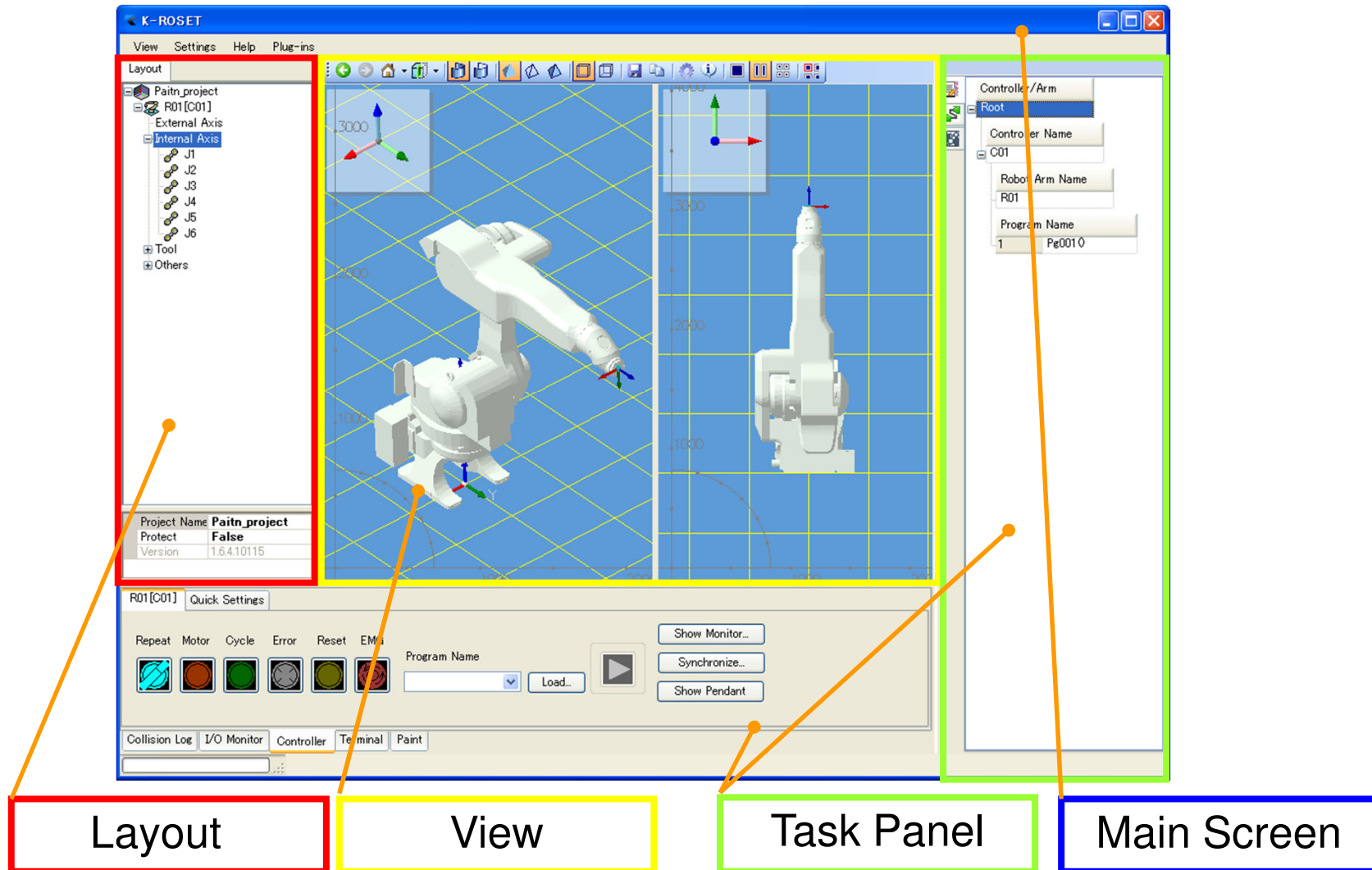




Preparation: K-ROSET Concept



Preparation: Coordinate System

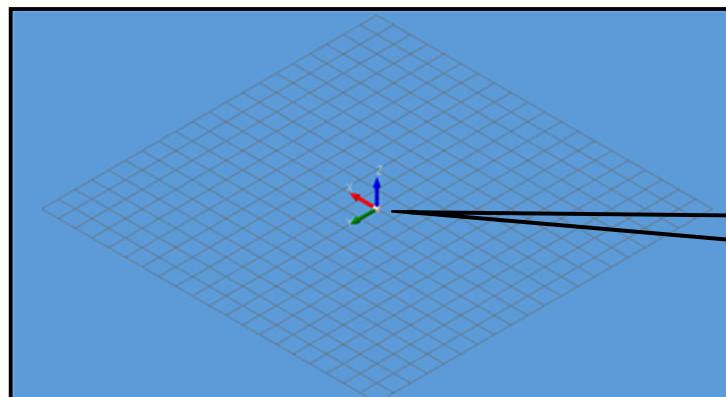
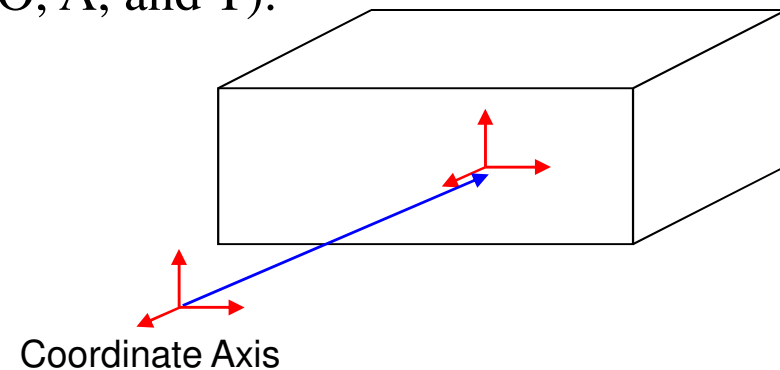
A coordinate converted value is a coordinate value obtained by setting a certain coordinate system as a base.

The coordinate value is shown with three values indicating positions and three values indicating directions (X, Y, Z, O, A, and T).

World Coordinate

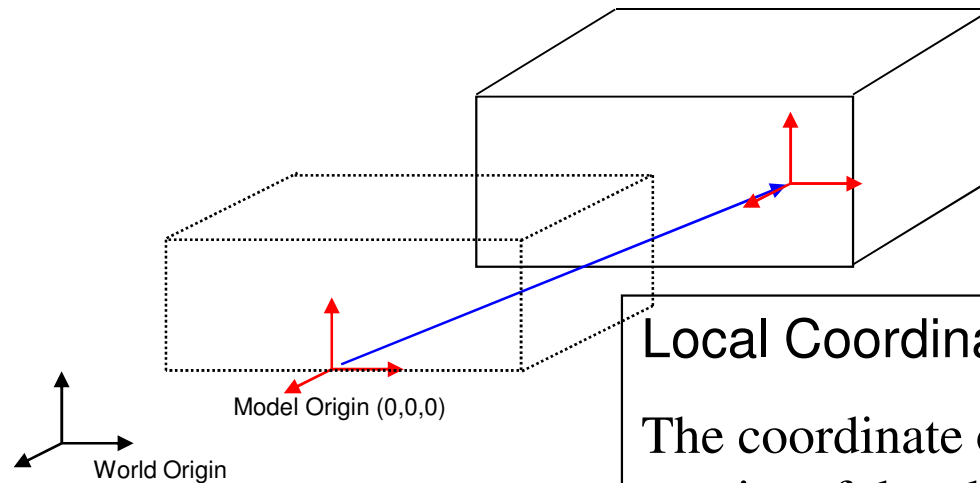
A coordinate obtained by setting a world origin as a base.

The coordinate system is used when operation is carried out in a layout.



The center of the view is a world origin.

Preparation: Coordinate System



Local Coordinate

The coordinate obtained by setting the center of gravity of the object as an origin.

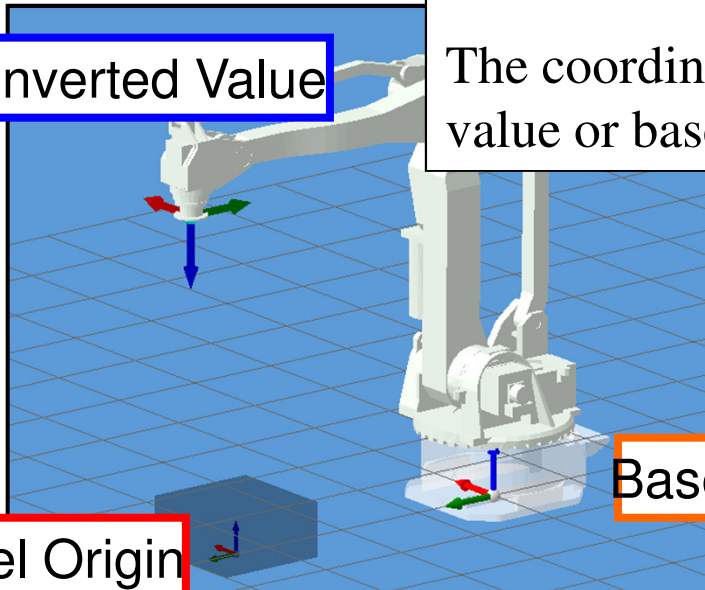
Tool Coordinate, Base Coordinate

The coordinates obtained by setting the tool converted value or base converted value as an origin.

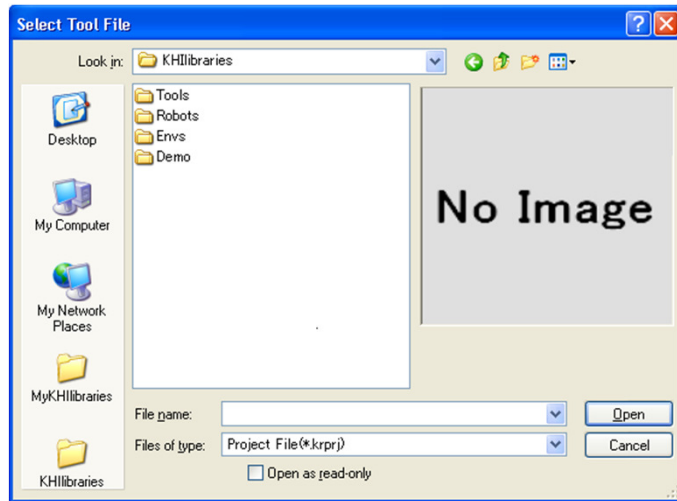
Tool Converted Value

Model Origin

Base Converted Value



Preparation: Configuration of K-ROSET



Library Configuration

KHllibraries (Installation Folder)

Sample projects and models are saved in this folder.

MyKHllibraries (My Documents)

The files created by user is saved in this folder.

Version Information

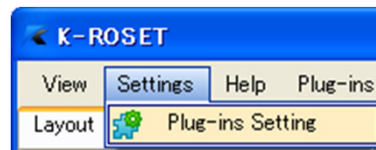
Information to check the versions of K-ROSET and Plug-Ins.

Menu Bar [Help]-[Version Information]

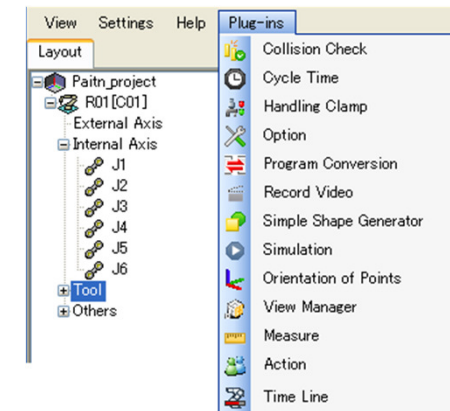
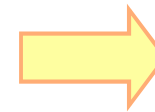
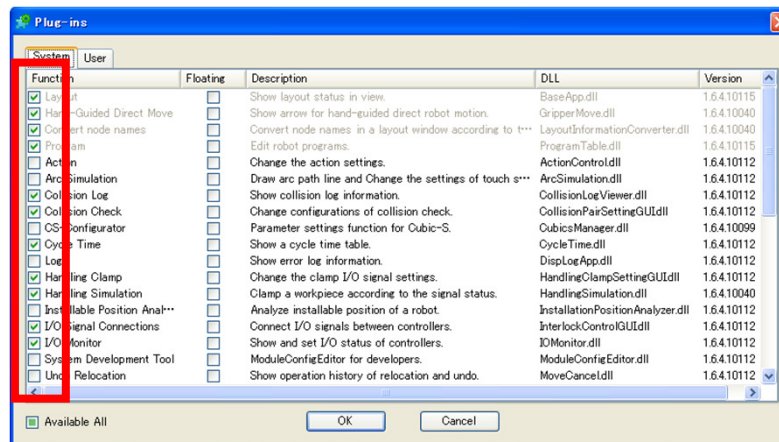


* Data format of 3D is STL.

Menu (Plug-In Setting)



1. Select [Settings] from menu bar.
2. Place a check mark in necessary functions.

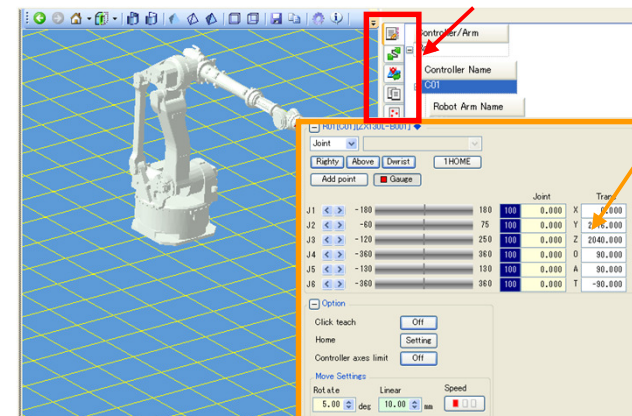


Extended application is displayed on [Plug-Ins] of menu bar and a task panel.

