



**LibreOffice**  
The Document Foundation



## **BUILDING A LIBREOFFICE DEVELOPMENT TEAM**

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TIRANA | 25 September  
2018



**LIBOCON**  
TIRANA 2018

# **BUILDING A LIBREOFFICE DEVELOPMENT TEAM**



## Agenda

- Gallery of our nice results
- Our mentoring program with the secret sauce ;-)

**KEYWORDS**  
**sustainability**  
**brain gain\***  
**growth mindset**

\* [https://en.wikipedia.org/wiki/Human\\_capital\\_flight](https://en.wikipedia.org/wiki/Human_capital_flight)

**LibreOffice is a GREAT  
office suite**



# UNIQUE COMBO

- Full-featured
- Open source
- Community-driven development
- Cross-platform and online!
- Standard formats
- Broad spectrum of services: from free TDF LibreOffice builds to L3 support and private cloud-based solutions from certified developers



# WITH GREAT SOCIAL BENEFITS

- For public sector, against monopoly (see Microsoft scandals in different countries)
- Against social inequality in wealth (freeware builds), knowledge (open source) and language (broad l10n support)
- Against software piracy (see data & civic, corporate and governmental responsibility)



**“Anything  
that can  
go wrong,  
will go  
wrong.”**

- Lots of features
- Huge code base
- Under active development
- By relatively small developer community (hundreds of code contributors, but only a few dozen full-time developers)
- New bugs & regressions

**Every user needs  
continuous,  
sustainable LibreOffice  
development**

**Anyone can become a  
LibreOffice developer**

**Build your own  
LibreOffice  
development team!**

**Solve your own  
problems**

**Creating a more  
powerful developer  
community, sharing  
the costs and results  
of the development**

# **Increasing LibreOffice's popularity, catching the upward spiral**

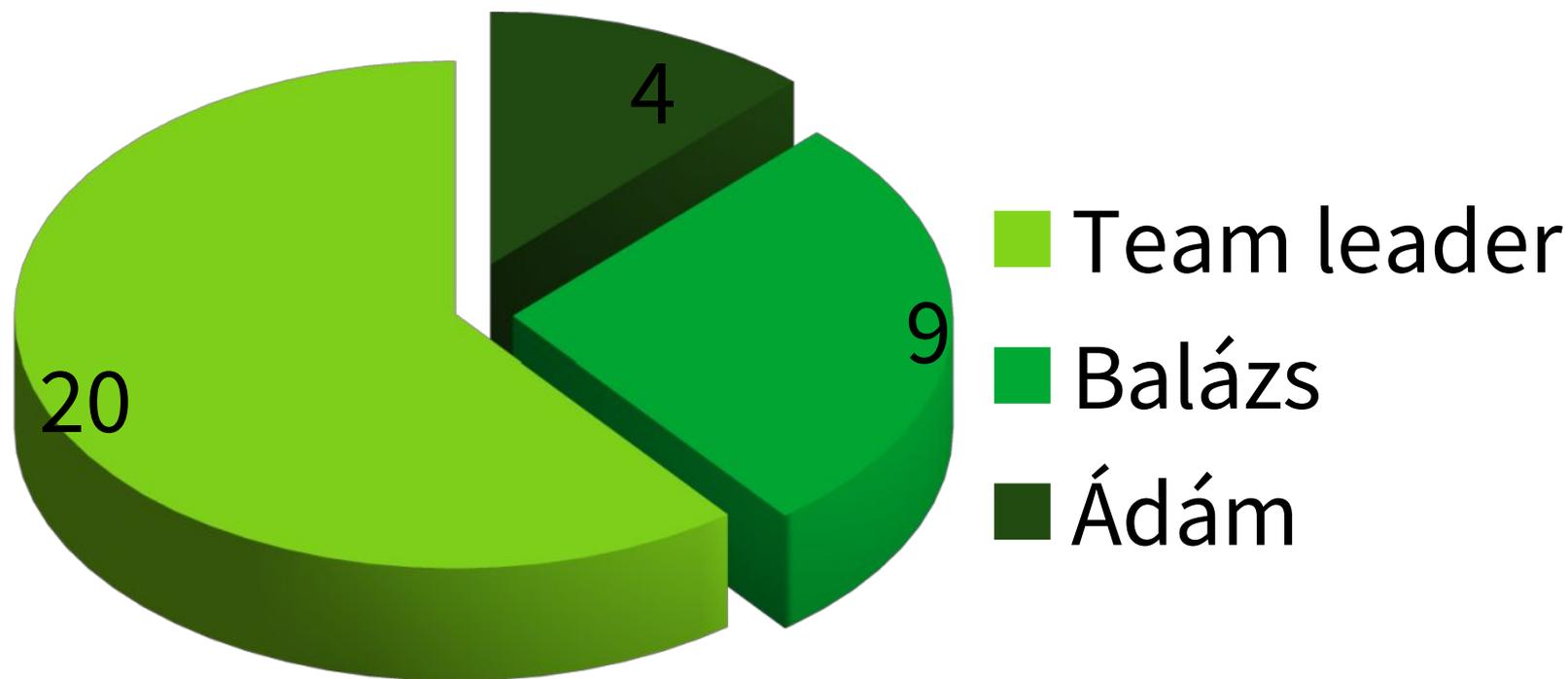


# Our team

3 developers, NISZ Zrt., Hungary

3-month trial period from June, 2018

33 fixes (from our selected 300 bugs):



# OUR RESULTS

# **Better interoperability by bug fixing and workarounds**



# No missing e-mails

Blocked e-mails with DOCX export of LO containing “EMF” metafile images

Bug in LibreOffice file export: automatic and unnecessary renaming of image extension .emf to .wmf

