Opendiem Training

Exercise 4

Opendiem-TRN-0004

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Exercise 4 – Intermediate Opendiem Designer

Introduction

In Exercise 3 we expanded the use of Opendiem Designer features. In this exercise you will cover some more advanced topics such as images, graphical buttons, custom data formatting and layers.

Objective

In this exercise you will use Opendiem Designer developing on the previous exercise to add images to your project, assign objects to different layers, enable and disable layers, make them visible and invisible, and use the tab control to control layer visibility in the browser. You will also learn how to apply custom data formatting to data.

Re-opening the project in Opendiem Designer

Exercise Instructions

If necessary, re-open the previous project using Opendiem Designer. We will now add a new screen to the project, load a graphic object into the screen and add navigation buttons so we can load different screens within the browser.

Create a new screen by clicking on the New Item button on the toolbar.

The Screen Properties dialogue box will appear, enter a screen title and click **OK**. Your screen should look similar to the one below.
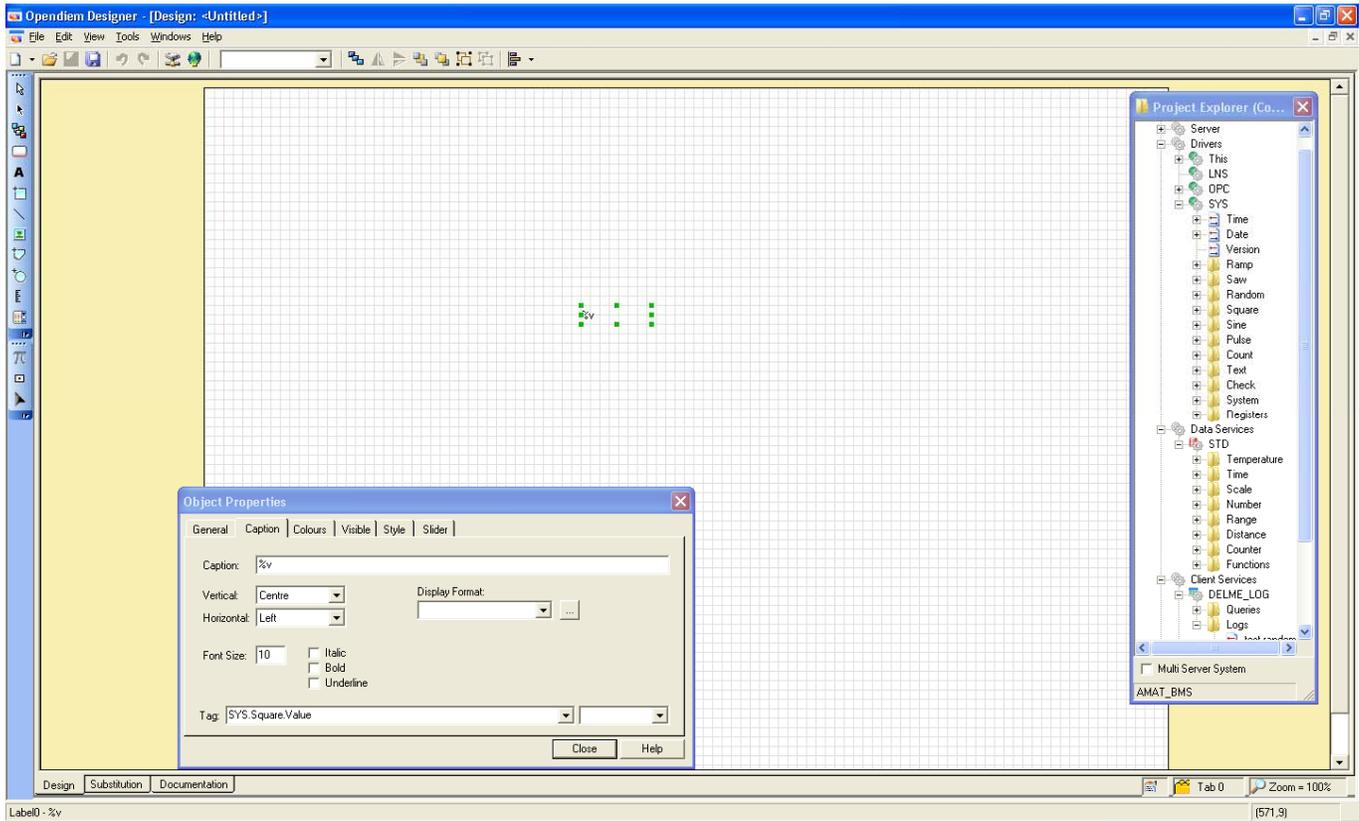
Images

