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Release Notes RobotStudio 5.10

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Release Information

Release Name

The release name is RobotStudio 5.10

The release contains the following products:

- RobotStudio 5.10 DVD build 2400

The RobotStudio DVD contains the following product versions:

- RobotStudio 5.10 build 2400
- RobotWare 5.10.00.01 build 0147
- RobotStudio Online 5.10.00.01 build 0147

RobotStudio 5.10 is available in seven languages (see section below).

RobotWare 5.10 is available in 14 languages (see Release Note 5.10 RobotWare.pdf available on the RobotStudio DVD.).

RobotStudio Online is available in five languages (see section below).

The installed program versions are displayed if you select Start → Settings → Control panel → Add/Remove programs. Select the program (according to the list above) and select “Support information”. The program version is displayed in the table.

Release Information

The information should be considered as last minutes information and most up-to-date.

For more information please visit the support web site at

<http://www.abbroboticssoftware.com>. There you can find a discussion forum, e-learning and software downloads. Visit also our web site at <http://www.abb.com/roboticssoftware> for more information and updates.

Release Date

Release date **2008-01-30**

Robot Libraries

The folder *ABB Library* contains libraries of robots, tools, external axes, positioners and equipment. Track configuration files to be used for track motions or type *RTT* or *IRBTx003* ($x = 4, 6, \text{ or } 7$) can be found in the Track folder, see section Track Configuration Files. For configuration of tracks of type *IRBTx004*, ($x = 4, 6, \text{ or } 7$) there is a additional options mediapool in the Mediapool folder installed in the same folder as RobotWare (*..%ProgramFiles%\ABB Industrial IT\Robotics IT\MediaPool*). The current version of the

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Track additional option is called *Track.5.09.0010*. It supports RobotWare 5.09 and 5.10 and subrevisions of those releases.

The ABB Library also contains template robot systems for all included robot models.

Some typical MediaPools for different combinations of robots and external axis (positioners) are installed to the *MediaPool* directory. The mediapool for StandAloneControllers is available on the RobotStudio DVD and may be used for non-standard, third party .

ABB Robot Libraries included in RobotStudio 5.10

IRB140_5_81__01.rslib	IRB4450S_30_240__01.rslib
IRB140_5_81_C_01.rslib	IRB6400R_200_250__01.rslib
IRB140_6_81_C_01.rslib	IRB6400R_200_280__01.rslib
IRB1400_5_144__01.rslib	IRB660_180_315__01.rslib
IRB1400H_5_128__01.rslib	IRB660_250_315__01.rslib
IRB140T_6_81_C_01.rslib	IRB6600_175_255__01.rslib
IRB1410_5_144__01.rslib	IRB6600_175_280__01.rslib
IRB1600_5_120__01.rslib	IRB6600_225_255__01.rslib
IRB1600_5_120_A_01.rslib	IRB6600ID_185_255__01.rslib
IRB1600_5_145__01.rslib	IRB6620_150_220__01.rslib
IRB1600_5_145_A_01.rslib	IRB6640_130_320__03.rslib
IRB1600_6_120__01.rslib	IRB6640_180_255__03.rslib
IRB1600_6_145__01.rslib	IRB6640_185_280__03.rslib
IRB1600_7_120__01.rslib	IRB6640_205_275__03.rslib
IRB1600_7_120_A_01.rslib	IRB6640_235_255__03.rslib
IRB1600_7_145__01.rslib	IRB6640ID_170_275__04.rslib
IRB1600_7_145_A_01.rslib	IRB6640ID_200_255__04.rslib
IRB1600_8_120__01.rslib	IRB6650_125_320__01.rslib
IRB1600_8_145__01.rslib	IRB6650_200_275__01.rslib
IRB1600ID_4_150__02.rslib	IRB6650ID_170_275__01.rslib
IRB2400_10_150__01.rslib	IRB6650S_125_350__01.rslib
IRB2400_16_150__01.rslib	IRB6650S_200_300__01.rslib
IRB2400L_7_180__01.rslib	IRB6650S_90_390__01.rslib
IRB260_30_150__01.rslib	IRB6660_130_310__01.rslib
IRB340__01.rslib	IRB7600_150_350__01.rslib
IRB4400_45_196__01.rslib	IRB7600_340_280__01.rslib
IRB4400_60_196__01.rslib	IRB7600_400_255__01.rslib
IRB4400L_10_255__01.rslib	IRB7600_500_230__01.rslib
IRB4400L_30_243__01.rslib	IRB7600_500_255__01.rslib
IRB4400S_30_243__01.rslib	IRB940__01.rslib

Track Libraries

RobotStudio is distributed with the following track types that are available in the Track folder of the ABB Library.

