

Release Notes  
RobotStudio SDK

6.01

Revision: -

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# Overview

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## Description

This document provides information about the new features, corrected problems, and installation of RobotStudio SDK.

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## Product Overview

RobotStudio SDK is available for download from the Robotics Developer Center.

With RobotStudio SDK you can develop applications for the RobotStudio platform, ranging from utility Add-Ins or PowerPacs that provides new functionality and customized user interfaces to SmartComponents with Code Behind.

You can also combine RobotStudio SDK with PC SDK to communicate with real or virtual IRC5 controllers. For this purpose, you need the Robotware option "PC interface" installed on the controller

For download, information and help getting started, visit our Developer Center:  
<http://developercenter.robotstudio.com>

On the User Forum developers discuss problems and solutions online:  
<http://forums.robotstudio.com>

# 1 Release Information

## 1.1 General

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### Release Name

The release name is RobotStudio SDK 6.01 and the build number is 6.01.6409.0123  
For information about RobotStudio, please refer to the document 'Release Notes RobotStudio 6.01.pdf'.

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### Release Date

The release date is April 29<sup>th</sup>, 2015.

## 1.2 Contents

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### Overview

The installation includes software, documentation and tools as specified below.

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### Software

ABB.Robotics.Math.dll  
ABB.Robotics.Environment.dll  
ABB.Robotics.RobotStudio.dll  
ABB.Robotics.RobotStudio.Controllers.dll  
ABB.Robotics.RobotStudio.Documents.dll  
ABB.Robotics.RobotStudio.Stations.dll  
ABB.Robotics.RobotStudio.Stations.Forms.dll

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### Documentation

Reference Manual – RobotStudio SDK – Class library API reference in C# syntax.  
Available at <http://developercenter.robotstudio.com> and the installation folder.

On <http://developercenter.robotstudio.com> you can find sample projects and HowTo's.

After installation the help file can be launched from the RobotStudio Help Menu, and Windows Start Menu; Programs > ABB Industrial IT > Robotics IT > RobotStudio SDK 6.01.

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### Tools

**LibraryCompiler.exe** – A tool for batch creation for RobotStudio libraries such as SmartComponents and Mechanisms.

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### Visual Studio Project Templates (C#)

RobotStudio Add-In – template for an Add-In.

RobotStudio Sample Addin – a project for creating a simple Add-In.

RobotStudio Smart Component – template for a Smart Component with Code Behind and XML description.

## 1.3 Prerequisites

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### Before you install...

- You must have Administrator privileges.
  - Visual Studio needs to be installed, in order for Visual Studio project templates to be installed.
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### Licensing

The use of RobotStudio SDK is free of charge.

A RobotStudio Premium license is required to load Add-Ins that references ABB.Robotics.RobotStudio.Stations.dll.

RobotStudio Free will load Add-Ins that does not reference ABB.Robotics.RobotStudio.Stations.dll.

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## 1.4 Software Requirements

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### Operating system

Operating System	
Microsoft Windows 7 SP1	32-bit edition
Microsoft Windows 7 SP1 (recommended)	64-bit edition
Microsoft Windows 8.1 (recommended)	64-bit edition

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### Visual Studio 2012/2013

Microsoft Visual Studio 2012, Visual Studio 2013, express or better, development environment is required.

The Visual Studio project templates is supported by the English version of Visual Studio only.

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### RobotStudio

RobotStudio is required to debug and run Add-Ins and SmartComponents developed with RobotStudio SDK.

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## 2 What's New in 6.01?

### Overview

This section contains information on the new features of RobotStudio SDK 6.01.

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### 2.1 All new types and methods

#### Overview

This section contains information about all the new types in the API, and existing types which has been extended with new methods. Each updated namespace has a separate chapter. For extended types, the name of the type is in bold face, followed by its new methods.

