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RELEASE NOTES

# RobotStudio 2023.2

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# Release Notes for RobotStudio 2023.2

## General

The release name is RobotStudio 2023.2 and the build number is 23.2.10395.0. The build date is June 26, 2023.

## User documentation

The RobotStudio Operating Manual is available in all languages supported by RobotStudio except Czech, i.e. English, German, French, Korean, Chinese, Japanese, Spanish. A selected set of RobotWare manuals are available. Each of them is available in two versions, one for IRC5 and one for OmniCore.

## Tutorials

Tutorials are available at the RobotStudio product pages at <https://new.abb.com/products/robotics/robotstudio>.

## System Requirements

### Required Software

Microsoft Windows 10 Anniversary Edition or later, 64-bit edition, is required.

The Windows App Installer is a pre-requisite for the virtual OmniCore FlexPendant software, see <https://www.microsoft.com/en-us/p/App-Installer/9NBLGGH4NNS1>. The App Installer is a default built-in app in Windows 10 and later, but may have been removed on some PCs.

Sideloaded apps must be enabled on Windows to install the virtual OmniCore FlexPendant.

To enable sideloading follow these steps:

1. Open **Settings**.
2. Click **Update & Security** (Windows 10) or **Privacy & security** (Windows 11) > **For developers**.
3. Ensure **Developer Mode** is set to **On**.

### Recommended Hardware

ITEM	REQUIREMENT
CPU	2.0 GHz or faster processor, multiple cores recommended
Memory	8 GB minimum 16 GB or more if working with large CAD models
Disk	10+ GB free space, solid state drive (SSD)
Graphics Card <sup>1</sup>	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
Mouse	Three-button mouse
3D Mouse	Any 3D mouse from 3DConnexion, see <a href="http://www.3dconnexion.com">http://www.3dconnexion.com</a> .

ITEM	REQUIREMENT
Virtual Reality Headset	Meta Quest 2, HTC Vive or any Windows Mixed Reality Headset. Note that special PC hardware requirements apply when using RobotStudio with VR, see <a href="https://www.oculus.com/oculus-ready-pcs/">https://www.oculus.com/oculus-ready-pcs/</a> , <a href="https://www.vive.com/us/vive-ready/">https://www.vive.com/us/vive-ready/</a> , or, <a href="https://www.microsoft.com/en-us/mixed-reality/windows-mixed-reality">https://www.microsoft.com/en-us/mixed-reality/windows-mixed-reality</a> , respectively.

<sup>1</sup> 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. High-end gaming PCs are very suitable for offline programming with RobotStudio. Such a PC will provide good performance for a limited budget.

## New Functionality

- [Clean uninstall option](#)
- [Collision Free Path support for IRB 14050 Single-arm YuMi](#)
- [Controller documentation moved to the RobotWare distribution](#)
- [CRB 15000 GoFa™ 10 kg and 12 kg](#)
- [Duplicate components and targets](#)
- [Export project viewer to RobotStudio Cloud](#)
- [Group and ungroup components](#)
- [Highlight Collision Geometry](#)
- [IRB 1090](#)
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- [Visual refresh](#)
- [VR: Select object before moving](#)


### Clean uninstall option

Added an option in the uninstall wizard for removing user settings, license storage and installed packages including RobotWare distributions. RobotStudio projects and other user documents are not affected.

☐ Clean uninstall

Remove user settings, license storage and installed packages including RobotWare distributions. RobotStudio projects and other user documents are not affected.

To access this option, **Modify** must be selected in *Settings - Apps & features* since **Uninstall** does not show a user interface.

	ABB RobotStudio 2023.1 23.1.10182.0	3,47 GB 2023-01-12
<div> <div>Modify</div> <div>Uninstall</div> </div>		

## Collision Free Path support for IRB 14050 Single-arm YuMi

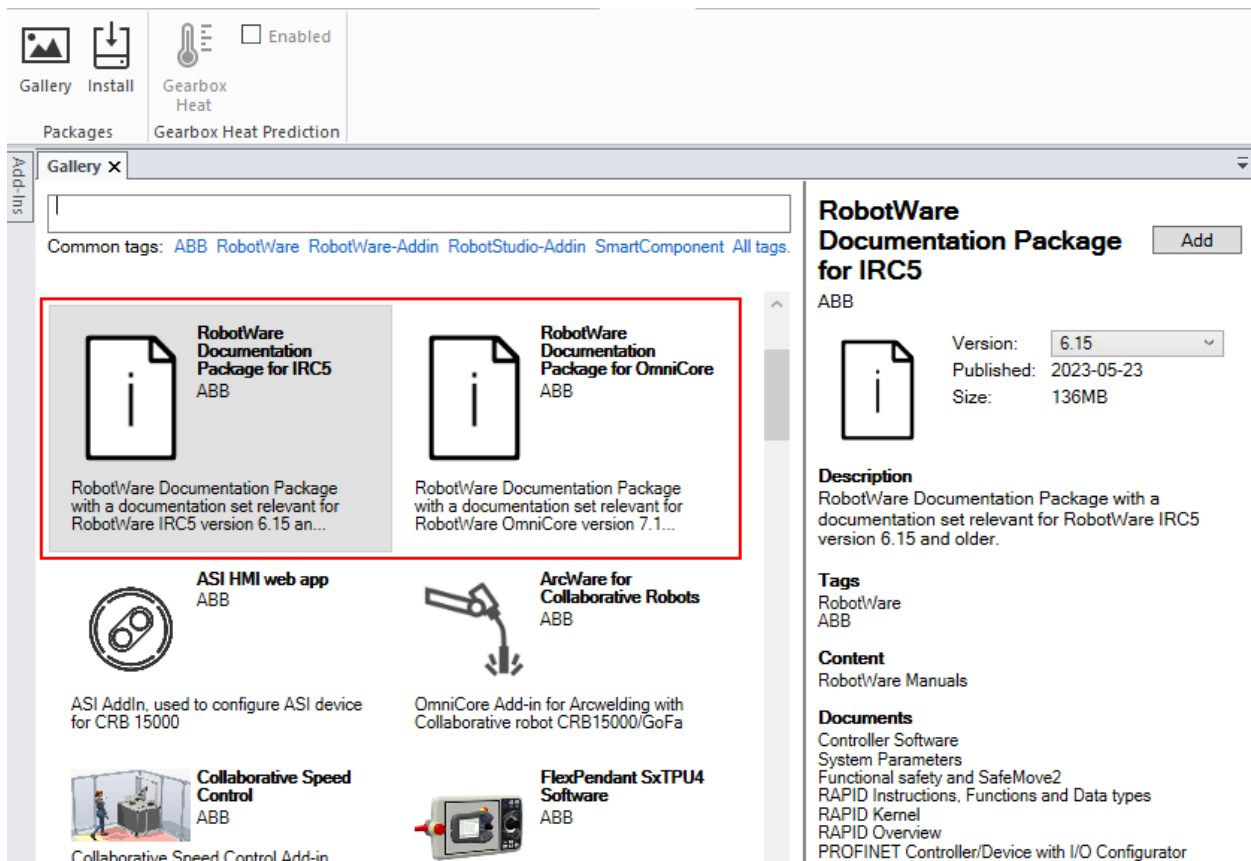
It is now possible to create collision free paths with IRB 14050.

## Controller documentation moved to the RobotWare distribution

Documentation for IRC5 and OmniCore controller software has been moved from the RobotStudio distribution to the RobotWare distribution.

To obtain the documentation, either

- Install RobotWare 7.12 or later (for OmniCore) or 6.15.03 or later (for IRC5), or
- Install a standalone "RobotWare Documentation" package from the Add-Ins tab.



The screenshot shows the 'Add-Ins' gallery in RobotStudio. The 'Packages' tab is selected, and the 'Gearbox Heat' add-in is enabled. The 'RobotWare Documentation Package for IRC5' and 'RobotWare Documentation Package for OmniCore' are highlighted with a red box. The right-hand pane shows the details for the 'RobotWare Documentation Package for IRC5', including its version (6.15), published date (2023-05-23), and size (136MB). The description states it is a documentation set relevant for RobotWare IRC5 version 6.15 and older. The tags include 'RobotWare' and 'ABB'. The content is 'RobotWare Manuals'. The documents listed are 'Controller Software', 'System Parameters', 'Functional safety and SafeMove2', 'RAPID Instructions, Functions and Data types', 'RAPID Kernel', 'RAPID Overview', and 'PROFINET Controller/Device with I/O Configurator'.

