

Bringing Collabora Online to your web app

... its easy !

By Michael Meeks

General Manager, Collabora Productivity

@mmeeks @CollaboraOffice



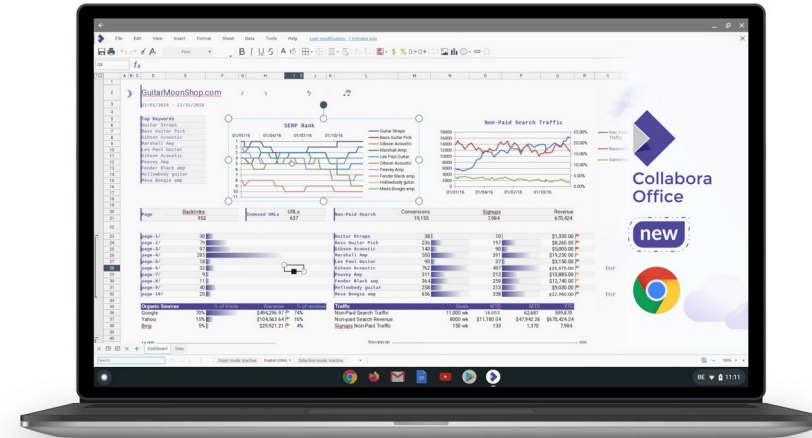
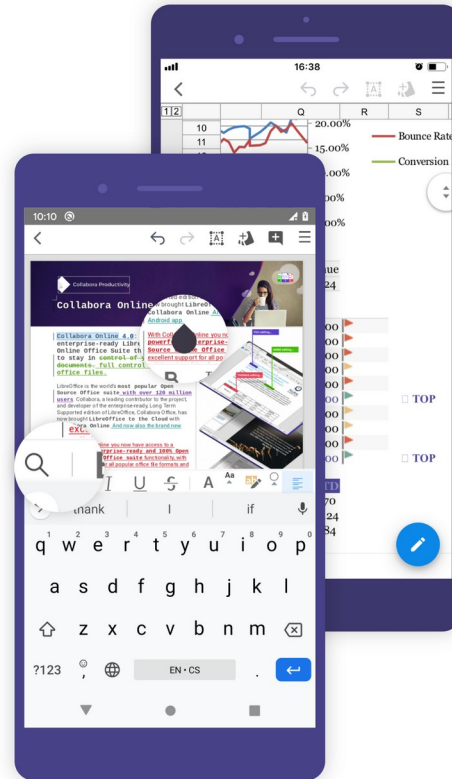
*"Stand at the crossroads and look; ask for the
ancient paths, ask where the good way is, and
walk in it, and you will find rest for your souls..." -
Jeremiah 6:16*



Collabora Online

Built with awesome LibreOffice Technology

a FOSS replacement for
proprietary Online &
Mobile Office suites.





What is Collabora Online ?

Built on top of LibreOffice Technology:

→ **Excellent interop** with Microsoft

→ cf. Office 365 / Google Docs ...

On-premise Integration with your EFSS:

ownCloud, Nextcloud, Seafile, EGroupware
or LMS: Moodle, or chat: Mattermost

Freedom applied → FLOSS giving **Digital Sovereignty**

LibreOffice Technology

Pragmatism: *“The best line of code, is the one we didn’t have to write” x 10⁷ lines*

Architecture – a bet on CPU threads & network ... getting cheaper.

Over 50m

pulls from

CODE Collabora Online

Development Edition

docker image

SEO-Dashboard.xlsx

File Home Insert Sheet Data Review Help

Courier New 10 A A

General

fx Σ = Non-Paid Search

12

A B C D E F G H I J K L M N O P Q R S T U V W

1

2 GuitarMoonShop.com

3 01/01/2016 - 12/31/2016

4

5 Top Keywords

6 Guitar Straps

7 Bass Guitar Pick

8 Gibson Acoustic

9 Marshall Amp

10 Les Paul Guitar

11 Gibson Acoustic

12 Peavey Amp

13 Fender Black amp

14 Hollowbody guitar

15 Mesa Boogie amp

16

17

18

19

20

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SERP Rank

01/01/16 01/03/16 01/05/16 01/07/16 01/09/16 01/11/16

1

6

11

16

21

26

31

36

41

46

Mesa Boogie amp

Hollowbody guitar

Fender Black amp

Peavey Amp

Gibson Acoustic

Les Paul Guitar

Marshall Amp

Gibson Acoustic

Peavey Amp

Fender Black amp

Hollowbody guitar

Mesa Boogie amp

Guitar Straps

Non-Paid Search Traffic

01/01/16 01/03/16 01/05/16 01/07/16 01/09/16 01/11/16

18000

16000

14000

12000

10000

8000

6000

4000

2000

0

25.00%

20.00%

15.00%

10.00%

5.00%

0.00%

Non-Paid Search Traffic

Bounce Rate

Conversion Rate

Page Backlinks Indexed URLs URLs Non-Paid Search Conversions Signups Revenue

953 637 19,155 7,984 670,424

page-1/ 30

page-2/ 79

page-3/ 97

page-4/ 285

page-5/ 18

page-6/ 32

page-7/ 9

page-8/ 11

page-9/ 40

page-10/ 20

Guitar Straps 38

Bass Guitar Pick 236

Gibson Acoustic 143

Marshall Amp 550

Les Paul Guitar 90

Gibson Acoustic 762

Peavey Amp 311

Fender Black amp 364

Hollowbody guitar 258

Mesa Boogie amp 656

10

197

90

391

37

497

212

259

213

338

\$1,330.00

\$8,260.00

\$5,005.00

\$19,250.00

\$3,150.00

2667000%

\$10,885.00

\$12,740.00

\$9,030.00

2296000%

TOP

TOP

Organic Sources % of Visits Revenue % of revenue

Traffic Goals WTD MTD YTD

Dashboard Data Sheet3

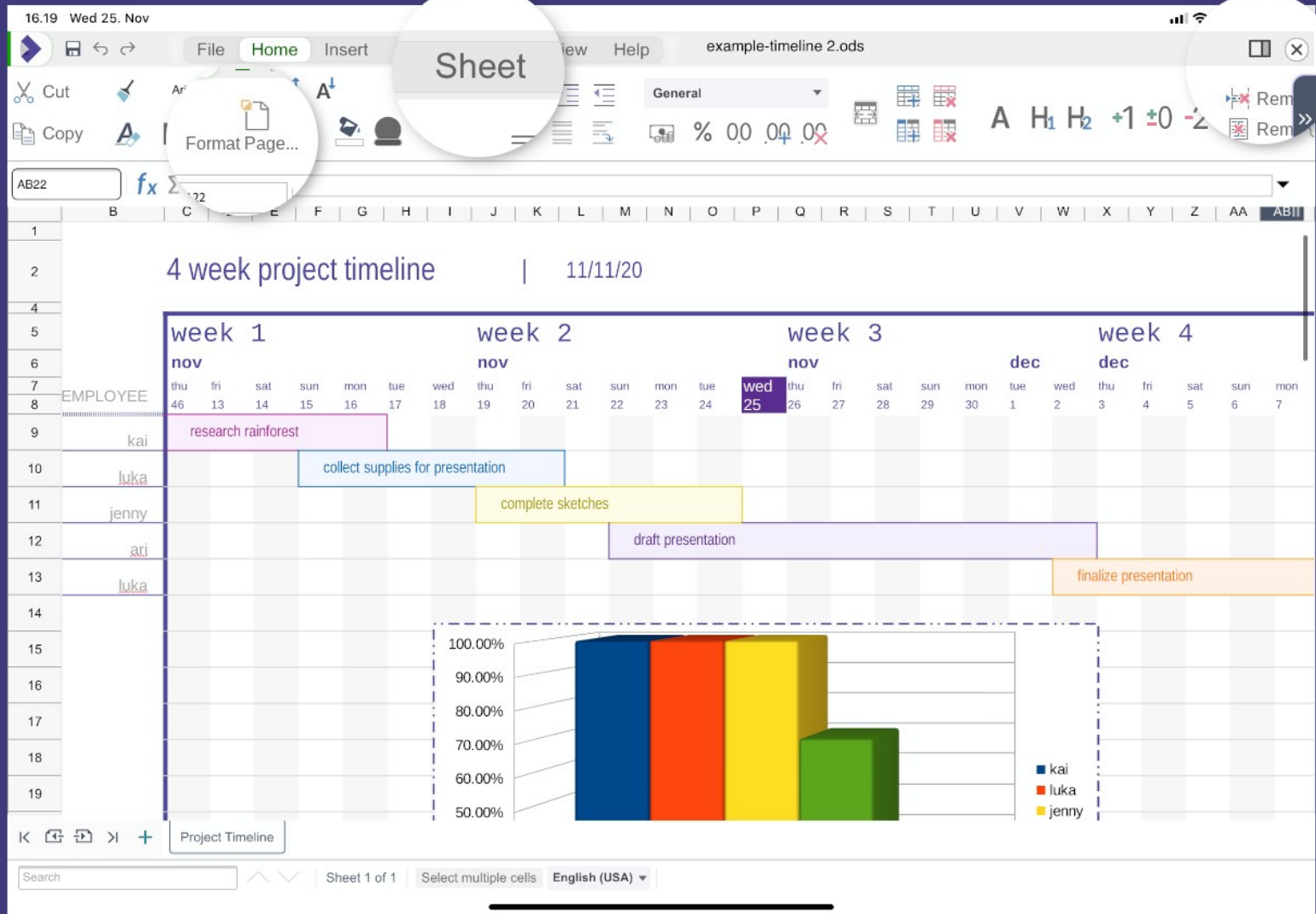
Search

Sheet 1 of 3 Select multiple cells Insert mode: inactive English (USA) Standard selection Average: ; Sum: 0

70%

The image shows a screenshot of the Collabora Online web interface. The main window displays a presentation slide with the text "Click-to-rename The document". A green arrow points from the slide to a smaller window titled "Collabora Online.odt", which shows a document editor interface. The document editor has a menu bar with "File", "Edit", "View", "Insert", "Format", "Table", "Tools", and "Help". Below the menu bar is a toolbar with various icons for editing and formatting. The document content area shows a slide titled "Collabora Online v3.2" with a "Revision history" section. A circular callout highlights the "File" menu in the document editor, showing options like "Save", "Print", "Undo", "Redo", and "Edit". Another circular callout highlights the "Click-to-rename" text on the presentation slide. The bottom status bar shows "Slide 5 of 8" and a search bar.