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#### 2.1.1 ABB.Robotics.Math

##### Extended types

```
class LogicExpression
    LogicExpression(String, Boolean)
class BoundingBox
    virtual String ToString()
```

---

#### 2.1.2 ABB.Robotics.RobotStudio

##### New types

```
class CustomProjectObject
class DocumentHistoryEntry
class LoadContext
enum MassUnit
```

---

##### Extended types

```
class ExceptionLogMessage
    Boolean CanActivate { virtual Boolean get() }
class LicenseValidator
    Boolean Initialized { static Boolean get() }
class LogMessage
    Boolean CanActivate { virtual Boolean get() }
class Quantity
    Quantity Mass { static Quantity get() }
class ReferencedProjectFileNotFoundEventArgs
    ReferencedProjectFileNotFoundEventArgs(ProjectType,
    String)
```

## 2.1.3 ABB.Robotics.RobotStudio.Stations

### New types

```
struct OptimizeMeshParameters
```

### Extended types

#### class Body

```
Void SetMaterial(Material, Boolean)  
Boolean TryJoin(Body, Boolean, out Body[]&  
static Body Sweep(Face, Vector3, Vector3, Double,  
SweepOptions)  
Boolean TryCut(Body, out Body[]&  
Boolean TryIntersect(Body, out Body[]&
```

#### class ConfigurationData

```
virtual String ToString()
```

#### class IOConnection

```
String SourceObjectName { String get(); Void set(String) }  
String TargetObjectName { String get(); Void set(String) }
```

#### class Mechanism

```
Task<Double[]> CalculateInverseKinematicsAsync(Matrix4,  
Matrix4, Boolean)  
Boolean GetJointTransform(Int32, Double[], out Matrix4&
```

#### class Mesh

```
Void Optimize(OptimizeMeshParameters,  
ProgressNotification)  
Void SetMaterial(Material)  
Void TraverseFaces(Action<MeshFace>
```

#### class MeshFace

```
List<Int32> VertexWeightIndices { List<Int32> get() }  
List<Single> VertexWeights { List<Single> get() }
```

#### class MeshInfo

```
DetailLevels DetailLevels
```

#### class MeshPart

```
Void Optimize(OptimizeMeshParameters,  
ProgressNotification)  
Void SetMaterial(Material)  
Void TraverseFaces(Action<MeshFace>
```

#### class Part

```
Task RemoveInternalGeometry()
```

#### class PropertyBinding

```
String SourceObjectName { String get(); Void set(String) }  
String TargetObjectName { String get(); Void set(String) }
```

#### class RsActionInstruction

```
Boolean Visible { Boolean get(); Void set(Boolean) }
```



```
class RsMoveInstruction
    Boolean Visible { Boolean get(); Void set(Boolean) }}
```

```
class RsPathProcedure
    Boolean ShowSpeeds { Boolean get(); Void set(Boolean) }
```

```
class ScreenshotOptions
    static ScreenshotOptions ColorKeys = 2048
    static ScreenshotOptions NoMultiSample = 1024
```

```
class SweepOptions
    Int32 Steps { Int32 get(); Void set(Int32) }
```

## 2.1.4 ABB.Robotics.RobotStudio.Controllers

### Extended types

```
class ControllerManager
    ControllerObjectReference[] SelectedControllerObjects {
    static ControllerObjectReference[] get() }
```

```
class RecentControllerInfo
    Boolean LowBandwidthConnection { Boolean get() }
```

## 2.1.5 ABB.Robotics.RobotStudio.Environment

### Extended types

```
class DisplayCommandGroupEventArgs
    Void AddItem(CommandBarButton)
```

```
class UpdateCommandUIEventArgs
    Boolean Visible { Boolean get(); Void set(Boolean) }
```

## 2.1.6 ABB.Robotics.RobotStudio.UI

### New types

```
enum DisplayOrder
```

```
enum DropTargetFeedback
```

```
class GridViewSortColumn
```

```
class PropertyChangingCancelEventArgs
```

```
class UIServices
```

```
class WpfCheckedTreeNode
```

```
class WpfTreeHeader
```

```
class WpfTreeModel
```

```
class WpfTreeNode
```

```
class WpfTreeNodeCollection
```

```
class WpfTreeRoot
```

```
class WpfTreeView
```

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# What's New in 6.00?

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## Overview

This section contains information on the new features of RobotStudio SDK 6.00.

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## 2.2 All new types and methods

---

### Overview

This section contains information about all the new types in the API, and existing types which has been extended with new methods. Each updated namespace has a separate chapter. For extended types, the name of the type is in bold face, followed by its new methods.

