OxPAGE DESIGN GUIDE

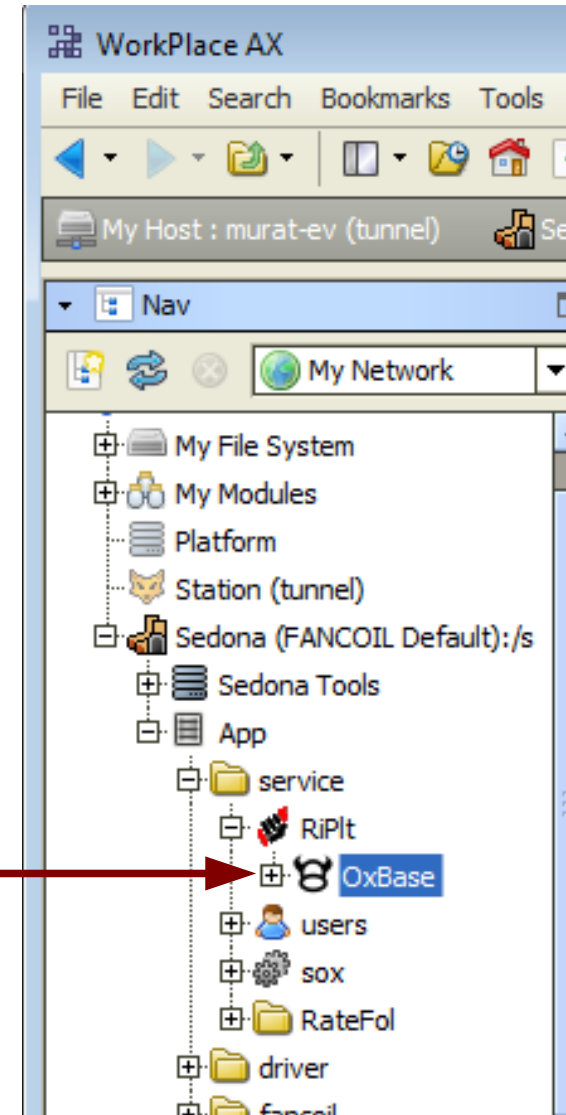Powered by sedona FRAMEWORK

Contents

OxBase component

OxBase is central to R-ION graphics functionality

OxBase must be present under platform service (and nowhere else)

OxBase Component

LCD Brightness
Brightness level, in percent, during normal use

LCD Sleep Brightness
Brightness level after a period has elapsed with no user interaction.

LCD Sleep Timeout
The period, in seconds, that the display will wait for a user interaction before activating the sleep brightness level.
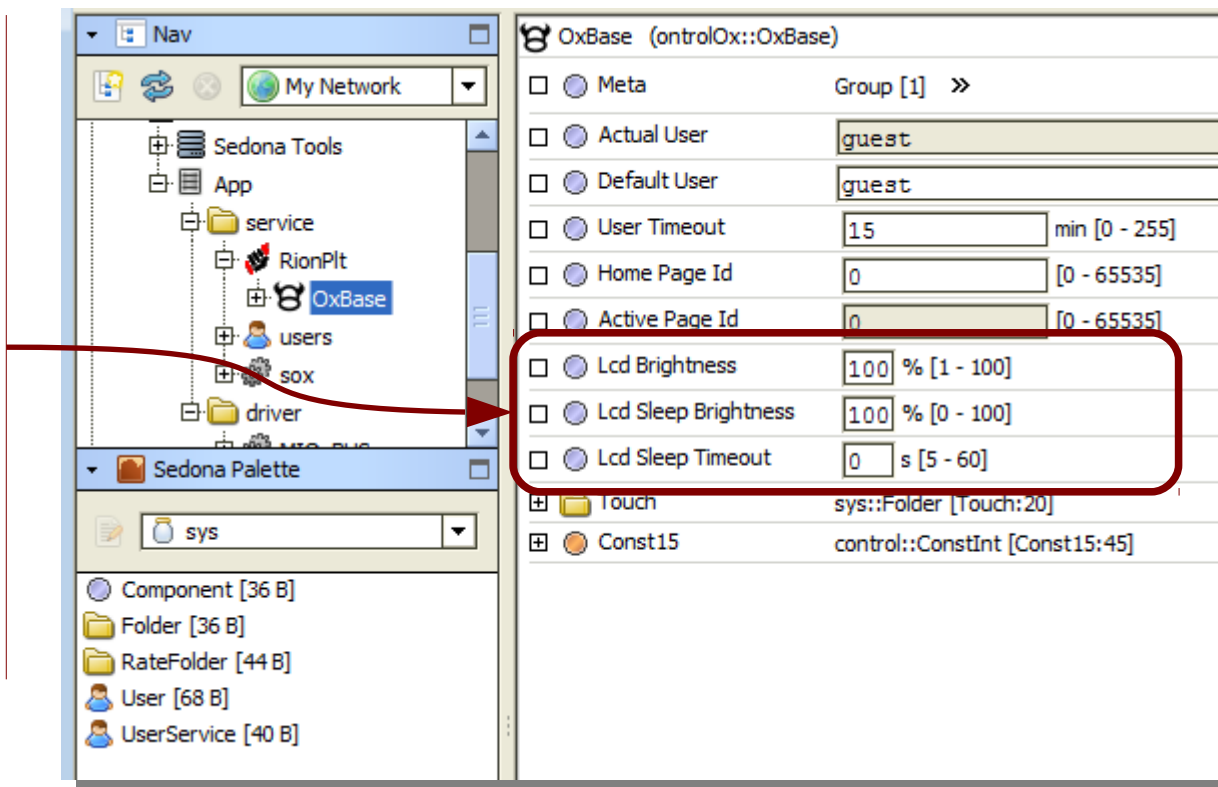
Note:
These settings may affect temperature measurement adversely.
Do not set a long timeout period, or a high sleep brightness level.
Recommended values:
Sleep brightness : 0%
Sleep timeout : 20 seconds

For security related settings (DefaultUser, UserTimeout), see page 29:
Password Protected Pages

Adding a new page

- In the Sedona Palette side bar, select ontrolOx palette from the dropdown box.

