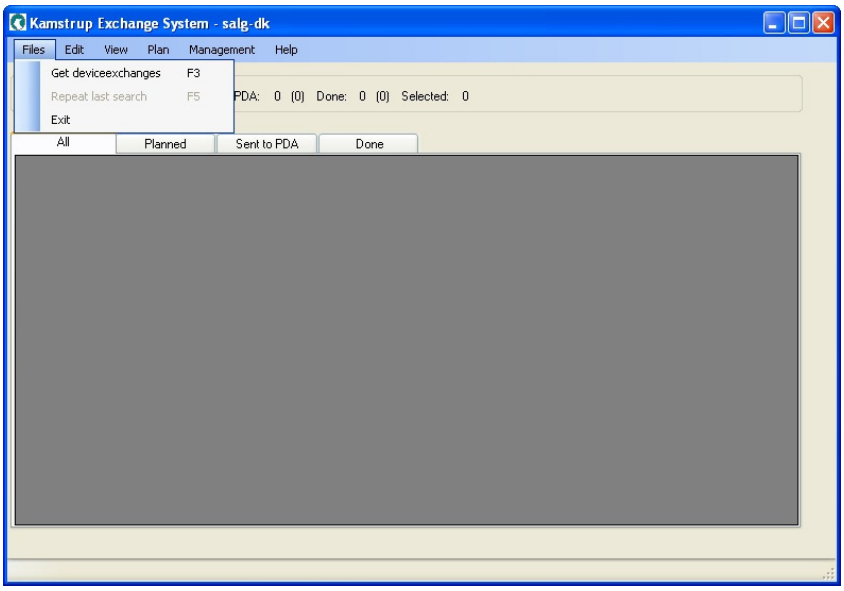
***Sent to PDA**:*
Shows the replacements that have been sent to the PDA or are ready for collection. The status of these replacements is *PdaReady*.

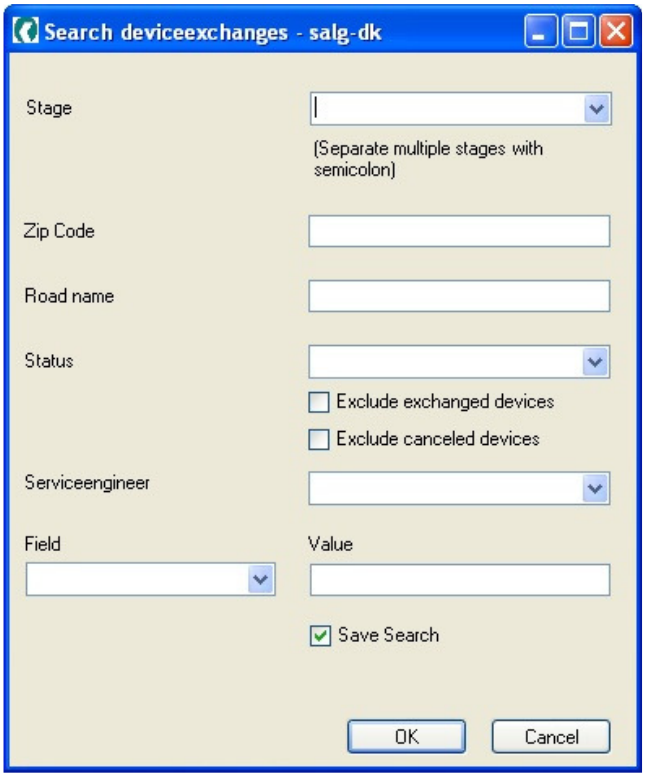
***Done**:*
Shows handled replacements. The status of these replacements can be both *Exchanged* and *Not exchanged*.

2.4.2 Search for tasks

In order to plan tasks, they must first be collected from the server. This is done by selecting *Get device exchanges* from the menu *Files* or by using the short cut [F3].



When *Get device exchanges* has been selected, the following dialog box is shown:



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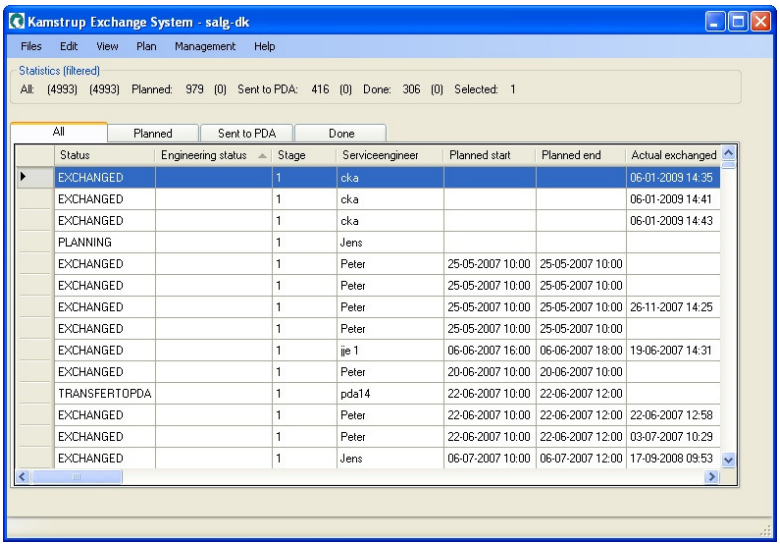
When searching for replacements, the search is defined by the above criteria.

To make the search for replacements faster, it is recommended to make the search as precise as possible. When no search criteria are stated, all replacements are being collected.

Note: When entering e.g. Oxf% in the field *Road name*, all replacements with an address starting with Oxford will be shown, e.g. Oxford Street, Oxford Road etc.

Typical search scenarios:

Planning of the next stage: Search for *Stage*.
Rebooking: Search for *Road name* + *status*, if relevant.
Information about already replaced: Search for *Status* = *Exchanged* + *Road name* and *Stage*, if relevant.
Information about specific meter: Search for *Field* = "meter number" and *Value* = "the number of the meter".



Status	Engineering status	Stage	Serviceengineer	Planned start	Planned end	Actual exchanged
EXCHANGED		1	cka			06-01-2009 14:35
EXCHANGED		1	cka			06-01-2009 14:41
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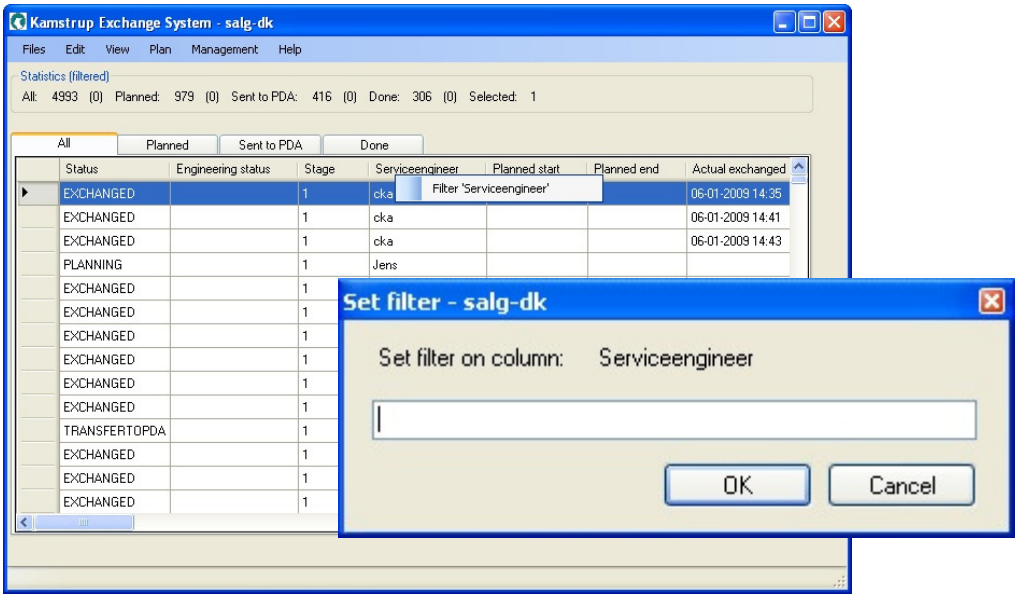
PLANNING		1	Jens			
EXCHANGED		1	Peter	25-05-2007 10:00	25-05-2007 10:00	
EXCHANGED		1	Peter	25-05-2007 10:00	25-05-2007 10:00	
EXCHANGED		1	Peter	25-05-2007 10:00	25-05-2007 10:00	26-11-2007 14:25
EXCHANGED		1	Peter	25-05-2007 10:00	25-05-2007 10:00	
EXCHANGED		1	jje 1	06-06-2007 16:00	06-06-2007 18:00	19-06-2007 14:31
EXCHANGED		1	Peter	20-06-2007 10:00	20-06-2007 10:00	
TRANSFERTOPDA		1	pda14	22-06-2007 10:00	22-06-2007 12:00	
EXCHANGED		1	Peter	22-06-2007 10:00	22-06-2007 12:00	22-06-2007 12:58
EXCHANGED		1	Peter	22-06-2007 10:00	22-06-2007 12:00	03-07-2007 10:29
EXCHANGED		1	Jens	06-07-2007 10:00	06-07-2007 12:00	17-09-2008 09:53

The tasks will be displayed in the window with one task per line. The tasks can be filtered by right-clicking on a column and entering the required filter criterion. Sorting can be done by clicking on a column heading.

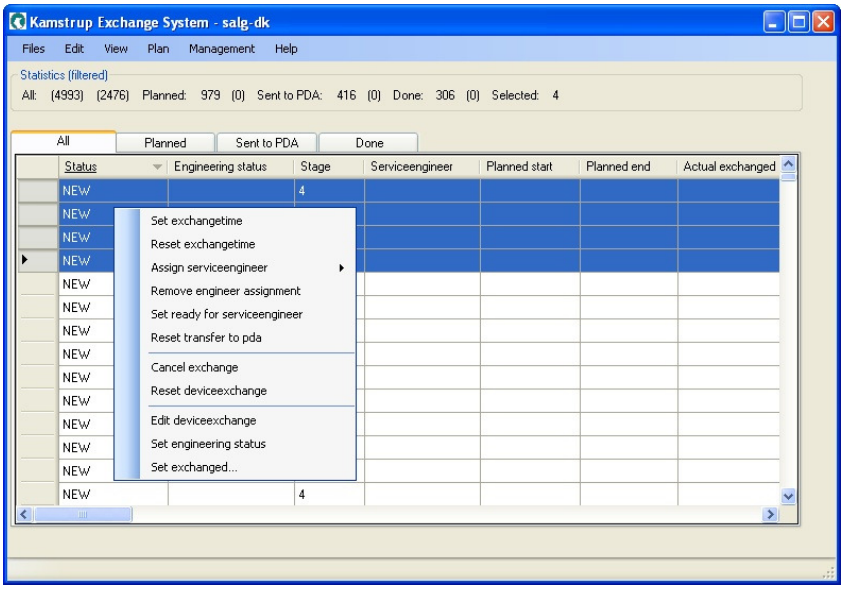


Selecting more tasks at a time is carried out as in most other Windows programs either by selecting the first task, holding down the [Shift] button and selecting the last task whereby all tasks between the first and the last are selected, or by selecting the required tasks while holding down the [CTRL] button whereby more non-connected tasks can be selected.

To update the window, select *Repeat last search* or click the short cut [F5].

2.4.3 Task planning

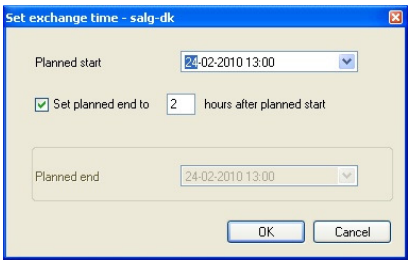
The planning of one or more tasks follows a 3-step plan.



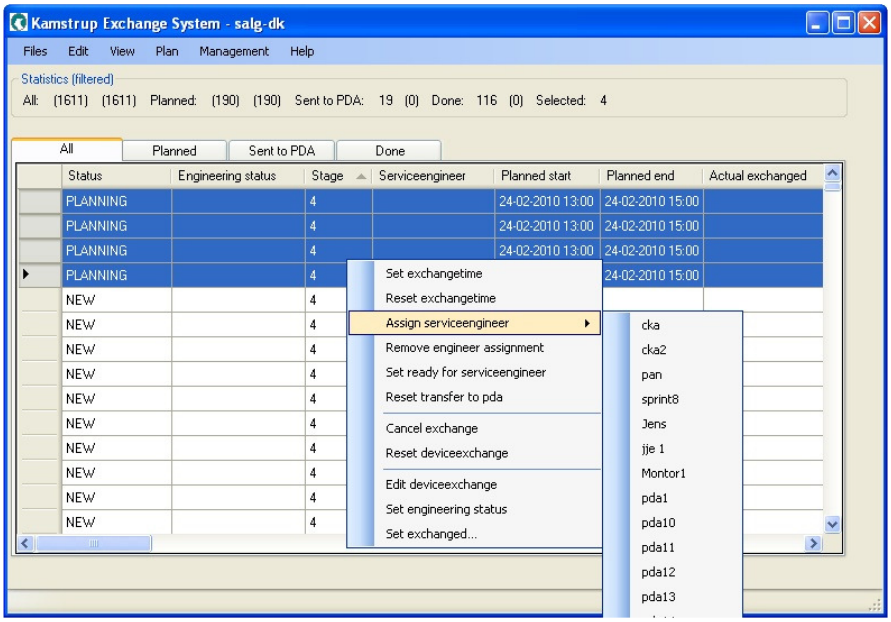
1. Select the replacement(s) as earlier described (select and hold down the [Shift] or [Ctrl] button to select more replacements).

Specify the time or time interval for the selected replacements. Right-click and select *Set exchange time* (can also be found in the menu *Plan*).

In the following window, a time interval or a specific point of time can be selected.



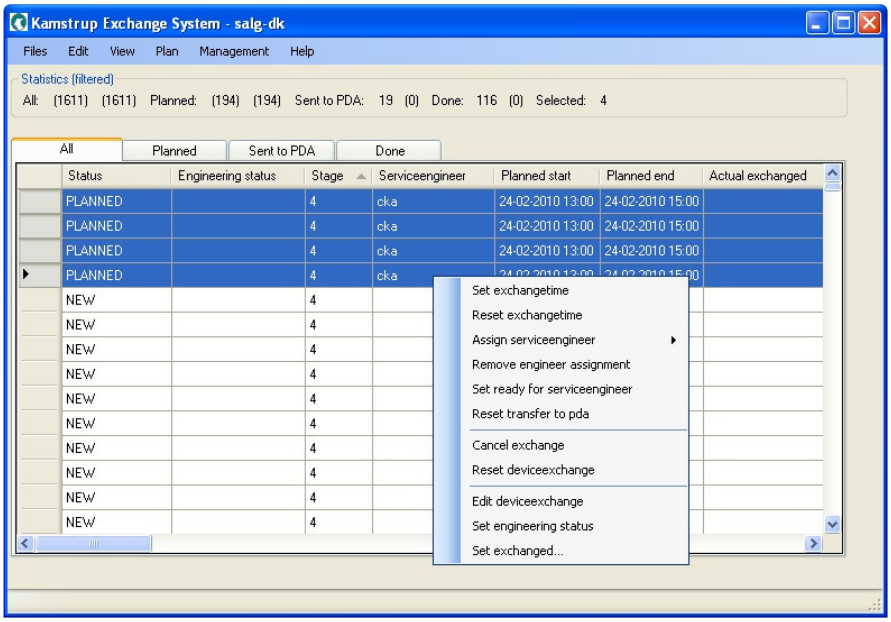
2. Then, a service engineer is to be selected to whom the selected replacements should be assigned. Right-click on the selected replacements, select *Assign service engineer*, and select the service engineer who is to carry out the replacements (can also be found in the menu *Plan*).



Note: *Status* is changed from *NEW* to *PLANNING* to *PLANNED*. The tasks that have now been allocated a replacement time and a service engineer also appear from the tab *Planned*.

3. The tasks cannot yet be sent to the DES hand-held terminal. First, they must actively be made ready for collection.

Send to hand-held terminal by right-clicking and selecting *Set ready for service engineer* (can also be found in the menu *Plan*).



