Release Notes RobotStudio® 5.11.01

GENERAL **3**

Installation **3**

Activate RobotStudio **4**

How to proceed when contacting ABB **6**

RELEASE INFORMATION **7**

Release Name **7**

Release Information **7**

Release Date **7**

ROBOTSTUDIO 5.11.01 ..... **8**

Supported Operating Systems **8**

Recommended Hardware **8**

Supported RobotWare Versions **9**
Compatibility Limitations 9
Safety Configuration 10

Support for future RobotWare versions **10**

CAD Converter **10**

Demo stations **11**

Tutorials **11**

Robot Libraries **12**

Track Libraries **13**

Positioner Libraries **13**

Language Support **13**

Documentation **13**

New Functionality RobotStudio 5.11.01 ..... **14**

Improvements in RobotStudio 5.11.01 ..... **14**
General 14

Online 15
Offline 17
RAPID Editor 18

Known Limitations 19
General 19
Online 19
Offline 20
Graphics and Geometry 24

Visual Studio Tools for Applications 25

SUPPORTING INFORMATION 26

How to automatically create a system with external axes 26

How to manually set up a system with track motion of type RTT or IRBTx003? 27

How to manually set up a system with track motion of type IRBTx004? 28

Code Snippets 29

Instruction Templates 30

General

Installation

RobotStudio 5.11.01 will automatically upgrade any existing installation of RobotStudio 5.11, 5.10 or 2008. Any previous installation of RobotStudio Online will remain untouched.

There are three possible options when installing RobotStudio:

- **Minimal** – installs the functionality corresponding to RobotStudio Online. Only the Online tab will be available with this option.
- **Full** – Installs everything needed to run the complete RobotStudio. This is also the option to use to take advantage of the additional features in the Basic and Premium functionality mode.
- **Custom** – Allows the possibility to exclude unwanted robot libraries and CAD converters.

How to install RobotStudio on a PC

1. Insert the robot software DVD in the PC.
    a. If a menu for the DVD is opened automatically, continue with step 5.
    b. If no menu for the DVD is opened, continue with step 2.
2. On the Start menu, click Run.
3. In the Open box, type the drive letter for your DVD drive followed by: `\launch.exe`

    ***Example**: If your DVD drive has the letter D, then type: D:\launch.exe*
4. Click OK.
5. Select language for the DVD menu.
6. On the DVD menu, click Install.
7. On the installation menu, click RobotStudio. This opens the installation wizard, which will guide you through the rest of the software installation.
8. Follow the instructions in the installation wizard.
9. After installing RobotStudio, proceed with activating RobotStudio, see below.

***Note:** For an immediate trial period of 30 days, RobotStudio will work without activation.*

Activate RobotStudio

To continue using your product with all of its features after the trial period, you must activate it. RobotStudio Product Activation is based on Microsoft anti-piracy technology and designed to verify that software products are legitimately licensed.

Activation works by verifying that the Activation Key is not in use on more personal computers than are permitted by the software license.

How do I activate RobotStudio?

When you start RobotStudio for the first time after installation, you are prompted to enter your 25-digit Activation Key (*xxxxx-xxxxx-xxxxx-xxxxx-xxxxx*).

Trial period: Before entering a valid Activation Key, you can run the software, in Premium functionality mode, with all the features enabled, for a trial period of up to 30 days. Please note that the trial period days start immediately after installation. After entering a valid Activation Key, you will see only the features you have purchased (if installed during the trial period you will lose the trial period time).

Basic functionality mode: After the grace period, the software reverts to Basic functionality mode unless you have entered a valid Activation Key. In Basic functionality mode, RobotStudio only allows the use of the Online and basic Virtual Controller features. No existing files or stations are harmed in Basic functionality mode. After activating your software, you will have full functionality for the features you have purchased.

Note: *Activation is not required for the Online features for programming, configuring and monitoring a real controller connected over Ethernet.*

Activate automatically over the Internet or manually

The Activation Wizard gives you two choices on how to proceed:

Automatic activation by using the Internet (recommended): Once you have selected the option *I want to activate RobotStudio over the Internet*, and proceeded through the Wizard, the Activation Wizard automatically contacts the ABB licensing servers over your Internet connection. If you are using a valid Activation Key that has not exceeded the number of installations allowed, your product is activated immediately.

When you activate over the Internet, your activation request is sent to ABB. Your license will then be automatically installed and your product ready for use. If you choose to activate over the Internet but are not currently connected, the wizard alerts you that there is no connection.

Manual activation: If the computer does not have an Internet connection, you must create a license file by selecting the option *I want to request a license file.* Proceed through the wizard, enter your Activation Key and save the License Request File to your computer. Use a removable medium, such as a USB stick or floppy disk, to transfer the file to a computer with an Internet connection. Go to *www.robotstudio.com/community* and click on *My Subscriptions*. Use the login sent to you via e-mail at an earlier date to be able to see your subscriptions. In the menu to the left you will find a link *Activate Product*. Click on it and follow the instructions. The result will be a License File that should be saved and transferred back to the computer holding your product. Relaunch the Activation Wizard and select the option *I have a license file I want to install.* Proceed

through the wizard, selecting the License File when requested. Upon completion, RobotStudio is activated and ready for use.

How do I activate later?

If you do not want to activate your copy of the software at installation, you can do so later. The following steps will launch the Activation Wizard:

1. Click the **RobotStudio button** **,** and then click on the **RobotStudio options** button beside **Exit**, and select the **Licensing** section.
2. Click **Activation Wizard** to launch the activation wizard.
3. If your RobotStudio installation has been activated, you will have valid licenses for the features covered by your subscription.

Which RobotStudio version are you using?

The version number of RobotStudio is displayed on the start page that appears when RobotStudio is started.

How can I tell whether my RobotStudio installation has already been activated?

1. Click the **RobotStudio button** **,** and then click on the **RobotStudio options** button beside **Exit**, and select the **Licensing** section.
2. Click **View Installed License Keys** to see the status of your current license.
3. If your RobotStudio installation is activated, you will have valid licenses for the features covered by your subscription.