- Drag & Drop an OxPage component from the palette to any location in your App

- Double-click on the new OxPage to open the oxEditor view

OxEditor

drag&drop
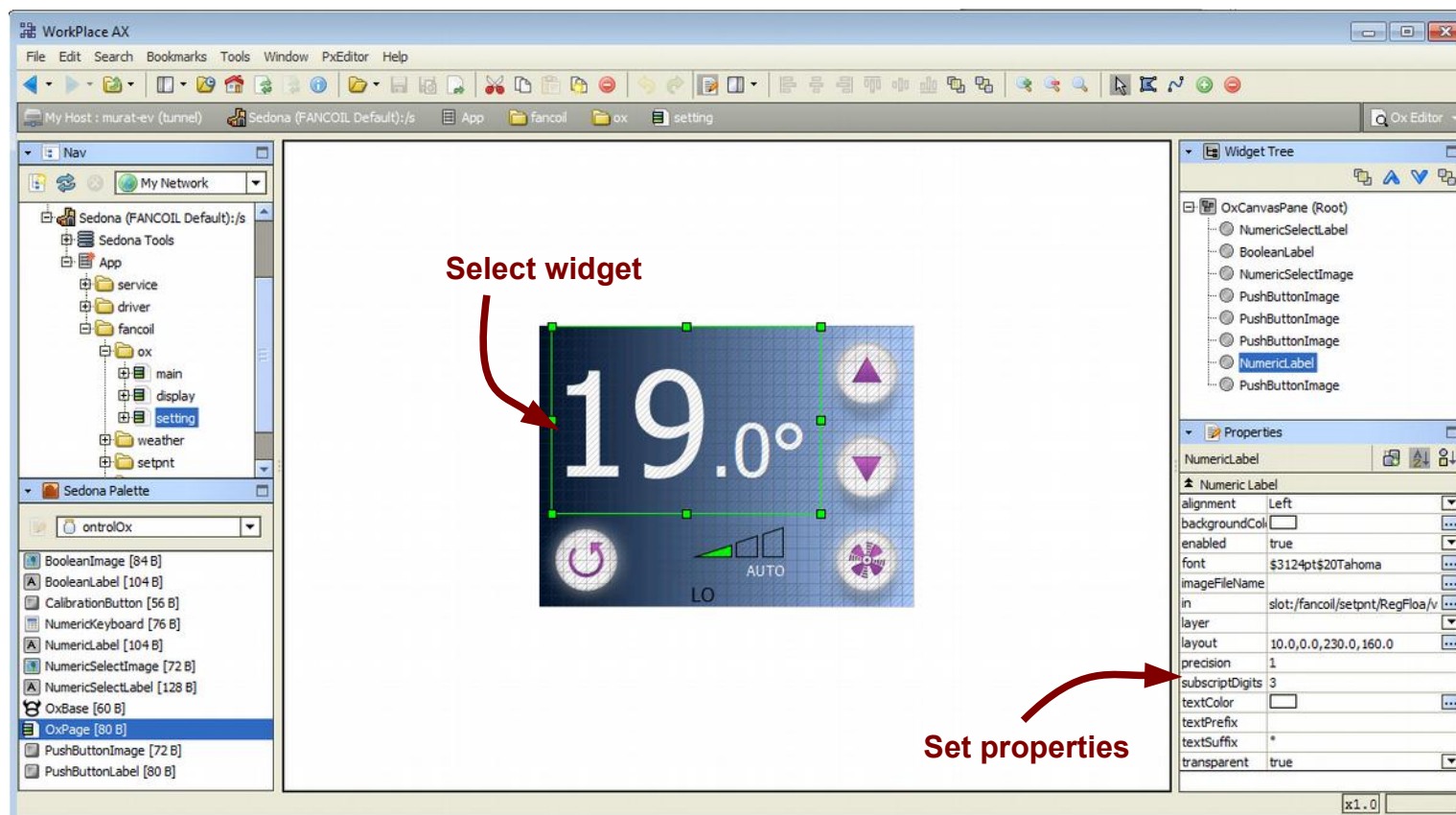
R-ION oxPage Design Guide
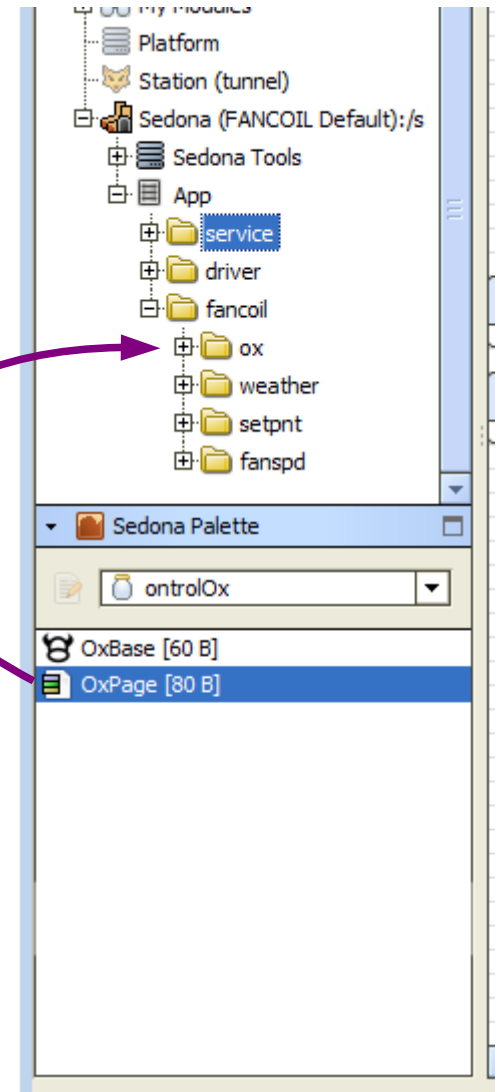
OxEditor

OxEditor view

Double-clicking on an OxPage component in the app tree opens the oxEditor view.

OxEditor view is used to edit RION graphics (oxPages).
Workflow is very similar to Niagara px graphics design, with some limitations.

If an image file is selected, it will be displayed as the page background.
Otherwise, the background is painted a fixed color as specified by the backgroundColor property.

Properties	
OxCanvasPane	
⬆ Ox Canvas Pane	
backgroundCol	
enabled	true
image	Bckgrnd-0.png
imageId	
layer	
layout	fill
maxImageId	1
touch	
touchTimeout	30
viewSize	320.0,240.0
visible	true

Dynamically changing the background image :

The background image can be dynamically changed depending on an integer value.

• The selected image file must be the first in a sequence and its name must end with a '0'

• An integer value from a component must be associated with the imageId property.

• An input value of 0 will cause the first image to be used (file name ending with '0')

• An input value of 1 will display the next image (file name ending with '1')...