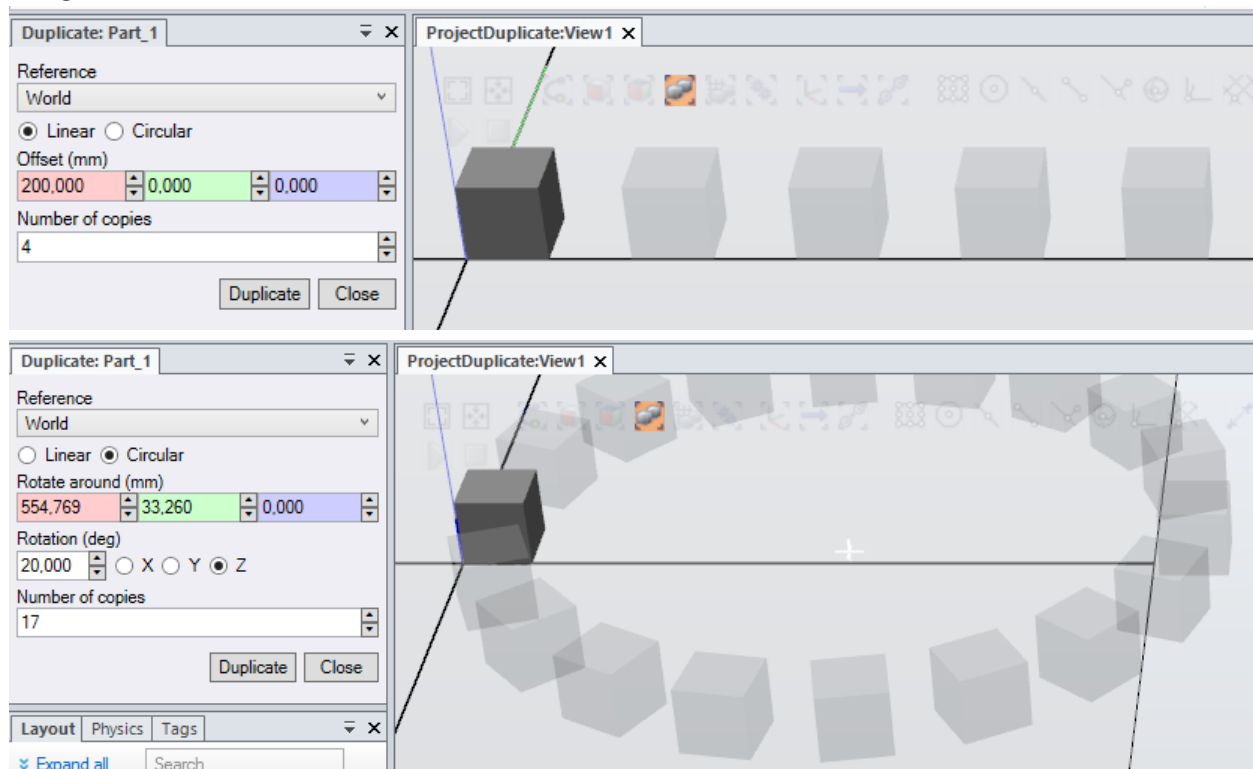
Please note that the documentation is required for extended context sensitive help in the RAPID editor.

## CRB 15000 GoFa™ 10 kg and 12 kg

CRB 15000 GoFa™ 10 kg and 12 kg variants have been added to ABB Library. They are supported from RobotWare 7.10.

## Duplicate components and targets

A new "Duplicate..." command can now be found in the context menu of parts, component groups, mechanisms, conveyors, frames and targets. It can be used to create copies of the selected object(s) along a line or circle.



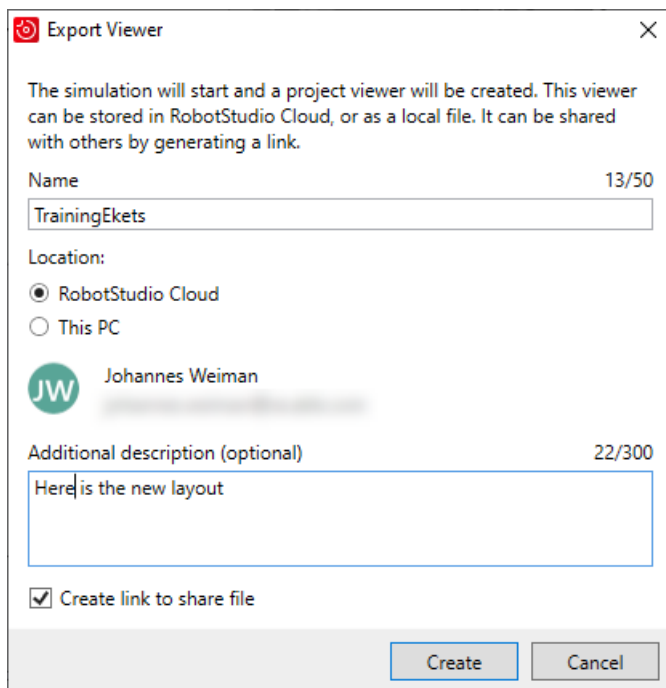
## Export project viewer to RobotStudio Cloud

It is now possible to export a 3D project viewer to RobotStudio Cloud, with or without a recorded simulation. The viewer can be shared by generating a link. Alternatively, the viewer can be saved as a file to the local PC.



The command "Export Viewer" is available from the Simulation tab (for recording a simulation) and from File - Share (for a static viewer).






**Export Viewer** [X]

The simulation will start and a project viewer will be created. This viewer can be stored in RobotStudio Cloud, or as a local file. It can be shared with others by generating a link.

Name 13/50

Location:  
☒ RobotStudio Cloud  
☐ This PC

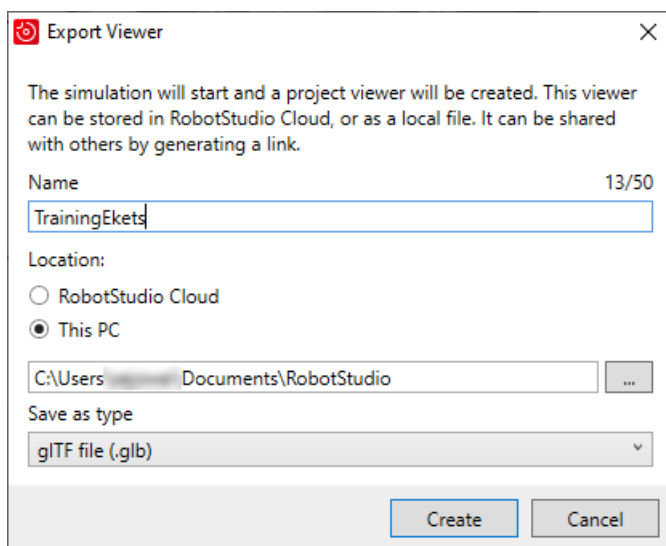
 Johannes Weiman

Additional description (optional) 22/300

☒ Create link to share file

The "RobotStudio Cloud" option is only available if the project is a Cloud project and the user is signed in.

If "This PC" is selected, the file can be saved as glTF (.glb) or a Station Viewer (.exe or .rsstnv).



**Export Viewer** [X]

The simulation will start and a project viewer will be created. This viewer can be stored in RobotStudio Cloud, or as a local file. It can be shared with others by generating a link.

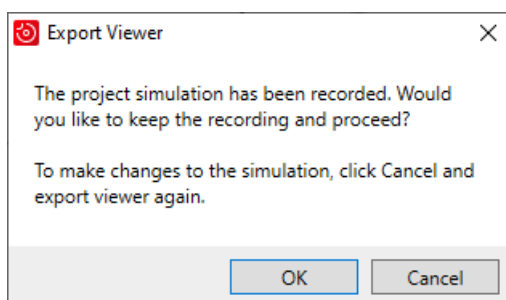
Name 13/50

Location:  
☐ RobotStudio Cloud  
☒ This PC

...

Save as type

When recording a simulation the user can confirm that the simulation was successful before the viewer is created.



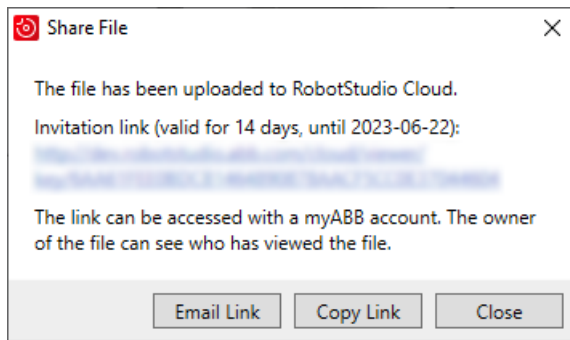
**Export Viewer** [X]

The project simulation has been recorded. Would you like to keep the recording and proceed?

To make changes to the simulation, click Cancel and export viewer again.

If "Create link to share file" is selected, the resulting link can be copied to the clipboard or sent in an

email.

