HiPath

optiPoint IP Phones Deployment Tool V1.2.33

Administrator Manual

SIEMENS

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Introduction

The purpose of the Deployment Tool is to allow the administrator to remotely configure optiPoint IP phones en-mass.

The primary occasion when this will be done is when a set of new devices is deployed for the first time. However, the tool may be used at any other time as a means of configuring a group of phones with a consistent set of data.

In general the Deployment Tool works on the principal that the same configuration is delivered to each device, with the exception of the terminal number (E.164 address). Every addressed device is assigned a separate terminal number.

Supported Phones

- optiPoint 400 standard Release 3
- optiPoint 400 standard HFA Release 2
- optiPoint 400 standard SIP V2.3/V2.4/V3.0
- optiPoint 400 economy HFA
- optiPoint 410 entry HFA
- optiPoint 410 economy HFA
- optiPoint 410 standard HFA
- optiPoint 410 advance HFA
- optiPoint 600 office $U_{P0/E}$
- optiPoint 600 office HFA
- optiPoint 600 office SIP V2.3
- optiPoint 600 office SIP V2.4

Requirements

Operating System

- Windows 98, ME
- Windows NT 4
- Windows 2000 or
- Windows XP.

Screen Resolution

Minimum screen resolution: 1024 x 768 pixels.

FTP Service

A correctly configured FTP server is always needed for exchanging data using → FTP. The server program must be running on a computer (for example PC) in the same → LAN as the optiPoint phones you want to configure. To configure an FTP server, follow the instructions on → page 81.

Installing and Running the Program

You should always use the latest version of the Deployment Tool. You can download the latest update file (for example fdt_optipoint_1047194.zip) from the following Internet address:

http://www.siemens.com/hipath → Downloads/Software.

Installing the Program

1. Unpack the file fdt_optipoint_1047194.zip in a random directory.
2. Open the **install.htm** file in this directory

A security warning appears. Close this warning with "Grant access for this session", for example."

3. Click **Start Installer for Windows....**
4. Click **Next**.
5. Confirm the licensing agreement with **Next**.
6. Confirm the predefined installation directory for the Deployment Tool or select and confirm another directory.
7. Select a group and click **Install**.
8. Click **Done** to complete the installation routine.

Starting the Program

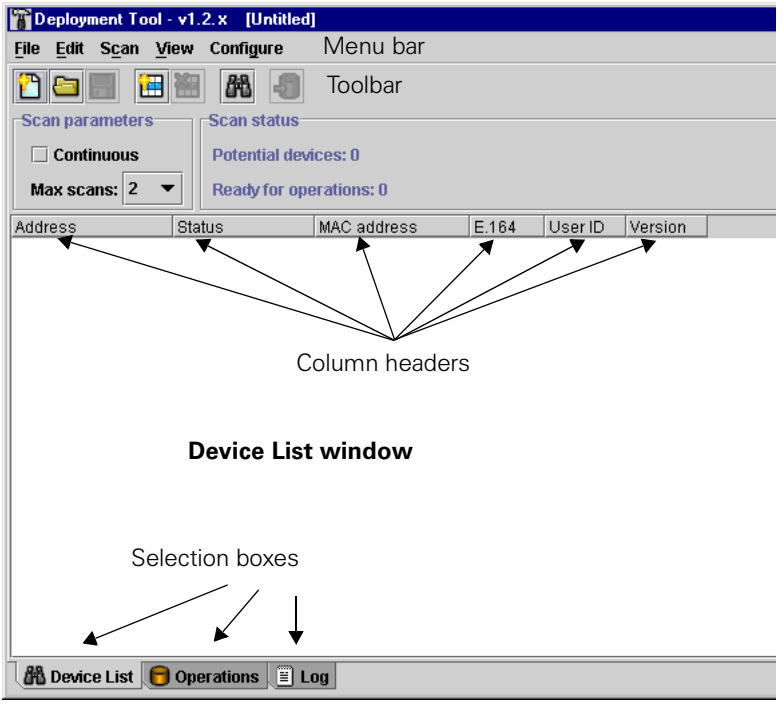
Start the program with **Start** → **Program Files** → **Deployment Tool** → **Deployment Tool**.

Listing Connected IP Phones

You must identify the phones you want to configure in the Deployment Tool before you can proceed with configuration. A scan function searches the network and creates a list of devices found. You can scan for an IP phone on the basis of its IP address or you can scan an IP address range for optiPoint phones.

When you activate the Deployment Tool, a blank **Device List** appears if you have not already saved a deployment file.

If the Deployment Tool opens with the last deployment file saved, you can create a new deployment file by selecting **New** from the **Edit** menu on the menu bar or by entering **CTRL+N**. You can also load a specific deployment file→ page 16.



Icons and Buttons

On-screen tips explain the meaning of interface icons or buttons when you point directly to an object. The tip appears briefly after two seconds.

Icons in the Device_List window

	For the functions **New**, **Open** and **Save** in the **File** menu.
	For the functions **Add** and **Delete** in the **Edit** menu.
	For the functions **Start** and **Stop** in the **Scan** menu.
	For the function **Configure selected devices** in the Configure menu.

Icons in the Operations window

	For the function **Save** in the **File** menu.
	For the function **Configure** in the Operations menu.
	For the functions **Start** and **Stop** in the Operations menu.

Buttons

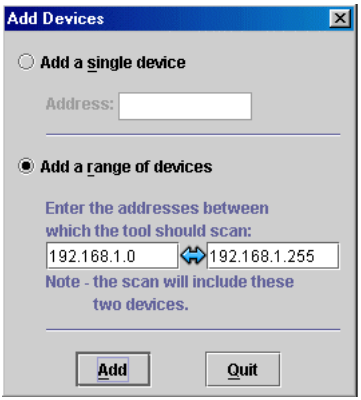
	Switch to the Device_List **window.**
	Switch to the Operations window to configure individual devices or groups.
	Switch to the **Log** window with the log file.

Creating a Device List

Before searching for optiPoint phones, you must specify the IP addresses in the **Add Devices** mask.

Call with
- **Add** from the **Edit** menu on the menu bar or
- **CTRL+A or**
- the **Add devices** icon on the toolbar (→ page 9)

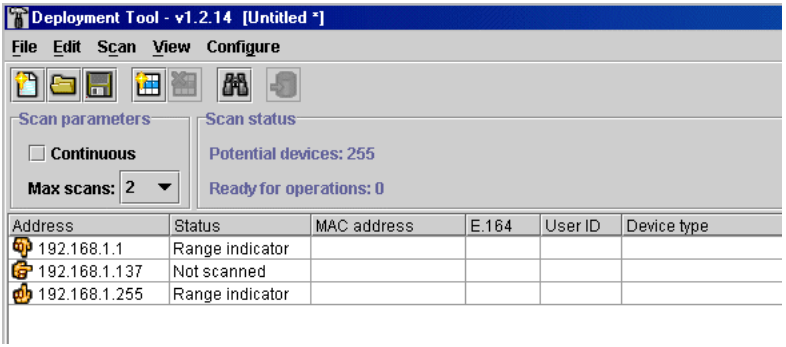
The following dialog appears:



Click the required dialog option, either **Add a single device** or **Add a range of devices**. Enter an IP address or an IP address range which you want to scan for devices. Confirm you input with **Add**.

Overlapping ranges are not permitted. However, you can enter an IP address as an address range, for example 192.168.1.105 to 192.168.1.105.

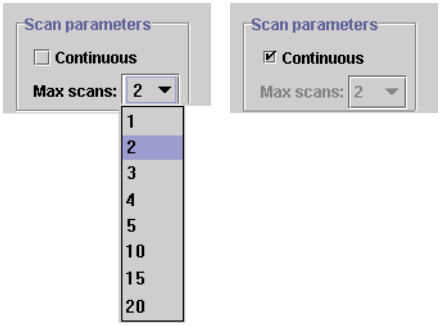
A table is displayed in the Device_List window.



Close the **Add Devices** dialog with **Quit** if you do not want to add any more IP addresses.

Specifying the Number of Scans

You can specify the number of scans for a LAN-based scan or mark the scan as continuous. Select the required option under **Scan parameters**.



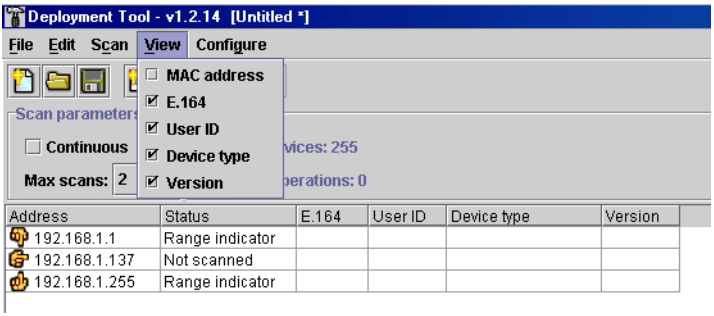
You can select the maximum number of scans in the drop-down list or select "**Continuous**" for non-stop scanning.

There are two reasons for entering multiple scans:

1. An optiPoint is not fully installed or is in "Local mode" and is therefore unable to answer while the scan is in progress.
2. The scan process uses the UDP protocol that does not guarantee to forward the solicitation message or deliver a reply. Under these circumstances, multiple scans are more effective in certain network environments.

Hiding List Columns

You can hide and display columns before or after the scan. Click the **View** drop-down menu on the menu bar and select or deselect the required option.



The **MAC address** option is not selected in this example so the column is hidden.

Moving List Columns

To move a column in the list, click the column header and, holding the mouse button down, drag the column to the new position. For example, you could move the **User ID** column right and reposition it beside the **Version** column.

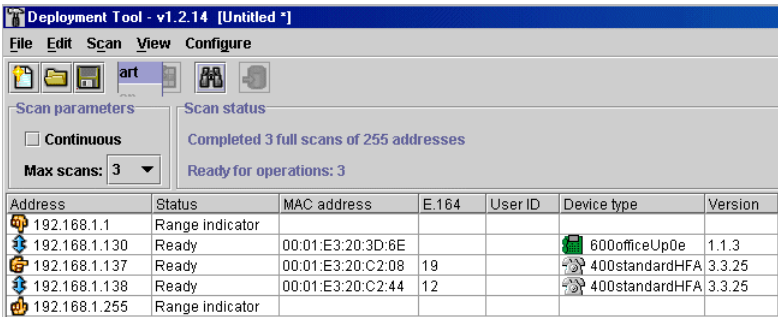
Editing a Device List

Starting a Scan

Call with

- **Start** from the **Scan** menu on the menu bar or
- the **Scan Device list** icon on the toolbar (→ page 9)

The device list is created while the scan is in progress. The number of columns depends on the options marked in the **View** list (→ page 11).



The actual **scan** status is displayed in the table (see also → page 33).

Column Contents

The "scanned" entries are sorted by IP address. You can order the list differently by briefly pointing to the column header you want to use as the sort criteria for the table. For example, if you click the header of the **Device type** column, the table will be sorted by device type.

Address

The meaning of the icons in the address column is as follows:

	Indicates an individual address.
	Indicates the lower threshold of an IP address range.
	Indicates the upper threshold of an IP address range.
	Indicates a device found.

Status

The status column can contain the following values:

Not scanned	The tool made no attempt to set up a connection to this device.
Scanning...	Temporary status during which the program tries to set up a connection to the device.
No route	There is no IP route to this address.
No response	There was no answer from the device.
Unsuitable device	An unrecognized device answered.
Ready	A recognized device answered.

MAC address

This column contains the hardware address of the device.

E.164

This column contains the terminal number for calling up the device (for example **not** for the $U_{P0/E}$ device type).

User ID

H323 ID (not read out for HiPath 4000).

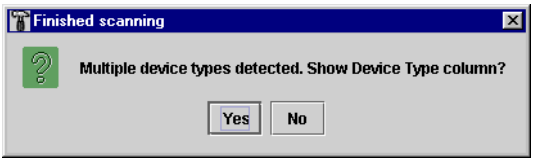
Version

Specifies the current software version of the device.

Device type

The Device type column lists the optiPoint devices each with an assigned icon. This column could look as follows in another network:

If you hid the **Device type** column (→ page 11) and the list contains different device types, the following message will prompt you to display the column after the scan:



If you do not display the **Device type** column, you will be unable to configure any devices as the **Configure Selected Devices** function will not be available → page 17.

Stopping a Scan

You can interrupt a scan at any time. **Call** with **Stop** from the **Scan** menu on the menu bar.

Resetting the Scan Result

If the result is unsatisfactory, for example, or if you want to change or extend the IP address range, you can reset the values in the current device list. Call with **Reset** from the **Scan** menu on the menu bar.

Deleting an Entry from the Device List

If you are unable to configure a device in the list, you can delete this entry. Select the required entry in the list with a click.

Delete with
- **Delete** from the **Edit** menu on the menu bar or
- the **Delete selected Device** icon on the toolbar or (→ page 9)
- the **Delete** key.

The entry is deleted without further confirmation.

Selecting a Device Group

You can select three groups or use the pointer to select individual entries at random in the device list for the operation you want to perform, such as deletion or the **Configure Selected Devices** function.

Select with
- **Select all Ready** from the **Edit** menu on the menu bar or
- **CTRL+R** or
- **Select all No Response** from the **Edit** on the menu bar or
- **Select all** from the **Edit** menu on the menu bar or
- click a device or
- click an initial device and, holding down **CTRL** key, click additional randomly listed devices or
- click an initial device and, holding down the **SHIFT** key, select multiple consecutive devices.

Saving a Deployment File

If you specified addresses or address range(s), you can save the result for future use.

Save with
- **Save as...** from the **File** menu on the menu bar if you want to save the deployment file under a specific name or **Save** if you want to save it under the current name (only when changing IP addresses), or
- the **Save** icon on the toolbar (→ page 9) to save the file under the current name (only when changing the IP addresses) or
- **CTRL+S** (only when changing the IP addresses).