Network licenses

Network licenses are not available for RobotStudio 5.11.01.

How to proceed when contacting ABB

If you have any questions or problems with your RobotStudio installation, please contact your local ABB contact, see *http://www.abb.com/robotics*.

Have the following in mind when contacting ABB

1. Give a brief description of how to reproduce your problem.
2. Create screenshots if applicable. (Use ALT + PRINT SCREEN to get an image of the active window instead of the entire screen.)
3. Generate a Full Scan with the RobotStudio Support Tool available next to RobotStudio in the Start menu, save the report and attach it with your problem description. (Click *Start → Programs → ABB Industrial IT → Robotics IT → RobotStudio → RobotStudio Support Tool*, click on *Run Full Scan* and then *Save Report.*
4. We also need the following user information:
   i. name
   ii. company
   iii. contact information
   iv. what operating system you are running (incl. language)
   v. subscription ID for your purchased license.

Note: *When sending large (> 1 Mb) files, please compress them with WinZip® or WinRAR.*

License support

For license-related questions, please contact the team responsible for license support directly at *softwarefactory_support@se.abb.com*

Release Information

Release Name

The release name is RobotStudio 5.11.01

The release contains the following products:

- RobotStudio 5.11.01 build 2846
  (built with RobotWare 5.11.01 build 1033)

Release Information

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

For more information, please visit the support web site at *http://www.robotstudio.com/community*. There you can find a discussion forum dedicated to RobotStudio.

Release Date

Release date **2008-11-28**

RobotStudio 5.11.01

Supported Operating Systems

Microsoft Windows XP Professional with Service Pack 3

Microsoft Windows Vista SP1 Business or Enterprise

- Windows Media Encoder Hotfix KB929182

Note: *RobotStudio 5.11.01 does not support 64-bit editions of Windows XP Professional or Vista Business or Enterprise.*

Note*: The Windows Firewall will try to block features necessary to run RobotStudio. 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.*

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
Screen resolution:	1280 x 1024 pixels or higher
DPI:	Normal size (96 dpi)
Mouse:	Three-button mouse
3D Mouse	Any 3D mouse from 3DConnexion, see http://www.3dconnexion.com.
DVD-ROM Drive	

Supported RobotWare Versions

RobotStudio 5.11.01 is distributed with RobotWare 5.11.01 and works with RobotWare 5.05 up to 5.11.01. Please see below for details.

Compatibility Limitations

RobotWare 5.05 and 5.06 Compatibility

RobotWare 5.05 and 5.06 and revisions of those versions are supported with the following limitations:

General

- The RAPID Editor does not support RobotWare 5.05 or 5.06, but requires RobotWare 5.07 or later.
  Workaround: *Save the RAPID code to a text file and edit the code using any text editor. RAPID code can also be edited using the Virtual FlexPendant.*
- The RAPID debugging features that are available in the Premium edition of RobotStudio (Step In, Step Over, Step Out, Breakpoints, Watch Window) are not available for 5.05 or 5.06 systems.
  Workaround: *None.*

Offline

- The function *Sync to VC* may cause corrupt RAPID programs. The problem appears when lines (e.g. 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 does not appear when running RobotWare 5.07 or later.
  Workaround*: Do not add and remove RAPID paths and targets in the same operation. If the problem has appeared, resolve the syntax error using the Virtual FlexPendant or any text editor.*
- The function *System from Layout* does not support RobotWare 5.05 or 5.06, but requires RobotWare 5.07 or later.
  Workaround*: Use a supported RobotWare version or create the system manually by using System Builder.*

RobotWare 5.07 Compatibility

RobotWare 5.07 and its revisions of are supported with the following limitations:

General

- The location of the program pointer is not updated in the RAPID Editor during program execution.

Offline

- A limitation in the versions 5.07.02, 5.07.03, and, 5.07.04 of RobotWare may cause the Virtual Controller to System Failure state during I-start on certain computers. The problem is due to the ctrl.bin-file not being correctly created.
  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 I-started.*

RobotWare 5.08 Compatibility

RobotWare 5.08 and its revisions of are supported with the following limitations:

Offline

- RobotWare 5.08 is not supported.
  ***Workaround**: Use RobotWare 5.08.01 or later.*

Safety Configuration

Safety configuration of a track motion IRC5 system equipped with a safety controller of type EPS or SafeMove can be done without the need to read track motion parameters manually when using RobotStudio 5.11.01 and RobotWare 5.11.01. Encrypted parameters needed by the safety controller will be automatically read by EPS Wizard and SafeMove Configurator, respectively.

Support for future RobotWare versions

RobotStudio 5.11.01 supports all future minor revisions of RobotWare, but no future major releases. For example, RobotStudio 5.11.01 will support RobotWare 5.11.02 (if, and when available) but not RobotWare 5.12.

CAD Converter

Supported CAD Formats and Versions

RobotStudio includes advanced CAD import capabilities such as:

- ACIS (reads/writes versions v6 to R19)
- 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 R6 to R18)
- Inventor (reads versions 6 to 12)
- Pro/Engineer (reads versions 16 to Wildfire3)

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

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 semicolon and modify the option as desired. All options are described in the file *AcisInterOpConnectOptions.pdf* in the RobotStudio folder of the RobotWare DVD.

Demo stations

There are three demo stations included in this version.

- Demo FlexLoader
- Demo Exhaust Pipe
- Demo Palletizer

They are stored in the **Pack & Go** format and can be opened with the command **Unpack & Work** on the **Collaborate** section of the RobotStudio menu.

Tutorials

Tutorials are available at the RobotStudio Community at http://www.robotstudio.com/community.

Robot Libraries

The folder *ABB Library* contains libraries of robots, tools, external axes, positioners and equipment. The ABB Library folder also contains template robot systems for all included robot models. Updated robot libraries are published on *http://www.abb.com/robotics* as they become available.

