Appendix F

Tips and Hints

Introduction

This appendix suggests ways to improve efficiency while using M-Graphics. This chapter describes how to:

- add graphic Hot Links to other screens
- add fan rotation to a graphic
- add command operation box to object when clicking left or right mouse button
- add focus window screen to object when clicking left or right mouse button
- create a slider bar
- add on/off binary commands to pushbuttons
- add override binary commands to pushbuttons
- add the auto binary command to a pushbutton

Key Concepts

Characteristics of Good Graphics

A good graphic serves one of the following two functions:

1. *To Inform*: A graphical representation of data (e.g., green for normal temperature values) and notifies the operator of certain data conditions (e.g., flashing condition when in alarm).
2. *To Navigate*: Provides quick and intuitive means to view various aspects of building equipment and areas (building pictures, floors, mechanic systems).

Benefits of good graphics:

- allows operators to quickly make decisions or evaluations
- demonstrates the advantages of graphics over text based information
- overcomes limitations of text based information
- upholds the different expectations of graphics vs. text based information
- upholds standards of graphics
- upholds standards of symbol usage, templates, and files
- estimated time to create graphics
- researches symbol examples from graphic library
- explains how much data to display on the screen
- explains navigational schemes
- explains existing standards that customers have in place
- saves money by helping to solve problems

Usable Graphics

The following list describes how to create a usable graphic:

1. Develop a standard to follow. The standard defined by Johnson Controls is suitable.
2. Use storyboarding to simplify and speed up the process.
3. Identify advantages of graphics:
   a. Quickly see alarms and statuses due to color changes.
   b. Physical locations of devices shown in piping, duct, or floor plans.
   c. Data from different systems can be in one display (room temperatures all on one screen).
   d. Relationships between equipment can be emphasized (boiler with pumps and valves shown with air handlers).
   e. Utilize riser diagrams for network layout, AHU, or fire systems.
4. Identify limitations of text displays:
   a. Data on the screen.
   b. Operator must read each point value.
5. Identify user expectations from graphic:
   a. Customize to suit the user.
   b. Utilize photos or other previously created drawings.
   c. Must come up fast.
   d. Must contain required information.
6. Provide estimated time to create graphics:
   a. First graphic takes the longest to create.
   b. Duplicate a graphic for similar applications.
   c. Check library for pre-drawn graphics.
7. Provide a minimum standard to follow:
   a. Standards prevent guessing about fonts and styles.
   b. Saves time.
   c. Supports corporate standards.

8. Decipher and use standard symbols and files:
   a. Symbols library- create, rename, delete, categories, and folders.
   b. Examples library.
   c. Drag-and-drop feature to create new standard symbols.
   d. Naming of objects and shared key words.
   e. Use templates to reduce duplications.
9. Decide what graphic types to use:
   a. 2D, 3D, or Line.
   b. DIN, French, Johnson Controls symbols, or other types.
10. Provide navigational schemes:
   a. System Map could follow the Operator Workstation (OWS) Network Map.
   b. Menu bar buttons.
   c. Penetrate from building to floor plans to system types.
   d. Capable to link to the Internet sites.
11. Allow data density on a graphic:
   a. Various view areas.
   b. Quantity of objects on the display.
12. Choose fonts, color palette, control buttons, and display standards.
13. Discuss: appearance, style, organization, navigation, controls, display, and templates.
14. Provide general rules and standards.

Note: To ensure stability and provide steady performance to N1 devices, make sure the items included in the graphics are bound and connected. The total number of invalid (unbound) and unconnected (offline) items should be less than five percent, preferably none, of all included items in all graphics.

Keyboard Shortcuts

Table F-1: Keyboard Shortcuts

Menu	Command	Shortcut
Edit	Undo	Ctrl+Z
	Cut	Ctrl+X
	Copy	Ctrl+C
	Paste	Ctrl+V
	Delete	Del
	Duplicate	Ctrl+D
	VBA Properties Window	F4
Space Evenly	Across	Ctrl+Shift+A
	Down	Ctrl+Shift+D
Make Same Size	Height	Ctrl+Shift+H
	Width	Ctrl+Shift+W
	Both (Height and Width)	Ctrl+Shift+O
View	Home	Ctrl+H
	Zoom 50%	Ctrl+1
	Zoom 75%	Ctrl+2
	Zoom 100%	Ctrl+3
	Zoom 150%	Ctrl+4
	Zoom 250%	Ctrl+5
	Custom	Ctrl+0
	Unzoom	Ctrl+Shift+U
	Zoom Selection	Ctrl+Shift+S
	Fit to Window	Ctrl+F
	Show Whole Display	Ctrl+W
	Toggle Toolbars	Ctrl+T
	Status Bar	Ctrl+B
	Toggle Both Scroll Bars	Ctrl+L
	Grid	Ctrl+Shift+G
Arrange	Group Into Symbol	Ctrl+G
	Ungroup Symbol	Ctrl+U
	Bring To Front	Ctrl+Shift+PgUp
	Send To Back	Ctrl+Shift+PgDn
	Bring Forward	Ctrl+PgUp
	Send Backward	Ctrl+PgDn
Align	Tops	Ctrl+Shift+T
	Bottoms	Ctrl+Shift+B
	Middles	Ctrl+Shift+M
	Lefts	Ctrl+Shift+L
	Rights	Ctrl+Shift+R
	Center	Ctrl+Shift+C
Configure	Runtime Mode	Ctrl+M

