

DIView

System Structure

Webber

2019/04/12



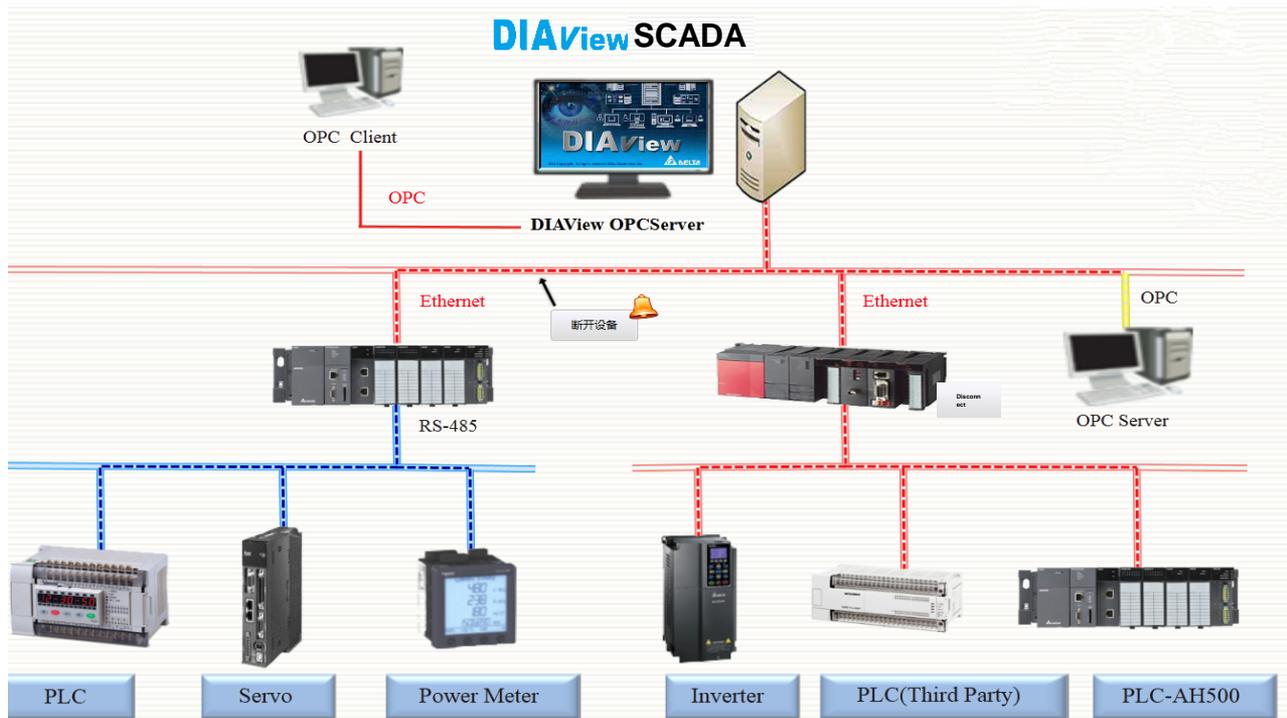
- Terms and Concepts of DIAView
- Development Environment
- Basic Functions and Buttons
- How to Start a Project

In this chapter, you will learn

- ... more about terms and concepts of DIAView
- ... more about development environment
- ... more about basic functions and buttons
- ... more about how to start a project



- **Terms and Concepts of DIAView**
- Development Environment
- Basic Functions and Buttons
- How to Start a Project



SCADA system communication connection diagram

- **Project**
 - A project is a set of automated application system, including graphic window interface, IO communication, alarm, variable and other parts.
- **Development & Execution environment**
 - The DIView software is composed of two parts.
- **Development environment**
 - Performing project design development, including designing graphical interface, setting parameters and configuring functions etc.
- **Execution environment**
 - An environment provides a real-time surveillance and control interface.

- **IO communication, channel, equipment**
 - IO communication refers to collecting data information of on-site equipment, and use communication to input/output the information to the variables.
- **Variable dictionary, variables**
 - Variables are values of the engineering items that can change at any time; They are important participants for system data information handshakes. The variable dictionary is a collection of variables in the project, performing group management for variables
- **Windows**
 - The window is the basis to realize real-time visualization – it provides various drawing elements including basic graphics tools, window control units.
- **Properties**
 - Properties describe the features or characteristic information. For example name, size and background color etc.

➤ **Animation**

- Animation refers to the process of setting the properties of a graphic object, changing according to the changes in the variable data while the project is executing.

➤ **Event**

- An event refers to the process of specifying the properties of a graphic object, including size, color, and position, to change with mouse or keyboard operations.

➤ **Alarm**

- Alarms refer to related notifications triggered to remind related personnel to pay attention when a certain data or status of the system is over or under the preset value.

➤ **Historic record variables**

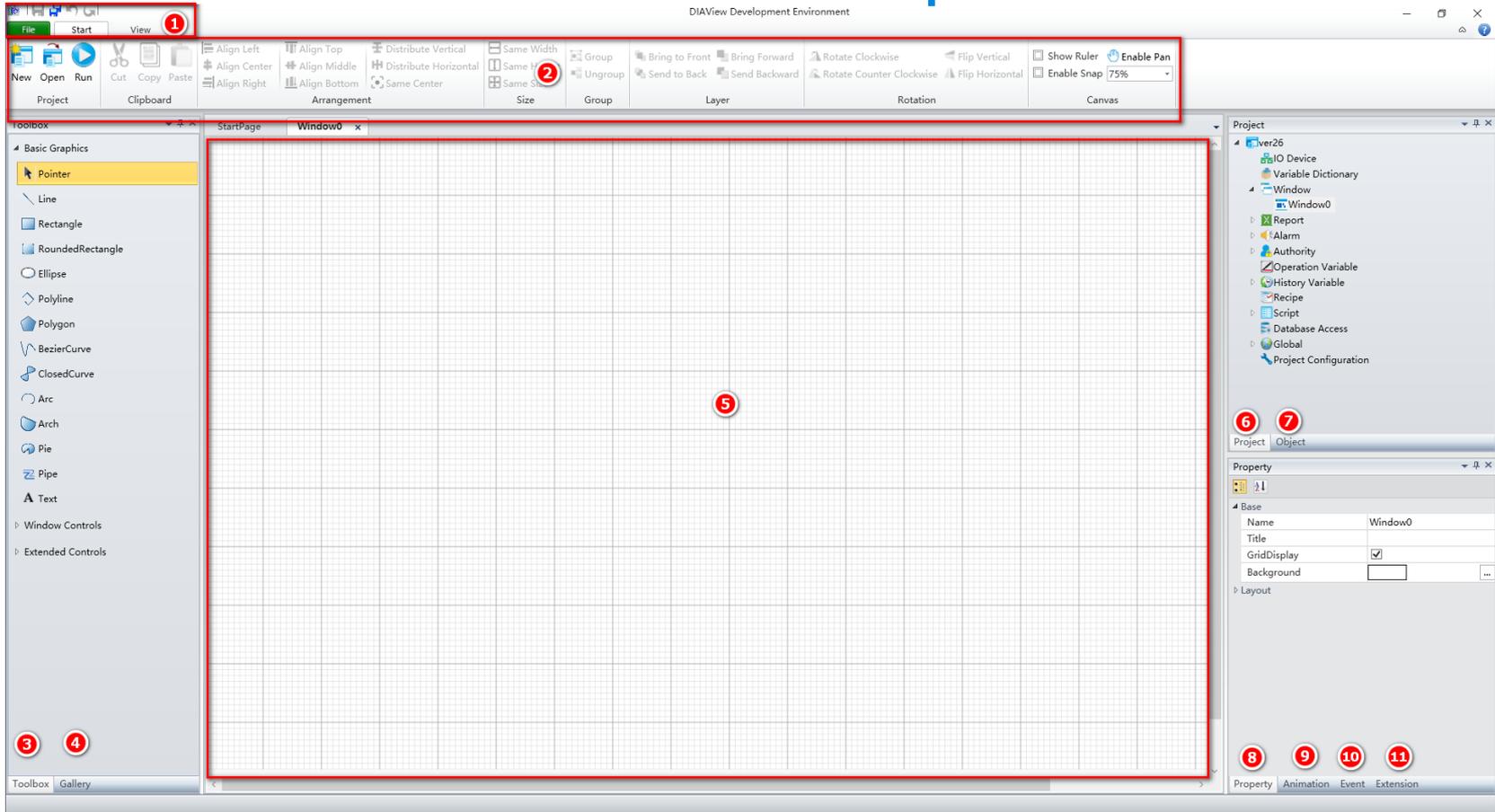
- Refers to saving the changing record of certain variable values in the variable dictionary and defines the recording method for data statistics and analysis.

