Release Notes

RobotStudio

6.0

Revision: -

Table of Contents

1 Release Information

1.1 General

Release Name

The release name is RobotStudio 6.0 and the build number is 6.00.6205.1105.

Release Date

The release date is November 21st , 2014.

Demo stations

The following demo stations are included in this version.

- Demo AW Station

- Demo Solar Simulation

- Demo Exhaust Pipe

- Demo FlexLoader

They are stored in the Pack & Go format (.rspag) and can be opened with the command Unpack & Work on the Share section of the RobotStudio menu.

ScreenMaker Demo Station and Project

There is a demo station and associated ScreenMaker project available.

- SCM_ExampleProject *(ScreenMaker Project)*

- SCM_ExampleStation *(RobotStudio station)*

These files are found in the *'Addins/ScreenMaker/Samples'* folder under the *RobotStudio* installation folder .

Tutorials

Tutorials are available at the RobotStudio product pages at
http://www.abb.com/roboticssoftware

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 from ABB.

1.2 System recommendation

Recommended Software

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

ℹ️ **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 http://www.microsoft.com.

Recommended hardware

Item	Requirement
CPU	2.0 GHz or faster processor, multiple cores recommended
Memory	3 GB if running Windows 32 bit 8 GB if running Windows 64-bit
Disk	10+ GB free space, solid state drive (SSD)
Graphics card	High-performance, DirectX 11 compatible, gaming graphics card from any of the leading vendors. For the Advanced lightning mode Direct3D feature level 10_1 or higher is required.
Screen resolution	1920 x 1080 pixels or higher is recommended
DPI	Normal size (100% / 96 dpi) up to Large size (150% / 144 dpi) Only Normal size supported for Integrated Vision.
Mouse	Three-button mouse
3D Mouse [optional]	Any 3D mouse from 3DConnexion, see http://www.3dconnexion.com.

1.3 Simulation Models

Robot Libraries

IRB Variant
120 3kg/0.58m
120T 3kg/0.58m
*1200 5kg/0.9m BTM
*1200 5kg/0.9m STD
*1200 7kg/0.7m BTM
*1200 7kg/0.7m STD
140 5kg/0.8m Type A/B
140 5kg/0.8m Type C
140 6kg/0.8m Type C
140T 5kg/0.8m Type C
1400 Type A/B
1400H Type A/B
1410
1520ID
1600 5kg/1.2m
1600 5kg/1.2m Type A
1600 5kg/1.45m
1600 5kg/1.45m Type A
1600 6kg/1.2m
1600 6kg/1.45m
1600 7kg/1.2m
1600 7kg/1.2m Type A
1600 7kg/1.45m
1600 7kg/1.45m Type A
1600 8kg/1.2m
1600 8kg/1.45m
1600 10kg/1.2m
1600 10kg/1.45m
1600ID 4kg/1.5m
2400 10kg
2400 16kg
2400L
2600 12kg/1.65m
2600 20kg/1.65m
2600 12kg/1.85m
2600ID 8kg/2.0m
2600ID 15kg/1.85m
260
340
360 1kg/1130 Std No axis 4
360 1kg/1130 Wash-down No axis 4
360 1kg/1130 Standard
360 1kg/1130 Wash-down
360 1kg/1130 Stainless
360 1kg/800 Std No axis 4
360 1kg/800 Wash-down No axis 4
360 1kg/800 Std
360 1kg/800Wash-down

IRB Variant
360 3kg/1130 Std No axis 4
360 3kg/1130 Wash-down No axis 4
360 3kg/1130 Standard
360 3kg/1130 Wash-down
360 3kg/1130 Stainless
360 1kg/1600 Standard
360 6kg/1600 Standard
360 8kg/1130 Standard
4400 45kg
4400 60kg
4400L 10kg
4400L 30kg
4400S 30kg
4450S 30kg
4600 20kg/2.5m
4600 20kg/2.5m Type C
4600 45kg/2.05m Type C
4600 60kg/2.05m
4600 60kg/2.05m Type C
460
4600 40kg/2.55m
4600 40kg/2.55m Type C
4600 45kg/2.05m
6400R 200kg/2.5m
6400R 200kg/2.8m
6400R 120kg/2.5m
6400R 150kg/2.8m
6400R 150kg/2.8m
6400R 100kg/3.0m
640
660 180kg/3.15m
660 250kg/3.15m
6600 175kg/2.55m
6600 175kg/2.80m
6600 225kg/2.55m
6600ID 185kg/2.55m
6620 150kg/2.2m
6620LX-150/1.9m
6640 130kg/3.2m
6640 180kg/2.55m
6640 185kg/2.8m
6640 205kg/2.75m
6640 235kg/2.55m
6640ID 170kg/2.75m
6640ID 200kg/2.55m
6640 150kg/2.55m DP6
6640 165kg/2.8m DP6
6640 185kg/2.75m DP6
6640 200kg/2.55m DP6

IRB Variant
6650 125kg/3.2m
6650 200kg/2.75m
6650ID 170kg/2.75m
6650S 125kg/3.5m
6650S 200kg/3.0m
6650S 90kg/3.9m
6600 100kg/3.35m
6660 130kg/3.1m
6660 205kg/1.9m
6700 145 kg/3.2m MH
6700 145 kg/3.2m SW
6700 150 kg/3.2m MH3
6700 150 kg/3.2m
6700 155 kg/3.05m MH
6700 155 kg/3.05m SW
6700 175 kg/3.05m MH3
6700 175 kg/3.05m
6700 200 kg/2.8m MH
6700 200 kg/2.8m SW
6700 205 kg/2.8m MH3
6700 205 kg/2.8m
6700 140 kg/2.85m MH
6700 140 kg/2.85m SW
6700 155 kg/2.85m MH3
6700 155 kg/2.85m
6700 220 kg/2.65m MH
6700 220 kg/2.65m SW
6700 235 kg/2.65m MH3
6700 235 kg/2.65m
6700 175 kg/2.6m MH
6700 175 kg/2.6m SW
6700 200 kg/2.6m MH3
6700 200 kg/2.6m
*6700 220kg/3.0m MH
*6700 220kg/3.0m SW
*6700 245kg/3.0m MH3
*6700 245kg/3.0m
*6700 270kg/2.7m MH
*6700 270kg/2.7m SW
*6700 300kg/2.7m MH3
*6700 300kg/2.7m
7600 150kg/3.5m
7600 325kg/3.1m
7600 340kg/2.8m
7600 400kg/2.55m
7600 500kg/2.3m
7600 500kg/2.55m
760
**940

** requires the StandAlone Controller mediapool that is available for download from Add-Ins tab / RobotApps / RobotWare Add-Ins

> **ℹ Note**
>
> All simulation models in the table are installed with RobotStudio, but only the robots in the current product range are displayed in the ABB Library gallery. To import any other robot you need to browse to the file on disk.