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Track family	Length
IRBT4003	1.7 m to 10.7 m
IRBT4004	1.9 m to 19.9 m
IRBT6003	1.7 m to 10.7 m
IRBT6004	1.7 m to 19.7 m
IRBT7003	1.7 m to 10.7 m
IRBT7004	1.7 m to 19.7 m
RTT_Bobin	1.7 m to 11.7 m
RTT_Marathon	1.7 m to 11.7 m

Supported Platforms

Before you install RobotStudio, make sure your system conforms to the following requirements:

Supported Operating Systems

Microsoft Windows XP Professional with Service Pack 2 or higher.

Microsoft Windows Vista Business or Enterprise

Note: The Windows Firewall will try to block features necessary to run RobotStudio and RobotStudioOnline properly. Make sure to unblock these features when asked (Industrial Robot Discovery Server, RobotStudio StudioAppFramework module, Virtual RobotController (all published by ABB)). The blocking state of a certain program can be viewed and changed at Start/Control Panel/Windows Security Center/Windows Firewall. Read more on www.microsoft.com

Note: To run RobotStudio on the 64-bit edition of XP or Vista you need to first install .NET Framework 2.0 for 64-bit OS (NetFx64.exe) and XML 6 for x64. These files can be downloaded from www.microsoft.com.

Note: RobotStudio Online 5.10 and PC-SDK 5.10 does not support 64-bit operating systems.

Recommended Hardware

High performance desktop or laptop workstation:

CPU: 2.0 GHz or faster processor

Memory: 1 GB system memory at minimum, 2 GB if running Windows Vista, stations with several robot systems, or large CAD-models.

Free disk-space: 5+ GB free space

Graphics card: High performance DirectX 9 or OpenGL-compatible graphics card with the corresponding up-to-date drivers installed

Display settings: Screen resolution: 1280 x 1024 pixels or higher

DPI: Normal size (96 dpi)

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Mouse: Three button mouse

DVD-ROM Drive

Supported RobotWare Versions

RobotStudio 5.10 is distributed with RobotWare 5.10 and works with

- RobotWare 5.06, all revisions,
- RobotWare 5.07.01 & 5.07.05 and later revisions,
- RobotWare 5.08.01 and later revisions, and
- RobotWare 5.09, all revisions
- RobotWare 5.10

Note: See Section Known Limitations in RobotStudio 5.10 for more information about compatibility with RobotWare versions 5.06, 5.07, 5.08 and 5.09.

Support for future RobotWare versions

RobotStudio 5.10 may support, but is not guaranteed to support, future minor or major revisions of RobotWare. However, a necessary, but maybe not sufficient, requirement for RobotStudio to support any later RobotWare version is that the corresponding version of the Robot Communication Runtime is installed in addition to RobotWare.

There are two ways to ensure that the appropriate Robot Communication Runtime is installed when installing a new RobotWare version.

1. Install the same version of RobotStudio Online as RobotWare. This will also upgrade the Robot Communication Runtime.
2. Install the Robot Communication Runtime separately. The Runtime can be found in the Utility folder of the RobotWare CD.

Note: The latest RobotWare CD can be requested from your local ABB representative.

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Changes in RobotStudio 5.10

This section describes the changes that have been made in RobotStudio 5.10

New Features in RobotStudio 5.10

New robot models

The following robot models have been added to RobotStudio

- IRB140
 - IRB140T - 6 kg / 0.81 m
 - IRB140 - 6 kg / 0.81 m
- IRB1600
 - IRB1600 - 6 kg / 1.2 m
 - IRB1600 - 6 kg / 1.45 m
 - IRB1600 - 8 kg / 1.2 m
 - IRB1600 - 8 kg / 1.45 m
- IRB6640
 - IRB6640 – 180 kg / 2.8 m
 - IRB6640 – 205 kg / 2.75 m
 - IRB6640 – 130 kg / 3.2 m
 - IRB6640ID - 200 kg /2.55 m
 - IRB6640ID – 170 kg /2.75 m
- IRB6660
 - IRB6660 – 130 kg / 3.1 m

