**FAQ**

# Trimble Access SDK

## TECHNOLOGY THAT TRANSFORMS

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# Document History

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# None technical questions

## What is the Trimble Access SDK (TASDK)?

The Trimble Access SDK is a framework that allows
3rd party developers to add applications to Trimble
Access.
This way specialized applications can be realized in a
faster and more customized way like it was never
possible before.

## What type of applications are possible?

Generally speaking applications that implement workflows following the Trimble Access
mindset work nicely.
This means adding new measure workflows, adding external devices like range finders or
custom cogo routines make quick development progress.
Application that drift away from the Trimble Access mindset - like implementing a second
database and using that instead of the job file or adding a new receiver protocol - typically
have problems at some stage as the API is not designed for such tasks.

## What applications have been build via the SDK?

Trimble used the SDK to build e.g.
- Pipelines
- Monitoring (2018 and later)
- LandSeismic
- Katastermodul

Existing partner applications can be seen in TIM (available demo licenses) or on the
developer website. Examples are:
- Allnav AutoResection
- CGC Buildings
- Allterra Locator
- LE34 Best
- SETTOP LevelMe
- Vivax Metrotech Utility Survey

## How do I get the Trimble Access SDK?

You can request an evaluation copy from Trimble Developer or send an email to
tasdk_admin@trimble.com.

## How much does the Trimble Access SDK cost?

The SDK itself comes without any kind of costs.
Depending on the kind of solution you want to develop you have to pay 25% of your revenue to Trimble.

Solution type:
- For individual use without resale no costs are associated.
- For sale, either to a single customer, a region or worldwide:
  - 55% revenue for the developer
  - 20% revenue for the dealer
  - 25% revenue for Trimble.

## What type of applications can be built with the Trimble Access SDK?

As stated before the target applications for the Trimble Access SDK are applications that extend the functionality of Trimble Access to create new workflows or that streamline workflows.
The SDK allows the user to utilize the existing screens, user interfaces, instrument-level control, and other functions that exist in Trimble Access General Survey. Therefore the best customer is a user that already knows Trimble Access and General Survey – but that always lacked certain functionality.

## Can I add Trimble instrument support to an existing application using the Trimble Access SDK?

The Trimble Access SDK is not designed to provide an interface between existing software and Trimble instruments. One would need to re-write the application to work within Trimble Access using the Trimble Access Application Programming Interfaces (APIs).
A better solution might be the Trimble Precision SDK (TPSDK). For more information please have a look at www.trimble.com/developer

## Can I build an application for resale using the TASDK?

Yes, of course, but all applications that are being built for distribution (resell or free) must be approved by Trimble.

Please check the approval process for details.

## How do I sell my application?

Any Trimble Access SDK application which targets multiple end customers – so is built for resale – will be sold via the traditional Trimble channels like any other application.
This means:
- Trimble dealers will get informed about a new product offering as well as the corresponding ordering information.
- The application will be added to the Trimble Store
- The application will participate in the Trimble Trial program (optional).

Afterwards a dealer can order the part and sell it to end customers.
The developer of an application will get an update of sold licenses once per quarter and can invoice Trimble based on this number.
Typically the numbers get forwarded to a developer at the beginning of a quarter; after collecting all invoices the invoices get processed by Trimble one month after the new quarter started.

## What is the approval process for building an application for resale?

1. You must fill out an application approval request form. It is available on the TCC Trimble Access SDK site under the "Application Request" tab.
   The general guidelines are that if you are creating a workflow for a specific group of customers or a specific region to better utilize Trimble instruments then application approval is more likely. Once the application approval form is received Trimble will review the information and will contact you to discuss. We plan to provide approval or denial to all requests within a month of receiving the application approval form.
2. Once approved, Trimble will assign your application a unique ID and a license name that will be used to identify your application in the license system.
3. Trimble may want to have a technical discussion with you to understand if there are any issues that may prevent you from building your application.
4. Once your application development is complete you can submit it with your user guide and completed test plan outlining how you confirmed your application runs without any obvious flaws.
5. During the application development process, Trimble will send you a contract so that you can review the terms and conditions related to developing an application with the Trimble Access SDK (note: you can request a copy of this at any time).
6. Trimble will assign your application a part number in our system (regardless if you are selling it or simply using it internally) and run some basic tests on your application to ensure that it will work with the Trimble Access Installation Manager.
7. Once Trimble approves your application it will be ready to publish. Once published it can be licensed via the Trimble Store and deployed to any Trimble data collector that

you authorize. The application can be setup in the store so that it is only visible to those that you authorize.