Solution: keep the original .emf extension  #103913



# No table loss by CRs

1981 MS-DOS adopts CR LF line ending

2010 MSO: OOXML gets <w:cr>

201x LO DOCX import: table loss by CRs

2018: fix ooxml/model.xml  #118691

1.	C1
2.	C2

1.	C1
2.	C2



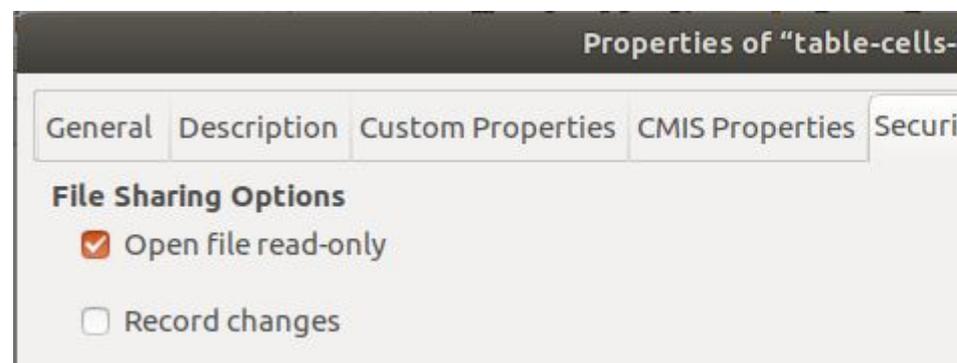
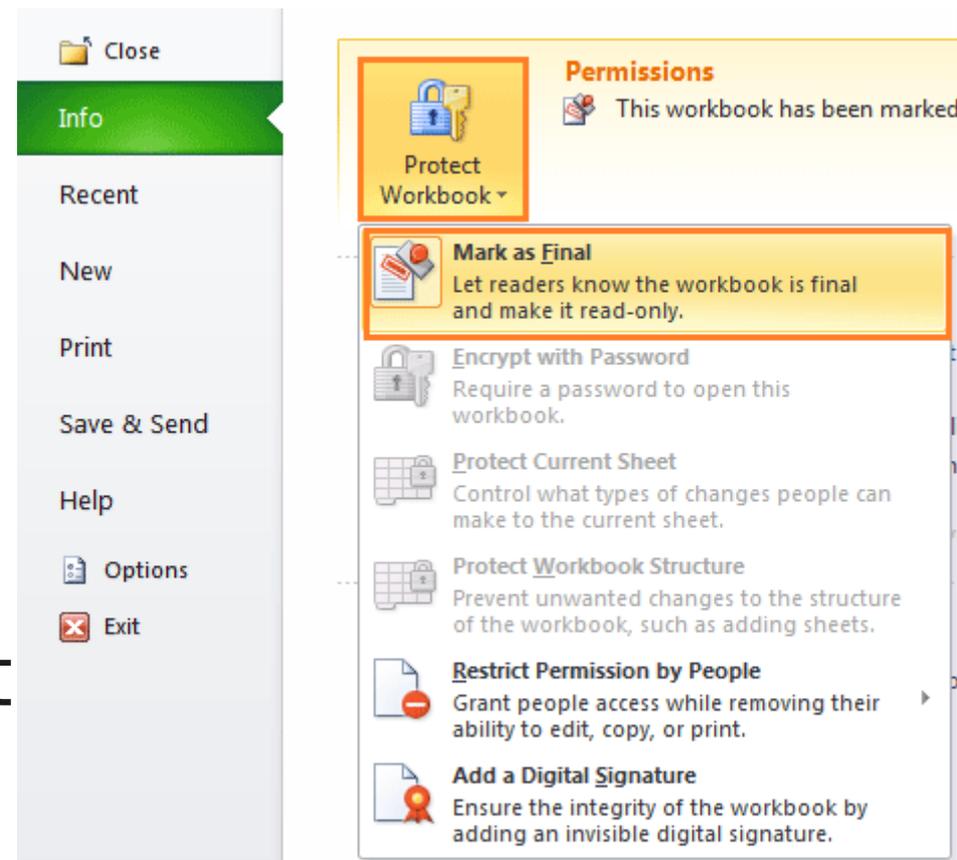
# Protect our documents

“Mark as final”

Basic MSO protection

Custom XML extension

Solution: import/export  
pairing of the similar  
“Open as Read-Only”  
document setting of  
LibreOffice  #107690





# No broken forms ...

The image shows two pages of a form that is broken, meaning it is not a single continuous page. The top page contains a header with the title "Ingatlan-nyilvántartási kérdőív I." and a list of 13 questions. The bottom page contains a header with the title "Ingatlan-nyilvántartási kérdőív II." and a list of 13 questions. The form is divided into several tables, some of which are overlapping or cut off.

Before: broken 2-page form

The image shows a single, correct 1-page form. The form is titled "Ingatlan-nyilvántartási kérdőív I." and contains a list of 13 questions. The form is divided into several tables, which are neatly arranged and do not overlap. The form is presented in a clean, professional layout.