• You must also set the maxImageId property

Setting the home page

Click the HOME button on top-right corner
of the Files pane of oxEditor view.
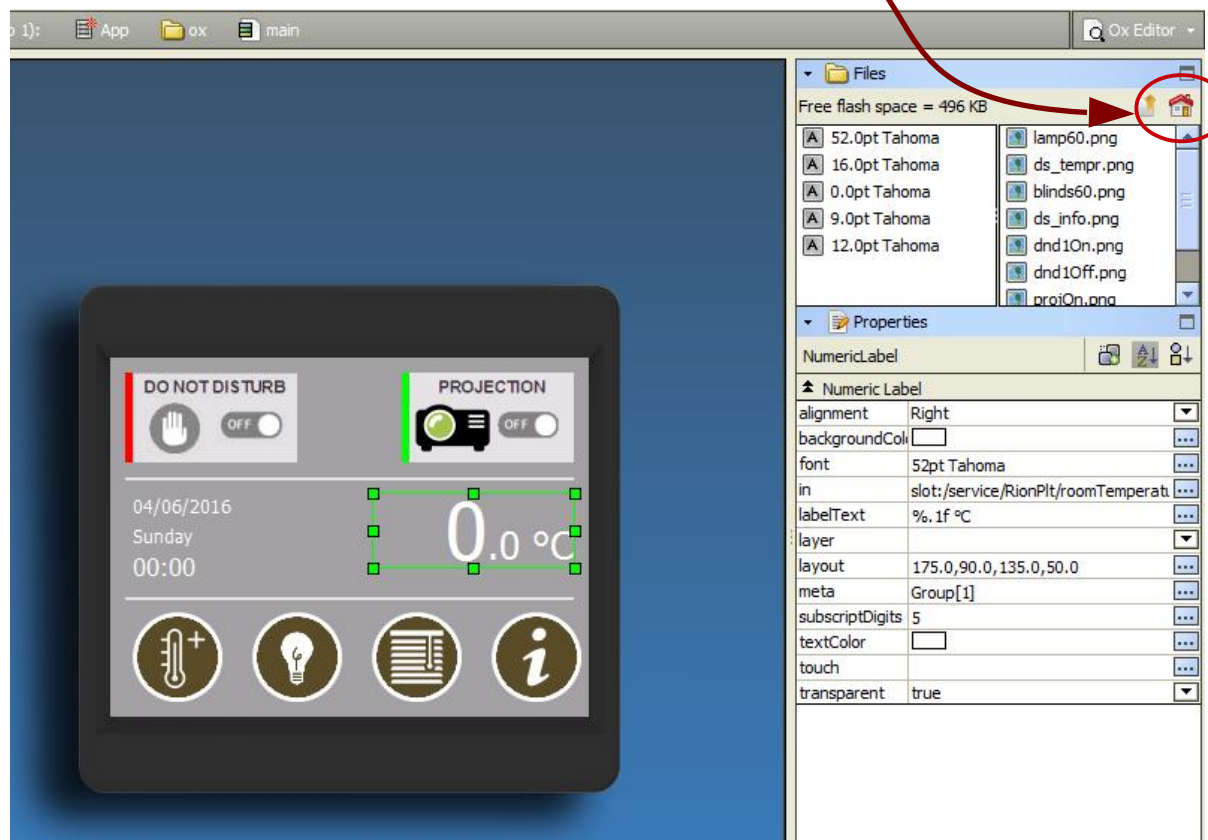
ADDING WIDGETS

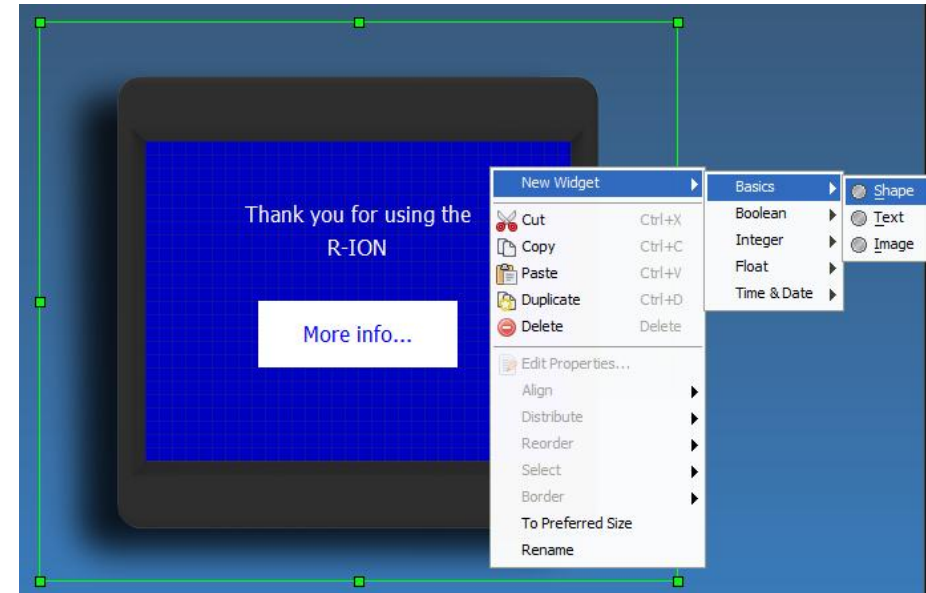- right-click on an empty area of the design window,

- click New Widget,

- select from the list of available widgets.

The available widgets are categorized according to the type of live values they can be associated with[1].

[1] If widgets are not categorized as seen on image, you are using a different version of module "OntrolSedonaUtil". Check from www.ontrol.com for the latest version.