Additional M-Graphics Shortcuts and Features

The following are all additional M-Graphics Shortcuts and Features that help in creating and maintaining displays.

Arrow Key Resize

While in the Configuration mode, change the size and shape of the object using the arrow keys, shift key, and control key. Holding down the Control and Shift keys while pressing the arrow keys adjusts the bottom and left side of the graphic. Holding down the shift key and pressing the arrow keys adjusts the top right side of the object.

Tab Key Object Selection

Use the Tab key to move the selector from one object to another. The selector moves around the display in the order the objects were created. If the object were put in a particular order, the selector would move from the farthest object forward.

Graphic Libraries

The North American Graphics Standardization team has created a small library of sample graphics and symbols. The National Standard Graphics library contains pre-engineered sample graphics that can be a starting place for building graphics. Standard graphics can be added to *The Advisor* library at any time by uploading them to the M-Graphics page. For more information, refer to the *Advisor/Express/Exchange* Web sites. Information is located at The Advisor>Engineering/Technical section under Conferences and Field Support Center.

Procedure Overview

Table F-2: Tips and Hints

To Do This	Follow These Steps:
Add Graphic Hot Links to Other Screens	From the Command menu, select Dynamics > Intrinsics > Pushbutton. Left click on the graphic screen. From the Pick tab, select Action > Load Action. Using the Browse button, select the graphic file needed for the Hot Link. Select Open. From the Button tab, replace the highlighted button text with the Hot Link graphic name. Select OK.
Add Fan Rotation to a Graphic	Paste the fan on graphic. Right click fan. Select Edit Symbol. Right click on blade. Select Property Inspector. Select Rotation. Select Expression. Select Tags. Pick Object > Present_Value. Select Arithmetic > Multiplication. Select Shift plus Tags buttons together. Select Gwsim.ramp.long. Select OK. From the Rotation tab, select Range Override. Enter 0 for the Low Range. Enter 1000 for the High Range. Select OK and save.
Add Command Operation Box to Object when Clicking Left or Right Mouse Button*	Right click object. Select Dynamics > Action > Pick. Select the Pick tab. Select Action > Launch Application. Select the mouse button. Select Custom button. Select CMD from the Metasys Application. Select Browse button. Pick Object > Present_Value. Select OK. Delete Present_Value from OWSExec command line parameter. Select OK. Select OK and save file.
Add Focus Window Screen to Object when Clicking Left or Right Mouse Button*	Right click object. Select Dynamics > Action > Pick. Select Pick tab. Select Action > Launch Application. Select Left or Right mouse button. Select Custom. Select FOC from Metasys Application. Select Browse. Pick Object > Present_Value. Select OK. Delete Present_Value for the OWSExec command line parameter. Select OK. Select OK and save file.
Create a Slider Bar	Paste slider bar onto graphic. Right click slider bar. Select Edit Symbol. Right click Slider tab. Select Property Inspector. Select Location tab. Enter High and Low Range Override limits. Select Edit Aliases. Select Tag Browser box. Select Object > Present_Value. Select OK and save.
Add On/Off Binary Commands to Pushbuttons	From the Command menu, select Dynamics > Intrinsics > Pushbutton. Left click on the graphic screen. From the Pick tab, select Action > Download Value. Select Tags. Pick Object > Present_Value. Select OK. From the Pick tab, enter 1 or 0 into tags = entry box. From the Button tab, replace the highlighted button text with the state1 or state0 action.
Add Override Binary Commands to Pushbuttons*	From the Command menu, select Dynamics > Intrinsics > Pushbutton. Left click on graphic screen. From the Pick tab, select Action > Download Value. Select Tags. Pick Object > N1_Display_OV. Select OK. From the Pick tab, enter 1 or 0 into tags = entry box. Select OK.
Add the Auto Binary Command to a Pushbutton*	From the Command menu, select Dynamics > Intrinsics > Pushbutton. Left click on the graphic screen. From the Pick tab, select Action > Download Value. Select Tags. Pick Object > N1_Display_OV. Select OK. From the Pick tab, enter $"Auto"$ into tags = entry box. From the Button tab, replace the highlighted button text with AUTO. Select OK.

