Release Notes

RobotStudio

6.06.01

Revision: -

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1 Release Information

1.1 General

Release Name

The release name is RobotStudio 6.06.01 and the build number is 6.06.7688.1025.

Release Date

The release date is December 15th, 2017.

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 10 (recommended)	64-bit edition

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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 or more if running Windows 64-bit (recommended)
Disk	10+ GB free space, solid state drive (SSD)
Graphics card[1]	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] A note on graphics cards and PC hardware. RobotStudio will not benefit from the additional features of so-called ‘Professional’ or ‘Workstation’ graphics cards. The price level of these are at a much higher range than gaming graphics cards with comparable performance from a RobotStudio point of view. High-end gaming PCs are very suitable for offline programming with RobotStudio. Such a PC will provide good performance for a limited budget.

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1.3 Simulation Models

Robot Libraries

IRB Variant
120 3kg/0.58m
120T 3kg/0.58m
1200 5kg/0.9m BTM (./FGL/*FPL)
1200 5kg/0.9m STD (./FGL/*FPL)
1200 7kg/0.7m BTM (./FGL/*FPL)
1200 7kg/0.7m STD (./FGL/*FPL)
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
1660ID 4kg/1.55m
1660ID 6kg/1.55m
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
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

IRB Variant
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
6650 125kg/3.2m
6650 200kg/2.75m
6650ID 170kg/2.75m
6650S 125kg/3.5m
6650S 200kg/3.0m
6650S 90kg/3.9m
6650S 100kg/3.5m MH6
6650S 190kg/3.0m MH6
6650S 100kg/3.5m SW6
6650S 190kg/3.0m SW6
6650S 125kg/3.5m MH3
6650S 200kg/3.0m MH3
6650S 90kg/3.9m MH3
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

IRB Variant
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
6700 Inv 210kg/2.9m MH6
6700 Inv 210kg/2.9m SW6
6700 Inv 245kg/2.9m
6700 Inv 245kg/2.9m MH3
6700 Inv 270kg/2.6m MH6
6700 Inv 270kg/2.6m SW6
6700 Inv 300kg/2.6m
6700 Inv 300kg/2.6m MH3
7600 150kg/3.5m
7600 325kg/3.1m
7600 340kg/2.8m
7600 400kg/2.55m
7600 500kg/2.55m
7600 500kg/2.3m
7600 150kg/3.5m MH3
7600 325kg/3.1m MH3
7600 340kg/2.8m MH3
7600 400kg/2.55m MH3
7600 500kg/2.55m MH3
7600 390kg/3.1m MH6
7600 320kg/2.8m MH6
7600 390kg/2.55m MH6
7600 390kg/3.1m SW6
7600 320kg/2.8m SW6
7600 390kg/2.55m SW6
760
8700 475kg/4.2m MH6
8700 475kg/4.2m SW6
8700 550kg/4.2m MH3
8700 550kg/4.2m
8700 630kg/3.5m MH6
8700 630kg/3.5m SW6
8700 800kg/3.5m MH3
8700 800kg/3.5m
910SC 3kg/0.45m
910SC 3kg/0.55m
910SC 3kg/0.65m
**940
14000

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

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.

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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
IRBT2005	2 m to 21 m
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
Elevated Rail left and right versions	3 m to 10 m

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2 What's new in RobotStudio 6.06.01

Overview

This section describes the new features of RobotStudio 6.06.01

Silent installation of features for shopfloor use

A selected set of features tailored for use of RobotStudio in a shop floor environment can be silently installed by the following command-line parameters:

```
Setup.exe /s /v"/qb CUSTOMINSTALL=Shopfloor2"
```

Additionaly, these parameters can be added inside the quotes (''):

`NODESKTOPICONS=1` - Don't create desktop icons

`LICENSE_SERVER=abcdefg` - Set server (DNS name or IP address) for floating licenses

Note: Since Screenmaker is excluded .NET 3.5 and CF 2.0 will not be installed.