Robot Libraries Paint

Variant
52 short vertical arm
52 std vertical arm
540-12 std arm
580-12 std arm
580-12 short arm
5300-12 left
5300-12 right
5320-1500
5320-2000
5350/01 Type Left
5350/01 Type Right
5350/02 Type Left Side Left
5350/02 Type Left Side Right
5350/02 Type Right Side Left
5350/02 Type Right Side Right
5400-12 std arm
5400-13 std arm
5400-14 std arm
5400-22 process arm
5400-23 process arm
5400-24 process arm
5400-12 std arm axis 2 +60 deg
5400-13 std arm axis 2 +60 deg
5400-14 std arm axis 2 +60 deg
5500 35A b_00 / b_80
5500 35B b_00 / b_80
5500 ProArm 35A b_00 / b_80
5500 ProArm 35B b_00 / b_80

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 left and right versions	2 m to 20 m
IRB5350 Rail left and right versions	3 m to 10 m

2 What's new in RobotStudio 6.0

Overview

This section describes the news of RobotStudio 6.0

2.1 Changes related to RobotWare 6

Migration tools

A number of migration tools are provided to support upgrade from RobotWare 5.60 and 5.61 to RobotWare 6.0. See the *Migration Checklist* available from the Installation Manager menu for details.
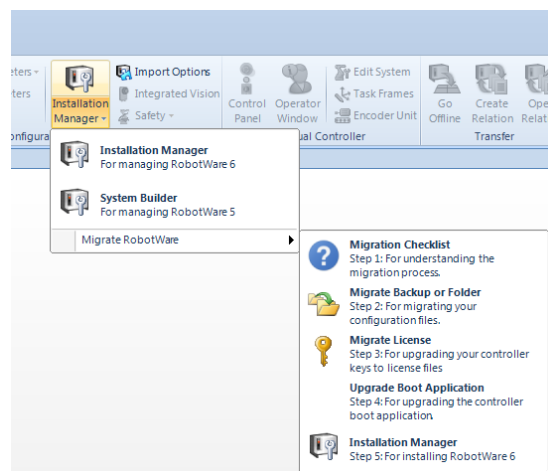
Installation Manager and System From Layout

Installation Manager is the tool for building real and virtual controller systems based on RobotWare 6. Offline users can use the function **System From Layout** to build their virtual RobotWare 6 systems from the manipulators of the station.
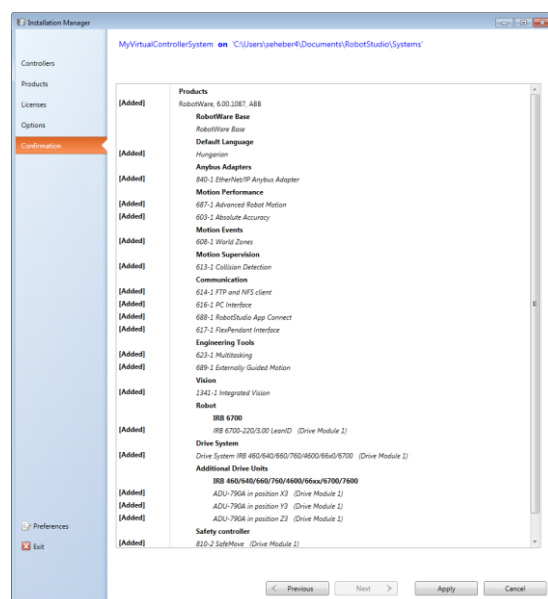
Changes to I/O System

Signal setup has been simplified in RobotWare 6. For instance, simulated signals to be used for offline programming does not need to be connected to a unit and no unit mapping needs to be specified.

RobotWare installed with RobotStudio

RobotWare is automatically installed for the 'Complete' installation option.

New terminology: Distribution packages, products and RobotWare Add-Ins

RobotWare is a *product* and part of a *distribution package* that also contains the *RobotWare Add-Ins* for TrackMotion and IRBP.

A product consists of two parts, first, one or more *robot packages* (file suffix .rpk) and, second, a *manifest* (file suffix .rmf).

A distribution package may consist of one or more products. When distributed as one file the file suffix is .rspak.

RobotWare installed from RobotStudio

Other versions of RobotWare apart from the version installed by RobotStudio, can be downloaded and installed from the **RobotApps** page of the Add-Ins tab. An Internet connection is required.
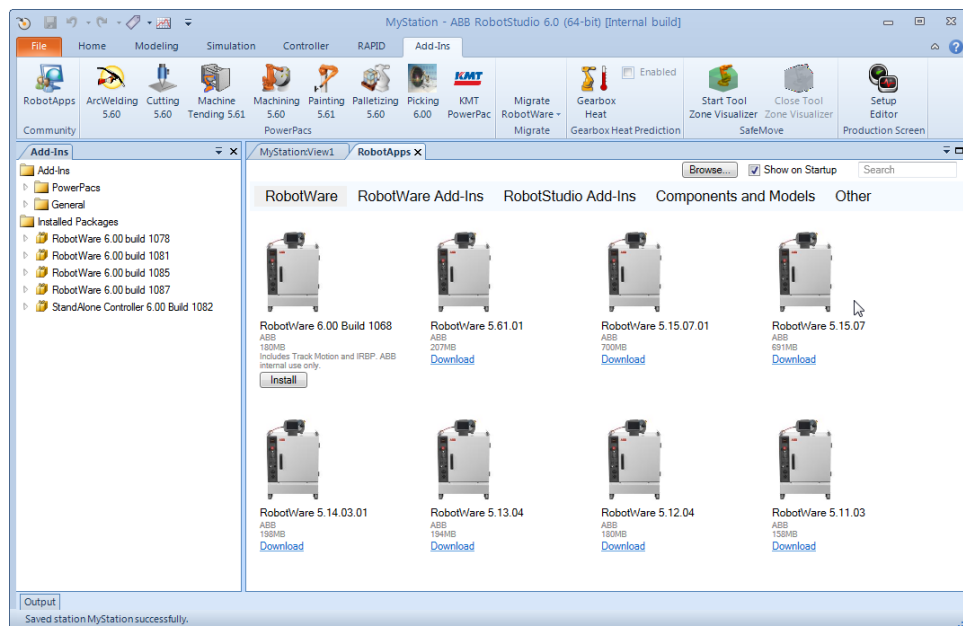
2.2 Online features

Jobs

The new Jobs functions lets you do certain actions for a large number of robots concurrently. You can take backups, update UAS, and set time

Load and save RAPID and configuration on the controller

You can now load and save modules and controller configuration files by accesing the controller disk directly. This will save you time since you no longer need to use the File Transfer tool to move files between your PC and the controller.
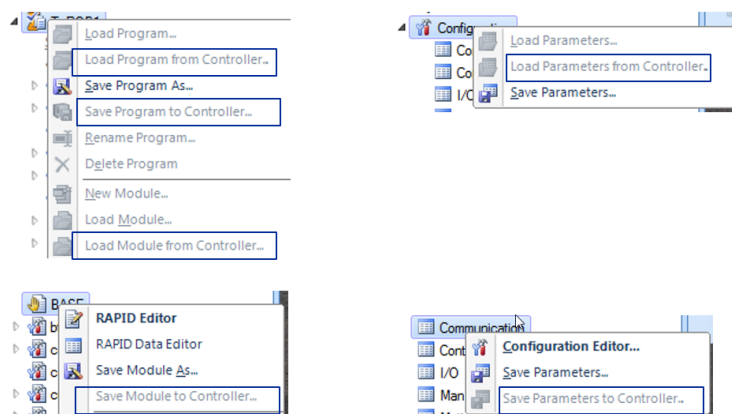
2.3 Offline features

Solution

The new **Solution** concept help you structure your station data, the solution structure will keep it all in one place.

2D export in DXF and SVG

With the 2D export function you can export 2D drawings from RobotStudio and use in your 2D CAD program. In addition to DXF you can use the SVG format that can be viewed in e.g. Internet Explorer. The DXF and SVG formats are available as options for the **Export Geometry** command on the Station level.
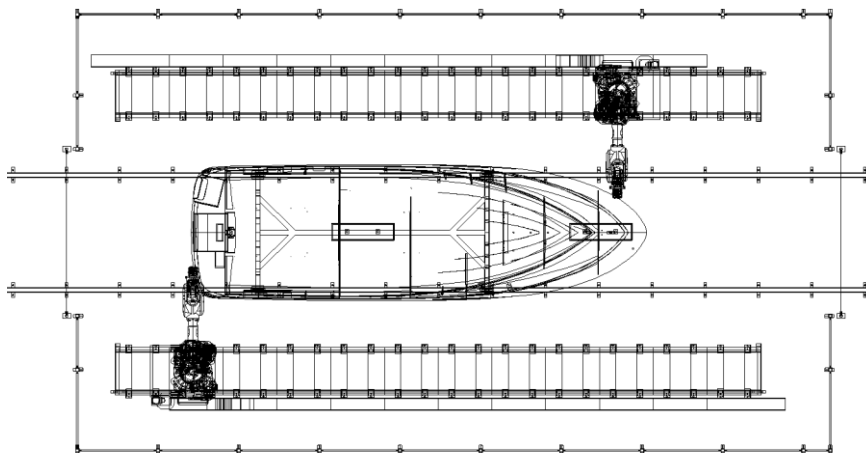
Visualization and adjustment of zone data

You can view and adjust the RAPID zone data in the 3D graphics view. RobotStudio can reduce the size of your zone data to avoid having overlapping zones. The controller will reduce any overlapping zones during program execution, but now RobotStudio can help you understand and adjust your zone during program creation.

