TeamCall Express 2: Installation and Configuration

August 2020

Contents

1 Introduction

This document provides instructions for installation and configuration of TeamCall Express.

TeamCall Express is a Windows software that communicates with phone systems using TAPI functions. It is used to let applications like the macOS CTI app "direct" work with the phone system. TeamCall Express supports most phone systems with a TAPI interface.

TeamCall Express must be installed on a computer connected to the phone system via LAN. Since TeamCall Express is not a resource intensive program, it does not need to be installed on the latest hardware or on a PC that is dedicated to running TeamCall Express. Installation on a virtual Windows image is possible as well, provided that the phone system's TAPI driver can run on a virtual system.

The TeamCall Express installation package is shipped as a ZIP file.

2 Preparations

2.1 Requirements

Installing ilink TeamCall Express requires the following:

Windows PC

ilink TeamCall Express must be installed on a PC that is capable of running around the clock and is protected against being inadvertently turned off. This computer must be attached to the network and be reachable by all client computers on the network.

Supported are all Windows client and server versions since Windows Vista and Windows Server 2008.

Telephone system (PBX)

- The phone system must be TAPI capable with multiline TAPI support. Multiline TAPI is also known as 3rd party TAPI or LAN-TAPI. Consult your hardware provider if necessary.
- Up-to-date multiline TAPI driver from the PBX manufacturer's web site.
- The firmware of your phone system should be up-to-date, or you should be aware of this as a possible source of problems. It is not necessary to update the firmware preemptively if no issues arise.

2.2 Additional preparations

2.2.1 Connecting the Windows computer with the phone system

Make sure that the Windows PC can establish a network connection to the phone system. For this, the phone system needs to have a LAN interface. If in doubt, please consult your phone system dealer.

2.2.2 Checking if a TAPI driver is installed

Just as every printer requires a special driver, controlling a phone system also requires a driver, in this case a TAPI driver.

You can find installed TAPI drivers in the Windows Control Panel's **Phone and Modem** section in the *Advanced* tab.
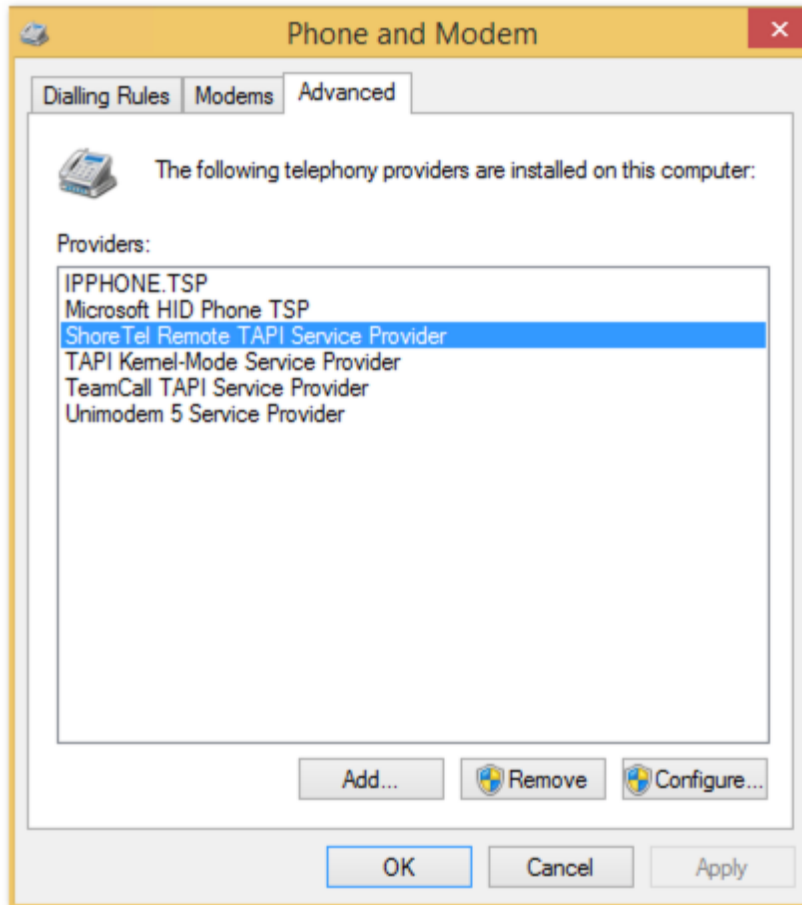
We strongly recommend installing the newest TAPI driver for your phone system. Drivers included with the phone system are often out-of-date. For many phone systems you can find driver updates on the manufacturer's website, or through your dealer. For some phone systems, it may be necessary to configure individual telephones in the driver settings after installation. If you aren't familiar with your phone system, seek advice from the manufacturer or your dealer.

