



Visual Components 4.6 Release Notes – 23/11/2022

New Features

A short overview of what is new.

ABB Robot Connection

The Connectivity add-on now supports direct communication with an ABB robot controller. This includes ABB IRC 5 and OmniCore controllers. You can connect Visual Components to a physical controller or virtual one, such as a virtual controller running in ABB RobotStudio. The connection allows the exchange of axis values and digital inputs and outputs during a simulation. For example, the connected controller can execute a RAPID program and drive the robot in a Visual Components simulation and send and receive updates to signals.

With the connection, be aware the axis values of the controller are read-only, whereas the digital IO and other signals might support read and write actions. In addition, a connection to RobotStudio requires it to be installed on the same PC as Visual Components. If connecting to a real controller, the PC with Visual Components would either need RobotStudio or additional libraries from the ABB PC SDK.

Process Modeling Improvements

VC 4.5 introduced new features for users to control the flow of products in process modeling. One of those new features is the “All in any order” flow step mode. It is used to ensure that a product entering step must visit all processes in the step before continuing to the next step. Feedback from users revealed that utilizing this feature can easily lead to a deadlock in the flow of products.

A couple of solutions were introduced in 4.6 to process modeling to mitigate deadlock situations, a) introduction of explicit buffer steps with manual flow control and b) introduction of implicit buffer steps with automatic flow control.

FBX Exporter

FBX Exporter gives the user the possibility to export the geometry and the forward kinematics of the components in FBX (Filmbox) format. The user can select a single component or a layout to export. If any of the component exported has a set of non-fixed joints, the Forward Kinematic chain will be exported.

Additionally, we have included support to export the limits of the joints, as well as the skeleton of the models.

Enabling and Disabling Statements

Robot statements as well as process modeling statements now have an `IsEnabled` property. This property allows you to disable the statement to avoid it from being executed during the simulation. This is useful for debugging and testing purposes since workarounds to avoid statement execution are no longer needed. A keyboard shortcut and command have also been added to quickly toggle the `IsEnabled` property. Be aware `IsEnabled` cannot be changed while the simulation is running.

Other Improvements

A recap of other work done including features requested via Visual Components support. Be aware that Visual Components 4.6 supports remote desktop connection.

ID	Description
14751 to 14754	Support KUKA RCS services for BBRA and safe monitoring
16459	Properties panels for Connectivity plugin are configurable, includes SDK example
17455	Updated Japanese translation for Translational Follower joint type
17631	Updated OPC UA client

Bug Fixes

A recap of bug fixes including those reported to Visual Components support.

ID	Description
9040	Using a distribution product property to set PT template component property doesn't work with changeType or copied PTs
9297	Connectivity tab is no longer displayed when the add-on is disabled
9670	Exception does not occur when clearing layout in Connectivity context
10677	Exception does not occur when opening/saving layout in Connectivity context
11988	Vector property value now updates based on the defined magnitude and units
14947	Transport node without a connected component container not printing an error
15182	The feeder creates extra products in some random place
15340	PM Expressions - AssemblyProductType not working
16421	FlowStep properties are not copied on copy-paste operation
16534	PM statements are disabled after selecting robot in 3D world
16588	Exception in 4.5 when simulation starts
16694	GetFlowStep in "Flow Sequence Process Group" mode does not allow "ProcessGroup" property to be "Null"
16754	PM Visit once - exception with inline editing of maxvisitcount
16755	PM Visit once - Visit limit properties get cleared when moved in flow editor
16917	Exception does not occur when selecting position frame while using KUKA OLP
16983	GetFlowStep returns one entry to flowInfo even list of instances given
16984	GetFlowInfo statement causes crash when AssemblyOrder object passed
17288	Fixed crash when Frame Label Size is too big of a value
17306	Flow Editor: Duplicate Flow Group doesn't perform a deep clone of step process config
17526	RetainVisitCount doesn't work with change type
17595	First flow step is never added by selecting the label while creating a flow.
17748	IComponentMemento.SaveState does not break the event subscriptions of a cloned component
17770	Duplicate entries in third-party lists removed