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Release Information

**Release Name**
The release name is Wizard.

**Release Content**
The release contains the following delivery:
- abb.cn.robotics.wizard_1.00.0000.00

**Compatibility**
Wizard is compatible with RobotWare 7.0.2 and supports the robot model IRB 14050-0.5/0.5.

**Release Date**
Release date 2020-03-12
General

**Installation**

1. Launch RobotStudio 2019.5 or later version
2. Switch to Add-In tab, install RobotWare 7.0.2 and abb.cn.robotics.wizard_1.00.0000.00
3. Switch to Controller tab, click Installation Manger and select Installation Manager 7

**To create system in Virtual Controller:**

4. Select an existing Virtual System, or create a new system
5. In Installation Manager/Products, add RobotWare related products and Wizard

6. In Installation Manager/Licenses, use default virtual licenses. No additional license is required for Wizard.

7. In the Installation Manager/Options, select the following options (Note that Wizard is only used for IRB 14050. Robot will not be added successfully if other robots is chosen):
8  Apply to create the controller system with Wizard  
9  Launch FlexPendant App  

**To create system in Real Controller:**
4  Select a running controller on the Network  
5  Real license files are required  
6  Refer to the rest of steps in “To create system in Virtual Controller” in order to download system to Omnicore controller.

**Language Support**

The following languages are supported in Wizard:
- English  
- Chinese

Note: If the controller language is neither English nor Chinese, then English will be displayed in Wizard.
Functionality

**Easy Programming**

The application provides readable blocks and each block stands a piece of RAPID code. A program can be constructed easily by connecting the blocks together in the workspace just like putting sentences together to write a paragraph. The step by step instructions with visual elements are also provided to guide the users filling the required parameter(s) for each block.

Once the program is completed, the user can press “Apply” to generate a completed RAPID program and download it to controller.

In this version, the following blocks are provided:
Move blocks

Move and Move Straight blocks are provided to move robot arm to a location with user defined tool and speed. By executing Move instruction, the robot will move to the user defined location.

Relevant parameters:
- <tool> Select from Finger, Vacuum1 and Vacuum2
- <speed> Select from very quickly (v1000), quickly (v500), moderately (v200) and slowly (v50)
- <somewhere> Either create a data by following the creation instruction or select from existing ones.

Finger blocks

Open finger and Close finger blocks are provided for the basic gripper operations.

Note that “holdforce” is not used in the two blocks.

Pick up <object> at <somewhere> using finger

To complete a Pick block, an object is required to be created first to provide information such as width, finger force and offset. The information will be collected while the user is going through the object creation instruction. A location is also necessary for picking the defined object using fingers.

Place item at <somewhere> using finger

Place block usually is connected to a Pick block, so a location is required for placing the object defined in Pick block by releasing fingers.

Pick up next <object> from <tray> using finger

Instead of defining a pick location, Index Pick block allows the user to define a tray which has up to 3 dimensions by following the tray creation instruction. By placing the block inside a Loop block, the robot can pick the objects in order from the defined tray.

Place item at next open spot in <tray> using finger

Refer to the Index Pick block, the Index Place block can be used in combination with Loop block to place the objects in sequence from a defined tray.

Relevant parameters:
• `<object>, <somewhere>, <tray>`
Either create a data by following the creation instruction or select from existing ones.
• `<error handling>` Select from ‘pause’ and ‘wait and retry’

**Air blocks**

Enable air and Disabled air blocks are provided to control the air for the selected vacuum.

Refer to Pick and Place blocks in ‘Finger blocks’ section. The only difference is the blocks work with the selected vacuum.

Refer to Index Pick and Index Place blocks in ‘Finger blocks’ section. The only difference is the blocks work with the selected vacuum.

**Relevant parameters:**

• `<tool>` Select from Vacuum1 and Vacuum2
• `<object>, <somewhere>, <tray>`
Either create a data by following the creation instruction or select from existing ones.
• `<error handling>` Select from ‘pause’ and ‘wait and retry’

**Procedure blocks**
Procedure block is provided to separate a complex program into several parts. By using the procedure blocks, the main program can be kept concise and easy to understand. The reusability of blocks is improved as well.

The Call Routine block is provided to invoke a procedure which has no parameter. The procedures that are in other modules under the same program will be available to select.

**Loop blocks**

By placing blocks inside a For block, the blocks can be executed for the user defined times.

By placing blocks inside a While block, the blocks can be executed until or while a condition is met.

**If block**

The If block can be extended, for example if..else or if..elseif..else. By placing blocks inside a If block, the blocks will be executed optionally according to the conditions.

**Signal blocks**

The block is provided to set value to available DO signals.

The block is provided to send pulse to available DO signals.
The blocks are provided to pause the program execution until the signals become the user desired value.

The block is a condition block, which can be used with While block and If block.

**Data definition**

Wizard has three types of data definitions: Location, Object and Tray. There is a data definition panel can be triggered by Data button. It provides features such as add new data definition, edit and delete the defined data definitions.

**Gripper operations**

The operation panel provides useful features to control the gripper, including open/close finger, set finger force, enable/disable suction for Vacuum1 and Vacuum2 and enable/disable blowing-off for Vacuum1 and Vacuum2.

**Help**

Two interactive tutorials are provided in this version to help user understanding the usages of panels and blocks such as Move, Pick and Place. In-device user manual is also available for providing more detailed information about Wizard.

**File management**

New: The functionality clears both Wizard workspace and main module in the controller. 
Save as: The current program can be saved to a pre-defined the location in the controller for editing later. 
Load: The programs that are stored in the pre-defined location in the controller will be displayed on a panel. The user can select which one to load to the workspace. 
Rename: Rename the current program.

**Limitations**

**Maximum blocks**

In order to guarantee smooth interactions, the maximum of 180 blocks can be added or loaded into Wizard workspace. Once the maximum is reached, a dialog will be prompted to suggest the user to use Code for more modifications.

**Maximum data definitions**

The maximum of 100 definition for each type of data (Location/Object/Tray) can be created in Wizard.

**Maximum dragging limitation**

The maximum of 60 connected blocks can be dragging at once to avoid a noticeable response delay in the workspace.
Call routine

The Call Routine block can only be used in the situation that the routine has no parameters.

Notes:
1. The option is only visible if the vacuum pressure is greater than 0. If no vacuum is available, the air related blocks and functions will be hidden.
2. Error handling is optional for pick and place blocks.