

What's New?

RobotStudio

5.15

Revision: -

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1 What's New in RobotStudio?

Overview

This section provides information about the new features in RobotStudio 5.15.

1.1 Usability features

Overview

The usability of RobotStudio has been improved in several ways.

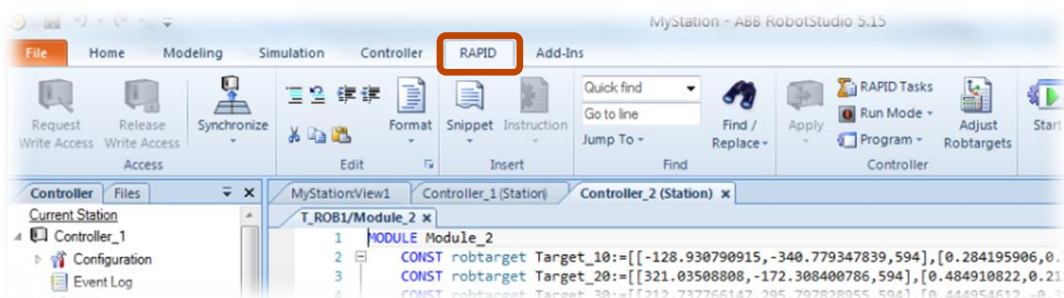
Controller tab

The Online and Offline tabs has been merged into the Controller tab. It contains the controls for managing the real controller and also the controls for synchronization, configuration and tasks assigned to the virtual controller. The merged tab creates a better workflow for the new Transfer function, see below.



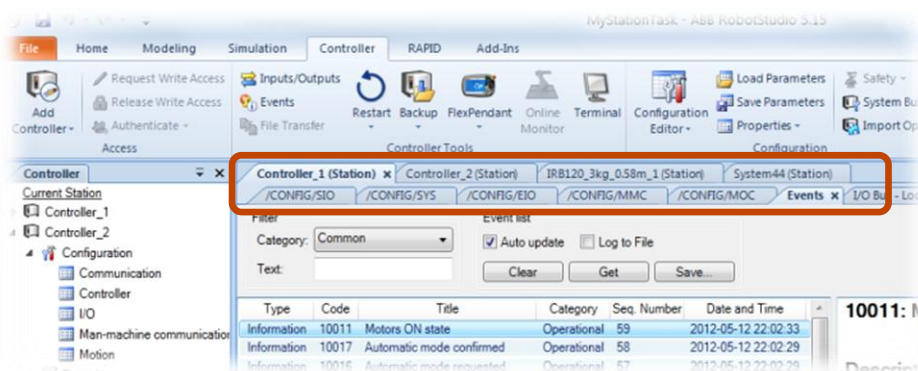
RAPID tab

RAPID Editor functions are available in a separate tab. The RAPID tab provides tools and functionalities for creating, editing, and managing RAPID programs. You can manage RAPID programs which are online on a real controller, offline on a virtual controller, or standalone programs which are not part of a system.



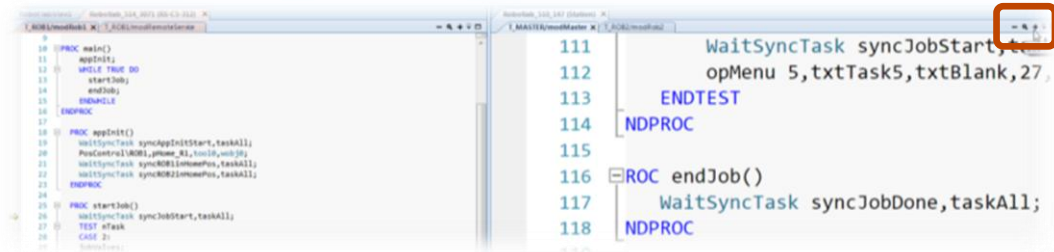
Document organization

Controller system documents are now organized in two tab rows. The top row contains the controller tabs, the the bottom row contains the document tabs of the selected controller.



