OpenScape CAP V3

CAP TAPI Service Provider

Service Documentation
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Mitel

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1 Preface

1.1 CAP TAPI Service Provider

OpenScape CAP is a software platform for Computer Telephony Integration (CTI) on telecommunications (TC) systems. CTI client applications can be connected via the CAP TAPI Service Provider. OpenScape CAP TAPI Service Provider supports all PABXs addressable via OpenScape CAP.

The OpenScape CAP system provides access to the PABX functionality via interfaces and thus enables its use in any CTI applications.

1.2 Information on the program

The documentation is available in German and English and is stored in the directory `<InstDir>\Documentation\`.

- **InstallationProvider.pdf**

  The file called `InstallationProvider.pdf` contains this manual. It contains the installation instructions for CAP TAPI Service Provider.

- **Installation manual in the form of HTML pages**

  The file called `InstallationProvider.htm` is the first page of the documentation in HTML format and can be read with a Web browser.

- **Release notes**
  The `tapiReadme.txt` file contains important information on short-term product changes. The file is stored in the installation directory `<InstDir>`.

1.3 About this manual

This manual is primarily intended for the OpenScape CTI administrator and not for end users.

1.3.1 Layout of the manual

Chapter 2 provides an overview of the OpenScape CAP client/server architecture.

Chapter 3 outlines the system requirements.

Chapter 4 describes how to install and uninstall the CAP TAPI Service Provider.

Chapter 5 shows you how to make additional settings.

Chapter 6 explains how to log on to the CAP TAPI Service Provider.

Chapter 7 lists possible errors and describes how to resolve them..

1.3.2 Labels and symbols used

`Plain text`	Texts from the described files and texts that you enter into them are shown in **`bold courier`** font.
... the password **123456** ...	Main body text that is **especially important** or should be **noted** is indicated in bold print. **Buttons** and **menus** are also shown in bold
... File `global.cfg...`	`Files` or `directories` are shown using the `courier` font.
<*Wildcard*>	Entries or output that may vary according to the situation are shown within angle brackets.

> This symbol indicates notes or recommendations.

7 This symbol indicates important information that you must read.

1.3.3 Additional information

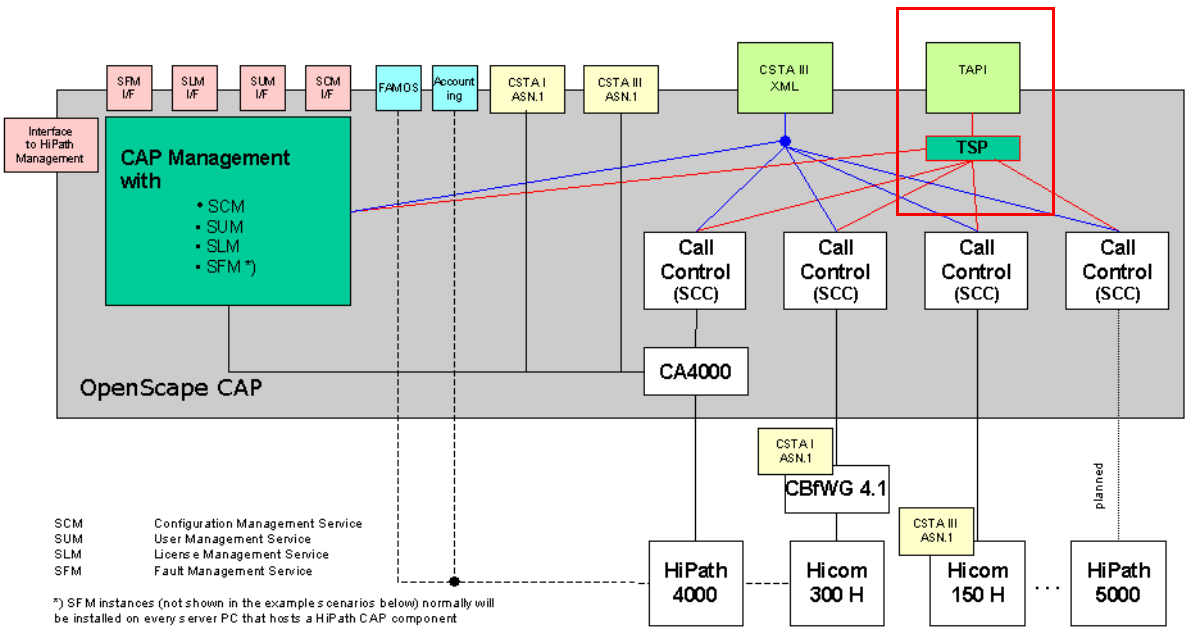
? OpenScape CAP Installation and Administration Manual

2 System overview

The OpenScape CAP system is a software platform for Computer Telephony Integration (CTI) on telecommunications (TC) systems. CTI client applications can be connected via the CAP TAPI Service Provider. The OpenScape CAP system provides access to the PABX functionality via interfaces and thus enables its use in any CTI applications.

2.1 OpenScape CAP client/server architecture

The OpenScape CAP system is based on a client/server architecture. This architecture provides for the implementation of third-party CTI solutions. CAP Call Control Service establishes the connection to the telecommunications system and makes user interfaces available both on the CTI server and on CTI clients.



The overall architecture comprises three components:

- PABX
- CTI server based on CSTA
- CTI client based on Microsoft TAPI

The PABXs supported by the OpenScape CAP system differ primarily in the range of telephone functionality available with CSTA and the type of physical connection between the PABX and the CTI server.

The OpenScape CAP system itself comprises the CAP Management server component, CAP Call Control Service and the client component, CAP TAPI Service Provider. The installation routine differs for each of the components.