collaboraonline.com





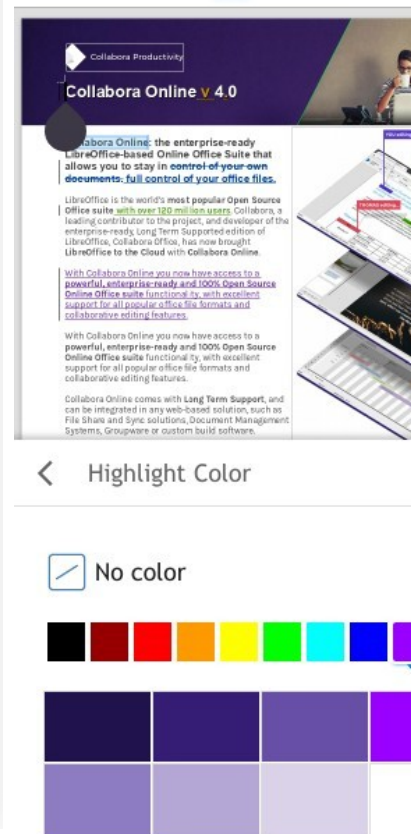
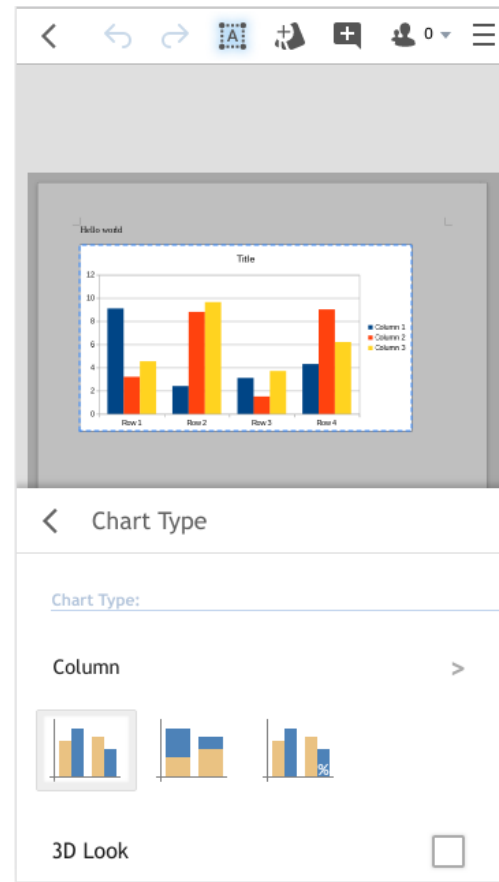
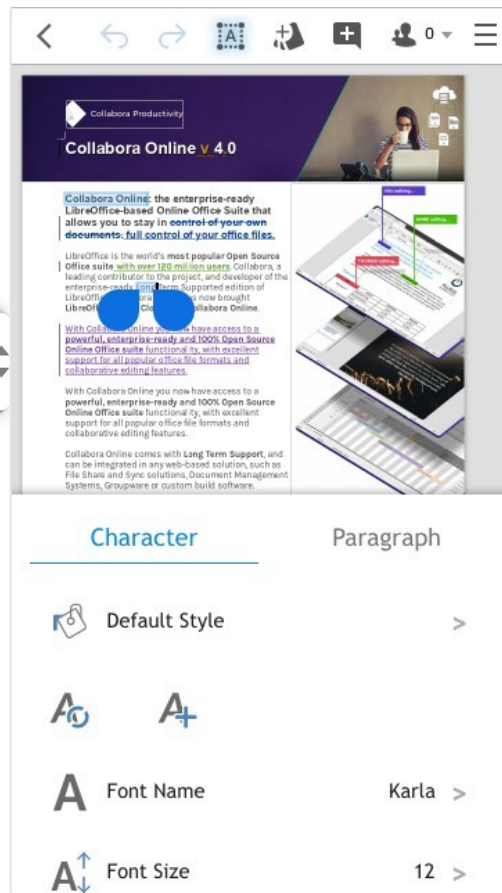
Re-use the online responsive UI for apps:

750k
installs

Available for iOS, Android & Chrome OS

collaboraonline.com

With Collabora Online you now have access to a powerful, enterprise-ready and 100% Open Source Office suite functional, with excellent support for all popular office file formats and collaborative editing features.



**How to get it embedded
into your app ...**

New this month

Collabora Online SDK

Collabora Online SDK describes the main methods that allow you to interact with different Collabora Online components.

Chose one of the following sections to learn more about the available SDK methods.



Install it on-premises



Create integration



Browse available integrations

sdk.collaboraonline.com

Frequently Asked Questions

High availability, fault tolerance, upgrade-ability?

Do the documents leave the server?

What is CODE? Are there non-development editions too?

Do the programs require an uninterrupted network connection?

Can I host your product on my own environment?

[View all FAQ](#)

If you want a high availability setup, not only to provide extra scalability, but also to provide redundancy against faults. Collabora Online has a clean and attractive architecture – which scales with your routing network:

- Each document is served by a single node...

[Read more →](#)



SDK → easy to re-use code templates:

“Hello World” skeleton integration(s)

- <https://github.com/CollaboraOnline/collabora-online-sdk-examples/>
- Apache v2 licensed for easy re-use

Growing set of languages:

- PHP
- NodeJS
- Python

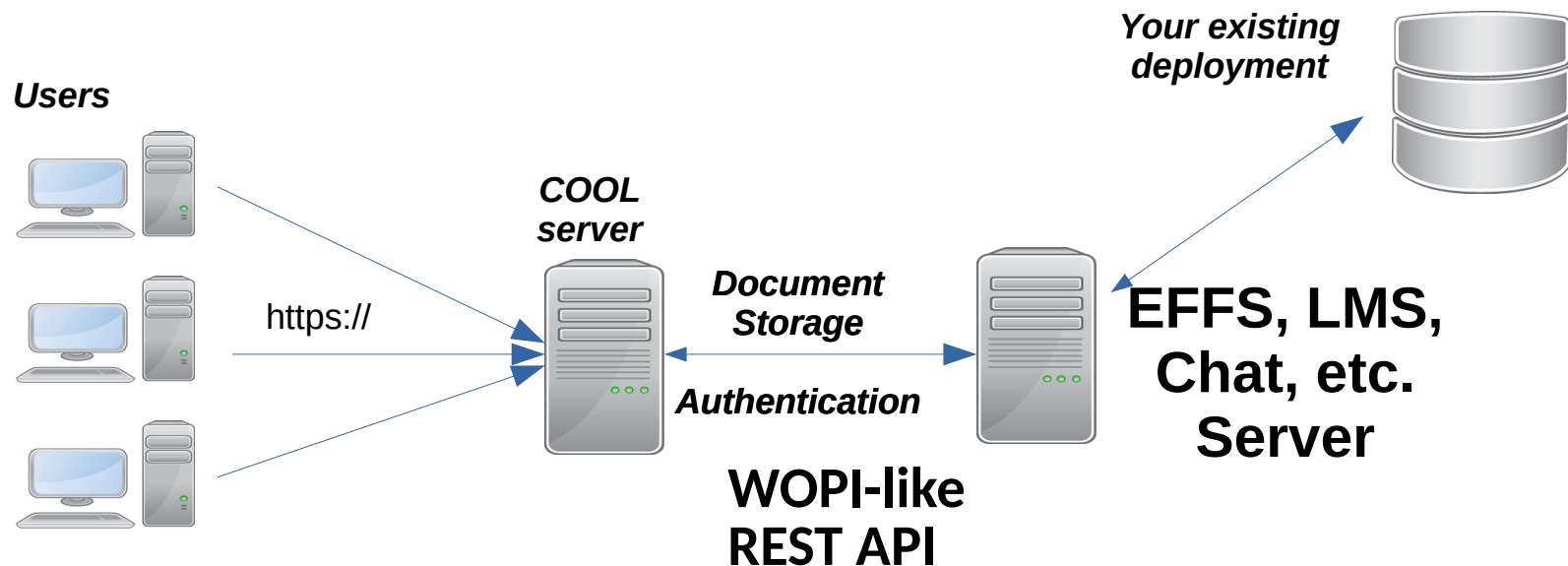
Extensive documentation too – but ... how does it work ?



COOL: a state-less drop-in ~micro-service

Document data is loaded / stored back to 'you'

Authentication is managed by 'you' (not us)





REST-ful WOPI-like protocol: around an iframe

To download the file:

- **GET** `https://<WOPI host URL>/<...>/wopi*/files/<id>/contents?access_token=<token>`

Upload back:

- **POST** `https://<WOPI host URL>/<...>/wopi*/files/<id>/contents?access_token=<token>`

CheckFileInfo to provide information about the file:

- `https://<WOPI host URL>/<...>/wopi*/files/<id>?access_token=<token>`

Just send the iframe your server's

- authentication token your REST interface will need
- file identifier your REST interface will need (as WOPIsrc parameter).

Some examples:

give in to peer pressure: all your friends have !



Alfresco - Java

Alfresco connector available thanks to [jeci](#), [Arawa](#), [Magenta](#)

The screenshot displays the Alfresco Content Application interface for editing a presentation. The browser address bar shows the URL: `alfresco-demo.jeci.fr/app-content/#/collabora-online-edit/98ce10e4-c7c3-4cd7-b3e7-c43eb23c659d`. The application title is "Presentation Jeci Logiciels Libres.odp".

The interface includes a menu bar with options: Fichier, Origine, Insertion, Révision, Format, Aide. Below the menu is a toolbar with various editing tools like Cut, Copy, Paste, and text formatting options (Bold, Italic, Underline, etc.).

The main workspace shows a presentation slide with the Jeci logo and the text "JECI Projets Libres". The slide has a decorative background with red and white diamond patterns. The footer of the slide contains the text: "Jérémie LESAGE - jeremie@jeci.fr", "Vincent FRANÇOIS - vincent@jeci.fr", and the date "30/10/2020".

On the left side, there is a thumbnail view of the presentation slides. On the right side, there is a "Diapo" (Slide) panel with settings for Format (A4), Orientation (Paysage), Arrière-plan (Aucun(e)), and Diapositive maîtresse (Accueil). There are also checkboxes for "Arrière-plan du masque" and "Objets du masque", and a button for "Affichage maître". Below the "Diapo" panel is a "Mises en page" (Layouts) section showing various slide layout templates.

At the bottom of the interface, there is a status bar showing the current slide as "Diapo 1 de 6" and the language as "Français (France)". A red progress bar is visible at the very bottom, indicating the current position in the presentation.



Egroupware – PHP + JS

Connector available thanks to eGroupware from their repository

- <https://github.com/EGroupware/collabora>
- To match their integration needs, we have
 - Improved the printing in Firefox
 - Updated dockerfiles

Collabora Productivity

The driving force behind putting LibreOffice to the Cloud

Collabora Online

The enterprise-ready LibreOffice-based Online Office Suite that can be customized to fit your unique needs.