2.2.3 Location settings

Go to the *Dialling* Rules tab to configure the location or add a new one.
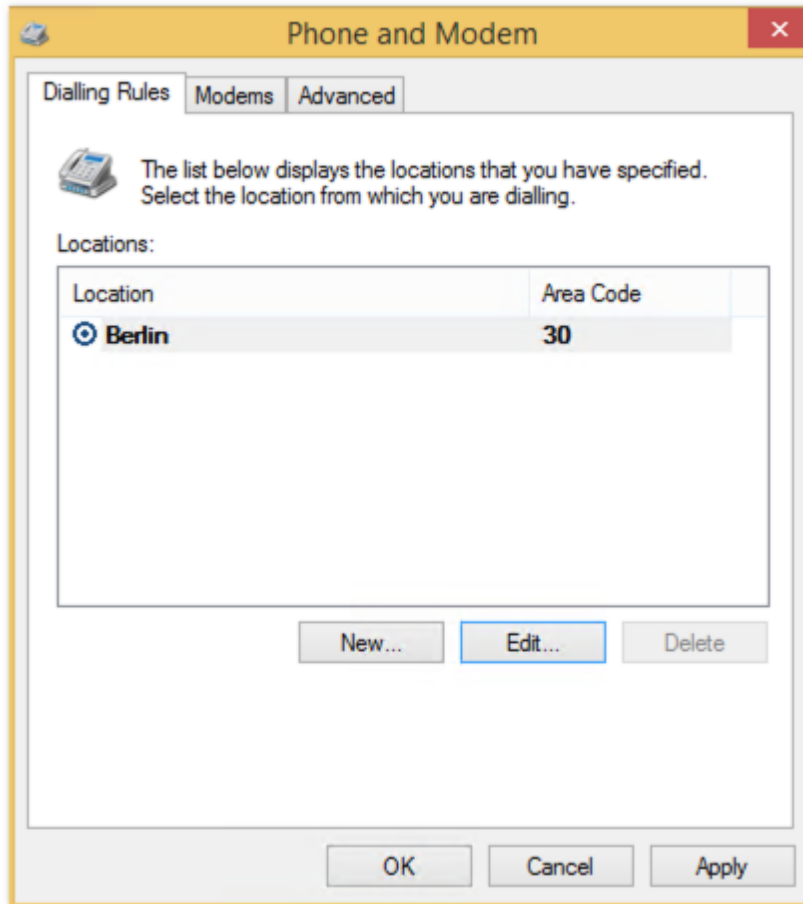
To edit a location, select the location and click *Edit...*. To add a location, click *New...*.
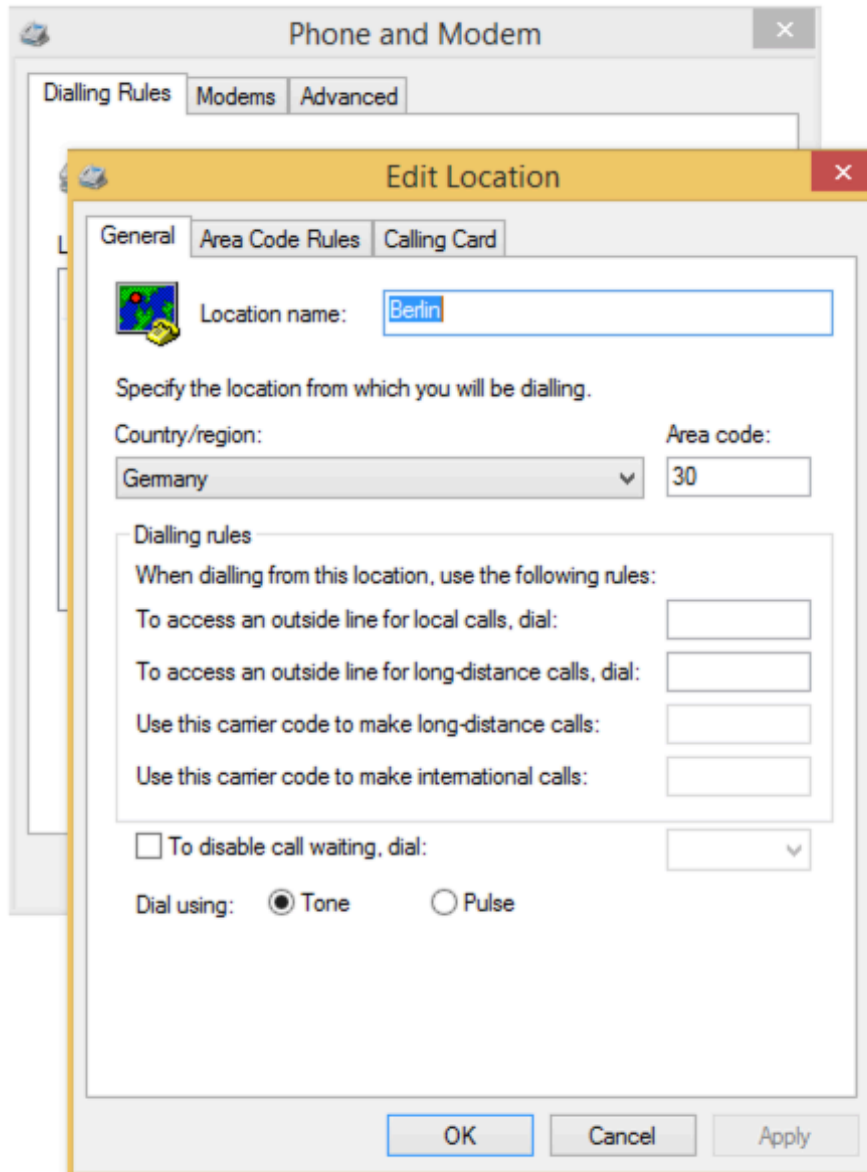
Choose your country from the *Country/region* popup list, e.g. Germany. Enter your area code without the leading "0", e.g. "30" for Berlin, Germany. The two fields *To access an outside line for …* are important for having the correct number be dialed.

