Release Notes

PC SDK

5.60

Revision: -

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Overview

Description

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

Product Overview

PC SDK can be used to develop customized PC applications for communication with the IRC5 controller.

It can also be used in combination with RobotStudio SDK to develop RobotStudio add-ins that interacts with the IRC5 controller.

PC SDK applications can connect to one or several IRC5 controllers, real as well as virtual. The RobotWare Option "PC Interface" is required on the controller.

No license is required to develop applications using PC SDK.

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

Release Name

The release name is PC SDK 5.60 and the build number is 5.60.5733.0084

Release Date

The release date is November 29th, 2013.

1.2 Contents

.NET Assemblies

ABB.Robotics.Controllers.PC.dll

Redistributables

ABBControllerAPI.msm – Merge module containing the assemblies required by a PC SDK application.

ABB Robot Communication Runtime 5.60.exe – Standalone installer for Robot Communication Runtime.

Merge Modules for Robot Communication Runtime – Merge modules for including Robot Communication Runtime in your own installer

- ABBRobAPI.msm
- ABBRobAPICommon.msm
- ABBRobInstallAPI.msm
- ABBRobInstallAPICommon.msm

Documentation

Reference Manual PC SDK – Documentation of class libraries with method signatures in C#. Available online at developercenter.robotstudio.com and as Html Help and PDF in the installation folder.

Application Manual PC SDK – Available online at developercenter.robotstudio.com and as Html Help and PDF in the installation folder.

Code samples – Available online at developercenter.robotstudio.com.

Installed documentation can be accessed from the Windows Start Menu Programs\ABB Industrial IT\Robotics IT\PC SDK 5.60.

2 What's New in 5.60?

Overview

This section contains information about the new features of PC SDK 5.60.

2.1 Support for 64-bit Windows Operating systems

You can now develop 64-bit applications with PC SDK.

For developers of RobotStudio Add-Ins it means that it is possible to create Add-Ins using PC SDK for the 64-bit edition of RobotStudio.

2.2 Distribution via Developer Center

PC SDK can be downloaded from Robotics Developer Center:

developercenter.robotstudio.com.

PC SDK is no longer distributed as a part of RobotStudio.

2.3 Simplified project creation

The number of .NET assemblies of PC SDK that you need to reference has been reduced from five to one.

When you create a new Visual Studio project you only need to add a reference to ABB.Robotics.Controller.PC.dll.

2.4 Simplified application deployment

The Robot Communication Runtime redistributable component is now available as a set of merge modules for inclusion in your own application installer. You can now create an application that contains both your own assemblies and all dependencies in one single package.

The merge modules are located under \PC SDK\Redistributable\Robot Communication Runtime

2.5 Retrieve large RAPID variables

It is now possible to retrieve the value of large size RAPID variables, for example arrays of RECORDs, using the property RapidData.Value. Previously there was a limitation of 1024 bytes.

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 Problems Corrected

Overview

This section describes the problems solved in PC SDK 5.60.

4.1 Solved Product Defect Documents (PDD) in PC SDK 5.60

ID	Title
PDD2365	PCSDK - error when running netscan twice single threaded
PDD2320	PCSDK - Memory leak when subscribing to signals
PDD9170	Make it possible to retrieve RAPID data larger than 1024 bytes

5 Known Limitations

Overview

This section describes known limitations in PC SDK.

Maximum number of connected Robot Communication Runtime clients

The following table describes how many client applications can connect to an IRC5 controller using Robot Communication Runtime over its different network ports.

Network port	Max number of connected clients
LAN	3
SERVICE	1
GTPU	1

On a single PC, all applications using Robot Communication Runtime, like PC SDK applications and RobotStudio, shares one single connection to the controller.

The RobotStudio Online apps consumes one separate connection each as long as they are visible on the screen. When they become suspended they automatically disconnects from the controller.

In Windows 8.1 it is possible to have two apps docked besides each other which means the apps can consume up to two connections per PC.

Example:

A PC with Windows 8 running the following apps and applications consumes three connections. The apps are both visible and docked side by side.

- PC SDK application A (1 shared connection via Robot Communication Runtime)

- PC SDK application B (1 shared connection via Robot Communication Runtime)

- RobotStudio (1 shared connection via Robot Communication Runtime)

- RobotStudio Online Adjust (1 connection when it is visible)

- RobotStudio Online Tune (1 connection when it is visible)

Total: 1+1+1=3 connections

Maximum number of logged in users

The maximum number of logged in users to the controller is 50.

Maximum number of connected FTP clients

The maximum number of concurrent connected FTP clients is 4.

PC SDK UIInstructionEvent / RAPID UIListView

UIListViewEventArgs.ListItems may return the wrong number of list items if - if you are using characters like double quote (") and brackets ([ ]) in the RAPID array of list item strings, the

Avoid using double quote (") and brackets ([ ]).

FlexPendant may lock up when PC SDK application release and immediately request mastership

In manual mode, when a PC SDK application releases master and immediately requests master again, the FlexPendant is locked up when the user presses the prompt to grant write access to the PC SDK application. In automatic mode there is no problem.

IPC Messaging - PC SDK always sends 444 bytes of data

When sending a message with `IpcQueue.Send()`, the size of the message sent over the network will be 444 bytes, regardless of the amount of data passed to `Send()`. Data must therefore be null terminated.