After: correct 1-page form



# ... by “Auto” margins

Special paragraph margins: do it as MSO

Keeping layout of our forms

Solution: fix import filter  #104354

Thanks for the help of

Justin Luth (co-author), Collabora and

Xisco Faulí (testing and bug reports), TDF





# No random table header

tdf#64264 DOCX import: fix row count of repeating table header (a typical problem of importing joined tables)

Page 3

1. Repeating Table Header
2. Not repeating table header
3. Not repeating table header, too
78. Text
79. Text
80. Text
81. Text
82. Text
83. Text
84. Text
85. Text
86. Text

Page 3

1. Repeating Table Header
84. Text
85. Text
86. Text



# No broken tables

tdf#58944 handle MSO's workaround (all rows are headers) for Word's bug (non-modifiable header) in LibreOffice, too

MICRO FOCUS								
RM to Visual COBOL Questionnaire								
Document version: 0.0 Last Updated: 08/09/2011 Updated By:								
A. Business Situation and Environment Information								
Customer Information								
Company Name	MIS Automation Pte. S.C.							
Contact Name (Title/Role/Responsibility Limited to CaO)	Mehmet Hakanlar / Front Developer							
Other Team Members	<ul style="list-style-type: none"> <li>a. Name</li> <li>b. Title</li> <li>c. Role/Responsibility</li> </ul>							
Business Drivers Related to Application to be Converted/Transformed to Visual COBOL								
1. What does the application do for what business area and how critical is it to the business?	Key critical ERP systems like HR/Financial Dept. System							
2. What business/technical events are driving the need for an application upgrade?	Support existing for IBM products COBOL is obsolete, better character support							
3. What happens if this application upgrade does NOT occur?	Possible loss of business customers							
4. How many developers are maintaining the application(s)?	1							
Application Ownership and Packaging Application Information								
5. Do you own all rights to application and do it originate from any proprietary application provider?	Yes/No							
6. Do you use or reuse application software in an ASP model?	Yes							
Current Environment Information (Where application is running today)								
7. What is the existing hardware platform?	Fujitsu Personal Desk PowerPc 9200							
8. What is the existing Operating System?	Mixed: Suse Linux Server SLES10 and Windows Server 2003 / 2008							
9. What is the Micro-Focus COBOL product being used today?	MICROBASE, MicroFExpress, CobolGX (Web Engine)							
B. Technical & Application Information								
10. Source code languages used and approximate number of programs and rough indicator of LOC	<table border="1"> <thead> <tr> <th>Language</th> <th>Approx. No. of programs</th> <th>Approx. lines of source code (LOC) or other file size</th> </tr> </thead> <tbody> <tr> <td>COBOL</td> <td>200</td> <td>200,000</td> </tr> </tbody> </table>		Language	Approx. No. of programs	Approx. lines of source code (LOC) or other file size	COBOL	200	200,000
Language	Approx. No. of programs	Approx. lines of source code (LOC) or other file size						
COBOL	200	200,000						
11. What type of user interfaces are utilized today and how many of these interfaces are present? Are you using any web technologies?	web, included simple gui elements, character based							
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# Fix Calc→Writer copy

Most wanted usability fix (👉 108 votes)

Insert Calc data in Writer native text tables cell by cell instead of OLE object

For 1-cell tables: don't use OLE at all, ie. neither in normal body text 👉 #37223

	Data1	Data2	Data3
Foo			
1	Anchor icon	2	3
3		4	5
Bar			

	Data1	Data2	Data3
Foo	1	2	3
Bar	3	4	5

# Track changes & annotations



# Fix comment bloating

tdf#105444 new and new empty lines in comments in every import/export cycle

Start of document

End of Paragraph 2

End of Paragraph 4

End of Paragraph 6

End of Paragraph 8

Start of document

End of Paragraph 2

End of Paragraph 4

End of Paragraph 6

End of Paragraph 8



# Handle text relocation

Content loss!: reappearing deletion

Tracking loss: unmarked insertion

Solution: w:MoveFrom is deletion, and  
w:MoveTo is insertion 🖱️ #104797

Will this sentence be duplicated?

This is a filler sentence. Will this sentence be duplicated ADDED STUFF?

~~Will this sentence be duplicated?~~

This is a filler sentence. Will this sentence be duplicated ADDED STUFF?



# Fix empty line deletion

tdf#115521 all empty paragraphs of a multiparagraph deletion lose tracking

tdf#119848 change tracking of a single deleted empty paragraph is removed on save, if it has no other property change

>Lorem ipsum dolor sit amet,  
consectetur adipiscing elit.

Vestibulum consequat mi  
quis pretium semper.

Proin luctus orci ac neque  
venenatis, quis commodo  
dolor posuere.

Lorem ipsum dolor sit amet,  
consectetur adipiscing elit.  
Vestibulum consequat mi  
quis pretium semper.

>Lorem ipsum dolor sit amet,  
consectetur adipiscing elit.

Vestibulum consequat mi  
quis pretium semper.

Proin luctus orci ac neque  
venenatis, quis commodo  
dolor posuere.

Lorem ipsum dolor sit amet,  
consectetur adipiscing elit.  
Vestibulum consequat mi  
quis pretium semper.



# Fix invisible changes

tdf#119019 show deletion and insertion  
Tracked paragraph change (numbering)  
hides content modification. Workaround:  
accept style change automatically at  
changing of the text of that paragraph.

1. → Nunc viverra imperdiet enim. Fusce est. Vivamus a tellus. ¶  
2. → ~~Pellentesque habitant morbi tristique senectus et netus et malesuada fames SOMETHING~~  
NEW | ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci. ¶

1. → Nunc viverra imperdiet enim. Fusce est. Vivamus a tellus. ¶  
2. → ~~Pellentesque habitant morbi tristique senectus et netus et malesuada fames SOMETHING~~  
NEW | ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci. ¶



# WYSWYG paragraphs

“Show change tracking” mode didn’t show the style changes after tracked paragraph join until saving the document (not an OOXML problem)

tdf#119571 show changes correctly

**Heading 1**

Body text joined with the first paragraph, so it has got Heading 1 style.

