

# TopCon Series

# TopCon API

*.Net API Access*

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**Getting Started**

**Version V 1.4**

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Overview of versions		
<b>TopConAPI</b>	Version	V 1.1.0
<b>Document Version</b>	Version	V 1.4

All information is subject to technical changes without prior notice.

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## 1. Overview

The TopCon .Net API can be used to access the TopCon device programmatically and perform a certain set of operations.

It cannot substitute the TopControl, SASControl or ESSControl PC Software, but offers some methods to automate operations.

The main configuration and error analysis can only be done with the ESSControl or TopControl software.

For more details please see the doxygen documentation and the example application

### 1.1. Content

This document provides a guideline how to access the TopCon .net API.

It does not explain all the method that the API exposes. To get a complete method and class description of the API, please refer to the Doxygen documentation.

### 1.2. Precondition / Dependencies

To be able to use the TopCon .Net API the following frameworks and libraries have to be installed on the target system:

- Microsoft Visual C++ 2008 Redistributable Package (x86 / x64)
- Microsoft Visual C++ 2017 Redistributable Package (x86 / x64)
- Microsoft .NET Framework 4.7
- Windows 10 Anniversary Update (for Windows 10 OS)

Note:

In order to be able to install the .NET Framework 4.7 on Windows 7 and Windows 8 operating systems, the Windows Update KB4019990 is needed.

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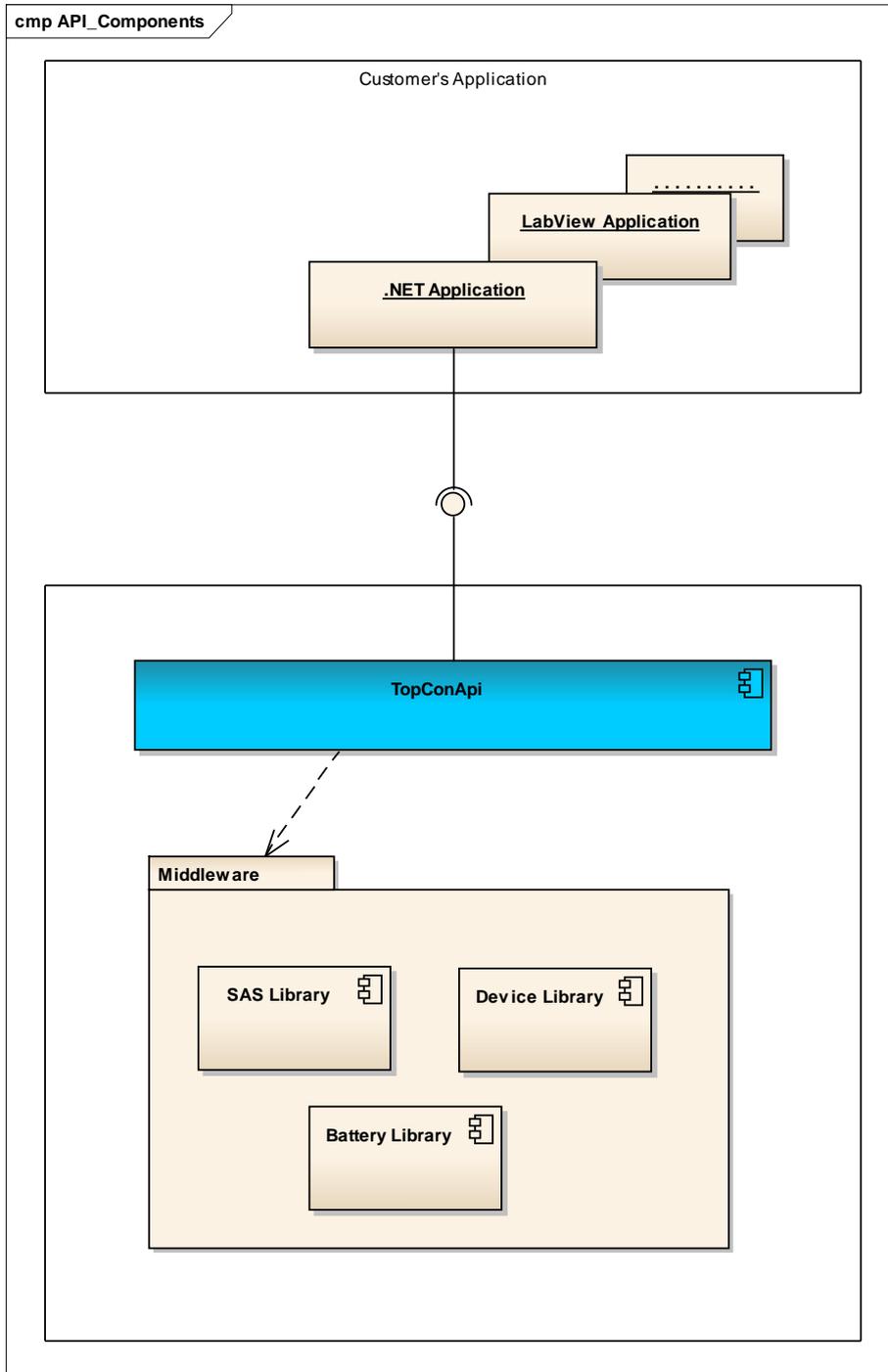
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## 2. General Architecture

