

WEINTEK LABS., INC.

# JS Object

## Display Coordinates of XY Plot

Demo Project

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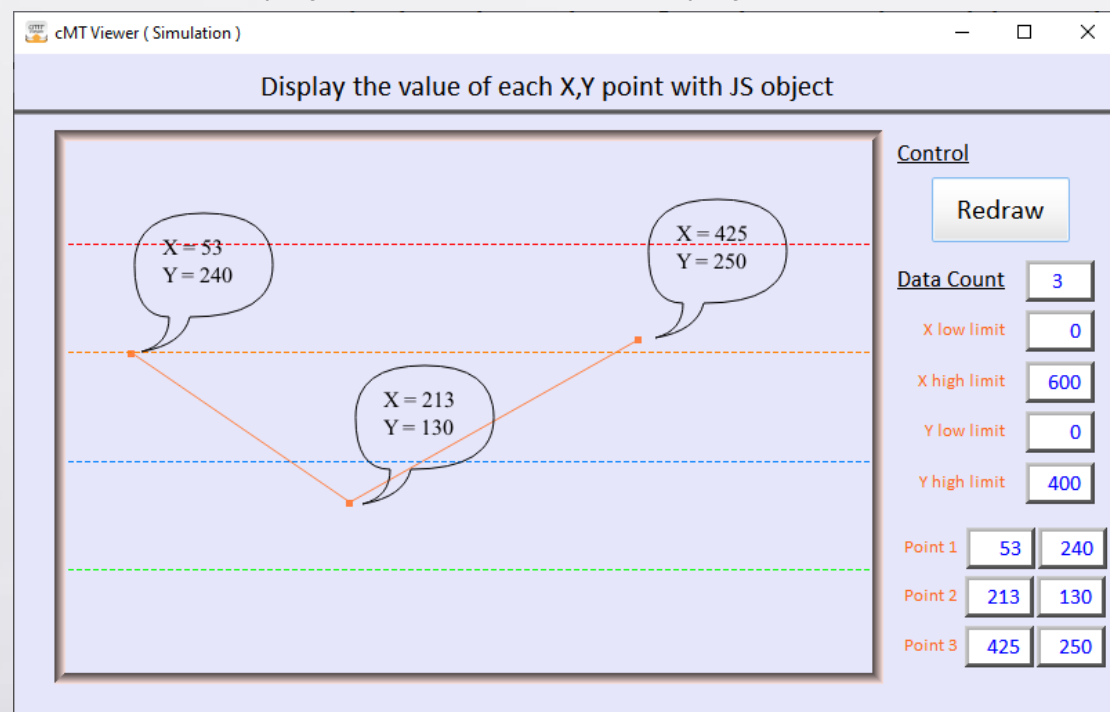
## 1. Overview & Operation

