

TeamCall Telephony Access Platform

TeamCall CA Innovaphone

Admin Guide

Document version

1.0 September 18, 2026

See section 8 for an overview over the major changes in this document version.

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1 Overview

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

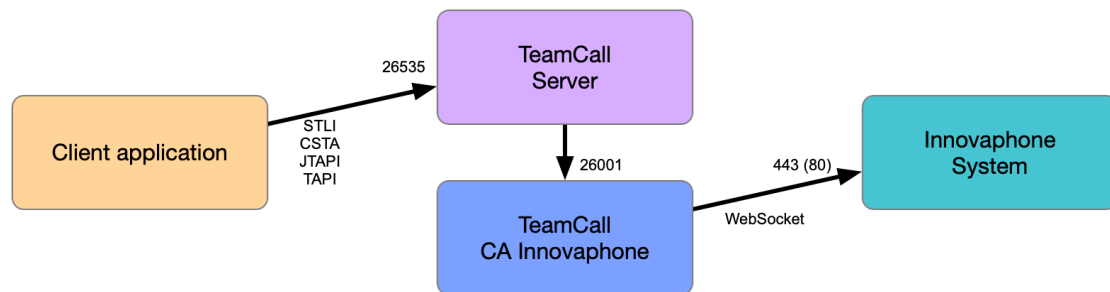
TeamCall CA Innovaphone is the TeamCall component that provides a connection to innovaphone systems.

TeamCall CA Innovaphone runs on Linux (Docker), 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 26001	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 Requirement: Setup of the innovaphone access app

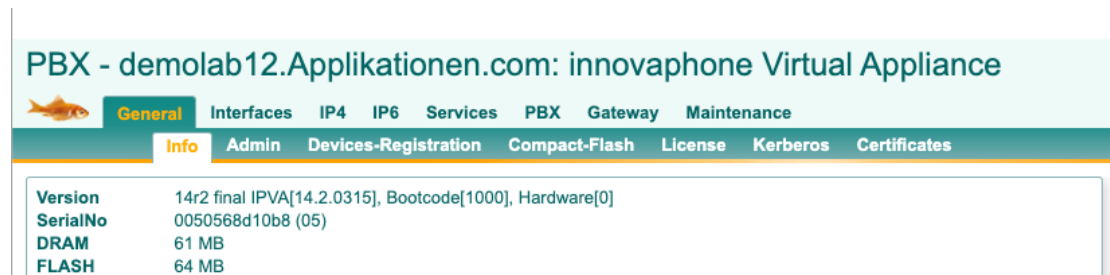
The innovaphone system uses an app to control access to the APIs that are used by TeamCall CA Innovaphone. The access app is also used to configure which phone extensions shall be visible to TeamCall CA Innovaphone.

So, use of TeamCall CA Innovaphone requires a matching setup of the innovaphone access app.

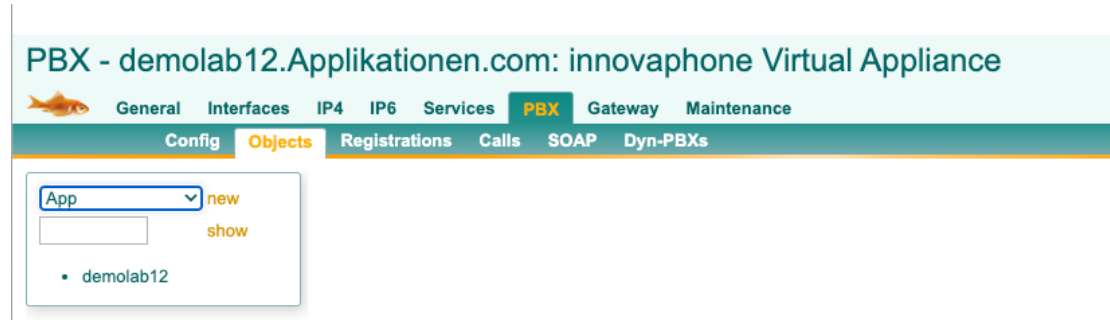
2.1 Create the app object

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 (TeamCall), Display Name, Name (TeamCall), Password (masked with dots), and a retype Password field. There is a 'Hide from LDAP' checkbox which is checked. Below these fields is a section for 'Devices' with a table header: Hardware Id, Name, App, PBX Pwd, No IP Filter, TLS only, No Mobility, Config VOIP, and Re. The table has one empty row.

