

estos ECSTA for Avaya IP Office

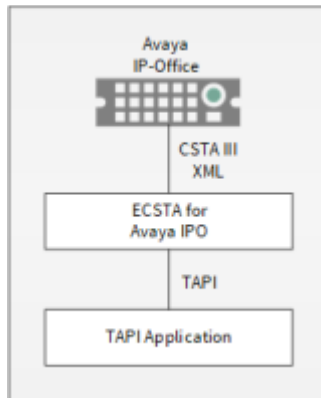
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1 Introduction

estos ECSTA for Avaya IP Office provides a telephony service provider (TSP) for Microsoft® TAPI 2.1 (also 2.2 and 3.0). This TAPI driver creates a central communication route between a PC and the telephone system. estos ECSTA for Avaya IP Office uses the Avaya One-X portal application to communicate with the telephone system. Comment: The interface used by estos ECSTA for Avaya IP Office is provided by Avaya IP Office from software Release Version R.10.1 or higher. For information on configuring Avaya IP Office for connection of the estos ECSTA for Avaya IP Office, see Configuration requirements for Avaya IP Office.

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



2 Software requirements

The estos ECSTA for Avaya IP Office 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® 11
- Windows Server® 2012
- Windows Server® 2012 R2
- Windows Server® 2016
- Windows Server® 2019
- Windows Server® 2022

3 Configuration requirements for Avaya IP Office

Operation of the driver requires the correct installation and configuration of the Avaya-One-X portal and Avaya IP Office. The Avaya IP Office firmware must be "Release Version R.10.1" or higher.

estos ECSTA for Avaya IP Office connects to Avaya IP Office via port 8080 (if PBX has firmware version Release R.10.1) or via port 9443 (if PBX has firmware versions Release R.11) of the Avaya-One-X portal.

Licenses must be available for the "CTI Link Pro".

estos ECSTA for Avaya IP Office logs in to the Avaya-One-X portal with a user account. This user account must be set up in the security settings of the Avaya IP Office manager as a member of the TCPA Group.

The following configuration entries must also be carried out via the Avaya IP Office manager in the group of administrators:

- In the "External" tab
 - The one-X-CTI API entry must be enabled (otherwise when the connection test occurs, the error message "Login failed" occurs in the ECSTA)
- In the "Telephony APIs" tab
 - Extended TSPI access must be enabled
 - DevLink3 must be enabled
 - The site API must be enabled

4 Driver Management

Installation

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

Driver instance

The driver can be used for connection to a telephone system via the Avaya One-X portal application. All devices that are configured in the context of this Avaya One-X portal application can be added in this driver instance.

Register at TAPI system

During the installation, an instance from the selected driver is already registered at the TAPI system. You enter the necessary data in a Wizard in order to connect the driver to the telephone system.

Configuration of Driver Instance

The configuration of the driver instances takes place either using *Telephone and Modem options* in the Control Panel or using the included program *Phone Driver Options Advanced* that can be found in the Control Panel or in the Start Menu.

Updates

To install an Update, please run the Windows® Installer Package (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

The deinstallation takes place via the Windows® Software Administration. During deinstallation, all instances of the driver are removed from the TAPI system and the software will be uninstalled.

5 ECSTA for Avaya IP Office

For installation and administration of the driver see Driver management.

When setting up the driver, follow these steps:

1. **Run driver setup**
Execute the Microsoft® Installer Package (.msi) for the ECSTA for Avaya IP Office.
2. **Modus**
The driver is used to control multiple telephones (server mode).
3. **Configure connection**
Configure the Connection and access data for access via the Avaya One-X portal application.
4. **Line configuration**
Add the telephones that the TAPI driver should use as Visualize lines.
5. **Advanced settings**
Execute advanced settings on the configuration of your driver.
6. **Location configuration**
Carry out configurations at yourLocation.

5.1 The control of several phones

The driver is used to control multiple phones.