Zooming in and out

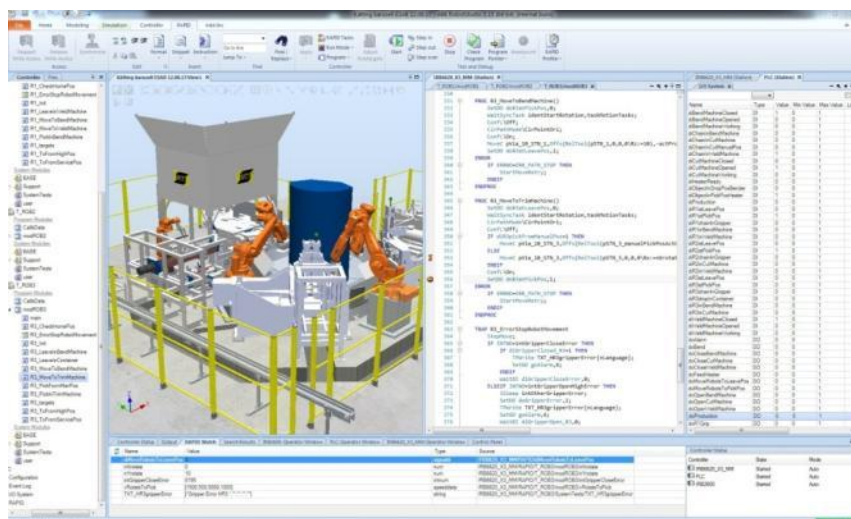
Using the zoom function, you can zoom in and zoom out of the document windows. The zoom feature is present in the RAPID Tasks, Rapid Editor, Configuration Editor, Event viewer, and I/O Windows.



1.2 RAPID Editor

Overview

The integrated RAPID Editor has been enhanced compared to RobotStudio 5.14. The Editor has been equipped with knowledge about RAPID languages, which has made it possible to improve the editor in several aspects.



1.2.1 RAPID Intellisense features

Error highlighting

Red squiggly lines appear under errors in the code. All syntax errors and a subset of semantic errors are indicated in this manner. You get instant feedback on the correctness of the RAPID code as the check is run continuously in the background.

```
MoveL p1_missing\ID:=10,vmin,z10,tWeldGun\WObj:=r2_s1;
```

Syntax highlighting

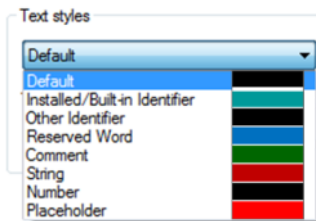
Text is highlighted in different colors depending on their token classification (such as keyword, identifier and so on). In addition to token classification, the editor also shows different colors for built-in and installed identifiers (such as MoveL) and also for identifiers declared in user code.

```

51  CONST robtarget p13_2:=[[201.267971442242,65.40181490742,762.7451171875],[0.727
52  CONST robtarget p14_2:=[[174.897907687664,148.303964661147,741.139404296875],[0
53  CONST robtarget p15_2:=[[222.597893596245,161.749182667592,734.510870742583],[0
54
55  PROC Part_1_Pth_1()
56  ! RAPID program for Part 1, path 1
57  MoveAbsJ jt_1,v1000,fine,tool0\Wobj:=wobj0;
58  SyncMoveOn s1,r1r2p1;
59  MoveJ p1\ID:=10,vmax,z10,tWeldGun\Wobj:=r1_s1;
60  ArcLStart p2\ID:=20,v1000,sm1,wd1,fine,tWeldGun\Wobj:=r1_s1;
61  ArcC p4,p3\ID:=30,v100,sm1,wd1,z1,tWeldGun\Wobj:=r1_s1;
62  ArcC p6,p5\ID:=40,v100,sm1,wd1,z1,tWeldGun\Wobj:=r1_s1;

```

The colors can be customized in the *RobotStudio Options*.



1.2.2 Code insertion functions

Auto-completion

After typing or completing a procedure call (such as `MoveJ`), pressing the TAB button will fill in all required parameters using similar rules as the FlexPendant; the last used argument of each type is inserted. Placeholders (`<ID>`) will be inserted for arguments for which default argument are not relevant (such as `robtargets`).

```
MoveL <ID>,vmax,fine,tWeldGun\Wobj:=wobj0;
```

The argument list is also filled in when an instruction is selected from the *Insert Instruction* list.

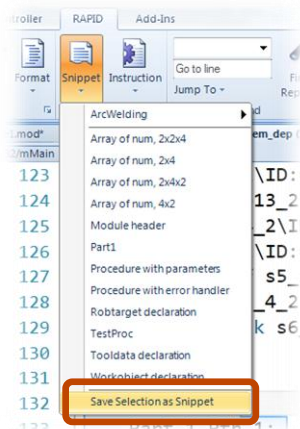


Note

Auto-completion is only supported when RAPID modules in controller memory, not when editing RAPID files.

