

TeamCall Telephony Access Platform

TeamCall CA Innovaphone

Admin Guide

Document version

0.9.1 March 27, 2025

See section 6 for an overview over the major changes in this document version.

Note: The Word change tracking mode only displays the major changes since the previous version of this document. Older changes (as well as minor changes like formatting, typo fixes or small rephrasings) have already been “accepted”.

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1 Overview

The TeamCall Telephony Access Platform (TAP) is a CTI solution to connect computer systems with telephone systems.

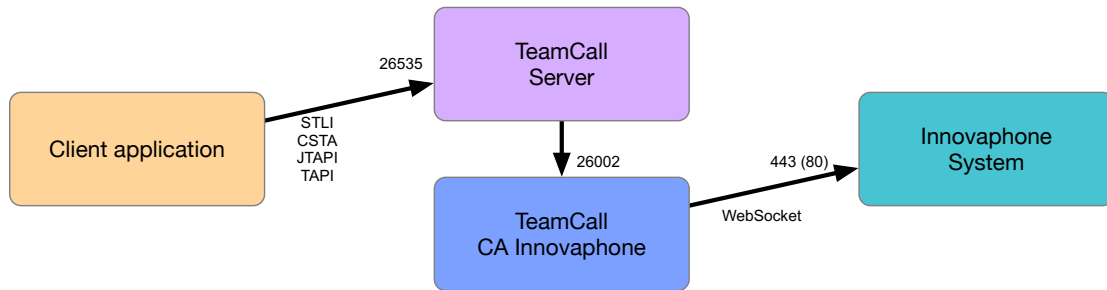
TeamCall CA Innovaphone is the TeamCall component that provides a connection to innovaphone systems.

TeamCall CA Innovaphone runs on Linux, macOS, and Windows.

This document describes the setup, configuration, and administration of TeamCall CA Innovaphone.

1.1 Architecture and Communication Paths

TeamCall CA Innovaphone is a service that is installed in addition to TeamCall Server. It facilitates the connection of TeamCall Server to Innovaphone systems.



TeamCall Server and TeamCall CA Innovaphone can be installed on the same host or on different hosts.

The arrows in the diagram indicate the network connections between the four components. The arrows indicate the direction in which the network connections are opened.

If firewalls control the communication between the components, the following network connections need to be allowed:

From	To	Port	Configuration
Client application	TeamCall Server	TCP 26535	The port is configured using the <i>loginPort</i> setting in the TeamCall configuration file <i>Default.conf</i>
TeamCall Server	TeamCall CA Innovaphone	TCP 26002	The port is configured using the <i>server_port</i> setting in the CA Innovaphone configuration file <i>ca_config.properties</i>
TeamCall CA Innovaphone	Innovaphone System	TCP 443 (or TCP 80)	Port 443 is used for wss URLs, port 80 for ws URLs. The URL is configured using the <i>innoapp_url</i> setting in the CA Innovaphone configuration file <i>ca_config.properties</i>

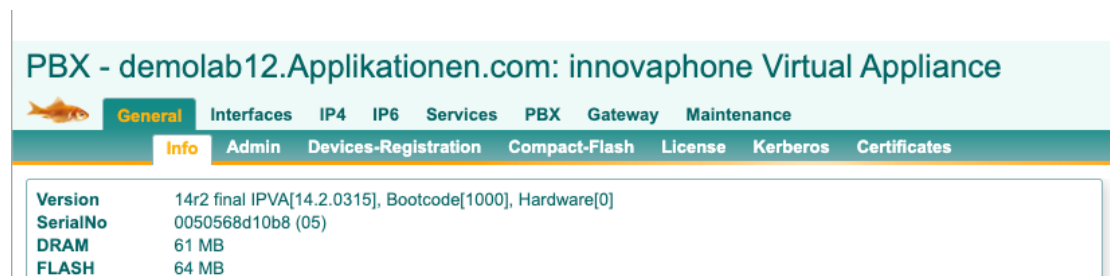
2 Setup of the innovaphone access app

The innovaphone system uses an app to control access to the APIs that are used by TeamCall CA Innovaphone. The access app is also used to configure which phone extensions shall be visible to TeamCall CA Innovaphone.