ABB Robot Libraries supported by RobotStudio 5.11.01

Variant	Library name
140 5kg/0.8m Type A/B	IRB140_5_81__01.rslib
140 5kg/0.8m Type C	IRB140_5_81_C_01.rslib
140 6kg/0.8m Type C	IRB140_6_81_C_01.rslib
140T 5kg/0.8m Type C	IRB140T_6_81_C_01.rslib
1400 Type A/B	IRB1400_5_144__01.rslib
1410	IRB1410_5_144__01.rslib
1400H Type A/B	IRB1400H_5_128__01.rslib
1600 5kg/1.2m	IRB1600_5_120__01.rslib
1600 5kg/1.2m Type A	IRB1600_5_120_A_01.rslib
1600 5kg/1.45m	IRB1600_5_145__01.rslib
1600 5kg/1.45m Type A	IRB1600_5_145_A_01.rslib
1600 7kg/1.2m	IRB1600_7_120__01.rslib
1600 7kg/1.2m Type A	IRB1600_7_120_A_01.rslib
1600 7kg/1.45m	IRB1600_7_145__01.rslib
1600 7kg/1.45m Type A	IRB1600_7_145_A_01.rslib
1600 6kg/1.2m	IRB1600_6_120__02rslib
1600 6kg/1.45m	IRB1600_6_145__02.rslib
1600 8kg/1.2m	IRB1600_8_120__02.rslib
1600 8kg/1.45m	IRB1600_8_145__02.rslib
1600ID 4kg/1.5m	IRB1600ID_4_150__02.rslib
2400 10kg	IRB2400_10_150__01.rslib
2400 16kg	IRB2400_16_150__01.rslib
2400L	IRB2400L_7_180__02.rslib
4400 45kg	IRB4400_45_196__01.rslib
4400 60kg	IRB4400_60_196__01.rslib
4400L 10kg	IRB4400L_10_255__01.rslib
4400L 30kg	IRB4400L_30_243__01.rslib
4400S 30kg	IRB4400S_30_243__01.rslib
4450S 30kg	IRB4450S_30_240__01.rslib
6400R 200kg/2.5m	IRB6400R_200_250__01.rslib
52 short vertical arm	IRB52_12_475_1005__01.rslib
52 std vertical arm	IRB52_12_700_1005__01.rslib
580-12 standard arm	IRB580_12_1000_1620__01.rslib
5400-12 std arm	IRB5400_12_1200_1620__01.rslib
5400-13 std arm	IRB5400_13_1200_1620__01.rslib
5400-14 std arm	IRB5400_14_1200_1620__01.rslib
5400-22 process arm	IRB5400_22_1200_1620__01.rslib
5400-23 process arm	IRB5400_23_1200_1620__01.rslib
5400-24 process arm	IRB5400_24_1200_1620__01.rslib
5500 A b_80	IRB5500_35A_1300_1720__01.rslib
5500 B b_80	IRB5500_35B_1300_1720__01.rslib
6400R 200kg/2.8m	IRB6400R_200_280__01.rslib
6400R 200kg/2.8m	IRB6400R_200_280__01.rslib
6600 225kg/2.55m	IRB6600_225_255__01.rslib

Variant	Library name
6600 175kg/2.55m	IRB6600_175_255__01.rslib
6600 175kg/2.80m	IRB6600_175_280__01.rslib
6600ID 185kg/2.55m	IRB6600ID_185_255__01.rslib
6620 150kg/2.2m	IRB6620_150_220__01.rslib
6640 180kg/2.55m	IRB6640_180_255__03.rslib
6640 235kg/2.55m	IRB6640_235_255__03.rslib
6640 205kg/2.75m	IRB6640_205_275__03.rslib
6640 185kg/2.8m	IRB6640_185_280__03.rslib
6640 130kg/3.2m	IRB6640_130_320__03.rslib
6640ID 200kg/2.55m	IRB6640ID_200_255__04.rslib
6640ID 170kg/2.75m	IRB6640ID_170_275__04.rslib
6650 125kg/3.2m	IRB6650_125_320__01.rslib
6650 200kg/2.75m	IRB6650_200_275__01.rslib
6650ID 170kg/2.75m	IRB6650ID_170_275__01.rslib
6650S 200kg/3.0m	IRB6650S_200_300__01.rslib
6650S 125kg/3.5m	IRB6650S_125_350__01.rslib
6650S 90kg/3.9m	IRB6650S_90_390__01.rslib
6660 130kg/3.1m	IRB6660_130_310__01.rslib
6660 205kg/1.9m	IRB6660_205_190__01.rslib
7600 500kg/2.3m	IRB7600_500_230__01.rslib
7600 400kg/2.55m	IRB7600_400_255__01.rslib
7600 500kg/2.55m	IRB7600_500_255__01.rslib
7600 340kg/2.8m	IRB7600_340_280__01.rslib
7600 150kg/3.5m	IRB7600_150_350__01.rslib
7600 325kg/3.1m	IRB7600_325_310__01.rslib
660 180kg/3.15m	IRB660_180_315__01.rslib
660 250kg/3.15m	IRB660_250_315__01.rslib
260	IRB260_30_150__01.rslib
340	IRB340__01.rslib
360 1kg Standard	IRB360_1_1130_4D_STD_03.rslib
360 3kg Standard	IRB360_3_1130_4D_STD_03.rslib
360 1kg/0.8m Std	IRB360_1_800_4D_STD_03.rslib
360 1kg Stainless	IRB360_1_1130_4D_WDS_03.rslib
360 3kg Stainless	IRB360_3_1130_4D_WDS_03.rslib
360 1kg Wash-down	IRB360_1_1130_4D_WD_04.rslib
360 3kg Wash-down	IRB360_3_1130_4D_WD_04.rslib
360 1kg/0.8m Wash-down	IRB360_1_800_4D_WD_04.rslib
360 1kg Std No axis 4	IRB360_1_1130_3D_STD_03.rslib
360 3kg Std No axis 4	IRB360_3_1130_3D_STD_03.rslib
360 1kg/0.8m Std No axis 4	IRB360_1_800_3D_STD_03.rslib
360 1kg Wash-down No axis 4	IRB360_1_1130_3D_WD_03.rslib
360 3kg Wash-down No axis 4	IRB360_3_1130_3D_WD_03.rslib
360 1kg/0.8m Wash-down No axis 4	IRB360_1_800_3D_WD_03.rslib
940	IRB940__01.rslib

Track Libraries

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

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
Paint Rails	2 m to 20 m

Positioner Libraries

RobotStudio is distributed with the standard positioners of type IRBP A, B, C, D, K, L and R. The section *Supporting Information* contains more information about the combinations of robots, track motions and positioners that RobotStudio supports.