Shopfloor2 Features

- RobotStudio
  - RobotStudio 64-bit
  - (no ScreenMaker)
  - (no CAD-converters)
  - (no Integrated Vision)
- ABB Library
  - Robots
  - (no Tools)
  - (no Positioners)
  - Track Motions
  - (no Mediapool)
- RobotWare
  - (no RobotWare)

Note that the complete installation can be run silently with the options

```
setup.exe" /s /v"/qn ADDLOCAL=ALL”
```

Silent installation of RobotWare distribution package

RobotWare 6.x can be silently installed by the command line parameters

```
RobotStudio.exe -install "C:\MyPath\RobotWare6.XX.rspak" -accepteula
```

Where `C:\MyPath\RobotWare6.XX.rspak` is the path and name of the distribution package to install.

Note that RobotWare 5.x is separate installer and can be installed by the command line parameters

```
setup.exe" /s /v"/qn ADDLOCAL=ALL
```

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3 What’s new in RobotStudio 6.06

Overview

See the linked document for information about new features in RobotStudio 6.06

https://robotstudiotemp.blob.core.windows.net/installers/RobotStudio.6.06.News.RN.pdf

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4 Late Breaking Information

Overview

This section describes changes and additions done after the Operating Manual was finalized.

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5 Corrections

Overview

This section describes the corrections made.

5.1 Corrections made in 6.06.01

PDDs

ID	Title
9403	Zipped backup won't restore.
9496	Modify Position assigns wrong value for YuMi arm angle and does not show it in linear jog window
9503	Save screenshot to clipboard not working correctly
9504	TCP trace no longer shown on tool - workobject change
9505	Viewer hangs
9530	Error when calling Physics joint property box
9546	Copy/Paste option works only 1 time.
9604	RobotStudio fails to remap SAC mechanism after warmstart

5.2 Corrections made in 6.06 SP1

PDDs

ID	Title
9521	Visual SafeMove required 1125-1 SafeMove Basic or 1125-2 SafeMove Pro The configuration tool Visual SafeMove could not be opened for systems with RobotWare options 997-1 PROFIsafe F-Device, 997-2 PROFIsafe F-Host and Device, 997-3 CIP Safety Adapter, or 1241-1 Prepared for ABB CI502.
-	Drive module information required for PROFIsafe-only systems. The drive module information was missing in safety configuration files for systems with PROFIsafe only, i.e. neither the options SafeMove Basic nor Pro. This caused the stops to be handled incorrectly.

5.3 Corrections made in 6.06

PDDs

ID	Title
2518	Wrong body selection highlight
3431	Jump to positon in MultiMove system failed calculate configurations
4465	Integrated Vision - Incorrect management of camera name
5787	IV properties should not show buffered data while the camera has been requested to restart
6353	Is it possible to run IV Rapid with Camera Emulator
7173	Click Create WorkObject/Tool data multple times cause error in naming new wobj/Tooldata
7593	Timestamp in Controller Explorer does not seem to update
7649	Comparison tool Move to Next button loops
7708	IV - HMI improvement request view 100%

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7886	RS not able to recover from Rapid error/EIO mapping issue
7977	RS / Visual SafeMove: Max. Speed in pictogram differs from the configured value.
8004	Integrated Vision - Emulated camera not setup correctly from start
8115	RS does not remember directory
8379	Integrated Vision: Save a job after editing does not work
8439	Delete all logs from RS intermittently grays out
8526	Date/time not correct in File Transfer explorer
8609	RS does not see a local origin change in a component group library
8624	Losing view center when rotating the view
8629	French localisation - Integrated Vision
8631	No text in collision popup in VR view
8684	RS / Visual SafeMove: AutoGenerated Zone doesn't include correct speed.
8759	Smart Components are deleted when user selected the connection and press delete button
8760	Attachment of frames improvments
8799	RobotStudio Exception error when apply
8801	Graphics performance in RS6.05 very slow
8871	RS/Visual SafeMove: Available PROFIsafe outputs are not shown in the field, where the Synchronization status can be mapped.
8883	System 'from layout' does not select TRACK typeA
8907	Robot wrong position - Online Monitor
8928	Help for ribbon button not localized in French
8929	HMI improvement for camera connection
8958	Online monitor does not show robot with correct rotation
8969	Pbl with axis configuration
8970	Error in offset function in RobotStudio
8971	Multiple exceptions when dealing with IO configurator and safety configurations
8987	HTC VIVE grasping a dynamic physics 3D model
9007	Creating System from backup
9008	Jerky motion during simulation
9020	Wrong transform parameters when robot coordinated with track motion
9024	Physics joint unexpected behavior
9034	RS / Visual SafeMove doesn't exclude ext. axis from configuration if a config is opened with an excluded drive module.
9038	Volvo problems with loading Volvo Safemove Pro Template
9073	Special characters in the password
9076	RS Signal Analyzer has problems with analog signal graphs
9089	Debug SemiStatic task
9108	Grid adjustment are not working Cad parts could be placed outside from the floor
9124	Cannot Unpack&Work in a non empty folder - Warning should be more explicit
9132	Simulation model Robotstudio IRB2600 12kg 185 different to cad model at axis 4
9136	Loading the wrong AddIn at Unpack and work
9139	CAD model for complete IRC5P cabinet
9142	Videotexture only moving when the mouse, robot or Robotstudio World is moving
9144	Problem by cutting and pasted of parts
9166	Creating system from layout with a picker is not correct