CATIA V5 converter support of CATProduct

By using the RobotStudio add-in *AssemblyImport.dll* that is available on the RobotStudio DVD, CATIA V5 assemblies of type CATProduct can be imported into RobotStudio with the part structure kept. CATProduct assemblies can also be converted using the CAD Converter without installing the *AssemblyImport.dll*, but then the part structure is discarded and all parts of the assembly are put into one single SAT-file.

To install the add-in, copy the file to the *Addins* folder of the RobotStudio installation and restart RobotStudio to enable the feature. A new menu item called “*Import Assembly*” will appear below the “*Import Geometry*” menu item.

Note: *The CATIA V5 converter requires a separate license.*

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Languages

The following languages are supported in RobotStudio 5.10:

- English
- French
- German
- Spanish
- Italian
- Chinese (simplified Chinese, mainland Chinese) ^{1) 2)}
- Japanese ^{1) 2)}

Notes:

1) The language is only supported in the RobotStudio, the virtual controller and the Virtual Flex Pendant – it is not supported in RobotStudio Online.

2) The language support for Asian languages (Chinese, Korean, Japanese) has some specific limitations in the controller and Virtual FlexPendant:

- TPWrite, TPRead, and TPPrint do not work in Asian languages – use English text.
- Printing error text from RAPID (instruction ErrWrite) does not work in Asian languages
- use English text.

CAD Converter

Supported CAD Formats and Versions

RobotStudio includes advanced CAD import capabilities such as:

- ACIS (reads/writes versions v6 to R18)
- IGES (reads versions up to 5.3, writes version 5.3)
- STEP (reads versions AP203 and AP214 (geometry only), writes version AP214)
- VDAFS (reads VDAFS up to 2.0, writes VDAFS 2.0)
- CATIA V4 (reads versions 4.1.9 to 4.2.4)
- CATIA V5 (reads CATIA V5 R2 to R18)
- Inventor (reads versions 6 to 12)
- Pro/Engineer (reads versions 16 to Wildfire3)

Note: The CAD converters require separate licenses (except ACIS).

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CAD Converter Options

The CAD Converter options can be set by using the *Advanced* button of the *Settings* dialog of the CAD Converter. By pressing the *Advanced* button the *CADConverter.ini* file is opened. The file specifies all available options for CAD conversion. To change an option, simply uncomment the line by removing the semi-colon and modify the option as desired. All options are described in the file *AcisInterOpConnectOptions.pdf* of the RobotStudio DVD.

Demo stations & Tutorials

There are three demo stations included in this version. Instructions on how to access and use these can be found on the Start Page under Learn To Use/Demo Stations. Follow these instructions carefully.

Note: Only two of them are available from the Start Page (*Demo Exhaust Pipe_Pack&Go.zip* and *Demo FlexLoader_Pack&Go.zip*). The third one (*PalletDemo_Pack&Go.zip*) can be found together with the previous two in the user's *RobotStudio/Station* folder.

On the Start Page you will also find a collection of tutorials on how to use RobotStudio. These can be found under Learn To Use/Tutorials.

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RobotStudio 5.10 Improvements

Limitations Solved in RobotStudio 5.10

A large number of limitations have been solved in RobotStudio 5.10. This section highlights a few of them which may be of general interest.

Default folders for “Stations” and “Systems” changed for Chinese and Japanese

The Virtual Controller does not support asian characters why the default folders for “Stations” and “Systems” have been changed to English instead of being translated (CQ7001, 6974)

Controller start timeout extended to 240 s

The timeout for controller startup has been extended to 240 s to allow sufficient startup time for systems with complicated configuration, e.g. systems with several external axes (CQ6950).

Attaching part to tool with two toolframes

Support for attaching parts to tools with two toolframes has been added (CQ6851).

Load Geometry checkbox returns to enabled state

The state of the checkbox “Load Geometry” that is available in the file dialog, when opening stations and libraries will always return to “enabled” state after having been disabled. The reason is to ensure that geometries are always loaded by default (CQ6935)

Move/Copy bodys to new part- show only reposition question for first body.

