

Collabora Online & LibreOffice

Michael Meeks

CEO, Collabora Productivity



"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



- ~150 staff, Cambridge & Montreal
- Our parent company – started in 2005
- Leading Open Source Consultancy
- Spun out of SUSE in 2013
- ~50 staff
- Focused fully on office productivity & digital sovereignty
- ISO 9k1 & 27k certified

Collabora's
mission:

Make
Open
Source
ROCK

Shared mission / raison d'être:

- Make Open Source rock
- This is the goal of our shareholders

What does that mean?

- We re-invest your support into FLOSS software, and into our partners
- All our code is open
- **Organic & Self funded:**
 - no magic money tree
 - have to find & fix problems

Our Products



Collabora Online

- Digital Sovereignty
 - “Secure Document Collaboration, Controlled by You”
- Develop, support, maintain, sustain
 - Built with LibreOffice technology
 - Highly scalable, interoperable, collaborative editing, in your browser
 - SLA & Level 3 code-fix support
 - Product Management interaction
 - Go-to market via partners



Collabora Office

- Branded version of LibreOffice
 - Foundation for Online
 - Annual release eg. CO 2023.05
 - PC / Mac / Linux

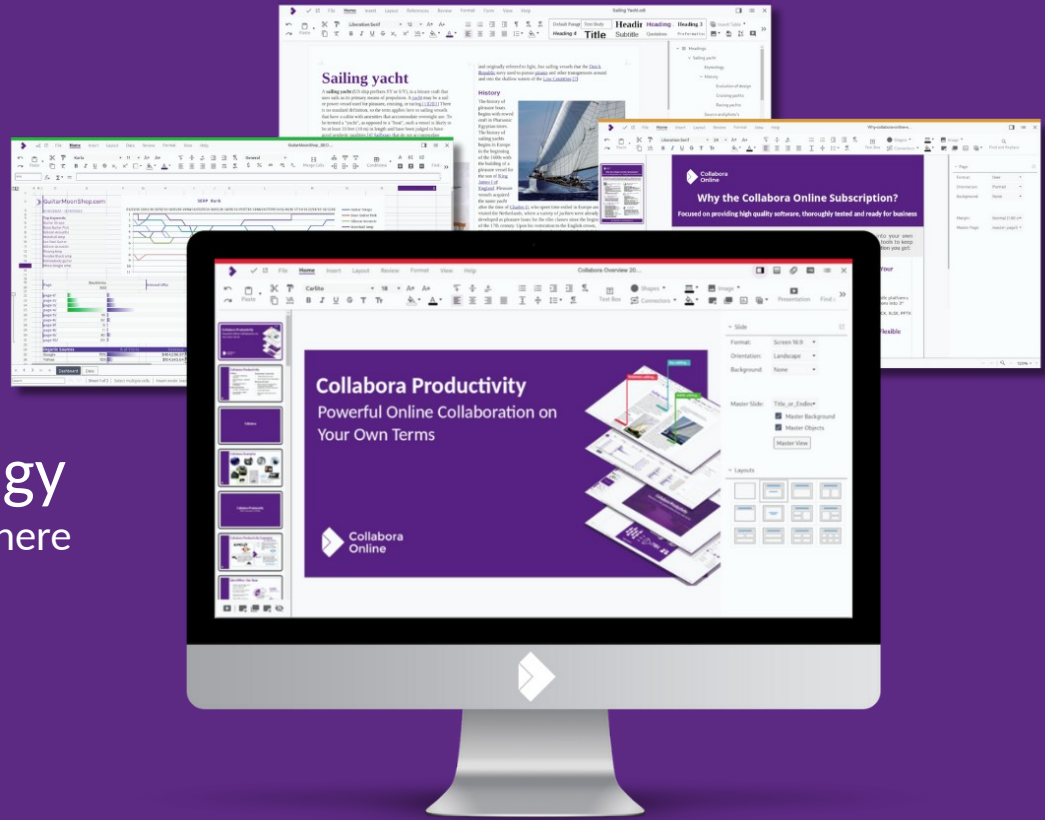


Collabora

- Consultancy & Support services
 - Bespoke consultancy or
 - Pre-paid, fixed-price L3 bug-packs

~25% of business

Collabora Online
Built with LibreOffice technology
Rich, interoperable, collaborative editing, everywhere



~105 million docker image downloads

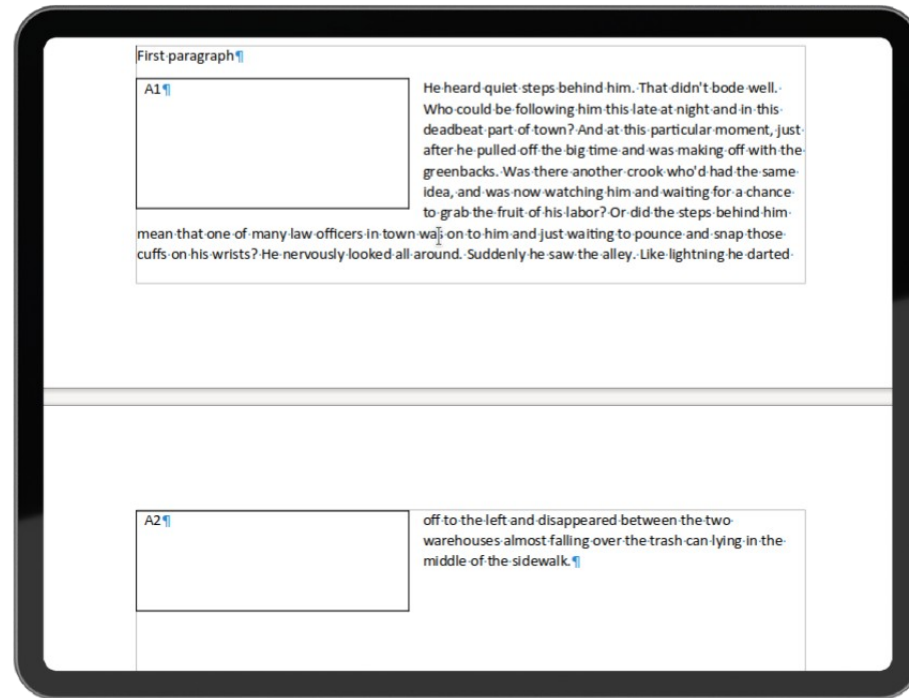
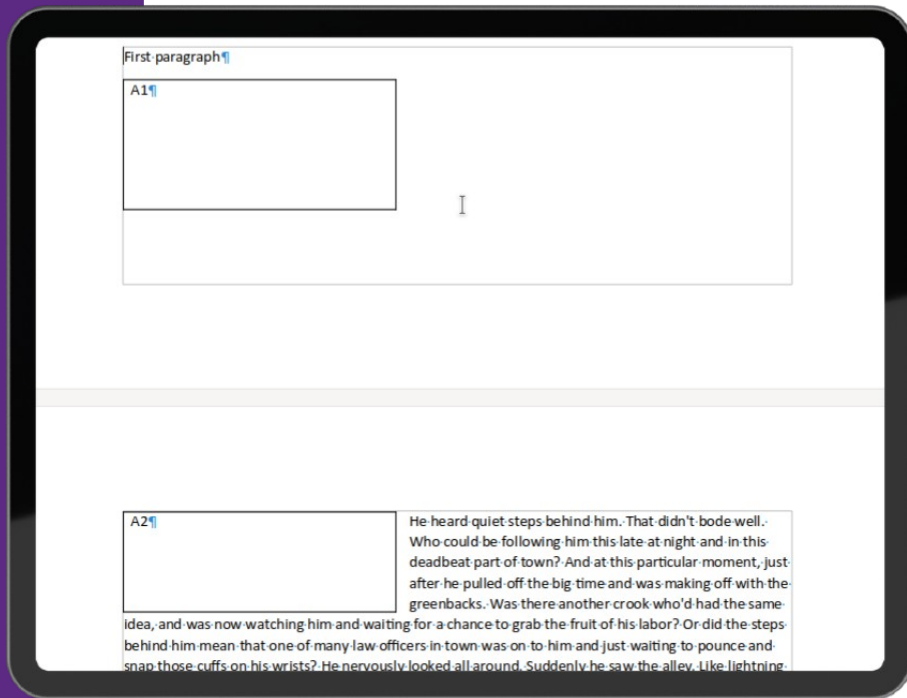
Support in numbers ...

- Around ~800 support tickets per year opened
 - And then closed.
- Under ~30 open in the pipeline concurrently
 - Receiving clarification / feedback.

What have we been doing?

Lots of improvements since last year!