Collision indication

To make it easier to find the point of collsion a markup can optionally be created at the point of first collision. You can choose to highlight the colliding body or surface in to part which was available before.
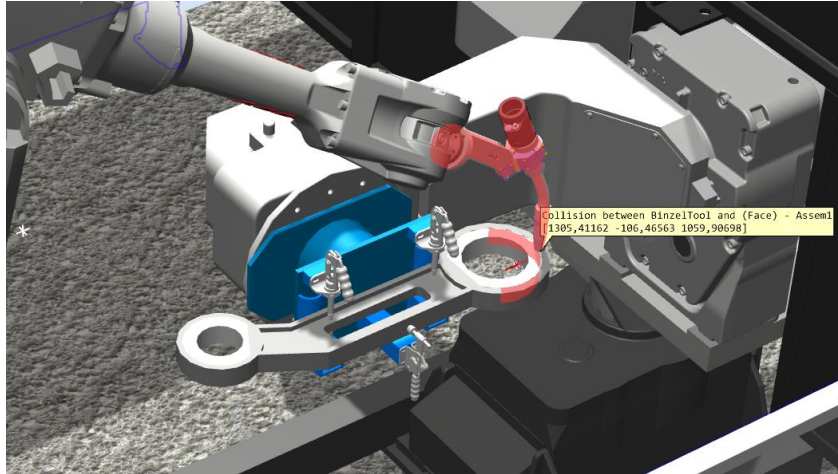
2.4 Other features

Keyboard shortcuts

You can export and import your customized keyboard shortcuts. This is useful when you exchange your PC or want to share a pre-defined set of shortcuts with your colleages.
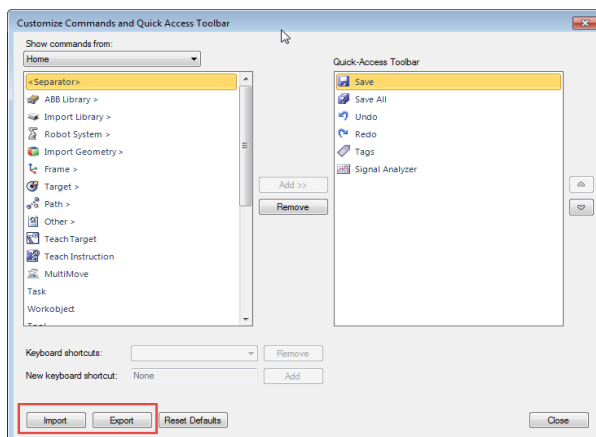
Automatic transparency

When zooming in on objects in the 3D view, you can enable automatic transparency to make the closest part become gradually invisible.
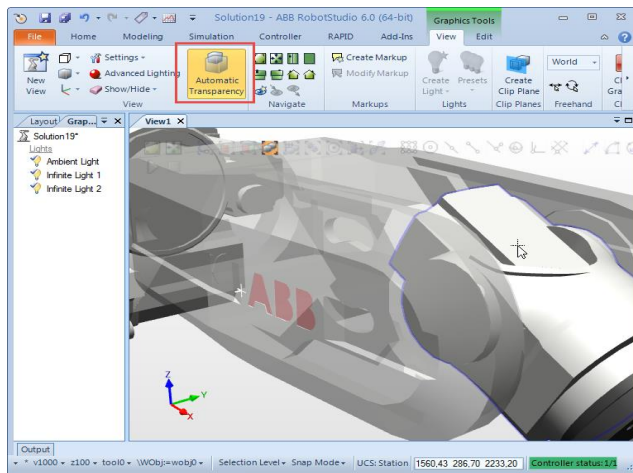
Defining your main procedure and add procedure calls in the browser

You can define the main procedure directly in the Paths&Targets browser and add procedure calls to your paths by Drag'n Drop. The main procedure will be synchronized to the VC along with your paths. This means you no longer need to use the Simulation Setup window for the standard case.
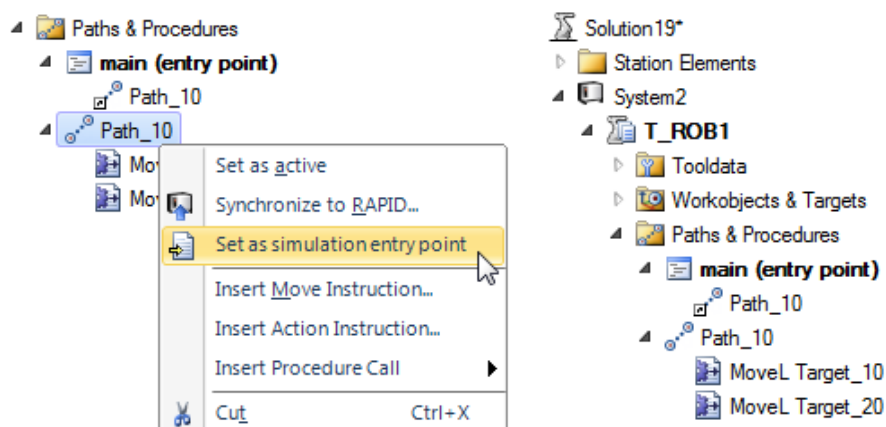
Setup Simulation

The Setup Simulation tool has been re-made and has become a document window. To the left you see a tree view and to the right you see a property window that changes with the selected tree item. The virtual time mode selection has been moved from RobotStudio Options to Simulation Setup. The simulation entry point (i.e. by default the main procedure) can be defined as a property of the task node.
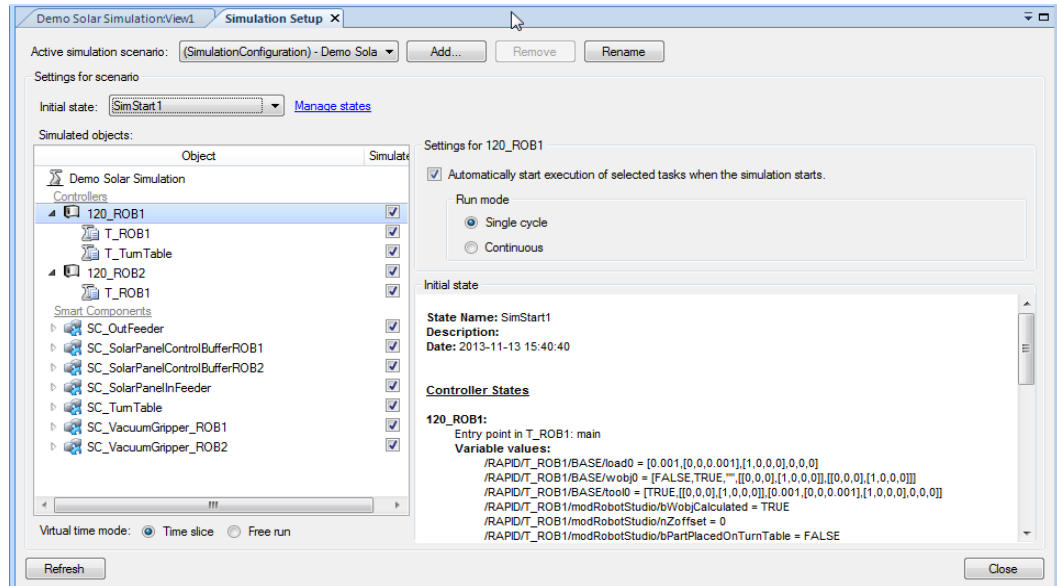
Screen Recorder: Record cursor

