estos ECSTA for Mitel

4.0.7.3683

1 Introduction

estos ECSTA for Mitel is a CSTA middleware for Mitel PBX systems. This server allows monitoring and control of the telephone devices using the standard CSTA protocol.

estos ECSTA for Mitel uses the Mitel MiTai interface to communicate with the pbx.

CTI applications can monitor and control the Mitel PBX system using this CSTA server.

- ECSTA for Mitel is a Tapi driver for Microsoft Windows. It allows the monitoring and control of the PBX system using the Microsoft Tapi interface.
- External CSTA applications may be connected to the server.

CSTA Server for Mitel
For installing the CSTA server see Server Installation.

ECSTA for Mitel
For installation of the Tapi driver see Tapi Driver Installation.
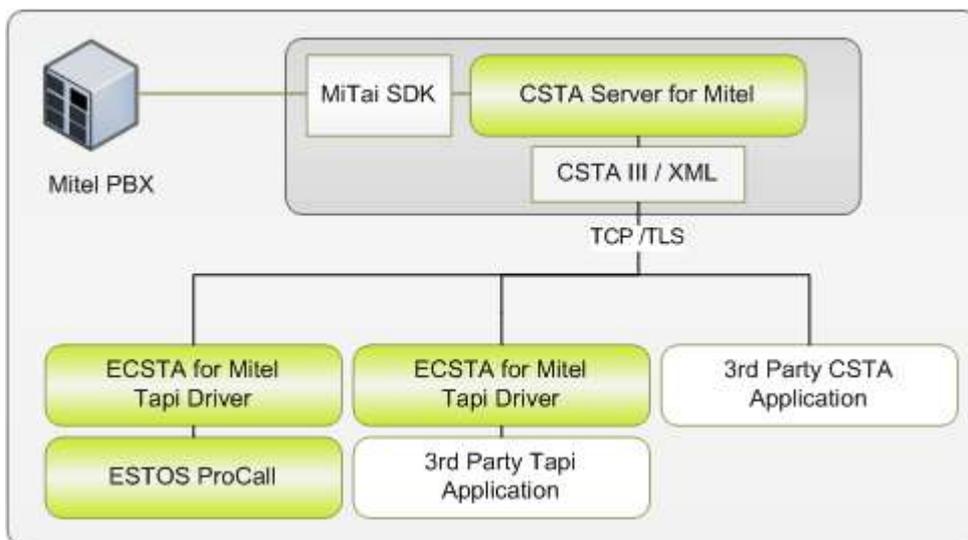
Using in the network
After installing the driver, you may use all configured line devices on the server as TAPI-lines. If you are using a server based CTI Software, you may install it now. To have the TAPI-devices available on all workstations, the TAPI-driver must be distributed in the network. There 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 Requirements

PBX System
A Mitel PBX system is required. Required version are MCD 4.0 and higher.

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

- Windows 7
- Windows 8
- Windows 8.1
- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012
- Windows Server 2012 R2

3 Configure telephone system

For using the CSTA server, the PBX system must be configured by a service technician. The following settings must be configured:

Setting	Value
'System Configuration' > 'System Capacity' > 'License Option Selection'	
Mitai/TAPI Computer Integration	YES
'Class of Service Options' for phones and trunks	
HCI/CTI/TAPI Call Control Allowed	YES
HCI/CTI/TAPI Monitor Allowed	YES

4 Server Installation

During the server setup, proceed as follows:

1. Check the version of the Mitel PBX system
   The minimun required versions is MCD 4.0.
2. Check operating system
   See Requirements.
3. Configure PBX system
   See PBX system configuration.
4. Run MSI setup
   Run the CSTA Server setup 'ecstamitelserver.msi'.
5. Configure the connection to the PBX system
   See PBX systems.
6. Configuration of the CSTA Server
   See CSTA Server configuration.
7. Start the CSTA Server Service
   See CSTA Server Service.
8. Finish the installation
   Complete the installation.
9. Install ECSTA for Mitel Tapi driver
   See also Tapi Driver installation

4.1 CSTA Server for Mitel

estos ECSTA for Mitel is a CSTA middleware for Mitel PBX systems. This server allows monitoring and control of the telephone devices using the standard CSTA protocol.

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CTI applications can monitor and control the Mitel PBX system using this CSTA server.

- ECSTA for Mitel is a Tapi driver for Microsoft Windows. It allows the monitoring and control of the PBX system using the Microsoft Tapi interface.
- External CSTA applications may be connected to the server.

For installation of the server see Server Installation. For administration of the server see Server Administration.

4.2 Server Administration

Installation
Using the Windows Installer (msi), the server will be installed on the system.

Server configuration
The configuration of the server can be bound in the start menu in CSTA Server for Mitel administration.

Updates
To install an Update start the Windows Installer Package (msi).
During an update, all settings remain valid. During the update process, the server service will be stopped and restarted after the installation.

Deinstallation
Uninstall is done using the Windows Software Maintenance. During uninstall, the service and the software will be removed.

4.3   PBX systems

This dialog is used to configure the connection to one or more PBX systems.

Name for this PBX system
Please enter a name. The name is used only for display purposes. You may not use the same name more then once.