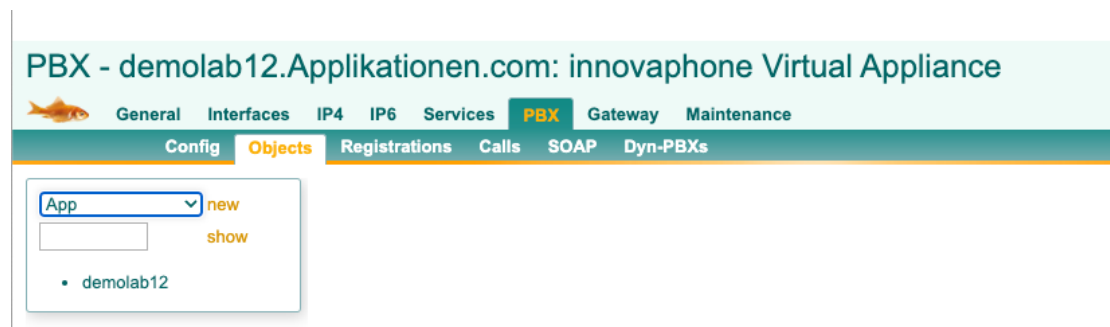
2.1 Create the app object

Open the innovaphone system's admin GUI in a web browser (using the actual hostname instead of <hostname>):

`https://<hostname>/admin.xml?xsl=admin.xsl`



Select the *PBX* tab, authenticate if asked, and select the *Objects* sub tab:



In the dropdown, select *App* and click *new*. This creates an app object in the phone system.

2.2 Configure the app object

A new window opens to configure the new app object. Start in the *General* tab:

The screenshot shows the 'General' tab of the app configuration window. It includes fields for Description, Long Name (filled with 'TeamCall'), Display Name, Name (filled with 'TeamCall'), Password (masked with dots), and a retype Password field (also masked). There is a 'Hide from LDAP' checkbox which is checked. A 'Critical' checkbox is unchecked. Below these fields is a section titled '- Devices' which contains a table with columns: Hardware Id, Name, App, PBX Pwd, No IP Filter, TLS only, No Mobility, Config VOIP, and Re. The table is currently empty.

These three fields are mandatory:

- **Long Name**
This name will be used to display the new app object in the list of objects in the innovaphone system. We suggest using the name *TeamCall*.
- **Name**
CA Innovaphone will use this name to connect to the innovaphone system.
- **Password**
This is the password that CA Innovaphone will use to access the innovaphone system.

The other fields are optional.

Next, switch to the *App* tab:

The screenshot shows the 'App' tab of the app configuration window. It includes fields for URL, Icon URL (optional), Modes (filled with 'mode1,mode2,...'), and Licenses. There are checkboxes for Plain website (unchecked), Hidden (checked), and Websocket (unchecked). Below these is a section titled '- Grant access to APIs' which contains a list of APIs with checkboxes: PbxSignal, EpSignal, Messages, TableUsers, Admin, PbxApi (checked), Services, RCC (checked), and Impersonation (unchecked).

The list of apps in the *MyApps* application will include the new app object. This may be confusing to users because all that is created here is an app object for access control purposes, but without an actual app. Select the *Hidden* option to prevent display of the app object in *MyApps*.

Grant access to the APIs *PbxApi* and *RCC*. These are the two innovaphone APIs used by TeamCall CA Innovaphone.

Click *OK* to create the app object with the specified configuration. The app configuration window closes and you're back in the main window.

2.3 Review the app object

To review the new app object, use the *show* link to list all objects in the innovaphone systems (users, apps, ...). The list includes the new app *TeamCall*.

To limit the displayed list, use the filter field to the left before clicking the *show* link:

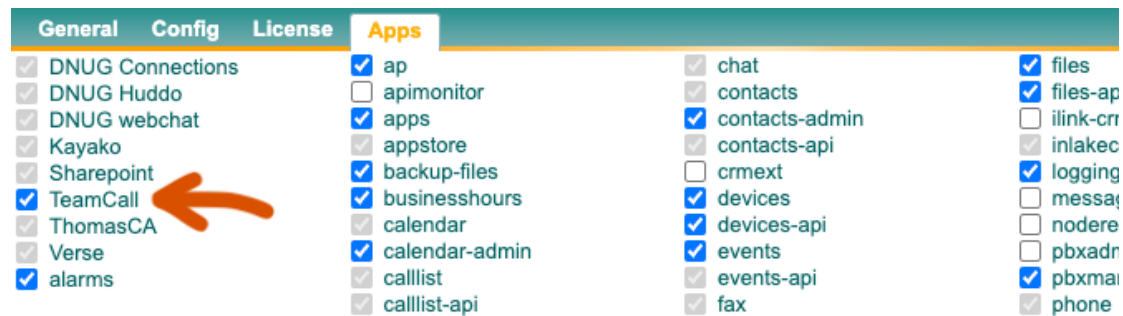


2.4 Grant access to innovaphone extensions

TeamCall CA Innovaphone can only access an innovaphone extension if this has been allowed in the configuration of the extension's user.

Each user object in the innovaphone system has a list of associated apps. These are the apps that are available to the user. Making the new app (*TeamCall*) available to a user allows TeamCall CA Innovaphone to access the user's telephone extension.

To do so, search for the user in the list of innovaphone objects, open the user, and switch to the *Apps* tab. Activate the *TeamCall* app by setting the check mark:



Please note that the list of apps is sorted so that it starts with upper case app names, followed by lower case app names.

2.5 Use config templates to grant access

The innovaphone system uses config templates to allow to configure groups of users instead of having to do so individually for each user.

Typically, the system contains at least the two config templates *Config Admin* and *Config User* (respectively containing the administrators and the regular users).

To grant TeamCall CA Innovaphone access to the whole user group, open the group object, switch to the *Apps* tab and activate the *TeamCall* app there.

For example, doing this in the *Config User* object will grant TeamCall CA Innovaphone access to the extensions of all users.

3 Installation of TeamCall CA Innovaphone

3.1 Requirements

3.1.1 Java

Both the installer and the TeamCall CA Innovaphone service are Java based applications. So, installation requires a Java runtime (Java SE 1.8 / Java 8 or higher) to be installed.

Installation of Java for Linux, macOS, or Windows is outside of scope of this document.

3.1.2 TeamCall Server

TeamCall CA Innovaphone is used to provide the connection of TeamCall Server to Innovaphone systems. See architecture diagram in section 1.1 above.

So, TeamCall CA Innovaphone does not run as a standalone service – it always requires a TeamCall Server as well. Both services can be (but do not have to be) installed on the same host.

3.2 Run the installer

The product zip file contains command line scripts for installation on Linux, macOS, and Windows.

Use a bash shell to start the installation scripts on Linux and macOS, use the Windows command prompt to start the installation script on Windows.

The script needs to run as administrator. Start the Windows command prompt as administrator before running the script. Use `sudo` on Linux and macOS.

The script needs to run from the installation folder. Use the `cd` command to switch to the unpacked zip folder before starting the installation script.

The installer will ask for six configuration values. In each case you can use the enter or return key to use the default value that is being displayed.

- **Innovaphone App URL**

This is the URL used by TeamCall CA Innovaphone to connect to the innovaphone system. It should be set as follows:

```
wss://<hostname>/PBX0/APPS/websocket
```

(using the actual hostname instead of <hostname>)

Note:

Using a `wss` URL requires an SSL/TLS certificate to be installed in the innovaphone system. (Installation of certificates in the Innovaphone system is outside of scope of this document)

If the installation of a certificate is not possible or not desired, a `ws` URL could be used instead:

```
ws://<hostname>/PBX0/APPS/websocket
```

However, this would lead to unencrypted communication between CA Innovaphone and the Innovaphone system.

- **Innovaphone App name**
This is the app name that was configured as the *Name* (not the *Long Name* or the *Display Name*)
Example: TeamCall
- **Innovaphone App password**
This is the password that was configured for the app.
- **CA service port**
This is the TCP port that CA Innovaphone provides for connections from TeamCall CSTAServer. You will need to enter this port number in the TeamCall configuration (*Default.conf*).
Example: 26002
- **CA node suffix**
This is a suffix that is used to differentiate between multiple instances of CA Innovaphone (for cases where you need to set up multiple instances to connect to more than one innovaphone system).
Use the default value 1 unless you need multiple instances.
Note: multiple instances of CA Innovaphone are currently not supported on macOS.
- **CA installation path**
This is the path of the folder into which CA Innovaphone will be installed.
Use the default value unless you know what you are doing.