The Screen Recorder options Record Graphics and Record Application now includes the mouse cursor which also illustrates mouse clicks. The cursor recording is enabled through RobotStudio Options.
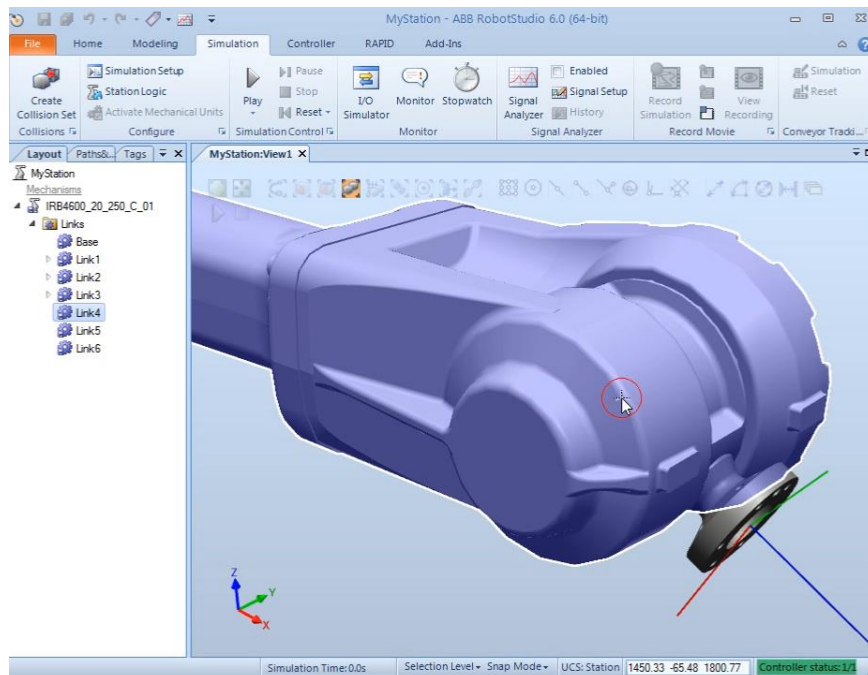
3 Late Breaking Information

Overview

This section contains information about late changes that were done after the RobotStudio 6.0 Operating Manual was finalized.

3.1 RobotWare Packages

Overview

This section describes how RobotWare 6 packages are handled in RobotStudio 6.

3.1.1 Concepts

Overview

This section describes a couple of fundamental concepts related to RobotStudio.

Virtual and real controller

RobotStudio is installed by an installer, similar to many other Windows applications. RobotStudio contains the tool to install RobotWare onto the real, physical robot controller, hereafter denoted as *real controller (RC).* For the purpose of offline programming and simulation there is also a *virtual controller (VC)* which is a virtual replica of the real controller. RobotStudio connects to both real and virtual controllers.

Systems

The specific configuration of RobotWare for use by a particular robot is denoted as a controller system, or simply *system* in this context. The tool used to create RobotWare 5 systems is called *System Builder* and the similar tool for RobotWare 6 is called *Installation Manager*. Both of these tools are part of RobotStudio. In addition, RobotStudio can create VC systems for either RobotWare 5 of 6 using the functions *System From Layout* and *New System.*

3.1.2 Package Installation

Overview

This section describes the installation of RobotWare packages on the PC.

RobotWare installation

A pre-requisite for creating systems is that RobotWare is available on the PC. RobotWare 5 is installed into the PC's `Program Files` folder using a standard PC installer. RobotWare 6 is on the PC by RobotStudio for *Complete* installation option. Alternatively, RobotWare 6 can be installed using the *RobotApps* page in RobotStudio's Add-Ins tab.

Distribution Packages

RobotWare 6 comes with a *Distribution Package* that also contains RobotWare Add-Ins for Positioners and TrackMotion. The RobotWare Add-In for the StandAlone Controller (SAC) is a separate Package available from the RobotWare Add-Ins section of RobotApps, see item 2 of Figure 1.

If you have a Package file (.rspak) you can install it using the *Browse* command,see item 3. You can install RobotWare Add-Ins by browsing to a *RobotWare Add-In manifest* (.rmf file).

The Add-Ins browser will show the installed packages, see item 4.
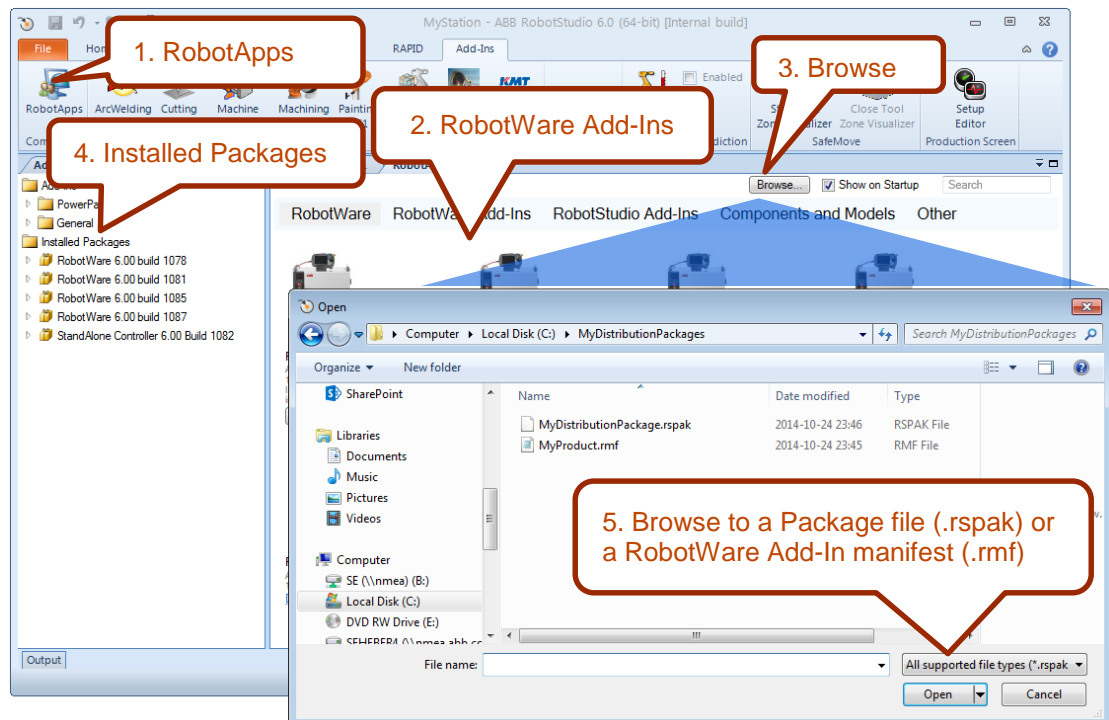
Figure 1: The RobotApps page is available from the Add-Ins tab of RobotStudio, see item 1.

GoOffline and Pack&Go

The functions **GoOffline** and **Pack&Go** requires any RobotWare Add-Ins used by the systems to be installed on the PC.

> **ⓘ Note**
>
> You can create a system in Installation Manager and add it to a RobotStudio station, but not create a Pack&Go file unless the RobotWare Add-ins are installed and available as Installed Packages in the Add-Ins browser.

3.1.3 Package Locations

Overview

This section describes where to find the packages.

RobotWare is Application Data

In RobotStudio 6, RobotWare and related packages are considered to be application data and as such they are treated according to the Microsoft Certification requirements for Windows desktop apps. In particular the following two rules apply:

10.3 Your app data, which must be shared among users on the computer, should be stored within ProgramData

10.4 Your app's data that is exclusive to a specific user and that is not to be shared with other users of the computer, must be stored in Users\<username>\AppData

Thus, Packages can be available in two locations.