When copying or moving multiple bodies to a new part, a question appears that asks the user if he wants to reposition the bodies relatively to the new part. This question previously appeared for each part but has been changed to only appear once for the selected set (CQ5569).

Dual Core Support

The Virtual Controller has been improved to take advantage of the dual core feature available on some CPUs.

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Corrected Support Cases

Headline	Support ID	Internal ID
CATIA V5 converter not working properly with CATproducts files (see RobotStudio 5.10 Improvements)	PDD DSE7428	CQ6473
Save station fails after Pack&Go	PDD DSE7530	CQ6734
Multiple selection in graphic window does not work correctly	PDD DSE7623	CQ6786
Changed libraries are not loaded into a station, instead the previous version is imported	PDD DSE7626	CQ6787
Deactivating a collision set while objects are colliding does not refresh the graphics window	PDD DSE7687	CQ6833
Error in the 'Create system from layout' dialog box while inputing system name and location	PDD DSE7690	CQ6845
Program Editor problem if not simulation setup is done from Layout Mode	PDD DSE7703	CQ6854
Program browser does not show all procedures within a module	PDD DSE7728	CQ6887
MoveAbsJ instructions not updated when referenced work object is deleted	PDD DSE7739	CQ6917
Coordinate filter in Place functions does not use selected coordinate system	PDD DSE7753	CQ6920
Trying to open an encoded module with Program Editor generates an exception	PDD DSE7755	CQ6922
JumpToTarget not possible if \WObj not used	PDD DSE7780	CQ6948
Problem while importing a CATPart file	PDD DSE7810	CQ6961
Operating mode changes from Auto to Manual when stepping through program if Reachability is activated	SG071012-7136	CQ6918
Unknown Error - Move along path when Offs is used.	FR070403-1279	CQ6441
Cannot Import Geometry on inventor (ipt) files	DK071211-9193	CQ7003
Modules not sorted in alphabetical order in Program Browser	NZ071219-9479	CQ7056

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RobotStudio Information

Code Snippets

The Program Editor of RobotStudio 5.10 contains Code Snippets that are integrated with the Pick List. Code Snippets are pieces of code that can be inserted into the editor on user request. RobotStudio 5.10 comes with a number of predefined Code Snippets, see below

- array2x2x4.snippet
- array2x4.snippet
- array2x4x2.snippet
- array4x2.snippet
- function with return value bool.snippet
- module header.snippet
- procedure parameters.snippet
- procedure with error handler.snippet
- rotarget.snippet
- tooldata.snippet
- TRAP routine example.snippet
- wobjdata.snippet

In addition, the user can create customized Code Snippets and add to the existing list of Code Snippets. The Code Snippets adhere the Code Snippet format of Visual Studio 2005. Code Snippets can be edited in any XML-editor such as Visual Studio 2005 Express that can be downloaded free of charge from Microsoft at <http://msdn.microsoft.com/vstudio/express/>. Read more about creating your own Code Snippets in the MSDN article 'How to: Create a Basic Code Snippet' at [http://msdn2.microsoft.com/en-us/library/ms165394\(VS.80\).aspx](http://msdn2.microsoft.com/en-us/library/ms165394(VS.80).aspx).

The RobotStudio .snippet files are stored per user and located in the folder

C:\<Documents and Settings>\<user name>\RobotStudio\Code Snippets,

where the folder <Documents and Settings> may be configured to have different names, e.g. for ABB staff it is called *Data*. It may also be translated on localized versions of Windows.

Note: The language specified in the .snippet file to be used in the RobotStudio Program Editor must be *RAPID*, whereas the Microsoft examples are targeted towards other programming languages. However, the structure and format is the same. See also the predefined .snippet files installed with RobotStudio 5.10

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Instruction Templates

The *'Instruction Template Manager'* can be used to add support for instructions other than the pre-defined set that comes with RobotStudio by default. For example, a robot controller system with the RobotWare Dispense option comes with specialized move instructions related to glueing, i.e. DispL and DispC. The user can manually define instruction templates for these using the *'Instruction Template Manager'*. The instruction templates can be exported to XML-format for later reuse.