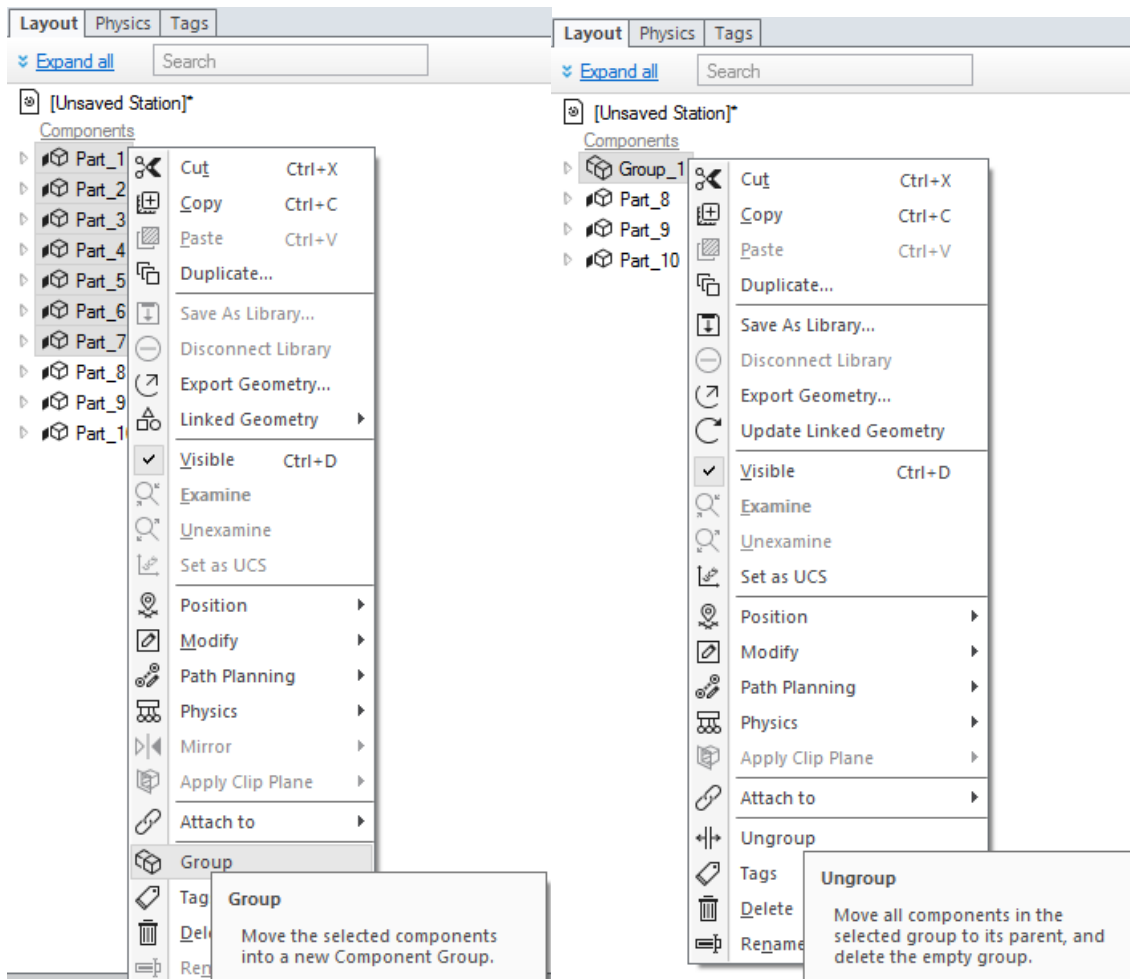


Project viewers and other attachments can be managed in the "Attachments" view in the RobotStudio Cloud web app.

### Group and ungroup components

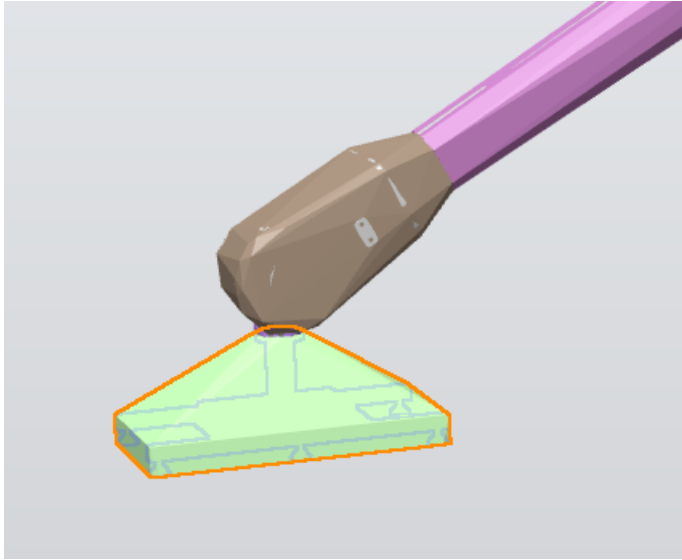
Added a "Group" command for grouping multiple graphic components (Part, Smart Component etc) with a single click. When the command is executed, all selected components will be moved into a new Component Group.

Correspondingly, an "Ungroup" command is available to move all components out of a Component Group and delete it.



### Highlight Collision Geometry

A new feature has been added that allows you to select a component by simply clicking on its Collision Geometry in the graphics. Additionally, an outline will be displayed around the Collision Geometry for all selected components, including the component itself in order to make it easier to identify if a higher level of detail is required for the selected component.



#### **IRB 1090**

The IRB 1090 robot model has been added.

#### **IRB 67x0**

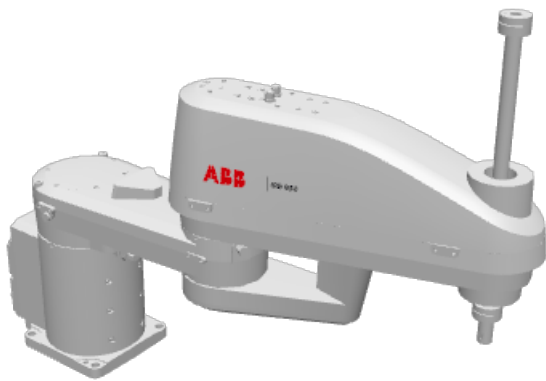
The IRB 6710, IRB 6720, IRB 6730 and IRB 6740 robot models have been added to ABB Library. They are supported from RobotWare 7.10.

#### **IRB 920 IP54**

IRB 920 IP54 variants have been added to ABB Library. They are supported from RobotWare 7.10.

#### **IRB 930**

The IRB 930 has been added to ABB Library. It is supported from RobotWare 7.10.

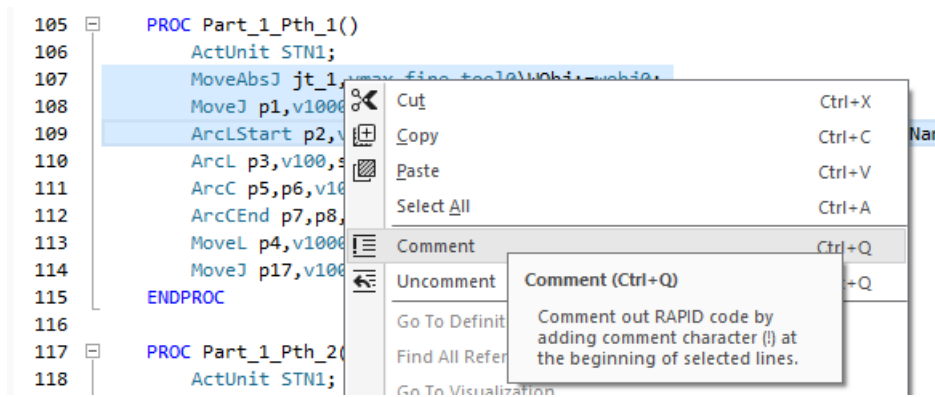


#### **Keyboard shortcut for move and rotate**

When the 3D view is active, freehand move can be activated by pressing the "m" key, and freehand rotate can be activated with the "r" key. These can be customized in the usual way.

#### **Keyboard shortcuts and menu items for RAPID Comment/Uncomment**

Added keyboard shortcuts for Comment (Ctrl+Q) and Uncomment (Ctrl+Shift+Q) in the RAPID editor. The commands are also added to the right-click menu.



## Length property on LineSensor Smart Component

The LineSensor Smart Component now has a Length property which is automatically updated to reflect the distance between the sensor start and end points. The Length property can be used to adjust the length of the sensor after the direction has been specified with the start and end points. When the Length property is changed the end point is updated accordingly along the direction of the sensor.



## New documentation user interface

The user interface for RobotWare and Add-Ins documentation under File - Help has been updated. Each category has its own page, and it is possible to select the version for which you want to view documentation.

### IRC5 Documentation

Select RobotWare version to view the relevant documentation

RobotWare version:

6.15.3019

Release Notes

#### Controller Software

Manuals

##### Controller Software

This manual explains the basics of when and how to use various RobotWare options and functions.

##### System Parameters

Describes configuration of the robot controller.

#### Safety Controller

Manuals

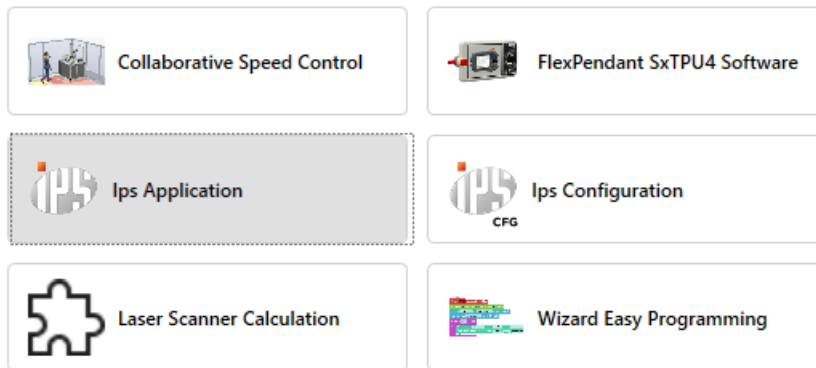
##### Functional safety and SafeMove2

Describes the second generation of SafeMove and the functional safety options.

## Add-Ins Documentation

Search 

Tags: [RobotWare-Addin](#) [RobotStudio-Addin](#)




## Ips Application




Version:

4.60.23

### Release Notes

 [Release Notes](#)