## Do I have to get approval for building an application for internal use?

You don't have to have approval, but all applications built with the Trimble Access SDK will require the use of the Trimble Access licensing system. Because of this, it will be necessary to engage Trimble at some point so that your application can get licensed appropriately for internal distribution.

## Do I have to pay Trimble to certify my application?

No. However, it is the developers' responsibility to test their system and provide Trimble with their test plans and results. If there are gaps in what the developer will be able to test then Trimble can augment the testing of the application for a fee. If the distribution is internal-only then no certification is required.

## How is my application licensed?

Applications need to be licensed by Trimble since all Trimble Access SDK applications use the Trimble Access Licensing Service.

The automated method for licensing applications is via the Trimble Store or the Trimble Dealer network (similar to how Trimble Access modules are purchased; e.g. Roads, Tunnels).

The application will be assigned a part number, setup in the Trimble Survey Store, and assigned a price which is the list price set on the application.

These information are defined in the contract between Trimble and the developer.

When a license of the application is to be sold the distributor must:

- Create the order via the Trimble Survey Web Store
- Enter in the Serial Number of the data collector on which this application will run

After this the provided part number will be licensed for the provided serial number.

An end customer can use Trimble Installation Manager (TIM) to automatically download/ update his license file.

The same method although changed workflow exists for unassigned licenses.

# Can I run my application without Trimble Access?

No, an application developed via TASDK is basically a library that gets loaded by Trimble Access during runtime.
Therefore any user must also have Trimble Access licensed and installed in order to run the custom development.

# Technical questions

## What are the technical requirements for using the Trimble Access SDK?

This question has multiple layers:

First you need to be proficient in C++ and have experience developing software for Windows (and ideally Windows© Mobile© as well).

A decent understanding of Trimble Access, the available workflows and the naming convention is also helpful as the API is very close to the application.

From a toolset point of view you have different choices:

- If you plan to develop for Trimble Access 2018 and later you need Visual Studio 2017 or later with C++ compiler.
  Trimble Access 2018 and later moved to a new core engine (QT) which does not allow builds for Windows CE.
- If you plan to develop for Trimble Access 2017 and earlier you need Visual Studio 2008 SP1 Prof. The professional edition is needed as we need both C++ and C# compilers to build the solution.

A typical setup supporting all platforms looks like this:

- A build setup targeting TASDK 2019 and building for 64bit
- A build setup targeting TASDK 2018 and building for 32bit
- A build setup targeting TASDK 3.00 (TA 2016.00) for 32bit with
  - NSI installer for Windows
  - inf installer for Windows CE

## Why the 32- and 64bit differentiation?

Trimble Access 2018 is a 32bit application.
C++ applications have a specific byte alignment and there is no automatic switching (AnyCPU) like in C#.
Because 32bit process must load 32bit libraries those libraries (dlls) also need to be build in 32bit.
In contrast Trimble Access 2019 and later moved to 64bit to take advantage especially in handling larger scan files.
This results in the need of rebuilding applications or libraries for 64bit. Hence the different versions.

# How do I migrate from A to BT?

Trimble offers bulletins on how to migrate either from 3.00 to 2018 or from 2018 to 2019. In the first case a small rework of the application is typically needed - depending on the amount of custom UI. Due to the new QT framework introduced in 2018 as well as the changed job handling and application might require code changes.
In contrast the changes from 2018 to 2019 are mainly compiler changes - to move from 32- to 64bit.

