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**Release Notes for RobotStudio 2021.4**  

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Release Notes for RobotStudio 2021.4

General

The release name is RobotStudio 2021.4 and the build number is 21.4.9700.0. The release date is December 10, 2021.

User documentation

The RobotStudio Operating Manual is available in all languages 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


System Requirements

Required Software

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

The Windows AppInstaller 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, but may have been removed on some PCs.

Sideloading of apps must be enabled on Windows 10 to install the virtual OmniCore FlexPendant.

To enable sideloading follow these steps:

1. Open Settings.
2. Click Update & Security > For developers.
3. Under Use developer features, select Sideload apps or Developer mode.

Recommended Hardware

<table>
<thead>
<tr>
<th>ITEM</th>
<th>REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>2.0 GHz or faster processor, multiple cores recommended</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB minimum</td>
</tr>
<tr>
<td></td>
<td>16 GB or more if working with large CAD models</td>
</tr>
<tr>
<td>Disk</td>
<td>10+ GB free space, solid state drive (SSD)</td>
</tr>
<tr>
<td>Graphics Card¹</td>
<td>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.</td>
</tr>
<tr>
<td>Screen Resolution</td>
<td>1920 x 1080 pixels or higher is recommended</td>
</tr>
<tr>
<td>Mouse</td>
<td>Three-button mouse</td>
</tr>
<tr>
<td>3D Mouse</td>
<td>Any 3D mouse from 3DConnexion, see <a href="http://www.3dconnexion.com">http://www.3dconnexion.com</a>.</td>
</tr>
<tr>
<td>ITEM</td>
<td>REQUIREMENT</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

¹ 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

- ACIS 2022 support
- ASTI Mobile Robot models
- Change IP settings of controller I/O Network
- Display controller information in Recent Station preview
- Generate robot volume from a recorded simulation
- IRB 1200H
- IRB 5710 and IRB 5720

**ACIS 2022 support**
The latest version of the ACIS engine has been integrated to ensure compatibility with current CAD formats.

**ASTI Mobile Robot models**
Added ASTI UniBOT and BidiBOT models to ABB Library. The models are static parts, i.e. they have no joints or kinematics.

<table>
<thead>
<tr>
<th>ASTI Mobile Robots</th>
</tr>
</thead>
<tbody>
<tr>
<td>BidiBOT 1000</td>
</tr>
<tr>
<td>BidiBOT 2000</td>
</tr>
<tr>
<td>UniBOT 1200</td>
</tr>
<tr>
<td>UniBOT 2000</td>
</tr>
</tbody>
</table>

**Change IP settings of controller I/O Network**
It is now possible change settings of the I/O Network interface using RobotStudio.
The following settings are supported:
- IP address
- Netmask address
- Default Gateway
- Port Speed

In addition it is also possible to set Port speed for the Public Network interface (WAN).
Display controller information in Recent Station preview

Added information about virtual controllers in the preview of recently used stations.

Generate robot volume from a recorded simulation

In Recording Playback, a function was added to generate a volume from the robot movements in a recording. This creates a part in the station that approximately encompasses the swept volume of robot and tool.

The volume can be generated either from nominal robot movement or category 0/1 stop positions. Two different algorithms are available which are further explained in the user manual.
IRB 1200H

Added IRB 1200H (Hygienic) to ABB Library. It is supported from RobotWare 6.12.01.

IRB 5710 and IRB 5720

The IRB 5710 and IRB 5720 have been added to ABB Library.
<table>
<thead>
<tr>
<th>PDD</th>
<th>Issue Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12236</td>
<td><strong>RobotStudio 2019 imported CAD bug</strong>&lt;br&gt;An error where imported curve geometries could lose details and become incorrectly smoothed was fixed by an update to the CAD translator component.</td>
</tr>
<tr>
<td>12392</td>
<td><strong>Error while importing STEP file</strong>&lt;br&gt;An error that occurred when importing a specific STEP assembly was fixed by an update to the CAD translator component.</td>
</tr>
<tr>
<td>12410</td>
<td><strong>Simulated cxPosition does not behave as in a real robot controller</strong>&lt;br&gt;The simulated cxPosition signal was not updated when no work object was connected. It is now set to the position of the next object in queue or $\text{-QueueTrckDistX}$.</td>
</tr>
<tr>
<td>13822</td>
<td><strong>Visual SafeMove: Tool Encapsulation throws &quot;Exception: control is already in collection&quot;</strong>&lt;br&gt;Now it is possible to encapsulate tool which don't have unique names in RobotStudio.</td>
</tr>
<tr>
<td>13960</td>
<td><strong>Signal Analyzer issue</strong>&lt;br&gt;Signal Analyzer will now show J4 values for Stop position when palletizer robots are used.</td>
</tr>
<tr>
<td>13987</td>
<td><strong>RobotStudio creates corrupt Pack &amp; Go file</strong>&lt;br&gt;Fixed a problem in the zip component that could result in a corrupt Pack &amp; Go file in rare cases.</td>
</tr>
<tr>
<td>14015</td>
<td><strong>AutoPath exception when using .sat files as source for the path</strong>&lt;br&gt;Fixed an issue in AutoPath when a curve geometry was used as input.</td>
</tr>
<tr>
<td>14024</td>
<td><strong>Visual SafeMove Tool Properties issue</strong>&lt;br&gt;It is now possible to change Active status to No signal without getting an error in Visual SafeMove.</td>
</tr>
<tr>
<td>14090</td>
<td><strong>Crash when importing .SAT file</strong>&lt;br&gt;Fixed an error that could occur after importing a CAD geometry with inconsistent internal structure.</td>
</tr>
<tr>
<td>14098</td>
<td><strong>Low Bandwidth option with OmniCore controller</strong>&lt;br&gt;Fixed a problem with using the Low Bandwidth option when connecting to an OmniCore controller.</td>
</tr>
<tr>
<td>14115</td>
<td><strong>RobotStudio Czech translation issue</strong>&lt;br&gt;Corrected some Czech translations in the Controller Properties ribbon menu.</td>
</tr>
</tbody>
</table>
Physics - Parts with cylinder bodies behaves as inactive