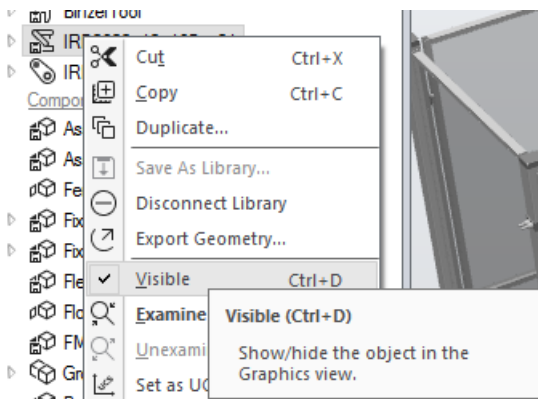
### Manuals

 [Ips Reference Manual](#)  
Reference manual, IPS structure, v4.60

## Quick command for hide/show

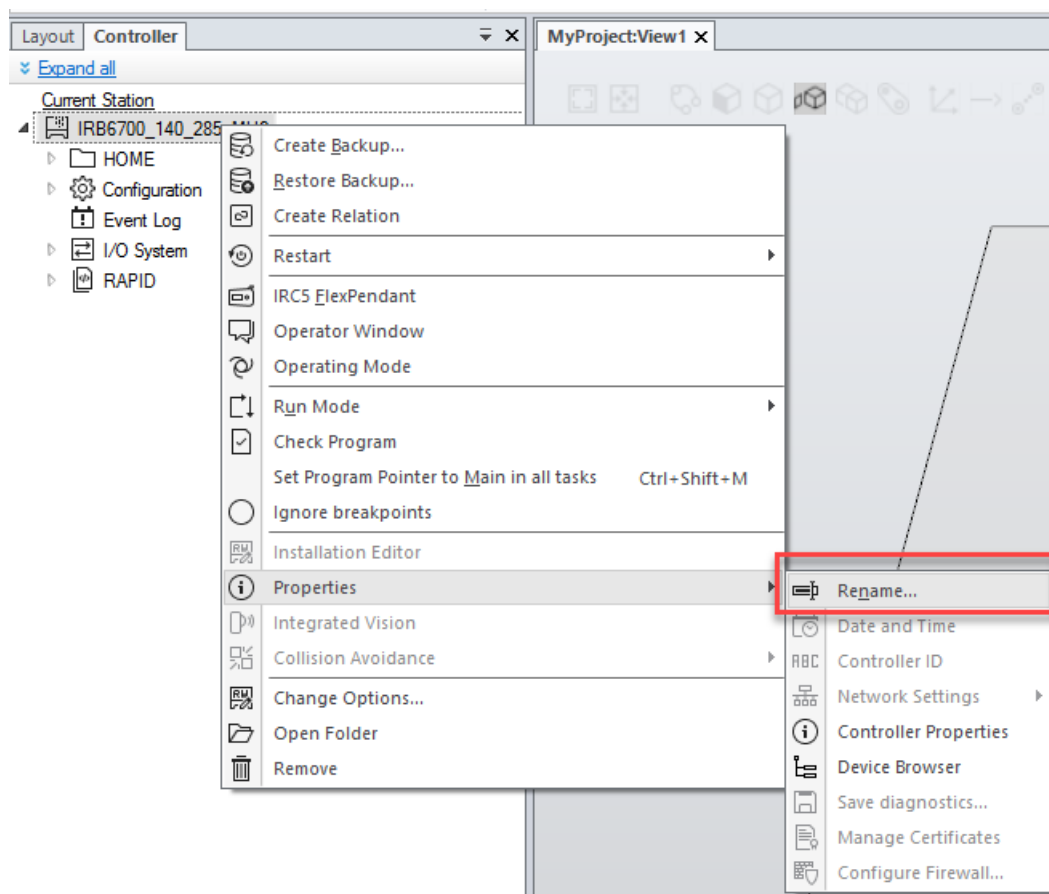
Added a default keyboard shortcut (Ctrl+D) for the "Visible" command to show or hide objects in the Graphics view.

Also changed the behavior so objects are not deselected when hidden, which makes it easier to toggle the state. Instead, selected and hidden objects are displayed as semitransparent.

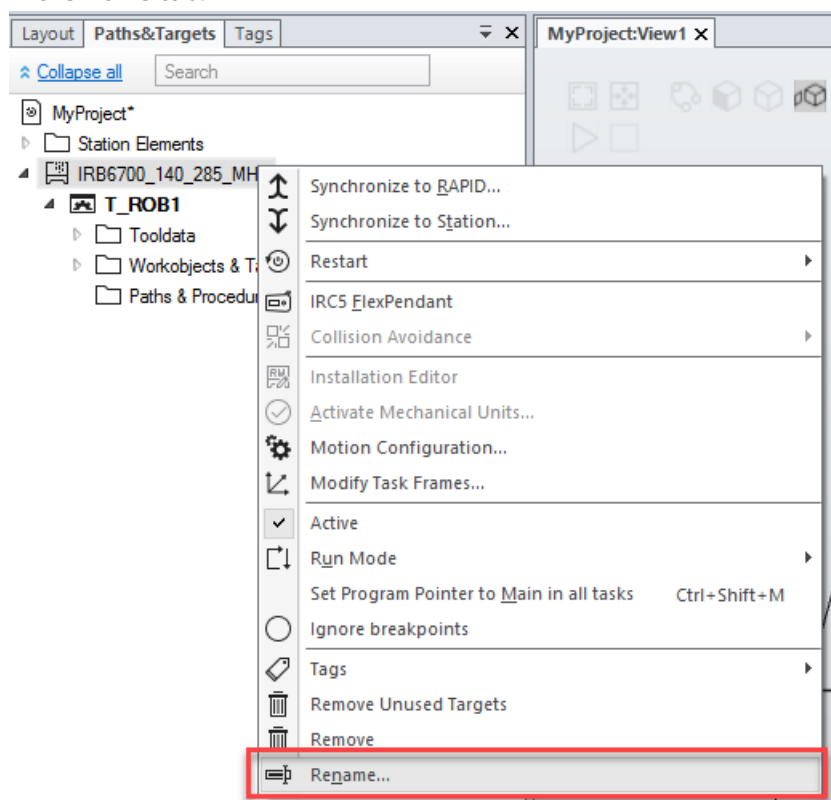


## Rename virtual controller

It is now possible to rename virtual controllers in the station.

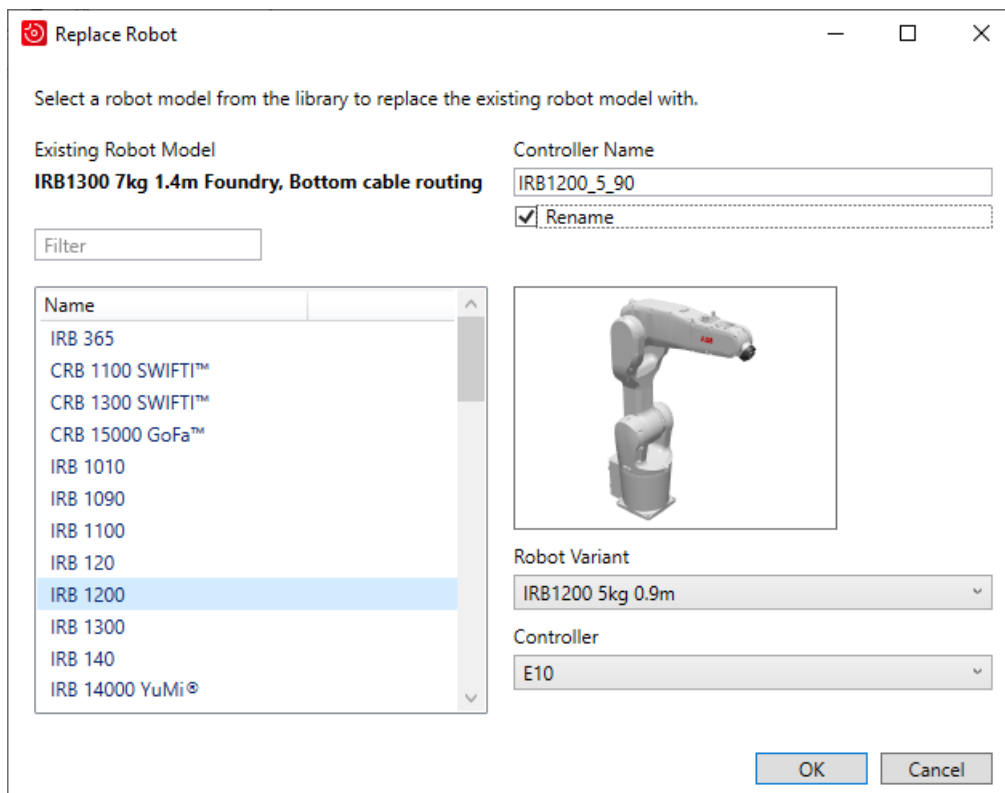


The controller name can be changed both from the Controller tab and from the Paths&Targets browser in the Home tab.



## Replace robot



A robot in the station can now be replaced by another robot model by right-clicking on the robot in the Layout browser and selecting Replace Robot. The controller data such as RAPID modules, motion and signal configuration are kept.

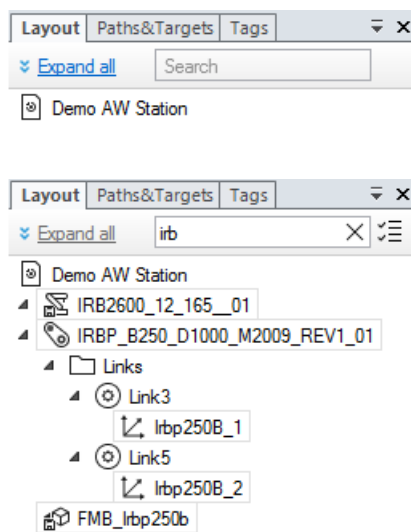


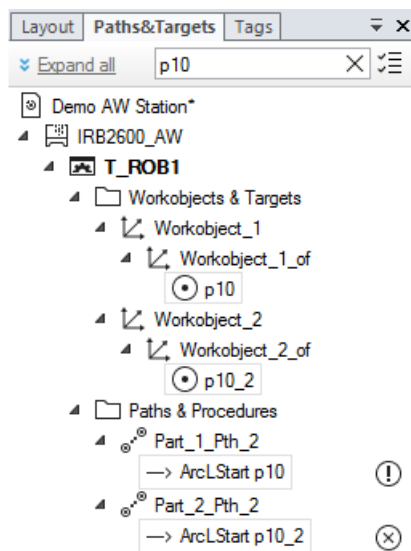
### Search for objects in Layout and Paths&Targets

Added a Search field in the Layout browser and Paths&Targets browser for finding objects in the station by name.

When typing in the field, the tree view is filtered and all matching objects are highlighted.

All matching objects can be selected by clicking the  button. When erasing the text or clicking the  button, the tree view is restored to its previous state.