If your CTI software, e.g. the macOS CTI client *direct*, takes care of the trunk access code configuration, leave both fields empty. Also when you do not need to dial a trunk access code for outside calls.

Otherwise, if you need to use a trunk access code and your CTI software does not configure this, add the code, e.g. 9, in both fields.

You can find additional information regarding the transformation of telephone numbers by different software components in the section "Transformation of telephone numbers" below.

2.2.4 Transformation of telephone numbers

Telephone numbers can be altered by a number of components, e.g. the phone system, the dialing rule that is configured in the Windows Phone and Modem settings, the TAPI settings of TeamCall Express, and by the client application.

There are two types of signaling that have to be differentiated: signaling **from** the PBX, called **events** and signaling **to** the PBX, called **requests**.

Events and requests are handled in various ways and pass through different components, each of those each can alter the telephone number.

Events

When a telephone number is signaled **by** the phone system, it goes through the following components where each of which can change the number:

1. **Phone system** configuration
2. **TAPI driver settings**
3. **TeamCall Express TAPI settings**. See below under "4. Configuring TeamCall Express".
4. The **TeamCall Express Dialplan** settings. See below under "4. Configuring TeamCall Express".
5. The **CTI client**

Note: The Windows "Dialing Rules" settings of the Windows "Phone and Modem" settings are **not used** in case of events.

Requests

When a telephone number is signaled **to** the phone system, it goes through the following components where each of which can change the number:

1. The **CTI client**
2. The **TeamCall Express Dialplan** settings. See below under "4. Configuring TeamCall Express".
3. TeamCall Express itself uses a Windows telephone number conversion function based on the **Windows "Dialing Rules"** settings of the "Phone and Modem" settings based on the activate location.
4. **TAPI driver settings**
5. **Phone system** configuration

Note: TeamCall Express TAPI settings are not used in case of requests.

2.2.5 Testing the TAPI driver using the "Phone Dialler" application

You should place a test call after installing the TAPI driver, just as you would print a test page after installing a new printer. Do this with the Windows program "Phone Dialler". To launch Phone Dialler, search for "dialer.exe".
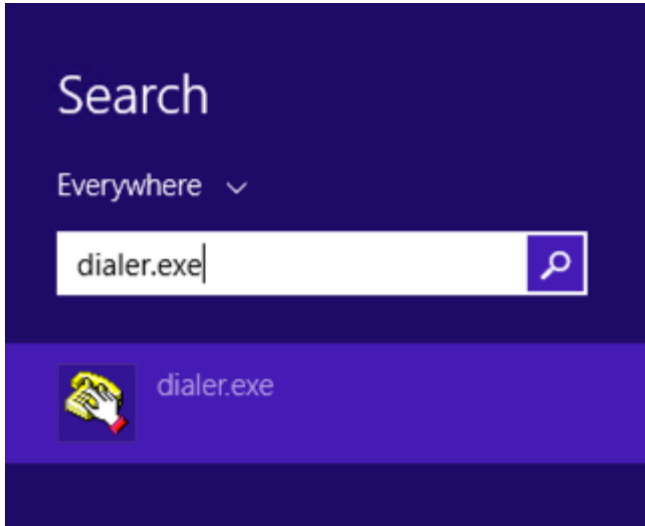
Configure the line

Phone Dialler needs to know which telephone (or *TAPI line*) to use for the test call (in the example below this is the line *P1091*).

To configure the TAPI line, go to *Tools > Connect Using...* There you will find a selection box with phone lines to choose from.
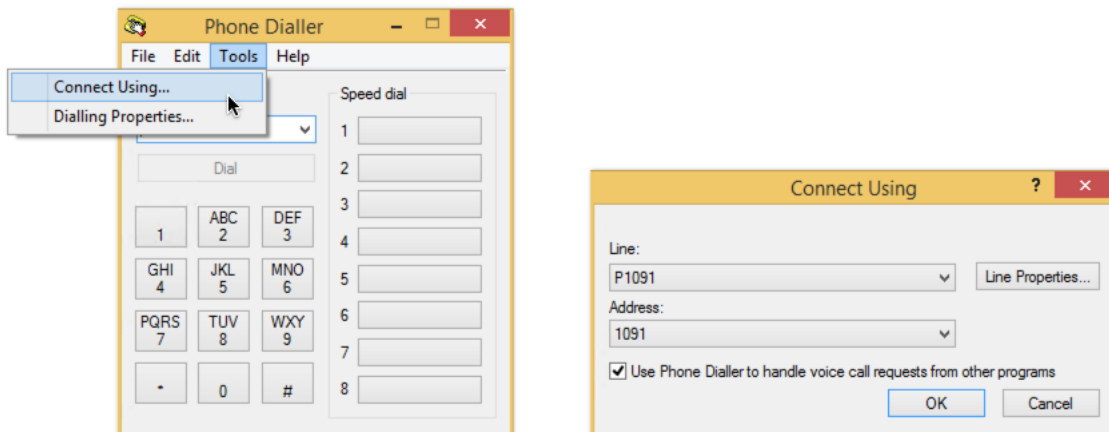
Place a test call