When Floating is checked, the screen separates from the task panel.

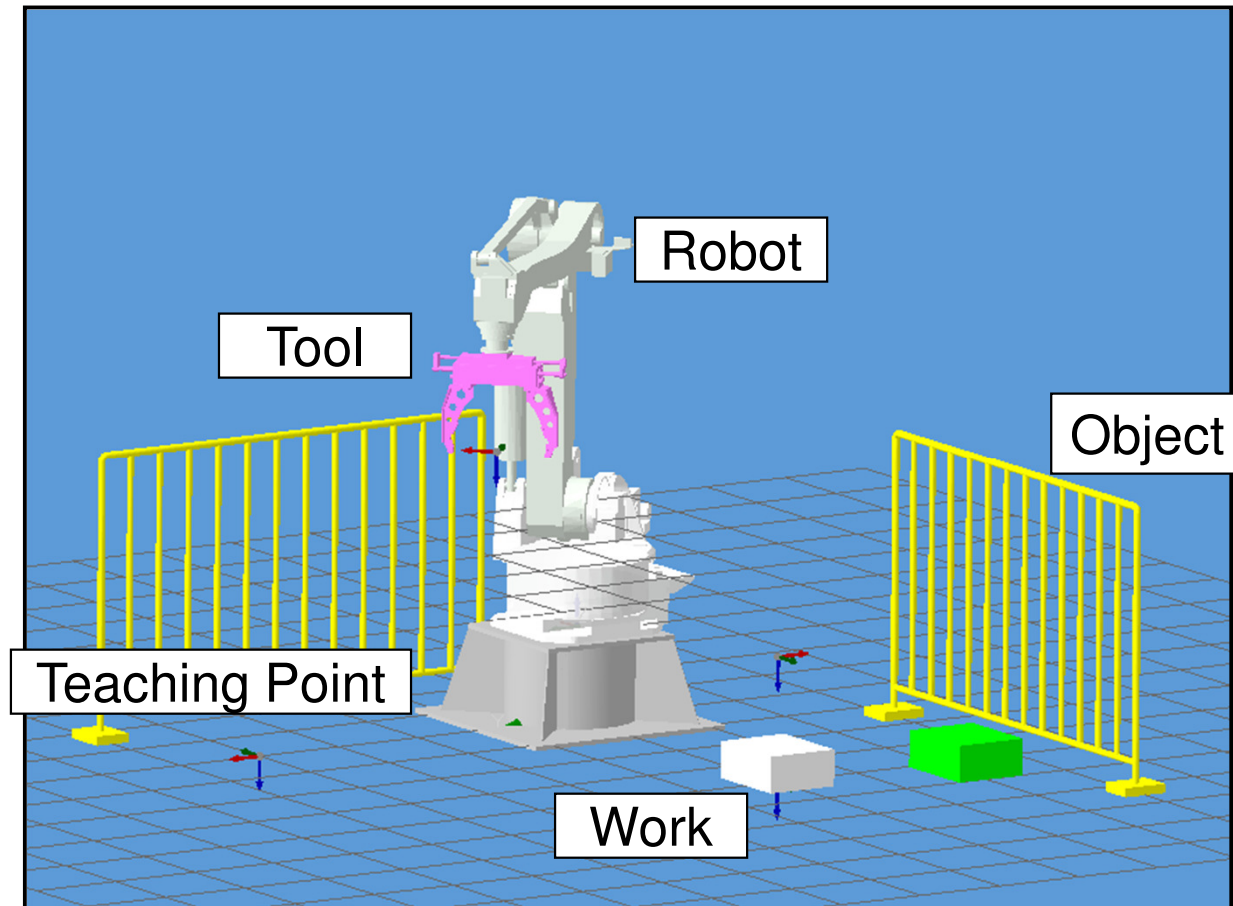
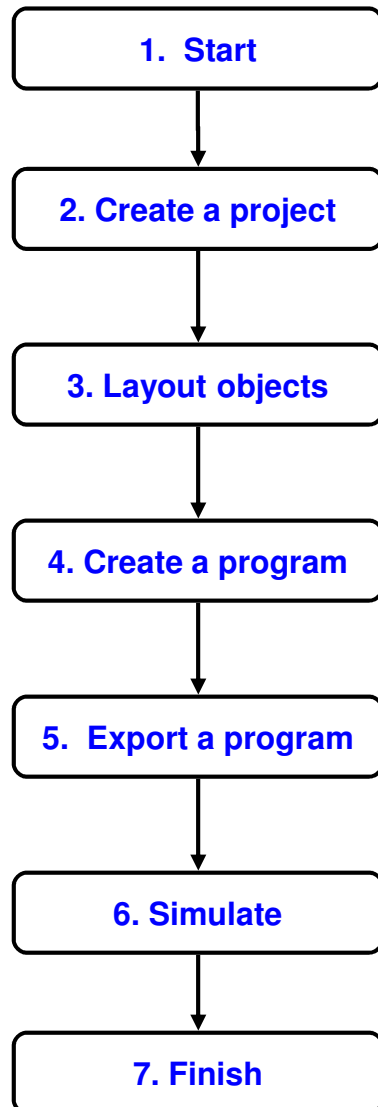
*Restart of the K-ROSET is necessary for setting unload and floating.

Normal Display




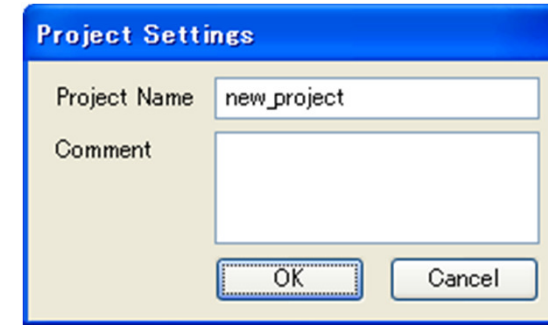
Floating Display

Basic Operation



Layout: Creation of Project

1. Right-click the icon of the project [] in tree pane.
2. Menu of the project is displayed. Select [Project]-[Create New].
3. Enter a project name to save.
(Remarks can be entered in a comment column.)
4. Select [OK].

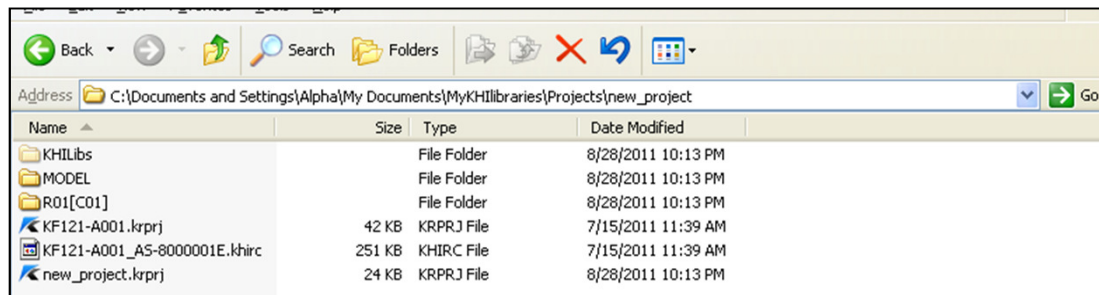


Project Settings

Project Name:

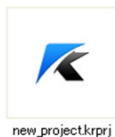
Comment:

*My Documents¥MyKHILibraries¥Projects folder is created automatically.



Address: C:\Documents and Settings\Alpha\My Documents\MyKHILibraries\Projects\new_project

Name	Size	Type	Date Modified
KHILibs		File Folder	8/28/2011 10:13 PM
MODEL		File Folder	8/28/2011 10:13 PM
R01[C01]		File Folder	8/28/2011 10:13 PM
KF121-A001.krprj	42 KB	KRPRJ File	7/15/2011 11:39 AM
KF121-A001_AS-8000001E.khirc	251 KB	KHIRC File	7/15/2011 11:39 AM
new_project.krprj	24 KB	KRPRJ File	8/28/2011 10:13 PM



Project File

*.krprj is a structured file for K-ROSET.
This file is linked when installed.

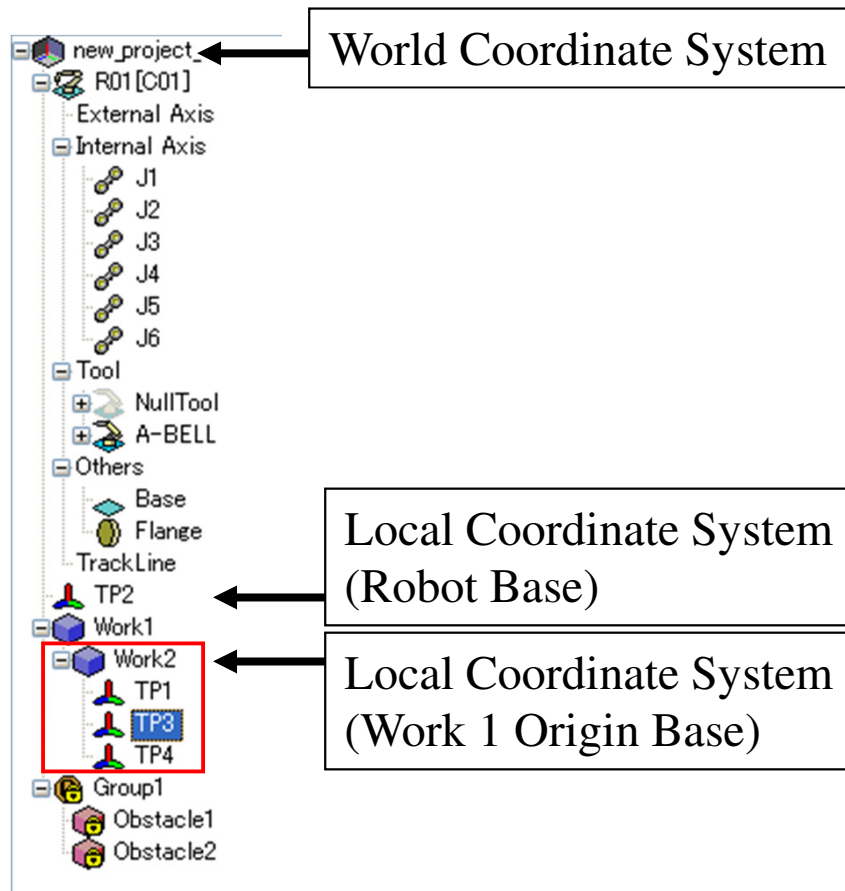


Model Folder

STL file used in the project is stored in this folder.

Layout: Tree Pane

The operation to add objects of models is carried out in tree pane.



Physical Items

Icon	Node	Description
	Robot	The robot. Consists of several items such as the base and joint.
	Base	One of the robot component items, which is the base of the robot.
	Joint	One of the robot component items, which works as a joint of the robot.
	Tool	One of the robot component items, which is installed at the end of the robot arm to perform work such as painting or grasping depending on the tool type.
	Workpiece	An item to be the target of work such as painting or grasping. Parts etc. are applicable.
	Obstacle	An item out of the target of work such as painting or grasping. Part stands etc. are applicable.

Logical Items

Icon	Node	Description
	Flange	One of the robot component items, which connects the arm end with the tool.
	Logical joint	One of the robot component items, which is a joint to control the robot's motion on the PC side.
	Teaching point	A point to be used as a reference for work.
	Group	Two or more items can be managed as a single group.


Options

Icon	Node	Description
	Hide	A state that the model is hidden.
	Lock	A state that the location of model is locked.

Layout: Robot

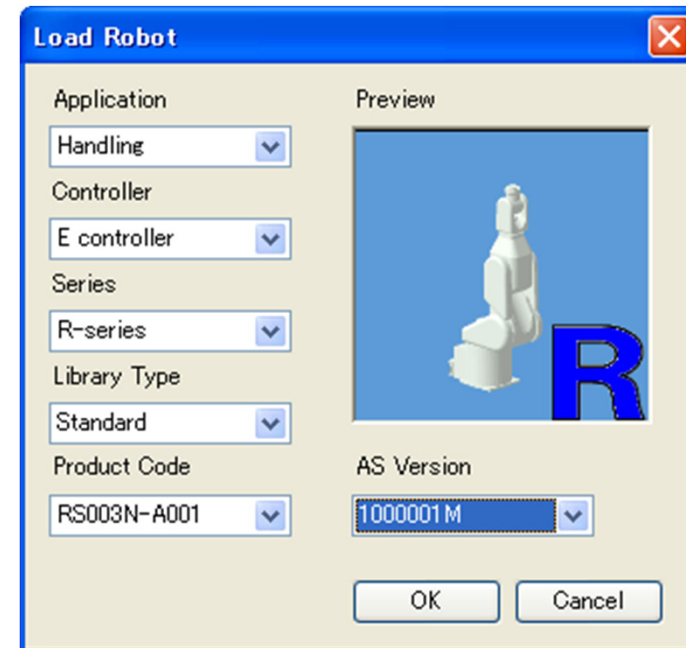


The operation to add a robot is carried out.

1. Right-click the icon of the project [] in tree pane, and select [Add]-[Robot] from menu.

2. Robot selecting dialog is displayed.

Select Apply/Controller/Series/Library/Model,
and then press [OK] button.



Thumb Nail

Type is displayed on the lower right.