Multiple PABXs can be managed in a cluster of CAP Call Control Services (one service per PABX).

CAP Call Control Service operates in conjunction with CAP Management, which facilitates the administration of the individual servers. Furthermore, CAP Management offers password protection for all telephone numbers.

Connection setup between the CAP TAPI Service Provider and the CAP Call Control Service is performed indirectly via CAP Management. CAP Management performs authentication using a password and establishes the CAP Call Control Servers responsible for a particular line. This means that reconfiguration on the PABXs is transparent for the CAP TAPI Service Provider and the client applications on the basis of this service provider.

If telephone numbers are switched from one PABX to another – meaning that another CAP Call Control Server (with a different IP address/port number) assumes responsibility – only the relevant configuration in CAP Management needs to be adapted.
On the other hand, there is no need for configuration of client applications in the OpenScape CAP system. This means that IP addresses of clients can change at will, for example through dynamic assignment with DHCP. CAP Call Control Service then dynamically reassigns the client and CAP Management with each new login.

3 System requirements

3.1 Software requirements

- The CAP TAPI Service Provider requires Microsoft TAPI 2.0/ 2.1/ 2.2/ 3.0/ 3.1 for Windos 2003 (SP2), Windows 2008 and Windows 7. Please note that 64 bit systems are supported from CAP3.0 SMR12.030.
- The CAP TAPI Service Provider may be used in a Windows Terminal Server environment as well.

3.2 Hardware requirements

Depending on the performance and space requirements of the telephone application to be used with the CAP TAPI Service Provider, the following minimum requirements must be met:

- Pentium processor,
- 1 GB RAM,
- 3 MB free hard disk capacity.

4 Installation

There is only one type of CAP TAPI Service Provider offered for all supported PABXs. Only a single installation is required even if several different PABXs are to be used by the CAP TAPI Service Provider.

The installation of the CAP TAPI Service Provider on a system running Windows 7, Windows 2008 or Windows 2003 is described below.

4.1 Starting the installation

Start the installation routine by running the `setupTapi.exe` program in the associated directory for the CAP TAPI Service Provider on the installation CD.

Follow the installation instructions.

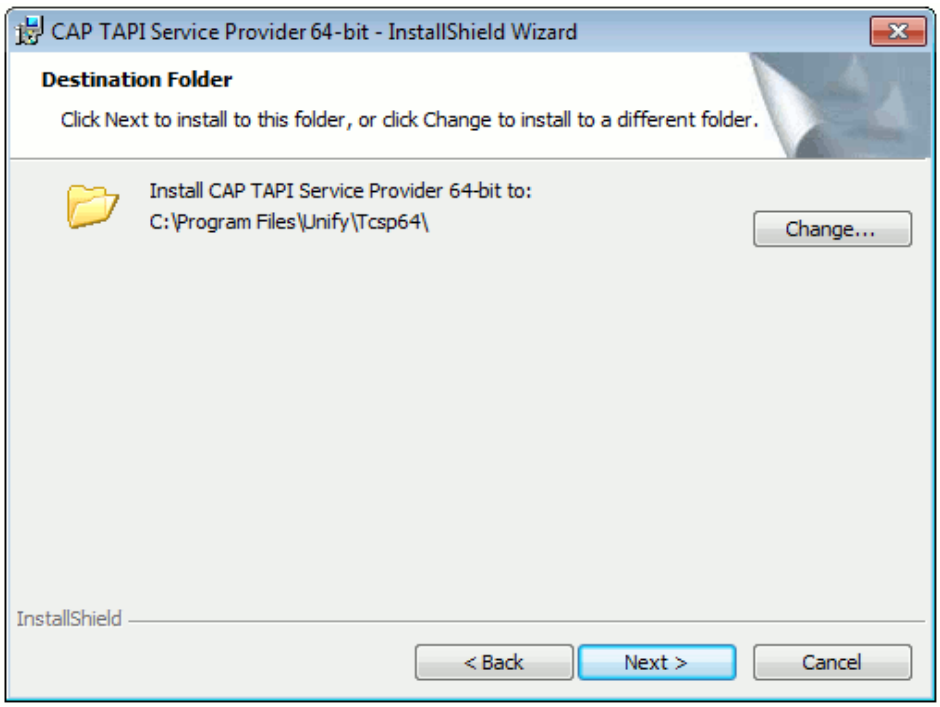
After installation, the computer must be restarted to start the Service Provider.

Remark: If desired an unattended or completely silent install can be invoked, see below.

Under Windows 7 please take care to start the command shell with “run as administrator”.

4.1.1 Defining the destination folder

The *Choose Destination Location* mask opens after selecting the installation language and after the welcome screen:



This is where the documentation, utilities and the uninstall program are installed.

? Select the required installation directory.

The default directory is
`Program Files\Unify\Tcsp` or `Program Files\Unify\Tcsp64` for 32 and 64 bit packages adequately.

The destination directory will be referred to below as *<InstDir>*.

Click **Browse...** to specify a different destination directory.

