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## Installation Manual

This section describes how to install and commission CAP 540, PST, CAP 531 and SVT.

### Note!

*When installing in Windows NT, Windows 2000 and Windows XP, you need to log on as administrator*

### Note!

*When starting CAP 540 the first time after installation a message with UserId and Password for a System administrator will appear on screen. This Password must be changed by the System administrator to prevent unauthorized using of the program.*

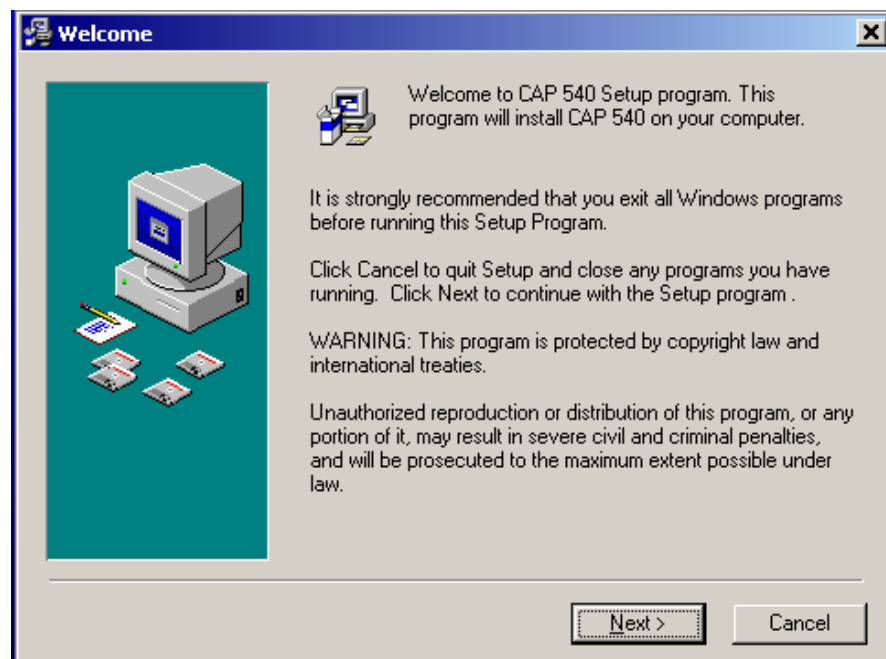
## 1

## Installing the CAP 540 Navigator

This section describes how to install the CAP 540 Navigator.

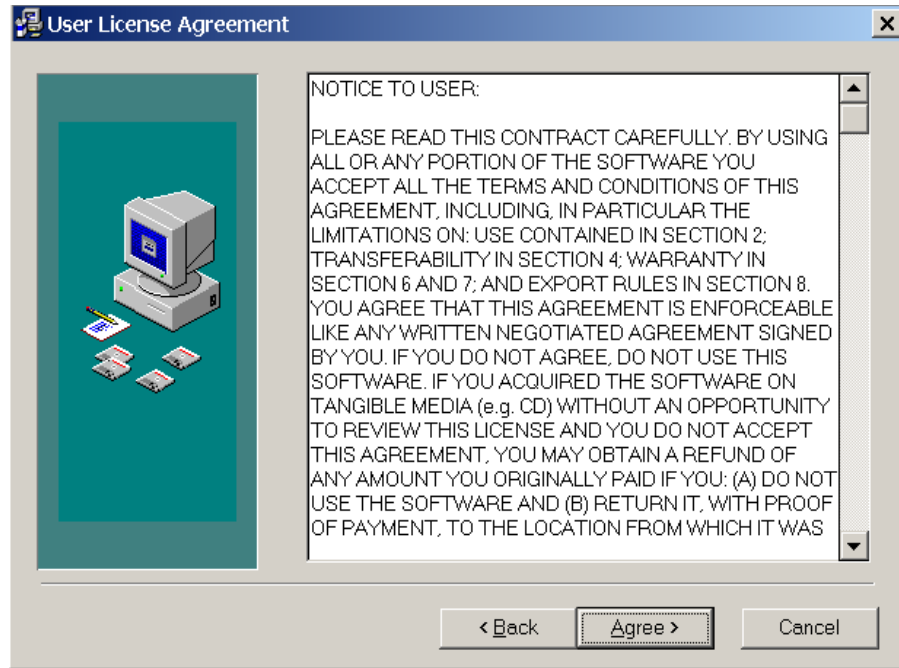
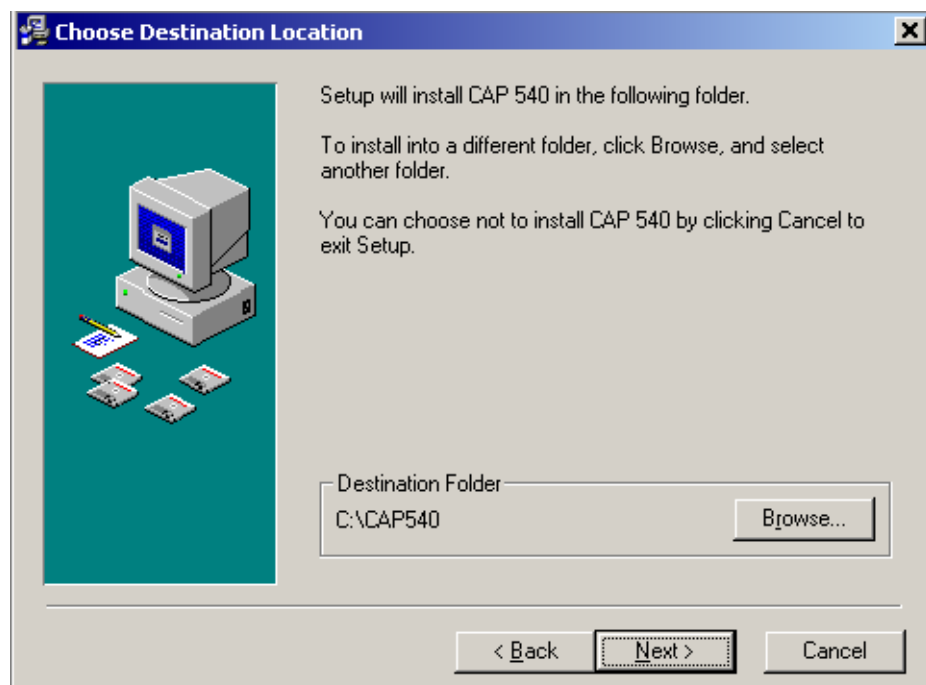
- 1 Insert the CAP 540 installation CD in the CD-ROM drive of your PC.**
- 2 Double-click CAP540setup1.exe using Windows Explorer.**