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9174	RAPID Editor Syntax Checker Issue
9175	Wrong signals shown in Safe I/O Configurator
9199	A smart component could not have more than one Analog input signal
9201	Master IO not visible from RobotStudio
9202	RS SafeMove2 will not open 6.04.01 configuration
9227	Modify position online does not work with external axes
9231	RS/Visual SafeMove: All function mappings, which are not mandatory, are missed.
9234	Failed to apply changes in Rapid when controller are in manual mode Robotstudio
9277	Missing Function Mappings
9278	AutoConfiguration: Remove waiting time (sleep) for AutoConfig
9364	Backup trouble
9378	Exception error in RS with more then 24 Tools in a array

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6 Known Limitations

Overview

This section describes known limitations in RobotStudio.

6.1 Visual SafeMove

***Protected checksum may change when upgrading RW from 6.04.0x to 6.05 or 6.06**

The protected checksum will change if the input and output modules of the internal device is protected. The reason is that two attributes change order.

No visualization of Safe Range for external axes in Visual SafeMove for SafeMove Basic or Pro

When Safe Range is used to limit the axis range of an external axis such as a track motion, there will be no visual indication of the actual range in the graphic view.

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.

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.

6.2 Online

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.

However, from RobotWare 6.03 onwards, then RAPID tasks to execute or to stop can be selected from RobotStudio RAPID tab.

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.

6.2.1 Online – Paint

Backup for Paint systems does not create backup of the PIB for IRC5P with RobotWare 5.xx

The Backup function of RobotStudio does not create a backup of the PIB board of the IRC5P system when running RobotWare 5.xx.

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

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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.

6.2.2 Online – Integrated Vision

Remaining error – New Emulators

New camera models have been added to the camera emulator option in RobotStudio 6.04.01. Some of these new models are not yet fully compatible. Our recommendation is to choose a camera model from the 7000 series which is fully compatible with Firmware version 4.10.2.

Emulated cameras not discovered when controller in Motors On

For RobotWare 5.61 onwards, the camera discovery mechanism is disabled when the controller is in Motors On. As a consequence, the camera nodes will not appear in the controller browser.

Workaround: *Switch to Manual Reduced Speed and use the Refresh command on the Integrated Vision node in the browser to make the cameras appear.*

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

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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 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 address is used and persist, please try a static address instead.

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6.3 Offline

6.3.1 General

The robot IRB 1600ID 1.55 m / 6kg replaced by IRB 1660ID1.55 m / 6 m in RobotWare 6.04

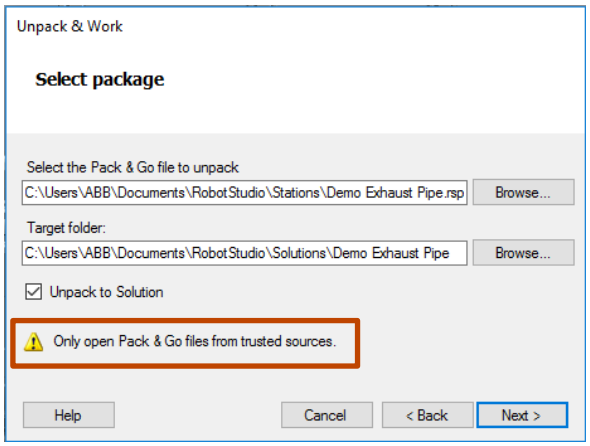
The robot IRB 1600ID 1.55 m / 6 kg is not available in RobotWare 6.04 and later. It has been renamed to IRB 1660ID 1.55 m / 6 kg. Virtual controller systems for IRB 1600ID 1.55 m / 6 kg based on RobotWare 6.03 cannot upgraded to RobotWare 6.04 and later. This means that Pack&Go files for this robot based on RobotWare 6.03 cannot be upgraded to RobotWare 6.04 automatically