The tool only saves the contents of the **Address** and **Status** columns.

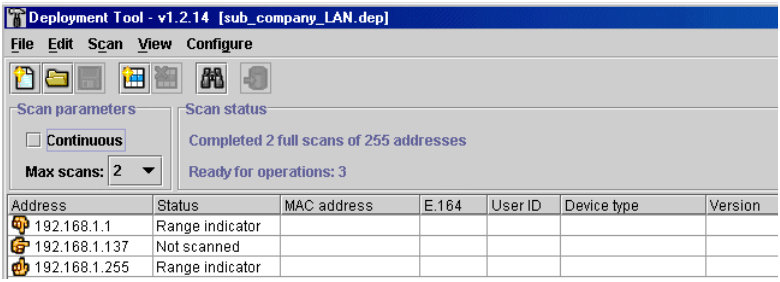
Loading the Deployment File

The Deployment Tool opens with the last deployment file saved and displays the device list with data in the **Address** and **Status** columns only. A blank window appears if there is no list available. You can load a specific list if there is more than one saved.

Call with

- **Open** from the **File** menu on the menu bar or
- **CTRL+O** or
- the **Open** icon on the toolbar (→ page 9).

The open deployment file contains the following device list, for example:



Run a scan now to enter the devices → page 12.

Configuration

Preparation

You can configure a single device or devices that belong to the same device type. Select one or more devices of the same type → page 15. These devices should be in **Ready** status (→ page 13). Now, transfer the selected devices to the Operations window:

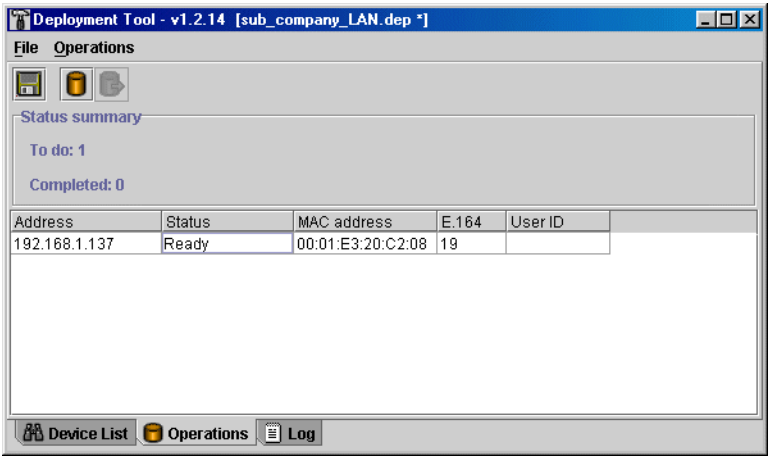
Call with

- **Configure selected devices** from the **Configure** menu on the menu bar or
- **CTRL+C** or
- the **Configure selected devices** icon on the toolbar (→ page 9)

If you want to transfer additional devices to the window now, you are asked if you want to replace existing devices or add new ones.

Configuration

Press the Operations **button now to switch to the** Operations window (→ page 9).



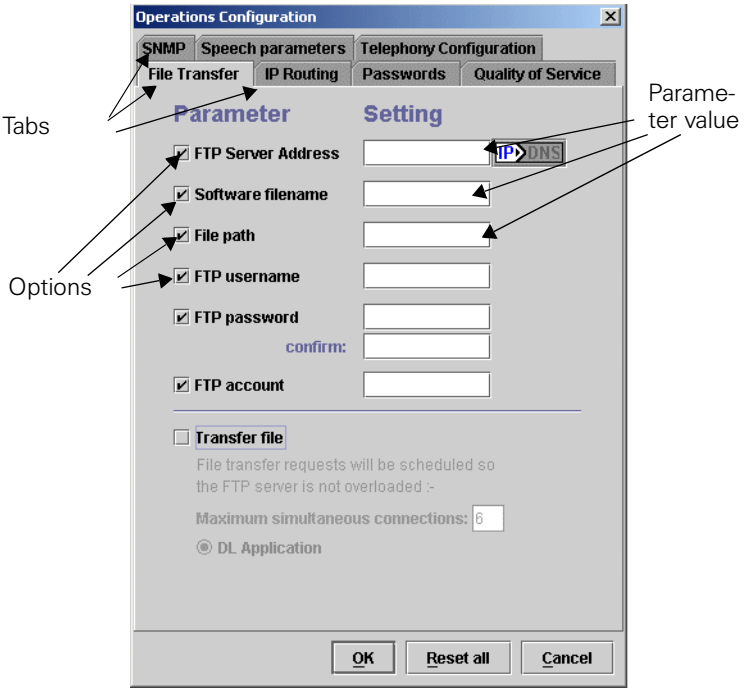
Starting Configuration

Call with

- **Configure** from the Operations menu on the menu bar or
- **CTRL+C** or
- the **Configure operations** icon on the toolbar (→ page 9).

The **Operations Configuration** dialog for this device type appears. It contains a number of function-specific tabs.

File Transfer tab:



The Deployment Tool **cannot** read out telephone data and consequently, does not display an existing configuration – only blank fields are shown.

Dialogs for optiPoint telephones

Device-type dialogs are provided for the following optiPoint phones:

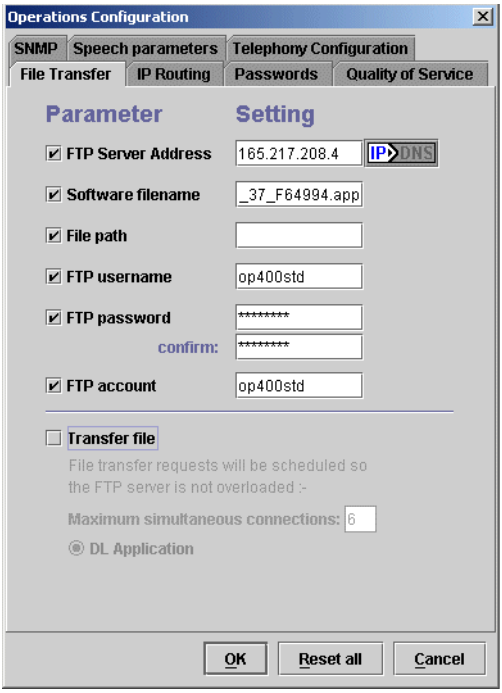
- optiPoint 400 standard Release 3 (→ page 27)
- optiPoint 410 standard HFA (→ page 27)
- optiPoint 400 standard SIP V2.3/V2.4/V3.0 (→ page 28)
- optiPoint 400 economy HFA (→ page 27)
- optiPoint 410 standard HFA (→ page 30)
- optiPoint 410 advance HFA (→ page 30)
- optiPoint 410 economy HFA → page 30
- optiPoint 410 entry HFA (→ page 30)
- optiPoint 600 office $U_{P0/E}$ (→ page 31)
- optiPoint 600 office HFA (→ page 31)
- optiPoint 600 office SIP V2.x (→ page 32)

Editing a Configuration

Call up the configuration of the selected optiPoint type. Before you can enter a value in a field in the **Setting** column, you must mark the matching option in the **Parameter** column. Values entered in the **Setting** column are not sent to the devices if you did not mark the matching option in the **Parameter** column.

Switch to a different tab by clicking the required tab header. For information on the tabs and parameters that you can process for a device type, see the section on **optiPoint types** → page 27 and the section on **Tabs** → page 36.

Example:



Confirm the dialog with **OK** after entering the necessary parameter values for this device type in all tabs (→ page 27).

Alternatively, you can use

- **Reset all** to delete all values in the **Setting** column and at the same time remove all markings in the **Parameter** column. (**Reset all** applies to all tabs).
- Or quit the dialog with **Cancel** without applying the settings.

Reset and delete actions do not effect the phone and are only performed locally on the computer.

Entries in the dialog only take effect when the data is sent to the devices.

Saving settings

Save your settings with **Save** or **Save as...** before you send the configuration to the devices.

Save with

- **Save** from the **File** menu on the menu bar to save the file under the current name or
- the **Save** icon on the tool bar (→ page 9) or
- **CTRL+S** or
- **Save as** from the **File** menu on the menu bar to save the file under a new name or
- the **F12** function key.

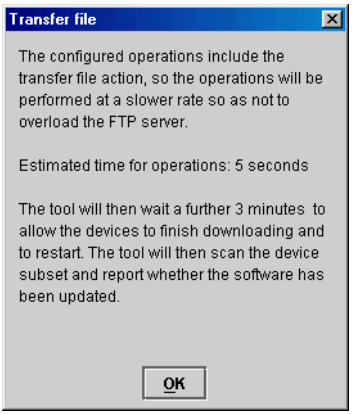
Depending on the terminal type, data from the "Operations Configuration" page (all directories) is included when you perform a save. For example, if you entered "anonymous" under "FTP username" for optiPoint 410 Standard, "test" may appear under optiPoint 410 eco. You can consequently create a deployment file **.dep** for different terminal types.

Transfer file

You can perform file transfer when the Deployment Tool is active, for example, to update software at multiple devices simultaneously.

To do this, enter the necessary parameters for downloading the update in the **File Transfer** tab and mark the option **Transfer file.** Specify if you want to transfer an application or an LDAP template if applicable. Enter the number of devices for the **download** operation and press **OK**.

Proceed as described under **Starting transmission** → page 23 and confirm the following dialog:



The software update activates a timer. This timer is needed to determine the update status.

The timer has different runtimes depending on the telephone type.

- **3 minutes for**: optiPoint 400 standard
  optiPoint 400 standard HFA
  optiPoint 400 advance HFA
  optiPoint 400 economy HFA
  optiPoint 400 standard SIP
  optiPoint 410 standard HFA
  optiPoint 410 economy HFA
  optiPoint 410 entry HFA
- **5 minutes for**:
  optiPoint 600 office $U_{P0/E}$
  optiPoint 600 office HFA
- **10 minutes for**:
  optiPoint 300 advance

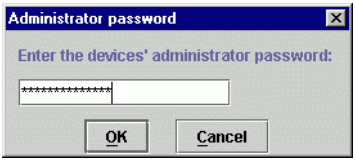
Transferring a Configuration

Administrator password

You must enter the administrator password before you can transfer the configuration to the optiPoint devices for the first time after starting up the program.

Call with
- **Enter admin password** from the Operations menu on the menu bar or
- **CTRL+P**

The following dialog appears:



Enter the password (default is 123456) and confirm your entry with OK.

Starting transfer

Start with
- **Start** from the Operations menu on the menu bar or
- the **Perform operations** icon on the toolbar (→ page 9).

If you have not already entered the administrator password, you are now prompted to do so (→ page 22).

The data is sent to the devices in consecutive packets. Following transmission, **completed** appears in the **Status** column for every device. **Upgrading** appears in the status bar if you mark the **Transfer file** option under **File Transfer**, for example, and perform a software update.

Stopping transfer

You can stop the transfer to devices in the network at any time.

Stop with
- **Stop** from the Operations menu on the menu bar or
- the **Stop** (Start) icon on the toolbar (→ page 9).

Log file

An event log records actions performed with the Deployment Tool and is saved in the "Deployment Tool\Log files" directory.

The current contents are displayed in the **Log** window. Use the key provided to switch to the **Log** window.

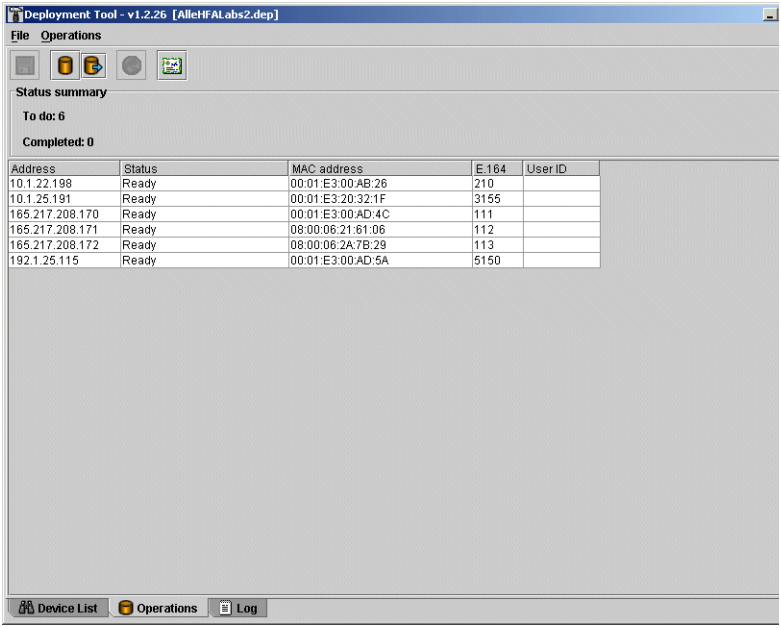
Verification

You can spot-check the transfer result at the individual devices using their Web servers. To do this, open your Internet browser and enter the IP address. You can check random entries over the Administrator and Administrator Settings links.

Saving and Loading Device Groups

Once you have selected a device group, you can save it in a **Batch File**. At a later stage, you can select and further process this particular device group via the **Batch File** in the device list.

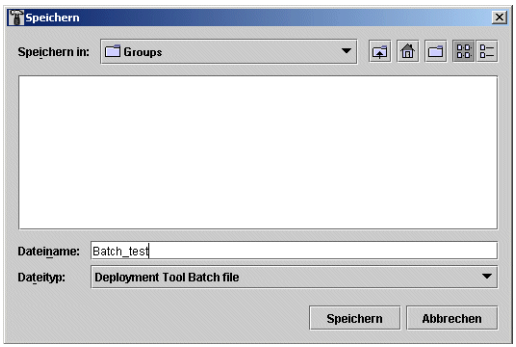
The following shows some of the device groups available in the **Operations** window.



