

MCS-GRAPHICS

The MCS Commitment

Our commitment is to provide practical solutions for the industries needs and to be both a leader and partner in the effective use of microprocessor controls.

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Revision History

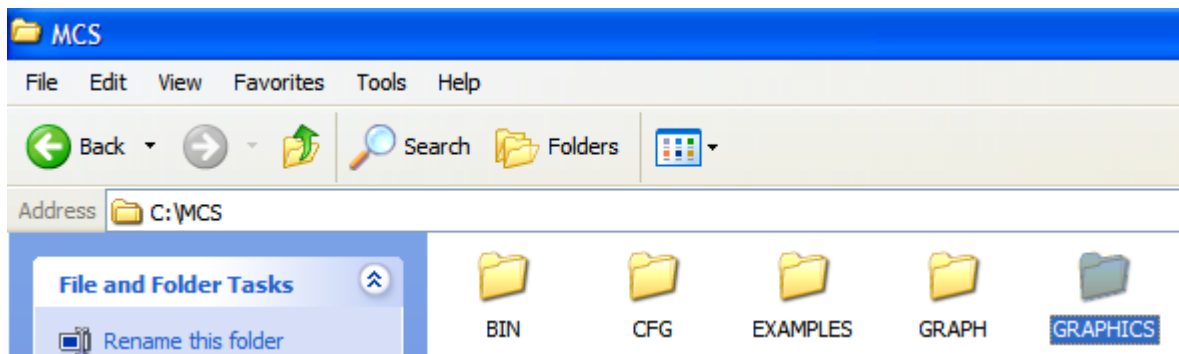
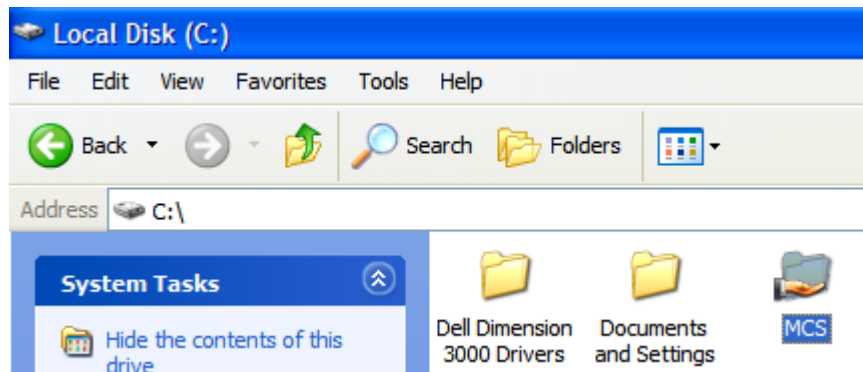
REVISION #	DATE	AUTH	DESCRIPTION OF CHANGE(S)
Rev 1.0	05-10-10	EAC	Created initial documentation

This Manual will walk you through the process of modifying and loading graphics for MCS-Connect.

1. Downloading The Sample Graphics

Begin by going to our website and downloading our Sample Graphics folder. In this folder will be a Graphics folder to use with MCS-Connect and the Sample Cfg to match the project.

Copy the Graphics folder into your MCS folder in your root directory



2. Transmit The Sample CFG into your MCS-Magnum

If you open the cfg file with the MCS config software and go to the Setup info tab scroll down to the bottom and you will see System Graphic information here is where you tell the cfg the name of html System page for your graphics. Now you can transmit the cfg to the magnum board.

MCS-Config - Graphics.CFG - [MAGNUM Setup Screen]

File Edit Window Help

Sys Info Setup Info RO Info SI Info AO Info MAG V11 HVAC Circuit Base Circuit SI Setpoints Auth

Default Display Key: UNIT STATUS

Default Display Point: [Empty]