**Heading 1**

**Body text** joined with the first paragraph, so it has got Heading 1 style.



# Paragraph deletion

tdf#54819 It wasn't possible to delete a full paragraph without copying its style to the next one (bug of change tracking)

## Lorem IPSUM

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum consequat mi quis pretium semper. Proin luctus orci ac neque venenatis, quis commodo dolor posuere. Curabitur dignissim sapien quis cursus egestas. Donec blandit auctor arcu, nec pellentesque eros molestie eget. In consectetur aliquam hendrerit. Sed cursus mauris vitae ligula pellentesque, non pellentesque urna aliquet. Fusce placerat mauris enim, nec rutrum purus semper vel. Praesent tincidunt neque eu pellentesque pharetra. Fusce pelle

## ~~Lorem IPSUM~~

~~Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum consequat mi quis pretium semper. Proin luctus orci ac neque venenatis, quis commodo~~

## ~~Lorem IPSUM~~

~~Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum consequat mi quis pretium semper. Proin luctus orci ac neque venenatis, quis commodo dolor posuere. Curabitur dignissim sapien quis cursus egestas. Donec blandit auctor arcu, nec pellentesque eros molestie eget. In consectetur aliquam hendrerit. Sed cursus mauris vitae ligula pellentesque, non pellentesque urna aliquet. Fusce placerat mauris enim, nec rutrum purus semper vel. Praesent tincidunt neque eu pellentesque pharetra. Fusce pellentesque est orci.~~

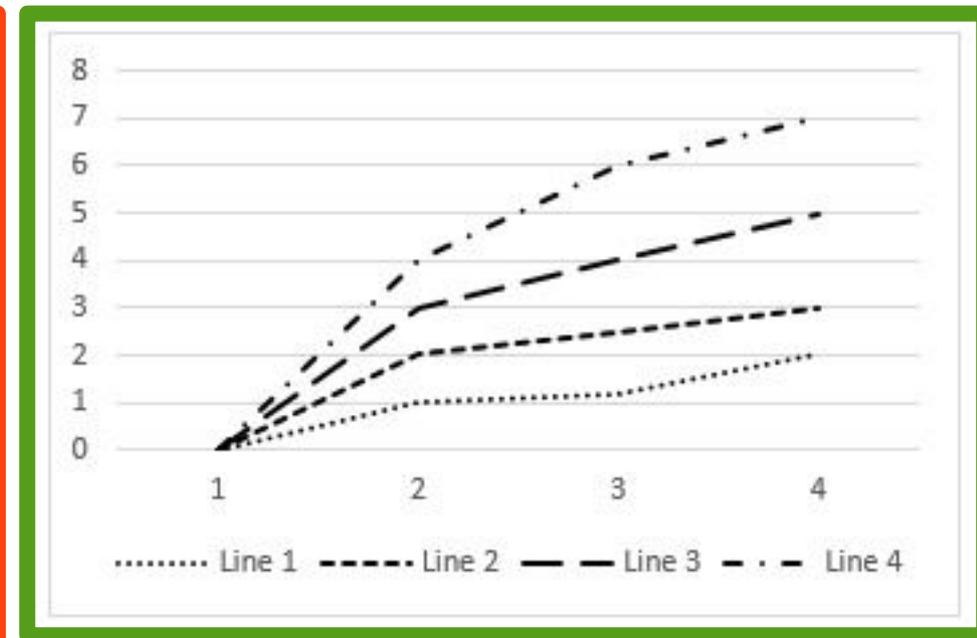
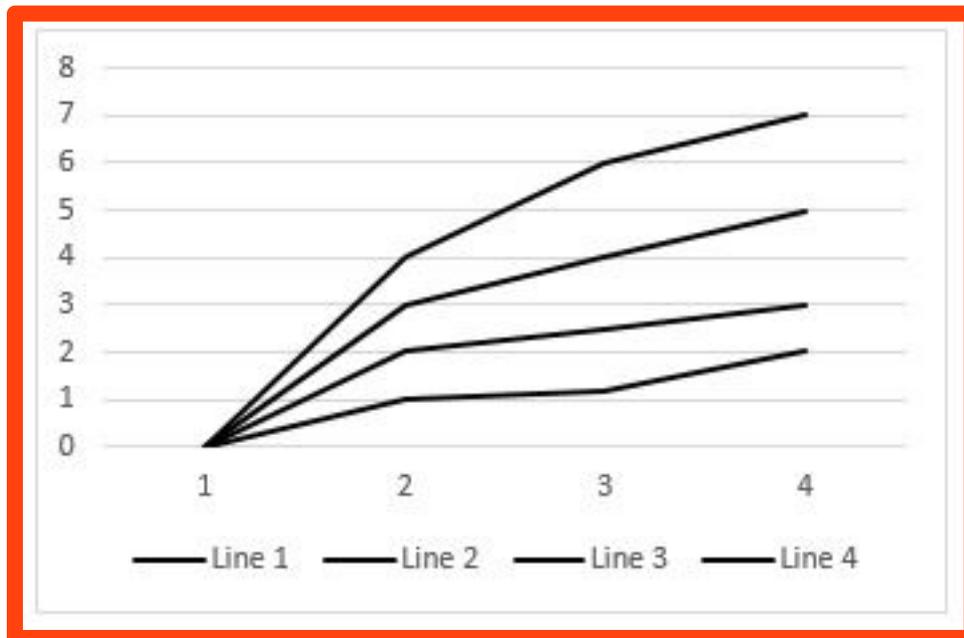
# **IMPROVED CHARTS**