Language Support

RobotStudio 5.11.01 is available in the following six languages:

- English
- French
- German
- Spanish
- Italian
- Japanese

Documentation

User documentation for RobotStudio is available from the *Help* button () in the upper-right corner of RobotStudio.

The complete documentation in PDF for RobotWare including RobotStudio is available on DVD and can be ordered separately. The ordering number is 3HAC032875-001.

New Functionality RobotStudio 5.11.01

Paint robots

The following paint robots have been added to RobotStudio

Variant	Library name
52 short vertical arm	IRB52_12_475_1005__01.rslib
52 std vertical arm	IRB52_12_700_1005__01.rslib
580-12 standard arm	IRB580_12_1000_1620__01.rslib
5400-12 std arm	IRB5400_12_1200_1620__01.rslib
5400-13 std arm	IRB5400_13_1200_1620__01.rslib
5400-14 std arm	IRB5400_14_1200_1620__01.rslib
5400-22 process arm	IRB5400_22_1200_1620__01.rslib
5400-23 process arm	IRB5400_23_1200_1620__01.rslib
5400-24 process arm	IRB5400_24_1200_1620__01.rslib
5500 A b_80	IRB5500_35A_1300_1720__01.rslib
5500 B b_80	IRB5500_35B_1300_1720__01.rslib

Corresponding systems can be created using a template system, the function *System from Layout,* or the *System Builder*.

The models 5400 13, 5400 14, 5400 23 and 5400 24 are to be mounted on a *paint rail,* which is a track motion for paint robots. The paint rails are available in two variants, one for the x3 models and one for the x4 models. The rails are available in lengths ranging from two meters up to twenty meters.

Virtual Controller systems for Paint robots

Virtual Controller systems for paint robots can be created by the System Builder by checking the *Virtual Key* checkbox and pressing the *Paint* radio button.

Improvements in RobotStudio 5.11.01

General

Improved keyboard support

Authenicate dialog: Pressing the ENTER key will enable the combo box for changing activation status of users in the *UAS Adminstration Tool* opened from the *Edit User Account* item of the *Authenicate* group (CQ7191).

Browser command activation: Pressing the ENTER key when a node is selected in any browser will enable the default command of the node (the default command of the node is indicated by bold text in the context menu of the node) (CQ7256).

Close RobotStudio: RobotStudio can now be closed by pressing ALT + F4.

Configuration Editor: Support for the DELETE key has been added in the Configuration Editor. To *multiselect* using arrow keys in Configuration Editor - use CTRL + SHIFT + ARROW (PDD8428, CQ8277).

Improved handling of hidden windows

Most of the RobotStudio windows (except for the graphics viewer) may use the *Auto-Hide* function that shows windows on demand and hides them otherwise. In some circumstances, the hidden windows behaved unexpectedly. This has been changed (CQ7973, CQ8296).

Unexpected behaviour when installing license file manually

RobotStudio no longer behaves unexpectedly when closing the application after manual installation of a license file (CQ8138)

Product activation time out extended

The product activation time out has been extended to ninety seconds to prevent the activation process to time out too early (CQ8388).

Improved error handling for automatic and manual license activation

The error handling for automatic and manual license activation has been improved (CQ8413, CQ8416, CQ8493).

Improved handling of tab-related, floating windows.

Floating windows related to a certain tab was not behaving as expected. Now they are (CQ8473).

Unexpected behaviour of RobotStudio at startup

A problem caused RobotStudio to behave unexpectedly on certain computers (DE081024-19341, CQ8387, GB081015-19058 CQ8384).

Context menu not always correctly shown

The context menu handling has been improved (PDD8407, CQ8276).

Online

Availability of controllers in the Add Controller dialog

Controllers will now be available in the Add Controller dialog even if they have been disconnected, and reconnected or deleted from the Online browser. This change also applies to controller for which a new system has been downloaded (CQ8085, CQ8304).

Controller automatically reconnected when switching from service port to LAN

The controller is now automatically reconnected when switching from the service port to LAN (CQ7731).

Restarting controller from second RobotStudio client could cause *Initializing* state

When connecting to a physical robot controller from one RobotStudio client, while restarting RobotStudio from a second client, the controller communication of the second RobotStudio could potentially end up in *Initializing* state (CQ8297).

Improvements in restart handling

A physical controller connected to RobotStudio will no longer cause RobotStudio to behave unexpectedly when restarted (PDD DSE8147, CQ7867, PDD DSE8349, CQ 8185, CQ8324).

The Go Offline feature no longer fails in certain environments

A problem with the Go Offline feature caused it to fail in certain environments. This has been corrected (CQ8379).

French accents not properly displayed in the Controller Properties view

French accents was not properly displayed in the Controller Properties view of the Online tab (PDD DSE7261, CQ8371).

Configuration Editor refresh

The configuration editor will be appropriately refreshed when a change has been made to the the controller configuration database (PDD DSE8429, CQ8275).

Import and Export Controller List for Minimal installation

The Import and Export Controller List functions was not available in the Minimal installation of RobotStudio (PDD DSE8442, CQ8309).

Import of zone points in SafeMove Configurator has been improved

The import of points for the Safe Tool Zone function in SafeMove Configurator has been improved (CQ8507, CQ8286, PDD DSE8241).

