



Reusing Libreoffice in your application

- ▼ GUADEC 2014
- ▼ 2014-07-26

Overview

- ▼ Short bio
- ▼ LibreOfficeKit
- ▼ Document Liberation
- ▼ Features
- ▼ Libreoffice & Gnome
- ▼ How to get involved

Bio

- ▼ math student at Karlsruhe Institute for Technology
- ▼ LibreOffice developer
 - ▼ member of the ESC
 - ▼ working on calc, chart2, testing framework
- ▼ maintainer for cppunit
- ▼ co-maintainer for orcus, ixion, mdds
- ▼ work part time for Collabora on LibreOffice

LibreOfficeKit

- ▼ I'm not doing the work

- ▼ currently moved forward by Andrzej Hunt as GSoC

- ▼ desing to large degree by Michael Meeks



Design

- ▼ known also as liblibreoffice
 - ▼ has been renamed recently
- ▼ tiny static library
 - ▼ exposes Libreoffice functionality at run-time
- ▼ simple interface
- ▼ C, C++ and Java bindings

What is already implemented?

- ▼ stable
 - ▼ import
 - ▼ export
- ▼ unstable
 - ▼ tiled rendering
 - ▼ improved API handling

Example

```
95 void renderDocument( LOKDocView* pDocView )
96 {
97     long nWidth, nHeight;
98     int nRenderWidth, nRenderHeight;
99     unsigned char* pBuffer;
100     int nRowStride;
101
102     g_assert( pDocView->pDocument );
103
104     if ( pDocView->pPixBuf )
105     {
106         g_object_unref( G_OBJECT( pDocView->pPixBuf ) );
107     }
108
109     pDocView->pDocument->pClass->getDocumentSize( pDocView->pDocument, &nWidth, &nHeight );
110
111     // Draw the whole document at once (for now)
112
113     // TODO: we really should scale by screen DPI here -- 10 seems to be a vaguely
114     // correct factor for my screen at least.
115     nRenderWidth = nWidth * pDocView->fZoom / 10;
116     nRenderHeight = nHeight * pDocView->fZoom / 10;
117
118     pDocView->pPixBuf = gdk_pixbuf_new( GDK_COLORSPACE_RGB,
119                                       TRUE, 8,
120                                       nRenderWidth, nRenderHeight );
121
122
123     pBuffer = gdk_pixbuf_get_pixels( pDocView->pPixBuf );
124     pDocView->pDocument->pClass->paintTile( pDocView->pDocument,
125                                          pBuffer,
126                                          nRenderWidth, nRenderHeight,
127                                          &nRowStride,
128                                          0, 0, // origin
129                                          nWidth, nHeight );
130
131     // TODO: double check that the rowstride really matches what we expected,
132     // although presumably we'd already be crashing by now if things were
133     // wrong.
134     (void) nRowStride;
135
136     gtk_image_set_from_pixbuf( GTK_IMAGE( pDocView->pCanvas ), pDocView->pPixBuf );
137
138 SAL_DLLPUBLIC_EXPORT gboolean lok_docview_open_document( LOKDocView* pDocView, char* pPath )
139 {
140     if ( pDocView->pDocument )
141     {
142         pDocView->pDocument->pClass->destroy( pDocView->pDocument );
143         pDocView->pDocument = NULL;
144     }
145
146     pDocView->pDocument = pDocView->pOffice->pClass->documentLoad( pDocView->pOffice,
147                                                                  pPath );
148
149     if ( !pDocView->pDocument )
150     {
151         // FIXME: should have a GError parameter and populate it.
152         char *pError = pDocView->pOffice->pClass->getError( pDocView->pOffice );
153         fprintf( stderr, "Error opening document '%s'\n", pError );
154         return FALSE;
155     }
```