Using the Picture tool from the Toolbox, images may be added to screen designs. Images can be used as static backgrounds or animated graphics that change their appearance based upon a tag value.

Using Images in Designer

To Create an
Image Placeholder

Click on the **Picture Object** tool within the Toolbox and draw the required sized placeholder.

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To Select an Image	From within the Image Tab, click on the browse button ▣. This displays the images dialog box containing the default Opendiem Images folder …Opendiem\…\website\images. If the required image has already been copied into this folder then select it and click **Open**.
	Otherwise, click on the search button 🔍 and locate the image. Clicking **Open** will copy the selected image file into the Opendiem images directory.
	Select the file from the images dialog box and click **OK**.
To Delete an Image	To delete the image out of the preview box click on ✖.
Original Image Size	Displays the image at its original size.
Original Aspect Ratio	Returns the selected image to its original aspect ratio of width to height, and keeps the size within the placeholder that was drawn on the screen with the picture object tool.

Adding an Image

From the Toolbox select the Picture Object (click **OK** on the tooltip if it appears) and drag out a rectangular area on the screen; the exact size is unimportant at this time. The Image Object Properties dialogue will appear as shown below.
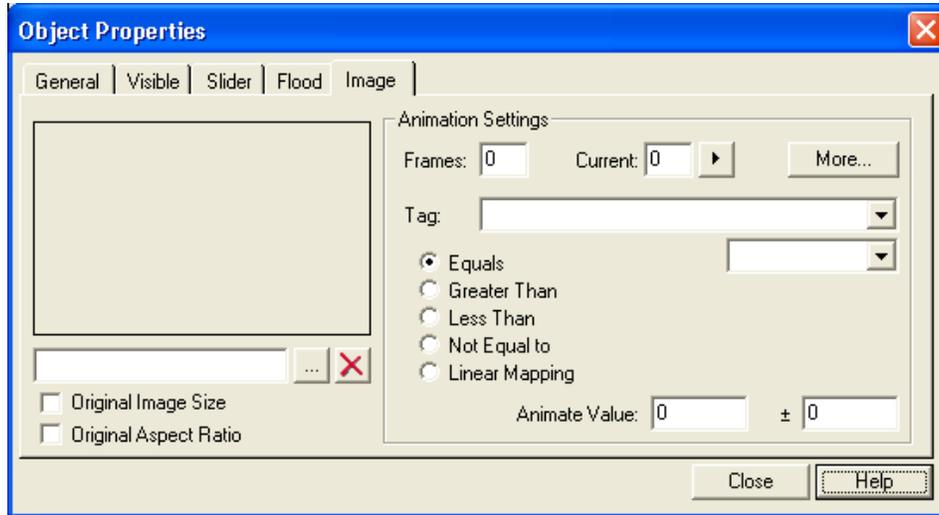
Click on the ellipses [...] button and an Open Picture dialogue appears, click on the [binoculars] button and browse to your image files location.

Select an image file `'*.jpg', or '*.gif';` Designer will prompt to copy the file to the project directory - select **Yes**. In the Image Object properties select **Original Image size** and click **OK**. Drag the image so the top left corner is in the top left corner of the Design Screen; the image is larger than the screen extents defined so the image will be automatically cropped in the browser view.

Layers

Opendiem Designer has the functionality to assign shapes to different layers. The layers are accessed from the toolbar.

The layers can be turned on and off in both the design environment and in the client. Turning a layer off hides the layer and makes the objects on it invisible. Layers can also be made inactive, which means any shapes on that layer cannot be selected or moved.

For example, if you are designing an office layout the background can be done first on one layer then that layer can be made inactive while you add the lighting layout to a different layer without affecting the shapes on the background.