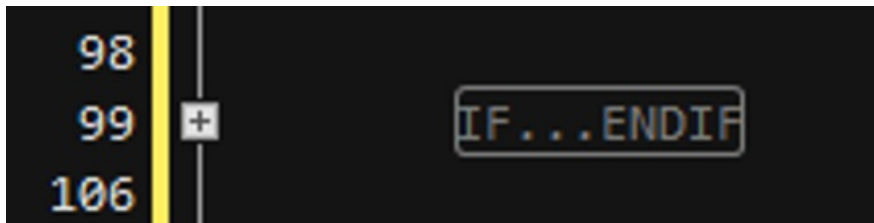




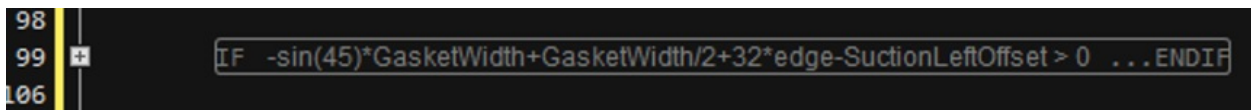
### See expression when minimizing IF/FOR/WHILE statements

The first line of IF/FOR/WHILE statements are now shown when minimizing the code block.

Before:



After:



### Signal Analyzer: Linear Acceleration In World

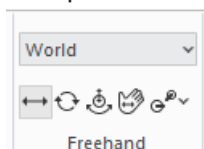
A new signal has been added to signal analyzer. Linear Acceleration In World provides a live signal of TCP linear acceleration in the world coordinate system.

### Simplify freehand modes

The freehand modes "Jog Linear" and "Jog Reorient" have been removed and the functionality integrated into the "Move" and "Rotate" modes.

To move or reorient the TCP of a robot, enable "Move" or "Rotate" and select the attached tool or a robot link except the base.

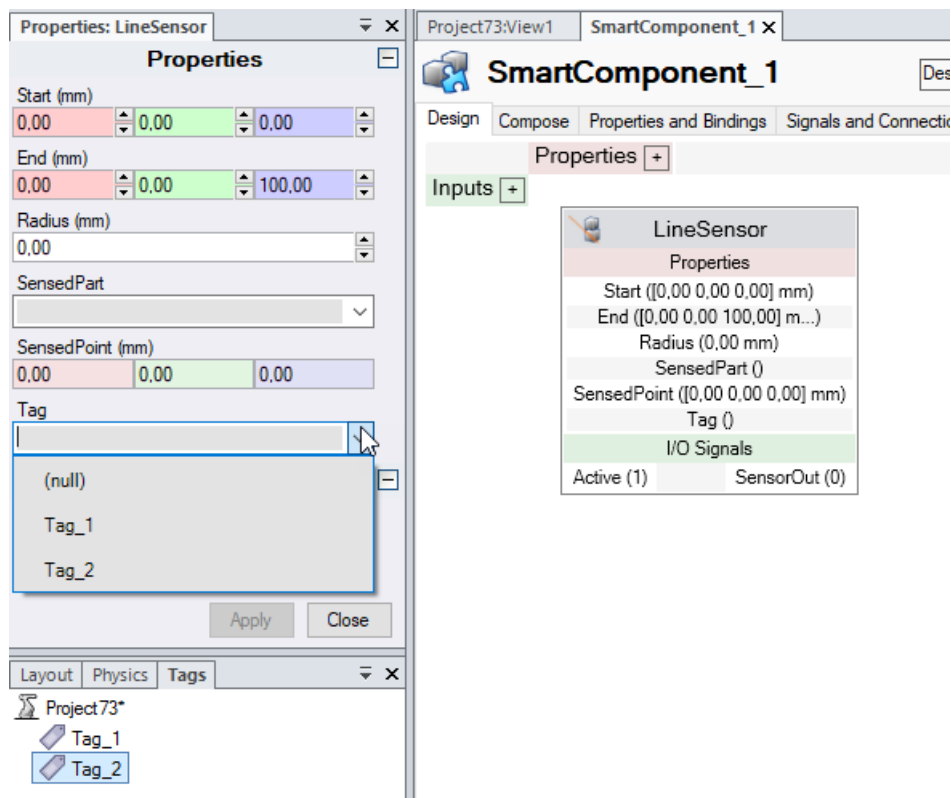
Also, it is now possible to jog the axis of a positioner by enabling "Jog Joint" and selecting an attached workpiece.



### Tag support in LineSensor Smart Component

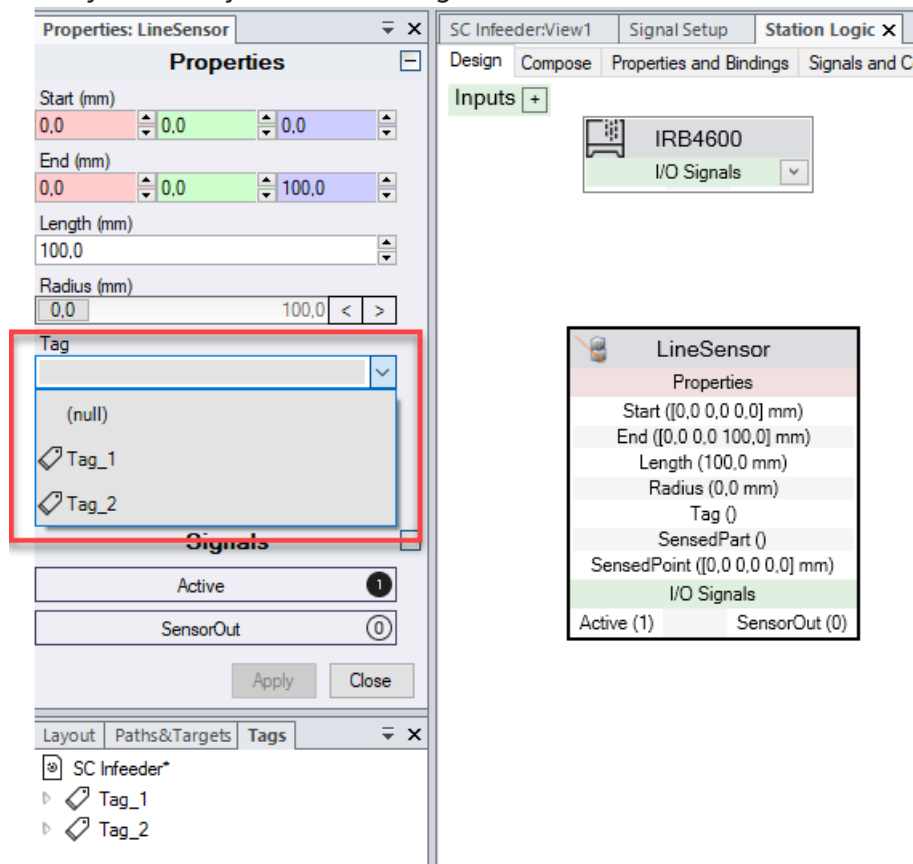
It is now possible to select a Tag in the LineSensor Smart Component. If a tag is specified, the sensor will only detect objects with that tag.





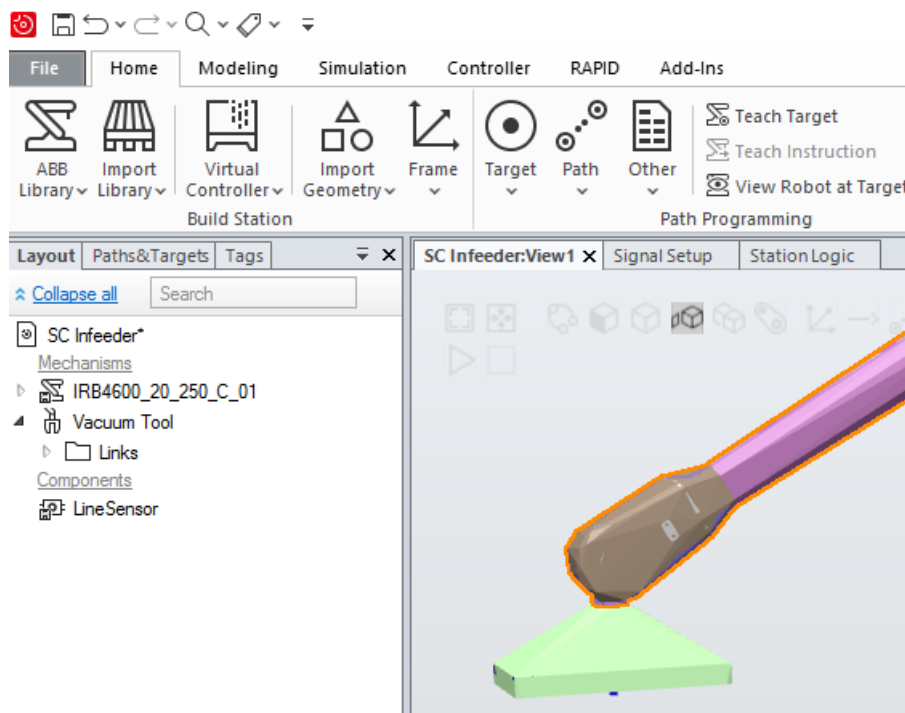
### Tag support in PlaneSensor Smart Component

It is now possible to select a Tag in the PlaneSensor Smart Component. If a tag is specified, the sensor will only detect objects with that tag.