Enter your name in the first dialog. This name will appear under “Licensed to:”.  
The following dialog appears:



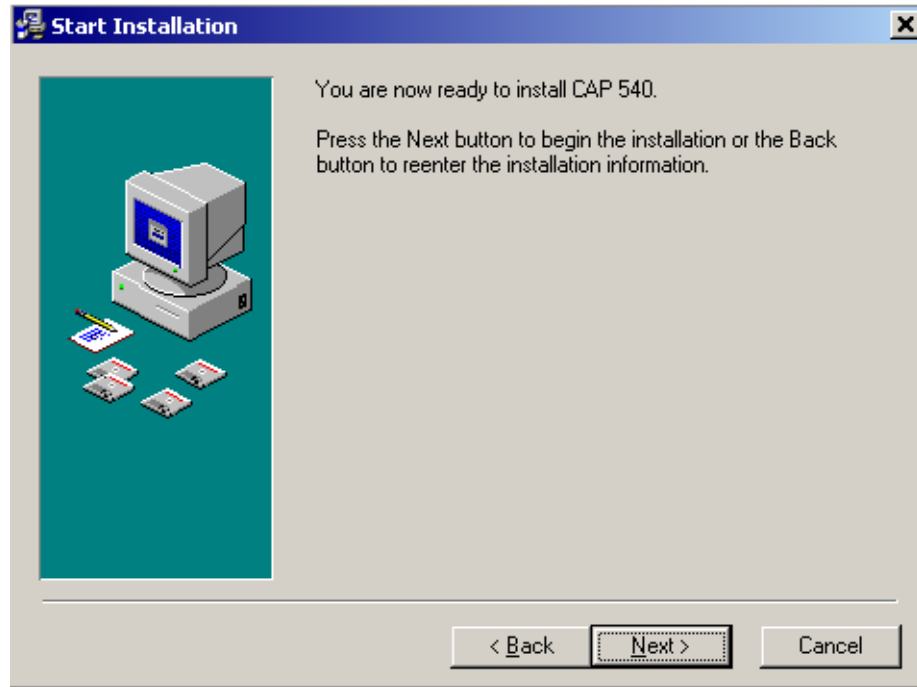
**3 Read the message and click Next if you want to continue with the installation.**

The License Agreement dialog appears.