You will be asked to confirm your input before the actual installation takes place.

3.3 Installing updates

Updating the installation to a new release works just like a new installation.

Please note: The update installation will overwrite the existing configuration. You should enter the same configuration data during the update installation as you used during the initial installation.

3.4 Installed files

3.4.1 Linux

The installer installs the following folders and files:

For TeamCall CA Innovaphone: the installation folder specified during installation.
E.g., `/usr/local/ilink/CA Innovaphone/`

For starting and stopping of the CA Innovaphone service, depending on the Linux distribution either:

```
/etc/rc*.d/K01CAInnovaphone_*
/etc/rc*.d/S02CAInnovaphone_*
```

or:

```
/etc/init.d/rc*.d/K01CAInnovaphone_*
/etc/init.d/rc*.d/S02CAInnovaphone_*
```


3.4.2 macOS

The installer installs the following folders and files:

For TeamCall CA Innovaphone: the installation folder specified during installation.

E.g., `/Applications/TeamCall/CA Innovaphone/`

For starting and stopping of the CA Innovaphone service:

`/Library/LaunchDaemons/de.ilink.TeamCall.CA-Innovaphone.plist`

By default, the folder `/Library` is not visible in Finder. You can access this folder as follows:

Select the Finder menu option *Go > Go to Folder...*

A small input window will open. Please enter the path `/Library` and click *Go*.

3.4.3 Windows

<documentation missing>

3.5 Deinstallation

3.5.1 Linux

Use this command to deinstall the TeamCall CA Innovaphone service:

```
sudo /usr/local/ilink/CA\ Innovaphone/uninstaller/uninstaller.sh
```

(Adapt the path if TeamCall CA Innovaphone has been installed to a different location.)

3.5.2 macOS

Use this command to deinstall the TeamCall CA Innovaphone service:

```
sudo /Applications/TeamCall/CA\ Innovaphone/uninstaller/uninstaller.sh
```

(Adapt the path if TeamCall CA Innovaphone has been installed to a different location.)

3.5.3 Windows

<documentation missing>

4 Starting and stopping the service

4.1 TeamCall CA Innovaphone on Linux

<documentation missing>

4.2 TeamCall CA Innovaphone on macOS

The following sections explain how to perform maintenance tasks for TeamCall CA Innovaphone on macOS using the command line (Terminal.app).

The calling user needs to be allowed to use the `sudo` command. Setup of `sudo` permissions is outside of scope of this document.

4.2.1 Review the service status

The following command can be used to check if the service is running:

```
sudo launchctl list de.ilink.TeamCall.CA-Innovaphone
```

If the service is running, a status report will be printed:

```
{
  "StandardOutPath" = "/Applications/TeamCall/CA Innovaphone/log/CA Innovaphone.output";
  "LimitLoadToSessionType" = "System";
  "StandardErrorPath" = "/Applications/TeamCall/CA Innovaphone/log/CA Innovaphone.output";
  "Label" = "de.ilink.TeamCall.CA-Innovaphone";
  "OnDemand" = false;
  "LastExitStatus" = 0;
  "PID" = 1674;
  "Program" = "/usr/bin/java";
  "ProgramArguments" = (
    "/usr/bin/java";
    "-Xmx300m";
    "-Dinnovaphone_ca_config=config/ca_config.properties";
    "-Dlog4j1.compatibility=true";
    "-Dlog4j2.configurationFile=config/ca_innovaphone_log4j-config.xml";
    "-jar";
    "/Applications/TeamCall/CA Innovaphone/lib/ca_innovaphone.jar";
  );
};
```

If the service is not running, an error message will be printed:

```
Could not find service "de.ilink.TeamCall.CA-Innovaphone" in domain for port
```

4.2.2 Start the service

The following command starts the TeamCall CA Innovaphone service if it does not yet run (**make sure to enter the command as a single line**):

```
sudo launchctl bootstrap system/  
/Library/LaunchDaemons/de.ilink.TeamCall.CA-Innovaphone.plist
```

If no output appears, the command succeeded, and the service is running.