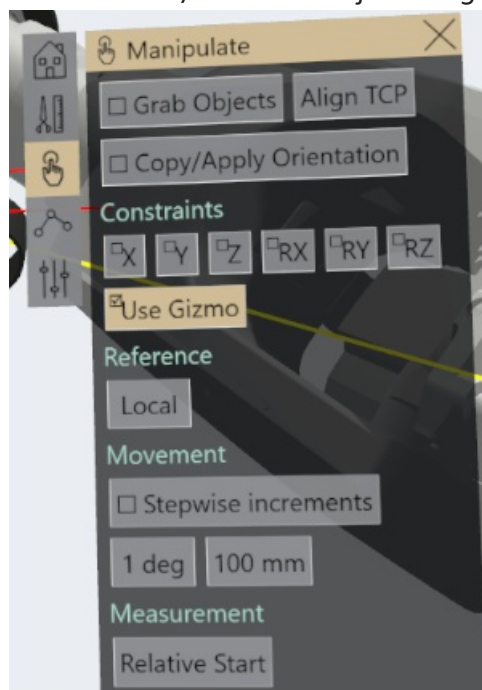
### Visual refresh

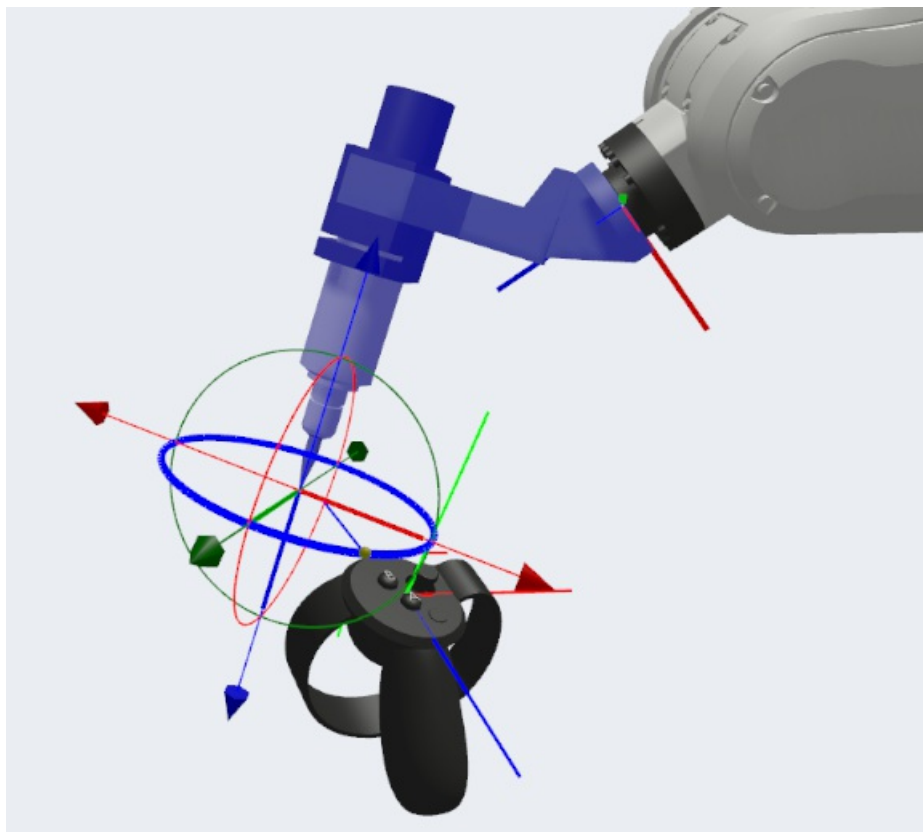
The application icons and theme colors have been updated. The new icons are also available in more sizes which will improve the appearance on high resolution displays.



### VR: Select object before moving

The "Auto" constraint in VR has been replaced by a "Use Gizmo" command. With this enabled, it is possible to select an object with the trigger, which will display a translational and rotational gizmo at the object's local origin. The gizmo will remain visible until the user deselects the object by clicking somewhere in space. By dragging an axis with the trigger button on the right hand controller the user can move/rotate the object along the selected axis.





## Improvements

### Copy tags in Source Smart Component

The Source Smart Component now copies all tags from the source object to the copies.

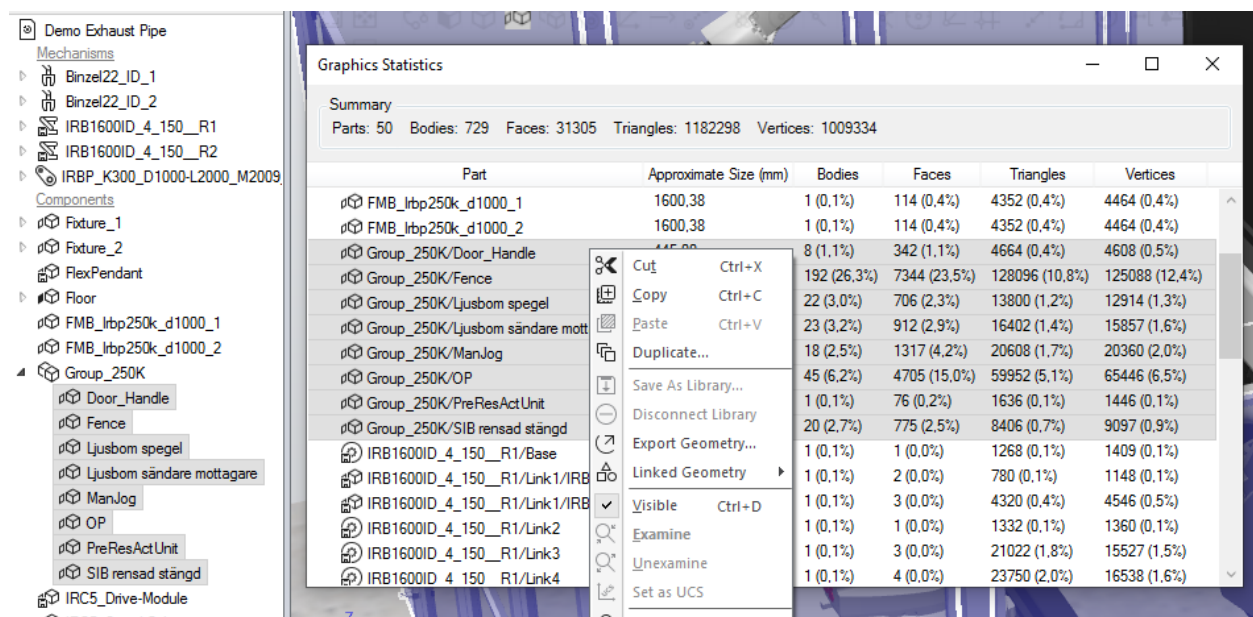
### Faster Collision Free Path generation

The collision free path planner has been updated and will now generate shorter paths in average, with reduced path generation time. It will also find paths in some scenarios where it previously timed out.

### Graphics Statistics improvements

The Graphics Statistics window found in Home / Graphics Tools / Statistics has received a couple of improvements.

- A new column with "Approximate Size" has been added, which shows the diagonal length of the bounding box of the part. Sorting on this column makes it easy to find and remove small parts like screws.
- The selection in the Graphics Statistics window is now synchronized with the rest of the application.
- The same context menu as in the Layout browser now appears when right-clicking a part in the Graphics Statistics window.
- The window now opens as docked by default and is non-modal, which means that you can have it open while working in other parts of the application.
- Icons have been added to the parts in the list and the summary has been moved from inside the parts list to the top of the window.



### Move multiple objects at once

It is now possible to move multiple selected objects when using the freehand move mode.

### Rotate multiple objects at once

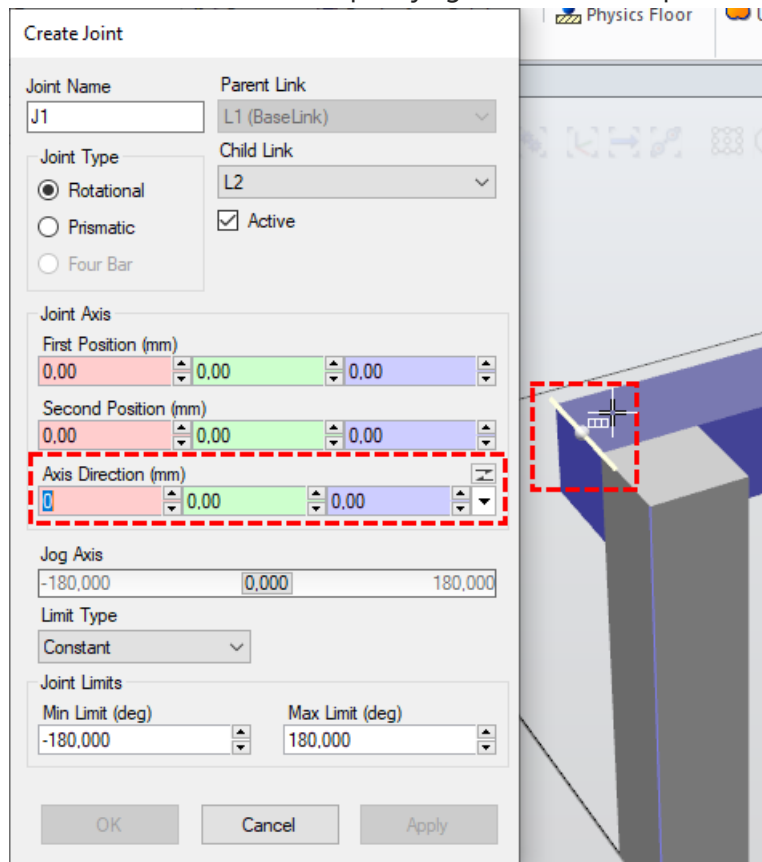
It is now possible to rotate multiple selected objects when using the freehand rotate mode.

### Select link component in 3D view when creating mechanism

It is now possible to select a component from the 3D view, or the layout browser, when creating a mechanism link.