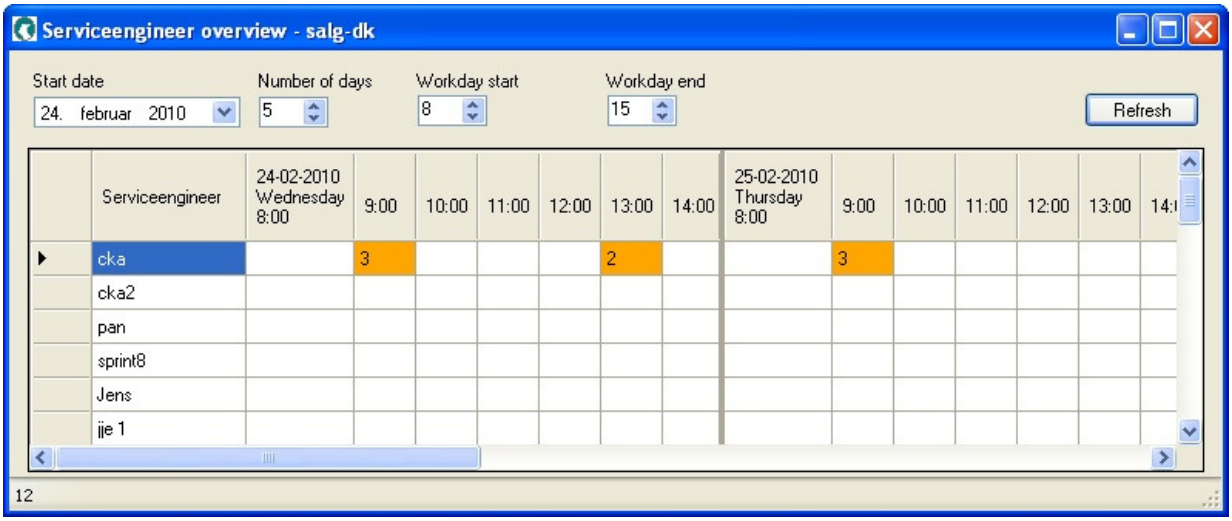
The status has now changed to *PDAREADY* and also appears from the tab *Sent to PDA*.

By clicking the [U] button on the hand-held terminal, the current replacements are collected.

2.4.4 Service engineer overview

As a help for the planning, it is possible to select *Service engineer overview* in the menu *Plan*. This feature makes it possible to see the number of task assigned to each service engineer. The following parameters must be selected: start date, the number of days ahead that the overview should include, and the start and end time of the working day. The current date is always entered as the first date, but all other selections are remembered the next time this window is displayed. It is only possible to search for max 30 days at a time, but several windows with *Service engineer overview* can be opened at a time.

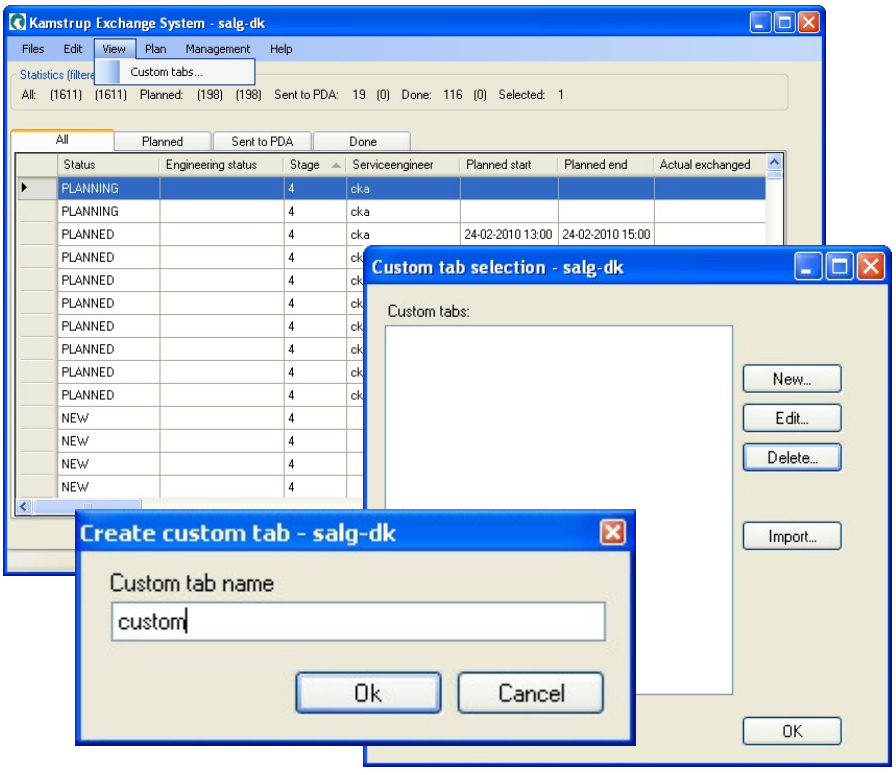
The window below shows that the service engineer *cka* has been assigned with a total of 8 tasks over two days. Holding down the mouse over one of the orange fields will show more information about the current tasks. Column headings are marked with blue in weekends.



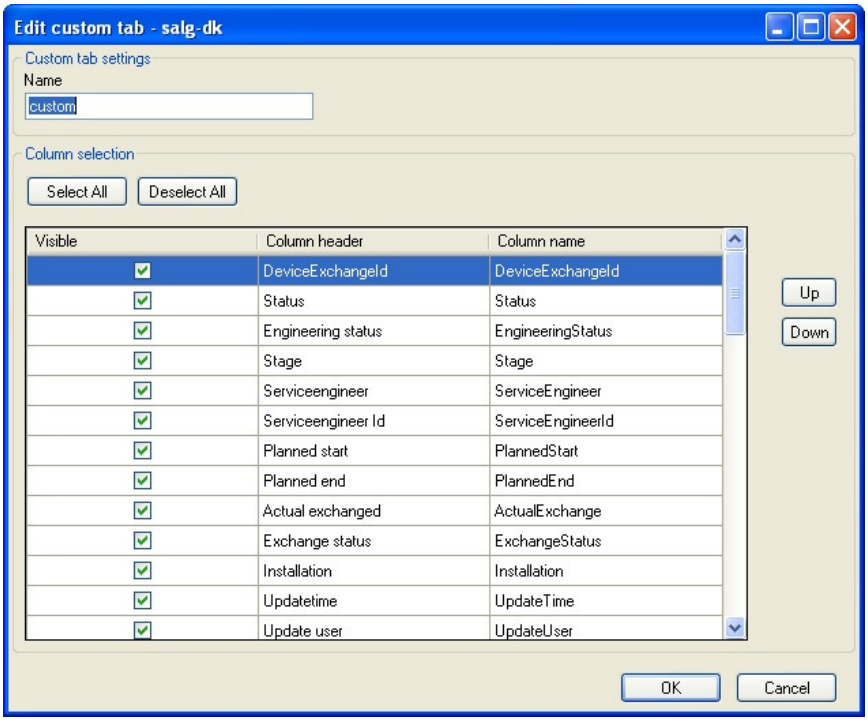
2.4.5 User-defined tab

It is possible to create tabs and customise the design and contents to a given task.

Select *Custom tabs* in the menu *View*.

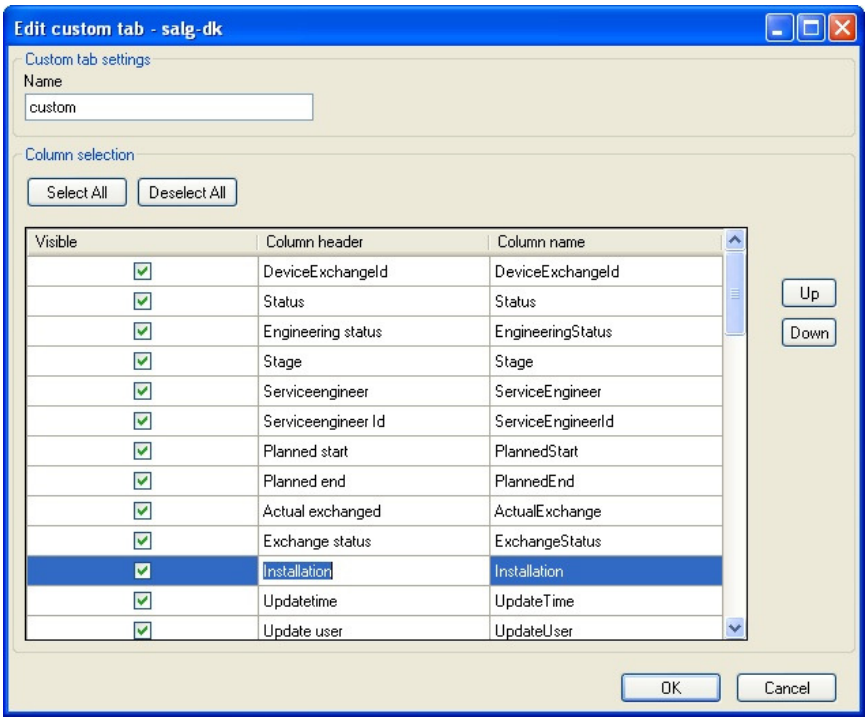


Then, click on [New…], and enter a name for the tab.

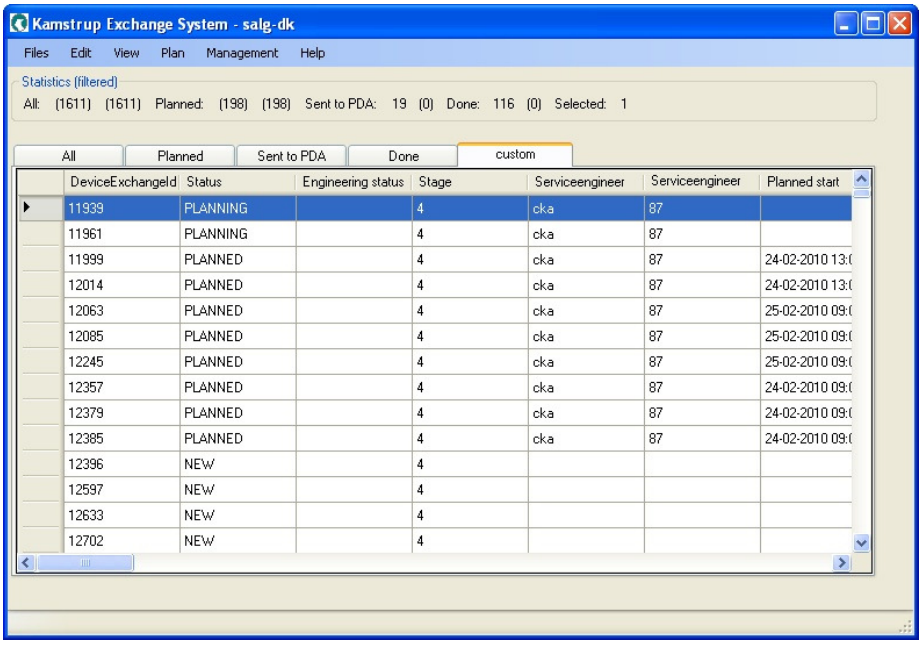


Select the columns that are to be displayed on the tab.

Edit the order of the columns by selecting a column and clicking on either [Up] or [Down] to move the column.



To change the displayed column heading, click on the text in the column *Column header*, and the text can then be edited.

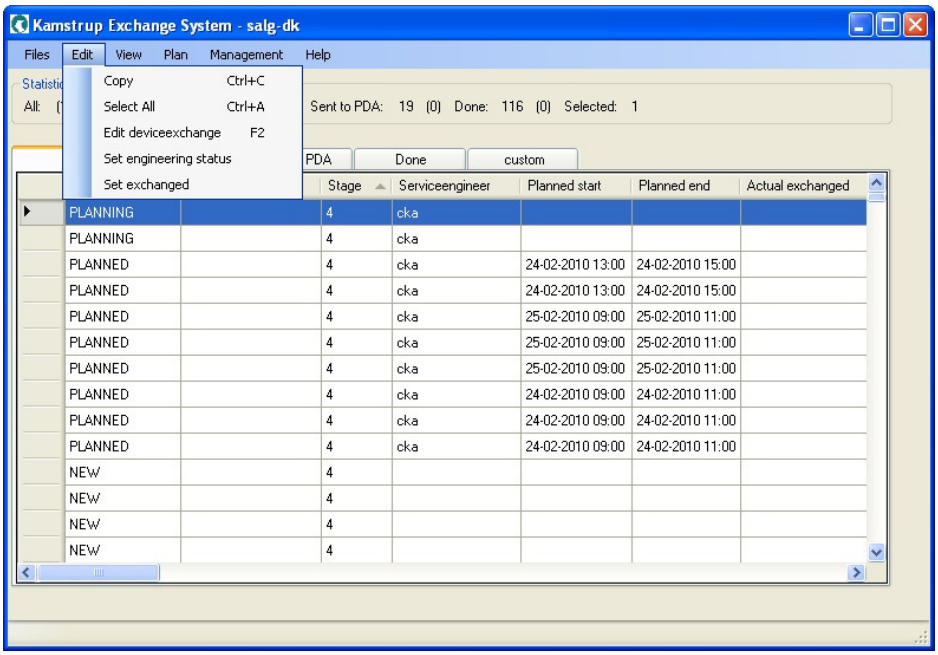


The tab is displayed to the right of the existing tabs.

When restarting the program, the tab is invisible, but it can be displayed by clicking *Own tabs* in the menu *View* and then selecting the tabs to display. Finish by clicking on [OK].

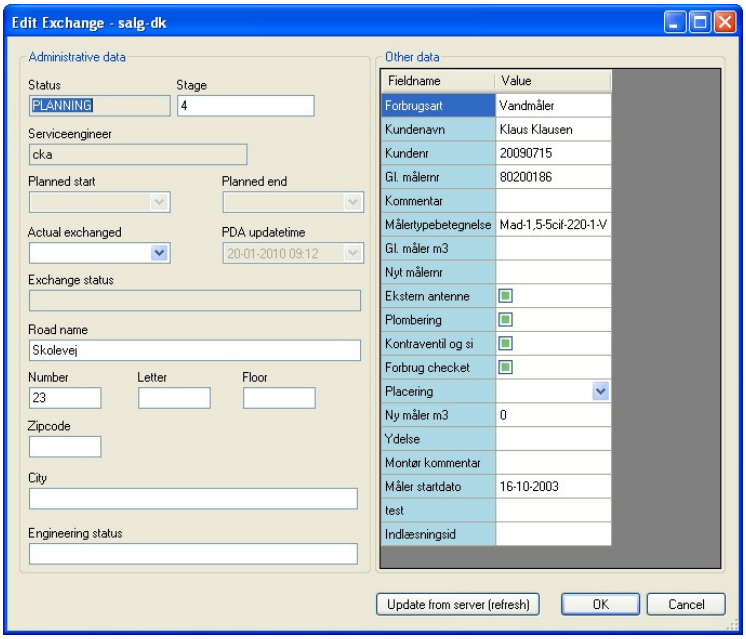
2.4.6 Edit replacement

If the data entered on a replacement is wrong, it is possible to edit the data.



Select the required replacement, and press [F2] or select *Edit device exchange* in the menu *Edit*.

The following window will be displayed:



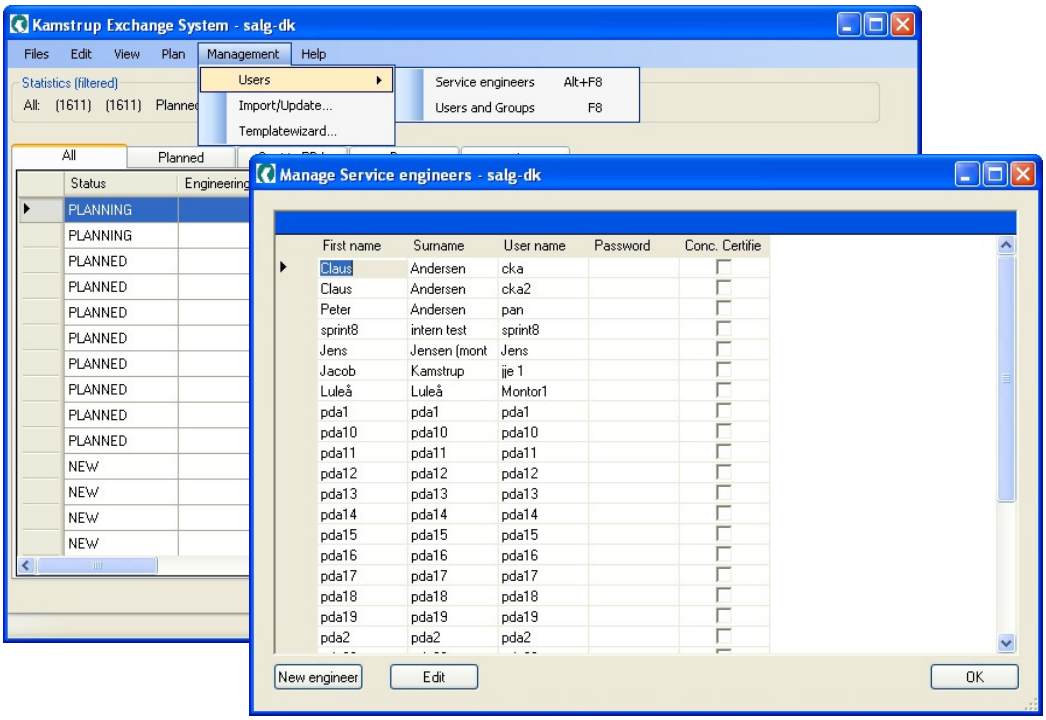
Here, it is possible to edit a replacement, e.g. in case the hand-held terminal has sent wrong data.

Which data can be edited depend on the rights of the user.
Note: Only one replacement can be edited at a time.