*Note: Applies only to M5 Workstation.

Detailed Procedures

Adding Graphic Hot Links to Other Screens

To add graphic Hot Links to other screens:

1. From the Command menu, select Dynamics > Intrinsics > Pushbutton.
2. Left click on the graphic screen.
3. From the Pick tab, select Action > Load Action.
4. Using the Browse button, select the graphic file needed for the Hot Link.
5. Select Open.
6. From the Button tab, replace the highlighted button text with the Hot Link graphic name.
7. Select OK.

Adding Fan Rotation to a Graphic

To add a fan rotation to a graphic:

1. Paste the fan on graphic.
2. Right click fan.
3. Select Edit Symbol.
4. Right click on blade.
5. Select Property Inspector.
6. Select Rotation.
7. Select Expression.
8. Select Tags.
9. Pick Object > Present_Value.
10. Select Arithmetic > Multiplication.
11. Select Shift plus Tags Buttons together.
12. Select Gwsim.ramp.long.
13. Select OK.
14. From the Rotation tab, select Range Override.
15. Enter 0 for the Low Range.
16. Enter 1000 for the High Range.
17. Select OK and save.

Adding Command Operation Box to Object when Clicking Left or Right Mouse Button

To add command operation box to an object when clicking left or right mouse button:

1. Right click object.
2. Select Dynamics > Action > Pick.
3. Select the Pick tab.
4. Select Action > Launch Application.
5. Select mouse button (left/right).
6. Select Custom button.
7. Select CMD from Metasys Application.
8. Select Browse button.
9. Pick Object > Present_Value.
10. Select OK.
11. Delete Present_Value from OWSExec command line parameter.
12. Select OK.
13. Select OK and save file.

Note: This applies only to the M5 Workstation.

Adding Focus Window Screen to Object when Clicking Left or Right Mouse Button

To add focus window screen to object when clicking left or right mouse button:

1. Right click object.
2. Select Dynamics > Action > Pick.
3. Select Pick tab.
4. Select Action > Launch Application.
5. Select left or right mouse button.
6. Select Custom.
7. Select FOC from Metasys Application.
8. Select Browse. Pick Object > Present_Value.
9. Select OK.
10. Delete Present_Value from the OWSExec command line parameter.

11. Select OK.
12. Select OK and save file.

Creating a Slider Bar

To create a slider bar:

1. Paste slider bar onto graphic.
2. Right click slider bar.
3. Select Edit Symbol.
4. Right click Slider tab.
5. Select Property Inspector.
6. Select Location tab.
7. Enter High and Low Range Override limits.
8. Select Edit Aliases.
9. Select Tag Browser box.
10. Select Object > Present_Value.
11. Select OK and save.

Adding On/Off Binary Commands to Pushbuttons

To add on/off binary commands to pushbuttons:

1. From Command menu, select Dynamics > Intrinsics > Pushbutton.
2. Left click on the graphic screen.
3. From the Pick tab, select Action > Download Value.
4. Select Tags.
5. Pick Object > Present_Value.
6. Select OK.
7. From the Pick tab, enter 1 (for the object's state1 action) or 0 (for the object's state0 action) into tags = entry box.
8. From the Button tab, replace the highlighted button text with the state1 or state0 action (i.e., on or off).
9. Select OK.

Adding Override Binary Commands to Pushbuttons

To add override binary commands to pushbuttons:

1. From the Command menu, select Dynamics > Intrinsics > Pushbutton.
2. Left click on the graphic screen.
3. From the Pick tab, select Action > Download Value.
4. Select Tags.
5. Pick Object > N1_Display_OV.
6. Select OK.
7. From the Pick tab, enter 1 (object's state1 action) or 0 (object's state0 action) into tags = entry box.
8. Select OK.

Note: This applies only to the M5 Workstation.

Adding the Auto Binary Command to a Pushbutton

To add the auto binary command to a pushbutton:

1. From the Command menu, select Dynamics > Intrinsics > Pushbutton.
2. Left click on the graphic screen.
3. From the Pick tab, select Action > Download Value.
4. Select Tags.
5. Pick Object > N1_Display_OV.
6. Select OK.
7. From the Pick tab, enter $"AUTO"$ into tags = entry box.
8. From Button tab, replace the highlighted button text with `AUTO`.
9. Select OK.

Note: This applies only to the M5 Workstation.