The Layers dialog box is accessed from the Tools menu.

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We will now assign the image to a background layer and make it inactive so we can work on the rest of the design without affecting the graphic image.

Select the Properties for the image, select the **General** tab and from the **Layer** drop down list select **15: Background** and click **OK**.

From the Toolbar select the Drawing Layers button and make the **Background** layer inactive.

The Floor plan graphic is now inactive and cannot be selected by the mouse.

Adding a Mouse Hotspot

Next we will add a mouse hotspot to the navigation images to allow us to navigate back to the start screen. As an extra feature we will add a red border around the button that only shows when the mouse is over the hotspot.

Add a button object to the screen, from the **Style** tab select **Flat**, from the **Colors** tab add a new color range by double clicking on the ellipses (**...**) and set the value to 1. For row 0 set the foreground (**Fg)**, background (**Bg)** and border (**Bd)** colors to No fill. For row 1 set the foreground and background colors to No fill and set the border color to Red.

From the Project Explorer expand the **Drivers**, **This**, **Register** branch and drag register 1 onto the Tag box. You should have a dialogue as shown below.
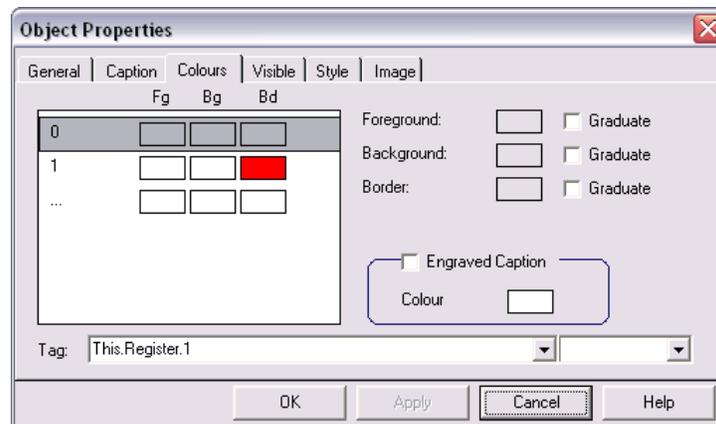
From the **General** tab set the **Hand Cursor** option and on the **Actions** section select **Click()** the Action dialogue will appear, from the **New screen** drop down list select 'start.asc'. On the **Caption** tab make the **Caption** field blank.

Click **OK** to return to the drawing screen, the button will be invisible – shown only by the six green 'handles'. Drag the button over the HVAC button image and size the button to just cover the graphic HVAC button (remember that you can use the CTRL + cursor and Shift + cursor combination to accurately size the object). Use the cursor keys to apply fine positioning of the object.

Next we need to add a *Mouse Over* event to make our border around the button appear, we will do this by setting the 'This.Register.1 value'. Right click on the button object that you placed on the screen and from the pop-up menu select **Actions** and then **MouseEnter** the action dialogue will appear as shown below, in the **Variable** box enter 'This.Register.1' and in the **Value** box enter '1'. This will set the Client register 'This.Register.1' to 1 whenever the mouse enters the object which will cause the red border around the button to show. We need to set the register back to 0 when the mouse leaves the object to remove the red border. Right click on the button object again and from the pop-up menu select **Actions** and then **MouseExit** the action dialogue will appear, in the **Variable** box enter 'This.Register.1' and in the **Value** box enter '0'.
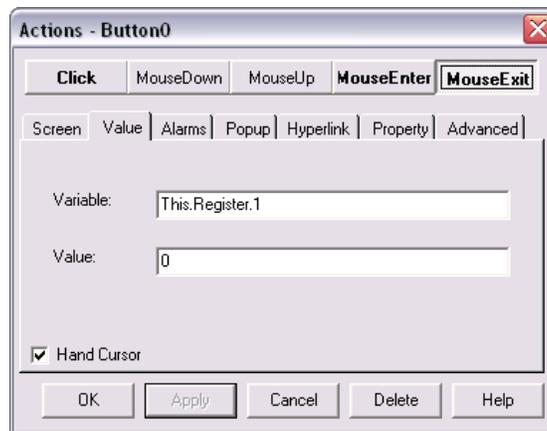
Using this technique it is possible to control many such hotspots, for example you could set 'This.Register.1' to 2 for button 2 and to 3 for button 3 and so on thus controlling an entire screen of hotspots from one register.