Display Units: English

Select Language: English

Max Lockout Resets per Day: 6

History Sample Rate (Seconds): 60

Auth Level Bypass: Supervisor Level

Type of I/O Boards: RO-8/SI-16 RO-10/SI-16-AO

Daylight Savings Time Active: Yes No

Daylight Savings Time DOW: Sunday

Daylight Savings Time Hour: 2

Generate Alarm for Network Time Synchronization: Yes No

Spring Forward Month: March

Fall Back Month: November

Spring Forward Begin Date: 8

Fall Back Begin Date: 1

Spring Forward End Date: 14

Fall Back End Date: 7

Reset to U.S.A daylight savings

RS485 Communication

MCS Protocol Address: 3

Protocol Type: MCS

Baud Rate: 19200

Ethernet Communication

Static IP Dynamic IP

IP Address: 192 168 0 175

Subnet Mask: 255 255 255 0

Default Gateway: 192 168 0 1

TCP/IP Port: 1024 Accept

BACnet Device ID: 18100

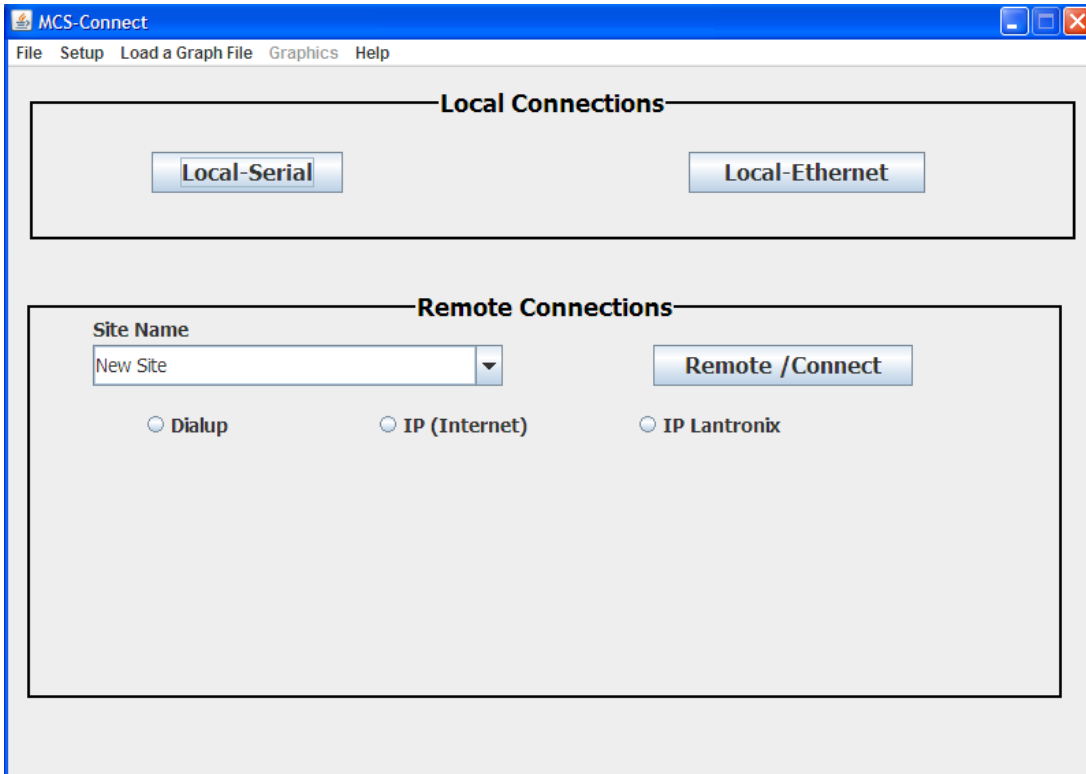
*BACnet Instance = 18100 + BACnet Addr.

System Graphic Information

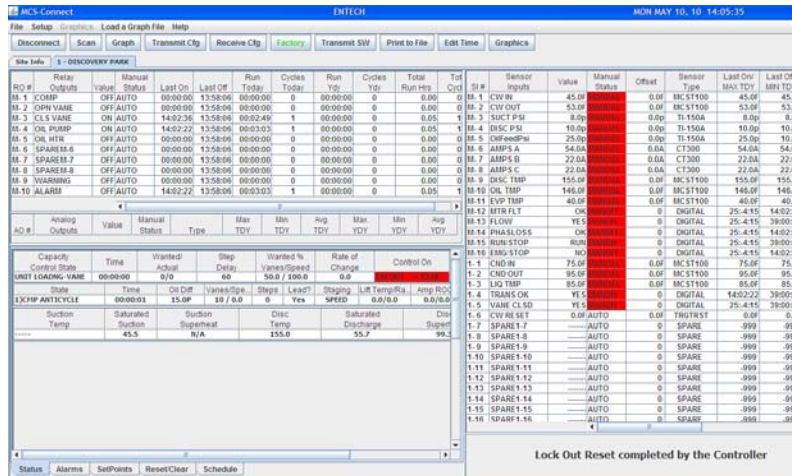
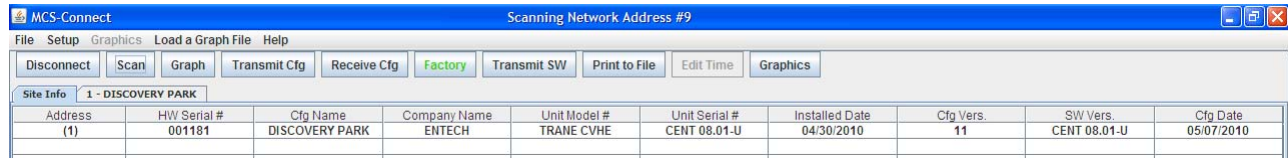
File name of Graphic HTML page : C://MCS//Graphics//SampleGraphic.html

3. View Graphics from MCS-Connect

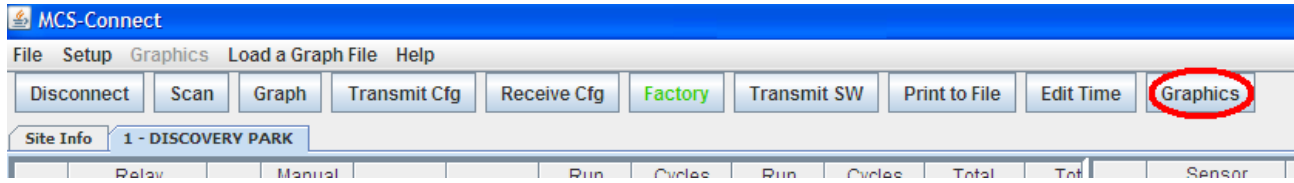
Begin by opening the MCS-Connect software. Select the Local Serial or Local Ethernet tab.