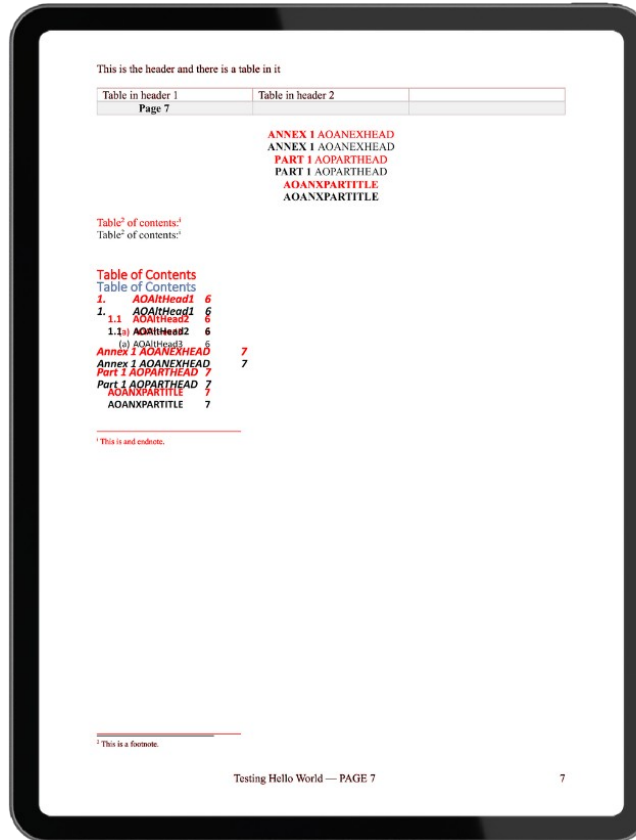
Multi-page Floating Tables



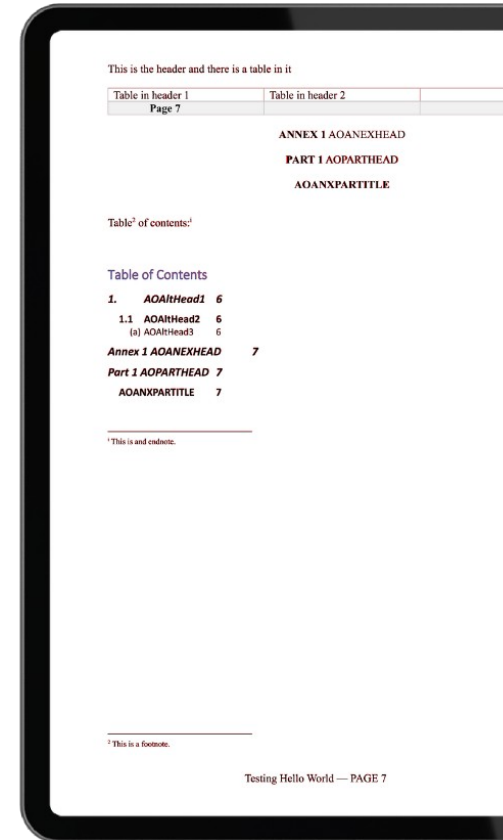
Before (left)
After (right)

Continuous Endnotes

- Better support for continuous / inline endnotes
- Improved interoperability



Black: LibreOffice rendering
Red: Reference rendering



Before (left)
After (right)

Multi-page Floating Tables

Before (left)
After (below)

Muut omistajat / Andra ägare (Jatka tarvittaessa kääntöpuolella / Fortsätt på baksidan vid behov):

Nimi / Namn	Yhdistys / Klubb
Nimi / Namn	Yhdistys / Klubb

Tämän kissan kanssa samaan häkkiin seuraavat kissat / I samma bur med denna katt följande katter

Nimi / Namn	EMS-koodi / EMS kod	Oma näyttelyhäkki / Egen utställningsbur
Nimi / Namn	EMS-koodi / EMS kod	Oma tuplahäkki / Egen dubbelbur
Nimi / Namn	EMS-koodi / EMS kod	FIFen minimimitat näyttelyhäkille 50x50 cm / FIFes minimimått för burar 50x50 cm

Valmistuminen luokissa 3-6: Titeln i klasser 3-6 tas enligt: 6 x CAGCIB/CAGPIB → 9 x CACS/CAPS → 8 x CAGCIB/CAGPIB → 11 x CACS/CAPS

Nykyisessä luokassa saadut sertifikaatit / Tidigare erhållna certifikat i nuvarande klass: Suomi / Finland kpl / st, Maa 2 / Land 2 kpl / st, Muut maat / Andra länder kpl / st

Ilmoittaudun assistentiksi / Jag anmäler mig som assistent: Nuoret (7-10 kk) / Junior (7-10 mån), Sopimus / Avtal (4-7 mån), Yhteystietoni saa julkaisua näyttelyssä / Mina adressuppgifter får publiceras i utställningen

Vakuutan antamani tiedot oikeiksi, sitoudun noudattamaan Kissaliiton ja FIFen näyttelysääntöjä ja annan suostumukseni sääntöjen määräämiin sientestihin sekä jäsenyhteyden tarkistamiseen. / Jag intygar att angivna uppgifter är korrekta, och förbinder mig att följa FIFen och Kissaliiton utställningsregler, samt ger mitt samtycke till stadgeenliga tester för ringorm och medlemskapskontroll.

Paikka / Ort, Päiväys / Datum, Allekirjoitus ja nimen selvennös (yhden omistajan riittää) / Underskrift samt namnförtydligande (en ägare räcker)

HUOMI! Liitä maksukuitti tai sen jäljennös mukaan. / OBS! Bifoga kvitto eller kopia av kvitto på inbetald anmälningsavgift.

*) Sääntöjen mukaan yhden omistajan allekirjoitus sitoo kaikkia omistajia. / Enligt reglerna binder underskriften alla ägare.

Muut omistajat / Andra ägare (Jatka tarvittaessa kääntöpuolella / Fortsätt på baksidan vid behov):

Nimi / Namn	Yhdistys / Klubb
Nimi / Namn	Yhdistys / Klubb

Tämän kissan kanssa samaan häkkiin seuraavat kissat / I samma bur med denna katt följande katter

Nimi / Namn	EMS-koodi / EMS kod	Oma näyttelyhäkki / Egen utställningsbur
Nimi / Namn	EMS-koodi / EMS kod	Oma tuplahäkki / Egen dubbelbur
Nimi / Namn	EMS-koodi / EMS kod	FIFen minimimitat näyttelyhäkille 50x50x50 cm / FIFes minimimått för burar 50x50x50 cm

Valmistuminen luokissa 3-6: Titeln i klasser 3-6 tas enligt: 6 x CAGCIB/CAGPIB → 9 x CACS/CAPS → 8 x CAGCIB/CAGPIB → 11 x CACS/CAPS

Nykyisessä luokassa saadut sertifikaatit / Tidigare erhållna certifikat i nuvarande klass: Suomi / Finland kpl / st, Maa 2 / Land 2 kpl / st, Muut maat / Andra länder kpl / st

Näyttelyluokat / utställningsklasser:

1. → Supreme Champion	7. → Champion	11. Nuoret (7-10 kk) / Junior (7-10 mån)	14. Kofkissa (yli 4 kk) / Huskatt (över 4 mån)
2. → Supreme Premier	8. → Premier	12. Pennut (4-7 kk) / Ungdjur (4-7 mån)	15. -Sitos / Avel
3. → Grand International Champion	9. → Avoin (yli 10 kk) / Öppen (över 10 mån)	13a Novitsi (yli 10 kk) / Novis (över 10 mån)	16. Kasvattaja / Uppfödare
4. → Grand International Premier	10. → Kastratti (yli 10 kk) / Kastrat (över 10 mån)	13b Rodun tarkistus / Raskontroll	17. -Veteraani (yli 7 v.) / Veteran (över 7 år)
5. → International Champion		13c Määrittely / Definieringsklass	
6. → International Premier		13d Silitarkistus / Avels kontroll	

Kissanpentuja myytävänä / Kattungar till salu, Ilmoittaudun assistentiksi / Jag anmäler mig som assistent, Syntymävuosi / Födelsår, Yhteystietoni saa julkaisua näyttelyssä / Mina adressuppgifter får publiceras i katalogen

Vakuutan antamani tiedot oikeiksi, sitoudun noudattamaan Kissaliiton ja FIFen näyttelysääntöjä ja annan suostumukseni sääntöjen määräämiin sientestihin sekä jäsenyhteyden tarkistamiseen. / Jag intygar att angivna uppgifter är korrekta, och förbinder mig att följa FIFen och Kissaliiton utställningsregler, samt ger mitt samtycke till stadgeenliga tester för ringorm och medlemskapskontroll.

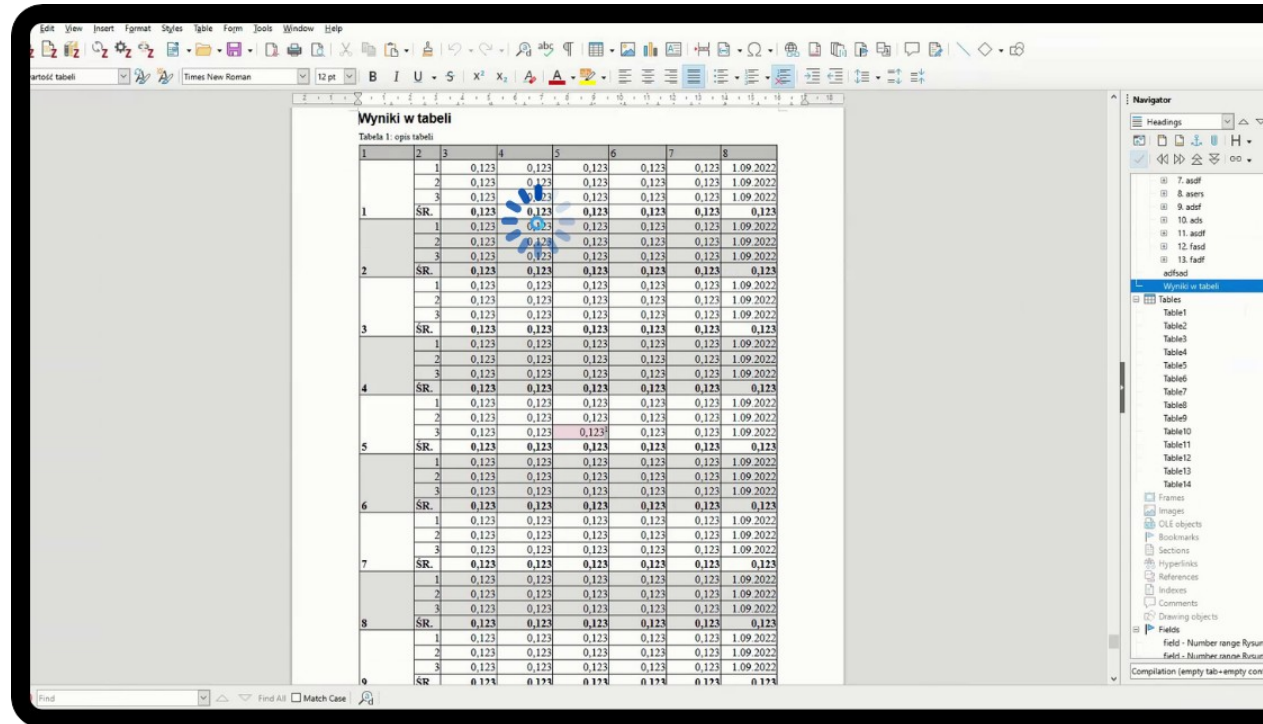
Paikka / Ort, Päiväys / Datum, Allekirjoitus ja nimen selvennös (yhden omistajan riittää) / Underskrift samt namnförtydligande (en ägare räcker)

HUOMI! Liitä maksukuitti tai sen jäljennös mukaan. / OBS! Bifoga kvitto eller kopia av kvitto på inbetald anmälningsavgift.