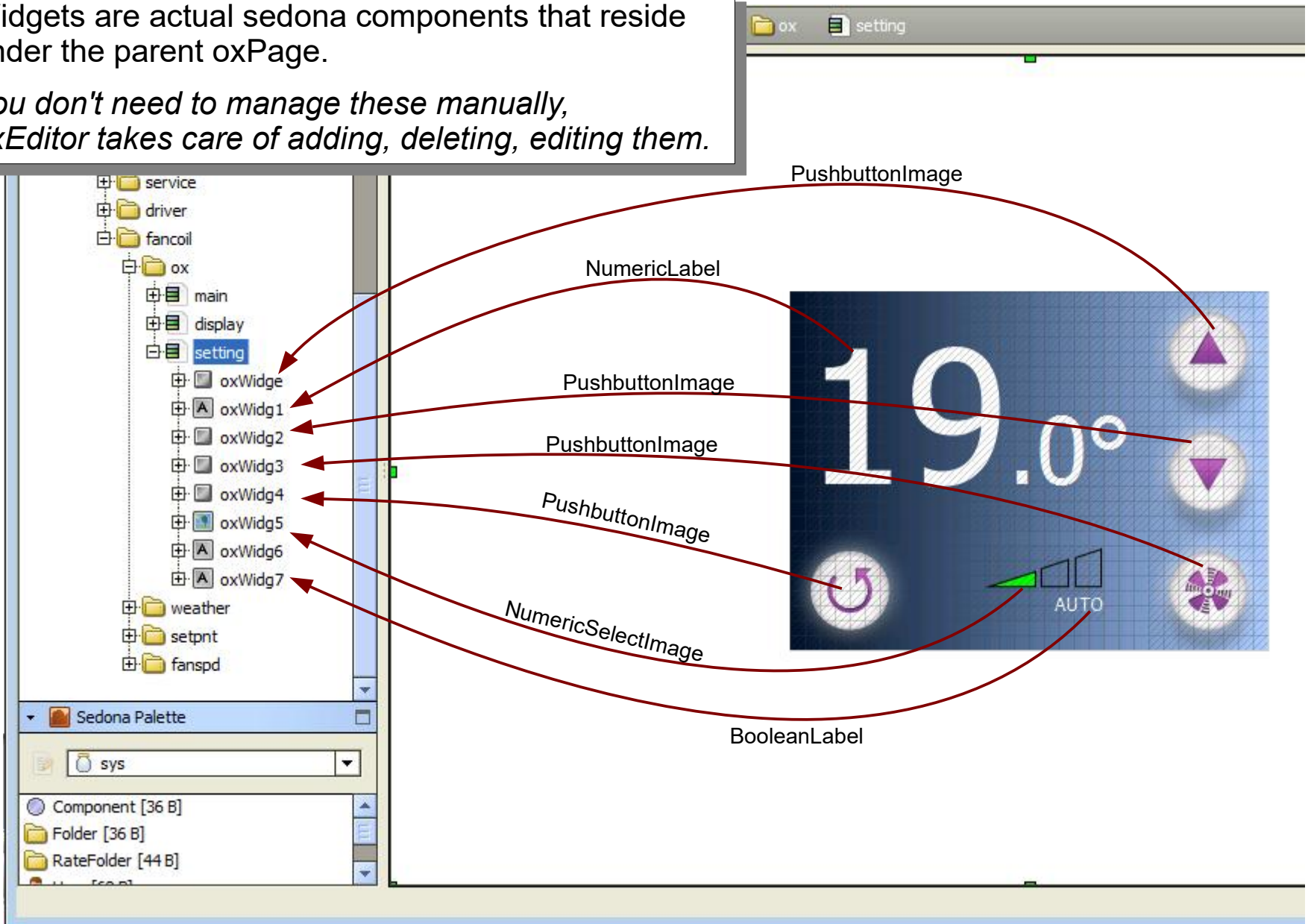**OxEditor**

OxWidgets (under the hood)

Widgets are actual sedona components that reside under the parent oxPage.

You don't need to manage these manually, oxEditor takes care of adding, deleting, editing them.

PushbuttonImage

NumericLabel

PushbuttonImage

PushbuttonImage

PushbuttonImage

NumericSelectImage

BooleanLabel

Ox Widgets

OxWidgets Common Properties

Many common properties are shared across multiple widget types.
These are shortly explained here.

Shape	Determines shape of widget (rectangle or ellipse)
Background Color	Used to select a color to paint the background of a widget. Only active when *transparent* property is set to False.
Transparent	Determines whether a solid background color will be painted for a widget.
Meta	Used to define security levels for password-protected page.
Visibility	Can be linked from a boolean out slot to dynamically hide/show the widget
Blink	Can be linked from a boolean out slot to make the widget blink
Touch	Can be linked to boolean in slot to trigger actions. Most commonly used with components from the ontrolTrigger kit. Usage is explained in detail in a separate document: *OxPage Touch Functions*

Ox Widgets

Common Properties related to display of text

Widgets that display text share the below properties.

Text	Text to display within the widget. On widgets that display a dynamic (live) value, this property allows the user to set: - a fixed prefix to be displayed before the live value - a fixed suffix to be displayed after the live value
Text Color	Choose the color of text.
Font	Select from list of available fonts. Only fonts & sizes in the *sedona/ontrol/fontBank* folder are listed.
Alignment	Alignment of text within the bounds of the widget (left, right or center)
Subscript Digits	The number of characters from the right to display at half size.

Example:
Using the *SubscriptDigits* property
on a temperature display

Ox Widgets

NEW WIDGET MENU

Basics	**>**	**Shape**
		Text
		Image
Boolean	>	Label
		Image
Integer	>	Value Display & Set
		Text Select
		Image Select
Float	>	Value Display
		Value Display & Set
Time & Date	>	Time
		Date
		Schedule

Shape   Draw a simple filled rectangle or ellipse
Text   Display a simple fixed label
Image   Display a fixed image

TIP
Shape can be used to create a transparent touch area when button images are part of the background image.

Ox Widgets

NEW WIDGET MENU

Basics	**>**	**Shape**
		Text
		Image
Boolean	**>**	**Label**
		Image
Integer	**>**	**Value Display & Set**
		Text Select
		Image Select
Float	**>**	**Value Display**
		Value Display & Set
Time & Date	**>**	**Time**
		Date
		Schedule

Boolean Label : Display one of two texts depending on the value of a linked boolean slot.

Boolean Image : Display one of two images depending on the value of a linked boolean slot.

TIPS
Boolean Label allows also changing background color and text color according to the boolean value.

NEW WIDGET MENU

Basics	**>**	**Shape**
		Text
		Image
Boolean	**>**	**Label**
		Image
Integer	**>**	**Value Display & Set**
		Text Select
		Image Select
Float	**>**	**Value Display**
		Value Display & Set
Time & Date	**>**	**Time**
		Date
		Schedule

Text Select : Displays one of a range of fixed texts, depending on the value of a linked integer slot.

Some examples:
- Slow / Medium / Fast
- Hand / Off / Auto

Selection is zero based.
A value of 0 will cause the first text to be displayed.
A value of 1 will display the next text...

Example: Use of ImageSelect widget for displaying fan speed

Image Select : Displays one of a range of fixed images, depending on the value of a linked integer slot.

