

estos ECSTA for BroadWorks

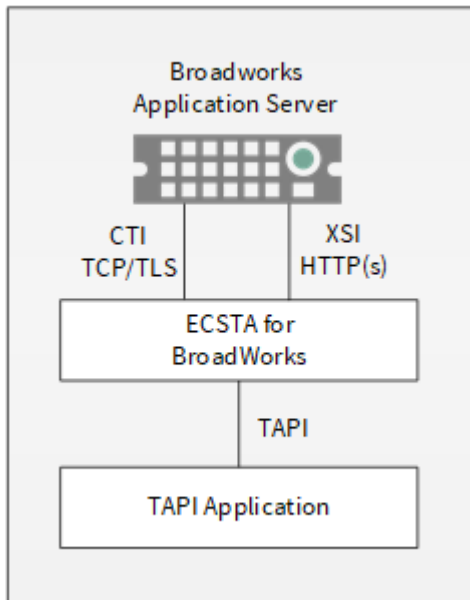
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1 Introduction

estos ECSTA for BroadWorks provides a telephony service provider (TSP) for Microsoft® TAP 2.1 (also 2.2 and 3.0). This TAPI driver establishes central communication between a PC and the telephone system. estos ECSTA for BroadWorks uses the BroadWorks CTI (Computer Telephony Integration) as well as the XSI (Xtended Services Interface) interface to communicate with the telephone system.

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



2 Requirements

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

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

Depending on the interface that is used for BroadWorks platform access, appropriate ports for the communication between ECSTA for BroadWorks and the BroadWorks platform must be provided by your service provider. You can get the information for the access configuration from your service provider.

It is required by default

Interface / connection-type	configurable port	fixed port
XSI over http	80	
XSI over https	443	
CTI connection unencrypted	8011	80
CTI connection encrypted	8012	443

First the ecsta tries to resolve a SRV record via a SRV lookup. If a corresponding entry is found, it will be used as the destination.

The provider must enter the following records:

_ecsta_tcp / _ecsta_tls	for http / https	Example: _ecsta_tls.web.provider.de
_ecsta-cti_tcp / _ecsta-cti_tls	for the CTI connection unencrypted / encrypted	Example:_ecsta-cti.web.provider.de

Example: SRV-Lookup for _ecsta_tls.web.provider.de

```
Server: google-public-dns-a.google.com
Address: 8.8.8.8
Non-authoritative answer:
_ecsta_tls.web.provider.de SRV service location:
priority = 20
```

```
weight = 20
port = 443
svr hostname = web1.bwAccessURI.com
_ecsta._tls.web.provider.de SRV service location:
priority = 10
weight = 20
port = 443
svr hostname = web2.bwAccessURI.com
```

If no SRV record is found in the SRV lookup, the URL entered in the configuration is used.

Example:**web.provider.de**

Please note

For the connection of the ECSTA for BroadWorks to the BroadWorks platform via the CTI interface processing of various requests requires a http connection. Reading the lines or the use of the remote office function requires an additional access via http (port 80 or 443 with encrypted connection).

3 Driver Management

Installation

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

Driver instance

The driver may be used to connect to a phone system via the BroadWorks CTI/XSI interface. In this instance of the driver, several telephones which all must belong to the same group can be added.

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.

4 ECSTA for BroadWorks

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 BroadWorks.
2. **Workstation or Server Mode**
The driver may be used in a Workstation Mode to control one telephone set or in a Server Mode to control multiple telephones.
3. **Configure connection**
Configure the Connection and access data for the BroadWorks platform of your service provider.
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 your Location.

4.1 Server Mode

In server mode, the driver can be used to control several telephones.

Installation

During installation, choose server mode.

Enter the connection data by which your service provider has made the BroadWorks platform available. In server mode the lines of a BroadWorks user group can be controlled and monitored. Logging on to the BroadWorks platform requires the access data of a groups' administrator. As access data, enter the Administrator ID and its password.

To read out the lines of the groups, currently the phone number of a user of the group is additionally required.

4.2 Workstation Mode

In workstation mode, the driver can be used to control one telephone.

Installation

During installation choose workstation mode.

Specify the connection data by which your service provider has made the BroadWorks platform available. As access data, enter the user name and password you also use to log on to the BroadWorks Web Portal of your service provider. This access data is used to verify permission to control the telephone.