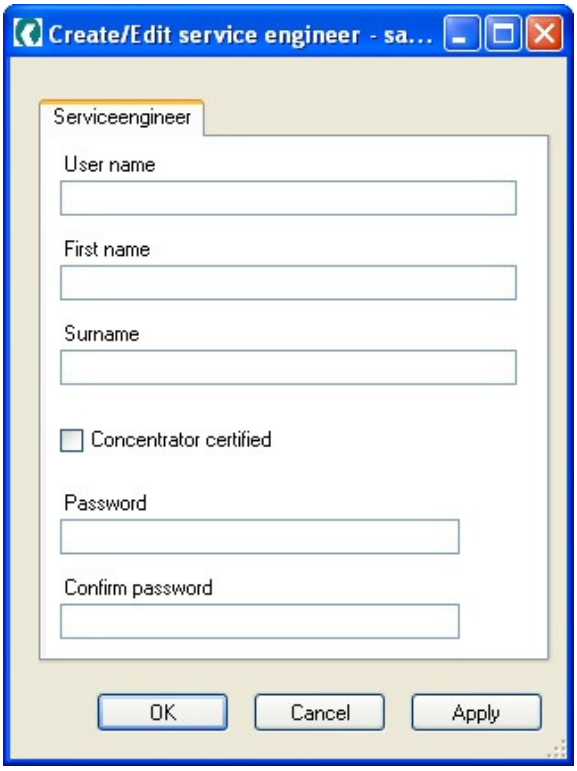
2.4.7 Creation of users

2.4.7.1 Service engineers

Service engineers are created under the menu *Management -> Users -> Service engineers*.



Click on [New engineer] to create a new service engineer.



In this window, the information about the service engineer is entered.

***User name**:* The user name of the hand-held terminal of the service engineer. **Note:** Must correspond to the set-up of the hand-held terminal of the service engineer.

***First name**:* The first name of the service engineer

***Surname**:* The last name of the service engineer

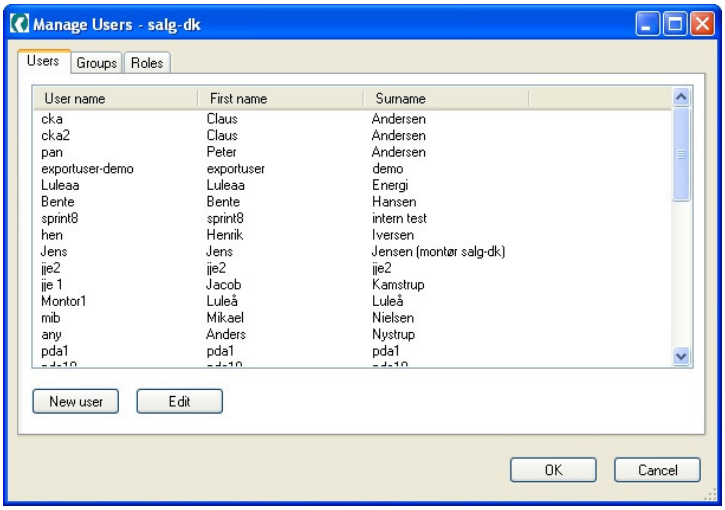
***Password**:* Password for the hand-held terminal

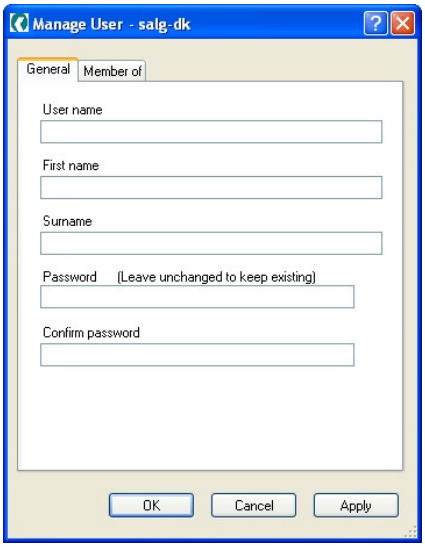
***Confirm password**:* Enter the password again.

Save by clicking on [Apply].

2.4.7.2 Other users

New DES operators are created in the same way as the service engineers; however, remember to make the user member of a group (e.g. Administrators).





Click on [New user], and specify *User name*, *First name*, *Surname* and *Password*.

Then, remember to add a group to the tab *Member of*.

Save by clicking on [Apply].

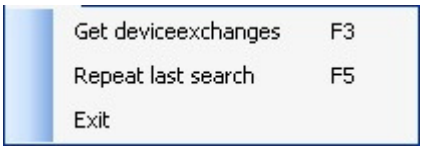
2.5 Menus

The most commonly used features in the menus are described in the previous sections.

Below, all the menus of the DES client are described in short. The contents of the menus depend on the assigned user rights. Therefore, some of the described menu features may not be available to all users.

2.5.1 The menu *Files*

Under the menu *Files*, the feature *Get device exchanges* [F3] is found that opens a new window with the criteria for the search for tasks from the server. The menu item *Repeat last search* [F5] is used for updating the tasks displayed in the window. *Exit* closes the DES client.



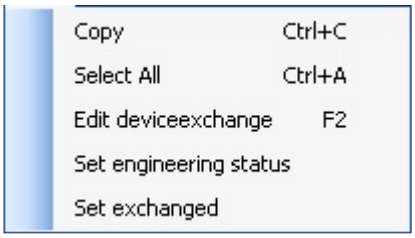
2.5.2 The menu *Edit*

The menu *Edit* contains features like *Edit device exchange* that have been described earlier. This feature is used for editing one task at a time.

Furthermore, the features *Select All* and *Copy* are also found here, which are used for a simple export to e.g. Excel.

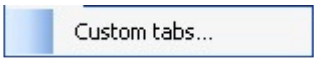
The value in the column *Engineering status* can be edited with the feature *Set engineering status*. Several replacements can be edited at a time.

If a replacement is to be marked as exchanged without sending it to a hand-held terminal, the feature *Set exchanged* can be used (at present, this feature is reserved for Kamstrup users).

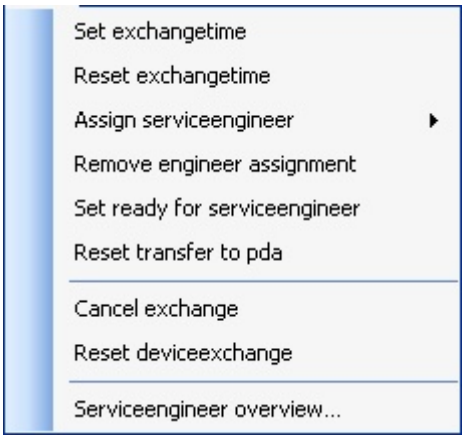


2.5.3 The menu *View*

In this menu, it is possible to create and edit user-defined tabs as described earlier.



2.5.4 The menu *Plan*



Set exchange time: Specify the replacement time for the selected replacements.

Reset exchange time: Delete the replacement time for the selected replacements.

Assign service engineer: Allocate the selected replacements to a service engineer.

Remove engineer assignment: Delete the assigned service engineer from the selected replacements.

Set ready for service engineer: Makes it possible for the service engineer to collect the replacements by pressing [U] on the hand-held terminal.

Reset transfer to PDA: Makes it possible to select a new service engineer for the replacements that are already ready for collection.

Cancel exchange: Cancel a replacement, e.g. in connection with an import error in the system, or an error from the hand-held terminal (the replacement must first be reset).

Reset device exchange: Remove the service engineer assignment, and reset the replacement time.

Service engineer overview: An overview of the tasks of the service engineers. This feature is described in an earlier section.

2.5.5 The menu *Management*

The creation of users is carried out from this menu. The features are described in earlier sections.

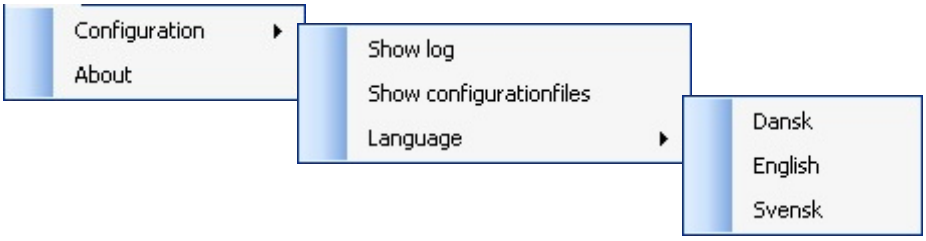
Import/Update… is used for importing data into or updating data on the server. This takes place by an Excel table with special formats (at present, this feature is reserved for Kamstrup users).

The same applies to the feature *Template wizard…* that is used for creating and editing templates for the DES hand-held terminal.

2.5.6 The menu *Help*

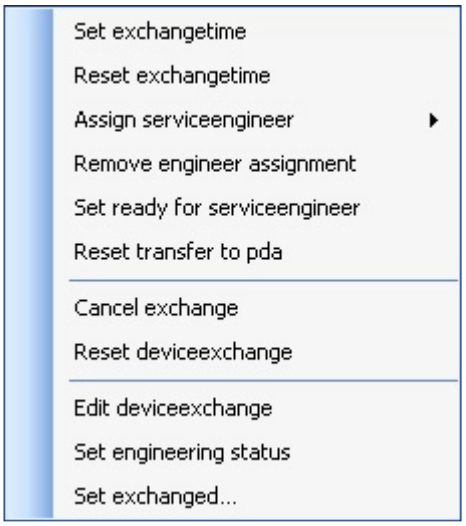
The DES client is available in three languages: Danish, English and Swedish. It is possible to switch between these three languages from the menu *Help -> Configuration -> Language*. The default language is English.

In this menu, it is also possible to see set-up files, log files, information about the version number etc.



2.5.7 Right-click menu

The most commonly used menu features in connection with planning and editing tasks are also available from this menu that appears by clicking the right mouse button.



3 DES hand-held terminal

This manual contains a detailed description of the available features and refers to the DES hand-held terminal software version 3.5.

3.1 Product overview

3.1.1 Hardware specification

Two versions of WORKABOUT PRO from Psion Teklogix are available: G1 and G2.

G1 refers to the version of the hand-held terminal from Psion Teklogix that has been offered since the launch of DES, while G2 refers to the newest version of the hand-held terminal.

Apart from small changes to the keyboard as well as the colour of the hand-held terminal, the differences between G1 and G2 are:

Description	G1	G2
Processor	400 MHz	520 MHz
Screen resolution	240x320	480x640
Battery	3000 mAh	4000 mAh

The hand-held terminal from Psion Teklogix has been adapted to varying working conditions and is solid and practical to use. This is confirmed by the following features:

- The terminal complies with standard IP 54 (water and dust protection)
- The terminal can be used at temperatures from -10° to +50°C
  - Temperature shock: +/- 20°C during a period of 10 minutes
- Fall tested on concrete floor from 1.1 meters
- Daylight readable VGA screen
- Compact Flash and SD/MMC Card
- 3000/4000 mAh battery (in MT Pro G1, possibility of 3 x Alkaline batteries)
- Backup battery with 5 years' service life.

Psion WORKABOUT PRO has been provided with a lithium battery with maximal capacity. Furthermore, a backup battery provides power in case the main battery must be replaced.

WORKABOUT PRO from Psion Teklogix contains a series of features that make the DES hand-held terminal user-friendly, including barcode scanner and GSM modem. However, due to the large power consumption of the hand-held terminal, it is recommended to place the WORKABOUT PRO in the docking station once a day.

3.2 Capacity

40 MB disc is available on the hand-held terminal for applications and data.

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Kamstrup recommends sending max 200 tasks to a hand-held terminal. However, tests show that up to 700 tasks can be handled by each hand-held terminal, thus resulting in a considerably lower performance.

If this recommendation is not followed, it might result in a poorer performance of the DES hand-held terminal.

3.3 Data security

Data are stored in Flash Memory to prevent data from being lost, e.g. when changing batteries or when losing power in another way. When synchronising with the server via GPRS at frequent intervals, this security increases as data stored on the server are secured through backup.

3.4 Copyrights

The software licence only applies to the delivered hand-held terminals.

Kamstrup cannot support third party software installed on the hand-held terminal, or problems caused by this software.

3.5 Regeneration of the system

With reference to *3.3 Data security*, the hand-held terminal cannot lose data. If the DES hand-held terminal program gets into a state where it does not respond to conventional input, it might be necessary to regenerate the system. By doing this, the application will be closed, and the program (and data) will be reloaded without loss of data.

A system regeneration is done by pressing the [ENTER] button and the blue function key for 6-8 seconds (a restart is not allowed during the synchronisation with the server, or when writing to the Flash disc, i.e. when the system "stores tasks" during the synchronisation).

3.6 Program updates

Program updates are made available via download directly from the set-up menu on the DES hand-held terminal. Select *Updates*, then select *Check for updates*, and follow the instructions on the screen.

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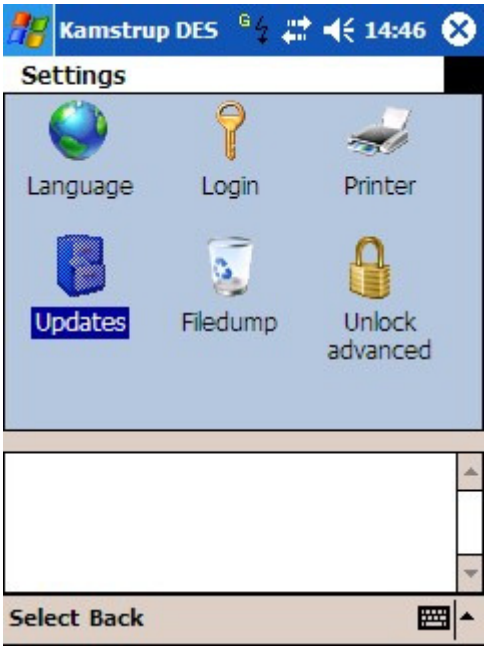
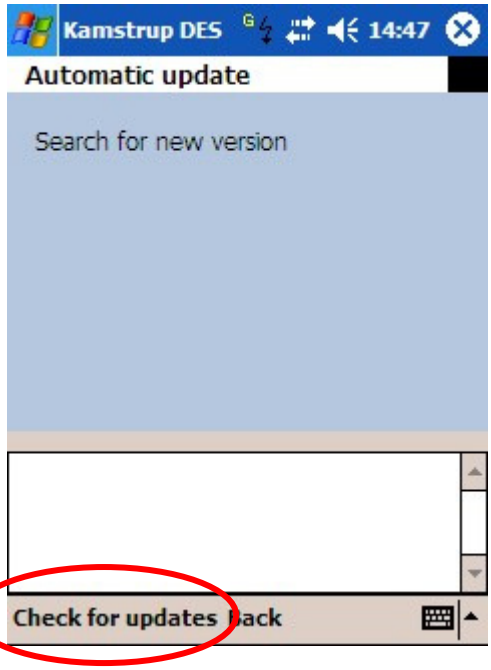




It is recommended to update with the hand-held terminal placed in the docking station and the GPRS connection switched off. The settings and tasks on the hand-held terminal will remain after the update.

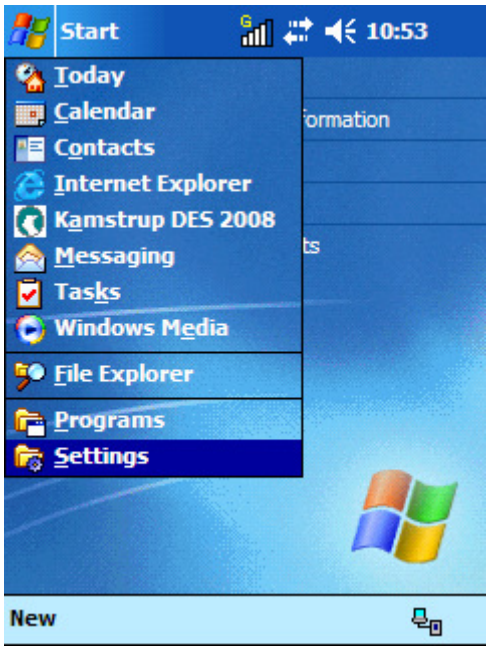
4 Using the DES hand-held terminal

4.1 Windows settings

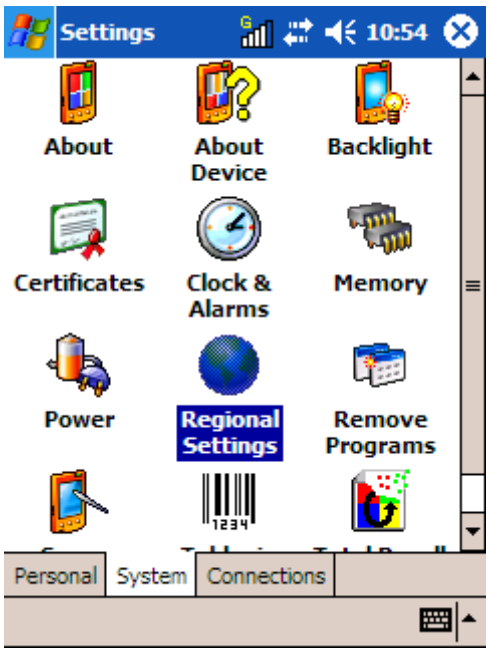
This hand-held terminal is operated by the Windows Mobile operative system. Windows Mobile is comparable with conventional Windows systems. Therefore, the user of the DES hand-held terminal must set up the following on the terminal:

4.1.1 Regional Settings

Click on *Start* and then on *Settings*.