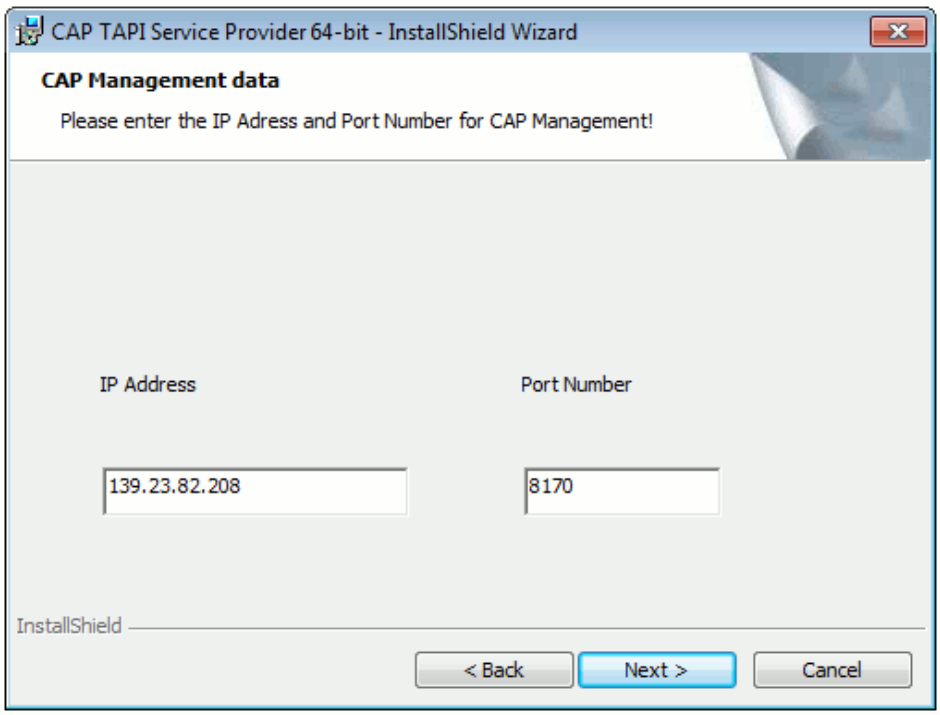
> If you specified a different path, please note that the last portion of the path information (`Tcsp`) will be automatically inserted.

4.1.2 Configuring the CAP Management IP addresses and port numbers

The CAP TAPI Service Provider communicates with CAP Management, which, in most installations, runs on a different computer.

CAP Management supplies the Service Provider with the IP address and port number of the CAP Call Control Service responsible for a line number.

The *Configuration CAP Management IP Address and Port Number* mask opens during installation:



1. Enter the IP address and port number of the computer on which CAP Management is running.

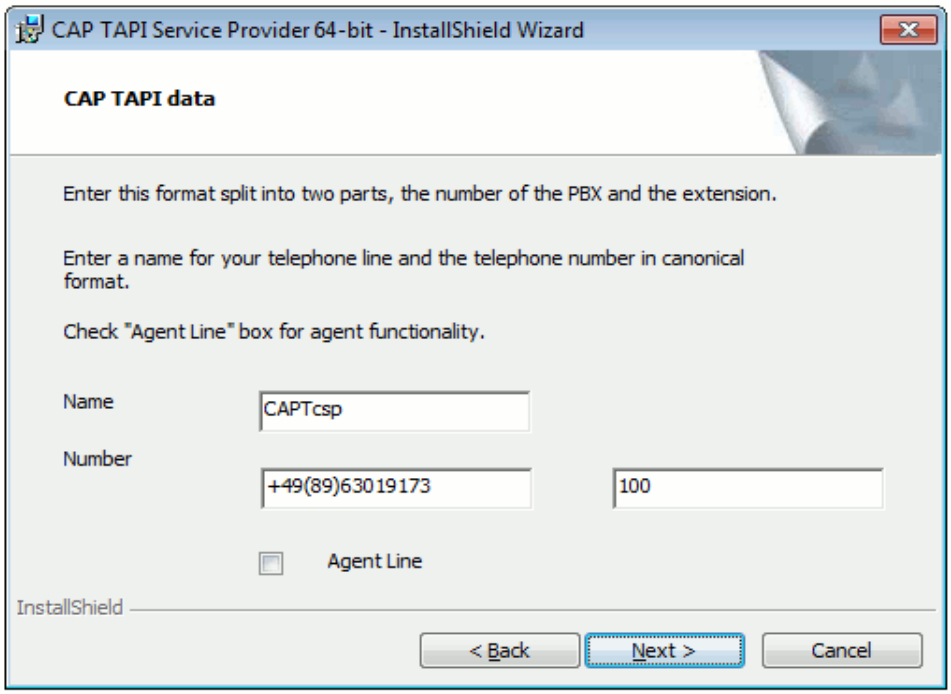
   Replace the IP address 127.0.0.1 (Localhost) with the IP address of the CAP Management server. Port 8170 is set by default and should only be changed if this default value was changed during CAP Management installation.

2. Confirm your inputs by clicking **Next.**

   The *Configuration CAP IP Tcsp Line Name and Line Number* mask opens.

4.1.3 Configuring the line name and number

Enter the logical name of the telephone line to be managed by the CAP TAPI Service Provider. The line number is the number of the telephone device to be managed. The logical line name uniquely identifies both the CAP TAPI Service Provider and the telephone device.



Since CAP Management can be used to manage multiple PABXs which may have overlapping number ranges, the line name must be specified in canonical format.

1. Enter the following in the first number field in the sequence specified:
   - Country code: e. g. +49 for Germany
   - Local area code without 0 in brackets: e. g. (89) for Munich
   - Number for accessing the PABX: e. g. 722

> In cases where the PABX is connected via an ISDN MSN (Multiple Subscriber Number) connection, i.e. without a system number, you will need to enter one of the MSN numbers in the first field.

2. Enter the extension in the second number field.
3. Confirm your inputs by clicking **Next.**

To use the agent functionality, check the **Agent line** box. This functionality is only available if an ACD was set up on the PABX.