## Selecting axis direction using edges when creating mechanisms

When creating a joint in the Create Mechanism window, it is now possible to select the direction of the joint axis by clicking on an edge in the 3D graphics view while the Axis Direction control has focus. A preview of the chosen direction will appear as you move your mouse cursor within the graphics view. Additionally, a button for reversing the axis direction has been introduced. This feature can also be found in other areas where specifying a direction is required.



## Information

### **RobotWare 5.x support removed from Controller From Layout**

Virtual Controller From Layout no longer supports RobotWare 5.x. Use *System Builder* to create a Virtual Controller for RobotWare 5.x.

## Corrections

PDD	
15256	<p><b>Change messages to more informative while writing configuration to controller</b></p> <p>Now if user tries to write configuration and something go wrong, the message will inform correctly about the problem that occurred.</p>
	<p><b>Rapid Data Editor was not properly updated when targets where deleted</b></p> <p>When a target was deleted from the Rapid Data Editor, the target didn't disappear from the editor. When the Rapid Data Editor than was closed and reopened, the editor was blank. This is now fixed.</p>
	<p><b>Unpack &amp; Work RobotWare selection</b></p> <p>Fixed an issue where the RobotControl version would be used to select the closest RobotWare version to the original version that was used when creating the Pack and Go.</p>
	<p><b>Improved messaging when closing RobotStudio with unsaved changes</b></p> <p>Previously, the same message would be displayed regardless of whether the user had unsaved changes in a project or a station. Now, If the user has unsaved changes in a project, the message will read: "You have a project with unsaved changes. Do you want to save the project?" If the user has unsaved changes in a station, the message will remain as before: "You have unsaved changes in your station. Do you want to save the station?"</p>
	<p><b>Exception when setting "min dist" to a value with decimals in Conveyor systems</b></p> <p>Before it was not possible to set the Conveyor systems "min dist" to a decimal value via the Controller tab, Configuration -&gt; Process. This is now fixed.</p>
	<p><b>RobotStudio Outputs an error message concerning RobotWare 6 when using RobotWare 7.</b></p> <p>If a RobotWare 6 controller is connected to RobotStudio and the user connects a RobotWare 7 controller, RobotStudio will output a message that the configuration file is too old. This is wrong and is now fixed.</p>
	<p><b>Crash when rotating a station with a large area</b></p> <p>Before RobotStudio crashed if the user had a station with a large area, clicked View all and then rotated the station. This is now fixed.</p>
	<p><b>Visual SafeMove accepts the same signal for activation and status or Violation action</b></p> <p>Now a Functions in an Supervision can't have the same signal as another function in the same Supervision.</p>
	<p><b>Smart component state now properly reverted upon undo or reset simulation</b></p> <p>Fixed an issue where the undo and reset simulation functions did not revert the state of smart components after a simulation, causing inconvenience in manually reverting some signals. The fix ensures that the both these functions reverts both graphical objects and smart component states.</p>

<b>PDD</b>	
	<p><b>Markup text is static in Station Viewer</b></p> <p>Added support for Markups with changing text when exporting a simulation to a Station Viewer (.exe or .rsstnv format).</p>
	<p><b>IRBT x004 corrections</b></p> <p>The models for track motion IRB 4004, 6004 and 7004 have been corrected.</p>
	<p><b>Mechanism doesn't expand when clicking any of its links in the 3d view</b></p> <p>Now the mechanism will expand and show it's links when clicking on any of the links in the 3d view.</p>
	<p><b>Cable simulation in viewer</b></p> <p>Fixed visual defects in physics cable simulation when replayed in a Station Viewer. The stored numeric precision was inadequate for cables placed far away from the station's origin.</p>
	<p><b>Jog linear/reorient without selection</b></p> <p>If Jog Linear/Reorient was used with a tool selected, the jog arrows did not disappear as when clearing the selection. The jog arrows are now removed when the tool is deselected.</p>
	<p><b>RobotStudio Signal Analyzer Online doesn't stop</b></p> <p>Fixed so the Signal Analyzer Online stops when the connection to the controller is lost.</p>
	<p><b>Incorrect simulation in glTF export</b></p> <p>Corrected issues regarding visibility of objects when exporting a simulation to glTF.</p>



## Known Limitations

### Visual SafeMove

#### E10 virtual controller not supported

It is not possible to create a valid safety configuration file for a virtual controller where the controller model is E10. The device mapping of signals on the internal feedback device will be incorrect. There is no information about this limitation inside Visual SafeMove because it is currently not possible to know the model of a virtual controller.

#### Configurations with Basic Joint Supervision disabled can be created

For SCARA robots, like for example IRB 920T, only the limited functionality Basic Joint Supervision is supported by the Safety Controller. Visual SafeMove allows the full set of functionality to be configured even though it is not supported. Writing a safety configuration file with Basic Joint Supervision disabled results in an error since it is invalid. Workaround: Enable the option Basic Joint Supervision on the robot node in Visual SafeMove.

#### Current joint values cannot be retrieved when external axes are included in the configuration

It is not possible to retrieve the current joint values using the Read current values function on the Synchronization node when external axes are included in the configuration. Workaround: Read the values from the FlexPendant and update manually.

#### The safety controller is not forwards compatible

When writing a safety configuration file of a later version than the current safety controller image, then RobotStudio will generate an error of type "C00FFFE: Unknown error (0xC004FFFE)LoadSafetyConfigurationFile". (Note that this error may occur for other reasons as well and is thus not unique to this case).

#### The function Get vectors from active tool reads values from the robot

The idea behind this function is to read the data from the currently active tool of the robot in order to define a corresponding SafeMove Tool in the safety configuration. That is the reason why the tool information is read from the robot and not the safety controller. The tools of the safety configuration are visible the Visual SafeMove itself and does not need a special function to be retrieved.

#### 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.

## IO Configurator 6

### **\*Safety configuration problem with PROFIsafe Controller or CIP-Safety scanner**

Changing safety settings in Visual SafeMove or IO Configurator 6 does not always work in conjunction with the "PROFIsafe controller" or "CIP-Safety Scanner" option. Connection with robot controller can be lost during any IO-configuration, sometimes resulting in that the Flex Pendant reboots. Again this is only applicable when the PROFIsafe controller or CIP-Safety scanner option is present in the system. Problem is dependent on how many devices are configured on respective industrial network. I.e. EtherNet/IP or ProfiNet.

### **Online**

#### **Signal Analyzer Online recordings not saved**

When recording signals from a real controller with RobotWare 6.13.03 and later, or RobotWare 7.6.1 and later, there is a sporadic issue which causes the signal changes to not be recorded.

#### **Routine variables can't be displayed in RAPID Watch with RobotWare 6.12**

A limitation in RobotWare 6.12 prevents variables declared in a routine from being displayed in the RAPID Watch window.

#### **Port speed cannot be set at the same time as 'Obtain IP address automatically'**

In the Public Network settings dialog the Port speed drop down menu is disabled when 'Obtain IP address automatically' is selected.

#### **Workaround:**

1. Select 'Use the following IP address' and specify any valid IP address.
2. Select the desired port speed and press OK.
3. Select 'Obtain IP address automatically' and press OK.

#### **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.

#### **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.

### **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.

## 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.

## Online – Integrated Vision

### Installation error when having previous versions of RobotStudio or Insight Explorer

If you have a previous version of RobotStudio or Cognex In-Sight software installed, installing a new version of RobotStudio may result in the following error message

*Module C:\Program Files (x86)\Common Files\Cognex\InSight\5.7.1674.0\CvsInSightDisplay.ocx failed to register. HRESULT -2147220472. Contact your support personnel.*

**Workaround:** To correct the issue, open Windows Settings -> Apps -> Apps & features, select the current ABB RobotStudio 2019.x, select Modify, and step through the installation wizard and select Repair. Alternatively, uninstall and reinstall RobotStudio.

**Note:** Only one version of the In-Sight Display Control can be registered at a time, and this is always the latest version installed. Although older versions of RobotStudio or In-Sight may seem to function with this version installed, their compatibility with this version is not guaranteed.

### RobotStudio may hang for up to 60 seconds when configuring jobs with PatMax 1-50

The user interface of RobotStudio may freeze for up to 60 seconds when configuration Integrated Vision jobs with the tool PatMax 1-50.

**Workaround:** Use PatMax 1-10 instead

### 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 – 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 it is 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 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 warmstart 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.

#### **Offline**

#### **Point cloud data in JT files can't be imported**

Point cloud data in JT files is not imported by RobotStudio.

#### **Issue with collision avoidance for palletizer robots**

When configuring collision avoidance for a palletizer robot using RobotWare 6.11, attaching an object to a mechanism link can result in an error and the configuration will not be loaded.

#### **The YuMi library revision 1 cannot be successfully updated to YuMi revision 2**

When opening a Pack&Go file with a station that has a reference to `IRB14000_0.5_0.5__01.rslib` you get the option to update it to the newer `IRB14000_0.5_0.5__02.rslib`.

The following issues occurs if you select ‘Yes’ and update the model:

- The attached parts, for example Smart Grippers, are detached.
- The new YuMi robot is not connected to the virtual Controller.
- The old YuMi mechanism is converted to a component.

Answer ‘No’ to this question to keep the original revision 1 model and avoid the problems mentioned above.

#### **RobotStudio needs to be restarted to update a modified library instance**

When editing a library file (.rslib) that is used in a currently open station, then RobotStudio needs to be restarted to update the library. Simply re-opening the station is not enough to update the content of the station. Unless RobotStudio is restarted, the old library instance will remain in memory and be loaded even though the underlying file has been updated. This is a known limitation and is expensive to fix. There is a workaround to the problem, which is to restart RobotStudio.