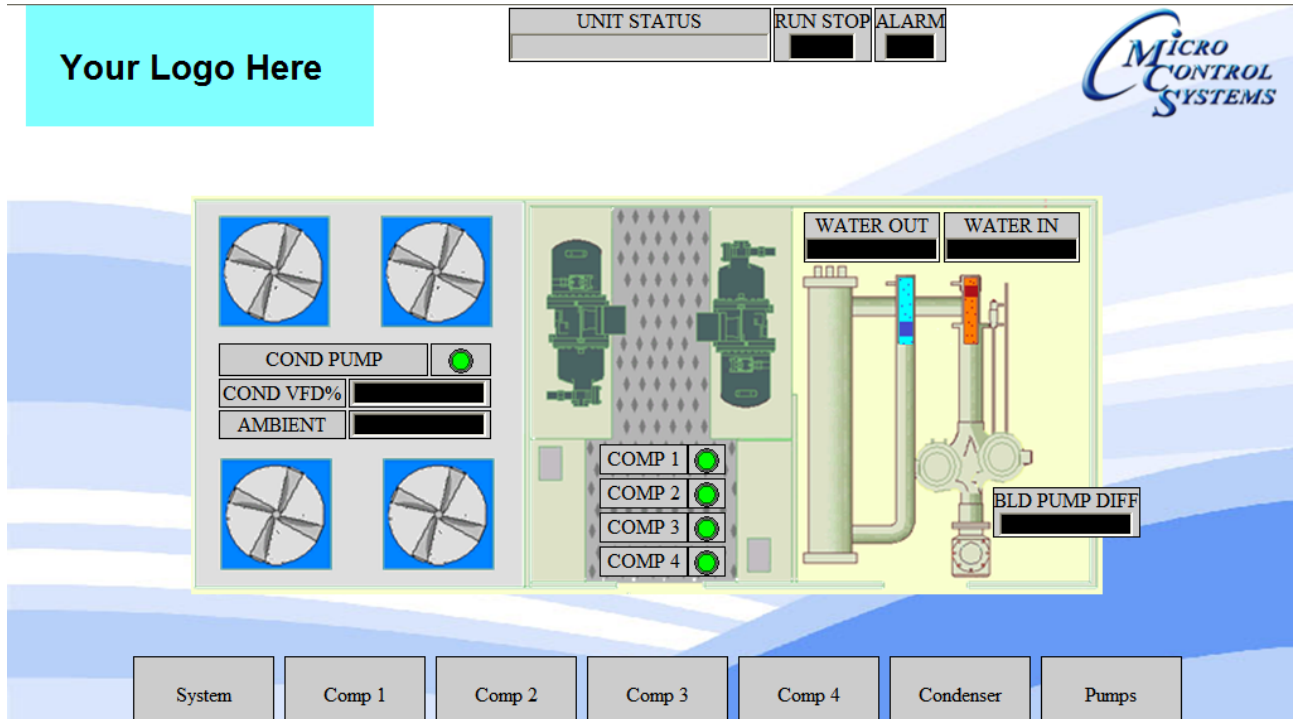
When your MCS-Magnum appears in the site info select it and wait for all the info to be pulled back from the Magnum.



Now you can select the graphics tab and wait for all the info to be displayed on the screen.



The Status of the Magnum and the values should all match the status page.



NOTE: HTML AND CSS KNOWLEDGE REQUIRED*****BASIC SYNTAX IN XHTML:****4. IMAGES**

```

```

5. DIVS

```
<div id="NameOfDiv">
    -----Content-----
</div>
```

6. LINKS

To add a button on the bottom of your graphics screen you can use the following html code.

```
<a href="NameOfYourHtml" id=" NameOfId ">Link Text</a>
```

In the source code the bottomnav div is where we insert the code for your new button.

```
<div id="bottomnav">
    <a href="javascript:replaceValues();" id="refresh">refresh</a><br />
    <a href="SampleGraphic.html" id="systemScreen">System</a>
    <a href="compressor1.html" id="compressor1screen">Comp 1</a>
    <a href="compressor2.html" id="compressor2screen">Comp 2</a>
    <a href="compressor3.html" id="compressor3screen">Comp 3</a>
    <a href="compressor4.html" id="compressor4screen">Comp 4</a>
    <a href="condensor.html" id="condensorScreen">Condenser</a>
    <a href="pumps.html" id="pumpsScreen">Pumps</a>
    <a href="NameOfYourHtml" id=" NameOfId ">Link Text</a>
</div>
```