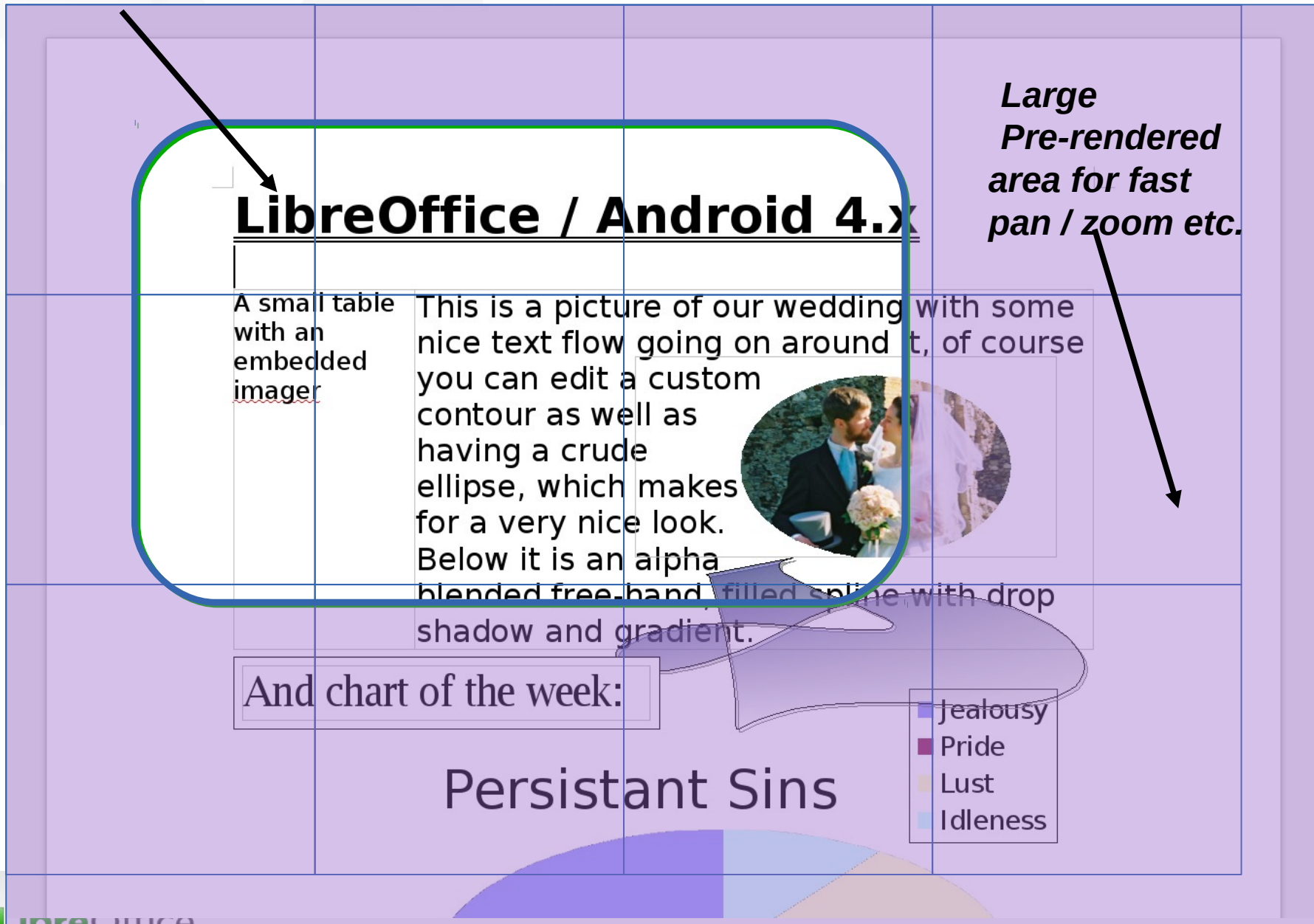
```
17 #include "../lokdocview_quad/lokdocview_quad.h"
18
19 static int help()
20 +-- 4 lines: {-----
21
22 static GtkWidget* pDocView;
23 static GtkWidget* pDocViewQuad;
24 static GtkWidget* pVBox;
25 static LibreOfficeKit* pOffice;
26 static char* pFileName;
27
28 const float fZooms[] = { 0.25, 0.5, 0.75, 1.0, 1.5, 2.0, 3.0, 5.0 };
29
30 void changeZoom( GtkWidget* pButton, gpointer /* pItem */ )
31 +-- 57 lines: {-----
32
33 void changeQuadView( GtkWidget* /*pButton*/, gpointer /* pItem */ )
34 +-- 26 lines: {-----
35
36 // GtkComboBox requires gtk 2.24 or later
37 #if ( GTK_MAJOR_VERSION == 2 && GTK_MINOR_VERSION >= 24 ) || GTK_MAJOR_VERSION > 2
38 void populatePartSelector( GtkWidget* pSelector, LOKDocView* pView )
39 +-- 9 lines: {-----
40
41 void changePart( GtkWidget* pSelector, gpointer /* pItem */ )
42 +-- 11 lines: {-----
43 #endif
44
45 int main( int argc, char* argv[] )
46 {
47     if( argc < 2 ||
48         ( argc > 1 && ( !strcmp( argv[1], "--help" ) || !strcmp( argv[1], "-h" ) ) ) )
49         return help();
50
51     if ( argv[1][0] != '/' )
52 +-- 4 lines: {-----
53
54     pOffice = lok_init( argv[1] );
55
56 +-- 53 lines: {-----
57
58 // Docview
59 pDocView = lok_docview_new( pOffice );
60 pDocViewQuad = 0;
61 gtk_container_add( GTK_CONTAINER(pVBox), pDocView );
62
63 gtk_widget_show_all( pWindow );
64
65 pFileName = argv[2];
66 lok_docview_open_document( LOK_DOCVIEW(pDocView), argv[2] );
67 // GtkComboBox requires gtk 2.24 or later
68 #if ( GTK_MAJOR_VERSION == 2 && GTK_MINOR_VERSION >= 24 ) || GTK_MAJOR_VERSION > 2
69 populatePartSelector( GTK_COMBO_BOX_TEXT(pComboBox), LOK_DOCVIEW(pDocView) );
70 #endif
71
72 gtk_main();
73
74 return 0;
75 }
```


Ideas

- ▼ Have a simple API that exposes the most common functions
 - ▼ for what would you use the API?
 - ▼ which features would you need?
- ▼ Allow fast rendering of documents for any application
 - ▼ tiled rendering
 - ▼ Gnome Documents?
 - ▼ avoid UNO and/or unoconv
- ▼ no setUp/tearDown for repeated usage

Fast Tiled Rendering in textures

Tablet display



Future

- ▼ extend API
 - ▼ finish tiled rendering API
 - ▼ modifying documents
 - ▼ ???
- ▼ mobile viewers
- ▼ expose UNO through LibreOfficeKit?

The Document Liberation Project

Credits

- ▼ Again, I'm not doing the work ;)
- ▼ Fridrich Strba(SUSE)
- ▼ David Tardon(RedHat)
- ▼ Valek Filippov
- ▼ a number of former GSoC students
- ▼ and many more
- ▼ more information:
 - ▼ <http://www.documentliberation.org/>

Idea

- ▼ based on several GSoC projects and some old libs
- ▼ access to documents should be possible without vendor
- ▼ give user control over their documents
- ▼ allow transition to open standards
- ▼ provide nice import libraries for binary formats
- ▼ make all available as part of a nice framework

Ideas (2)

- ▼ Libraries are not only useful for LibreOffice
 - ▼ already used in e.g. Abiword, Inkscape, Scribus, ...
- ▼ Separate the two projects
 - ▼ Still a TDF project
- ▼ make it easier for other developers to join

Tools

- ▼ OLEToy
 - ▼ binary inspection of file formats
 - ▼ first step is to add support to it
- ▼ mso-dumper
- ▼ librevenge
 - ▼ base library
 - ▼ provides common types and code
- ▼ libodfgen
 - ▼ ODF export library