Enter the number you would like to call and click *Dial*. Remember, when dialing an outside number you may have to add an additional digit to reach the outside line. Place test calls to both internal and external numbers
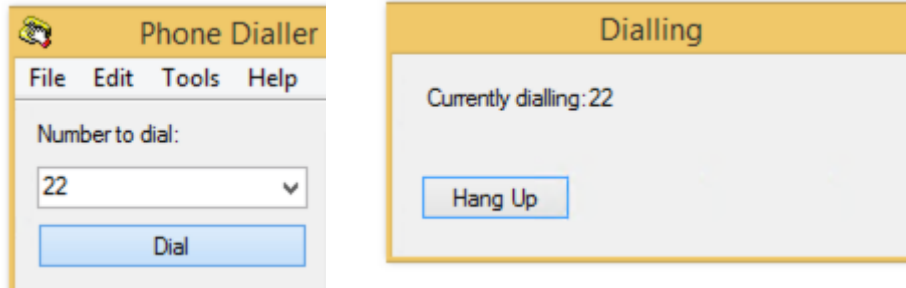

When the call is connected (the called phone is ringing), the TAPI driver is functioning correctly and you can proceed with installation of TeamCall Express.

If the called phone does not ring, the test failed, the TAPI driver does not work as expected. The TAPI driver belongs to your phone system, so please contact your phone system dealer or vendor for support.

3 Installation

1. Disable anti-virus programs or set them to "learn" mode so they don't interfere with the installation
2. Unpack the file TeamCallExpress.zip (e.g. by double clicking this file). This should create a new folder
3. Double-click on the .msi installer package. The TeamCall Express installer should start. Follow the instructions provided
4. Open the TeamCall Express settings under **Start > All Programs | TeamCall Express > TeamCall Express Settings**

Configure TeamCall Express as described below in the section "Configuration". Proceed with step 5 after the configuration.

5. You can now restart / reactivate your anti-virus software and deactivate "learn" mode for your firewall
6. Restart the PC
7. Wait a few minutes after restarting the PC before using client applications. This ensures that TeamCall Express is able to completely synchronize itself with the TAPI driver.

4 Configuration

Settings for all available modules can be made by choosing the appropriate settings module on the left side of the Settings window. When clicking a module within the tree structure, its settings will show on the right side of the window.

The main module for the initial configuration is **Telephony > TAPI** to add a license and modify in- and outbound phone numbers if needed. The installation is usually done after having configured **Telephony > TAPI** and the installation can be continued at section "3. Installing TeamCall Express".

Please note that changes will only be activated when clicking "Apply".