- **User program(“condition program” and “time program”)**
 - Condition program refers to executing program functions when the conditions set matches the variables. Time program refers to executing related program functions every certain time period.

- **Engineering configuration**
 - Engineering configuration includes the configuring of the database, configuring of the execution screen and the configuration of the starting screen.



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The screenshot displays the DIAView Development Environment interface. A red border highlights the main workspace area. Numbered callouts (1-11) point to various UI elements:

- 1**: File menu
- 2**: Same Size button in the Size group of the ribbon
- 3**: Toolbox
- 4**: Gallery
- 5**: A red circle with the number 5 is placed in the center of the main grid workspace.
- 6**: Project tree view
- 7**: Object tree view
- 8**: Property view
- 9**: Animation view
- 10**: Event view
- 11**: Extension view

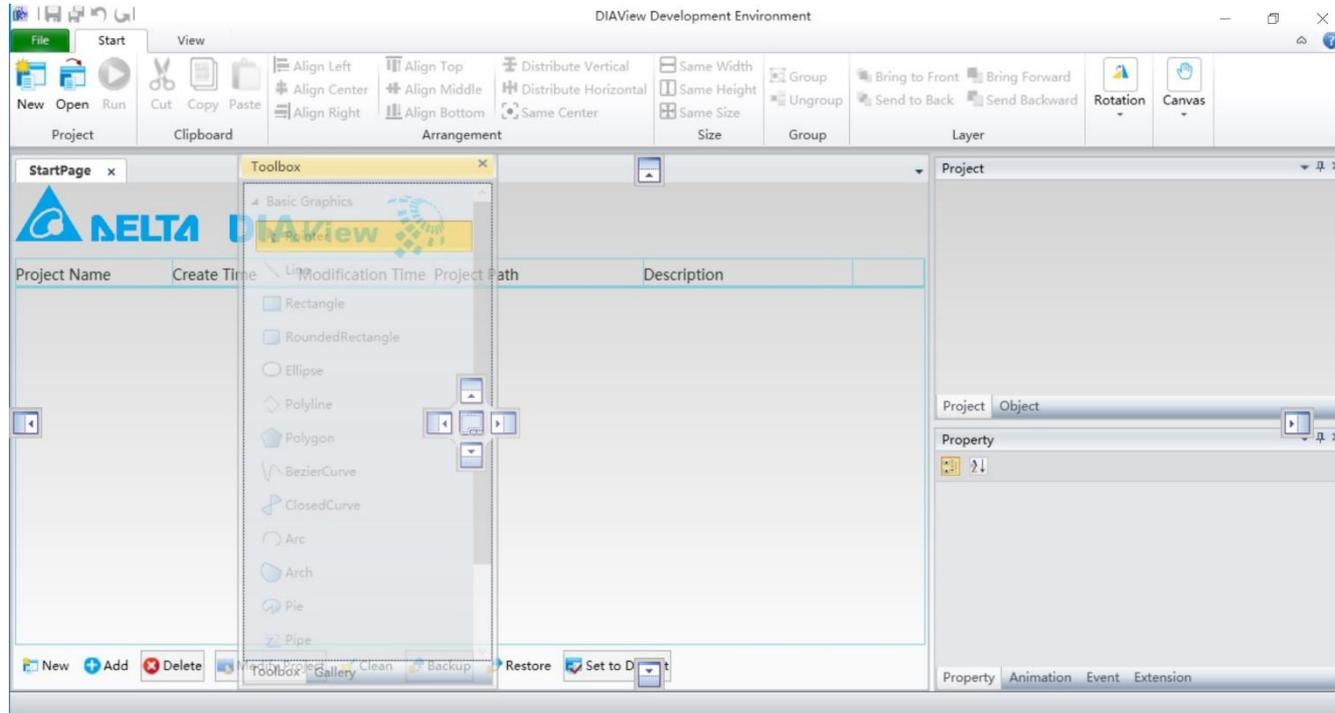
Development Environment

1. Menu bar	Provides various basic operation functions for project development.
2. Tool buttons	Shortcut buttons for operating commands
3. Toolbox	Provides frequently used basic graphic elements and control units for drawing.
4. Gallery	Frequently used graphic elements built-in the system and containers for users to freely expand customized graphics.
5. Sketchpad area	The area for project management, graphic image drawing and editing

6. Project window	Tree index display window of the project; displays various compositions of the project and provides various portals for operation and configuration functions.
7. Object browser window	Displays all object members in the window.
8. Property window	Displays the properties of the object; provides an operating portal to modify properties.
9. Animation configuration window	Portal to configure animations for objects.
10. Event configuration window	Portal to configure events for objects.
11. Extension	Other functions