Saving Device Groups

Call with

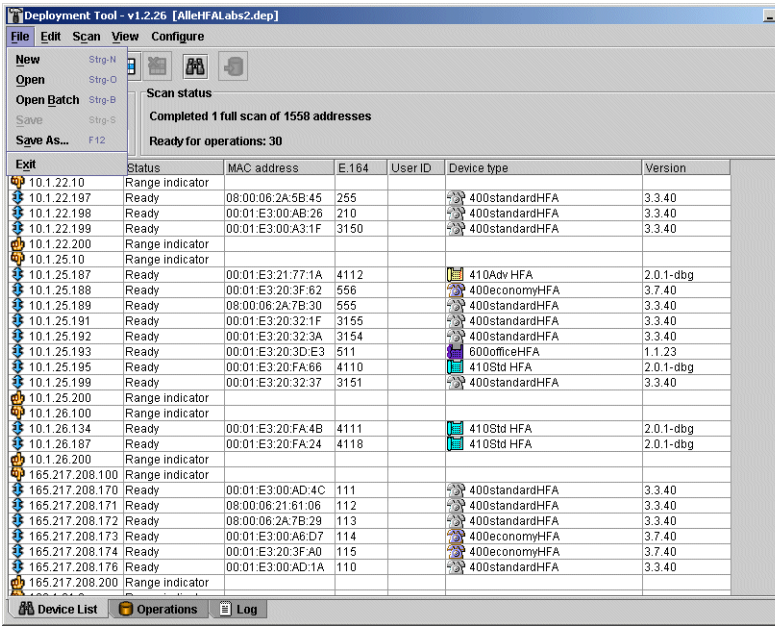
- **Save Batch...** in the **File** menu on the menu bar or
- **Ctrl+B**
  The following dialog appears:



Select a directory and assign a name to the **Batch File**. Then click **Save**. You can create several **Batch Files** for different groups.

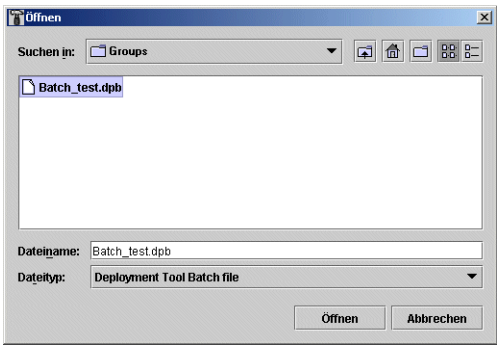
Loading Device Groups

Create a device list or (→ page 10) load a deployment file (→ page 16) and execute a scan → page 12). A device list similar to that displayed here appears:



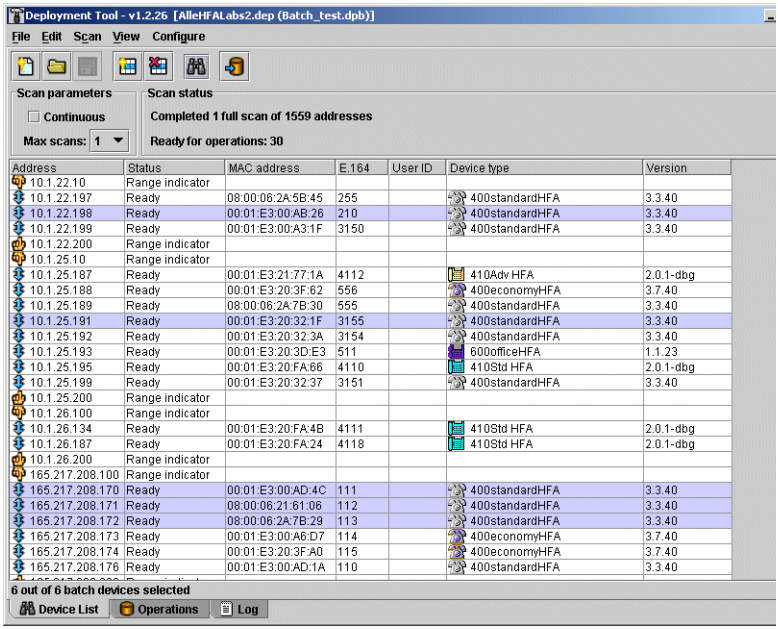
Call with

- **Open Batch...** in the **File** menu on the menu bar or
- **Ctrl+B**
  The following dialog appears:



Select a stored **Batch File** with the extension ".dpb" and click **Open**.

The relevant device group is automatically selected for further processing in the device list.



optiPoint types

optiPoint 400 standard H450

(Device type: 400standardH450)

Settings are made in the following tabs:
- Passwords → page 45
- File Transfer → page 38
- IP Routing → page 41
- Country & Language → page 37
- Dialling Codes → page 37
- Messaging Services → page 44
- Quality of Service → page 47
- Selected_Dialing → page 48
- SNMP → page 48
- Speech parameters → page 49
- Telephony Configuration → page 50
- Time → page 52
- Function Keys → page 40

optiPoint 400 economy HFA

(Device type: 400economyHFA)

Settings are made in the following tabs:
- Speech parameters → page 49
- Telephony Configuration → page 50
- Quality of Service → page 47
- SNMP → page 48
- File Transfer → page 38
- IP Routing → page 42
- Passwords → page 45

optiPoint 400 standard HFA

(Device type: 400standardHFA)

Settings are made in the following tabs:
- Speech parameters → page 49
- Telephony Configuration → page 50
- Quality of Service → page 47
- SNMP → page 48
- File Transfer → page 38
- IP Routing → page 42
- Passwords → page 45

optiPoint 400 standard SIP

(Device type: 400 standard SIP V2.3)

Settings are made in the following tabs:

- Audio/Visual Indications → page 36
- Function Keys → page 40
- Selected_Dialing → page 48
- Country & Language → page 37
- SNMP → page 48
- Speech parameters → page 49
- Telephony Configuration → page 51
- Time → page 52
- File Transfer → page 38
- IP Routing → page 42
- Messaging Services → page 44
- Passwords → page 45
- Quality of Service → page 47

(Device type: 400 standard SIP V2.4)

Settings are made in the following tabs:

- Alert Indications → page 36
- Keyset Operations → page 44
- Dial Plan → page 37
- Country & Language → page 37
- Function Keys → page 40
- Speech parameters → page 49
- Telephony Configuration → page 51
- SIP Feature Configuration → page 48
- Time → page 52
- File Transfer → page 38
- IP Routing → page 42
- Messaging Services → page 44
- Passwords → page 45
- Quality of Service → page 47
- Security → page 47
- SNMP → page 48

(Device type: 400standardSIP V3.0)

Settings are made in the following tabs:

- Passwords → page 45
- File Transfer → page 38)
- IP Routing → page 42
- Country & Language → page 37
- Quality of Service → page 47
- Selected_Dialing → page 48
- SNMP → page 48
- Speech parameters → page 49
- Telephony Configuration → page 51
- Time → page 52
- Messaging Services → page 44
- Function Keys → page 40
- Instant Messaging → page 40
- Contacts → page 36
- Kerberos → page 43
- Security → page 47
- Presence → page 46

optiPoint 410 entry HFA, 410 economy HFA

(Device type: 410entryHFA, 410economyHFA)

Settings are made in the following tabs:
- Speech parameters → page 49
- Telephony Configuration → page 50
- Quality of Service → page 47
- SNMP → page 48
- File Transfer → page 38
- IP Routing → page 42
- Passwords → page 45

optiPoint 410 standard HFA, 410 advance HFA

(Device type: 410standardHFA, 410advanceHFA)

Settings are made in the following tabs:
- HTTP Settings → page 40
- WAP→ page 52
- Miscellaneous → page 45
- Speech parameters → page 49
- Telephony Configuration → page 50
- Passwords → page 45
- Quality of Service → page 47
- SNMP → page 48
- Dialling Codes → page 37
- File Transfer → page 39
- IP Routing → page 42
- LDAP → page 44

optiPoint 600 office HFA

(Device type: 600officeHFA)

Settings are made in the following tabs:

- Passwords → page 45
- Dialling Codes → page 37
- File Transfer → page 39
- IP Routing → page 43
- Quality of Service → page 47
- SNMP → page 48
- Speech parameters → page 49
- Telephony Configuration → page 51
- Personal Directory → page 46
- WAP→ page 52
- LDAP → page 44
- HTTP Settings → page 40

optiPoint 600 office$U_{P0/E}$

(Device type: 600office$U_{P0/E}$)

Settings are made in the following tabs:

- Passwords → page 45
- Dialling Codes → page 37
- File Transfer → page 39
- IP Routing → page 43
- Quality of Service → page 47
- Telephony Configuration → page 51
- Personal Directory → page 46
- WAP→ page 52
- LDAP → page 44

optiPoint 600 office SIP

(Device type: 600officeSIP V2.3)

Settings are made in the following tabs:

- Passwords → page 45
- Dialling Codes → page 37
- File Transfer → page 39)
- IP Routing → page 43
- Country & Language → page 37
- Quality of Service → page 47
- Selected_Dialing → page 48
- SNMP → page 48
- Speech parameters → page 49
- Telephony Configuration → page 51
- Time → page 52
- Audio/Visual Indications → page 36
- Messaging Services → page 44
- Function Keys → page 40
- Personal Directory → page 46
- WAP→ page 52
- LDAP → page 44

(Device type: 600officeSIP V2.4)

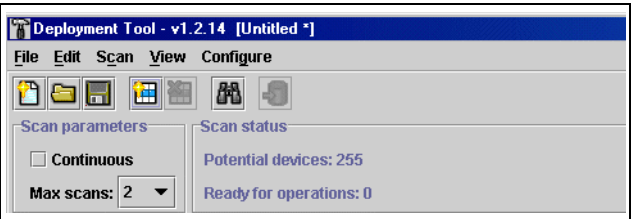
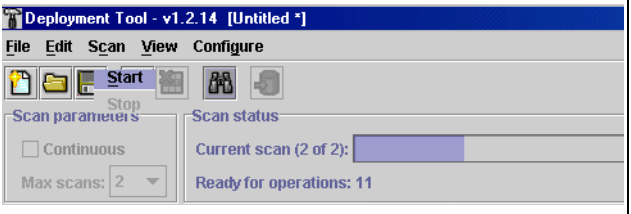
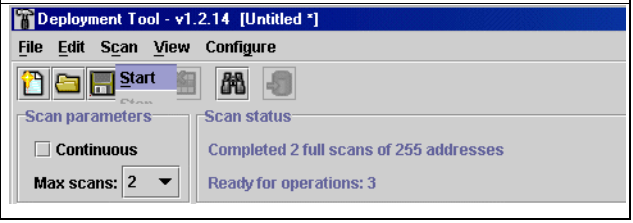
Settings are made in the following tabs:

- Country & Language → page 37
- Function Keys → page 40
- Key & Lamp Module 1/2 → page 44
- SIP Feature Konfiguration → page 48
- Time → page 52
- WAP → page 52
- Audio/Visual Indications → page 36
- Keyset Operations → page 44
- Dial Plan → page 37
- Quality of Service → page 47
- Security → page 47
- SNMP → page 48
- Speech parameters → page 49
- Telephony Configuration → page 51
- Dialling Codes → page 37
- File Transfer → page 39
- IP Routing → page 43
- LDAP → page 44
- Messaging Services → page 44
- Passwords → page 45
- Personal Directory → page 46

Help Functions

Checking the Status

The status is displayed in the header of the Device_List window before, during, and after the scan.

Before the scan (example)	
During the scan (example)	
After the scan (example)	

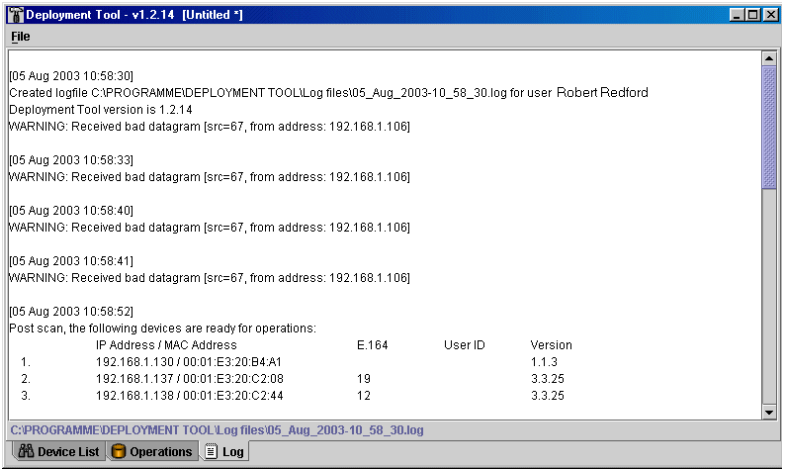
Status Messages

The following status messages may appear:

Ready for operations:	Number of devices available.
Connecting...	The tool is setting up a connection.
Failed to connect	The tool was unable to connect to the server.
Server busy	Device configuration is already active.
Server down	The server is unavailable.
Bad response	The device configuration service differs from the protocol specified.
Connection lost	The connection was interrupted.
Invalid password	Incorrect password.
Operating...	Operation in progress.
Engaged	The device is in use (call or local configuration).
Rejected	The configuration service rejected the entire processing request.
Partially rejected	The configuration service partially rejected the processing request.
Upgrading...	Transferring upgrade software.
Download failed	The application download failed.
Same software	The device was upgraded without difficulty but now has the same software version as before.
Completed	No update problems encountered.

Log File

Click **Log**. The window changes to display the current log file. This file is automatically created and features the current system time in its name, for example **05_Aug_2003-10_58_30.log**.



You can use the current log file or create a new one for the next scan. To create a new log file, close the current file with **Close log file** from the **File** menu on the menu bar.