Document Liberation libs

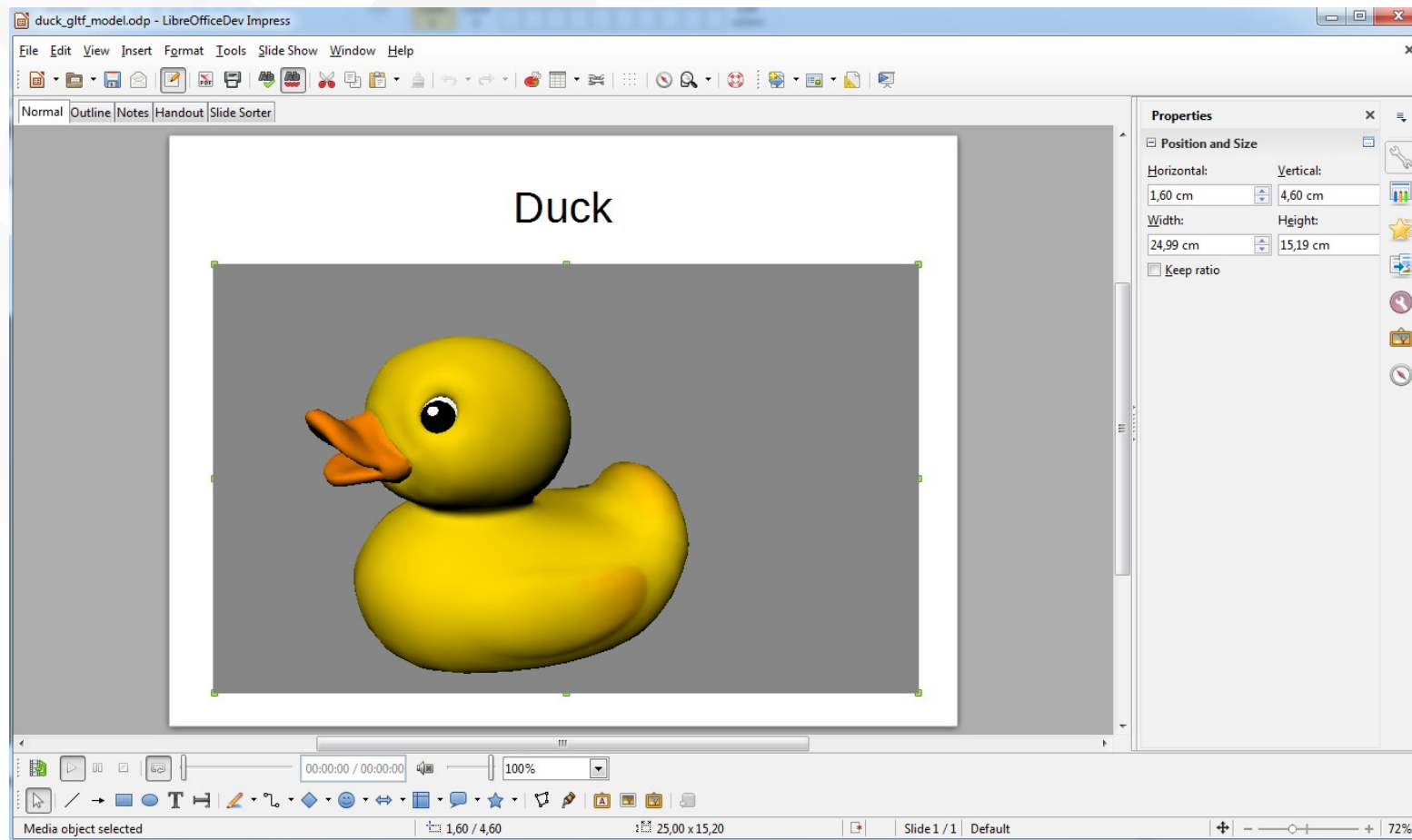
- ▼ libwpd/libwpg – Corel WordPerfect
- ▼ libwps – Microsoft Works
- ▼ libmwaw – legacy Mac formats
- ▼ libabw – AbiWord
- ▼ libcdr – Corel Draw
- ▼ libvisio – Microsoft Visio
- ▼ libmspub – Microsoft Publisher
- ▼ libetonyek – Apple Keynote
- ▼ libfreehand – Adobe FreeHand
- ▼ libe-book – many e-book formats

Other libs

- ▼ libcmis
- ▼ cppunit
- ▼ libgltf
- ▼ orcus
- ▼ ixion
- ▼ mdds

Features in 4.3 and GSoC 2014

Impress 3D models



Thanks to *MulticoreWare Inc(MCW)*, *AMD*, *Tamas Zolnai*, *Jan Holesovsky*, *Markus Mohrhard* (all Collabora)

Demo



32 bit paragraphs in writer

A single writer paragraph with more than 65535 characters.

Properties of Untitled1	
General	Description
CMS Properties	Security
Font	Statistics
Number of Pages:	22
Number of Tables:	0
Number of Images:	0
Number of OLE Objects:	0
Number of Paragraphs:	1
Number of Words:	18144
Number of Characters:	104328
Number of Characters excluding spaces:	86184
Number of Lines:	713

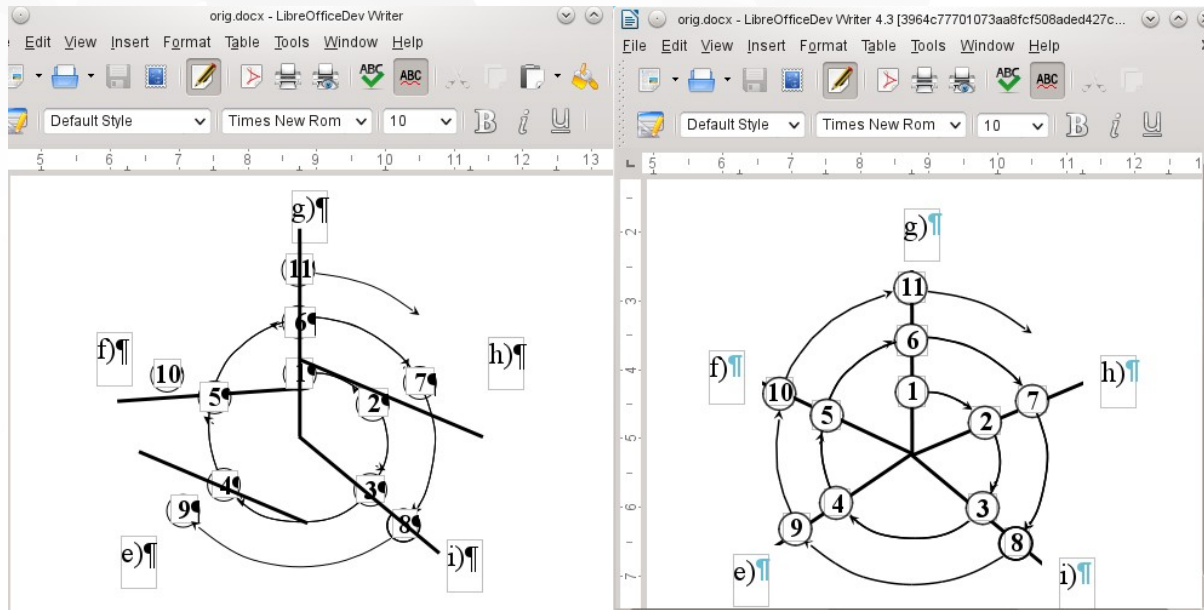
Update

OK Cancel Help Reset

Caolán McNamara(RedHat)