*) Sääntöjen mukaan yhden omistajan allekirjoitus sitoo kaikkia omistajia. / Enligt reglerna binder underskriften alla ägare.

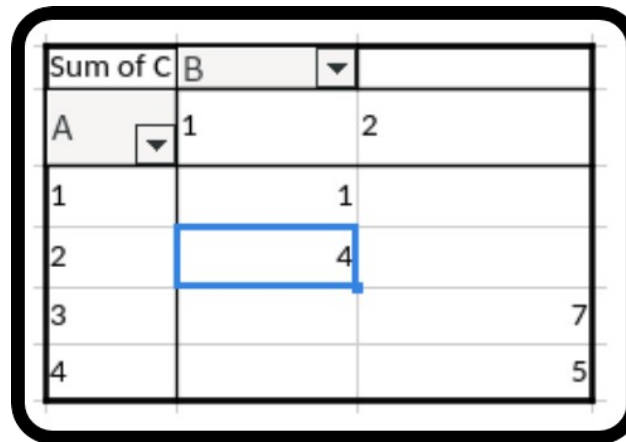
~100x Faster Tables

- Incorrect layout produced for tables with merged cells split over pages
- Would hang pasting cells up to 2 minutes
- Now opens with no lag



Improved OOXML Pivot Tables

- Pivot tables now show cell formatting
- Survives round trip import/export

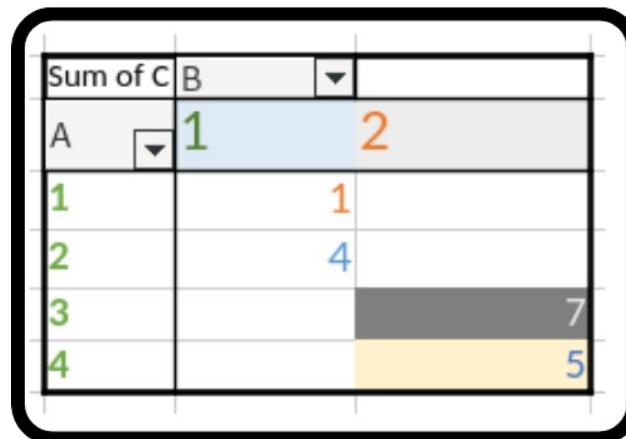


A screenshot of a pivot table titled "Sum of C B" with a dropdown arrow. The table has two columns: "A" and "B". The "A" column has a dropdown arrow. The data is as follows:

A	B
1	2
1	1
2	4
3	7
4	5

The cell containing the value 4 is highlighted with a blue border.

Before (above)
After (below)



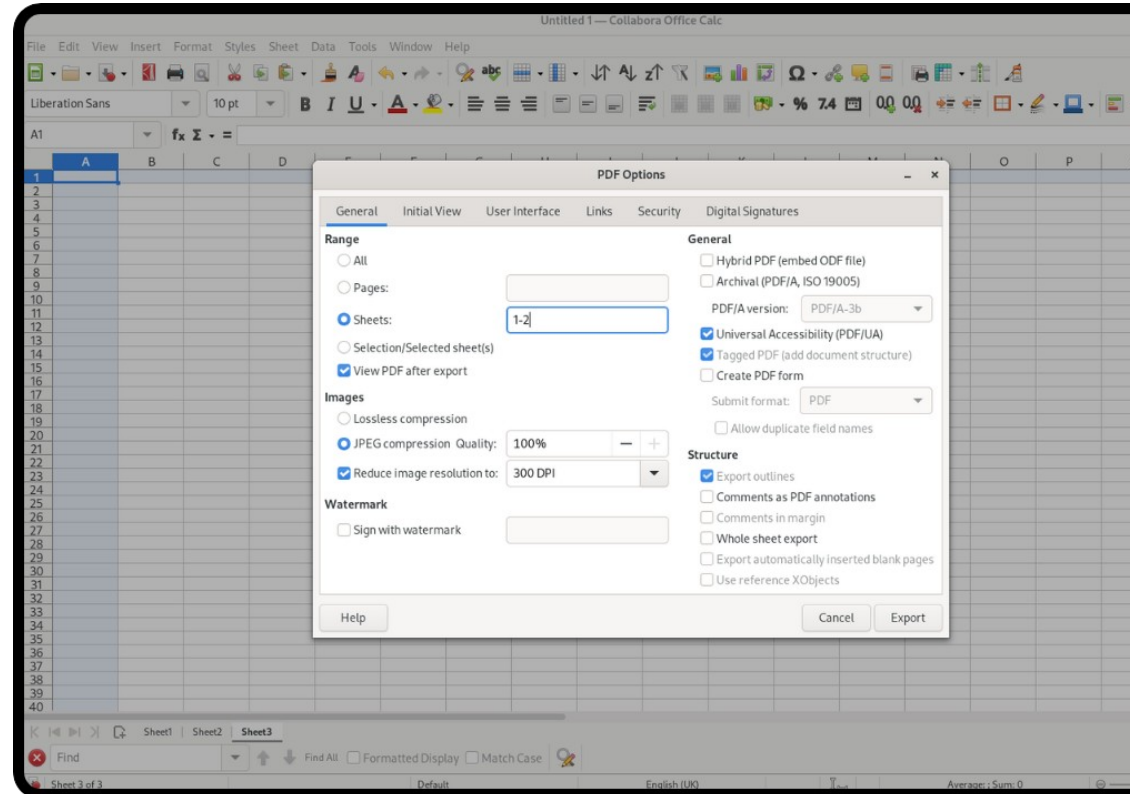
A screenshot of the same pivot table after formatting. The cells now have colors and text colors applied:

A	B
1	2
1	1
2	4
3	7
4	5

The cell containing the value 1 in the second row is green. The cell containing the value 2 in the first row is orange. The cell containing the value 4 in the third row is blue. The cell containing the value 7 in the fourth row is grey. The cell containing the value 5 in the fifth row is yellow.

Export sheet range

- Further improvements to powerful export options

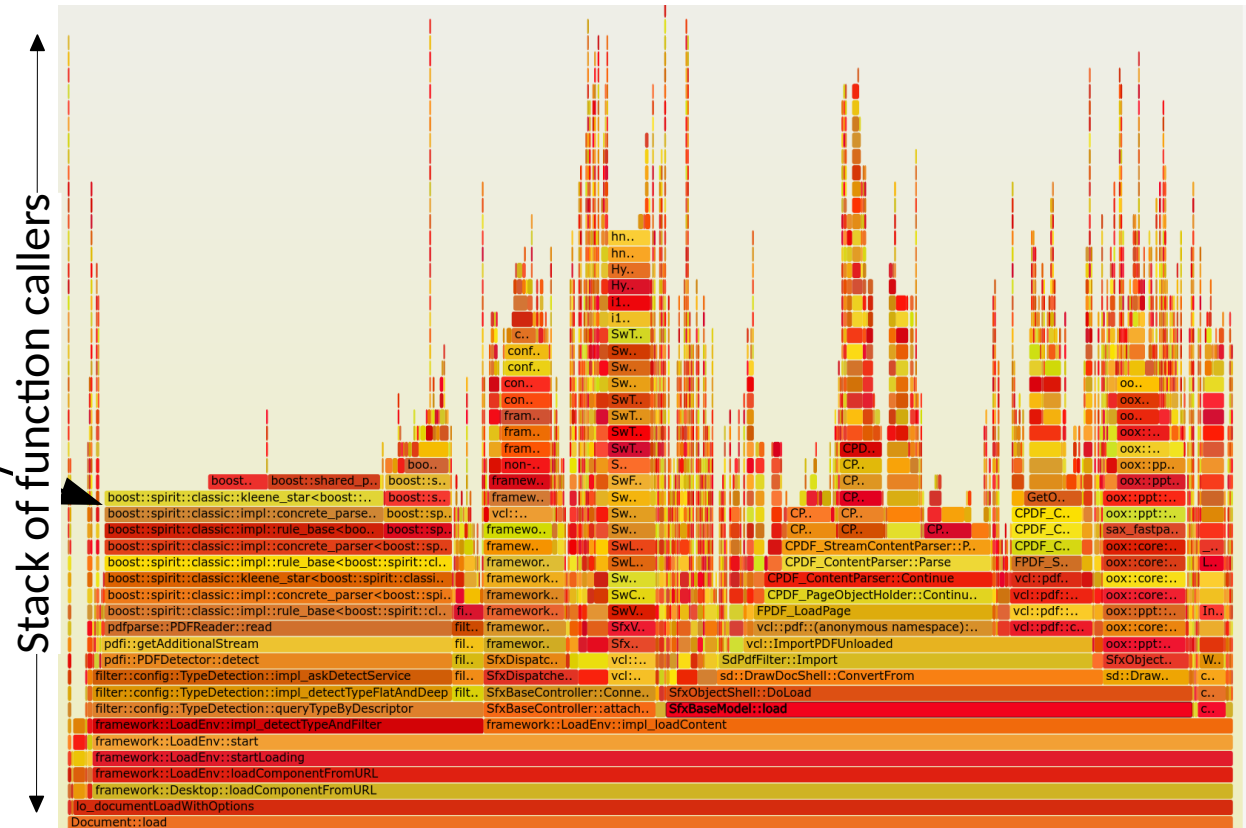


Long Running Demo Profiles: A Week

What does it mean?