For some common processes RobotStudio 5.10 comes with pre-defined XML files that can be imported and used for robot controller systems with that has the appropriate RobotWare options. The instruction templates provided add support for the following RobotWare options:

- Cap (Continuous Application Process)
- Disp (Dispense)
- Trigg (Fixed Position Events)
- Spot Pneumatic
- Spot Servo
- Spot Servo Equalizing

The provided XML files contain both Move and Action instructions.

The instruction template files can be found in the *'Instruction Templates'* folder of the RobotStudio 5.10 DVD.

Note: *RobotStudio ArcWeld PowerPac is recommended when using RobotWare Arc.*

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Create System from Layout Wizard.

Create System from Layout allows the user to create complex controller systems with just a few mouse clicks. Simply import the desired robots, positioners and track libraries, and run through the wizard.

Tracks

The following tracks with lengths from 1.7 to 11.7 meters are supported. The track can run in a separate task or in a robot task. The system allows 1-3 tracks per task (dependent of the TCP manipulator type).

IRBT4003
IRBT6003
IRBT7003
RTT_Bobin
RTT_Marathon

Supported external axis configurations

SingleMove (all in same task)

TCP Robot + IRBP_A
TCP Robot + IRBP_B
TCP Robot + IRBP_C
TCP Robot + IRBP_D
TCP Robot + IRBP_K
TCP Robot + IRBP_L
TCP Robot + IRBP_R
TCP Robot + IRBP_A + Track
TCP Robot + IRBP_K + Track
TCP Robot + IRBP_L + Track
TCP Robot + 2 x IRBP_L + Track

MultiMove (all in separate tasks)

2 x TCP Robot + IRBP_A
2 x TCP Robot + IRBP_B
2 x TCP Robot + IRBP_C
2 x TCP Robot + IRBP_D
2 x TCP Robot + IRBP_K
2 x TCP Robot + IRBP_L
2 x TCP Robot + IRBP_R

Note: A TCP robot is defined as a robot that has inverse kinematics, e.g. all standard IRB robots.

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Limitations in RobotStudio 5.10

Visual Studio Tools for Applications

Properties and methods that use the type `System.Drawing.Color` will not work in VSTA.

This is a limitation of the Visual Studio Tools for Applications (VSTA) environment.

Note: *There is a new VSTA-class `VSTABridge` that can be used to workaround this problem, see API documentation.*

Static events cannot be called from applications developed in VSTA.

This affects for example the Simulation – Tick event.

Workaround: *Create a standard add-in if static events are to be used. Alternatively, use the `VSTABridge` class that can workaround this problem, see API documentation.*

Debugging of VSTA Applications

When debugging a VSTA application that adds menu items to the RobotStudio environment, then the menu will not be removed when the program execution stops. This may cause multiple entries of the same menu to be added in RobotStudio. This only affects VSTA add-ins being debugged and not completed VSTA add-ins.

Workaround: Restart RobotStudio to remove the extra menus.

VSTA Library add-ins not available

In the Add-ins browser there is a folder for so-called VSTA Library add-ins. This feature is not available.

Use Visual Studio 2005 Express for advanced add-in

The purpose of VSTA is to write custom actions and minor utilities. For advanced add-in development use Visual Studio 2005 Express that can be downloaded free of charge from <http://msdn.microsoft.com/vstudio/express/>.

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Known Limitations in RobotStudio 5.10

RobotWare 5.06 Compatibility

RobotWare 5.06 is supported with the following limitations,

- The sync to VC function may cause corrupt RAPID programs. The problem appears when lines (i.e. targets, paths) are removed from the RAPID program and paths are added to the RAPID program in the same "Sync to VC" operation. As a consequence, the new path may be added after the ENDMODULE statement. This problem doesn't appear when running a RobotWare 5.07 or later.
- The Program Editor does not support RobotWare 5.06, but requires RobotWare 5.07 or later.
- The Create System from Layout Wizard does not support RobotWare 5.06, but requires RobotWare 5.07 or later.

RobotWare 5.07 Compatibility

A limitation in the versions 5.07.02, 5.07.03, 5.07.04 of RobotWare may cause the VC to system failure state during cold start (I-start) on certain PCs. The problem is due to the ctrl.bin-file not being correctly created during cold-start (I-start).