4.1 Telephony: TAPI
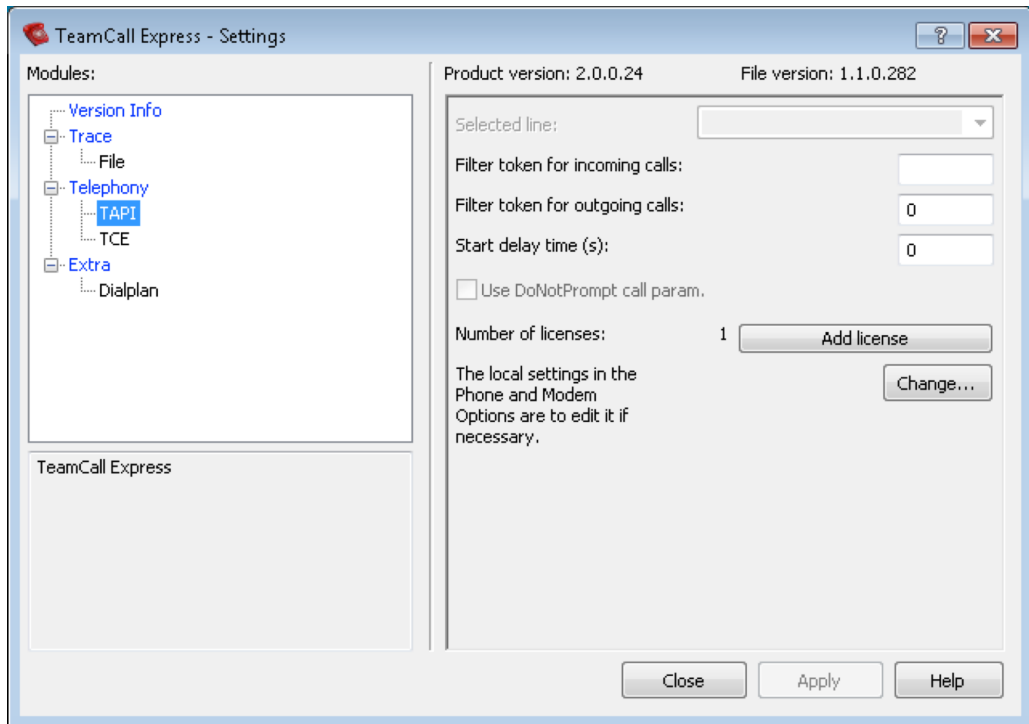
4.1.1 License

To add a license, click "Add license" and select the license file (TeamCall...ilinklicense) in the file browser and click "Open".

The license file can also be installed by copying it to the installation folder of TeamCall Express.

In either case, it takes up to 5 minutes for TeamCall Express to activate the new licenses. When restarting TeamCall Express, the new licenses will be activated immediately. How to restart the TeamCall Express service is described below under "Starting and stopping TeamCall Express".

The number of installed licenses is displayed after "Number of licenses:"

4.1.2 Filter token for calls

Most callers today transmit their caller IDs. Some PBXs add a leading "0" to incoming numbers and signal the number as an event. Thus there can be differences between how incoming and outgoing calls are handled. You can remove added inbound numbers by entering the numbers in the "Filter token for incoming calls" text field.

You can also remove unwanted added leading numbers to external numbers by entering the numbers in the "Filter token for outgoing calls" text field.

The digits that are entered in these fields are cut off at the beginning of the phone number.

Example in case of incoming calls: Incoming phone numbers are signaled by the PBX with a leading unwanted zero. This zero can be removed from the phone number by entering "0" in the field "Filter token for incoming calls".

Normally, however, these fields can be left blank.

For detailed information on the transformation of phone numbers see above in the chapter "Preparations".

Changes will be activated when clicking "Apply".

4.1.3 Start delay time

In order to delay the startup of TeamCall Express, enter the desired number of seconds in the field "Start delay time (s):". This might be only needed in the rare case when TeamCall Express starts faster than the TAPI driver which would prevent a synchronisation of the two.

Changes will be activated when clicking "Apply".

4.1.4 Selected line

No specific TAPI line can be selected because TeamCall Express uses all available TAPI lines.

Please note that TAPI lines might have to be unlocked in the PBX or TAPI driver in order to be available for TeamCall Express.

4.1.5 Phone and Modem Control Panel

To open the Windows Phone and Modem Control Panel, click "Open…" under

"Control Panel "Phone and Modem".

4.2 Telephony: TCE
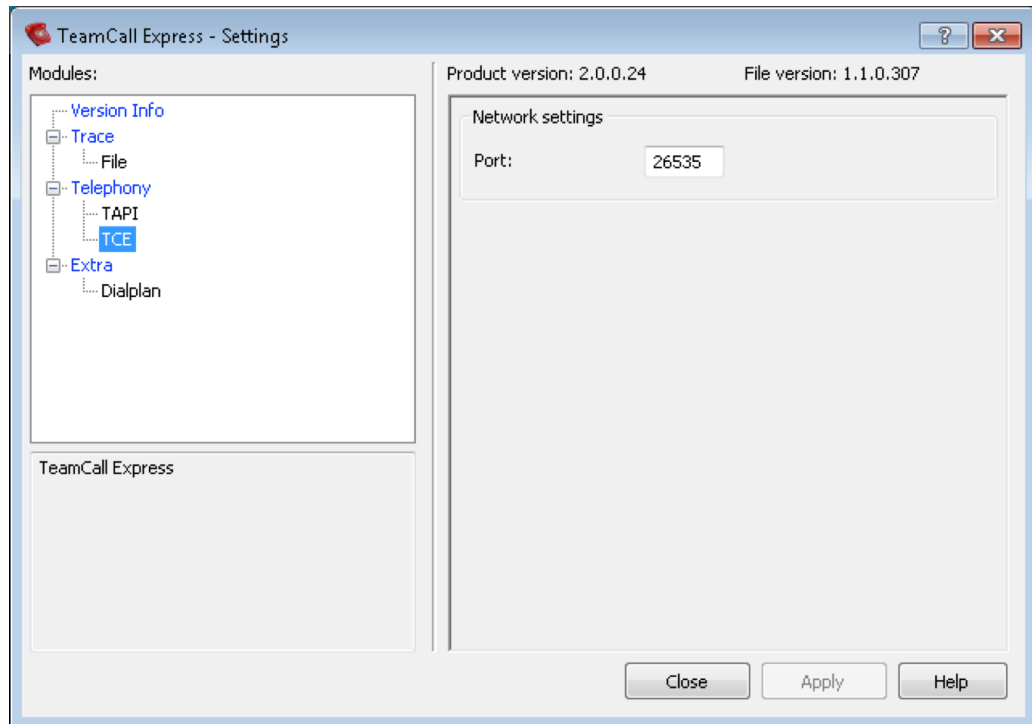
4.2.1 Network settings

TeamCall Express must open a port to communicate with direct. TeamCall Express automatically suggests "26535" as standard port. In most cases, this will work and should only be altered in exceptional cases. Remember, anti-virus software must be deactivated / TeamCall Express must be registered as trustworthy for the installation to work.