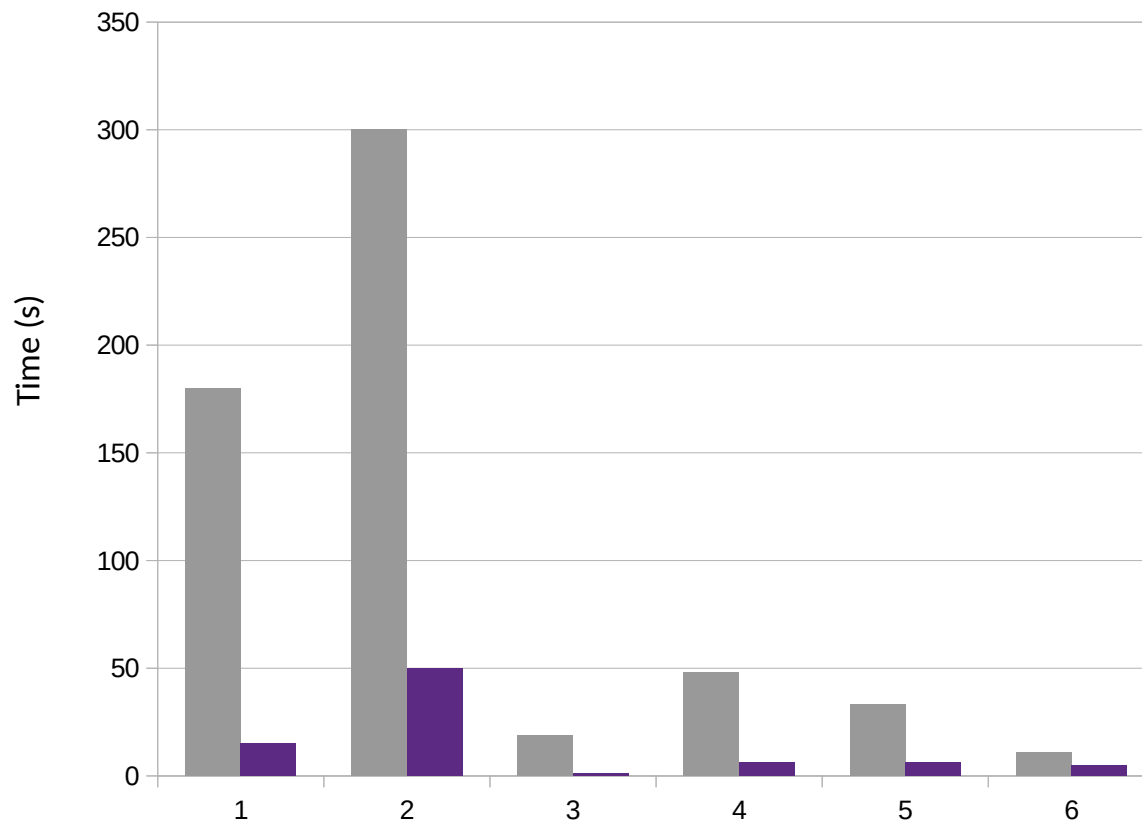
- 17% of a week of profiling:
- Detecting: “is it a Hybrid PDF”?
- Unbelievably wasteful
- Get and analyze these weekly

← Width is proportional to time →





Performance Tuning



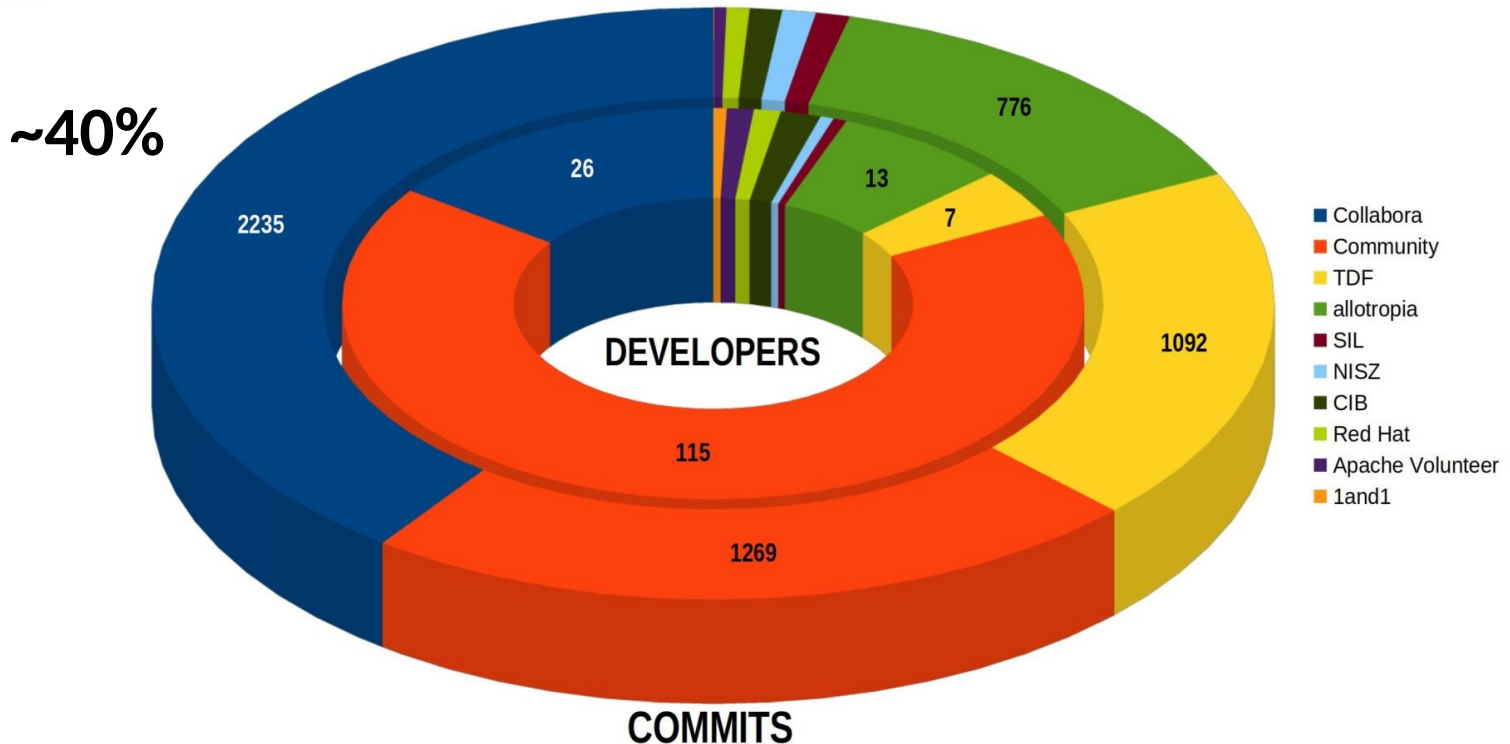
- 1) Use less GetItemSurrogates in SwTable::UpdateFields
Speeds up loading a large document with lots of nested tables from **several minutes to under 15s**
- 2) tdf#152104 speed xls->ods convert part 1
We now have 16k columns, so storing a flat array of columns where most of them are empty is bad for performance
Rather store a sorted data-structure of all the ranges, reduces time from **over 5 mins to ~50s**
- 3) tdf#161210 speed xls load
Instead of applying row styles to all 16384 columns, only apply them to columns that have data
That takes the load time for this file from **19s to 1s**
- 4) tdf#144208 speedup doc with lots of redline
This takes load time from **48s to 6s**
- 5) tdf#160706 speed up loading conditional formatting rule in XLS (4)
speed up the matching of duplicates in CellAttributeHelper by using std::set and partial sorting by name
Takes load time from **33s to 6s**
- 6) tdf#160399 speed up print preview
takes time from **11s to 5s**

Lots more work!

- Legal numbering
- Copy and paste between Calc and Google Sheets
- AutoFill called via UNO commands
- Faster PPTX opening with custom shapes
- Enter in empty list ends the list
- Improved SVG and multi-page TIFF support
- Many performance improvements
- Code cleanup & upgrading ...
- Bug fixes
- And much more...

And a lot more work ...