Development Environment

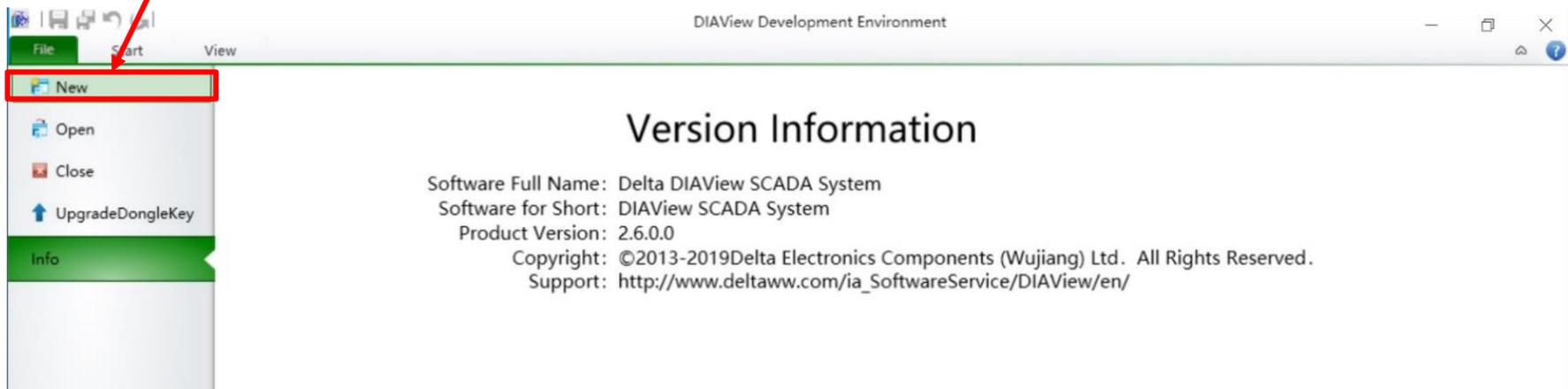
- The windows of the DIAView software development environment can also be rearranged by dragging them with the mouse, as shown in the figure below:



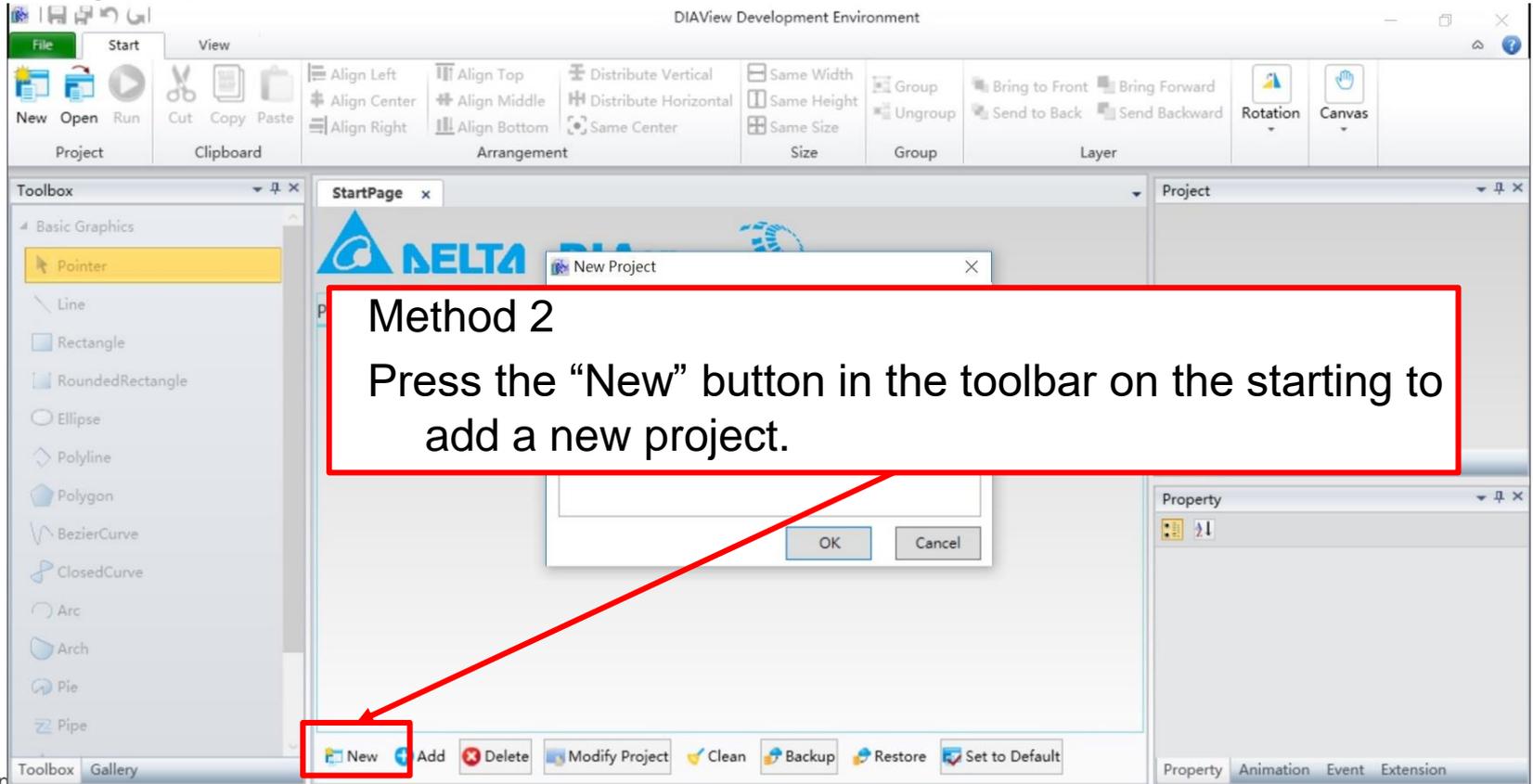
➤ Adding projects

Method 1

Select the “File” menu and then press “New”.



➤ Adding projects





Development Environment

- Project management
 1. Project management refers to performing centralized management.
 2. Open the DIAView software development environment and the starting
 3. page will be opened on the main interface by default. Operations such
 4. as add new, add, delete, clear, backup, restore and set project as preset
 5. project etc. can be performed on the starting page.





➤ **New:**

- Adds a new project; the created project will be added to the project list on the starting page, and be opened in the project window.

➤ **Add:**

- Adds a project that already exists under the specified path into the starting page project list. Click the “Add” button or right-click menu to open the folder selection box.

➤ **Clean:**

- Clean the project information on the starting page list. It will be cleared if the project file was already deleted but still exists in the project list.

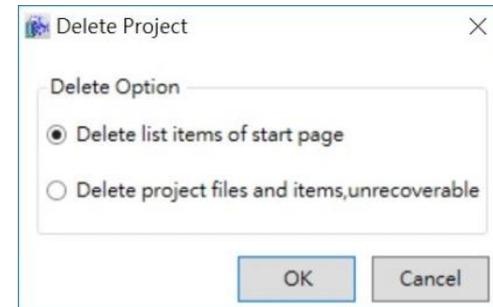
➤ **Backup:**

- Backs up the selected project. The backed up project file will have the extension “.projectzip”, as shown in the figure below:

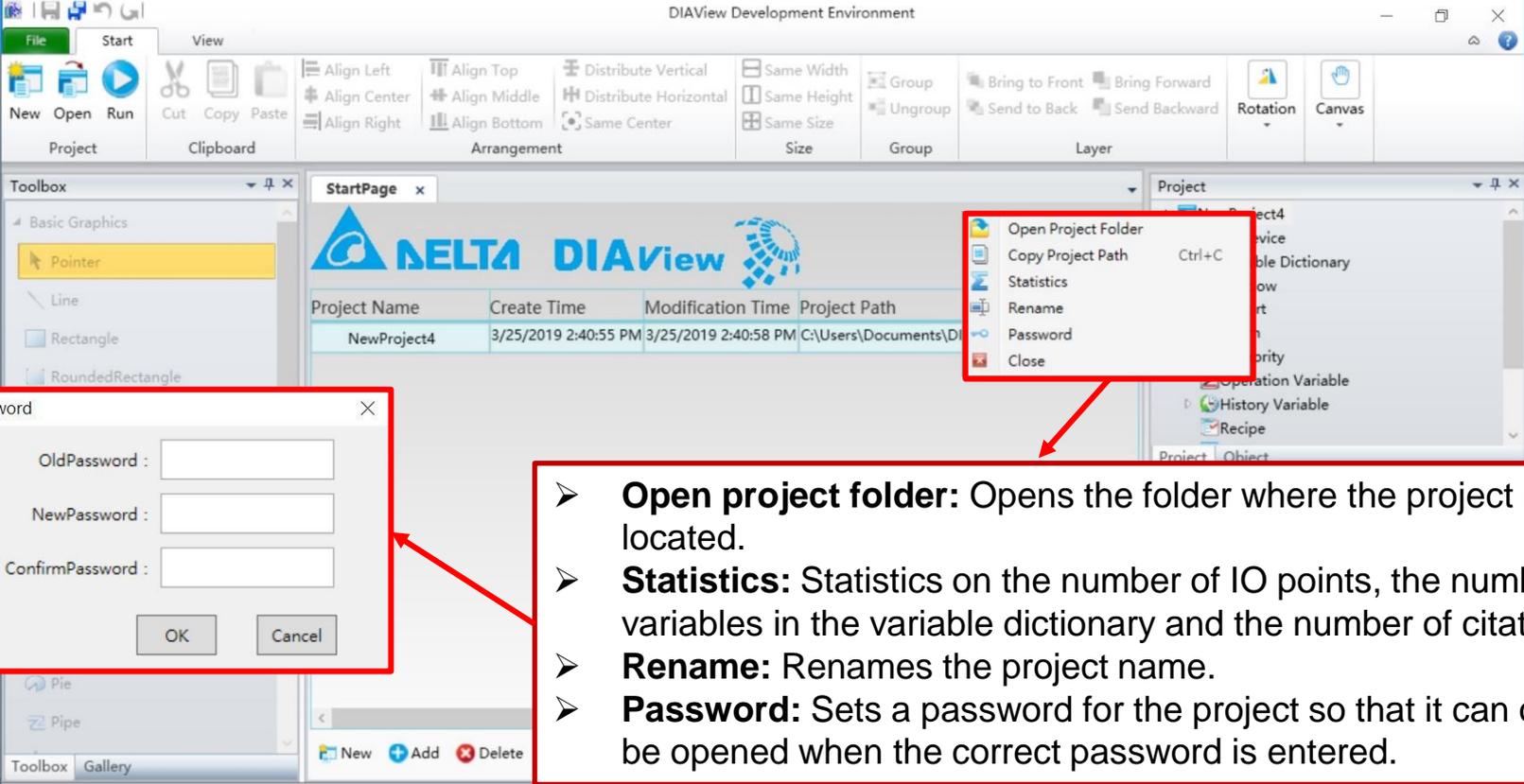


➤ Delete:

- Deletes the selected project on the starting page project list. Click the “Delete” button or right-click menu to open the project deletion selection box.
- There are two delete options:
 1. Delete list items of start page:
Deletes the project information from the starting page, but the project file is not deleted.
 2. Delete project file and item, unrecoverable:
Deletes the project from the starting page list and also deletes the project file completely.



➤ Right-click project name



The screenshot shows the DIAView Development Environment interface. A table lists project information, and a context menu is open over the 'NewProject4' entry. The context menu options are:

- Open Project Folder
- Copy Project Path (Ctrl+C)
- Statistics
- Rename
- Password
- Close

A 'Password' dialog box is also visible, with the following fields:

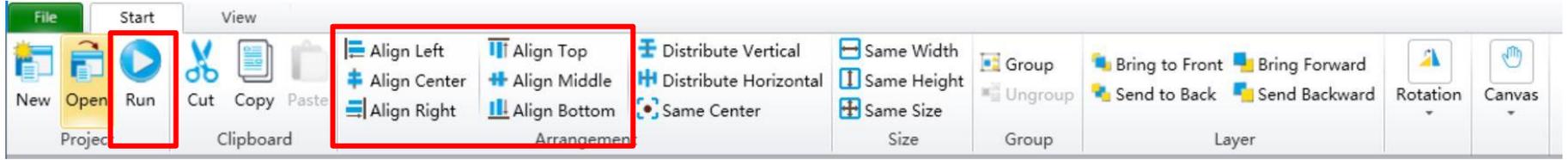
- OldPassword :
- NewPassword :
- ConfirmPassword :
- OK
- Cancel

The table in the background has the following data:

Project Name	Create Time	Modification Time	Project Path
NewProject4	3/25/2019 2:40:55 PM	3/25/2019 2:40:58 PM	C:\Users\Documents\DI

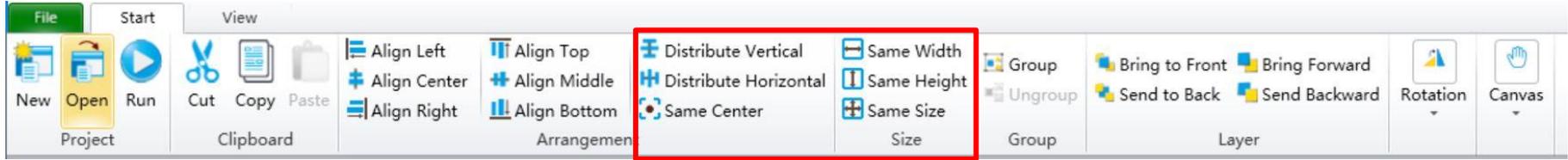
- **Open project folder:** Opens the folder where the project is located.
- **Statistics:** Statistics on the number of IO points, the number of variables in the variable dictionary and the number of citations.
- **Rename:** Renames the project name.
- **Password:** Sets a password for the project so that it can only be opened when the correct password is entered.

➤ Start Menu



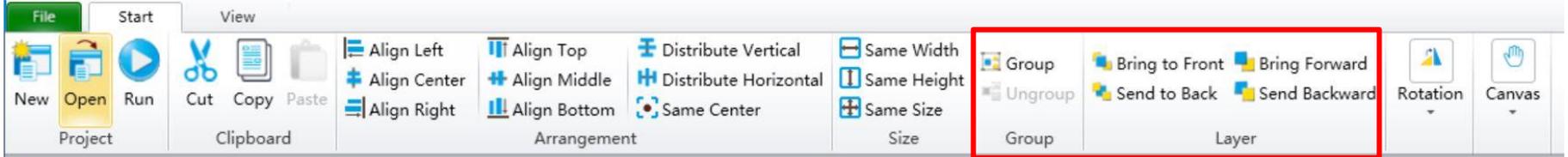
	Execution	Executes the project currently opened in the development environment.
	Align left	Aligns the left side of two or more selected graphic objects in the sketchpad to the left side of the graphic object that was selected first.
	Align Center	Aligns the geometric center of two or more selected graphic objects in the sketchpad to the same vertical line of the geometric center of the graphic object that was selected first.
	Align right	Aligns the right side of two or more selected graphic objects in the sketchpad to the right side of the graphic object that was selected first.
	Align top	Aligns the top side of two or more selected graphic objects in the sketchpad to the top side of the graphic object that was selected first.
	Align Middle	Aligns the geometric center of two or more selected graphic objects in the sketchpad to the same horizontal line of the geometric center of the graphic object that was selected first.
	Align bottom	Aligns the bottom side of two or more selected graphic objects in the sketchpad to the bottom side of the graphic object that was selected first.

