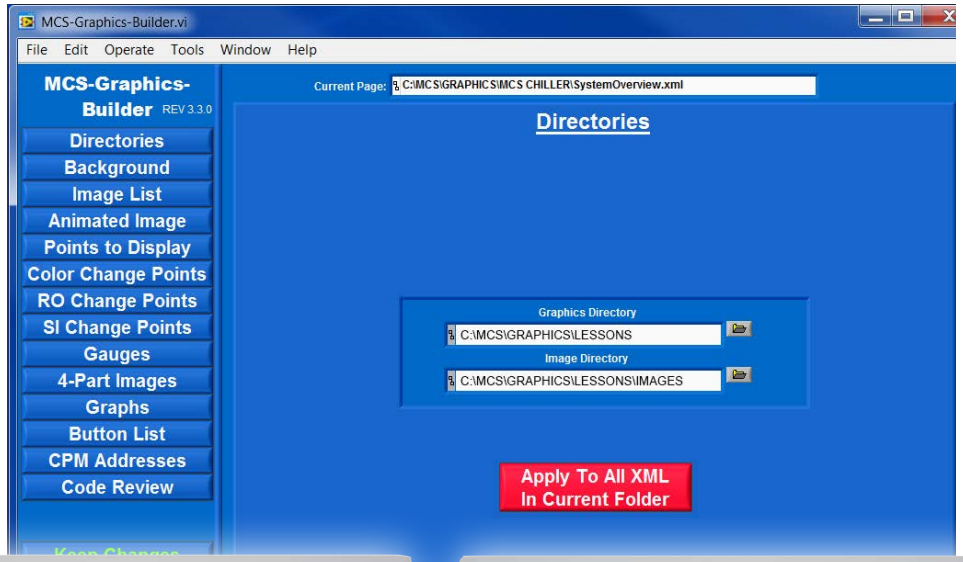
Revision 3.4.2 - 2019-08-06

MCS GRAPHICS BUILDER

5580 Enterprise Pkwy.
Fort Myers, FL 33905

Office: 239-694-0089
Fax: 239-694-0031

www.mcscontrols.com



MCS Total Solution for all your Control Needs

RoHS Compliant

Energy Efficient and RoHS Compliant

Revision / Disclaimer

Revisions

Date	Author	Description of Changes
01-8/18-2016	DEW	Setup Manual
02-04-2016	DEW	Update to 3.10 screen shots, add Graph section
02-16-18-2016	DEW	Update to 3.1.2 screen shots
03-01-2016	DEW	Update to 3.1.5 screen shots
05-02-16	DEW	Update to 3.2.0 screen shots
01-19-17	DEW	Update to 3.3.0 screen shots
03-21-17	DEW	Update Set Point Key list
07-09-2019	DEW	Update to version 3.4.2 Graphics Builder

The MCS 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.

Micro Control Systems, Inc.
5580 Enterprise Parkway
Fort Myers, Florida 33905
PH:(239) 694-0089 FAX:(239) 694-0031
www.mcscontrols.com

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Chapter - 1. GRAPHICS AND MCS-CONNECT

1.1. GRAPHICS USING MCS GRAPHIC BUILDER

This Manual describes the MCS GRAPHICS BUILDER and its interaction with the MCS-CONNECT system. It allows the user to create custom graphic images and view them dynamically via MCS-CONNECT.

The MCS Graphics starts with a basic template to which you can add your company's logo, add additional points to monitor and customize placement of buttons, etc.

OEM's can use the template supplied as a starting point to build basic information for their chiller or rooftop units.

You will learn how to replace images, change input and output displays, to move buttons and images and to display exactly the information you want and where you want it.

Desktop Computer running MCS-CONNECT with Graphics

PC Laptop running MCS-GRAPHICS-BUILDER

1.2. MCS GRAPHICS BUILDER PC Requirements

To install and run the program we suggest the following minimum system requirements:

- PC with a Pentium2-class or higher processor
- It is highly recommended a Desktop monitor be used with the 'Extended Display' option.
- Windows 7 or later operating system
- Photoshop, or program for sizing images
- Minimum 1GB of RAM
- Minimum 4GB Drive
- 1280 x 800 pixel or higher display
- Ethernet 10/100/1000
- USB port 2.0 or higher

MCS-MAGNUM NEMA4-15.4
CONTROL CABINET with Graphics display

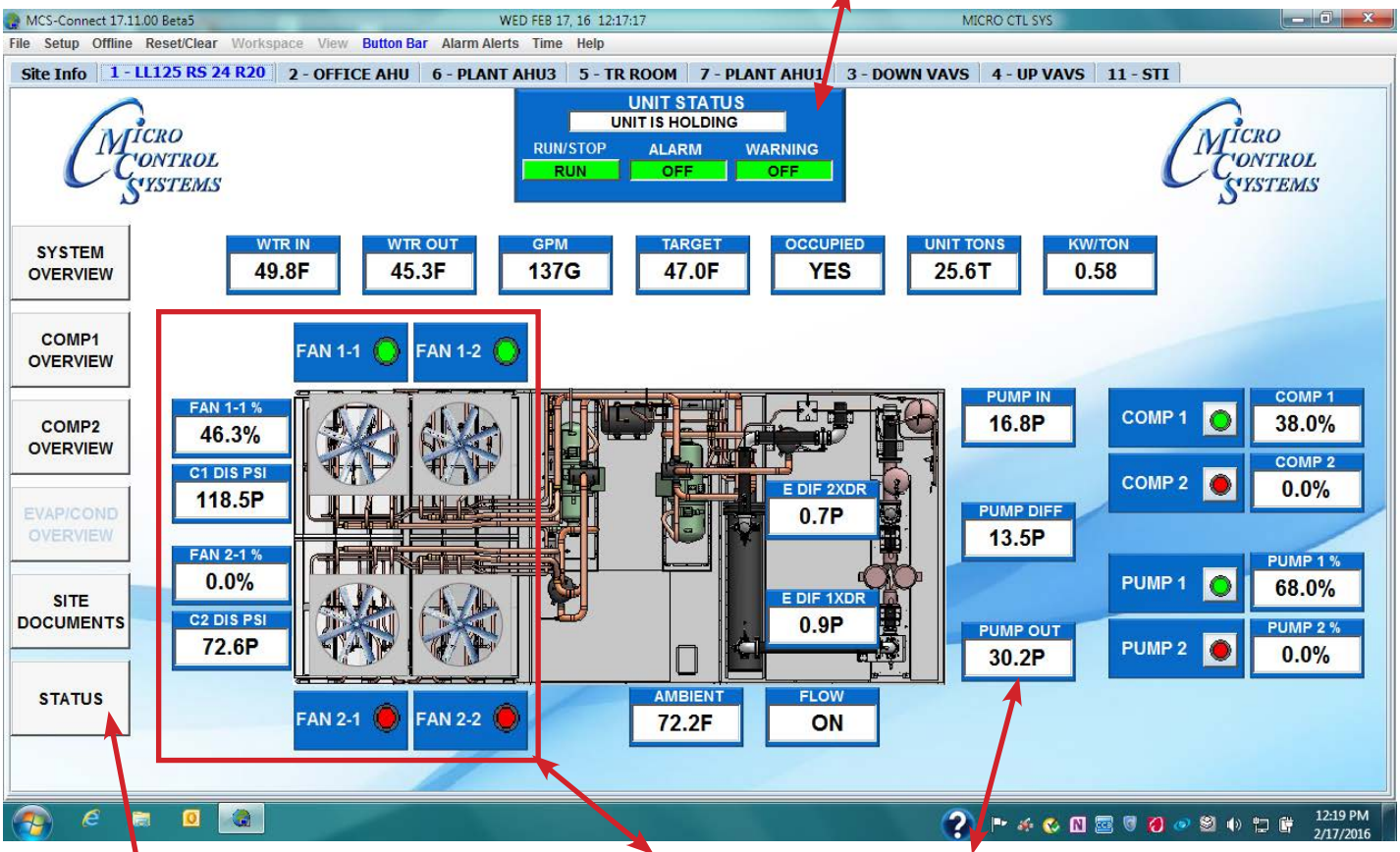
Chapter - 2. ABOUT GRAPHICAL INTERFACE

The Graphical interface is a combination of computer programs, Javascript, HTML, CSS, and XML which builds the screens showing your compressors in real time graphics.

Graphical user interfaces are build to show the important status information for your unit.

Multiple screens can be built to help you see and monitor the operation of the chiller, rooftop unit, its compressors, sensors, and relays.

It provides you with an easy-to-grasp overview of its systems ***'in real time'***.



In addition to loading the Graphics onto your MCS High Resolution Touch you can view the Graphics using your desktop remotely. Remote monitoring via MCS-Connect and the 'Graphical user interface' will increase the value of your installations. It enables the user to view the system without the need to be at the site if you are connected remotely.

It also aids the user to troubleshoot failures and have the appropriate equipment on hand before going to the unit's site.

MCS-Connect and the 'Graphic Interface' provides a dynamic, easy to understand man machine interface, but more importantly you have better control of your chillers and rooftop units and can monitor all parameters in real time through MCS-CONNECT.

Each 'Graphic Package' screen can be different depending on how you want to display information in real time mode.

Changes to setpoints, relays, etc. can be made at the MCS-Connect status screen if you have the proper authorization.

SYSTEM OVERVIEW
THIS WINDOW SHOWS
STATUS OF THE COMPRESSORS

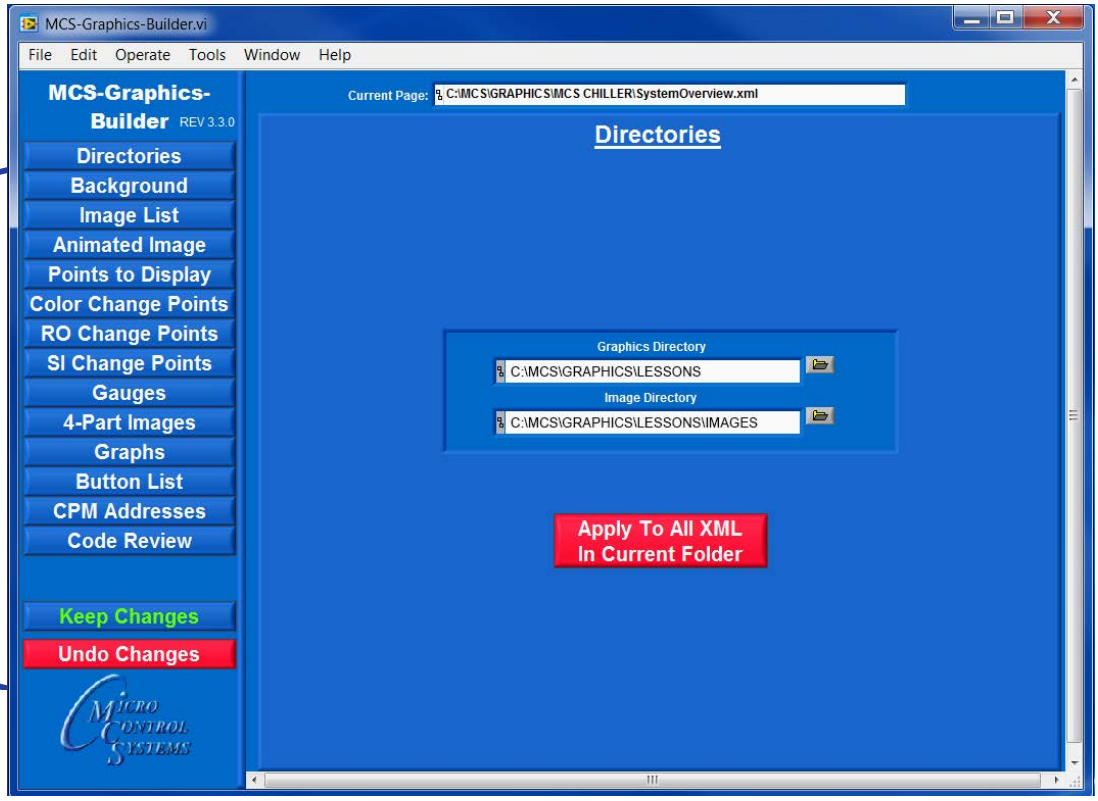
UNIT IS UNLOADED

STATUS OF STEPS WTD, STEPS ON, AMBIENT TEMP, ETC.

Chapter - 3. MCS GRAPHIC BUILDER

3.1. Main Screens

Opening Screens- Background and Image List controls.



Graphics Builder Menu Panel

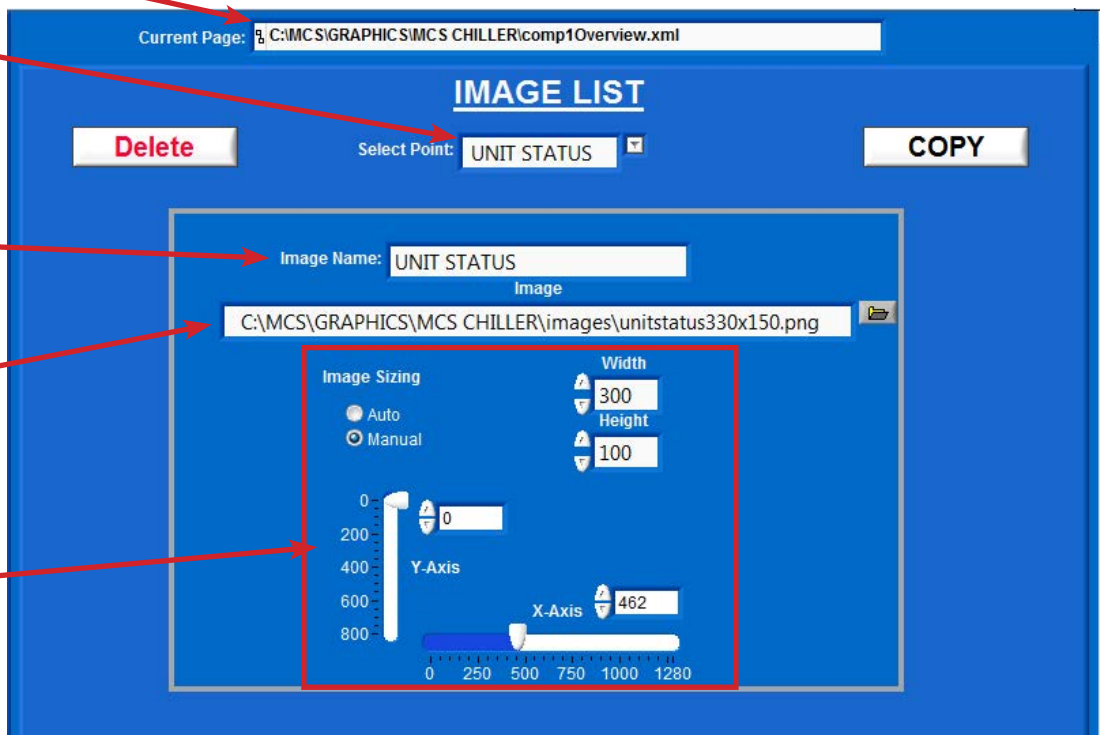
XML FILE NOW OPEN

Select Point Object location

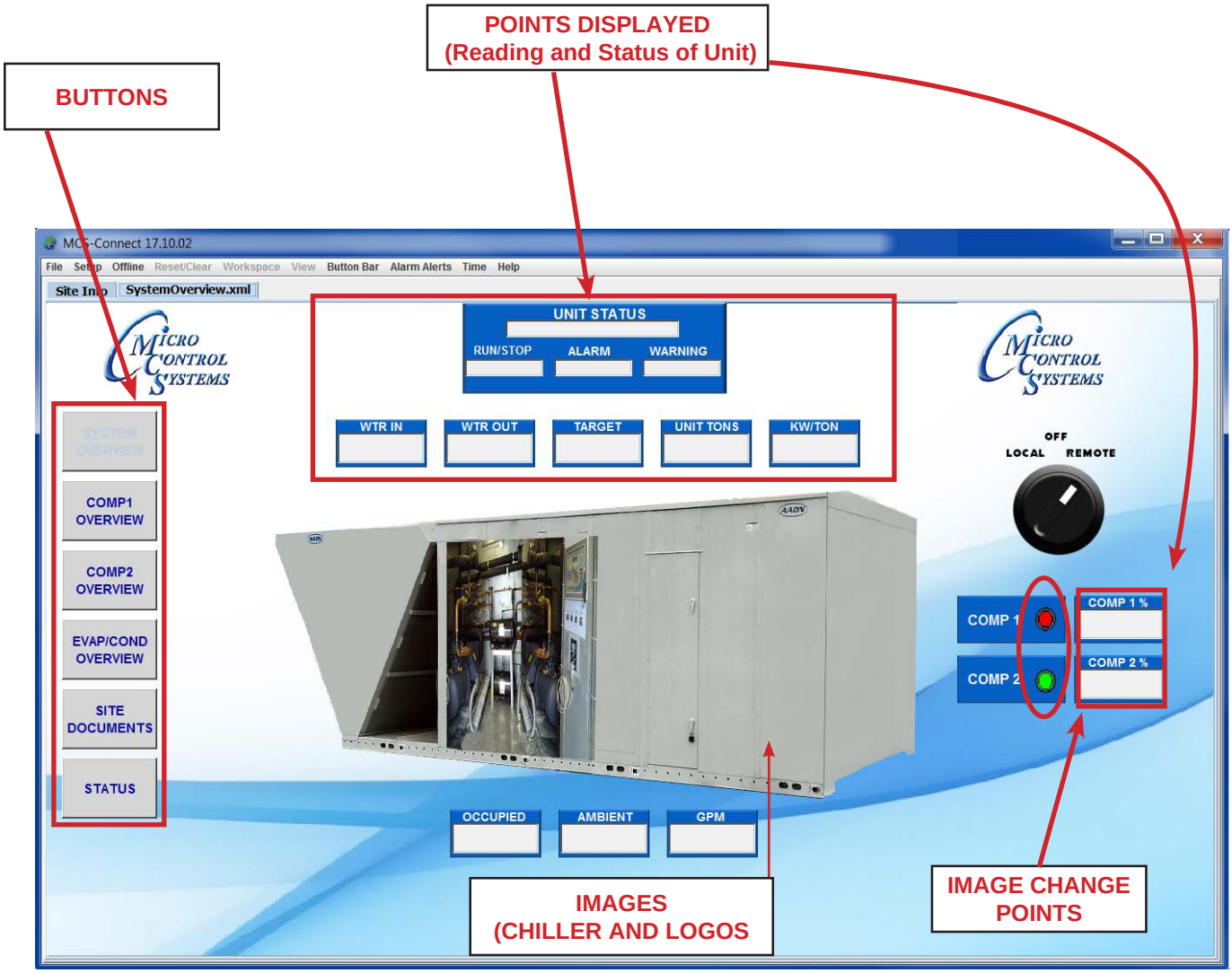
Image Name Assigned

Location of Image and Name
NOTE: all images must be stored in root directory C:/MCS/Graphics/MCS CHILLER

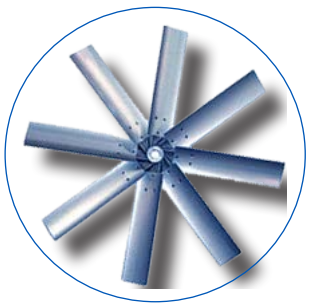
Sizing/Position Tools



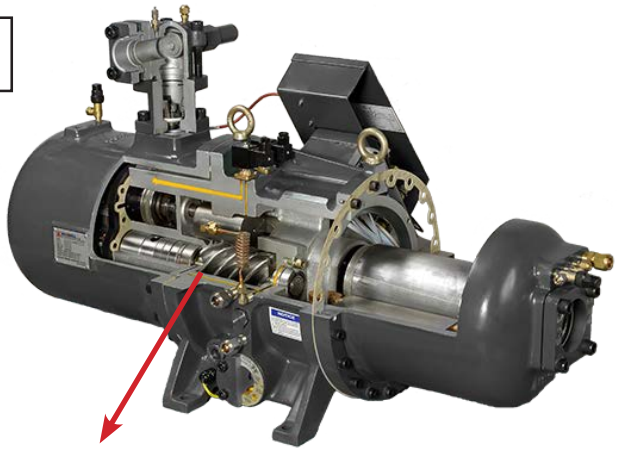
Chapter - 4. DESCRIPTION OF IMAGES, BUTTONS, POINTS



ANIMATED GRAPHICS



Fan Blades Turning



Gears Turning

Chapter - 5. SIZING FOR IMAGES

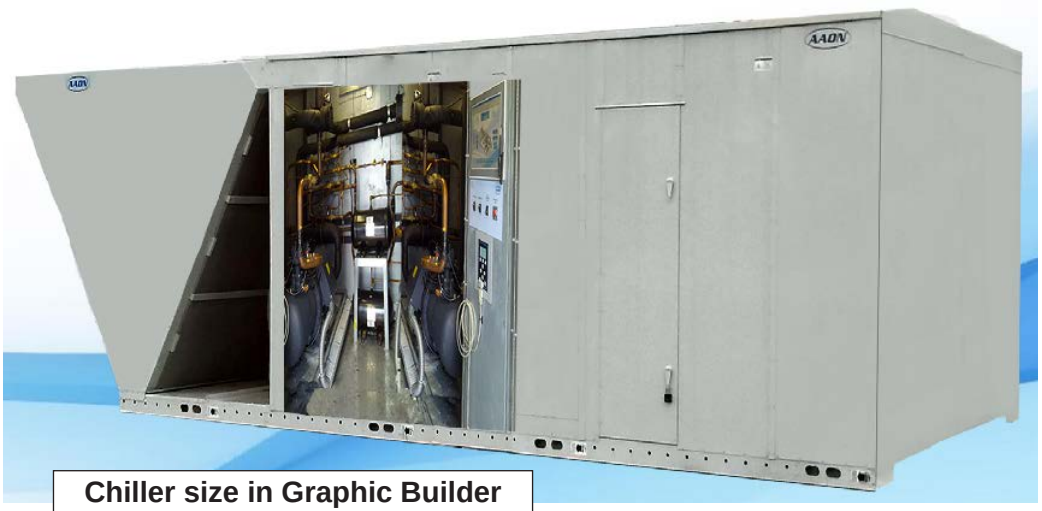
5.1. Image sizing is important

You should have available a software program that can size your images, logos prior to importing into the MCS GRAPHICS BUILDER.