Improved error handling in SafeMove Configurator

The error handling for entering values using the slider component has been improved. This component is used e.g. for the Safe Axis Range function in SafeMove Configurator. Previously, it was possible to manually enter a value in the upper limit edit box that was lower than the previously defined lower limit. This is no longer possible (PDD DSE8499, CQ8488).

EPS Wizard and SafeMove Configurator not available after controller restart

The safety configuration tools EPS Wizard and SafeMove Configurator were not always available after a restart of the controller. This has been corrected (PDD DSE8389, CQ8229).

Configuration of systems with track motions with EPS Wizard

A change in RobotWare and EPS Wizard version 5.11.01 will enable required parameters for safety configuration of robot systems with track motions to be automatically read from the controller configuration database. Previous versions of EPS Wizard required certain parameters to be manually input into EPS Wizard since they could not be read due to encryption. Examples of such parameters are motor calibration for the track motion, track motion axis limits, and transmission gear ratio. The change also allows EPS safety configuration files to be loaded into EPS Wizard.

The reading of synchronization position from the controller has also been corrected for systems with track motions.

Note that this change will be enabled by RobotStudio and RobotWare version 5.11.01. RobotWare versions prior to 5.11.01 will still require manual parameter input for the track motion parameters and does not allow the safety configuration file for track motions systems to be loaded. (PDD DSE8208, CQ8354, PDD DSE8454, CQ8394).

System name layout in EPS Wizard

The layout of the system name as displayed on the Select Controller page of the EPS Wizard has been improved (CQ8036).

Offline

The CAD-import option for *Healing* is no longer enabled by default.

When importing CAD-models into RobotStudio, there is an option that can be used to heal the CAD-model if needed, i.e. the *Healing* option. This is no longer enabled by default.

Target renaming of RsTargets referencing a common Robtarget

When working with the API, it is possible to create two RsTargets that reference a common RobTarget. If you rename the RsTarget, the RobTarget will also be renamed and all RsTargets with same RobTarget will also be renamed (CQ7296).

Appropriate number of joints for IRB360_1_800_3D_STD_03

The RobotStudio model for robot IRB360_1_800_3D_STD has three degrees of freedom. The model has been changed to reflect that (CQ8161).

Copy Task Data no longer copies tool0 and wobj0

The function Copy Task Data has been changed not to copy the pre-defined, read-only objects tool0 and wobj0 (CQ8191).

Unexpected behaviour when interrupting opening of station

Interrupting the opening of a station and trying to open a new one no longer causes unexpected behaviour (CQ8213).

Simulating a station with external axis can no longer hang

Simulating a system with at least one external axes could cause RobotStudio to hang when pressing the Simulation Play button (CQ8307).

Virtual Controller now only requires limited user privileges on Windows

A regression in a RobotStudio component caused the Virtual Controller to fail for a Windows account with only limited user privileges. This has been corrected (CQ8316).

Improved performance for start of Virtual Controller

The virtual controller now starts without unexpected delays (CQ8320, CQ8321, CQ8349).

The function *System From Layout* no longer fails for RobotWare 5.10.01

The function System From Layout failed for certain RobotWare versions. This has been corrected (PDD DSE8214, CQ8069.)

Multiselection for import of Instruction Template

Multiple Instruction Templates can now be imported at the same time (PDD DSE8317, CQ8160).

Wrong item in Mechanism contextual tab

The function *Modify Curve* was erroneously part of the Mechanism contextual tab but has been removed (PDD DSE8448, CQ8317).

Wrong 3D model for IRB1600 6 and 8 kg versions

The RobotStudio models for IRB1600 6 and 8 kg had the wrong wrist. This is changed (PDD DSE8449, CQ8318).

The function View Robot at Target now works correctly if external axes is used.

The robot missed the targets when *View Robot at Target* was used on targets with external axes values. This has been corrected (SE081010-18925, CQ8319)

***Jump To Target* and *Jump To Move Instruction* now sets robot position in VC**

The functions *Jump To Target* and *Jump To Move Instruction* now sets the robot position of the VC to the selected target or move instruction (SPR1033878).

No longer needed to manually jog IRB360 into its working range using the VFP

The IRB360 will no longer require manual jogging into its working range before starting program execution. The program can simply be started directly.

Small circles can be measured

Circles with a diameter less than four millimeters can now be measured in RobotStudio (CQ8362).

CATIA V5 converter now working properly for CATproducts

CATIA V5 assemblies can now be successfully imported to RobotStudio with preserved part structure. Previously, the *CAD Converter* erroneously reported the conversion to have failed even though it succeeded. This has been corrected. Note that to preserve the part structure, the assembly must be directly imported into RobotStudio. The *CAD Converter* will convert is as a flat structure (PDD DSE7428, CQ8230).

RAPID Editor

PickList only available when having Write Access

The PickList of the RAPID Editor is now only available when having Write acess (CQ8141).

PickList can no longer modify read-only modules.

The PickList has been restricted to not be allowed to do any changes in read-only modules (CQ8180).

Disabled buttons in RAPID Editor toolbar no longer have any effect

A fault in RobotStudio caused some of the buttons in the RAPID Editor to be active when disabled (CQ8350).

Update problems for the RAPID program pointer

The program pointer now updates correctly at all times (CQ8366).

Improved error handling for RAPID debugging

The error handling for RAPID debugging has been improved (CQ8378).

Long response time when opening RAPID Editor

The RAPID Editor sometimes took around ten to twenty seconds to open. This has been corrected (PDD DSE8230, CQ8072)

Run mode

When starting program execution from the RAPID Editor, the run mode setting of the controller will be used, i.e. Single Cycle or Continuous. This applies both to Offline and the Online controllers. The Run mode can be changed from the RAPID Tasks Windows. In Offline, the Run mode can be changed from the context menu of the controller node in the Offline browser.