**4 Click Next and the Destination Location dialog appears:**

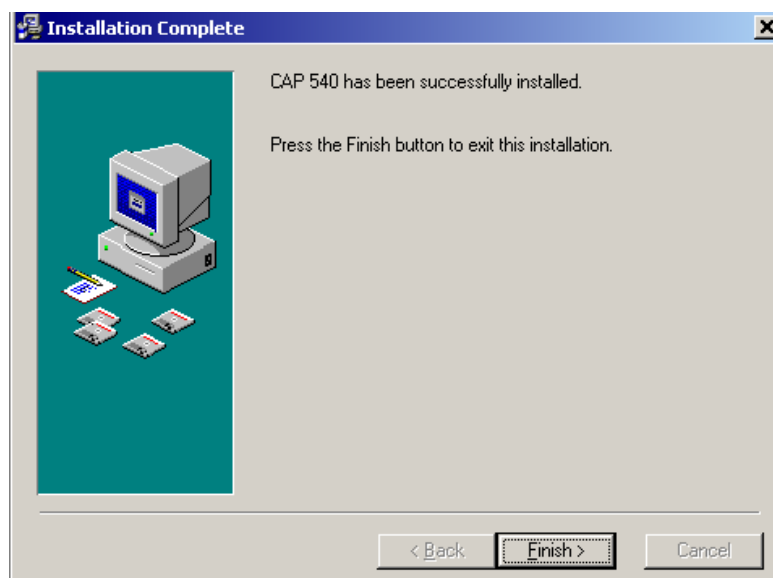
- 5 **Select the drive and the folder where the CAP 540 software shall be installed, and then click Next.**

The Start Installation dialog appears:



- 6 **Click Next to continue**

The CAP 540 software Navigator is now being installed in your computer, showing you a installation progress bar. Then the following dialog appears:



**7 Click the Finish button, and the installation is completed.**

**8 Next step is to install other Terminal Tool Box applications.**

Follow the instructions on the screen until the installation is finished.  
You may then have to restart the computer.

## 2 Installing PST

This section describes how to install PST in the basic version of CAP 540 environment. The full version of CAP 540 includes configuration and is installed together with PST. When the installation starts, the following dialog appears:



*Figure 1: Welcome dialog*

**1 Read the message and click OK if you want to continue with the installation.**

The following dialog appears:

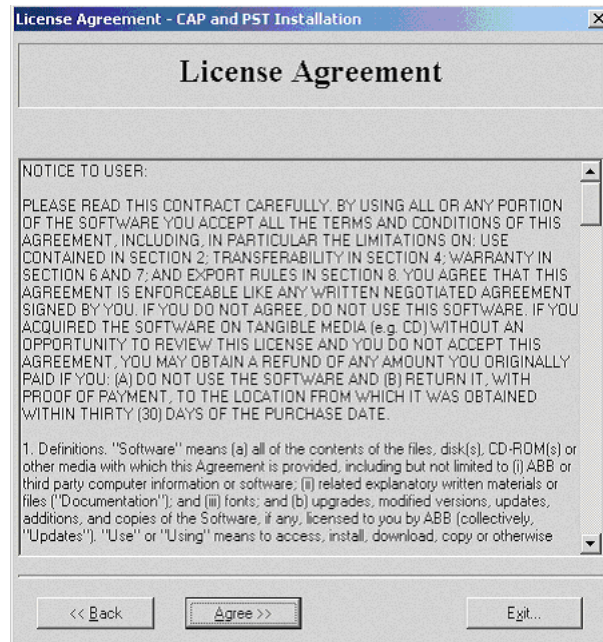


Figure 2: License Agreement

## 2 Read the License Agreement and click Agree to continue the installation.

The following dialog appears:

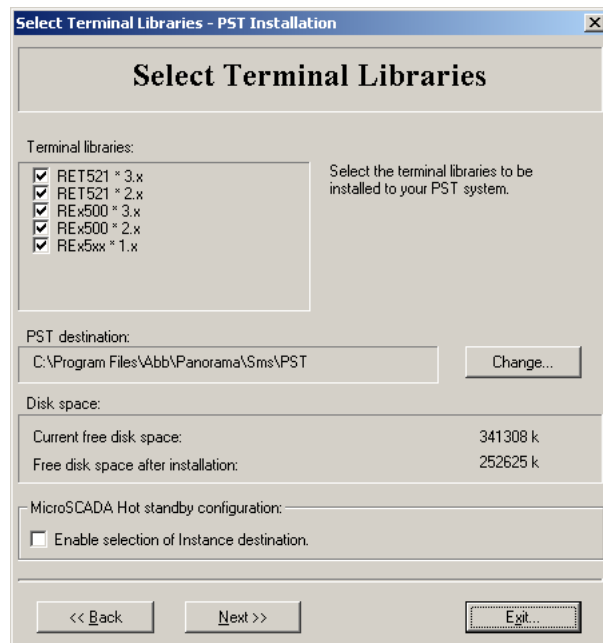


Figure 3: Select Terminal Libraries dialog

**Note!**

*If the MicroSCADA system is run as a Hot standby system it is necessary to enable selection of instance destination.*

*When this function in the installation script is selected it enables selection of the path to the MicroSCADA application where PST instances shall be located.*

- 3 Select the check boxes for all terminal libraries you want to install**
- 4 If you want to change the destination for the CAP 531 installation, click the Change button to the right of the CAP 531 destination box.**
- 5 If you want to change the destination for the PST installation, click the Change button to the right of the PST destination box.**
- 6 Click Next.**

The following dialog appears:

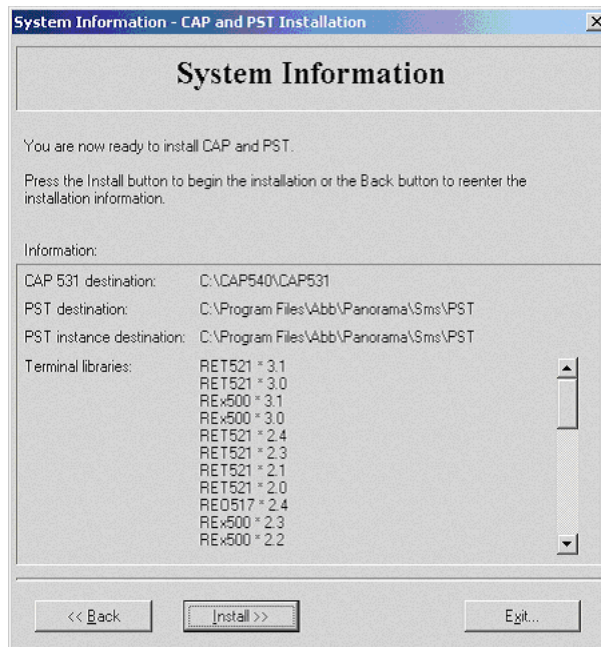


Figure 4: System Information dialog

- 7 Check the information and choose one of the following two steps:**

- **To reenter any information, click Back.**
- **To start the installation, click Install.**

The PST software is now installed in your computer, showing you a installation progress bar.

**8 When the installation is complete, click OK to restart your computer.**

After restarting your computer, you can begin using the tools and the terminal libraries in the PST software package.

The installation sets up the following program entries in the start menu under Programs\PST.

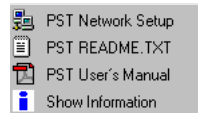


Figure 5: PST start menu

**Note!**

*The help function in Parameter Setting Tool needs Internet Explorer installed. If you do not have it on your computer, the help function will be unavailable.*



*The PST cannot be started from the program start menu. It is always started from its navigation environment CAP 540.*

**3****Installing CAP 531 (Option)**

When CAP 531 is included in the product it is part of the PST installation.

## 4 Installing SVT (Option)

The installation starts, when you run “SVTSetup.exe”. The following dialog appears.



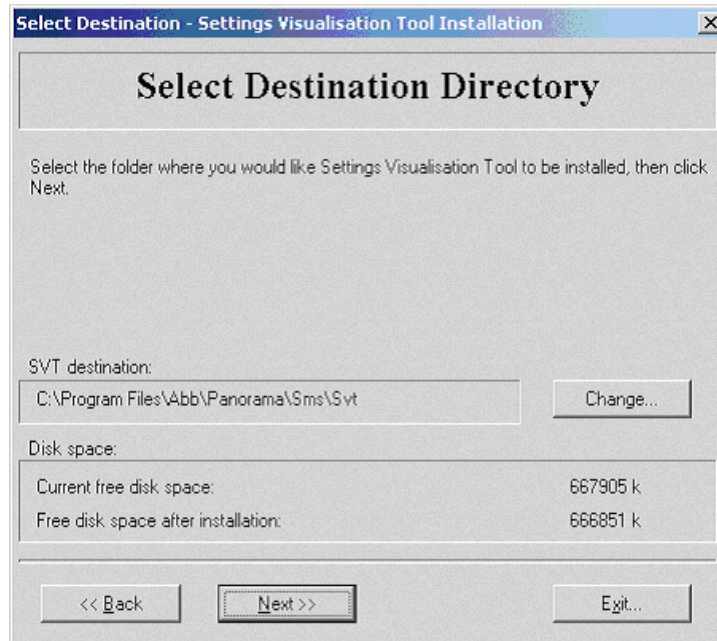
- 1 Read the message and click Ok if you want to continue with the installation.

The following dialog appears:



- 2 Read the License Agreement and click Agree to continue the installation.

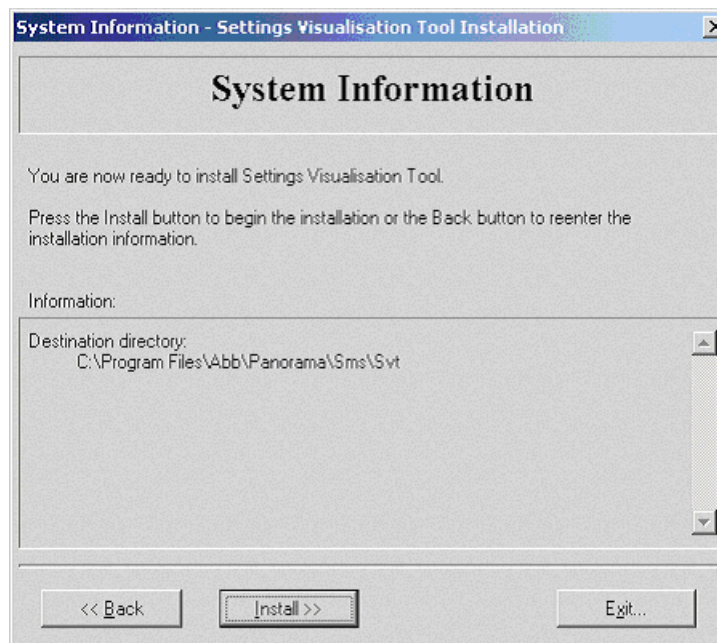
The following dialog appears:



**3 If you want to change the destination for the SVT installation, click the Change button to the right of the SVT destination box.**

**4 Click Next.**

The following dialog appears:

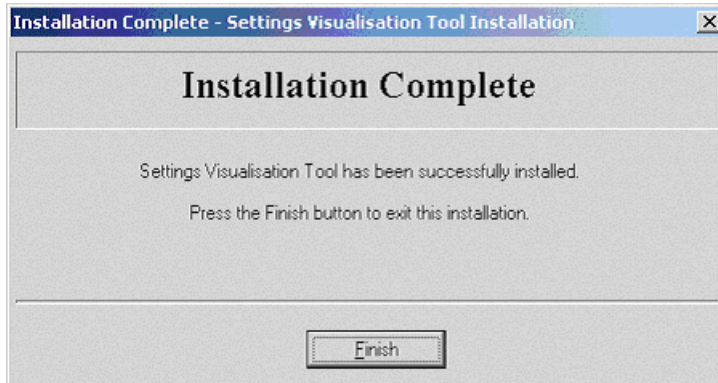


**5 Check the information and choose one of the following two steps:**

- To reenter any information, click **Back**.
- To start the installation, click **Install**.

The SVT software is now installed in your computer, showing you an installation progress bar.

The following dialog appears:

**6 When the installation is complete, click Finish to exit the installation.**

Settings Visualisation Tool, SVT, can be started from Parameter Setting Tool, PST, from Edit menu or by clicking the SVT icon in the toolbox.

**Note!**

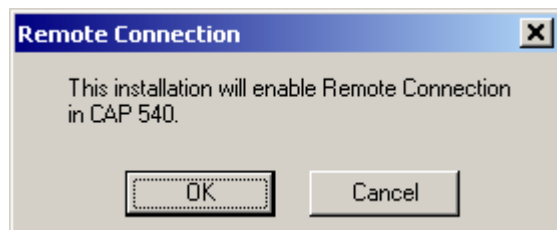
*The help function in SVT needs Internet Explorer installed. If you do not have it on your computer, the help function will be unavailable.*



## 5 Installing the Remote Connection (Option)

This section describes how to install the Remote Connection option.

- 1 Insert the CAP 540 installation CD in the CD-ROM drive of your PC.
- 2 Double-click RemConSetup.exe using Windows Explorer.



- 3 Click OK button to start installation.

## Commissioning

This section outlines a quick-guide on how to set up and commission the system as shown in the CAP 540 example system architecture. More information can be found in the CAP 540 manual. The option for remote connection enables remote connection, disturbance file transfer to FTP Server and Email notification when new disturbance files are available.

## 6 System setup

The figure below shows the example system used in this quick guide.