**by our novice developers**



# Save our dashed lines

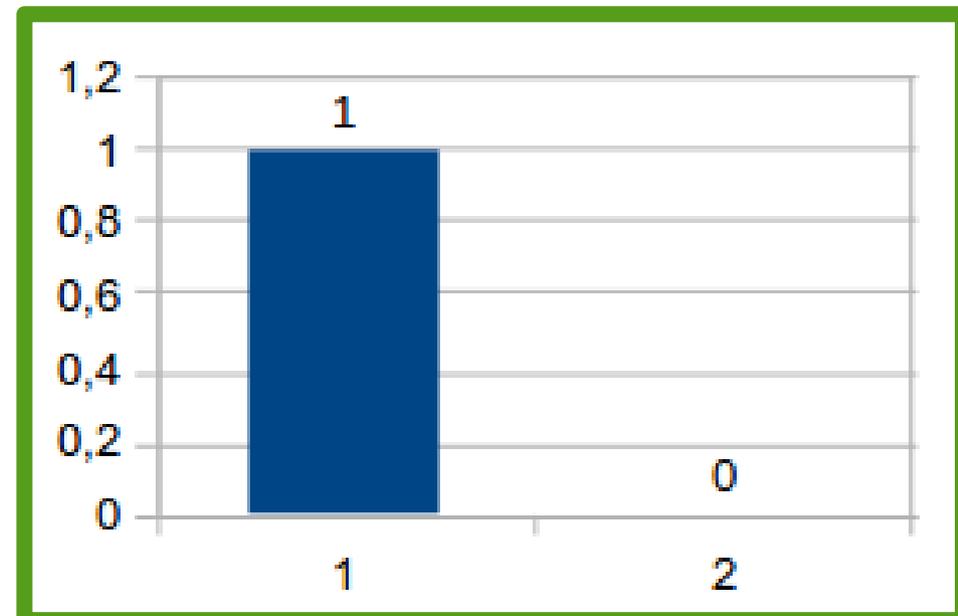
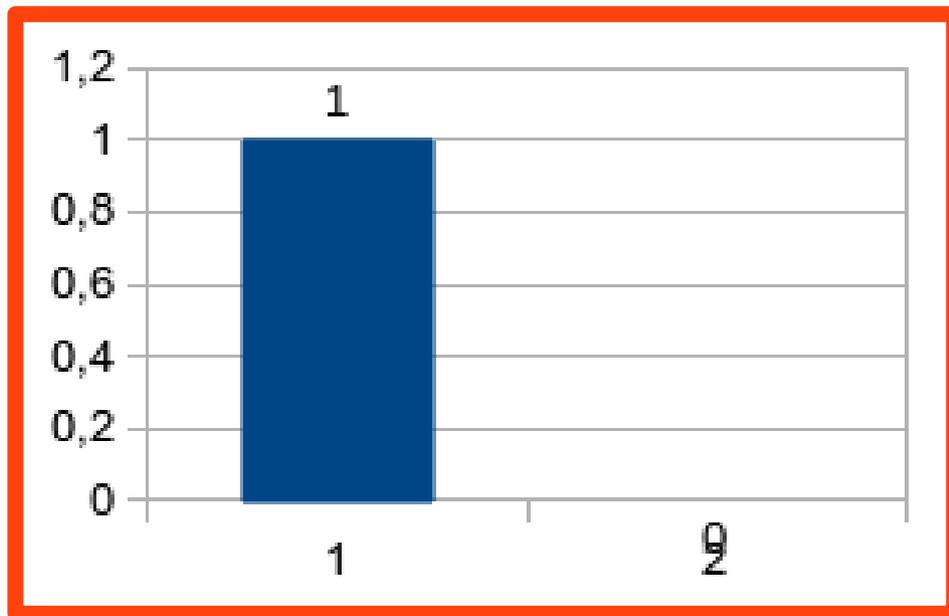
tdf#108064 OOXML export: keep MSO preset dashes in charts, instead exporting solid lines (by *Ádám Kovács*)





