



OxPAGE DESIGN GUIDE

for the ORION



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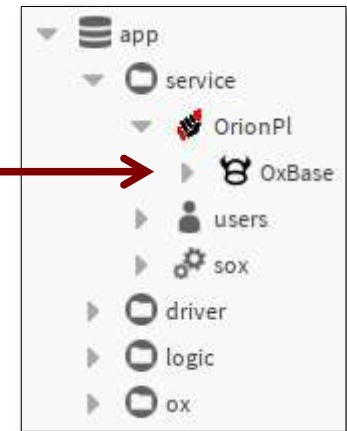




OxBase component

OxBase is central to ORION graphics functionality

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



**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

Property Sheet	
OxBase (ontrolOx::OxBase)	
meta	Group [1] >>
actualUser	guest
defaultUser	guest
userTimeout	5 min
homePageId	11
activePageId	11
lcdBrightness	100 % [1 - 100]
lcdSleepBrightness	0 % [min - 100]
lcdSleepTimeout	20 s [5 - 60]
beepResponse	On
lcdState	Sleep

For security related settings
(DefaultUser, UserTimeout),
see page 22:

[Password Protected Pages](#)

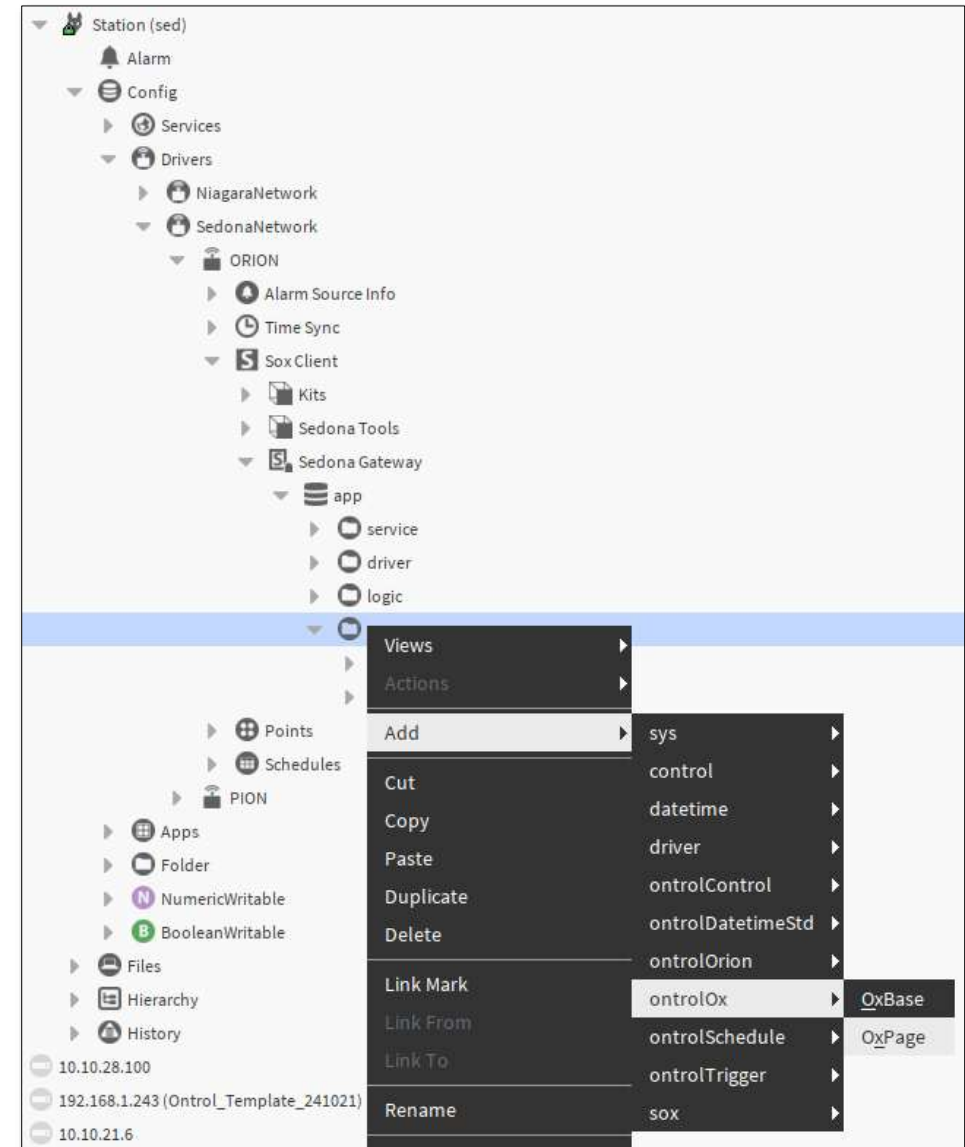


Adding a new page

Right-click on any folder and select:

Add > ontrolOx > OxPage

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



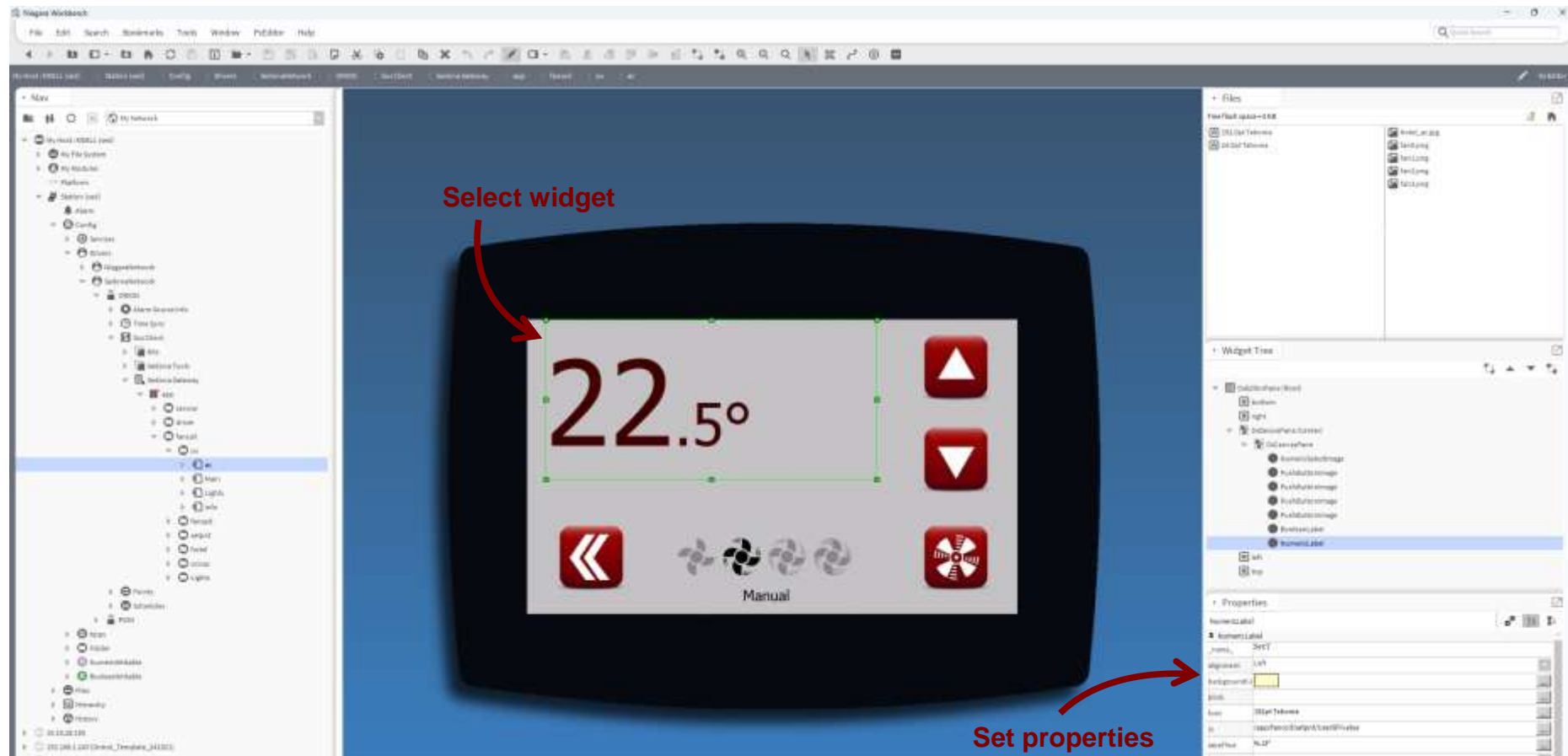


OxEditor view

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

OxEditor view is used to edit ORION graphics (oxPages).

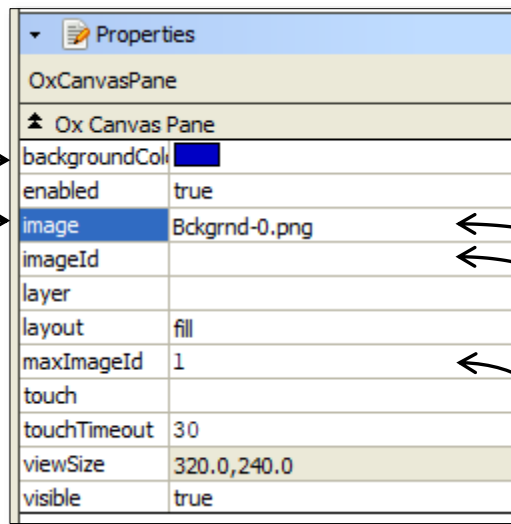
Workflow is very similar to Niagara px graphics design, with some limitations.





OxPage Background color / image

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.



Dynamically changing the background image :