P: Project

R: Robot

T: Tool

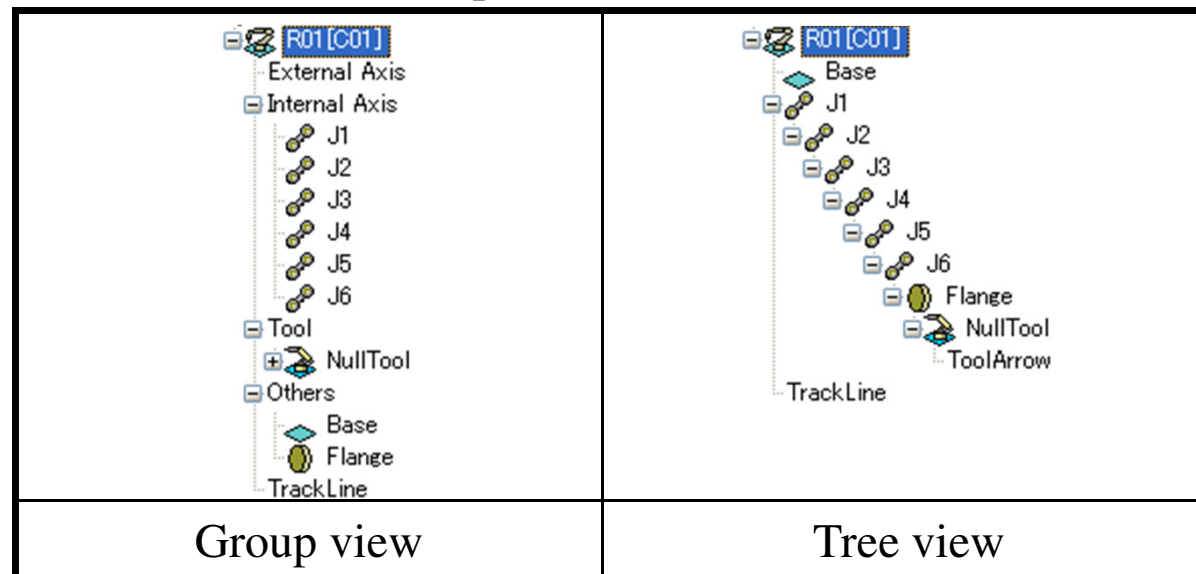
E: Environmental Object

Layout: Configuration of Robot axis

Immediately after the robot is added, group view is applied.

Switching of Tree View of Robot

1. Right-click Robot icon [] in tree pane, and select [Show Axis on Group Status] from menu.



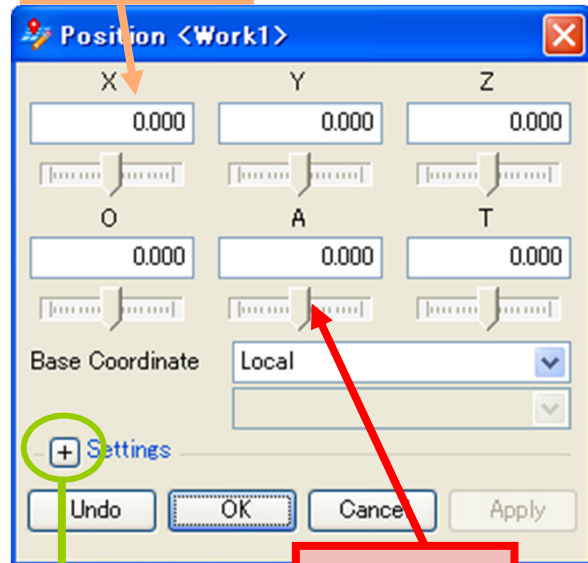
* Switching of the view is only for robot object.

About Tree

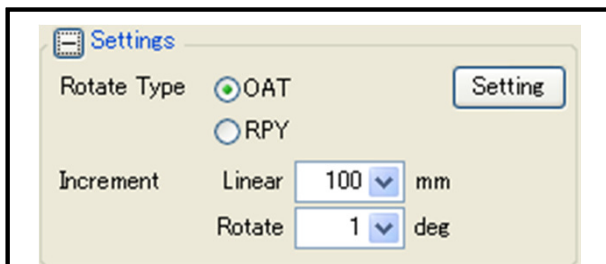
- Position is set from the coordinate system of the parent object. (ex: World is set when the parent is Project.)
- When a parent moves, the child also moves. (Save of relative position)

Layout :Change installation position

Input Box



Slide Bar



RPY:Rx, Ry, Rz Rotation

Magnification: Increase/decrease of slide bar

Change the installing position in the base coordinate.

Procedure to display the installing position change dialog.

- (1) Double-click an object to change in tree pane.
- (2) Select [Position]-[Change] from the right-click menu of the object.
- (3) Double-click the model in the view.

Change Position

1. Set the value of coordinates by inputting a value or with a slide bar.

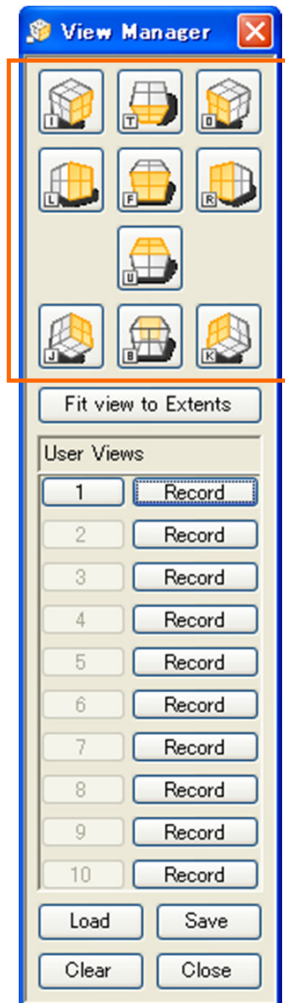
2. Press [Apply] button.

Return to the original position.

1.Restore to the value before change with [Undo] button.

*The value cannot be restored after pressing Apply button.

View Manager



Initially Registered Viewpoint

Base viewpoint centering on the world origin.
Click the icon to change a viewpoint.

[Fit View to Extents]...Fit a model to the view.

User Views

Press the registration button at the viewpoint to register.

The viewpoint is registered. Press a button of 1 to 10 to change the view to the registered view.

[Load]...Deletes the currently registered user view, and read the viewpoint setting file (*.xml) to set.

[Save]...Saves the currently registered user view in the viewpoint setting file (*.xml).

[Clear]... Deletes the currently registered user view .

1. Change to the viewpoint of the view to fix.
2. Click the registration button of the view number to set.

Operation of View

Rotation	Drag a view with a right button of a mouse.
Pan	Drag a view with Shift+right button of a mouse.
Zoom	Three methods are available: (a). Drag a view with Ctrl+ right button of a mouse. (b). Zoom with a mouse wheel. (c). Drag a central button of a mouse and draw a rectangle to zoom into the rectangle.
Move of Fixation Point	Click an object with a central button of a mouse to move a fixation point to the position. This operation can control the center of the rotation of the view. Note that the fixation point (center of the rotation) is set at the top of the zoom in the zoom operation (c).



Fit to the screen

Prev / Next

Clip plane(Sectional display)



Shading


Wire Frame

Shading + Wireframe

Layout: Transformation Value

Change of Tool Transformation Value



1. Right-click the tool icon [] in tree pane to display a menu.
2. Select [Tool Trans]-[Change...].
3. A dialog box of the Transformation value is displayed. Enter a value.
4. Press [Apply] button to close.




The coordinate of the tool arrow indicates the tool transformation value.

* Changing a position of the tool model changes the position of the parent object of the arrow. As the result, the transformation value also changes.

Layout: Transformation Value

Change of Base Transformation Value

1. Right-click the robot icon  in tree pane to display a menu.
2. Select [Base Trans]-[Change].
3. A dialog box of the converted value is displayed. Enter a value.
4. Press [Apply] button to close.

*The base converted value equals the sum of the coordinate of Robot Installation Posture and the coordinate of base transformation value.

Switching of Hide/Show of Base/Tool transformation Value

1. Display a menu for setting the Transformation value described above.
2. Select [Show]. (Repeat Hide/Show.)

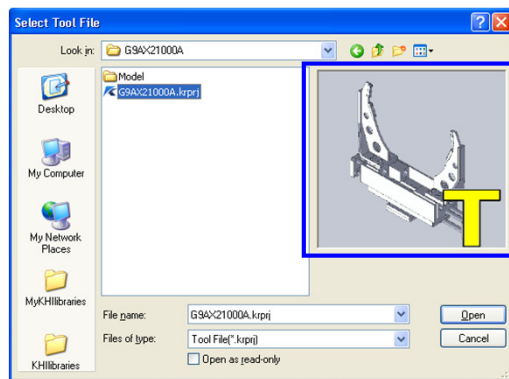
Layout: Tool



Reading of Tool

Add a tool to the robot.

1. Right-click the robot icon [?] in tree pane. Select [Tool]-[Load].
2. Select a target file from a selecting dialog, and then click [Open] button.

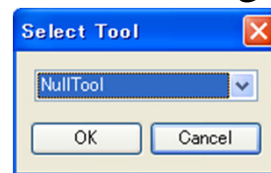


Structured File (*.krprj)
Thumb nail is displayed.
A type is displayed on the
lower right.

Attachment of Tool

Attach a tool read in a robot.

1. Right-click the robot icon [?] in tree pane. Select [Tool]-[Attach].
2. A selecting dialog appears. A tool during reading in the robot is displayed in the list.



3. Select a tool to attach from the list box, and press [OK] button.

- ## Basic Item

- A model name of the arm is displayed.

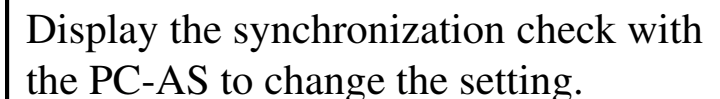
- The number of axis forming a robot is displayed.

- The number of movable axes used other than robots is displayed.

- Depending on a point to install a robot, “Floor”, “Ceiling” “Wall” “Wall(reverse)” “Angle specification”

Expand Item Setting

Robot controllers data can be set.



Layout: Display of Properties

Name	R01 [C01]
Product Type	RS003N-A001
Controller	E controller
AS Version	1000001M
Lock	False
World Trans	0.00,0.00,250.00,0.00,0.00,0.00
x	1.5307579422779716E-14
y	-9.372879511388359E-31
z	250
o	0
a	0
t	0
Local Trans	0.00,0.00,250.00,0.00,0.00,0.00
Joint Value	0,0,0,0,0
Base Trans	0.00,0.00,0.00,0.00,0.00,0.00
x	0
y	0
z	0
o	0
a	0
t	0
Deactivate Collision	
Entity Type	RobotMod
Show Origin	True
Shape File Path	
Shape File Name	
Visible	True
Tool Trans	0.00,0.00,0.00,0.00,0.00,0.00

In the properties at the lower part of the layout tab, the settings described above can be changed.

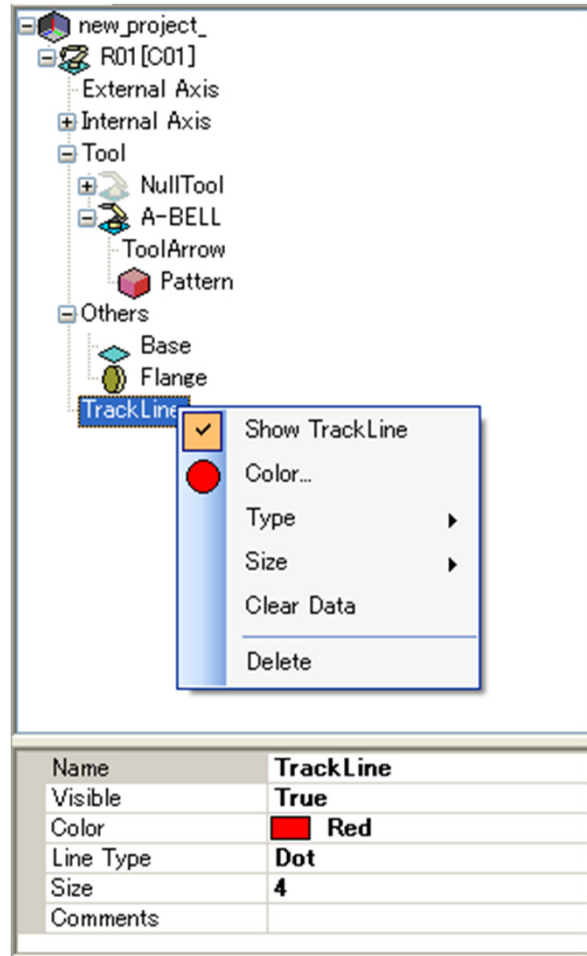
Enter the values by item with the tree opened.

[True] [False] are changed by double-click or drop-down.

Parameter [↗]	Change [↗]	Description [↗]
Local Trans [↗]	O [↗]	Local coordinate values [↗]
Show Origin [↗]	O [↗]	Whether the origin of the item is displayed or not is indicated. [↗]
World Trans [↗]	O [↗]	World coordinate values [↗]
Tool Trans [↗]	O [↗]	Tool coordinate values [↗]
Deactivate Collision Detection [↗]	[↗]	Whether the item is applicable to interference check or not is indicated. [↗]
Entity type [↗]	[↗]	The type of the item is indicated. [↗]
Base Trans [↗]	O [↗]	Base coordinate values [↗]
Transparency [↗]	O [↗]	Transparency of the model [↗]
Name [↗]	O [↗]	Item name [↗]
Joint value [↗]	O [↗]	Value of each joint [↗]
Shape File Path [↗]	[↗]	The absolute path to the shape file is indicated. [↗]

Changeable points are displayed in black, and unchangeable points are displayed in gray.