The navigation *Hotspot* is now complete. Save the screen as 'screen2.oscreen'.

Switch back to 'start.asc', use the **Windows** menu. Expand the **Project | Screens** branch of the Project Explorer tree. All of the screens for the project are listed here. If the 'screen2.asc' file does not exist, refresh the Project Explorer by pressing **F5**.
Add a button to the design environment and, using the actions dialogue, set the button to Click to Screen2.oscreen.

Save the files and check the behavior of the navigation buttons within the web browser, check that the red border appears when the mouse enters the hotspot and disappears when the mouse leaves. Add a navigation button from 'screen2.oscreen' to 'start.oscreen'.

As an additional exercise use the techniques learned above to construct a 'Pop-up Tips' prompt when the mouse hovers over a control, use the This register to achieve the effect. Check your screen in a Web browser to verify your work.

An easier way of producing pop-up tips and a convenient method of controlling an object's properties can be achieved using the **Properties** tab of the **Actions** dialogue. Create a new label object, enter some text and change the color properties of the text to give it a solid background color. Click on the **General** tab and note the **Item Identifier**. Next, right click on the *Hotspot* button created earlier and select **Actions** then **MouseEnter.** Select the **Property** tab and in the **Object** drop-down list select the name of the Item Identifier noted above. In the **Property** drop-down list select **Visible** (note the other object properties which can be controlled using this method) in the **Value** drop-down list select **True.** Now set the **MouseExit** Action to set the **Visible** property to **False**.
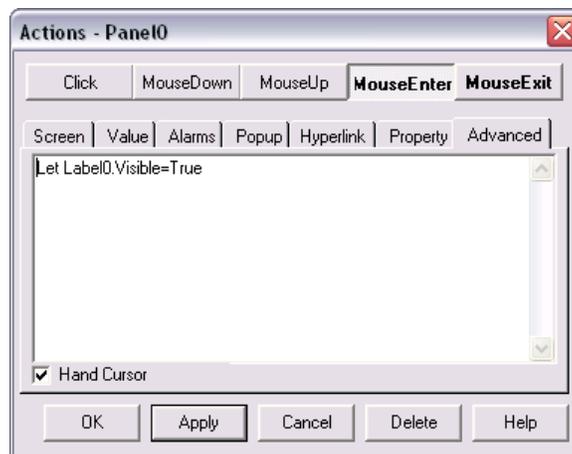
Test the operation in the browser to verify your work. Experiment further as there are many options to be creative.

Advanced

Go back to the Click Action properties box and take a look at the **Advanced** tab, you will see the text 'LET Label3.Visible=True' this is the command that Opendiem uses to control the object.
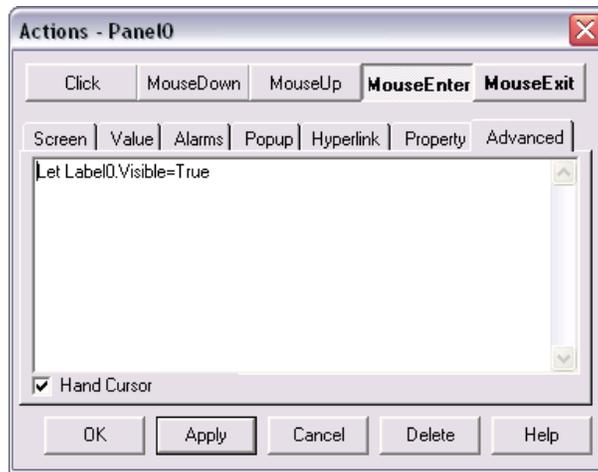
The **Advanced** tab can be edited, so for example you could copy and paste the text to control several different objects and or properties from one action as shown below.
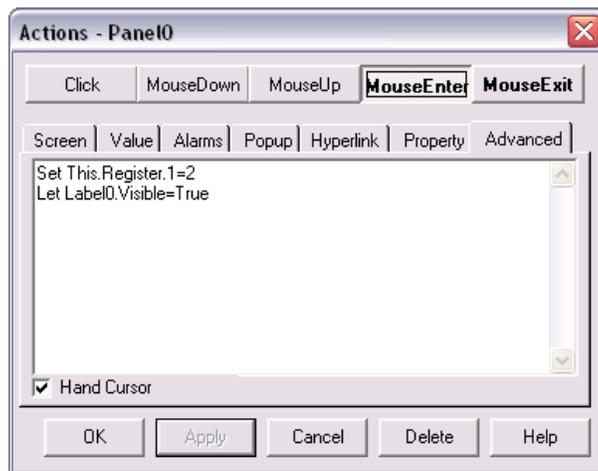
Formatting Variable Data