Known Limitations

General

Installing a license for RobotStudio Premium removes trial licenses for PowerPacs

When installing a RobotStudio license for the Premium functionality, the trial licenses are removed. This means that possible remaining trial time for features not part of the installed license, e.g. PowerPacs, will no longer be available. The current behaviour implies that in order to test a PowerPac for free you must do it within the trial time of RobotStudio (30days) (CQ8223).

Online

Backup for Paint systems does not create backup of the PIB board

The Backup function of RobotStudio does not create a backup of the PIB board of the IRC5P system.

***Workaround**: Create the backup of the PIB board with the FlexPaint Pendant using using USB-stick (PDD8558).*

Restart of Controller when connected through the service port

Re-connection of controller may fail when a controller is restarted from a service port connection.

Generating many signals using Add Signals tool may fail.

Adding many signals in one operation (>100) may fail and display the error message *Failed to apply changes to controller*.

***Workaround**: After start of RobotStudio, the first thing to do is to launch the Add Signals tool and generate the amount of signals you want. Do **not** expand the Configuration node of the browser and do **not** launch the Configuration Editor until the signals have been generated.*

The connection type of the Controller Status window always shows LAN

The connection type of the Controller Status window always shows LAN, also when the controller is connected through the service port (PDD8570).

Error Message: *You are denied write access. …*

If the following error message appears "*You are denied write access. Access to <system name> on <controller name> is granted to user Unknown (user location unknown)*" then log off and log on again to workaround the problem (CQ8115).

Controller connection is lost after computer recovers from sleep mode

The connection to the virtual or real controller may be lost or in an undefined state after the computer recovers from sleep mode (CQ6810, CQ8135, PDD DSE8255).

***Workaround**: Save your work and restart RobotStudio.*

I/O Viewer is not refreshed after controller restart

When looking at I/O Signals launched for the entire I/O System this works just fine. However, due to a design limitation it is not possible for I/O Windows launched by Bus or Unit to be updated after a controller restart (CQ8337).

Task activation in Offline and Online

When starting program execution from the RAPID Editor, the tasks currently activated in the controller will be started. This applies both to Offline and Online controllers.

For Offline controllers, the active tasks are defined in the *Setup Simulation* dialog. This setting only applies to the Simulation Play button. The task settings of the controller will not be used in the Offline case.

Offline

The Virtual Controller fails to start on 64-bit editions of Windows XP and Vista

The Virtual Controller fails to start on 64-bit editions of Windows XP and Vista (PDD DSE8481).

Lack of Virtual Controller support for the Paint mediapool

The mediapool 3HNA015300-001.xx that is distributed with IRC5P R3 does not support running on a Virtual Controller. A system using that mediapool will end up in System Failure on a Virtual Controller. This affects the functions *Go Offline*, and the *System Builder* functions *New System*, and *Create System from Backup*

***Workaround**: Re-create the system without the mediapool (PDD DSE8569).*

No Virtual FlexPaint Pendant available

There is not Virtual FlexPaint Pendant available for Virtual Controller systems with paint robots.

***Workaround**: Use the regular Virtual FlexPendant instead (PDD DSE8559).*

Hidden main entry point for Paint systems

Controller systems for Paint robots (IRB5XXX) has a hidden main procedure to handle the so-called *job-queue*. This is why the user must define a new entry point, e.g. *main2,* using the *Setup Simulation* tool to avoid conflicts when working with a paint robot in RobotStudio.

Not possible to Modify System for Pack&Go file.

It is not possible to use the function Modify System of the System Builder for a system that uses a mediapool embedded in a Pack&Work file.

***Workaround**: Copy the mediapool to the common Mediapool folder, and create the system from the backup (PDD DSE8533).*

Cannot create a system from layout with IRB6620 and IRBT6004

The mediapool *Track.5.10.0003* that is used by the function *System from Layout* does not support the combination IRB6620 and IRBT6004.

***Workaround**: Use System Builder to manually create a system with the mediapool* Track.5.10.0005 *or* Track.5.11.0001 *instead (PDD DSE8530, CQ8357).*

Opening a station with a non-coordinated track requires re-attaching the robot

When opening a station with a non-coordinated track motion, RobotStudio will not recognize the setup correctly.

***Workaround:** The robot needs to be detached and re-attached to the track motion to make the system work as expected (PDD DSE8505)*

UIShow stops program execution

Running a program in RobotStudio with the RAPID instruction *UIShow*, stops with an error, if the Virtual FlexPendant is not started. The error message *Unsupported instruction UIShow* will appear in the log window.

Note that instruction *UIClientExist* will return true if the FlexPendant Operator Window is opened and false if neither the Virtual FlexPendant nor the RobotStudio Operator Window is opened.

Workaround: *Disable the FlexPendant Operator Window of RobotStudio when running programs with UIShow (PDD DSE8504).*

Limitation for the function *Create Workobject from Frame* for non-zero task frame

The function *Create Workobject from Frame* will not behave as expected in a station with a non-zero task frame (PDD DSE8488).

The FlexPendant Operator Window may behave unexpectedly

The FlexPendant Operator Window is available in the Offline mode and shows the output of the FlexPendant operator window. In certain cases, it may not display the complete text displayed on the FlexPendant. In addition, user interaction with the operator window may cause a different result than on the FlexPendant. The operator window is disabled by default, but can be enabled from the RobotStudio Options dialog (PDD DSE8356, PDD DSE8359, CQ8187, CQ8195).

Absolute Accuracy may cause the VC to miss the programmed position

The robot will not go to the programmed location if the controller has the Absolute Accuracy option activated and parameters from a real robot. The virtual robot in RobotStudio will move to fake targets in the same way as the real robot. The reason is that the robot models in RobotStudio are nominal and do not correspond to the real, physical robots calibrated with Absolute Accuracy parameters (CQ7483).

Workaround*: Reset the Absolute Accuracy parameters for the virtual system.*

The Check Reachability function lacks support for track motions

(CQ7769)

Error Message: *Sync. to Station completed with errors*

Error Message: Sync to Station completed with errors: New data <name> <type> has same name as existing object in same block <routine>.