Layout: Track Line



Display the track line of the end of the robot hand.

[Color...] Changes a color of a trace line.

[Type...] Selects a point and line.

[Size] Changes a size of a trace line.
(Large or Medium or Small or any input)

[Clear Data].....Deletes data of a trace line.

[Delete].....When several items of a trace line is available, deletes a selected teaching point.

Other

Change of Name

Change of an installing position of a track line (double-click)

1. Right-click the item of [Track Line] to select [Show.].
2. Set the type to [Line].
3. Change a axis value of a robot (J1) in properties.

Layout: Environmental Object

(Work, Obstacle)

Add a work.

1. Right-click the icon of the project [] in tree pane.

2. Menu of the project is displayed. Select [Add]-[Environment]-[Work..].

3. A file selecting dialog is displayed. Select the target file to read, and then press [Open] button.

Difference between Work and Obstacle

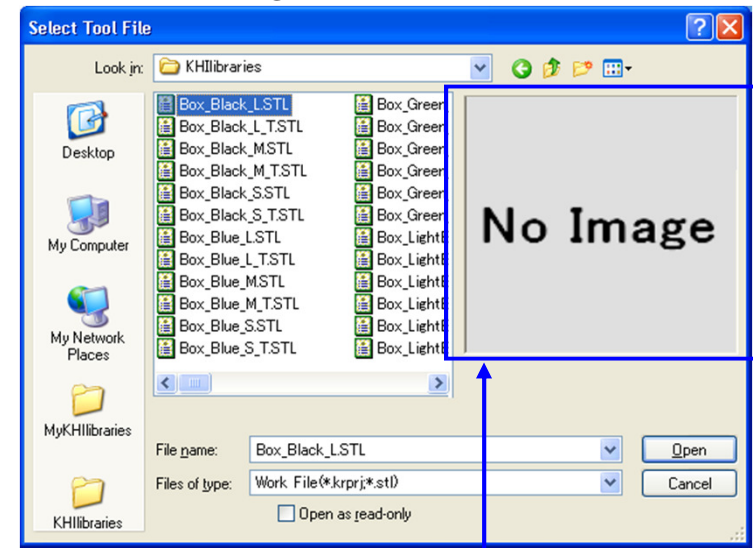


- A work is grasped (moved to the lower of the robot tool model) by clamp signal.

- A work can be a conveyor work by attaching the work to the lower of the conveyor object. (Move work)



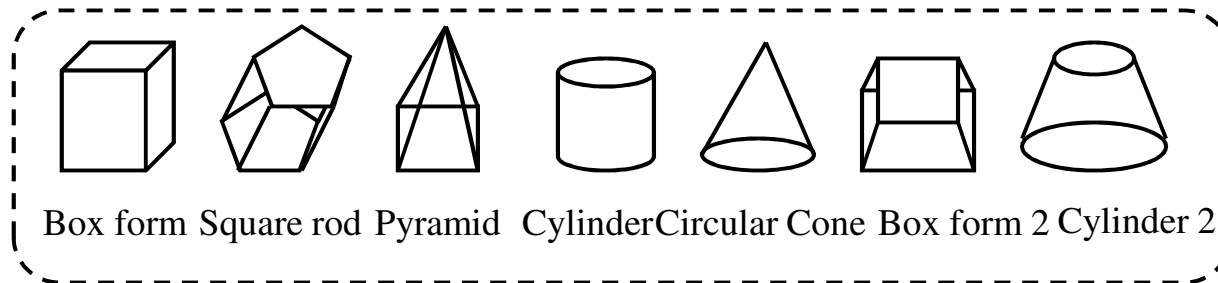
Shortcuts of [MyKHILibraries] and [KHILibraries] are displayed in the dedicated dialog.



Thumb nail is displayed for the structured file, and the type is displayed on the lower right.

Layout: Simple Shape Generator

▪ Target Shape



Work

Creates a work in the size of selected shape

Obstacle

Creates an obstacle in the size of selected shape

File..

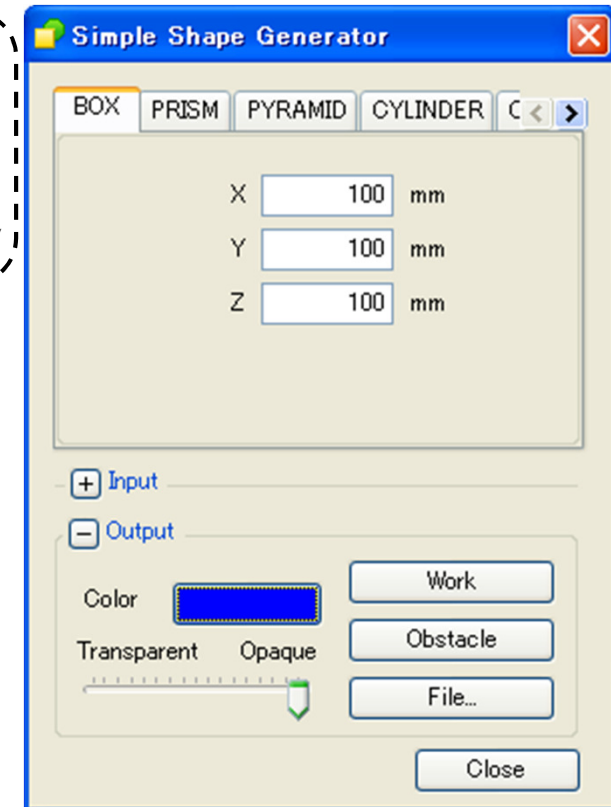
Creates a model of the parameter entered in any name

Color

Sets a color of a model


Transparency-Opaque

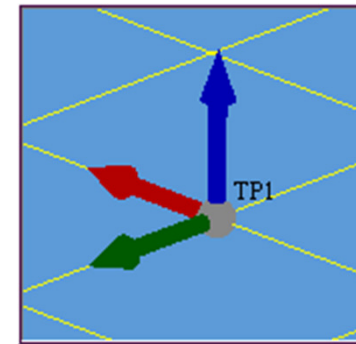
Transparency is set with a slide bar



1. Select [Plug-Ins]-[Create Simplified Shape].
2. Select a work shape, and enter a size.
(Set a color and transparency.)
3. Click [Work] to add.

Layout: Teaching Point

1. Right-click the icon of the project [] in tree pane.
2. Menu of the project is displayed. Select [Add]-[Point]-[Assigned Position].
3. Change a position with an position change dialog.



▪ Current Position (Top of Tool)

A menu of the project is displayed. Select [Add]-[Point]-[Current Position].

* Note that when a robot is not added, the menu cannot be selected.

Layout: Group

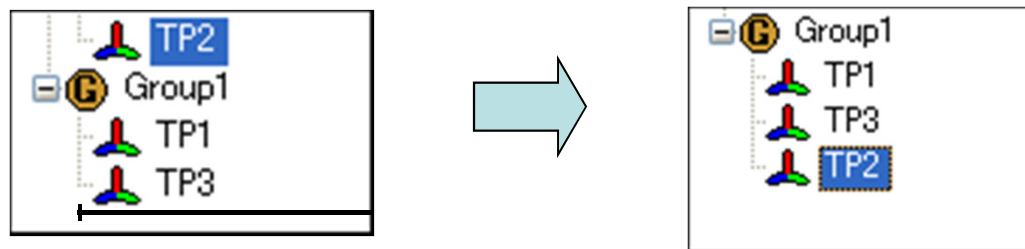


A component to group objects in a hierarchical structure.

1. Select [Add]-[Group] from menu.

Drag and drop in tree pane.

A parenting relationship can be created by drag and drop of objects in tree pane. * Note that a world coordinate is taken over.



1. Drag an object.
2. When the object for a parent reverse its color, drop it.

Layout: Common Function

Example: Work



Hide/Show

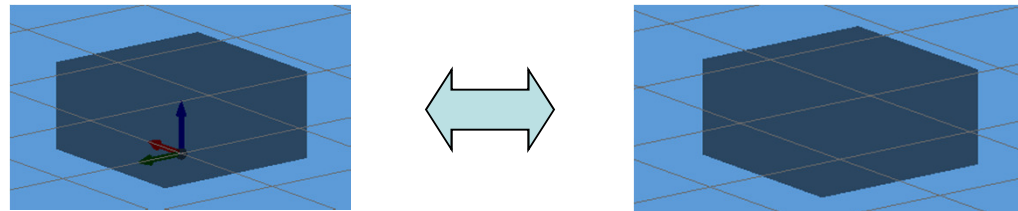
A procedure to switch Hide/Show is described.

The state of Hide is shown as []

1. Right-click the icon of the object [] in tree pane.
2. A menu is displayed. Click [Show].


Hide/Show of Origin (Tool is a converted value)

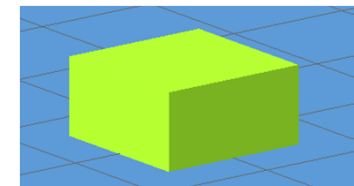
1. Right-click the icon of the object [] in tree pane.
2. A menu is displayed. Click [Show Origin].



Highlight


A procedure to highlight in a view is described.

Left-click the icon of the work [] in tree pane.



Layout: Common Function


Change of Name

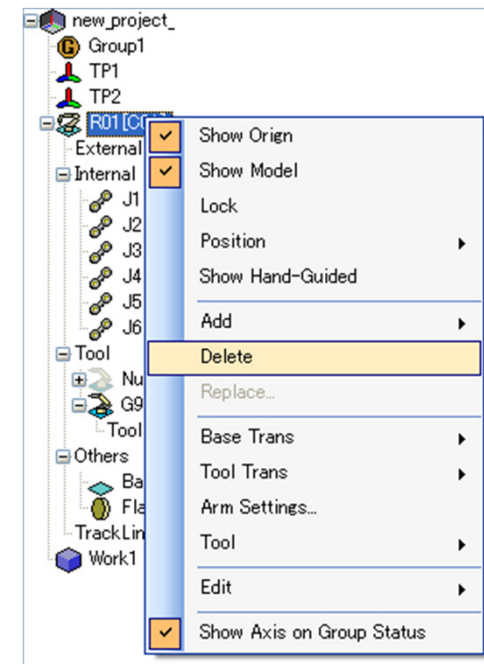
1. Select the icon of the object [] in tree pane.
2. Then, left-click again or press F2 key.



Delete (except Tool)


A procedure to delete is described.

1. Right-click the object [] to delete.
2. A menu is displayed. Select Delete.



Lock/Unlock

A procedure to lock/unlock so that the installed position is not changed.

The locked state is shown as []

1. Right-click the icon of the work [] in tree pane.
2. A menu is displayed. Click [Lock].

Layout: Common Function

Record of Installing Position


A procedure to record a installing position is described.

1. Right-click the icon of the object [] to record a position in tree pane.
2. A menu of a work is displayed. Select [Position]-[Record].

A position of the work is recorded.

Reset of Installing Position of Work

A procedure to reset the installing position of a work is described.


1. Right-click the icon of the work [] to reset in tree pane.
2. A menu of a work is displayed. Select [Position]-[Restore].

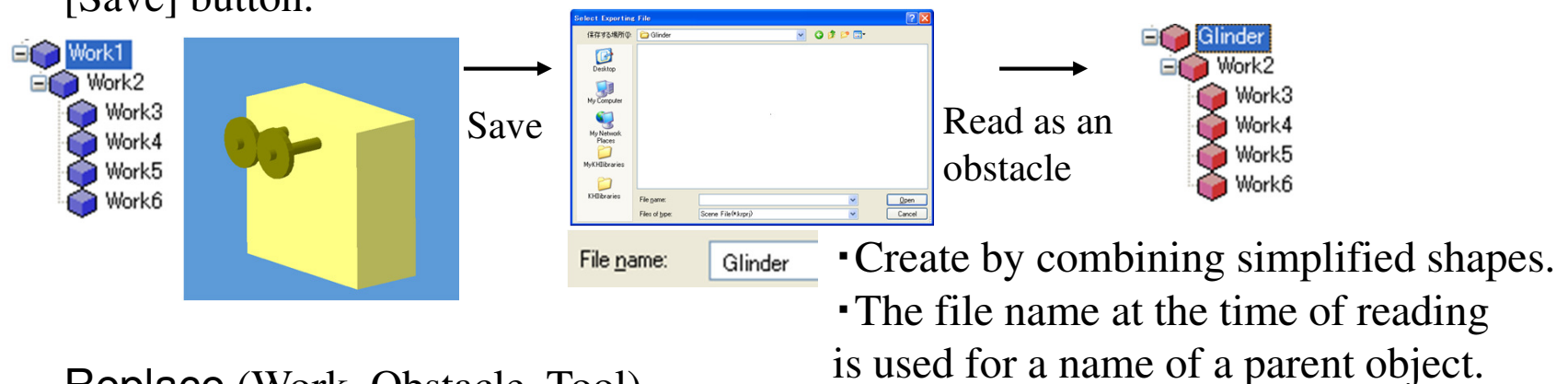
The position is reset to the position before change (a recorded position).

Layout: Common Function

Save (Work, Obstacle only)


An object can be saved with maintaining a tree structure of the object.

1. Right-click the icon of the object [] in tree pane.
2. A menu of an object is displayed. Select [Save].
3. A selecting dialog of saving destination is displayed. Select the name of the object to save and a saving destination folder, and then press [Save] button.



Replace (Work, Obstacle, Tool)

A model is replaced with other model.


1. Right-click the icon of the object [] in tree pane.
2. A menu of an object is displayed. Select [Replace].
3. A file selecting dialog is displayed. Select a file of the model to replace, and press [Open].