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### 2.2.1 ABB.Robotics.Math

---

#### Extended types

```
class Matrix4  
Matrix4(Matrix3, Vector3)  
Void CheckRigid()  
  
class BoundingBox  
virtual String ToString()
```

---

### 2.2.2 ABB.Robotics.RobotStudio.Controllers

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#### Extended types

```
class ControllerObjectReference  
Boolean IsRouted { Boolean get() }  
  
class ControllerType  
Boolean IsRouted { Boolean get() }
```

---

### 2.2.3 ABB.Robotics.RobotStudio.Environment

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#### New types

```
class LaunchingOptionsPageEventArgs
```

---

#### Extended types

```
class ApplicationMenu  
event EventHandler<LaunchingOptionsPageEventArgs>  
LaunchingOptionsPage  
  
class CommandBarButton  
String LicenseFeature { String get(); Void  
set(String) }  
  
class CommandBarControl  
Boolean Visible { Boolean get(); Void set(Boolean) }
```

**class CommandBarControlCollection**`Int32 IndexOf(String)`**class RibbonGroup**`Image LargeImage { Image get(); Void  
set(Image) }`

---

**Obsolated Members****class CommandBarControlCollection**`[Obsolete] sealed class  
ABB.Robotics.RobotStudio.Environment.CommandBarCollection :  
ICollection, IEnumerable, IEnumerable<CommandBar>  
[Obsolete] Void Compact()`**class CommandBarControl**`[Obsolete] String Category { String get(); Void  
set(String) }``[Obsolete] String DefaultCategory { static String  
get(); static Void set(String) }``[Obsolete] String ToolTip { String get(); Void  
set(String) }`**class CommandBarPopup**`[Obsolete] Boolean IsSelectionGroup { Boolean get();  
Void set(Boolean) }``[Obsolete] Boolean ShowAsToolStrip { Boolean get();  
Void set(Boolean) }`**class UIEnvironment**`[Obsolete] String[] CommandBarControlDisplayFilter {  
static String[] get(); static Void set(String[]) }``[Obsolete] String[] CommandBarControlEnableFilter {  
static String[] get(); static Void set(String[]) }``[Obsolete] CommandBar MenuBar { static CommandBar  
get() }``[Obsolete] CommandBarCollection ToolBars { static  
CommandBarCollection get() }`**class CommandBar**`[Obsolete] String Caption { String get(); Void  
set(String) }``[Obsolete] Boolean Visible { Boolean get(); Void  
set(Boolean) }`**class CommandBarPoupControl**`[Obsolete] class  
ABB.Robotics.RobotStudio.Environment.CommandBarPopupControl  
: CommandBarControl`

## 2.2.4 ABB.Robotics.RobotStudio

### New types

```
class Solution
class LogMessageActivatedEventArgs
class LogMessageActivatedEventHandler
```

### Extended types

```
class Project
    ReadOnlyCollection<Project> OpenProjects {
        static ReadOnlyCollection<Project> get () }

    static event EventHandler ProjectAdded
    static event EventHandler ProjectRemoved

class ScreenRecorder
    Boolean IncludeMouseCursor { static Boolean get();
    static Void set(Boolean) }

class DataRecorderSignalInfo
    DataRecorderSignalInfo(SignalDataType,
    SignalInterpolationType, String, Object,
    Object)

class Logger
    static Void ActivateMessage(Object, LogMessage)
    [Obsolete] static event EventHandler LogMessageActivated
    static event LogMessageActivatedEventHandler
    MessageActivated

class LogMessage
    LogMessage(String, String, String, LogMessageSeverity,
    String)
```

## 2.2.5 ABB.Robotics.RobotStudio.Stations

### New types

```
class CollisionHighlightLevel
class ControllerSimulationConfiguration
class ControllerSimulationConfigurationCollection
class TaskSimulationConfiguration
class ZoneVisualization
class RsPathCallInstruction
class GraphicConverterSettings
class TaskSimulationConfigurationCollection
```