The change will be activated immediately when clicking "Apply".

4.3 Trace: File
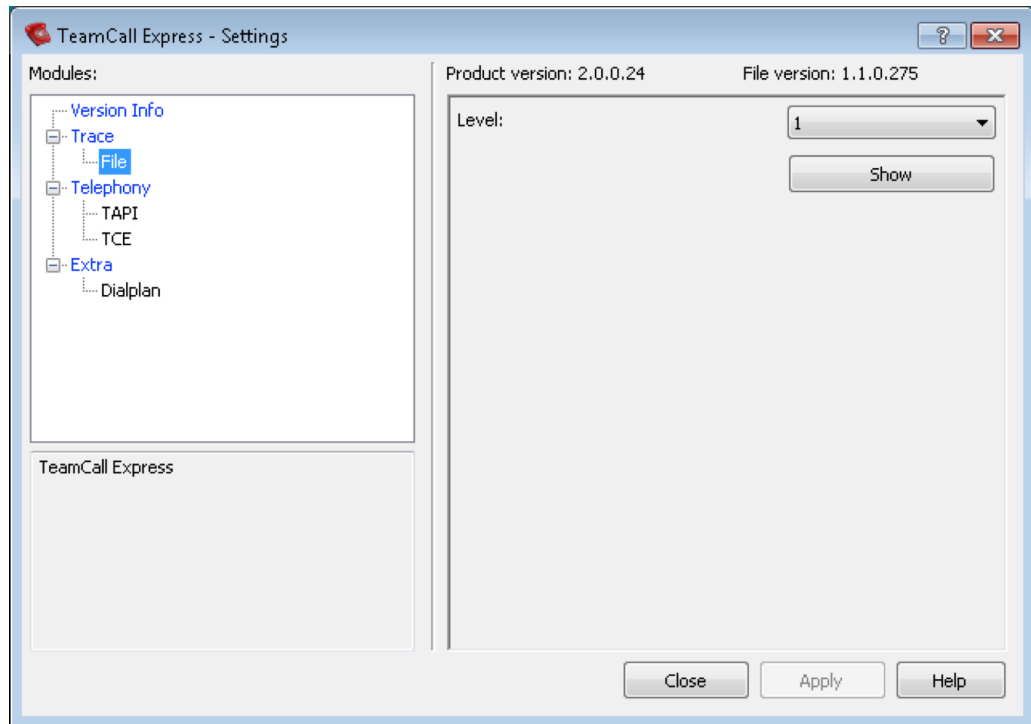
## 4.3.1 Level

TeamCall Express can produce a log file, when desired. Set the level of detail appropriate to your needs. Log level settings are cumulative. For example, the setting "0" logs nothing and "5" logs everything. The setting "5" enables the collection of maximum information to help in diagnosing problems. For productive use we recommend the setting "1".

Click "Show" to open a Windows Explorer window showing the folder that contains all TeamCall Express log files. All log files have the ".LOG" ending and will be numbered. In a support case we will usually ask you to send us the log files with the highest numbers by e-mail to support@ilink.de.

Changes will only be activated when clicking "Apply" and restarting the TeamCall Express service. How to restart the TeamCall Express service is described below under "Starting and stopping TeamCall Express".

4.4 Extra: Dialplan
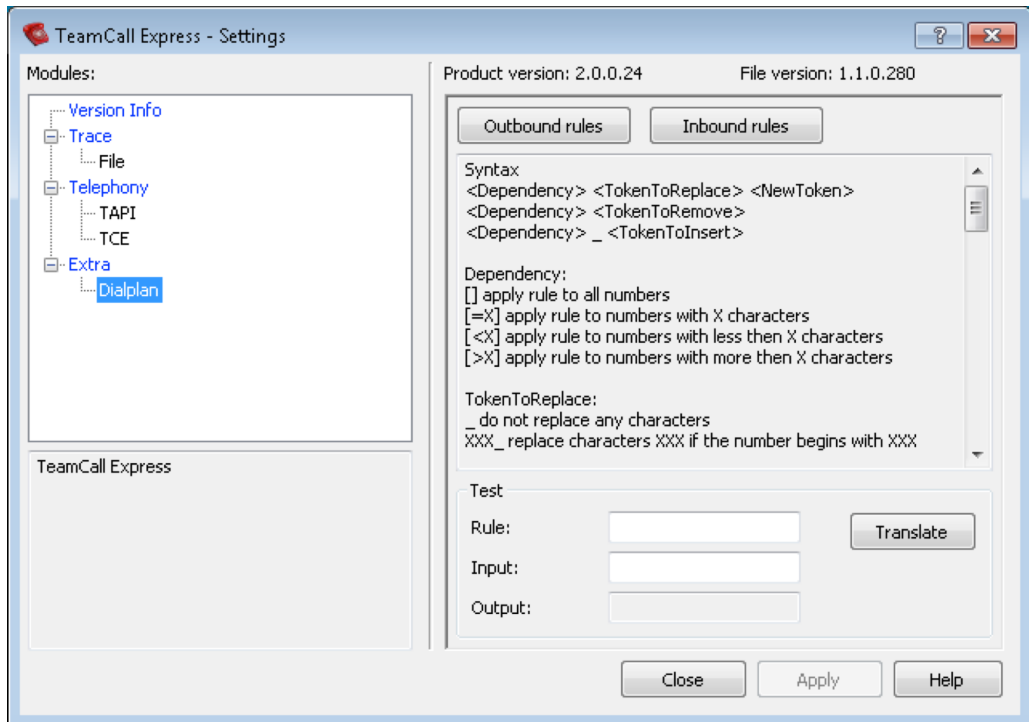
The settings under "Dialplan" allow the creation of complex substitution rules for telephone numbers that are only needed in extremely rare cases.