Layout: Common Function

Operation of Edit of Object (except Robot, Tool)


Copy

Used for a duplication of an object.

1. Right-click the icon of the object [- 2. A menu of the object is displayed. Select [Edit]-[Copy].


Cut

Used to move an object to the lower of other tree.

1. Right-click the icon of the object [- 2. A menu of the object is displayed. Select [Edit]-[Cut].

Paste

Paste a copied/cut object.

1. Copy/cut.
2. Right-click the icon of the object [- 3. A menu is displayed. Select [Edit]-[Paste].

* Note that a local coordinate is taken over.

Layout: Batch Operation

Regarding the items of Record/Restoration of Installing Position, Hide/Show of Origin, and Hide/Show, several objects are operated in batch operation.

1. Right-click the icon of the project [] in tree pane.
2. A menu is displayed. Select [Batch Operation]-[Position].

Record of Position

Select [Record].

Select an item for the batch operation.

Restoration of Position

Select [Restore].

Select an item for the batch operation.

Hide/Show of Origin

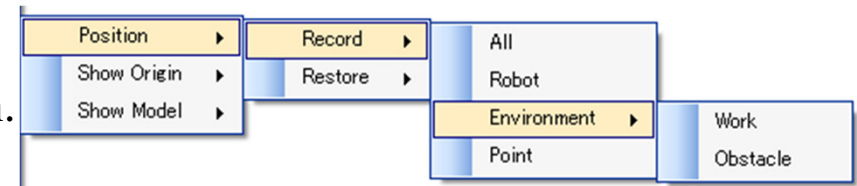
Select [Show Origin].

Select an item for the batch operation.

Hide/Show of Model

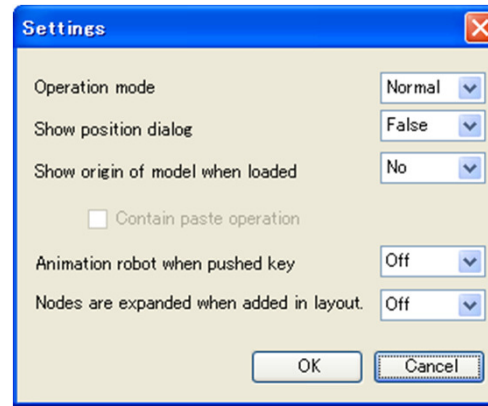
Select [Show].

Select an item for the batch operation.



Layout: Settings

Right-click the icon of the object [] in tree pane, and then select [Setting] from menu.



Operation Mode

Switching Standard and Editor mode. * Details of Editor mode will be described separately.

Show Position Dialog

When a model is added, a dialog for changing installing position is displayed automatically.

Show origin of model when loaded


When a model is added, a model origin is displayed.

Animate robot when pushed key

A posture of a robot is changed when switching with top and bottom key

An object is expanded when added to a layout.

Layout: Save Project

1. Right-click the icon of the project [] in tree pane.

- Save

Enter a project name to create the folder.

- Overwrite

Overwrite the current project and save.

2. A menu of the project is displayed. Select [Project]-[Save].

2. A menu of the project is displayed. Select [Project]-[Overwrite].

3. Enter a project name to save, and enter remarks in a comment column if necessary.

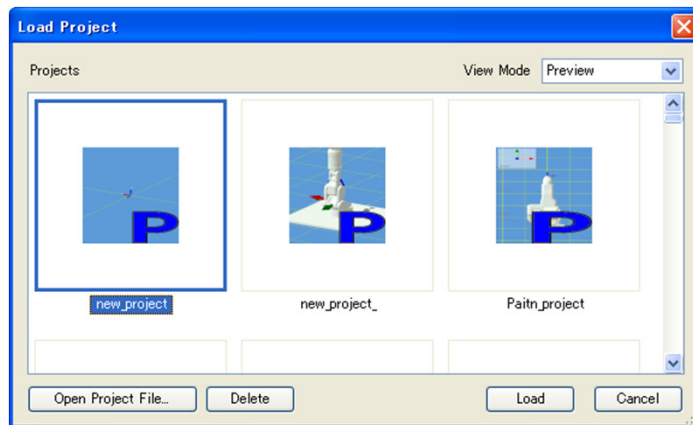


A folder is created for each added robot.

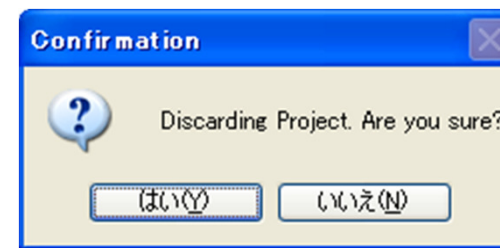
- LOG Save folder of history file of terminal
- PG Work folder (Program Tab, Terminal)
- TRAJ Save folder of trace file

Layout: Load Project

1. Right-click the icon of the project [] in tree pane.
2. A menu of the project is displayed. Select [Project]-[Load].



* A confirmation message is displayed when a project is being created.




▪ Reading
Select a project saved in MyKHILibraries to read.

▪ Specify a file to read
Refer to a directory other than MyKHILibraries to read.

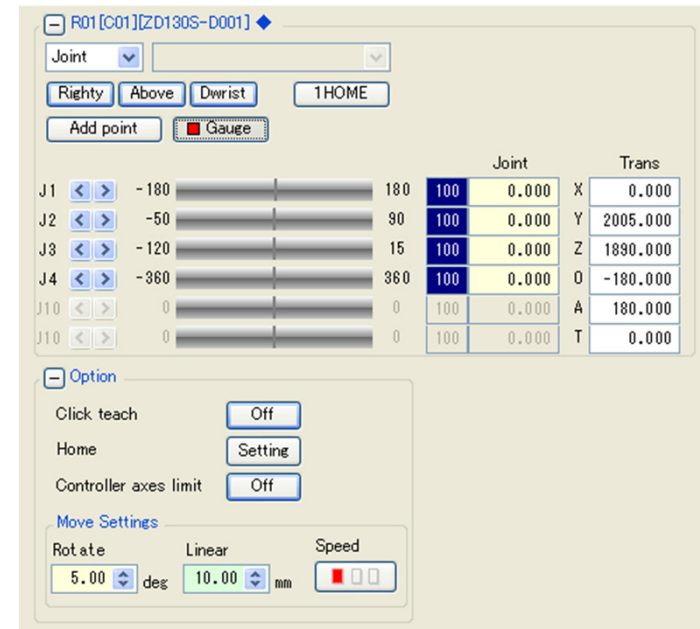
3. Select [Read].

3. Select [Open Project file..].
4. Select a project file in a file selecting dialog, and then click Open button.

Teach Panel

Display the panel with an icon [] on the task panel on the right of the K-ROSET.

- Add point
 - Teaching point is added to the end of the robot hand.
- Gauge
 - Switching of hide/show of a gauge of axis values
- Click Teach
 - An environment object is selected in the view and a teaching point is added.
- Home
 - Setting/move of robot home position
- Move Settings
 - Rotate
 - Definition of moving distance of axis motions
 - Linear
 - Definition of moving distance of straight motion
 - Speed
 - Magnification of displacement is set to 1/2/3 times.



The screenshot shows the K-ROSET Teach Panel interface. At the top, it displays the robot name 'R01 [C01] [ZD130S-D001]' and a 'Joint' dropdown menu. Below these are buttons for 'Righty', 'Above', 'Dwrist', '1HOME', 'Add point', and a 'Gauge' button with a red square icon. The main section contains a table of joint and translation values:

		Joint		Trans	
J1	< >	-180	180	100	0.000
J2	< >	-50	90	100	0.000
J3	< >	-120	15	100	0.000
J4	< >	-360	360	100	0.000
J10	< >	0	0	100	0.000
J10	< >	0	0	100	0.000
X					0.000
Y					2005.000
Z					1890.000
Q					-180.000
A					180.000
T					0.000

Below the table is an 'Option' section with buttons for 'Click teach' (Off), 'Home' (Setting), and 'Controller axes limit' (Off). At the bottom is a 'Move Settings' section with 'Rotate' (5.00 deg), 'Linear' (10.00 mm), and 'Speed' (100%) settings.

Teach Panel

After selecting each axis/base coordinate/tool coordinate/world coordinate/ work coordinate, change a posture by [< >] click operation.

Click a bar to move by axis.
* Color shows motion margin.



* Indicates Current (target robot for operation)
Current is changed by clicking a robot icon in the tree.

[- R01[C01][ZD130S-D001] ◆

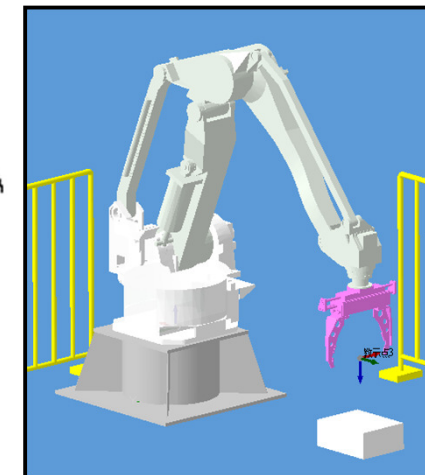
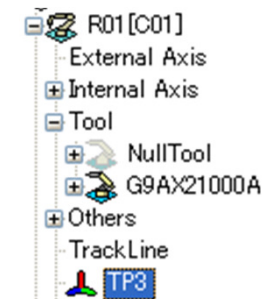
Joint [v] [v]

Righty Above Dwrist 1HOME

Add point [Gauge]

Input Value

	Joint	Trans
J1	< > -180 180 100 0.000 X 0.000	
J2	< > -50 90 100 0.000 Y 2005.000	
J3	< > -120 15 100 0.000 Z 1890.000	
J4	< > -360 360 100 0.000 O -180.000	
J10	< > 0 0 100 0.000 A 180.000	
J10	< > 0 0 100 0.000 T 0.000	



1.Change a posture of a robot.

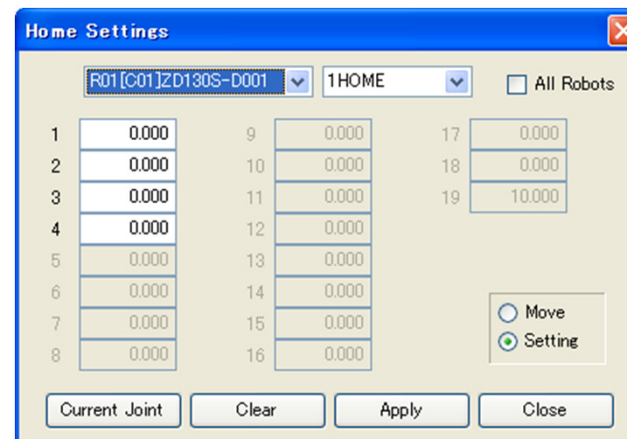
2.Click [Add Point].

•A teaching point is displayed in the view. A teaching object is added under the robot object in the layout.

* A robot posture can be changed by clicking a teaching point.

Teach Panel: Home Setting

Two of the current postures of a robot can be recorded at maximum, and the robot can be restored to the recorded posture later.



Joint	Value
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.000
18	0.000
19	10.000

[Current Joint].....A robot posture in the combo box is entered.

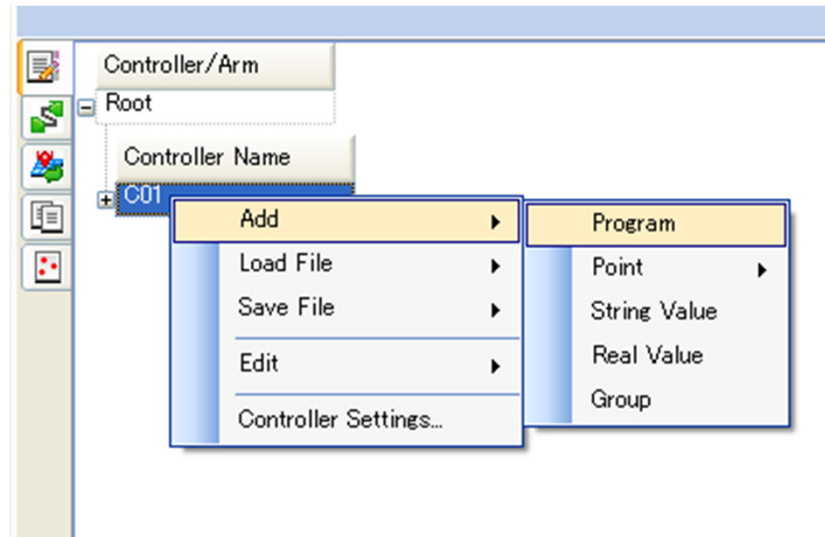
[Clear]..... The entered value is cleared.

[Apply]The posture of the entered value is applied to a root.

- 1.Click a teaching point set as a home position in a layout.
- 2.Click the Current Value button.
- 3.Click Apply.

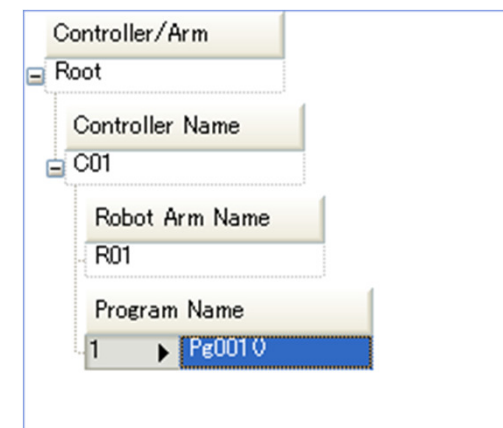
Program Tab

A program is created on the K-ROSET to add/edit program instructions.