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 (mode1,mode2,...), and Licenses. There are checkboxes for Plain website, Hidden (checked), and Websocket. Below these is a section for 'Grant access to APIs' with checkboxes for PbxSignal, EpSignal, Messages, TableUsers, Admin, PbxApi (checked), Services, RCC (checked), and Impersonation.

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:

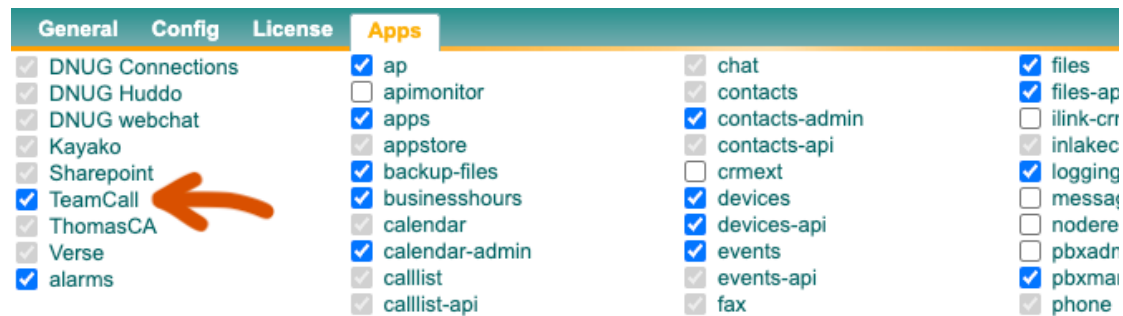


2.4 Grant access to innovaphone extensions

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 starting 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 TeamCall CA Innovaphone on Linux

3.1 Requirements

3.1.1 Docker

On Linux, TeamCall CA Innovaphone runs in a Docker container. This requires Docker to be installed. Installation of Docker is outside of scope of this document.

The Docker container uses the platform `linux/amd64`, so a 64-bit Linux host is required.

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 alone is not sufficient – you need a TeamCall Server as well. Both services can be (but do not have to be) installed on the same host.

3.2 Installation on Linux

TeamCall CA Innovaphone is provided as a Docker image that can be installed using the standard Docker mechanisms.

Unpack the installation package. It contains various files, including the Docker package `ca_innovaphone_docker_image.zip`.

Note: The jar file and the two scripts are only used for installation on Windows and macOS, so you may safely delete them.

Unpack the Docker package. It contains a preconfigured `docker-compose.yaml` which you can either use as is or adapt to match your local Docker setup.

The folders `config` and `log` are configured to reside outside of the container. They contain the configuration file and log files of TeamCall CA Innovaphone.

Configure the service (see section 3.3 below) before starting it.

3.3 Configuration

Edit the configuration file `config/ca_config.properties` in the unpacked Docker package folder to configure the container.

See section 6 for details on the configuration values.

After having made the changes, start (or restart) the container. See section 3.6 below for details.

3.4 Installing updates

Updating the installation to a new release works just like a new installation. After having unpacked the new Docker package, copy the configuration from the previous Docker package to the new package.

3.5 Deinstallation

Stop the container before deinstallation.

All files and configuration data reside within the Docker package folder. Remove this folder to deinstall TeamCall CA Innovaphone.

3.6 Starting and stopping the Docker container

From within the Docker package folder, you can use these commands to start and stop the Docker container:

Start: `sudo docker compose up -d`

Stop: `sudo docker compose down`

4 TeamCall CA Innovaphone on macOS

4.1 Requirements

4.1.1 Java

Both the installer and the TeamCall CA Innovaphone service are Java based applications. So, installation requires a Java runtime, which is available by default on macOS.

4.1.2 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 alone is not sufficient – you need a TeamCall Server as well. Both services can be (but do not have to be) installed on the same host.

4.2 Installation on macOS

Unpack the installation package. It contains various files, including the command line script `macOS-installer.sh` for installation on macOS. This is started from the command line (Terminal.app).

Note: The Docker zip file and the Windows script are only used for installation on Linux and Windows, so you may safely delete them.

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

The installation script needs administrator permissions.

