

# estos ECSTA for pbxnsip

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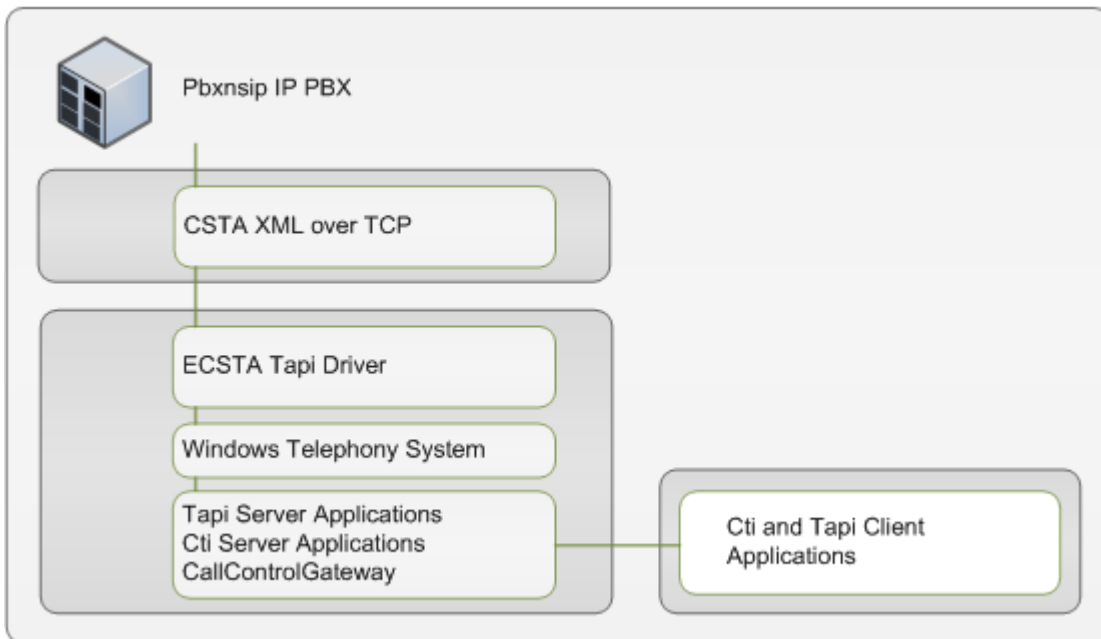
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# 1 Introduction

estos ECSTA for pbxnsip makes available several Telephony Service Providers for Microsoft® TAPI 2.1 (also 2.2 and 3.0). These TAPI drivers produce a central communication between a PC (CTI Server) and the telephone system. On this CTI server all devices on the telephone system are available as TAPI lines. All estos ECSTA for pbxnsip drivers use the efficient interface CSTA in order to communicate with the telephone system.

For the installation and management of the driver see driver Management.



## Supported telephone systems

PBX	Driver
pbxnsip ab Version xx	ECSTA for pbxnsip

## Using in the network

Nachdem der Treiber installiert ist, können Sie alle eingerichteten Nebenstellen auf dem Server als TAPI-Leitungen verwenden. Wenn Sie eine Server gestützte CTI Software einsetzen, so können Sie die CTI Server Software nun installieren. Um die Telefone von allen Arbeitsplätzen aus zu verwenden, muss der TAPI-Treiber im Netzwerk verteilt werden. Dazu gibt es folgende Möglichkeiten:

- estos UCServer**  
 Der estos UCServer ist eine CTI/UCC Server Software welche die Telefonie-Informationen über einen grafischen Client oder einen Multiline TAPI-Treiber im Netzwerk an alle Arbeitsplätze verteilen kann. Dabei werden Arbeitsgruppen, Domänen, Active Directory® und Terminal Server unterstützt.
- estos CallControlGateway**  
 Das estos CallControlGateway für Lync/OCS ist ein Gateway, welches die TAPI-Leitungen mit dem Lync/OCS Server verbindet und dem Lync/OCS Client via RemoteCallControl (RCC) die Steuerung der klassischen Telefonie Geräte ermöglicht.
- Windows® Telephony Server**  
 Der Windows® Telephony Server ist ein Bestandteil von Windows Server® Betriebssystemen seit

Windows® NT. Sie benötigen dazu in jedem Fall eine Domäne. Die Einrichtung ist auf Domänen Benutzer limitiert.

