

estos ECSTA for Avaya CS1000

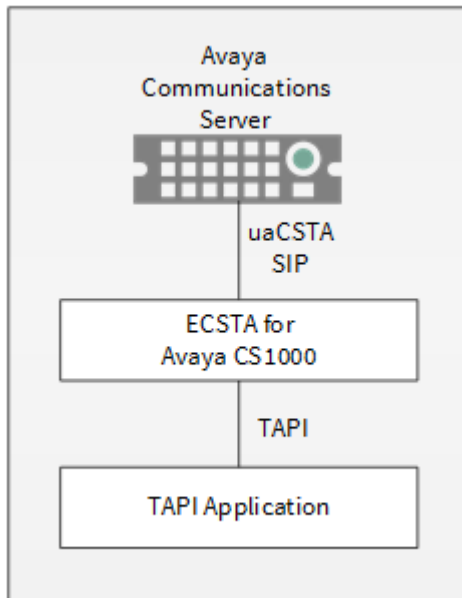
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1 Introduction

estos ECSTA for Avaya CS1000 offers multiple Telephony Service Providers for Microsoft® TAPI 2.1 (also 2.2 and 3.0). These TAPI drivers implement a central communication between a Server and the Telephony system (PBX). On this server all devices from the PBX are shown as TAPI lines.

All estos ECSTA for Avaya CS1000 drivers use the powerful CSTA Interface to communicate with the PBX.



Supported PBX systems

All systems of the Avaya Communications Server 1000 / Meridian / Succession family.

PBX	Driver
CS 1000	ECSTA for Avaya
CS 2000	ECSTA for Avaya
CS 2100	ECSTA for Avaya

Installation

The driver is installed using a Microsoft® Installer setup.

1. Setup for Communications Server

Multiple PBX systems

If you want to connect multiple CS1000 nodes or different service domains, you can install the driver several times.

This is done using the 'Advanced Phone and Modem Options. This program was installed with the driver and is located in the Control Panel.

Supported Operating systems

These are described in Software requirements.

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 Avaya CS1000 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 Communications Server

In the arrangement of the driver with a CS1000, proceed as follows:

1. **Check network connection**
Test availability of the CS1000 node or the NRS (ping hostname / IP Adresse).
2. **Configuration of the CS1000 node**
Configure the SIP Cti service in the CS1000 node over the Element Manager. See CS1000 node configuration.
3. **Configuration of the Network Routing Service (Optional)**
Configure Gateway Endpoints in the NRS. See Configure Network Routing Service.
4. **Additional instruction regarding the configuration of the CS1000 participants and the overall system (Version 7.x)**
Various settings in CS1000 must be set properly in addition to the connection configuration itself. See Configuration Details.
5. **Driver installation**
See also Settings

3.1 General Settings

The connection to the PBX system is established using SIP / TCP.

The connection is established either directly to a CS1000 node or to a Network Routing Service (NRS).

Connect to Communications Server

This is a direct connection to the CS1000 node. Input the IP address of the CS1000 server nodes here. The standard TCP Port for the SIP connection is 5060.

See also configuring CS1000 Node.

Connect to Network Routing Service

Input the IP address of the primary and optionally the secondary NRS here. The standard TCP Port for the SIP connection is 5060.

Connection over the NRS requires the configuration of the CS1000 node sip URI and the ECSTA gateways sip URI.

- **ECSTA Gateway sip URI**
Input the sip URI of the gateway Endpoint, that is configured in the NRS for this instance of the ECSTA.
Example: sip:ecsta@service_domain
See also configuring Network Routing Service.

CS1000 Node sip URI

Input the sip URI of the CS1000 node, for the devices that are supposed to be used over this instance of the ECSTA. The sip URI Endpoint consists of the sip Gateway Endpoint Name from the CS1000 node configuration and the service domain.

See also configuring CS1000 Node.

The CS1000 node must be registered in the NRS configuration under gateway Endpoints.

Example: sip:SS_SIP@service_domain

See also configuring Network Routing Service.

Link to interface IP / TCP port

For SIP communication an IP port is required. This is automatically registered in the Windows® Firewall.

You can link the SIP communication to a specific IP interface. Please note that the IP interface used must be located on the same network segment as the CS1000 node or the NRS.

3.2 TAPI Lines

Please add all Lines, that should be available as TAPI lines on the PC.

Manual Add/Remove Lines:

Please enter the internal dialing numbers and the name of the telephony device.

Load Lines from PBX:

All known device numbers are queried from the PBX system. All devices are queried that are in the range set in Advanced Settings.

Import text:

You may import simple text files with the line numbers and names. The content of the text file should be one extension (line) in each line of text. The separator is automatically detected. Example of text file content:

```
100,Extension 100
101,Office
102,Secretary
```

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.