When a Network Variable is dragged onto the Design Screen (with the **Shift** key pressed if associated with a 'SmartComponent') Designer places a **%v** placeholder on the screen. If the variable is a regular type its value will be automatically scaled by LNS and presented within the browser, for example SNVT_temp_p is temperature in 100ths of a degree Celsius and therefore a raw value of 2100 is automatically formatted to display 21.00 the same principle applies to other drivers and protocols. The **Display format** drop down list on the **Caption** tab of the **Object Properties** contains formatting options that can be applied to numerical values.

The first set of options are number formatting that allow you to display up to four decimal places.

The next set allow you to display text to represent a value for example True/False, Yes/No and On/Off where 0 represents False, No, and Off and all other values represent True, Yes, and On. The last two options are Hex and Bin, which will convert a number to its Hexadecimal or Binary equivalent.

Clicking on the browse button (▢) displays the wizard, which will format numbers in a couple of easy steps and offers some additional options.
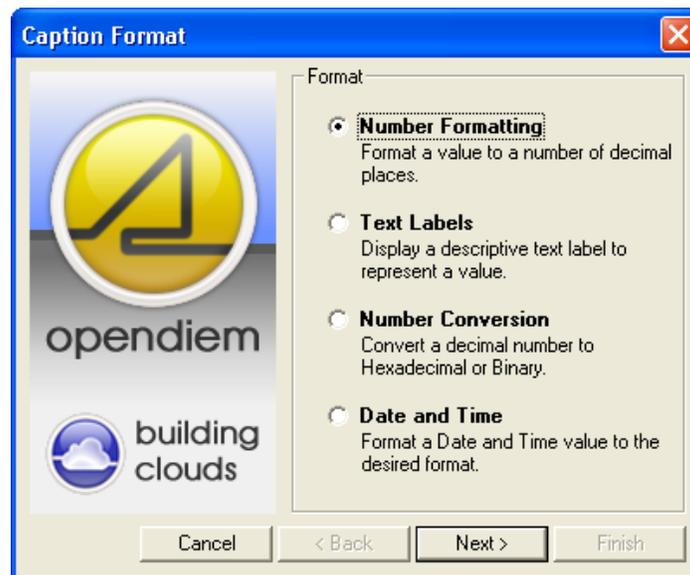
Number Formatting allows you to select the number of decimal places and display a leading zero if required.

Text Labels offers the option of pre-defined and user-defined lists. The user defined option allows you to type a list of values into a table for example 0=Off, 1=Low, 2=Medium, 3=High, etc. (any other number) = Error

Number Conversion converts the value into its Hexadecimal or Binary equivalent.

Date & Time displays the system date and time in a variety of formats.

If a variable is an enumerated type e.g. SNVT_occupancy Opendiem will automatically show the enumerated text i.e. OC_OCCUPIED and OC_UNOCCUPIED. Drag the variable **nvoOccupancy** from a LNS controller onto the Design Screen send the variable to the browser and check the display format.