OOXML improvements

▼ Import support for OOXML strict



Thanks to Miklos Vajna(Collabora), Jacobo Aragunde(Igalia), Synerzip, CloudOn and many more

Sample Doc

2014

Sample Doc

2014

Sample Doc

Comment handling improvements

DEARBHÚ UILE-CHOITEANN CEARTA AN DUINE

BROLLACH

De Bhír gurb é aithint d'inte dúchais agus chearta combhionanna do-shannta an uile dhuine den chine daonna is foras don tsaoirse, don cheartas agus don tsíocháin sa domhan,

genitive singular of dúchas

Caolán McNamara
Today, 10:36

De Bhír gur thionscain a neamhaird agus an mí-mheas ar chearta an duine gníomhartha barbartha a chuir uafás ar choisias an chine daonna, agus go bhfuil forógartha gurb é meannmarc is uaisle ag an geotiantacht saol a thabhairt i réim a bhéarfas don duine saoirse chainte agus chreidimh agus saoirse ó eagla agus ó amhgar,

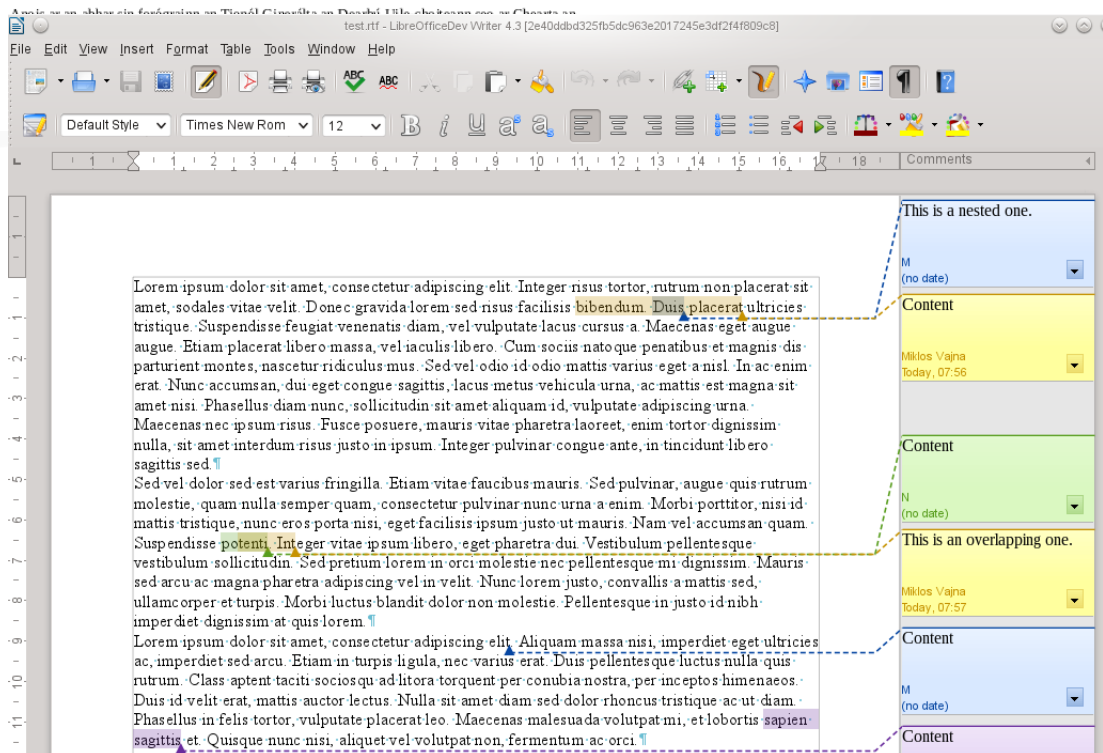
De Bhír go ndearna pobail na Náisiúin Aontaithe sa Chait dearbhú athuair ar a greideamh i gcearta bunúsacha an duine, i ndínt agus i bhfiúntas pearsan an duine agus i gcearta combhionanna fear agus bean, agus gur chinneadur taci leis an ascnamh sóisalach agus réim maireachtana níos fearr a thabhairt i gcrích faoi shaoirse níos fairsinge,

De Bhír gur ghabhadar na Stát-Chomhaltai faoi chuing ghealltanais go ndéanfaid, i gcomhar leis na Náisiúin Aontaithe, urraim uile-choiteann éifeachtach d'áirithiú do chearta agus do shaoirsí bunúsacha an duine.

Noun masculine
1st declension

Caolán McNamara
Today, 10:37

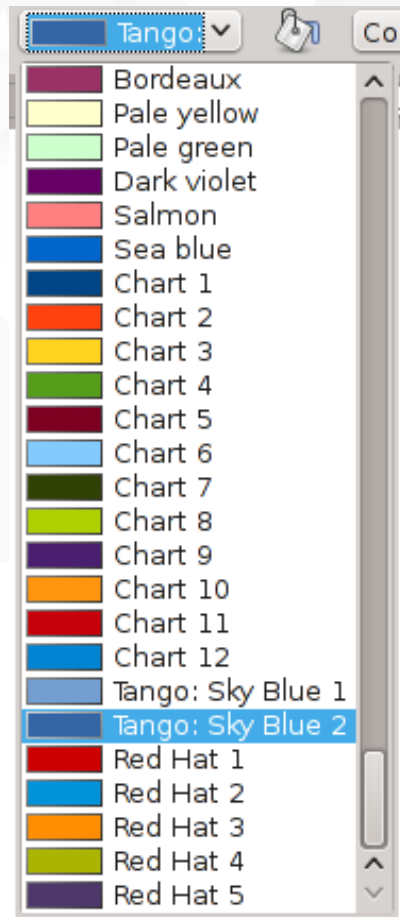
De Bhír go bhfuil sé fíor-thábhachtach, chun an gealltanais sin a chomhalladh ina iomláine, go mbeifí ar aon-tuiscint maidir leis na cearta agus na saoirsí sin,