Photoshop is an excellent program or use Windows Photo Gallery which is free from Microsoft.

Images can be re-sized once placed in the GRAPHICS BUILDER if they are not the correct size you want, but it helps to get them close to the right size.

Image of Chiller used in Template
Original size: 1941 x 849 pixels



Chiller size in Graphic Builder
Size: 950 x 475 pixels

Chapter - 6. IMAGES, POINTS, BUTTONS and Gauges

6.1. UNDERSTANDING EDITABLE/NON EDITABLE IMAGES

Images placed in your graphics are broken into different categories as shown below.

Some images are 'EDITABLE' while other images cannot be changes in size.

RO (Relay Outputs) and SI (Sensor Inputs) are 'NON EDITABLE' images.

The reason is that MCS-CONNECT controls the placement of the sizes for RO (Relay Outputs) and SI (Sensor Inputs) points based on the points we are displaying.

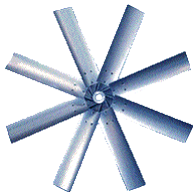
WHILE IT'S POSSIBLE TO USE YOUR OWN IMAGES IN YOUR GRAPHICS, NON-EDITABLE IMAGES MUST BE SIZED AS PER THE SAMPLES IN OUR TEMPLATE.

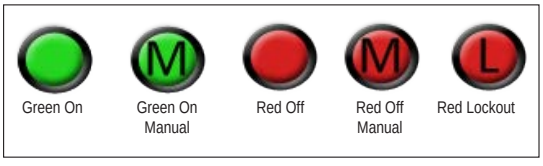
Stored in the template image folder supplied with MCS-GRAPHIC-BUILDER you will find the sample images.

6.2. EDITABLE IMAGES USED (sizes can be changed)

6.3. NON-EDITABLE IMAGES USED

YOU CANNOT RE-SIZE THE IMAGES SHOWN BELOW.



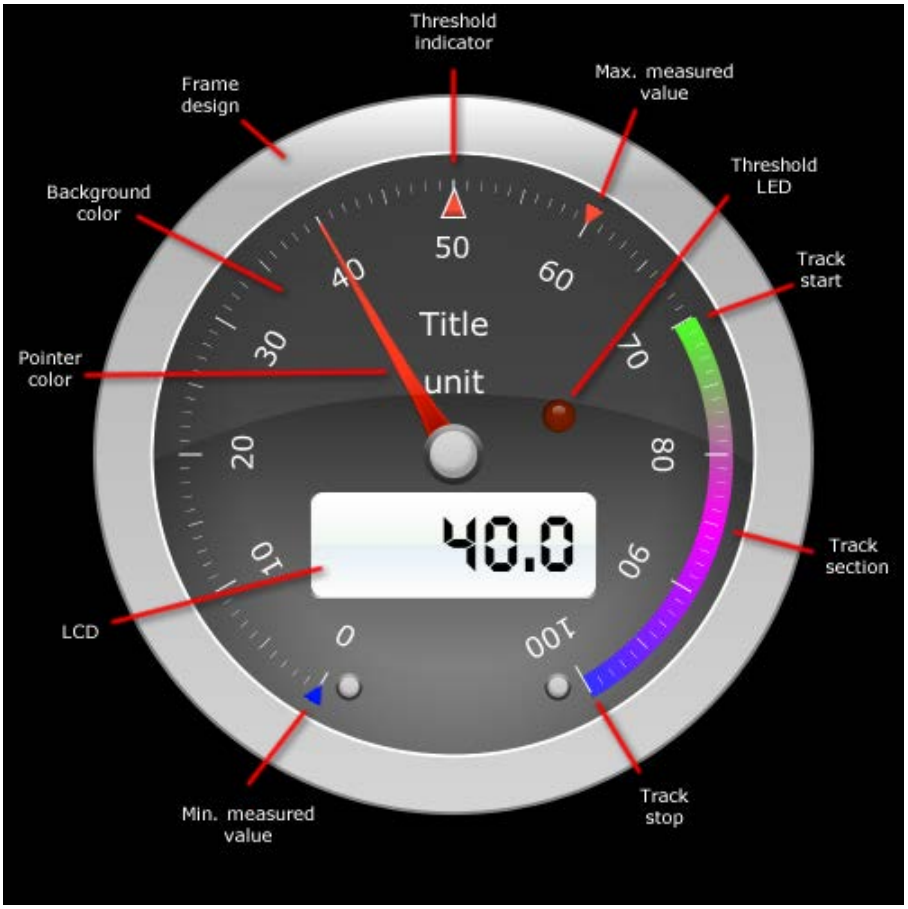


6.4. GAUGES

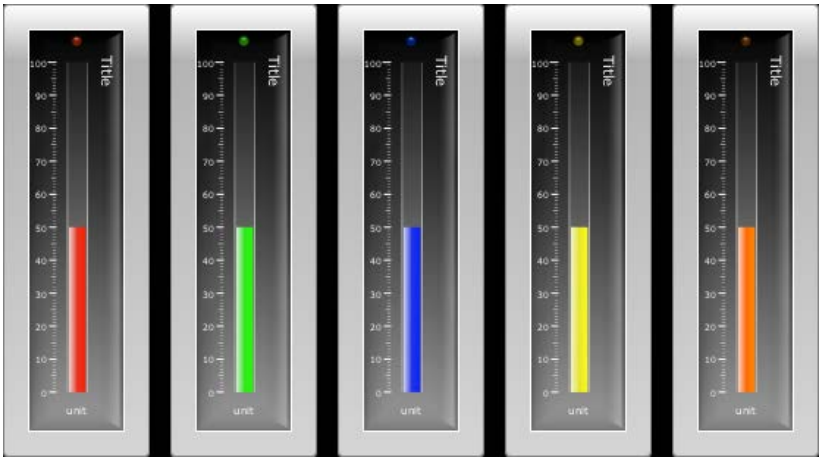
Gauges are used in our graphic package as devices for measuring a physical quantity, pressure of flow, or displays the measurement of a sensor that is being monitored using a needle or pointer that moves along a calibrated scale.

There are two types of gauges that will be available soon in the Graphic Package:

Radial gauges (available revision 3.10)



Linear gauges (available version 3.4.2



Chapter - 7. INSTALLING THE MCS GRAPHIC BUILDER

7.1. Files Associated with MCS GRAPHICS-BUILDER

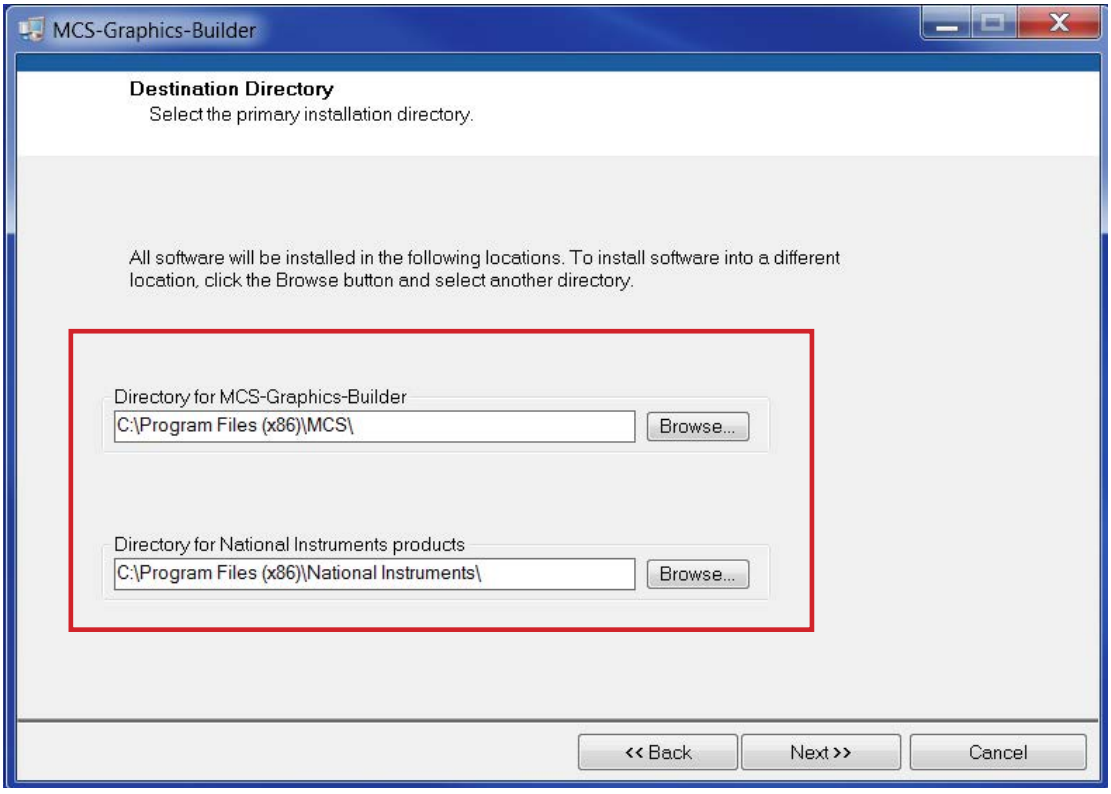
The Graphics Builder is a software program designed to be installed on a PC running Windows 7 or later operating system.

Software will consist of the following files after installation:

1. MCS-XML-BUILDER-Version 3.xxx.exe Application program
2. MCS-XML-BUILDER-Version 3.xxx.ini Configuration setting
3. MCS-XML-BUILDER-Version 3.xxx alias Desktop Aliases File
4. MCS Folder (Main folder on C:/ drive
    a. Sub Folder (MCS CHILLER for demo)
        1. Graphics (sub folder)
        2. Images (sub folder)
        3. Names of XML files that have been build (SystemOverview.xml)

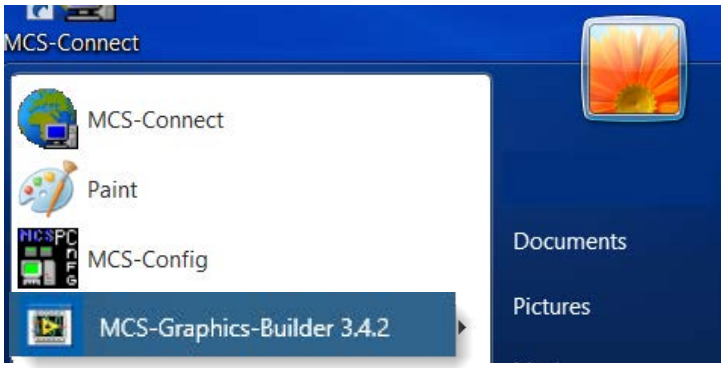
7.2. Starting MCS GRAPHICS-BUILDER

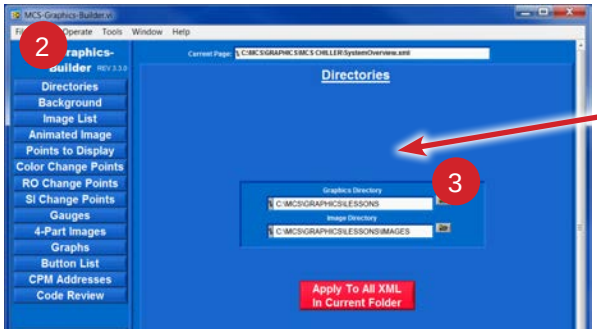
1. Download Software from http://www.mcscontrols.com/Documents/MCS/Graphics and save to your hard drive.
2. OPEN FOLDER 'INSTALLER/VOLUME/SETUP.EXE
3. CLICK ON 'SETUP.EXE' TO LOAD SOFTWARE ONTO YOUR COMPUTER'S HARD DRIVE.
4. ACCEPT THE DEFAULT DIRECTORY FOR INSTALLATION AS SHOWN ON SCREEN BELOW.
5. AFTER SOFTWARE IS INSTALLED, CONFIRM THAT FILES WERE INSTALLED CORRECT.



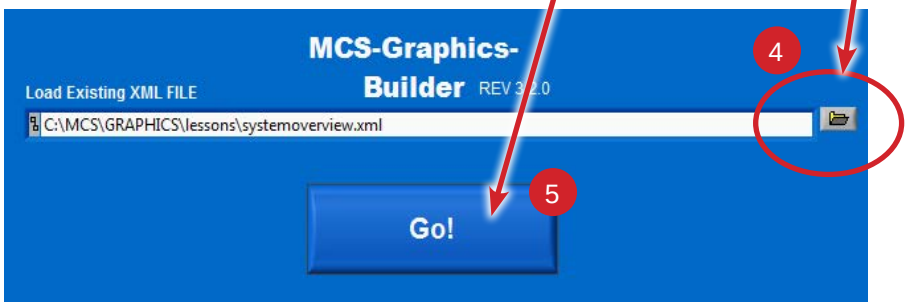
7.3. STARTING MCS-GRAPHIC-BUILDER

1. CLICK ON WINDOWS ICON ON DESKTOP AND GO TO ALL PROGRAMS.
2. CLICK ON **MCS-GRAPHICS-BUILDER** TO OPEN.

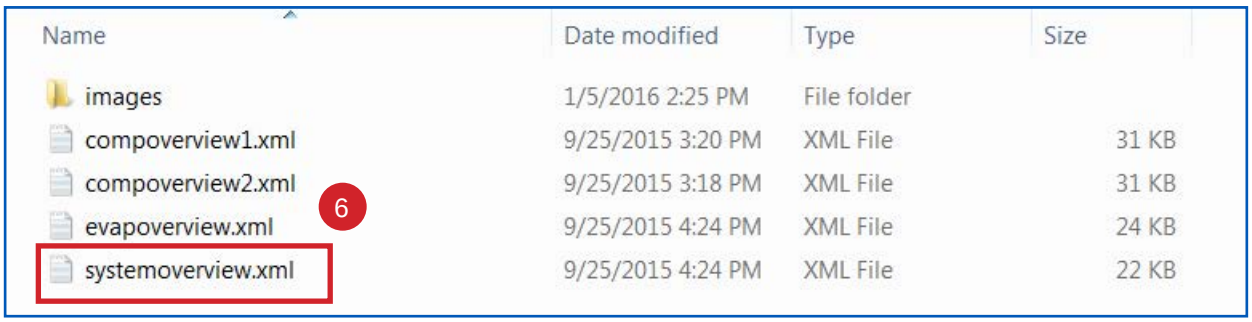




2. Once the MCS-GRAPHICS BUILDER is open you will see the first screen (2).
3. Click OPEN EXISTING GRAPHICS FILE
4. CLICK ON '**FILE FOLDER ON RIGHT'** TO LOAD AN EXISTING GRAPHIC FILE.
5. Click 'GO'.

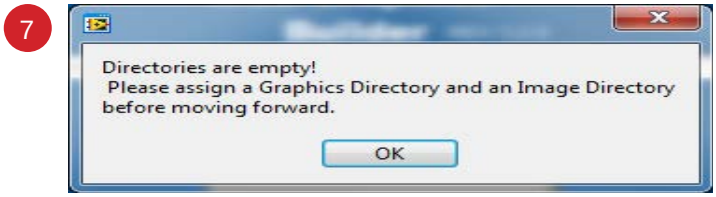


6. Navigate to: **C:\MCS\GRAPHICS\lessons** and select **systemoverview.xml**

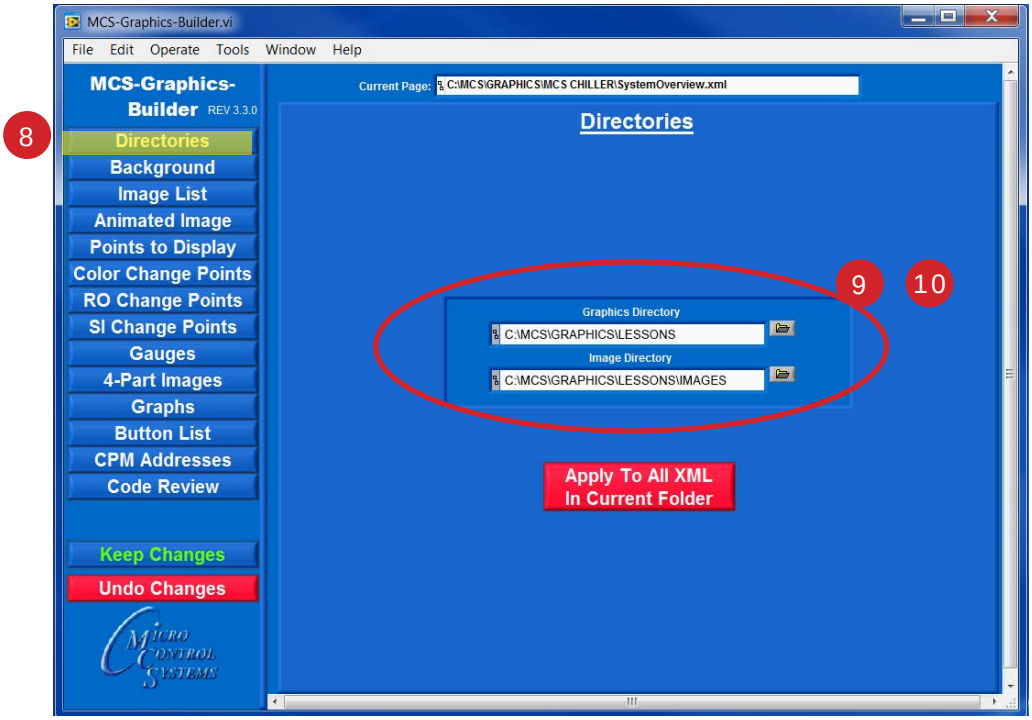


CONTINUE TO NEXT PAGE TO CONTINUE TO LOAD GRAPHIC FILES

7. If Graphics were created before April 2016, you will see the following popup



8. The Graphics Directory and Image directory must be set to continue
9. Now at the main screen of the builder, we can set our directories.



✔ **Graphics Directory: The directory that contains the XML files and images**

✔ **Image Directory: The directory located in the graphics directory that contains images and animations.**

10. Navigate to: **C:\MCS\GRAPHICS\lessons** and select:
    a. LESSONS (Graphics Directory)
    b. IMAGES (in the Lessons directory, choose Images as your image directory)

MCS-GRAPHICS-BUILDER is now ready for viewing and editing 'LESSIONS\systemview.xml

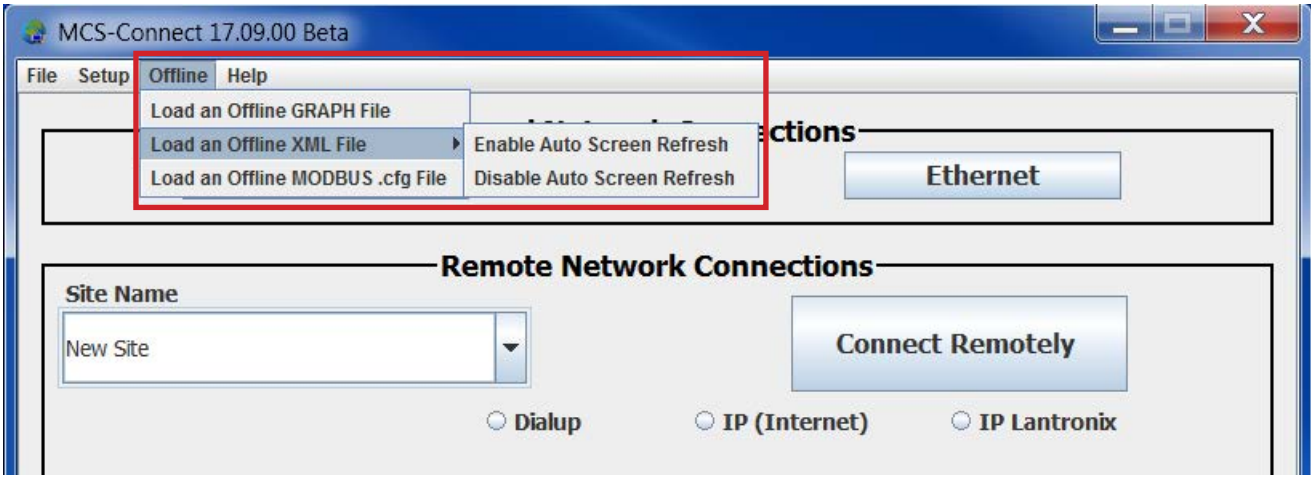
CONTINUE TO SETUP AND OPEN MCS-CONNECT

7.4. STARTING MCS-CONNECT

NOW OPEN MCS-CONNECT ON YOUR COMPUTER(LAPTOP) TO BE ABLE TO VIEW THE FILE(S) YOU WILL CREATE IN MCS-GRAPHICS-BUILDER.