Use `sudo` if you are not logged in as root:

```
sudo ./macOS-installer.sh
```

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

See section 6 for details on these configuration values.

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

The configuration is stored in the plaintext file `config/ca_config.properties` in the installation folder. E.g.,
`/Applications/TeamCall/CA Innovaphone/config/ca_config.properties`

The installer creates the log file `CAInnovaphone-install.log` in the installation package folder.

4.3 Configuration

Edit the configuration file `config/ca_config.properties` in the installation folder to configure the service.

See section 6 for details on the configuration values.

After having made the changes, restart the service. See section 4.7.4 below for details.

4.4 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 save the previous configuration data before updating and use it as the template for configuration during the initial installation.

4.5 Installed files

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*.

4.6 Deinstallation

Stop the service before deinstallation. See section 4.7.3 below.

Use this command to deinstall the TeamCall CA Innovaphone service:

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

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

The uninstaller creates the log file `de.ilink.TeamCall.CA-Innovaphone.uninstall.log`

4.7 Starting and stopping the service 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.

4.7.1 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, a message will be printed:

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

4.7.2 Start the service

The following command starts the TeamCall CA Innovaphone service if it does not yet run:

```
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 4.7.1 above on how to review the service status.
- The service has been permanently disabled.
See section 4.7.7 below on how to determine this and section 4.7.6 how to reenble the service.

4.7.3 Stop the service

The following command stops the TeamCall CA Innovaphone service if it is running:

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

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 4.7.1 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 4.7.5 below on how to permanently disable the service.

4.7.4 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:

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

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

4.7.5 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 4.7.3 above on how to stop the running service.

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

4.7.6 Reenable a disabled service

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

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

4.7.7 Review the enabled/disabled status of the service

Use this command to check if the service has been disabled:

```
sudo launchctl print-disabled system \  
| 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
```

5 TeamCall CA Innovaphone on Windows

5.1 Requirements

5.1.1 Windows

TeamCall CA Innovaphone requires an Intel-based 64-bit Windows system.

5.1.2 Java

Both the installer and the TeamCall CA Innovaphone service are Java based applications. Installation requires a 64-bit Java runtime (Java SE 1.8 / Java 8 or higher) to be available.

Installation of Java for Windows is outside of scope of this document.

If the TeamCall CA Innovaphone installer cannot determine the location of the 64-bit Java runtime, set the system environment variable `JAVA_HOME_64` to the top folder of the Java runtime installation, then retry the installation.

5.1.3 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 alone is not sufficient – you need a TeamCall Server as well. Both services can be (but do not have to be) installed on the same host.

5.2 Installation on Windows

Unpack the installation package. It contains various files, including the command line script `windows-installer.bat` for installation on Windows.

Note: The Docker zip file and the macOS script are only used for installation on Linux and macOS, so you may safely delete them.

The installation script needs administrator permissions. Start it from Explorer by right clicking the script and choosing *Run as administrator* from the context menu.

Or start the Windows command prompt as administrator, use the `cd` command to switch to the unpacked zip folder, and start the installation script:

```
.\windows-installer.bat
```

The script will launch the installer GUI which will ask for several configuration values and for the CA installation path.

See section 6 for details on these configuration values.

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

The configuration is stored in the plaintext file `config\ca_config.properties` in the installation folder. E.g.,

```
C:\Program Files\ilink\CA Innovaphone\config\ca_config.properties
```

The installer creates the log file `CAInnovaphone-install.log` in the installation package folder.

5.3 Configuration

Edit the configuration file `config\ca_config.properties` in the installation folder to configure the service.

See section 6 for details on the configuration values.

After having made the changes, restart the service. See section 5.7 below for details.

5.4 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 save the previous configuration data before updating and use it as the template for configuration during the initial installation.

5.5 Installed files and Registry data

All installed files are contained in subfolders of the installation folder that is specified during installation. Default path: `C:\Program Files\ilink\CA Innovaphone\`

Installation adds the following keys to Windows Registry:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\
    Uninstall\ilink TeamCall CA Innovaphone
```

```
HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Apache Software Foundation\
    Procrun 2.0\ilink_CA_Innovaphone_<Node name>
```

