

# estos ECSTA for Avaya IP Office

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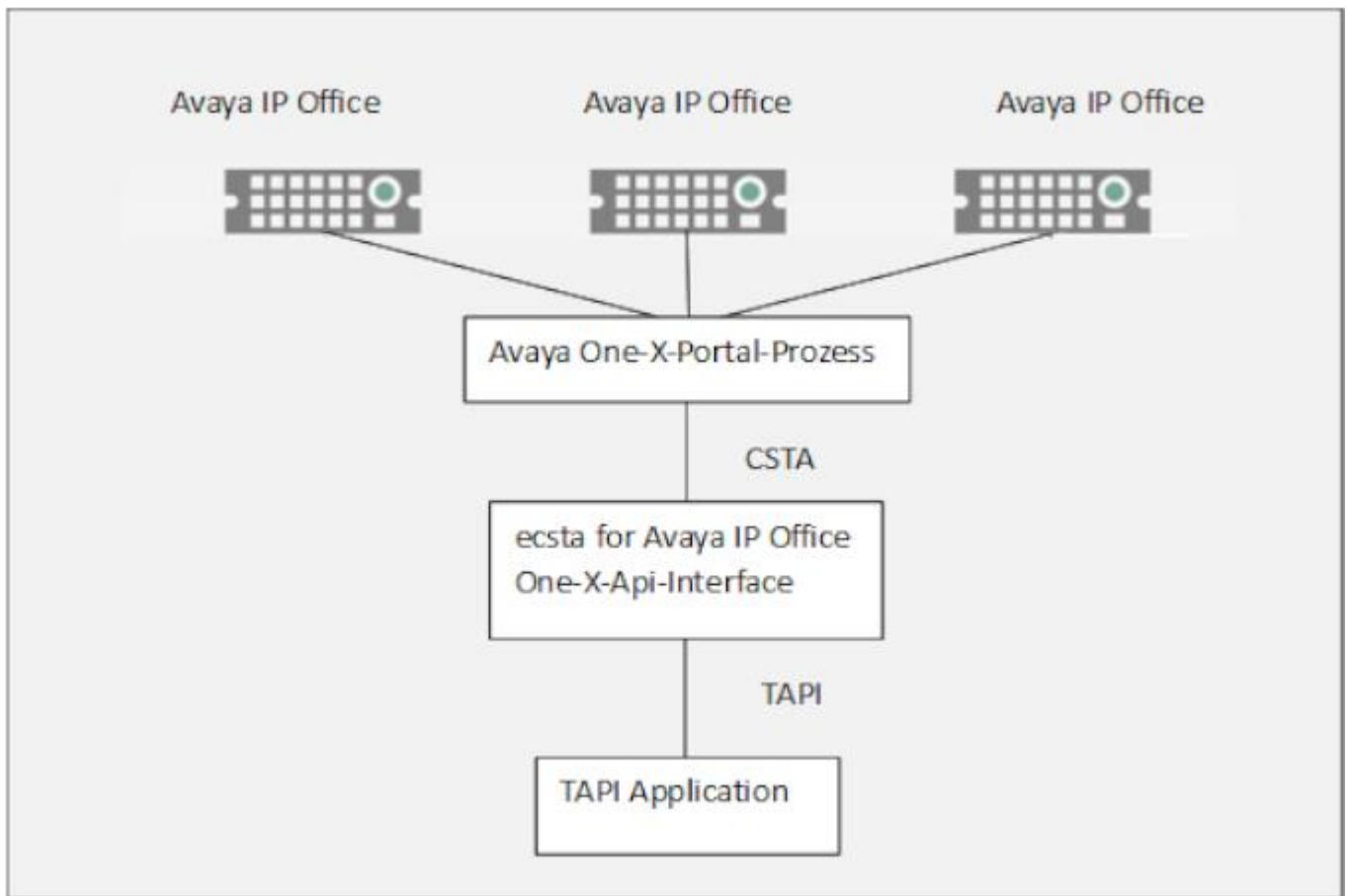
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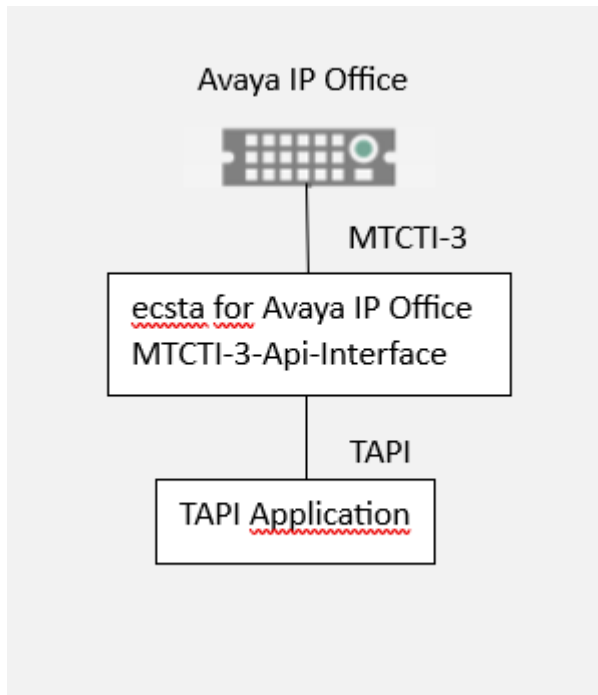
## 1 Introduction