When this error message appears, there is a storage type mixup between data already stored in RS and in the VC. Because of this, and per design, the data is not considered the same data.

Workaround*: 1. Ensure all data declarations have the same definition in RS as in RAPID (there is no user interface for this).*

2. Sync to station should now work.

3. Sync back to controller, and remember to change the data declarations back to what you want.

Kinematic baseframe in Mechanism Modeler

Defining a joint which is not perpendicular to any of the baseframe vectors causes the moved link to be positioned in wrong way. (CQ5292, PDD DSE6788)

Copy to path in another Task creates new data even if it already exists

When you copy a path to another task, then new wobj/tooldata/weldata/ seamdata is created even if the data already exists. (CQ7121)

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'*.

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 the Paths & Targets browser

RobotStudio does not support 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.

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).

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).

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

This is the only combination for which a 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 (RAPID Editor – Play and FreeRun). The Process Timer will turn yellow if the process time cannot be guaranteed (CQ6658).

Minor difference in process time of "*Simulation Play*" and "*RAPID Editor Play*"

The cycle time deviation between "Simulation Play" and "RAPID editor" is 0.05 s (constant). The difference is due to the program execution starting in different ways in the two scenarios. The play button of the RAPID 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 RAPID editor, it takes a small amount of time for RobotStudio to be aware that the simulation has started, which is why the "RAPID Editor" cycle time is 0.05 s smaller. The process time of the "Simulation" play is more accurate.

Event Manager: Simulation cannot be triggered by analog system signals

The event manager only supports analog station signals, not analog system signals (CQ6556).

Virtual Flex Pendent: 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).

System From Layout requires custom made track motion to be saved as library

The System From Layout requires the any custom made track motions used to be saved as library (CQ7431).

Baseframe incorrect for robot with pedestal on track motion

Having a robot on track with a pedestal causes a wrong baseframe written into the controller configuration database (MOC). The track must be rebuilt with Mechanism Modeler if a pedestal not part of the distributed track motion libraries is to be used (CQ7873, PDD DSE8159).

***Workaround**: Adjust the track position manually in RobotStudio and answer No to the baseframe update question that appears when restarting a VC.*

Graphics and Geometry

The Healing option may increase size of CAD models

The healing option may be used during CAD import to try and heal CAD-models. For some CAD-models the size is increased a factor of ten.

***Workaround**: Uncheck the Healing option in the Import Geometry dialog or the CAD-converter.*

DirectX may require manual installation

The DirectX components that are installed with the Full installation of RobotStudio have been seen to require manual installation on certain computers.

***Workaround**: Install DirectX manually. It can be downloaded from http://www.microsoft.com (PDD8512, CQ8533).*

Virtual FlexPendant impairs performance when on top of graphics viewer

The control panel of the Virtual FlexPendant (VFP) might affect the performance of the graphical window if placed inside it. 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 clearing the *'Enable transparency'* option in the *RobotStudio Option* dialog (a restart of the VFP is required after changing mode). Refreshing the graphical view might however still be somewhat delayed, especially when moving the VFP rapidly over the screen.

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.

Out of memory

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

JointTargets for external axis

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

Direct3D limitations

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

- Cull back-facing triangles.
- Enable two-sided lighting.

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

Use Direct3D on Windows Vista for improved performance

Windows Vista is optimized for Direct3d, which is 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.*

Visual Studio Tools for Applications

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

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

***Note**: There is a new VSTA-class VSTABridge that can be used to work around 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/.*

RsLoadData does not work from VSTA

(CQ7935)

VSTA limitation: error in CreatePolyline and CreateSpline method.

Limitation added to API doc. (CQ6801, PDD DSE 7634)

VSTA limitation

The 'FindDataDeclarationsByType' method used in VB.net throw an exception
Limitation added to API doc. (CQ6811, PDD DSE7679:)

Supporting Information

How to automatically create a system with external axes

The recommened way to create a system with external axis is to use the wizard *Create System From Layout* that can be started by pressing the button *Add Robot System -> --- from Layout.* The function will analyze the contents of your station and create a matching system. Simply import the desired robots, positioners and track libraries, and run through the wizard.

Tracks

The following tracks with lengths from 1.7 to 19.7 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
IRBT4004
IRBT6003
IRBT6004
IRBT7003
IRBT7004
RTT_Bobin
RTT_Marathon
Paint Rail

Note: *IRBTx004 can only be used in the first task. Only one track of this type can be used per system. Also the mediapool Track.5.10.0003 is used for by the feature "Create System From Layout" regardless of the selected RobotWare version. Create the system manually if another version of the Track mediapool is desired, see Section "How to manually set up a system with track motion of type IRBTx004?"*

Supported external axis configurations

Combination of IRB, Track Motion & Positioner	A	B	C	D	K	L	2xL	R
1 IRB (positioner in same task)	✓	✓	✓	✓	✓	✓	✓	✓
1 IRB (positioner in separate task)	✓	✓	✓	✓	✓	✓	✓	✓
2 IRB (positioner in separate task)	✓	✓	✓	✓	✓	✓	✗	✓
1 IRB on Track Motion (positioner in same task)	✓	✗	✗	✗	✓[1]	✓	✓	✗
1 IRB on Track Motion (positioner in separate task)	✓	✗	✗	✗	✓[1]	✓	✓	✗
2 IRB on Track Motion (positioner in separate task)	✓	✗	✗	✗	✓[1]	✓	✗	✗

[1]) Manual mapping of mechanical units and joints required. Select the models from the station and combine them with the appropriate mechanical units with the System Configuration windows. Select OK to close the window before the next step. Open the window again and click on *Change...* in the lower right corner. Map the joints 1 to 3 for the positioner.Press OK to close the window. Reopen the window and point out the baseframe (use current station values).

✓ Combination is supported

✗ Combination is not supported

Track Motion Create System From Layout only supports tracks of type RTT and IRBTx003 in combination with positioners., i.e. IRBTx004 is not supported in combination with positioners.