Location 1 (ProgramData)

The first location is

%ProgramData%\ABB Industrial IT\Robotics IT\DistributionPackages\

that is used if RobotWare is installed with RobotStudio. On a PC with a default installation of Windows 7 the path is

C:\ProgramData\ABB Industrial IT\Robotics IT\DistributionPackages.

In this case, rule 10.3 applies as the person installing RobotStudio is typically an IT technician and may not be same person as the one actually using the software. For this reason RobotWare must be placed in a location accessible for all users.

Location 2 (LocalAppData)

The second location is used if a Package or Manfest is installed by a particular user. Then the location is

%LocalAppData%\Local\ABB Industrial IT\Robotics IT\DistributionPackages.

On a PC with a default installation of Windows 7 the path is

C:\Users\<user name>\AppData\Local\ABB Industrial IT\Robotics IT \DistributionPackages

This location is only visible to the particular user who installs the Package, see rule 10.4.

[Optional] Location 3: (Customized location)

Optionally, the Packages can be placed in a customized location, see RobotStudio Options. This is typically done in a shared environment, where several users want to share a Package repository.
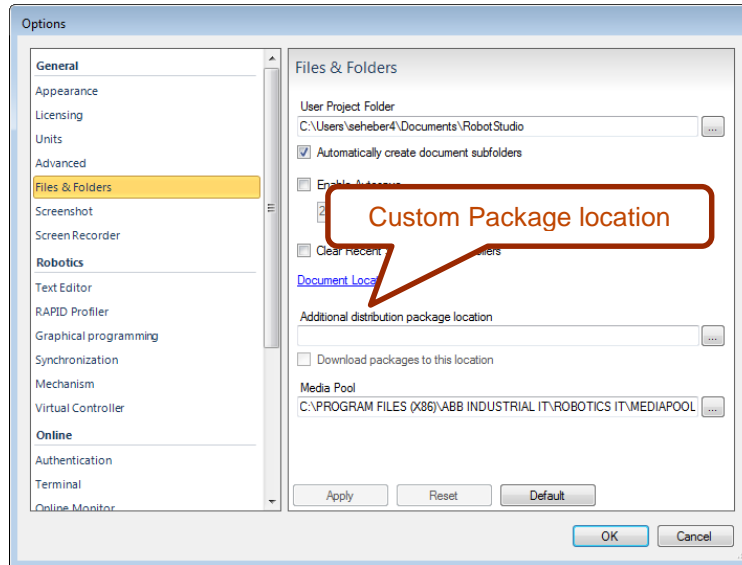
Tooltip with location information

The location for a specific package is shown in the tooltip of the Add-Ins browser if you let the mouse pointer hoover over a Package node.
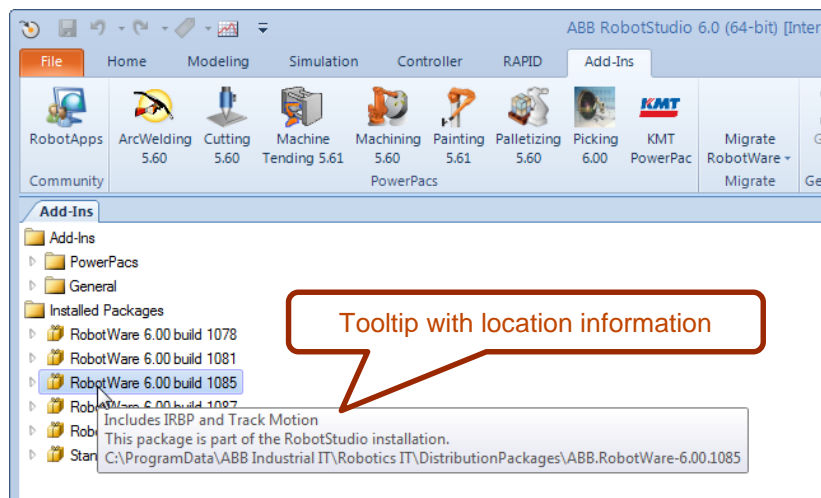
Open Package Folder in Windows Explorer

If you select the option **Open Package Folder** from the context menu of an Installed Package Windows Explorer will be opened showing the location of the selected Package Folder.

18
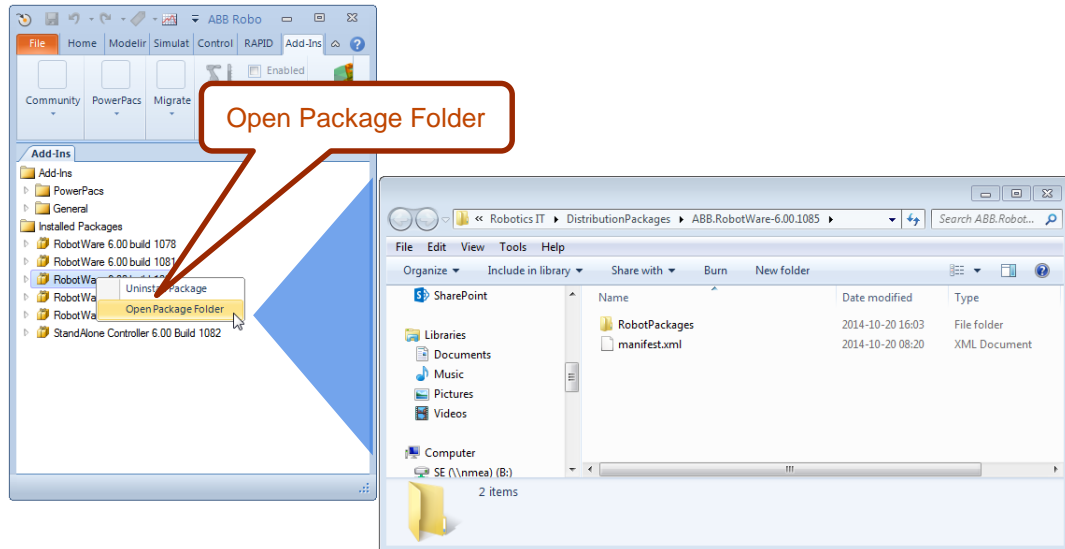
Unpacked data

When used by a virtual controller, the Packages are unpacked into a cached location which always resides in a LocalAppData sub-folder, namely

`%LocalAppData%\Local\ABB Industrial IT\Robotics IT\RobotWare.`

On a PC with a default installation of Windows 7 the path is

`C:\Users\<user name>\AppData\Local\ABB Industrial IT\Robotics IT\RobotWare`

(Users familiar with RobotWare 5 will recognize the content of this folder to be similar to the previous `Mediapool` folder.)

3.1.4 Uninstall Packages

Overview

This section describes how to uninstall Packages

Uninstall Package

The context menu option *Uninstall Package* will remove the selected Package and related, unpacked, data.
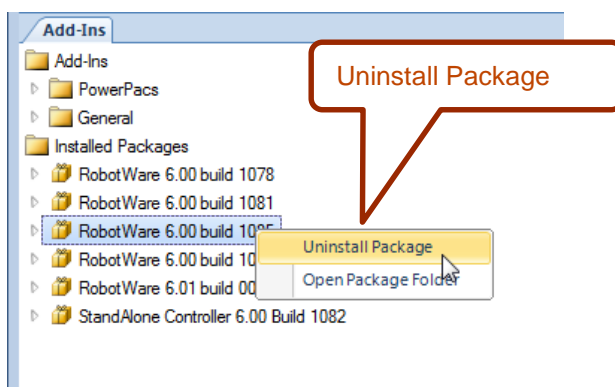
4 Corrections

Overview

This section describes the defects solved in RobotStudio.

