Visual Components 4.4 Release Notes – 16/11/2021

NEW FEATURES

Here is an overview of new features in the Visual Components 4.4.0 release.

Fanuc Robot plugin

Visual Components offers you now the possibility control a robot in 3D Simulation with a Fanuc Robot Controller. Customer can create server connection from Visual Components to Fanuc virtual or physical robot controller. The connection allows the Fanuc Robot Controller to drive the robot in 3D world and exchange IOs with simulated components.

Process Modeling Improvements

External and internal users have requested different improvements. Some requests have been addressed during this release, for example:

- Python API for Process Modeling Assembly
- Python API for accessing some PM classes and events
- Extending statement functionality

Accessing DWG/DXF block attributes

In Visual Components 4.4 customers can access block attributes from imported DWG/DXF files to extend the usability of the software. The data is saved on the imported component as a string property and encoded in JSON format.

Connectivity Improvements

- List paired variables in Create Variables Pairs Editor
- Unpair signals is now possible in the Create Variables Pairs Editor
- Support for pairing Vector and Matrix types on component properties, signals and DOF
- Support for pairing world position and local position matrices of robot tool and base frame objects.
- Columns in the connected Variables panel can be customized
- Refresh button to reload the structure of simulation / server in the Create Variables Pairs Editor

Update to Program Statements

Program statements have been added to the current list. Now users have the possibility so use a switch statement to jump between different cases and use another statement to set the statistics state. The IF statement now supports the possibility to use multiple ELSEIF conditions.

CAD Import/Export Improvements

Hoops 2021 library has been updated to the latest version. Now it is possible to import Solidworks 2021, Creo 7.0 and Siemens PLM Software NX1926. RealDWG importer has been updated to version 2022

Other Improvements:

- Added the following python packages to support reading / writing xls and xlsx files
    - xlwt, openpyxl, xlswriter
- Added the following units for measuring power and distance
    - kilometer, miles
    - watt, HP and BTU/hr
    - power (unit)
- Upgraded log4net library to latest version
- Improved Japanese translations

.NET has been upgraded to .NET 4.8

Our software has been updated to .NET 4.8. However, .NET 4.7 and 4.8 are binary compatible. This means that there should no need to recompile plugins compiled with .NET 4.7. to use on VC.

Product Backlog items

ID	DESCRIPTION
346	Generic Switch statement for robot programming
836	Add access to current simulation time in expressions
922	PM Create statement: Add Property for ProductPositionFrame
1453	.NET method for rotating position matrix around given axis
2374	Enable vcTransportControllers to transport products into moving processes
2413	Localize reverse order command
2524	Ability to Cut program statement(s)
3078	PM: rSetPropertyStatement's TargetProperty should support expressions
3206	Python API: Add evaluateCondition method to vcScript
3449	Implement missing vcCollisionDetector.DisplayMinimumDistance
3896	Implement display of length units other than mm and inch for drawing dimensions
4054	Possibility to add 0...n ELSEIF scopes to IF statement

ID	DESCRIPTION
5034	Add xlwt module to site package
5123	IPlugAndPlayHelper.ConnectSignals add and remove events
5963	Python API: Implement a hook for vcTransportTarget request
6294	OnAppInitialized event not triggered drag and drop of __init__ file
6906	Detach statement: Support list as the ProductVariableName
7164	Command property types can be edited in action panel
7225	Implement global robot base frame resolver
7334	Assign statement ValueExpression evaluation issues with GetProperty statement
7441	Update Project Description field to allow multilines in the save as context
7918	New RoutingRule Type "Product Type Rule"
8305	Matrix and vector support in Connectivity core
8497	Investigate CAD import and access to Block attributes
9108	RealDWG 2022 Update
9260	Accept int-values in expression properties
9314	List paired variables in Create Variables editor
9561	Refresh button in Create Variable Pairs editor
9562	Delete pairing in Create Variable Pairs editor
9563	Column options display for Connected Variables panel
9564	Set Statistics statement for robot programming
9684	Create Python API to support creating assembly
9694	CAD Importer Update 2021 SP2 U1
9705	Add kilometer as supported unit
9706	Add miles as supported unit
9708	Add power and watt as supported quantity and unit
9710	Add xlsxwriter module to site package
9711	Add HP and BTU as supported unit of power
9723	Export WebBrowser information to VC Experience
9766	Update styling of Edit Columns editor for eCatalog
9808	Add openpyxl module to site package
9809	Change VCAX to use protobuf - VC
9810	Export Point Cloud to VC Experience
9811	Export VC_TEXT to VC Experience
9812	Stop at limits checkbox by default on CADMAN.SIM
9971	Change VCAX to use protobuf - VC Streaming
10009	Clear output panel on start of simulation
10099	Implement python wrappers for ProductMatcher related functionality
10100	Implement python wrappers for ProductFilter related functionality
10139	Function block data in JSON format
10174	Upgrade log4net to latest version
10356	License renewal screen leads to dead-end link