➤ Start Menu



	Vertical distribution	Distributes the geometric center of three or more selected graphic objects in the sketchpad evenly in the vertical direction.
	Horizontal distribution	Distributes the geometric center of three or more selected graphic objects in the sketchpad evenly in the horizontal direction.
	Same center	Aligns the center of two or more selected graphic objects in the sketchpad to the center of the graphic object that was selected first.
	Same width	Make two ore more selected graphic objects in the sketchpad have the same width.
	Same height	Make two or more selected graphic objects in the sketchpad have the same height.
	Same size	Make two or more selected graphic objects in the sketchpad have the same width and height.

➤ Start Menu



	Send to Back	Places the selected graphic object at the bottom layer when there are multiple graphic objects stacked together in the sketchpad.
	Bring to front	Places the selected graphic object at the top layer when there are multiple graphic objects stacked together in the sketchpad.
	Send Backward	Moves the selected graphic object down one layer when there are multiple graphic objects stacked together in the sketchpad.
	Bring Forward	Moves the selected graphic object up one layer when there are multiple graphic objects stacked together in the sketchpad.
	Group	Groups the selected multiple graphic objects into a new graphic when there are multiple graphic objects in the sketchpad.
	Ungroup	Splits the group graphic into constituent graphic objects.



Development Environment

➤ Start Menu



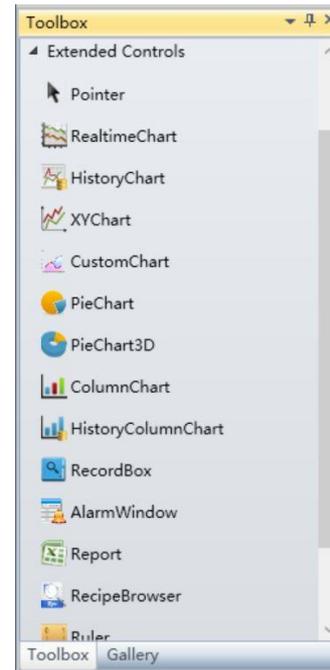
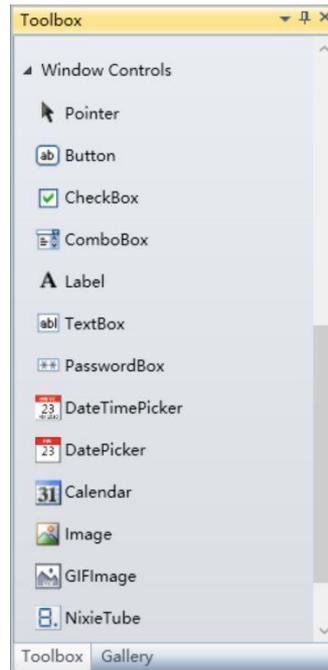
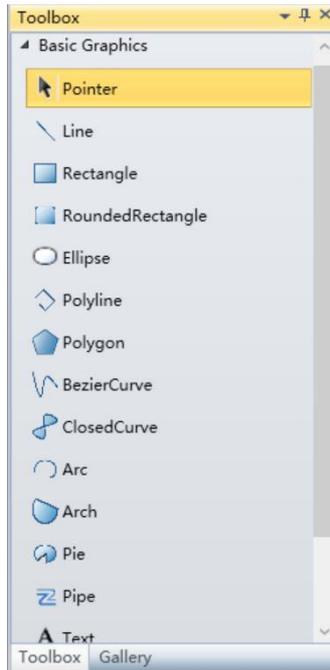
Command	Function description
Start page	Opens the starting page window.
Project	Opens the project folder window.
Object	Opens the object browser window.
Property	Opens the property window.
Extension	Opens the extension window.
Animation	Opens the animation window.
Event	Opens the event window.
Toolbox	Opens the toolbox.
Gallery	Opens the graphics library.
Errorlist	Opens the errorlist
Save Layout	Save the layout which you have set before
Restore Layout	Restore to the original layout



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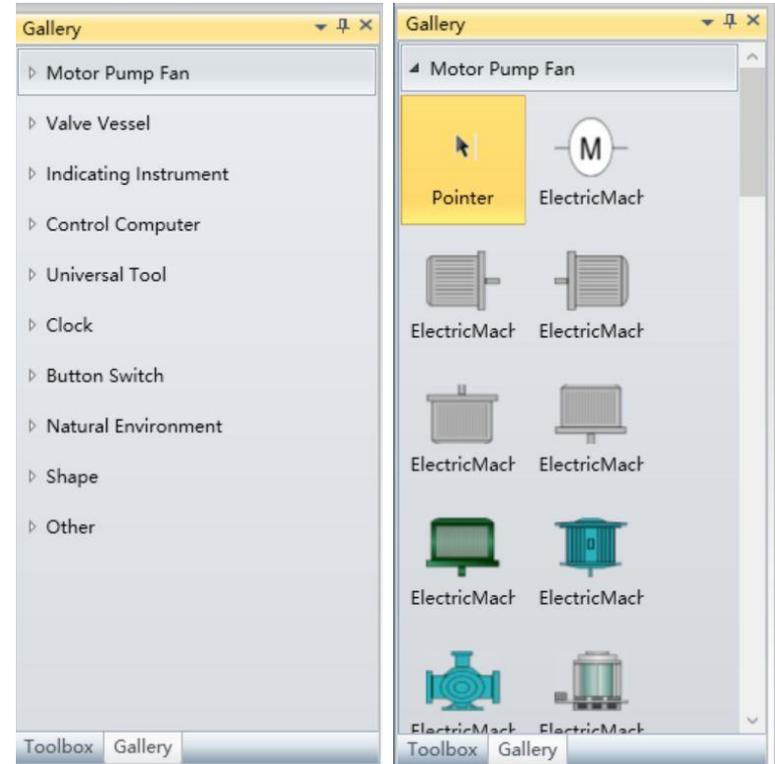
➤ Introduction to the Tool window

The tool window of the DIAView software refers to the Toolbox in the graphic development window. They provide basic graphic elements, graphic control units and frequently used graphic components and models required for graphic drawing.



