

# estos ECSTA for Generic

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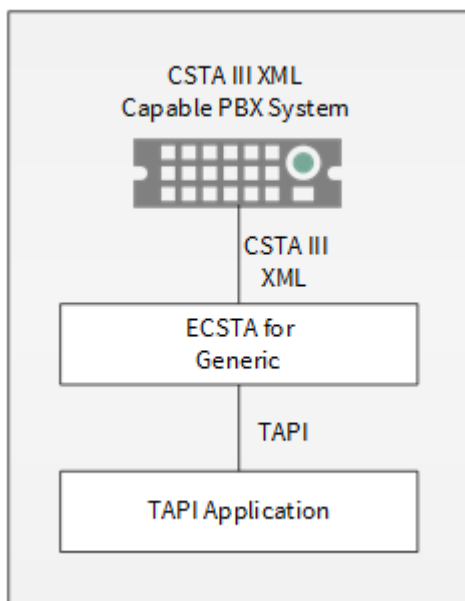


## 1 Introduction

estos ECSTA for Generic offers a Telephony Service Provider (TSP) for Microsoft® TAPI 2.1 (also 2.2 and 3.0). This TAPI driver implements a central communication between a PC and the PBX system. estos ECSTA for Generic uses the CSTA protocol for connecting to the PBX system.

For installation of the driver see Driver Installation.

For administration of the driver see Driver Administration.



### Using in the network

After installing the driver, you may use all configured line devices on the server as TAPI-lines. If you are using a server based CTI Software, you may install it now. To have the TAPI-devices available on all workstations, the TAPI-driver must be distributed in the network. There are the following options:

1. **estos UCServer**  
The estos UCServer is a CTI/UCC server software which distributes the telephony informations across the network using a graphical client or a multiline TAPI driver. Workgroups, domains, Active Directory® and Terminal Server are supported.
2. **estos CallControlGateway**  
The estos CallControlGateway for Lync/OCS is a gateway that connects the TAPI-lines with the Lync/OCS server. This enables the Lync/OCS client to use traditional telephone devices via Remote Call Control (RCC).
3. **Windows® Telephony Server**  
The Windows® Telephony Server is a component of Windows® server operating systems since Windows® NT. You will need a domain. The service is limited to domain users.

## 2 Software requirements

The estos ECSTA for Generic can be installed on all Windows® systems that support Microsoft® TAPI 2.0 or higher. The following systems are supported in 32- as well as in 64-bit versions.

- Windows® 10
- Windows Server® 2008 R2
- Windows Server® 2012
- Windows Server® 2012 R2
- Windows Server® 2016
- Windows Server® 2019

## 3 Driver administration

### Installation

Using the Windows® Installer (msi) packet, the driver will be installed on the system.

### Driver instance

The driver can be used to connect one or more PBX systems. For each PBX system you want to connect, you must configure one instance of the driver.

### Register at Tapi System

During the installation, an instance in the already selected driver is registered at the Tapi System. For this purpose you indicate 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 via *Telephone and Modem options* in the Control Panel or via the provided program *Advanced Telephone Driver options*, that can be found in the Control Panel or Start menu.

### Updates

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

If an instance of the driver is configured, it will be removed during the update process. It will be automatically re-added afterwards.

### Deinstallation

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

## 4 Installation

For installation and administration of the driver see Driver management.

When setting up the driver, follow these steps:

1. **Run driver setup**  
Launch the ecstaGeneric.msi (32 Bit Systems) or ecstaGeneric\_x64.msi (64 Bit Systems).
2. **Establish the connection to the PBX system**  
Configure the connection to the PBX system. Each instance of the driver supports the connection to one PBX system.
3. **Line configuration**  
The driver automatically offers all currently available devices from the PBX system as Tapi lines. No configuration is required.

## 5 Generic

estos ECSTA for Generic can be used to control and monitor telephone devices attached to a PBX system. The driver can be installed in multiple instances. Each driver instance supports the connection to one PBX system.

The connection to the PBX system is established using CSTA Phase III XML (ed3-ed5).

For Installation of the driver see Driver Installation.

For administration and configuration of the driver see Driver Administration.



## 6 General Settings

### Connection

The connection to the PBX system is established using TCP. Enter the host name or IP address of the PBX system. The default port für TCP is 7001.

### Login

Enter the user name and password. The user must be configured as a system user account.