### 6.1 CAP 540 system overview

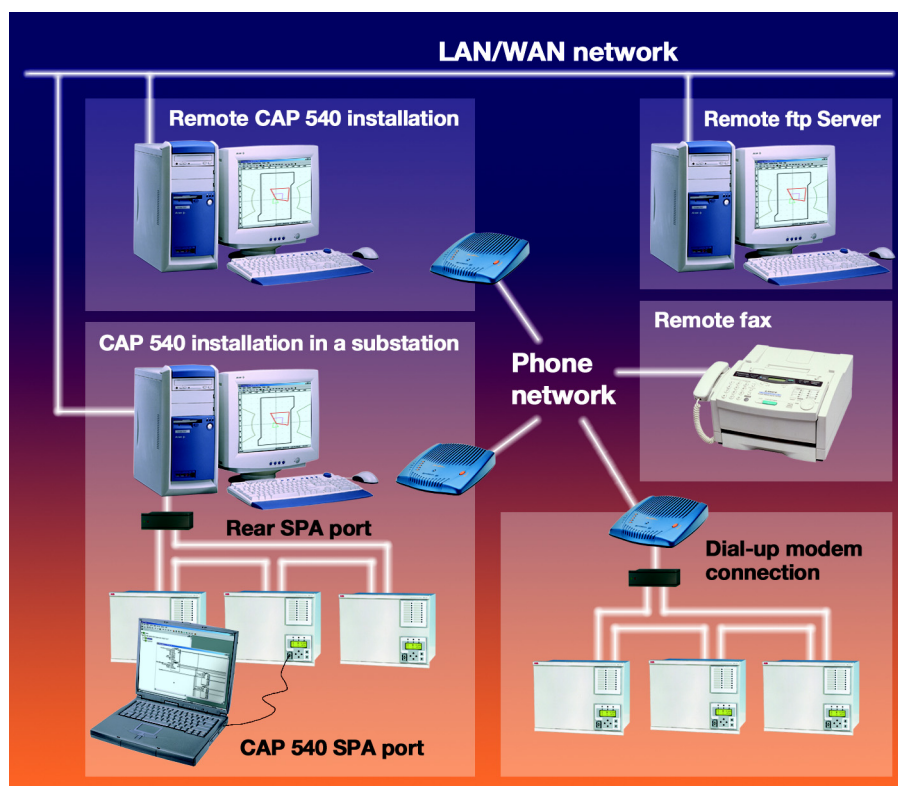


Figure 6: CAP 540 example system architecture

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## 6.2 How to setup the system equipment

### 6.2.1 Remote Connection to Station PC (Modem)

For the remote connection to a Station PC you need a Central PC, a Station PC, two modems and a terminal. Connect the rear SPA port of the terminal via a fiber opto/electrical converter to the serial port 2 (COM2) and the station modem to the serial port 1 (COM1) of the Station PC. It is necessary to change the switches in the converter when connecting it to a PC. It is also possible to keep the settings and instead use a null modem. Connect the local modem to COM1 of the Central PC. Remember to connect the prepared station modem to the Station PC, for more details see Communication Settings/Modem Info in the CAP 540 manual.

Create two identical projects, one in Central PC and one in Station PC. The import/export function secure that the two projects are identical.

In the Station PC the SPA Server must be started by clicking on SPA Server in menu Tools. In the SPA Server Settings dialog select Modem port 1 (COM1) and SPA port 2 (COM2) and check the Start SPA Server check box. The SPA TimeOut is normally not necessary to change.

#### Auto Print/Fax

A printer/fax driver must be installed in Central PC and/or Station PC in case Auto Print is to be used.

#### 1 On the Program menu, click Disturbance Evaluation.

- In REVAL:
  - On the File menu, click Automatic Print Setup.

#### 2 Select the default Windows printer as Printer 1 for auto printing. Select the Fax driver as Printer 2.

#### 3 Click OK.

See the Fax driver manual for correct set up with phone numbers etc.

### 6.2.2 Remote Connection to Server PC (Network)

For the remote network connection to a Server PC you need a Client PC, a Server PC and a terminal.

#### Client PC setup

In menu Settings/Communication Settings check the Network Connection check box. Three conditions must be fulfilled to be able to check it: The project which must be opened in both Client PC and Server PC must be located on a shared network disk, the PC type in menu General Settings must be Client and the Remote Connection option must be installed. For all other cases the check box will be disabled.

The Server Name or the IP address to the TCP Server PC must be typed in the Server Name text box in Communication Settings. The Port Number 80 should normally not be changed. The same port number as in TCP Server of the Server PC must be used. The Communication Parameters and the Connection type Direct set in the Server PC *must not be changed*.

### Server PC setup

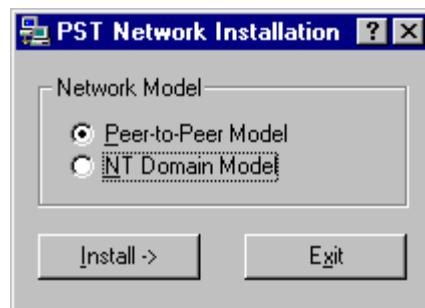
In Communication Settings select Serial Port COM2 and Connection Direct. The Network check box, Server Name text box and Port Number list box should all be disabled.

In the Server PC the TCP Server must be started by clicking on TCP Server in menu Tools/Network. The TCP Server dialog could then be hidden by clicking on Hide in menu View.

### Parameter Setting setup

Run Parameter Setting Network Setup from Start/Programs/PST/PST Network Setup.

Select Peer-to-Peer Model unless you have a Windows NT Server, Windows 2000 Server or 2003 Server. This application shall be executed on both the Server PC and the Client PC.



### Mapping of IP addresses

The Server PC must be aware of the Client PC's IP-address and PC name as well as the Client PC must be aware of the Server PC's IP-address and PC name.

This shall be done in the file named "hosts" (located in \\winnt\system32\drivers\etc or \\windows\system32\drivers\etc depending on your operating system).

Open the hosts file with Notepad and add a line last in the file according to the table below. Note that the PC's must be restarted to make the changes in the hosts file to take effect.

If you have several Client PC's, just add the entries for all the Client PC's in the Server PC hosts file.