After you add the html code you must then create a new id for the button in your css and copy the css from one of the other buttons to the new button. You will need to change the left positioning of all of your buttons so that they align properly on the page.

```
#pumpsScreen {
    width: 80px;
    height: 30px;
    position: absolute;
    top: 10px;
    left: 645px;
    vertical-align:middle;
    font-size:16px;
    line-height: 30px;
    z-index:99;
}
```

```
#NameOfIdForNewScreen {
    width: 80px;
    height: 30px;
    position: absolute;
    top: 10px;
    left: 645px;
    vertical-align:middle;
    font-size:16px;
    line-height: 30px;
    z-index:99;
}
```

7. DISPLAY INPUTS AND OUTPUTS

```
<input name="AO:1" type="text" class="text" id="AO:1" value="" size="auto"
readonly="readonly" />
```

NOTE: THE NAME AND ID PROPERTIES MUST HAVE THE SAME NAME

EXAMPLE:<ELEMENT ID="AI:29"NAME="AI:29"/>

8. FINDING THE PROPER ID AND NAME

You can cross reference the following charts to find the proper ID and Name for any inputs you would like to add.

8.1 Sensor Input Bacnet ID Table

Sensor Input	BACnet ID	Sensor Input	BACnet ID	Sensor Input	BACnet ID
Sensor M - 1	AI: 1	Sensor 2 - 1	AI:33	Sensor 4 - 1	AI:65
Sensor M - 2	AI: 2	Sensor 2 - 2	AI:34	Sensor 4 - 2	AI:66
Sensor M - 3	AI: 3	Sensor 2 - 3	AI:35	Sensor 4 - 3	AI:67
Sensor M - 4	AI: 4	Sensor 2 - 4	AI:36	Sensor 4 - 4	AI:68
Sensor M - 5	AI: 5	Sensor 2 - 5	AI:37	Sensor 4 - 5	AI:69
Sensor M - 6	AI: 6	Sensor 2 - 6	AI:38	Sensor 4 - 6	AI:70
Sensor M - 7	AI: 7	Sensor 2 - 7	AI:39	Sensor 4 - 7	AI:71
Sensor M - 8	AI: 8	Sensor 2 - 8	AI:40	Sensor 4 - 8	AI:72
Sensor M - 9	AI: 9	Sensor 2 - 9	AI:41	Sensor 4 - 9	AI:73
Sensor M-10	AI:10	Sensor 2 - 10	AI:42	Sensor 4 - 10	AI:74
Sensor M-11	AI:11	Sensor 2 - 11	AI:43	Sensor 4 - 11	AI:75
Sensor M-12	AI:12	Sensor 2 - 12	AI:44	Sensor 4 - 12	AI:76
Sensor M-13	AI:13	Sensor 2 - 13	AI:45	Sensor 4 - 13	AI:77
Sensor M-14	AI:14	Sensor 2 - 14	AI:46	Sensor 4 - 14	AI:78
Sensor M-15	AI:15	Sensor 2 - 15	AI:47	Sensor 4 - 15	AI:79
Sensor M-16	AI:16	Sensor 2 - 16	AI:48	Sensor 4 - 16	AI:80
Sensor 1 - 1	AI:17	Sensor 3 - 1	AI:49		
Sensor 1 - 2	AI:18	Sensor 3 - 2	AI:50		
Sensor 1 - 3	AI:19	Sensor 3 - 3	AI:51		
Sensor 1 - 4	AI:20	Sensor 3 - 4	AI:52		
Sensor 1 - 5	AI:21	Sensor 3 - 5	AI:53		
Sensor 1 - 6	AI:22	Sensor 3 - 6	AI:54		
Sensor 1 - 7	AI:23	Sensor 3 - 7	AI:55		
Sensor 1 - 8	AI:24	Sensor 3 - 8	AI:56		
Sensor 1 - 9	AI:25	Sensor 3 - 9	AI:57		

Sensor Input	BACnet ID	Sensor Input	BACnet ID	Sensor Input	BACnet ID
Sensor 1 -10	AI:26	Sensor 3 -10	AI:58		
Sensor 1 -11	AI:27	Sensor 3 -11	AI:59		
Sensor 1 - 12	AI:28	Sensor 3 - 12	AI:60		
Sensor 1 - 13	AI:29	Sensor 3 - 13	AI:61		
Sensor 1 - 14	AI:30	Sensor 3 - 14	AI:62		
Sensor 1 - 15	AI:31	Sensor 3 - 15	AI:63		
Sensor 1 -16	AI:32	Sensor 3 -16	AI:64		

Example: In the following Example I will setup and input in my HTML for Sensor Input 1-10 (This example will also work for Analog Outputs ,Circuit States ,Compressor States, and Setpoints.)

```
<input name="AI:26" type="text" class="text" id="AI:26" value="" size="auto"
readonly="readonly" />
```

