



Getting a11y right with the UI format

Basic notes for developers

Caolán McNamara

Red Hat, Inc.

2014-02-01

Brief Intro

- Do layout at vcl level
- Work directly on the windows/controls that our UI code already uses
- Reuse gtk builder file format and glade UI editor
 - So we are using out vcl widgets but using the gtk builder file format to describe where they go
- Standalone ui-previewer equivalent to glade-previewer
- Added various extra widgets and features
 - VclGrid, VclBox, RadioButton groups, MessageDialog, VclScrolledWindow, VclExpander, etc



Example: Old Word Count Dialog

Word Count

Current selection

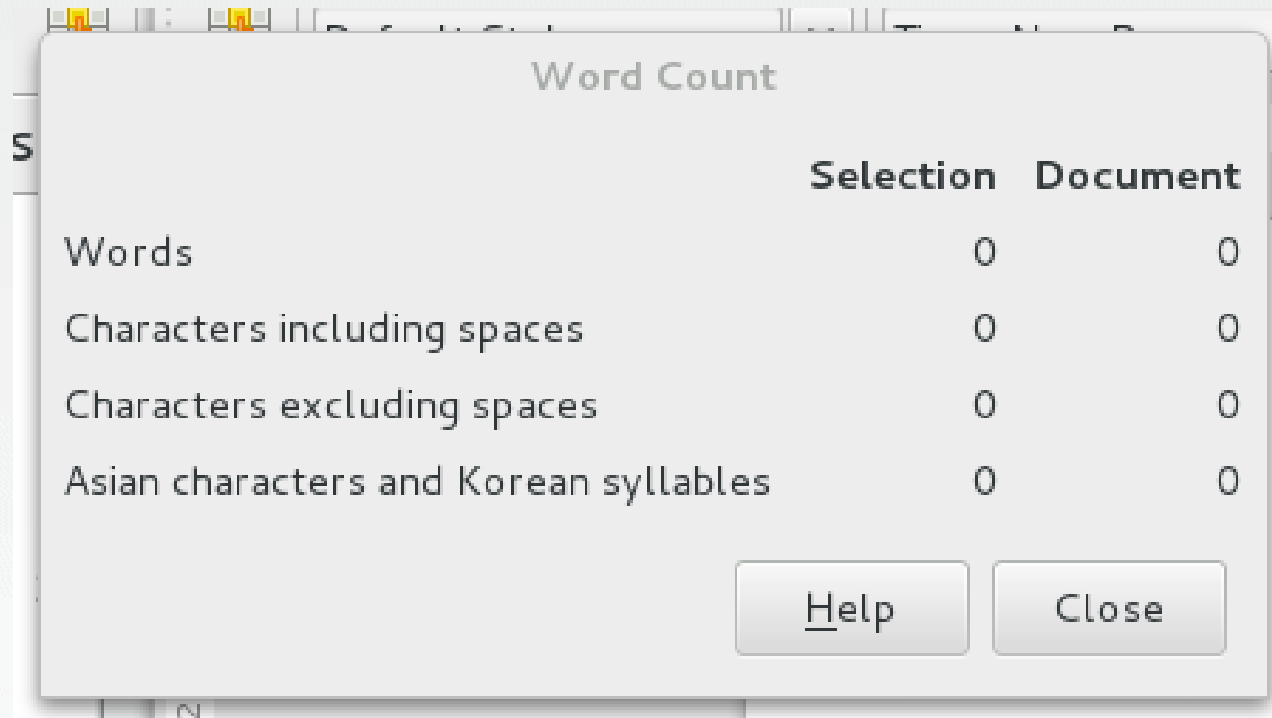
Words:	0
Characters:	0
Characters excluding spaces:	0

Whole document

Words:	0
Characters:	0
Characters excluding spaces:	0



Example: New Word Count Dialog



A11Y and the .ui format

- Set mnemonic label widget targets
- Use label-for and labeled-by for more unusual cases
- Set Accessible Name for preview widgets
- Set radiobutton groups
- Reflect member-of relations by grouping under a common container, typically a frame



Mnemonic widgets

1) If a label is a label for something, then record that relationship by setting the label's mnemonic target

1) This tells LibreOffice what widget to activate if the label's short-cut key is activated

2) This automatically sets the correct a11y relationship between label and the thing that is labeled