## 7 Line Settings

Here you see all lines, the driver offers as Tapi Lines. The phone numbers are the internal callnumbers of your devices, the names are used for display only.

### **Automatic Update**

The lines are automatically read and updated from the PBX system. The update interval can be configured in Advanced Settings.

### **Extras - Query available lines**

The currently available lines are automatically read from the PBX system.

### **Extras - 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.

### **Extras - 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.

## 8 Advanced Settings

### Phone Number Format:

- Phone number format  
You may change the phone number format, that the driver reports to the applications. You may also change the phone numbers that are sent from the PC to the PBX. See Phone number formatting.

### Advanced Parameters:

- 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.
- 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.
- Automatic Line update  
In the given interval (in seconds) the driver updates the available line devices automatically. The driver automatically offers all currently available line devices from the PBX system as Tapi lines. That are all line devices that are currently connected to the PBX system. Free seating lines are also updated automatically.

## 9 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 send 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 Dialing**  
This section is for phone numbers that are dialed on the PC and send to the PBX system

### Search for:

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

Hint: The Caret Sign (^) is located on the german keyboard on top left.

Here is a short description of the available expressions:

character	description
^	The beginning of the search string (phone number). The expression "^o" matches "o" 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 "[^o-8]" indicates that the target character should not be o
\$	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 (.) will match any character.

*	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.
[]	Brackets ([ and ]) enclosing a set of characters indicates that any of the enclosed characters may match the target character.

**Replace with:**

Enter the expression how the output of the phone number should look like.

\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:**

Effect	search pattern	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 phone numbers that are internal (not more than 3 digits).	^[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 an area code and prefix (03012345) to all internal numbers (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][0-9].*)	08151\1

## 9.1 Licenses

The driver can be tested without license for 45 days with 25 lines. After the trial period, the lines can no longer be controlled and monitored. You can purchase license keys that unlock the driver permanently. To purchase licenses, contact your dealer.

The driver can be configured any number of lines. Opening a line consumes a license. If the existing licenses are used up, opening further lines will fail.

If you have configured multiple driver instances, all instances share the licenses entered. You can consume licenses anywhere on different instances.

## 10 Software requirements

The estos ECSTA for Generic can be installed on all Windows® systems that support Microsoft® TAPI 2.0 or higher. The following systems are supported in 32- as well as in 64-bit versions.

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- Windows Server® 2008 R2
- Windows Server® 2012
- Windows Server® 2012 R2
- Windows Server® 2016
- Windows Server® 2019

### 10.1 Supported TAPI operations

The driver offers the following TAPI call control operations.

Action:	Corresponding TAPI function:
Dial	TSPI_lineMakecall
Hang up	TSPI_lineDrop
Answer call	TSPI_lineAnswer
Hold call	TSPI_lineHold
Retrieve call	TSPI_lineUnhold
Redirect call	TSPI_lineRedirect
Blind transfer <sup>2</sup>	TSPI_lineBlindTransfer
Setup transfer	TSPI_lineSetupTransfer
Swap hold	TSPI_lineSwapHold
Complete transfer	TSPI_lineCompleteTransfer (LINETRANSFERMODE_TRANSFER)
Create conference	TSPI_lineCompleteTransfer (LINETRANSFERMODE_CONFERENCE)
Add to conference	TSPI_lineAddToConference
Remove from conference	TSPI_lineRemoveFromConference
Pickup	TSPI_linePickup
DTMF dialing	TSPI_lineGenerateDigits

Dial in dial tone mode	TSPI_lineDial
Forwarding	TSPI_lineForward TSPI_lineGetAddressStatus
Do not disturb	TSPI_lineForward TSPI_lineGetAddressStatus
Message waiting	TSPI_lineSetLineDevStatus TSPI_lineGetLineDevStatus

<sup>2</sup> Emulated by the driver (System does not natively support this feature)

The following TAPI functions are implemented due to requirements of the TAPI subsystem.

**Other exported functions:**

TSPI_lineSendUserUserInfo
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

## 11 Info about estos ECSTA for Generic

estos ECSTA for Generic is a product of estos GmbH.

Product updates can be found under <http://www.estos.de>.

Frequently asked questions and answers, as well as support, can be found under <https://www.estos.de/service>.

### Logging

For diagnostic purposes the driver can create log files. These are stored in the specified path.

You may enter comma separated phone numbers in the 'Log Filter' field. In case you have entered phone numbers here, the log files will only contain relevant information for these extensions.

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