8.3 Analog Outputs Bacnet ID Table

Analog Outptus	BACnet ID	Analog Outptus	BACnet ID
Analog Out M-1	AO:1	Analog Out 2-3	AO:11
Analog Out M-2	AO:2	Analog Out 2-4	AO:12
Analog Out M-3	AO:3	Analog Out 3-1	AO:13
Analog Out M-4	AO:4	Analog Out 3-2	AO:14
Analog Out 1-1	AO:5	Analog Out 3-3	AO:15
Analog Out 1-2	AO:6	Analog Out 3-4	AO:16
Analog Out 1-3	AO:7	Analog Out 4-1	AO:17
Analog Out 1-4	AO:7	Analog Out 4-2	AO:18
Analog Out 2-1	AO:8	Analog Out 4-3	AO:19
Analog Out 2-2	AO:10	Analog Out 4-4	AO:20

8.4 Chiller/Compressor States Bacnet ID Table

States	BACnet ID	States	BACnet ID
Chiller Unit State	MV:0	Compressor #11 State	MV:132
Compressor #1 State	MV:1	Compressor #12 State	MV:133
Compressor #2 State	MV:2	Compressor #13 State	MV:134
Compressor #3 State	MV:3	Compressor #14 State	MV:135
Compressor #4 State	MV:4	Compressor #15 State	MV:136
Compressor #5 State	MV:5	Compressor #16 State	MV:137
Compressor #6 State	MV:6	Compressor #17 State	MV:138
Compressor #7 State	MV:7	Compressor #18 State	MV:139
Compressor #8 State	MV:8	Compressor #19 State	MV:140
Compressor #9 State	MV:130	Compressor #20 State	MV:141
Compressor #10 State	MV:131		

8.5 Other Points Bacnet ID Table

Other Points	BACnet ID	Other Points	BACnet ID	Other Points	BACnet ID
Wanted FLA%	AV:3	Compressor #7 Sat Disch	AV:53	Compressor #14 Sat Suction	AV: 478

Other Points	BACnet ID	Other Points	BACnet ID	Other Points	BACnet ID
Steps Wanted	AV:4	Compressor #7 Disch SH	AV:54	Compressor #14 Sat Disch	AV: 479
Steps On	AV:5	Compressor #7 Suct SH	AV:55	Compressor #14 Disch SH	AV: 480
Step Delay	AV:6	Compressor #7 Oil Pres Diff	AV:69	Compressor #14 Suct SH	AV: 481
Compressor #1 FLA%	AV:7	Compressor #8 FLA%	AV:56	Compressor #14 Oil Pres Diff	AV: 529
Compressor #1 Sat Suction	AV:10	Compressor #8 Sat Suction	AV:59	Compressor #15 FLA%	AV: 482
Compressor #1 Sat Disch	AV:11	Compressor #8 Sat Suction	AV:59	Compressor #15 Sat Suction	AV: 485
Compressor #1 Disch SH	AV:12	Compressor #8 Sat Disch	AV:60	Compressor #15 Sat Disch	AV: 486
Compressor #1 Suct SH	AV:13	Compressor #8 Disch SH	AV:61	Compressor #15 Disch SH	AV: 487
Compressor #1 Oil Pres Diff	AV:63	Compressor #8 Suct SH	AV:62	Compressor #15 Suct SH	AV: 488
Compressor #2 FLA%	AV:14	Compressor #8 Oil Pres Diff	AV:70	Compressor #15 Oil Pres Diff	AV: 530
Compressor #2 Sat Suction	AV:17	Compressor #9 FLA%	AV:440	Compressor #16 FLA%	AV: 489
Compressor #2 Sat Disch	AV:18	Compressor #9 Sat Suction	AV: 443	Compressor #16 Sat Suction	AV: 492
Compressor #2 Disch SH	AV:19	Compressor #9 Sat Disch	AV: 444	Compressor #16 Sat Disch	AV: 493
Compressor #2 Suct SH	AV:20	Compressor #9 Disch SH	AV: 445	Compressor #16 Disch SH	AV: 494
Compressor #2 Oil Pres Diff	AV:64	Compressor #9 Suct SH	AV: 446	Compressor #16 Suct SH	AV: 495
Compressor #3 FLA%	AV:21	Compressor #9 Oil Pres Diff	AV:524	Compressor #16 Oil Pres Diff	AV: 531
Compressor #3 Sat Suction	AV:24	Compressor #10 FLA%	AV:447	Compressor #17 FLA%	AV: 496
Compressor #3 Sat Disch	AV:25	Compressor #10 Sat Suction	AV: 450	Compressor #17 Sat Suction	AV: 499
Compressor #3 Disch SH	AV:26	Compressor #10 Sat Disch	AV: 451	Compressor #17 Sat Disch	AV: 500
Compressor #3 Suct SH	AV:27	Compressor #10 Disch SH	AV: 452	Compressor #17 Disch SH	AV: 501
Compressor #3 Oil Pres Diff	AV:65	Compressor #10 Suct SH	AV: 453	Compressor #17 Suct SH	AV: 502
Compressor #4 FLA%	AV:28	Compressor #10 Oil Pres Diff	AV:525	Compressor #17 Oil Pres Diff	AV: 532
Compressor #4 Sat Suction	AV:31	Compressor #11 FLA%	AV:454	Compressor #18 FLA%	AV: 503
Compressor #4 Sat Disch	AV:32	Compressor #11 Sat Suction	AV: 457	Compressor #18 Sat Suction	AV: 506
Compressor #4 Disch SH	AV:33	Compressor #11 Sat Disch	AV: 458	Compressor #18 Sat Disch	AV: 507
Compressor #4 Suct SH	AV:34	Compressor #11 Disch SH	AV: 459	Compressor #18 Disch SH	AV: 508
Compressor #4 Oil Pres Diff	AV:66	Compressor #11 Suct SH	AV: 460	Compressor #18 Suct SH	AV: 509
Compressor #5 FLA%	AV:35	Compressor #11 Oil Pres Diff	AV: 526	Compressor #18 Oil Pres Diff	AV: 533
Compressor #5 Sat Suction	AV:38	Compressor #12 FLA%	AV: 461	Compressor #19 FLA%	AV: 510
Compressor #5 Sat Disch	AV:39	Compressor #12 Sat Suction	AV: 464	Compressor #19 Sat Suction	AV: 513
Compressor #5 Disch SH	AV:40	Compressor #12 Sat Disch	AV: 465	Compressor #19 Sat Disch	AV: 514
Compressor #5 Suct SH	AV:41	Compressor #12 Disch SH	AV: 466	Compressor #19 Disch SH	AV: 515
Compressor #5 Oil Pres Diff	AV:67	Compressor #12 Suct SH	AV: 467	Compressor #19 Suct SH	AV: 516
Compressor #6 FLA%	AV:42	Compressor #12 Oil Pres Diff	AV:527	Compressor #19 Oil Pres Diff	AV: 534
Compressor #6 Sat Suction	AV:45	Compressor #13 FLA%	AV:468	Compressor #20 FLA%	AV: 517
Compressor #6 Sat Disch	AV:46	Compressor #13 Sat Suction	AV: 471	Compressor #20 Sat Suction	AV: 520
Compressor #6 Disch SH	AV:47	Compressor #13 Sat Disch	AV: 472	Compressor #20 Sat Disch	AV: 521
Compressor #6 Suct SH	AV:48	Compressor #13 Disch SH	AV: 473	Compressor #20 Disch SH	AV: 522
Compressor #6 Oil Pres Diff	AV:68	Compressor #13 Suct SH	AV: 474	Compressor #20 Suct SH	AV: 523
Compressor #7 FLA%	AV:49	Compressor #13 Oil Pres Diff	AV: 528	Compressor #20 Oil Pres Diff	AV: 535
Compressor #7 Sat Suction	AV:52	Compressor #14 FLA%	AV: 475		