Next click on *Regional Settings* under the tab *System* (at the bottom of the screen):



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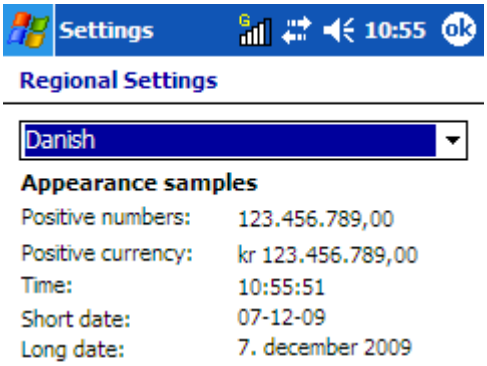
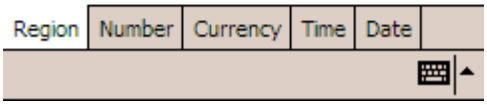
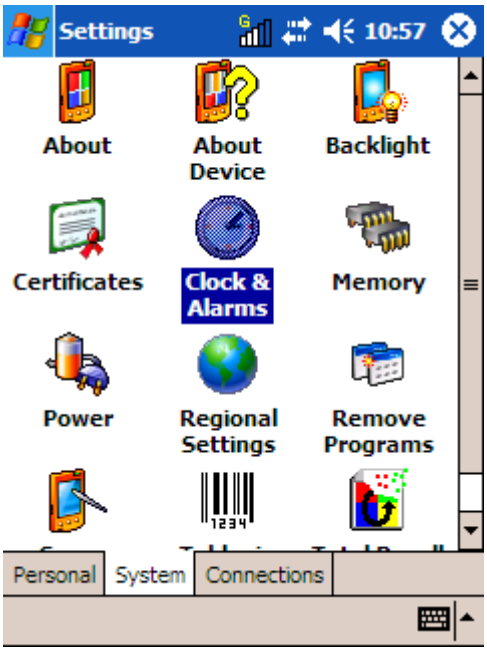
This will open the menu *Regional Settings*. If *Regional Settings* for Denmark should be applied, select *Danish*:



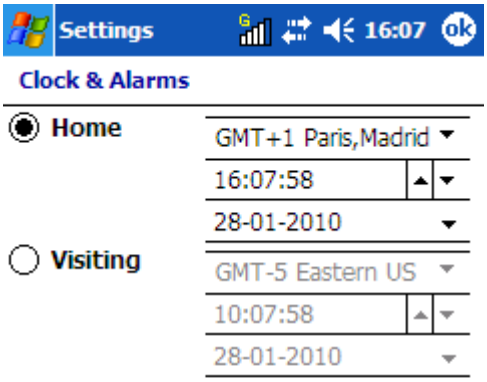


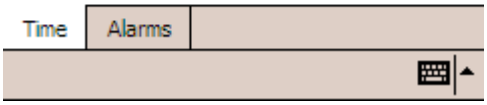
4.1.2 Clock & Alarms

Click on *Clock & Alarms* in the menu *Settings*.

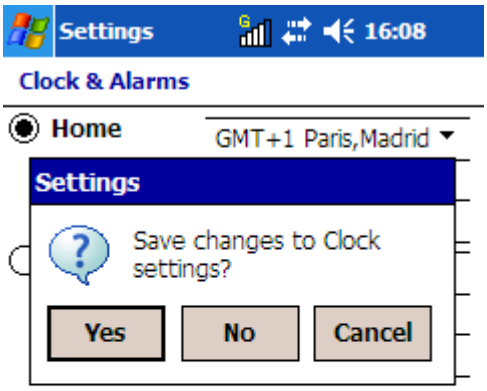


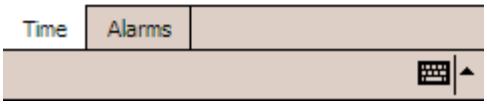
Select the required time zone, e.g. GMT+1, and press [ENTER].





Press [Yes] to close.





4.1.3 Time

On delivery, the time is set. The user will, however, be asked to make time settings every time the application is started.

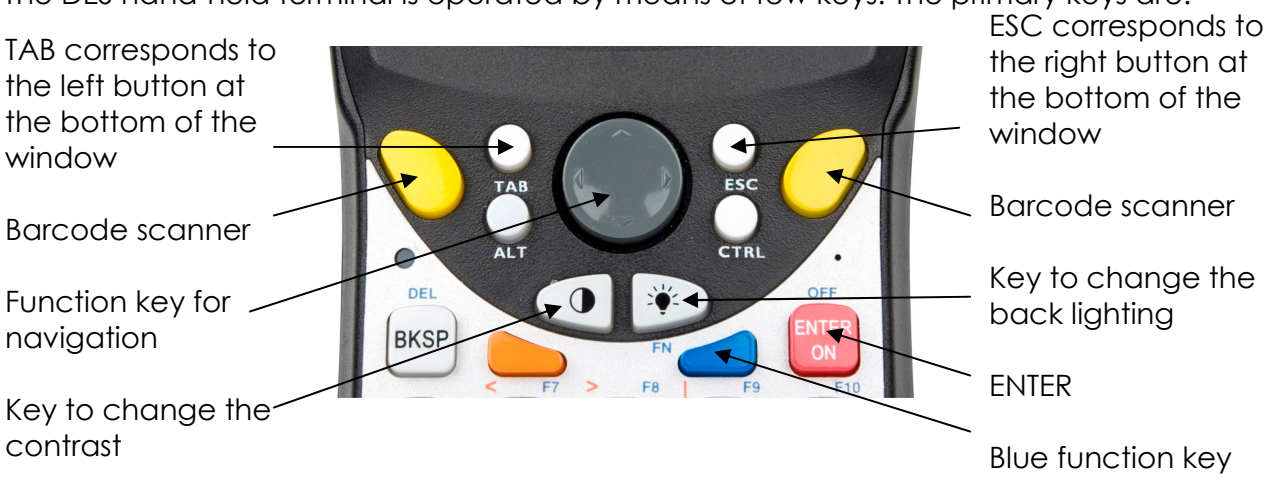
Note: When communicating with the server, a certificate is used to ensure that the hand-held terminal is allowed to contact the server. This certificate requires that the time is set correctly on the hand-held terminal.

The above settings are preset on delivery of the DES hand-held terminal and should only be changed if the hand-held terminal is without current for some time or in another way loses the set-up.

4.2 Navigation in the DES hand-held terminal

The program for the DES hand-held terminal can be operated merely by means of the keys. Basically, it is not necessary to use the enclosed stylus (pen for touch screen navigation). It can, however, be used for all the functions.

The DES hand-held terminal is operated by means of few keys. The primary keys are:



4.3 DES hand-held terminal hardware

4.3.1 Mounting batteries

The hand-held terminal from Psion Teklogix is supplied with a battery mounted and a backup battery. The battery is changed in the following way: Open the back cover as illustrated below and mount the battery:

G1

G2

Note: If the battery is completely empty, the recharge time may take 10 – 15 min. before the DES hand-held terminal can be started and used.

It takes approx. 24 hours to charge the batteries completely.

4.3.2 Switch on the hand-held terminal

Press the key [ENTER] (the red key) for 2-3 seconds to start the hand-held terminal.

4.3.3 Switch off the hand-held terminal

Press the blue function key [FN] followed by [ENTER].

4.3.4 Reset the hand-held terminal

The hand-held terminal can be reset by pressing the blue + red buttons for approx. 8 secs. Remember to end DES before resetting.

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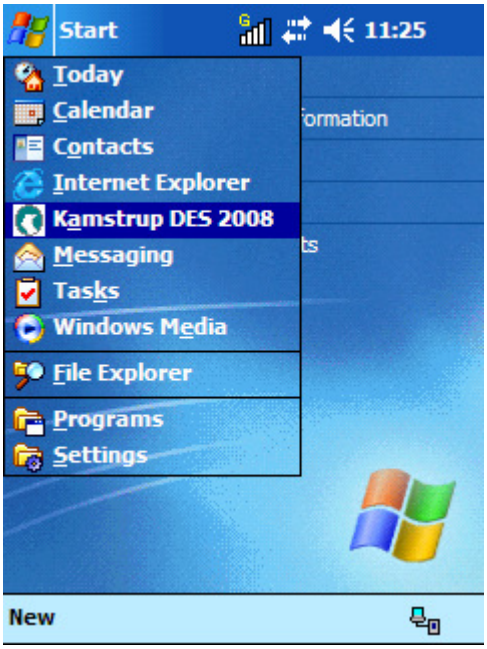
A reset can, in some cases, solve problems with the modem.

4.4 DES hand-held terminal software

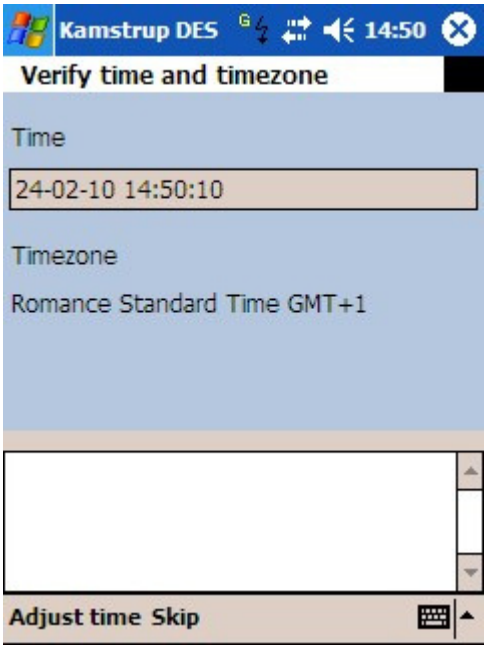
4.4.1 Start-up

The program is started by selecting *Kamstrup DES 2008* in the Windows *Start* menu.

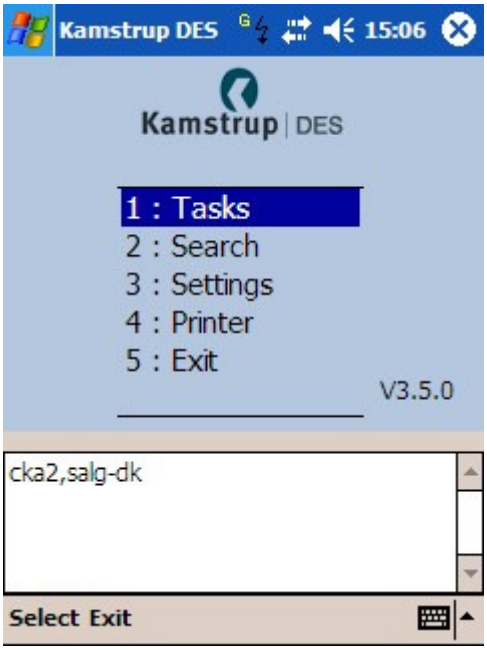


Then, the user is asked to verify time and time zone.

If the time and time zone are correct, select *Adjust time* or *Skip*.



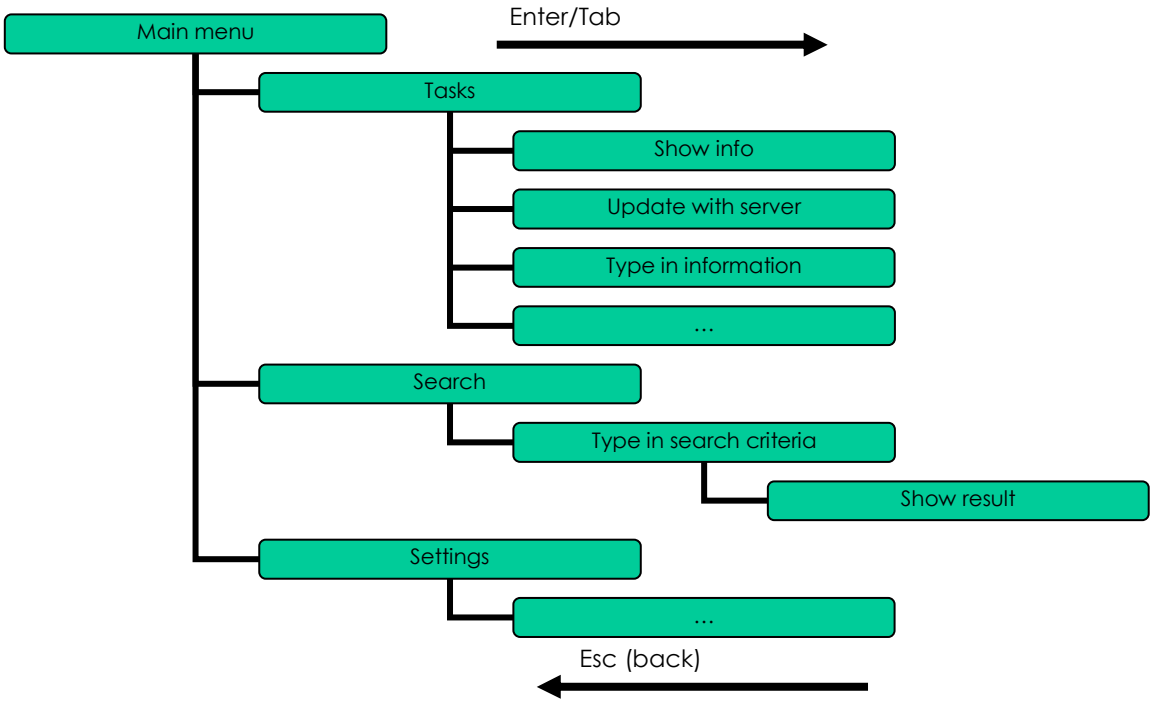
This will open the main menu of the DES hand-held terminal:



1: Tasks: Is selected to display and carry out tasks.
2: Search: Is selected to search for specific meters or addresses.
3: Settings: Is selected to change general settings of the program.
4: Printer: Is selected to see printout jobs listings.
5: Exit*:* Is selected to close the program.

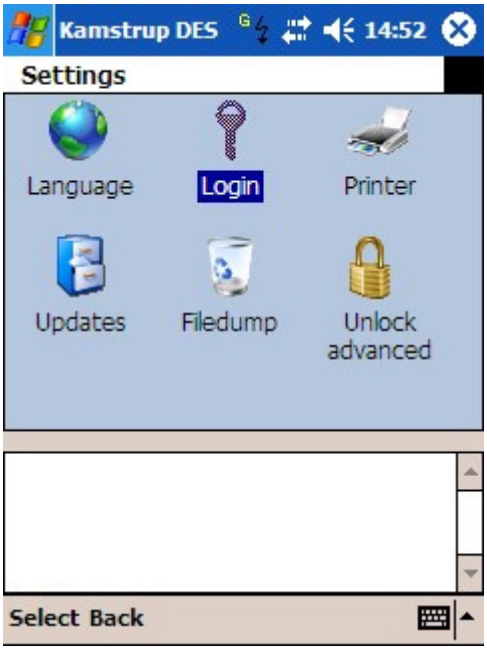
4.4.2 Navigation and general short cuts

Navigation in the flow of the program takes place as outlined below. One step ahead in the flow is done by pressing [ENTER] or by pressing [TAB] *Select*. To go one step back, press [ESC]. The navigation possibilities and the short cuts can be found in the menu that is shown by clicking on *Menu* at the bottom of the screen if they are available in the current display.



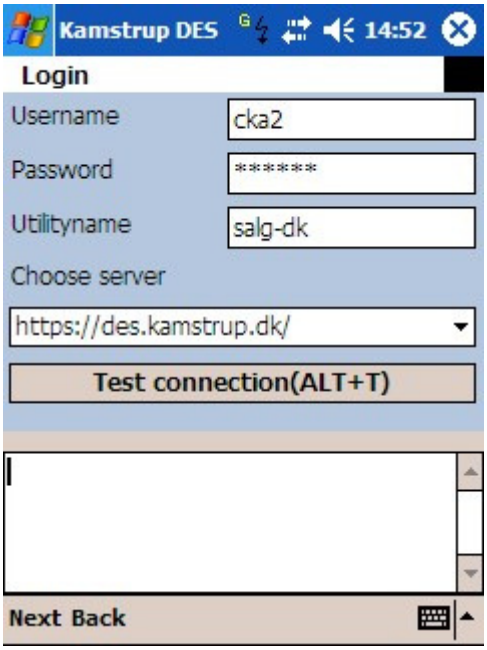
4.4.3 Settings

The hand-held terminal is configured on delivery from Kamstrup A/S. This configuration can be changed in the *Settings* menu.



Language: Is selected to change the language of the hand-held terminal.
Login: Is selected to change/correct the user of the hand-held terminal.
Printer: Is selected to set up the COM port and number of copies to be printed.
Updates: Is selected to search for updates for the hand-held terminal.
Filedump: Is selected to change the interval of the reporting of errors.
Unlock advanced: Makes it possible to open advanced functions. This requires a code that is provided by contacting Kamstrup A/S. As default, these functions are locked.

The *Login* window is displayed as shown below.