1. START MCS-CONNECT ON YOUR COMPUTER
2. **CLICK ON 'OFFLINE/LOAD ON OFFIINE XML FILE/ENABLE AUTO SCREEN REFRESH'**

This will enable MCS-CONNECT to refresh the screen every time you make a change in MCS GRAPHICS BUILDER.



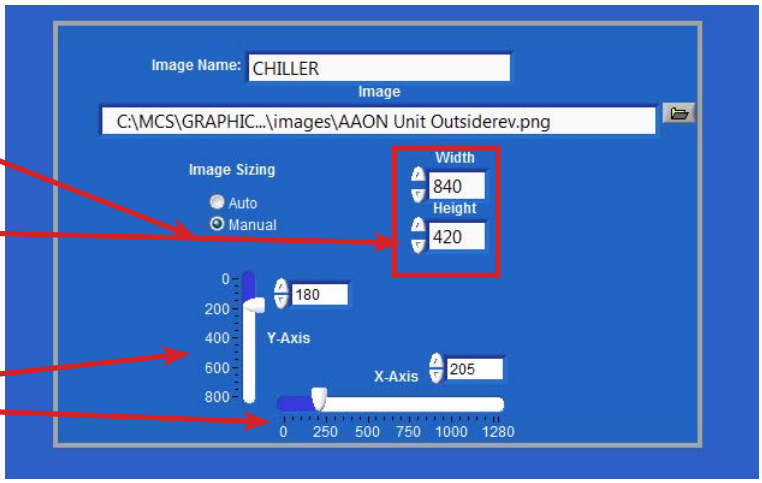
Chapter - 8. UNDERSTANDING IMAGE SIZING

Images can be inserted using **'AUTO SIZING'** but in most cases you will want to resize the image to fit your area.

It is a good idea to bring the image that you will be using into a program like Microsoft Paint and 'RESIZE' the image to fit the area you will be placing the image into. You can use either the percentage or pixels adjustment to resize the image.

The 'CHILLER' image we used in our Graphics Builder template was 840 x 420 pixels.

Once you have the image placed close to the size you have allotted, you can use 'MANUAL' to size the image.



Click on **'MANUAL'** to size your image

Use the Width and Height controls to size your image, remember to try to keep the image in proportions to the original size.
Once you get your size close, use the up and down arrows to make small adjustments.

'X AXIS' and 'Y AXIS'–

Position of the image can be controlled by using the X and Y Axis controls.

'X' moves the image left to right

'Y' moves the image up and down

Click on the 'arrow' and drag the arrow to move the image across your page.

Use the up and down arrows to make slight adjustments.

'X' small arrow on bottom moves the image 'RIGHT'

'Y' small arrow on bottom moves the image 'UP'

Chapter - 9. SELECT POINT, COPY AND DELETE BUTTONS

Several tabs have buttons that say Delete, Copy, and have a Select Point dropdown.

The tabs that have it are highlighted

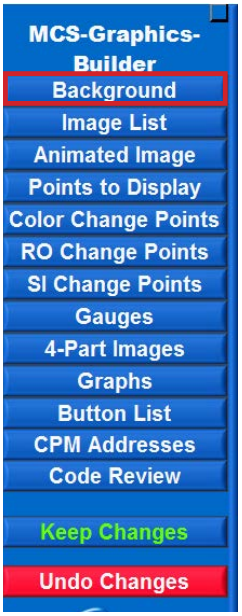
Delete button
Deletes current item

Select Point
Dropdown list that lists all current items for selected tab. Allows you to choose item to edit.

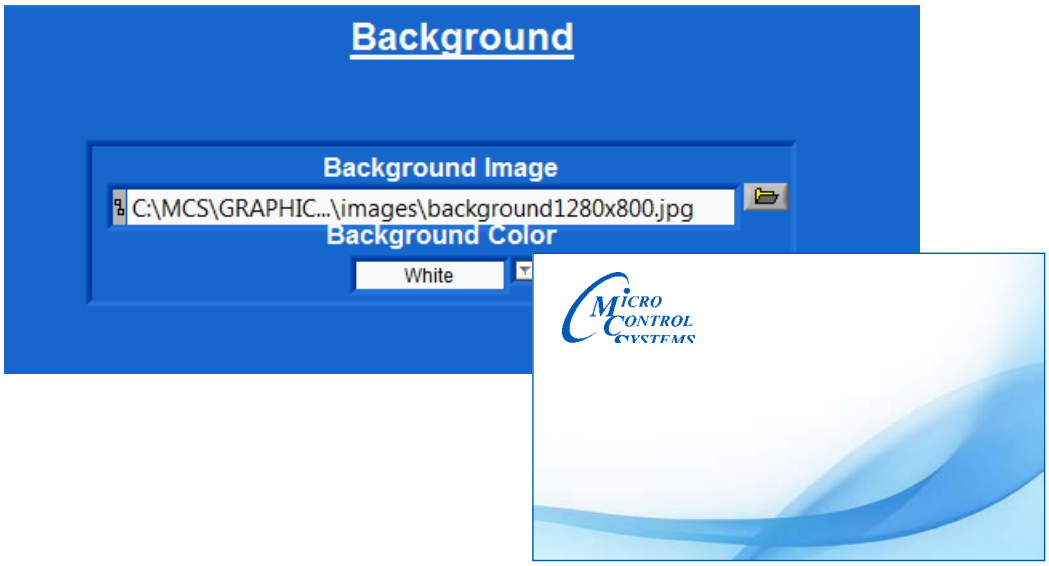
Copy button
Copies all values and creates a new item named 'New' which can then be renamed.

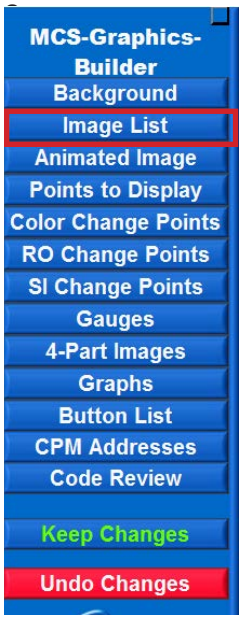
Chapter - 10. DESCRIPTION OF THE MENU TABS

10.1. Menu Tabs



1. 'BACKGROUND TAB' - allows you to change the background of the graphics.



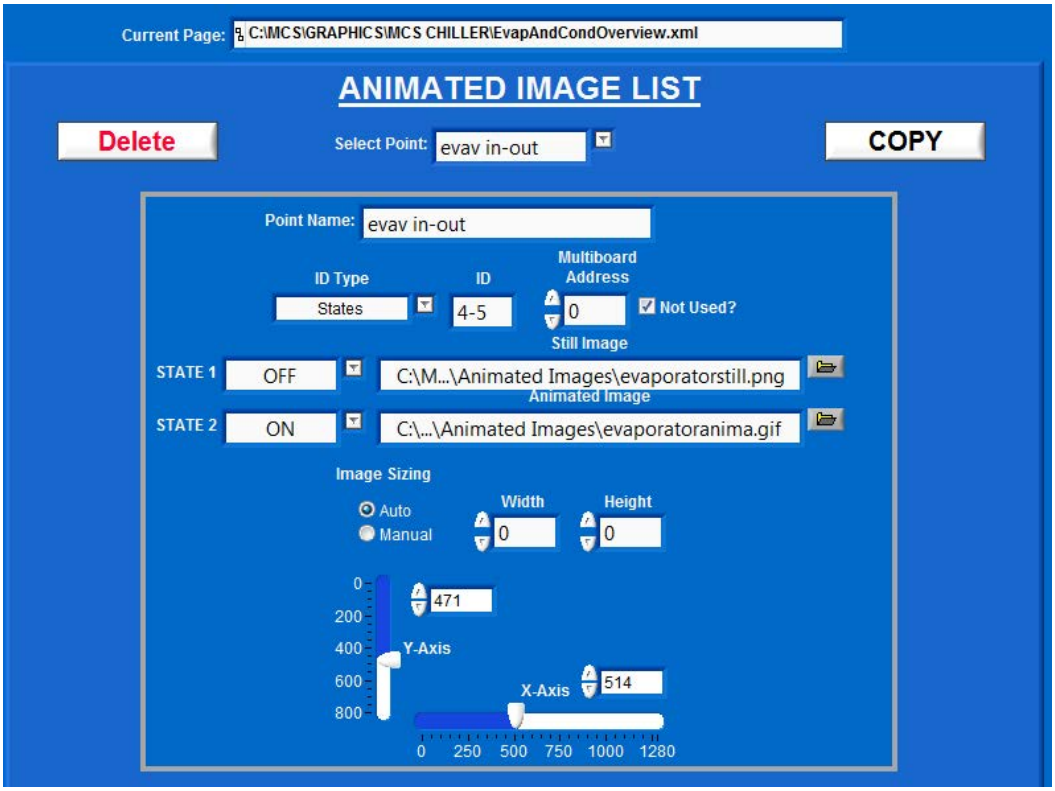


'IMAGE LIST TAB' - Creates images to display on graphics screen.

Field Name	Explanation
Image Name	Title of image being created
Image	File location of Image
Image Sizing (Auto, Manual)	Auto sets image to actual dimensions. Manual is controlled by Width and Height
Width, Height	Sets manual dimensions of image (Not used when using Auto sizing)
X-Axis, Y-Axis	Controls placement of image

Menu Tabs Continued

3. 'ANIMATED IMAGE TAB' - images used for showing 'ON AND OFF MOTION'



Field Name	Explanation
Point Name	Title of animated image being created
ID Type, ID	ID Type is the type of point (Relay Outputs, Analog Outputs, Sensor Inputs, etc.) ID is the number of the point to display (See Graphics ID key list)
State1, State 2 (ON, OFF, RUN, STOP, OK, TRIPPED, etc.)	State 1 is the state that the still image should be displayed, State 2 is the state that the animated image should be displayed
Still Image, Animated Image	The still image is usually used to display when in the "OFF" position, the animated image is usually used to display when in the "ON" position
Image Sizing (Auto, Manual)	Auto sets image to actual dimensions. Manual is controlled by Width and Height
Width, Height	Sets manual dimensions of image (Not used when using Auto sizing)
X-Axis, Y-Axis	Controls placement of image

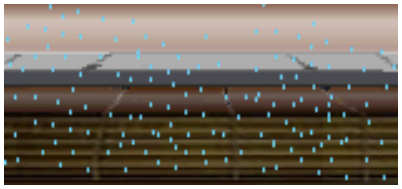
For example: Screen 1 shows **'STILL IMAGE' EVAV OFF'**

Screen 2 shows **'ANIMATED IMAGE - EVAV RUNNING'**

Screen 1

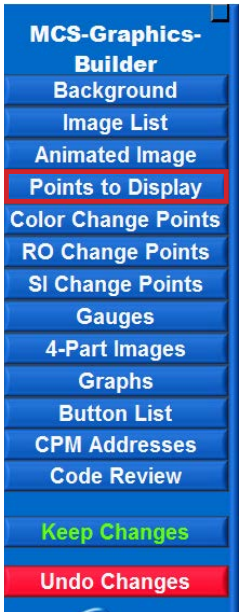
Still Image - EVAV OFF

Screen 2

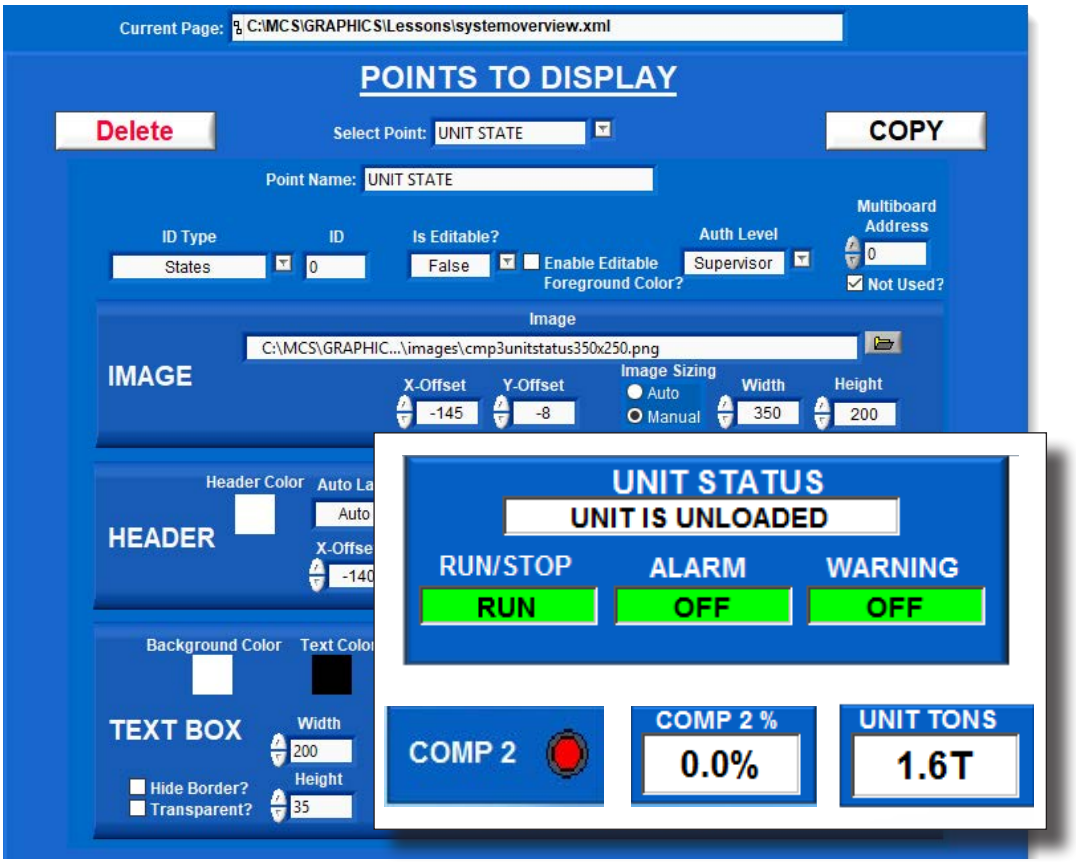


Animated Image - EVAV RUNNING

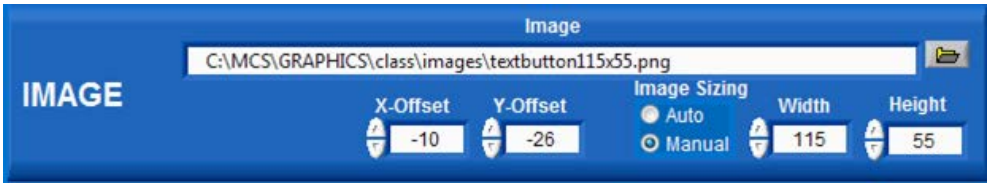
Menu Tabs Continued



4. 'POINTS TO DISPLAY TAB' - Creates a text box that displays current value of point selected. Optional background image for point can be set.

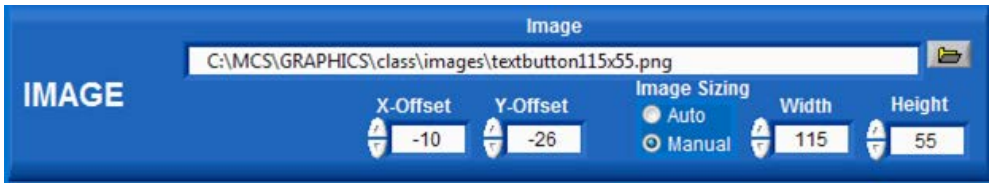


Field Name	Explanation
Point Name	Title of point being created
ID Type, ID	ID Type is the type of point (Relay Outputs, Analog Outputs, Sensor Inputs, etc.) ID is the number of the point to display (See Graphics ID key list)
Is Editable, Auth Level	Is Editable can be set to true or false. When set to true it allows the user to change values through the graphics screen as long as Auth level is reached
Multiboard Address, Not used?	Multiboard Address is used in graphics that read multiple controllers, address is set to Network Address of the controller. If only reading one controller, select not used.

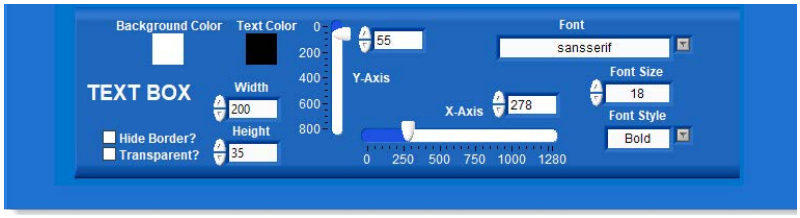


Field Name	Explanation
Image	File location of Image
Image Sizing (Auto, Manual)	Auto sets image to actual dimensions. Manual is controlled by Width and Height
Width, Height	Sets manual dimensions of image (Not used when using Auto sizing)
X-Offset, Y-Offset	Controls placement of background image in reference to the text box

Points to Display (continued)

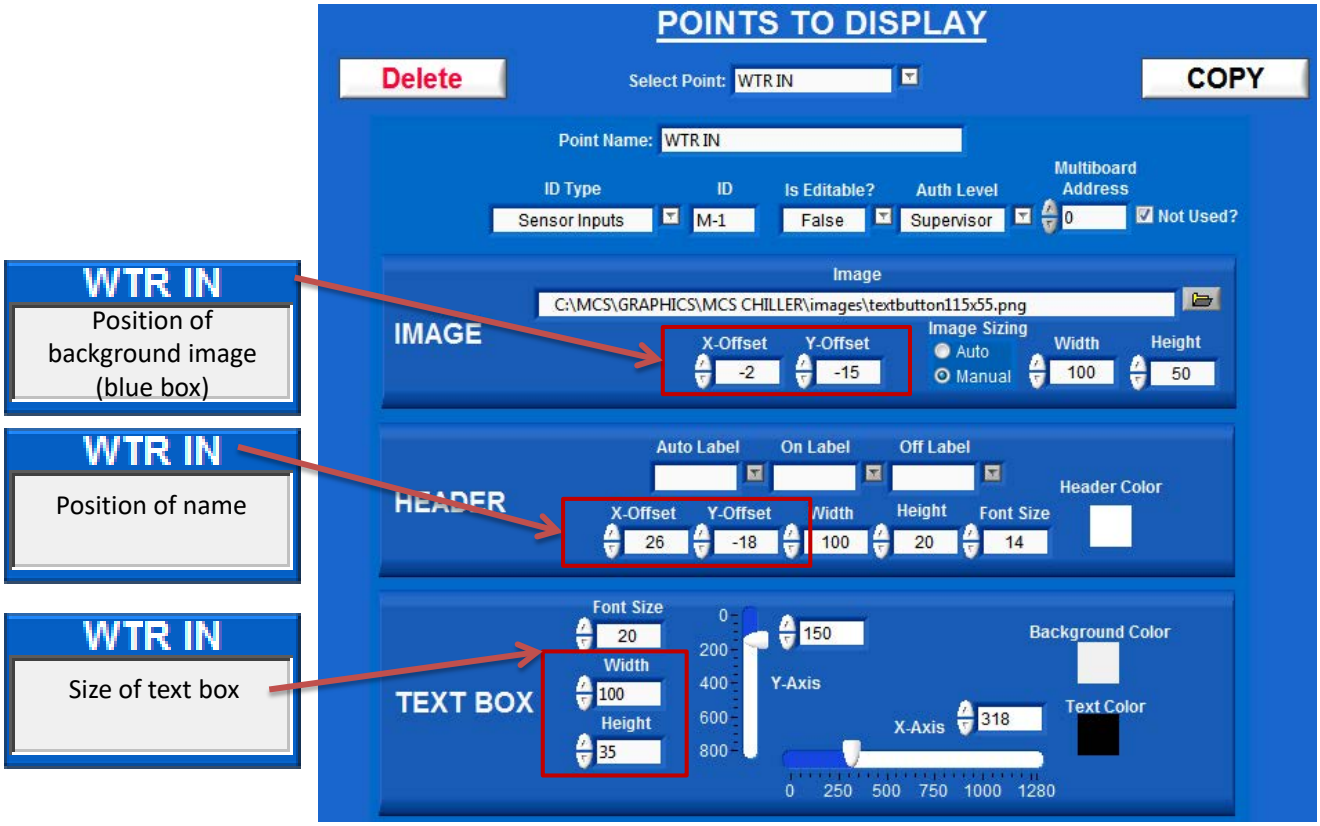


Field Name	Explanation
Auto, On, Off Labels	Indicates what to display for each state for Digital Sensors
X-Offset, Y-Offset	Controls placement of header in reference to the text box
Width, Height	Sets dimensions of header text
Font Size	Font size for the header text
Header Color	Color chooser to select header text color

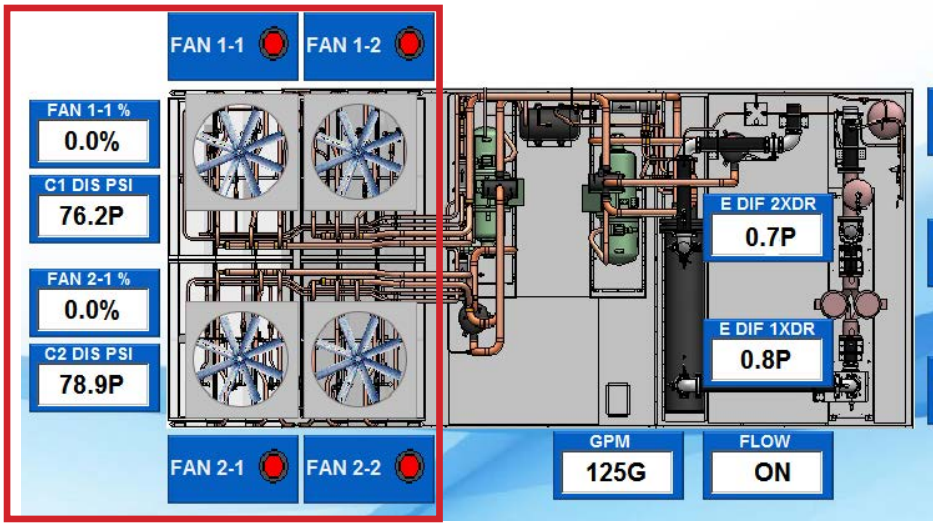


Field Name	Explanation
Font Size	Font size for text inside text box
Width, Height	Sets dimensions of the text box
X-Axis, Y-Axis	Controls placement of entire point (header, background image, text box)
Header Color	Color chooser to select header text color

Points to Display (continued)

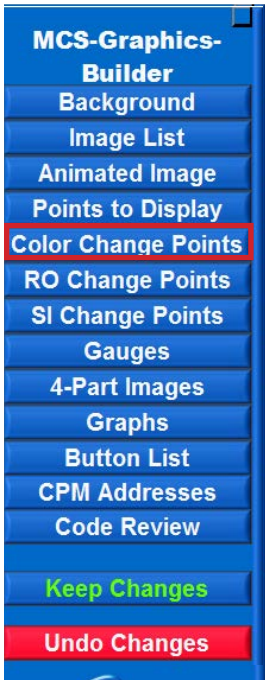


For example: below we are displaying points (data) from a compressor. Points are received every few seconds from the controller and updated on your graphics.

