estos ECSTA for OpenCom 100

4.0.7.3683

1   Introduction

estos ECSTA for OpenCom 100 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 OpenCom 100 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.
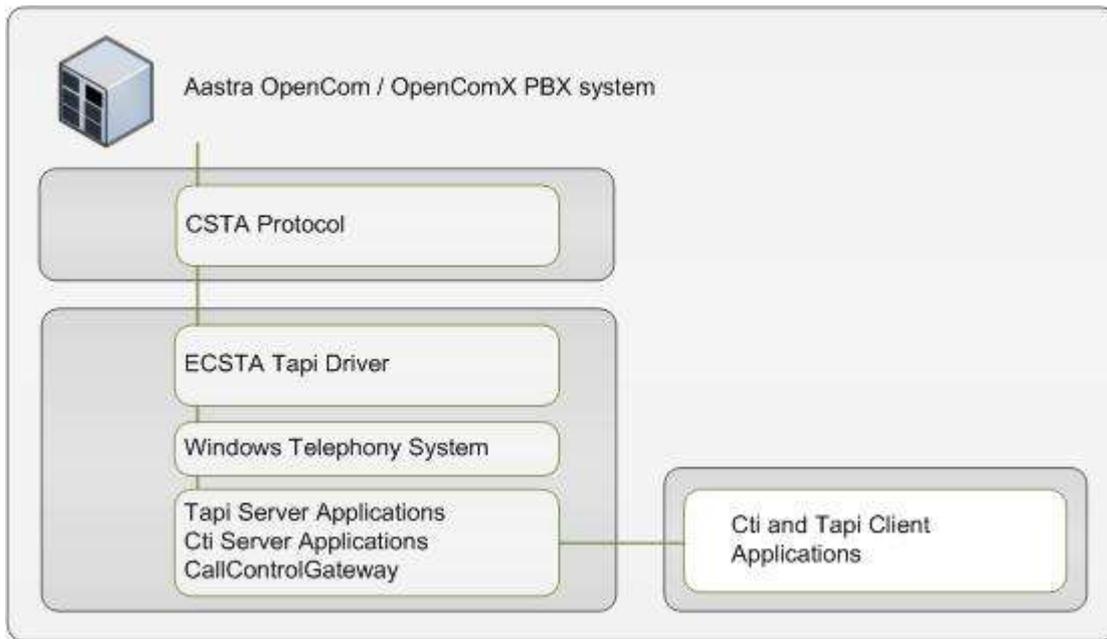
Supported Telephone Systems

Driver	PBX
ECSTA for Aastra 800	OpenCom 130
ECSTA for Aastra 800	OpenCom 150
ECSTA for Aastra 800	OpenCom 150rack
ECSTA for Aastra 800	OpenCom X320
ECSTA for Aastra 800	OpenCom X320rack
ECSTA for Aastra 800	OpenCom 510
ECSTA for Aastra 800	OpenCom 800

ECSTA for Aastra 800	Aastra 800

Using the driver 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 information across the network using a graphical client or a multi-line 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 Aastra OpenCom 100

When setting up the driver, follow these steps:

1. Check network connection
   If the connection is established using TCP/IP, check if you can reach the PBX system (ping hostname)
2. Test CSTA License in the telephone system
   An OpenCSTA 100 license is required in the telephone system. This license can be activated as a demo license in the system.
3. Test device ID in the telephone system
   If several telephones have the same phone number, then this device ID must be obtained. See Configure Telephone system.
4. Driver installation
   See also Settings

2.1 General Settings

The connection between PBX and Server can be established using a TCP/IP connection to the LAN interface of the PBX.

Connection using a network (TCP/IP)
Input here the host name or the IP address of your telephone system. The standard TCP Port for the CSTA connection is 7001.
With the Button 'Find...' you can localize the telephone system in the network.

User name and password
To register at the telephone system, you employ the User Administrator.
Input the password

2.2 Advanced Settings

Read parallel devices / line keys
If this option is activated the ECSTA will query all physical devices for a line number and map them as TAPI lines. Please observe the following precautions when using line keys and parallel devices simultaneous.