Installation

Enter the connection data (host and port) via which you connect to the Avaya One-X portal application and from there are able to access the Avaya IP Office telephone system. You can import, manage and monitor the lines configured there. Also, for the login to the Avaya One-X portal as the access data, enter the ID of the administrator configured in the Avaya One-X portal and their password.

5.2 Connection Settings

Configure the access data used by estos ECSTA for Avaya IP Office to connect to the One-X portal application for Avaya IP Office.

Host name

The name of the server on which your One-X-Portal application is running.

Port

The port number via which estos ECSTA for Avaya IP Office can access the Avaya One-X portal application.

Encryption

The type of data encryption between estos ECSTA for Avaya IP Office and the Avaya One-X portal application (unencrypted or TLS encryption)

Login

Enter the access data (user name / password) of the administrator account as configured in the Avaya One-X Portal application.

Check connection

You can test whether you are able to establish a connection to the Avaya One-X portal application using the connection and access data.

Comments for this connection

Here you can enter comments, notes and the like.

5.3 Line Settings

The control of several phones

You can configure lines that the driver is to provide (control of several phones).

However, the lines must first have been configured in the Avaya One-X Portal application and assigned to the administrator with appropriate access rights.

Tools - Read lines...

All telephones are read out and transferred to the line list.

Tools - Export lines...

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

Tools - Import lines...

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.

Attention

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

5.4 Advanced Settings

- Return to held party when terminating a consultation
At the end of a query you can choose whether the subscriber on hold should be automatically reconnected or stay on hold.
- Line Name Format
The TAPI line names can be modified via this setting.
Standard = Line number / name
Phone number = Line number
Name = Name
- **Rules for detecting SIP lines**
Choosing "Edit Rules" takes you to a dialog box that allows you to specify whether SIP lines should be detected by the ECSTA via a set of rules, filtered out and thus not forwarded to the TAPIs line management (See Set of Rules for Filtering Out SIP Lines).
- Snapshot for active calls
The driver checks at the set time interval whether the currently displayed calls still exist in the phone system.
You can enter a time interval in seconds here.

5.5 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.

5.6 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.

6 Phone Number Format

You may enter rules for formatting the phone numbers.

The phone numbers that are reported from the telephone system to the PC may be modified using rules to match the TAPI application being used.

The phone numbers that are sent from the TAPI Application to the telephone system (make call) may be modified using rules 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 the 'Find what' expression is found, 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 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 search string (phone number). The expression "^o" matches 'o' only at the beginning of the search string.
^	The caret (^) immediately following the left square 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 only the characters o to 8 are allowed.
\$	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 "1 2" will match '1' as well as '2'.
.	The dot (.) allows any character (or any number).
*	The asterisk (*) indicates that the character to the left of the asterisk 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 ([]) indicate 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 that are indicated internally (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 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).	^([0-9][0-9][0-9][0-9].*)	08151\1

6.1 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
Forward in call status ²	TSPI_lineRedirect
Blind transfer ²	TSPI_lineBlindTransfer
Setup transfer	TSPI_lineSetupTransfer
Swap hold	TSPI_lineSwapHold
Complete transfer	TSPI_lineCompleteTransfer (LINETRANSFERMODE_TRANSFER)
Create conference ¹	TSPI_lineCompleteTransfer (LINETRANSFERMODE_CONFERENCE)
Forwarding	TSPI_lineForward TSPI_lineGetAddressStatus <ul style="list-style-type: none"> ○ LINEFORWARDMODE_UNCOND ○ LINEFORWARDMODE_BUSY ○ LINEFORWARDMODE_NOANSW
Do not disturb	TSPI_lineForward TSPI_lineGetAddressStatus

¹Following a successfully initiated conference, the driver notifies the participants of the conference that they are each connected to the conference room. This notification is also shown in the display on the devices.

²Since the telephone number information indicated by Avaya IP Office is inconsistent with respect to the forwarding participant or forwarding destination, the driver does not provide the redirecting and redirection device ID.