Here, you can enter the *User name*, *Password* and *Utility name* and choose the server.

The entered user must be registered with the chosen utility. See 2.4.7

Creation of users.

You can choose between two different servers: an operation and a demo server.

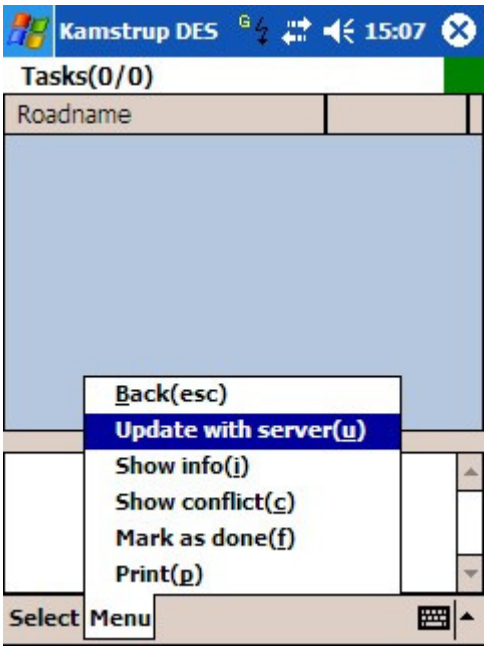
Press [Test connection (ALT+T)] to test that the entered information is correct.

Note: Before changing the user, the hand-held terminal should be emptied for its tasks.

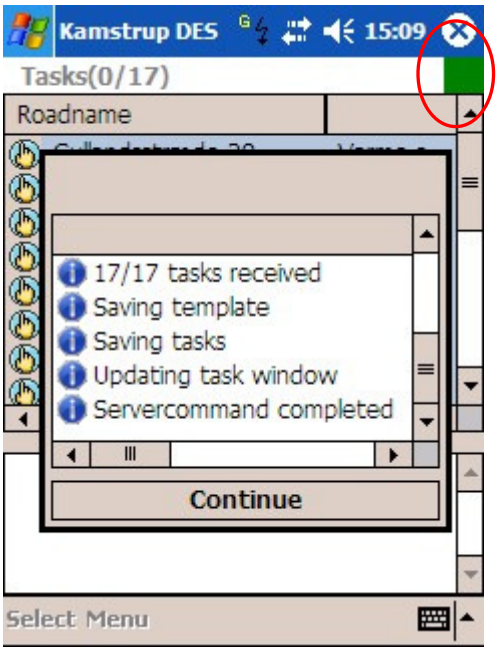
If the window is left by pressing *Back*, any changes will not be saved.

4.4.4 Tasks

To see tasks in the *Tasks* window, an update with the server must be carried out. This is done by selecting *Update with server [U]* in the menu.



After this, a window showing the server communication is shown while tasks are collected from the server.



In the top-right corner of the screen (shown with a red ring in the figure above), a status indication of the server communication is shown.

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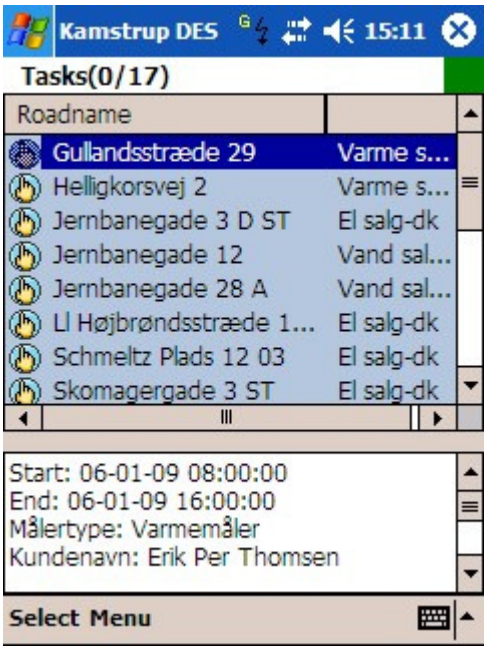
- **Black**: Attempts to establish connection have not yet been made. Status is unknown.
- **Red**: Connection to the server cannot be established.
- **Yellow**: The server responded with an error. Could be due to a wrong login or a timeout to the SQL server.
- **Orange**: Attempting to connect to the server and carry out a set of commands.
- **Green**: Everything is OK.

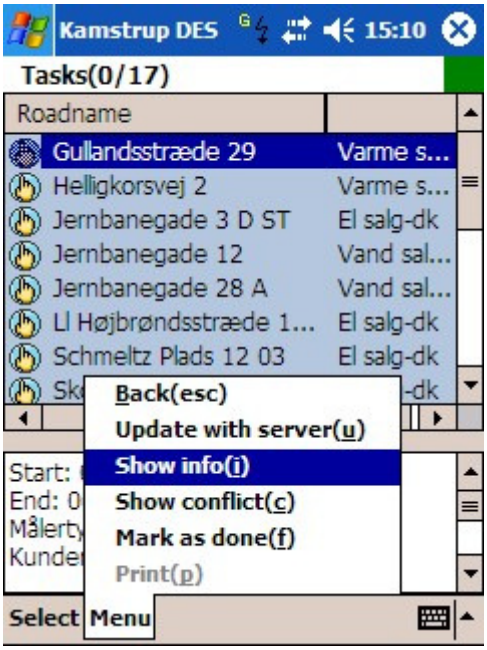
After synchronisation, the tasks planned for the service engineer will be shown in the *Tasks* window.

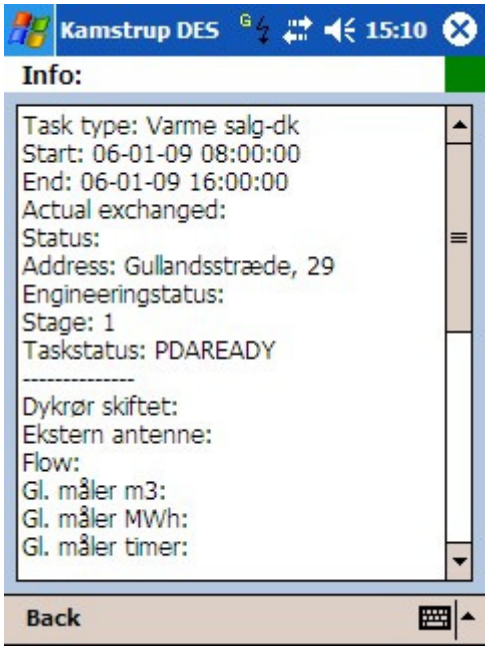


The tasks are first sorted by start time, then by end time, and finally by address.

In the info field at the bottom of the window, the information about the chosen task is displayed. The dividing line between the info field and the *Task* window can be moved up or down by drag-and-drop.

To see all information about a task, select *Show info [I]* in the menu.





To move back to the previous window, press *Back* [ESC].

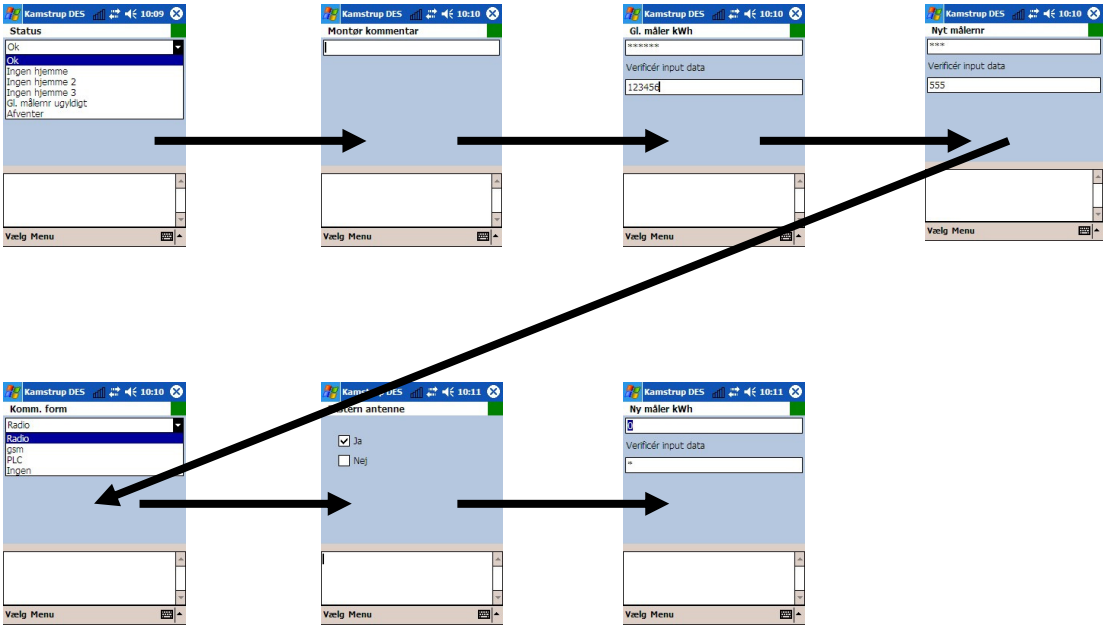
Note: Always check that the correct meter is being replaced by checking the existing meter number.

Note: The information about the tasks depends on the individual customer solution and the type of task.

4.4.5 Entering a task

When the service engineer selects a task by clicking [ENTER] to the task concerned, a series of input windows will appear where one information (e.g. meter reading) per window can be entered.

The number and the structure of these windows vary from utility to utility and also depend on the utility supplies/type of task.


Kamstrup DES 10:09
Status
Ok
Ingen hjemme
Ingen hjemme 2
Ingen hjemme 3
Gl. målernr ugyldigt
Afventer
Vælg Menu
Kamstrup DES 10:10
Montør kommentar
Vælg Menu
Kamstrup DES 10:10
Gl. måler kWh
Verificér input data
123456
Vælg Menu
Kamstrup DES 10:10
Nyt målernr
Verificér input data
555
Vælg Menu
Kamstrup DES 10:10
Komm. form
Radio
Radio
gsm
PLC
Ingen
Vælg Menu
10:11
Ja
Nej
Vælg Menu
Kamstrup DES 10:11
Ny måler kWh
Verificér input data
Vælg Menu

The following paragraphs show typical examples of these.

4.4.5.1 Status registration

Define the status of the task:

Old meter number invalid

Or

Nobody at home (1), 2 or 3

i.e. if nobody is at home for the first, second or third time.

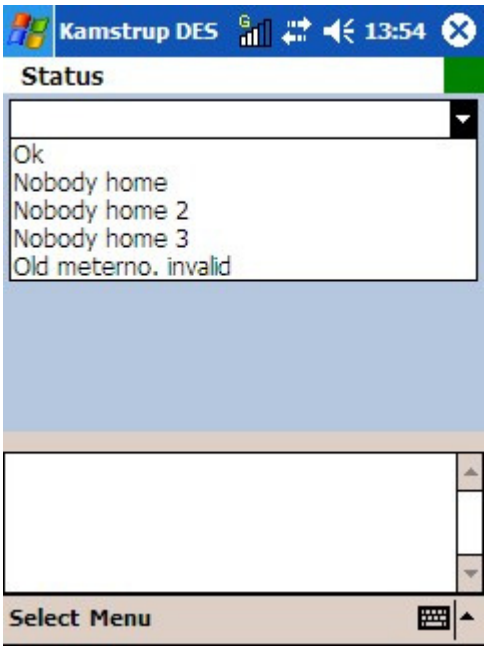
Or

OK

i.e. that the task/meter replacement can be carried out.

The selection is done via the round button with arrow up/arrow down.

Press [ENTER] after the selection to move on to the next input for this task.



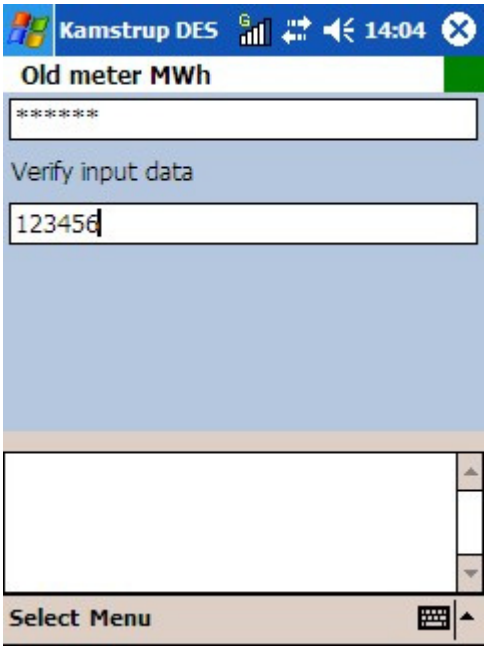
Note: Be aware to select the correct status.

Note: The information about the task depends on the individual customer solution and the type of task.

4.4.5.2 Old meter MWh

Enter the old meter MWh. Enter all digits. Enter the meter MWh again under *Verify input data*. It is checked if the correct meter MWh has been entered.

Note: On the keyboard, the number 0 differs from the letter o.

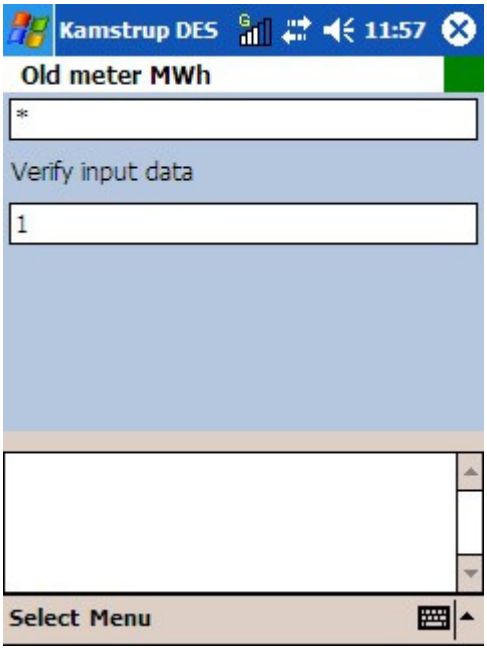


The corresponding input windows for e.g. m3 and hours can also be found for other utility supplies (water, heat and electricity).

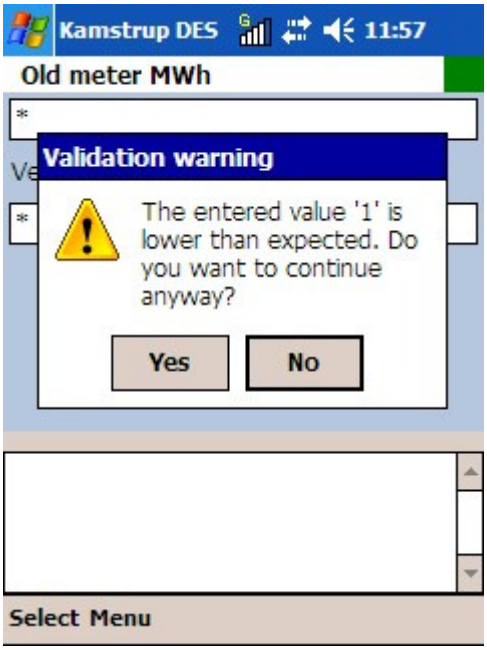
4.4.5.3 Min./max values

If min./max values have been read when importing, these values will be validated on the hand-held terminal.

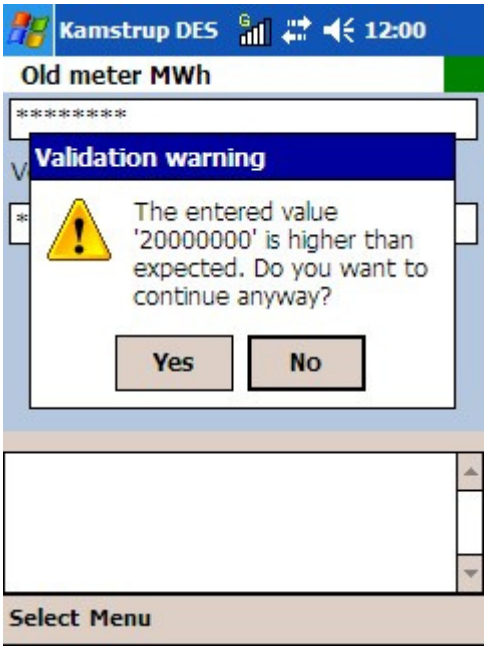
In this case, the min. value 179305 and the max value 11692142 for the old meter's kWh have been read.