## 2 pbxnsip IP PBX

Bei der Einrichtung des Treibers mit einer pbxnsip IP PBX gehen Sie folgendermaßen vor:

1. Check network connection  
Erreichbarkeit der PBX prüfen (ping hostname / IP Adresse).
2. Version der pbxnsip IP PBX  
Es wird mindestens die Version xxx benötigt.
3. Konfiguration der pbxnsip IP PBX  
Siehe pbxnsip IP PBX konfigurieren.
4. Driver installation  
See also Settings

### 2.1 General Settings

#### Verbindung

Die Verbindung zu der pbxnsip IP PBX wird über TCP hergestellt.

Geben Sie die IP Adresse und den Port (default 1040) ein.

### 2.2 Advanced Settings

#### Snapshot for active calls

The driver can validate existing calls. This prevents that calls are displayed on the PC that do no more exist in the PBX system.

Enter a time interval in seconds.

The higher this value the longer it takes for the driver to detect a hanging call. The lower this value the higher is the load on the PBX.

#### Retry MonitorStart

In case the driver cannot start the monitoring of an extension for example because the extension is not connected to the PBX, the driver will retry the monitoring at regular intervals.

Enter a time interval in seconds.

### 2.3 TAPI Lines

Enter the Lines that the driver should make available through TAPI. The numbers are the internal Callnumbers of your devices, the names are used to display the TAPI lines.

#### Phone Number Format

The lines can be optionally as an internal phone number, for example *123* or canonical *+49(30)12345-123*.

You should use canonical phone numbers if you use several instances of TAPI driver and thus switch on several telephone systems at the same time. A canonical phone number consists as follows:

*+Country code (prefix) Local prefix-extension*

In the dialogue Location You can configure the country code, area code and local dialing prefix.

#### Load Lines from PBX

The available lines are determined automatically from the telephone system.

#### Manual addition of a line

Give the internal phone number of the phone. Optionally, a name can also be given.

#### Import text

You can import a list of lines from a text file. The file must begin every line with the phone number.

Optionally, the name can also be split with a comma.

#### Export text

You may export the actual line configuration to a text file.

#### Attention

After the installation of the driver it may be necessary to restart the computer.

## 2.4 pbxnsip IP PBX konfigurieren

pbxnsip IP PBX Version	
	XXXX oder höher wird benötigt

## 2.5 Settings

- General Settings
- Location Settings
- TAPI Lines
- Advanced Settings
- Settings Licenses
- Phone Number Format
- pbxnsip IP PBX konfigurieren

## 2.6 Licenses

Der Treiber kann ohne Lizenz für 45 Tage uneingeschränkt mit 25 Leitungen getestet werden. Nach Ablauf der Testperiode können die Leitungen nicht mehr gesteuert und überwacht werden. Sie können Lizenzcodes erwerben, die den Treiber dauerhaft freischalten. Um Lizenzen zu erwerben, wenden Sie sich an Ihren Fachhändler.

Im Treiber können beliebig viele Leitungen konfiguriert werden. Das Öffnen einer Leitung verbraucht eine Lizenz. Wenn die vorhandenen Lizenzen aufgebraucht sind, schlägt das Öffnen weiterer Leitungen fehl.

Sollten Sie mehrere Treiber-Instanzen hinzugefügt haben, teilen sich alle Instanzen die eingegebenen Lizenzen. Sie können die Leitungen beliebig auf verschiedene Instanzen aufteilen.

### 3 Location Settings

The phone numbers of the telephone system are defined in the Location Settings

#### Location

Indicate here which international phone numbers precede the internal extension numbers.

The input of this location information should only be carried out if you use several driver instances and have connected several telephone systems. This location information can only be configured when the option Use Location is switched on. If you enter a location here, all extension phone numbers are entered fully international.

Example: With location information '49(89)1234' the extension '100' is formatted as '49(89)1234-100'.

#### Phone Number Format

The phone number registered from the driver at the application can be changed with rules. Moreover, you can also change phone numbers sent by the PC to the telephone system. See Phone number formatting.



## 4 Phone Number Format

You may enter rules for formatting the phone numbers.

The phone numbers that are reported from the PBX system to the PC and the numbers that are sent from the PC to the PBX system may be modified with a Search and Replace function.

The phone numbers that are sent from the Tapi Application to the PBX (make call) may be modified as well.

Each line in the list contains an option if direct text compare or a regular expression is used.