➤ Introduction to Gallery

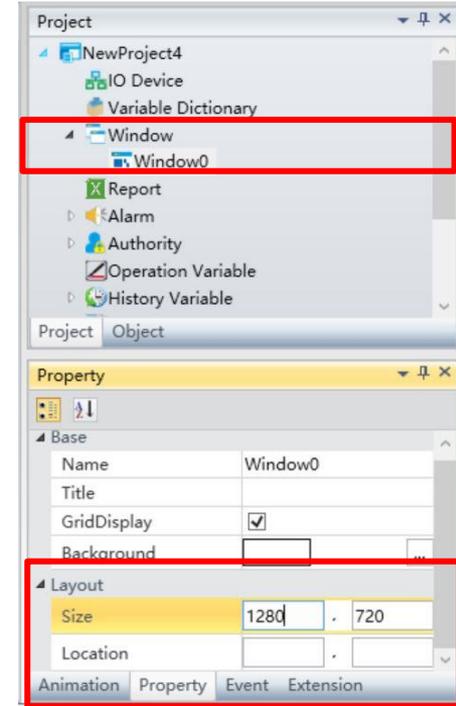
Drawing is also the basis for SCADA project development. We provide a lot of units, including fans, vessels, instruments, clocks, and so on. Most units have animation connected to variables. By using our gallery toolbox, you can establish the project much more faster and convenient. Motor pump fan models in the “Gallery” are as lefts. Just click the gallery left, and then click the position in the development area to add the unit.



Basic Functions and Buttons

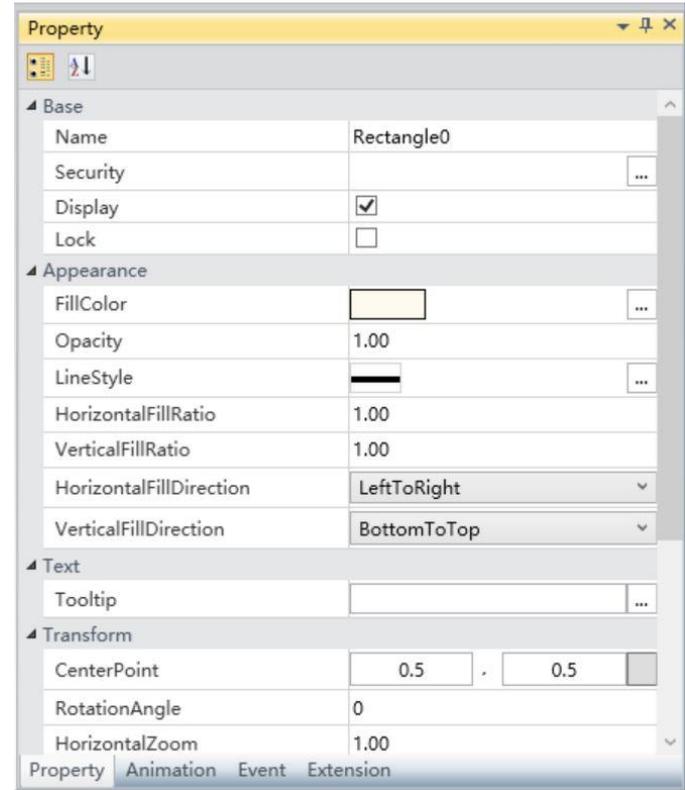
➤ Project Window

The project window is the project-tree index display window. It has different function nodes. For example, you can create your window in the Window node, then set the property(size, location) on the property window below.



➤ Property

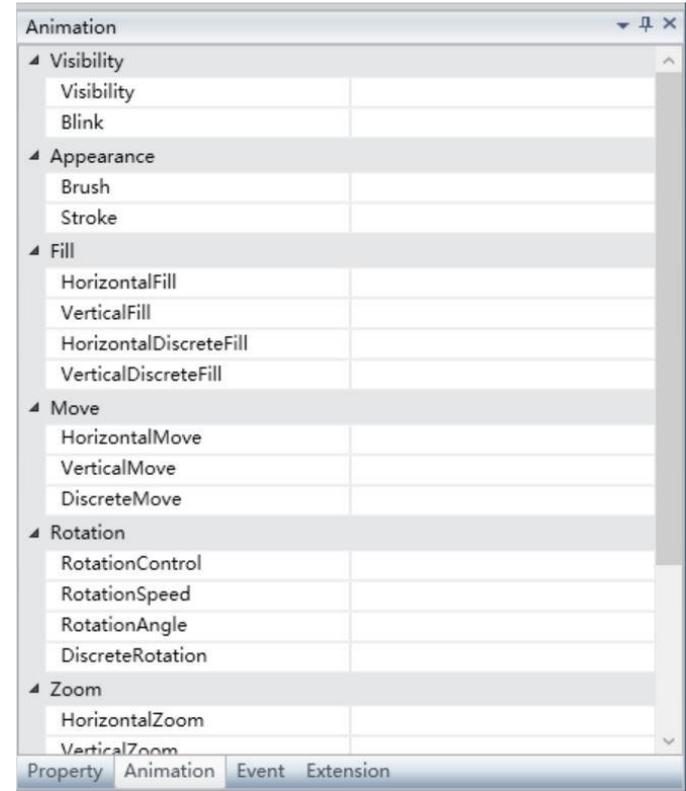
The property window manages related properties of graphic objects. When any graphic is selected in the sketchboard, this window will display its corresponding properties in real-time. Properties include the name, position, size and color etc. of the graphic object. The user can modify and configure the property values in the property dialog, as shown in the figure



Basic Functions and Buttons

➤ Animation

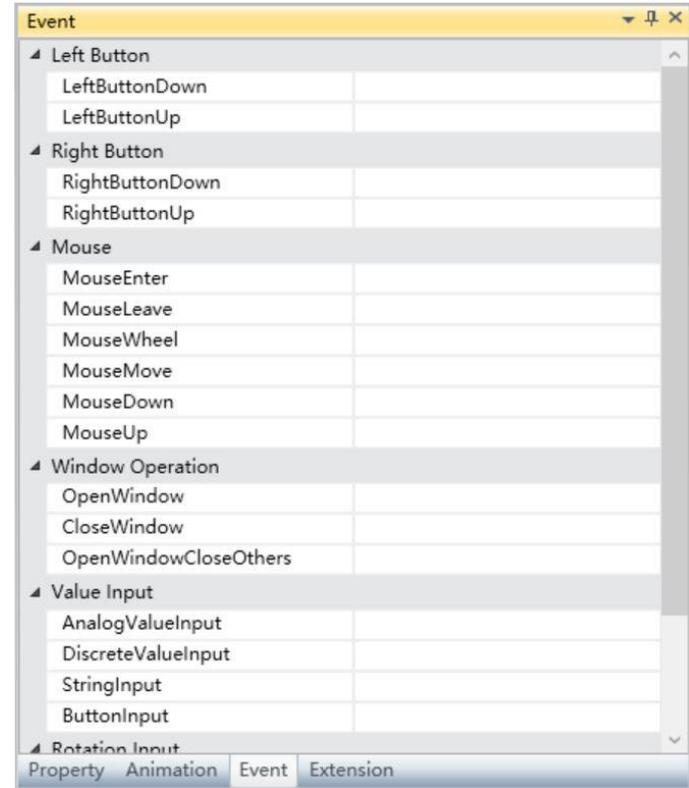
The animation window is used to manage the animation configuration information of graphic objects. Users can add or delete animations for the graphic. Animation configuration requires connecting to related properties and variable data, as shown in the figure.



➤ Event

The event window is used to manage the event configuration information of graphic objects.

Users can add or delete graphic events. Event configuration requires connecting to related mouse and keyboard events and variable data, as shown in the figure.





