

# LibreOfficeKit – bridge between your application and LibreOffice

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# LibreOfficeKit

## Agenda

- What is LibreOfficeKit?
- Recent improvements



# What is LibreOfficeKit?

- Bridge between LibreOffice goodness and external world
- API providing tiled rendering, document manipulation, access to the UI components

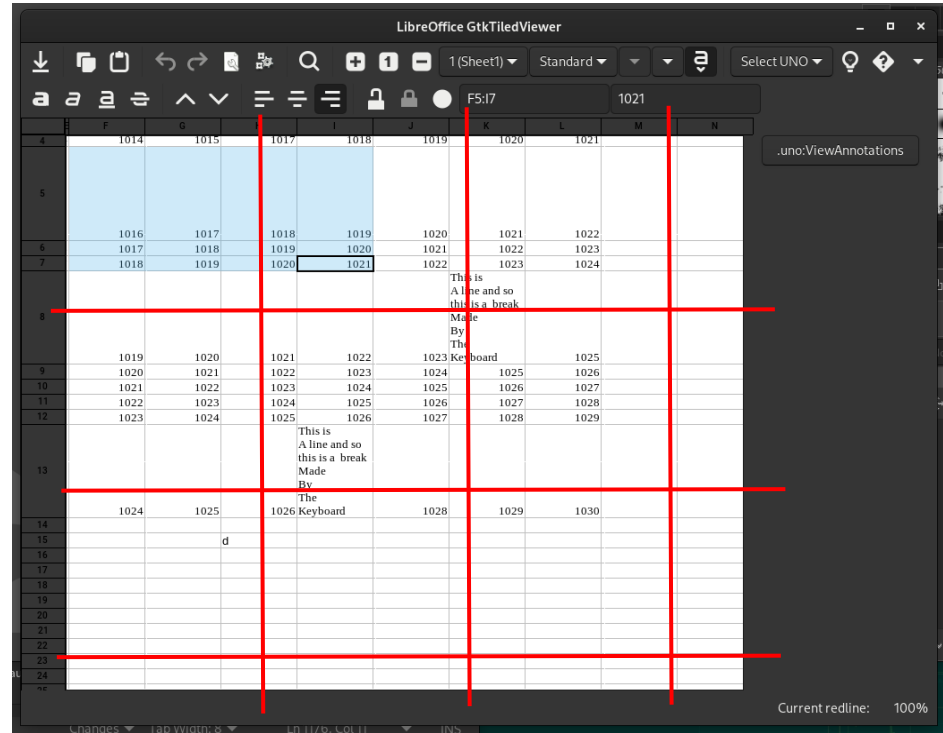




# GTK tiled viewer

## Example app

- Renders tiled preview of the document
- Allows basic manipulation
- Calls UNO commands



```
bin/run gtktilviewer ---path=.../instdir/program .../spreadsheet.ods
```



# LibreOfficeKit APIs

- Interfaces defined in **include/LibreOfficeKit/**
- Implementation in **desktop/source/lib/init.cxx**
- README in **libreofficekit/README.md**
- External code can invoke actions, render tiles using **LibreOfficeKitDocument** object.
- Some actions may trigger callbacks (tiles invalidation, selection changed), see possible callbacks in **include/LibreOfficeKit/LibreOfficeKitEnums.h**
- Callbacks usually return simple strings or JSON