Addition of Program

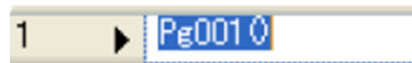
1. Right-click a menu of controller names (shown by right-clicking [C01] in the figure below). Select [Add]-[Program].



Program Tab

Change Name of Program

Click a program name. The name is displayed as follows, and can be changed.



Copy/Cut of Program

Select [Edit]-[Copy] or [Cut] from a menu of a program name.

Paste of Program

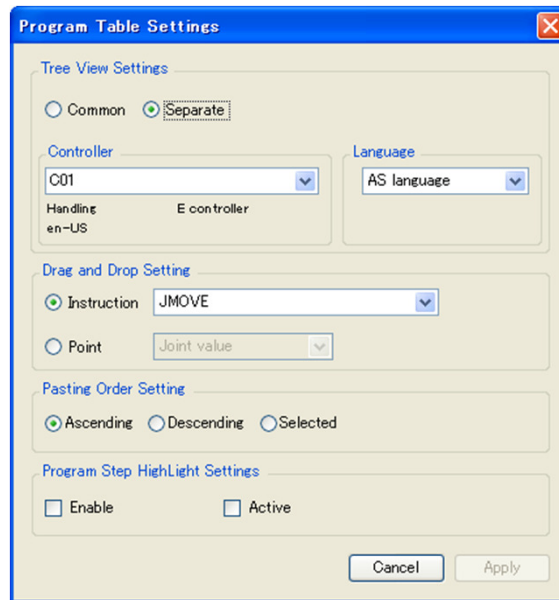
Copy/Cut a program, and then select [Edit]-[Paste] from a menu of a program.

Delete of Program

Select [Delete] from a menu of program names.

Program Tab

Select [Set] from a root menu of program table.



Setting of Tree Pane

Change a language displayed in tree.

For language setting per controller, change [Common] to [Individual] of [Setting of Tree Display].

Drag and Drop Setting

Motion instruction/teaching point converted by drag and drop is changed.

Setting of Pasting Procedure

A procedure for copying and pasting several program steps is changed.

Program Step Highlight Setting

Program Tab

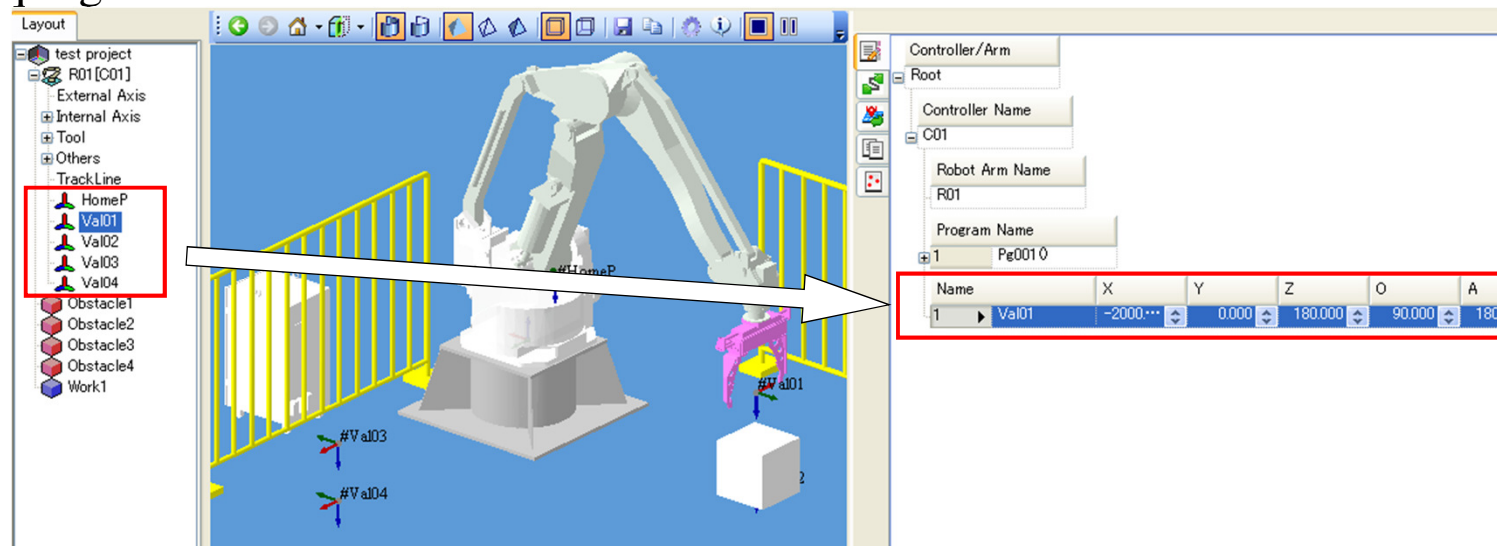
Drag and drop a teaching point to add an instruction.

Motion Instruction: Move of Axis Interpolation, Move of Linear Interpolation

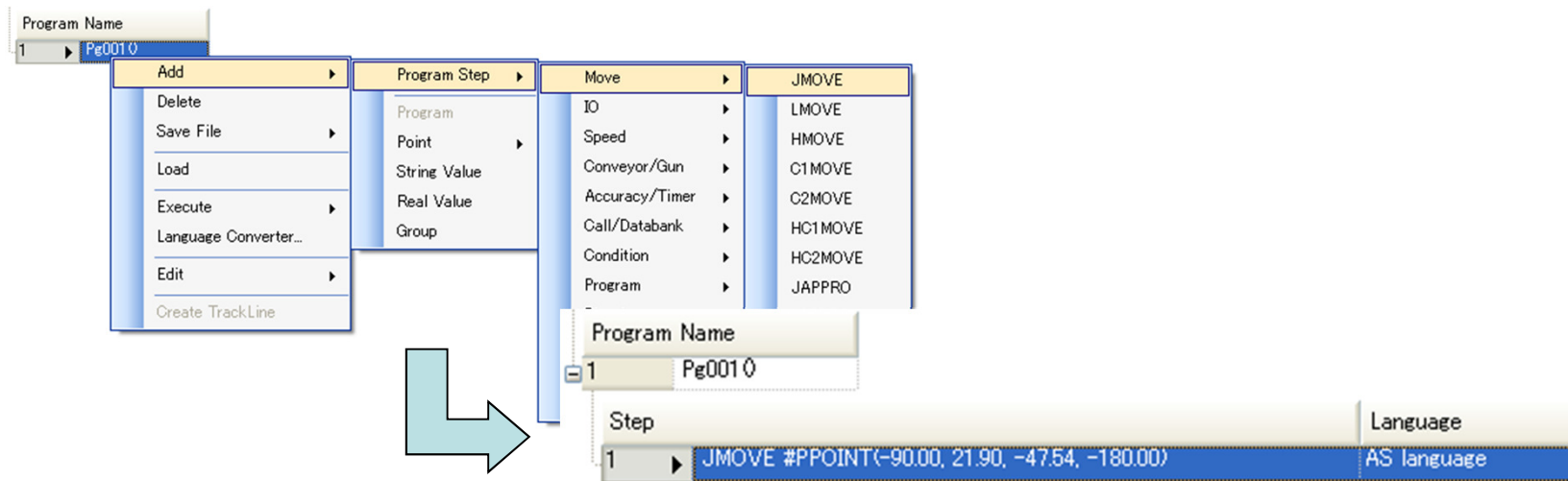
Teaching Point: Joint Values, Transformation Values

Switching of Types to Add

1. Select [D&D Setting]-[Teaching Point]-[Transformation Value] on [Program Table Setting] screen.
2. Drag and drop a teaching point in the layout to the controller of the program tab.



Program Tab



Addition of Program Instruction

Program instruction is added.

1. Select [Add]-[Program Step] from a menu of program names.
2. Select [Move]-[JMOVE].

Edit/Delete of Program Instructions

Contents of program instructions can be edited directly on the program table.

- Instructions can be deleted/copied/cut/pasted.
- Program instructions can be moved by selecting line numbers.

Program Tab

Save of Program

A program currently being created is saved.

1. Select [Save File]-[Program (*.pg)] from a program menu.
2. Enter a program file name to save in a dialog, and then press [Save] button.

Loading of Program

Read a created program file.

1. Select [Load File]-[Program (*.pg)] from a controller menu.
2. A dialog is displayed. Select a program file.

Execution of Program

All Steps

Simulate using PC-AS.

Only Motion Steps(Simple Mode)

Move a robot by motion steps to understand rough motions.

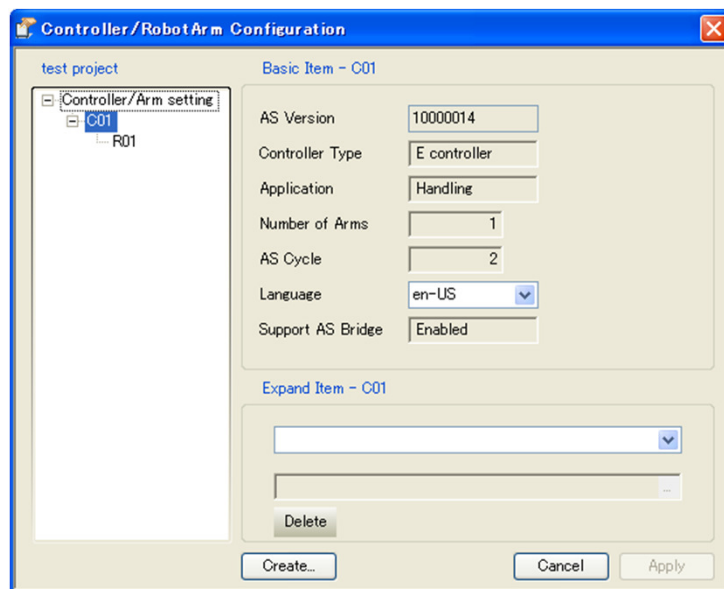
Create Track Line

Track lines executed in a program is drawn.

Controller Settings

A procedure to set a controller is described.

1. Display a controller menu of a program tab.
2. Select [Controller Settings].



When a setting is changed, display the synchronization check with the PC-AS.

- AS Version

PC-AS version supported by a controller is displayed.

- Controller Type

Type of a controller is displayed.

- Application

Application supported by a controller is displayed.

- Number of Arms

Number of robots operated by a controller.

- AS Cycle

Control period of a robot controller [msec]

- Language

Language setting of a virtual teaching pendant is changed.

Menu of Controller Name of Tree

- Support AS Bridge

Start/stop of the PC-AS is carried out.

Virtual Robot Controller (PC-AS)



A virtual robot controller executes the actual AS on the software to simulate.

The virtual robot controller is configured of a virtual controller module, and starts per robot.

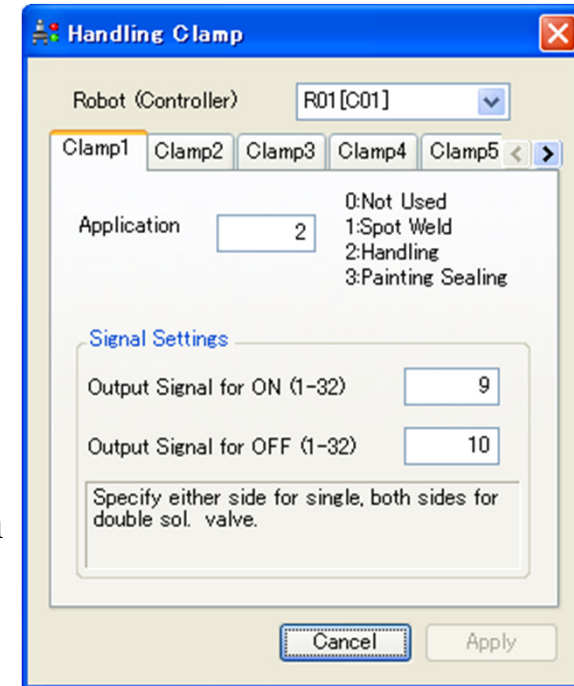
Example of module:

(asproc.exe, Panel.exe, PcAs.exe, user_as.exe, user_tp.exe)

* Note that check by Firewall is displayed in the initial start. Select [Reset Block].

Clamp Settings

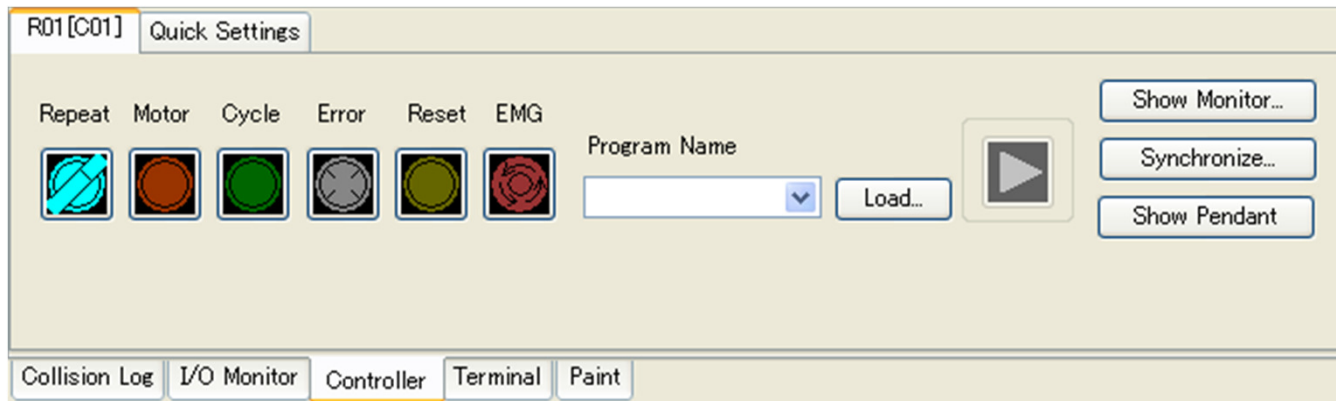
1. Select [Plug-In]-[Handling Clamp].
 2. Define a clamp signal (Clamp 1 to Clamp 8).
- During clamping, transfer the closest work at the time of clamp in the same way as a robot motion.
 - When unclamping, the work does not move even when a robot works.