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➤ **Basic steps of project development**

- **Step 1:**Execute the DIAView software development environment.
- **Step 2:**Add project: Click the “Add project item from the “File” or “Start menu in the main interface of the development environment and configure information including the project name and project storage path etc., and then the system will generate and display the initial tree index in the “Project” window.
- **Step 3:**Define variables: Variables are media used to record the changes of certain data of the DIAView software in real-time. It dynamically displays the data source and display form of the controlled on-site data. Therefore, all variables participating in the information handshake of the project must be defined.

➤ **Basic steps of project development**

- **Step 4 Create IO Communication:**

Create a physical data channel between the upper and lower machines of the DIAView software and the monitoring and control equipment on-site, and set the information including connection method, communication parameters and communication variables etc.

- **Step 5 Create window:**

This means creating the graphic interface for the system. Draw the graphics for on-site analogy pictures and configure related information including properties and charts etc.

How to Start a Project

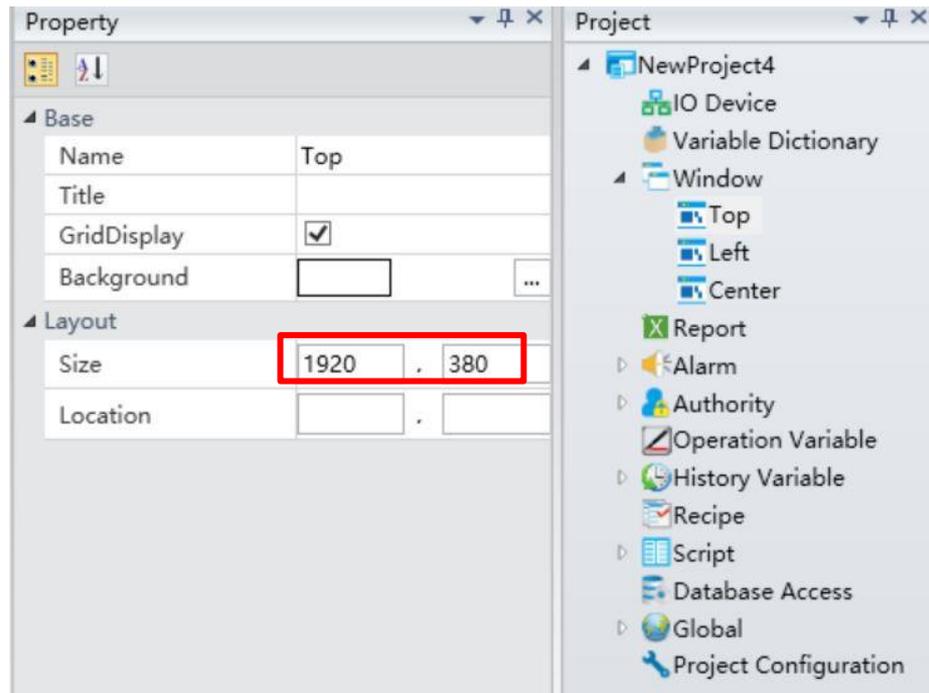
➤ Basic steps of project development

• Step 5 Create window:

For example, we want to build a project, which the big window is divided by 3 small windows(Top, Left, Center).

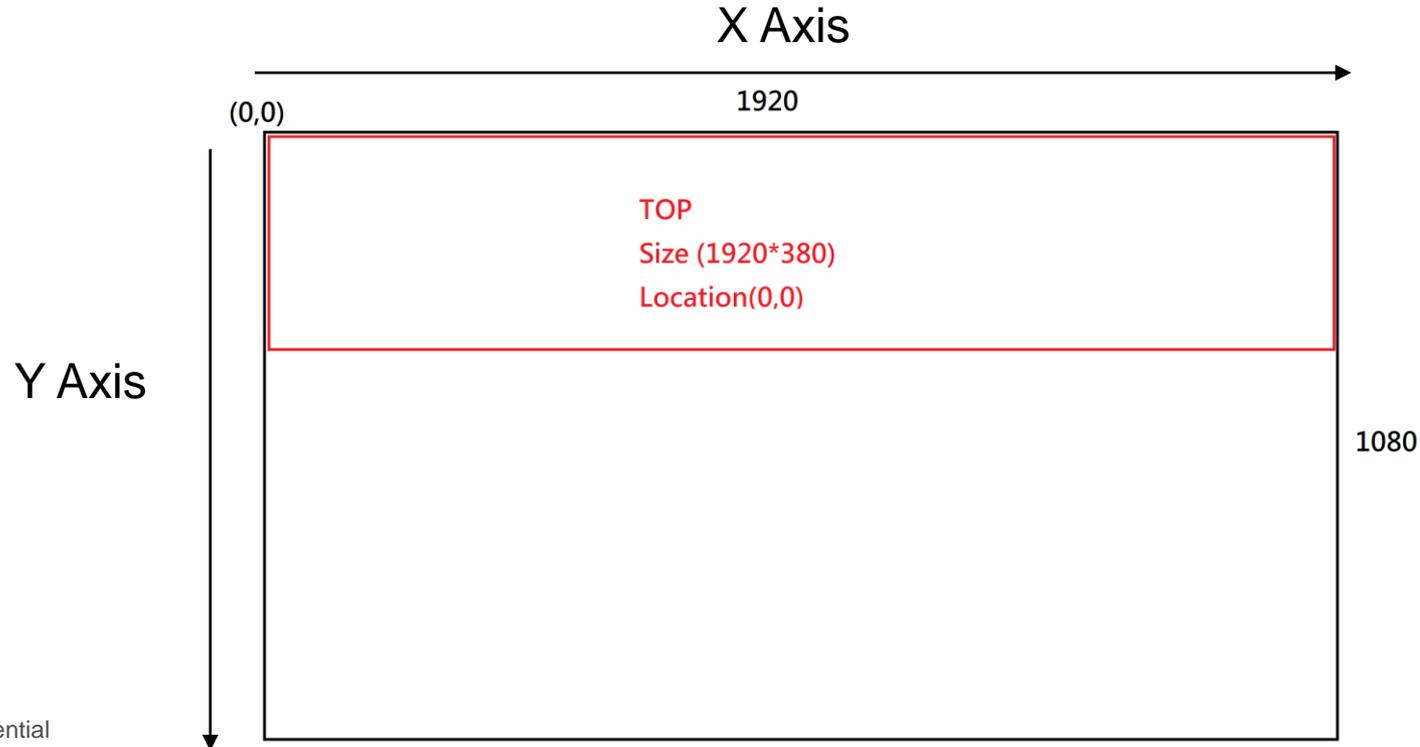
The size of the big window is $1920*1080$.

First we have to image the structure.