4.1 Corrections in RobotStudio 6.0

Overview

This section describes the corrections made in 6.0

Product Defect Documents (PDD)

ID	Title
330	SafeMove/RS: Messages, that a restart of the controller failed, are not translated to German language.
1986	Controller Shutdown button is grayed and not documented
2023	OnlineMonitor does not show supervised ToolPoints
2062	System builder drop down box too small
2461	RobotStudio cut plane
2484	Update problem in RobotStudio when creating a new system based on a former RobotWare
2522	Bad rendering of a STEP and SAT files
2568	Method to prevent loading of 5.15 system to 5.60 RAC computer works but is confusing
2678	Additional Resources button under Help disappears when RS window is not maximized
2746	RW 5.60RC3 and Integrated Vision: Toggle Mode button in ribbon bar must be clicked twice very often
2757	Visualizing Safety Zones in RobotStudio Online Monitor does not show tool configured in SafeMove
3155	Problem with Mechanism Modeler (numerical problem in 32-bit)
3210	RobotStudioReport 2014_0221
3212	Incorrect messages in RS, Rapid output window - identifiers starting with
3222	RobotStudioReport 2014-0305
3271	RS threw TaskException
3299	Libraries of IRB 5350_01 versions missing
3307	UAS Groups deletes entry even is user selects Not to
3316	Help for CAD ACIS export and VRML import not correct
3326	Validation Integrated vision ribbon menu test Network Digits (check for dpi settings)
3329	Validation Integrated vision ribbon menu test
3336	Validation RC RobotStudio Manual
3337	RS 5.61 RC Validation RS manual UI
3340	Problems with work envelope display
3341	Double camera node
3367	System from layout does not use mediapool for track type A, but older type
3371	IV - Truncated Localized Texts
3391	Validation RC Rotate window
3407	missing german translation
3444	RS Online Jog: wrong mech unit moved in multimove system

3520	Compile Mechanism button in RS
3535	Spanish Translation use Arista instead of Borde for Edge
3553	Go Offline failing to work
3560	markups can't be tagged
3565	Positioner not updating postion
3571	EIO.cfg template shows 5.60 header
3572	IRB1200 arm type does not show in available arms
3597	System from Layout throws exception
3646	Crash from selecting mech unit
3651	crashes when conveyor created in Picking PowerPac is clicked
3659	sync problem in RS 5.61
3672	Create System from layout wizard select add task page problem
3688	Custom Instructions Won't Sync to Station
3689	Error when closing floating I/O-windows
3706	Exception in RobotStudio when loading system module
3717	shows syntax error when using explicit syntax for mandatory arguments
3723	RobotStudio 5.61 Release version bug with station extracting
3727	Geometries lost while saving the station
3735	All graphics disappears
3747	External Mechanical Unit in RS [Gantry problem]
3773	mechanism joint jog misbehaving IRBP K
3778	Mirrored Path
3870	Importing Catia Files that Have not been showed into RS
4071	Signal Analyzer Disabled
4194	Problems to use RobotWare 5.12.04

5 Known Limitations

Overview

This section describes known limitations in RobotStudio.

5.1 General

Compatibility of RobotStudio Library and Stations with older RobotStudio versions

RobotStudio is generally **not forwards compatible**, i.e. it is not possible to load stations or libraries created in RobotStudio 6.0 into an earlier version of RobotStudio such as e.g. RobotStudio 5.15.02, 5.61.02 or earlier. However, RobotStudio is **backwards compatible**, which means stations and libraries created in version 5.15.02, 5.60 or earlier can be opened in RobotStudio 6.0.

5.2 Online

*Visual SafeMove windows can be re-opened from the Quick Access Toolbar menu

Any windows that are closed can be re-opened using the Quick Access Toolbar menu, as the command Default Layout does not recover these windows.

Individual RAPID tasks cannot be stopped for RobotWare 5.60 and later

When running multitasking systems, it is not possible to start and stop individual tasks with the dropdown menu of the task node in the Controller browser. This is due a restriction introduced with RobotWare 5.60 and later.

Signal Analyzer Online not available for RobotWare 5.60, RobotWare 5.15.02 and earlier

The feature Signal Analyzer Online is not available for controllers running RobotWare 5.60, RobotWare 5.15.02 and earlier. The reason is a vulnerability in Robotware that may cause interruptions in the robot operation.

Signal Analyzer Online is supported by Robotware 5.15.03 and later, and RobotWare 5.61 and later, where the problem has been corrected.

It is not recommended to use Signal Analyzer Online of RobotStudio 5.15.01 or 5.15.02 with RobotWare versions prior to 5.15.03 or 5.61.

SafeMove Tool Zone visualization in Online Monitor for robots with external axes

Only TCP robots and track mounted robots will be visualized in the Online Monitor, no other external axes or positioners.

As a consequence, the Online Monitor may show the robot in a non-violating position, even though the safety controller has detected a safety violation and stopped the robot.

FlexPendant Viewer running with automatic reloading

When having FlexPendant Viewer running with automatic reloading of the screens and at the same time jogging the robot with the joystick the robot jogging might halt when the FlexPendant Viewer reloads.

5.2.1 Online - Paint

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 an USB-stick.*

Go Offline does not work for Paint systems

The Go offline function will not create a working Virtual controller system for Paint system unless the Paint package I/O option is set to Simulated.

5.2.2 Online – Integrated Vision

Information – Integrated Vision only works on 32-bit installations

It is not possible to use Integrated Vision in the 64-bit version of RobotStudio.

Information – Camera firmware version and update

The minimum firmware version to be used with Integrated Vision is 4.08. If this version is not available for a specific camera model, then the newest version available shall be used.

There are two important things to know before upgrading a sensor

- The user must make sure to first backup the files on the camera. This can be done using the Rapid snippets for camera backup/restore, or the FlexPendant Explorer.

- The latest available firmware version may vary across sensor types. However, when the firmware update utility presents the latest available version it shows the firmware with the highest version number which may not apply to the sensor to be updated. However, the appropriate firmware will be applied.

Information – The spreadsheet view

The spreadsheet view is not enabled when editing in the in the following modes "Add part location tool", "Add part inspection tool". Before entering the spreadsheet mode click for example "Setup Image" or Output to Rapid.

Information – Calibration board without fiducial

When using the calibration boards, checkerboard or board with dots, the user must select the preferred origin by clicking and accepting (press enter) three points on the board. Only after these three points have been selected is it possible to click "calibrate" to execute the calibration.

Information - Use default camera settings

If the camera is not using default communication settings the result may be that RAPID instructions return error code "Communication Error". The safest method to get default settings is to go to Connect->Add Sensor Right click and select "Show all sensors". Select the device to reset and click "Apply factory settings" in the lower right corner. The most important settings are:

Telnet port: 23

User: "admin"

Password: ""

Information – User Credentials

It is now possible to create user profiles with different access levels on the camera. For detailed information about this, please refer to the Integrated Vision User Manual.

Remaining error – Save image on camera

It is not possible to save an image on the camera using "Save Image". This is by design, but the dialog still allows the user to try to do this. The result is that the image is not saved and no error message is given.

Remaining error - Connect button greyed out for no reason

It may sometimes happen that the "Connect" button is greyed out, with the tooltip saying the the camera is not on the correct subnet although the IP settings are OK.

Workaround: Restart the Integrated Vision Add-In.

Remaining error – VC started from Controller->Add controller does not detect cameras

A VC that is started from Controller->Add controller does not detect cameras on the network, even if the VC_network_definition.xml is correctly configured and the firewall is turned off. The reason is that the controller is not able to detect new cameras on the network when it is in "Motors On" state. When the VC is started stand-alone in RobotStudio it is automatically set to "Motors On" when started.

Workaround: To allow it to discover cameras, turn the control panel key to manual mode or launch the VC as part of a station.

User tip - Removing cameras from configuration

To remove a configured camera from the list of configured cameras, use the configuration editor. Enter *Configuration->Communication->Application Protocols* and remove the desired camera. Perform a warm start to complete the operation.

User tip – Viewing all cameras present on the network

Connect->Add Sensor is normally used for setting the IP addresses of sensors that are not currently on the correct subnet (192.168.125.X). Since the dialog shows all cameras "seen" by the PC, this dialog is useful when error tracing camera network problems.