Location

You can enter the number of the line in supercanonical format e.g. +49(30)12345-123. You should use the supercanonical number format if you are using several instances of Tapi drivers and connecting to several PBX systems at the same time. **In this case you should configure the data in the location dialog.**

Please note that the entry is in accordance with the following example. The internal extension has to be separated from the remainder with the minus sign '-'. If the connected PBX systems have no consistent numbering plan, you would get duplicate internal extensions as tapi lines. In the location dialog you may enter the following data.

- Country Code
The country code for Germany is 49, for the USA 1, for Switzerland 41. You can find more country codes in the telephone directory.
- Area code
The area code is only necessary in countries where it exists.
- PBX phone number
The PBX number is the remaining part between the area code and the direct access number.

The components and assemblies of an area code are: +country code(area code)PBX phone number-internal extension.

3.3 Location Settings

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

Phone Number 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.

phone-context of the telephone URI

Enter the phone-context, that is used for addressing the phone devices. This is either the domain or

'dialstring'.

Each phone device is represented by a tel URI. This is for example: tel:12345;phone-context=dialstring.

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.

3.3.1 Phone number formatting

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.

A differentiation is made between categories:

- **Incoming**
Phone numbers for incoming calls which are reported to the PC by the phone system are formatted with these rules.
- **Outgoing**
Numbers for outgoing calls which are reported to the PC by the phone system are formatted with these rules.
- **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.

A brief overview of the permitted 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 "[^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 "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 an asterisk 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 ([]) 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:

Effect	Search for	Replace with
Removal of a leading 0	^0(.*)	\1
Replacing a 80 at the beginning of a number (e.g. targeted external dialling code) with 0	^80(.*)	0\1
Removal of a private PIN which is added to the beginning of a phone number as 50xxx	^50[0-9][0-9][0-9](.*)	\1

Suppress all internal numbers having a 3-digit extension.	<code>^[0-9][0-9][0-9]\$</code>	
Add an external dialling code code (leading 0) for all numbers with more then 3 digits	<code>^([0-9][0-9][0-9].+)</code>	<code>0\1</code>
Add the phone system base number (03012345) to all internal numbers (1 to 3 digits in length)	<code>^([0-9][0-9]?[0-9]?)\$</code>	<code>03012345\1</code>
Adding an area code to all numbers not beginning with 0 and containing at least 4 digits (thus not internal).	<code>^([0][0-9][0-9][0-9].*)</code>	<code>08151\1</code>

3.4 Advanced Settings

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 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.

4 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 expression	Description
^	^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.

4.1 Licences

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 Configure Network Routing Service

The connection to the telephone system can be made through the Network Routing Service (NRS). This requires the CS1000 node and the ECSTA driver to be configured as Gateway Endpoints in the corresponding Service Domain.

5.1 Configuration details for Avaya CS1000 Version 6.5 and earlier versions

1. **Open the Network Routing Service Manager.**
Navigate to the Network Routing Service in CS1000 Element Manager and open the Network Routing Service Manager. Enter user name and password.
2. **Switch to Standby DB view**
In order to add a Gateway Endpoint or to change settings, this must be done in the mode standby DB view.
3. **Navigate to Configuration - Gateway Endpoints**
Select the Service Domain to be used. Press 'Show'.
4. **Check the Gateway Endpoint for the ECSTA Drivers**
You need a Gateway Endpoint to add ECSTA drivers.

Endpoint Name	ecsta (ECSTA Gateway sip URI user part)
Endpoint authentication enabled	Not configured
Static endpoint address type	IP version 4
H.323 Support	H.323 not supported
SIP support	Dynamic SIP endpoint
SIP transport	TCP
SIP port	5260 (ECSTA TCP Listen Port)

- 5.
6. **Save the changes**
Under Tools - Database Actions, run 'Cut over and Commit.'

5.2 Configuration details for Avaya CS1000 Version 7.0 and later versions

7. **Open the Networks Routing Service Manager**
Navigate in the CS1000 Element Manager to Network Routing Service and open the Network Routing Service Manager. Log on.
8. **Open the End Points view under Numbering Plans.**
To add a gateway endpoint or to change settings, the Managing mode must be set to the Standby Database Mode. Add a new endpoint under the Gateway Endpoints item.
9. **Configure the new gateway endpoint as follows:**

Endpoint Name	ecsta (ECSTA Gateway sip URI user part)
Endpoint authentication enabled	Authentication off
Static endpoint address type	IP version 4
H.323 Support	H.323 not supported
SIP support	Dynamic SIP endpoint
SIP mode	Proxy mode
SIP TCP transport enabled	activate
SIP TCP port	5260 (ECSTA TCP Listen Port)

10.