Configuration Tab

Alert Indications

Alert Indications (400 standard SIP V2.4, 600 office SIP V2.4)

Parameter	Setting
Alert (1 to 15)	→ page 53
Tag (1 to 15)	→ page 69
Ringer Melody (1 to 15)	→ page 64
Ringer Sequence (1 to 15)	→ page 64
Tone_Duration (secs) (1 to 15)	→ page 69

Audio/Visual Indications

Audio/Visual Indications (400 standard SIP V2.3, 600 office SIP V2.3)

Parameter	Setting
Alert (1 to 15)	→ page 53
Tag (1 to 15)	→ page 69
Ringer Melody (1 to 15)	→ page 64
Ringer Sequence (1 to 15)	→ page 64
Tone_Duration (secs) (1 to 15)	→ page 69

Contacts

Contacts (400 standard SIP V3.0)

Parameter	Setting
Admin Contacts	→ page 53

Country & Language

Country & Language (400 standard H450, 400 standard SIP V2.x/ SIP V3.0, 600 office SIP V2.x)

Parameter	Setting
Language	→ page 60
Country	→ page 55

Dialling Codes

Dialling Codes (400 standard H450, 410 standard HFA, 410 advance HFA, 600 office HFA, 600 office $U_{P0/E}$, 600 office SIP V2.x)

Parameter	Setting
External access code #	→ page 57
International dial prefix #	→ page 59
Country code #	→ page 55
National dial prefix #	→ page 62
Area code #	→ page 54
Location code #	→ page 61
Domain access code # *	→ page 56

*. For 400 standard H450 only.

Dial Plan

Dial Plan (400 standard SIP V2.4, 600 office SIP V2.4)

Parameter	Setting
Dialplan enabled	→ page 56
Dial Plan	→ page 56
Download file	→ page 56

File Transfer

You can read out the current software version used by your optiPoint phones directly at the device or over the phone's Web server.

File Transfer (400 economy HFA, 400 standard HFA, 410 entry HFA, 410 economy HFA)

Parameter	Setting
FTP Server Address	→ page 57
FTP account	→ page 57
FTP username	→ page 58
FTP password	→ page 57
File path *	→ page 57
Software filename	→ page 68
Transfer file	→ page 70

*. For 400 standard HFA only.

File Transfer (400 standard H450, 400 standard SIP 2.x/SIP 3.0)

Parameter	Setting
FTP Server Address Fileserver address	→ page 57
FTP account	→ page 57
FTP username	→ page 58
FTP password	→ page 57
File path	→ page 57
Software filename	→ page 68
Config filename prefix	→ page 55
MoH filename	→ page 62
Transfer file	→ page 70

File Transfer (410 standard HFA, 410 advance HFA)

Parameter	Setting
FTP Server Address	→ page 57
FTP account	→ page 57
FTP username	→ page 58
FTP password	→ page 57
Software filename	→ page 68
DSM application filename	→ page 57
Screen saver filename	→ page 65
LDAP filename *	→ page 61
Java midlet filename	→ page 59
Transfer file	→ page 70

*. In this case, LDAP template name.

File Transfer (600 office HFA, 600 office $U_{P0/E}$, 600 office SIP V2.x)

Parameter	Setting
FTP Server Address	→ page 57
FTP account	→ page 57
FTP username	→ page 58
FTP password	→ page 57
File path	→ page 57
Software filename *	→ page 68
MoH filename **	→ page 62
Loge filename **	→ page 62
LDAP template name	→ page 61
LDAP Folder ***	→ page 61
Java midlet filename **	→ page 59
JAVA Folder **	→ page 59
Transfer file	→ page 70

*. Not for 600 office SIP V2.4.
**. For 600 office SIP V2.4 only.
***. For 600 office HFA only.

Function Keys

Function Keys (400 standard H450, 400 standard SIP V2.x/SIP V3.0, 600 office SIP V2.x)

Parameter	Setting
Key (1 to 10 or 17)	→ page 60

HTTP Settings

HTTP Settings (410 standard HFA, 410 advance HFA, 600 office HFA)

Parameter	Setting
HTTP gateway/proxy address	→ page 58
Port Number	→ page 63

Instant Messaging

Instant Messaging (400 standard SIP V3.0)

Parameter	Setting
Admin Instant Messaging	→ page 53
IM Session Timer (secs)	→ page 59
Preformed Instant Messages	→ page 63

IP Routing

IP Routing (400 standard H450)

Parameter	Setting
DHCP	→ page 56
Default gateway	→ page 56
Route 1	→ page 65
Gateway 1	→ page 58
Mask 1	→ page 62
Route 2	→ page 65
Gateway 2	→ page 58
Mask 2	→ page 62
LAN port mode	→ page 60
PC port mode	→ page 60

IP Routing (400 economy HFA, 400 standard HFA, 410 entry HFA, 410 economy HFA, 410 standard HFA, 410 advance HFA, 400 standard SIP V2.x/SIP V3.0)

Parameter	Setting
DHCP	→ page 56
Default gateway	→ page 56
Route 1	→ page 65
Gateway 1	→ page 58
Mask 1	→ page 62
Route 2	→ page 65
Gateway 2	→ page 58
Mask 2	→ page 62
DNS server address	→ page 56
Secondary DNS server address *	→ page 65
DNS domain name	→ page 56
LAN port mode **	→ page 60
PC port mode ***	→ page 60

*. For 400 standard SIP V2.4 and SIP V 3.0 only.
**. Not for 400 standard SIP V3.0.
***. Not for 400 standard SIP V3.0, 410 entry HFA, 410 economy HFA, 400 economy HFA.

IP Routing (600 office HFA, 600 office $U_{P0/E}$, 600 office SIP V2.x)

Parameter	Setting
DHCP	→ page 56
Default gateway	→ page 56
Route 1	→ page 65
Gateway 1	→ page 58
Mask 1	→ page 62
Route 2	→ page 65
Gateway 2	→ page 58
Mask 2	→ page 62
DNS server address	→ page 56
Secondary DNS server address *	→ page 65
DNS domain name	→ page 56
LAN port mode**	→ page 60

*. For 400 standard SIP V2.4 and SIP V 3.0 only.
**. LAN port 1 mode and LAN port 2 mode.

Kerberos

Kerberos (400 standard SIP V3.0)

Parameter	Setting
Kerberos Server Address	→ page 59
Kerberos Server Port	→ page 59
Windows Domain Name	→ page 71
Windows Domain User ID	→ page 71
New Domain Password	→ page 62
User Change Password	→ page 70

Keyset Operations

Keyset Operations (400 standard SIP V2.4, 600 office SIP V2.4)

Parameter	Setting
Originating line preference	→ page 62
Terminating line preference	→ page 69
Line Key action mode	→ page 61
Registration LEDs	→ page 64
Rollover type	→ page 65
Server type	→ page 66

Key & Lamp Module 1/2

Key & Lamp Module 1/2 (600 office SIP V2.4)

Parameter	Setting
Key (1 to 16)	→ page 60

LDAP

LDAP (410 standard HFA, 410 advance HFA, 600 office HFA, 600 office $U_{P0/E}$, 600 office SIP V2.x)

Parameter	Setting
Server address LDAP Server Addr	→ page 61
Port number LDAP Server Port Number	→ page 61

Messaging Services

Messaging Services (400 standard H450, 400 standard SIP V2.x/ SIP V3.0, 600 office SIP V2.x)

Parameter	Setting
Message centre #	→ page 62
Voice mail #	→ page 71

Miscellaneous

Miscellaneous (410 standard HFA, 410 advance HFA)

Parameter	Setting
Help Internet URL	→ page 58

Passwords

Passwords (400 standard H450, 400 standard HFA, 400 economy HFA, 400 standard SIP 2.x/SIP 3.0)

Parameter	Setting
Admin password	→ page 53

Passwords (410 etry HFA, 410 economy HFA, 410 standard HFA, 410 advance HFA)

Parameter	Setting
Admin password	→ page 53
Actions	→ page 53

Passwords (600 office HFA, 600 office $U_{P0/E}$, 600 office SIP V2.x)

Parameter	Setting
Admin password	→ page 53
User password	→ page 71

Personal Directory

Personal Directory (600 office HFA, 600 office $U_{P0/E}$, 600 office SIP V2.x)

Parameter	Setting
Server address	→ page 57
File path	→ page 57
Filename	→ page 57
Username	→ page 58
Password	→ page 57
Account name	→ page 53
Import personal directory	→ page 59

Presence

Presence (400 standard SIP V3.0)

Parameter	Setting
Presence Publishing	→ page 63
Presence Watching	→ page 63
Proximity Timer (secs)	→ page 63
Ring Seen Timer (secs)	→ page 65
Ring No Reply Timer (secs)	→ page 65
Unused Timer (secs)	→ page 70

Quality of Service

Quality of Service (400 standard H450, 400 standard HFA, 400 economy HFA, 410 entry HFA, 410 economy HFA, 410 standard HFA, 410 advance HFA, 600 office HFA, 400 standard SIP V2.x/SIP V3.0, 600 office SIP V2.x)

Parameter	Setting
Layer 3	→ page 64
Layer 3 Signalling	→ page 60
Layer 3 Voice	→ page 60
Layer 2	→ page 64
Layer 2 Signalling	→ page 60
Layer 2 Voice	→ page 60
Layer 2 Default	→ page 60
VLAN Method*	→ page 71
VLAN Id	→ page 71

*. Not for 400 economy HFA and 400 standard H450

Quality of Service (600 office $U_{P0/E}$)

Parameter	Setting
VLAN Method	→ page 71
VLAN Id	→ page 71

Security

Security (400 standard SIP V2.4/SIP V3.0, 600 office SIP V2.4)

Parameter	Setting
Key Material File Management	→ page 60
Trusted Certificates File Management	→ page 70
Probe If Allow *	→ page 63

*. Not for 600 office SIP V2.4.

Selected_Dialing

Selected_Dialing (400 standard H450, 400 standard SIP V2.3/ SIP V3.0, 600 office SIP V2.3)

Parameter	Setting
Key 1 to 10 or 17	→ page 60

SIP Feature Configuration

SIP Feature Configuration (400 standard SIP V2.4, 600 office SIP V2.4)

Parameter	Setting
Group pickup URI	→ page 58
Auto answer	→ page 54
Beep on auto answer	→ page 54
Auto reconnect	→ page 54
Beep on auto-reconnect	→ page 54
Permit Decline Call *	→ page 63

*. For 600 office SIP V2.4 only.

SNMP

SNMP (400 standard H450, 400 standard HFA, 400 economy HFA, 400 standard SIP V2.x/SIP V3.0, 410 entry HFA, 410 economy HFA, 410 standard HFA, 410 advance HFA, 600 office HFA, 600 office SIP V2.x)

Parameter	Setting
Trap listener address	→ page 68
SNMP password	→ page 67

Speech parameters

Speech parameters (400 standard H450, 400 standard HFA, 400 economy HFA, 600 office HFA)

Parameter	Setting
Audio mode	→ page 54
Jitter buffer *	→ page 59

*. Not for 600 office HFA.

Speech parameters (410 entry HFA, 410 economy HFA, 410 standard HFA, 410 advance HFA)

Parameter	Setting
Audio mode	→ page 54
Compression Codec	→ page 55
Silence Suppression	→ page 66

Speech parameters (400 standard SIP V2.x/SIP V3.0, 600 office SIP V2.x)

Parameter	Setting
Audio mode	→ page 54
Compression Codec	→ page 55
Silence Suppression	→ page 66
Jitter buffer *	→ page 59
RTP Packet Size **	→ page 65

*. Not for 600 office SIP V2.x.
**. For 400 standard SIP 2.x and 600 office SIP V2.4 only.

Telephony Configuration

Telephony Configuration (400 standard H450)

Parameter	Setting
System type	→ page 69
Gatekeeper address	→ page 58
Gatekeeper id	→ page 58
H323 gateway address	→ page 58
Gatekeeper discovery address	→ page 58
Mobility	→ page 62
Emergency number	→ page 57
H450 features	→ page 58
Security profile	→ page 66
Security window (seconds)	→ page 66
Time to live (minutes)	→ page 69
Migration flag	→ page 62

Telephony Configuration (400 standard HFA, 400 economy HFA)

Parameter	Setting
PBX/Gateway Address	→ page 63

Telephony Configuration (410 entry HFA, 410 economy HFA, 410 standard HFA, 410 advanceHFA)

Parameter	Setting
PBX/Gateway Address	→ page 63
System type	→ page 69
Emergency number	→ page 57
Cancel mobility password	→ page 54
Base PBX Port	→ page 63
Location ID number	→ page 61

Telephony Configuration (400 standard SIP V2.x/SIP V3.0, 600 office SIP V2.x)

Parameter	Setting
SIP Routing Model	→ page 67
SIP Transport	→ page 67
Register by name	→ page 64
Outbound proxy	→ page 62
SIP Server Address	→ page 67
SIP Server Port *	→ page 67
SIP Gateway Address	→ page 66
SIP Gateway Port *	→ page 66
SIP Registrar Address	→ page 67
SIP Registrar Port *	→ page 67
Beep On SIP Server Error	→ page 54
Session Timer	→ page 66
Session Duration (seconds)	→ page 66
Registration Timer (seconds)	→ page 64
Default domain name	→ page 56
Realm 1	→ page 64
Emergency number	→ page 57
System name (max 10 ch) **	→ page 68

*. For 600 office SIP V2.4 only.
**. For 400 standard SIP V2.x only.

Telephony Configuration (600 office HFA, 600 office $U_{P0/E}$)

Parameter	Setting
PBX/Gateway Address *	→ page 63
Status message transfer *	→ page 68
Operating mode	→ page 62

*. Not for 600 office $U_{P0/E}$.