The Search and Replace function uses regular expressions. If a search pattern matches, the result from replace with will be used as output. If the search pattern does not match, the original number will be reported unchanged. The entries in the list are processed one after each other. If one match is found the remaining entries will be ignored.

There are three categories:

- Incoming  
This section is for phone number from incoming calls that are reported from the PBX system to the PC.
- Outgoing  
This section is for phone number from outgoing calls that are reported from the PBX system to the PC.
- PC Dialling  
This section is for phone numbers that are dialed on the PC and sent to the PBX system

Search for:

Enter the regular expression that will be used to find a phone number.

Hint: The caret (^) can be found on the upper left key of a keyboard with German layout.

An overview of allowed expressions:

Character	Description
^	The beginning of the search string (phone number). The expression "^0" matches '0' only at the beginning of the search string.
^	The caret (^) immediately following the left-bracket ([]) has a different meaning. It is used to exclude the remaining characters within brackets from matching the target string. The expression "[^0-8]" indicates that the target character should not be 0
\$	The dollar sign (\$) will match the end of the string. The expression "152\$" will match the substring "152" only if it is at the end of the string.
	The alternation character ( ) allows either expression on its side to match the target string. The expression "1 2" will match '1' as well as '2'.
.	The dot (.) allows any character (or any number).

*	The asterix (*) indicates that the character to the left of the asterix in the expression should match 0 or more times.
+	The plus (+) is similar to asterix but there should be at least one match of the character to the left of the + sign in the expression.
?	The question mark (?) matches the character to its left 0 or 1 times.
()	The parenthesis affects the order of pattern evaluation and also serves as a tagged expression that can be used when replacing the matched sub-string with another expression.
[]	The corner brackets ([ and ]) indicates the amount of signs that are permitted at this point.

Replace with:

Enter the expression that defines how the number is to be formatted.

\1 represents the first matched expression enclosed by parentheses '(' )' from the *search pattern* field.

\2 the second ...

Check:

You may check your expressions right here by entering a phone number in the indicate field. The resulting output will be displayed. If the expression from the search pattern is not found, the phone number will be send to the output without modification.

Examples:

Result	Search for	Replace with
Remove a leading 0 from the phone number	^0(.*)	\1
Replace a leading 80 at the beginning of the phone number by a 0	^80(.*)	0\1
Remove a private pin number that may be identified by a 50 followed by a 3 digit pin.	^50[0-9][0-9][0-9](.*)	\1
Suppress all internal numbers having a 3-digit extension.	^[0-9][0-9][0-9]\$	
Add an access code (leading 0) to all numbers with more than 3 digits (e.g. all external numbers).	^([0-9][0-9][0-9].+)	0\1
Add the PBX system root number (03012345) to all internal numbers (with 1 to 3 digits)	^([0-9][0-9]?[0-9]?)\$	03012345\1
Adding an area code to all numbers not beginning with 0 and containing at least 4 digits (thus not internal).	^[^0][0-9][0-9][0-9].*)	08151\1

## 5 Driver Management

### Installation

The driver is installed on the system with the Windows® Installer (msi) package. If the set-up package contains several drivers, you can select which drivers should be installed during the set-up.

### Driver instance

The driver can be used to connect one or several phone systems. For this purpose one or several driver instances are registered in Windows® Tapi System.

### Register at Tapi System

During the installation, an instance from the selected driver is already registered at the Tapi system. Thereby, you select the necessary data in a Wizard in order to connect the driver with the telephone system.

### Configuration of Driver instance

The configuration of the driver instances takes place either over *Telephone and Modem option* in the Control Panel or over the standard program *Advanced Telephone Driver option* that can be found in the Control Panel or in the Start Menu.

### Add further driver instances

If you want to connect the computer with a further telephone system, you must add a further instance of the driver to the Tapi system. This takes place with Help in the standard program *Advanced Telephone Driver options* that can be found in the Control Panel or in the Start Menu.

### Updates

To install an Update start the Windows® Installer Package (msi).

If a driver instance is configured, this is deleted during the Update and is automatically added again after the Update is completed. If several driver instances are configured, the computer must be restarted after the Update.

### Deinstallation

The Deinstallation takes place via the Windows® Software Administration. In the Deinstallation, all instances of the driver are removed from the Tapi system and the software uninstalled.