Prompt for entering a Password

The user may change his password for example using the BroadWorks Web Portal. As soon as estos ECSTA for BroadWorks determines that the configured password is no longer valid, the user is prompted to enter the new password.

4.3 Connection Settings

Provider

Configure the access to the BroadWorks platform of your provider. Select a pre-configured access profile (host, port, type of connection, different URL-Prefix) or configure the access manually

(selection: individual). You can get the information for the manual access configuration from your service provider.

Host name or IP

The DNS-name of the BroadWorks platform of your service provider. The ECSTA for BroadWorks always tries to resolve a SRV record to its target via an SRV lookup. If a corresponding entry is found, it will be used as the destination. If no SRV record is found, the URL entered in the configuration will be used (see requirements)

Port

The port at which the access to the BroadWorks platform is provided by your service provider.

Connection type

The type of connection to the service provider. You can choose from different connection types.

Type	Remarks
CTI(s) Connection (unencrypted/encrypted)	For the communication with the BroadWorks CTI interface, ECSTA for BroadWorks will establish an encrypted or unencrypted TCP connection. Processing certain requests, e.g. reading out the lines or using the remote office function requires additional access via http (port 80 or 443 with encrypted connection) (see prerequisites). This connection type should be used if your provider offers it. The persistent TCP connection creates less load on both sides and works much better.
http(s) Connection (unencrypted/encrypted)	For the communication of the ECSTA for BroadWorks with the BroadWorks platform via the BroadWorks XSI interface, ECSTA for BroadWorks sets up temporary http connections (encrypted or unencrypted) to the XSI interface for issuing the individual requests.

Examples:

Provider	Server name	Connection Type	Port	Different URL-Prefix
Plusnet GmbH (Deutschland)	web.centraflex.de	CTI(s) encrypted	8012	-
Routit (Netherlands)	cai.voipit.nl	http(s) encrypted	443	nl.cai

Login

Enter the access data of the workstation user in the case of an installation in workstation mode. In the case of an installation in server mode, enter the access data of the groups' administrator.

Check connection

You can test whether you can establish a connection to the BroadWorks platform of your service provider and also log in there with the connection and access data.

Comments for this connection

Here you can enter comments, notes and the like.

4.4 Line Settings

Workstation Mode

In workstation mode, only the line permanently assigned to one of the workstation users is displayed.

Server Mode

In server mode you can specify lines that the driver should make available here. The lines must be assigned to the group that the group administrator has access to.

Tools - Read lines...

After entering the user ID of a group user, all lines are automatically read out and added 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.

4.5 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.
- Configure proxy
If you require a proxy for access to the BroadWorks XSI interface you can configure it here. It is not possible to use the BroadWorks CTI interface with a proxy.
- Line Name Format
The TAPI line names can be modified via this setting.
Standard = Line number [names]
Phone number = Line number
Name = Name
- 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.
- 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.
You can enter a time interval in seconds here.

4.6 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.

4.7 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.

5 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-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 ([and]) 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][0-9][0-9][0-9].*)	08151\1

5.1 Supported TAPI operations

The driver offers the following TAPI call control operations.

Action:	Corresponding TAPI function:
Dial	TSPI_lineMakecall
Hang up	TSPI_lineDrop
Answer call	TSPI_lineAnswer
Hold call	TSPI_lineHold
Retrieve call	TSPI_lineUnhold
Redirect call	TSPI_lineRedirect
Blind transfer ²	TSPI_lineBlindTransfer
Setup transfer	TSPI_lineSetupTransfer
Swap hold	TSPI_lineSwapHold
Complete transfer	TSPI_lineCompleteTransfer (LINETRANSFERMODE_TRANSFER)
Create conference	TSPI_lineCompleteTransfer (LINETRANSFERMODE_CONFERENCE)
Add to conference	TSPI_lineAddToConference
Forwarding	TSPI_lineForward TSPI_lineGetAddressStatus <ul style="list-style-type: none"> ○ LINEFORWARDMODE_UNCOND ○ LINEFORWARDMODE_BUSY ○ LINEFORWARDMODE_NOANSW
Do not disturb	TSPI_lineForward TSPI_lineGetAddressStatus

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

6 Info about estos ECSTA for BroadWorks

estos ECSTA for BroadWorks 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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