ID	DESCRIPTION
10357	On application backstage update zoom mode to "Keep Center of Interest" as default in CADMAN.SIM
10364	Implement data operations for robotics switch statement
10449	vcProductMatcher.AddFeed should accept vcProductFeed with empty NextProcessGroupId
10454	Implement IProductTypeOrAssemblyStepsSelection
10455	Implement IProductFilter/IProductTypeAssemblyPatternItem related parts
10463	Set up resolvers for property containers allowing custom properties
10478	Add vcProductNeedFeedMatch.OnStateChanged event
10504	Fix Japanese translations
10641	Update the Reload structure dropdown menu options
11065	Reversed feature tree order for imported assemblies
11326	Update message when script and external editor are different
11409	Add evaluateCondition() to vcPythonProcessHandler

BUG FIXES

If you submitted a bug to Visual Components support and received an ID to track it, you can verify the bug is fixed from the following list. Be aware the list does not contain all bug fixes done for Visual Components 4.4 nor fixes made to the Visual Components license server.

ID	DESCRIPTION
803	Remove doesn't remove all instances of a product if the next process fails due to an empty ProductIn
1779	2D drawing exports lines with visibility set to false
2410	Points should be placed relative to 3D world origin
2739	Python Add-on, Contextual Tab Group doesn't work
2917	Program tab manipulators is visible in other tabs (e.g. Home tab)
4075	Action panel properties are not shown when netcommand command is executed in OnStart event.
4298	Setting node material has no effect in animation
4593	Standard vcCommand objects not working
4827	Layout size increase while saving as layout
5152	3DS geometry scaling error
5271	Physics entity not working after cloning a component
5342	UI for component list type of property has issues when components' names are too long
5373	Move handle not in the correct location when selecting items in the feature tree
5378	Statement property values changing when copy-pasting a component
5861	Robot executors out of sync when delay is immediately before Sync statement
6295	OnPreExecute not triggered in Python command
6296	OnPostExecute not triggered in Python command

ID	DESCRIPTION
6297	Crash when showing message box in OnStart event of command
6721	Modifying Process flow editor doesn't trigger Save/NotSave question window popup
7110	Moving Transport Node and Process Executor to another link clears the executor program
7186	IApplication.LayoutLoaded event is not triggered if layout is loaded with python (vcApplication.load)
7330	PM Statements Attach & Remove can't read Product Variable list with one element
7393	Red bound wireframe scaled when manipulating geometry features with Move tool
7549	Path creation issue with mathematical data
7653	Setting visibility of an empty node via Python causes vcax recording fail to load
7862	Performance issue with PM change type statement
8029	Condition parser for input signal port doesn't work correctly
8499	Program editor toolbar gets disabled after certain procedure
8533	Creating new views during video recording will cause issues
8550	Change of language from English to Japanese affects how behaviors and features are created for a component
8595	PM statement reference property values not copied when using vcApplication.cloneComponent
8752	PythonAPI - Exception while creating/using custom Quantity and Unit
8843	PointCloud RGB colors are read as BGR when loading the component/layout
8845	The edit connection panel does not reset in the Connectivity tab
8859	4.3.1 unable to print statistics charts in products without mp4 codec
8866	Installation App UI has strange character in German default language environment
8964	Unexpected lines in generated drawings
8991	Changing ProductCreator's part with API doesn't update part on property panel
9006	Connection status update issue in Connectivity Configuration panel icon
9007	Cannot call ProductEditor with python netCommand
9018	4.3.1 Exception while printing the Assembly version
9029	COLLADA files tiny scale on import
9036	4.3.1 Cannot delete properties from the component, if property is created from python command
9060	Memory leak in product type
9084	Typing '1e10' to Integer property throws an exception
9206	Crash when using Sublime Text as external editor
9207	(Spike) Acceleration limit check inconsistency with Delay statement and robot initial state
9253	Properties panel sometimes freezes after selecting a property
9254	CAD Import "Organize Geometry" issue
9255	CAD Import By Component issue
9288	License info view in backstage is blank
9310	.PTS file import in wrong colors
9312	The geometries are stored twice in the layout
9431	ABB robot positioner doesn't work on 4.3.1 but worked on 4.2.1 and also in 4.2.2