Note for the *image* property
The selected image must be the first in a sequence and its name must end with a '0' (e.g. *fan0.png*)

Selection is zero based:
- An input value of 0 will cause the first image to be displayed (file name ending with '0')
- An input value of 1 will display the next image (file name ending with '1')...

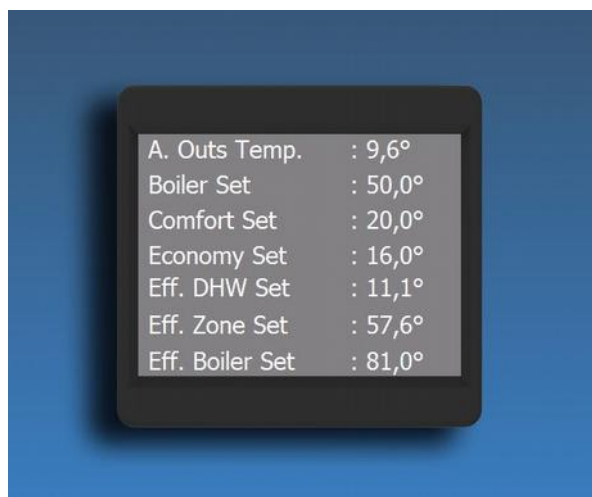You must also set the maxIndex property

Ox Widgets

NEW WIDGET MENU

Basics	>	Shape
		Text
		Image
Boolean	>	Label
		Image
Integer	>	Value Display & Set
		Text Select
		Image Select
Float	>	Value Display
		Value Display & Set
Time & Date	>	Time
		Date
		Schedule

A. Outs Temp.	: 9,6°
Boiler Set	: 50,0°
Comfort Set	: 20,0°
Economy Set	: 16,0°
Eff. DHW Set	: 11,1°
Eff. Zone Set	: 57,6°
Eff. Boiler Set	: 81,0°

Value Display : Display a numeric value

Precision: you can set the number of digits to display after the decimal point.
This is not a separate property, but a feature when setting the labelText:
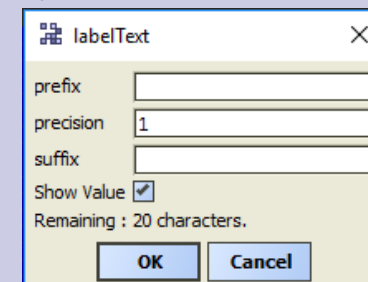
You can also define
- a fixed prefix
- a fixed suffix

labelText

prefix	
precision	1
suffix	

Show Value ☑
Remaining : 20 characters.

OK   Cancel

Value Tab Position : This property is extremely useful If you are configuring table-like displays.

If set to a non-zero value,
- The prefix will be displayed first (left-aligned)
- a semicolon (':') character will be painted at the position you specify
- the linked live value will be displayed after the semicolon

This enables multiline label-value paired displays with both values and labels aligned.

NEW WIDGET MENU

Basics	**>**	**Shape**
		Text
		Image
Boolean	**>**	**Label**
		Image
Integer	**>**	**Value Display & Set**
		Text Select
		Image Select
Float	**>**	**Value Display**
		Value Display & Set
Time & Date	**>**	**Time**
		Date
		Schedule

Value Display & Set : Display a numeric value with the ability to change it using a numeric keypad.

This widget is similar to the Float>ValueDisplay widget (see previous page). It displays a numeric value, but also presents a numeric keypad when the widget is touched to enable changing the value

Unlike other widgets, this can be used with both float and integer types. Two input slots are provided to enable that:
- 'in' slot is for float values
- 'inInt' slot is for integer values
Make sure you use one of these, not both.

minmax
Limits user adjutments to a predefined range.

NEW WIDGET MENU

Basics   >   Shape
                    Text
                    Image

Boolean   >   Label
                    Image

Integer   >   Value Display & Set
                    Text Select
                    Image Select

Float   >   Value Display
                    Value Display & Set

Time & Date   >   Time
                    Date
                    Schedule

Time : Displays a time value in the format hh:mm. The input is interpreted as minutes-afer-midnight.

Date : Displays system date in the formast dd/mm/yyyy as obtained from the dateTimeService active in the app.

AllowEdit
Both widgets have an *allowEdit* property. If set to true, the widgets will pop-up an editing window to set the associated time/date.

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Ox Widgets

NEW WIDGET MENU

Basics   **> Shape**
                 Text
                 Image

Boolean   **> Label**
                 Image

Integer   **> Value Display & Set**
                 Text Select
                 Image Select

Float   **> Value Display**
                 Value Display & Set

Time & Date > Time
                 Date
                 Schedule

Schedule

This widget provides a multiple-page fixed UI to display and edit weekly time schedules

The widget's 'in' property must be associated with the 'out' property of a schedule component from the ontrolScheduleKit.

It normally displays the current status (on/off) of the associated time schedule.

TrueImageFileName / FalseImageFileName
If these properties are set, the display will use these two images to show time schedule status. Text releated properties will be ignored.
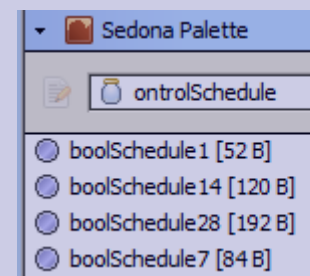
When touched, a custom UI will be displayed to edit the time schedule. Existing periods may be modified or deleted, new periods can be added.
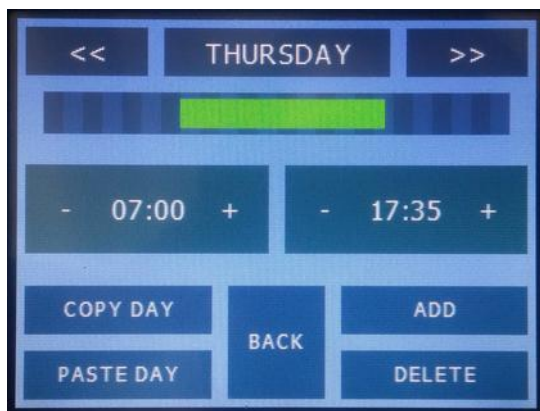
This widget is typically used with a RegFloat component (in ontrolControl kit) to display and modify non-volatile register values.

OPERATION

- This widget will display the value of the RegFloat.

- When touched, a full screen numeric keypad will cover the oxPage and a new value can be entered by the user.

- If the user enters a new value and touches ENT, the new value is saved and the display reverts back to the original oxPage.

- If the user touches ESC, the old value is not changed.