Client PC hosts file	Server PC hosts file
PC name: Client PC1	PC name: Server PC1
IP address: 10.0.0.1	IP address: 10.0.0.2
Hosts file entry: 10.0.0.2 Server PC1	Hosts file entry: 10.0.0.1 Client PC1

### Network supported functions

The functions below are network supported:

Station Disturbance Upload
Terminal Disturbance List
Manual Disturbance Upload
Manual Trig
Clear LED's
Clear all Recordings
Parameter Setting
Terminal Emulator
HMI LED Indications
Terminate Processes

When these functions are started from Client PC the network connection will be established automatically if the setup above is done. A check of user authority is done *on Server PC* before the network function is performed. If the user name or/and password are not valid an error message from the Server PC will appear.

### 6.2.3

#### Remote Connection to FTP Server (Network)

In order to enable automatic file transfer to a FTP Server, either the Central PC and/or Station PC must be connected to the network. In this quick guide the Remote PC is connected to the network.

A FTP Server must be installed and configured in the FTP Server PC with user read and write permissions to CAP 540 directory and User Defined Directory (see Communication Settings in the CAP 540 manual for more details).

The CAP 540 project should also reside on the FTP Server PC. The project shall contain a structure of Organization, one Station, one Bay and the respective Terminals.

---

## 6.3 Disturbance File Transfer (Station PC → Central PC → FTP Server PC)

### 6.3.1 Preparations in Station PC

Communication settings:

- 1 Start CAP 540 on Station PC.
- 2 Right-click on the Station node in CAP 540 Navigator.
- 3 Select Communication Settings.
- 4 Select Serial Port COM2, change Configuration to Station PC – Terminal (Direct).
- 5 Right-click on General.
- 6 Select Settings.

Set PC Type to Server, Modem Port to 1, SPA port to 2 and SPA Time-Out to 5.

In the Communication Settings dialog uncheck the boxes “Send Disturbance Files to Server” and “Send HTML Files to Server”. Select the radio button Auto Print/No Print and Disturbance File Format/REVAL.

#### 7 Select and set the settings for your modem

### 6.3.2 Manual trig

If there are no disturbance files in the terminal it is possible to create a new Disturbance in the terminals by using Manual Trig for testing purposes.

- 1 Right-click on a Terminal node.
- 2 Select Disturbance Handling.
- 3 Select Manual Trig

### 6.3.3 Preparations in Central PC

Communication settings:

- 1 Start CAP 540 on Central PC.
- 2 For each station node; Right-click on a station node in CAP 540 Navigator.
- 3 Select Communication Settings.
- 4 Select Serial Port COM1, change Configuration to Central PC – Station PC (Modem)
- 5 Select and set the settings for your modem
- 6 Type the phone number to the remote station modem.

#### Note!

*Under Communication settings/Modem Info there is information about tested modems. The setting examples may not work for all phone network operators.*

---

**7 Right-click on General.**

**8 Select Settings and select PC Type to Client.**

Dial the station.

**9 Right-click on the station node and select Dial.**

**10 Check connection status on the status bar in CAP 540.**

**11 When line is connected, right-click on a Station node in CAP 540 Navigator**

**12 Select Station Disturbance File Transfer.**

Wait until the communication process is finished. Check that all disturbances in the Station PC has been uploaded to the Central PC by selecting the terminal nodes and viewing Disturbance Records List. The new uploaded disturbances shall be visible in blue color.

#### **Disturbance file transfer to FTP server**

In the Communication Settings dialog type:

- Server Name
- User Name
- Password in FTP Server Data text boxes.

**1 Select the radio button “Default Server File Path (Terminal Path)” as storage location for the Disturbance files on FTP Server.**