Commits for LibreOffice 24.8 (#)



Reference: <https://blog.documentfoundation.org/blog/2024/08/22/libreoffice-248/>

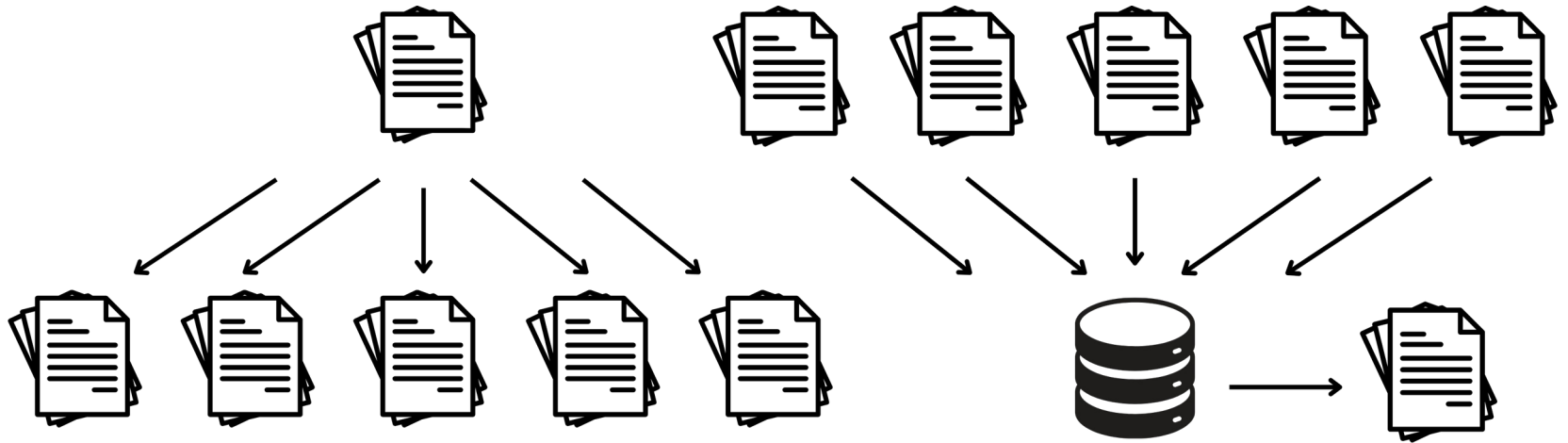
What's new in Collabora Online?

Lots of improvements since last year!

Follow the Editor

The image shows a laptop screen displaying a document in LibreOffice Writer. The document title is "Following the editor". The toolbar includes options for Bold (B), Italic (I), Underline (U), and text color. The document content includes a heading "The Colleges of Cambridge" and a paragraph about the University of Cambridge. A purple-bordered toolbar is overlaid on the document, containing several circular icons with different patterns and colors. To the right of the laptop, a vertical panel is shown, containing a list of user avatars and names: You, Sophie, Dean, Ryder, Ash, Sam, Luna, and Grace. At the bottom of this panel is a checkbox labeled "Always follow the editor".

Automatic Documents



Automatic Documents

- Create final PDFs
- or
- Create prefilled ODP/DOCX documents to continue working on

The screenshot shows the LibreOffice Writer interface with a form titled "INWARD REPORT (SHIPS AND BOATS OTHER THAN SMALL CRAFT)". The form is for the New Zealand Customs Service. A purple box highlights the "Form" toolbar, which includes icons for Rich Text, Checkbox, Dropdown, Picture, Date, and Properties. The form fields are as follows:

PART A: ARRIVAL DETAILS	
Name of ship	HMB Endeavour
Date of arrival	10/01/1769
Time of arrival	Click here to enter text
Name of person in charge	James Cook
IMO number	Click here to enter text
Gross register tonnes	Click here to enter text
Period of stay in New Zealand	Choose a date
IF CARRYING CARGO, BRIEF DESCRIPTION	
LIST SUBSEQUENT PORTS OF CALL WITHIN	
Next New Zealand ports	
1. Auckland	
2. Wellington	
3. Click here to enter text	
4. Click here to enter text	
5. Click here to enter text	

The calendar shows the month of September 2024, with the 24th highlighted.

Automatic Documents

Properties of "docStructureChartExampleOriginal"

General Description Custom Properties Font Statistics

Title: _____

Subject: _____

Keywords: _____

Contributor: _____

Coverage: _____

Identifier: _____

Publisher: _____

Relation: _____

Rights: _____

Source: _____

Type: _____

Comments: _____

Help

```
1 {
2   "Transforms": {
3     "DocumentProperties": {
4       "Title": "Title TxT",
5       "Subject": "Subject TxT",
6       "Keywords": [ ],
7       "Contributor": ["Contributor1 TxT", "Contributor2 TxT"],
8       "Coverage": "Coverage TxT",
9       "Identifier": "Identifier TxT",
10      "Publisher": ["Publisher TxT", "Publisher2 TxT"],
11      "Relation": ["Relation TxT", "Relation2 TxT"],
12      "Rights": "Rights TxT",
13      "Source": "Source TxT",
14      "Type": "Type TxT"
15      "Description": "Description TxT"
16    }
17  }
18 }
```

Properties of "temp2"

General Description Custom Properties Font Statistics

Title: Title TxT

Subject: Subject TxT

Keywords: _____

Contributor: Contributor1 TxT, Contributor2 TxT

Coverage: Coverage TxT

Identifier: Identifier TxT

Publisher: Publisher TxT, Publisher2 TxT

Relation: Relation TxT, Relation2 TxT

Rights: Rights TxT

Source: Source TxT

Type: Type TxT

Comments: Description TxT

Help Cancel OK

- With simple JSON
 - Add/remove file properties
 - Create 'Custom Properties'

Automatic Documents

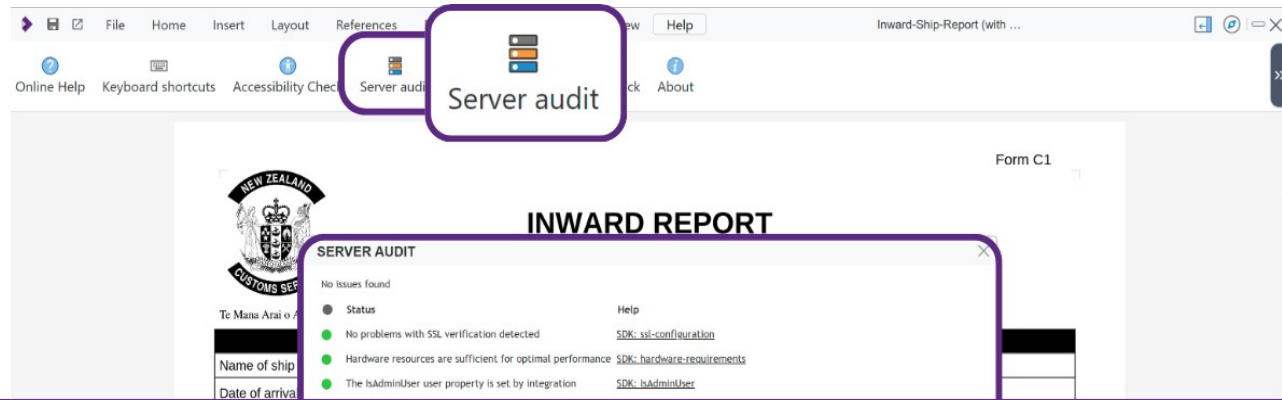
Example Integration: Nextcloud

The image illustrates the integration of Nextcloud forms into LibreOffice documents. It shows three main components:

- Pick a template for Nextcloud conference 2024:** A dialog box showing two template options: 'Blank' and 'Event Permit Applicat...'. The 'Event Permit Applicat...' option is selected.
- Fill template fields:** A dialog box for filling in the form fields. The fields are: Name of the Organizer/Organization (Nextcloud), Email (sales@nextcloud.com), Phone number, Event Coordinator (Event Coordinator), Event name (Nextcloud Conference 2024), Event date, Event location, Event description, and three checkboxes: 'Minimum of 2 security guards per 100 attendees' (checked), 'On-site communication plan established between security staff' (unchecked), and 'First aid station set up and staffed' (checked).
- Event Permit Application Form:** A preview of the form with the data populated. It is divided into two sections:
 - 1. Applicant Information:** A table with the following data:

Name of Organizer/Organization:	Nextcloud
Contact Information	
Email:	sales@nextcloud.com
Phone Number:	+49 1234 567890
Event Coordinator:	Jane Doe
 - 2. Event Details:** A list of details:
 - Event Name: Nextcloud Conference 2024
 - Event Date: [Click here to enter text](#)

Server Misconfigurations?