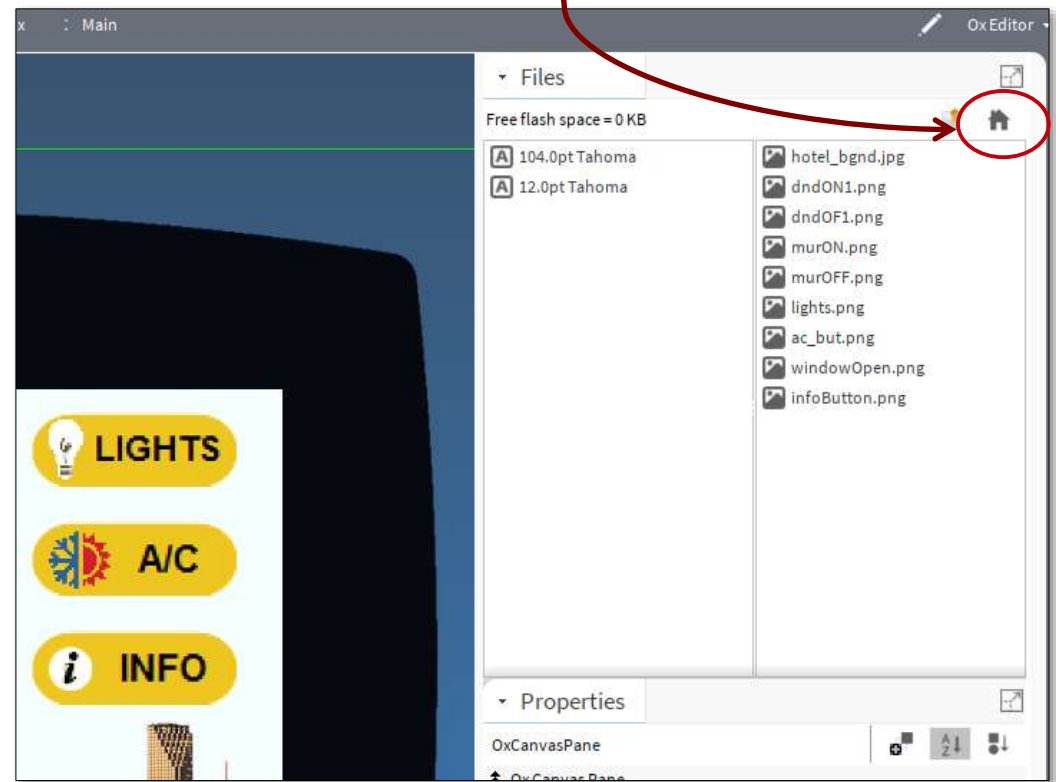
The background image can be dynamically changed depending on an integer value.

- 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.

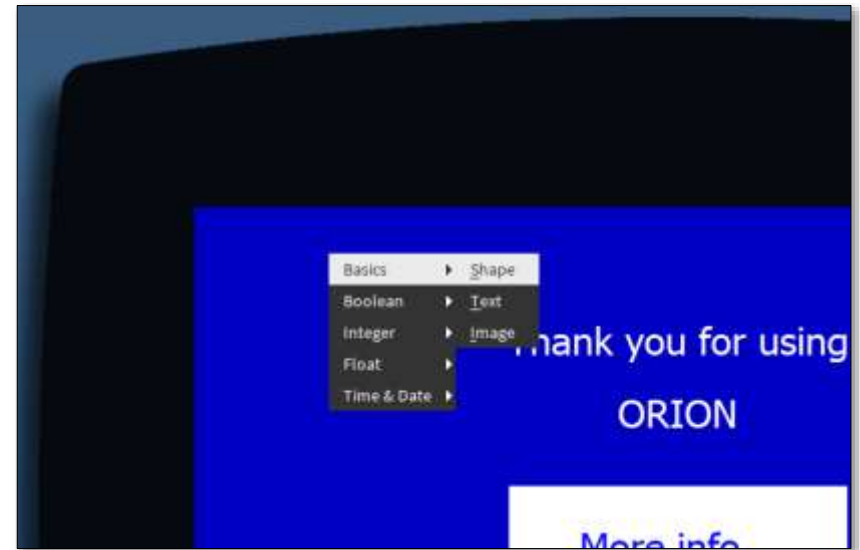




ADDING WIDGETS

- Right-click on an empty area of the design window,
- Select from the list of available widgets.