***Workaround**: Re-build or modify the virtual controller system to use IRB 1660ID 1.55 m / 6 kg instead when using RobotWare 6.04 or later.*

FlexPendant and RAPID applications run with logged in user rights

A FlexPendant or RAPID application running on the virtual controller runs with the rights of the logged-in Windows user. RAPID applications running in a background task will start to execute when the Pack&Go file is opened and FlexPendant applications will start to execute when the user starts the Virtual FlexPendant.

A warning message has been added to the Unpack&Work wizard to make the user aware that only Pack&Go files (.rspag) from trusted sources shall be opened.



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 6.04 into an earlier version of RobotStudio such as e.g. RobotStudio 5.x, 6.03.02 or earlier. However, RobotStudio is **backwards compatible**, which means stations and libraries created in versions 5.x, 6.03.02 or earlier can be opened in RobotStudio 6.04

TrueMove path visualization fails for customized zone data.

The TrueMove path visualization function only supports predefined zonedata. It will not work for user defined zonedata.

Backup fails for RobotStudio solutions with SafeMove or Electronic Position Switches

Backups are automatically created for virtual controller systems that are part of a RobotStudio solution when saving the station. For virtual controller systems with the RobotWare options *SafeMove* or *Electronic Positioning Switches* the backup will fail since these systems contain files that are read-only. As a result, an error message is presented in the output window: *"<System name>: Backup failed".* The station will be successfully saved but there will be no backup created.

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***Workaround**: Ignore the error message* "<System name>: Backup failed" *and create a manual backup whenever needed. The RobotStudio Option* "Enable automatic backup of controllers in solution" *that is available in"* RobotStudio Options -> Robotics -> Virtual Controller" *can be de-selected to disable the backup function.*

IRB 14000 cannot be combined with any other robot

The function system from layout fails if trying to create a MultiMove system where one robot is an IRB 14000. The reason is that the IRB 14000 cannot be combined with any other robot.

***Workaround**: Create a separate system for the IRB 14000.*

The Work Envelope function does not support IRB 14000

The function is disabled for the IRB 14000 and cannot be activated.

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.

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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

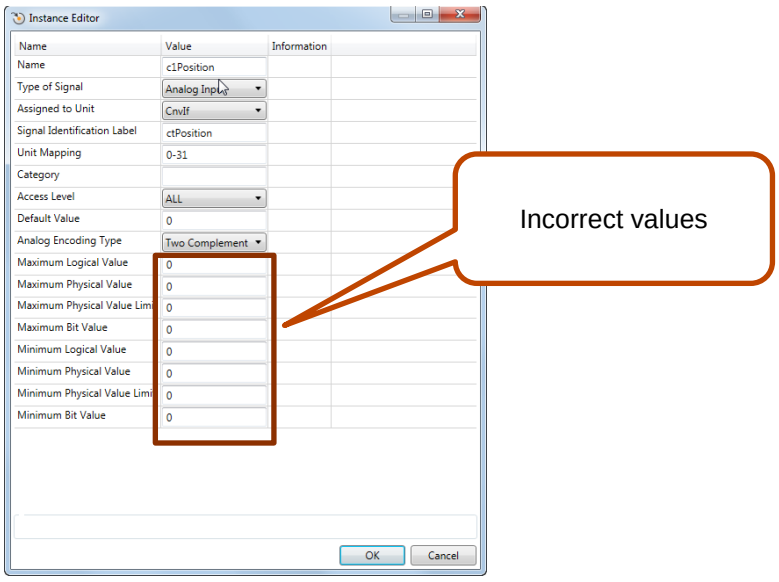
Event Manager: Simulation cannot be triggered by analog system signals

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

Conveyor Tracking

Incorrect default values for c1Position and c1Speed for RobotWare 5 with the PaintWare option

The default values for the parameters c1Position and c1Speed may become incorrect for a virtual controller system. The symptom is that its attribute values are all zero, see snapshot below.