The 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 between a PC and the telephone system. The config UI of the ECSTA for Avaya IP Office can be used to select which interface the ECSTA for Avaya IP Office should use for communication with the Avaya IP Office. In this way, the communication on the part of the ECSTA for Avaya IP Office can be set up via the One-X Portal interface of the Avaya One-X Portal process to the Avaya IP Office. This interface is used by Avaya IP Office from release version R. 10.1 provided. For information on configuring the Avaya IP Office and the Avaya One-X-Portal process for connecting the estos ECSTA for Avaya IP Office see Configuration requirements for connecting the ECSTA for Avaya IP Office to the Avaya IP Office.

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



Alternatively, communication between the ECSTA for Avaya IP Office and the Avaya IP Office can be established via the MTCTI interface. This interface is provided by Avaya IP Office from release version R.11.1. For information on how to configure the Avaya IP Office to connect the estos ECSTA for Avaya IP Office see Configuration requirements for connecting the ECSTA for Avaya IP Office to the Avaya IP Office.



## 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 the 64-bit version.

- Windows® 10 64bit
- Windows® 11 64bit
- Windows Server® 2016
- Windows Server® 2019
- Windows Server® 2022

### 3 Configuration requirements for Avaya IP Office

**Operating the driver via a connection via the Avaya One-X Portal process requires correct installation and configuration of the Avaya One-X Portal process and the 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".
- The estos ECSTA for Avaya IP Office logs on to the Avaya One-X Portal process with a user account. This user account must be set up as a member of the TCPA Group in the security settings of the Avaya IP Office Manager.
- 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

**The operation of the driver by means of a connection via the MTCTI3 interface requires a correct configuration of the Avaya IP Office.**

- The Avaya IP Office firmware must be "Release Version R.11.1" or higher.
- The estos ECSTA for Avaya IP Office logs on to the Avaya IP Office with a user account. This user account must be set up as a member of the MTCTI3 Group in the security settings of the Avaya IP Office Manager.
  - In the "Telephony APIs" tab
    - Extended TSPI access must be enabled
    - DevLink3 must be enabled
    - the location API must be activated

## 4 Driver Management

### Installation

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

### Driver instance

The driver can be connected directly to the telephone system via the MTCTI-3 interface of the Avaya IP Office (this is available from Avaya IP Office firmware version 11.1). All phones that are configured in the Avaya IP Office can be added in this driver instance. Alternatively, the driver can use the interface of the Avaya One-X Portal application to connect to the Avaya IP Office. All phones, 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**  
In the connection dialog of the Config-UI for the "ECSTA for Avaya IP Office" select the Avaya IPOffice interface via which you want to connect the driver to the Avaya IPOffice. Configure the connection and access data for access to the selected interface. Either for access via the interface of the "Avaya One-X Portal Application" or for access via the "MTCTI-3" interface.
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

The connection settings are configured in the connection dialog of the Config UI for the estos ECSTA for Avaya IP Office.

ECSTA for Avaya IP Office ✕

Verbindung

Leitungen

Standort

Erweitert

Lizenzen

Info

### Verbindung

Avaya IPOffice Interface MTCTI-3 Interface ▾

Host Name und IP-Port hostname 443

Verschlüsselung TLS Verbindung (verschlüsselt) ▾

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### Login

Benutzer

Kennwort

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Notizen zu dieser Verbindung:

### Configure connection data

Enter the connection data (interface, host name, IP port, encryption) in order to communicate directly with Avaya IP Office via the "Avaya MTCTI-3 Interface" or via the interface of the "Avaya One-X Portal Process " to set up Avaya IP Office.

### Avaya IP Office Interface

You can use this drop-down box to specify whether the estos ECSTA for Avaya IP Office should be connected to the Avaya IP Office directly via the "Avaya MTCTI-3 Interface" or via the interface of the "Avaya One-X Portal Process". If you have an existing installation for the "One-X Portal Interface" or no installation at all for the connection to the Avaya IP Office, the "One-X Portal Interface" is specified. Select the "MTCTI-3 Interface" if you want to install it and click on "Apply". A message appears that the line list will be deleted. A line list read in by the "One-X Portal Interface" cannot be used by the other interface and vice versa. Because they are managed differently depending on the interface. Therefore click on "Yes" in the dialog.