We will now use the formatting wizard to display alternative descriptions for nvoOccupancy. Drag the variable **nvoOccupancy** from a LNS controller onto the Design Screen again, beneath the first copy. From the **Object Properties** dialogue select the **Caption** tab and click on the ellipses (⬚) button next to **Display Format** and the Caption Format Wizard will show, select **Text Labels** then **User Defined...** In the first row (0) type 'Zone 1 Occupied'. In row 2 (1) type 'Zone 1 Unnocupied'. (Note that each of the numbers is editable also) Select **Finish** and check the results in the browser. You will now see the text you typed against each value, note that the row values in the Wizard may be changed to any required value. The results of the Wizard are added to the **Display Format** drop down list for easy selection and re-use. The items in the **Display Format** drop down list are also editable directly as an added convenience.

If a structured variable e.g. SNVT_hvac_status is dragged onto the Design Screen Opendiem will show all elements of the structure, to access individual elements, expand the tree to reveal the NV elements. Investigate this by using **nvoAcStatus** from a LNS device.

Showing the System Time & Date

Expand the **Drivers | SYS** branch of the Project Explorer and drag the **Time** variable onto the screen (hold the **Shift** key while dragging the object.) Start the Data Formatting Wizard and select **Date & Time**, set the format to **Medium Date & Time**. View the results in the browser and experiment with different date formats.

Below is a complex Designer screen
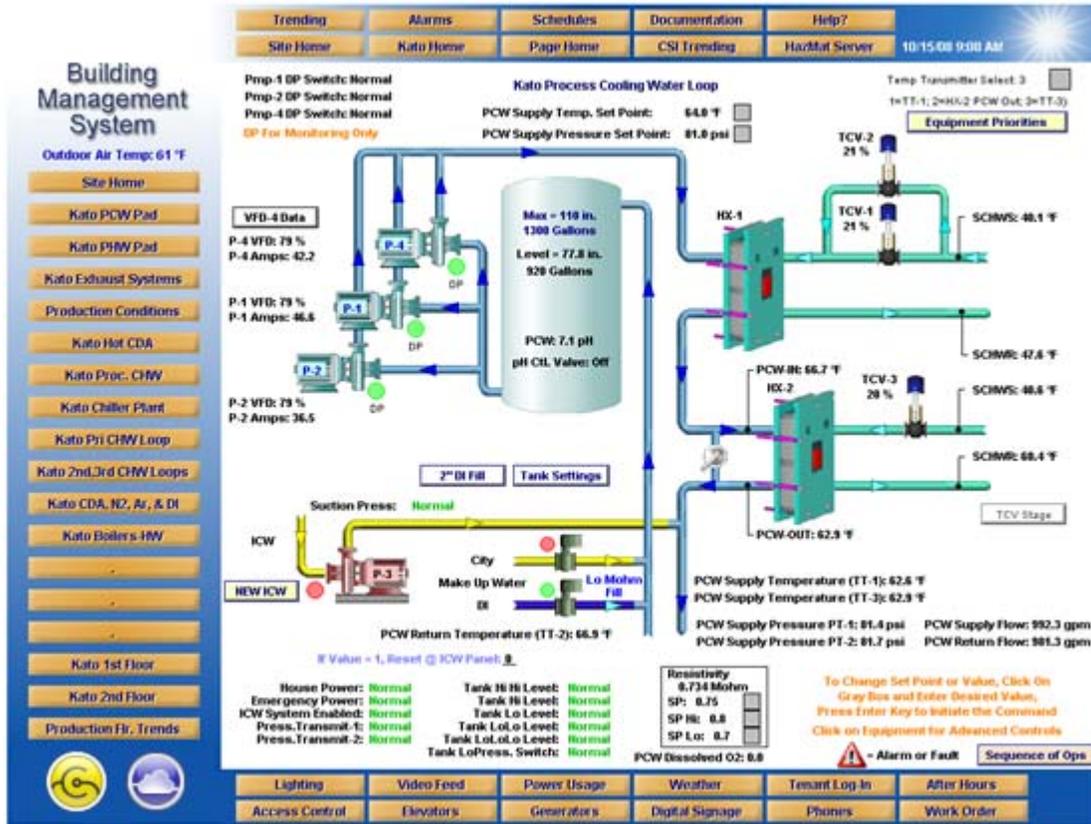
Many of the topics covered thus far were used to create this screen.

End of Exercise 4

In this exercise we covered some of Opendiem's advanced features such as images, layers, register values, properties, hotspots, screen navigation and custom data formatting.

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