4.1.4 Using the CAP TAPI Service Provider

Following installation, the CAP TAPI Service Provider can basically be used to make phone calls from any TAPI client application, though preferably with SimplyPhone for Outlook and SimplyPhone for Notes, but also with the dialing aids of Windows and Outlook.

> You have to enter a password to start the application (for further information, see Section 6.1, "Entering and changing the password").

4.2 Results of the installation

4.2.1 Installed files

The installation routine copies the CAP TAPI Service Provider to the system directory and the documentation, the utilities and the uninstall program to the destination folder *<InstDir>*.

Files installed in the Windows system directory
(e. g. **c:\Windows\System32)**:

- **Telastcsp.tsp**

  The CAP TAPI Service Provider.
- **TelasACDProxy.exe**

  The ACD proxy for the CAP TAPI Service Provider in accordance with the Microsoft architecture for ACD functionality

Files installed in the destination folder <InstDir>:

- **PurgeProviders.exe**

  This program can be used to correct any incorrect numbering of the TAPI Service Provider in the registry so that the Provider is numbered consecutively again following execution.
- **RemoveTCSP.exe**

  Program for CAP TAPI Service Provider uninstallation.
- **tapiReadme.txt**

  Last minute information that could no longer be included in the other documentation.
- **InstallationProvider.doc and InstallationProvider.pdf**

  This document.

- **Documentation\SupportedTapiFunctions.pdf**

  Documentation of TAPI functions supported by the CAP TAPI Service Provider in conjunction with one of the supported PABXs.

- **Documentation\de**

  German manual in PDF and HTML format.

- **Documentation\en**

  English manual in PDF and HTML format.

4.2.2 Registry Entries

Values for the following registry entries will be queried during installation or read from the `SetupTapi.ini` file and entered under `HKEY_LOCAL_MACHINE\SOFTWARE\Unify\Tcsp` key:

`server <IP address>[:<port number>]`

IP address and port number of the CAP Management server in the format `<IP address>[:<port number>]`. The default port number is **`8170`**.

If `admin=`**`0`**, the IP address and port number are interpreted as the IP address of the CAP Call Control Server and the port number of the TAPI port.

`admin` **`<0|1>`**

The registry key `admin` and the key `securityEnabled` in the CAP Call Control Service (`Telas.cfg`) configuration file must have the same value, i. e. either both **`0`** or both **`1`**.

If `admin=`**`1`**, the CAP TAPI Service Provider prompts the CAP Management for the CAP Call Control Service responsible for the respective line. It then sets up a connection to CAP Call Control Service with password protection.

If `admin=`**`0`**, the CAP TAPI Service Provider sets up a direct connection to CAP Call Control Service without password protection.

`tcspDebugLevel` **`<0-9>`**

Level for CAP TAPI Service Provider debug outputs (default: 0). At level 9, all outputs are generated.

`implLogin` **`<0|1>`**

Implicit login is a mechanism in which a password is requested for a line when logging on for the first time. This password is then stored and reused at the next login. The password is then only requested again when it has expired.
The length of password validity can be set via CAP Management.

To disable implicit login, set this option to 0. If it is not available, the default value 1 is assumed.

Please refer to Section 6.2 for more detailed information on the implicit login feature.

line**0**

Configuration of the monitored line comprising <line name>, <line number>, <IP address of CAP Management server>, <port number of CAP Management-server> where admin=**1** or <IP address of CAP Call Control Server>, <port number of TAPI port> where admin=**0** and possibly [:agent], if the agent functionality was configured for the line. It is then opened by TelasACDProxy as an agent line. The entries for line**0** are requested during installation and can subsequently be modified by using the telephony icon in the Control Panel (please refer to Chapter 5 for more detailed information). You can define defaults for these values in the SetupTapi.ini installation file.

line**<i>, i > 0**

You can define further logical lines with new names either by reinstalling the CAP TAPI Service Provider or by using the telephony icon in the Control Panel (please refer to Chapter 5 for more detailed information).

numLines

Number of CAP TAPI Service Provider lines configured.

BaseDeviceID

The BaseDeviceID defines the absolute TAPI offset of the CAP TAPI Service Provider lines. TAPI distributes a DeviceID for each line. If multiple TAPI Service Providers (TSP) are installed, then all configured TAPI lines are numbered in the order of the TSPs. If the CAP TAPI Service Provider is installed at the second position, and another TSP has already defined 2 lines, then the value of BaseDeviceID is 2. This value is automatically set by the CAP TAPI Service Provider in the initialization phase. It is evaluated by the ACD server on opening the SCD lines.

Further options may be generated in the registry for the following purposes:

logger **<IP address>**

The IP address of the host that is running the logger for the CAP TAPI Service Provider can be specified here. The port is not configurable and is set to the value 7998. In order for the logger to generate output, tcspDebugLevel must be set to 9.
In this case, **0** means off and **9** means on.

FileLog **<file name>**

A file for the output of debugging information is specified here, e. g. c:temp\CapTcsp.log. If this key is set, logging occurs only in the file, but not in the window of the logger.

CTSPUIFileLog **<file name>**

Similar to the FileLog, this entry describes the CTSPUIDaemon log file location.

One entry exists per defined line in `HKEY_CURRENT_USER\Software\Unify\Tcsp\passwords`. The canonical line number is used as the name. This is where the password for implicit login is stored. On Windows 7 this entry is under `HKEY_USERS\S-1-5-20\Software\Unify\Tcsp\Passwords` and appears only after a login attempt.

The path of the `TelasACDProxy.exe` program is registered in the registry under `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run` in the `TelasACDProxy` key. This entry causes TelasACDProxy to be automatically started on powering up the machine.