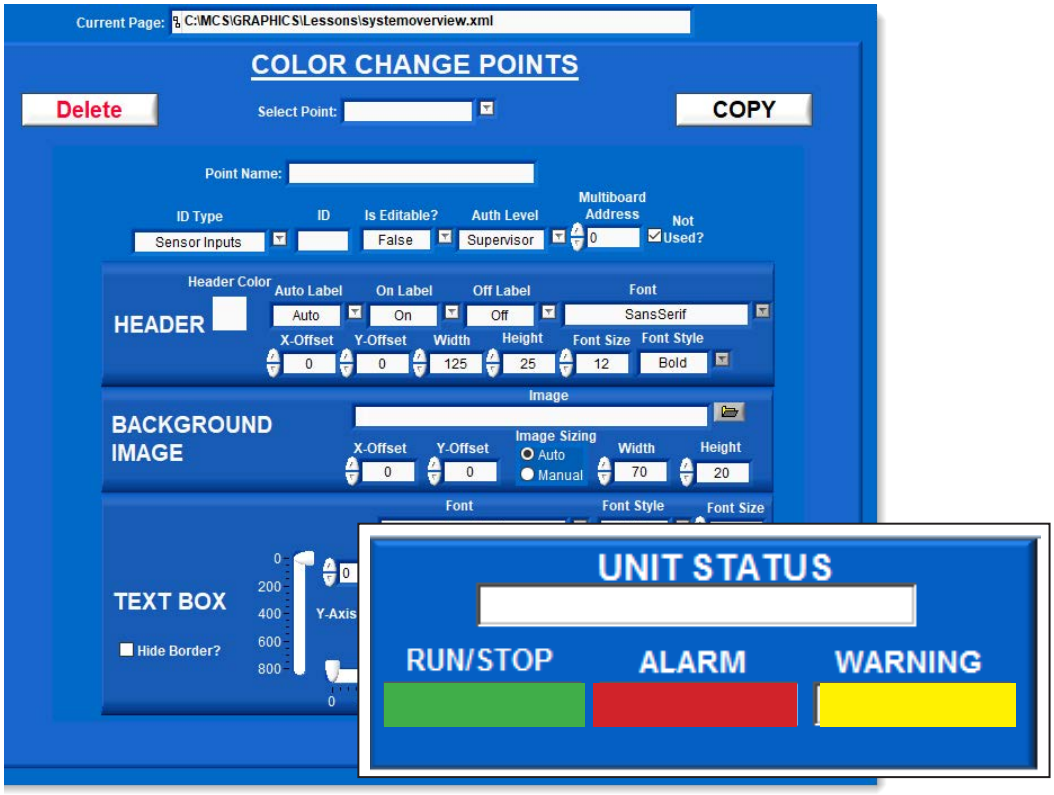


The MCS GRAPHICS BUILDER allows you to position information on the graphics where it easily identifies with the function allowing for quick identification of potential problems.

Menu Tabs Continued



1. 'COLOR CHANGE POINTS TAB' - in the example below Green is showing in the Run/Stop, Red in Alarm and Yellow Warning. If the unit was stopped, the color would change to a preset color in the graphic builder such as Red. These are easily changed in the MCS GRAPHICS BUILDER.

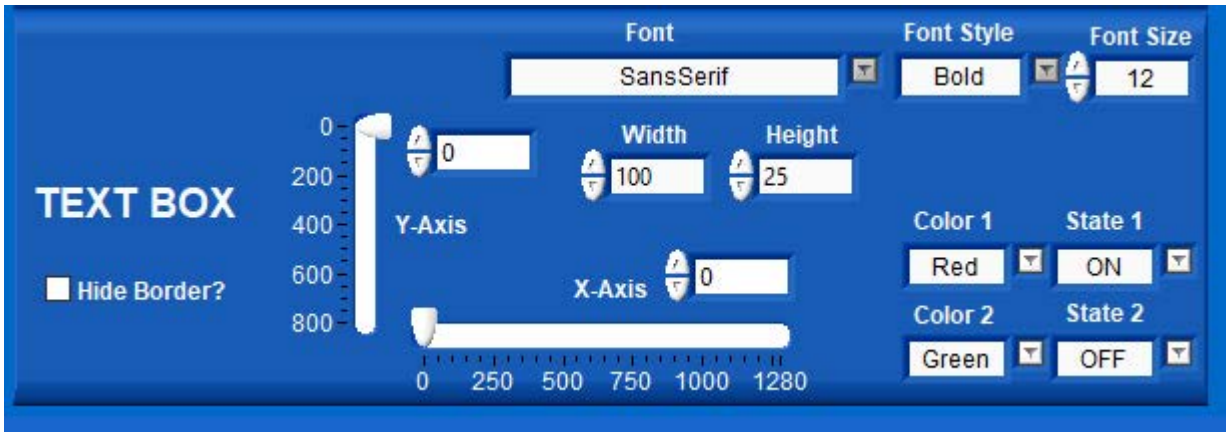


Field Name	Explanation
Point Name	Title of point being created
ID Type, ID	ID Type is the type of point (Relay Outputs, Analog Outputs, Sensor Inputs, etc.) ID is the number of the point to display (See Graphics ID keylist)
Is Editable, Auth Level	Is Editable can be set to true or false. When set to true it allows the user to change values through the graphics screen as long as Auth level is reached
Multiboard Address, Not used?	Multiboard Address is used in graphics that read multiple controllers, address is set to Network Address of the controller. If only reading one controller, select not used.

Color Change Points (continued)

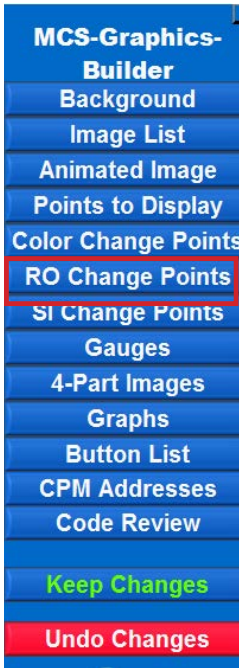
Field Name	Explanation
Auto, On, Off Labels	Indicates what to display for each state for Digital Sensors
X-Offset, Y-Offset	Controls placement of header in reference to the text box
Width, Height	Sets dimensions of header text
Font, Size and style	Font size and style for the header text
Header Color	Color chooser to select header text color

Field Name	Explanation
Image	Choose background image to use
Image Sizing	Changes xy position and width and height
Auto, Manual	Auto brings exact size of stored image, manual lets you override size



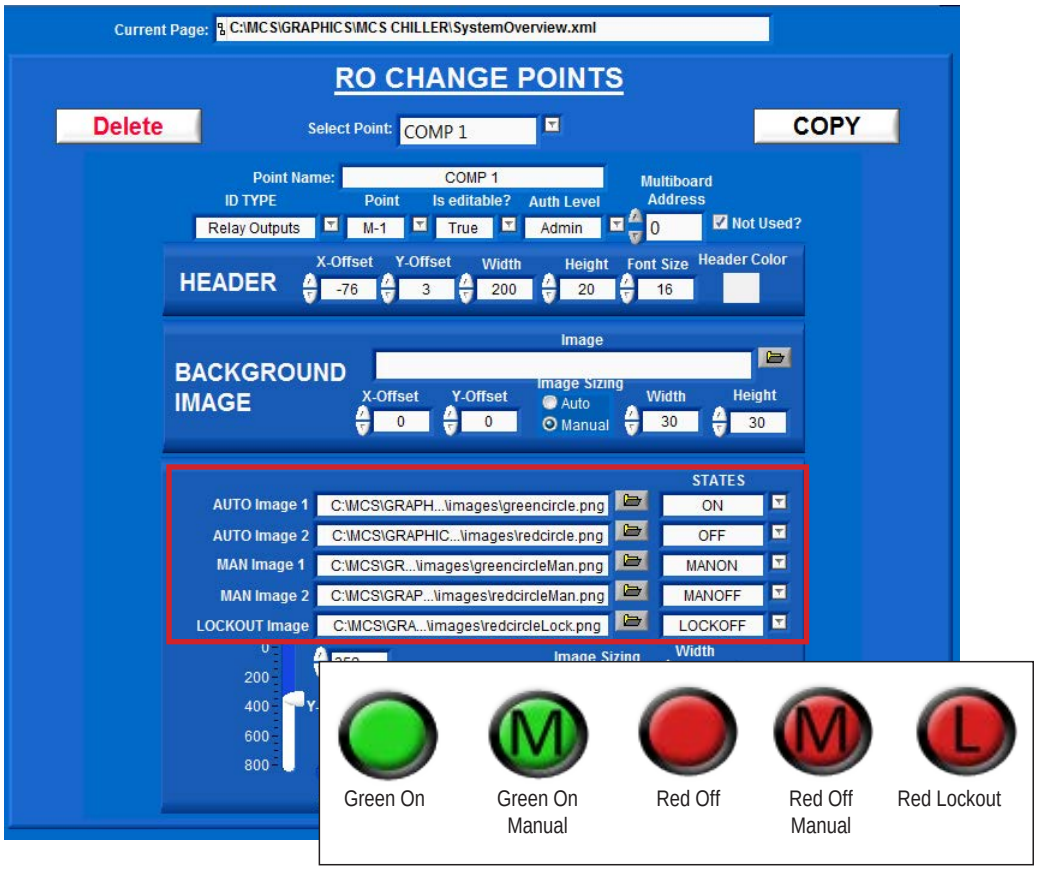
Field Name	Explanation
Font, style and size	Allows user to change font, style and size
X-Offset, Y-Offset	Controls placement of text
Color	Allows changing color for State 1 and State 2

Menu Tabs Continued



1. 'RO CHANGE POINTS' - this tab will change the mode display of the buttons showing the status of the unit.

   Example: Green On, Green On Manual, Red Off, Red Off Manual, Red Locked.



Field Name	Explanation
Point Name	Title of point being created
ID Type, ID	ID Type is the type of point (Relay Outputs) ID is the number of the point to display (See Graphics ID key list)
Is Editable, Auth Level	Is Editable can be set to true or false. When set to true it allows the user to change values through the graphics screen as long as Auth level is reached
Multiboard Address, Not used?	Multiboard Address is used in graphics that read multiple controllers, address is set to Network Address of the controller. If only reading one controller, select not used.

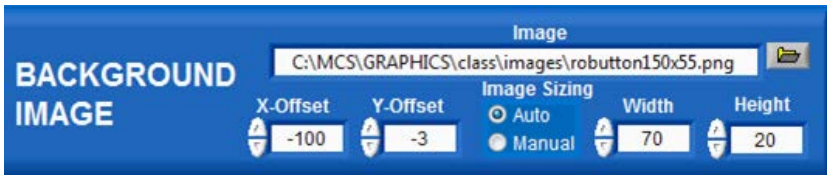
NOTE:

WHEN USING 'RO (RELAY OUTPUTS POINTS' THE IMAGES YOU ARE USING MUST TO BE THE PIXEL SIZE WE HAVE IN THE TEMPLATE, THESE ARE NON-EDITABLE IMAGES.

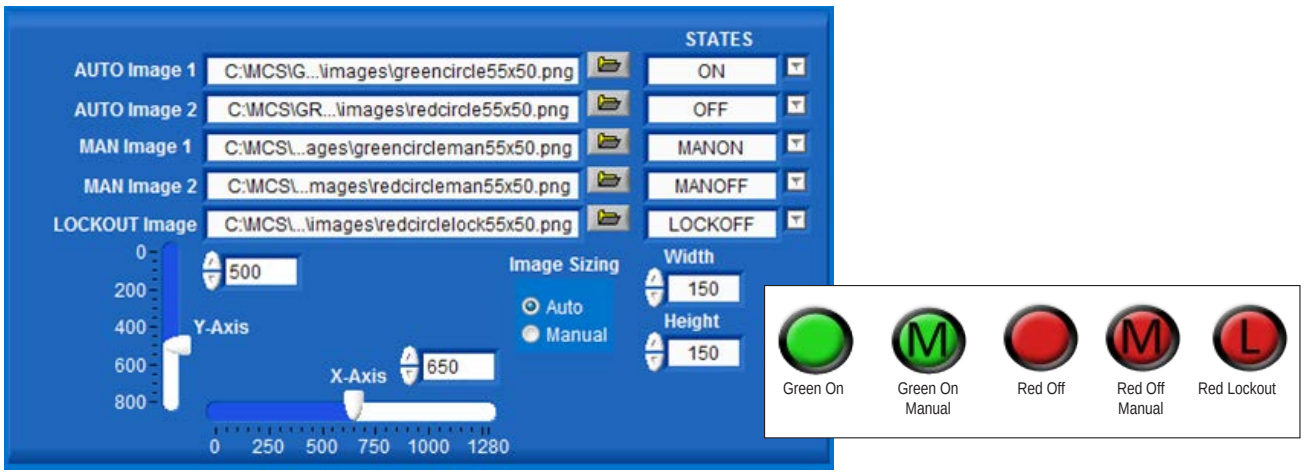
IF YOU CHANGE THE IMAGE, MAKE YOUR IMAGES THE SAME PIXEL SIZE WE USED FOR THE IMAGES THAT HAVE BEEN PLACED IN THE TEMPLATE TO DISPLAY PROPERLY.

RO Change Points (Continued)

Field Name	Explanation
Auto, On, Off Labels	Indicates what to display for each state for Digital Sensors
X-Offset, Y-Offset	Controls placement of header in reference to the state indicator image
Width, Height	Sets dimensions of header text
Font Size	Font size for the header text
Header Color	Color chooser to select header text color

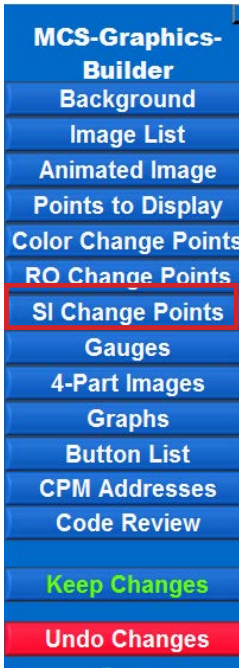


Field Name	Explanation
Image	File location of Image
Image Sizing (Auto, Manual)	Auto sets image to actual dimensions. Manual is controlled by Width and Height
Width, Height	Sets manual dimensions of image (Not used when using Auto sizing)
X-Offset, Y-Offset	Controls placement of background image in reference to the state indicator image

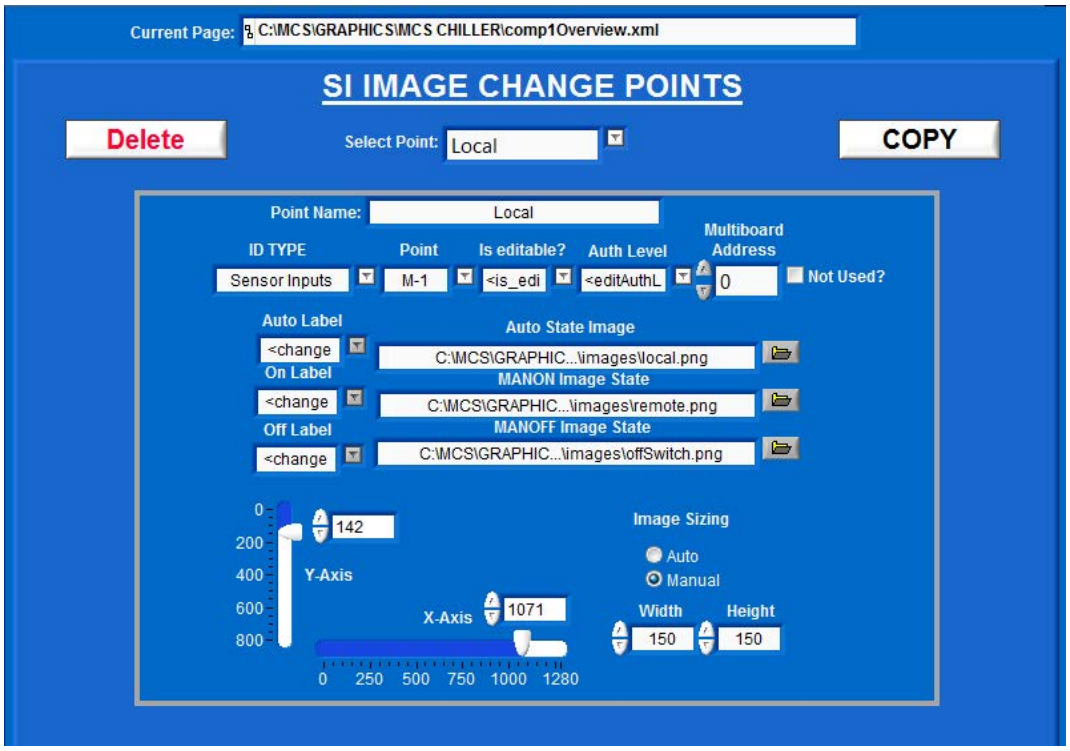


Field Name	Explanation
AUTO, MAN, LOCKOUT images	Images to display when each state is met. See reference below.
Image Sizing (Auto, Manual)	Auto sets image to actual dimensions. Manual is controlled by Width and Height
Width, Height	Sets manual dimensions of image (Not used when using Auto sizing)
X-Axis, Y-Axis	Controls placement of entire point (header, background image, state indicator image)

Menu Tabs Continued



1. 'SI CHANGE POINTS TAB' - Used for Digital sensors, displays an image for each state (Auto, On, Off). If set to editable, it can be used to change the state of the sensor if auth level is reached.



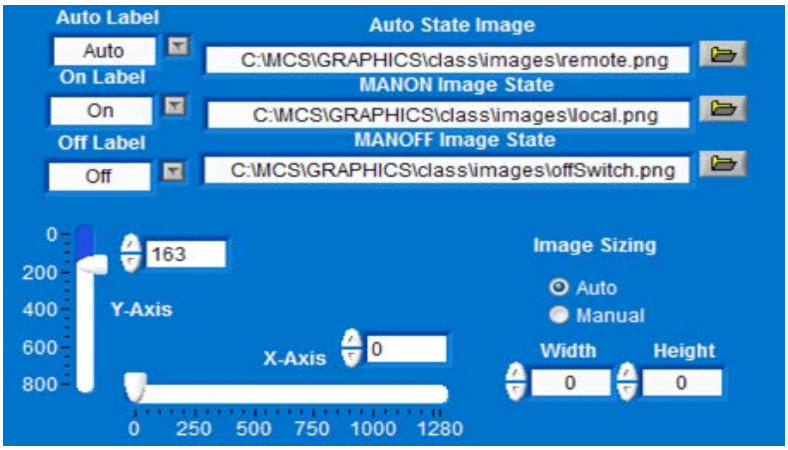
Field Name	Explanation
Point Name	Title of point being created
ID Type, Point	ID Type is the type of point (Sensor Inputs), Point is the number of the sensor (See Graphics ID key list)
Is Editable, Auth Level	Is Editable can be set to true or false. When set to true it allows the user to change values through the graphics screen as long as Auth level is reached
Multiboard Address, Not used?	Multiboard Address is used in graphics that read multiple controllers, address is set to Network Address of the controller. If only reading one controller, select not used.

NOTE:

WHEN USING 'SI (SENSOR INPUT POINTS' THE IMAGES YOU ARE USING MUST TO BE THE PIXEL SIZE WE HAVE IN THE TEMPLATE, THESE ARE NON-EDITABLE IMAGES.