11. **Save the changes**

Save the settings for the gateway endpoint Execute the Cut Over and then the Commit menu options under System Database.

6 Configure CS1000 node

The connection with the PBX system can be established via the Network Routing service (NRS) or directly to a CS1000 node. In any case, the SIP Cti service must be configured in the CS1000 node.

6.1 Configuration details for Avaya CS1000 Version 6.5 and earlier versions

12. **Open the Element Manager**

Open the

13. **Navigating to the CS1000 node.**

Navigate under System - IP Network - Nodes: Servers, Media Cards CS1000 to the node you want to configure. Click 'Edit ...' on the corresponding node

14. **Activating the SIP CTI Service**

In SIP, CTI services, please check the following settings:

Service Enabled	aktivieren
Support TLS Endpoints Only	deaktivieren

15.

16. **Save the changes**

6.2 Configuration details for Avaya CS1000 Version 7.0 and later versions

17. **Open the Element Manager**

Open the

18. **Navigating to the CS1000 node.**

Navigate to the CS1000 node that you want to configure under System - IP Network - Nodes: Servers, Media Cards. Open the corresponding node.

19. **Open Gateway (SIPGw & H323Gw) under Applications.**

Under 'SIP domain' name you will find the domain portion of the SIP URI for the CS1000 node and the ECSTA node (For configuration in the ECSTA).

Under 'Gateway endpoint name' you will find the user portion of the SIP URI of the CS1000 node. (For configuration in the ECSTA).

20. **Activating the SIP CTI Service**

Check the following settings under the SIP CTI service:

Enable CTI service	activate
TLS Endpoints only	deactivate
Calling device URI format	Check that the URI notation configured here agrees with the URI notation in ECSTA configured under the Location Phone context.

21.

22. **Save the changes**

7 CS1000 detail configuration

23. An Elan 32 must have been programmed (it absolutely must be Elan 32).

```
24.
25.   ld 22
26.
27.   REQ prt
28.   TYPE adan elan
29.   ADAN ELAN 32
30.   CTYP ELAN
31.   DES Application
32.   N1 512
```

33. A VAS ID 32 must have been programmed.

```
34.
35.   REQ prt
36.   TYPE vas
37.   VAS
38.   VSID 032
39.   ELAN 032
40.   SECU YES
41.   INTL 0001
42.   MCNT 9999
```

43. SIP CTI licenses must be present.

```
44.
45.   ld 22
46.
47.   REQ slt
48.   System type is - Communication Server 1000E/CP PMCP PM -
    Pentium M 1.4 GHz
49.   IPMGs Registered: 24IPMGs Unregistered: 0IPMGs
    Configured/unregistered: 0
50.
51.   TRADITIONAL TELEPHONES 68 LEFT 59 USED 9
52.   DECT USERS 0 LEFT 0 USED 0
53.   IP USERS 1305 LEFT 0 USED 1305
54.   BASIC IP USERS 0 LEFT 0 USED 0
55.   TEMPORARY IP USERS 0 LEFT 0 USED 0
56.   DECT VISITOR USER 0 LEFT 0 USED 0
57.   ACD AGENTS 940 LEFT 57 USED 883
58.   MOBILE EXTENSIONS 5 LEFT 5 USED 0
59.   TELEPHONY SERVICES 25 LEFT 25 USED 0
60.   CONVERGED MOBILE USERS 0 LEFT 0 USED 0
61.   AVAYA SIP LINES 0 LEFT 0 USED 0
62.   THIRD PARTY SIP LINES 0 LEFT 0 USED 0
63.
64.   PCA 40 LEFT 40 USED 0
65.   ITG ISDN TRUNKS 0 LEFT 0 USED 0
66.   H.323 ACCESS PORTS 20 LEFT 8 USED 12
67.   AST 1605 LEFT 358 USED 1247
68.   SIP CONVERGED DESKTOPS 0 LEFT 0 USED 0
69.   SIP CTI TR87 1225 LEFT 1224 USED 1
70.   SIP ACCESS PORTS 1475 LEFT 909 USED 566
71.   RAN CON 124 LEFT 124 USED 0
72.   MUS CON 300 LEFT 272 USED 28
73.
74.   IP RAN CON 0 LEFT 0 USED 0
75.   IP MUS CON 0 LEFT 0 USED 0
76.   IP MEDIA SESSIONS 0 LEFT 0 USED 0
77.   TNS 65535 LEFT 59490 USED 6045
78.   ACDN 24000 LEFT 23387 USED 613
79.   AML 16 LEFT 14 USED 2
```

```

80. IDLE_SET_DISPLAY HRG
81. LTID 65535 LEFT 65535 USED 0
82. RAN RTE 512 LEFT 511 USED 1
83. ATTENDANT CONSOLES 65535 LEFT 65535 USED 0
84. IP ATTENDANT CONSOLES 0 LEFT 0 USED 0
85. BRI DSL 10000 LEFT 10000 USED 0
86. DATA PORTS 65535 LEFT 65535 USED 0
87. PHANTOM PORTS 65535 LEFT 65508 USED 27
88. TRADITIONAL TRUNKS 65535 LEFT 65145 USED 390
89. ELC ACCESS PORTS 0 LEFT 0 USED 0
90. DCH 254 LEFT 239 USED 15