IPC Messaging requires MTA thread

`IpcQueue.Send()` must be called from an MTA thread. Create a separate sender thread and use the method `Thread.SetApartmentState()` to set the apartment state to MTA before starting it.

IsLocal on the class RapidData, returns true for shared data

The property IsLocal on the class RapidData, returns true for shared data, even though such data is visible from all modules.

The declarations of default zonedata and speeddata has been moved from module BASE.SYS in each task, and are now installed as shared data.

If an application used to create a RapidData object representing for example "v1000", the IsLocal property returned false in RobotWare 5.12, but will return true in RobotWare 5.13."

6 Installation Information

6.1 Prerequisites

Before you install

You need administrator permissions on the computer that you are using.

Licensing

PC SDK can be used free of charge to develop applications. In order to allow applications to connect to a specific IRC5 controller, the RobotWare option "PC Interface" is required on that controller.

PC operating system requirements

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

Simulation environment

RobotStudio 5.60 is needed for building virtual controller systems and for debugging and testing in a virtual environment.

Development environment requirements

Microsoft Visual Studio 2012. Express edition or better.

RobotWare software requirements

In order for a PC SDK application to be able to communicate with an IRC5 controller, the RobotWare option PC Interface is required on the controller.

Note! The PC Interface option is required even if the PC SDK application is connected to the controller over the Service Port.

6.2 Installing PC SDK 5.60

Installation instructions

PC SDK 5.60 will be installed side by side with any previous major version of PC SDK

5.xx, while minor versions within a release will update to the latest one.

The default installation path is C:\Program Files\ABB Industrial IT\Robotics IT\SDK\PC SDK.

How to install PC SDK on a PC

	Action
1	Browse to http://developercenter.robotstudio.com/ and select Robot Communication and then Download.
2	Download the file **PCSDK5.60.exe** to a folder on your computer.

3	Double click **PCSDK5.60.exe** to extract the installation files.
4	Double click **setup.exe** in the extracted folder to start the installation procedure.

7 Compatibility

Changed .NET assembly names

In PC SDK 5.60 the following assemblies have been removed:

- ABB.PCSdk.Install.dll

- ABB.Robotics.Adapters.IRC5.dll

- ABB.Robotics.dll

The assembly ABB.Robotics.Controllers.dll has been renamed to ABB.Robotics.Controllers.PC.dll.

All the public types and methods from those assemblies are now available in the single assembly ABB.Robotics.Controllers.PC.dll.

Migrating an existing project

In order to use PC SDK 5.60 from a Visual Studio project where you are currently using a previous version, follow those steps.

	Action
1	Remove the following assembly references: • ABB.PCSdk.Install.dll • ABB.Robotics.Adapters.IRC5.dll • ABB.Robotics.dll • ABB.Robotics.Controllers.dll
2	Add a reference to the assembly ABB.Robotics.Controllers.PC.dll. It is located under "C:\Program Files\ABB Industrial IT\Robotics IT\SDK\PCSDK 5.60 "
3	In project properties Application tab, target .NET 4.5.
4	Build the project.

.NET Framework 4.5

PC SDK 5.60 is dependent on .NET Framework 4.5 and it is not possible to develop applications targeting for example .NET 2.0 with PC SDK 5.60.

RobotStudio Add-In using PC SDK

An Add-In built with PC SDK 5.15.02 will run in RobotStudio 5.60 32-bit edition, since 5.15.02 versions of the PC SDK assemblies are part of the RobotStudio installation.

In order to develop Add-Ins running in the 64-bit edition of RobotStudio, PC SDK 5.60 must be used instead. Existing Add-In projects needs to be modifed and rebuilt.

API

The APIs in PC SDK 5.60 are backwards compatible with the APIs in PC SDK 5.15.xx.

There are no breaking changes.

Robot Communication Runtime

PC SDK communicates with the robot controller using the Robot Communication Runtime, which is designed to be backwards compatible with earlier versions of RobotWare.

Note! Functionality introduced in later versions of RobotWare will not be available for a PC SDK application that is connected to a controller with an older version of RobotWare.

For example the Messaging functionality is only supported on RobotWare 5.10 and above. This means that a PC SDK application cannot use the Ipc class when communicating with a controller with RobotWare 5.09.

The code will compile, but an exception will be thrown at runtime. Application developers are responsible for handling this scenario in their applications. Please refer to the PC SDK Reference Documentation for details.

Note! Compatibility between RobotWare minor revisions is guaranteed (PC SDK 5.15.01 will be compatible with PC SDK/RW 5.15.02 etc.).

Robot Communication Runtime on Windows XP

Microsoft has announced that its support for Windows XP will end April 8 2014.

PC SDK 5.60 does not support Windows XP. This includes Robot Communication Runtime 5.60 which does not support Windows XP.

8 Application deployment

.NET Framework 4.5

Applications based on PC SDK 5.60 requires .NET 4.5 Framework to be installed on the target PC.

Robot Communication Runtime

Applications based on PC SDK requires Robot Communication Runtime to be installed on the target PC. The Robot Communication Runtime redistributable, can be found under

C:\Program Files\ABB Industrial IT\Robotics IT\SDK\PC SDK\5.60\redistributable\RobotCommunicationRuntime.

Redistributables for earlier versions of PC SDK can be found on
http://developercenter.robotstudio.com

9 Technical Support

For technical support please turn to your local ABB office.

http://www.abb.com/contacts

For help, advice and the latest updates please visit the User Forum.

http://forums.robotstudio.com