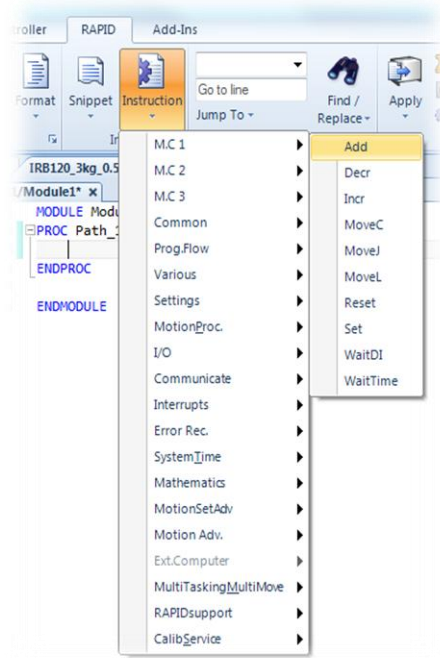
Snippets

Code Snippets are pieces of code which you can insert into the RAPID Editor. You can also create your own code snippets or save a section of existing code from the RAPID editor as a code snippet. The snippet feature has been extended the new feature **Save Selection as Snippet** that makes your selected code available in the snippet menu.



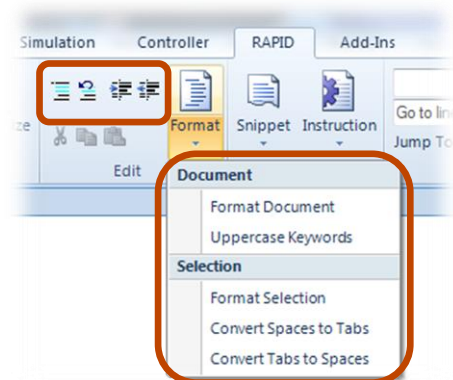
Insert instruction

You can insert a predefined instruction into the code where the cursor is placed. RobotStudio generates and inserts default arguments to the instruction, using similar rules as the FlexPendant.



1.2.3 Supporting functions

Format



Format Document and **Format Selection** - Auto-formats the document by arranging the spaces and tabs in the RAPID code.

Uppercase Keywords - To change RAPID keywords from lowercase to uppercase.

Convert Spaces to Tabs - Converts consecutive spaces to the corresponding number of tabs. This function operates on the current selection.

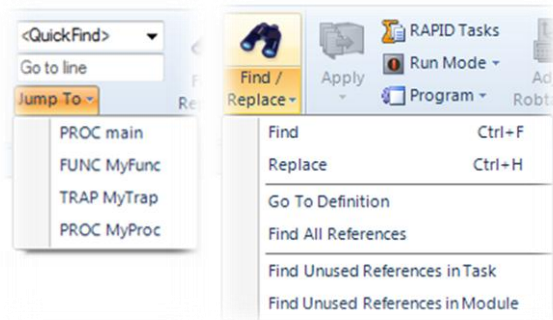
Convert Tabs to Spaces - Does the opposite of function above.

Comment and Uncomment – To comment out or uncomment selected lines

Indent and Unindent – To increase or decrease the indent of selected lines.

Find functions

The Find group, on the RAPID tab contains commands for performing Find and Replace actions on the code in the RAPID editor.



QuickFind - Finds next occurrence after current cursor position. Press <F3> to continue searching

Go to line – Moves the cursor to the corresponding line in the RAPID editor.

Jump to - The Jump To list has an item for each routine in the current program module. Click an item to move to its location in the code.

Find / Replace – Standard functionality for finding and replacing text. You can choose to search in the Current Document, Current System or in a folder on your PC (you can browse to a folder to specify it).

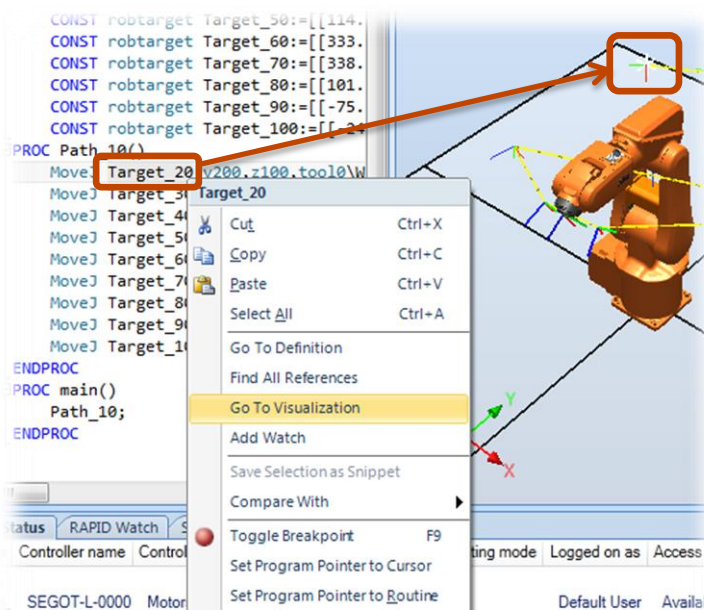
Go To Definition - Moves the cursor to the definition of the selected symbol.