8.2 Relay Output Bacnet ID Table

Relay Output	BACnet ID	Relay Output	BACnet ID	Relay Output	BACnet ID	Relay Output	BACnet ID
Relay M - 1	BO: 1	Relay 2 - 1	BO:21	Relay 4 - 1	BO:41	Relay 6 - 1	BO:61
Relay M - 2	BO: 2	Relay 2 - 2	BO:22	Relay 4 - 2	BO:42	Relay 6 - 2	BO:62
Relay M - 3	BO: 3	Relay 2 - 3	BO:23	Relay 4 - 3	BO:43	Relay 6 - 3	BO:63

Relay Output	BACnet ID	Relay Output	BACnet ID	Relay Output	BACnet ID	Relay Output	BACnet ID
Relay M - 4	BO: 4	Relay 2 - 4	BO:24	Relay 4 - 4	BO:44	Relay 6 - 4	BO:64
Relay M - 5	BO: 5	Relay 2 - 5	BO:25	Relay 4 - 5	BO:45	Relay 6 - 5	BO:65
Relay M - 6	BO: 6	Relay 2 - 6	BO:26	Relay 4 - 6	BO:46	Relay 6 - 6	BO:66
Relay M - 7	BO: 7	Relay 2 - 7	BO:27	Relay 4 - 7	BO:47	Relay 6 - 7	BO:67
Relay M - 8	BO: 8	Relay 2 - 8	BO:28	Relay 4 - 8	BO:48	Relay 6 - 8	BO:68
Relay M - 9	BO: 9	Relay 2 - 9	BO:29	Relay 4 - 9	BO:49	Relay 6 - 9	BO:69
Relay M-10	BO:10	Relay 2 -10	BO:30	Relay 4 - 10	BO:50	Relay 6 - 10	BO:70
Relay 1 - 1	BO:11	Relay 3 - 1	BO:31	Relay 5 - 1	BO:51	Relay 7 - 1	BO:71
Relay 1 - 2	BO:12	Relay 3 - 2	BO:32	Relay 5 - 2	BO:52	Relay 7 - 2	BO:72
Relay 1 - 3	BO:13	Relay 3 - 3	BO:33	Relay 5 - 3	BO:53	Relay 7 - 3	BO:73
Relay 1 - 4	BO:14	Relay 3 - 4	BO:34	Relay 5 - 4	BO:54	Relay 7 - 4	BO:74
Relay 1 - 5	BO:15	Relay 3 - 5	BO:35	Relay 5 - 5	BO:55	Relay 7 - 5	BO:75
Relay 1 - 6	BO:16	Relay 3 - 6	BO:36	Relay 5 - 6	BO:56	Relay 7 - 6	BO:76
Relay 1 - 7	BO:17	Relay 3 - 7	BO:37	Relay 5 - 7	BO:57	Relay 7 - 7	BO:77
Relay 1 - 8	BO:18	Relay 3 - 8	BO:38	Relay 5 - 8	BO:58	Relay 7 - 8	BO:78
Relay 1 - 9	BO:19	Relay 3 - 9	BO:39	Relay 5 - 9	BO:59	Relay 7 - 9	BO:79
Relay 1- 10	BO:20	Relay 3 - 10	BO:40	Relay 5 -10	BO:60	Relay 7 - 10	BO:80