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





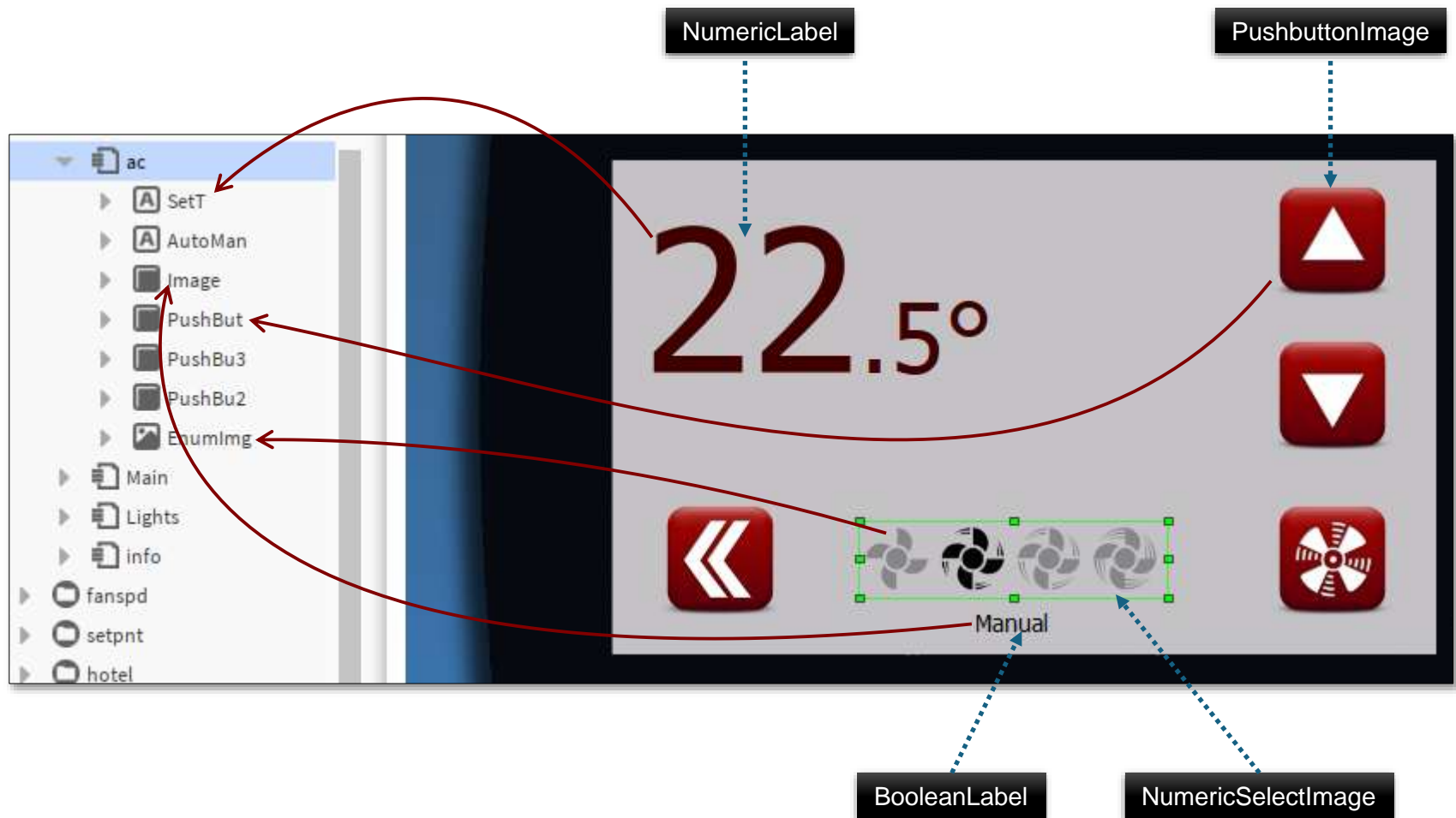
OxWidgets (under the hood)



Ox Widgets
(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.



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 <i>transparent</i> 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 dynamically 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: <i>OxPage Touch Functions</i>



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: <ul style="list-style-type: none">- 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 <i>sedona/ontrol/fontBank</i> 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.



Using the *SubscriptDigits* property on a temperature display



NEW WIDGET MENU

Basics	> Shape Text Image	Shape Text Image	Draw a simple filled rectangle or ellipse Display a simple fixed label Display a fixed image
Boolean	> Label Image		
Integer	> Value Display & Set Text Select Image Select		
Float	> Value Display Value Display & Set		
Time & Date	> Time Date Schedule		

TIP

Shape can be used to create a transparent touch area when button images are built into the background image.



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



Example: Use of ImageSelect widget for displaying fan speed

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...

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



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 : 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:

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 adjustments to a predefined range.



NEW WIDGET MENU

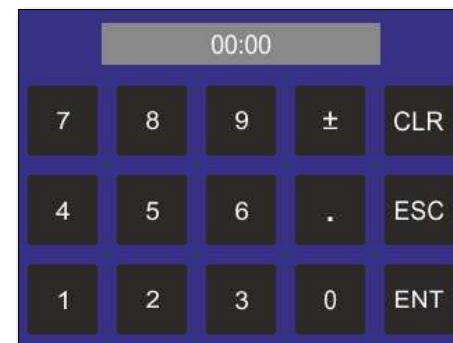
- Basics
 - > Shape
 - Text
 - Image
- Boolean
 - > Label
 - Image
- Integer
 - > Value Display & Set
 - Text Select
 - Image Select
- Float
 - > Value Display
 - Value Display & Set
- Time & Date
 - > Time
 - Date
 - Schedule

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

Date : Displays system date in the format 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.





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 related 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.



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.