Find All References - Searches through the entire task for uses of the same identifier.

Find Unused References in Task / Module – Lists all data declarations that are not used in the current task or module, respectively.

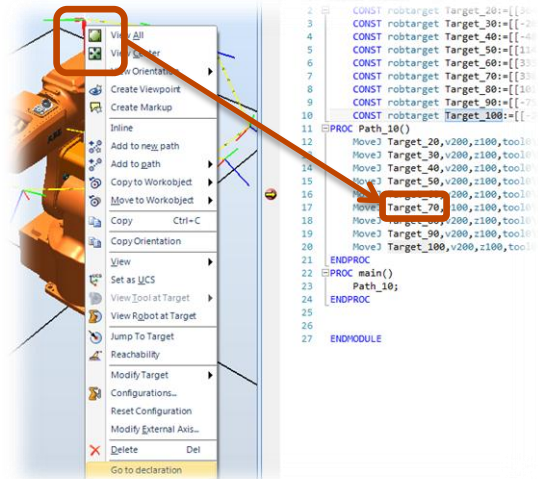
Go to Visualization in 3D

The **Go to Visualization** command is available for targets in the RAPID editor. It takes you to the 3D graphical window to show the target location.



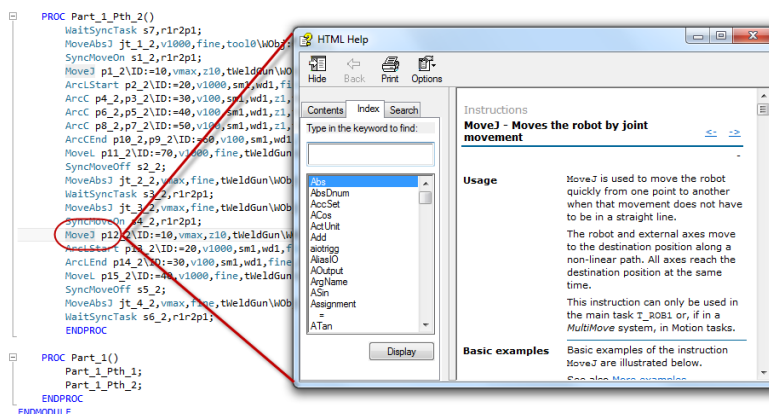
Go to Declaration

The command **Go To Declaration** takes you from the 3D viewer to the robtarget declaration in the RAPID editor.



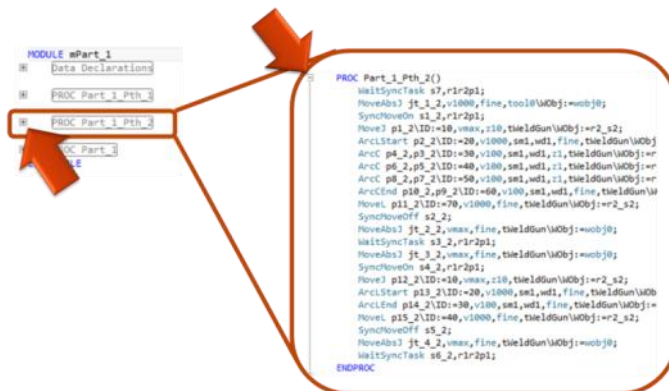
Context sensitive help

Press F1 to open RAPID manual for current identifier



Collapse regions

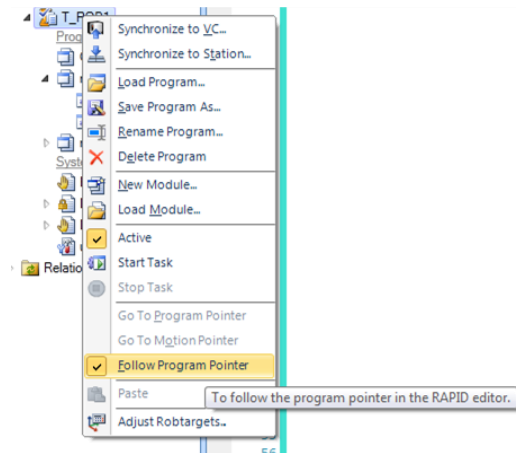
- Certain regions of the code can be collapsed. For example, Data declarations area, routines, IF/WHILE/FOR statements and so on.



1.2.4 Program Pointer features

Follow Program Pointer

The function Follow Program Pointer keeps the program pointer visible during program execution by automatically scrolling the RAPID editor window according to the movements of the program pointer.