If a camera does not appear on the network using the "Add sensor" dialog as suggested above, it is advisable to cycle the power of the camera. If the camera receives power from the controller, then cycle power by turning the mains switch.

User tip – Warm start the controller after changing network settings

Whenever changing the network settings of the camera, either from Connect->Add Sensor or Connect->Network settings, it is important to warm start the controller. If this is not done, RAPID instructions will give the error "Communication Error" and the FTP-mounted camera disk is not accessible. If DHCP addres is used and persits, please try a static address instead.

5.3 Offline

5.3.1 General

*The 2D work envelope fails for certain robot models

As a result, the generated work envelop may appear distorted.

Update of current selection in the 3D graphics window may be delayed

A problem related to the graphics driver has been observed on certain PCs. The problem is that the update of the current selection in the 3D graphics is delayed until the next redraw.

Workaround: Add or uncomment the following line in the file RobotStudio.exe.config

```
<add key="DoublePresentWorkaround" value="true" />
```

Failure to open Pack&Go file to same folder the second time

RobotStudio will prevent Pack&Go files to be opened to the same folder a second time if the station contains VC systems with the EPS or SafeMove option. This is by design to prevent the safety controller configuration file to be accidentally overwritten .

Workaround: Remove the write protection manually using Windows Explorer.

Updates of instruction template and code snippets

RobotStudio will not automatically update the user files for instruction templates and code snippets files in the folders:

…\My Documents\RobotStudio\Instruction Templates

…\My Documents\RobotStudio\Code snippets

Workaround: The user has to manually copy the latest files from

%ProgramFiles%\ABB Industrial IT\Robotics IT\RobotStudio 5.xx\Instruction Templates,

and

%ProgramFiles%\ABB Industrial IT\Robotics IT\RobotStudio 5.xx\Code Snippets

to the data folder.

IO signals configured with access level 'DEFAULT'

When IO signals are configured with access level 'DEFAULT', only input signals are possible to set/reset from the I/O Simulator and I/O Window. To be able to affect also output signals, set the access level to 'ALL' for them in the Configuration Editor.

VC does not start with RRI option and GSI folder structure missing.

The VC will hang when started with a system containing the RobotWare option *RRI* (Robot Reference Interface) if the GSI folder structure is missing.

Workaround: create GSI Folder before starting the VC inside the HOME directory of the system. See the Application Manual for Robot Reference interface for more information.

System in *Guard Stop* state in *Automatic* mode after run-time error

Certain run-time errors may cause the controller system to enter *Guard Stop* state in *Automatic* mode. This is the same behavior as in a physical robot controller system. This typically happens when a run-time error related to Conveyor Tracking occurs. A simulation cannot be started when the controller is in this state.

Workaround: To reset the controller state, open the Control Panel window and first switch to Manual mode, and then back to Automatic mode.

Information message starting system with IRB260/460/660/760

Starting a system with IRB260/660 gives you an error message: *'The number of joints is different between the library model and the controller configurations'*. The reason is that the IRBx60 is modeled with six joints in RobotStudio of which two are locked, but has four joints in the VC

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

Event Manager: Simulation cannot be triggered by analog system signals

The event manager only supports analog station signals, not analog system signals

5.3.2 Station Viewer

Memory problem when doing *Save As Viewer* or *Record to Viewer* with large stations

RobotStudio may run out of memory (*OutOfMemory exception*) when doing **Save As Viewer** or **Record To Viewer** if the station is very large.

Workaround: *Use the 64-bit version of RobotStudio and create a 64-bit viewer by ticking the checkbox in the Save As Viewer file dialog.*

5.3.3 MultiMove

MultiMove error: *'Object reference not set to an instance of an object'*

When the Test Play button is pressed in the MultiMove tool, the following error message may be displayed: '*Object reference not set to an instance of an object*', but the robot moves and the Status *'Calculation OK'* is displayed. In addition, when *'Create Paths'* is pressed the following message is displayed: *'Can't create paths : Value cannot be null'*, and no paths are created. In the *'Create Paths Settings'*, is the WP TCP drop down empty.

Reason: *wobj is not set for the current task*

5.3.4 External Axis

Error 50091: *'Restart not possible'* after warm start of a system with external axis

When restarting a system with activated mechanical units the activation state is lost. Then the program can no longer be started from the Virtual FlexPendant, the RAPID Editor or the RAPID Tasks window.

Workaround: *Reset the program pointer ('Program Pointer to Main') before starting the program from the Virtual FlexPendant, the RAPID Editor or the RAPID Tasks window, or, start the program from the Simulation Play button.*

5.3.5 Network Drives and UNC Paths

RobotStudio on computers with roaming user profiles

RobotStudio may fail on PC configurations with roaming user profiles, i.e. when the users' documents folder resides on a server and not on the local disk.

Workaround: *Redefine the 'User Project Folder' to a folder on the local disk (*File → Options → General → Files&Folders → User Project Folder*).*

Virtual Controller does not support UNC paths

UNC paths cannot be used to locate Virtual Controller systems. Using UNC paths for VC systems will cause the log message *'Failed to initialize FW upgrade framework'* to appear when the system starts. Subsequent attempts to work with the VC such as synchronizing RAPID data will fail.

Creating and starting systems located on a network drive

When using a network drive to store RobotStudio data such as RobotWare systems or the RobotWare mediapool, the following problems may occur

- Virtual controller does not start

- Not possible to open VirtualFlexpendant

*Cause: By default, the .NET Framework does **not** allow execution of code from a remote file system. This means the application may behave unexpectedly if the media used by the system or the system itself resides on a network share.*

Workaround: To resolve this, the user must explicitly grant the required permissions:
1. Open the file `Virtual FlexPendant.exe.config` *located in*

`C:\Program Files (x86)\ABB Industrial IT\Robotics IT\RobotStudio 5.61\Bin`

`2.` *Add the following lines*

```
<?xml version="1.0"?>
<configuration>
      <startup useLegacyV2RuntimeActivationPolicy="true">
      <supportedRuntime version="v4.0" sku=".NETFramework,Version=v4.0"/></startup>
      <runtime>                                      <!-- THIS IS ONE OF THE NEW LINES!!! -->
            <loadFromRemoteSources enabled="true"/>   <!-- THIS IS ONE OF THE NEW LINES!!! -->
      </runtime>                                      <!-- THIS IS ONE OF THE NEW LINES!!! -->
</configuration>
```

The Virtual FlexPendant must be restarted for the changes to take effect.

For further information, see

http://msdn.microsoft.com/en-us/library/dd409252(v=vs.100).aspx

> ### Note
>
> Windows security settings may prevent the file from being directly edited in the default location. Copy the file to your local Documents folder to edit it. Upon completion, you need to manual copy the file back to its original location.

5.3.6 RAPID

Robtarget names must be unique in RAPID even if they are LOCAL

RobotStudio requires that robtarget names are unique for the RAPID synchronization to work properly, i.e. you cannot have a global robtarget named pMyTarget1 in module A and a local robtarget with the same name in Module B.

Global robtargets cannot be made local through Synchronization to VC

Global robtargets cannot be changed to local through *Synchronization to VC*, the option is disabled (PDD 3140).

Workaround: Change the robtargets to module local in the RAPID Editor and Synchronize to station.

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.

5.3.7 Paint

Lack of Virtual Controller support for the Paint systems

Paint systems that are configured using the Paint package I/O option Discrete, Compact or Fieldbus, will result in a SysFail state.

Workaround: Re-create the system with the simulated I/O option.

Compiling a Conveyor Mechanism does not disable the Compile button

After compiling a conveyor mechanism, using the *Create Mechanism* tool, the *Compile Mechanism* button is not disabled. If the user presses the *Compile* button again, without changing anything, another identical conveyor mechanism will be created

5.3.8 Graphics and Geometry

*Enforce selected graphics device for PCs with multiple graphics cards

For best performance when running RobotStudio on a PC with multiple graphics cards, RobotStudio can be configured to use a specified device. By this option you can ensure maximum performance. This is useful for e.g. Lenovo W540 that has both an integrated Intel graphics device and a discrete NVIDIA card.