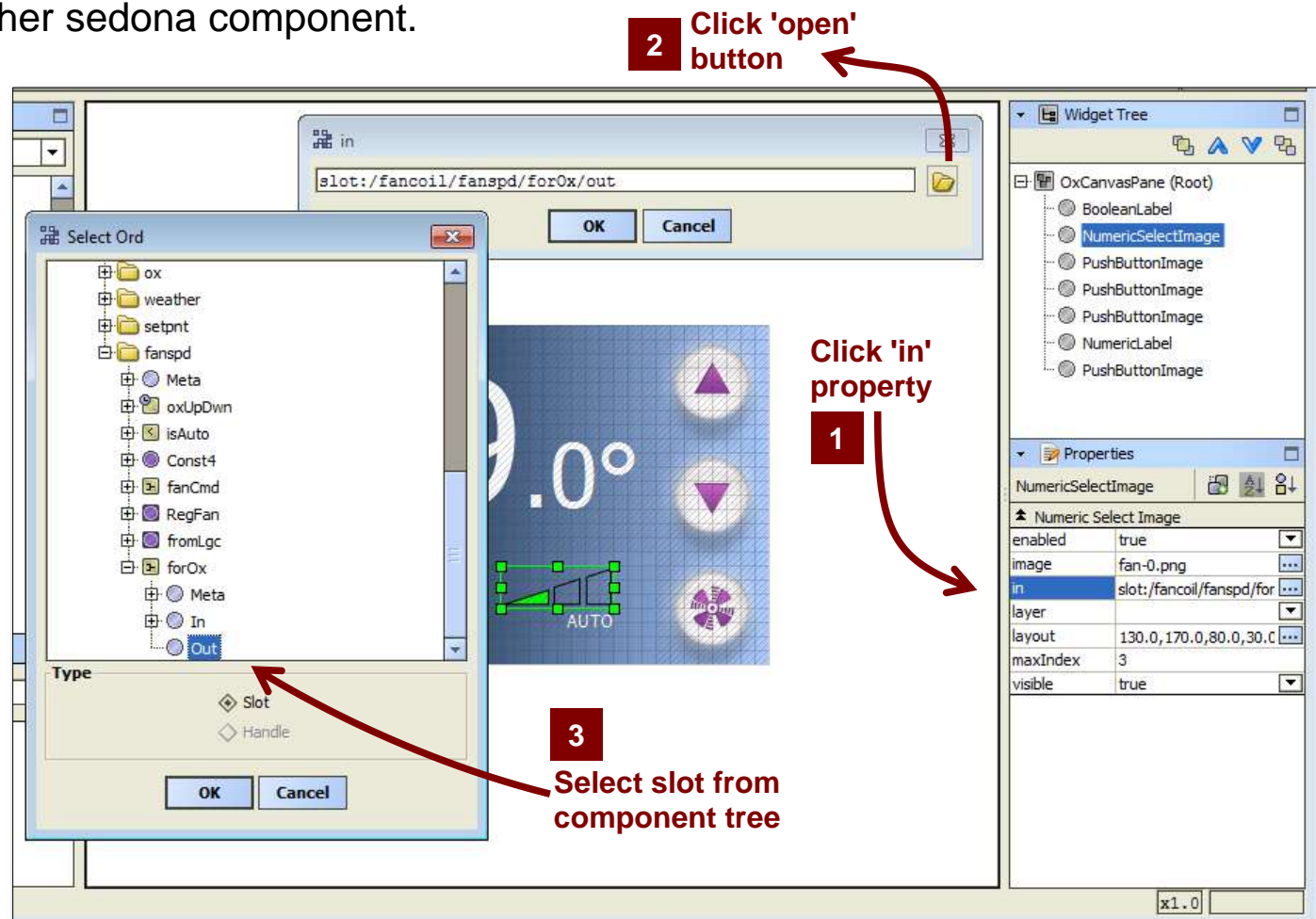
Binding widgets to live data values

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

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 select the source slot from the component tree.

The linking will be automatically done for you.



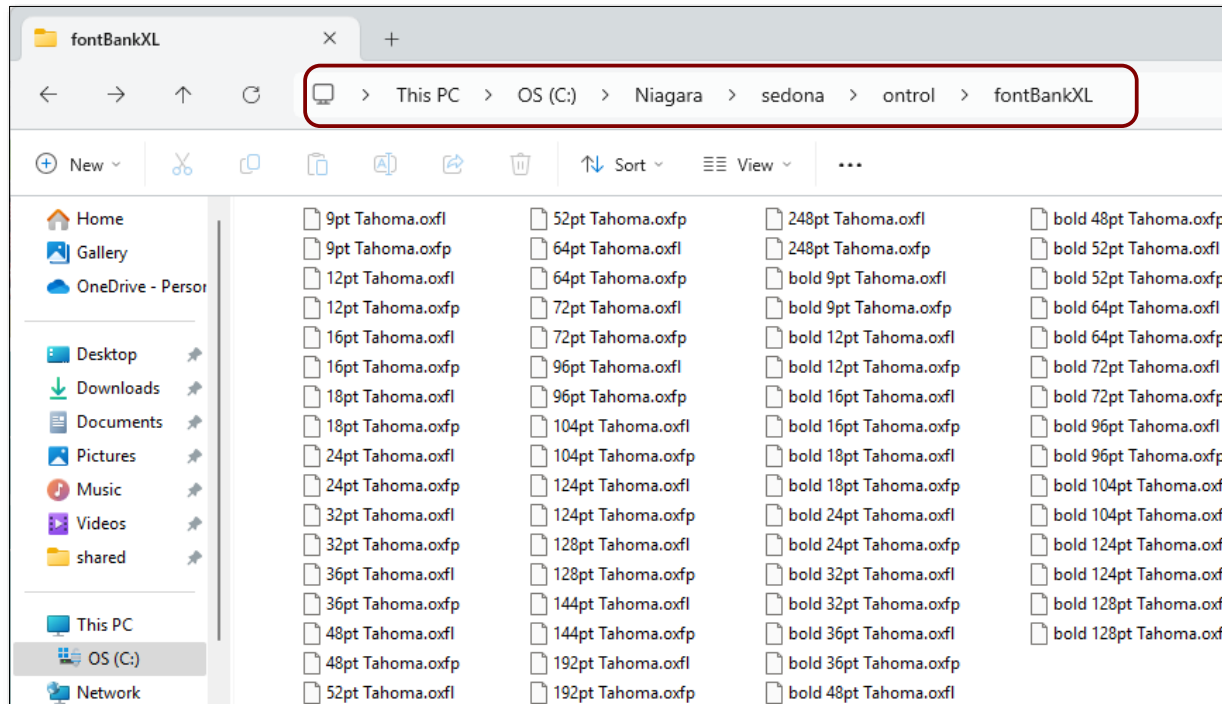
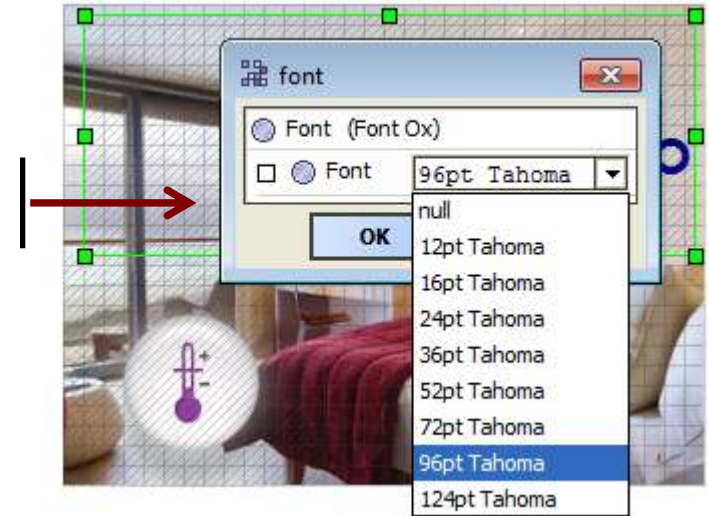