# LibreOfficeKit APIs

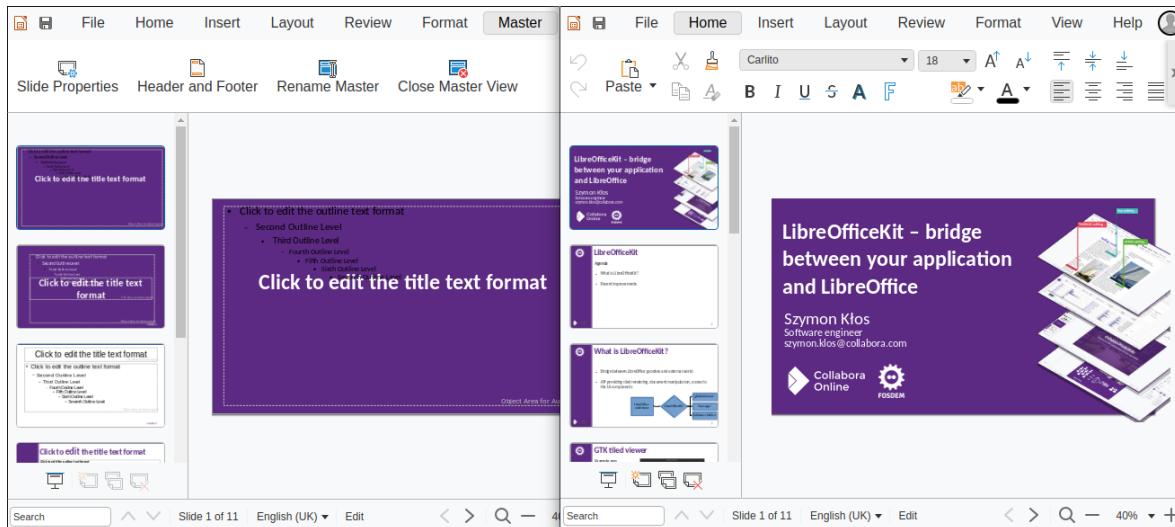
- We try to keep LibreOfficeCode the same for tiled rendering mode, but sometimes it's impossible
- In such cases code is conditional, guarded by **`comphelper::LibreOfficeKit::isActive()`**
- Example: tiled rendering only draws the document's content – without selections. Selections are sent via `LOK_CALLBACK_TEXT_SELECTION`

# Recent improvements



# Master Page mode - rendering

- Problem: tile with the same number, with the same coordinates, but in different “editing mode”
- Two users can see the same slide in different mode and edit them as it would be independent piece of presentation







# Master Page mode - rendering

- API for rendering a tile was changed (added mode parameter)
- Algorithm which selects view used for rendering selected tile was adjusted
- If there is available view in selected mode – use it!
- This allows to avoid unwanted side effects when switching edit mode

```
lok: masterpage: Introduce mode property to tile rendering
commit 931e3d204e59ccb2e9c479477e6e66b2c098924f
```

```
@@ -3770,6 +3790,7 @@ static void doc_paintTileToCGContext(LibreOfficeKitDocument* pThis,
    static void doc_paintPartTile(LibreOfficeKitDocument* pThis,
                                unsigned char* pBuffer,
                                const int nPart,
+                               const int nMode,
                                const int nCanvasWidth, const int nCanvasHeight,
```



# Editing in-place cells with overflow

- Problem: when editing cell with overflow it was visible only in the editor's view. Any interaction from other users could render alternative version without edited field, what caused flickering.

The image shows two side-by-side screenshots of a spreadsheet editor. The left screenshot shows a cell in column K, row 1027, containing the text "THIS IS OVERFLOW". A red box highlights this cell, and a green box highlights the text "THIS IS OVERFLOW". The right screenshot shows the same cell, but the text is now "THIS IS OVERFLOW" and "LocalUser#". A red box highlights the cell, and a blue box highlights the text "THIS IS OVERFLOW".

H	I	J	K	L	M
1019	1020	1021	1022	1023	
1020	1021	1022	1023	1024	
			This is A line and so this is a break Made By The Keyboard		
1021	1022	1023	THIS IS OVERFLOW	1025	
1022	1023	1024		1026	
1023	1024	1025		1027	
1024	1025	1026		1028	
1025	1026	1027		1029	
	This is A line and so this is a break Made By The Keyboard				

I	J	K	L
1020	1021	1022	1
1021	1022	1023	1
		This is A line and so this is a break Made By The Keyboard	
1022	1023	1024	
1024	1025	THIS IS OVERFLOW	LocalUser#
1025	1026		
1026	1027		
	This is A line and so this is a break Made By The Keyboard		



# Editing in-place cells with overflow

- We have to render in-place editing for all the views so tiles are always identical
- Edits are rendered always in the same order
- We also send cursor positions in the extended area what was missing before