For detailed information on the transformation of phone numbers in addition to the "Dialplan" settings see above in the chapter "Preparations".

The "Dialplan" module converts telephone numbers and can be used in cases where the telephone number has to be converted before signaling it to the PBX or in cases where the PBX does not signal telephone numbers correctly.

The "Dialplan" module works on the basis of user-defined rules for the conversion of telephone numbers. There are two types of rules:

1. **Outbound** rules that are signaled **to the PBX**

2. **Inbound** rules that modify telephone numbers that are signaled **by the PBX**

The rules are each saved in a text file, one for outbound and one for inbound rules. Each line contains one rule, lines are separated by CRLF (Carriage Return / Line Feed). Rules can be combined and will be executed one by one in order. Each result acts as the input for the next rule.

The syntax is laid out in the description of the "Dialplan" module. Rules can be tested using the text fields "Rule" and "Input". On loading the "Dialplan" module, a self test is conducted; errors will be logged to the log file.

Using the module

```
Syntax:
<Dependency> <TokenToReplace> <NewToken>
<Dependency> <TokenToRemove>
<Dependency> _ <TokenToInsert>

Dependency:
[] apply rule to all numbers
[=X] apply rule to numbers with X characters
[<X] apply rule to numbers with less than X characters
[>X] apply rule to numbers with more than X characters

TokenToReplace:
_ do not replace any characters
XXX_ replace characters XXX if the number begins with XXX
_XXX replace characters XXX if the number ends with XXX

NewToken:
(not empty) replace with the given text
(empty) replace with empty string

TokenToRemove:
_ do not remove any characters
XXX_ remove characters XXX if the number begins with XXX
_XXX remove characters XXX if the number ends with XXX

TokenToInsert:
(empty) do not insert anything
XXX_ insert characters XXX as prefix
_XXX insert characters XXX as suffix

Examples:
Insert characters
[] _ _0 // insert a 0 suffix in all numbers (e.g. 1111 -> 11110)
[=3] _ _0 // insert a 0 suffix in all numbers with 3 characters
            (e.g. 111 -> 1110 but 2222 -> 2222)
[>3] _ 0_ // insert a 0 prefix in all numbers with more than 3
            characters (e.g. 03028526555 -> 003028526555 but 111 -
            > 111)


Remove characters
[<5] 0_ // remove a 0 prefix if the number has less then 5
          characters (e.g. 0201 -> 201 but 03028526555 ->
          03028526555)
[] +_ // remove all + prefixes (e.g. +4933201 -> 4933201)


Replace characters
[>4] +_ 00 // replace a + prefix in all numbers with more than 4
             characters (e.g. +493028526555 -> 00493028526555)
[>3] +49_ 0 // replace a +49 prefix in all numbers with more than 3
              characters (e.g. +493028526555 -> 03028526555)
```

```
[>4] _0 XXX // replace a 0 suffix in all numbers with more than 4
              characters (e.g. +4930285260 -> +493028526XXX)
```

```
The rules can be combined. They are applied in order of
specification. Each rule's output is used as input for the
following rule.
```

```
Example:
[] +49_ 0 // replace the German country code prefix with 0
[>4] _ 0_ // insert a 0 prefix for all numbers longer than 4
              characters
```

```
Results:
+493028526555 -> 003028526555
```

Changes will only be activated when clicking "Apply" and restarting the TeamCall Express service. How to restart the TeamCall Express service is described below under "Starting and stopping TeamCall Express".

5 Starting and stopping the service

TeamCall Express runs as a Windows service that is automatically started during the Windows startup.

To restart the TeamCall Express service, open the Windows Services application by typing `services.msc` into the **Start > Run…** "Open:" textbox and click OK. In the services overview table right click "TeamCall Express" and click "Restart".