BINDINGS

The bindings between this widget and a RegFloat component should be made as follows:

- In property of the widget <<< value slot of the RegFloat

- out property of the widget >>> the in slot of the RegFloat

Default numeric value editing view

OBSOLETE

OxPage design and editing workflow is very similar to standard Niagara px pages. There are, however, some crucial differences that you need to understand.

- Data binding

- Font handling

- Image handling

- Layering

- File transfers

- Buttons

These are explained in the following pages, except buttons, which are subject to a separate document.

Data Binding

Binding widgets to live data values

The 'in' slot of an oxWidget enables it to receive live data values from another sedona component.

The oxEditor provides a user-friendly way to link this 'in' slot to another sedona component.

Just click on the 'in' property of a widget, and you can select the source slot freely from the component tree of your App.

The linking will be automatically done for you.

2 Click 'open' button

Click 'in' property

1

**3 Select slot from component tree**

Using fonts

RION uses special native font files, which are typically transferred to the device during page design.

When you click on a oxWidget's <u>font</u> property, you will be presented with a list of fonts available on your system.

fontBank folder
Available RION font files are stored in a special folder:
{Niagara Installation}/sedona/ontrol/fontBank
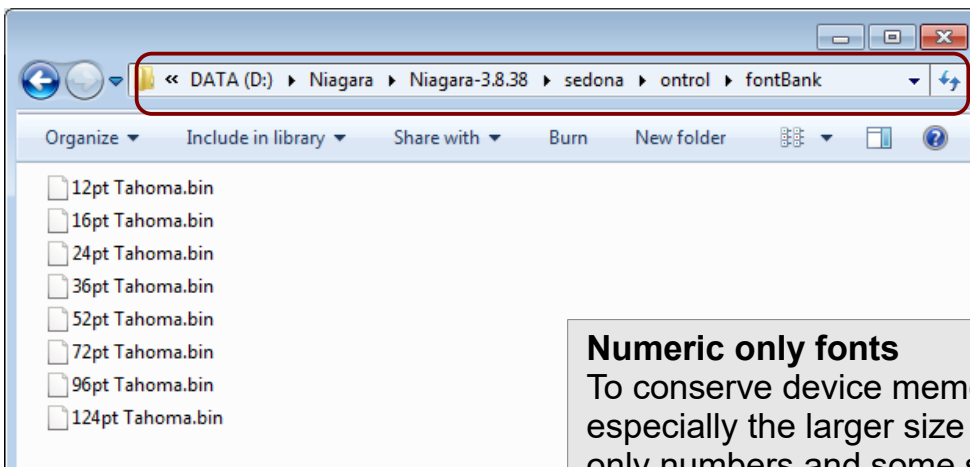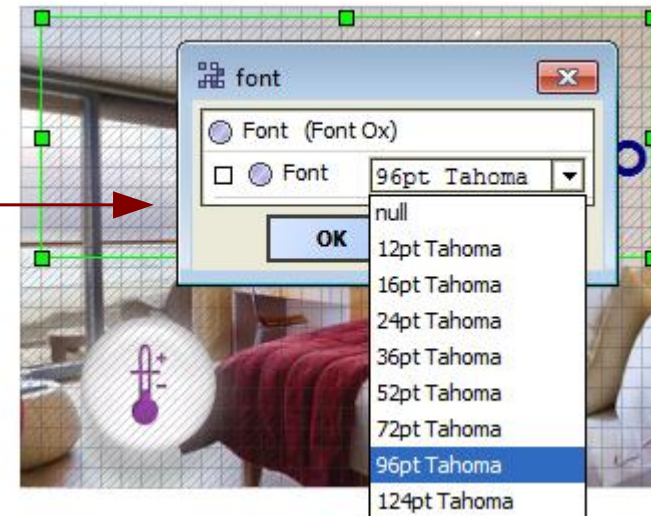
Numeric only fonts
To conserve device memory, some font files, especially the larger size fonts, may contain only numbers and some symbols, but no letters. When you attempt use these fonts to display text, letters will not display properly.

Fonts

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- You can use GIF, JPG or PNG images

- Your image must be in the imageBank folder
  {Niagara Installation}/sedona/ontrol/imageBank

- The name must be at most 12 characters long

2 Click 'open' button

1 Click 'image' property

3 Select file from imageBank folder

Images

Color Depth

When you save an OxPage, the images are converted to a native format before being transferred to the device. This may cause a reduction in color depth.
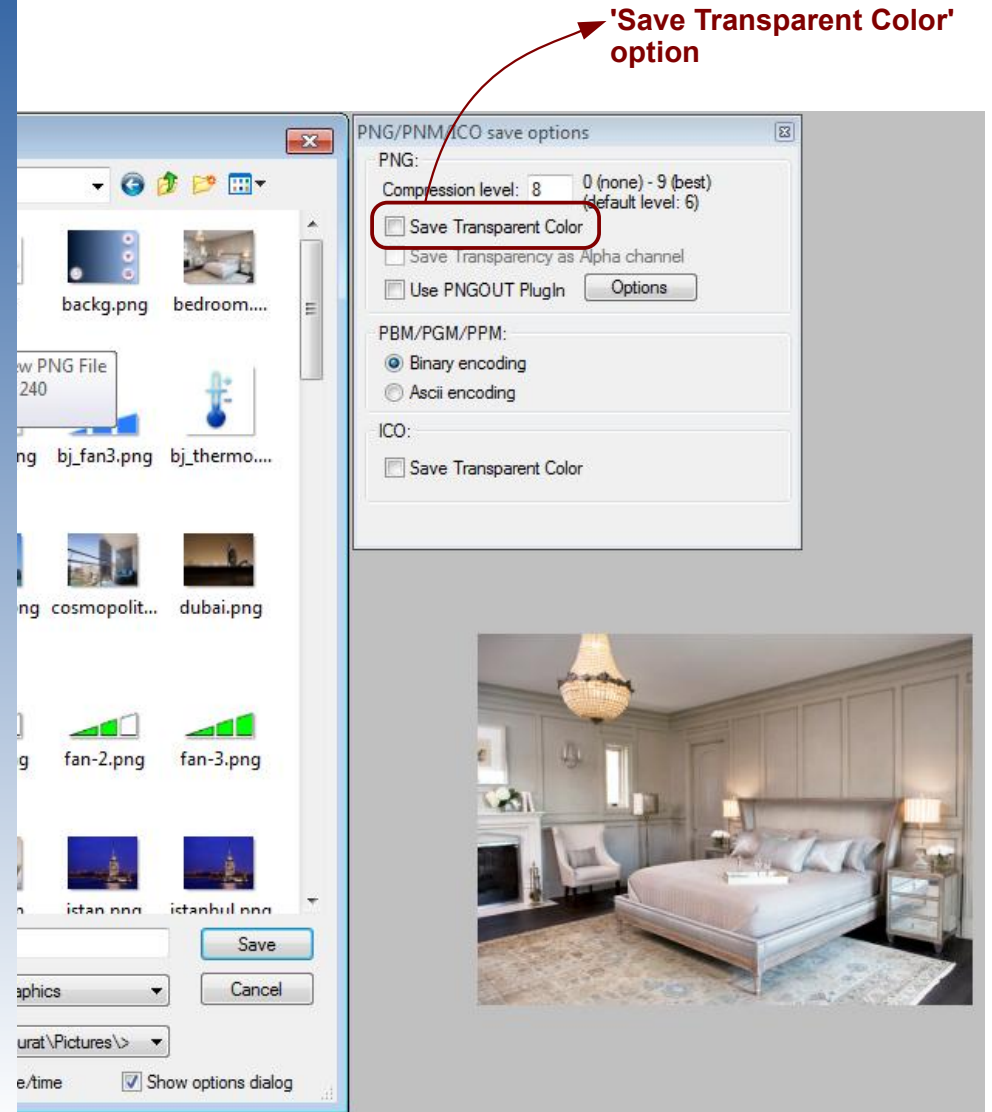
(The native format supports 65535 colors)