SERVER AUDIT

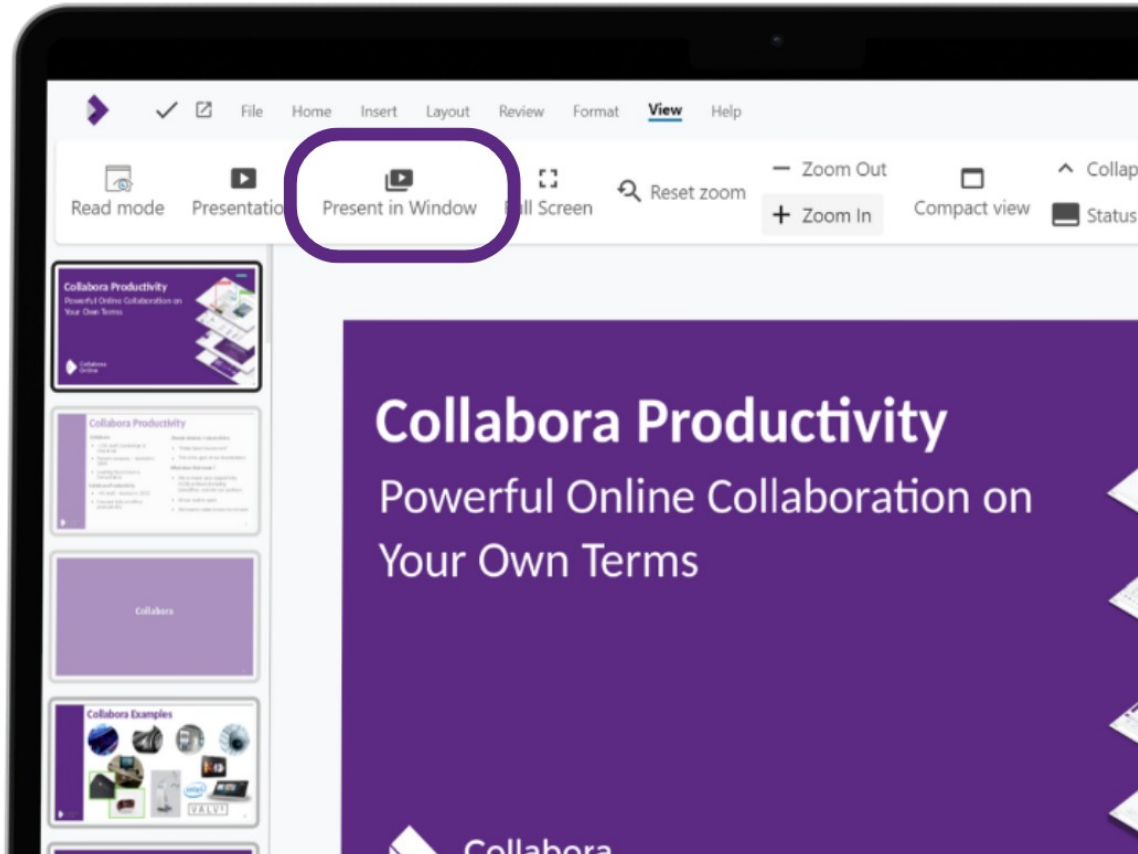
No issues found

Status	Help
● No problems with SSL verification detected	SDK: ssl-configuration
● Hardware resources are sufficient for optimal performance	SDK: hardware-requirements
● The IsAdminUser user property is set by integration	SDK: IsAdminUser
● PostMessage API is initialized	SDK: post-message-initialization

OK

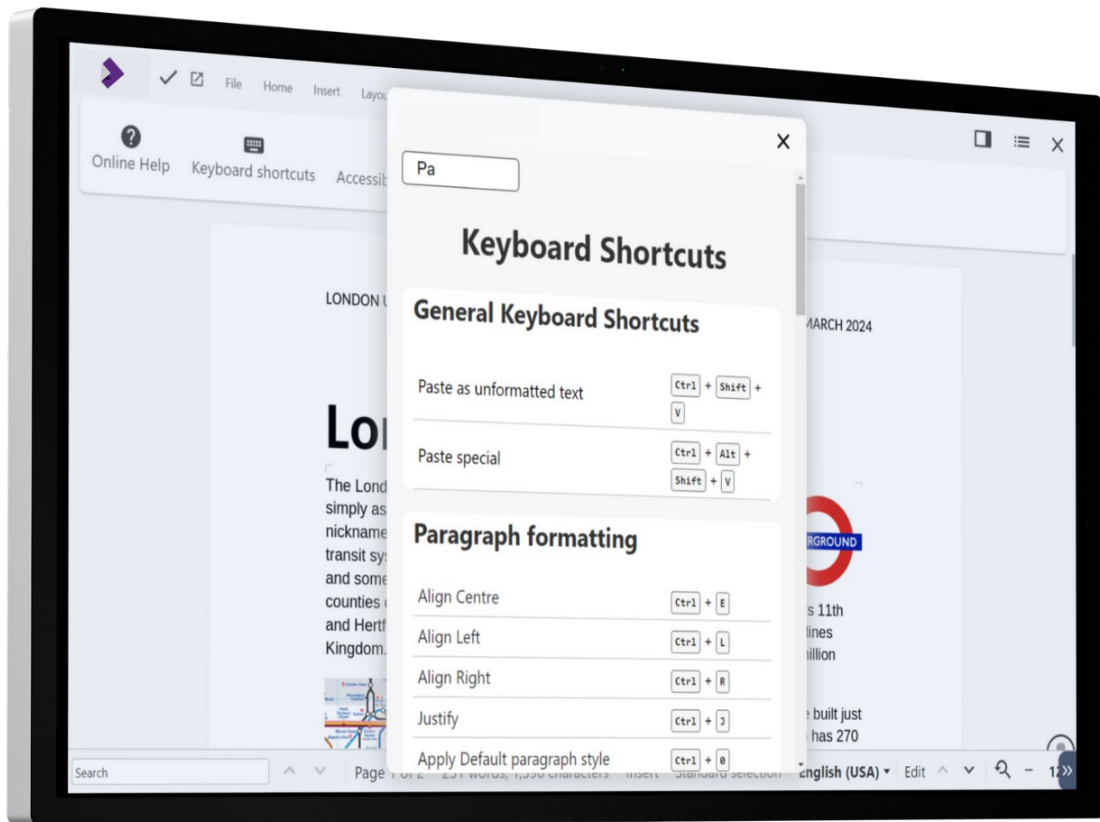
Present in Window

- New option to present slides in a new window (as opposed to a full-screen presentation)
 - Useful for video conferencing and large screens

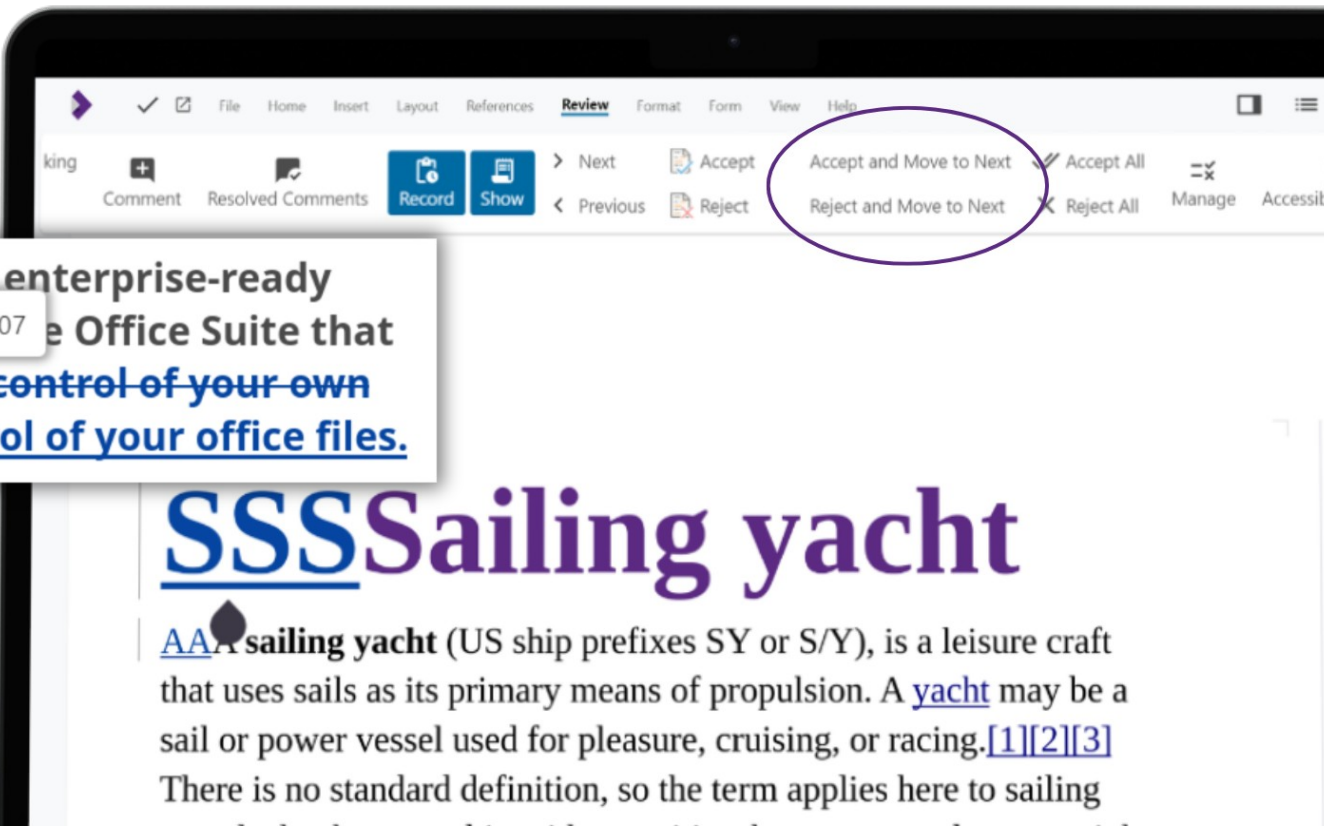


Search for help

- Find what you need straight away



Clearer Tracked Changes



Collabora Online: the enterprise-ready

Deleted: Alan - 04/27/2017 17:11:07

the Office Suite that allows you to stay in ~~control of your own~~ documents. full control of your office files.