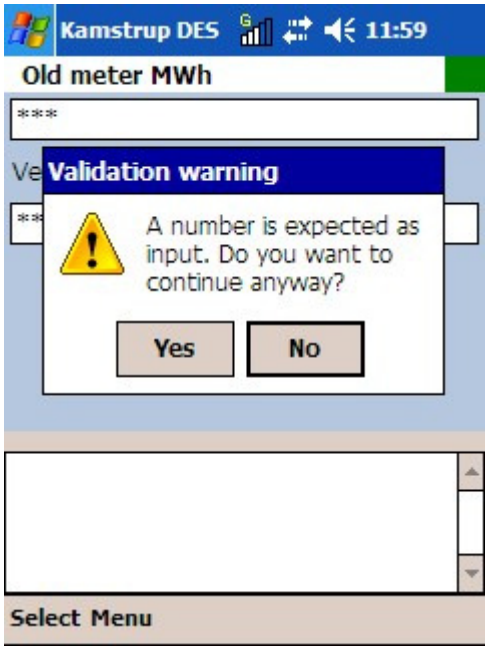


The service engineer enters "1" in both fields and receives the following warning:



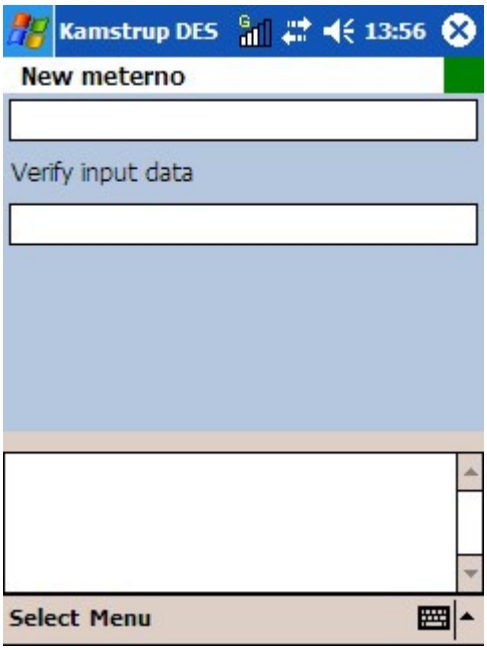
Below, the service engineer has entered a value that is higher than expected (to the left) and letters (to the right) respectively.





Note: The min./max values are not visible to the service engineer, neither in the info window. The values are only visible in the editing window [F2] of the DES client and are not editable.

4.4.5.4 New meter no.



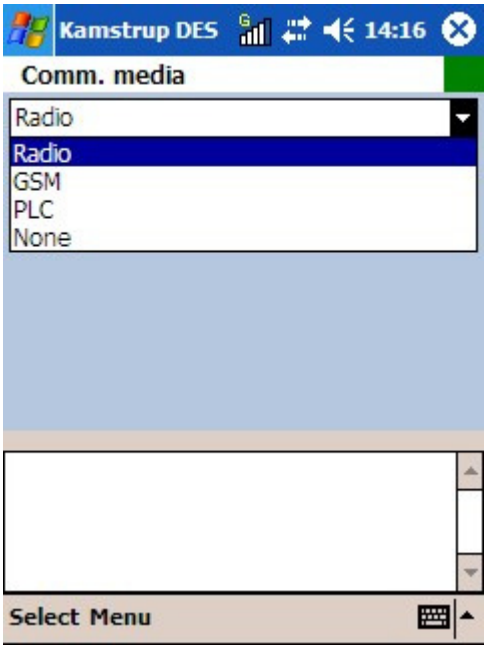
For controlling purposes, the meter number must be scanned twice. The scanner is activated by pressing the yellow button. After scanning in the upper field, press [ENTER] to go to the lower field and scan again.

It is also possible to enter the new meter number manually. When entering the meter number manually, it must be entered twice to confirm correct data entry. Enter all digits.

Note: On the keyboard, the number 0 differs from the letter o.

4.4.5.5 Communication method

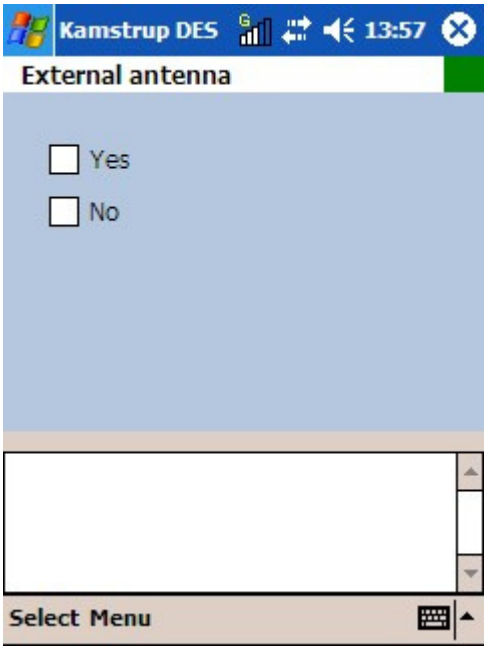
Select the communication method that the new meter uses. Use the arrow key up/down to select, or click the arrow to the right in the field.



Note: The information about the task depends on the individual customer solution and the type of task.

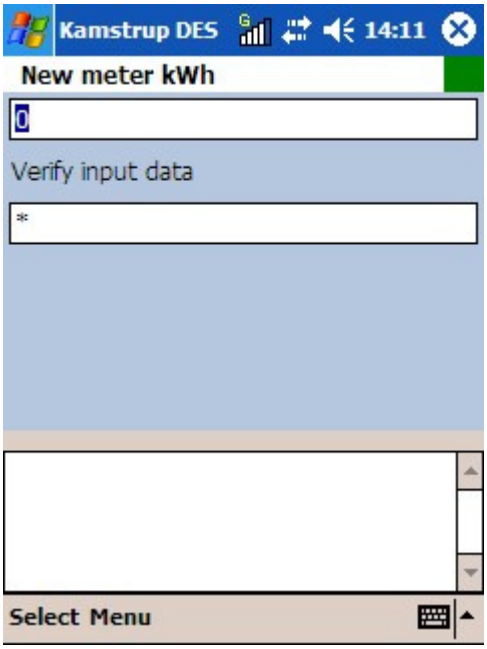
4.4.5.6 External antenna

Register if an external antenna is mounted. Use the arrow key up/down to select.



4.4.5.7 New meter kWh

Enter the kWh of the new meter. Enter all digits. Enter the meter MWh again under *Verify input data*. It is checked if the correct meter MWh has been entered.

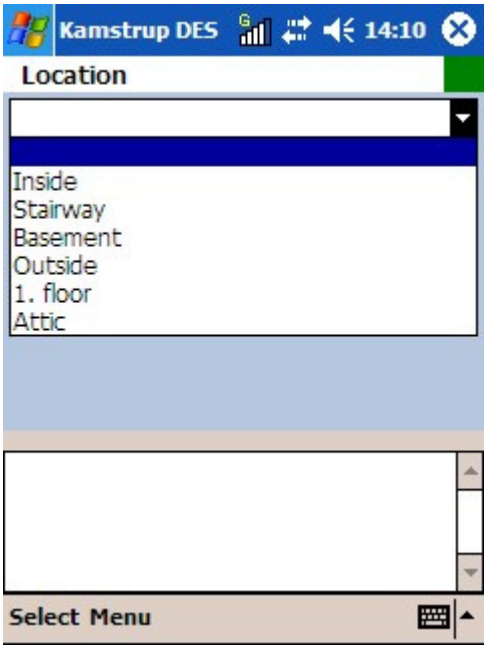


Note: On the keyboard, the number 0 differs from the letter o.

The corresponding input windows for e.g. m3 and hours can also be found for other utility supplies (water, heat and electricity).

4.4.5.8 Placement

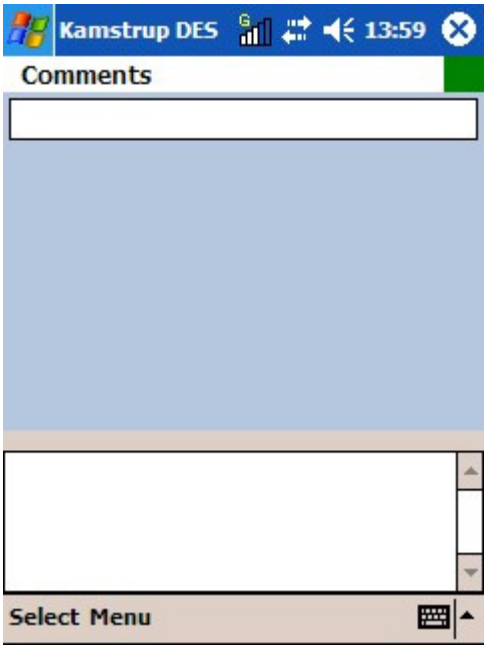
Register the placement of the meter. Use the arrow key up/down to select.



Note: The information about the task depends on the individual customer solution and the type of task.

4.4.5.9 Comments from service engineer

Field for various comments from the service engineer.

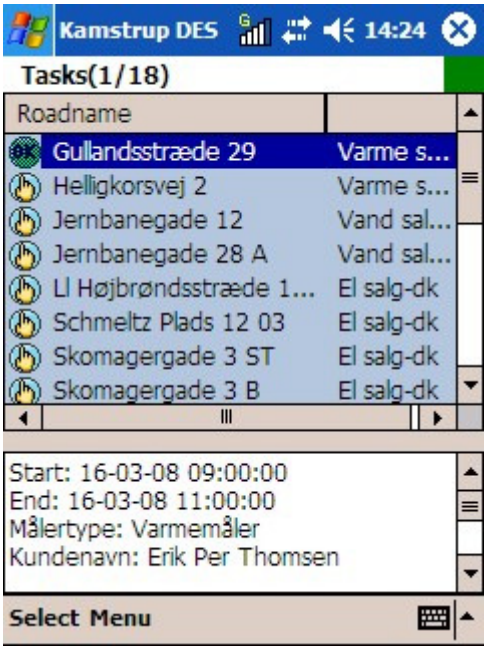


4.4.5.10 Meter replacement completed

When the flow has been carried out, the meter replacement is complete, and you can return to the *Tasks* window.

OK in front of an address means that the meter replacement is complete and is ready to be sent to the server at the next update.

A "hand" in front of an address means that the meter replacement has not been carried out yet.

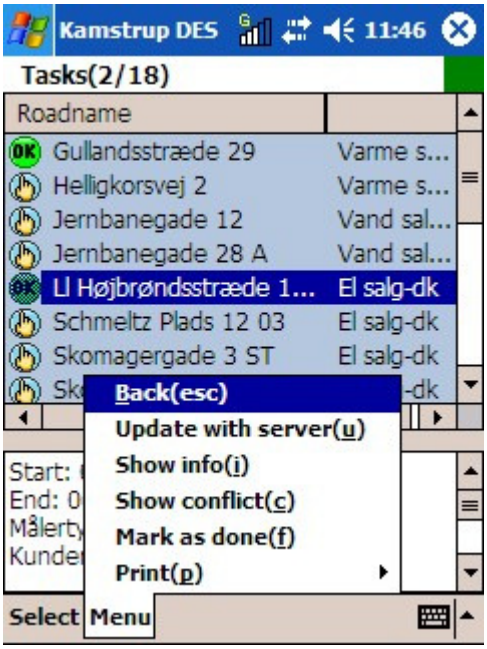


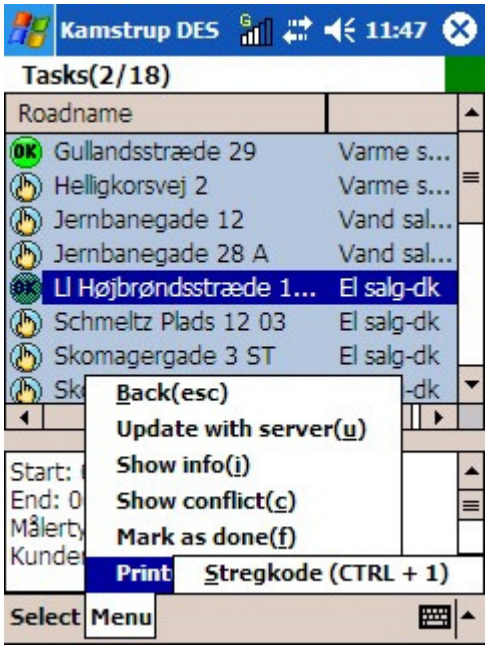
4.4.5.11 Print

If a printer has been selected for the hand-held terminal, it is possible to print a label with information about the meter replacement after having carried out the replacement.

In the *Tasks* window, select *Print (p)* in the menu. Thereafter, you can choose between the created print templates.

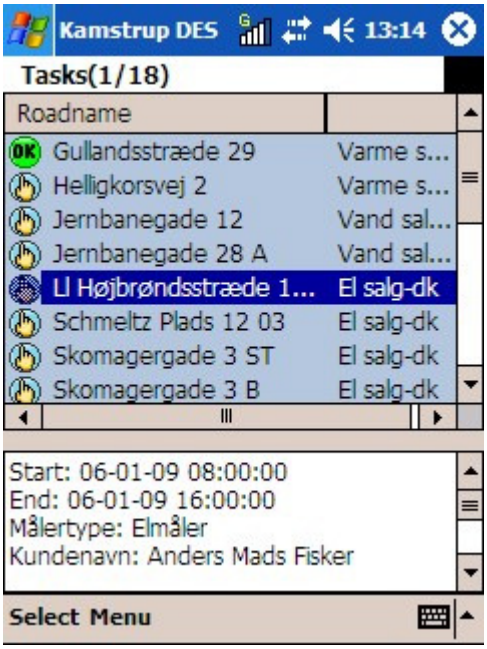
In the example to the right, only one print template is available. This can also be selected by pressing [CTRL] + [1].

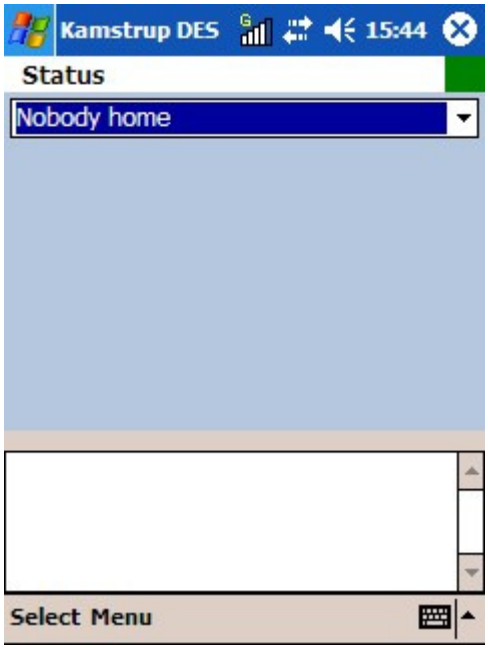




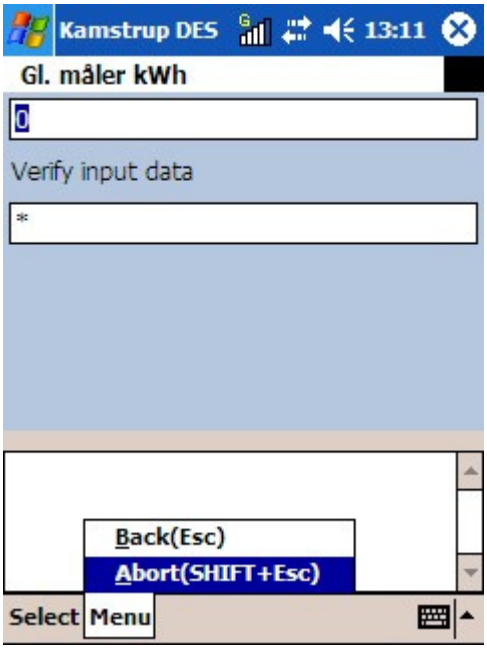
4.4.5.12 Meter replacement is not done

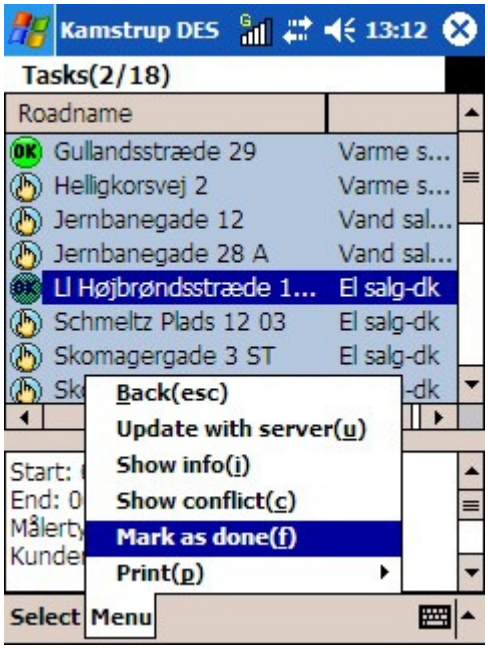
If the meter replacement cannot be carried out, e.g. if the status *Nobody home* is selected, do as follows:



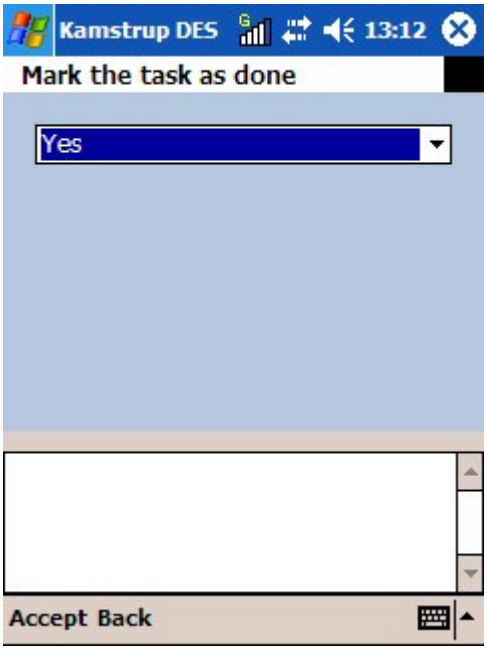


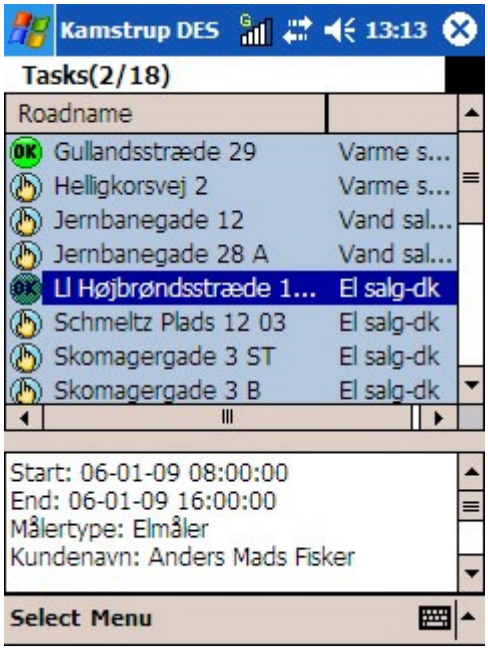
Press [ENTER] to go to the next window. Typically, more information is not needed for one task that is not carried out, and therefore, the service engineer can return to the *Tasks* window by selecting *Abort* [SHIFT] + [ESC].