ECSTA for Avaya IP Office ✕

?

Durch das Wechseln des Interfaces wird die Leitungsliste gelöscht.  
Wollen Sie dennoch fortfahren?

### Host name

Depending on the interface that you have selected to connect the estos ECSTA for Avaya IP Office to the Avaya IP Office, you must either enter the name of the server on which the Avaya IP Office is

installed or the name or the IP address of the server on which the "Avaya One-X Portal Process" is running.

#### Portnumber

Depending on the interface that you have selected to connect the estos ECSTA for Avaya IP Office to the Avaya IP Office, you must either specify the port number on which the estos ECSTA for Avaya IP Office has access to the Avaya "MTCTI-3 interface" (default: 443) or access to the " Avaya One-X Portal Interface" (default: 9443 or 8080).

#### Encryption

The type of data encryption between estos ECSTA for Avaya IP Office and the interface you specified. With the "Avaya MTCTI-3 Interface", communication always takes place via a TLS-encrypted connection. With the Avaya One-X Portal Interface you can choose between unencrypted or TLS-encrypted.

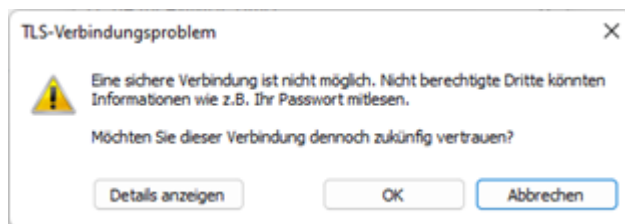
#### Login

Enter the access data (username / password) of the administrator account as configured in the Avaya One-X Portal application or in the "Avaya IP Office".

#### Check connection

You can test whether you can establish a connection to the selected interface "Avaya One-X Portal Interface" or "MTCTI-3 Interface" with the connection and access data.

When installing the "MTCTI-3 Interface" for the first time, a TLS connection problem can occur during the connection test because the TLS connection is initially classified as untrustworthy. A corresponding dialog is displayed in which the administrator can use the OK button to specify that this TLS connection is to be classified as trustworthy from now on.



#### 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).

If a driver connection is configured via the Avaya One-X Portal application, the lines first have to be configured in the Avaya One-X Portal application and assigned to the administrator with the appropriate access rights.

If a driver connection is configured via the MTCTI-3 interface, the lines must be configured in the Avaya IP-Office and assigned to the administrator with the 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.

### **Restrictions regarding the MTCTI-3 interface**

**The MTCTI-3 interface cannot currently be connected to the IP Office 500V2 if the IP Office is operated in a system network. An MTCTI-3 connection to a single IP Office 500V2 is possible.**

## **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 TAPI's 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 licensed in 2 different ways:

### **About the estos UCServer:**

The estos UCServer assigns a licence for each line activated in the UCServer. The number of lines licensed in estos UCServer is divided between the SIP lines and TAPI lines entered in UCServer. If additional line licences are required, the licences in estos UCServer must be increased.

### **With a registered licence**

A licence can be entered in the driver and/or a test licence can be downloaded. With a test licence, 25 lines are available without restriction for 45 days. Several licences can be entered to increase the number of line licences.

The following applies to both types of licences:

Any number of lines can be configured in the driver. Opening a line requires a licence. If the existing licences are used up, opening further lines will fail. Licence management for the lines in the driver is independent of which interface (one-X Portal or MTCTI3) has been selected for communication between the driver and Avaya IP Office.

If you have added several driver instances, all instances share the licences entered. You can allocate the lines to different instances as required.

## 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 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 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	TSPI_lineRedirect
Blind transfer	TSPI_lineBlindTransfer
Setup transfer	TSPI_lineSetupTransfer
Swap hold	TSPI_lineSwapHold
Complete transfer	TSPI_lineCompleteTransfer (LINETRANSFERMODE_TRANSFER)
Create conference <sup>1</sup>	TSPI_lineCompleteTransfer (LINETRANSFERMODE_CONFERENCE)
Forwarding	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

<sup>1</sup>Following 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. With regard to the conference signaling via the respective Avaya interface, certain compromises had to be made in the driver in order to keep the ECSTA call network consistent. Only 3-way conferences can be initiated via the driver. Adding participants to a conference or releasing individual participants from a conference can only be initiated over the telephone. If the conference is extended by any other conference participant who is not the conference master (e.g. via the telephone), this cannot be mapped properly in the call network of the driver. To avoid inconsistencies in the call network, the conference participants have limited CTI telephony services ("put on hold", "activate again" or "leave the conference").

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

	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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