***Workaround:** Save the following lines to a CFG file named 'TEMP.CFG' or similar and load in the virtual controller followed by a restart.*

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```
EIO:CFG_1.0:5:0::
#

EIO_SIGNAL:

      -Name "c1Position" -SignalType "AI" -Unit "CnvIf"\
      -SignalLabel "ctPosition" -UnitMap "0-31" -Access "ALL"\
      -MaxLog 21474.8 -MaxPhys 1 -MaxPhysLimit 1\
      -MaxBitVal 2147483647 -MinLog -21474.8 -MinPhys -1 -MinPhysLimit -1\
      -MinBitVal -2147483647

      -Name "c1Speed" -SignalType "AI" -Unit "CnvIf" -SignalLabel "ctSpeed"\
      -UnitMap "32-63" -Access "ALL"\
      -MaxLog 21474.8 -MaxPhys 1 -MaxPhysLimit 1\
      -MaxBitVal 2147483647 -MinLog -21474.8 -MinPhys -1 -MinPhysLimit -1\
      -MinBitVal -2147483647
```

6.3.3 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.*

6.3.4 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: *Workobject is not set for the current task*

6.3.5 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.*

6.3.6 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

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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 Virtual FlexPendant

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.

6.3.7 RAPID

Robtargets that are LOCAL to a PROCEDURE cannot be synchronized with RobotStudio

The RobotStudio synchronization engine that translates 3D data of the station to RAPID code and vice versa does not support robtargets that are declared locally to a procedure.

Workaround*: Declare the robtargets as global or local to a module instead.*

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).

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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 mix-up 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.

6.3.8 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.*

6.3.9 Graphics and Geometry

***For SolidWorks 2015 onwards only 64-bit Operating System is supported.**

The 32-bit version of RobotStudio is not supported.

Some CAD converters not available in Premium trial license

No trial license available for CAD converters for DXF/DWG, JT, NX, Parasolid, Solid Edge, and SolidWorks.

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.

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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.*

6.4 ScreenMaker Limitations

A ScreenMaker application may fail to build if the DPI setting is not set to 100%

Certain UI controls in ScreenMaker may fail to build correctly if the DPI setting is not set to 'Smaller – 100%'.

Symptom: The error message caused by this problem will read *'System.Drawing.Font' does not contain a constructor that takes 2 arguments.*

Workaround: *Set DPI to 100% on your PC.*

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

With RobotWare 6.0x 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 behavior 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.

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7 RobotWare Compatibility

7.1 General

Supported RobotWare versions

RobotStudio is distributed with the corresponding version of RobotWare and works with RobotWare 5.07 and later. Please check details below.

7.2 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.

7.3 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.*



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

7.4 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.

7.5 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.

7.6 RobotWare 5.11 Compatibility

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

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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.

7.7 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
```

7.8 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.

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7.9 RobotWare 5.15 Compatibility

Signal Analyzer Online

The feature Signal Analyzer Online requires RobotWare 5.15.03 or later.

7.10 RobotWare 6 Compatibility

Overview

RobotWare 6.00 and 6.00.01 systems cannot be directly upgraded to RobotWare 6.01. To upgrade a system, you need to create backup and migrate it using the tool *'Migrate Backup or Folder'*, then recreate the system and finally, restore the backup.

For this reason, the functions *'Unpack&Work'*, *'Go Offline'* and *'New Solution with Station and Robot Controller – From backup'* are blocked to prevent upgrade from RobotWare 6.00 or 6.00.01 to RobotWare 6.01.

RobotStudio, however, is compatible with both RobotWare 6.00 / 6.00.01 and 6.01.

7.11 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.

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*

7.12 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.

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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.

7.13 Support for future RobotWare versions

RobotStudio 6.06.01 supports all future minor revisions of RobotWare 6.06.01, but no future major releases. For example, RobotStudio 6.06.01 will support RobotWare 6.06.02 (if, and when available) but not RobotWare 6.07 or later.

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