Edit RAPID and keep the program pointer position

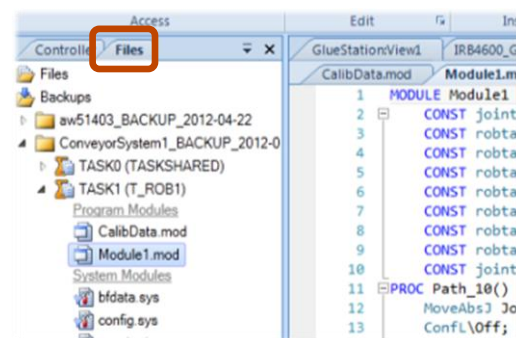
For limited changes to the RAPID code of a controller in Stopped state, the current location of the program pointer can be maintained. After such an edit you can resume program execution from where it was without having to reset the program pointer.



1.2.5 File based RAPID editing

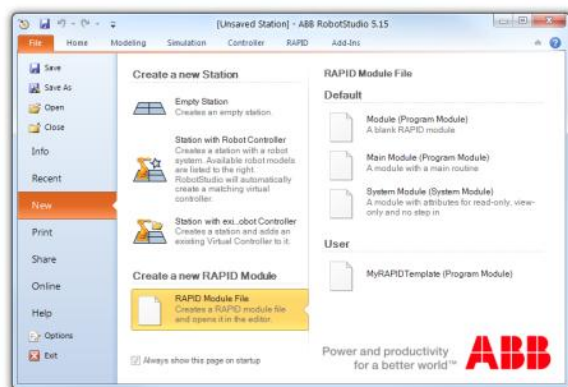
Single modules or complete backups

RAPID modules can be edited in the RAPID editor without connection to a real or virtual controller. You can edit standalone modules or modules that are part of a backup. Configuration files can be edited with limited support for syntax and error highlighting.



New RAPID file

You can create a new RAPID file from the File page. The new module is based on pre-defined templates (*Default*).



You can make your favourite templates available in the *User* section by copying them to the following folder

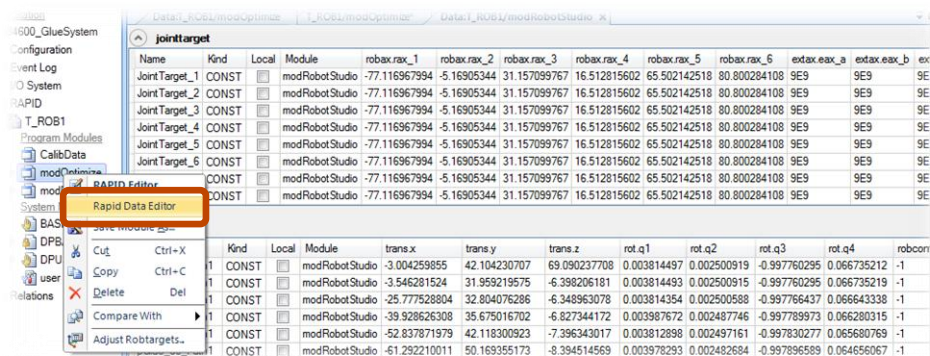
...\My Documents\RobotStudio\RapidModule Templates

Replace the module file name with the text `%ModuleName%` to make RobotStudio give it a unique name

```
MODULE %ModuleName%
! *****
!
! Module: %ModuleName%
!
```

1.3 RAPID Data Editor

The RAPID Data Editor allows you direct access to RAPID data values, which you can view and edit.