Press [F] to mark a task that is done/complete.





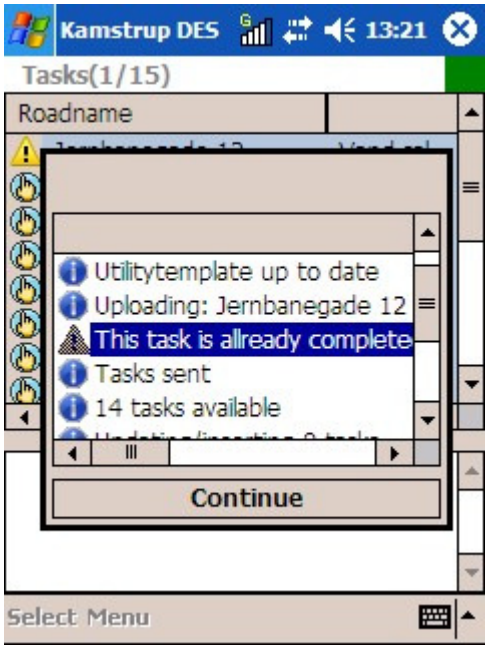
Select *Yes* in the dialog box to mark the task as done, and press [ENTER]. Now, the task is marked with a green *OK* icon and will be sent to the server the next time this is updated.

On the server, this task will now appear as *Not exchanged* and be ready for rebooking with new time and service engineer.

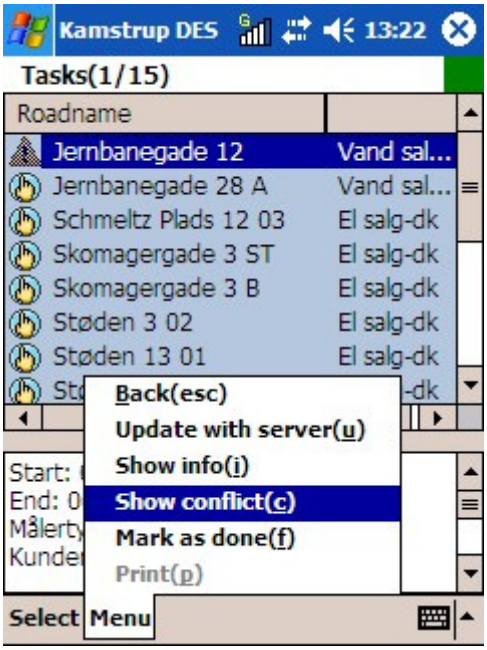
4.4.5.13 Conflicts

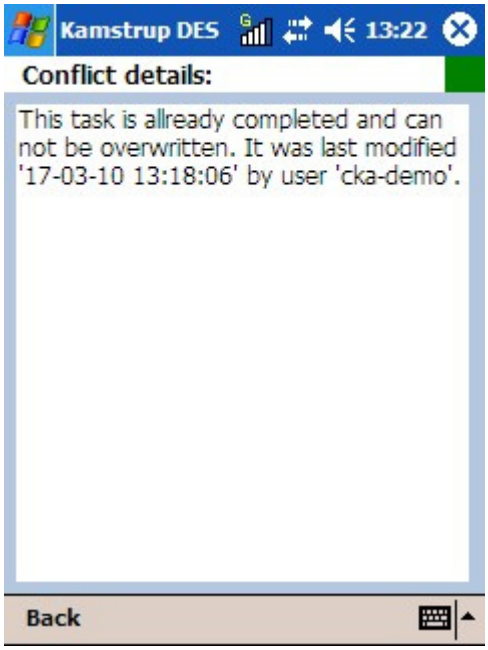
If a service engineer tries to deliver a task that is already shown on the server as done *(Exchanged)*, a conflict may occur.

The task will then be marked with a warning.



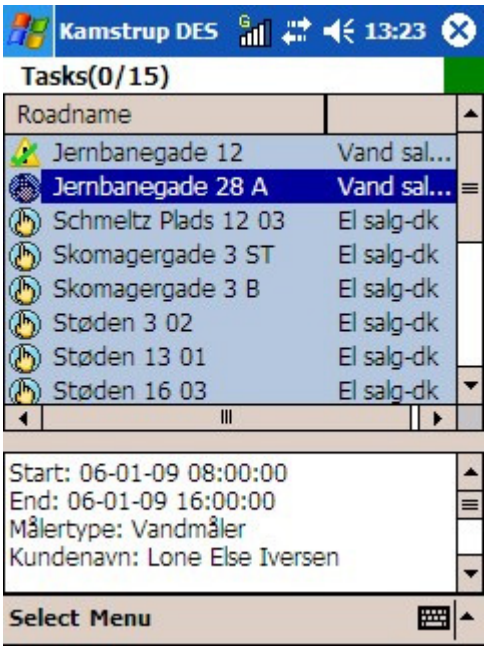
The service engineer can see details for the conflict by selecting *Show conflict [C]* in the *Tasks* menu. Here, information about the service engineer who has earlier delivered this task is shown.





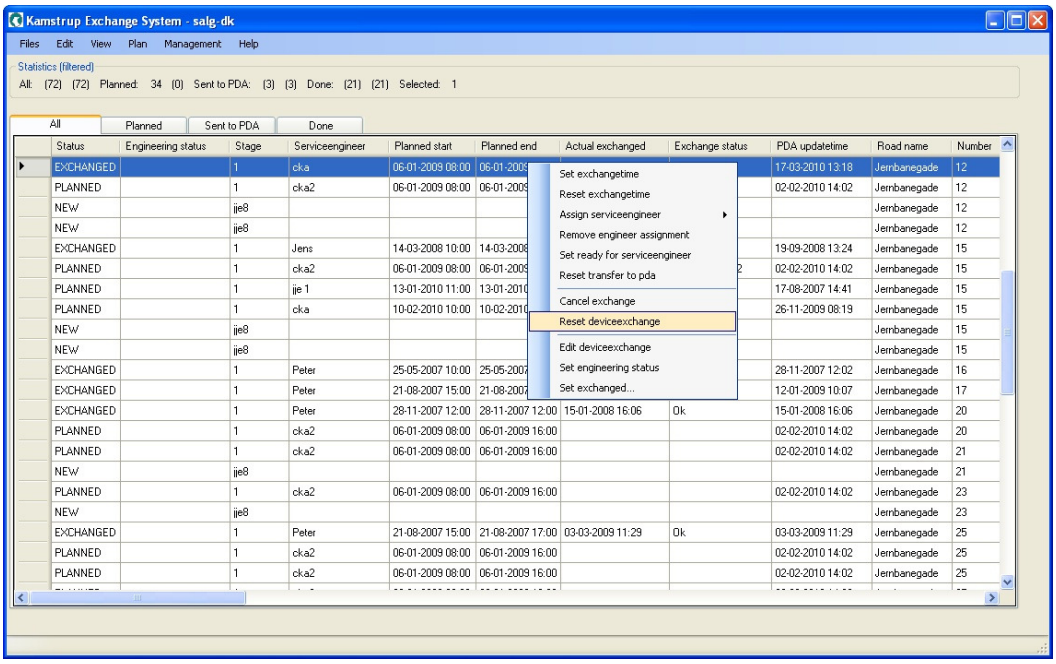
If the service engineer does not deliver the task because he by mistake has chosen the status *OK*, he can solve the problem by marking the task as "not done" (see *4.4.5.12 Meter replacement is not done*), and selecting *No* in the dialog box when asked to mark the task as done.

The warning icon on the task will change into a check mark showing that the problem has been solved.



The task will disappear from the list at the next update.

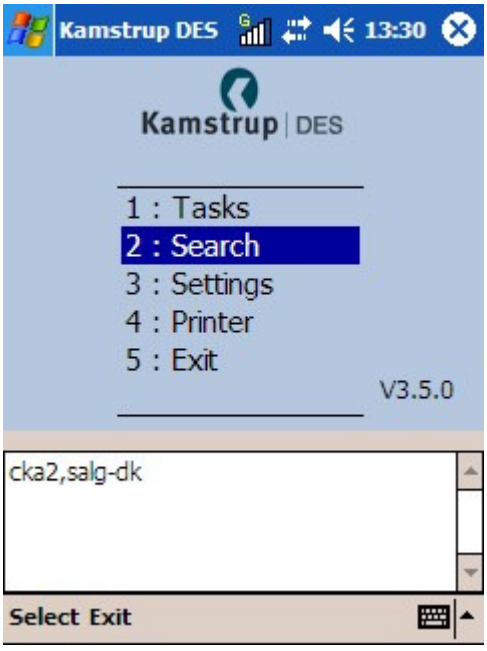
If the service engineer maintains that "his version" is correct, the problem is solved by the administrator who selects *Reset device exchange* in the DES client.



At the next update, the task will be delivered normally.

4.4.6 Search

In the main menu, the service engineer can choose to search for tasks and replacements.

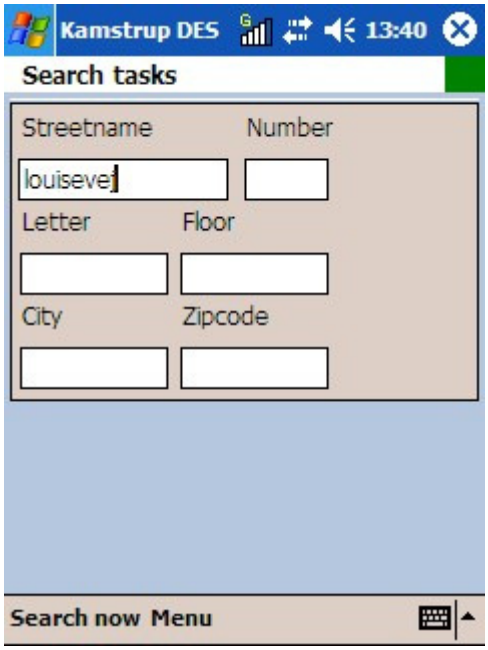


You can e.g. search for tasks that have already been done if you need information about these.

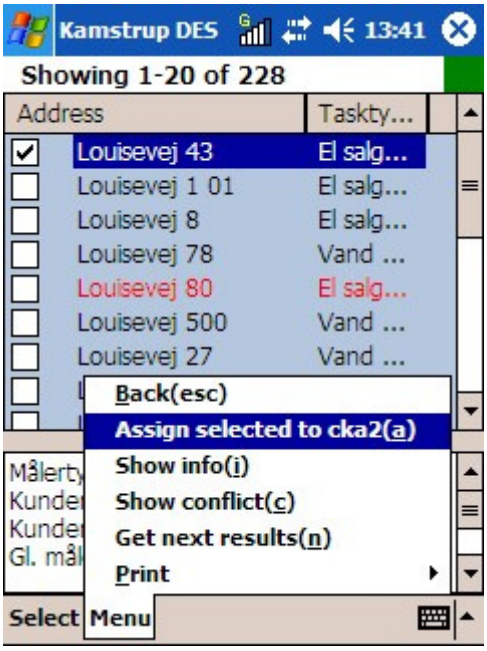
A service engineer can also use the search function to rebook tasks to himself – or exchange tasks with another service engineer.

Version 1 / 05.2010

A search can be done on the basis of one or more search fields by adding the fields from the menu. To the right, the search is based on address information.



Press *Search now* after the input of search criteria.



Select *Show info [I]* in the menu to see details about the found tasks.

Tick the checkbox next to a task to rebook the task to the service engineer in question. Then, select *Assign selected to "name of service engineer"*.

Note: Tasks that have been *EXCHANGED* or *CANCELLED* cannot be rebooked.

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EXCHANGED is marked red in the tasks list and
CANCELLED is marked grey.

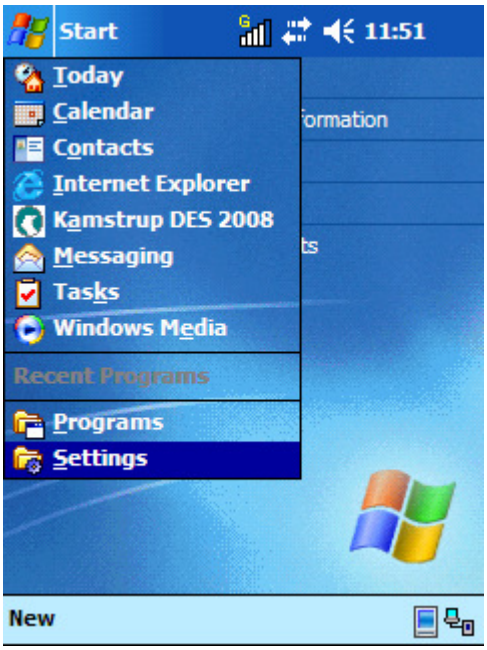
A max of 20 search results can be shown at a time. Press [n] to collect the next search results.

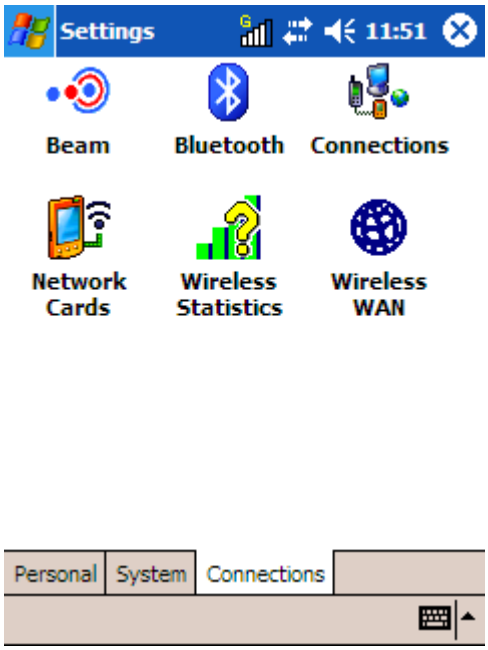
5 Printer

5.1 Set-up of Bluetooth connection

In order for the print function to work, the Bluetooth printer must be paired with the DES hand-held terminal.

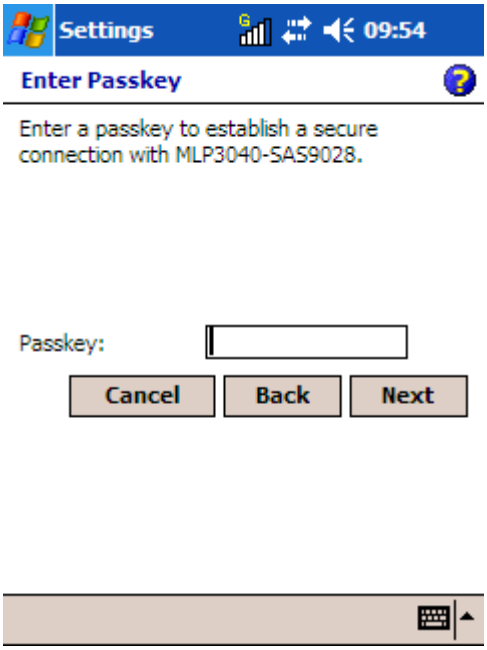
Select *Start -> Settings*.





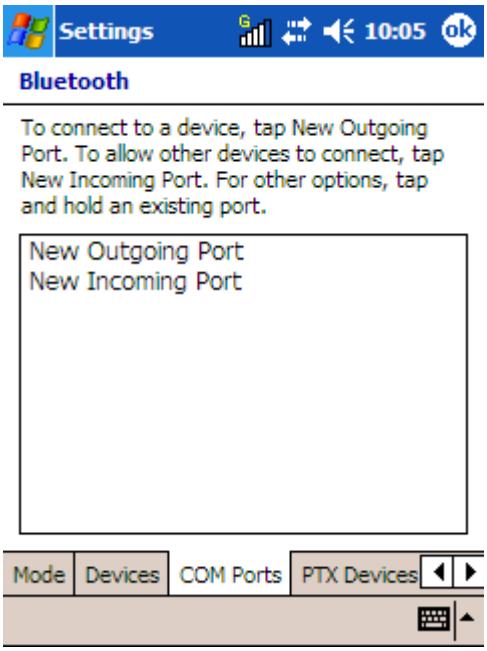
Then, select the tab *Connections* and the *Bluetooth* icon.