### 2.1. Components

The architecture looks like this:



You only have to reference the TopConApi.dll in your project. Public methods of other dll's that are delivered along with the TopConApi.dll mustn't be accessed.

## 3. Battery Simulation in C# .Net

There is an example project (“TopConApi WPF Example”) that shows how to access the API written in C# using a WPF GUI.

Important to mention is that this example project is not a productive program. It could throw exceptions at many places if an unexpected situation occurs. It does also not serve as an example project that shows how to use WPF and MVVM; it simply uses this technique to get a quick and easy test tool. There is much space for improvement.

The main purpose of this program is to show how the API can be accessed and used.

This section explains brief the different components of the example application and what they do.

The source code can be opened with any editor, but the project and solution file requires the Microsoft Visual Studio (2017).

### 3.1. Components

This section brief explains the contents of the Test Application and what they do.

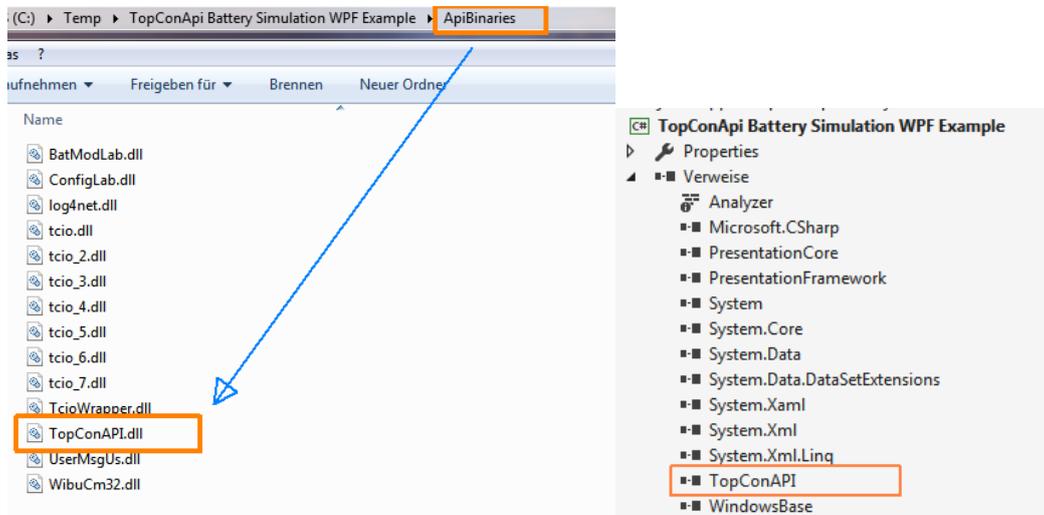
#### 3.1.1. Source Code

Here the most important files and folders are listed. Those that are not described are standard files that are created by VisualStudio when creating a new WPF application

[ApiBinaries]	← API Binaries	<
[BatterySimulation]		<
[Commands]		<
[Images]		<
[Properties]		<
[SasSimulation]		<
TopConApi WPF Example		sln
TopConApi WPF Example		csproj
MainWindowViewModel	← View model part (MVVM)	cs
MainWindow.xaml		cs
MainWindow	← View part (MVVM)	xaml
App.xaml		cs
App		xaml
App		config

### 3.1.2. References

The only reference that has to be set is to the assembly TopConApi.dll in the ApiBinaries Folder



### 3.1.3. Namespace

The namespace of the API methods is:

**Ch.Regatron.HPPS**

```
using DEV = CH.Regatron.HPPS.Device;  
  
using Timer = System.Timers.Timer;  
  
namespace Ch.Regatron.TopCon.Example.TopConAPIDotNet4WPFExample  
{  
    public sealed class MainWindowViewModel:INotifyPropertyChanged  
    {  
        #region Members and Properties  
        ...  
    }  
}
```

### 3.2. Battery Simulation

To run a battery simulation there are two preconditions:

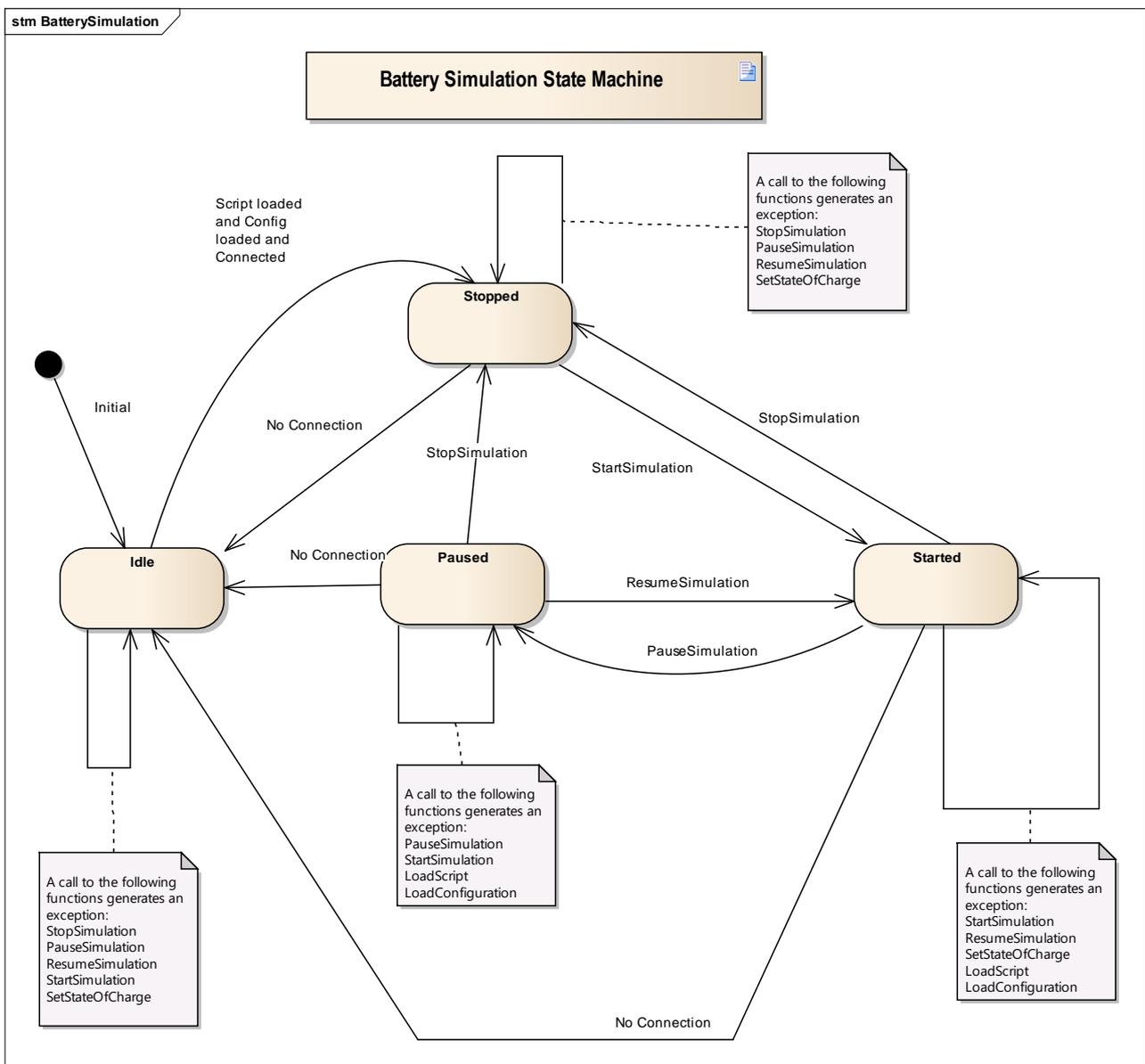
1. Load a predefined battery configuration \*.batsimcfg
2. Load a predefined simulation script \*.batsim

Beside the default files that are delivered together with the ESSControl application, you also can create your own battery configuration files.

#### 3.2.1. Battery Simulation Control

The battery simulation has several states and commands that allows you to control the simulation procedure.

This diagram gives an overview about the states and its transitions:



## 4. Change log

This change log contains a list of changes in the previous versions of the documentation

Version	Date	Changes in documentation
1.0	2017-September-09	Initial documentation
1.2	2018-March -12	Update to newest API version
1.3	2019-February-11	Update to newest API Version
1.4	2020-February-10	Update to newest API Version



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