- You do not use line keys or parallel devices

  Disable the function.

- Line keys are used:

  Disable the function.
  Line keys are not supported in this configuration. The driver can not distinguish between the primary telephone number and a line key. With configured line keys the driver will create a TAPI line for each key which is configured on a phone. Each line will have the same number. Only the primary device the pbx is reporting for a line number will be mapped.

- Parallel devices are used

  Activate the function.

- Line keys and parallel devices are used.

  The driver can not distinguish between parallel devices and a line key. You may activate the funciton but you will need to map the correct line to a user by hand. To faciliate this you may configure Device IDs within the phone system. The Device ID should have the same id as the line number. Within the line list of the TAPI subsystem you can now see which line is referenced on which device. (E.G. line 11 on device with primary line 11 will be shown with name 11;11 (1. numeral is the number, 2. numeral is the Device ID). With parallel devices add ascending numbers to the DeviceID, 1101 for the first device with number 11, 1102 for the 2. Device with number 11. (In the line list you will find lines named 11;1101 and 11;1102)

Readout line names
If this option is active, the names of the telephones from the telephone system are requested.

Node numbers
If your PBX system is using node numbers you can enter these numbers semicolon seperated. These node numbers are removed from numbers presented by the pbx.

Emulate blind transfer
If the PBX system does not offer blind transfer the driver can emulate this feature. The driver will setup a consultation transfer which is merged as soon as the called destiation is rings.

Blind transfer timeout
Timeout for the blind transfer emulation. The consultation call must be answered within this timeout. Otherwise the consultation call is canceled and the intial call is retrieved.

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 the event that the driver cannot start monitoring an extension because, for example, the extension has not been connected to the PBX, the driver will attempt to start monitoring at periodic 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 phone numbers for your devices. The names will be used to display the TAPI lines.
The device ID is necessary, in case several telephones have the same number.

Phone Number Format
The lines can optionally be indicated as an internal phone number, for example *123* or canonical, for example
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
The available lines are determined automatically from the telephone system.
All phone numbers from the phone system that can be operated from the PC are selected. If several phones have the same phone number, possibly only one of these phones is selected. All other phones must be configured manually.

Manual addition of a line
Give the internal phone number of the telephone. If necessary, give the device ID of the telephone. Optionally a name can also be given.

Device ID
The device ID serves to identify the telephone clearly. This is required if several telephones have the same phone number.

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 Configure telephone system

Several telephones with the identical phone number
The telephone system supports the parallel connection of several telephones with identical phone numbers. Control of single telephones must be distinguishable. A device ID is required for this. If no device IDs are configured, only one of the telephones with an identical phone number can be controlled.

Device ID
The Device ID configuration is located in the PBX settings under Configurator - Telephony - Extended - Device ID.
All multiple occurring phone numbers must obtain a device-ID. Only then are they usable from the PC. Example of sensible device ID assignment: The call number 33 is assigned to three terminals. Terminal 1 receives the device ID 3301, terminal 2 the ID 3302 and terminal 3 the ID 3303.

Ph.No.	Description	Type (configured)	Port	Device ID
33		Aastra 6773ip (OP73IP)	0030420CEE8E	3301
33		Aastra 6775ip (OP75IP)	0030420CEDC5	3302

CSTA Licenses
An OpenCSTA 100 license is required in the telephone system. This license can be activated as a demo license in the system.
The license settings in the configuration of the telephone system can be found under configurator - System - Licenses.

2.5 Supported TAPI operations

The driver offers the following TAPI call control operations.
SIP devices do not support all the features listed here.