Single task: Positioner in same task as robot

Separate task Positioner in separate task from robot. (Track motion is always in same task as robot.)

How to manually set up a system with track motion of type RTT or IRBTx003?

Track configuration files to be used for track motions or type RTT or IRBTx003 (x = 4, 6, or, 7) can be found in the Track folder.

Follow the instructions below to manually create a system with track motion of type RTT Bobin, RTT Marathon or IRBT4003, IRBT6003 or IRBT7003.

1. Create a system for the desired robot variant using *System Builder*, which can be found in the *Offline* tab of RobotStudio. The system must include the corresponding *Additional axes configuration option*:
   a. Select the desired robot variant
      i. In the *Create New Controller System Wizard* of the System Builder, go to the Modify Options page,
      ii. expand *DriveModule1 → Drive module application → ABB standard manipulator*, and,
      iii. choose the appropriate robot variant, e.g. *IRB6620*.
   b. Select the corresponding *Additional axes configuration*
      i. Further down on the *Modify Options* page expand *Additional axes configuration*,
      ii. expand *Add axes IRB/drive module 6600*, (or whatever option that matches your selected robot variant), and
      iii. select *770-4 Drive W in pos Y2* or similar option. The options differ slightly depending on the Additional axes configuration used: the exact drive and position may differ. The important thing here is to select one drive in any position.
   c. Press Finish.
2. Add the system to the station.
3. Open *System Configuration* in RobotStudio and add the corresponding track configuration file of the desired track motion model by pressing the *Add* button, see below*. The system will restart when pressing the *OK* button.
   ***Note**: The system will end up in System Failure state unless the matching "Additional axes configuration" is selected.*
4. Point out the desired track model when the system asks for a mechanical unit for TRACK. Either choose one of the suggested models or browse for a different track.
5. Open System Configuration again, select the *ROB_1* node, and set *BaseFrame Moved By* to *TRACK*. The system will restart when pressing the *OK* button.

*** How to select the correct track configuration file?**

The track configuration files are available for different track lengths and different tasks. The track length is encoded in the name of the configuration file, e.g. if the track length is 4.7 m then the configuration file to pick is called *TRACK_4_7.cfg*.

If the track is used for a robot in a MultiMove system, then the task number must also be taken into account, e.g. if the track length is 19.9 m and the robot attached to the track is connected to task 4 of the MultiMove system, then the configuration file to pick is called *TRACK_19_9_Task4.cfg*.

How to manually set up a system with track motion of type IRBTx004?

For configuration of tracks of type IRBT4004, IRBT6004 or IRBT7004, there are additional options mediapools in the *Mediapool* folder installed in the same folder as RobotWare (..*%ProgramFiles%\ABB Industrial IT\Robotics IT\MediaPool*\ ). There are three versions of the Track mediapool that are installed with RobotStudio: *Track.5.09.0012,* which supports RobotWare 5.09, *Track.5.10.0003* and *Track.5.10.0005,* which supports RobotWare 5.10, and *Track.5.11.0001*, which supports RobotWare 5.11 and revisions of those releases.

Follow the instruction below to manually create a system for the IRBTx004 track motion.

1. Create a system for the desired robot variant using *System Builder*, which can be found in the *Offline* tab of RobotStudio. The system must include the corresponding *Additional axes configuration option*:
   a. Add the additional options mediapool for IRBTx004
      i. In the *Create New Controller System* Wizard of the System Builder, go to the *Add Additional Options* page,
      ii. select the "…" button and browse to the key (.kxt file) located in the mediapool *Track.5.11.0001*. The mediapool supports both RobotWare 5.10 and 5.11. (Use *Track.5.09.0012* toghether with RobotWare 5.09, and *Track.5.10.0005* with RobotWare 5.10).
      iii. Press the arrow → to add the option.
   b. Select the desired robot variant and track motion to use
      i. Proceed to the *Modify Options* page,
      ii. expand *DriveModule1 → Drive module application → ABB standard manipulator*, and, choose the appropriate robot variant, e.g. *IRB6600*.
   c. Select the corresponding additional axes configuration
      i. Further down on the *Modify Options* page, expand *Additional axes configuration,*
      ii. expand *Add axes IRB/drive module 6600*, (or whatever option that matches your selected robot variant), and
      iii. select *770-4 Drive W in pos Y2* or similar option. The options differ slightly depending on the Additional axes configuration used. The drive and position may differ. The important thing here from a RobotStudio point-of-view is to select one drive in any position.

iv. Select the desired robot variant and track motion to use

i. Scroll down to TRACK, expand it and select *Drive Module 1 → Track Motion Type → IRBT 6004 → Irb Orientation on Track → Inline → Select Track Motion Length → 1.7 m*, or whatever variant you prefer.

v. Press Finish.

2. Add the system to the station. The system will start.
3. When the *Select Library* dialog appears, press the *Other* button, browse to the folder *ABB Library/Track* and select the track motion library corresponding to your system.
4. Done!

Note: *RobotStudio will adjust the joint limits of the mechanisms to the limits of the VC. If the incorrect track configuration file is selected, this may cause mismatch between the used joint limits of the RobotStudio/VC and the geometry of the track motion model in RobotStudio.*

Code Snippets

The RAPID Editor of RobotStudio 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 comes with a number of predefined Code Snippets, such as:

- 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
- robtarget.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 to the Code Snippet format of Visual Studio 2005. Code Snippets can be edited in any XML editor such as Visual Studio 2005 Express, which 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://msdn.microsoft.com/en-us/library/ms165394.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. *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 RAPID Editor must be RAPID, whereas the Microsoft examples are targeted towards other programming languages. However, the structure and format are the same. See also the pre-defined .snippet files installed with RobotStudio 5.11.01.*

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, e.g. 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 5.11.01 comes with pre-defined XML files that can be imported and used for robot controller systems with 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 XML files provided contain both Move and Action instructions.

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

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