# What are the capabilities of the Trimble Access SDK?

The following list highlights the main capabilities that exist in Trimble Access SDK v2.70:

Basic functionality

- Standard classes like String and Object
- A variety of container classes such as a sortable string list or point list
- An easy to use global storage mechanism for application settings
- A rich set of utility methods such as logging, timing and sleep methods etc.

Survey Core access

- The ability to launch any task that can be found within General Survey's existing UI
- Access to global events such as instrument and database changes
- String formatting methods that obey the current configuration (e.g. language settings)
- An XML class primarily for accessing certain Survey Core data structures
- Stakeout APIs for creating a customized stakeout workflow
- Cogo API for customizing calculations without doing everything from scratch

User Interface

- General Survey look-alike controls like buttons, image buttons, dropdown lists, group boxes and list controls which are known from General Survey
- A complete form system with a range of controls, layout management, and event handling
- A set of standard form field types, such as the AzimuthField or SlopeDistanceField, which behave exactly like the corresponding General Survey fields (meaning automatic unit conversion etc.)
- A wizard form system, built on top of the form system, to make wizard-style UI or a guided workflow easy to use
- The General Survey MessageBox for simple dialogs with one to four buttons

Instrument access and control

- Low level access to a connected total station, with control of all measurement functionality.  Image and video APIs are not available in this version.
- Low level access to a GNSS receiver, with access to streaming data like grid coordinates and PDOP etc.

Survey Core jobs (database)

- The ability to open or create a Survey Core database either as a stand-alone database or as the current job.
- Access to all positions (points) stored in the database of the current job or any other Survey Core job.
- Access to all information stored with a point in the database.
- Possibility to create customized database records, so ways to store data that were not persist able before.

## How can we emulate the skin of a mobile device from Visual Studio?

While Trimble Access does not have "skins" as such, any platform's screen resolution and layout can be emulated by including the name of the required platform on the survey.exe command line.

Most platforms are supported – TCU (model 3), TSC2, TSC3, Slate, GeoExplorer, Trimble M3 embedded CU and Trimble Tablet1/2, TSC7.

Note that the TSC3 has a high resolution (dpi) display, so the window will appear somewhat larger when emulated on a PC, compared to a real TSC3.

Note that the previous statements only make sense while targeting TASDK v3.00.

Trimble Access 2018 and later run typically in full screen mode automatically - therefore there are no screen resolution templates like for CE devices.

## Are there any tools that help me getting started?

The TASDK installs the so called 'Visual Studio Plugin' (VSP). The VSP links into Microsoft Visual Studio and contains various wizards and dialogs that help you:

- Setting up a project
- Managing XCodes

If you look into the DevGuide section of TCC you will also get a lot of insight into the SDK, the philosophy and principles.

There are also [online tutorials](#) available that help you with your first steps.

## Is it possible to develop an application without having an instrument?

The TASDK ships with an emulator for GNSS devices as well as with the manual input for total station. Both tools help you simulating the behavior of an instrument.

Before releasing your product you should still test with real hardware. The emulators behave mostly like real instruments but they can't simulate communications errors or unexpected behavior.

## How do I advertise my application so it gets known to the world?

Trimble offers various channels to advertise your application. The most common ones are:

·   Trial version support in TAIM

·   Release note support

·   Being part of the monthly dealer newsletter

·   Product bulletin and tech sheets

These are the existing technologies to advertise your application via Trimble.

Of course you can also start you own campaign targeting existing customers.

The most successful applications are those that handle marketing on their own.

## How do my customers download my application?

All Trimble Access applications are delivered via Trimble Installation Manager ([TIM](#)).

The TCC account provided with the full license of the Trimble Access SDK allows the developer to upload applications to various Trimble servers (sandbox and production). TIM will check for valid licenses on controllers and offer products based on the license. Assuming an end customer purchased the application in question Trimble will generate the corresponding license automatically. TIM will fetch this license, download it to the controller and make the application available to the user.