2) This is the most common omission, and the easiest to fix



Line
Style
Width: 0.05
Color

Spacing to contents
Left: 0.00
Right: 0.00
Top: 0.00
Bottom: 0.00
 Synchronize

label topmf:0.00mm GtkSpinButton
label rightmf:0.00mm GtkSpinButton
label bottommf:0.00mm GtkSpinButton
label leftft GtkLabel
label rightft GtkLabel
label topft GtkLabel
label bottomft GtkLabel

label Label Properties - GtkLabel [leftft]

Common Signals

leftft

leftft

Edit Attributes

Selectable
 Use underline
 Track visited links
leftmf:0.00mm

Choose a Widget in this project

Objects:

- alignment4 Alignment
- grid7 Grid
- leftmf:0.00mm Spin Button
- topmf:0.00mm Spin Button
- rightmf:0.00mm Spin Button
- bottommf:0.00mm Spin Button
- leftft Label
- rightft Label

Cancel Clear OK



Labeled by something that isn't a label

- 1) This is typically where a radiobutton or checkbox is used as a label for something
- 2) Traditionally done in code with `SetAccessibleRelationLabelFor` and `SetAccessibleRelationLabeledBy`
- 3) Non-label widgets don't have a mnemonic widget property so use the a11y relations (under the a11y tab) `label-for` and `labeled-by` to capture this relationship.



Zoom factor

- Optimal
- Fit width and height
- Fit width
- 100%
- Variable: - +

View layout

- Automatic
- Single page
- Columns: - +
- Book mode

OK Cancel Help

- fitw *GtkRadioButton*
- 100pc *GtkRadioButton*
- ▾ box3 *GtkBox*
 - variable *GtkRadioButton*
 - ▢ zoomsb:0% *GtkSpinButton*

◦- Radio Button Properties - *GtkRadioButton* [variable]

General Packing Common Signals ⓘ

Accessible Description:

Role: Invalid

Controlled By:

Controller For:

Labeled By:

Label For: zoomsb:0%

Member Of:

Node Child Of:

Flows To:

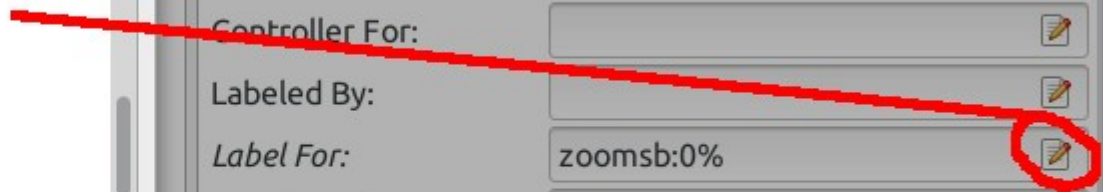
Flows From:

Choose GtkWidget type objects in this project

Objects:

<input type="checkbox"/>	box3	Box
<input type="checkbox"/>	variable	Radio Button
<input checked="" type="checkbox"/>	zoomsb:0%	Spin Button
<input type="checkbox"/>	label2	Label
<input type="checkbox"/>	viewframe	Frame
<input type="checkbox"/>	alignment2	Alignment
<input type="checkbox"/>	box4	Box
<input type="checkbox"/>	automatic	Radio Button

Clear Cancel OK



Accessible Names for Previews, etc.

- 1) Custom widgets often need to explain what they are for
- 2) The majority of cases are preview widgets which need to state they show examples or are previews.
- 3) Traditionally done with `SetAccessibleName` and `SetAccessibleDescription` (short and long)
- 4) Use the gtk builder `AtkObject::accessible-name` and `::accessible-description` properties to capture this information instead



Line properties

Style:

Color:

Width: - +

Transparency: - +

Arrow styles

Start style: End style:

Width: - + Width: - +

Center Center

Synchronize ends

Corner and cap styles

Corner style: Cap style:

Icon

Width: - +

Height: - +

Keep ratio

LineTabPage

< Search Widgets >

- LineTabPage GtkBox
 - box2 GtkBox
 - CTL_PREVIEW:border svxlo-SvxXLinePreview**
 - liststoreCAP_STYLE GtkListStore
 - liststoreEDGE_STYLE GtkListStore
 - menuSELECT GtkMenu
 - sizegroup1 GtkSizeGroup

SvxXLinePreview Properties - svxlo-SvxXLinePreview [CTL_P...