Printing of comments in margin thanks *Caolán McNamara (RedHat)*

Nested comments thanks to *Oliver-Rainer Wittman (Apache)* and *Miklos Vajna (Collabora)*

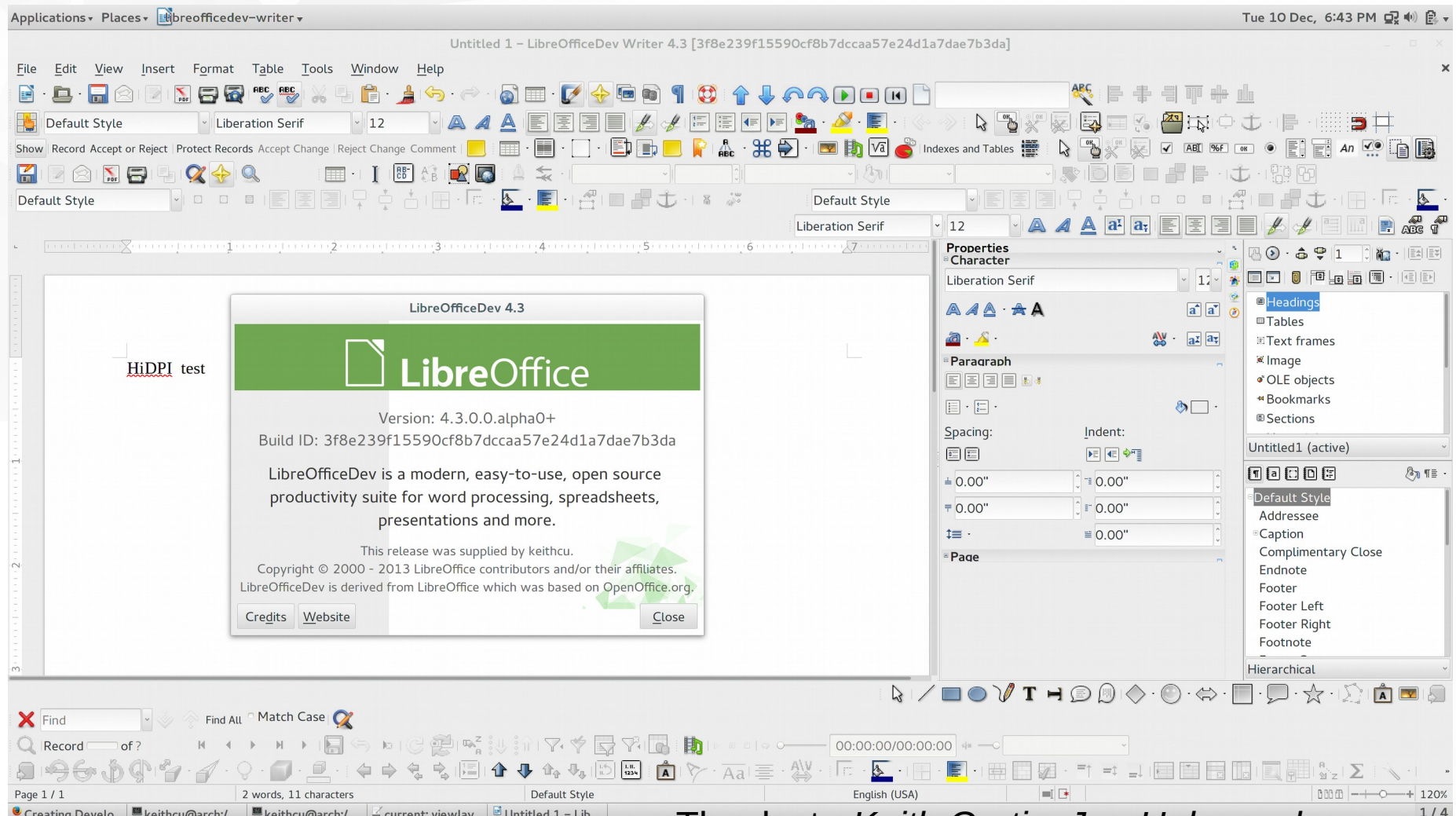
Improved color picker (1)



Thanks to *Maxim Monastirsky*

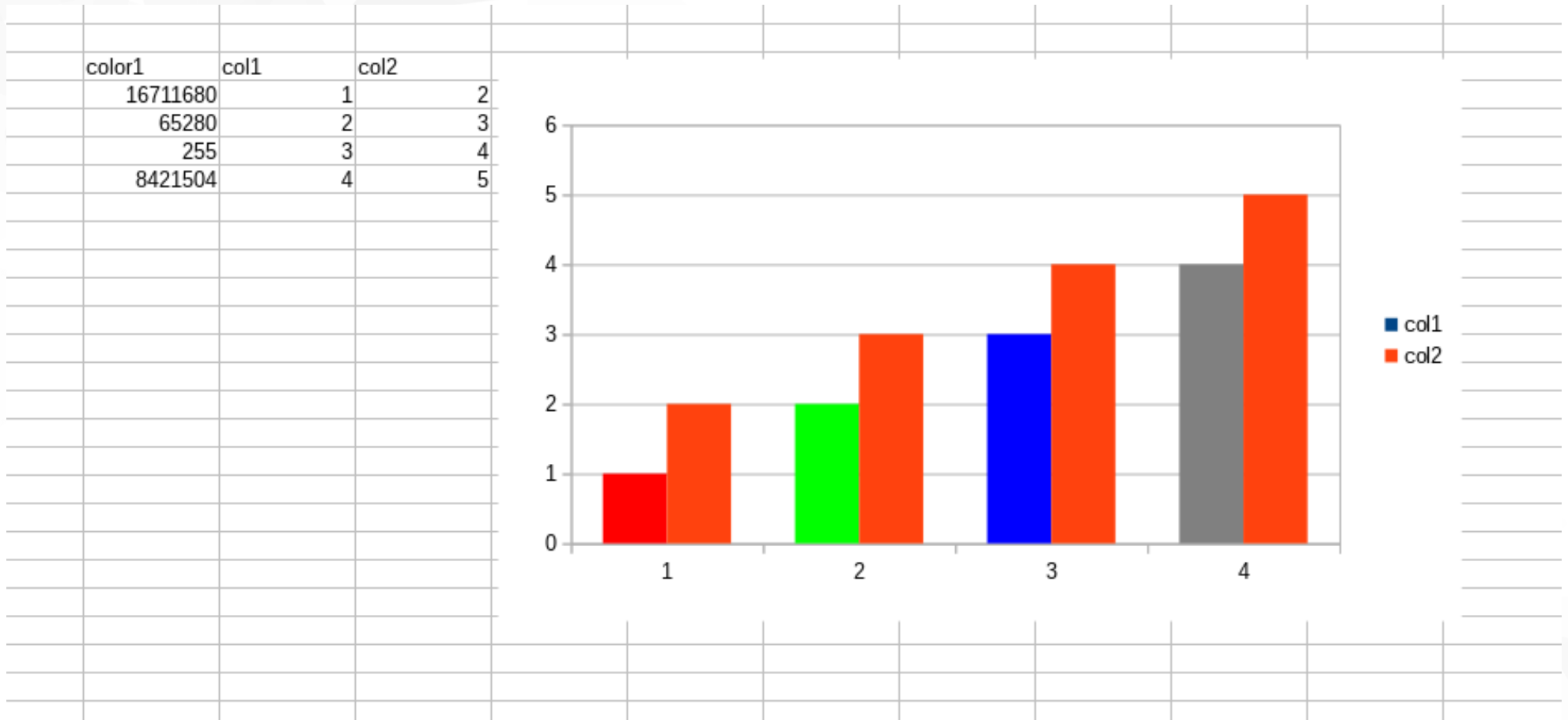
- several color pickers are now split buttons