### Overview

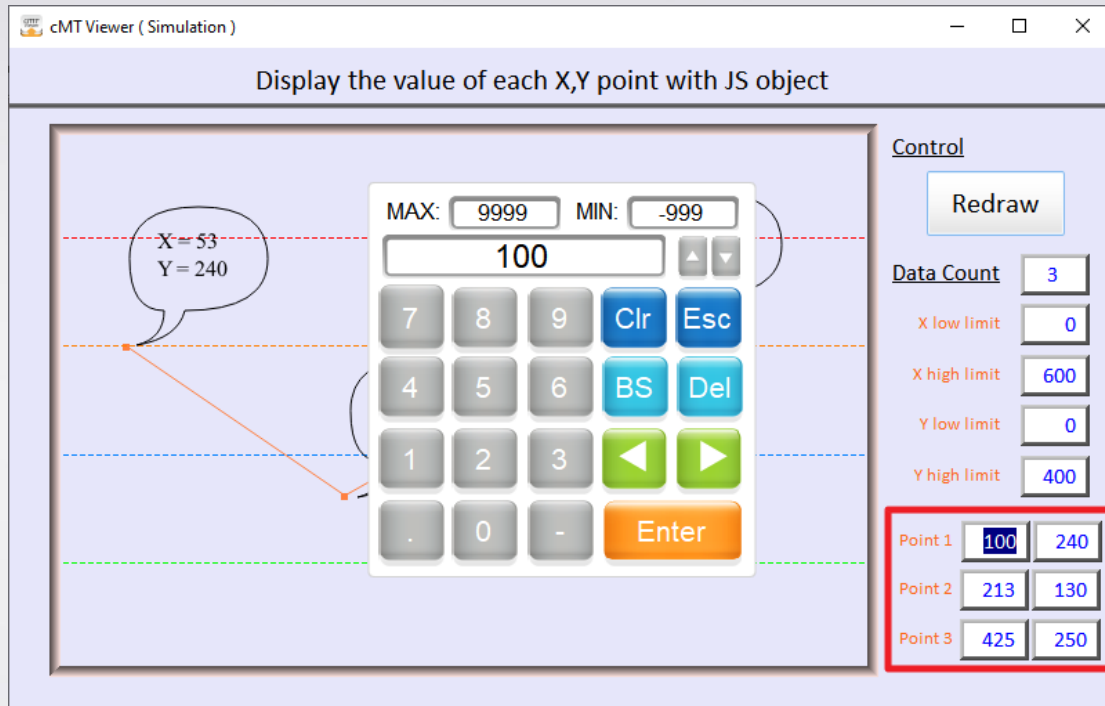
This demo project explains how to use a JS object to display the coordinates of the points in XY Plot.

### Operation

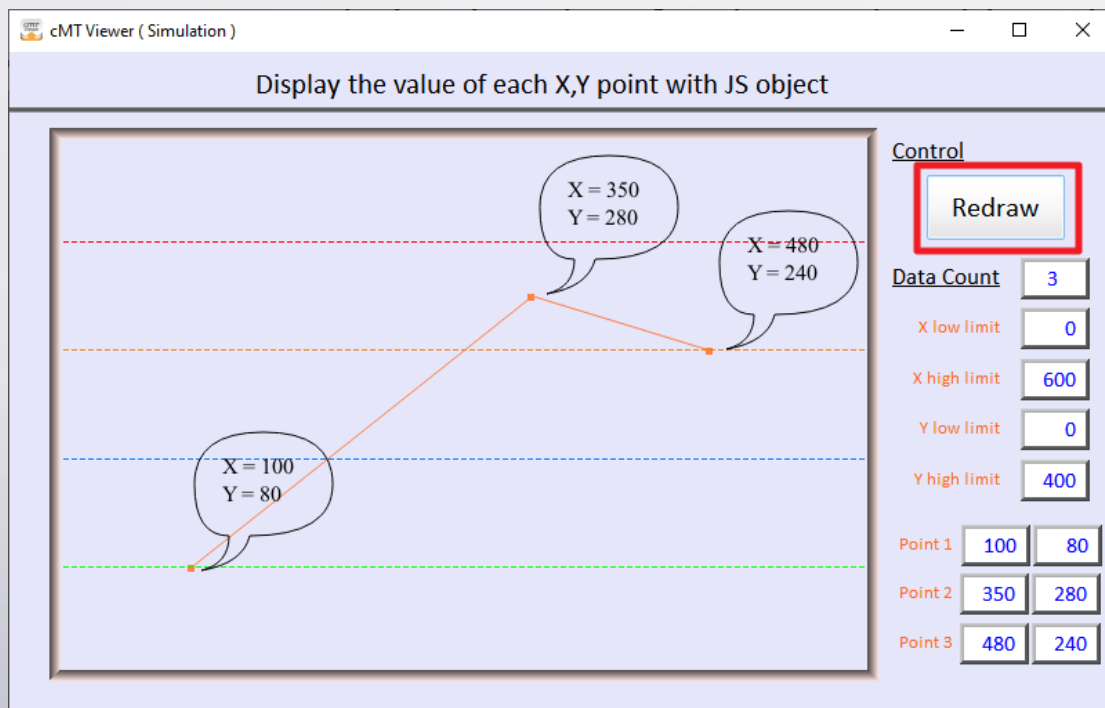
**Step 1.** Run the project file and download the project file to HMI.