IP address of the Mitel PBX system
Please enter the IP address of the PBX system. If the IP address resides in a protected IP address segment or in a VLAN, make sure this server can connect to it.

Service domain
The service domain is used to seperate the telephone devices in case of multiple PBX systems. A service domain must be unique. The telephone device with the phone number 100 in the service domain pbx.local will be identified as '100@pbx.local'.

Local IP Interface
Enter the local IP interface used to connect to the IP address of the PBX system.

Lines
The status of the PBX connection is shown here as a symbol.

- grey: status unknown
- green: connected to the PBX system
- yellow: connection to the PBX system interrupted

The number tells the amount of telephones, that are currently in use (for monitoring). This amount must be smaller than the amount of licenses.

4.4   CSTA Server

This dialog is used to configure the CSTA server.

TCP port and IP interface
Using this IP port (default 1050), the CSTA server offers its services (unencrypted).
In case only one locally installed ECSTA for Mitel Tapi driver is used, the local IP interface may be configured as '127.0.0.1'.

TLS port and IP interface
Using this IP port (default 1051), the CSTA server offers its services using TLS (encrypted).
This requires a TLS/SSL certificate.

Certificate for the TLS/SSL communication
For the encrypted communication over TLS (Transport Layer Security), a server certificate is required. A server certificate is used to uniquely identify a server. The certificate must be issued to the FQDN (fully qualified domain name) of the server. The server certificate must be issued by a trusted certifiation authority.
Certificates are configured in the Certificate Snap-In of the Management console (MMC).

The cetificate must be saved in the 'Local Computer' certificate store. They must contain a private key. The 'Local Computer' certificate store can be opened using the MMC console.

- From the Windows start menu choose Run… and enter mmc.exe
- Choose File | Add/remove SnapIn…
- Choose Add. From the list of available Snap-Ins choose Certificates. Choose Computer account, Local computer and press Finish
- In the list navigate to Certificates (Local computer) / Personal Certificates

A certificate can be issued either in the own company using a 'Windows Certificate Authority' or from serveral companies like http://www.startssl.com.

CSTA Login
Enter user name and password. This login is used for CSTA applications and the ECSTA for Mitel Tapi driver. The default user is 'admin', the default password is 'admin'.

Hint
When changing the settings on this dialog, it is required to restart the server service.

4.5   Server Service

On this dialog you see the status of the server service and you may start and stop the server service.

Server Service
CSTA Server for Mitel is running as Windows system service. The service is installed during setup and will be started after the initial configuration.

In case one of the following errors occurs during the server startup, the server will fail to start:

- TCP IP port cannot be opened (another application is using it)
- TLS IP port cannot be opened (another application is using it)
- TLS server certificate is not valid
- MiTai SDK cannot be initialised

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.

4.7   Logging

This dialog is used to configure the log files for troubleshooting.

Log Level
Choose how much information should be written to the log files.

Maximum size of one log file
Multiple log files are generated. Each log file section uses a rollover logging and will begin a new file, after the configured size in MB is reached.

Delete log files every day
In case this option is checked, all log files will be deleted after one day.

Log file path
This directory is used for the log files. Please note that the server service requires write access to this directory.

5   ECSTA for Mitel

ECSTA for Mitel is a Telephony Service Provider for Microsoft Tapi 2.1 (also 2.2 and 3.0). This Tapi driver establishes the communication beween a PC (Cti Server) and the PBX system using the CSTA Server for Mitel. On this Cti Server, all devices of the PBX system are made available as Tapi lines.
ECSTA for Mitel uses the CSTA protocol to connect to the CSTA Server for Mitel.

For installation and administration of the driver see Driver management.

When setting up the driver, follow these steps:

1. Check network connection
   Check connectivity to the CSTA Server for Mitel (ping hostname / IP address).
2. Version of the CSTA Server for Mitel
   CSTA Server for Mitel and ECSTA for Mitel should be the same version.
3. Run driver setup
   Start the ecstamiteltapi.msi (32 Bit systems) or ecstamiteltapi_x64.msi (64 Bit systems).
4. Driver configuration
   Enter the IP address and the IP port to establish a connection to the CSTA Server for Mitel.
5. Line configuration
   Add the telephone devices, that the driver should use as Tapi lines.

5.1   Driver Management

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

Driver instance
The driver can be used to connect one or several phone systems. For this purpose one or several driver instances are registered in Windows Tapi System.

Register at Tapi System
During the installation, an instance from the selected driver is already registered at the Tapi system.
Thereby, you select the necessary data in a Wizard in order to connect the driver with the telephone system.

Configuration of Driver instance
The configuration of the driver instances takes place either over *Telephone and Modem option* in the Control Panel or over the standard program *Advanced Telephone Driver option* that can be found in the Control Panel or in the Start Menu.

Add further driver instances
If you want to connect the computer with a further telephone system, you must add a further instance of the driver to the Tapi system. This takes place with Help in the standard program *Advanced Telephone Driver options* that can be found in the Control Panel or in the Start Menu.