General Packing Common Signals

Accessible Name:

Accessible Description:

Role: Invalid

Controlled By:

Controller For:

Labeled By:

Label For:



RadioButton Groups

- 1) If there is a set of RadioButtons then express that they are all part of the same group by setting their group attribute to the next in the group
- 2) Link the 1st to the 2nd etc and last back to the 1st
- 3) Select **one** widget to be the active one
- 4) Setting the groups wrong is pretty obvious even in the non a11y case
- 5) The presence of the grouping information however means that any manual `GetAccessibleRelationMemberOf` calls on radiobutton widgets is redundant and should be removed.



Sequence checking

Use sequence checking

Restricted

Type and replace

Cursor control

Movement Logical Visual

General options

Numerals

OptCTLPAGE

< Search Widgets >

- alignment2 *GtkAlignment*
 - grid3 *GtkGrid*
 - label label3 *GtkLabel*
 - movementlogical *GtkRadioButton*
 - movementvisual *GtkRadioButton*

Radio Button Properties - GtkRadioButton [move...

General Packing Common Signals ⓘ

ID:

Activatable / Actionable

Related Action:

Use Action Appearance: ON

Action Name: ⚠

Button Attributes

Group: ⓘ

Child alignments:

Horizontal: - +

Vertical: - +

Focus on click Active

Inconsistent Draw Indicator

Button Content

Choose a Radio Button in this project

Objects:

<input checked="" type="radio"/>	OptCTLPAGE	Box
<input type="radio"/>	frame2	Frame
<input type="radio"/>	alignment2	Alignment
<input type="radio"/>	grid3	Grid
<input type="radio"/>	movementlogical	Radio Button
<input type="radio"/>	movementvisual	Radio Button



Relation Member Of

- 1) Traditionally the vcl widget hierarchy was effectively flat
- 2) So to express that widgets are grouped under a given common FixedLine label for a11y there are many manual GetAccessibleRelationMemberOf to indicate to a11y what the visual grouping of widgets is
- 3) Delete that sort of stuff and replace with a GtkFrame parent widget whose label is the original group label and place all children inside that instead and the relationship can be derived automatically from the new hierarchy



End of A11Y Notes Start of Progress Stats



Where we are

1) ./bin/count-todo-dialogs

649 .ui files currently exist

There are 114 unconverted dialogs

There are 96 unconverted tabpages

An estimated additional 210 .ui are required

We are 75% of the way through



That's...

- 1) 66 people
- 2) 309 OK buttons
- 3) 649 ui files
- 4) 6290 translatable strings
- 5) 13,755 widgets

Thanks to...



Abdulaziz A Alayed, Abdulelah Alarifi, Abdulmajeed Ahmed, Adam Co, Albert Thuswaldner, Alexander Wilms, Alia Almusaireae, Andras Timar, Andrzej J.R. Hunt, Armin Le Grand, Bjoern Michaelsen, Cao Cuong Ngo, Caolán McNamara, Christian Lohmaier, Cor Nouws, Csikós Tamás, Cédric Bosdonnat, Efe Gürkan YALAMAN, Eike Rathke, Eilidh McAdam, Eric Seynaeve, EricSeynaeve, Faisal M. Al-Otaibi, Gergo Mocsi, Gergő Mocsi, Gokul, Honza Minarik, Issa Alkurtass, Ivan Timofeev, Jack Leigh, Jan Holesovsky, Joren De Cuyper, Julien Nabet, Katarina Behrens, Khaled Hosny, Kohei Yoshida, Krisztian Pinter, Laurent Balland-Poirier, Luboš Luňák, Manal Alhassoun, Markus Maier, Markus Mohrhard, Mathias Hasselmann, Matúš Kukan, Maxim Monastirsky, Michael Meeks, Michael Stahl, Miklos Vajna, Noel Power, Olivier Hallot, Pavel Kacer, Petr Vorel, Prashant Pandey, Reem.ALotaibi, Rene Engelhard, Robert Roth, Samuel Mehrbrodt, Stefan Knorr, Stephan Bergmann, Thomas Arnhold, Thorsten Behrens, Tomáš Vajngerl, Tor Lillqvist, Ulrich Kitzinger, Zolnai Tamás, oger000