**Step 2.** Change the coordinates of Point 1, 2, and 3 manually.

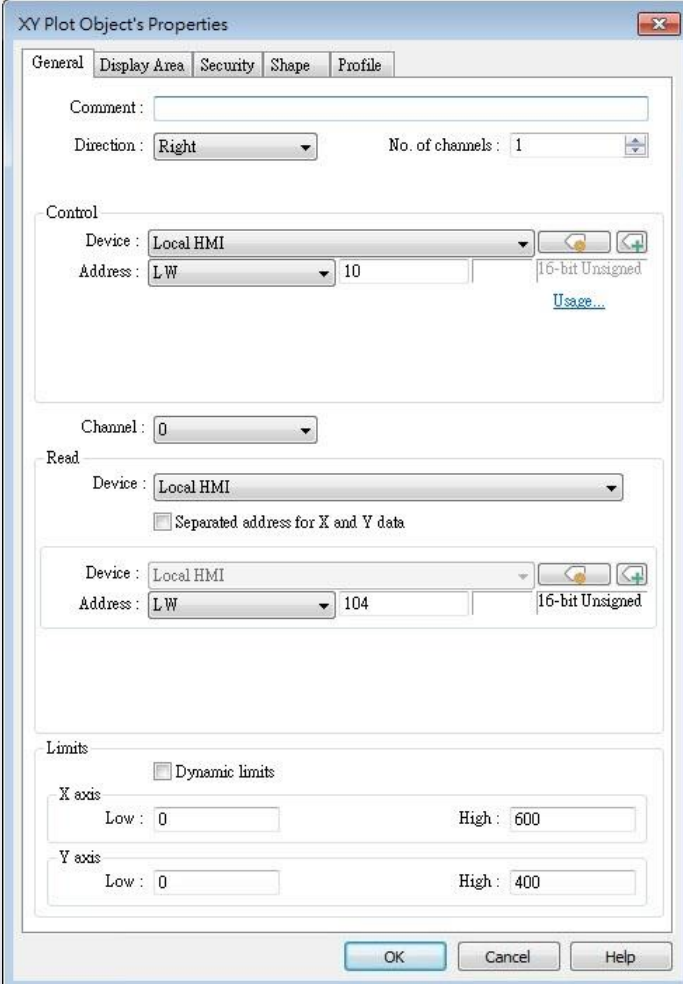


**Step 3.** Tap [Redraw]. XY plot and JS object will be redrawn simultaneously according to the new data.



## 2. Setting up the Screen

**Step 1.** Create an XY Plot, set control address to LW-10 and read address to LW-104.



XY Plot Object's Properties

General Display Area Security Shape Profile

Comment:

Direction:  No. of channels:

Control

Device:

Address:    [Usage...](#)

Channel:

Read

Device:

☐ Separated address for X and Y data

Device:

Address:

Limits

☐ Dynamic limits

X axis

Low:  High:

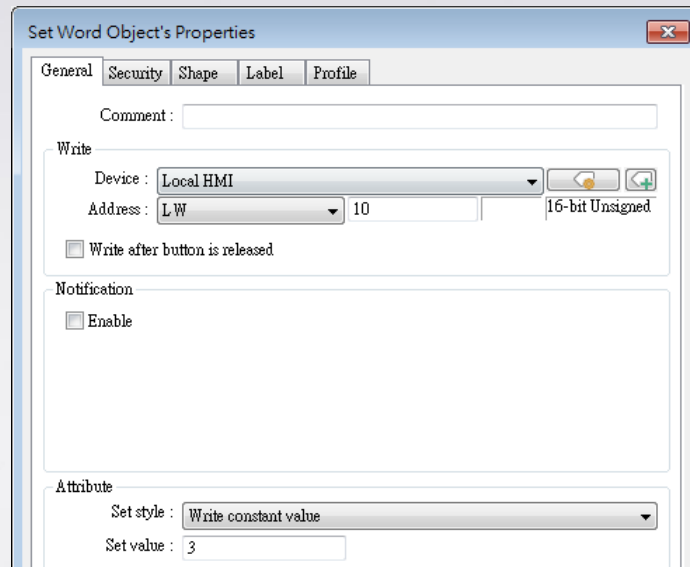
Y axis

Low:  High:

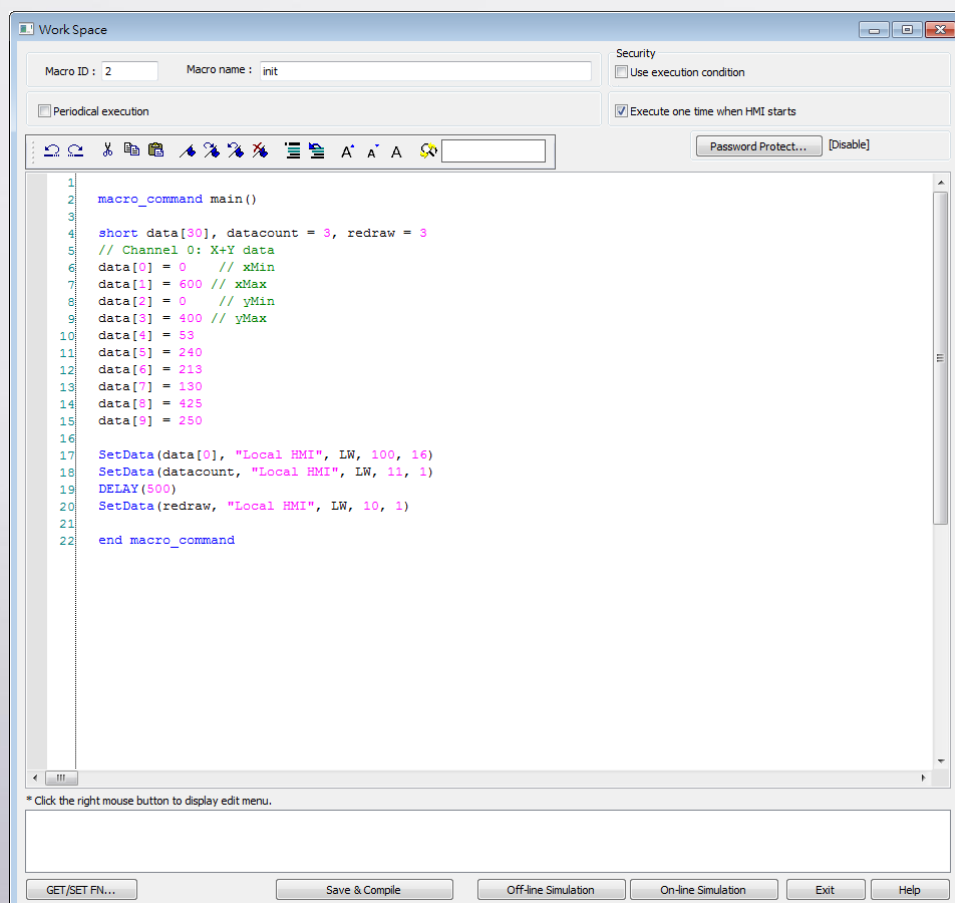
OK Cancel Help

**Step 2.** Create 6 Numeric objects to show three sets of coordinates and use the same address as that of XY Plot.

**Step 3.** Create a Set Word object for redrawing XY Plot. When constant 3 is written, XY Plot will be cleared and redrawn.