Updates
To install an Update start the Windows Installer Package (msi).
If a driver instance is configured, this is deleted during the Update and is automatically added again after the Update is completed. If several driver instances are configured, the computer must be restarted after the Update.

Deinstallation
The Deinstallation takes place via the Windows Software Administration. In the Deinstallation, all instances of the driver are removed from the Tapi system and the software uninstalled.

5.2 General Settings

Connection
The connection to the CSTA Server for Mitel is established using TCP or TLS.
Enter the IP address of the server. The default IP port for the TCP connection is 1050, for TLS it is 1051.

TCP or TLS connection
You may choose using an encrypted connection with TLS, if configured in the server.

Login
Enter the user name and password that is configured in the CSTA Server for Mitel. The default user name is 'admin', the default password is 'admin'.

Service domain
Enter the service domain of the PBX system that you want to connect to. Each PBX system in the CSTA Server for Mitel has a unique service domain.

5.3 TAPI Lines

Enter the Lines that the driver should make available through TAPI. The numbers are the internal Callnumbers of your devices, the names are used to display the TAPI lines.

Phone Number Format
The lines can be optionally as an internal phone number, for example *123* or canonical, for example
You should use canonical phone numbers if you use several instances of Tapi driver and thus switch on several telephone systems at the same time. A canonical phone number consists as follows:
+Country code (prefix) Local prefix-extension
In the dialogue Location You can configure the country code, area code and local dialing prefix.

Load Lines from PBX
The available lines are determined automatically from the telephone system.

Manual addition of a line
Give the internal phone number of the phone. Optionally, a name can also be given.

Import text
You can import a list of lines from a text file. The file must begin every line with the phone number. Optionally, the name can also be split with a comma.

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

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

5.4 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.

5.5   Phone Number Format

You may enter rules for formatting the phone numbers.

The phone numbers that are reported from the PBX system to the PC and the numbers that are send from the PC to the PBX system may be modified with a Search and Replace function.

The phone numbers that are sent from the Tapi Application to the PBX (make call) may be modified as well.

Each line in the list contains an option if direct text compare or a regular expression is used.

The Search and Replace function uses regular expressions. If a search pattern matches, the result from replace with will be used as output. It the search pattern does not match, the original number will be reported unchanged. The entries in the list are processed one after each other. If one match is found the remaining enties will be ignored.

There are three categories:

- Incoming
  This section is for phone number from incoming calls that are reported from the PBX system to the PC.
- Outgoing
  This section is for phone number from outgoing calls that are reported from the PBX system to the PC.
- PC 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 "^0" matches "0" 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 "[^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 asterix (*) indicates that the character to the left of the asterix in the expression should match 0 or more times.
+	The plus (+) is similar to asterix but there should be at least one match of the character to the left of the + sign in the expression.
?	The question mark (?) matches the character to its left 0 or 1 times.
()	The parenthesis affects the order of pattern evaluation and also serves as a tagged expression that can be used when replacing the matched sub-string with another expression.
[]	The corner brackets ([and]) indicates the amount of signs that are permitted at this point.

Replace with:
Enter the expression that defines how the number is to be formatted.
\1 represents the first matched expression enclosed by parentheses '( )' from the *search pattern* field.
\2 the second ...

Check:
You may check your expressions right here by entering a phone number in the indicate field. The resulting output will be displayed. If the expression from the search pattern is not found, the phone number will be send to the outpout without modification.

Examples:

Result	Search for	Replace with
Remove a leading 0 from the phone number	^0(.*)	\1
Replace a leading 80 at the beginning of the phone number by a 0	^80(.*)	0\1
Remove a private pin number that may be identified by a 50 followed by a 3 digit pin.	^50[0-9][0-9][0-9](.*)	\1
Suppress all internal numbers having a 3-digit extension.	^[0-9][0-9][0-9]$	
Add an access code (leading 0) to all numbers with more than 3 digits (e.g. all external numbers).	^([0-9][0-9][0-9].+)	0\1
Add the PBX system root number (03012345) to all internal numbers	^([0-9][0-9]?[0-	03012345\1

(with 1 to 3 digits)	9]?)$	
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

5.6   Logging

This dialog is used to configure the log files for troubleshooting.

Log Level
Choose how much information should be written to the log files.

Maximum size of one log file
Multiple log files are generated. Each log file section uses a rollover logging and will begin a new file, after the configured size in MB is reached.

Delete log files every day
In case this option is checked, all log files will be deleted after one day.

Log file path
This directory is used for the log files. Please note that the server service requires write access to this directory.

5.7   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	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
Pickup	TSPI_linePickup
DTMF dialing	TSPI_lineGenerateDigits
Dial in dial tone mode	TSPI_lineDial
Forwarding	TSPI_lineForward TSPI_lineGetAddressStatus • LINEFORWARDMODE_UNCOND • LINEFORWARDMODE_BUSYEXTERNAL • LINEFORWARDMODE_BUSYINTERNAL
Do not disturb	TSPI_lineForward TSPI_lineGetAddressStatus
Message waiting	TSPI_lineSetLineDevStatus TSPI_lineGetLineDevStatus

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 Mitel

estos ECSTA for Mitel is a product of estos GmbH.

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

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

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