4.3 Defaults in the SetupTapi.ini file

The administrator can use entries in the `SetupTapi.ini` file to predefine values for the input fields in the dialog windows offered during the installation. Default settings which are valid at a specific site can thus be entered. The user only has to call up the installation and the defaults are applied.

In fact, the administrator can also implement a practically non-interactive installation, where users only have to specify their extension numbers. All other values can be defined in the `SetupTapi.ini` file, which means that the dialog windows for these entries do not have to be opened.

In order to change the entries in the `SetupTapi.ini` file, you have to copy the installation directory from the installation medium (CD) to an editable medium (e.g. Share).

The `SetupTapi.ini` file is assigned the configuration given below. All keys are deactivated (lines beginning with ";" are treated as comments). In order to activate a key, first remove the semicolon at the beginning of the line and assign the required value.

The following keys are available:

`dialog` **`<0|1>`**`, default=`**`1`**

The installation is (almost) non-interactive with `dialog=`**`0`**. Only the extension number needs to be entered during installation.

`targetDir` **`<directory>`**

Directory in which the CAP TAPI Service Provider is to be installed. If this key does not contain any values, the default directory `\Programme\Unify\Tcsp` or `\Program Files\Unify\Tcsp` is used, depending on whether the German or English language version is chosen.

`serverAddress <IP address>`

IP address of the CAP Call Control Server (if `admin=`**`0`**) or IP address of the CAP Management server (if `admin=`**`1`**).

`serverPort` **<port number>**

Port number of the TAPI port of the CAP Call Control Server (if `admin=`**0**) or port number of the CAP Management server (if `admin=`**1**).

`admin` **<0 | 1>**

Administration and security with CAP Management are activated with `admin =`**1** and de-activated with `admin=`**0**.

`lineName` **<name>**

Logical line name

`linePrefix` **<number>**

Prefix of canonical number for extension.

`lineNumber` **<number>**

Number of telephone device

`agent` **<0 | 1>**`, default=`**0**

If `agent=`**1**, line is configured as an agent line; if `agent=`**0**, line is configured as a line without agent functionality

`tcspDebugLevel` **<0-9>**

Debug level of the CAP TAPI Service Provider, values **0-9**

4.4 Uninstallation

The normal method is to choose **Start Control Panel** | **Add/Remove Programs** or **Control Panel | Programs and Features**. Select the entry for **CAP TAPI Service Provider** from the list and choose “Uninstall”.

From command line the command

```
setupTapi.exe /s /v"UNINSTALL_TAPI=Yes"
```

must be run.

All installed files and the installation directory are deleted.The key `HKEY_LOCAL_MACHINE\SOFTWARE\Unify\tcsp` is deleted from the registry.

4.5 Silent / Unattended Installation / Uninstallation

There is a way to install the CAP TAPI Service Provider without any user interaction. To do so set up the SetupTapi.ini file for the required installation (important to set the dialog to 0). After this launch a commandline window with administrator rights and execute the following command:

```
setupTapi.exe /s /qr
```

This command will invoke an unattended install: it requires no user interaction but windows may appear.

Completely silent installation can be invoked with

```
setupTapi.exe /s /v" /qn"
```

Silent uninstallation is also possible by executing the following command with administrator rights for the reduced (no interaction) and completely silent uninstall:

```
setupTapi.exe /s /v" /qr UNINSTALL_TAPI=Yes"
```

```
setupTapi.exe /s /v" /qn UNINSTALL_TAPI=Yes"
```

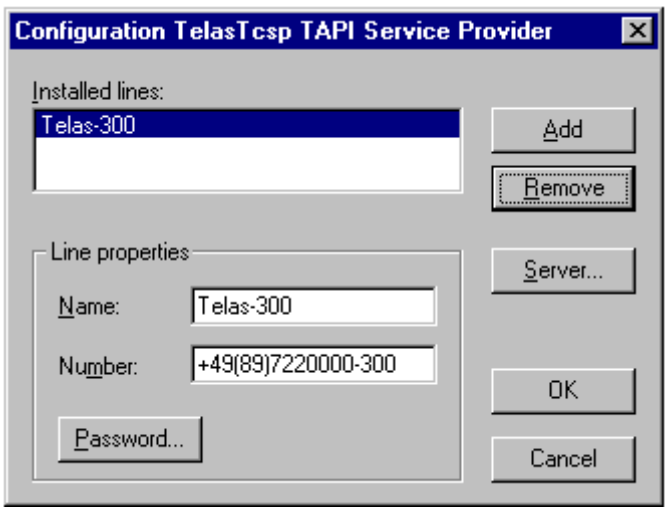
5 Making additional settings

5.1 Configuration of CAP TAPI Service Provider

When you install the CAP TAPI Service Provider, all information required for line configuration is requested via prompts and entered in the registry.
Following installation, further settings can be made for the CAP TAPI Service Provider, or existing settings can be changed.

1. Open the **Phone and Modem Options** window via **Start** → **Settings** → **Control Panel**.
2. Select the entry **CAP TAPI Service Provider** from the list of providers displayed.

   The latest information for the configured line(s) is displayed.



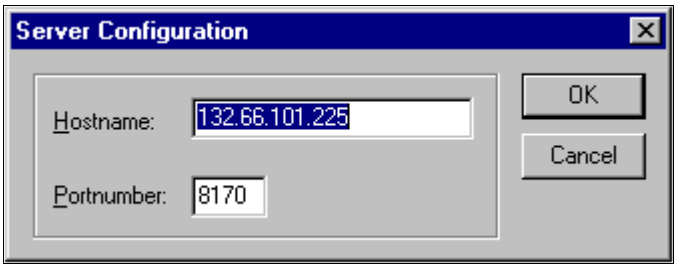
   Use **Add** and **Remove** to install additional lines or delete existing lines. Mark an entry in the **Installed lines** list box to display the associated information in the **Line properties** selection area where it can be edited.
   You can change the line name and number here.