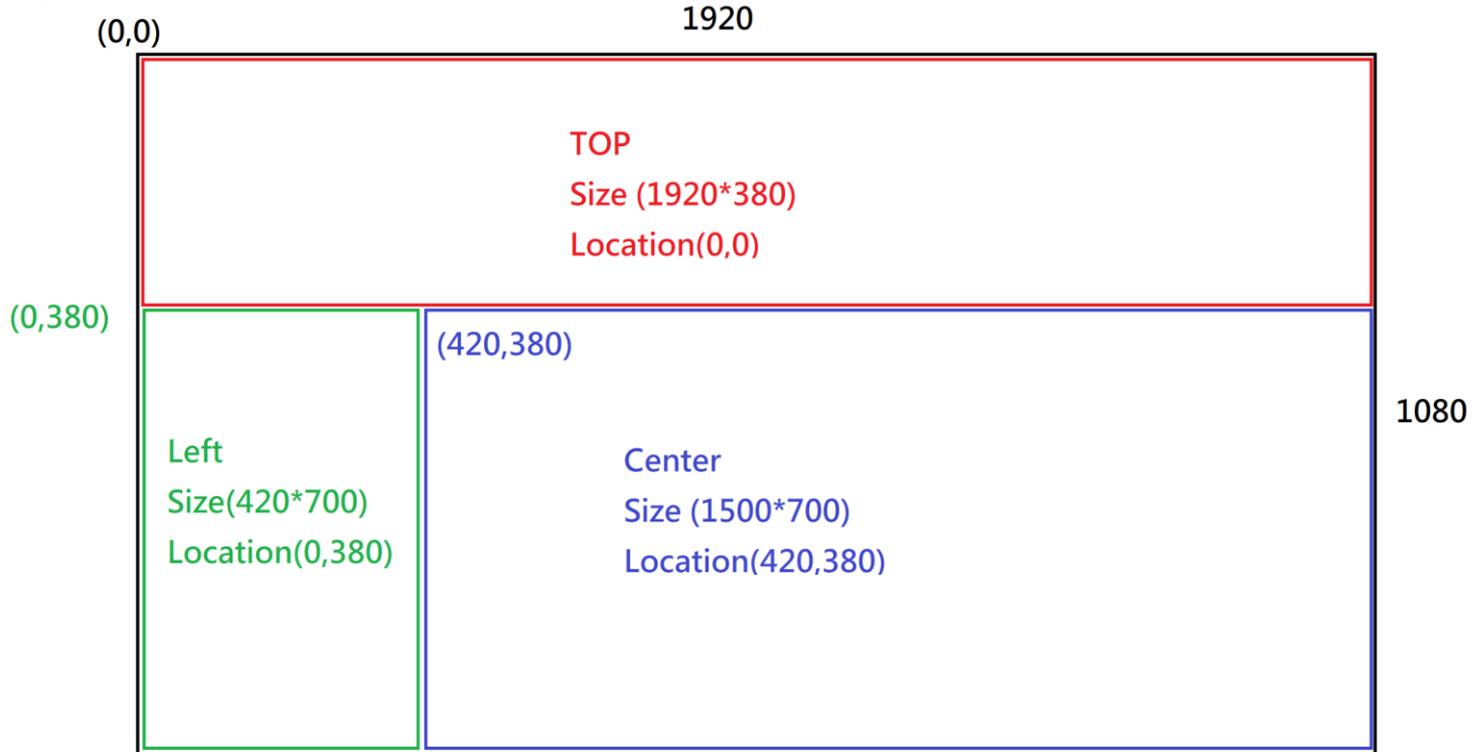
- **Step 5 Create window:**

Coordinates are calculated from the upper left corner(0,0)



How to Start a Project

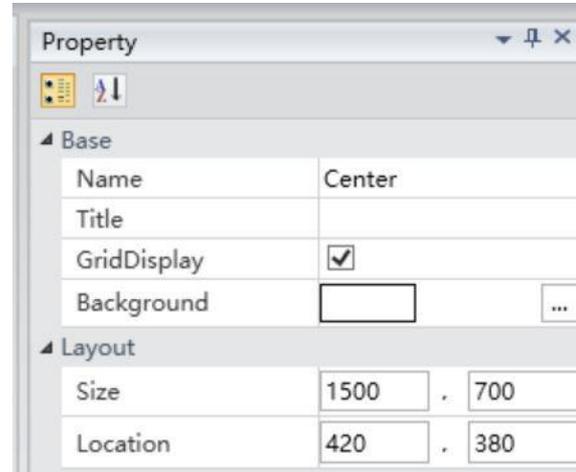
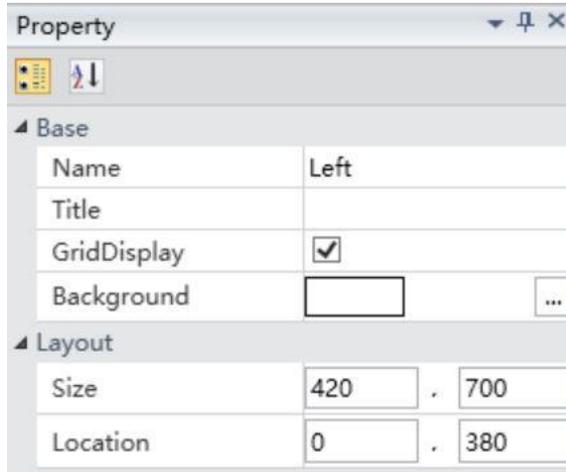
- **Step 5 Create window:**



How to Start a Project

- **Step 5 Create window:**

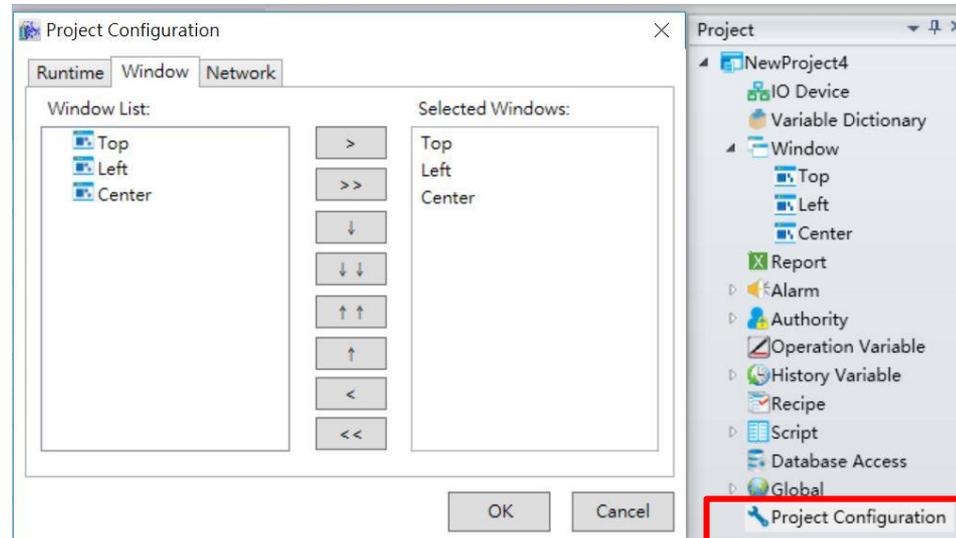
Following the layout we can create the left two windows. Just to keep in mind, the location means the upper left corner of the windows.



How to Start a Project

- **Step 6 Project configuration:**

Sets the related parameters for the connection between the DIAView software and third-party databases in order to achieve handshakes between the real-time project data and other commercial databases, and sets the project execution options and start screen.



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