- ✓ **Secure, Signed & Stable** - QA'd and tested
- ✓ **Long Term Support** - 3 years from release
- ✓ **SLA** - Guaranteed response times

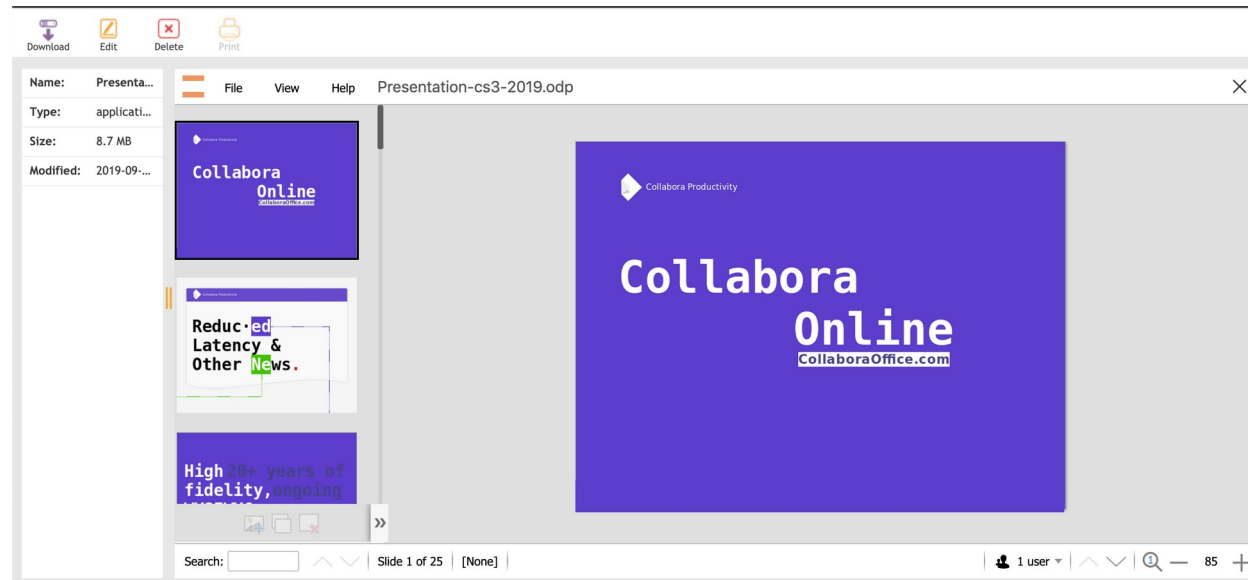
www.collaboraoffice.com



Kolab - PHP

Connector available thanks to Kolab themselves.

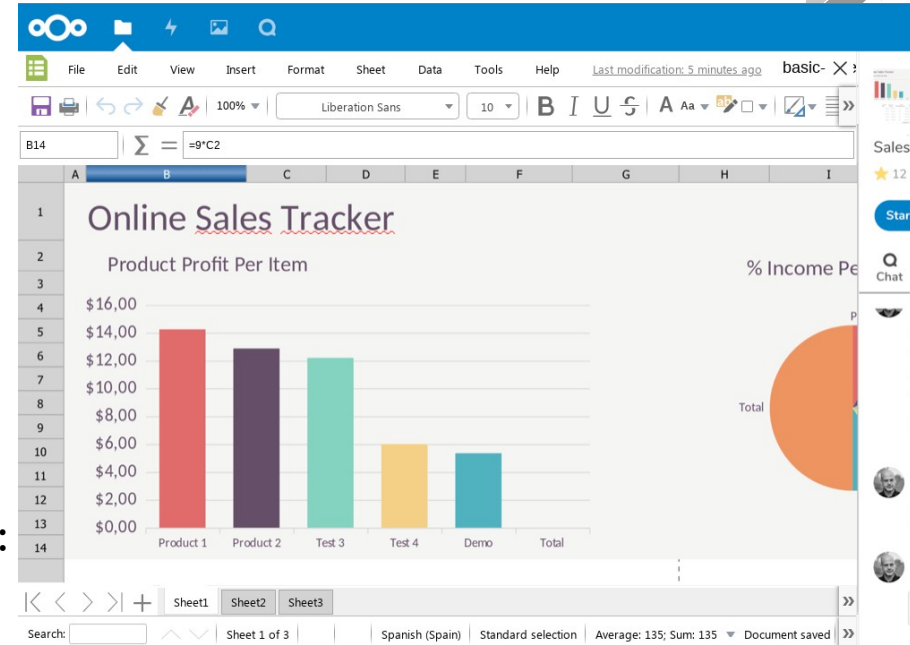
- <https://git.kolab.org/source/wopi/>
- To match their integration, we had to expose various functionality via postMessage
 - Like closing all the views from the master view, downloading or printing



Nextcloud - PHP/JS

Connector originally developed by Collabora, but now with features from Nextcloud

- <https://github.com/nextcloud/richdocuments>
- Many features in the Online were implemented to match the Nextcloud's integration needs, like:
 - Specification of avatars in CheckFileInfo
 - Support for templates – TemplateSource in CheckFileInfo
 - /hosting/capabilities – for early check of whether a particular version supports some features or not
 - And many more...

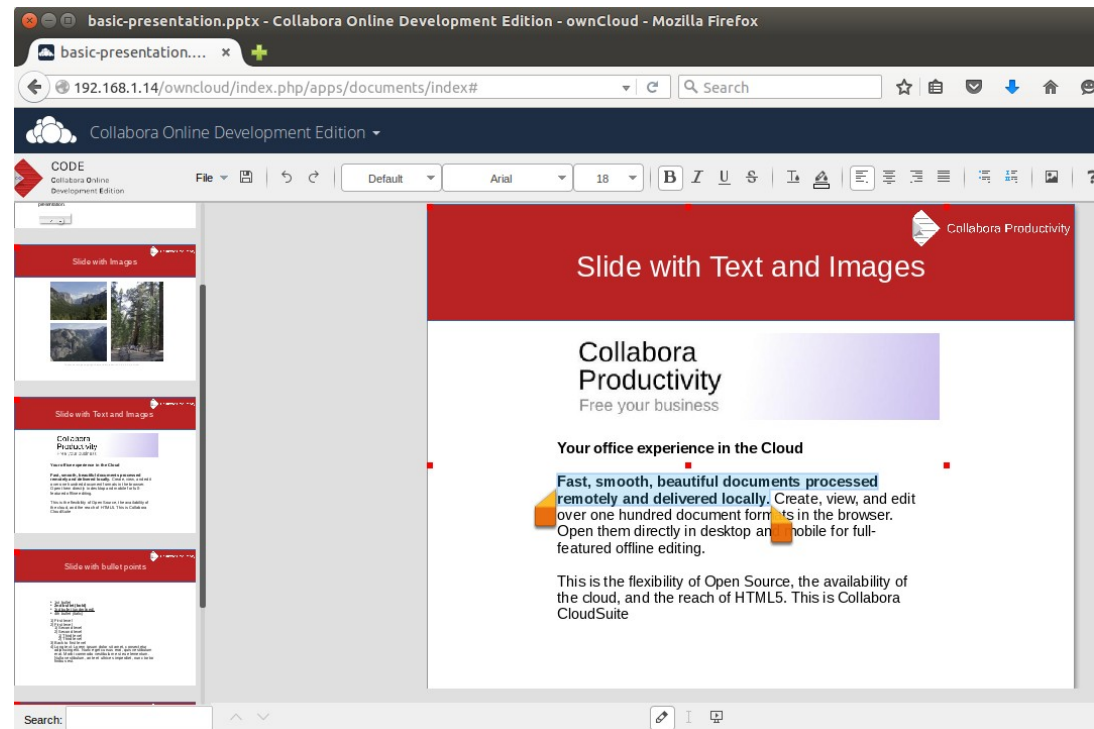




ownCloud – PHP + JS + GO / Python - OCIS

Originally implemented by Collabora, now with features from ownCloud & CERN

- <https://github.com/owncloud/richdocuments>
- To match their integration needs, we are improving Watermarking substantially
 - So that each user in a document can have a different, dedicated watermarked, secure view.





Mattermost – GO + JS

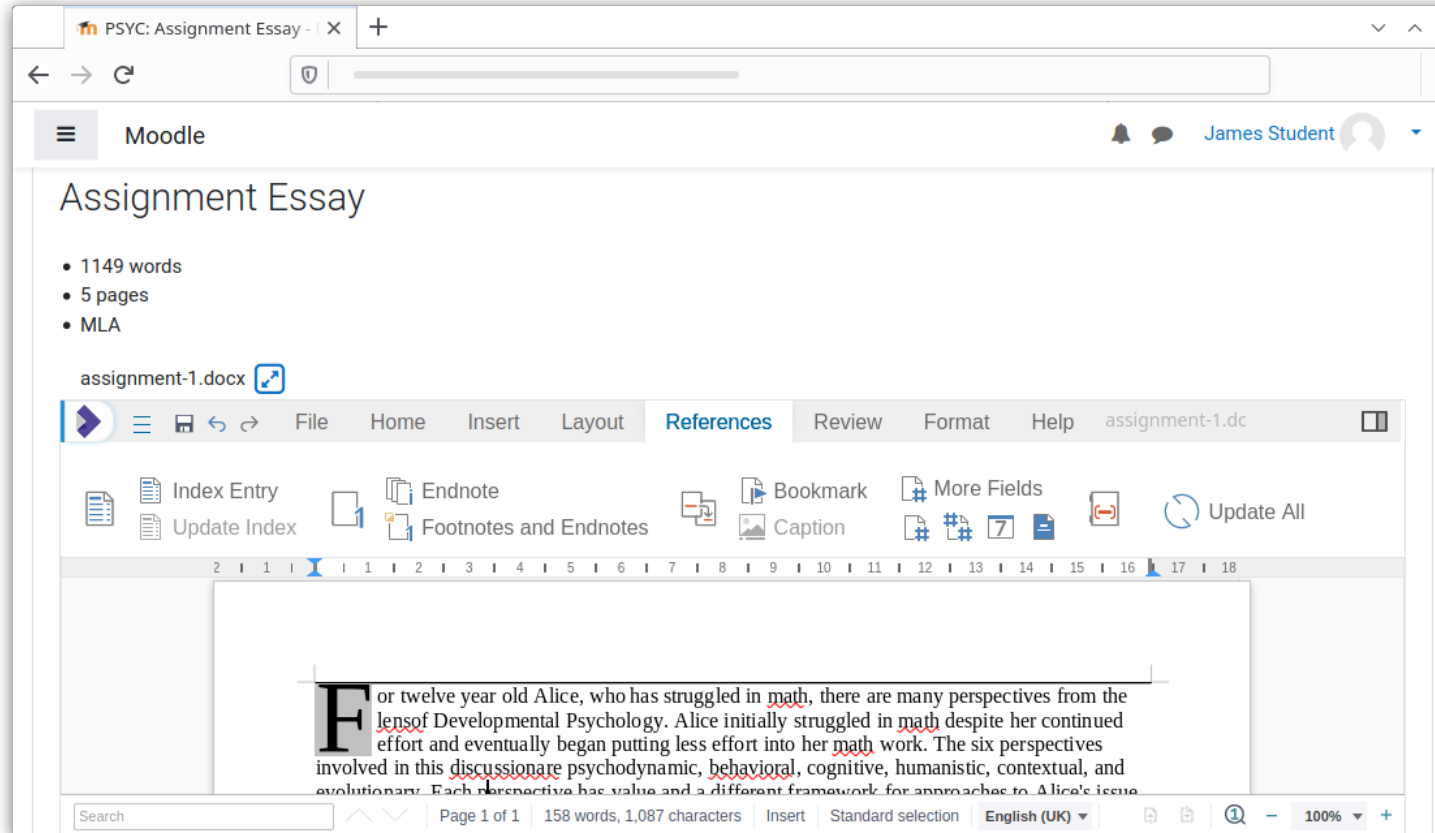
The screenshot shows a Mattermost chat interface. On the left is a sidebar with a list of channels: PUBLIC CHANNELS (add, asdasd, channel1, Demo-Plugin, Off-Topic, Town Square, More...) and PRIVATE CHANNELS (More...). The main chat area shows a message from 'asdasd' with a text input field at the bottom. A Collabora Online document viewer is embedded in the chat, displaying a document titled 'some text.txt'. The document content includes a title 'Title', a subtitle 'Some text', and a bar chart with three columns: Column 1 (blue), Column 2 (red), and Column 3 (yellow). The chart has four groups of bars with values ranging from 0 to 12. The document viewer interface includes a menu bar (File, Edit, View, Insert, Format, Table, Tools, Help), a toolbar with icons for saving, undo, redo, and text formatting, and a status bar at the bottom showing 'Page 1 of 1', '3 words, 14 characters', and 'Powered by Collabora Online'.