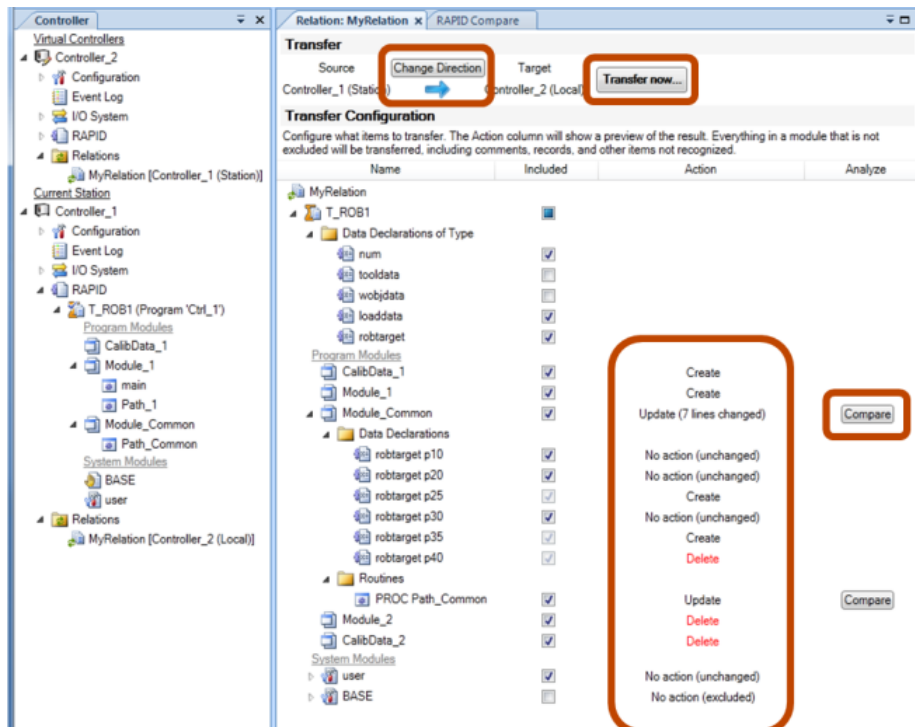
1.4 RAPID Watch Window

You can view and edit the RAPID data of the variables in the RAPID watch window, both during program execution and when the controller is stopped. However, you can only view, but not edit, I/O signals in the watch window.

Controller Status		Output	RAPID Watch	Search Results	Robotlab_514_107: Operator Window
Name	Value				
btProdChoice2	"2" = "				Robotlab_514_3071/RAPID01_MASTER/btEng/btProdChoice2
btTask2	"Mount Valves"				Robotlab_514_3071/RAPID01_MASTER/btEng/btTask2
nTask	1				Robotlab_514_3071/RAPID01_MASTER/btEng/btTask2
dataOK_R2					Robotlab_514_3071/RAPID01_MASTER/btEng/btTask2
cbValveStand_R1	[FALSE,TRUE] [02:26:243.242,26.4305] 0.99992 -0.00205803 -0.0123834 -0.00146679] [0.0,0.0] [1.0,0.0]				Robotlab_514_3071/RAPID01_MASTER/btEng/btTask2
nCycleTime	608.2				Robotlab_514_3071/RAPID01_MASTER/btEng/btTask2

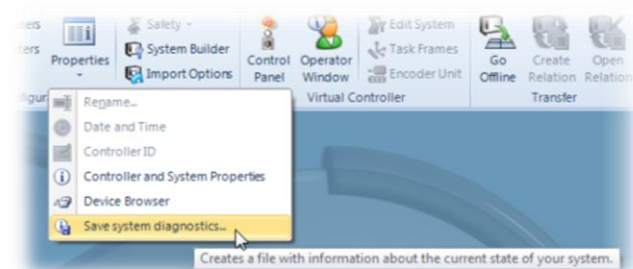
1.5 Transfer

The transfer function allows easy transfer of offline-created RAPID programs to the real robot on the shop floor. This means that you can transfer data from a virtual controller (which is offline) to a real controller (which is online). As part of the transfer function you can also compare the data present in the virtual controller with that present in the real controller and then select which data to transfer.



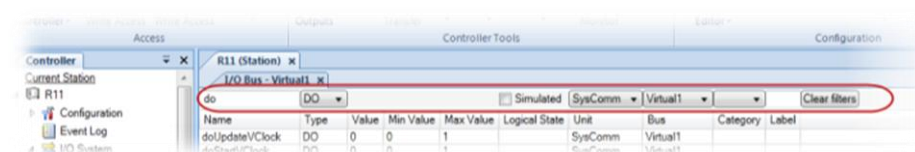
1.6 System Diagnostics

You can create a System Diagnostics data file from RobotStudio.



1.7 Filter in I/O Window

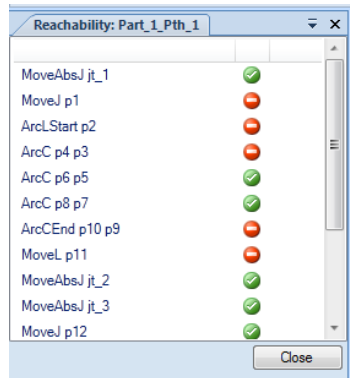
A filter has been added to the I/O Window to make it easier to find signals you are interested in.



1.8 Features for Offline programmers

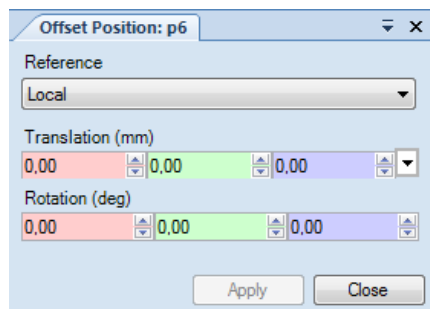
Check Reachability improvement

The function Check Reachability has been improved. You can use it to check whether targets are reachable or not. If you select a path for the check, then the reachability of all move instructions in the path is checked. This function provides an easy reachability check which you can use for initial positioning of the robot, its workobject, paths and targets.