HiDPI support



Thanks to Keith Curtis, Jan Holesovsky,
Caolán McNamara, Andrzej Hunt

Property mapping in charts



Thanks to *Markus Mohrhard*(Collabora)

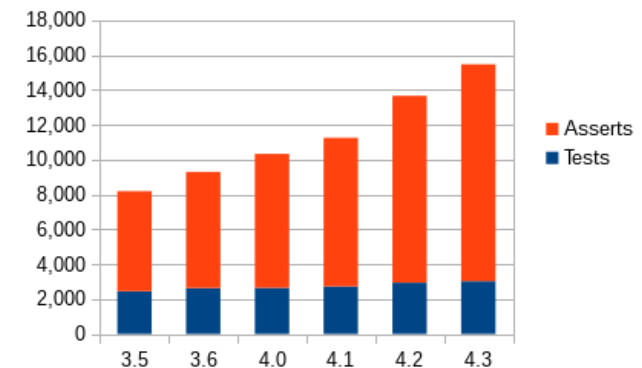
Code quality

- ▼ cppcheck
- ▼ coverity
 - ▼ now at an amazing score of 0.09
- ▼ asserts
- ▼ tests
- ▼ crash testing
- ▼ Asan/Lsan/Ubsan

Thanks to *Caolan McNamara, Stephan Bergmann, Michael Stahl, David Tardon (all RedHat), Miklos Vajna, Kohei Yoshida, Markus Mohrhard (all Collabora), Jacobo Aragunde (Igalia)* and many more

Growth in unit tests over time

count of various CPPUNIT macros



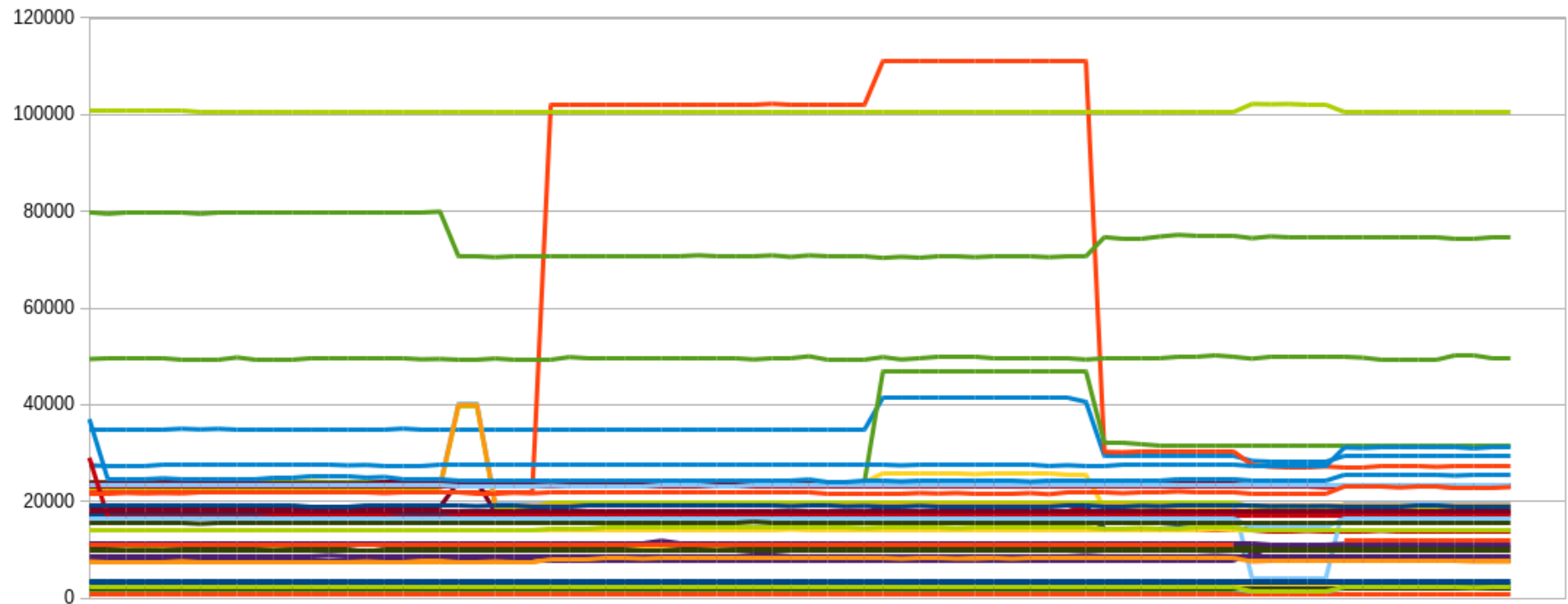
Automated code refactorings

- ▼ Clang plugins
- ▼ Checkers
 - ▼ Additional warnings
 - ▼ Help with werror
- ▼ Rewriter
 - ▼ automatic refactoring on the whole source code
 - ▼ based on clang AST
 - ▼ prevents bugs