Transparency

When images containing transparency information is converted to native format for saving to device, they will result in considerably larger files.

Many image editing programs will let you choose whether you want to include transparency when saving an image. If you know you don't need transparency, make sure you save your image without transparency info.

Example on right from "IrfanView" software

'Save Transparent Color' option

PNG/PNM/ICO save options

PNG:
Compression level: 8   0 (none) - 9 (best)
(default level: 6)
☐ Save Transparent Color
☐ Save Transparency as Alpha channel
☐ Use PNGOUT PlugIn   Options

PBM/PGM/PPM:
◉ Binary encoding
◯ Ascii encoding

ICO:
☐ Save Transparent Color

backg.png   bedroom....

bj_fan3.png   bj_thermo....

cosmopolit...   dubai.png

fan-2.png   fan-3.png

istan.png   istanbul.png

Save

Cancel

Show options dialog

There is no layering !

You should never place overlapping widgets on an oxPage. There is no logical way to guarantee in which order the widgets are painted. Even if your page view looks right, it might well change after the next save or after an update. So,

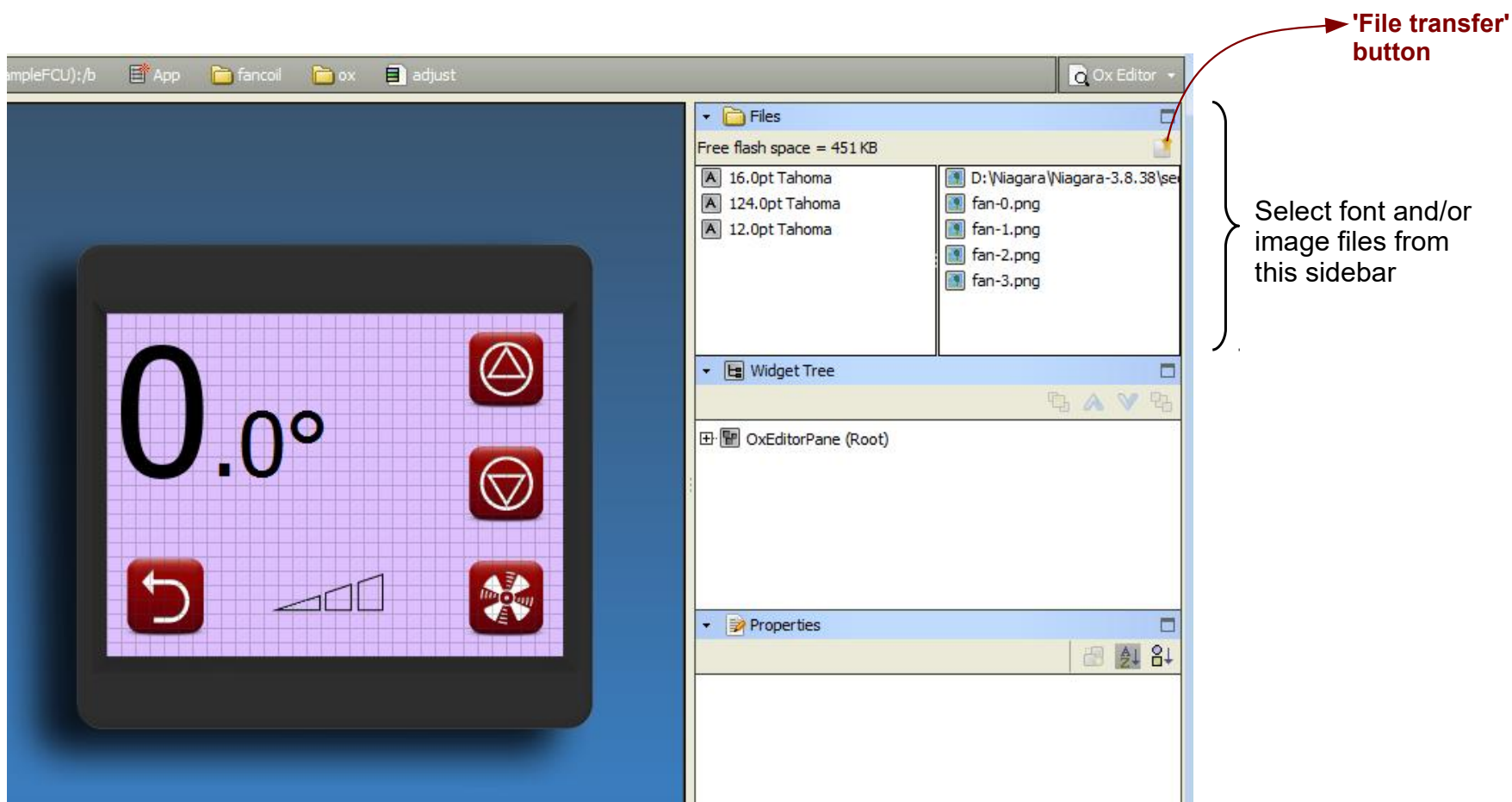***** AVOID OVERLAPPING WIDGETS *****

Layering

File Transfers

Your oxPages will be using a number of font and image files. These need to be transferred to the device to be displayed on the touch-screen.