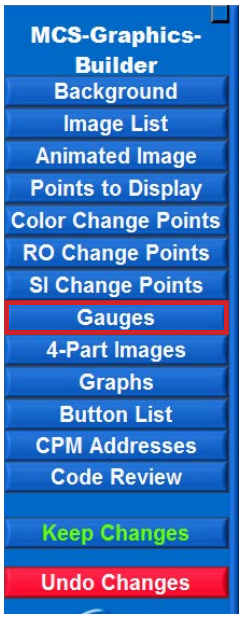
IF YOU CHANGE THE IMAGE, MAKE YOUR IMAGES THE SAME PIXEL SIZE WE USED FOR THE IMAGES THAT HAVE BEEN PLACED IN THE TEMPLATE TO DISPLAY PROPERLY.

SI Change Points (continued)

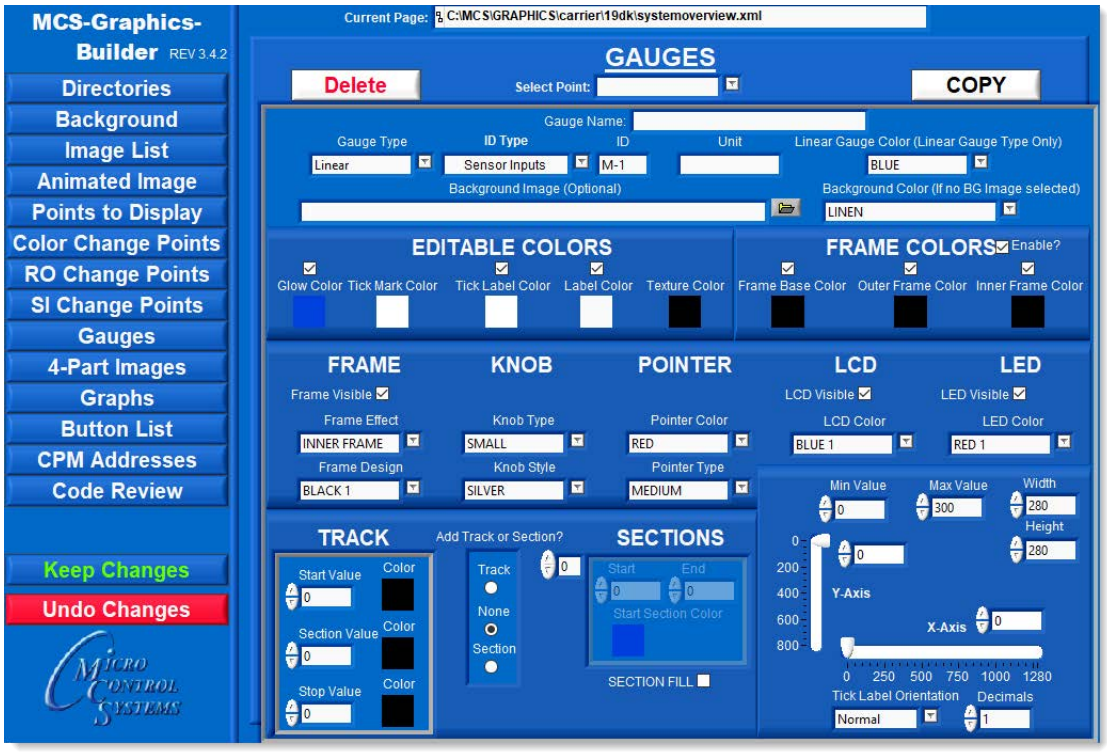


Field Name	Explanation
Auto Label, Auto state image	Auto State Image file location to image to display when Auto state is met.
On Label, MANON state image	MANON State Image file location to image to display when MANON state is met.
Off Label, MANOFF state image	MANOFF State Image file location to image to display when MANONFF state is met.
Image Sizing (Auto, Manual)	Auto sets image to actual dimensions. Manual is controlled by Width and Height
Width, Height	Sets dimensions of image
X-Axis, Y-Axis	Controls placement of image

Menu Tabs Continued

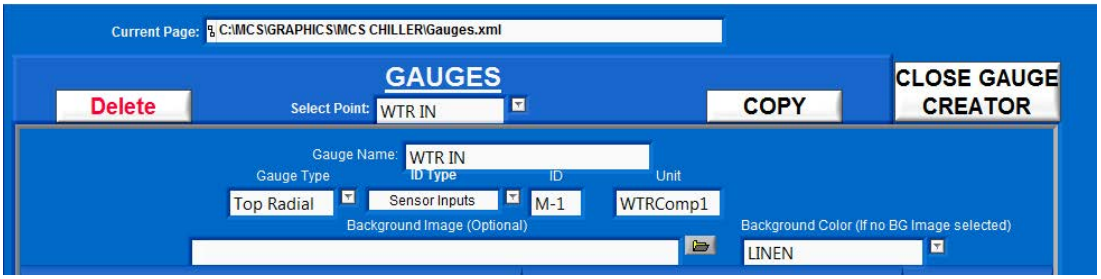


'GUAGES TAB'- Gauges have many features as you will see in the MCS-GRAPHICS BUILDER. For the purpose of this lesson we will setup one gauge only to get you started. In a custom installation, as shown in our manual, you can setup a screen with multiple gauges to monitor your chiller.



DESCRIPTION OF GAUGE BUTTONS AND THEIR FUNCTIONS

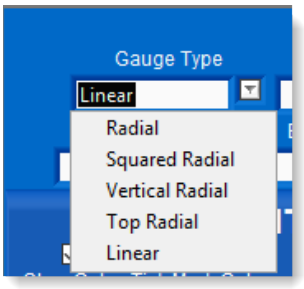
1. Click on 'Gauge Name' to create a new Gauge.



2. In Gauge Name field, enter 'WTR IN' for the name of our first gauge as an example.

Gauge Type available:

a. RADIAL
b. SQUARED RADIAL
c. VERTICAL RADIAL
d. TOP RADIAL
e. LINEAR
f. LINEAR



RADIAL

SQUARE RADIAL

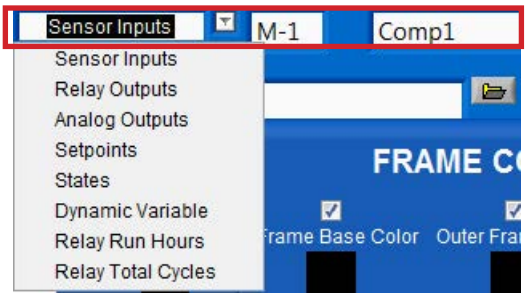
VERTICAL RADIAL

TOP RADIAL

LINEAR

2. Gauge 'ID TYPE':

a. SENSOR INPUTS
b. ANALOG OUTPUTS
c. SETPOINTS
d. STATES
e. DYNAMIC VARIABLE
f. RELAY RUN HOURS
g. RELAY TOTAL CYCLES



ID Type and the ID are found in the print out of your config program supplied by MCS when your system is shipped.

An addendum sample in included in this manual at the back.

8. BACKGROUND IMAGE, COLOR, EDITABLE COLORS, FRAME COLORS

a. BACKGROUND IMAGE - you can add a background to your gauge as shown in the screen shot below.

In this example, we added a background from our images (textbutton115x55.png) blue background. We are showing a Section solid bar to indicate safe zone in green, caution zone in yellow and unsafe zone in red.

The Graphic Builder allows you to display your gauges how you want them to alert you to any problems.

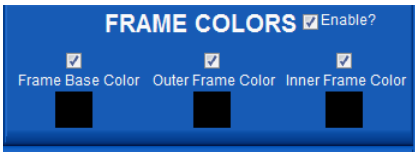
b. BACKGROUND COLOR - our default shows a linen background in black, here we changed to a white background with black ticks. Again, you have the options to change the colors how you want them.

New White background

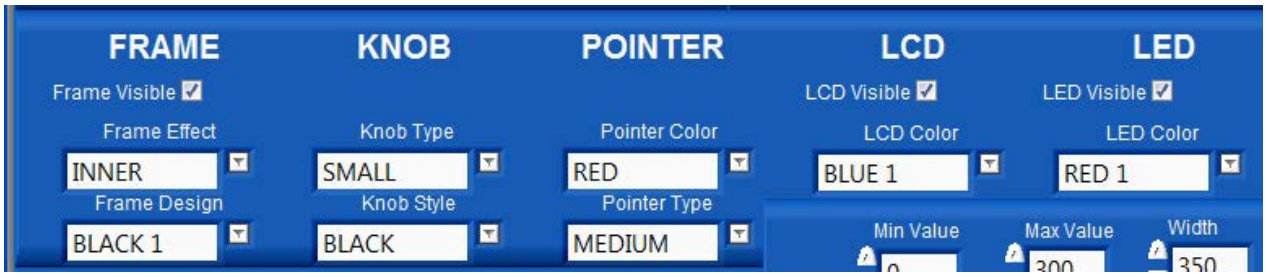
Default Linen background

c. EDITABLE COLORS - allows you to change the 'GLOW COLOR', TICK MARK COLOR, TICK LABEL COLOR, LABEL COLOR AND THE TEXTURE COLOR of your gauge.

d. FRAME COLORS - you can change the FRAME BASE COLOR, OUTER COLOR and INNER FRAME COLOR.



9. ATTRIBUTES - allow you to make changes to various parts of your gauges, changing the frame design, knob size and color, and point color and size. Click on each to see the options available.



In our samples we added the LCD and LED so we could show the numbers better. This can be enabled or disabled.

You also can display your numbers in the gauge, HORIZONTAL, NORMAL or TANGENT.

HORIZONTAL

NORMAL

TANGENT

10. TRACK AND SECTION DISPLAYS

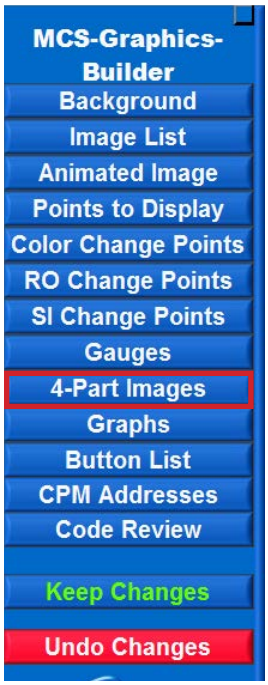
a. TRACK - allows you to setup a series of three (3) numbers to show a ‘GRADIENT’ track around your gauge as seen in the sample below.

b. SECTIONS- instead of ‘TRACK’, you can change your display to ‘SECTIONS’ which will display a solid instead of the gradient as seen below.

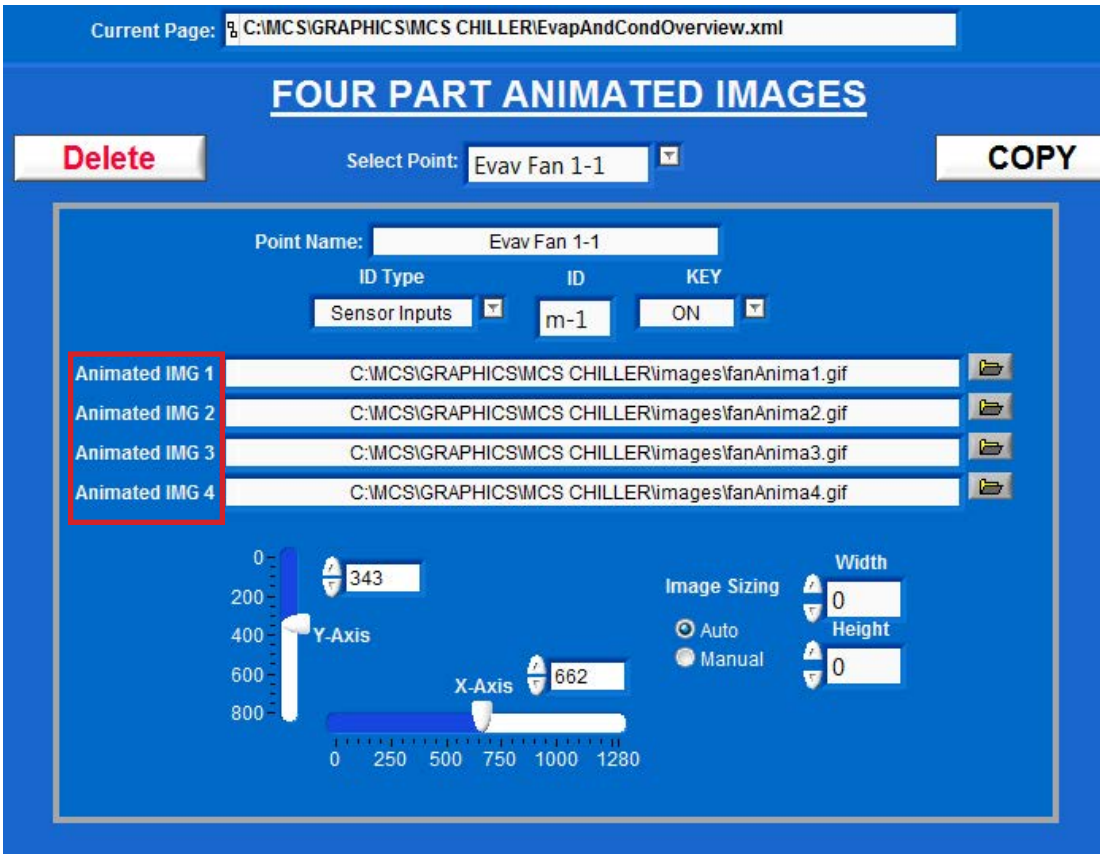
Example settings:

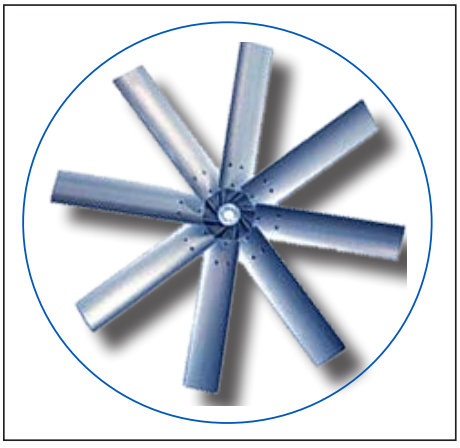
0. set start range at ‘0’ and end at ‘50’ - **BLUE**
1. set start range at ‘50’ and end at ‘100’ - **GREEN**
2. set start range at ‘100’ and end at ‘300’ - **RED**

Menu Tabs Continued

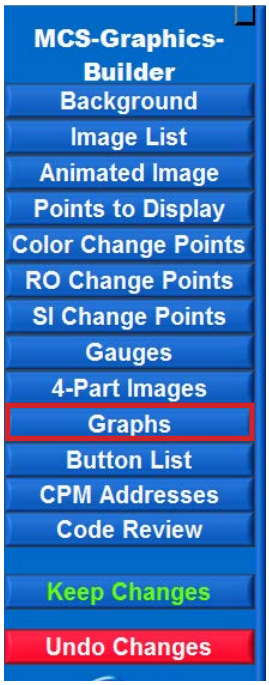


1. 'FOUR-PART IMAGES TAB' - To show an animated object, you will need four images of the same object.

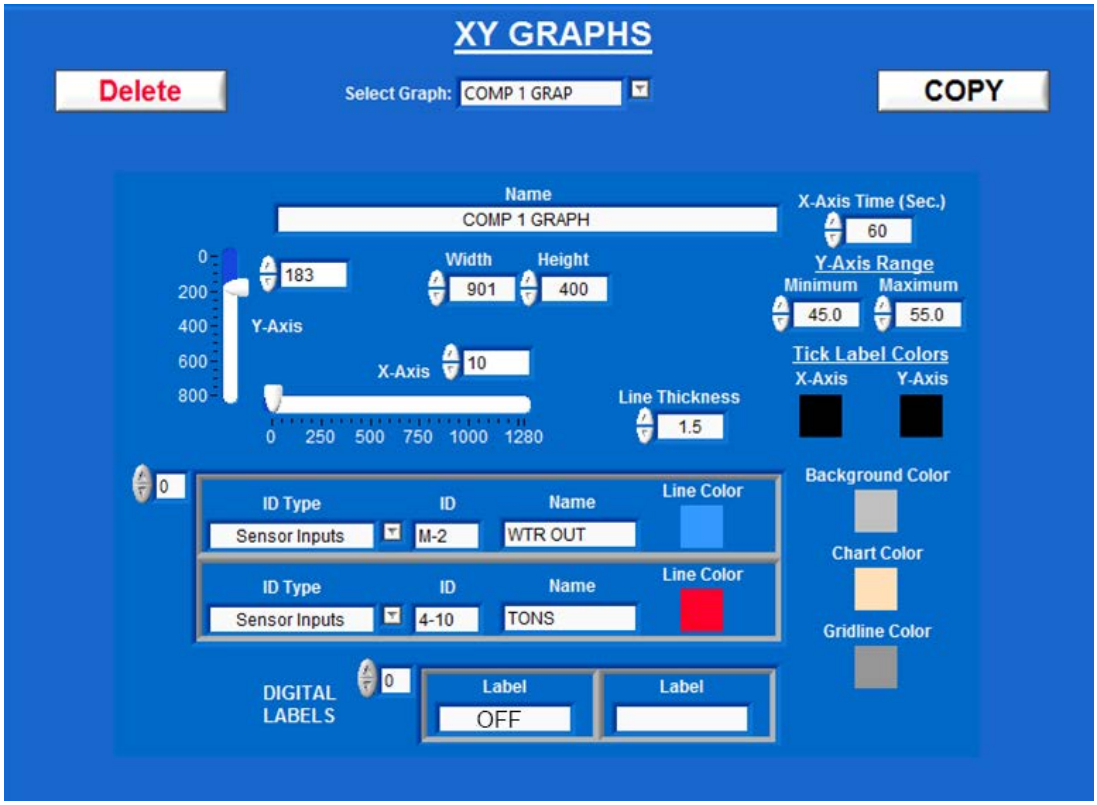




Menu Tabs Continued

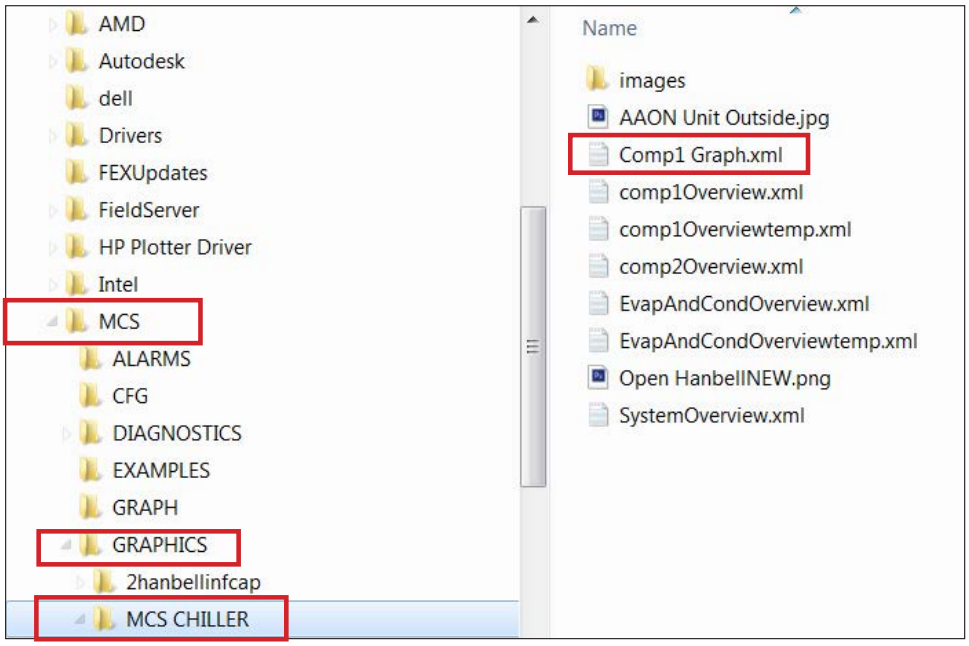


1. 'GRAPHS TAB' - used to display a graph for sensors, etc.