Time

Time (400 standard H450, 400 standard SIP V2.x/SIP V3.0, 600 office SIP V2.x)

Parameter	Setting
SNTP server address	→ page 68
Timezone offset	→ page 69
Daylight saving	→ page 55
Time	→ page 69

WAP

WAP (410 standard HFA, 410 advance HFA, 600 office HFA, 600 office $U_{P0/E}$, 600 office SIP V2.x)

Parameter	Setting
Gateway Address/ HTTP gateway/proxy address	→ page 58
Port Number	→ page 63
Home page	→ page 58
Connection type	→ page 55
Allow JAVA MIDlet DL via web*	→ page 53
Allow WAP Push Messages**	→ page 53

*. For 410 standard HFA, 410 advance HFA and 600 office HFA only.
**. For 600 office HFA only.

Parameters

Description

Account name

Name of the FTP account requested by certain FTP servers.

Actions

You can select one of the following two options for Actions:
- Factory reset, to revert to the factory settings.
- Clear user data, to delete the user data only.

Admin Contacts

Provides users with the "Contacts" function which permits access to the contacts stored on the Microsoft LCS.
Default: disabled.

Admin Instant Messaging

Provides users with the Instant Messaging function.
Default: disabled.

Admin password
- You can change the password needed to access the administrator area here.
- Default password 123456.

Alert

You can specify up to 15 alerts in the Audio/Visual Indications tab. Mark the option before entering the values for an alert.

Allow JAVA MIDlet DL via web

Specify here with **Yes** or **No** whether or not JAVA MIDlets can be loaded via the Web interface.

Allow WAP Push Messages

Specify here with **Yes** or **No** whether or not WAP push messages should be possible.

Application filename
- Enter the name of the file containing the optiPoint 410 software.
- The file must be saved on the → FTP server in a specific directory.
- Possible values: 1 to 24 characters.

Area code

Enter your area code here, for example 089 for Munich.

Audio Mode

The following modes can be set:
- → G.711 Preferred
- Compressed Codec Preferred (→"page"55)
- Compressed Codec Always (→"page"55)

Auto answer

Auto answer. You can enable or disable this function.

Auto reconnect

This function allows you to reconnect calls automatically. You can enable or disable this function.

Beep on auto answer

Beep on auto answer. You can enable or disable this function.

Beep on auto-reconnect

Beep on auto-reconnect of queued calls. You can enable or disable this function.

Beep On SIP Server Error

Beep on error can be enabled or disabled. The option is enabled by default.

Cancel mobility password

You can now deregister the telephone connection at the "Guest Telephone" if you forgot to do this earlier on.

Enter the "Mobility cancel pw" and confirm your input. This reactivates the "home connection" allowing you to make calls again.

Codec

- Select the audio transfer principle you want use here.

Codec	Audio Mode	Use
High Quality Preferred	Uncompressed voice transmission.	Use uncompressed voice transmission (→ G.711, → G.722). Suitable for broadband intranet connections.
Low Bandwidth Preferred	Use compressed voice transmission preferably.	Suitable for connections with different bandwidth levels.
Low Bandwidth Only/Always	Use compressed voice transmission only.	Suitable for connections with low bandwidth.

- Please refer to the user manuals supplied with various optiPoint phones for information on the relevant defaults.

Compression Codec

You can currently only set the value → G.723.

Connection type

See → WAP Mode.

Config filename prefix

Name of the configuration file without extension.

Country

Select the required country in the drop-down list.

Country code

Enter your country code here, for example 049 for Germany.

Daylight saving

To enable/disable "Sommerzeit". Daylight saving is disabled by default.

- Manual definition is only necessary if this information is not automatically transmitted (for example by the → PBX or an → DHCP server).
- Activate this switch if you want the tool to switch between daylight saving and winter time.

Default domain name

Enter your → Domain name here.

Default Gateway

- Enter the → IP Address that was assigned to your → PBX in the Default Gateway provided this value was not assigned dynamically by a → DHCP server.
- If the value was assigned dynamically, it is read-only here.

DHCP

- Enable this option if you want a → DHCP server to assign the necessary IP data dynamically for the phone.
- Disable this option if there is no DHCP server available in the IP network. In this case, the data for the **Terminal IP Address** and **Terminal Mask** must be manually assigned and the → Default Route must be manually set.

Dialplan enabled

Select **on** or **off** to determine whether or not a → Dial Plan should be used.

Dial Plan and Download file

Via **Browse**, scan the local file system for a → Dial Plan to download. Select **Download file** to send the required → Dial Plan to the telephone.

DNS server address

- Only enter the → IP Address of the → DNS server here if this was not assigned dynamically by a → DHCP server and you are not operating the optiPoint device at a → PBX over → HFA.
- Default address: Blank by default.

DNS domain name

- Only enter the name of the associated → Domain if you cannot operate the optiPoint device at a → PBX over → HFA.
- Default name: Blank by default.

Download Server IP Address

Enter the → IP Address of the → FTP server here so that you can upload and download files from/to optiPoint 410.

Domain access code

Access code for → Domain

DSM application filename

- Can only be configured for optiPoint 410 standard/advance and is only necessary if you are using an optiPoint 410 Display Module.
- Enter the name of the file containing the optiPoint 410 Display Module software.
- The file must be saved on the → FTP server in a specific directory (FTP path/folder).
- Possible values: 1 to 24 characters.

Emergency number

Call number automatically dialed after one second.

External access code

Enter the prefix that must be entered when dialing an external call number, for example "0".

Filename

Name under which the file you want to load is saved on the server.

File path

- Enter the path to the directory that was set up on the → FTP server for uploading and downloading files.
- The path can contain up to 255 characters.

Fileserver address

A correctly configured → FTP server (file server) is always needed for exchanging data using FTP. The server program must be running on a computer (for example PC) in the same → LAN as the optiPoint device. Enter the IP address of this server.

FTP account

- Enter the → FTP user account for access to the FTP server.
- Possible values: 1 to 24 characters.
- Default value: blank.

FTP password

- Enter the password that was set in the → FTP server as the password for accessing this server. The password must be confirmed in the following field.
- The password must match the → FTP user name.
- Possible values: 1 to 24 characters.
- Default password: 123456.

FTP username

- Enter the name that was set in the → FTP server as the user for accessing this server.
- The name must match the → FTP password.
- Possible values: 1 to 24 characters.

Gatekeeper address

Enter the IP address of the → Gatekeeper if known (otherwise it is entered by "autodiscovery").

Gatekeeper discovery address

Enter the → IP Address for a **non**-HiPath → Gatekeeper.

Gatekeeper id

Enter the → Gatekeeper identifier here.

Gateway

Enter the → IP Address of the first or second → Gateway, for example, of a HG 1500 or HG 3530 board.

Gateway address/HTTP gateway/proxy address

- This can only be configured for optiPoint 410 standard/advance, 600 office HFA, 600 office $_{UP0/E}$, 600 office SIP V2.x.
- If a → WAP gateway is available in the network, enter the → IP Address of this gateway here.

Group pickup URI

Specify a URI for group pickup here.

H323 gateway address

Enter the → IP Address of the → Gateway for → H.323 Standard.

H450 features

Set to **on** if there are non-HiPath devices in the network. Call forwarding and transfer to non-HiPath users, however, is not permitted.

Help Internet URL

- This can only be configured for optiPoint 410 standard and advance.
- Enter the file names of the optiPoint 410 online help.

Home page

Shows the WAP page configured as the "home page".

Import personal directory

This option must be marked if you want to transfer a specified file with a personal directory to the telephones.

IM Session Timer

- Contains the length of time for which the → EPID address of an instant message is valid.
- 180 seconds is set by default.

International dial prefix

Enter the international dial prefix here, for example 00.

Java midlet filename

Name of the Java application for download.

JAVA folder

Name of the download directory for the Java application.

Jitter Buffer

- Select the buffer duration here (number of data packets) that changes the effect of → Jitter.

Short	2 packets
Medium (normal)	4 packets
Long	6 packets

- The more stable the network connection, the shorter the buffer time that can be selected (less voice delay).
- This accuracy of this setting depends on the frequency of data packet transmission by terminals (for example 20ms or 120ms).
- Please refer to the user manuals supplied with various optiPoint phones for information on the relevant defaults.

Kerberos Server Address

IP address of the → Kerberos server.

Kerberos Server Port

Port address of the → Kerberos server.

Key

A programmable key can be assigned a function or a speed dial number. Some keys have already been programmed, for example, with the functions "Disconnect" or "Loudspeaker". You can use up to 17 keys depending on the phone type. You can assign keys in the Selected_Dialing tab or the Function Keys tab. Enter a speed dial number or select a function from the drop-down list.

Key Material File Management

- Write File: Send server certificate to telephone.
- Delete File: Delete server certificate on the telephone.

Layer 2 Voice/Signaling

Voice connection and signaling with → Layer 2 support.

Layer 3 Voice/Signaling

- You can only set this if → Layer 3 support is active (→ QoS L2/L3). The value describes the position in the → Layer 2 Priority value.
- Possible values: 0 ... 63.

Layer 2 Default

The default is → Layer 2 support.

LAN/PC port mode

- Specify the bandwidths you want the optiPoint phone to use. The necessary value depends on the bandwidth supported by the switch or router in the network.

Bandwidth	Application
10 Mbps half dup	For 10-Mbit networks in half duplex mode.
10 Mbps full dup	For 100-Mbit networks in full-duplex mode.
100 Mbps half dup	For 10-Mbit networks in half duplex[1] mode.
100 Mbps full dup	For 100-Mbit networks in full-duplex[2] mode.
Auto negation	

- You must restart the tool after making a change.

Language

Select your language in the drop-down list.

Layer 2 Priority

- You can only set this if → Layer 2 support is active (→ QoS L2/L3).
- You can set a priority value between 0 and 7 for each of the 64 positions here (priority 7: high, 0: low).
- This additional data transmission information is used for forwarding priority decisions when data arrives in a → Switch.

LDAP Server Addr

Also known as "LDAP Directory Server IP address" or "Server address".

- This can only be configured for optiPoint 600 office and optiPoint 410 standard/advance HFA.
- If you are using an → LDAP server, enter the → IP Address of this server here.

LDAP template name

- Enter the name of the LDAP template file that is used in connection with the → LDAP server.
- The file must be saved on the → FTP server in a specific directory (→ Download Server IP Address, → File path).

LDAP folder

Name of the directory on the → FTP server where you saved the → LDAP file.

LDAP Server Port Number

- Also known as Port Number. This can only be configured for optiPoint 600 office and optiPoint 410 standard/advance HFA.
- If you are using a → LDAP server, enter the → Port number here for communication with this server.
- Possible values: 1 ... 65535.

Line Key action mode

Reserved for future function.

Location code

Enter the location code (the call number without extension number, for example, of your company).

Location ID number

Contains the name or number saved for the phone on the server. This is automatically entered in optiPoint and output on the display (also known as local id). If a name is not available, the Location identifier number (LIN) is output on the display.

Loge filename

Enter the filename of the logo (for example logo of your company) which should be shown on the disply.

Mask

Enter the value for the network mask for → Mask 1 or 2. In general, this is 255.255.255.0.

Message centre

Call number of a phone messaging system.

Migration flag

Switch the flag on or off (system switchover).

Mobility

Mark if you want to support mobility.

MoH filename

Name of the → MoH file.

National dial prefix

Enter the national dial prefix here, for example 0.

New Domain Password

Contains the Windows password for the telephone user.

Originating line preference

Reserved for later use.

Operating mode

The following options are available:
- Auto detect
- Direct access
- LAN access

Outbound proxy

You must enable this option if you are using a "→ Outbound Proxy → Proxy server" so that you can assign it a valid domain name.

PBX/Gateway Address

Enter the → IP address of the → PBX where you want to operate the optiPoint or alternatively the → IP address of the gateway. Set the type used.

You can only change the E.164 address by editing "E.164" directly in the "Operations" directory and not with "Operations Configuration".

Permit Decline Call

Permit user to provide the opportunity, to do facilities in connection with decline incoming calls.

Port Number

- This can only be configured for optiPoint 410 standard/advance and 600 office HFA, 600 office $_{UP0/E}$, 600 office SIP V2.x.
- If a → WAP server is available, enter the → Port number here for communication with this server.

Preformed Instant Messages

You can enter up to 20 preformed instant messages here which you can later select using the "Preformed Instant Messages" function.

Default: blank.

Presence Publishing

Enable or disable the "Presence Publishing" function in conjunction with a Microsoft LCS for displaying your own presence status.

Default: disabled.

Presence Watching

Enable or disable the "Presence Publishing" function in conjunction with a Microsoft LCS for displaying the presence status of other contacts.

Default: disabled.

Probe If Allow

You can enable or disable test server mode.

Default: disabled.

Proximity Timer

Contains the length of time in seconds during which the user is displayed as "Present" after the telephone was used.

Default: 5 seconds

PSTN acces code

Access code for the → PSTN telephone network.

QoS L2/L3

- The settings are based on the → QoS areas → Layer 2 and → Layer 3 that control the prioritization of transmitted data.
- → Layer 2 Priority and Virtual LAN ID (→ VLAN ID) can be modified for layer 2. → Layer 3 Voice/Signaling can be modified for layer 3.
- The activation of → Layer 2 and/or → Layer 3 support is only recommended if the → Switch used can interpret this information (for example "→ Layer 2 switch").

Realm

Display or change the SIP Realm value. SIP realm is used to identify the phone at the SIP server.

Register by name

If this option is enabled and a terminal name is entered, this name will appear in the display in the second line on the left. The option is disabled by default.

Registration LEDs

The LEDs illuminate when the telephone is activated. This indicates that you have registered correctly. You can enable or disable this function with **on** and **off**.

Registration Timer

Use this function to specify the amount of time required for logging on to the SIP server again. Logging on again ensures that the SIP telephone remains logged onto the SIP server. This enables you to also detect any server connection problems. The timer is preassigned the value 0 and can have a maximum value of 72 minutes.