Select the tab *Devices -> New…* (remember to turn on the printer). Select the printer on the list of found units, and click on [Next].

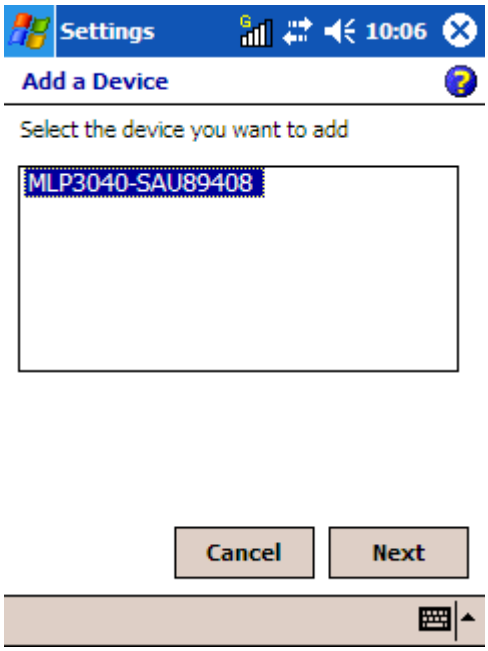


Enter *Passkey*;
PSION Printer; 0
PRINTEK; "blank" – click on [Next]

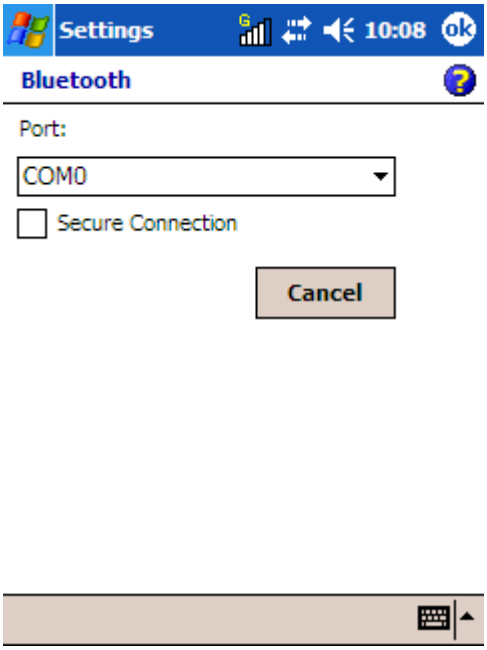
Click on [Finish]



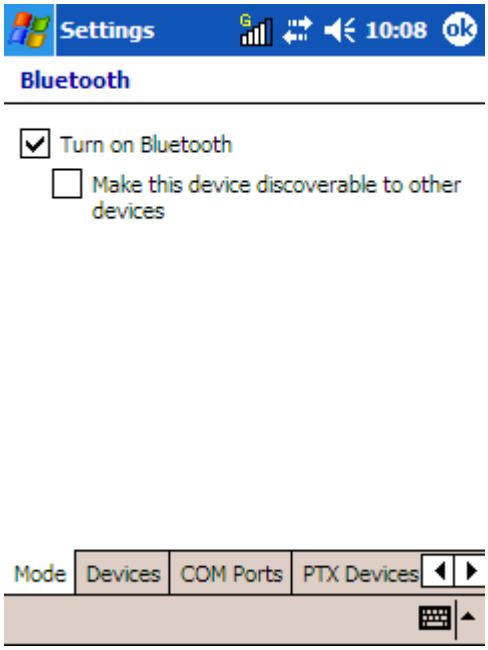
Select the tab *COM Ports*
and select *New Outgoing Port*



The printer is now visible on the list of units. Click on [Next].



The check mark must be removed from *Secure Connection* -> select *COM0* in the drop-down menu.
Click on [ok] in the upper right corner.



Select the tab *Mode* -> Check mark must be inserted in *Turn on Bluetooth*
Click on [ok] in the upper right corner.

Close the *Settings* window by clicking on the cross in the upper right corner. The set-up is complete, and the printer is paired with the DES hand-held terminal.

5.2 Creation of print template

It is possible to create user-defined print templates with information about the meter replacement.

Create a text file, and save it as "template name".kpt (encoding must be UTF-8).

The templates must be saved in the relevant folders on *Storage\desdata\printtemplates* on the hand-held terminal.

Below, an example of the contents of a template is shown. The template consists of some text and some dynamic fields:
#[Fixed field] is one of the fixed data types in DES (see *5.2.1 Syntax for print template*).
$[Customer-specific field] is a field that the customer has chosen for the replacement template.
If '[' and ']' is changed into '{' and '}', this field will be printed as a barcode instead of as text.

Address: #[Street name] #[Street number]
Old meter no.: $[Old Meter no.]
New meter no.: $[New Meter no.]

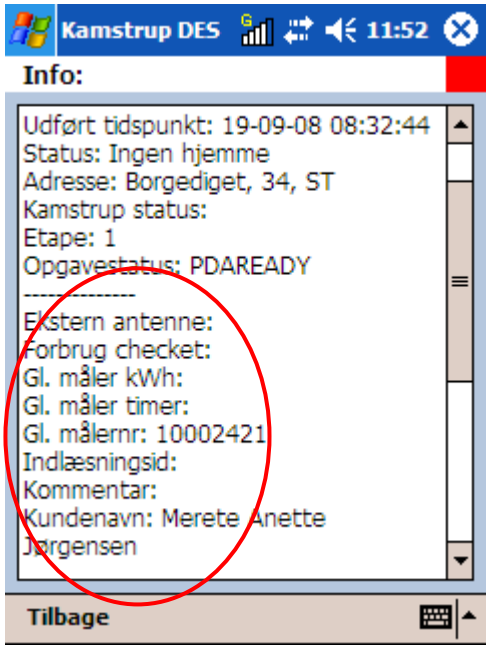
${New Meter no.}

5.2.1 Syntax for print template

#[Fixed field]
- Exchanged time: #[ActualTime]
- City: #[City]
- Engineering status: #[EngineeringStatus]
- Floor: #[Floor]
- Planned start: #[PlannedStart]
- Planned end: #[PlannedEnd]
- Stage: #[Stage]
- Letter: #[StreetLetter]
- Road name: #[Streetname]
- Number: #[Streetnumber]
- Status: #[Status]
- Task type: #[TaskType]
- Last updated on server: #[UpdateTime]
- Last updated by: #[UpdateUser]
- Zip code: #[Zipcode]

$[Costumer-specific field]
- e.g. $[Costumernumber] or $[Old meter kWh].

The possible field names for the print template appear by pressing [I] for a replacement (only those under the line '----------'):



5.3 Print queue

Select *Printer* in the main menu of the DES hand-held terminal. This will show a print queue from where the completed tasks can be printed. The tasks will be sent to the print queue as they are marked as "done", i.e. when the task has been completed, and

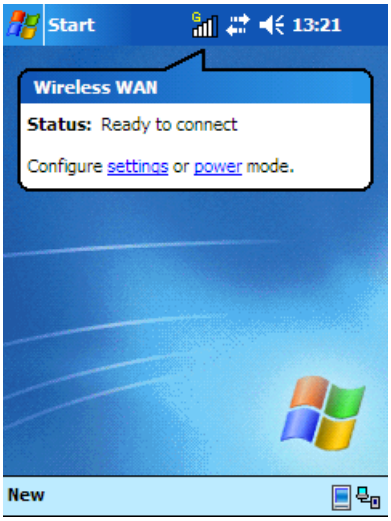
the task is marked with an *OK* in the *Tasks* window. The tasks will only be sent to the print queue if a print template has been created in the hand-held terminal. From the print queue, you can choose to print the marked or all tasks and delete the marked or all tasks.

6 ActiveSync

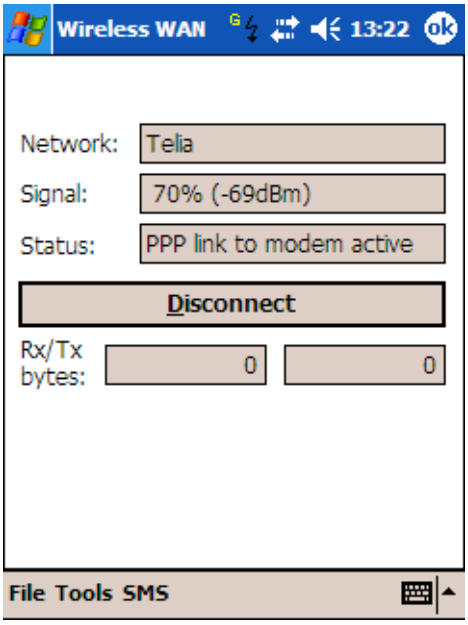
If the DES hand-held terminal is to be synchronised via the enclosed docking station, Microsoft ActiveSync must be used. You can download the program from the homepage of Microsoft via the below link:

http://www.microsoft.com/windowsmobile/en-us/downloads/microsoft/activesync-download.mspx

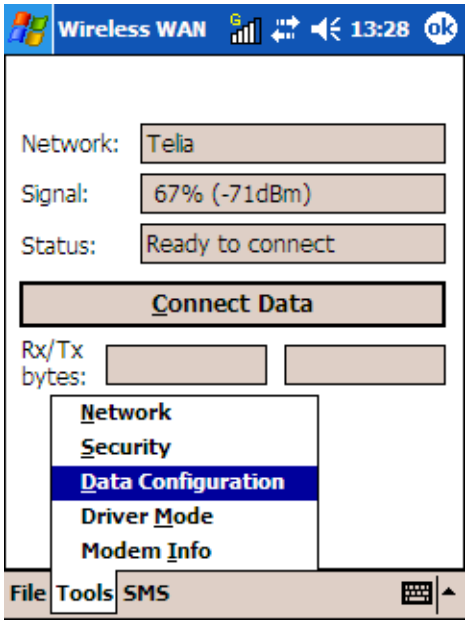
When establishing connection between the PC and the hand-held terminal, the partnership must be set up as "Guest". To make sure that the DES hand-held terminal uses the internet connection of the PC, and not GPRS, the GPRS must be disconnected.



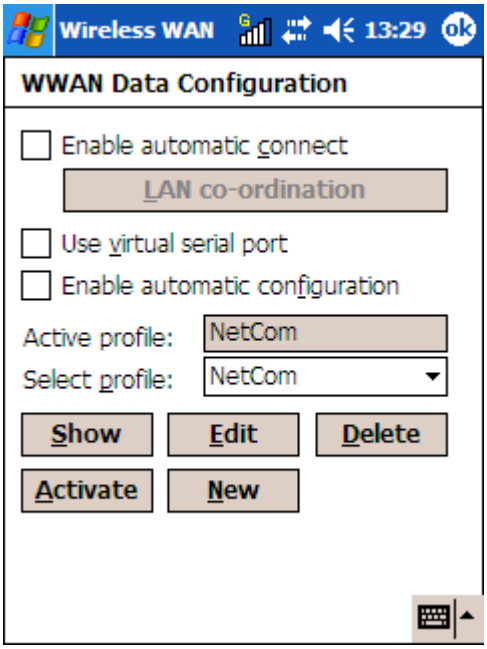
To disconnect the GPRS connection of the DES hand-held terminal, either click the GPRS icon and select *Settings*, or select *Start -> Settings ->* the tab *Connections ->* the icon *Wireless WAN*.



Click on [Disconnect]



Select *Tools -> Data Configuration*



Untick the checkbox next to *Enable automatic connect*.

Click on [ok] in the upper right corner twice.

Close the window by clicking on the cross in the upper right corner.

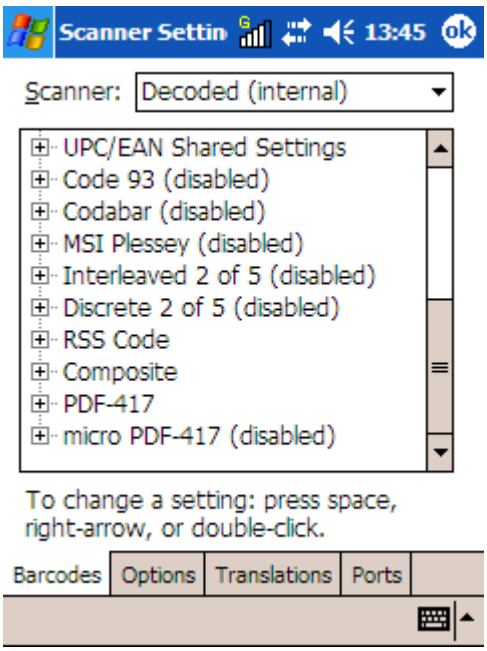
Now, the GPRS connection of the DES hand-held terminal is disconnected, and the internet connection of the PC will be used when the hand-held terminal is placed in the docking station.

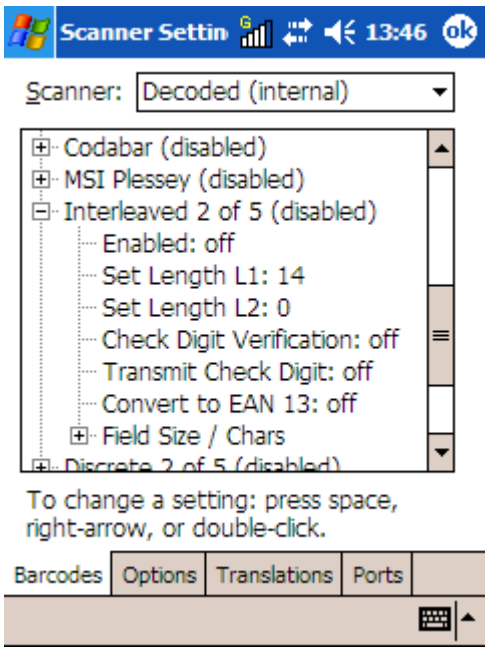
Note: Remember to reconnect the GPRS connection when the docking station should no longer be used.

6.1 Set-up of barcode scanner

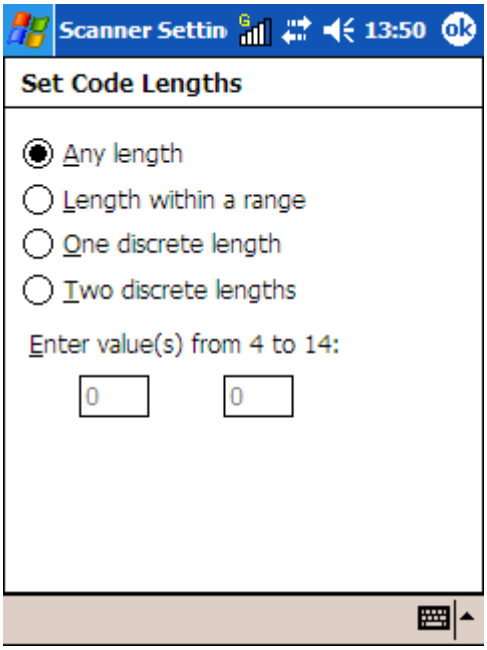
The barcode scanner is configured on delivery from Kamstrup A/S. If this set-up is lost, and the barcode scanner does not work, the scanner can be set up manually by selecting *Start -> Settings*, select the tab *System* and the icon *Teklogix Scanners*.

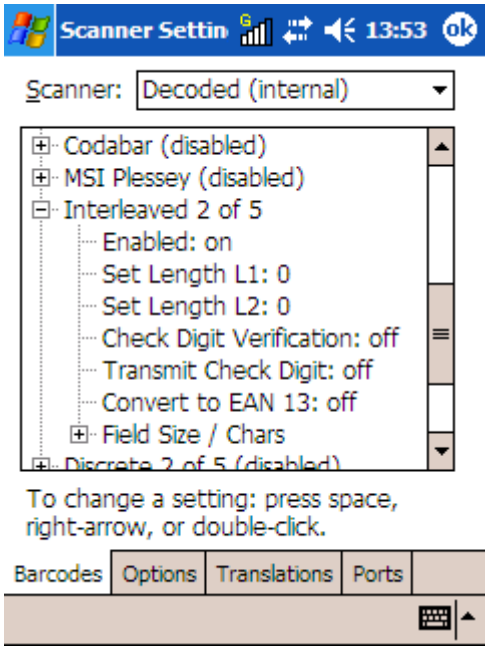
Scroll down to *Interleaved 2 of 5* and click on + next to this.





Double click on *Enabled: off*, this is now changed to *on*. Then double click on *Set Length L1: 14*.





Select *Any length*, and click on [ok] in the upper right corner. The settings must then equal the settings above to the right. Click on [ok] in the upper right corner to end. Close the *Settings* window by clicking on the cross in the upper right corner. The scanner can now be used in DES.