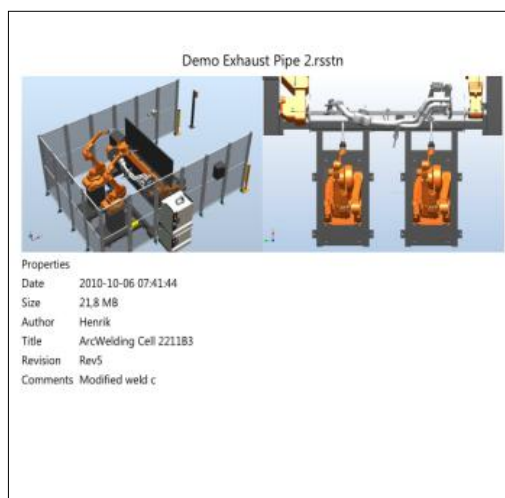
Offset position

The new Offset position tool offers a convenient way to position objects by specifying an offset to its current position using the selected reference frame.



Print 3D

You can now make a print out of the station view together with the station properties such as station name, author, size, date, revision and comments.



1.9 RobotStudio 64-bit edition

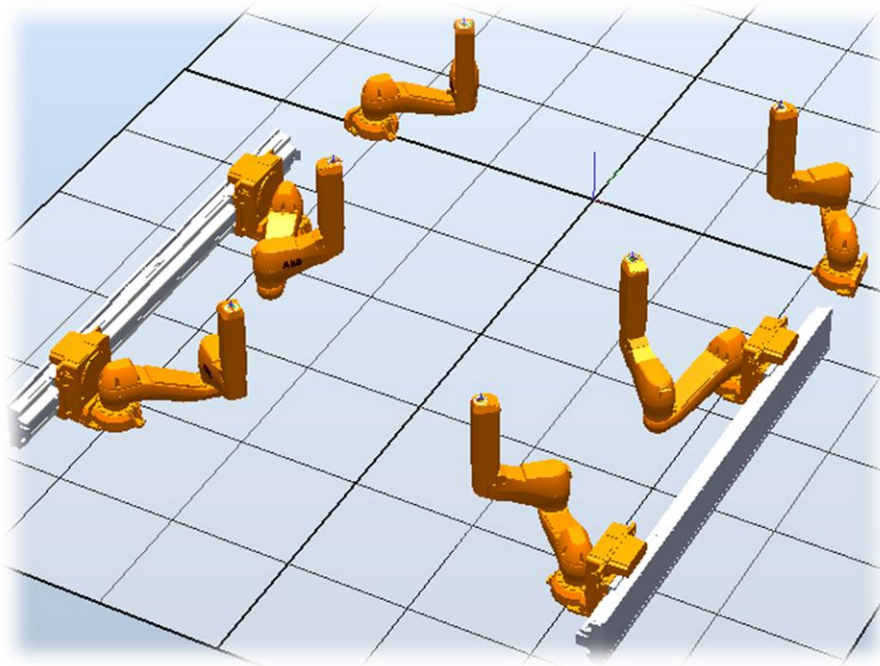
RobotStudio 5.15 is available in a 64-bit edition. The 64-bit edition will be automatically installed on a PC that runs a 64-bit version of a Windows. The 64-bit edition allows large CAD-models to be imported as it can address more memory than the 32-bit version.

MyStation - ABB RobotStudio 5.15 (64-bit)

1.10 New robot models

The new door opener - IRB5350

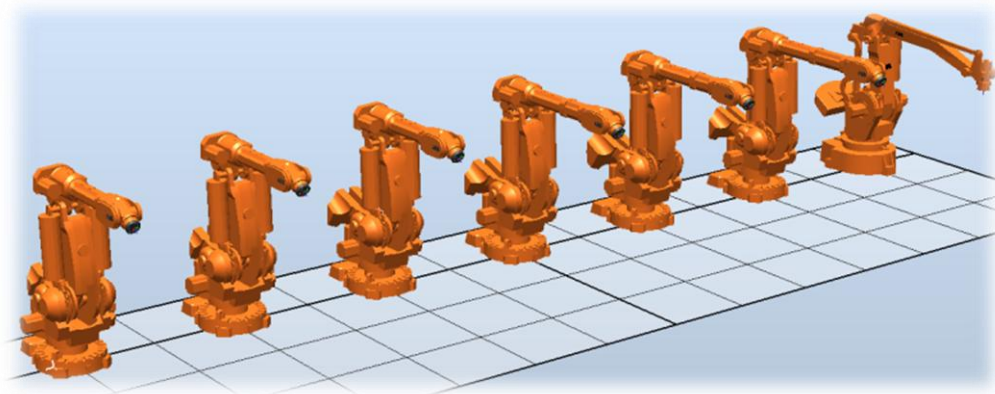
The IRB 5350 door opener robot is a compact and precise robot assistant for automotive interior painting, both for stop-and-go and moving-line solutions. It is available in RobotStudio 5.15.