# Zeros on the right side

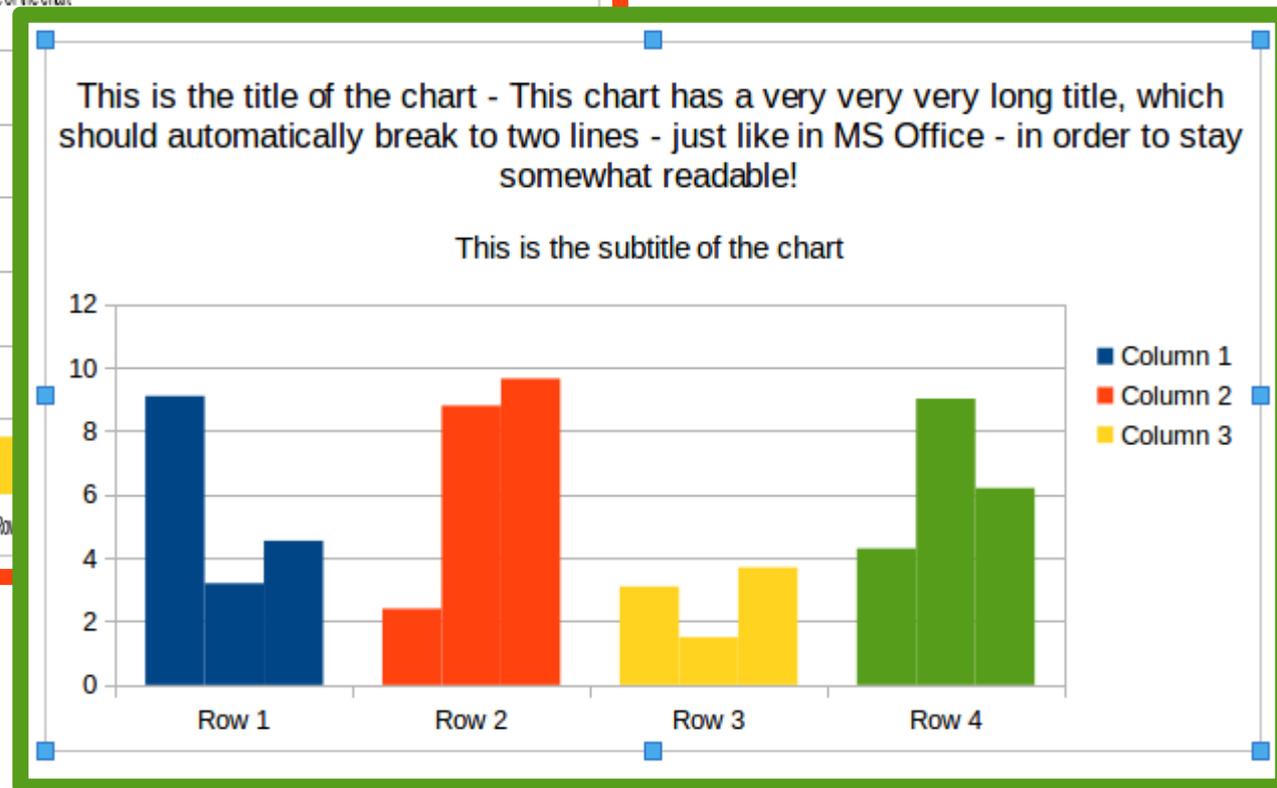
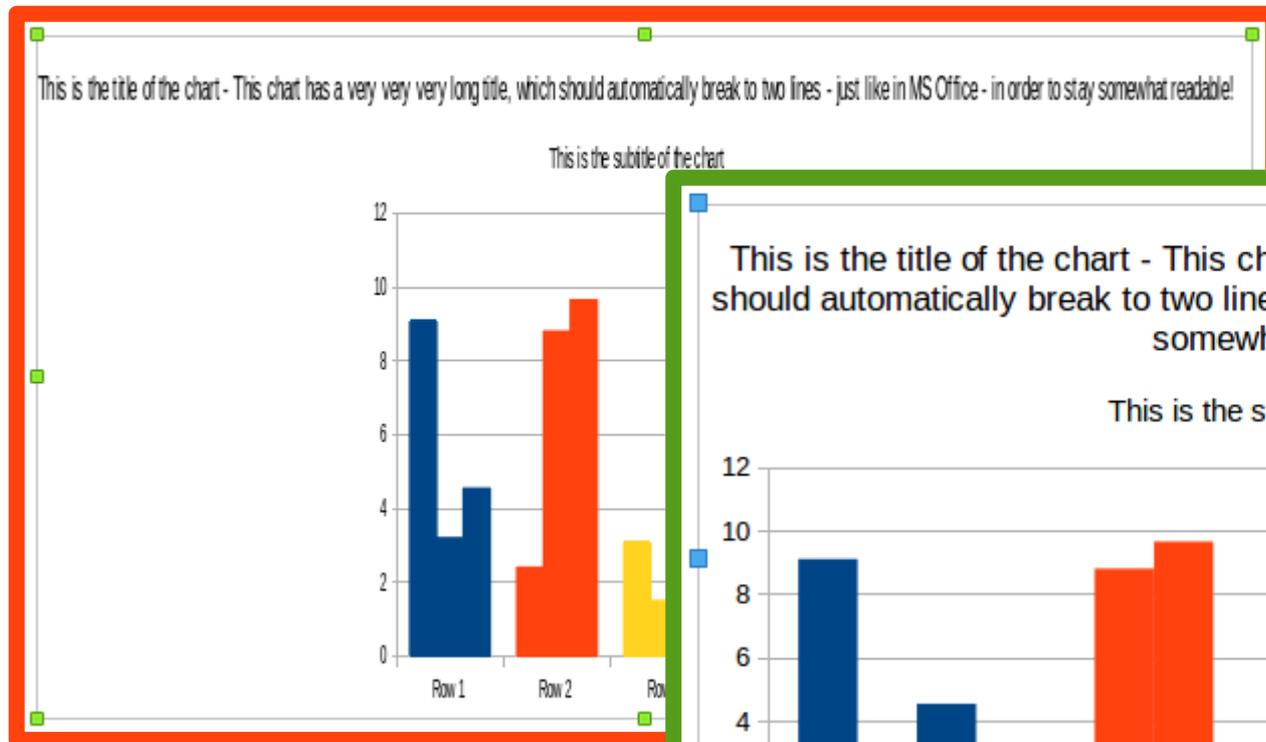
tdf#118705 fix placement of zero data label with different column and bar chart settings (fixed by Balázs Varga)