Use the Files sidebar to select and transfer files to the device.
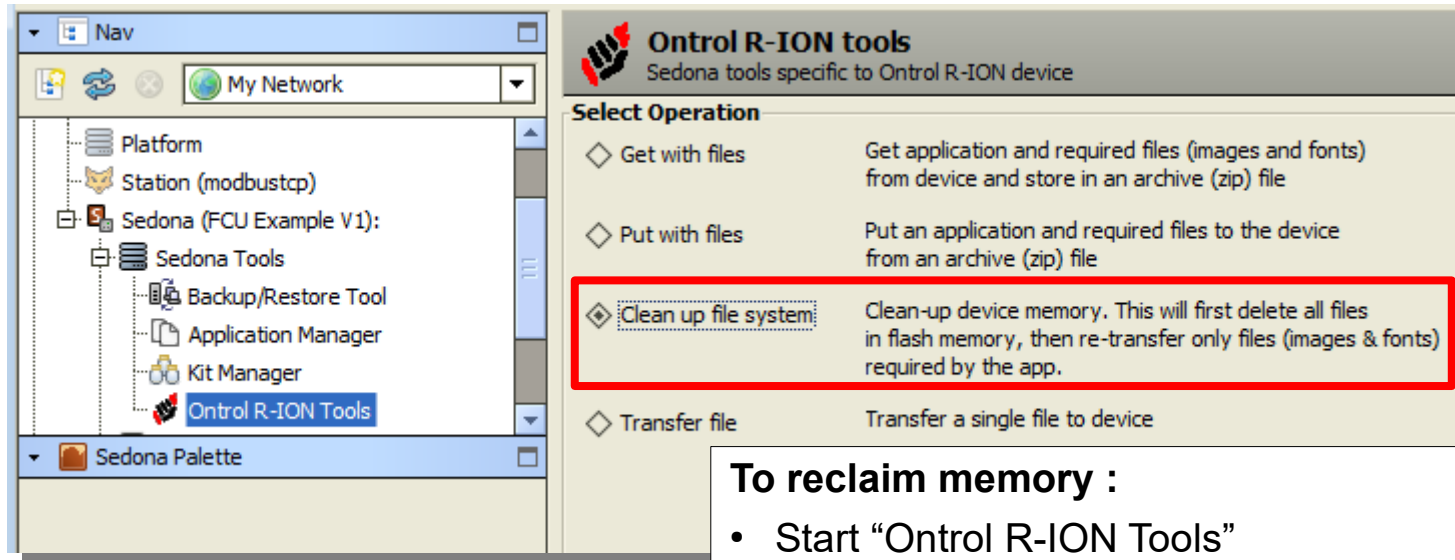
'File transfer' button

Select font and/or image files from this sidebar

IMPORTANT MEMORY WARNING

As you work on your oxPage designs, you will have transferred many images and fonts to the device, some of which are probably not being used. (You tried something, changed your mind, tried another image...)

Since the oxEditor doesn't delete any existing files from the device, you might run into a memory issue at some point.

File transfers

Ontrol R-ION tools
Sedona tools specific to Ontrol R-ION device

Select Operation

◇ Get with files — Get application and required files (images and fonts) from device and store in an archive (zip) file

◇ Put with files — Put an application and required files to the device from an archive (zip) file

◉ Clean up file system — Clean-up device memory. This will first delete all files in flash memory, then re-transfer only files (images & fonts) required by the app.

◇ Transfer file — Transfer a single file to device

To reclaim memory :

• Start "Ontrol R-ION Tools"

• Select "Clean up file system" option

• Click "Finish" on the next screen

This will first clear all files from device memory, then transfer only the required ones, thus reclaiming space.

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Protected pages

Ox pages and widgets can be categorized and password protected.

The security scheme makes use of the standard Sedona UserService permissions.

To setup password-protected pages:

1) Double-click on the 'users' service and:
   - add additional user(s) with unique[1] numeric[2] passwords.
   - set read/write group privileges for these new users[3]

2) In OxEditor, set the 'meta' property of widgets (typically buttons) to limit access to certain groups.

When a user clicks (touches) a security-limited button, he/she will be presented with a numeric keypad to enter the password. The hyperlink will work only if the entered password matches a user with access permissions for the set category.
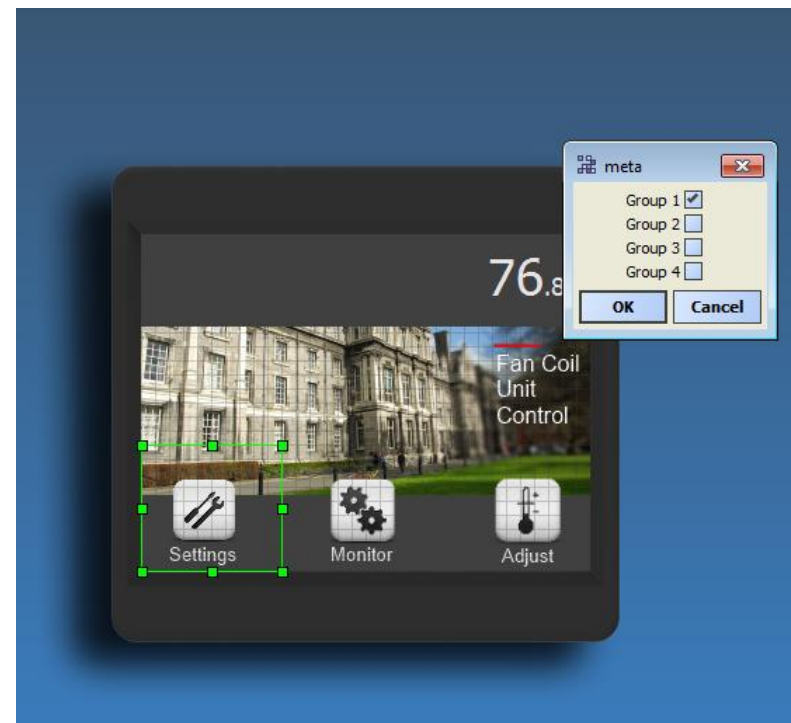
[1] The password for each user needs to be unique. Do not use the same password for more than one user.
[2] The passwords need to be numeric. Do not use letters. Only digits are allowed.
[3] All widgets, components and pages are member of Group1 by default, unless specifically modified.