S4 manipulators – IRB6400R and IRB640

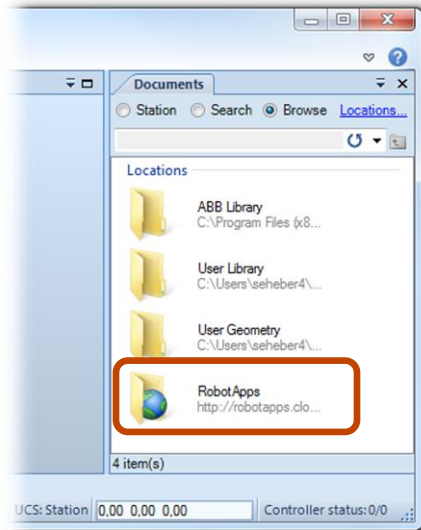
The S4 manipulators, IRB640 and the IRB6400R are supported by the Stand Alone Controller in RobotWare 5.15 and are now available in RobotStudio.

The corresponding controller systems can be created using the System Builder as System From Layout is not supported.



1.11 RobotApps integrated in Document window

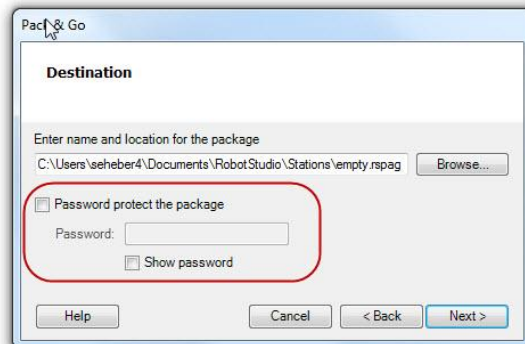
You can search and browse for libraries located at the RobotApps website from the Document window. The web site is also accessible from <http://www.abb.com/roboticssoftware>.



1.12 Station compatibility between 5.14 and 5.15

RobotStudio 5.14.03 is forwards compatible with RobotStudio 5.15 under certain circumstances. This means that stations and Pack&Go files created with RobotStudio 5.15 can be opened with RobotStudio 5.14.03 if the following three conditions are met.

- 1) ... if the Pack&Go file has not been password protected,



- 2) ... if there is no Stopwatch added to the station. (If that is the case, it can be deleted to regain compatibility),



- 3) ... if RobotStudio has been instructed to save CAD geometry of the station using ACIS version R22 (R22 is that is version used by RS 5.14.03. RobotStudio 5.15 has a later version of the CAD engine than RS 5.14.03). Add the following line to the file `RobotStudio.exe.config` to let RS save using the old ACIS format.

File RobotStudio.exe.config:

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <startup useLegacyV2RuntimeActivationPolicy="true">
    <supportedRuntime version="v4.0" sku=".NETFramework,Version=v4.0"/>
  </startup>
  <appSettings file="LicenseServer.config">
    <add key="AcisSaveVersion" value="22"/> <----- THIS IS THE NEW LINE!!!
    <add key="RssNewsUrl" value="http://www.abb.com/blog/gad00540/1DDE6.rss"/>
    <add key="SendKeys" value="SendInput"/>
    <add key="OPCServer" value="ABB.IRC5.OPC.Server.DA"/>
    <add key="BuildTag" value="Production"/>
  </appSettings>
  ...
</configuration>
```

The file is located in the folder

C:\Program Files (x86)\ABB Industrial IT\Robotics IT\RobotStudio 5.15\Bin

on a PC running English version of Windows 7 with a Complete installation of RobotStudio.
For the 64-bit version of RS, the Bin folder is called Bin64.

1.13 ScreenMaker

Launch Virtual FlexPendant from ScreenMaker

Virtual FlexPendant can be launched from the ScreenMaker Tab.

Open standard FlexPendant Screens

It is possible to define an action which will help the user launch standard flexpendant screens like Program Editor, Program Data, etc.

Read and Write to application variables

It is possible to read an application variable value and write back to an application variable and vice-versa.

Copy Screen

Copies of existing screens can be made.