# No distorted charts

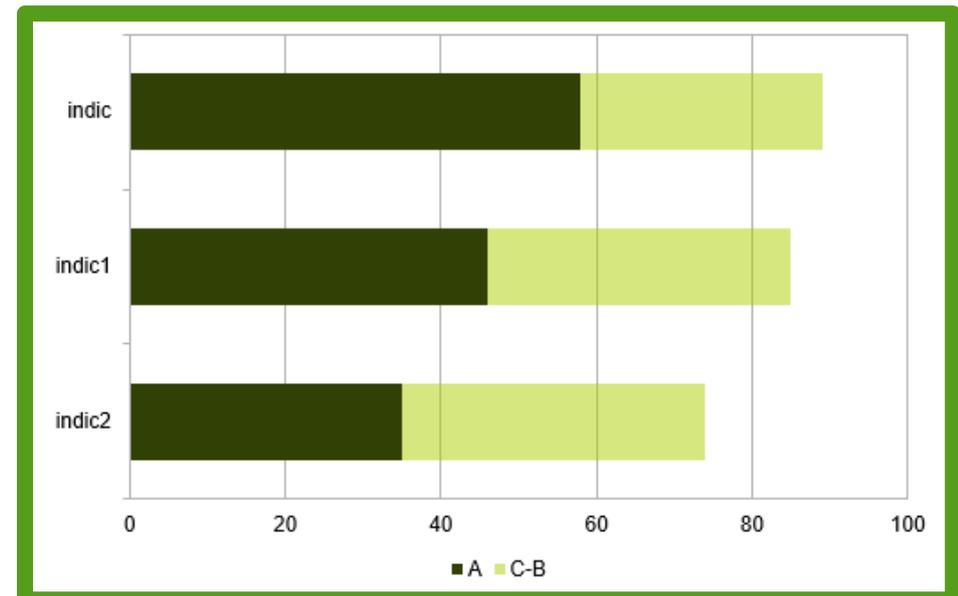
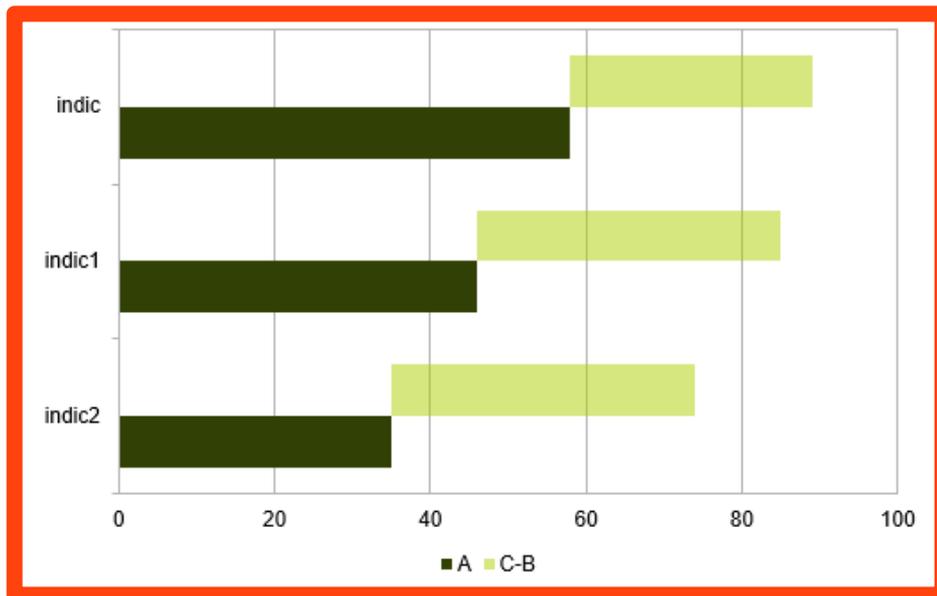
tdf#108028 break chart title automatically instead of distortion of the chart and their titles (by Balázs Varga)





# No broken chart bars

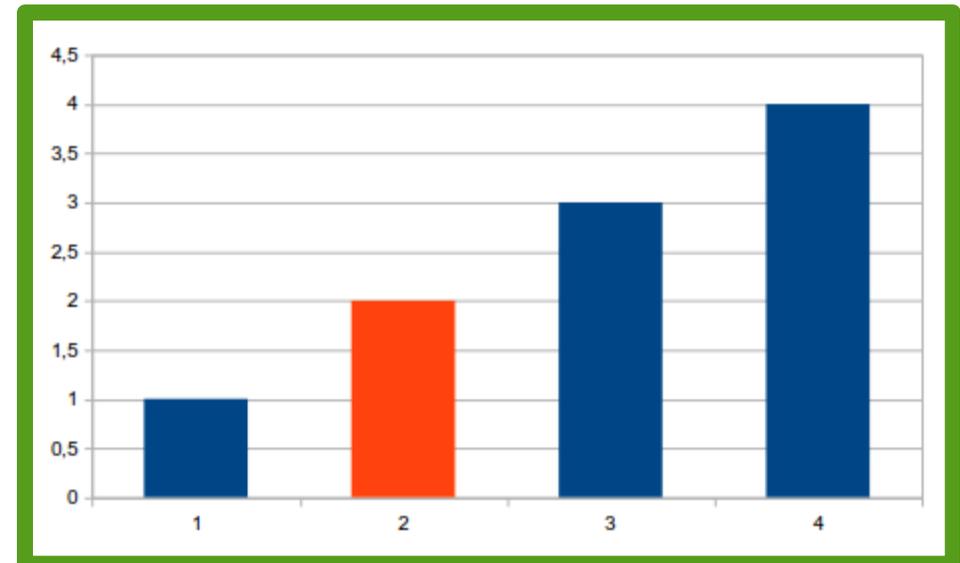
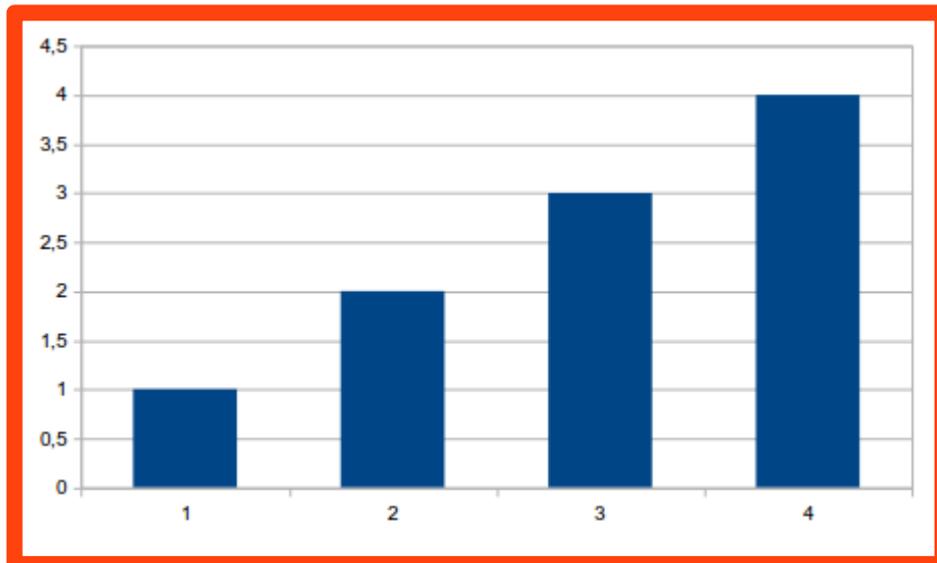
Tdf#94502 OOXML: fix overlap export of stacked bar chart (by Balázs Varga)