Group	Column 1	Column 2	Column 3
1	9	3	4
2	2	9	10
3	3	1	4
4	4	9	6

Moodle – PHP+JS - live document editing

Thanks to

- Michael Wuttke
Beuth University
of Applied Sciences
– Berlin
- Jan Dageförde -
University of
Münster.
- Davo Smith
from Synergy
Learning.



The screenshot shows a web browser window displaying a Moodle assignment titled "Assignment Essay". The interface includes a top navigation bar with the Moodle logo and a user profile for "James Student". Below the title, statistics show "1149 words", "5 pages", and "MLA" format. A toolbar with various editing tools is visible, including "Index Entry", "Update Index", "Endnote", "Footnotes and Endnotes", "Bookmark", "Caption", "More Fields", and "Update All". The main editing area shows a paragraph of text starting with "For twelve year old Alice, who has struggled in math, there are many perspectives from the lens of Developmental Psychology. Alice initially struggled in math despite her continued effort and eventually began putting less effort into her math work. The six perspectives involved in this discussion are psychodynamic, behavioral, cognitive, humanistic, contextual, and evolutionary. Each perspective has value and a different framework for approaches to Alice's issue". The bottom status bar indicates "Page 1 of 1", "158 words, 1,087 characters", and "English (UK)".

Beyond the basics

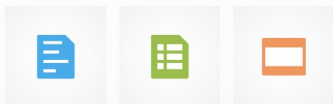
making it pretty too:



Getting style guide: a how-to ...

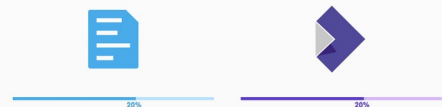
Documents

Document types



Loading...

Options



Colours

Neutral colours



Accent colours



Colour-coded tools



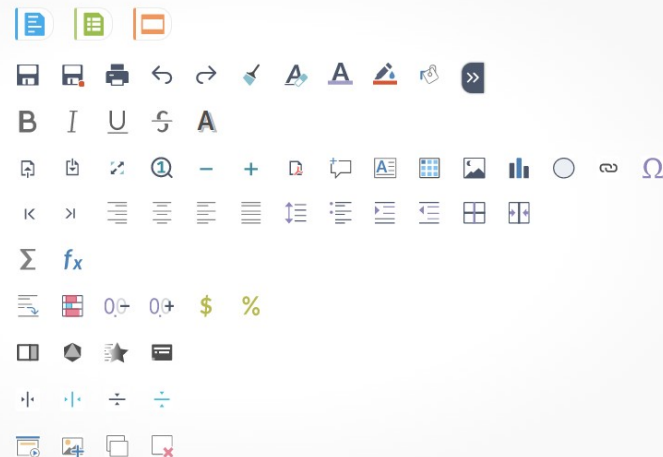
Typography

Sans-serif

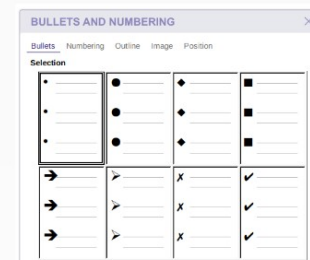
Sans-serif fonts with a variety of weights for each purpose.

Aa Bb Ww a abcdefghijklm
Aa Bb Ww nopqrstuvwxyz

Iconography



Dialog Windows





ui_defaults: posted with the iframe:

```
<input name="ui_defaults" value="TextRuler=false;StatusBar=false" type="hidden"/>
```

‘;’ delimited options in a post field.

uiMode=classic/notebookbar – **select menu/toolbars**

StatusBar=false – **hide status bar**

TextStatusBar=false – **hide status bar only for Text**

other prefixes: Presentation/Spreadsheet

Sidebar=false – **hide sidebar by default**

Ruler=false – **hide ruler by default ... etc.**

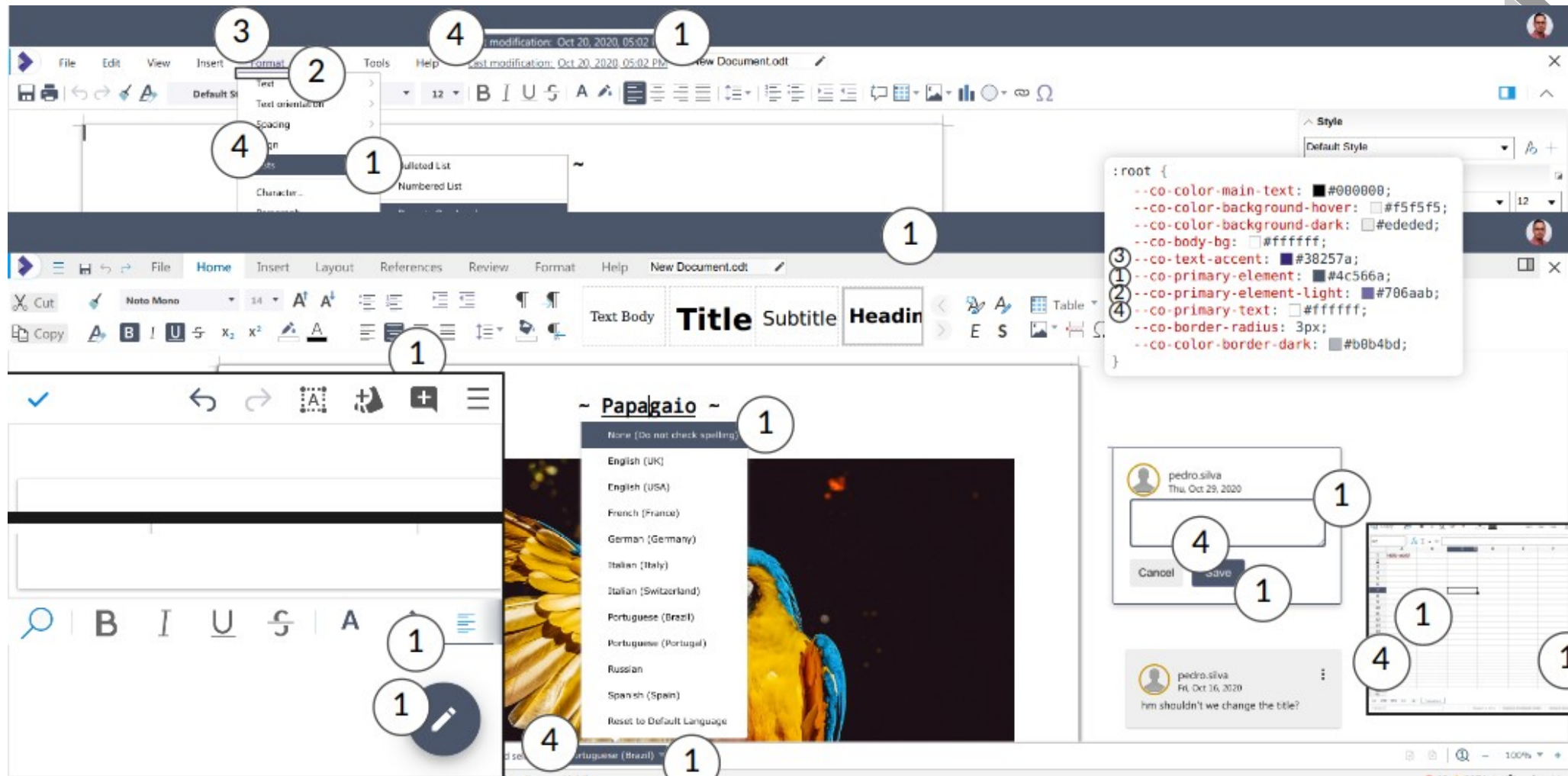


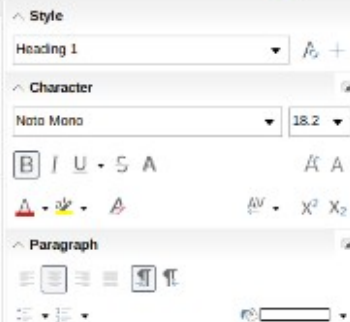
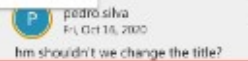
css_variables: posted with the iframe:

```
<input name="css_variables" value="co-color-main-text=#000;- -co-body-bg=#FFF- -co-txt-accent=#38257a;" type="hidden"/>
```

‘;’ delimited options in a post field, default (for now) are:

```
--co-primary-element: #4c566a  
--co-primary-element-light: #706aab  
--co-txt-accent: #38257a  
--co-primary-text: #ffffff  
--co-border-radius: 3px  
--co-body-bg: #ffffff  
--co-color-main-text: #000000
```





Before:

Collabora Online.odt - Files - Nextcloud - Mozilla Firefox

Collabora Online.odt - x +

localhost/nextcloud/index.php/apps/files/?dir=/Documents&fileid ... Vyhledat

File Edit View Insert Format Table Tools Help Last modification: 7 minutes ago Collabora Onlin ...

Save
Save As...
Share...
Print...
See revision history
Download as

Collabora Online

Welcome to the Collabora Online Demo

Thank you for your interest in the Collabora Online demo. Collabora Online is an open source on-premise office suite solution based on LibreOffice Online. It enables you to collaboratively edit, save and write text files, spreadsheets and presentations online. Collabora Online works on any modern browser and offers excellent interoperability for all popular office formats.

There are two versions of Collabora Online. The scale-able and supported enterprise-ready [Collabora Online](#) and [CODE](#) — the Collabora Online Developers Edition. While Collabora Online is aimed at professional business users, CODE is perfect for home users that want to start to run their online office suite in an own private environment or tech-enthusiast, that want to be among the first to see and test new features. Learn more about the differences [here](#).

One more thing before you start! This demo runs on our servers and grants you access to the latest snapshot from

Style
Text Body

Character
Vegur 10.5
B I U S A
A a X² X₂

Paragraph
Text alignment and bullet point options

Spacing:
Line spacing: 0.00" to 0.08"
Paragraph spacing: 0.00"

Indent:
First line indent: 0.00"
Hanging indent: 0.00"

After: theming / palette & settings ...