   Click **Password...**

The *Change Password* mask opens:

> If the CAP TAPI Service Provider is activated for the first time when a CTI application is first started, the user is requested to change the default password.

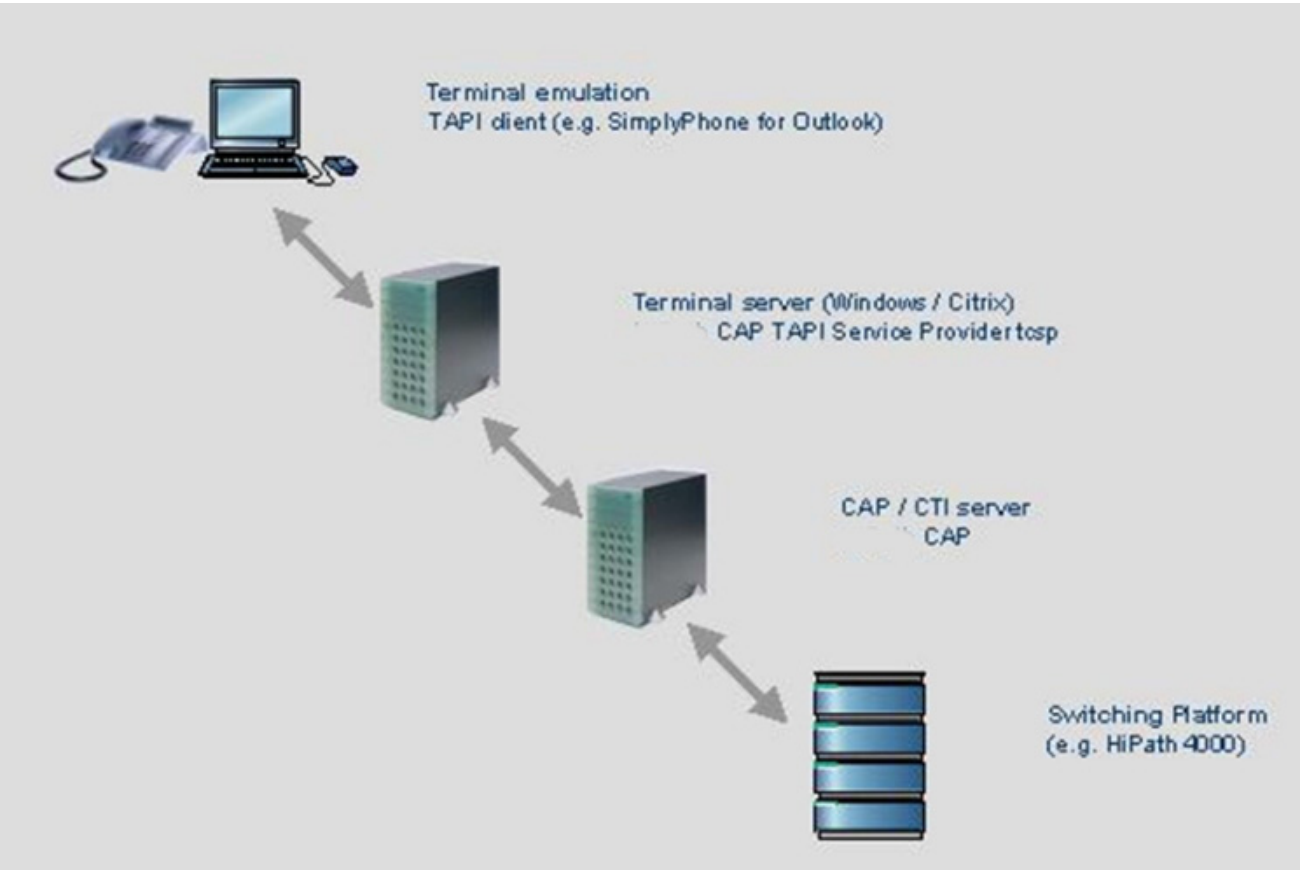
Choose the **Server...** button in the *Configuration CAP TAPI Service Provider* dialog window to open *Server Configuration:*



Here is where you can change the IP address and port number of the CAP Management server.

5.2 Configuration for Terminal Server

This is meant to support setting up a terminal server environment for use of the OpenScape Common Application Platform TAPI Service Provider (CAP tcsp) as depicted below.



That CAP components except for the tcsp will be configured as "normal" on the CAP server.

To allow for CAP tcsp to be operated on a terminal server or Citrix platform, it must be configured for "implicit" password authentication, which means that no password needs to be entered by the user on the TAPI client. Otherwise, due to technical limitations a password panel would pop up running in a service context which does not allow user interaction for the login user. If the password dialog would be active, it would show up on the local server console.

CAVEAT
This configuration allows for opening lines from TAPI clients without any limitation. This must be acceptable for the customer / solution provider; it may be acceptable especially in case that additional measures for counting licenses / handling access rights are taken on the client level.

In order to enable "implicit login" without first password input, configuration on both server (CAP server) and client (terminal server) sides is required. For more information about how to configure for this type of setup please check the “Implicit login” section.

5.3 Operational Environment for the CAP TAPI Service Provider

For correct operation of CAP TAPI Service Provider (TCSP) it is indispensable for exchange of password requests to have the Windows Telephony Service configured appropriately on the respective client machines. This configuration usually is done during TCSP installation by setting a registry key.