Ringer Melody

Select the Ringer Melody for the current alarm to be set in the Audio/Visual Indications tab. You can set the following values:

- silent or
- level 1 to 8

Ringer Sequence

Select the Ringer Sequence for the current alarm to be set in the Audio/Visual Indications tab. You can set the levels 1 to 3.

Ring No Reply Timer

Configurable time in seconds after which the ringing status is displayed for a telephone. When the phone rings, its status is IDLE until the Ring Seen Timer expires. Once the timer has expired, the telephone displays its "Ringing" status.

Ring Seen Timer

Configurable time in seconds after which the "Presence" status is displayed for the telephone. For example, if the time is set to five seconds, this means that the "Absent" status is displayed if a call rings for more than five seconds.

Rollover type

How should a trunk key react if a trunk is busy and the call is signalled at a second trunk? The following options are available:

- No ring
- Alert ring

Route

Enter the first or second destination address preset for a → Router.

RTP Packet Size

The packet size is entered as a time unit. You can select the values auto, 10 ms and 20 ms.

Screen saver filename

- This cannot be configured for all optiPoint phones.
- Enter the name of the file that you want to use as your screen saver.
- The file must be saved on the → FTPserver in a specific directory.
- Valid file types: GIF, JPG.

Secondary DNS server address

Alternative address to → DNS server address.

Security profile

You should define the → Security protocol setting if the optiPoint 400 standard is connected to a HiPath 5000 system.

Three settings are available:
- **off** (voice encryption is disabled).
- **reduced** (voice encryption on one side only – → Gatekeeper encrypts data sent).
- **on** (voice encryption on both sides – → IP phone and → Gatekeeper encrypt data sent)

Security window (seconds)

A time window is used if the IP phone is connected to a HiPath 5000 system and → Security profile is activated (**reduced** or **on**). The tool only accepts messages from the → Gatekeeper that arrive within the defined time window. The highest value you can enter here is 120 minutes.

Server type

In the list field, specify the communication system. The following options are available:
- Other
- HiQ8000
- Broadsoft
- Sylantro

The default is **Other**.

Session Duration (minutes)

Enter a maximum duration in minutes for a session here.

Session Timer

Switches the **SIP Session timer** on and off. The timer controls the duration of a session.

Silence Suppression

The option can be enabled or disabled.

SIP Gateway Adress

Enter the → IP Address of the SIP gateways if gateway mode is in use.

SIP Gateway Port

Enter the → Port number for communicating with the SIP Gateway.

SIP Registrar Address

Enter the corresponding → IP Address here.

SIP Registrar Port

Enter the → Port number for communicating with the SIP Registrar.

SIP Routing Model

Enter the preferred routing model here. The default value is **server mode**.

In **server mode** the telephone uses the → IP Address entered to log on to the SIP server. A dial tone sounds after successful logon.

In **gateway mode**, the telephone generates a dial tone without logon and routes all calls to the SIP gateway configured → IP Address.

→ IP Address is the only option available in **direct mode**. This mode is used mainly for test purposes.

SIP Server Address

Enter the → IP Address of the SIP server if server mode is active.

SIP Server Port

Enter the → Port number for communicating with the SIP Server.

SIP_Transport

You can select the setting → UDP or → TCP for the SIP transport.

SNMP Password

- Enter the password that was set in the → SNMP server as the password for accessing this server.
- The password must contain between 1 and 24 characters.
- Default password: see → Password.

SNMP Trap IP Address

This is the IP address of the SNMP Manager to which the telephone reports every new start. This is known as a Trap listener address.

- If an → SNMP server is available in the network, enter the → IP Address of this server here.
- Default address: See the description of the "default values for optiPoint" in the various user manuals.

SNMP Trap Port

- Specify the → Port you want to use for transferring → SNMP error messages.

SNTP Server IP Address

- If an → SNTP server is available in the network, enter the → IP Address of this server here.
- Default address: see the description of the "default values for optiPoint" in the various user manuals.

Status message transfer

This option controls whether or not the telephone can receive and display status messages.

Software filename

Name of the software you want to download from the FTP server (File server).

Possible values: 1 to 24 characters.

Subscriber Number

- Enter the subscriber number for the optiPoint phone here.
- The number can contain between 1 and 24 digits.
- This is the number that is used as the internal call number.

Subscriber Password

- Enter a → Password with between 6 and 20 digits.
- There is no default password set.

System name

Enter the name of the communications platform used.

System type

- Enter **HiPath GK** if the system environment is HiPath 5000.
- Enter **Non-HiPath GK** if you are using a third-party → Gatekeeper.
- Enter → Gateway if you are using a HiPath HG 1500.
- Enter **Direct** if you are using IP dialing and no → Gatekeeper.
- In **optiPoint 410 standard/economy/entry HFA**, you can choose between **HiPath 4K V1.x**, **HiPath 4K V2.x** and **HiPath 3K V4.0.**

Tag

Enter the required tag for the current alarm to be set in the Audio/Visual Indications tab.

Terminating line preference

Reserved for later use.

Time

- You should only mark this option if this information is not automatically transmitted (for example by the → PBX or an → DHCP server).
- If this option is marked, the computer's system time is applied.

Time to live (minutes)

Use this function to specify the interval at which the telephone should send a signal to the → Gatekeeper (every time one third of the time set elapses). If the "Time to live" value is set to three minutes, for example, the telephone sends a signal every minute.

The highest value you can set is 4320 seconds, that is, three days.

Timezone offset

- You should only enter data here if an → SNTP server provides time information.
- The data describes the offset in hours compared to time information of the SNTP server.

Tone_Duration

Enter the duration of the tone in seconds for the current alarm to be set in the Audio/Visual Indications tab.

Transfer file

This option must be marked if you want to transfer a specified file to the telephones or from the telephones. Mark the appropriate options in the following selection.

- DL Application
- DL Config file
- UL Config file
- DL MoH file (Music on Hold)

or

- DL Application
- DL DSM Application
- DL → LDAP template
- DL Screen Saver

or

- DL Application
- DL DSM Application
- DL → LDAP template
- DL Screen Saver
- DL JAVA Midlet

or

- DL Application
- DL → LDAP template
- DL JAVA Midlet

or

- DL Application

Trusted Certificates File Management

- Write File: Send trusted certificate to telephone.
- Delete File: Delete trusted certificate on telephone.

Unused Timer

Contains the length of time after which the "Presence" status is displayed if the telephone is not used during this time.
Default: disabled.

User Change Password

The telephone user is permitted to change the user password.
Default: enabled.

User password

Reset the user password. This option allows the administrator to delete a user's forgotten password and replace it with a new password.
Default: blank

VLAN Id

- The virtual LAN ID can only be set if → Layer 2 support is activated (→ QoS L2/L3).
- Enter a value between 0 and 4095 here. This value describes an association with a specific → VLAN when using → VLANs.

VLAN Method

- You can only set this if → Layer 2 support is active (→ QoS L2/L3).
- Specify where you should retrieve the → VLAN Id when using → VLANs.

Manual	The ID entered under → VLAN Id is used.
DHCP	When using a → DHCP server, the ID supplied by this server is used.

Voice mail

Call number of the message server.

WAP Mode

- This can only be configured for optiPoint 410 standard and 600 office HFA, 600 office $_{UP0/E}$, 600 office SIP V2.x.
- Select the protocol used for transferring data for WAP applications: → HTTP or → WSP.

Windows Domain Name

Name of the Windows domain server at which the user is registered.

Windows Domain User ID

Name of the user as registered at the Windows domain server.

Abbreviations and Technical Terms

You will find additional information in the relevant literature on network technology and → VoIP.

Default Route

A default route is a route that is suitable for every destination address. In other words, the route can be used for every destination address. The **default route** has the lowest priority and is only used if no other routes are suitable. Essentially, a route specifies the path that the two packets should or can travel for transport within the network. The **default route** is used if a path is not prescribed or known.

DHCP

Abbreviation of "**D**ynamic **H**ost **C**onfiguration **P**rotocol."
Dynamic assignment of IP addresses for subscribers in an IP network using a central DHCP server.

Dial Plan

Contains a dial plan which can be used to determine when a call number is complete.

DNS

Abbreviation of "**D**omain **N**ame **S**ervice."
The DNS service converts an alphanumeric name query (for example alp.dillingen.de) into an IP address.

Large InterNIC primary name servers and the national registration centers (for example: DE-NIC for Germany) have database servers for this purpose, in which the IP addresses are assigned host names.

Domain

A domain is a logical association of computers and can be split into subdomains. DNS servers are used for resolving domain names. An example of a domain name is www.microsoft.com. Here, . stands for the ROOT of the DNS server, **com** for the commercial top-level domain,**microsoft** for the company, and **www** for the server area. Domain names are resolved from right to left.

Download Firmware

- Use this function to download an updated software version from the → FTP server for the optiPoint 410.
- You must set the following parameters before the download: → Download Server IP Address, → File path, → Application filename, → Account name, → FTP username, → FTP password

E.164

Standardized call numbers according to the ITU's international numbering plan with up to 15 digits. Usually composed of the parts: **C**ountry **C**ode (CC), **N**ational **D**estination **C**ode (NDC) and **S**ubscriber **N**umber (SN).

EPID

Abbreviation of **E**nd **P**oint **ID**entifier. Hardware address of an incoming message.

FTP

Abbreviation of "**F**ile **T**ransfer **P**rotocol."
Used for transferring files in networks to update telephone software, for example (→ Download Firmware).

G.711

Audio protocol for uncompressed voice transmission. Requires a bandwidth of 64 Kbps.

G.722

Audio protocol for uncompressed voice transmission. Requires a bandwidth of 64 Kbps.

G.723

Audio protocol for compressed voice transmission. The quality is poorer than → G.711 and → G.729. Requires a bandwidth of 6 Kbps.

G.729

Audio protocol for compressed voice transmission. The quality is poorer than → G.711 and better than → G.723. Requires a bandwidth of 8 Kbps.

Gatekeeper

A gatekeeper is a logical → H.323 Standard component which can be implemented as Windows or UNIX software, as a router option, as part of an → MCU or a → Gateway.

Gateway

A system (computer or board) that transfers data between different networks. Gateways coordinate different protocols as appropriate, for example, → IP network and ISDN network. A gateway can contain a → Router at the same time.

H.323 Standard

Consist of the following components (minimum):
- Terminals
- → Gateways
- → Gatekeeper
- Multipoint Control Units (→ MCUs)

HFA

Abbreviation of "**H**icom **F**eature **A**ccess" or "**H**iPath **F**eature **A**ccess." Represents the gateway-based connection (for example HG 1500 or HG 3530) between→ IP telephony and a → PBX.

HTTP

Abbreviation of "**H**yper**t**ext **T**ransfer **P**rotocol."
Protocol for transmitting data in → IP networks.

Identification Server

The HiPath system's Identification Server is used for the remote identification of telephones. The transport address (→ IP Address and port) of the Identification Server must be entered for this in the telephone. The transport address is only entered by "autodiscovery".

If an address is entered, it can only be changed into another system with "autodiscovery" or reset to the factory default.

IP

Abbreviation of "**I**nternet **P**rotocol."

IP Address

Also abbreviated to "→ IP". Unique address of a terminal in the network. It consists of four blocks of digits from 0 to 255, separated by periods. For ease of use, a → DNS can resolve spoken names into IP addresses.

IPSec

Abbreviation of **I**nternet **P**rotocol **S**ecurity.

Jitter

Delay fluctuations when transferring data in → IP networks.

KDC

Abbreviation of **K**ey **D**istribution **C**enter.

Kerberos

Kerberos is an authentication mechanism. This security system uses symmetric, cryptographic encryption procedures to provide secure authentication in TCP/IP data traffic.

The Kerberos program is used to encrypt private data and eliminates the interception or falsification of keys or data by coding the information using the DES algorithm. The private keys are stored on the Kerberos server which is responsible for generating and distributing the session key and for activating the resources.

LAN

Abbreviation of "**L**ocal **A**rea **N**etwork."

Layer 2

Layer 2 (data link layer) in the seven-layer OSI model for describing data transmission interfaces.

Layer 2 contains the so-called network access protocol in the LAN. This protocol controls the access mechanism (for example CSMA/CD in Ethernet) and MAC addressing.

Layer 3

Layer 3 (network layer) in the seven-layer OSI model for describing data transmission interfaces.

Layer 3 contains the network protocol, for example IP (Internet Protocol). This can route data packets accurately on the basis of the address. Devices that perform this task are known as routers.

LDAP

Abbreviation of "**L**ightweight **D**irectory **A**ccess **P**rotocol."
Simplified protocol for accessing standardized directory systems, for example, a company directory.

LCD

Abbreviation of "**L**iquid **C**rystal **D**isplay."
Digits, text or graphics display with liquid crystal technology.

LED

Abbreviation of "**L**ight **E**mitting **D**iode."
Cool-light lamp with low power consumption and a range of colors.

Mask

The subnet mask classifies networks as A, B, and C networks. Each class is associated with a subnet mask that hides the relevant bits. 255.0.0.0 for class A, 255.255.0.0 for class B, and 255.255.255.0 for class C. There are 254 → IP Addresss available in a class C network, for example.

MAC

Abbreviation of "**M**edium **A**ccess **C**ontrol **A**ddress."
A 48-bit address which is the unique, world-wide identification for every terminal (for example → IP telephone or network card) in a network.

MCU

An MCU (**M**ultipoint **C**ontrol **U**nit) is used to set up a conference between three or more remote subscribers. The MCU is a type of "star distributor" that interconnects the terminals ("commercial systems").

MIB

Abbreviation of "**M**anagement **I**nformation **B**ase."
Database that contains descriptions and error messages for devices and functions in a network.

MoH

The file contains the **M**usic **o**n **H**old.

Outbound Proxy

The "**outbound proxy**" is usually a SIP → Proxy. This means that you configure either a client, a telephone or software which uses this proxy server for all SIP sessions. This procedure is similar to that for configuring a proxy server for your Internet connection.