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

7 Set of rules for filtering out SIP lines

You can enter rules that determine whether lines should be filtered out during readout or not. If "no detection of SIP lines" is selected, all read-in lines will be included in the line management. If "Rules for detecting SIP lines" is selected, a set of rules is applied when reading in lines, which determines whether a line should be filtered out or included in the line management. This set of rules consists of individual rules created by the user.

For each rule it can be defined whether a configurable character string can be searched for in the name or call number, in order to filter out the line in the case of a match. Alternately, a regular expression can also be defined via which a search pattern is determined which is then applied in the search in the line name or the line number. If the search is successful the line will be filtered out.

The following rules can be configured:

- Filtering out of lines via a character string in line names
When reading in the lines, those lines are not included in the line management whose line name contains the character string entered in the "Search for:" column.
Example: If lines whose line name contains the character string "Paul" should be filtered out, all lines having the line names "Paul Sample", "Pauline Sample", "Lukas Paulsen"... will be filtered out.
- Filtering out of lines via a character string in the line call number
When reading in the lines, those lines are not included in the line management whose line call number contains the character string entered in the "Search for:" column.
Example: If lines whose line number contains the character string "897" should be filtered out, lines with the line numbers "897", "089123456897", "0897123456", would be filtered out.
- Filtering out of lines via a search pattern in line names which is configured via a regular expression
The character string in the "Search for:" column must be a regular expression. When reading in the lines, those lines for which the search was successful by means of the regular expression in the line name are not included in the line management.
Examples of regular expressions are listed further below.
- Filtering out of lines via a search pattern in the line call number which is configured via a regular expression
The character string in the "Search for:" column must be a regular expression. When reading in the lines, those lines for which the search was successful by means of the regular expression in the line call number are not included in the line management.
Examples of regular expressions are subsequently listed.

Here is a brief overview about the syntax of some regular expressions: A brief overview of the permitted expressions:

Character	regular	Description
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	expression	
^	^o or ^Max	The circumflex character (^), followed by a character string in a regular expression, checks whether the character string is at the beginning of the call number or name. Using the regular expression "^o" causes the program to check whether the digit 'o' is at the beginning of the call number, or with the regular expression "^Max", whether the name begins with the character string "Max". In both cases the line would be filtered out.
\$	15\$ or mann\$	A character string followed by a dollar sign (\$) in a regular expression checks whether the character string is at the end of the call number or name. The regular expression "15\$" checks whether the character sequence "15" appears at the end of the call number, or the regular expression "mann\$" checks whether the name ends with the character string "mann". In both cases the line is filtered out.
	64 72 73 or Max mann lich	The vertical pipe character () separates two or more alternative character strings in the search. A match occurs when one of the alternatives applies. With the regular expression "64 72 73" a search for the numerical sequence 64 or 72 or 73 is performed anywhere in the call number. With the regular expression "Max mann lich" a search in the character string "Max" or "mann" or "lich" is performed anywhere in the name. If the search is successful the line is filtered out.
.	5.6 or M..er	The dot (.) in the regular expression is a placeholder for any character in this position. A search with the regular expression "5.6" will find the digit sequences 506, 516, 526... in the call number. A search with the regular expression "M..er" will find the character sequences "Meyer", "Meier", "Mayer",... in the name. If the search is successful the line will be filtered out.
[]	[123] or [asd]	The square brackets ([] and []) indicate a quantity of characters to be searched for in the call number or name. A search with the regular expression "[123]" will filter out all call numbers in which the digits 1, 2 or 3 occur. A search with the regular expression "[asd]" will filter out all names in which the letters a, s or d occur.

Check:

You can directly check your set of rules in the "Rules for detecting SIP lines" dialog box. Enter a character string in the Search Text field that you want to test with the set of rules. In the "Detected as SIP line:" field, you can see whether a rule for filtering was successfully applied to the search text.

See also Advanced Settings.

8 Info about estos ECSTA for Avaya IP Office

estos ECSTA for Avaya IP Office 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>.

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