### Extended types

```
class CollisionEventArgs
    Vector3 Point { Vector3 get() }
```

```
class Texture
    String FileName { String get(); Void set(String) }

class CollisionSet
    CollisionHighlightLevel HighlightLevel {
    CollisionHighlightLevel get(); Void
    set(CollisionHighlightLevel) }

    Boolean IncludeInvisible { Boolean get(); Void
    set(Boolean) }

    Boolean ShowMarkup { Boolean get(); Void
    set(Boolean) }

class GraphicConverter
    virtual Void Export(ProjectObject, String,
    GraphicConverterSettings)

    virtual Void SetCancellationToken(CancellationToken)

    virtual Boolean SupportsCancel()

class RsMechanicalUnit
    Nullable<Flange> GetFlange()

class Mechanism
    Boolean AttachToFlange(IAttachableChild, Boolean)
    Boolean AttachToFlange(IAttachableChild, Boolean,
    Matrix4)

class RsTask
    Mechanism MechanismMovingTaskFrame { Mechanism get();
    Void set(Mechanism) }

    [Obsolete] Boolean Simulate { Boolean get(); Void
    set(Boolean) }

class RsWorkObject
    Boolean IsConveyorWorkObject { Boolean get(); Void
    set(Boolean) }

class SyncLogMessageId
    static SyncLogMessageId ModuleCannotOpen = 2050

class SimulationConfiguration
    ControllerSimulationConfigurationCollection
    ControllerConfigurations {
    ControllerSimulationConfigurationCollection get() }

class RsIrc5Controller
    [Obsolete] Int32 RunMode { Int32 get(); Void set(Int32)
    }
    [Obsolete] Boolean SuppressSimulationActions { Boolean
    get(); Void set(Boolean) }

class RsPathProcedure
    [Obsolete] Boolean ShowZones { Boolean get(); Void
    set(Boolean) }
    ZoneVisualization ZoneVisualization {ZoneVisualization
    get(); Void set(ZoneVisualization) }
```

```
class GraphicImportSettings  
    Boolean AsAssembly { Boolean get(); Void set(Boolean) }
```

```
class GraphicComponent  
    Boolean TryGetNormalToSurface(Vector3, out Vector3&, Vector3&, out Face&)
```

## 2.2.6 ABB.Robotics.RobotStudio.UndoContext

---

Extended type

```
class UndoContext  
    Void AppendToUndoStep(String, Boolean)
```

## 2.2.7 ABB.Robotics.RobotStudio.Stations.Forms

---

Extetended type

```
class NumericTextBox  
    [Obsolete] Int32 NumDecimals { Int32  
    get(); Void set(Int32) }
```

## **3 Late-breaking information**

### **3.1 Overview**

This section contains late-breaking information that will be included in the appropriate documents in the subsequent releases.

Nothing in this release.



## 4 Corrections

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### Overview

This section describes the corrected problems in RC SDK 6.01

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### **PDD4570 - ABB.Robotics.Math was not shown in the API documenttion**

This has now been fixed

## **5 Known Limitations**

### **5.1 Development Environment**

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#### **The RobotStudio API is not thread safe**

Access to the RobotStudio API is not inherently thread safe. Only access the API from the thread that your Add-In was called from by RobotStudio. If multiple threads manipulate the object model it can be left in an inconsistent state.

## 6 Installation information

### 6.1 Installing RobotStudio SDK 6.01

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#### Installation instructions

RobotStudio SDK 6.01 will be installed side-by-side with any previous major version of RobotStudio SDK 5.61 or earlier, while minor versions within a release will update to the latest one.

The Visual Studio templates are not installed side by side. Only the latest installed version will be available.

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#### How to install RobotStudio SDK on a PC

	<b>Action</b>
1	Browse to <a href="http://developercenter.robotstudio.com/">http://developercenter.robotstudio.com/</a> and select RobotStudio and then Download.
2	Download the file <b>RobotStudioSDK6.01.exe</b> to a folder on your computer.
3	Double click <b>RobotStudioSDK6.01.exe</b> to start the installation procedure.

## **7 Compatibility**

The APIs in the RobotStudio SDK 6.01 is backward compatible with 6.00/01

## 8 Technical Support

For technical support please contact your local ABB office:

[www.abb.com/contacts](http://www.abb.com/contacts)

For help, advice and the latest updates visit the User Forum and Developer Center:

[forums.robotstudio.com](http://forums.robotstudio.com)

[developercenter.robotstudio.com](http://developercenter.robotstudio.com)