## 6 Software requirements

Der estos ECSTA for pbxnsip kann auf allen Windows® Systemen installiert werden, die Microsoft® TAPI 2.0 oder höher unterstützen. Die folgenden Systeme werden sowohl in der 32- als auch der 64-bit Version supported.

- Windows® 7
- Windows® 8
- Windows® 8.1
- Windows® 10
- Windows Server® 2008
- Windows Server® 2008 R2
- Windows Server® 2012
- Windows Server® 2012 R2

### 6.1 Supported TAPI functions

This driver supports the following TAPI call control functions.

Aktion:	Korrespondierende TAPI Funktion:
Wählen	TSPI_lineMakecall
Auflegen	TSPI_lineDrop
Gespräch beantworten	TSPI_lineAnswer
Gespräch halten	TSPI_lineHold
Gespräch zurückholen	TSPI_lineUnhold
Weiterleiten im Rufzustand	TSPI_lineRedirect
Weiterleiten im Gesprächszustand	TSPI_lineBlindTransfer
Rückfrage aufbauen	TSPI_lineSetupTransfer
Makeln	TSPI_lineSwapHold
Rückfrage verbinden	TSPI_lineCompleteTransfer (LINETRANSFERMODE_TRANSFER)
Konferenz erstellen	TSPI_lineCompleteTransfer (LINETRANSFERMODE_CONFERENCE)
Zur Konferenz hinzufügen	TSPI_lineAddToConference
Aus Konferenz entfernen	TSPI_lineRemoveFromConference

Pickup	TSPI_linePickup
DTMF Nachwahl	TSPI_lineGenerateDigits
Wählen im Rufonzustand	TSPI_lineDial
Rufumleitungen	TSPI_lineForward TSPI_lineGetAddressStatus <ul style="list-style-type: none"> <li>• LINEFORWARDMODE_UNCOND</li> <li>• LINEFORWARDMODE_BUSY</li> <li>• LINEFORWARDMODE_NOANSW</li> </ul>
Do Not Disturb	TSPI_lineForward TSPI_lineGetAddressStatus
MessageWaiting	TSPI_lineSetLineDevStatus TSPI_lineGetLineDevStatus

Folgende weitere TAPI Funktionen sind bedingt durch Anforderungen des TAPI Subsystem implementiert.

Weitere vom Treiber exportierte Funktionen:

TSPI\_lineSendUserUser Info

TSPI\_lineClose

TSPI\_lineCloseCall

TSPI\_lineConditionalMediaDetection

TSPI\_lineDevSpecific

TSPI\_lineDevSpecificFeature

TSPI\_lineGetDevConfig

TSPI\_lineSetDevConfig

TSPI\_lineGetAddressCaps

TSPI\_lineGetAddressStatus

TSPI\_lineGetAddressID

TSPI\_lineGetCallAddressID

TSPI\_lineGetCallInfo

TSPI\_lineGetCallStatus

TSPI\_lineGetDevCaps

TSPI\_lineGetExtensionID

TSPI\_lineGetIcon

TSPI\_lineGetID

TSPI\_lineGetNumAddressIDs

TSPI\_lineNegotiateExtVersion

TSPI\_lineNegotiateTSPIVersion

TSPI\_lineOpen

TSPI\_lineSelectExtVersion

TSPI\_lineSetDefaultMediaDetection

TSPI\_lineSetStatusMessages

TSPI\_lineSetAppSpecific

TSPI\_lineSetCallData

TSPI\_providerCreateLineDevice

TSPI\_providerEnumDevices

TSPI\_providerFreeDialogInstance

TSPI\_providerGenericDialogData

TSPI\_providerInit

TSPI\_providerShutdown

TSPI\_providerUIIdentify

TSPI\_lineGetCallIDs

TUISPI\_lineConfigDialog

TUISPI\_lineConfigDialogEdit

TUISPI\_providerConfig

TUISPI\_providerInstall

TUISPI\_providerRemove

TUISPI\_providerGenericDialog

TUISPI\_providerGenericDialogData

## 7 Info at estos ECSTA for pbxnsip

estos ECSTA for pbxnsip ist ein Produkt der estos GmbH.

Produkt Updates finden Sie unter <http://www.estos.de>.

Häufig gestellte Fragen und Antworten, sowie Support erhalten Sie unter <https://www.estos.de/service>.

### Logging

Zur Fehlersuche können Logdateien erstellt werden. Diese werden im angegebenen Pfad abgelegt.

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