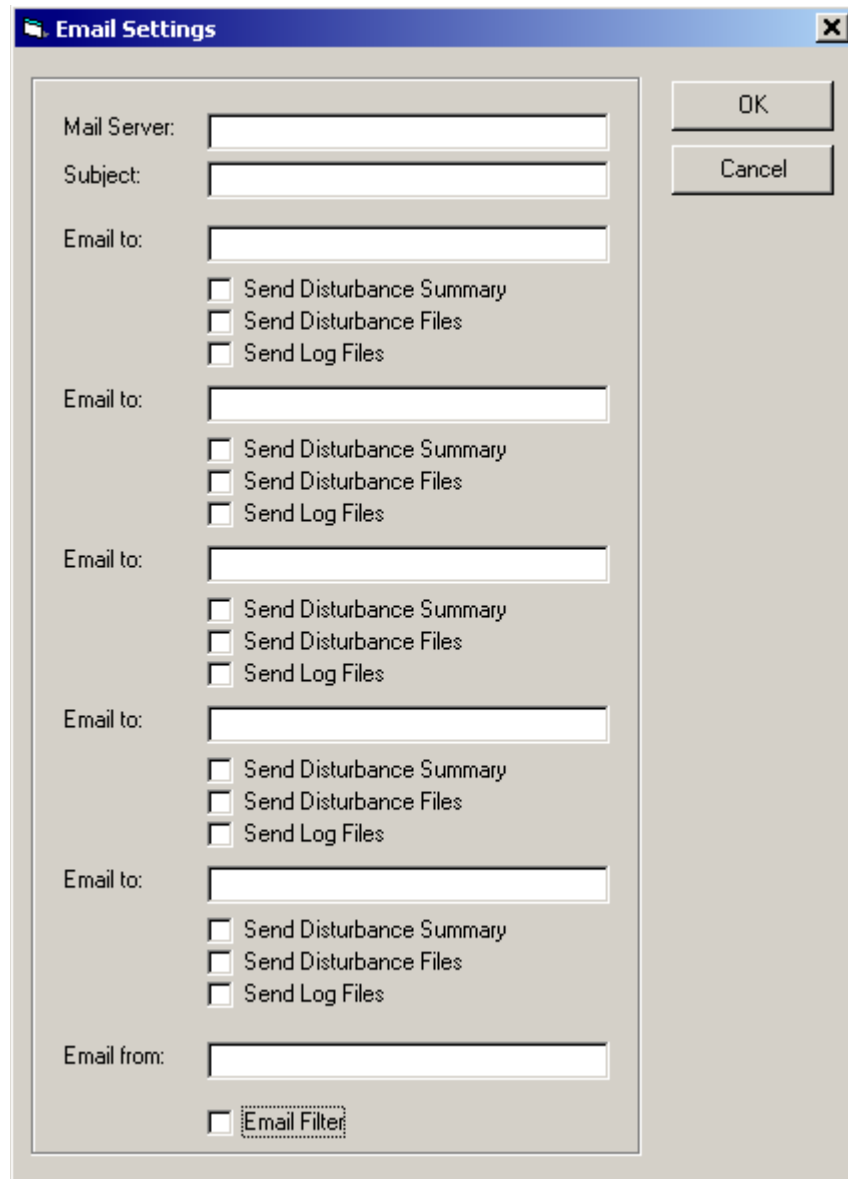
With this setting the disturbance files will be stored in the CAP 540 structure on the FTP Server

**2 Check the box “Send Disturbance Files to Server”**

**3 Uncheck the box “Send HTML Files to Server”.**

**4 Select the radio button Auto Print/Disturbance and Header and Disturbance File Format/COMTRADE.**

The **Email Settings** button, on the right side of the Communication Settings dialog box (level with Auto Polling) opens up a dialog box.



A summary of a disturbance data is sent via Email to specified Email addresses. Email settings dialog box

Mail Server	Type the server name to mail to.
Subject	Type a subject which characterizes the disturbance.
Email to	Type in the receiver's Email address.
Email from	Type in your own Email address
Send Disturbance Summary	Send disturbance summary from latest polling as attachment, see example below.

Send Disturbance Files	Send disturbance files from latest polling as attachments.
Send Log Files	Send log files from latest polling as attachments.
Email Filter	When this box is checked Email will only be sent if the Trig Signal is one of the checked signals in the Terminal Digital Channels List.

#### Example of Send Disturbance Summary

Station:	Stn 1
Bay:	Bay 1
Terminal:	REL511 V2.0 Line Protection
Terminal type:	REx500 2A
Disturbance Date:	03-11-04
Disturbance Time:	04:55:10.245
Disturbance File:	03110407.REH
Trig:	ZM3-TRIP
Recording Number:	7
Fault type:	L1-N
Fault Location:	37.8%

### 6.3.4

#### Time scheduler for automatic Disturbance File Transfer and printing

Start Time Scheduler in Station PC:

- 1 Right-click on a Station node**
- 2 Select Communication Settings.**
- 3 Select the Disturbance and Header radio button in the Auto Polling and Auto Print frame.**
- 4 Click OK.**
- 5 Select Programs.**
- 6 Select Disturbance Evaluation for auto printing.**
  - In REVAL:
    - On the File menu, click Automatic Print Setup.
- 7 Select the default Windows printer as Printer 1. Select your fax driver as Printer 2.**
- 8 Click OK.**

Start Time Scheduler:

- 1 On the Program menu, click Time Scheduler.**

In Time Scheduler:

Set Periodicity Hour and Minute to one for starting Disturbance Upload.

**1 Click on Start button. The Station Auto Polling should will now be started in accordance with the selected time periodicity.**

**2 Start the Time Scheduler in Central PC.**

Set Periodicity Hour and Minute for starting Disturbance File Transfer.

**3 Click on Start button.**

The Central Auto Polling should now be started in accordance with the selected time period.

---

## References

CAP 540\*1.3 User's manual 1MRK 511 142-UEN

CAP 531\*1.6 User's manual 1MRK 511 105-UEN

PST\*1.2 User's manual 1MRK 511 114-UEN

REVAL\*2.0 User's manual 1MRK 511 053-UEN

SVT\*1.0 User's manual 1MRK 511 122-UEN

SPA-ZC 17 Bus connection module,  
User's manual and Technical  
description 1MRS 751230-MUM EN





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