Open the file `RobotStudio.exe.config` that is located in the folders

`C:\Program Files (x86)\ABB Industrial IT\Robotics IT\RobotStudio 6.0\Bin64`

and

`C:\Program Files (x86)\ABB Industrial IT\Robotics IT\RobotStudio 6.0\Bin`

and uncomment the line

    <add key="GraphicsDeviceType" value="Discrete"/>

Valid values are `'Discrete'`, `'Integrated'` and `'Warp'` (software renderer).

Note that there are two different files, one for the 32-bit version, and another for the 64-bit version.

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.

Workaround: Use the 64-bit version that can handle more memory. Ensure that you have enough memory installed on the PC, see System Requirements.

5.4 ScreenMaker Limitations

File changes to FlexPendant applications does not load the changes until a FlexPendant reset

With RobotWare 6.0 the controller's restart will no longer reset the FlexPendant memory. This was part of an effort to improve the restart time of the controller.

This means that after placing a new FlexPendant application file(s) on the FlexPendant unit, you need to manually reset the FlexPendant for it to reload its assets.

To manually reset the FlexPendant you need to use the reset button on the FlexPendant's backside. (See Operating Manual – IRC5 with FlexPendant, 3HAC16590)

Dynamic update of Rapid Data

The switch from Manual Mode to Auto Mode causes the RAPID boolean data bound to the enabled property of control change to value TRUE. This behaviour is noticed when the mode is changed from a different screen and not on the screen where the control is bound to RAPID boolean data. An additional side effect is that the enabled property of RunRoutine button has been disabled as similar behavior was seen.

Running Routine with Movement

RunRoutine Button control does not always work correct when a routine with movements is called.

As a workaround use instructions like StopMove, StorePath, RestorePath and StartMove to control the movements of the robot.

A Trap routine could be called with a normal button control and in the Trap the above instructions can be used to control the movements of the robot.

PictureBox control as a Widget

If a Picture Box control is created as a widget from a Windows 8 operating system, the control is not shown on the FlexPendant. The behavior is fine with any other operating system like Windows 7.

6 RobotWare Compatibility

6.1 General

Supported RobotWare versions

RobotStudio 6.0 is distributed with RobotWare 6.0 and works with RobotWare 5.07 and later. Please see below for details.

6.2 RobotWare 5.05 and 5.06 Compatibility

RobotWare 5.05 and 5.06 including revisions thereof are not supported by RobotStudio 5.15 and later versions. Please use the corresponding version of RobotStudio for managing robot controllers with any of these RobotWare versions.

6.3 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.

> ℹ️ **Note**
>
> The problem will reappear if the system is I-started.

The virtual controller does not support RobotWare 5.07.08 and RobotWare 5.07.07.

Online

FlexPendant Viewer does not work RobotWare 5.07

6.4 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.

6.5 RobotWare 5.10 Compatibility

RobotWare 5.10 and its revisions of are supported with the following limitations:

Offline

Starting a controller will generate internal UAS error in controller error log.

6.6 RobotWare 5.11 Compatibility

RobotWare 5.11 and its revisions of are supported with the following limitations:

Offline

Linear jogging of a robot across joint values that will cause a change of confdata may fail. For example, if the robot is jogged linearly when joint values is passing 90 degrees for axis 1 may cause the robot to stop or to change configuration.

6.7 RobotWare 5.12 Compatibility

RobotWare 5.12 and its revisions of are supported with the following limitations:

Paint backups from RW 5.12.01 not compatible with RW 5.12.02 or later

Restoring a paint system backup from RobotWare 5.12.01 will cause SysFail for RobotWare 5.12.02 or later

Workaround: Add the following parameters to the configuration files

```
EIO.CFG:

EIO_SIGNAL:

     -Name "doMainInMC" -SignalType "DO" -Unit "SysComm" -UnitMap "44"

     -Name "A1HVErrNo" -SignalType "GO" -Unit "SysComm" -UnitMap "150-151"\

     -Access "ALL"

     -Name "A1HVEn" -SignalType "DO" -Unit "SysComm" -UnitMap "155"\

     -Access "ALL"

EIO_CROSS:

     -Res "A1HVEn" -Act1 "HVEnabled"

SYS.CFG:

CAB_TASK_MODULES:

     -File "INTERNAL:/pntrapid/T_ROB1/cycinfo.sys" -ModName "cycinfo"\

     -Task "T_ROB1"

     -File "INTERNAL:/pntrapid/csvlkup.sys" -ModName "csvlkup" -AllTask \

     -Hidden
```

6.8 RobotWare 5.13 Compatibility

RobotWare 5.13 and its revisions of are supported with the following limitations:

Paint backups from RW 5.12.02, 5.12.03 or RW 5.13 or 5.13.01 not compatible with RW 5.13.02 or RW 5.13.03

There are several changes in the configuration database for I/O (EIO.CFG) and Controller (SYS.CFG) that will cause System Failure if an old backup is loaded. There are also changed in installed RAPID modules. To create a compatible configuration, proceed as follows:

1. Create and start a VC with a RobotWare 5.13.03 system containing the same options as your original backup, but do not load the backup.

2. Save the EIO.CFG and SYS.CFG to file.

3. Compare the saved files with the corresponding files of your backup. (You can use a text file comparison tool for simplification.)

4. Add your system-specific configuration to the general configuration files saved from the 5.13.01-system using a text editor.

5. Replace the files of the original backup with the corresponding modified configuration files.

6. Go through the RAPID modules of the backup and remove the default modules (i.e. those that are not changed by the user).

7. Load the backup and restart the system. You are done.

6.9 RobotWare 5.15 Compatibility

*Signal Analyzer Online

The feature Signal Analyzer Online requires RobotWare 5.15.03 or later.

6.10 General Compatibility Limitations

RAPID Profiler

The profiler will be able to create a log file for the profiler automatically for RobotWare 5.14 or later. For RobotWare 5.13 or earlier, the log file must be created manually using the RAPID Spy command (SpyStart/SpyStop).

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 RobotWare 5.11.01 or later. Encrypted parameters needed by the safety controller will be automatically read by EPS Wizard and SafeMove Configurator, respectively.

Signal Analyzer Online

Signal Analyzer Online requires RobotWare 5.15.01 or later.

Signal Analyzer.

The error message *Failed to subscribe on signal* may sometimes appear during signal recording for RobotWare 5.15 or earlier.

Workaround: Restart the VC or upgrade to RobotWare 5.15.01 or later.

Configurations

The feature **Configurations** for selecting the robot arm configuration (`confdata`) may fail, or not present all solutions, in some specific circumstances even when the target is reachable if RobotWare 5.14 or earlier is used.

Workaround: Upgrade to RW5.14.01 or later

6.11 ScreenMaker Compatibility

RobotWare

It is possible to use previous RobotWare versions, but with some limitations.

- ActionTrigger will work only on RobotWare 5.12.02 or later.

- The controls *Button*, *TpsLabel* and *PictureBox* controls was modified in RobotStudio 5.13. The property '*Allow MultipleStates'* of these controls can be accessed from RobotWare 5.13 and later.

- Variant Button will work only on RobotWare 5.14.01 or later

- Conditional Trigger will work only on RobotWare 5.14.01 or later

- Widgets will work only on RobotWare 5.60 or later.

FlexPendant SDK

ScreenMaker should be used with FlexPendant SDK 5.12.02 or later. ScreenMaker allows selection of FlexPendant SDK version when it is launched. If only one version of FlexPendant SDK is available in the system, it is loaded by default.

6.12 Support for future RobotWare versions

RobotStudio 6.0 supports all future minor revisions of RobotWare 6.0, but no future major releases. For example, RobotStudio 6.0 will support RobotWare 6.00.01 (if, and when available) but not RobotWare 6.01, or 6.02.