The image shows a software dialog box titled "Handling Clamp". At the top, there is a dropdown menu for "Robot (Controller)" set to "R01[C01]". Below this is a row of tabs labeled "Clamp1", "Clamp2", "Clamp3", "Clamp4", and "Clamp5", with "Clamp1" currently selected. The main area contains an "Application" field with the value "2". To the right of this field is a list: "0:Not Used", "1:Spot Weld", "2:Handling", and "3:Painting Sealing". Below this is a section titled "Signal Settings" which contains two fields: "Output Signal for ON (1-32)" with the value "9" and "Output Signal for OFF (1-32)" with the value "10". A note below these fields states: "Specify either side for single, both sides for double sol. valve." At the bottom right of the dialog are "Cancel" and "Apply" buttons.

Controller Tab

Simulation is set and operated.



[Teach/Repeat Switch].....Switches Teach mode/Repeat mode

[Motor].....Switches Motor Power ON/OFF

[Cycle].....Lights ON at the time of Repeat operation.

[Error].....Lights ON when an error (abnormality) occurs.

[Reset].....When an error occurs, resets the error.

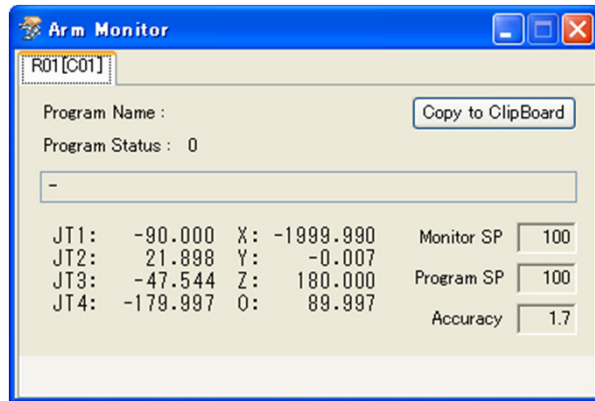
[Emergency Stop].....When an emergency occurs, a motor power is cut off to stop a robot.

[Load].....Transfers a program to PC-AS.

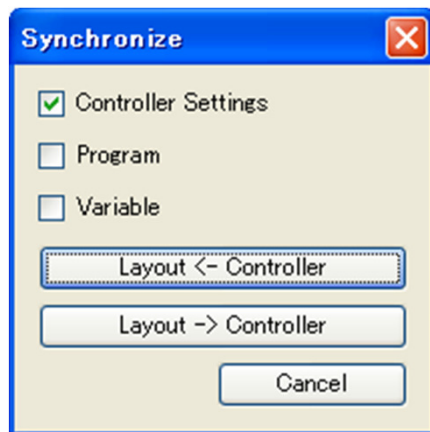
Repeat button.....Executes a program.

Controller Tab

[Show Monitor...].....Displays a state monitor showing axis values.



[Synchronize...].....Synchronizes and delete parameters of PC-AS and K-ROSET.



Layout <- Controller

Synchronizes from PC-AS to a project controller.

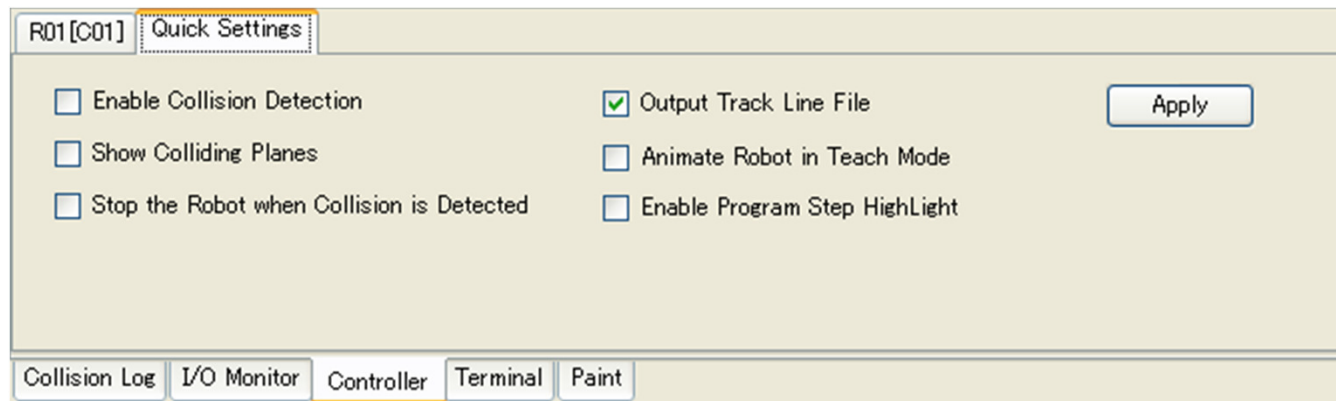
Layout -> Controller

Synchronizes from a project controller to PC-AS.

1. Place a check mark in Setting of Controller, Program, and Variables.
2. Click Layout -> Controller.

Controller Tab

In [Quick Settings] tab, the settings for screen drawing in simulation are set.



Enable Collision Detection.....Display setting of interfered points in simulation.

Show Colliding Planes.....Display setting of graphics when an interference occurs

Stop robot when Collision is Detected.....Setting to stop a robot when an interference occurs.

Output track Line file.....Output setting of trace file after simulation finishes.




Animate Robot in Teach Mode.....Setting to move a robot when a robot is operated with a teach pendant of PC-AS

Enable Pprogram step HighLight.....Setting to specify an execution step of program tab during simulation

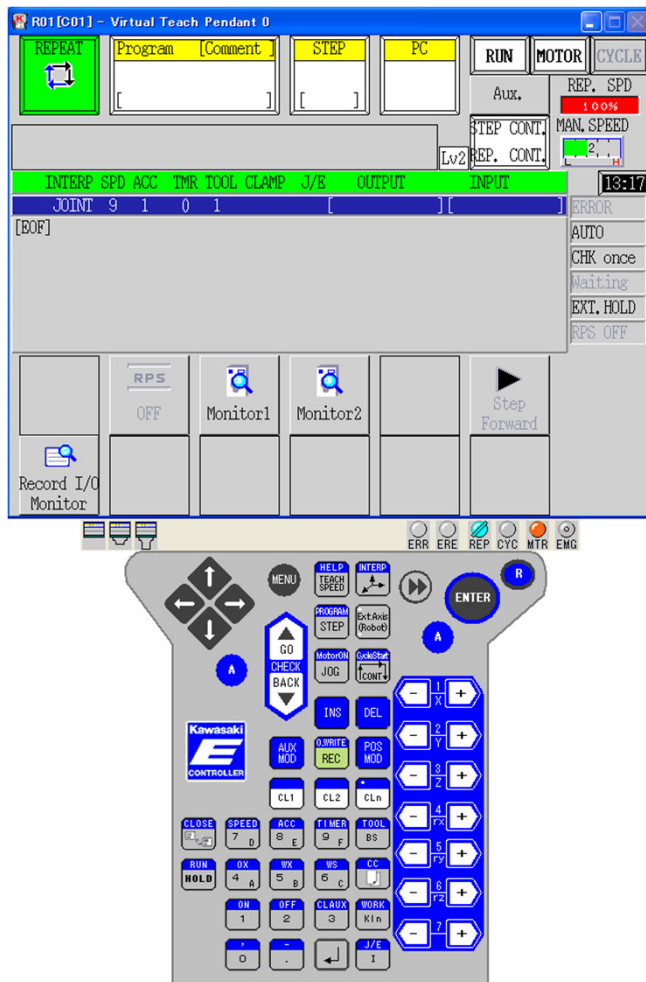
Controller Tab

Repeat a program

A procedure to repeat a program is described.

1. Select a controller panel tab.
2. Switch to Repeat mode [] (right side of switch).
3. Turn Motor ON [] (a lamp lights ON).
4. Select a tab of a robot name. Press [Transfer] button.
5. A file selecting dialog is opened. Select a program file to execute.
6. Programs in the program file are listed. Select a program to execute.
7. Press [] button.

Setting of Virtual Teach Pendant




The virtual teaching pendant allows the advanced setting or the monitoring of motions similar to the actual teaching pendant.

Controller



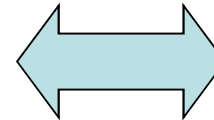
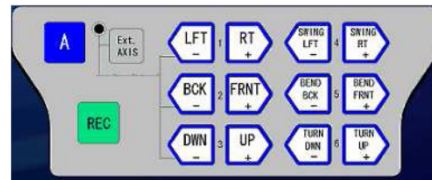
Functions similar to controller tab

1. Display Quick setting of the controller tab.
2. Place a check mark in “Animate Robot in Teach Mode.”
3. Click Apply.
4. Click  to switch to Teach mode.
5. Turn Motor Power ON.
6. Click the button on the panel.
7. Ensure that the robot works.

Setting of Virtual Teach Pendant



A size of a panel can be changed.



Hiding of Pendant

- Click [Minimize] button on the virtual teach pendant.
(Show tool bar)
- Click [Hide Pendant] on the control tab. (Hide tool bar)

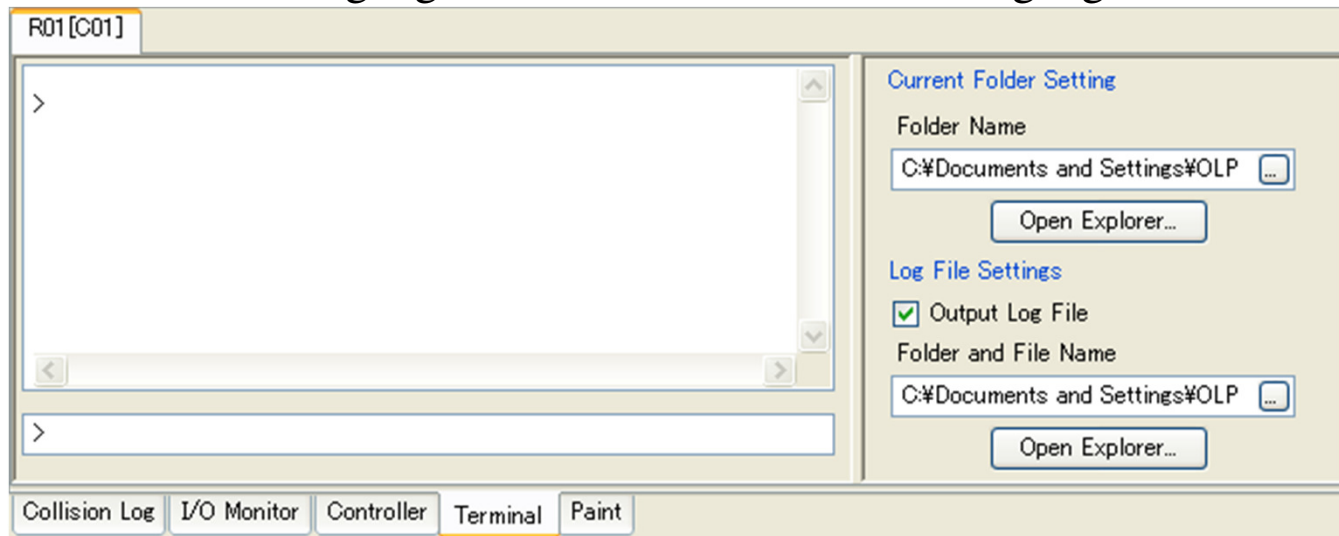
Change of Panel Position

A position of a panel can be changed by selecting [Position] from a menu of the panel displayed by right-clicking.

Terminal Tab

AS language command can be executed on a terminal tab.

* Refer to AS language manual for details of AS language.



- Setting of Current Folder

[Folder Name]Sets a pass used in terminal.

[Open Explore...]Displays Explorer of the set pass.

- Setting of Log

[Output Log file]Outputs data entered in terminal.

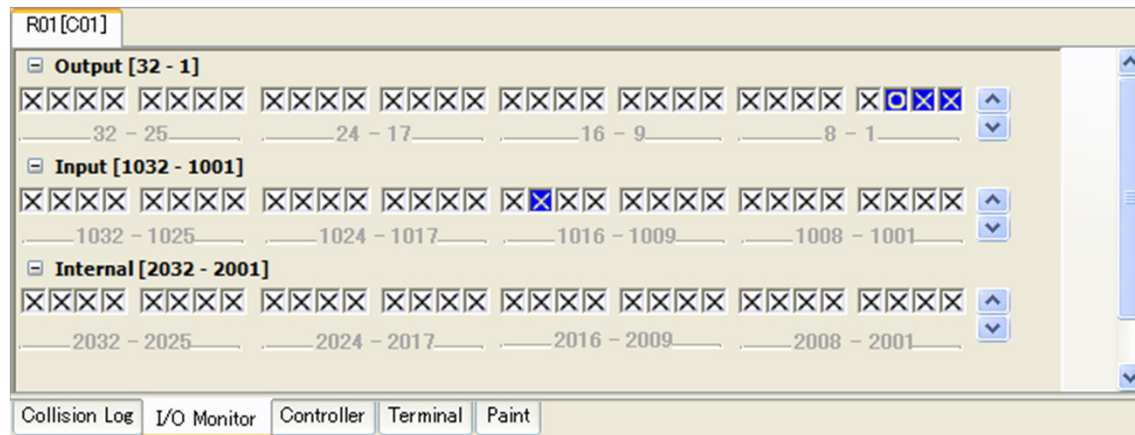
[File and Folder Name]Sets a target pass and file name for outputting a terminal log.