Password

For information on the default setting, please see the various optiPoint user manuals.

Password	Meaning
User Password	Protects the user-specific settings on the optiPoint phone.
Administrator Password	Protects against unauthorized access to the administration area ("Configuration" and "Diagnostic").
FTP Password	Protects against unauthorized access to the → FTP server for data transmission (for example downloading firmware).

Password	Meaning
HiPath Password	Protects the settings for communication with other HiPath devices.
SNMP Password	Protects against unauthorized access to the → SNMP server for fault evaluation.
Subscriber Password	Protects against unauthorized access to the subscriber number of the optiPoint phone.

PBX

Abbreviation of "**P**rivate **B**ranch e**X**change."
Private telephone system that connects various internal devices with the ISDN network.

PING

Abbreviation of "**P**acket **In**ternet **G**roper."
Program for testing if a connection can be set up to a defined → IP destination. In the course of a test, data is sent to the destination and then returned to the source. A message documenting the success/failure of the test is output along with additional information, where applicable, such as transmission time.

Port

Ports are used in → IP networks to permit multiple simultaneous communication connections. Services are often assigned various different port numbers for this purpose.

Proxy

A proxy server is a cache which stores information locally.

PSTN

Public **S**witched **T**elephone **N**etwork (analog telephone network or analog ports at digital network nodes including the international public telephone network).

QoS

Abbreviation of "**Q**uality **o**f **S**ervice."
Describes the subjective, perceptible quality (service) of a voice connection over → IP networks. QoS properties include the packet loss rate, packet delay, delay difference, reserved bandwidth, type of bit rate (variable, constant or unspecified) and bit rate.

RAM

Abbreviation of "**R**andom **A**ccess **M**emory."
Memory with read/write access.

ROM

Abbreviation of "**R**ead **O**nly **M**emory."
Memory with read-only access.

Router

Routers set up connections to gateways and have access to multiple subnets and other routers. A router uses the IP address to determine the subnet or router to which it should send data. It decides which path is currently the most cost-effective for data transmission.

Security

The main security requirement for an → IP phone is to ensure that the messages between the phone and → Gatekeeper cannot be tapped.

SIP

Abbreviation of "**S**ession **I**nitiation **P**rotocol."
Default protocol for initializing calls in → IP networks.

SNMP

Abbreviation of "**S**imple **N**etwork **M**anagement **P**rotocol."
The protocol is used for communication with servers that perform network management functions. This includes logging errors that occur at network components (SNMP-Trap).

SNTP

Abbreviation of "**S**imple **N**etwork **T**ime **P**rotocol."
The protocol is implemented between a network's time servers and terminals for synchronizing the time of the terminals.

Switch

Switching center in a star network, for example HiPath 4000 system.

TCP

Transmission **C**ontrol **P**rotocol is the central protocol in the Internet apart from → IP. It provides a connection-oriented, reliable, full-duplex service in the form of a data stream.

TLS

Abbreviation of **T**ransport **L**ayer **S**ecurity. Default protocol for computer authentication with certificates and encryption.

UDP

Stands for **U**ser **D**atagram **P**rotocol and can be used instead of → TCP if reliability is not an issue. UDP does not guarantee that packets will be delivered, nor does it ensure that packets will arrive in a certain order.

URI

Abbreviation of **U**niform **R**esource **I**dentifier. Content is identified in the Internet with a URI. In general, content refers to files of all possible format, for example text, HTML, XML, video, sound to name but a few. The most frequent form of URI is a URL. A typical URI describes:

- the mechanism for accessing the content (for example a protocol, such as http, ftp or file)
- the computer on which the content is located
- the specific name of the content on this computer (usually a file name)

The parts are optional which is why a file name is a (relative) URI.

URL

Abbreviation of **U**niform **R**esource **L**ocator. A URL is the address of a file that can be accessed over the Internet. The type of file is defined by the access protocol (not the file type). For example, the HTTP protocol supports HTML pages, Java applets, CGI scripts, etc. A URL consists of

- the access protocol
- a computer name (the domain)
- a specific file name

VLAN

Abbreviation of "**V**irtual **L**ocal **A**rea **N**etwork."
The division of an → IP network into autonomous administration groups (domains). One way of indicating association with a VLAN is to use a → VLAN ID.

VLAN is therefore a network structure with all the properties of a conventional LAN, but without a physical connection. The distance between stations in a LAN is limited; a VLAN, on the other hand, lets you connect even more remote nodes to a virtual local network.

VLAN ID

With switches, VLAN divisions can exceed switch boundaries. A special mechanism is provided for this. It allows you to send packets between the switches and identifies them as belonging to a specific VLAN. Every VLAN is assigned a specific VLAN ID (VID) for this.

VoIP

Abbreviation of "**V**oice **o**ver **IP**."
This means Voice transmission with → IP technology.

WAP

Abbreviation of "**W**ireless **A**pplication **P**rotocol."
Synonym for graphic applications on mobile phones, organizers and other suitable terminals, transferred using the protocol of the same name.

WSP

Abbreviation of "**W**ireless **S**ession **P**rotocol."
Protocol for transmitting data on → WAP-compliant terminals.

Administration Scenarios

Configuring an FTP Server

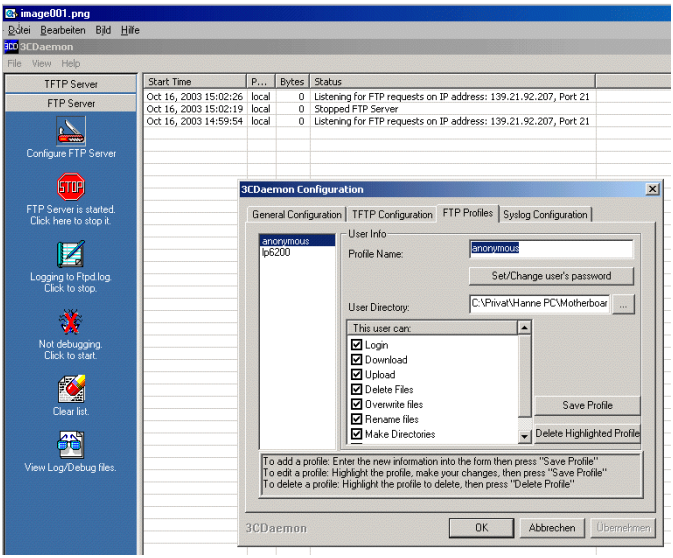
There are various ways of uploading or downloading data for the optiPoint device:

- using the telephone,
- using a Web interface in an Internet browser (for example Internet Explorer 6.0),
- using the "Deployment Tool.
  This option is recommended when programming a number of phones simultaneously.

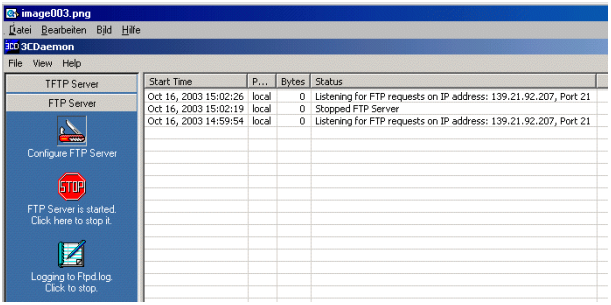
The following example describes how to configure 3Com's "3CServer" server program.

Installation and Configuration

1. Install the software ("3CDeamon" in the example, downloadable from http://www.3com.com).
2. Start the server program.
3. You can set up user profiles or permit anonymous access, as in this example. This is the simpler option. You cannot assign different rights to different users with this option, however.
   Select the menu: **File** → **Config** → **FTP configuration** and enter a directory you want to use for data exchange under **Anonymous Upload/ Download directory**.



4. Confirm with **OK**.
   The connection data appears in the program's main window as soon as data has been exchanged.



Deployment Tool with TLS

The following is an attempt to explain briefly how TLS (**T**ransport **L**ayer **S**ecurity) works and how IP phones use it. In particular, it explains the central role of certificates.

Public Key (Asymmetric) Cryptography

Two parties A and B wish to communicate with each other. Each has its own pair of public and private keys. Each public key only matches its corresponding private key, and vice versa. Each party keeps their private keys secret, while distributing their public keys to the world at large.

A wishes to send B encrypted information. A encrypts the message with B's public key. B decrypts the message with B's private key. Only B can decrypt the message, since only B has the private key which matches the public key with which the message was encrypted.

A wishes to sign a message sent to B. A signs the message by encrypting a digest of the message with A's private key. B decrypts and checks the signature using A's public key. Since only A has the private key which matches A's public key, the message must have been sent by A.

Certificates

A message can only be verified as being signed by A if the public key used to check the signature is known to belong to A. To this end, public keys are distributed as certificates, which are signed by an issuing Certificate Authority (CA). Each certificate contains :-

- the subject's distinguished name (DN), e.g. A,
- the subject's public key,
- the issuer's DN, e.g. C,
- the certificate's serial number (unique within all certificates issued by C),
- the calendar period during which the certificate is valid,
- the signature (a digest of the certificate, encrypted using the issuer's private key).

The public key held by a certificate is known to belong to the certificate's subject if the certificate's signature can be checked using the issuer's public key. The issuer's public key is obtained from the issuer's own certificate, which in turn has been issued by another CA, e.g. D. A certificate chain forms (A -> C -> D -> etc), until a CA is reached (e.g. E) who is deemed trustworthy by the user, e.g. B. B has a copy of E's certificate (possibly obtained from E directly), and uses this to validate the certificate chain ACD.

A's certificate is not that of a CA, and is termed an end-entity certificate. A CA certificate may not have a separate issuer – it may be signed with the private key corresponding to the certificate's public key – and is termed a self-signed certificate.

TLS

TLS (**T**ransport **L**ayer **S**ecurity) allows the encryption of existing protocols over TCP, and allows the two parties of a connection to validate each other's identity. For efficiency, symmetric ciphers are used to encrypt the data sent, each party using the same key to encrypt and decrypt data. The TLS handshake, performed at the start of each TLS connection, uses public key cryptography to create the symmetric cipher key shared by both parties, and to allow both parties to validate each other's identity.

The TLS client opens a TCP connection to the TLS server, and initiates the handshake by sending a Client Hello message. The server replies with a Server Hello message, containing the server's public key certificate in a certificate chain. The client authenticates the chain using its own copy of a certificate of a trusted CA, and sends a Client Key Exchange message, containing the symmetric cipher key encrypted with the server's public key. The server decrypts the cipher key, using its own private key, and replies with a Finished message, encrypted with the symmetric cipher. The client completes the handshake by returning a cipher-encrypted Finished message.

Hence, a TLS server requires key material (a public key certificate (at the end of a chain of CA certificates), and a matching private key), while a TLS client requires a trusted CA certificate, with which to validate the server's certificate chain. If the client does not wish to authenticate the server's identity, it does not require the trusted certificate.

The handshake described above details server authentication by the client. The handshake can be extended to allow the server to authenticate the client, in addition. For this, the client needs its own key material, while the server needs a trusted certificate with which to authenticate the client's certificate chain. The phone's TLS server does not perform client authentication.

Certificate File Formats

Certificates and private keys are encoded in ASN1 to PKCS standards. Using Microsoft Internet Explorer for reference, public key certificates (certificate chains and trusted certificates) are imported and exported as binary (.cer) files, base64 (.cer) files and PKCS#7 (.p7b) files. The binary format contains a single ASN1-encoded certificate. The base64 format contains the same binary data, translated into base64-encoding (i.e. translated into ASCII), with "begin certificate" / "end certificate" guards, i.e. PEM format. The base64 format can contain multiple certificates, by concatenating separate base64 files together. The binary PKCS#7 files contain multiple ASN1-encoded certificates, with additional ASN1 encoding.

Key material is imported and exported as binary PKCS#12 (.pfx or .p12) files, containing multiple ASN1-encoded certificates, and ASN1-encoded private keys. PKCS#12 supports password encryption of its contents, which is necessary for securing the private keys.

Use of TLS by an IP Phone

An IP Phone contains both a TLS server and a TLS client. The TLS server is used with the phone's webserver and the phone's XML management interface. The TLS client is used with the phone's telephony client. (The PC's telephony server contains a TLS server, while the PC's web client and XML management client are TLS clients). As discussed above, a TLS server requires its own key material (private key and public key certificate chain). A TLS client does not require certificates, if server authentication is not required.

Key material is hard-coded into the phone software to allow the phone's TLS server to work by default. The default key material has a two certificate chain consisting of the end-entity certificate and a self-signed CA certificate. Since the certificate chain is transported to the client during the TLS handshake, the client can decide to trust the self-signed certificate, and store it locally for subsequent authentication of other phones, if the client software permits. Key material does not normally include the trusted certificate: the phone's default key material does, as a means of distributing it.

By default, the phone's TLS client is configured not to perform server authentication, and has no default trusted certificate.

For improved security, the user can transfer their own server key material and client trusted certificates to the phone, using the XML management interface. The phone will use the new key material and trusted certificates, in preference to the defaults. If the user supplies client trusted certificates, the phone's TLS client will perform server authentication, which must be successful to establish a TLS connection.

The key material is transferred in a single file, containing a private key and matching public key certificate chain. The trusted certificates are transferred in a separate, single file, as an aggregate, not a chain. The phone supports only one server key material file and one client trusted certificates file. The XML management interface allows the user to read back the files, and delete them from the phone. The files are transferred over XML in unencrypted PKCS#12 format.