Thanks to *Stephan Bergmann*(RedHat)
and *Noel Grandin*

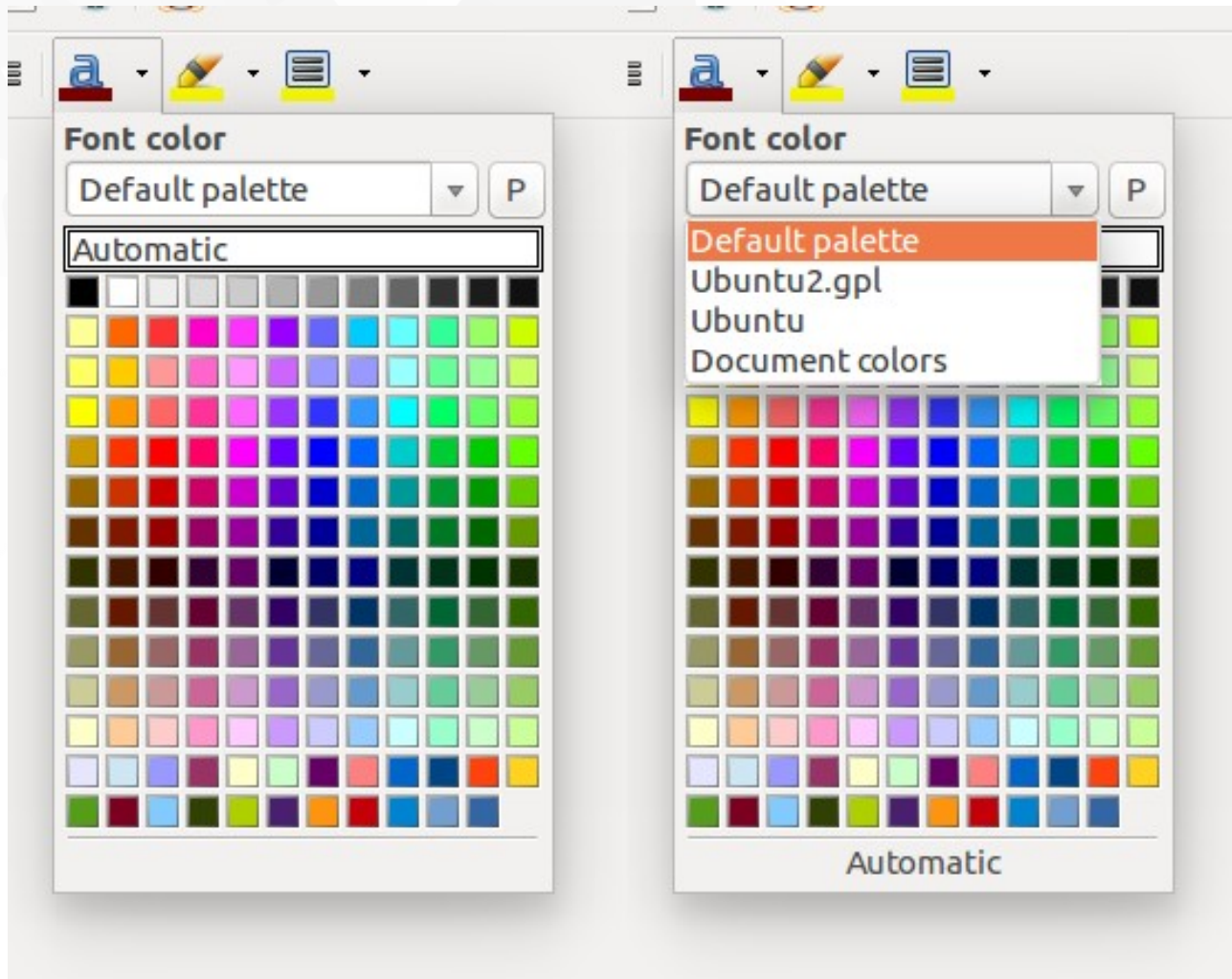
Performance tests

Recent performance metrics



Thanks to *Matus Kukan*(Collabora)
and *Michael Meeks*(Collabora)

GSoC – Color picker (2)



Thanks to *Krisztian Pinter*

GsoC – libcmis improvements

- ▼ already supported
 - ▼ CMIS
 - ▼ Google Docs
- ▼ in progress during this year's GSoC
 - ▼ OneDrive
 - ▼ SharePoint (native)

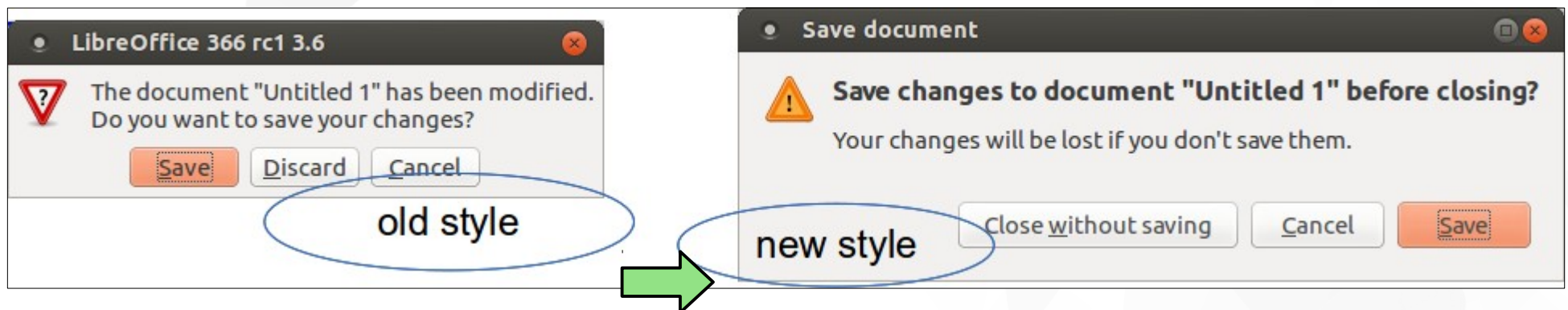
Libreoffice & Gnome

Integration & work with GNOME

- ▼ Schedule Synchronisation
 - ▼ our .2 release matches the 6 monthly GNOME / distro release cadence.
- ▼ gnome_vfs & gio integration
- ▼ gconf_ - no dconf yet (volunteers appreciated)
- ▼ d-bus (screensaver hold-off API / dbus menu pieces)
- ▼ Evolution libebook / addressbook & send-mail integration
- ▼ All windows are GtkWindows, glib mainloop integration
- ▼ Gtk+ file dialog & ~GtkPrint integration
- ▼ Harfbuzz re-use ...
- ▼ Telepathy integration - coming ...
- ▼ And more ...