Action:	Corresponding TAPI function:
Dial	TSPI_lineMakecall
Hang up	TSPI_lineDrop
Answer call	TSPI_lineAnswer
Hold call[2]	TSPI_lineHold
Retrieve call[2]	TSPI_lineUnhold
Redirect call	TSPI_lineRedirect
Blind transfer[2][3]	TSPI_lineBlindTransfer
Setup transfer[2]	TSPI_lineSetupTransfer
Swap hold[2]	TSPI_lineSwapHold
Complete transfer[2]	TSPI_lineCompleteTransfer (LINETRANSFERMODE_TRANSFER)
Create conference[2]	TSPI_lineCompleteTransfer (LINETRANSFERMODE_CONFERENCE)
Add to conference[2]	TSPI_lineAddToConference
Remove from conference[2]	TSPI_lineRemoveFromConference
Pickup[2]	TSPI_linePickup
DTMF dialing[2]	TSPI_lineGenerateDigits
Dial in dial tone mode	TSPI_lineDial
Forwarding	TSPI_lineForward TSPI_lineGetAddressStatus • LINEFORWARDMODE_UNCOND • LINEFORWARDMODE_UNCONDEXTERNAL[2] • LINEFORWARDMODE_UNCONDINTERNAL[2] • LINEFORWARDMODE_BUSY[2] • LINEFORWARDMODE_BUSYEXTERNAL[2] • LINEFORWARDMODE_BUSYINTERNAL[2] • LINEFORWARDMODE_NOANSW[2] • LINEFORWARDMODE_NOANSWEXTERNAL[2] • LINEFORWARDMODE_NOANSWINTERNAL[2]

Do not disturb²	TSPI_lineForward TSPI_lineGetAddressStatus
Message waiting²	TSPI_lineSetLineDevStatus TSPI_lineGetLineDevStatus

²These functions are not supported by SIP phones.
³ 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 functions exported by the driver:
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	
	12
TUISPI_providerGenericDialog	
TUISPI_providerGenericDialogData	

3   Settings

- General Settings
- Location Settings
- TAPI Lines
- Advanced Settings
- Settings Licenses
- Phone Number Format
- Configure telephone system
- FAQ

3.1   Licenses

You can test the driver for 45 days with 25 lines without a license and without other limitations. Once the trial period has expired, the lines will automatically be removed. You can purchase licenses codes and activate the driver permanently with them. To purchase licenses, please contact your dealer.

As many lines as desired may be configured in the driver. Opening a line requires a license. Once the existing licenses have been assigned to lines, opening more lines will not be allowed.

If you have added multiple driver instances, all instances will share the license specified. You can distribute the lines to any instance as you desire.

4   Location Settings

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

Exension Range
Indicate here which internal phone numbers exist in the phone system. This information is used to determine the available lines from the phone system.

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.

5   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. It 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 enties 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 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 phone number. The expression "^0" matches '0' only at the beginning of a phone number.
^	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 sub-string "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 "8|9" will match '8' as well as '9'.
.	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 outpout 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

See also location.

6   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.

De-installation
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.

7 PBX systems

Driver	PBX
ECSTA for OpenCom 100	OpenCom 130
ECSTA for OpenCom 100	OpenCom 150
ECSTA for OpenCom 100	OpenCom 150rack
ECSTA for OpenCom 100	OpenCom X320
ECSTA for OpenCom 100	OpenCom X320rack
ECSTA for OpenCom 100	OpenCom 510
ECSTA for OpenCom 100	OpenCom 800
ECSTA for OpenCom 100	Aastra 800

8 Software requirements

The estos ECSTA for OpenCom 100 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 7
- Windows 8
- Windows 8.1
- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012
- Windows Server 2012 R2

9 FAQ

Q0069: I just installed a Tapi driver, but the connections are not yet available. I cannot select the new lines using the windows phone dialer. What can I do?

If connections are not available after a tapi driver being installed, you have to restart your PC. The reason for that is another software using the Windows Tapi system (probably the Internet Auto Connection Manager).

Q0107: I get the message: You do not have permission to change the settings. Please contact your Administrator.

Reason: The user does not have the required rights to run the setup. Solution: Install the driver as Administrator.

10 Info about estos ECSTA for OpenCom 100

estos ECSTA for OpenCom 100 is a product of estos GmbH.

Product updates can be found under http://www.estos.com.

Frequently asked questions and answers, as well as support, can be found under
http://www.estos.com/help/support.