Instructions for using the Deployment Tool with TLS

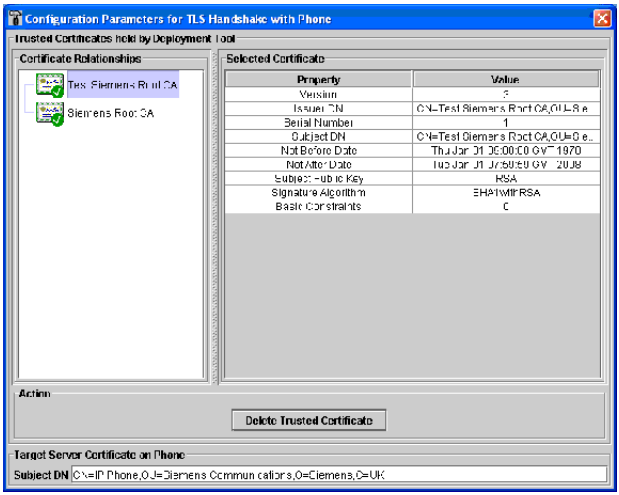
The Deployment Tool is a PC application for configuring batches of IP Phones using the XML management interface.

Operating the XML Management Interface over TLS

The Deployment Tool is a TLS client, and authenticates the identity of the TLS servers on the phones it configures. For this, it requires a subject DN and a trusted CA certificate to validate the certificate chains received from the phones during the TLS handshake. Once this is specified, no further action is required to configure either TLS or non-TLS phones. The Tool itself determines whether or not to use TLS from the type of phone being configured.

Configuring the Deployment Tool for TLS

Press the button denoted by the Certificate Icon  on the Operations Pane to view the TLS Configuration Dialogue.



The left-side of the dialogue shows a list of the various trusted CA certificates held by the Deployment Tool to authenticate phones.

The icon  denotes a trusted certificate, while the icon  denotes a certificate which is invalid because today's date is outside of its valid calendar period. The right-side of the dialogue shows the details of the currently selected certificate. Any of these certificates can be used to authenticate phones. For security, the Deployment Tool controls the addition of new trusted certificates to the list. Certificates can be readily deleted from the list by pressing the "Delete Certificate" button, towards the bottom of the dialogue. This removes the currently selected certificate from the list.

The bottom of the dialogue shows the subject DN expected in the end-entity certificates received from the target phones.

The same DN is used by the Deployment Tool when configuring a batch of phones, so the name is not likely to be specific to any individual phone. The name is a sequence of identifiers, separated by commas. The identifiers can be in any order. Whitespace is ignored. The subject DN should not have a null value.

Exiting the dialogue prompts the user to save or undo the changes made to the list of trusted certificates or the subject DN. The trusted certificates and subject DN are held in files on the PC's hard-disk.

Installing the Deployment Tool

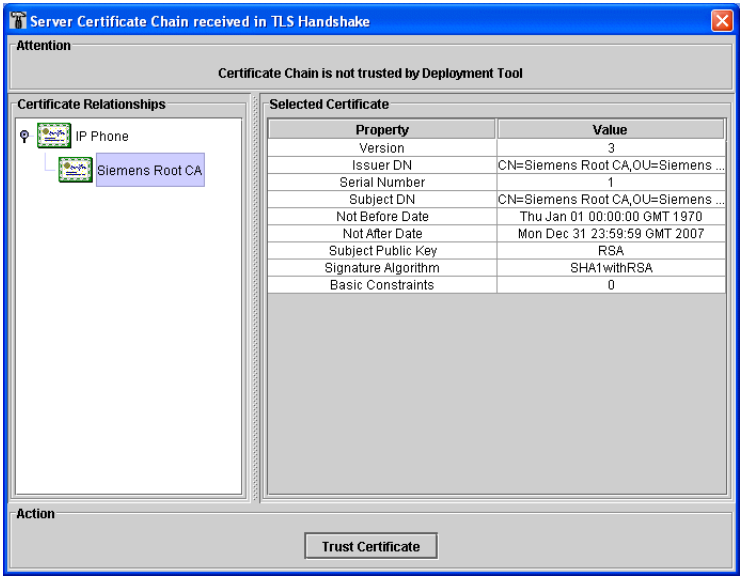
After a first installation, the Deployment Tool will automatically be configured with trusted certificates and a subject DN that match the phone's default key material. No configuration should be necessary until the phone's key material is changed, by transferring new key material over the XML management interface.

On reinstalling the Deployment Tool over an existing installation, the user is prompted whether or not to replace the file ".keystore." This is the list of CA certificates trusted by the Tool. The user can retain any changes made to the list, or revert to the default list.

If the user wishes to revert to the default subject DN, delete the line "TargetSubjectDN=…" from the file "DeploymentTool.props" in the Tool's installation directory.

TLS Handshake Failure

If the TLS handshake to a phone fails because the certificate chain received by the phone cannot be validated, the Operations Pane automatically presents diagnostic information in the Handshake Failure Dialogue.



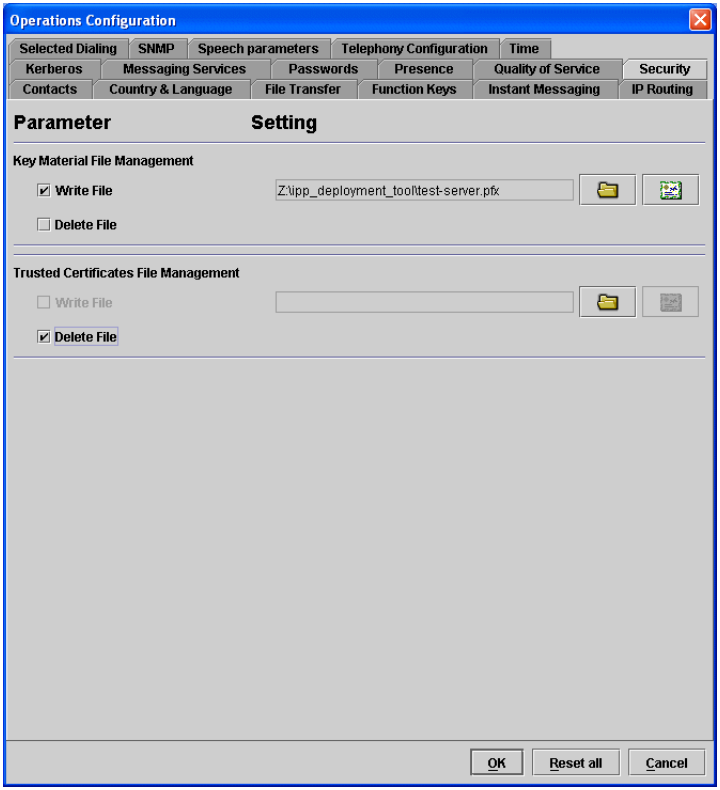
The left-side of the dialogue shows the certificates received from the phone. For validation, the Tool attempts to form a chain from these certificates. The resulting chain, if any, is shown at the top of the left-side.
A list of additional certificates, which were received but could not be fitted into the chain, is shown underneath. The right-side of the dialogue shows the details of the currently-selected certificate.

At the top of the dialogue, an error message informs the user of one of two scenarios:

- The Tool was unable to find a suitable end-entity certificate. This may mean that the received certificates were all CA certificates. However, most likely, the configured target subject DN did not match the subject DN of the received end-entity certificate. If so, the user can reconfigure the target subject DN, as described above, and try again.
- The Tool does not trust the received chain. This means that none of the certificates in the chain were issued by any of the Tool's trusted certificates. If the received chain contains CA certificates, the user can decide to trust the highest CA certificate by selecting it, and pressing the "Trust Certificate" button at the bottom of the dialogue. The certificate will be added to the Tool's list of trusted certificates, and the user can try again.

Transferring Certificates to Phones

The Phone Configuration Security Panel, accessed through the Operations Pane, allows the user to transfer a file of server key material and a file of client trusted certificates to a phone, and to delete these files from a phone.



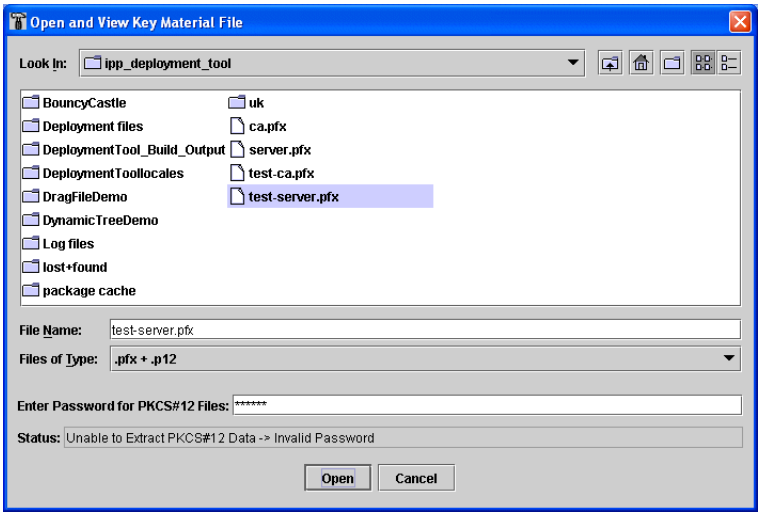
To select a file for writing, the user must first load the file into the Tool. Do this by pressing the button denoted by the Open File Icon, and selecting the file. Once loaded, the pathname of the selected file is shown in the Security Pane, and the file's contents can be displayed by pressing the button denoted by the Certificate Icon. Viewing the file's contents before transfer allows the user to avoid potential problems.

The Tool stores the pathname of the most recently loaded file on the PC's hard-disk. On subsequent executions of the Tool, the pathname is retrieved if the file still exists. However, the file itself is not automatically loaded by the Tool. If the user wishes to transfer the file again, they must first load it through the Security Panel, as before. This simplifies the user interface in the event of a faulty file.

A user can select write or delete operations on both server and client files. To avoid confusion, a user cannot select both write and delete operations on the same file.

Selecting a File for Transfer

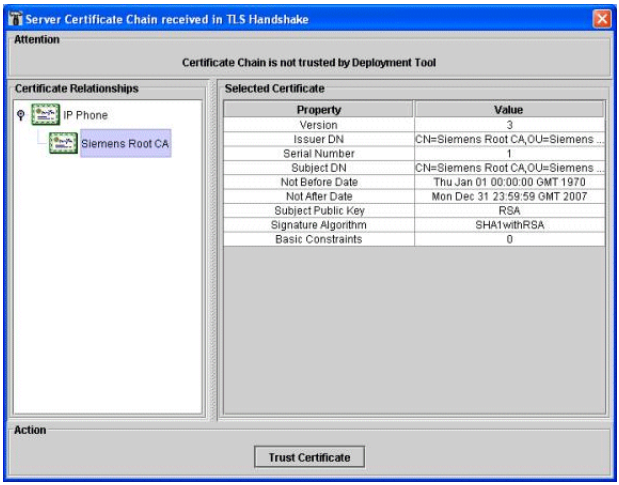
Pressing the Open File Button displays the Select File Dialogue.



Browse to the required file and press the "Open" button. PKCS#12 files require a password, which is entered towards the bottom of the dialogue. Diagnostic messages relating to failure to open a file are displayed at the bottom of the dialogue.

Transferring a Server Key Material File

Pressing the View Certificates Button on a server key material file displays the Key Material File Dialogue.



The certificates contained in the file are shown on the left-side of the dialogue. The details of the currently selected certificate are shown on the right-side.

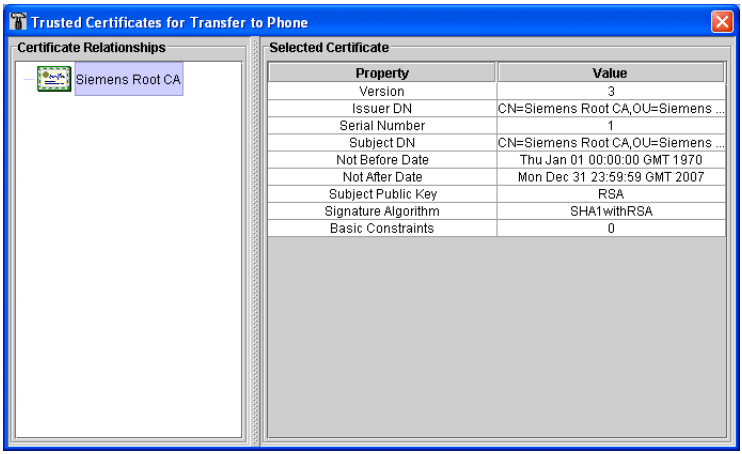
After the key material has been transferred to the phone, it will be used by the phone to establish its next TLS connection to the Tool. To assist in avoiding potential problems, the Tool attempts to build and validate a certificate chain from the file's contents. The resulting chain, if any, is displayed at the top of the left-side of the dialogue. If the Tool was able to validate the chain, the relevant trusted certificate, denoted by the Trusted Certificate Icon, is shown at the end of the chain. Note that this certificate is not present in the file itself, but resides in the Tool's list of trusted certificates. Any additional certificates, which were present in the file but not used in the chain, are listed below.

If the Tool fails to build and validate a chain, an error message informs the user of one of two scenarios:

- The Tool was unable to find a suitable end-entity certificate. This may mean that the certificates are all CA certificates. The Tool does not search for a particular end-entity subject DN.
- The Tool does not trust the chain. This means that none of the certificates in the chain were issued by any of the Tool's trusted certificates. If the chain contains CA certificates, the user can decide to trust the highest CA certificate by selecting it, and pressing the "Trust Certificate" button at the bottom of the dialogue. The certificate will be added to the Tool's list of trusted certificates, while still remaining in the file.

Transferring a Client Trusted Certificates File

Pressing the View Certificates Button on a client trusted certificates file displays the Trusted Certificates File Dialogue.



The certificates contained in the file are shown listed on the left-side of the dialogue. The details of the currently selected certificate are shown on the right-side.

Client trusted certificates transferred to the phone are not used by the TLS connection between phone and Tool.

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The information provided in this document contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products.
An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

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Ref. No.: A31003-A2056-A105-63-76A9

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Printed in the Federal Republic of Germany.
01.10.04