Workaround: Create an empty ctrl.bin file in the INTERNAL folder of the controller system, and then perform a warm start.

Note: The problem will reappear if the system is cold-started. The limitation is solved in RobotWare 5.08.

Move/Copy of Virtual Controller systems

Warm started systems cannot be moved to another location and/or PC. This will result in a non-working VC.

A typical symptom of the problem is that the Virtual Controller reports *Failed to retrieve procedure*.

Workaround and recommended method of working:

1. Use 'Pack & Go' to pack the station and system backups in a zip-file.
2. Use 'Unpack & Work' to unpack the zip file created by 'Pack & Go'.

Problems starting virtual controllers for RobotWare 5.07.05 or earlier on dual core PCs

There might be problems running virtual controllers on a computer equipped with dual core processors. To workaround this problem you need to disable the dual core in the BIOS.

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Synchronization is time consuming

The synchronization procedure is time consuming. This affects synchronization to and from VC as well as the move commands *'Move Along Path'* and *'Execute Move Instruction'*

Virtual FlexPendant

The control panel of the Virtual FlexPendant (VFP) might affect the performance of the graphical window if placed inside this. If this is the case on your computer make sure to set the display mode of the VFP to simple mode. This is done by unchecking the *'Enable transparency'* option in the *Tools/Options...* dialog (a restart of the VFP is required after changing mode). The refreshing of the graphical view might however still be somewhat delayed, especially when moving the VFP rapidly over the screen.

Write protected systems

It's not possible to change parameters, such as BaseFrame, on a write protected system. If you experience problems with this - make sure that the system folder is not write protected.

JointTargets for external axis

JointTargets for external axis are not visualized in the graphical window.

Importing RobotStudio 2.x/3.x/4.x mechanisms might cause problems

The following problems might occur when importing mechanisms generated in RobotStudio 2.x/3.x/4.x.

- The base frame is placed in the local origin of the mechanism.
- The mechanism is not repositioned correctly relative the base frame value in the Virtual Controller.
- Import of stations containing process instructions, e.g. ArcL, ArcC etc, is not fully supported. The recommendation is to save the RAPID-program to file and import this file into RobotStudio 5 (Note: The needed motion instruction descriptions must exist in the station before importing the program)

Note: *The recommendation is to always use IRC5 mechanisms where possible.*

Custom Display Settings

The program only fully supports "Small Fonts" (Normal size @ 96dpi).

Problems when undoing Boolean operations on Geometry

Undoing a Boolean operation might not succeed. To recover from these problems you need to delete the items that caused the problem.

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Out of memory

The application might fail when out of memory due to import of very large ACIS-files or load of very large stations. There is no immediate workaround for this problem.

Array of robtargets, tooldata and workobjects are not supported

RAPID programs containing arrays of tooldata, robtargets and workobjects are not supported, i.e. they will not be synchronized to the station.

LOCAL declarations in RAPID are not supported in Layout mode

RobotStudio does not LOCAL declarations of data or routines. RobotStudio will show an error message if such declarations are used.

The RAPID functions Offs and RelTool are not fully supported

RobotStudio doesn't fully support instructions using Offs or RelTool functions. They will be synchronized and will appear in the element browser, but commands such as "View Tool at Target" and "Locate Target" will not work. Targets used in the instructions will not be visible in the graphics.

Multiple Serial Ports option

A system configured with the "Multiple Serial Ports" option might lead to a complete freeze of the computer. There is a problem with the driver of the built-in modem card on the IBM T42 and T43. The modem must not be allocated to COM1-COM3.

Workaround: *Change the allocation of the modem, or remove this system option.*

Virtual FlexPendant might fail during restart

Performing a warm start from the Virtual FlexPendant might lead to a crash of the VFP. It can however be opened again right after.

Workaround: *Restart the virtual controller from RobotStudio.*

Direct3D limitations

1. The screen saver and password lock feature of Windows may cause RobotStudio to hang when the computer is unlocked.

Workaround: *Disable the screen saver and password lock feature when using Direct3D. This is done by setting the screen saver to "(None)" on the "Screen Saver" tab of the "Display" dialog that is opened from Start/Settings/Control Panel/Display/Screen saver*

2. The following two settings in the 'Graphics Performance' dialog (Tools/Options) have no effect

- Cull back-facing triangles.