# Keep custom format

tdf#96469 OOXML: export custom data point properties (by Balázs Varga)





# Other improvements

tdf#119562 Fix export of AutoFit property of shapes

tdf#108078 Export Chart shapes area fill properties

tdf#118651 OOXML ActiveX textbox: fix multiline

tdf#118153 VBA Macro: XLSX in Workbooks.Open

tdf#118127 fix date format duplications in Hungarian locale

# MENTORING

**LibreOffice bug fixing  
is an active and  
continuous learning  
process**

# MENTORING

**Learn to self-study  
LibreOffice by hacking,  
active code reading  
(eg. causing new bugs)  
and minor bug fixing**

# **OUR MISSION**

**Learning LibreOffice  
by bug fixing, and  
developing  
competitive features**



# Elements of mentoring

Formal education by a LibreOffice expert

Basics: OOXML/ODF, building, bug fixing & unit testing, Developer's Guide

Working on real problems, first together,

Later in virtual machine with guidance

Asking help via Telegram and IRC

Motivating (badges, LiboCon etc.)



# Learning materials

TDF Wiki pages & Apache OpenOffice.org materials, and knowledge of the expert(s)

Learn UNO via macro programming by using inspector extensions and reading IDL API

Git repository of LibreOffice is a readable and documented collection of sample bug fixes. Master it for searching and code re-use.

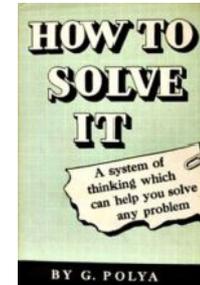
Use opengrok, git, bisecting, SW\_DEBUG, SAL\_DEBUG and gdb (for code reading, too)



# How do I solve it?

Heuristic techniques of LibO development

See *How to solve it* (by George Pólya, 1945)



1. Understand the interoperability problem: check it in different office suites, during import/export cycles, changes in XML content of OOXML or ODF documents, read related part of the OOXML and ODF standards.
2. Devise and carry out the plan; simplify the test document also for the unit test; search the related code parts (opengrok, git, gdb); read it by SAL\_DEBUG test modifications; think of simple workarounds and parallel solutions for part of the problem; solve it; add unit tests



# Experience matters

Help your students by encouraging, code reading, hints, and code snippets

Mentoring is a learning process for you

Be a pioneer by learning new parts of LibreOffice during mentoring and later

Plan long-term competitive features and learn the related parts of LibreOffice

Share and keep your growth mindset



# Growth mindset

The power of believing that you can improve (Carol Dweck)

[https://www.ted.com/talks/carol\\_dweck\\_the\\_power\\_of\\_believing\\_that\\_you\\_can\\_improve](https://www.ted.com/talks/carol_dweck_the_power_of_believing_that_you_can_improve)

No one understands the whole code, but everyone would be able to fix bugs, only with partial understanding

**Gain this partial  
understanding!  
Test it!**



# Prepare for learning

There is no prohibited method in problem solving

1 Choose the best: New day is a new challenge; Self-education. *“So do not fear, for I am with you...”* (Isaiah 41:10). *“What you aim at determines what you see.”* (Jordan Peterson). Trial and error. Learning is an active process: *“You cannot understand a system until you try to change it”* (Kurt Lewin), *“There is no royal road to geometry.”* (Euclid); Read the code as your own. Practice makes the master. Go at your own pace; Stay on the golden middle way; Take a break; Switch task; Ask for help; *“Repetitio est mater studiorum”*.

2 If it doesn't work, GOTO 1

# SUMMARY



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## As we did

- Invest in LibreOffice
- Hire an expert (team or developer):

<https://www.documentfoundation.org/get-help/developers/>

- To mentor your team
- By fixing your real problems



# Acknowledgements

Balázs Varga & Ádám Kovács  
junior LibreOffice developers of our team

NISZ LibreOffice support team, lead by  
Gábor Kelemen (see his presentations, too)

Experts of Collabora Productivity, Red Hat  
Linux and TDF, reviewing our bug fixes

LibreOffice users, contributors and  
developers around the globe