Collabora Online.odt - Files - Nextcloud - Mozilla Firefox

Collabora Online.odt - x +

localhost/nextcloud/index.php/apps/files/?dir=/Documents&fileid ...

Vyhledat

File Edit View Insert Format Table Tools Help Last modification: 1 minutes ago Collabora Onlin ...

Save
Save As...
Share...
Print...
See revision history
Download as

Nextcloud highlight colors

Collabora Online

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Ruler off by default

Sidebar was here ...

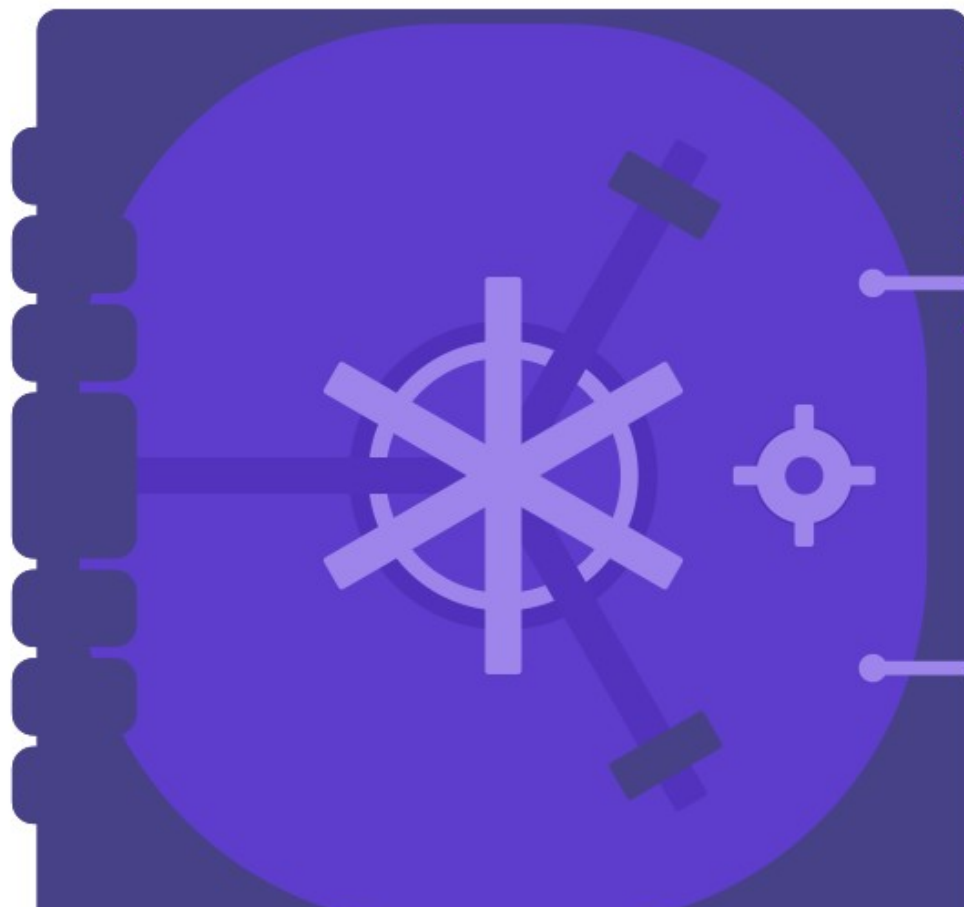
Lighter document background

Securing & Scaling your docs



Security: pre-init, fork & drop capabilities ...

everyone in their own chroot + seccomp-bpf + ...



on your premise / Private network
Virtual machine / Docker container
Seccomp-bpf ~no sys-calls
Extremely sparse filesystem
Chroot per document
Systematic load crash testing
Industry beating coverity score
LibreOfficeKit
rendering instance

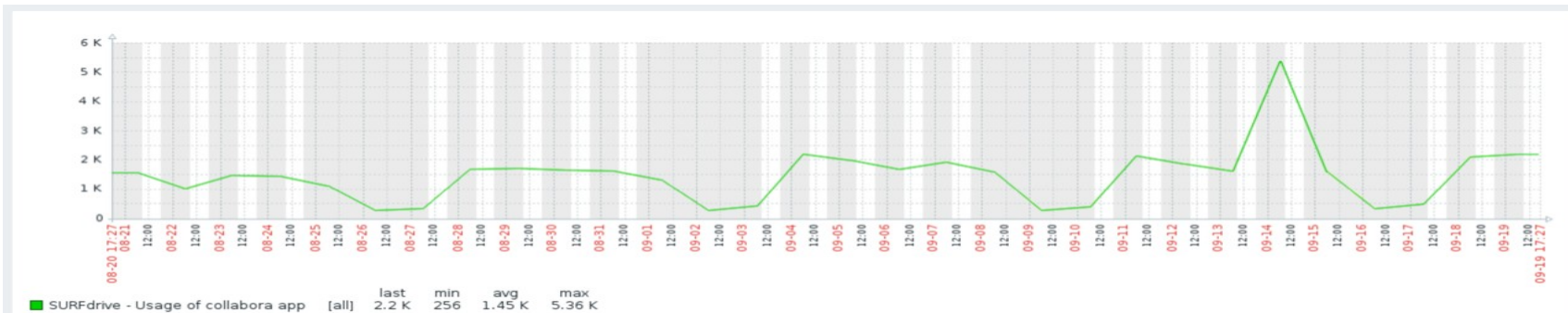
chroot

- no shell
- handful of NSS shared libraries, etc.
- fonts
- one document.

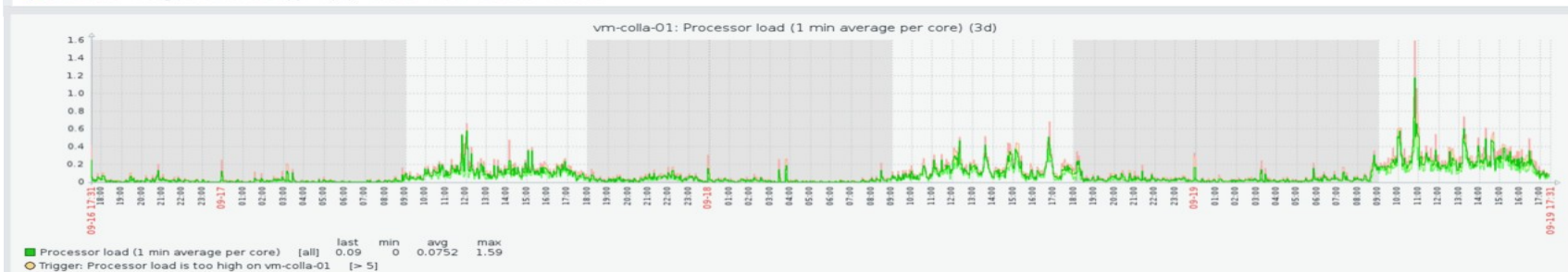
Pixels come out ...