Fixed an issue where the physics collision geometry of primitives such as cylinders and boxes could become invalid, causing physics simulation to behave incorrectly. This affected for example models created with the Equipment Builder add-in.

Auto generated safe ranges are enabled when robot is excluded

Auto generated safe ranges are now disabled when robot is excluded.

Visual SafeMove: If no robot or external axis, remove entities that requires a robot or external axis from the safety configuration.

Visual SafeMove: Signal Order in Protected Elements popup is incorrect

Signals are now placed under its corresponding module.

Visual SafeMove: Importing protected elements imports non protected PROFIsafe signals

If a configuration with a protected signal on the PROFIsafe internal device in RobotWare 7.4 was imported to a configuration where that device was missing, even the signals on the device that was not protected was included. Now those signals are not included.

Graphic Appearance - surface deselection doesn't work

Fixed deselection of surfaces and bodies when performing multi-selection (Shift + mouse click) in the Graphic Appearance dialog.

Context tab interferes with main window title

The main window title was always drawn to the left of any context sensitive ribbon tab, where the available space could be limited. The title is now drawn on the side where there is most space.

Include Safety Settings as an option when creating new VC from Backup

Added an option to include safety settings when creating and restoring a virtual controller from a backup.
## MoveAlongCurve smart component - doesn't follow the curve at all

Added properties to the MoveAlongCurve smart component to improve its behavior.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start distance (mm)</td>
<td>The distance from the start of the curve to start the movement.</td>
</tr>
<tr>
<td>Reset position at start</td>
<td>Place the object at the specified position before start of the movement.</td>
</tr>
</tbody>
</table>

## Dark graphics with HTC Vive/SteamVR

Fixed a problem with graphics being rendered in the wrong color space when using a SteamVR headset.

## Visual SafeMove: Possible to write to controller with errors in Safe IO Configurator Pre Logic

There is no longer possible to write to controller with errors in Safe IO Configurator Pre Logic.

## Visual SafeMove: PROFlsafe signals not updated in VisualSafeMove

A RobotStudio with version 2021.3 or newer doesn't support PROFlsafe from a Omicore system created with RobotWare 7.3 and older. Now you get following error log: "Starting with RobotStudio 2021.3 it is not possible to configure PROFlsafe signals in Visual SafeMove for a system created with a RobotWare older than 7.4."

## Save button not enabled after generating collision geometry

Fixed a problem where the station was not marked as "dirty" after generating physics collision geometries for an object, causing the save button to stay disabled.

## Remember DialogBox location and size between invocations

RobotStudio will now remember size and location of all DialogBox:es in and between RobotStudio sessions.


The discs representing the Safe Range vectors did not show in the graphics window. Now they do.

## Fatal error when any hotkey key is pressed in the controllers configuration

Fatal error occurred when a hotkey, for example CTRL + F, was used in some of the configuration windows. Now works in all windows.

## RobotStudio abruptly closes when some file is opened in editor

Fixed a crash that could occur when opening a file that has the extension .cfg but is not a robot configuration file.
Known Limitations

Visual SafeMove

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**

*Current port speed is displayed in I/O Network settings dialog but desired speed is written*

When opening the dialog the current port speed is displayed. When specifying a desired value and pressing OK, this information will be stored in system parameters as well as applied to the network interface adapter. However there are situations when the actual speed will be something else than the desired speed. This means that if you specify one value and press OK, another value can be displayed the next time the dialog is opened.

*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 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.

**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 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`

```xml
<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`
* `%ProgramFiles%\ABB Industrial IT\Robotics IT\RobotStudio 5.xx\Code Snippets`

**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 joint targets. The functions will leave the joint targets 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
   <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>
   </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.
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 RobotApps 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 "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
```

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 RWS.14.01 or later