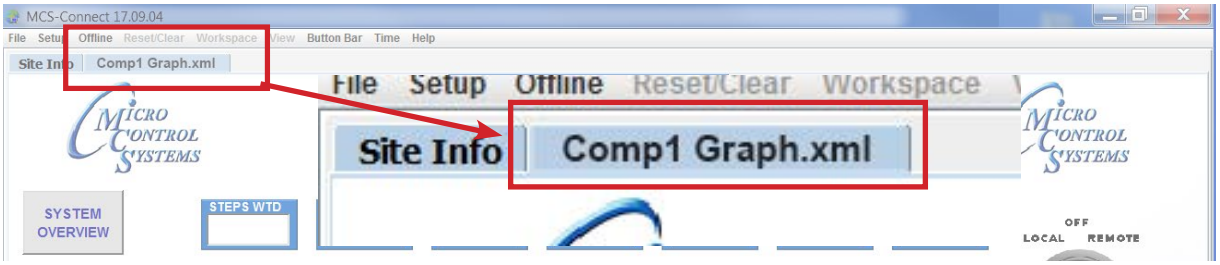
2. CREATE A NEW WINDOW FOR DISPLAYING THE 'Comp1 Graph'

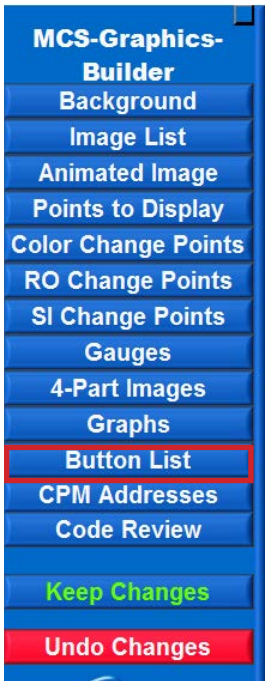
1. At the root directory on your computer, navigate to MCS/GRAPHICS/MCS CHILLER
2. For this example, **copy 'COMP1 OVERVIEW FILE' and rename the file** 'Comp1 Graph.xml'



Menu Tabs Continued

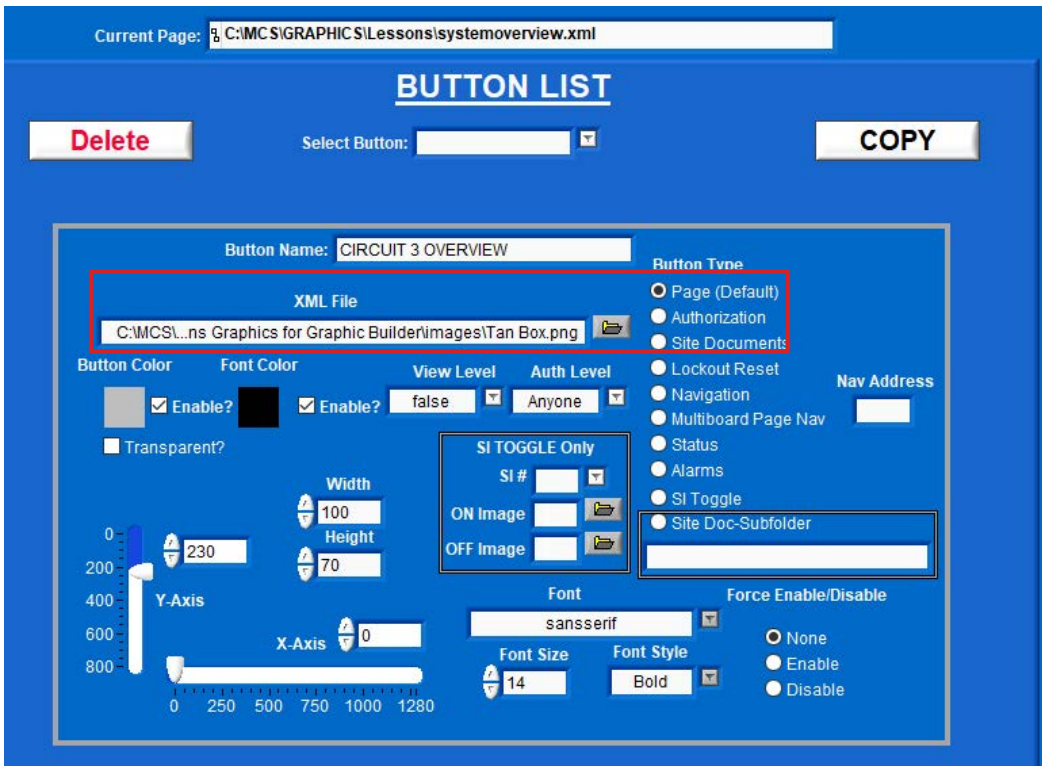
3. Open MCS-CONNECT and open the file 'Comp1 overview.xml' to setup the new button - COMP1 GRAPH



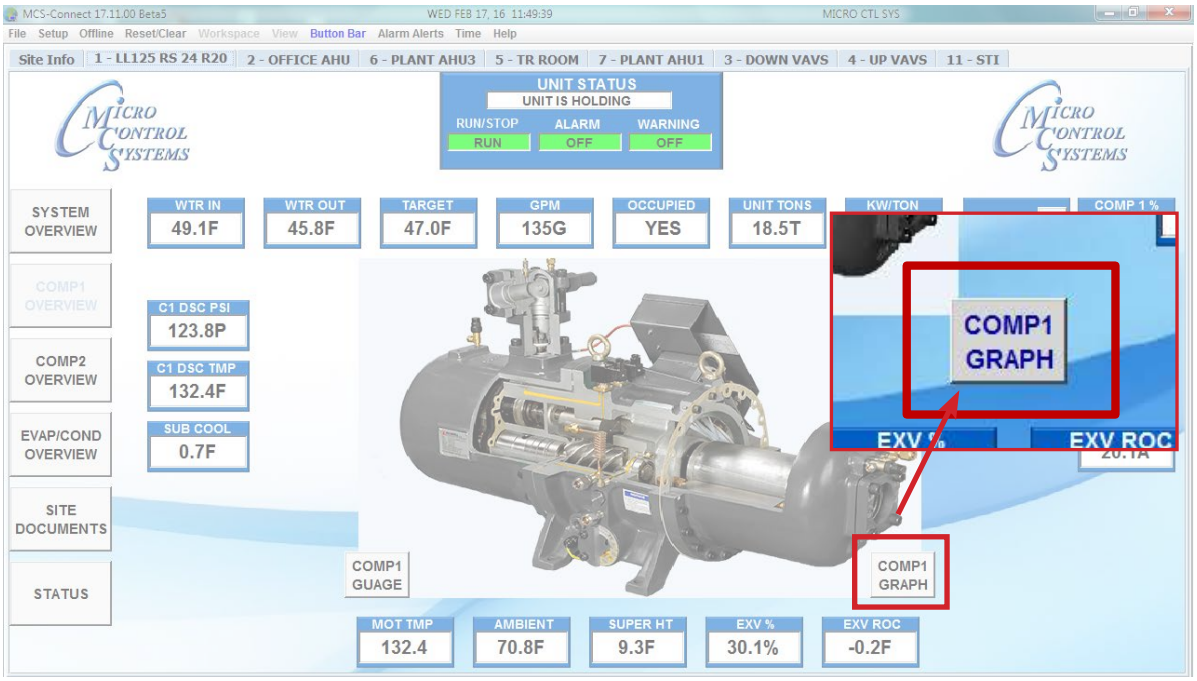


4. Open the MCS-GRAPHIC BUILDER

1. Navigate to the 'Button List' and create a new button **'Comp1 Graph'**
2. Link the file to the **'COMP1 GRAPH'** and click on page default

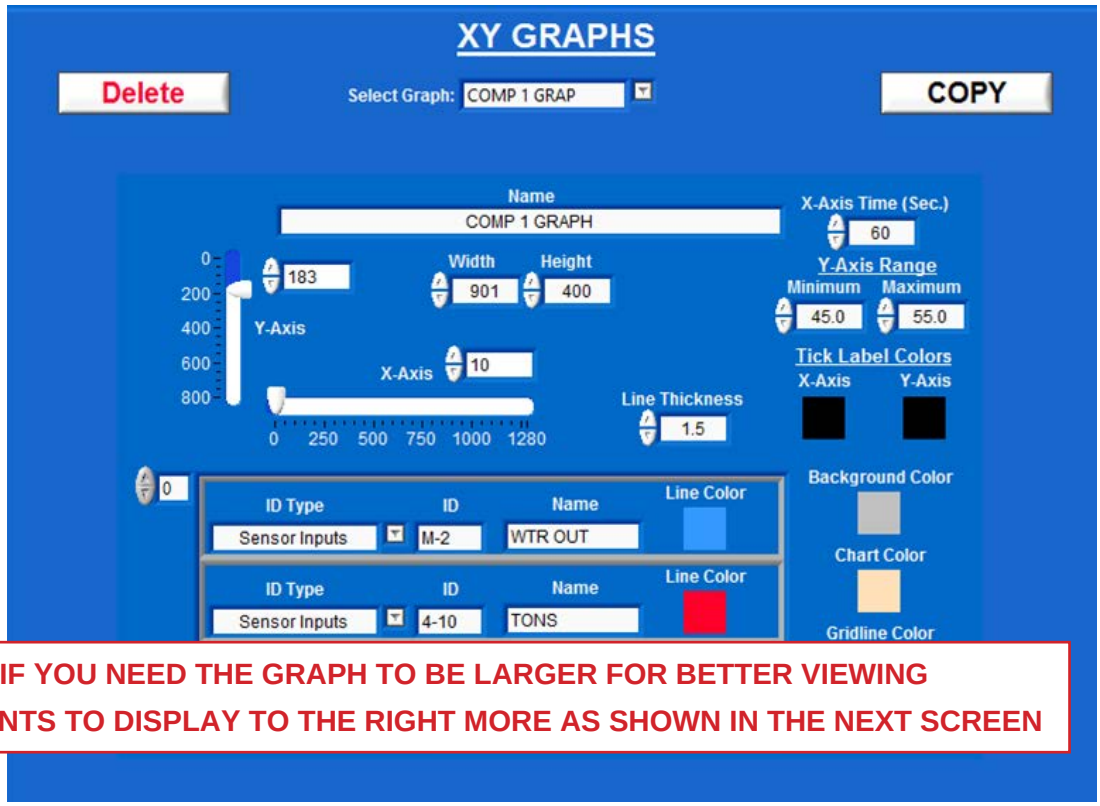


3. For this example, position the button as per the screen shown below



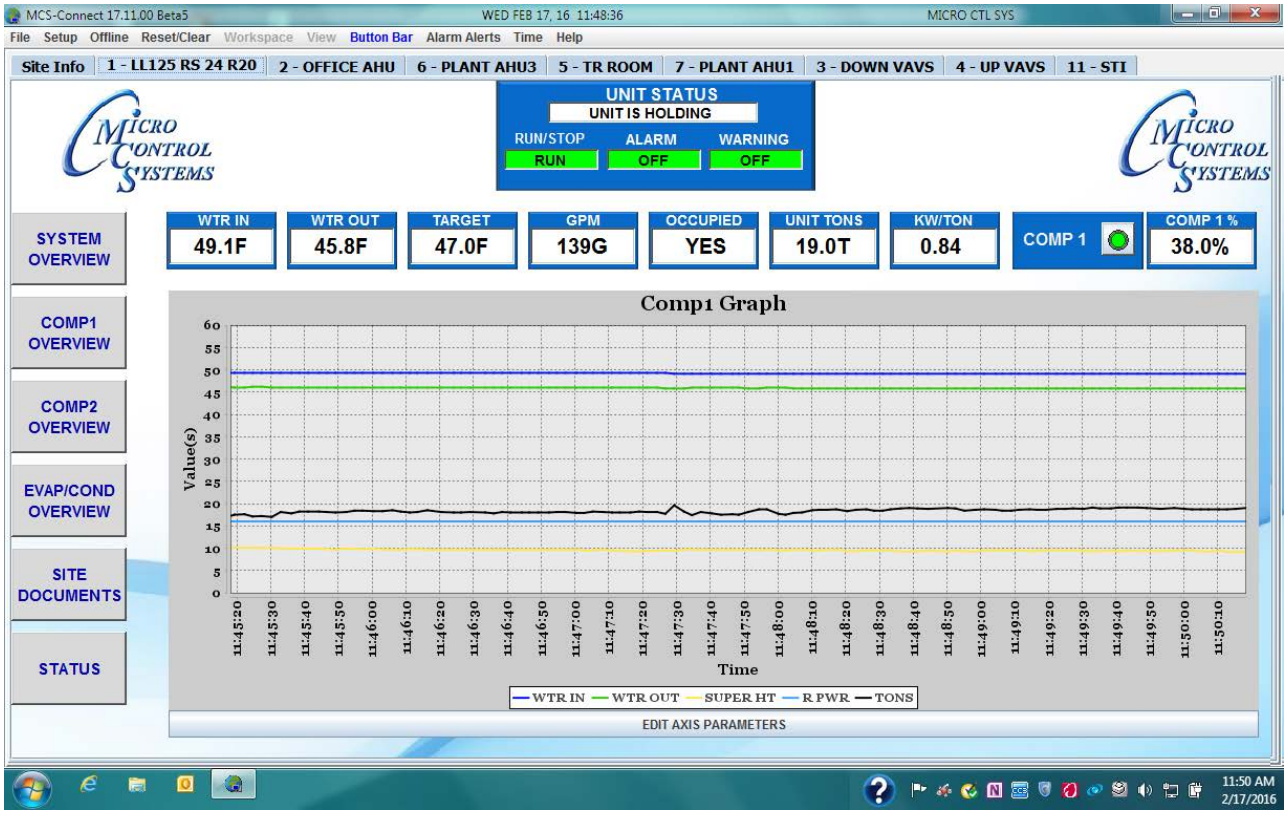
5. Navigate to the 'GRAPH MENU TAB'

   1. Name your new Graph – 'Comp1 Graph'
   2. Set up the position and size for the graph, Time, text colors and sensors you want to view.

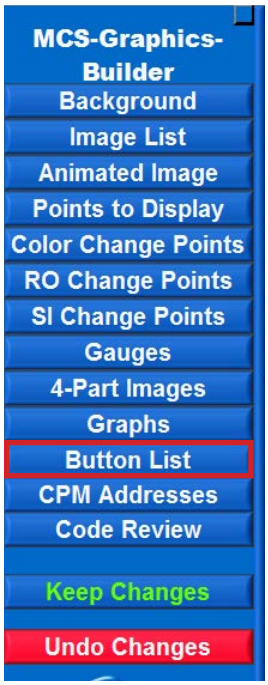


NOTE: IF YOU NEED THE GRAPH TO BE LARGER FOR BETTER VIEWING MOVE THE POINTS TO DISPLAY TO THE RIGHT MORE AS SHOWN IN THE NEXT SCREEN

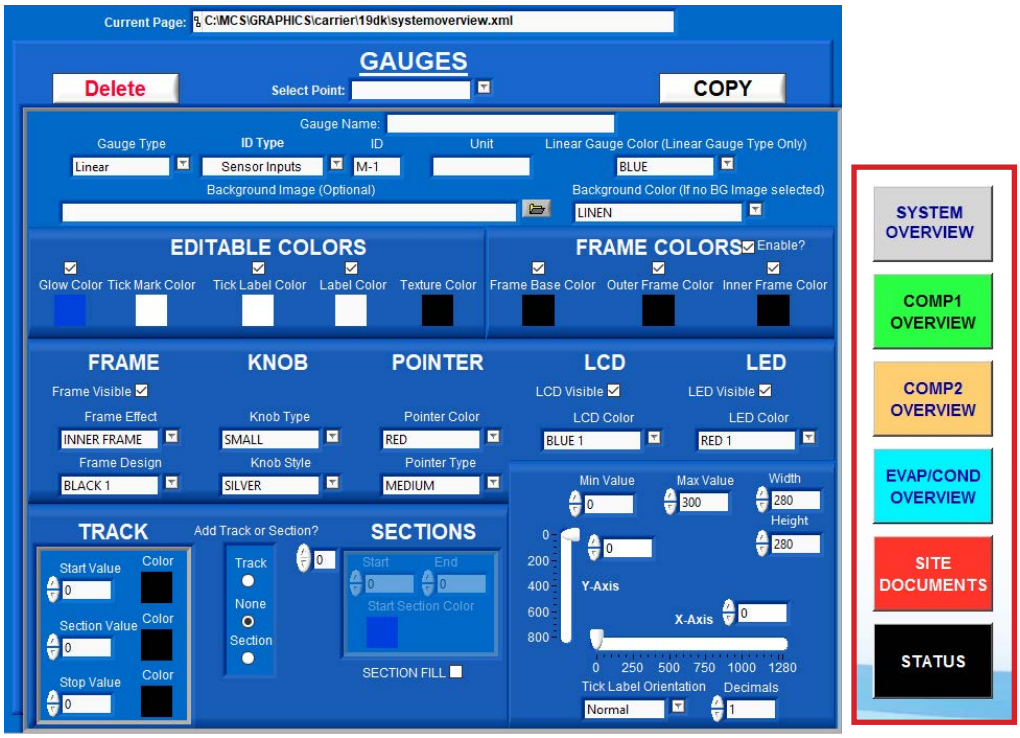
3. Click on the new ‘Comp1 Graph’ to display the screen below.

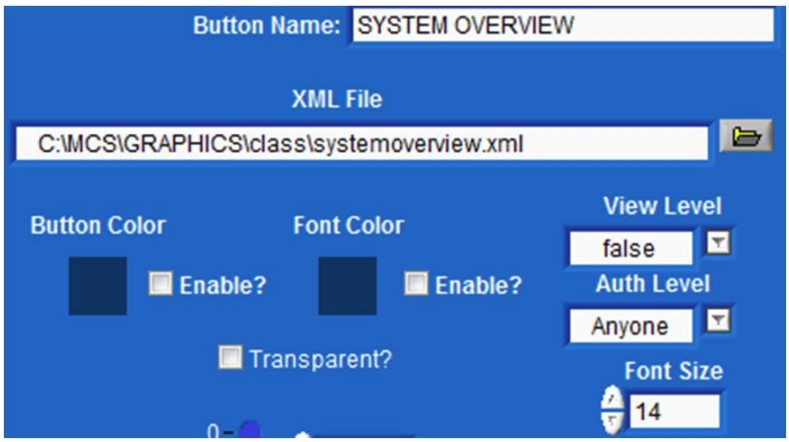


Menu Tabs Continued



1. 'BUTTON LIST TAB' - allows you to change the box background and type color on your buttons. You also can set authorization. See inset sample.

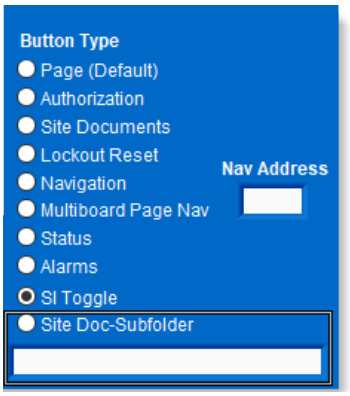




- **Button Name** - Name of the button being created.
- **XML File File** - location of the xml file to link button to. Only used for Page Type – Page (default).
- **Button Color, Enable?** - Color of the button being created. If Enable? is unchecked then default color scheme is used.
- **Font Color, Enable? -** Font color of the button being created. If Enable? is unchecked then default font color is used.
- **Transparent?** - Makes the button transparent if checked
- **Font Size** - Font size of the text inside the button
- **View Level -** Authorization level to be able to view button. Default is set to Anyone

- **Auth Level** - Authorization level to be able to press button. Default is set to Anyone

2. PAGE TYPE (Button List continued)



- Page(Default) - Sets button to navigate to .xml file specified.
- Authorization - Creates Authorization button that can be accessed from the graphics screen.
- Site Documents - Creates button that opens Site Documents folder on MCS-TOUCH.
- Lockout Reset - Creates button that will navigate to another chillers graphics. Nav Address must be a specified network address for controller.
- Navigation - Creates button that will navigate to another chillers graphics. Nav Address must be specified network address for controller.

NEW in 3.3.0 ▶

- Multiboard Page Nav - Creates button that will navigate to another chillers specific graphic screen. Nav address and XML file must be set. Nav Address must be specified network address for controller.
- Status - Creates button that will navigate back to the MCS-Connect Status screen.

NEW in 3.4.2 ▶

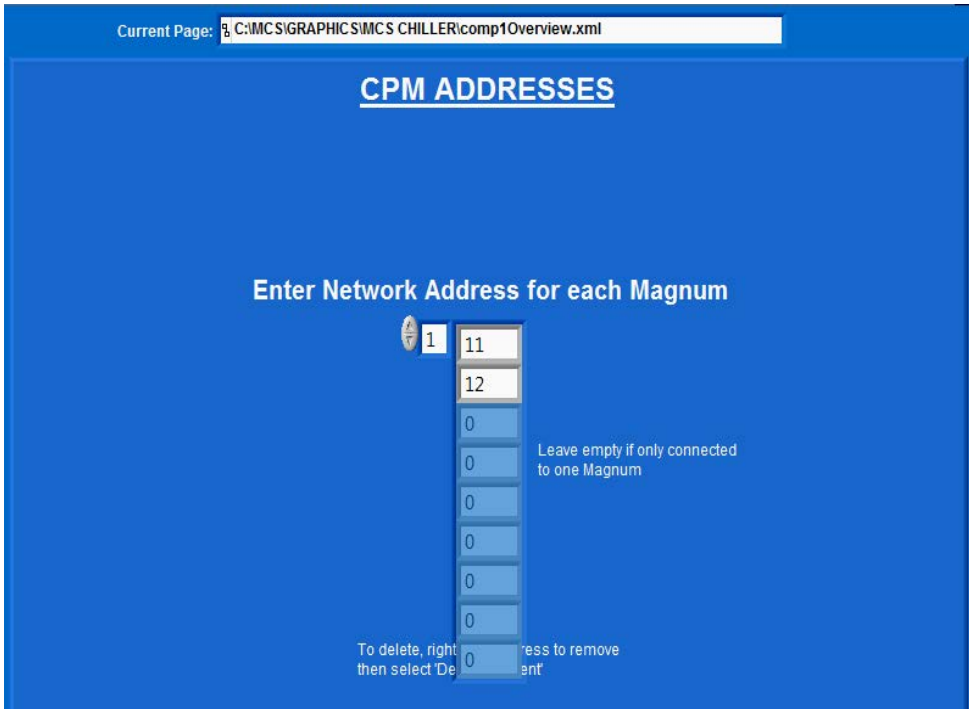
- Alarms - Create a Button which will pop up the Alarms on unit you are monitoring.
- SI Toggle - Create an ON/OFF button using a Sensor
- Site Doc-Subfolder - Similar to the Site documents button, can access other sub folders in the Site Documents folder on the MCS-TOUCH. Must fill in box with sub folder path. Example on the next page.