ORION uses special native font files, which are typically transferred to the device during page design.

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

fontBank folder

Available ORION font files are stored in a special folder:
{Niagara Home}/sedona/ontrol/fontBankXL



Numeric only fonts

To conserve device memory, 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.

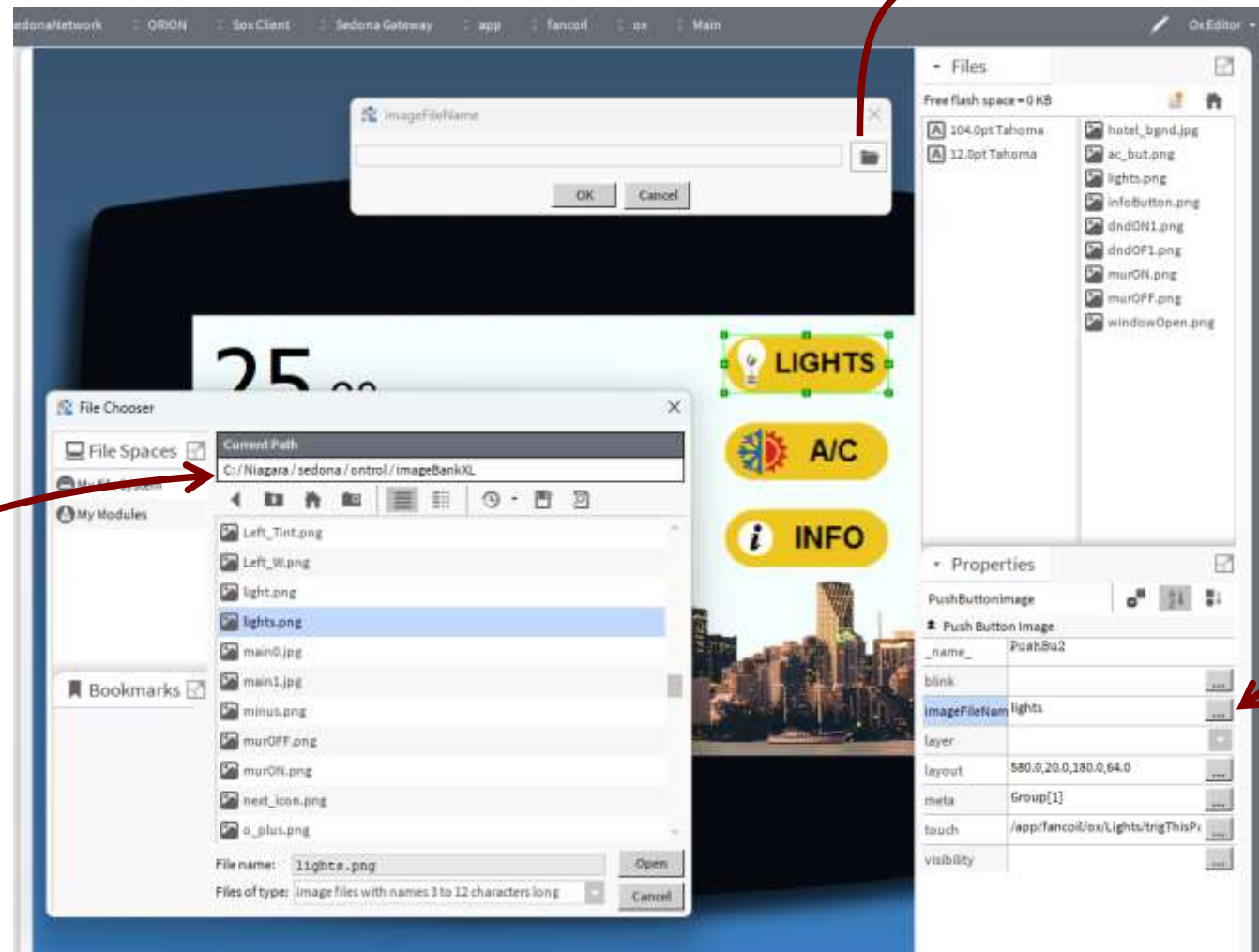


Using images

- You can use GIF, JPG or PNG images
- Your image must be in the imageBank folder {Niagara Home}/sedona/ontrol/imageBankXL
- The name must be at most 12 characters long

Images

3 Select file from imageBankXL folder



2 Click 'open' button

1 Click 'image' property



Native image format

Background images (800 x 480 px) are transferred to the device as compressed jpg files.