```

91. The telephones to be controlled must have the T87A prompt in the Class of Service (T87D is the default).

Likewise, IAPG must have been set to 1 and AST must show the key to be monitored. In this example, the key is 0 and AST is also 0 for that reason.

```

92.
93. LD 20
94. REQ:PRT
95. TYPE:1140
96. DES 1140
97. TN 188 0 08 01 VIRTUAL
98. TYPE 1140
99. CDEN 8D
100. CTYP XDLC
101. CUST 0
102. NUID
103. NHTN
104. CFG_ZONE 00177
105. CUR_ZONE 00177
106. MRT
107. ERL 0
108. ECL 0
109. FDN
110. TGAR 0
111. LDN NO
112. NCOS 7
113. SGRP 0
114. RNPG 177
115. SCI 0
116. SSU 0177
117. LNRS 20
118. XLST 2
119. SCPW 1234
120. SFLT NO
121. CAC_MFC 0
122. CLS TLD FBD WTA LPR PUA MTD FND HTD TDD HFA CRPA
123. MWA LMPN RMMD AAD IMD XHD IRD NID OLD VCE DRG1
124. POD SLKD CCSD SWD LNA CNDA
125. CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCB
126. ICDD CDMD MCTD CLBD AUTU
127. GPUD DPUD DNDD CFXA ARHD FITD CLTD ASCD
128. ABDD CFHD FICD NAID BUZZ AGRD MOAD
129. UDI RCC HBTD AHA IPND DDGA NAMA MIND PRSD NRWD NRCD NROD
130. DRDD EXR0
131. USRD ULAD RTDD RBDD RBHD PGND OCBF FLXD FTTC DNDY DNO3 MCBN
132. FDSD NOVD VOLA VOVA CDMR PRED RECD MCDD T87A SBMD
133. KEM3 MSNV FRA PKCH MUTA MWTD DVLD CROD ELCD
134. CPND_LANG ROM
135. RCO 0
136. HUNT
137. PLEV 02
138. PUID

```

```

139. UPWD
140. DANI NO
141. AST 0
142. IAPG 1
143. AACS NO
144. ITNA NO
145. DGRP
146. MLWU LANG 0
147. MLNG FRE
148. DNDR 0
149. KEY 00 SCR 330032 3832 MARP
150. CPND
151. CPND_LANG ROMAN
152. NAME COMS, Room
153. XPLN 23
154. DISPLAY_FMT FIRST, LAST
155. 01 ADL 20
156. 02 ADL 20
157. 03 ADL 20
158. 04 ADL 20
159. 05 ADL 20
160. 06 ADL 20
161. 07 ADL 20
162. 08 ADL 20
163. 09 ADL 20
164. 10 ADL 20
165. 11 ADL 20
166. 12
167. 13
168. 14
169. 15
170. 16 MWK 330345
171. 17 TRN
172. 18 AO6
173. 19 CFW 20
174. 20 RGA
175. 21
176. 22 RNP
177. 23 SSU 0177
178. 24
179. 25
180. 26
181. 27
182. 28
183. 29
184. 30
185. 31
186. DATE 10 DEC 2011

```

8 Supported TAPI functions

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	TSPI_lineBlindTransfer
Setup transfer	TSPI_lineSetupTransfer
Swap hold	TSPI_lineSwapHold
Complete transfer	TSPI_lineCompleteTransfer (LINETRANSFERMODE_TRANSFER)
Create conference	TSPI_lineCompleteTransfer (LINETRANSFERMODE_CONFERENCE)
DTMF dialing	TSPI_lineGenerateDigits
Add to conference	TSPI_lineAddToConference
Dial in dial tone mode	TSPI_lineDial
Forwarding	TSPI_lineForward TSPI_lineGetAddressStatus <ul style="list-style-type: none"> ○ LINEFORWARDMODE_UNCOND

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

9 Info about estos ECSTA for Avaya CS1000

estos ECSTA for Avaya CS1000 is a product of estos GmbH.

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

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

Diagnosis

Log files can be created for troubleshooting. These are stored in the specified path.

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