NEW in 3.3.0 ▶

- Force Enable/Disable - Allows you to force a button to stay enabled (clickable), or disabled (greyed out). This overrides the is current page tag when set to Enable or Disable. None is the default (normal operation).

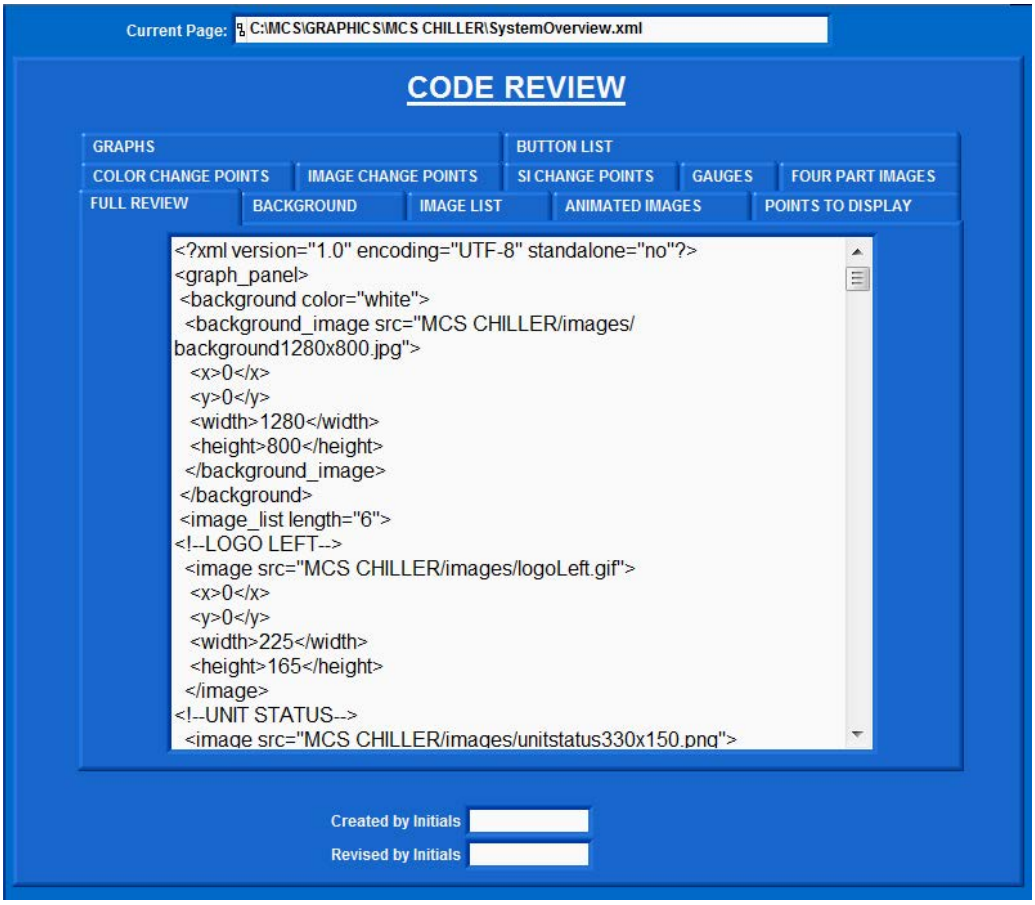
Menu Tabs Continued

1. 'CPM ADDRESSES' - enter addresses of each controller you are connected to. Leave blank if you are only connected to one controller.



Menu Tabs Continued

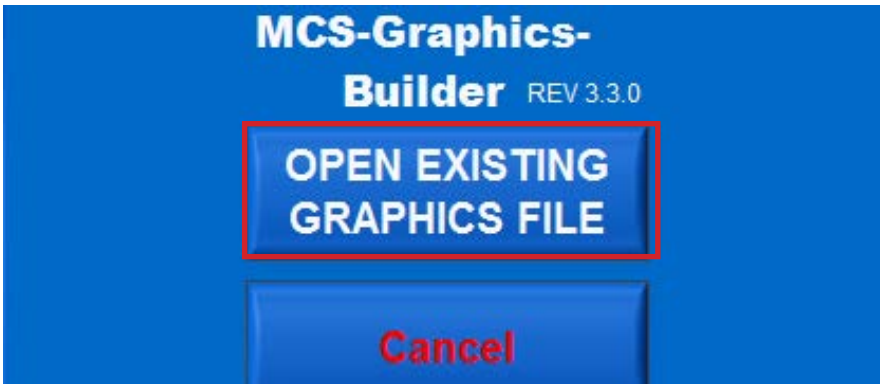
1. 'CODE REVIEW TAB' - XML code used. Must be authorized to make changes.

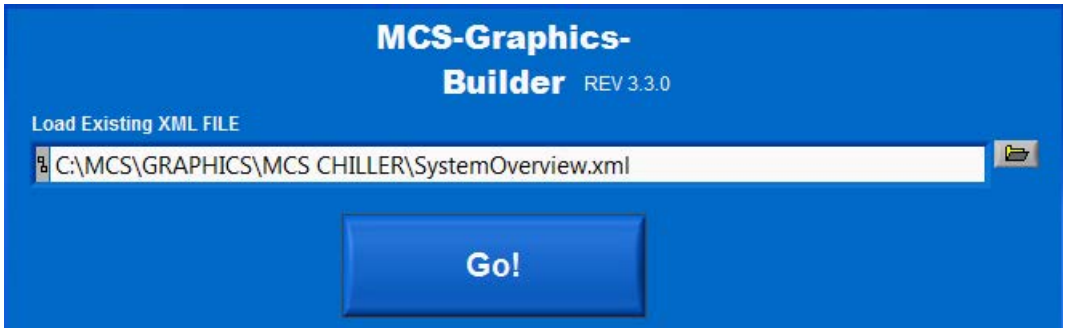


Chapter - 11. MAKING CHANGES TO THE TEMPLATE

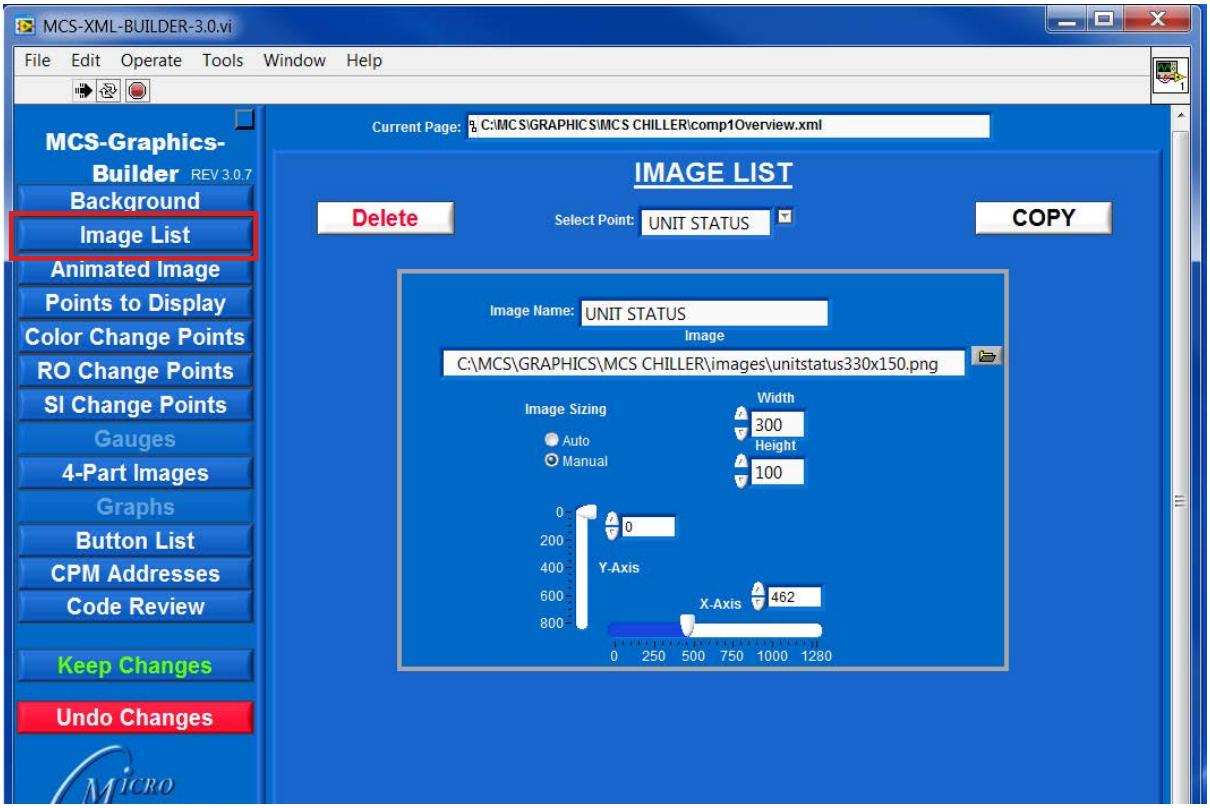
11.1. OPEN THE SUPPLIED TEMPLATE TO MAKE CHANGES

Lets make some changes in the placement of some of the points and buttons.





1. CLICK TO OPEN IMAGE LIST - Choose ‘Left logo’ and browse in the file folder for ‘Company Logo.png’ or use your own Logo.



2. **VIEW PLACEMENT AND SIZE IN MCS-CONNECT GRAPHICS.** The new logo size is smaller than the MCS logo that was in the sample template.

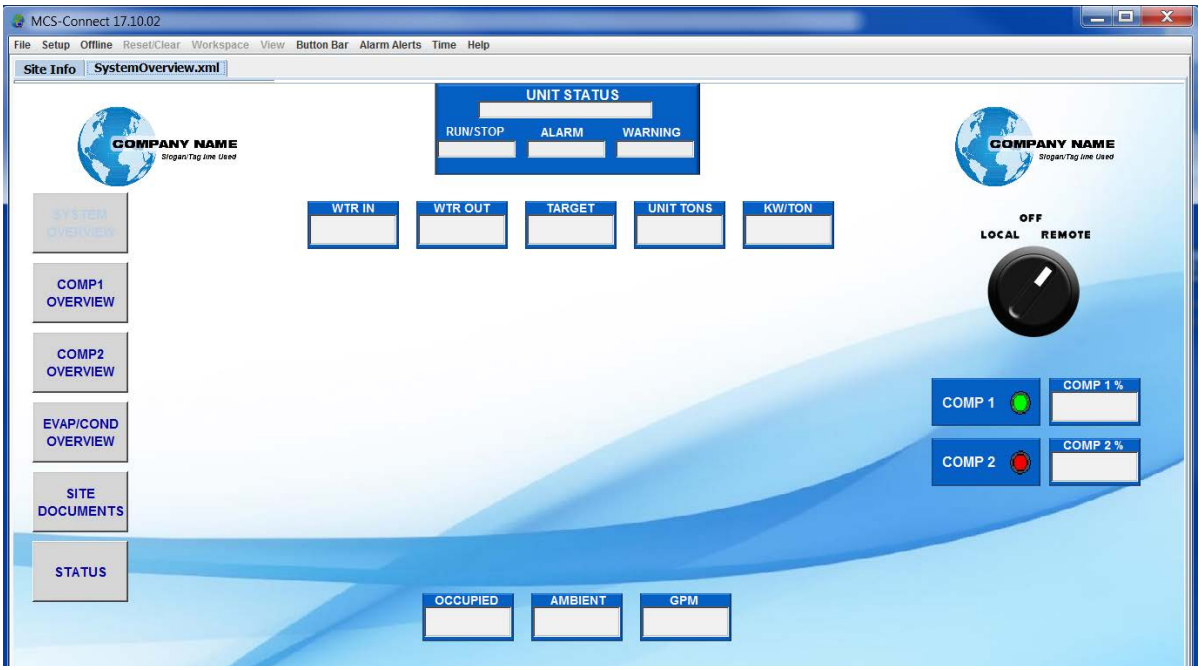
3. Using the width and length arrows, make the logo larger and re-position if necessary using the slide bar or arrows for the X and Y position. (Note: the size you made this logo (W x L) so we can make the right logo the same size).

4. CHANGE TO THE ‘LOGO RIGHT’ AND USE THE SAME LOGO FILE (Company Logo.png).

5. Use the same X and Y values that you used for ‘Logo Left’

6. Both logos should now be replaced. On the screen below you will notice that the Left Logo is over lapping the left top button.

7. **CLICK ON BUTTON LIST TO MAKE THIS ADJUSTMENT.** The calculation used to adjust was 40 points down. The six buttons were each moved that distance to move away from the new logo. See screen below after adjustment.



8. Now lets make a another change to our template, adding a new chiller image.
9. CLICK ON 'IMAGE LIST' AGAIN. Change the chiller to "TRANE' image supplied with your images.

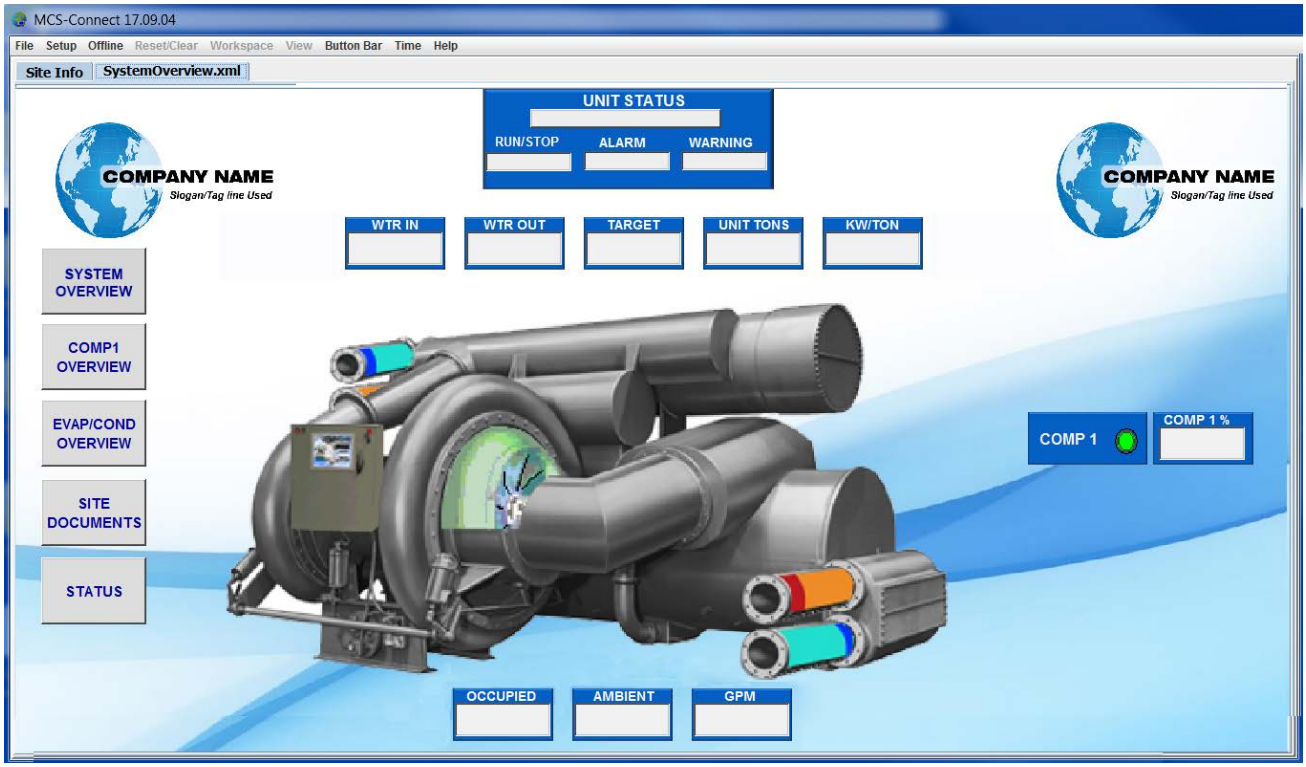
Screen below shows placement of the TRANE image.

10. We only have one compressor to monitor, so lets drop the second comp2.

THIS WILL REQUIRE 5 STEPS TO REMOVE THE COMP2

1. Open ‘POINTS TO DISPLAY’, CLICK ON ‘COMP2%’ AND DELETE.
2. OPEN ‘IMAGE LIST’, CLICK ON ‘COMP2’ AND DELETE.
3. OPEN ‘IMAGE CHANGE POINTS’, CLICK ON ‘COMP2’ AND DELETE.
4. OPEN ‘BUTTON LIST’, CLICK ON ‘COMP2 OVERVIEW’ AND DELETE.
5. NOW WE NEED TO MOVE THE BUTTONS UP OR DOWN TO FILL THE MISSING AREA.

Screen below shows changes made to your graphics



Chapter - 12. POINTS TO DISPLAY

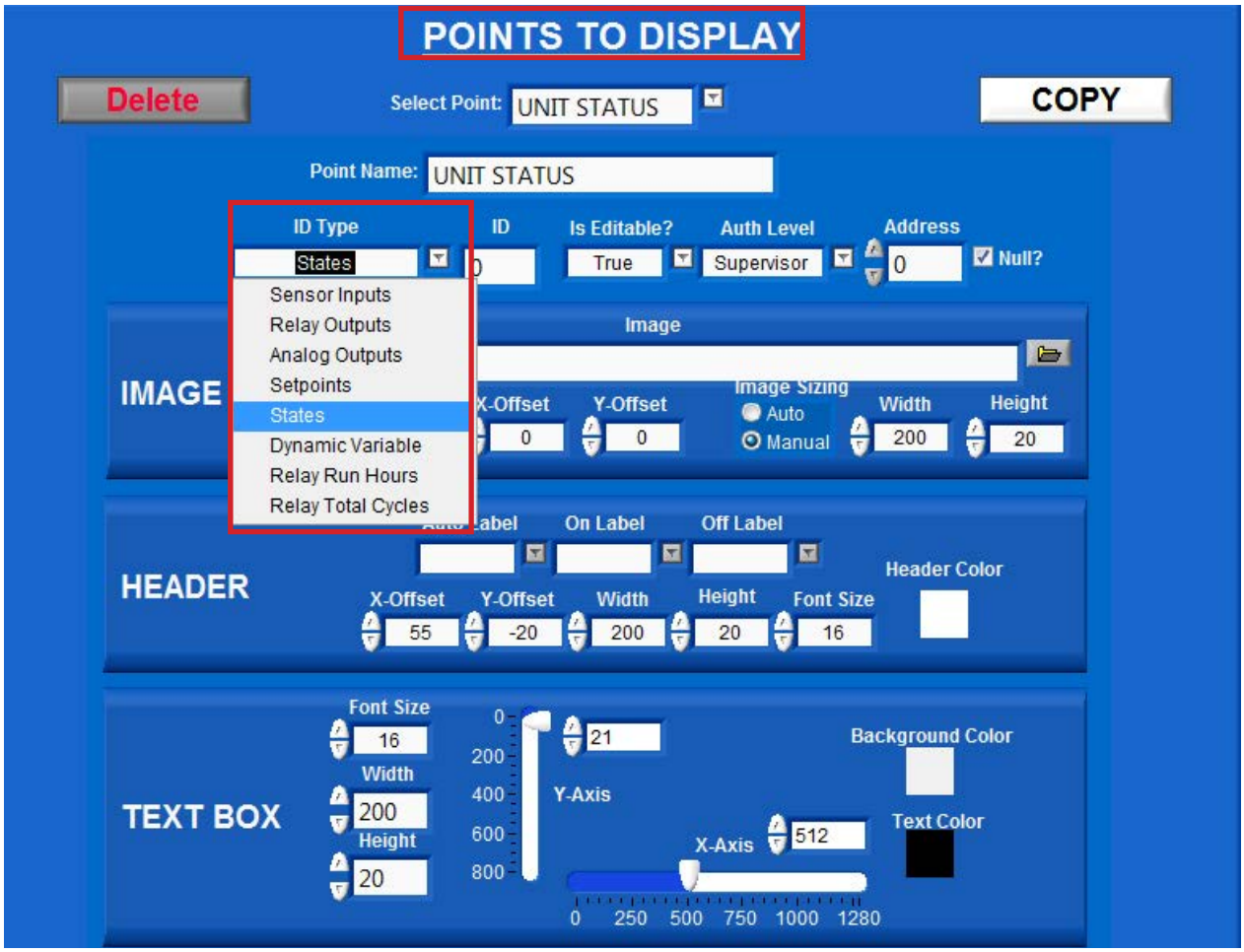
12.1. CHANGING POINTS THAT ARE DISPLAYED IN THE GRAPHICS

Each point that we display can be linked to the following:

Sensor Inputs	**Relay Outputs**
Analog Outputs	**Setpoints**
States	**Dynamic Variable**
Relay Run Hours	**Relay Total Cycles**

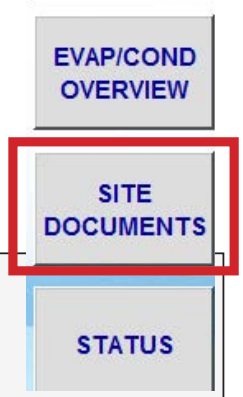
In the screen below you will see how the actual link is established and how the GRAPHIC BUILDER allows complete control of the point displayed.