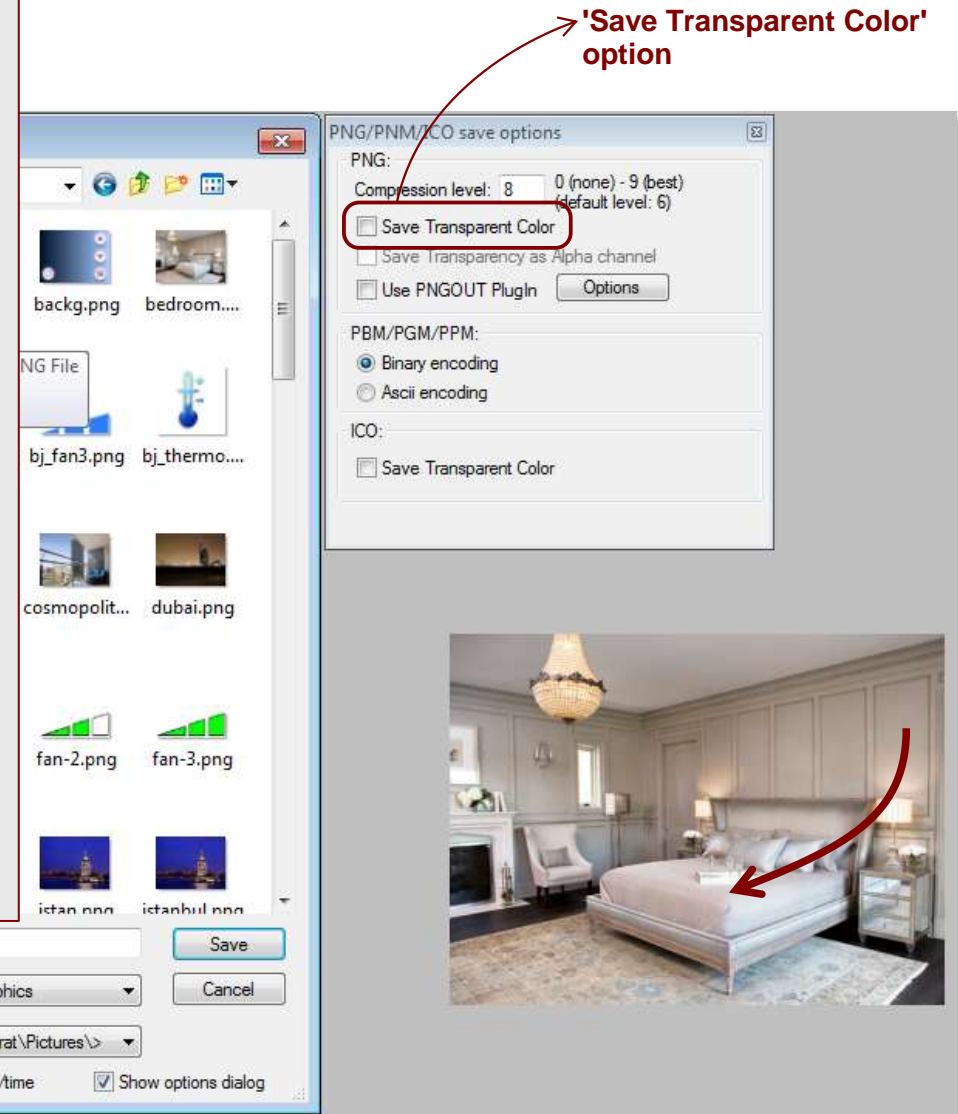
All other images (widgets) are converted to a native format which results in considerably larger files.

Transparency

When images containing transparency information is converted to the native format, they will result in 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





Avoid
overlapping
widgets !