ID	DESCRIPTION
9470	Geometry Import - Filter Option values filters larger geometries than their values indicate
9478	vcMotionInterpolator causes an access violation under certain circumstances
9498	Launcher registration page text doesn't fit on all languages
9512	Licensor issue- Evaluation key blocking the network product key usage
9547	Crash when creating ProductProperty in PythonScript
9632	Textures get swapped on layout save/load
9668	4.3.1 crashes while opening a layout
9669	Filters drop-down in a paired variables column doesn't populate and throws an exception
9671	Loading layout prints missing argument error
9682	Exception when a watermark is created and the drawing contains several pages
9736	Access violation when using a space mouse in the Assembly editor view
9739	Type combobox empty when saving a component
9755	vcApplication.rayCast() doesn't clear exclude_node after it has been used once
9756	"Minimum geometry diameter" Removes more geometries than it should
9765	Selected column item cannot be added to list box
9787	.NET 4.8 dependency installation crashes on reboot request
9991	Collision Detector: Issue in Selection vs World and Collision Tolerance
9992	Collision Detector: Collision Detector enable selection not saved
10005	External Python Editor "Contents of the component script differ from..." prompt loop
10011	Software crash without error while running a PM assembly layout
10020	PM Process routine allows adding non-requirement statements to the Requirements sub-routine
10033	Importing CAD materials fails with minimum hole diameter set to more than 0 mm
10049	Reverse Order command: Exception error when selected statements are not under the same scope
10050	Reverse Order command: Statements order be changed when selected statements not consecutive
10051	Reverse Order command: Context menu button is grayed out in certain order of selecting statements
10059	Layout made in 4.2 crashes and doesn't load in 4.3.1 and 4.4
10062	Connection between ports not working if connection is created dynamically during load layout
10075	SIMIT: Server Type on variable list is empty if Chinese language is used
10242	Copying component clears its boolean signal map direction
10248	Real property value not updated when magnitude changed
10251	Modulo operation corrupts component/layout
10330	"Is Text MultiLine"-property does not do anything on RectangularAnnotation
10419	Layout loading fails in 4.3
10467	PM: Exception thrown when using GetAssembly and TransportIn incorrectly
10469	List<Ref<ProductType>> property UI shows GUIDs instead of names
10471	Attempting to move disabled path position resulted in application crash

ID	DESCRIPTION
10473	Color values are swapped when loading a bitmap through python API
10475	Pairing string variable with robot Base frame position vector fails
10486	Assign statement TargetProperty "Variable not found" when selecting statement or saving layout
10489	Addon can't be activated from backstage
10493	Routine variable manual delete results in access violation
10494	ExternalPythonEditor fails to compile copied PythonProcessHandler
10497	SetStatisticsStateStatement add state is not updated in state dropdown
10501	Saving a layout with PM Assign statement that use expressions returns error
10523	vcProductFeed and vcProductNeed.tryCancel() return value
10542	Alpha is not saved with layout in PointCloud layout
10549	Opacity set to 0% , but geometry can still be seen in Realistic Shaded Mode
10553	Exception error throws out when changing Boolean Signal Map behavior direction
10573	Adding VC eCatalog endpoint url in KUKA Sim app should not be possible
10576	pickMovingPart method in vcHelpers.Robot2 results in bad part location
10596	Exception with cloning ELSEIF Scope with Path statement
10621	4.3.1 Exception/Crash after starting and resetting the simulation
10650	ELSEIF case in wrong place after moving ELSEIF inside IF branch
10656	Crash when copy/pasting path position point as statement
10662	4.4 - Assembly Step #3 is created after Step#1
10698	findMaterial('Black') return 'black' material instead of 'Black'
10709	Angular dimensions unit property shows units for length
10710	saveComponentToUri does not work
10723	UI exception thrown when using component picker in statistics dashboard
10738	Cut statements are not removed when pasted in same routine
10796	Product types not listed when rule is nested in Transport Solution
10811	Exception thrown when trying to create transport link
10836	Hang when opening signals editor after layout has been cleared during a session
10850	Component picker list view empty in statistics dashboard properties
10851	SystemError Exception with vcConfigurableProductTypeFilter.bindToStatement()
10853	Stäubli I/O mapping: all outputs are mapped as inputs
10855	vcAssemblyProductType is interpreted as vcProductType
10881	Exception when changing physics properties with python.
11046	vcComponent.clone() causes a crash
11069	DistributionProperty not providing expected value
11100	Edit columns for eCat and connectivity doesn't have correct scroll bar style
11101	Edit columns for eCat and connectivity doesn't use the same selection color as the rest of the application
11102	Edit columns editor for eCat and connectivity uses wrong font color with light theme
11105	Properties panel is empty for component properties created by change type statement

ID	DESCRIPTION
11110	Delete statement in Elseif branch will delete whole elseif branch
11157	vcProductFilter.acceptsProduct() returns always True. vcProductTypeFilter not working.
11222	ExternalPythonEditor "Failed to save" error with VS Code
11327	Fix tooltip for Set Statistics statement in robot programming
11349	Fix LayoutItemWrapper::Wrap ignored rPathObject
11356	Assembly Component Properties are not created
11387	API: Issue in changing SimSpeed
11388	Progress dialog freezes while sim is paused/running if OnRun event handler is defined
11397	Saving a simple layout sometimes takes 10min
11405	Product Creator - a large amount of products in "Table" mode makes display of Product Creator properties tab slow
11407	VC4.2.2_Test: After changing the eCatalog view to list, component description is not visible in Dark Theme
11538	Exception thrown when using PM routines variables
11723	Reference exception on setting vcAssemblyStep.RelativeFrame
11735	TransportOut issue with sensor process to non-sensor process combination
11804	Layout in 4.4 causes unhandled exception and stops working (it works in 4.3.1)
11819	Assign statement, Assign to Null does not work every time / Automatic variable reset does not work every time
11820	4.4 Unable to clone components through python API
11833	List<Ref<Node>> and List<Ref<Component>> Property type GUI broken with unresolved references
11958	Space mouse stops working in Assembly editor view when changing tab back from Drawing tab

Known issues

- Animation recording are not compatible with older versions of VC Experience (1.5 and earlier).