Example: In the following Example I will setup and input in my HTML for Relay Output 1-10

```
<table align="center" cellpadding="0px" cellspacing="0px" id="" style="float: center; margin-right: 0px; margin-left: 0px;">
  <tr>
    <td>COMP 1
  </td>
  <td><br />
  <input name="BO:20" type="text" class="text displayNone" id="BO:20" value="" readonly="readonly" dispale="none" />
  </td>
</tr>
</table>
```

9. TABLES

EXAMPLE: The following example shows how a table is created in HTML.

```
<table>
  <tr><td>
    MOTOR SPEED
```

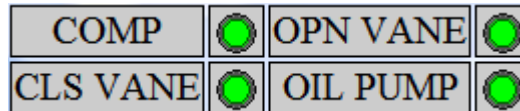
```

<input name="AO:1" type="text" class="text" id="AO:1" value="" size="auto"
readonly="readonly" />
</td></tr>

<tr><td>
VANE %
<input name="AO:2" type="text" class="text" id="AO:2" value="" size="auto"
readonly="readonly" />
</td></tr>
</table>

```

10. SETTING UP AN RO FOR LIGHT ANIMATION



- When adding a Relay output you have to add the input to the digital div in the source code in order for the Light Animation to function.

EXAMPLE:

```

<div id="digital">
  <table>
    <tr>
      <td ><span class="title ">COMP</span></td>
      <td><br /></td>
      <input name="BO:1" type="text" class="text" id="BO:1" value=""
      readonly="readonly" style="display: none;" />
    </tr>
  </table>
</div>

```

- You must add the BO id of the new Relay Output you are adding in the javascript function switchLights.

EXAMPLE: Example (a) shows the original switchlights function. Example (b) shows the modified switchlights function (added Relay Output 5).

(a)

```

function switchLights(theBO, theimg){
  if (theBO.value.indexOf("ON") >= 0){
    if((theBO.id == "BO:1") ||

```

(b)

```

function switchLights(theBO, theimg){
  if (theBO.value.indexOf("ON") >= 0){
    if((theBO.id == "BO:1") ||

```

```

        (theBO.id == "BO:3") ||
        (theBO.id == "BO:4") ||

    ){
theimg.src = "images/greencircle.png";
} else {
    theimg.src = "images/redcircle.png";
}
} else {
    if((theBO.id == "BO:1") ||
        (theBO.id == "BO:3") ||
        (theBO.id == "BO:4") ||

    ){
        theimg.src = "images/redcircle.png";
    } else {
        theimg.src = "images/greencircle.png";
    }
}
}

        (theBO.id == "BO:3") ||
        (theBO.id == "BO:4") ||
        (theBO.id == "BO:5") ||

    ){
theimg.src = "images/greencircle.png";
} else {
    heimg.src = "images/redcircle.png";
}
} else {
    if((theBO.id == "BO:1") ||
        (theBO.id == "BO:3") ||
        (theBO.id == "BO:4") ||
        (theBO.id == "BO:5") ||

    ){
        theimg.src = "images/redcircle.png";
    } else {
        theimg.src = "images/greencircle.png";
    }
}
}

```

11. SETTING UP ANIMATION

NOTE:KNOWLEDGE OF JAVASCRIPT AND POSITIONING WITH CSS IS NEEDED TO SET UP ANIMATIONS.

For this Example I will Set up an animated GIF for the Flow sensor input AI:13.

- I need two GIF files The first GIF will be displayed when have no flow. The second GIF (an animated GIF) will be displayed when we have flow.
- then create an id for your animation in the CSS.