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 *****



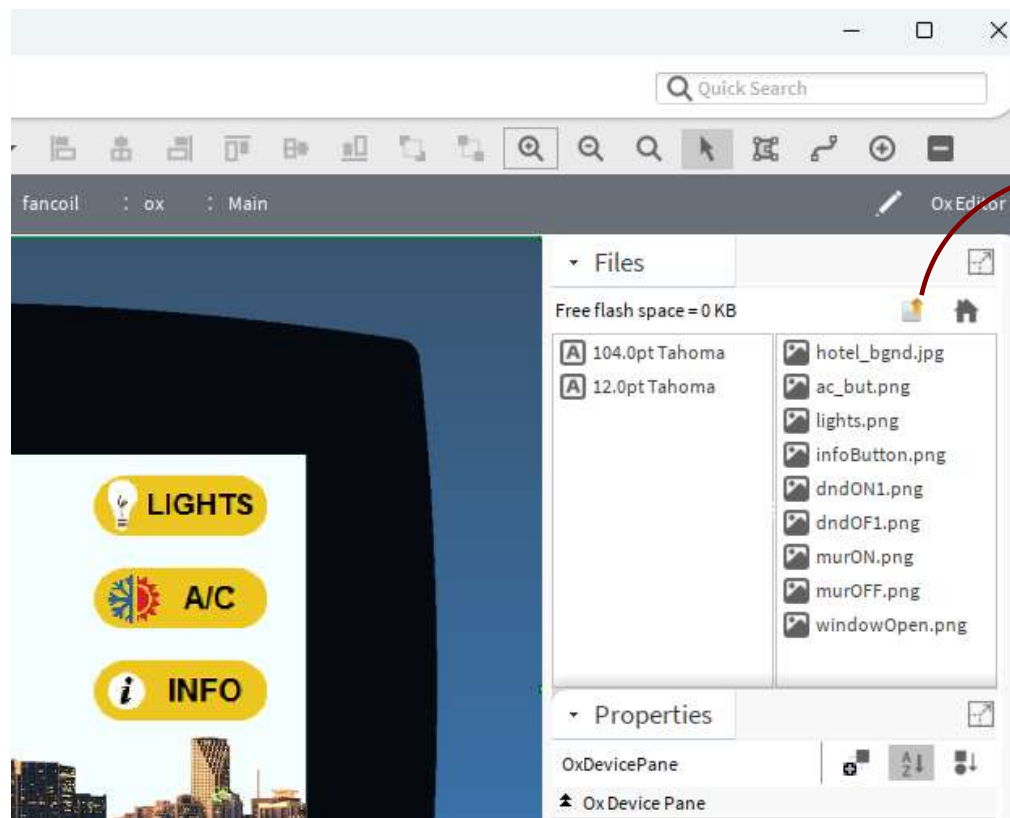
Transfer font
and image
files to the
device

File transfers

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

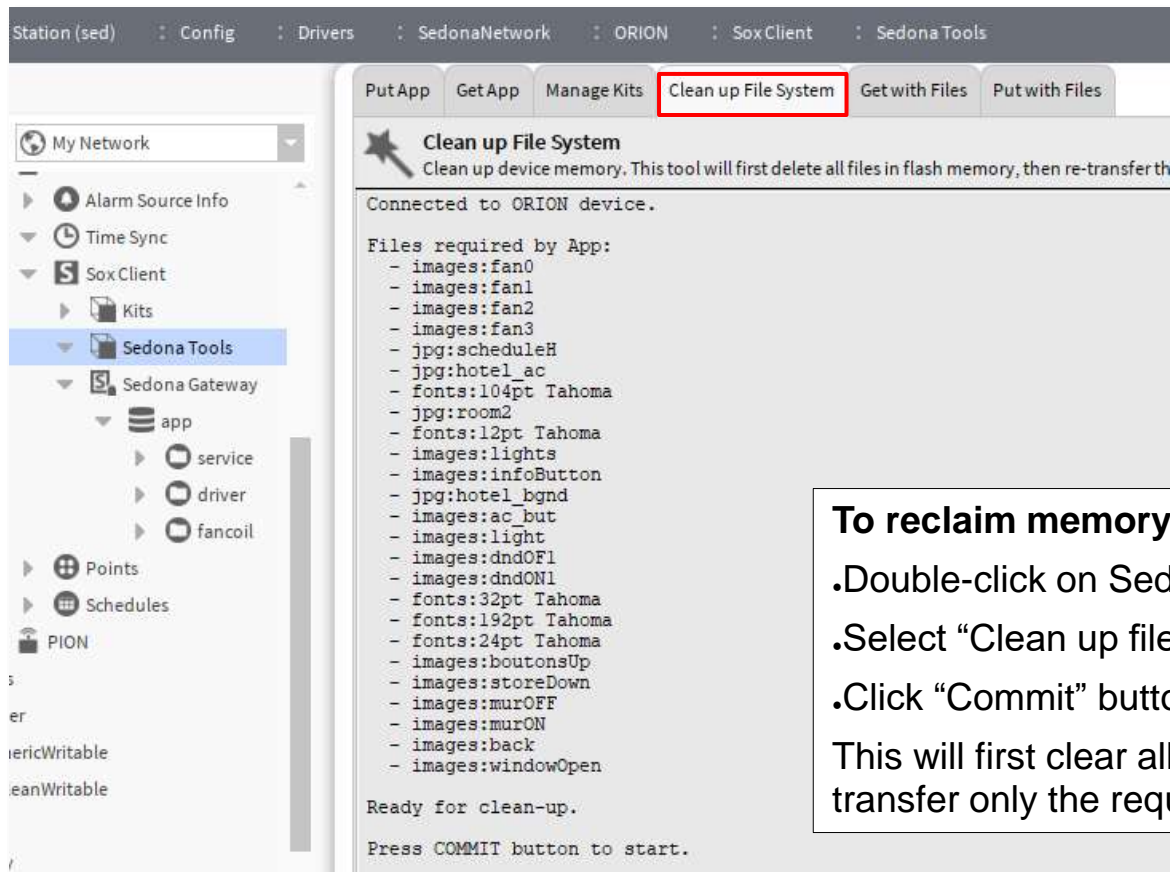
Select font and/or
image files from
this sidebar



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 transferred files from the device, you might run into a memory issue at some point.



To reclaim memory :

- .Double-click on SedonaTools
- .Select “Clean up file system” tab
- .Click “Commit” button on bottom-right

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



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 unique¹ numeric² passwords.
 - set read/write group privileges for these new users³
- 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.