1020	1021	1022	1023	1024	1025	1026	1027	1028	1029
			This is A line and so this is a break Made						
			By The Keyboard						
1021	1022	1023			1025				
1022	1023	1024			1026				
1023	1024	1025	THIS IS		1027				
1024	1025	1026	OVERFLOW		1028				
1025	1026	1027			1029				
	This is A line and so this is a break								

lok: sc: render expanded EditEngine when editing in-place  
commit 61d716901def607f01ab272996bf40b55642d650



# Improved rendering of slide previews

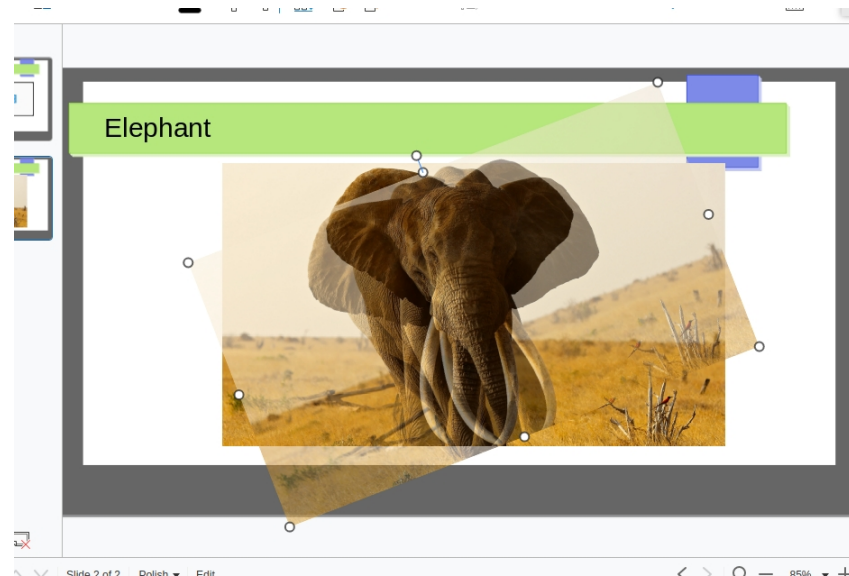
- When we render slide previews – we need to select some view
- Old implementation was using always first one
- Problem was that when first user was editing any text field
  - it was rendered for all users in the slide preview
- Algorithm for view selection was improved:  
we use any view which is non-editor with preferred view which already is watching the requested slide

```
lok: don't render active textbox on all slides  
commit 81df11b1e5af610133874d925899995a07364bc
```



# Optimized iamge previews rendering

- Changed `doc_renderShapeSelection` implementation
- Previews are now rendered with maximum resolution: 1280x720
- This increased performance and UX when requesting the preview of large image embodied in the document
- Can be used while rotating an image





# Exposed formulabar's content

- In the past formulabar was send as bitmap
- Now uses JSDialog – can be presented as native text field
- Events are sent as JSON with text content and selections

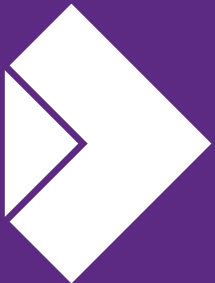
The screenshot shows a spreadsheet application interface. At the top, there is a toolbar with various icons. Below the toolbar, a dark overlay displays the text `textarea#sc_input_window.ui-textarea.formulabar.jsdialog` with dimensions `314 × 28` and the text `Element Flex`. Below this, the formula bar shows the formula `= SIN(RADIANS($B6))` in cell C6. The spreadsheet grid below has columns A through F and rows 1 through 7. The data in the grid is as follows:

	A	B	C	D	E	F
1						
2		<u>Point interval</u>	16			
3						
4		X	Y (1)	Y (2)		
5		0	0.0000	0.0000		
6		16	0.275	0.3445		
7		32	0.5299	0.6624		

There is also a small floating window on the right side of the spreadsheet showing the value `1.5000`.



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**Thank you!**

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