VCL / Layout integration ...

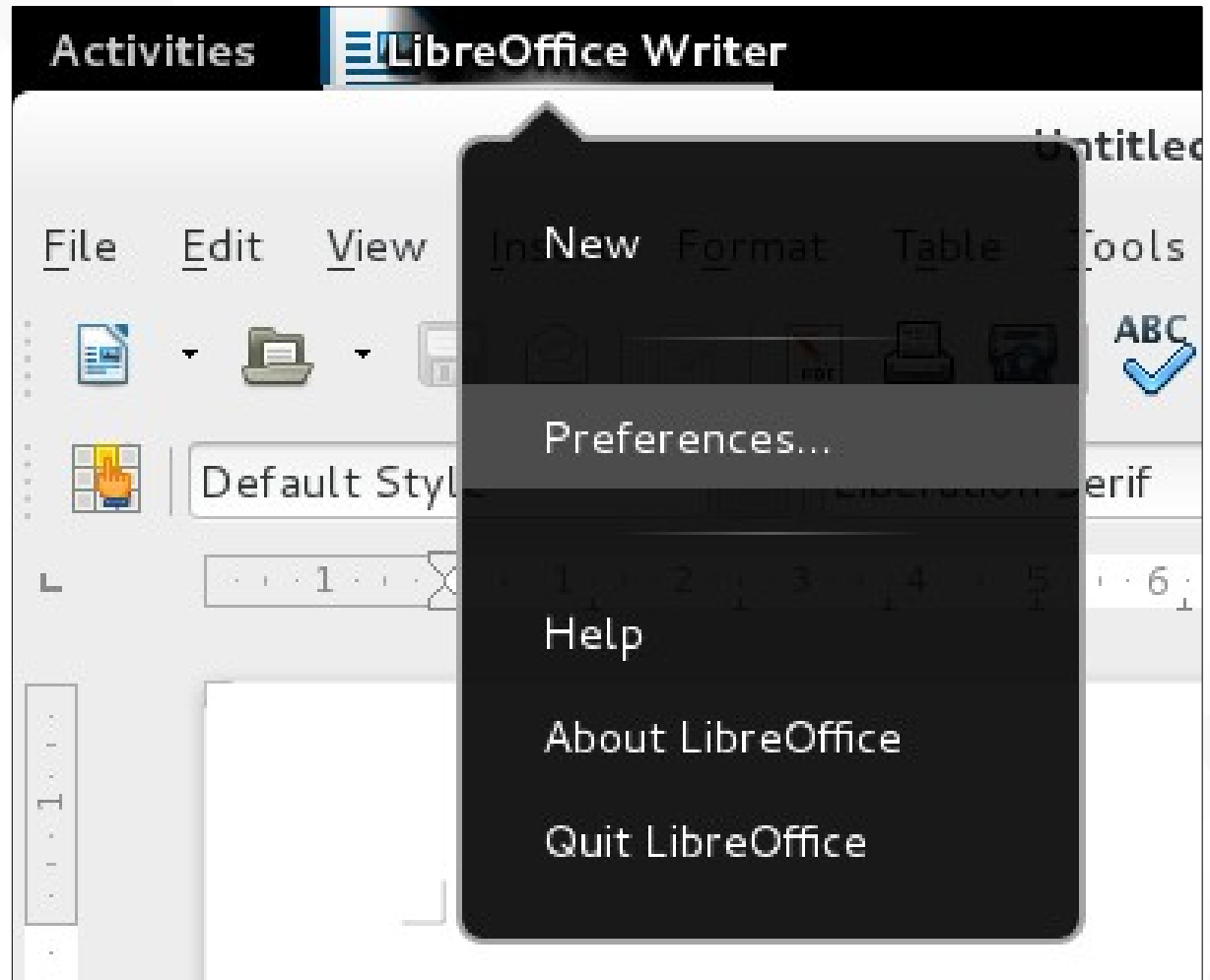
- ▼ LibreOffice continues to use it's internal VCL toolkit
 - ▼ With backends for gtk2, gtk3, KDE3, KDE4, TDE, raw X etc.
 - ▼ Thanks to *Caolán McNamara(RedHat)*, *Szymon Kłos(GSoC)*, *Mihály Palenik(GSoC)* and may more.
 - ▼ 778 dialogs (~93%+) moved to GtkBuilder / glade edited .ui files.
 - ▼ Hope to allow (optional) use of native widgets in the future
[gtk+3]



GNOME app menu integration

Thanks to *Caolan McNamara*

- Also GMenu integration thanks to *Canonical* and *Antonio Fernandez at Aentos*



How to get involved

It's easy to get involved: no really !

- ▼ From basket case to:
“LibreOffice is now ridiculously easy to build”
Karl Fogel – (now working on “*Producing OSS*” (v2) ...)
- ▼ Credit to team on gnumake port & other cleanups
- ▼ We love people to contribute changes:
 - ▼ We want your first patch to be non-controversial, and easy, so you're up-to-speed and included outright:
 - ▼ http://wiki.documentfoundation.org/Development/Easy_Hacks

New developer training bits ...

- ▼ gnumake overview documentation: 'make dump-deps-png'
 - ▼ Thanks to *David Ostrovsky* and *Peter Foley*
- ▼ Training slideware with code overview / basics:
 - ▼ Module overview:
 - ▼ <http://people.gnome.org/~michael/data/2013-07-26-libreoffice-code-structure.pdf>
 - ▼ Low-level types / utilities overview:
 - ▼ <http://people.gnome.org/~michael/data/2013-07-26-libreoffice-low-level.pdf>

Large, fun and growing community

Many other contributors to enjoy working with:





Thank you ...

▼ ... for listening!



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