We have observed customer installations on Windows 2000 clients where this setting was modified by some effects external to CAP, which prevents the Password popup dialog from being displayed, leaving the TCSP installation unusable as soon as a password dialog is required.

Repairing the configuration usually can be done via the Windows GUI

Start

-> Settings

-> Control Panel

-> Administrative Tools

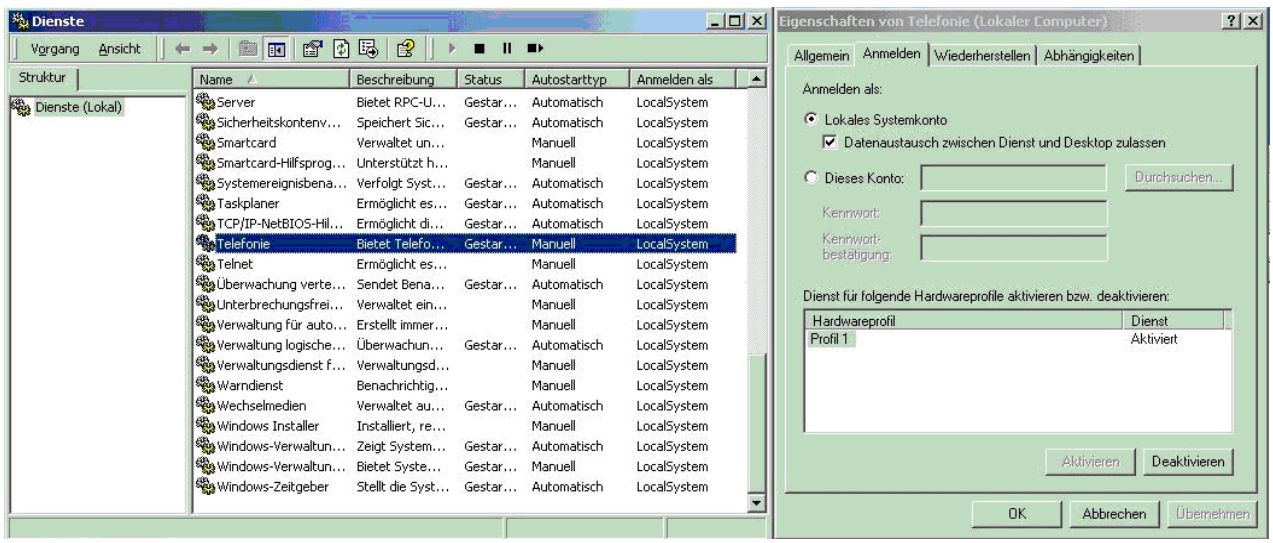
-> Services

-> Telephony

context menu "properties", register "log on", select "local system account"

-> "allow user interaction with desktop"

as shown in the subsequent diagram (may vary for different OS versions, shown for German GUI)



Based on this selection, the registry key

`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TapiSrv\Type`

is set to 0x00000110 / decimal 272 ("A Win32 program that runs in a process by itself and that can interact with users")

In the cases reported, the key was modified to 0x00000120 / decimal 288 ("A Win32 program that shares a process and that can interact with users"); it seems that due to some Windows peculiarities this setting cannot be corrected back to 0x00000110 / decimal 272 via the GUI.

Under these circumstances, only a direct correction in the registry is reasonable. For that purpose, please copy the subsequent lines

```
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TapiSrv]
"Type"=dword:00000110
```

to a text file, save it as tcspCorrectRegistry.reg (or similar) and execute it on the client machine. Alternatively, the local Windows administrator might want to create a logon script to have the registry value reset on every logon.

5.4 Windows Dialer specialities

For TAPI to be used with the Windows Dialer an additional registry entry needs to be added manually on the client machine.

Add a new entry named “ForcedVersion” to

HKEY_LOCAL_MACHINE\SOFTWARE\Unify\Tcsp

This registry entry has to be a DWORD type, where the value is the API version multiplied by ten. For example to set TSPI version '2.0' use decimal '20', to set '3.1' use decimal '31'.

After this the CAPTcsp line can be selected for the dialer.

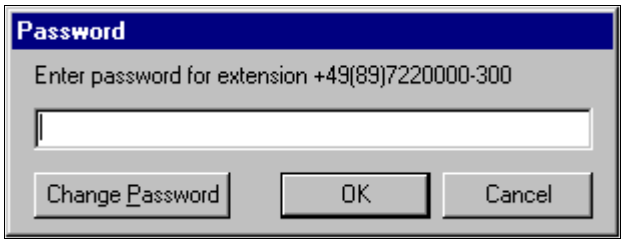
6 Login

6.1 Entering and changing the password

The CAP TAPI Service Provider automatically activates whenever you start a CTI application.

The CAP TAPI Service Provider requires a password in order to open a line.

The *Password* mask opens for password entry:



1. Click **Change Password**.

   The *Change Password* mask opens:

2. Define a new password.

> You can enter a random string of characters or digits or a mixture of both for a password.

3. Confirm your inputs with **OK**.

6.2 Implicit login

If implicit login is enabled in the registry (`implLogin 1`), the password is entered into the registry after it is entered correctly for the first time or after it has been changed. Whenever a password is required, the CAP TAPI Service Provider then reads it directly from the registry, so the password does not have to be reentered each time.

You can, however, also define a setting so that the password has to be reentered every time.

You can enable and disable implicit login in the registry via the following keys: `HKEY_LOCAL_MACHINE\SOFTWARE\Unify\Tcsp\ImplLogin=<1/0>`

Implicit login is disabled if the `ImplLogin` key exists and is set to **`0`**.