Auto Align and Ruler Bar

The screenshot shows the LibreOffice Impress interface. The main slide is titled "Performance Tuning" and contains the following text:

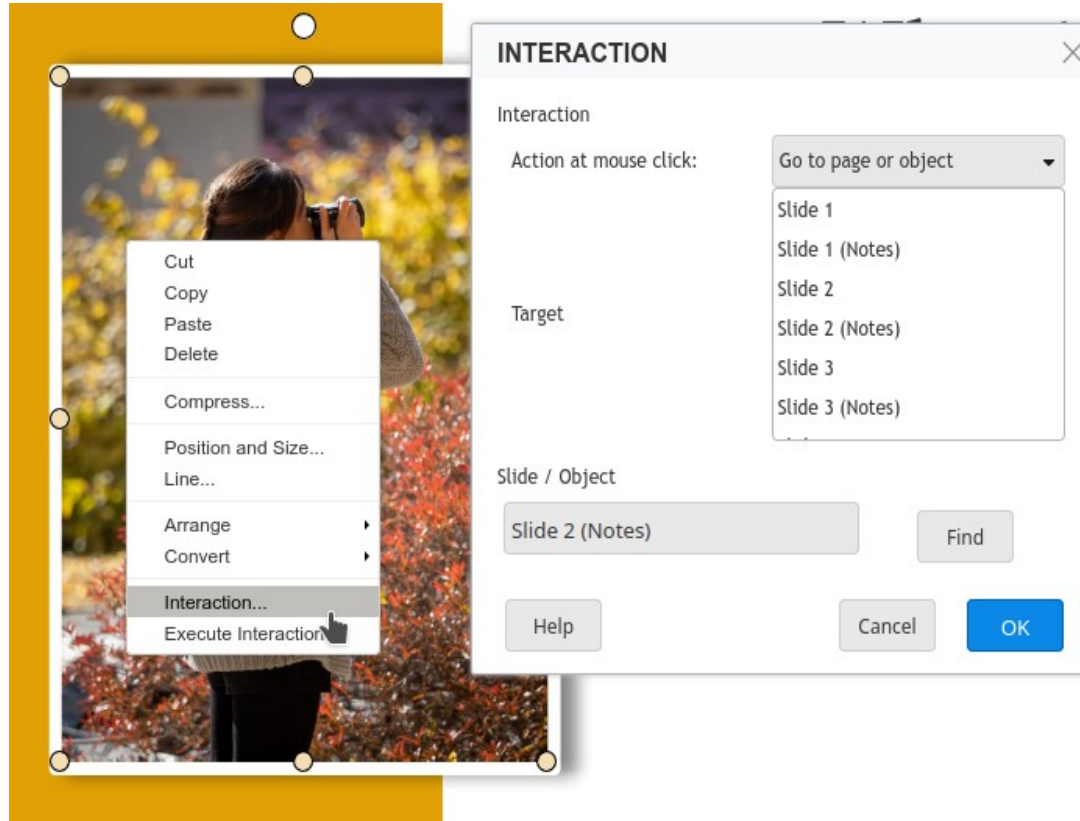
- Reduced time to load graphic heavy Impress slide decks, and comment heavy Calc spreadsheets.

Below the text are two 3D bar charts. The left chart is titled "Impress 5 Full-Screen Presentation-Generation" and compares "S-Slide" (grey bar, ~3.8) and "P-Slide" (purple bar, ~2.8). The right chart is titled "Calc XLSX Comments Load" and compares "2200" (grey bar, ~6.5) and "2300" (purple bar, ~4.5). A black crosshair cursor is positioned over the left chart. The status bar at the bottom indicates "Slide 51 of 68 | English (UK) | Edit" and "85%".

3D Transitions



Interactive Objects



ISO?

speed. I
ow sensi

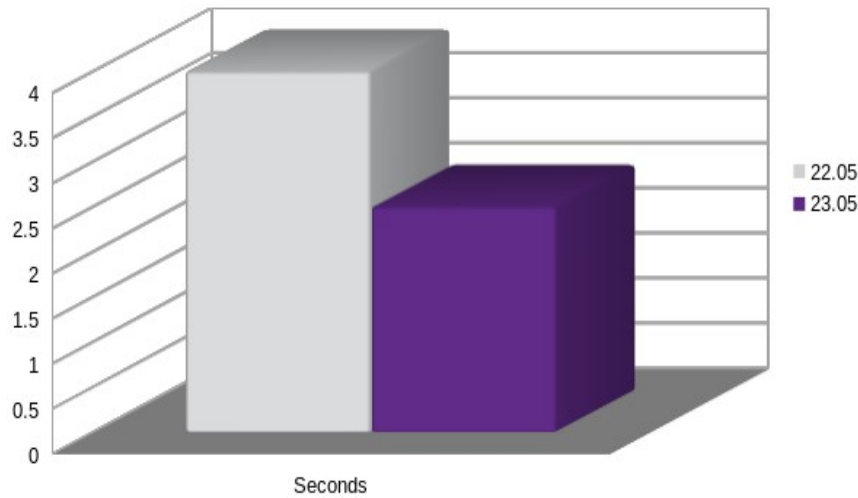
d under
enses/by/2.0/

Performance Tuning

- Reduced time to load graphic heavy Impress slide decks, and comment heavy Calc spreadsheets.

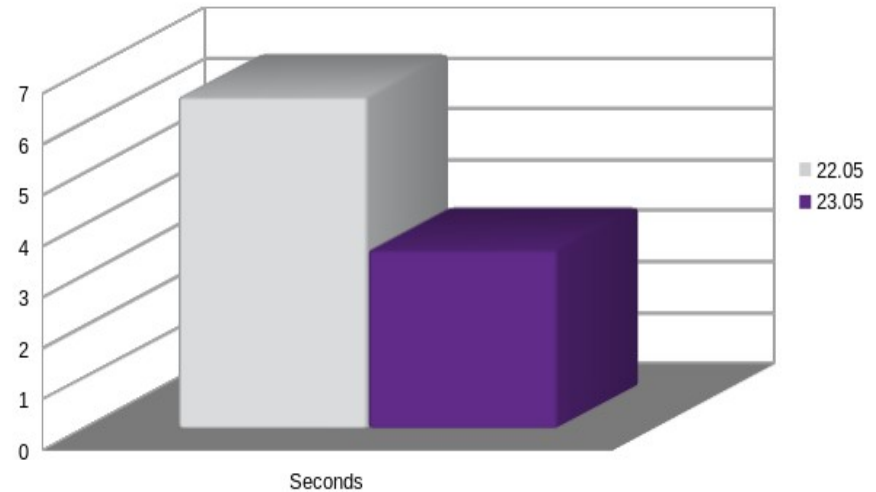
Impress Full Screen Presentation Generation

60 graphics heavy slides. Wall clock time.



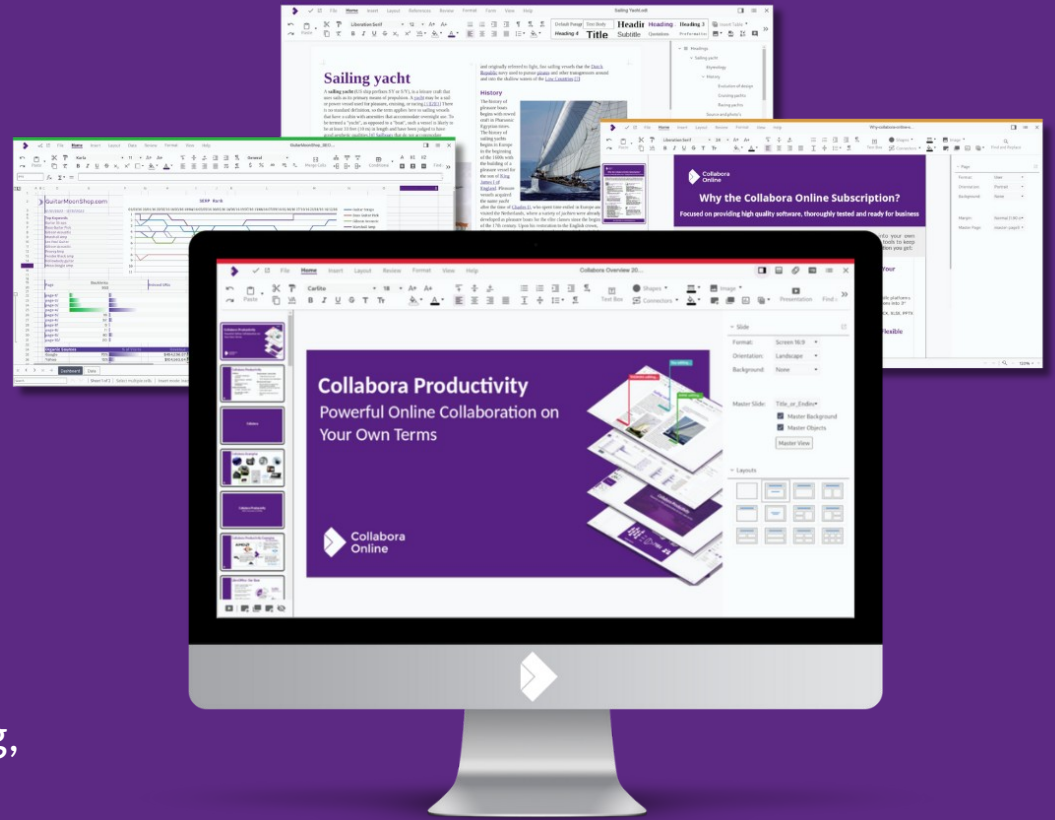
Calc XLSX Comments Load

1000 Rows, 30 Columns, 2500 Comments. Wall clock time.



COOL: Built with LibreOffice technology

Rich, interoperable, secure,
performant, collaborative editing,
everywhere.