EXAMPLE:

```

#flow {
    position: absolute;
    top: 89.625px;        //---Sets position of the image from the top of the page---//
    left: 261.7px;      //---Sets position of the image from the left of the page---//
    z-index: 99;        //---Sets position of the image to overlap anything on the page---//

}

```

- Insert your image in the HTML

EXAMPLE:

```

```

- Create a function for the animation with javascript

EXAMPLE:

```
function NameOfYourFunction(){
    var NameOfYourFunction =document.getElementById("Al:13");

    if (NameOfYourFunction.value.indexOf("NO") >= 0){
        var img = document.getElementById("NameOfId");
        img.src="images/YourImageForNoFlow.gif";
    } else if (NameOfYourFunction.value.indexOf("YES") >= 0) {
        var img = document.getElementById("NameOfId ");
        img.src="images/ YourImageForFlow.gif";

    }

}
```

12. Setpoint Input change from MCS-Graphics screen

In order to set up a setpoint input to be editable in the graphics screen the following code must be included in the main javascript file.

This is an example of an input that is set up for the ability to update its value
You surround the <input> and with an <a> tag with its "onclick" property set to "createValueChangePopup(input id);"

EXAMPLE:

```
<a id="tempLink" onclick="createValueChangePopup('AV:2');" >
  <span class="title">CTRL ZONE +</span>
  <br />
  <input name="AV:2" type="text" class="text" id="AV:2" value=""
  readonly="readonly" style="width: 130px;" />
</a>
```

This code is added to the main javascript file of the graphic html file The main javascript file is then linked to by the **valueChangePopup.html** file by adding this code...

```
<script src="script.js" type="text/javascript"></script>
```

Where "script.js" is the name of the main javascript file for the graphic.

These variable are added to the beginning of the main javascript file...

```
var inputNumberChanged;
var lines;
var changedVars = new Array("", "");
```

This code is added to the beginning of the **initPage()** function

```
if(document.title == "Change Popup"){
  vallInput = document.getElementById("oldVallInput");
  readFromFile();
  if(vallInput != null){
    lines = lines[0].split(",");
    vallInput.value = lines[1];
    writeToFile(lines[0]);
  }
}
```

These first 2 functions are the set and get functions of the placeholder variables for the id of the changed input and the new value.

```
function setChangedVars(first,second){
    changedVars[0]=trim(first);
    changedVars[1]=trim(second);
}

function getChangedVars(){
    return changedVars;
}
```

This function is called from the graphic .html page to write the input id to an .ini file and open the **valueChangePopup.html** file.

```
function createValueChangePopup(elem){
    var currentValue;
    currentValue = document.getElementById(elem).value;
    setChangedVars(elem,currentValue);
    writeToFile(getChangedVars());
}
```

```
MyWindow=window.open('valueChangePopup.html','MyWindow','toolbar=no,location=no,directories=no,status=no,menubar=no,scrollbars=no,resizable=no,width=170,height=210');
MyWindow.moveTo(300,300);
return false;
}
```

This function is called from the **valueChangePopup.html** page when the submit input button is clicked. Makes calls to get the value of the input id and the value of the input on the **valueChangePopup.html**. Then writes them to the .ini file that is read by MCS-Connect

```
function submitValue(){
    var fileString;
    var val;
    val= document.getElementById("newVallInput").value;
    readFromFile();
    setChangedVars(lines[0],val);
    writeToFile(getChangedVars());
    writeToFlagFile(1);
    window.close();
}
```

This function writes to the **changeData.ini** file that MCS-Connect looks at to determine which point to update and the new value.

```
function writeToFile(vars){
    var fso = new ActiveXObject("Scripting.FileSystemObject");
    var s = fso.CreateTextFile("c://MCS/GRAPHICS/changeData.ini", true);
}
```

```

    s.WriteLine(vars);
    s.Close();
}

```

This function writes to the **changeFlag.ini** file that MCS-Connect looks at to determine if a change has been made

```

function writeToFlagFile(vars){
    var fso = new ActiveXObject("Scripting.FileSystemObject");
    var s = fso.CreateTextFile("c://MCS/GRAPHICS/changeFlag.ini", true);
    s.WriteLine(vars);
    s.Close();
}

```

This function reads from the **changeData.ini** and loads the "lines" variable with the value read.

```

function readFromFile(){
    var txtFile = new ActiveXObject("Microsoft.XMLHTTP");
    try{
        txtFile.open("GET", "c://MCS/GRAPHICS/changeData.ini", true);
    }catch(e){
        document.title = e;
    }
    txtFile.onreadystatechange = function() {
        if (txtFile.readyState === 4) { // Makes sure the document is ready to parse.
            allText = txtFile.responseText;
            lines = allText.split("\n"); // Will separate each line into an array
        }
    }
    txtFile.send(null);
}

```

This function trims off the whitespace or a newline character from a string.

```

function trim(stringToTrim) {
    return stringToTrim.replace(/^\s+|\s+$/g, "");
}

```

The file **valueChangePopup.html** file and its css file **popupStyle.css** must be included in the graphics folder at the same level as the graphics .html file.

The file **changeData.ini** file must be included in the graphics folder at the same level as the graphics .html file.

The file **changeFlag.ini** file must be included in the graphics folder at the same level as the graphics .html file.

This feature will only function with MCS-Connect version 6.02Z and later.