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

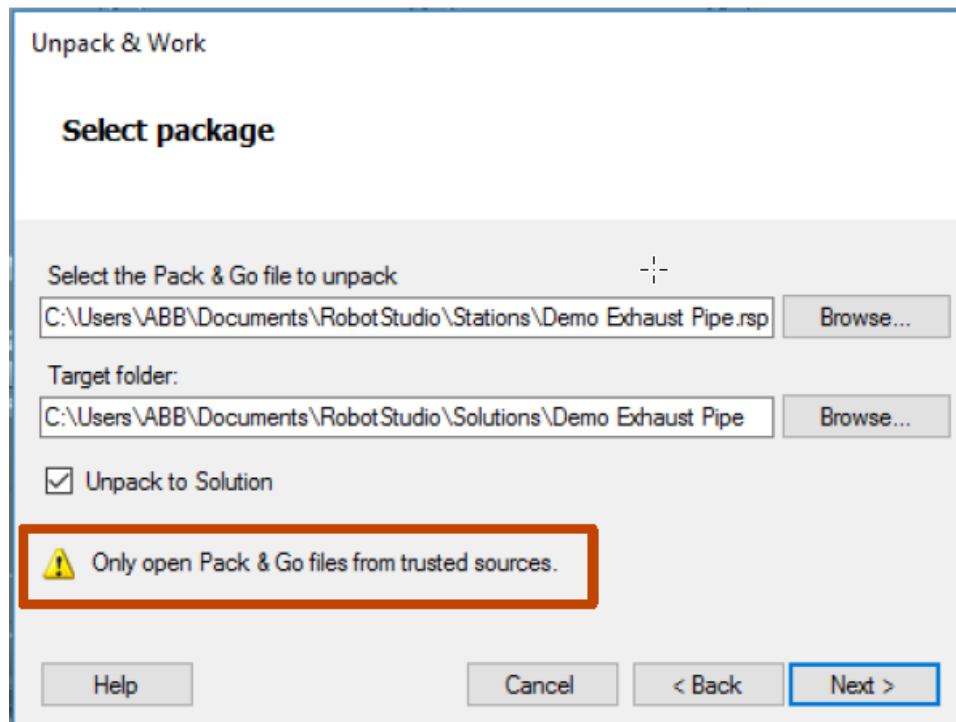
The robot IRB 1600ID 1.55 m / 6 kg is not available in RobotWare 6.04 and later. It has been renamed to IRB 1660ID 1.55 m / 6 kg. Virtual controller systems for IRB 1600ID 1.55 m / 6 kg based on RobotWare 6.03 cannot be upgraded to RobotWare 6.04 and later. This means that Pack&Go files for this robot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

### I/O 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.

### 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

#### \*Conveyor objects must be re-added for stations created prior to RS 6.05

When opening stations with conveyor tracking created prior to RobotStudio 6.05, conveyor objects must be re-added.

### 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.

```
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
```

### 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.

### 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.

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

## 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).

**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.

## **Paint**

### **The new conveyor tracking module DSQC2000 is not supported for paint robots.**

The new conveyor tracking module DSQC2000 is not supported for paint robots.

### **Lack of Virtual Controller support for the Paint systems**

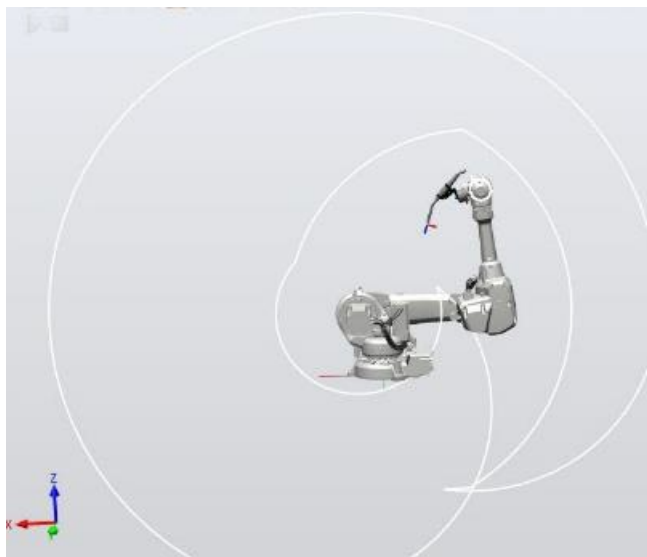
Paint systems that are configured using the Paint package I/O option Discrete, Compact or Fieldbus, will result in a SysFail state.

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

## **Graphics and Geometry**

### **\*Display of working range optimized for furthest reach**

The current algorithm uses a fixed value for joint five which gives the furthest reach for a given tool. The sweep is not optimized to get the shortest reach on the "inside" of the working area.



### 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 x.y\Bin64*

and

*C:\Program Files (x86)\ABB Industrial IT\Robotics IT\RobotStudio x.y\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.

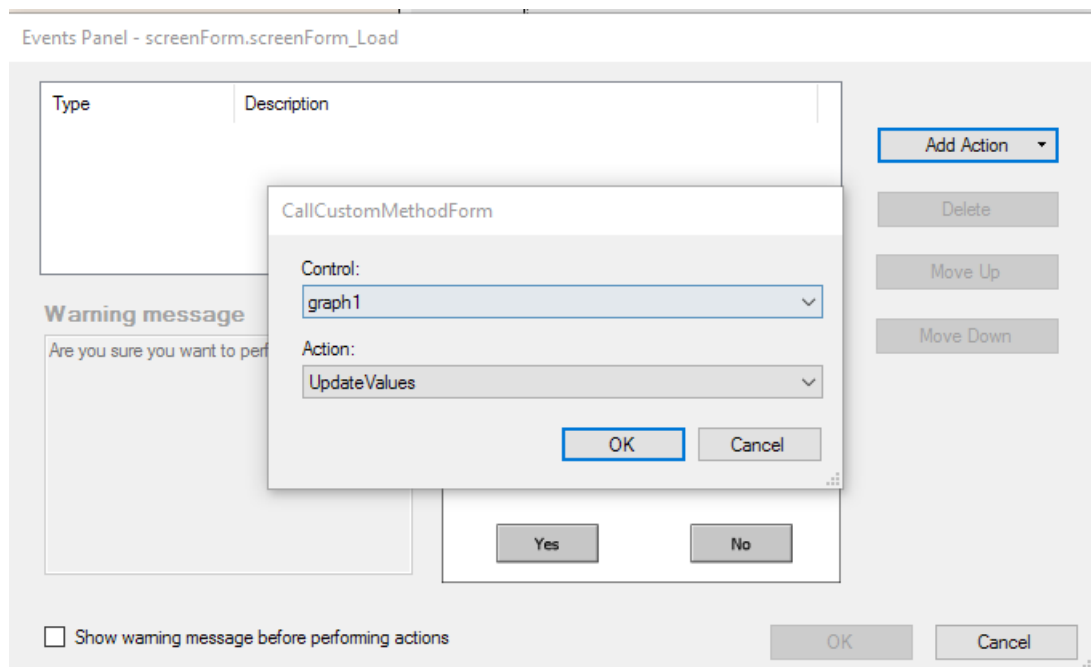
### ScreenMaker

#### Numeric controls and decimal separators

To use numeric controls in ScreenMaker on the PC set the decimal symbol to a single period ('.'). Other decimal symbols are not supported and binding values will not work in the Virtual FlexPendant. The behavior on the real FlexPendant is not affected by this PC setting.

#### Graphs on secondary screens

To use a Graph on a secondary screen (not the main screen) a custom action is needed. Otherwise, the Graph will not be updated properly. In the ScreenForm that contains the Graph add a Load event. In this event add an action using Add Action->Advanced->Call Custom Action. Select the Graph control and the UpdateValues action.



### Binding to the Enabled property

Connecting the *Enabled* property of any control to a BOOL variable or IO signal may not work as expected. The variable or signal may be inadvertently changed leading to unexpected behavior. Instead, bind to a digital output where the *Access Level* is set to *ReadOnly*

### A ScreenMaker cannot be deployed a controller with disabled Default User

**Workaround:** Enable the Default User.

### NumEditor in ScreenMaker disables the controls in a group box or panel

If you are using the NumEditor control in a group box or a panel, and that box or panel is enabled by an input signal, then all other controls of that group or panel will become disabled if the editor is opened and closed.

### Button with multiple states in ScreenMaker app do not update the images if button is disabled

For an app which uses Buttons with multiple states connected to images that change depending on the value of a RAPID variable, then if the button is disabled, the button shows the greyed image of the state which was active when the disabled state was shown the first time.

### ScreenMaker fails for RobotWare 5.12

ScreenMaker fails to build applications for RobotWare 5.12.

**Workaround:** Update to a later RobotWare version.

### 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)

### **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.

# RobotWare Compatibility

## Supported RobotWare versions

RobotStudio works with RobotWare 5.07 and later. Please check details below. The latest supported RobotWare version for IRC5 and OmniCore controllers is stated under Help/About in RobotStudio. RobotWare packages can be added to RobotStudio from the Add-Ins Gallery window.

## 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.

## RobotWare 5.07 Compatibility

### 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.

## 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.

## 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.

## 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.

## RobotWare 5.12 Compatibility

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

### Paint

Paint backups from RW 5.12.01 are 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 "A1HVErr" -SignalType "DO" -Unit "SysComm" -UnitMap "155"\
-Access "ALL"

EIO_CROSS:
-Res "A1HVErr" -Act1 "HVErrEnabled"
```

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
```

## RobotWare 5.13 Compatibility

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

### Paint

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.

## RobotWare 5.15 Compatibility

### Signal Analyzer Online

The feature Signal Analyzer Online requires RobotWare 5.15.03 or later.

## 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.

### General Compatibility Limitations

#### 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