Otherwise, an error message like this may appear:

```
Bootstrap failed: 5: Input/output error
```

Possible reasons:

- The service is already running.
See section 4.2.1 above on how to determine the service status.
- The service has been permanently disabled.
See section 4.2.7 below on how to determine this and section 4.2.6 how to reenale the service.

4.2.3 Stop the service

The following command stops the TeamCall CA Innovaphone service if it is running (**make sure to enter the command as a single line**):

```
sudo launchctl bootout system/  
/Library/LaunchDaemons/de.ilink.TeamCall.CA-Innovaphone.plist
```

If no output appears, the command succeeded, and the service is no longer running.

Otherwise, an error message like this may appear:

```
Boot-out failed: 5: Input/output error
```

Possible reason:

- The service did not run.
See section 4.2.1 above on how to determine the service status

Note: Stopping the service will not prevent the service from automatically being started when the computer is restarted. See section 4.2.5 below on how to permanently disable the service.

4.2.4 Restart the running service

If you would like to restart the running TeamCall CA Innovaphone service (for example after the configuration has changed) first stop and then start the service **(making sure to enter each command as a single line)**:

```
sudo launchctl bootout system/  
/Library/LaunchDaemons/de.ilink.TeamCall.CA-Innovaphone.plist  
  
sudo launchctl bootstrap system/  
/Library/LaunchDaemons/de.ilink.TeamCall.CA-Innovaphone.plist
```

4.2.5 Permanently disable the service

Upon installation, the service has been registered to be started automatically when the computer is restarted. To prevent this, the service can be permanently disabled as follows:

```
sudo launchctl disable system/de.ilink.TeamCall.CA-Innovaphone
```

Note: Disabling the service will not stop the service if it is still running. See section 4.2.3 above on how to stop the running service.

Note: A disabled service can no longer be started. See the next section on how to reenale the service.

4.2.6 Reenable a disabled service

Use this command to reenale the service if it is disabled:

```
sudo launchctl enable system/de.ilink.TeamCall.CA-Innovaphone
```

4.2.7 Review the enabled/disabled status of the service

Use this command to check if the service has been disabled **(make sure to enter the command as a single line)**:

```
sudo launchctl print-disabled system/de.ilink.TeamCall.CA-Innovaphone  
| grep "de.ilink.TeamCall.CA-Innovaphone"
```

If no output appears, the service is enabled (and has never been disabled).

The following output will appear if the service is enabled (after previously having been disabled):

```
"de.ilink.TeamCall.CA-Innovaphone" => enabled
```

And the following output will appear if the service is disabled:

```
"de.ilink.TeamCall.CA-Innovaphone" => disabled
```

4.3 TeamCall CA Innovaphone on Windows

<documentation missing>

5 Configuring TeamCall CSTA Server

From the point of view of TeamCall CSTA Server, TeamCall CA Innovaphone serves as a stand-in for the actual innovaphone system.

So, you'll configure CSTA Server to connect to CA Innovaphone instead of to the phone system.

To do so, configure the following settings in the TeamCall CSTA Server configuration file *Default.conf*:

```
# -----  
# Phone system type  
# -----  
  
pbxType = hipath8000      ← this is not a typo – DO NOT use pbxType innovaphone  
  
# -----  
# TCP/IP address and port of phone system's CTI interface  ← in this case: CA Innovaphone  
# -----  
  
cstaLinkAddress = 127.0.0.1  ← assuming that CA Innovaphone runs on the same host as CSTA Server  
cstaLinkPort = 26002        ← the CA service port specified during installation of CA Innovaphone
```

6 Change log

This is an overview of the highlights of the changes that have been made in this document. The latest changes are on top.

The numbers in parentheses reference section numbers.

Document rev. 0.9.1 (2025-03-27)

- Added a section on architecture and communication paths. (1.1)
- Added a suggestion to configure the app object as a hidden app. (2.2)
- Added a section on installation requirements. (3.1)
- Changed the default value of the Innovaphone App URL to now use a `wss` URL instead of a `ws` URL. (3.2)
- Added a section on installing updates. (3.3)
- Added a list of installed files under Linux. (3.4.1)
- Added a section on deinstallation of TeamCall CA Innovaphone. (3.5)
- Major update of the commands used for service maintenance on macOS. (4.2)

Document rev. 0.9 (2024-12-19)

- First version of this document, focusing on the setup on macOS.