[Open Explore..] Displays Explorer.

1. Type id and press Enter key.
2. Ensure that Robot information is displayed.

I/O Monitor Tab

IO Monitor Tab can show and control input/output signals of robots.



- Switching of Display

Input signal [1-256], output signal [1001-10256], and internal signal [2001-2512] are switched in spin.

- Signal Control

ON/OFF of signal are switched by clicking signal boxes.

* Note that the signals in different colors are already used as dedicated signals.

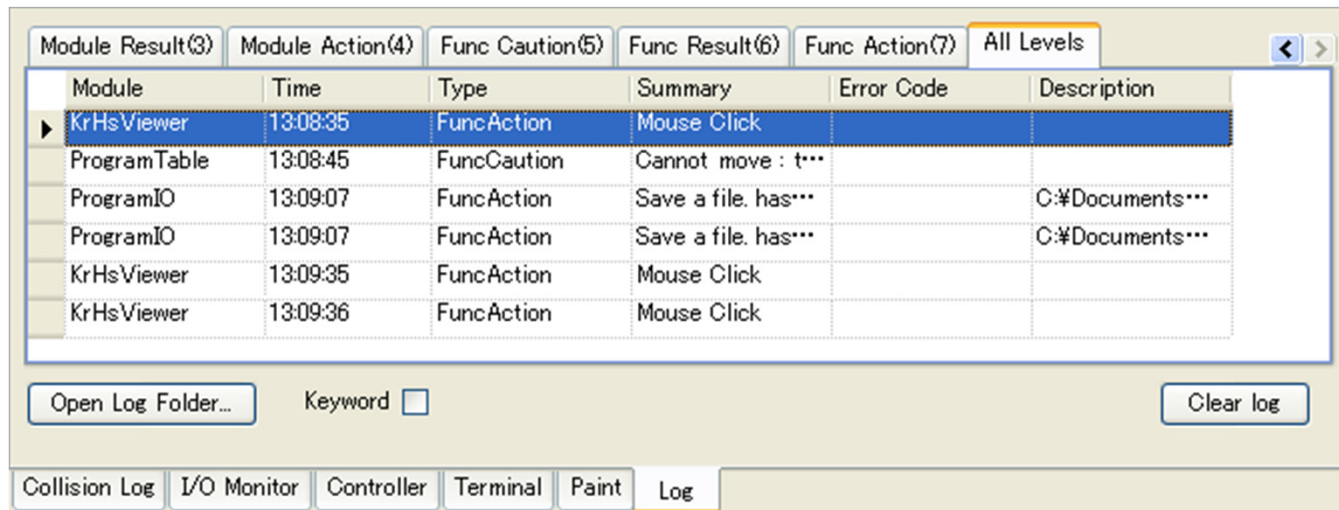
GREEN: Signals depending on application and changed by robot controller.

BLUE: Dedicated I/O signal

1. Click a signal box of non-dedicated item.
2. Ensure that a display of O (ON) and X (OFF) switches.

Log Tab

In Log output window, details of operation and logs of occurred errors are output.



The output logs are saved in (Install Directory)\¥logs.

Keyword

Details of logs can be searched with keyword.

Clear

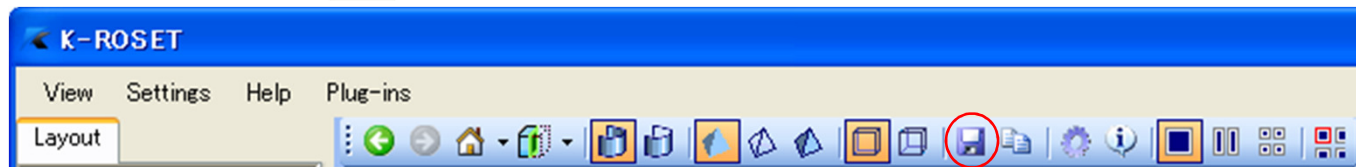
Clears the current display.

1. Click Clear.
2. Click a view with a mouse and check if a log is displayed.

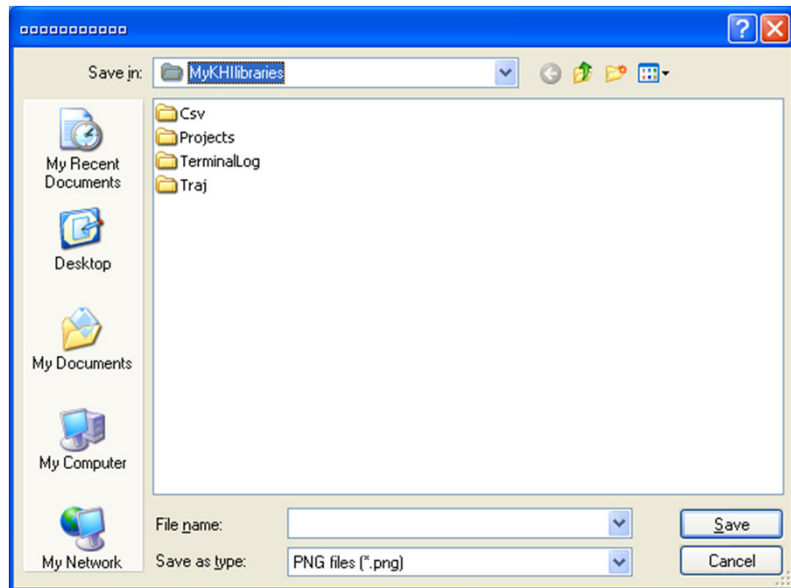
Save an Image

Display of a view is saved in a file.

1. Select the icon [] on a menu bar.





2. A dialog is displayed. Select a saving destination.

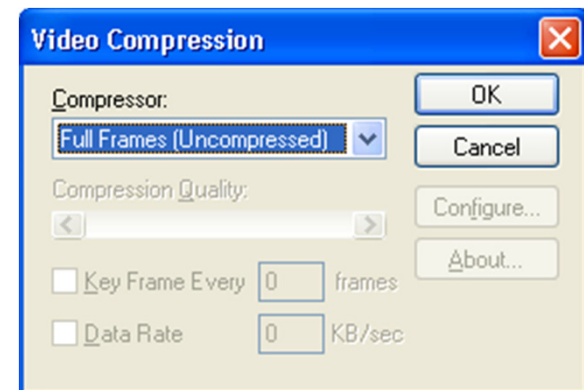


* Save format should be png or jpg.

Save a Moving Image

Display of view is recorded and moving image is created.

1. Select [Plug-In]-[Record Video].
2. Press [ button.
3. Set a recording type.
Simulation : Save during simulation only.
Operation : Save all operations on K-ROSET
4. A dialog is displayed. Specify the file saving destination.
5. Set the save format.
6. Simulate a robot.
7. Press [] button.


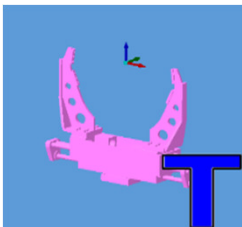


Practice (Basic)

- Creation of Project
- Layout ▪ Creation of Program
- Simulation ▪ Project Saving

Creation of Project

Create as a name of “TestProject”

Object	File Name	Image
Robot	ZD130S-E001	
Object	File Name	Image
Tool	G9AX21000A	

Add a robot and tool model and layout with
↓ parameter.

Object	X	Y	Z	O	A	T
Robot	0	0	500	0	0	0
Tool	0	0	0	0	0	0
Converted Value	X	Y	Z	O	A	T
Base	0	0	0	0	0	0
Tool	0	0	550	0	0	0

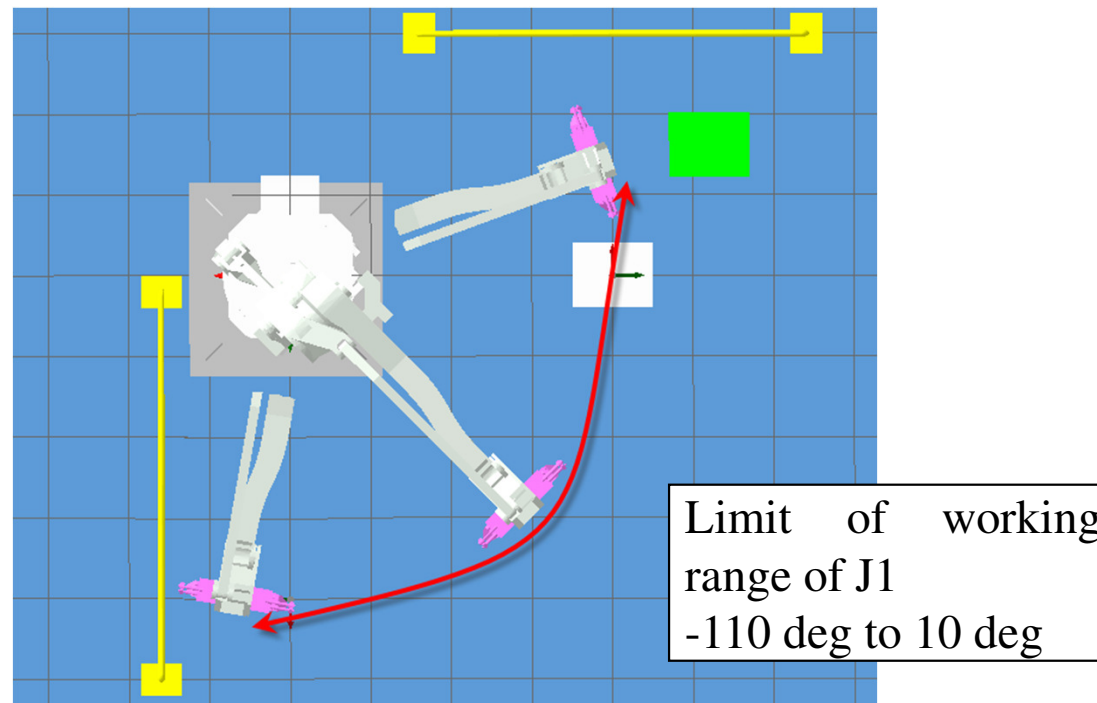
※KHIlibraries※Tools

* Robot: World coordinate system
Tool: Robot flange
Base: Robot origin

Practice (Basic)

Limit a working range of a robot by arm setting.

Valuable s	J1		J2	J3	J4		J5	J6
	Before change	After change			Before change	After change		
UP-LIM	180	10	90	15	360	180	0	0
LO-LIM	-180	-110	-50	-120	-360	-180	0	0

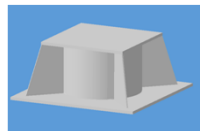


Practice (Basic)

Type	X	Y	Z
Box	500	400	200

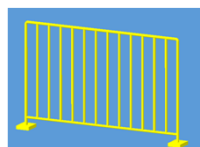
Create a work with simplified shape creation.
Add a work and layout with <- parameter.

Object	X	Y	Z	O	A	T
Work 1	-2000	0	0	90	0	0
Work 2	-2600	-810	80	0	0	0

Object	File Name	Image
Obstacle 1	Pedestal_500_500_500.stl	

Object	X	Y	Z	O	A	T
Obstacle 1	0	0	0	0	0	0

※KHILibs¥KHIlibraries¥Envs¥Equipment¥Pedestals

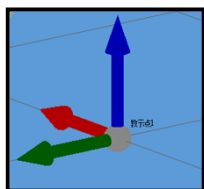
Object	File Name	Image
Obstacle 2 Obstacle 3	Safetyfence_2440_1565	

Object	X	Y	Z	O	A	T
Obstacle 2	-2000	-1500	0	0	0	0
Obstacle 3	800	1300	0	90	0	0

※KHILibs¥KHIlibraries¥Envs¥Equipment¥Fences

* World Coordinate

Practice (Basic)



Add a teaching point.

Name of Teaching Point	X	Y	Z	O	A	T
HomeP	-1417.749	1417.749	1340.000	-135	180	0
Val01	-2000	0	680.000	90	180	0
Val02	-2000	0	0	90	180	0
Val03	0	2000	420	-90	180	0
Val04	0	2000	0	-90	180	0

Register at Home as a posture of HomeP.

* World Coordinate

Practice (Basic)

Create a program from a teaching point and save as “TestProgram.pg”.

```
.PROGRAM Pg001()
HOME ; ← Move Instruction
LMOVE Val01 ← Move Instruction (Edit Trans and followings.)
SPEED 100 ; ← Velocity/Accuracy Control Instruction
ACCURACY 1 ; ← Velocity/Accuracy Control Instruction
LMOVE Val02
DELAY 1 ; ← Accuracy/Time Control Instruction
CLOSEI ; Hand Control Instruction
LMOVE Val01
JMOVE Val03
SPEED 30 ; ← Velocity/Accuracy Control Instruction
ACCURACY 2 ; ← Velocity/Accuracy Control Instruction
LMOVE Val04
DELAY 0.5 ; ← Accuracy/Time Control Instruction
OPENI ;Hand Control Instruction
LMOVE Val03
HOME ← Move Instruction
.END
```

Overwrite and save the project.

Practice (Basic)

1. Transfer a file in a controller tab to simulate.
2. Create a moving image.
Save as “Test.avi” in MyKHILibraries\Projects\TestProject.