6 Test with STLI

STLI is the text based application interface of TeamCall Express. You can test the installation using a few STLI commands. To do so, you'll use STLI to place an internal call from one extension to another and hang up the call.

It is preferable to run this test from a client computer and not on the server. You'll need the IP address of the host on which TeamCall Express is installed, as well as the configured port number (TeamCall Express settings > Telephony > TCE).

If you do want to run the test on the host on which TeamCall Express is installed, you'll need the Windows feature "telnet client" which you may have to activate via the Windows control panel (programs and features).

You will need two phone extensions for the test. In this example, we'll use the extensions 10 and 11.

If you want to run the test on a Windows client, open the Windows command line window. On macOS clients start the *Terminal* app.

Perform the following steps to connect with the STLI interface of TeamCall Express, to start a call from one to the other extension, and to end the call. To do so, enter the individual commands into the command line / Terminal window.

1. Start telnet with the IP address of the TeamCall Express host (here: *ctihost*), followed by a space and the TeamCall Express application port number:

    ```
    telnet ctihost 26535
    ```

    You should see lines like these:

    ```
    Trying x.x.x.x...
    Connected to ctihost.
    Escape character is '^]'.
    ```

2. Start the STLI session by typing "STLI". Please note that you will need to enter this blindly on Windows as the Windows command line does not print the characters of your first command.

    ```
    STLI
    ```

    You should see this response:

    ```
    error_ind SUCCESS
    STLI;Version=1;DeviceInformation=Standard
    ```

3. Start a monitor on the extension from which you would like to dial, e.g. extension 10:

    ```
    MonitorStart 10
    ```

    You should see lines like these:

    ```
    Forwarding 10 10 forwardImmediateOn "" ""
    error_ind SUCCESS MonitorStart
    ```

4. Use the "MakeCall" command to start a call from extension 10 to extension 11:

    ```
    MakeCall 10 11
    ```

    The response should include a line like the following and the phone at extension 11 should be ringing:

    ```
    error_ind SUCCESS MakeCall
    ```

5. End the call using the "ClearConnection" command:

```
ClearConnection 10
```

The response should include lines like the following and the phone call should end:

```
error_ind SUCCESS ClearConnection
ConnectionCleared 100 normalClearing 100 {}
DeviceInformation 10 0 ()
```

6. Leave the STLI session using the „BYE" command:

```
BYE
```

You should see lines like these:

```
error_ind SUCCESS BYE
Connection closed by foreign host.
```

7. Quit the command line or Terminal app.

If the test was successful, the basic function of TeamCall Express has been validated. If you have run the test on a client computer, you have also validated the network connection to the TeamCall Express host.

If you did not yet run the test on a client computer, you may want to do so now in order to test the network connection to the TeamCall Express host.

# 7 Uninstalling

The uninstall process varies slightly between Windows versions. The following description is based upon Windows 7.

Under **Start > Control Panel > Programs and Features** you can view a list of the software installed on the computer. To uninstall TeamCall Express, first find TeamCall Express in the list, select the entry and then click "Uninstall".
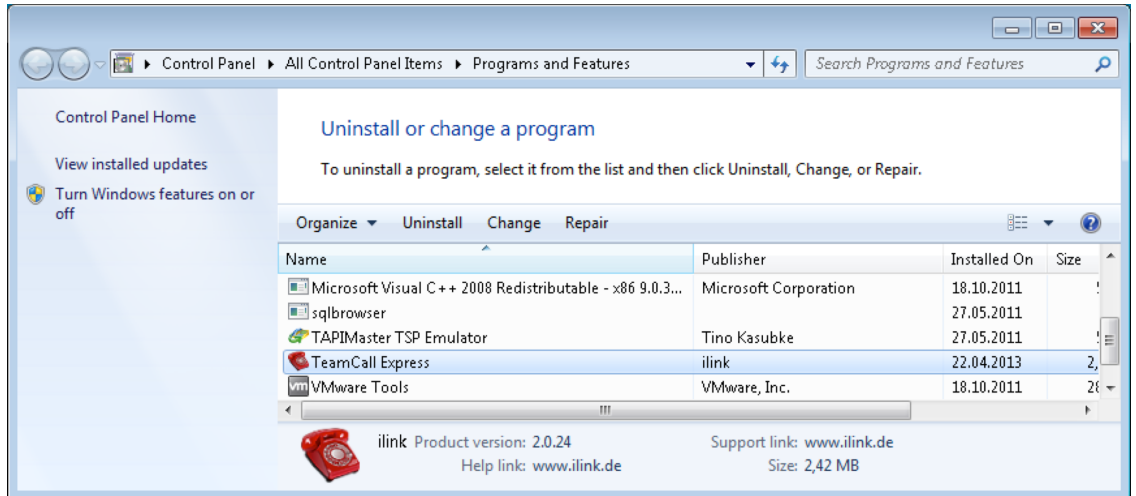


ilink Kommunikationssysteme GmbH
Kurfuerstendamm 67, 10707 Berlin, Germany
+49(30)28526-0
support@ilink.de