Real world: ~45k users – Collabora Online – SURFdrive

Usage

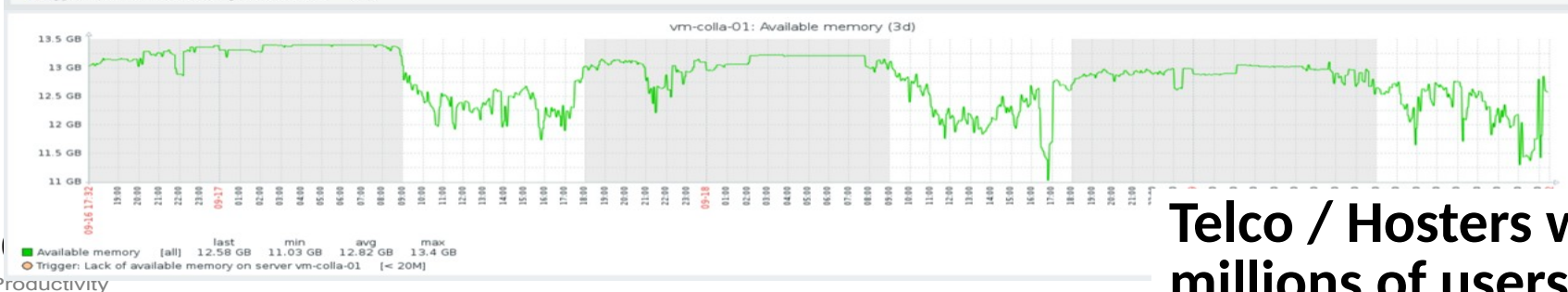


CPU



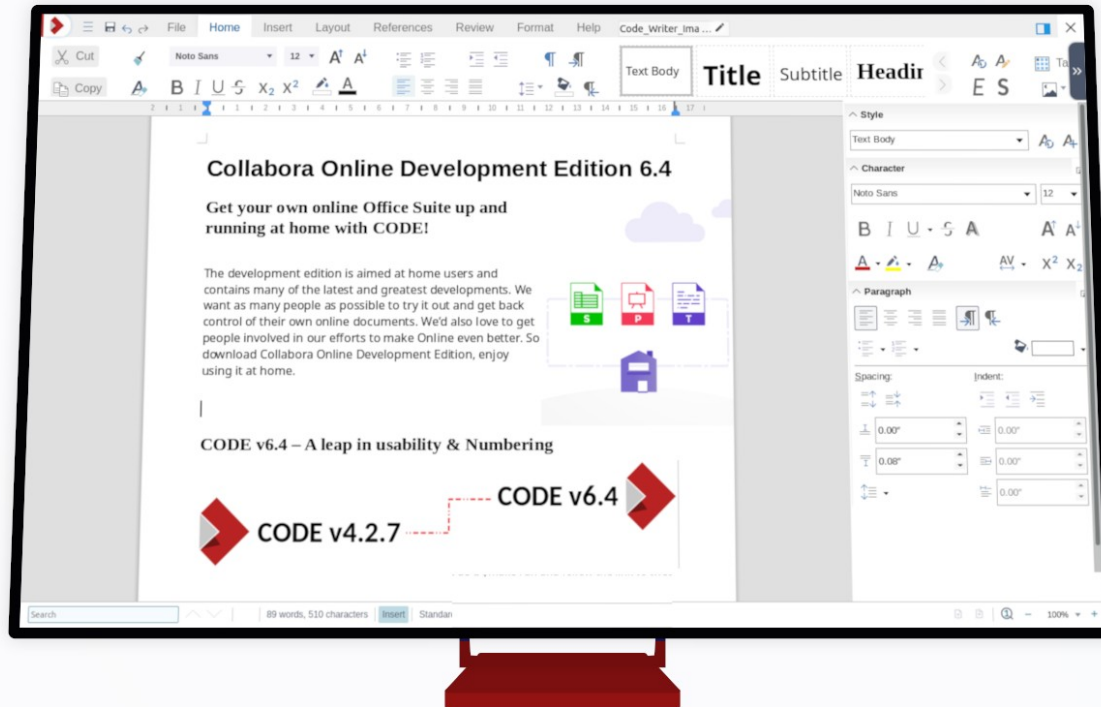
Free
RAM:
13.5Gb

→
11Gb
CS3-2021



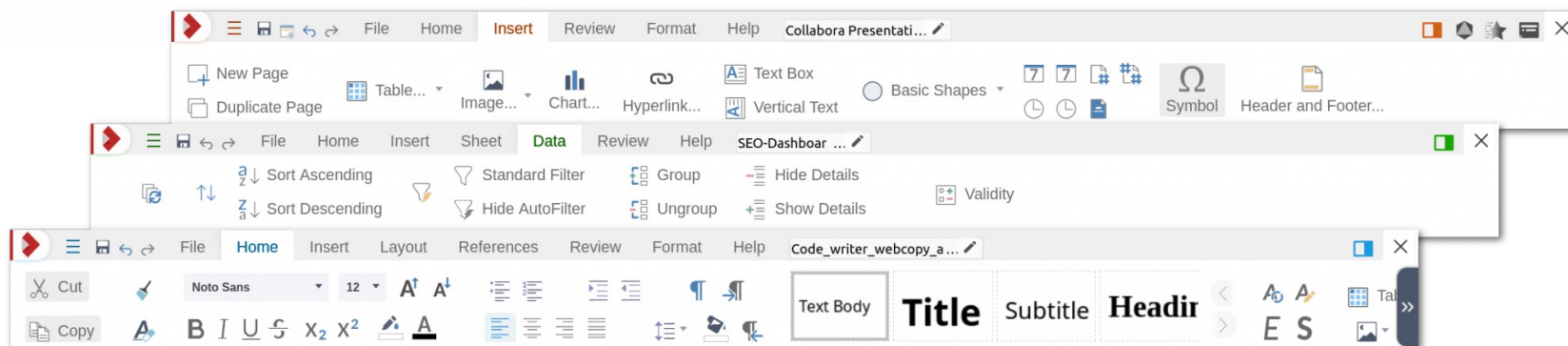
**Telco / Hosters with
millions of users**

Collabora Online 6.4.0 New stuff





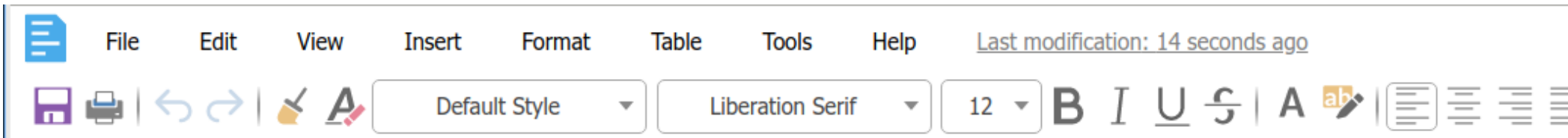
Eclectic Notebookbar UX choices: to taste



Can collapse to just a menu ...



Or just menu/toolbar



- Insert Rows Above Insert Columns Before Insert Row Break Delete Rows Remove Row Break Freeze First Column
 Insert Rows Below Insert Columns After Insert Column Break Delete Columns Remove Column Break Freeze Rows and Columns Freeze First Row

G34 \sum = 3

	A	E	F	G	H	I	J	K
1								
2								
3	Top Keywords							
4	Date	mp	Les Paul Guitar	Gibson Acoustic	Peavey Amp	Fender Black amp	Hollowbody guitar	Mesa Boogie amp
19	04/04/16	3		3	5		8	14
20	11/04/16	3		3	5		9	14
21	18/04/16	3		4	5		9	14
22	25/04/16	3		4	5		9	14
23	02/05/16	3		4	5		9	14
24	09/05/16	3		4	5		10	15
25	16/05/16	3		4	5		10	15
26	23/05/16	3		4	5		10	15
27	30/05/16	3		4	5		10	15
28	06/06/16	3		4	5		10	15
29	13/06/16	3		4	5		10	15
30	20/06/16	3		3	5		10	15
31	27/06/16	3		3	5		10	15
32	04/07/16	3		3	5		10	15
33	11/07/16	3		3	5		9	15
34	18/07/16	2		3	5		9	15
35	25/07/16	2		4	3	4	9	15
36	01/08/16	2		4	3	4	9	14
37	08/08/16	2		4	3	4	9	14
38	15/08/16	2		4	3	4	9	14
39	22/08/16	2		4	3	4	9	14
40	29/08/16	2		4	3	4	9	14
41	05/09/16	2		4	3	4	9	14
42	12/09/16	2		4	3	4	9	14
43	19/09/16	2		5	3	4	9	14
44	26/09/16	2		5	3	4	9	14
45	03/10/16	2		5	3	4	10	14
46	10/10/16	2		5	3	4	10	13
47	10/10/16	1		6	2	5	10	13
48								
49								
50								
51								

Style
 Default

Character
 Calibri 11

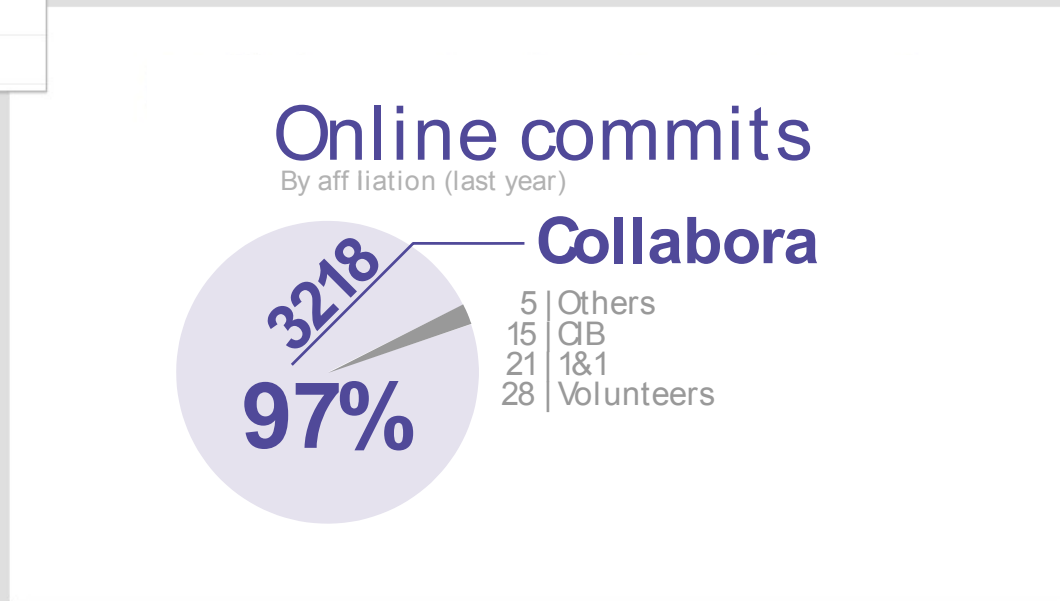
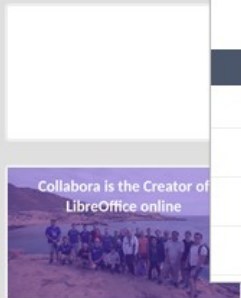
B I U A A[↑] A[↓]
 A A AV X² X₂

Number Format
 General 0.00
 Decimal places: Leading zeroes: 1
☐ Negative numbers in red
☐ Thousands separator

Alignment
 Indent: 0 pt
 Text orientation: 0°
☐ Merge cells
☐ Wrap text

Freeze Rows / NotebookBar / SmartArt

- Local Image...
- Image...
- Set Background Image...
- Comment**
- Chart...
- Hyperlink...
- Special Character...
- HeaderAndFooter



Marc

Wed, Aug 26, 2020

You can now add annotations to PDF Files in Collabora Online via the Comment function

PDF Search, Collaboration & Annotation

SEO-Dashboard.xlsx

share.collabora.com/index.php/apps/files/?dir=/ADemo&fileid=6...

File Home Insert Sheet Data Review Help SEO-Dashboard.xlsx

Cut Copy Callibri 11 A+ A- General % 00 .00 .00

F7 $f_x \Sigma =$

12 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 31 32 33 34 35 36

A B C D E F G H I J K L M

Guitar Shop 01/01/2016 - 12/31/2016

01/01/16

Edit Chart Titles & Sub titles

Directly in the side-bar

1 3 5 7 9 11

■ Guitar Straps ■ Bass Guitar Pick
 ■ Gibson Acoustic ■ Marshall Amp
 ■ Les Paul Guitar ■ Gibson Acoustic
 ■ Peavey Amp ■ Fender Black amp
 ■ Hollowbody guitar ■ Mesa Boogie amp

Page Indexed URLs Non-Paid Search

Organic Sources	% of Visits	Revenue	% of revenue	Traffic
Google	70%	\$494,296.97	74%	Non-Paid Search Traffic
Yahoo	15%	\$104,563.64	16%	Non-paid Search Revenue
Bing	5%	\$29,921.21	4%	Signups Non-Paid Traffic

Dashboard Data

Search Select multiple cells Insert mode: inactive English (USA) Selection mode: inactive 100%

Chart Type: Line

3D Lines

Stack series
☐ On top
☐ Percent

Line type: Straight Properties...

Elements

Titles

☒ Title
 Edit Chart Titles & Sub titles
☒ Subtitle
 Directly in the side-bar

Legend

☒ Show legend
 Placement: Right

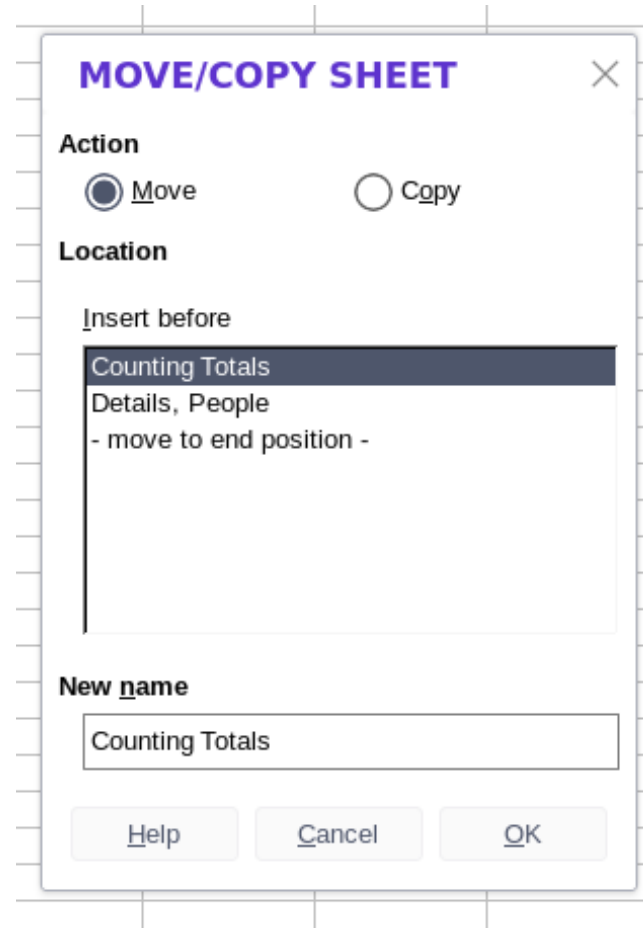
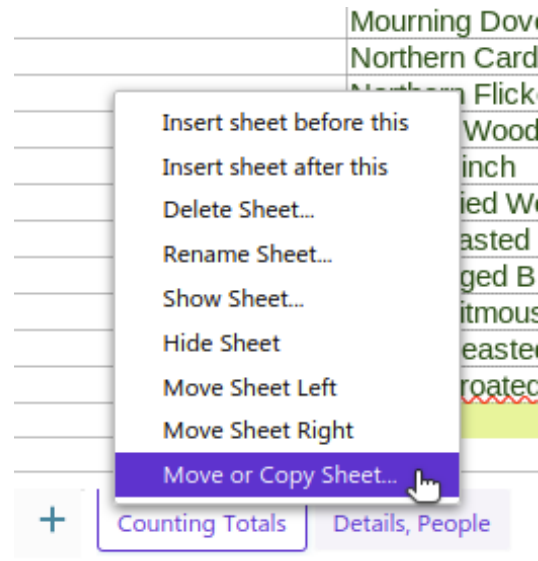
Axes