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- Enable two-sided lighting.

Workaround: Select the graphical object in the object browser and open the "Graphics Appearance" dialog box (context menu) that handle these options per object instead

3. The following setting in the 'Graphics Performance' dialog (Tools/Options) is irrelevant when Direct3D is used:

- Store model data on graphics card.

Workaround: None.

4. The following setting in the "Graphics Appearance" dialog (Tools/Options) has no effect (Rendering tab, Curve Properties section):

- Line width.

Workaround: None.

Lower simulation performance for Play in Program Editor

The simulation performance may be lower on some PCs when using the Play button of the program editor compared to the Play button of the Simulation Menu or Simulation Toolbar (CQ5870).

AutoConfiguration does not support positioners

(CQ5686)

Error message starting system with IRB260/660

Starting a system with IRB260/660 gives you an error message: "The number of joints is different between the model and VC". The reason is that the IRB260/660 is modeled with six joints in RobotStudio of which two are locked, but has four joints in the VC (CQ5375).

Incorrect error message "IRBxxx: Could not change motor state"

When starting the VC, the error message "IRBxxx: Could not change motor state" may appear in the output window. This message may be displayed even though the VC has started successfully (CQ5375).

Modeling Mode: Intersect of parts may not work correctly.

The body-intersect feature may give incorrect results in some cases due to a limitation in ACIS.

License may not be automatically installed with the "Internet" option if behind a FireWall.

The RobotStudio license may not be automatically installed if the PC is behind a firewall.

Workaround: Disable firewall, or use "E-mail" option instead.

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Not possible to activate non-motion tasks from RobotStudio

Only motion tasks can be activated from RobotStudio (CQ6383).

Workaround: Use Virtual FlexPendant to activate wanted Normal tasks before pressing Play button.

Working range of IRB340

In some cases, it may be possible to Jump To target and get Configurations for targets that are outside the working range of IRB340. This is due to the working range being defined as a cylinder and not only defined by the joint limits. It is however not possible to jog the robot to these targets (CQ6463).

Path handling of instructions with multiple joint targets

The path functions, Rotate, Translate, and Mirror do not work as expected with instructions containing via points as jointtargets. The functions will leave the jointtargets as is. Interpolate Path gives an Unknown Error and Tool Compensation reports an error message (CQ6609).

Error Message “Position Outside Reach”

The functions *AutoConfiguration*, *Configuration* and *View Robot at Target* may give rise to error messages “Position Outside Reach” in the RobotStudio Output window.

The error messages are due to that the functions iterate over many different robot configurations to find a solution. For each of the failing tries to find a suitable configuration, a “Position Outside Reach” message will be displayed in the Output window (CQ6326).

Process time is displayed only for Simulation - Play in Time Slice mode

This is the only combination for which correct cycle time can be guaranteed when custom mechanisms are involved in the simulation. It is only in Time Slice mode that RobotStudio controls the time and can synchronize the execution of the Virtual Controller with custom mechanisms. For simulations that only involve robot motion the cycle time is correct for other combinations as well (Program Editor – Play and FreeRun). The Process Timer will be become yellow when the process time cannot be guaranteed (CQ6658).

Minor difference in process time of “Simulation Play” and “Program Editor Play”

The cycle time deviation between “Simulation Play” and “Program editor” is 0.05 s (constant). The difference is due to that the program execution is started in different ways in the two scenarios. The play button of the Program Editor starts program execution in the same way as the FlexPendant, whereas the play button of the Simulation toolbar uses a slightly different mechanism. When executing program from the program editor, it takes a small amount of time for RobotStudio to be aware that the simulation has started why the “Program Editor” cycle time is 0.05 s smaller. The process time of the “Simulation” play is more accurate.

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Event Manager: Simulation cannot be triggered by analog system signals

The event manager only support analog station signals, not analog system signals. This is due to a limitation in the Robot Communication Runtime (CQ6556).

The error message "Unable to save the station. One reason for this error may be that there is not enough space to store the data."