Implicit login is enabled if the key does not exist or exists and is set to a value greater than **`0`**.

A password is stored in the registry for each defined line for implicit login under `HKEY_CURRENT_USER\Software\Unify\Tcsp\passwords`. The canonical number in URL coding is used as the name. For example, the "+" is coded as "%2b"; the password itself is coded in Base64.

In order to enable "implicit login" without first password input, configuration on both server and client sides is required.

Server Configuration / CAP User Management

1. For all users configured in CAP User Management, make sure to set the field **Authentication by** to "CTI Login" and the field **Password** to "123456" as an individual password for every single CTI user one by one. Using the default password is not possible, because the default password must be changed at first authentication request.
2. Configure default password - set the field **Default password** to "123456" (this is not required), and the field **Password expiration period (in days)** to "9999".

Client Configuration / CAP tcsp

1. Set tcsp to use implicit login / no GUI, which can be done either via setup (file `setupTapi.ini`) or in the Windows registry.

   Setup

   In the `setupTapi.ini` file add the following two lines before installing the tcsp:

   `[Provider]` (line already exists, add two lines right after it)

   `implLogin=1`

   `NoGUI=1`

Registry

Create / modify the following two fields in `HKEY_LOCAL_MACHINE\Software\Unify\Tcsp`:

type	DWORD value
name	implLogin
value	1

type	DWORD value
name	NoGUI
value	1

2. For each TAPI line of a Terminal Server connection, create the following field in `HKEY_USERS\.DEFAULT\Software\Unify\Tcsp\Passwords:`

type	string value
name	<line number> (using syntax "%2b<Country-Code>(<Area-Code>)<Base-Number>-<Extension>", e.g. "+49(89)722-33333")
value	MTIzNDU2

Please note that name and value are case-sensitive, i.e. upper and lower case have to be entered exactly as shown.

3. For each TAPI line of a TAPI Server connection, create the following field in `HKEY_CURRENT_USER\Software\Unify\Tcsp\Passwords:`

type	string value
name	<line number> (using syntax "%2b<Country-Code>(<Area-Code>)<Base-Number>-<Extension>", e.g. "+49(89)722-33333")
value	MTIzNDU2

Please note that name and value are case-sensitive, i.e. upper and lower case have to be entered exactly as shown.

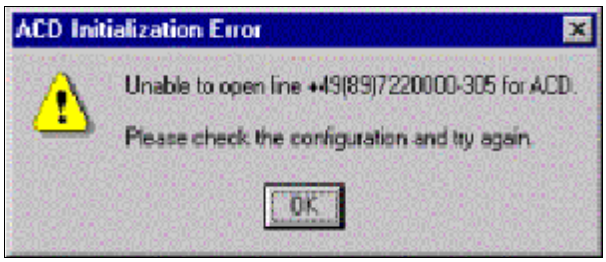
For Windows 7 this entry should be created under `HKEY_USERS\S-1-5-20\Software\Unify\Tcsp\Passwords`

6.3 TelasACDProxy

The TelasACDProxy is an executable program that is required by the Microsoft architecture for ACD (Automatic Call Distribution).

The TelasACDProxy starts up automatically on powering up your computer and opens all lines configured as agents with the agent functionality.

If this action is unsuccessful, the following message appears:



Start TelasACDProxy by restarting the computer.

Alternatively, the process for the TelasACDProxy can be stopped and then restarted via `Start/Run/TelasACDProxy`.

> To change the agent functionality of a line via the telephony icon on the Control Panel, all TAPI clients that have opened this line must first be closed.

TelasACDProxy is informed once this change has been made. The TelasACDProxy then re-opens all the agent lines and the clients can be restarted.

7 Possible errors

A number of errors may occur, which prevent a connection from being set up for the CAP TAPI Service Provider with CAP Management or CAP Call Control Service for a specific line.

7.1 CAP Management is unavailable

Situation

The *Can't connect to CAP Management Server* message appears if the CAP Management server cannot be reached from the CAP TAPI Service Provider:

Solution:

Either the CAP Management server is down or the IP address and/or port number were not entered correctly during installation or subsequent configuration of the CAP TAPI Service Provider.

- Check the IP address and port number by choosing the telephony icon on the Control Panel.

7.2 CAP Call Control Service is not available

Situation

If CAP Management is used, the CAP TAPI Service Provider receives the IP address and port number of the CAP Call Control Service responsible for the line number used from the CAP Management server.
The *Can't connect to CAP Call Control Server* message appears when a connection cannot be set up to CAP Call Control Service:

Solution:

The CAP Call Control Service is either out of service or the configuration is incorrect in CAP Management. Check the configuration in CAP Management.

- If CAP Management is not being used, check the settings for IP address and port number by choosing the telephony icon on the Control Panel.

7.3 Telephone number not configured

Situation

When attempting to make a call from a particular telephone number, which is not yet configured in CAP Management, the *Line Configuration Error* message window is displayed.

Solution:

? Retrieve the configuration for the relevant telephone number from the CAP Management server.

> For further information, refer to the "User Management" chapter in the OpenScape CAP Installation and Administration Manual.

7.4 Special setting on Citrix

If TAPI is used under Citrix PS 4.5 with Windows 2003, then for making faster the releasing of the opened sockets, the following registry-change should be done:

in Registry you should add a new entry 'TcpTimedWaitDelay' REG_DWORD with 30 (decimal) value to the following path:
HKEY_LOCAL_MACHINE\SYSTEM\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControl-Set\Services\Tcpip\Parameters\

After done restart PC, and the sockets will be released not in 4-5 mins, but in 20-30 secs.

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