☒ X axis ☐ X axis title
☒ Y axis ☐ Y axis title

Improved chart editing sidebar functionality



Calc: Improved sheet movement:





Calc: customize & create Pivot Tables

SELECT SOURCE

☒ Current selection
☐ Named range:

Help

PIVOT TABLE LAYOUT

FILTERS:
Country

COLUMN FIELDS:
Data

AVAILABLE FIELDS:
Country
Size
Orchards count
Apple & Pear Trees
Peach & Apricot Trees
Olive Trees

ROW FIELDS:
Country

DATA FIELDS:
Sum - Apple & Pear Trees

DRAG THE ITEMS INTO THE DESIRED POSITION

> Options

> Source and Destination

Help Cancel OK

PIVOT TABLE LAYOUT

FILTERS:
Country

COLUMN FIELDS:
Data

AVAILABLE FIELDS:
Country
Size
Orchards count
Apple & Pear Trees
Peach & Apricot Trees
Olive Trees

ROW FIELDS:
Country

DATA FIELDS:
Sum - Apple & Pear Trees

DRAG THE ITEMS INTO THE DESIRED POSITION

> Options

> Source and Destination

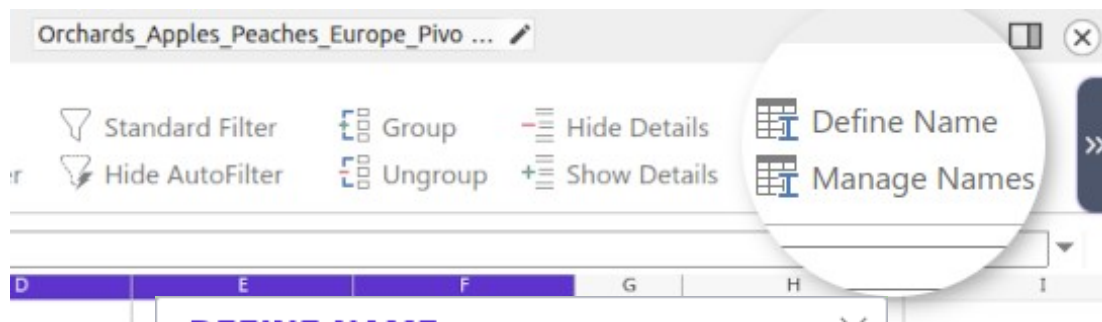
SOURCE
☐ Named range
☒ Selection 'Sorted Data'!\$B\$3:\$G\$75

DESTINATION
☐ New sheet
☐ Named range
☒ Selection 'Sorted Data'!\$J\$53

Help Cancel OK




Calc: define & manage range names & print ranges



DEFINE NAME

DEFINE THE NAME AND RANGE OR FORMULA EXPRESSION.

NAME:

RANGE OR FORMULA EXPRESSION:
 


SCOPE:

> Range Options

MANAGE NAMES

Name	Range or formula expression	Scope
Apples	'Sorted Data'.\$E\$4:\$E\$19	Document (Global)
Orchards	'Sorted Data'.\$B\$39	Document (Global)
Peaches	'Sorted Data'.\$F\$4:\$F\$22	Document (Global)

NAME:

RANGE OR FORMULA EXPRESSION:
 

SCOPE:

> Range Options

Calc: Statistical tools for data analysis

Calc: Statistical tools for data analysis

Orchards_Apples_Peaches_Europe_PivotTable (...)

File Home Insert Sheet Data Review Help

Refresh Pivot Table Sort Ascending AutoFilter Standard Filter Group Hide Details Define Name
Delete Pivot Table Sort Descending Advanced Filter Hide AutoFilter Ungroup Show Details Manage Names Validity Statistics

B3:G75

fx Σ =

Country	Size	Orchards count	Apple & Pear Trees	Peach & Apricot Tree	Olive Trees
Austria	S	4,518.19	767.46	71.63	
Austria	M	2,344.80	3,837.32	214.90	
Austria	L	2,655.50	3,069.85	429.80	
Belgium	S	2,208.49	1,736.58	838.69	
Belgium	M	9,587.01	2,315.44		
Belgium	L	2,934.50	1,736.58		
Bulgaria	S	6,918.00	495.80		
Bulgaria	M	4,518.49	991.60		
Bulgaria	L	3,500.76	3,470.59		
Croatia	S	14,518.60	891.82		
Croatia	M	6,318.49	2,229.54		
Croatia	L	2,354.64	1,337.72		
Cyprus	S	11,007.59	75.35		
Cyprus	M	1,518.49	113.03		
Cyprus	L	1,550.55	188.38		
Czechia	S	4,578.88	1,563.72		
Czechia	M	3,955.49	4,691.16		
Czechia	L	1,306.54	1,563.72		
Denmark	S	918.92	125.50		
Denmark	M	500.65	376.49		
Denmark	L	207.95	752.99		
France	S	39,522.80	11,489.49		
France	M	31,580.03	22,978.98		
France	L	14,074.47	3,829.83		
Germany	S	9,901.44	8,478.29		
Germany	M	15,698.11	14,130.48		
Germany	L	10,518.29	5,652.19		
Greece	S	549,528.32	2,813.21		
Greece	M	132,518.22	2,813.21		
Greece	L	79,220.36	3,750.94		
Hungary	S	23,221.55	5,008.80		
Hungary	M	5,539.26	5,008.80		
Hungary	L	7,530.67	15,026.41		
Italy	S	873,425.28	11,161.98		
Italy	M	294,518.49	16,742.97		

Size - all -

Data

Country Som - Apple & Pear

Austria

Belgium

ANALYSIS OF VARIANCE (ANOVA)

DATA

INPUT RANGE: '\$Sorted Data'!\$B\$3:\$G\$75

RESULTS TO: \$I\$34

TYPE

Single factor Two factor

GROUPED BY

Columns Rows

PARAMETERS

ALPHA: 0.05

ROWS PER SAMPLE: 1

Help Cancel OK

Sampling

Descriptive Statistics

Analysis of Variance (ANOVA)

Correlation

Covariance

Exponential Smoothing

Moving Average

Regression

Paired t-test

F-test

Z-test



Gutter Margins – for Taiwan and elsewhere ...

Very useful for Government binding standards:

Margins

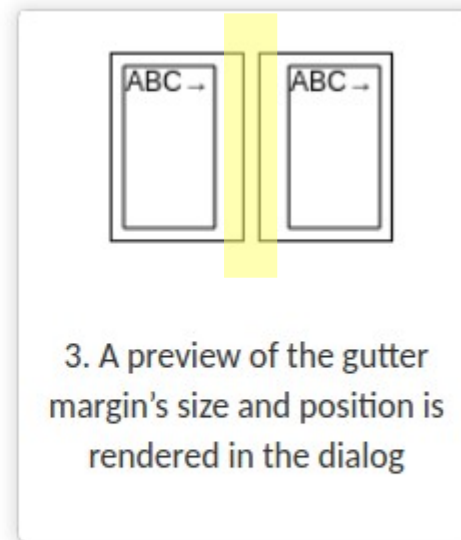
Inner:	0.79"	↕
Outer:	0.79"	↕
Top:	0.79"	↕
Bottom:	0.79"	↕
Gutter:	1.00"	↕

1. Define the size of the gutter margin

Gutter position:

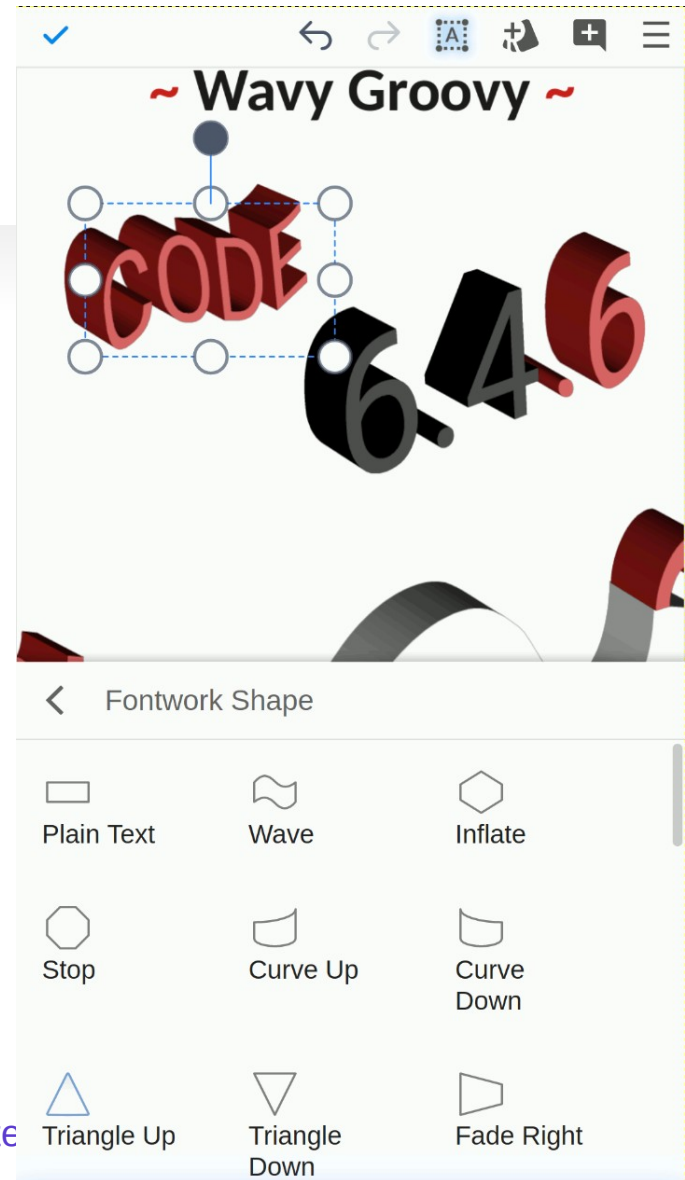
Left
Left
Top

2. Choose the position of the gutter margin



Bringing Draw to Online: Fontwork

Wavy & complex 3D text:





The pieces you can't see

Performance

- ~20% faster rendering time
- Faster interactive editing of cells
- Bind-mounting of document jails (instead of hard-linking)
- Improved watermark caching
- Slide content pre-fetching
- On-demand slide thumbnail fetching.
- Significant PDF rendering improvements
- Significant thumbnail / download speedups

Misc

- iOS multi-document support
- Substantial cypress automated test coverage.
- Cluster debugging / warnings ... check matching ServerIds

And much much more ...