This error may be due to incorrect installation of VSTA. Re-installation of VSTA may solve the problem. VSTA is available on the RobotStudio DVD in the folder

<DVD>\RobotStudio\SSetupPrerequisites\{B422736E-33AC-47AB-9F9D-15EF74EC4813}\vsta_aide.msi

Virtual Flex Pendant: Emergency Stop button

When the emergency stop button is pressed on the Virtual FlexPendant it cannot be reset through the VC Control Panel. The button must be reset on the Virtual FlexPendant (CQ5587).

Use Direct3D on Windows Vista for improved performance

Windows Vista is optimized for Direct3d, why it is recommended to use it as the graphics renderer for RobotStudio. This can be changed in *RobotStudio* → *Main Menu* → *Tools* → *Options* → *Graphics* → *Renderer* → *Direct3D*.

Use CAD Converter when converting CATIA V4 files

It is recommended to use the CAD Converter when converting CATIA V4 files instead of importing the files directly into RobotStudio using "Import Geometry".

Note: The CATIA V4 converter requires a separate license.

RobotStudio 5.10 Keyboard Shortcuts

Command	Modifiers	Key
General		
Activate menu bar		F10
Open API Help	ALT	F1
Open Help		F1
Open RobotStudio Online		F6
Open Virtual Flex Pendant		F5
Switch between windows	CTRL	T
General Commands		
Add Controller System		F4
Open Station	CTRL	O
Take Screenshot	CTRL	B
Teach Move Instruction	CTRL+SHIFT	R
Teach Target	CTRL	R
Toggle View Representation		F7
General Editing		
Copy	CTRL	C
Cut	CTRL	X
Paste	CTRL	V
Redo	CTRL	Y
Rename		F2
Select All	CTRL	A
Undo	CTRL	Z
Import Geometry	CTRL	G
Import Library	CTRL	J
New Station	CTRL	N
Save Station	CTRL	S
Program Editor Intellisense		
Complete Word	CTRL	Space
Parameter Info	CTRL	I
PickList	CTRL+SHIFT	Space
Program Editor Commands		
Start Program Execution		F8
Step In		F11
Step Out	SHIFT	F11
Step Over		F12
Stop	SHIFT	F8
Toggle Breakpoint		F9
Apply Changes	CTRL+SHIFT	S
Check Program	SHIFT	F5
Print	CTRL	P
Program Editor Hotkeys		
Copy	CTRL	Insert
Cut	SHIFT	Delete
Cut marked lines	CTRL	L

Delete marked lines	CTRL+SHIFT	L
Delete to beginning of word	CTRL	Backspace
Delete to end of word	CTRL	Delete
Indent		Tab
Make the selected text lower case	CTRL+SHIFT	U
Make the selected text upper case	CTRL	U
Move to beginning of document	CTRL	Home
Move to beginning of line		Home
Move to end of document	CTRL	End
Move to end of line		End
Move to next word	CTRL	Right
Move to previous word	CTRL	Left
Move to visible bottom	CTRL	Page Down
Move to visible top	CTRL	Page Up
Open line above	CTRL	Enter
Open line below	CTRL+SHIFT	Enter
Outdent	SHIFT	Tab
Paste	SHIFT	Insert
Redo	CTRL+SHIFT	Z
Scroll down	CTRL	Down
Scroll up	CTRL	Up
Select block down	ALT+SHIFT	Down
Select block left	ALT+SHIFT	Left
Select block right	ALT+SHIFT	Right
Select block to next word	CTRL+ALT+SHIFT	Right
Select block to previous Word	CTRL+ALT+SHIFT	Left
Select block up	ALT+SHIFT	Up
Select down	SHIFT	Down
Select left	SHIFT	Left
Select page down	SHIFT	Page Down
Select page up	SHIFT	Page Up
Select right	SHIFT	Right
Select to beginning of document	CTRL+SHIFT	Home
Select to beginning of line	SHIFT	Home
Select to end of document	CTRL+SHIFT	End
Select to end of line	SHIFT	End
Select to next word	CTRL+SHIFT	Right
Select to previous word	CTRL+SHIFT	Left
Select to visible bottom	CTRL+SHIFT	Page Down
Select to visible top	CTRL+SHIFT	Page Up
Select up	SHIFT	Up
Select Word	CTRL+SHIFT	W
Toggle overwrite mode		Insert
Transpose characters	CTRL	T
Transpose lines	CTRL+ALT+SHIFT	T
Transpose Words	CTRL+SHIFT	T