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\
    ilink_CA_Innovaphone_<Node name>
```

5.6 Deinstallation

Stop the service before deinstallation.

To deinstall TeamCall CA Innovaphone, open the Windows Control Panel section *Programs & Features*.

Select *ilink TeamCall CA Innovaphone* and click *Deinstall*.

Deinstallation creates a log file `%temp%\CAInnovaphone-uninstall.log`.

5.7 Starting and stopping the service on Windows

The TeamCall CA Innovaphone service can be started and stopped via the Windows services list. The service name is *ilink TeamCall CA Innovaphone*.

6 Configuration values

6.1 Service configuration

The service is configured via the configuration file `ca_config.properties` in the installation's `config` folder.

On Windows and macOS, the installer will request the configuration values and insert them into `ca_config.properties`.

On Linux (Docker), you'll need to edit the file on your own.

6.1.1 Main configuration

These are the main configuration parameters:

- **Innovaphone App URL**

(configuration file parameter `innoapp_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**

(configuration file parameter `innoapp_name`)

This is the app name that was configured as *Name* (not *Long Name* or *Display Name*)

Example: TeamCall

- **Innovaphone App password**

(configuration file parameter `innoapp_pwd`)

This is the password that was configured for the app.

- **CA service port**

(configuration file parameter `server_port`)

This is the TCP port that CA Innovaphone provides for connections from TeamCall CSTAServer.

You will need to enter this port number as `cstaLinkPort` in the TeamCall CSTA Server configuration (*Default.conf*). See section 7 below.

Example: 26001

- **Device selection for extensions with multiple devices**

(configuration file parameter `useSoftphoneAsPreferredDevice`)

This parameter determines the device to be used for outbound calls when the calling extension has multiple devices (e.g., desktop phone and softphone).

The default behavior (configuration value `true`) is to use the softphone if a softphone is available and to use the first registered device of the extension otherwise.

The configuration value `false` can be set to always use the first registered device of the extension for outbound calls, regardless of whether or not a softphone is available. (This was the default behavior of TeamCall CA Innovaphone releases before release 1.0)

Softphone devices are identified by their internal innovaphone *“hwId”*. TeamCall CA Innovaphone expects the *hwIds* of softphones to start with the prefix `SwPh_` (this is the innovaphone default setting). If they don’t, the configuration of the innovaphone system needs to be changed accordingly.

Note:

This parameter is only available in the configuration file – it is not requested by the Windows and macOS installers.

In addition, the configuration file contains another value: `activate_ACSE`. This value should be kept as it is and not be modified.

6.2 CA nodes

On Windows, multiple instances (nodes) of TeamCall CA Innovaphone can be installed in parallel. The installer will ask for one additional configuration parameter:

- **CA node suffix (Windows only)**

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). The suffix is used as the name of an instance-specific subfolder.

Use the default value 1 unless you’re installing additional instances.

Note: On Linux, multiple Docker containers would be used instead. On macOS, only a single instance can be used per host.

6.3 Log configuration

TeamCall CA Innovaphone uses log4j2 for logging. Logging is configured via the configuration file `ca_innovaphone_log4j-config.xml` in the `config` folder.

The default log file is: `log/ca_innovaphone.log`

Details of configuring log4j are outside of scope of this document.

7 Configuring TeamCall CSTA Server to connect to CA Innovaphone

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

So, instead of configuring CSTA Server to connect to a phone system, you configure it to connect to CA Innovaphone.

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 = 26001         ← the CA service port specified during installation of CA Innovaphone
```

8 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. 1.0 (2026-09-18)

- The default service port was changed to 26001. (1.1, 6, 7)
- The document structure was changed to now have top level chapters for the three supported operating systems, with sections on installation, configuration, starting the service, etc. instead of vice versa. The individual sections were expanded to contain more details. (3, 4, 5)
- Installation on Linux now uses Docker instead of the IzPack installer. (3.2, 3.6)
- Updated commands to stop and restart the service on macOS, and to review the enabled/disabled status of the service. (4.7.3, 4.7.4, 4.7.7)
- Added information about installed Windows Registry keys. (5.5)
- Added a section on deinstallation on Windows. (5.6)
- Added a section on starting and stopping the service on Windows. (5.7)
- Added information on the names of the configuration parameter keys. (6)
- Added configuration parameter `useSoftphoneAsPreferredDevice`. (6.1.1)
- Added information on logging configuration. (6.3)

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.