**Step 4.** Build a macro that sets default values for XY Plot and select [Execute one time when HMI starts].

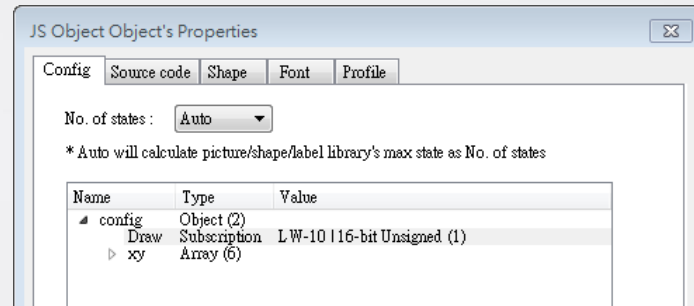


**Step 5.** Create a JS object whose size and position is the same as that of the XY Plot.

**Step 6.** In JS object settings, add a property with Subscription type and use XY Plot's control address so that the JS object can be redrawn simultaneously with the XY Plot object. Add arrays using the source addresses of the coordinates in XY Plot.

Draw: Subscribe to LW-10, which is the control address of XY Plot.

xy: The addresses showing the XY coordinates in XY Plot.



**Step 7.** Create a JS object.

**Line 1:** *'this'* is the JS object. Through *'this.config'*<object> to obtain the value (*'Draw'* and *'xy'*) added in [Config] tab.

**Line 2~3:** Create a Canvas and add it to Widget.

**Line 5~15:** Call *'onResponse'* function of the *'self.config.Draw'* < Subscription > and register response callback to get notification when the value of LW-10 changes. When value in LW-10 is 3 (Redraw XY Plot), the JS object will read the XY coordinates in XY Plot and redraw.

**Line 18~37:** The function for drawing the speech bubble and showing the values.

**Line 39~41:** The function for clearing the canvas.

```
1 var self = this;
2 var ctx = new Canvas();
3 self.widget.add(ctx);
4
5 self.config.Draw.onResponse(async(err,data)=>{
6     if (data.values[0] == 3){
7         clear();
8         var data = await driver.promises.getData(self.config.xy[0], 6);
9
10        for (let i = 0; i < 3; i++) {
11            let j=i*2;
12            draw(data.values[j],data.values[j+1]);
13        }
14    }
15 });
16
17 function draw(newX, newY) {
18
19     ctx.fillStyle = 'black';
20     ctx.beginPath();
21     ctx.moveTo(newX+55, 300-newY);
22     ctx.quadraticCurveTo(newX+5, 300-newY, newX+5, 300-newY+37.5);
23     ctx.quadraticCurveTo(newX+5, 300-newY+75, newX+30, 300-newY+75);
24     ctx.quadraticCurveTo(newX+30, 300-newY+95, newX+10, 300-newY+100);
25     ctx.quadraticCurveTo(newX+40, 300-newY+95, newX+45, 300-newY+75);
26     ctx.quadraticCurveTo(newX+105, 300-newY+75, newX+105, 300-newY+37.5);
27     ctx.quadraticCurveTo(newX+105, 300-newY, newX+55, 300-newY);
28     ctx.stroke();
29
30
31     ctx.fillStyle = 'black';
32     ctx.font = '16px serif';
33     ctx.fillText('X = ' + newX, newX+25, 300-newY+30);
34     ctx.fillText('Y = ' + newY, newX+25, 300-newY+50);
35
36 }
37
38 function clear(){
39     ctx.clearRect(0, 0, ctx.width, ctx.height);
40 }
41
42
```



### 3. Addresses

The addresses of key objects used in this demonstration are listed below, please adjust as necessary.

Object	Address	Object ID	Description
<b>Window 10</b>			
<b>XY Plot</b>	LW-10 LW-104	XY_0	The control address and read address.
<b>Set Word</b>	LW-10	SW_0	The control address of XY Plot.
<b>Numeric</b>	LW-11	ND_0	The number of points in XY Plot.
<b>Numeric</b>	LW-100	ND_1	The lower limit of X axis.
<b>Numeric</b>	LW-101	ND_2	The upper limit of X axis.
<b>Numeric</b>	LW-102	ND_3	The lower limit of Y axis.
<b>Numeric</b>	LW-103	ND_3	The upper limit of Y axis.
<b>Numeric</b>	LW-104 ~ LW-109	NE_10 ~ NE-5	The read addresses of XY coordinates.
<b>JS Object</b>	LW-10 LW-104	CO_0	