- 3600+ commits.
- Innumerable bug-fixes & improvements

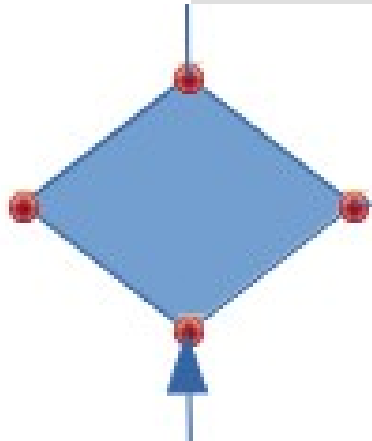
Next ...

*more rapid fire
incremental goodness
coming ~next week ...*

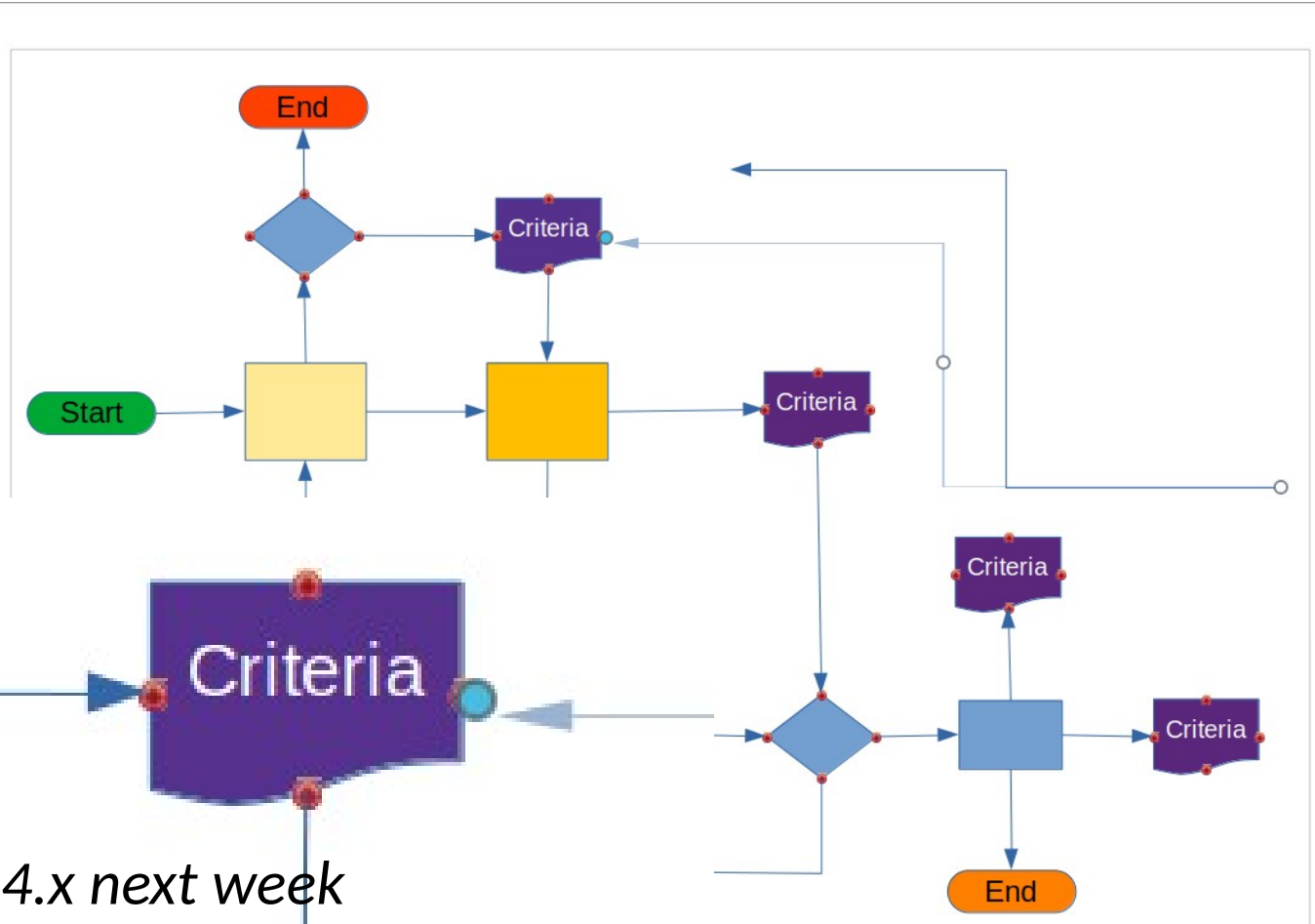


Bringing Draw to Online: Connectors ...

Shapes, Glue points, Connectors:



Due in 6.4.x next week





Crisper rendering ... not just crispness

Better zoom handling

- With some devices, non-100% zoom, poor 'crispness'
 - Browser is interpolating; on Linux - Chrome → 97.7% device scale (1000/1024)
- Pure Canvas (still tile) rendering - at pixel-grid scale
 - Dropping 'leaflet'; major code & dependency simplifications / shrink.
- Split panes on mobile / tablet devices
- Re-written in TypeScript → easier to maintain & scale

Enabling more future smarts:

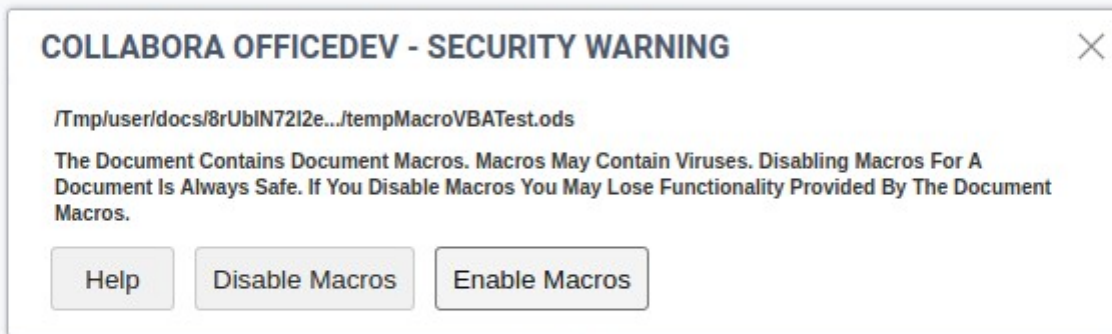
- Rendering calc grid, page outlines, re-ordering pages etc. on the client



VBA / StarBasic – just an option (!)

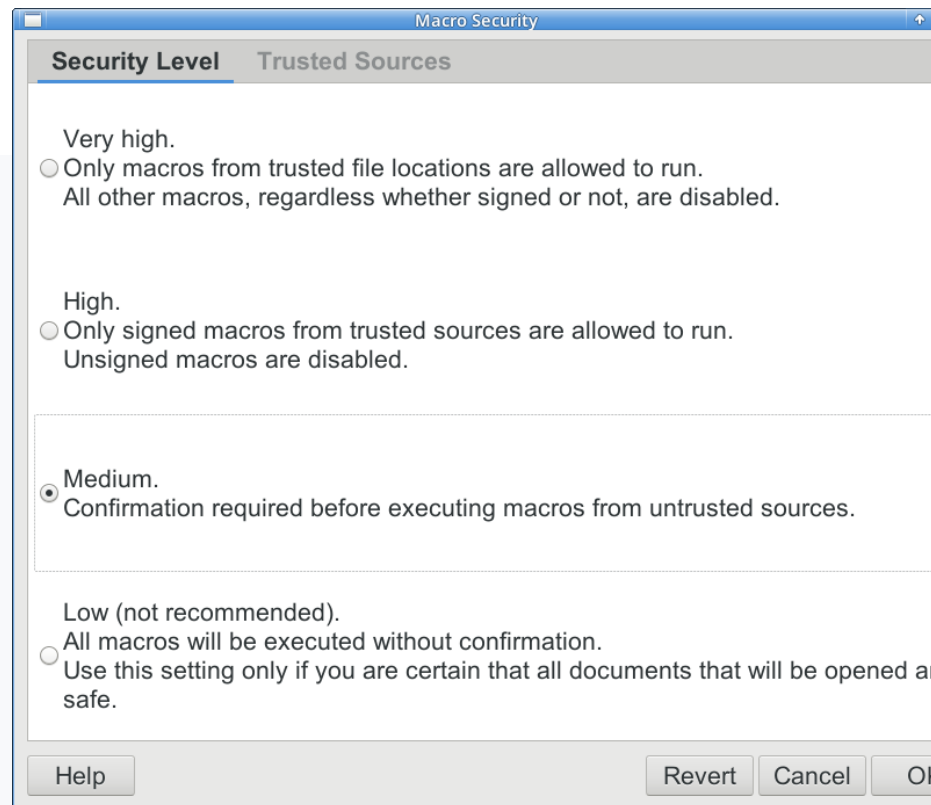
Thoughts:

- Defaults → hard disabled by default (assumed)
- Sysadmin / distributor can configure trusted macros, or allow for the user



Connecting...

100%



Coming in 6.4.x in a week or two.

Join us

Making Open Source ROCK





It's fun to get involved:

LibreOffice features:

<http://www.libreoffice.org/>

Code

<https://git.libreoffice.org/core>

Get involved:

- <https://www.libreoffice.org/community/get-involved/>
- C++, python, l10n and more
- <https://translations.documentfoundation.org/>

Collabora Online

<https://collaboraonline.github.io/>

Easy Hacks:

<https://github.com/CollaboraOnline/online>

- C++, Javascript, CSS, Design ...

<https://hosted.weblate.org/projects/collabora-online/>

Forum:

<https://forum.collaboraonline.com/>

Weekly dev. meetings

Thank you! & Questions

By Michael Meeks

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CollaboraOffice.com

CollaboraOffice.com/CODE

michael.meeks@collabora.com

**Open Source,
Open First**

Oh, that my words were recorded, that they were written on a scroll, that they were inscribed with an iron tool on lead, or engraved in rock for ever! I know that my Redeemer lives, and that in the end he will stand upon the earth. And though this body has been destroyed yet in my flesh I will see God, I myself will see him, with my own eyes - I and not another. How my heart yearns within me. - Job 19: 23-27