Use cases

SDIS 57

- Departmental Fire and Rescue Service (SDIS) 57
 - Equipped 5,000 people
 - 900 professional firefighters
 - 4,000 volunteers
 - Replacing its ageing file server with Nextcloud + COOL without the need for extensive training



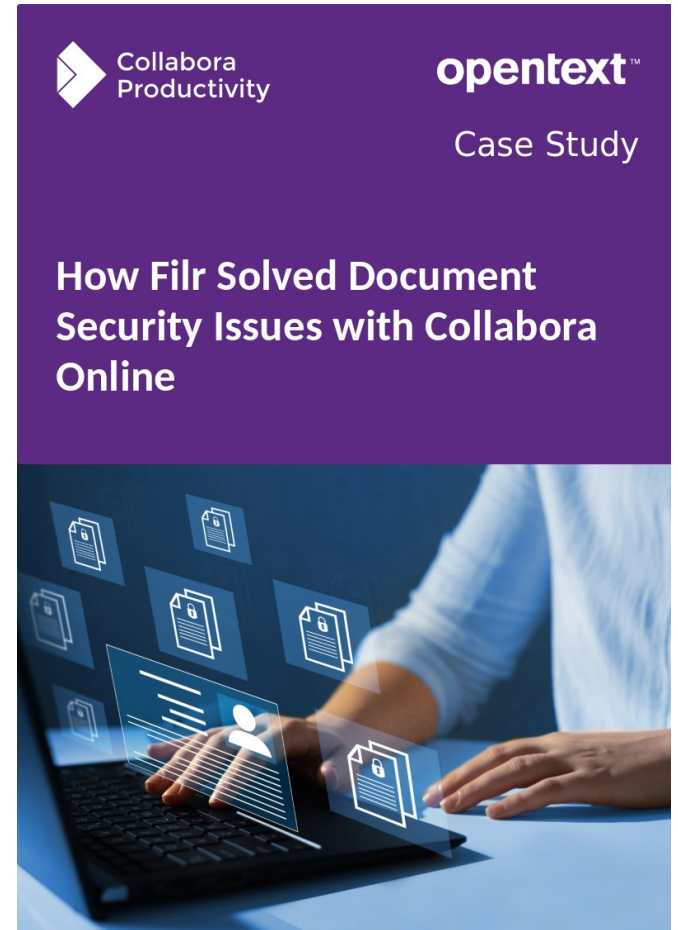
Case Study

Extinguishing Barriers of a Diverse Workforce



OpenText Filr

- Recently integrated 25,000 user media company with Filr and 'Content Editor' (Collabora Online)
 - “We have many different verticals who are running our solution from European parliaments and worldwide parliaments, police forces, educational institutions, retail, manufacturing...”
 - “If organisations are using off-cloud-based storage, putting Filr and indeed Collabora into that environment is very easy”



Antecedent

- To demonstrate if students have invested the required time and effort that would prove they are in fact the author of a unique work
 - Tracks the time spent on each line or paragraph
 - Information is presented to teachers and examiners as heatmaps or interactive documents
- Comprehensive file history also demonstrates the essay's evolution over time
 - Teachers can see which part of the document was being edited when
 - How many words were inserted or written during certain time periods
 - Or even replay the entire document creation process.



When AI Detection Isn't Enough



Some reflections

TDF → free beer or free freedom ?

- I support and encourage TDF to ship LibreOffice for Desktop as now, as a free (beer) download (doh!)
- I support charging for convenience in app-stores
 - it funds good work at TDF
- This is fundamentally not at issue.

Peace Making – some research:

Understanding: most critical is:

- *“Getting them to sit down and listen to each other and hear each other’s story”* ([Andrew White](#))
 - Active listening even.

Listen to both sides

- *“the 1st to present his case seems right - until another comes forward and questions him”* – Proverbs 18:17

Go & talk !

- Explore the options / break down false dichotomies...



The last year @ Collabora Productivity

**Open Source,
Open First**

Online Community contributors

- **~100 From the last 12 months - thank you for your contribution!**

Matthaiks, gallegonovato, Sebastiaan Veld, Rob Pearson, Poe Mon, bittin, Martin Srebotnjak, Milo Ivir, Ihor Hordiichuk, Patrick Luby, Oğuz Ersen, Stanislav Horáček, Shavazo, Parth Raiyani, Ayhan Yalçınsoy, Yaron Shahrabani, Leif-Jöran Olsson, Adolfo Jayme Barrientos, Software In Interlingua, genofire, Ali, Alexander Gabilondo, Ettore Atalan, TY Wong, Tucaoever, SC, Besnik Bleta, Andika Triwidada, Cepriř, Rhoslyn Prys, Martin Hoffmann, Julius Härtl, Chase Nelson, Jeff Huang, Hugo B, David D, Darshan Upadhyay, Cosmin Humeniuc, aarsh21, Tron Lee, Sveinn í Felli, Sabri Ünal, Rizal Muttaqin, poi, Nguyễn Hoàng Minh, Navid Sassan, Michael Weghorn, meshari alnaim, m4skedbyte, erbaotao, HB9HIL, Flavio F. M, ButterflyOfFire, Antony, Andi Chandler, Alex Gabilondo, Владимир, Влад, Zeki Tuman, YadlaMani, Tymofii Lytvynenko, Subham Jena, Simon T, shaokuuipo, Seungcheon Seo, Rysertio, rparth07, Qiao Yifeng, NamelessGO, Mowdep, Mohamed Irfan, Miloř Šrámek, Martin Müller, Isy223622, lpwxyz, Louis Chance, Kieli Puoli, k-dasari, Josh, Joan Montané, Jesper Holck, Jérôme Herbinet, iwonder, Héctor Gonzàlvez Escolano, Gabriel Masei, Frankie McEyes, Francisco Gabriel Chardin, DPE, Cyan Ling, CodingwithKetan, CloneWith, ccz, BY, Artur Yakupov, ArshErgon, Areg Nakashian, Alex, Aindriú Mac Giolla Eoin, Allkiv

Collabora Coders ~40 committers

Caolán McNamara, Noel Grandin, Mike Kaganski, Szymon Kłos, Miklos Vajna, Ashod Nakashian, Andras Timar, Michael Meeks, Tomaž Vajngerl, Gökay Şatır, Pranam Lashkari, Skyler Grey, Pedro Pinto Silva, Darshan Upadhyay, Henry Castro, Justin Luth, Javiya Vivekkumar Dineshbhai, Neil Guertin, Marco Cecchetti

- Rashesh Padia, Hubert Figuière, Sven Göthel, Jaume Pujantell, Attila Szűcs, Aron Budea, Bayram Çiçek, Gülşah Köse, Méven Car, Nick Wingate, Elliot Freebairn, Paris Oplopoios, Eloy Crespo, Antony Das, Timur Gadžo, Oli Baker, Mert Tumer, Jan Holesovsky, Gülşah Köse, Dennis Francis, Chris Lord, George Wood, Armin LeGrand

Over the last year ...

Collabora Business / Support

Anna Nazaryan, Aron Budea, João
Moreira de Azevedo, Nnamani Ezinne
Martina, Timur Gadžo, Naomi Obbard,
Richard Brock, Leonor Borges, Asja
Čandić, Dave Sheldon, Lily Logua, Eloy
Crespo, Mazin Haddad, Julie Wilder,
Tracie Fabb, Hannah Greetham,
Deirdre Daly, Ben Toynton, Philippe
Kalaf, Guy Lunardi, Mitch Tester

and more over the last year...

- Administration
- Art / Design
- Marketing
- Management
- Finance
- Personnel Operations
- Project Management
- Sales
- Sysadmin
- Tech Support / QA
- Translation

**A huge honour for me to
work alongside & try to
serve such a great set of
people**

**With thanks to our Partners,
Customers & Community!**

Some of Our Clients and Partners



Zentrum
Digitale
Souveränität



LibreOffice
The Document Foundation



openDesk
Der Souveräne Arbeitsplatz



Adfinis



KOLAB

COLLABORATE IN CONFIDENCE



EGroupware
SMART ONLINE OFFICE



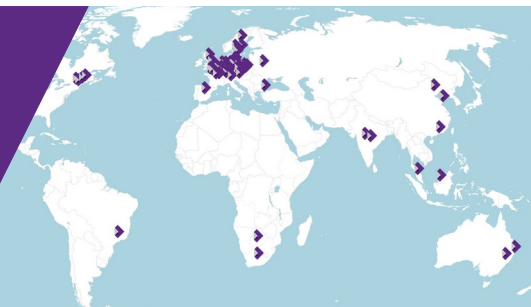
SWISSVON
voice over networks services and solutions



Find your local partner:

[www.col.la/
partners](http://www.col.la/partners)

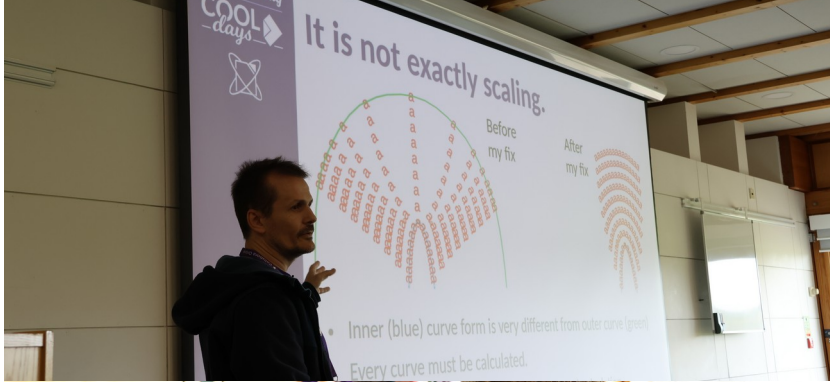
Over 230 partners
offering professional support
in over 60 countries
Find your partner today!



COOL Days - Team Building



COOL Days 2024



COOL *days*



JUNE, 2025
COOL DAYS
HACKFEST
TEAM BUILDING
BUDAPEST, HUNGARY



Come work with us ...

- We're (still) hiring:
 - Senior Designer / Front-end developer
 - C++ Engineers & interns ...
 - Marketing automation role
 - Support / QA engineering
- Collabora has more:

<https://www.collabora.com/careers.html>

Open Source all day, every day

*Talk to me
if you're
interested*

*Work from
anywhere
roles*



Collabora
Online

Rock on LibreOffice !

*Our pleasure to sponsor
the conference*

Thank you!

Michael Meeks

michael.meeks@collabora.com



@CollaboraOffice

hello@collaboraoffice.com

www.collaboraoffice.com

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: 27