1. CLICK ON 'SELECT POINT' AND CLICK ON 'UNIT STATUS'.
2. CLICK ON THE SMALL DOWN ARROW ON THE 'ID TYPE' TO OPEN UP THE BOX.
3. CHOOSE 'STATES' TO DISPLAY THE STATE OF THE UNIT.
4. NEXT BOX TO THE RIGHT WILL BE THE ID OF THAT SENSOR. (see ID list from the MCS-CONFIG PROGRAM FOR ID OF THAT SENSOR - addendum A)
5. CHOOSE TO MAKE THIS POINT EDITABLE, **TRUE OR FALSE**.
6. ADD AN **AUTHORIZATION LEVEL** TO THIS POINT.
7. YOU ALSO COULD MAKE CHANGES TO THE TYPE HEADER OR TYPE COLOR, BUT WE'LL LEAVE THE COLORS AS IS.



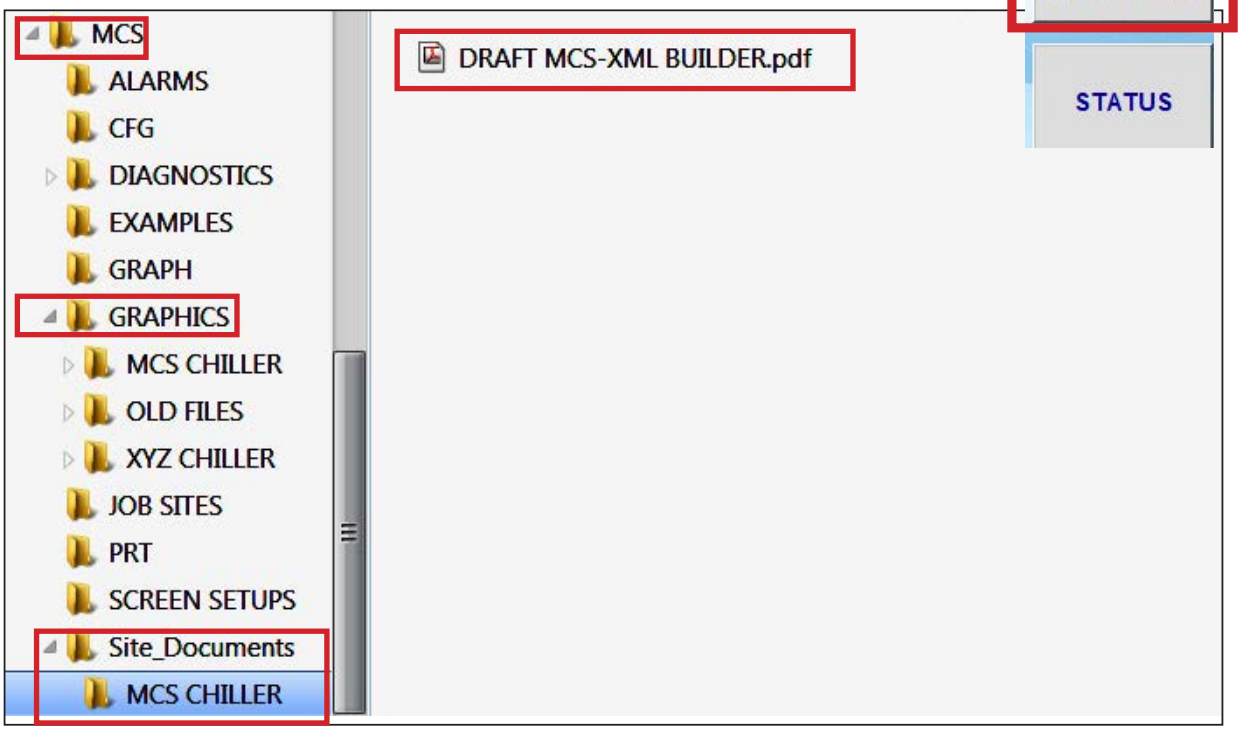
Chapter - 14. STORING DOCUMENTS

13.13. SITE DOCUMENTS (Button shown on right)



You can setup a button as shown on the screen above, so that when clicked will link you to a file stored on your computer's hard drive. This can be used for storing the manuals, electrical drawings, etc.

NOTE: YOU MUST BE CONNECTED TO A LIVE CONTROLLER TO SEE THESE DOCUMENTS.



FOLDERS AND SUB FOLDERS MUST BE SETUP AS THE SCREEN ABOVE.

1. Site Documents is stored in the **MCS FOLDER**, IN THE SUB FOLDER **'GRAPHICS'** AND IN THE SUB FOLDER **'Site Documents'**.
2. THIS IS WHERE ALL YOUR DOCUMENTS SHOULD BE PLACED.

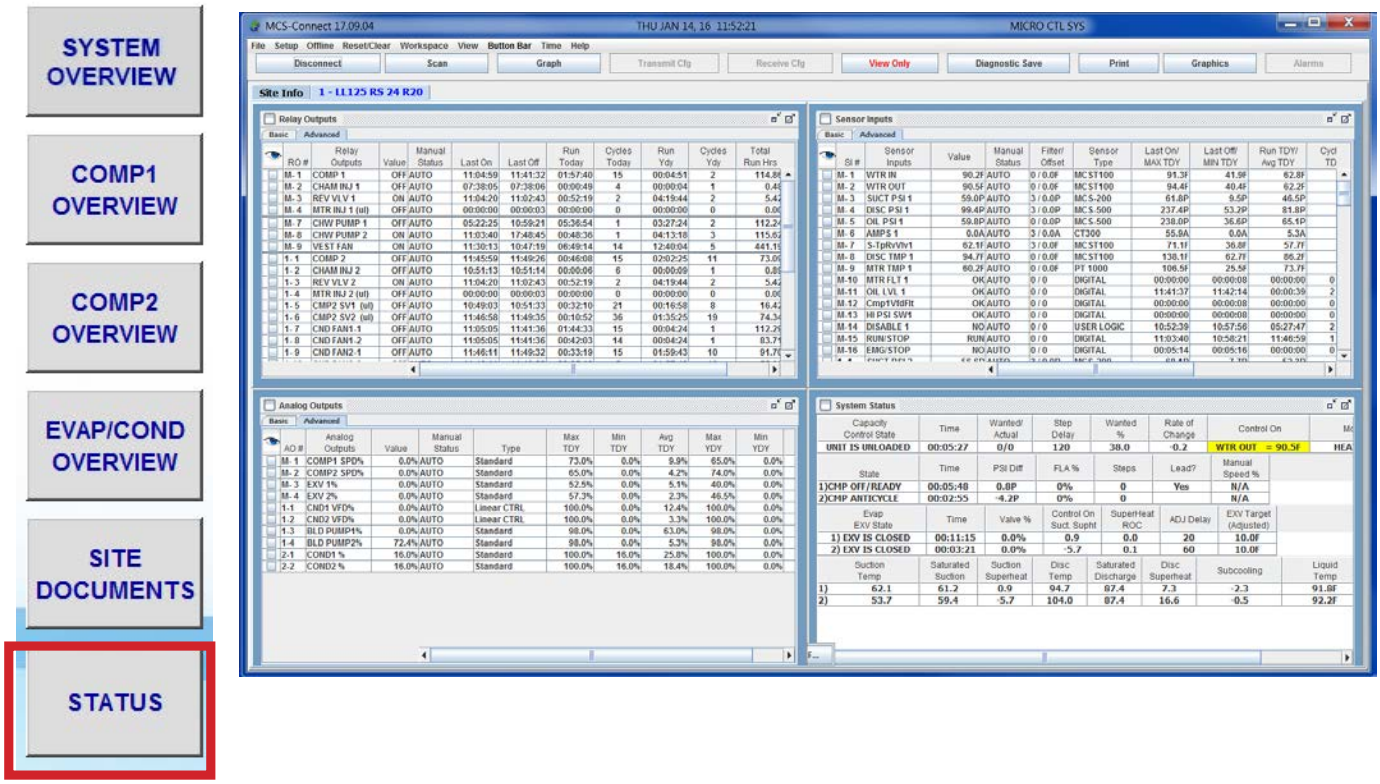
NOTE: Site_Document sub folder has an underscore.

IT IS IMPORTANT TO FOLLOW THE GUIDELINE ABOVE FOR NAMING OF FILES
THE TOUCHSCREEN USES LINUX FOR THE OPERATING SYSTEM

Chapter - 15. STATUS BUTTON

15.1. CLICKING ON STATUS BUTTON

The ‘STATUS’ button on the left side of our template, when clicked, will redirect you to ***MCS-CONNECT STATUS OF THE UNIT YOU ARE CONNECTED TO***.



Chapter - 16. ADDENDUM A

16.1. MCS CONFIG SUMMARY REPORT FOR INPUT AND OUTPUT SENSORS

Output and Input Information for Magnum

#	Output Name	Type	#	Input Name	Type	Digital or OffSet	#	AO Name
M-1	COMP 1	Step w\ EXV	M-1	WTR IN	MCST100	0	M-1	COMP1 SPD%
M-2	CHAM INJ 1	Standard	M-2	WTR OUT	MCST100	0	M-2	COMP2 SPD%
M-3	REV VLV 1	Standard	M-3	SUCT PSI 1	MCS-200	0	M-3	EXV 1%
M-4	MTR INJ 1	User Logic	M-4	DISC PSI 1	MCS-500	0	M-4	EXV 2%
M-5	SPAREM-5	Standard	M-5	OIL PSI 1	MCS-500	0		
M-6	SPAREM-6	Standard	M-6	AMPS 1	CT-300	0		
M-7	CHW PUMP 1	Standard	M-7	S-TpRvVlv1	MCST100	0		
M-8	CHW PUMP 2	Standard	M-8	DISC TMP 1	MCST100	0		
M-9	VEST FAN	Standard	M-9	MTR TMP 1	PT1000	0		
M10	SPARE M-10	Standard	M10	MTR FLT 1	DIGITAL	Closed=OFF		
			M11	OIL LVL 1	DIGITAL	Closed=OFF		
			M12	Cmp1VfdFlt	DIGITAL	Closed=OFF		
			M13	HI PSI SW1	DIGITAL	Closed=OFF		
			M14	DISABLE 1	DIGITAL	Open=OFF		
			M15	RUN/STOP	DIGITAL	Open=OFF		
			M16	EMG/STOP	DIGITAL	Closed=OFF		
1-1	COMP 2	Step w\ EXV	1-1	SUCT PSI 2	MCS-200	0	1-1	CND1 VFD%
1-2	CHAM INJ 2	Standard	1-2	DISC PSI 2	MCS-500	0	1-2	CND2 VFD%
1-3	REV VLV 2	Standard	1-3	OIL PSI 2	MCS-500	0	1-3	BLD PUMP1%
1-4	MTR INJ 2	User Logic	1-4	AMPS 2	CT-300	0	1-4	BLD PUMP2%
1-5	CMP2 SV1	User Logic	1-5	S-TpRvVlv2	MCST100	0		
1-6	CMP2 SV2	User Logic	1-6	DISC TMP 2	MCST100	0		
1-7	CND FAN1-1	Standard	1-7	MTR TMP 2	PT1000	0		
1-8	CND FAN1-2	Standard	1-8	MTR FLT 2	DIGITAL	Closed=OFF		
1-9	CND FAN2-1	Standard	1-9	OIL LVL 2	DIGITAL	Closed=OFF		
1-10	CND FAN2-2	Standard	1-10	Cmp2VfdFlt	DIGITAL	Closed=OFF		
			1-11	HI PSI SW2	DIGITAL	Closed=OFF		
			1-12	DISABLE 2	DIGITAL	Open=OFF		
			1-13	PHASELOSS	DIGITAL	Open=OFF		
			1-14	AMBIENT	MCST100	0		
			1-15	VEST TMP	MCST100	0		
			1-16	UNIT AMPS	CT-500	0		
2-1	Cmp2@2.4Vi	User Logic	2-1	WATER GPM	User Defined	0		
2-2	Cmp2@3.0Vi	User Logic	2-2	BLDPMP IN	MCS-200	2		
2-3	Cmp2@3.5Vi	User Logic	2-3	BLDPMPOUT	MCS-500	0		
2-4	SPARE2-4	Standard	2-4	BPVFD1 FLT	DIGITAL	Closed=OFF		
2-5	SPARE2-5	Standard	2-5	BPVFD2 FLT	DIGITAL	Closed=OFF		
2-6	SPARE2-6	Standard	2-6	CND1 COIL	MCST100	0		
2-7	SPARE2-7	Standard	2-7	CND2 COIL	MCST100	0		
2-8	SPARE2-8	Standard	2-8	CND1 V FLT	DIGITAL	Closed=OFF		
2-9	SPARE2-9	Standard	2-9	CND2 V FLT	DIGITAL	Closed=OFF		
2-10	SPARE2-10	Standard	2-10	Cmp2DltPsi	User Logic	0		
			2-11	SPARE2-11	SPARE	0		
			2-12	SPARE2-12	SPARE	0		
			2-13	SPARE2-13	SPARE	0		
			2-14	SPARE2-14	SPARE	0		
			2-15	SPARE2-15	SPARE	0		
			2-16	HEAT ENABL	BMS_SI	0		
3-1	SPARE3-1	Standard	3-1	CMP1 L-TMP	MCST100	0		
3-2	SPARE3-2	Standard	3-2	CMP1 L-PSI	MCS-500	0		
3-3	SPARE3-3	Standard	3-3	CMP2 L-TMP	MCST100	0		
3-4	SPARE3-4	Standard	3-4	CMP2 L-PSI	MCS-500	0		
3-5	SPARE3-5	Standard	3-5	MCS VOLT A	600VAC4	0		
3-6	SPARE3-6	Standard	3-6	MCS VOLT B	600VAC4	0		
3-7	SPARE3-7	Standard	3-7	MCS VOLT C	600VAC4	0		
3-8	SPARE3-8	Standard	3-8	COOL+OCCUP	User Logic	0		
3-9	SPARE3-9	Standard	3-9	HEAT+OCCUP	User Logic	0		
3-10	SPARE3-10	Standard	3-10	COOL/HEAT	User Logic	0		
			3-11	SV1 ON>	User Logic	0		
			3-12	SV1 ON<	User Logic	0		
			3-13	SV2 ON>	User Logic	0		
			3-14	SV2 ON<	User Logic	0		
			3-15	EVP PSI IN	User Defined	0		
			3-16	EVP P-OUT	User Defined	0		
4-1	SPARE 4-1	Standard	4-1	SUCT SH 1	User Logic	0		
4-2	SPARE 4-2	Standard	4-2	SUCT SH 2	User Logic	0		
4-3	SPARE4-3	Standard	4-3	DISC SH 1	User Logic	0		
4-4	SPARE4-4	Standard	4-4	DISC SH 2	User Logic	0		
4-5	SPARE4-5	Standard	4-5	EVP IN-OUT	User Logic	0		
4-6	SPARE4-6	Standard	4-6	SPARE4-6	SPARE	0		
4-7	SPARE4-7	Standard	4-7	SPARE4-7	SPARE	0		
4-8	SPARE4-8	Standard	4-8	EVAP DIFF	User Defined	0		
4-9	SPARE4-9	Standard	4-9	R PWR 1+2	User Logic	0		
4-10	SPARE4-10	Standard	4-10	UNIT TONS	TONS-1Dec	0		
			4-11	KW/TON	User Logic	0		
			4-12	E TMP DIFF	User Logic	0		
			4-13	PUMP DIFF	User Logic	0		
			4-14	WATER FLOW	User Logic	0		
			4-15	COOL ENABL	BMS_SI	0		
			4-16	OCCUPIED	BMS_SI	0		

EACH MCS CONFIG WILL BE DIFFERENT DEPENDING HOW YOUR CONTROLLER IS SETUP.

THIS SAMPLE IS THE MCS CONFIG FOR THE TEMPLATE OF THE UNIT WE ARE CONTROLLING FOR THIS EXAMPLE.

Chapter - 17. ADDENDUM B

17.1. CODES NEEDED FOR MCS GRAPHICS BUILDER

The following pages contain the necessary codes to identify the point you are displaying in your overview screens. These are standard codes and can be used on your setup for your graphics.

17.2. MCS GRAPHICS BUILDER SET POINT ADDRESSES

Setpoint #	Graphics BLD
1	0
2	1
3	2
4	71
5	72
6	73
7	74
8	75
9	76
10	77
11	78
12	79
13	80
14	81
15	82
16	83
17	84
18	85
19	86
20	87
21	88
22	89
23	90
24	91
25	92
26	93
27	94
28	95
29	96
30	97
31	98
32	99
33	100
34	101
35	102
36	103
37	104
38	105
39	106
40	107
41	108
42	109
43	110
44	111
45	112
46	113
47	114
48	115
49	116
50	117
51	118
52	119

Setpoint #	Graphics BLD
53	120
54	121
55	122
56	123
57	124
58	125
59	126
60	127
61	128
62	129
63	130
64	131
65	132
66	133
67	134
68	135
69	136
70	137
71	138
72	139
73	140
74	141
75	142
76	143
77	144
78	145
79	146
80	147
81	148
82	149
83	150
84	151
85	152
86	153
87	154
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89	156
90	157
91	158
92	159
93	160
94	161
95	162
96	163
97	164
98	165
99	166
100	167
101	168
102	169
103	170
104	171

Setpoint #	Graphics BLD
105	172
106	173
107	174
108	175
109	176
110	177
111	178
112	179
113	180
114	181
115	182
116	183
117	184
118	185
119	186
120	187
121	188
122	189
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125	192
126	193
127	194
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129	196
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132	199
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135	202
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142	209
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145	212
146	213
147	214
148	215
149	216
150	217
151	218
152	219
153	220
154	221
155	222
156	223

Setpoint #	Graphics BLD
157	224
158	225
159	226
160	227
161	228
162	229
163	230
164	231
165	232
166	233
167	234
168	235
169	236
170	237
171	360
172	361
173	362
174	363
175	364
176	365
177	366
178	367
179	368
180	369
181	370
182	371
183	372
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187	376
188	377
189	378
190	379
191	380
192	381
193	382
194	383
195	384
196	385
197	386
198	387
199	388
200	389
201	390
202	391
203	392
204	393
205	394
206	395
207	396
208	397

Setpoint #	Graphics BLD
209	398
210	399
211	400
212	401
213	402
214	403
215	404
216	405
217	406
218	407
219	408
220	409
221	410
222	411
223	412
224	413
225	414
226	415
227	416
228	417
229	418
230	419
231	643
232	644
233	645
234	646
235	647
236	648
237	649
238	650
239	651
240	652
241	653
242	654
243	655
244	656
245	657
246	658
247	659
248	660
249	661
250	662
251	663
252	664
253	665
254	666
255	667

Chapter - 18. ADDENDUM C

18.1. MCS GRAPHICS BUILDER STATE ADDRESSES

(CONFIG V 12)

UNIT STATE	GPH BLD #	COMPRESSOR STATE	GPH BLD #	CONDENSER STATE	GPH BLD #	HEATING STATE	GPH BLD #
UNIT	0	CIRCUIT 1	20	CIRCUIT 1	40	HEATING	60
OCCUPPIED	1	CIRCUIT 2	25	CIRCUIT 2	45	REHEAT	65
EVAP FAN	10	CIRCUIT 3	30	CIRCUIT 3	50	CIRCUIT 1	70
COOLING	15	CIRCUIT 4	35	CIRCUIT 4	55	CIRCUIT 2	75
						CIRCUIT 3	80
						CIRCUIT 4	85
						PRE COOL	90

MCS GRAPHICS BUILDER MAGNUM STATE ADDRESS

(CONFIG V 11, 14 AND 17)

UNIT STATE	GPH BLD #	COMPRESSOR STATE	GPH BLD #	C OMPRESSOR STATE	GPH BLD #	C OMPRESSOR STATE	GPH BLD #
UNIT	0	CIRCUIT 1	0	CIRCUIT 8	7	CIRCUIT 15	14
LWC	9	CIRCUIT 2	1	CIRCUIT 9	8	CIRCUIT 16	15
		CIRCUIT 3	2	CIRCUIT 10	9	CIRCUIT 17	16
		CIRCUIT 4	3	CIRCUIT 11	10	CIRCUIT 18	17
		CIRCUIT 5	4	CIRCUIT 12	11	CIRCUIT 119	18
		CIRCUIT 6	5	CIRCUIT 13	12	CIRCUIT 20	19
		CIRCUIT 7	6	CIRCUIT 14	13		

Chapter - 19. ADDENDUM D- Troubleshooting

19.1. Gauges - Track and Sections

- To delete extra ‘ELEMENTS’ - if you have too many Tracks or Sections - right click with your mouse - ‘DELETE ELEMENT”

19.2. Using the Copy Button

- Use the copy button to make an additional image. When you click the copy button you will see the word ‘NEW’ in the ‘POINT NAME FIELD’. Rename new to the name you want for the point.
- Remember the copy is under the original position, Change the X and Y coordinates to the new position.

19.3. Graphs

- When you are viewing your graph in MCS-CONNECT overview screen, you can right click on the graph and click on ‘PROPERTIES’ to make changes to the background color, etc.

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Providing HVAC/R Control Solutions Worldwide

5580 Enterprise Pkwy. Fort Myers, FL 33905
Office: (239) 694-0089
Fax: (239) 694-0031
www.mcscontrols.com