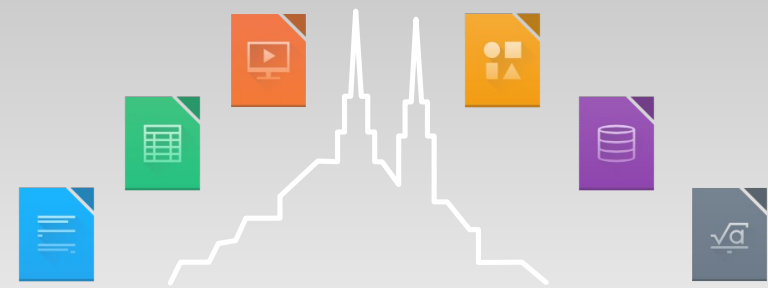


Improving LibreOffice usability: fixing symlink / hyperlink issues on Linux

- ▼ Martin Nathansen
- ▼ IT Engineer @ LiMux project

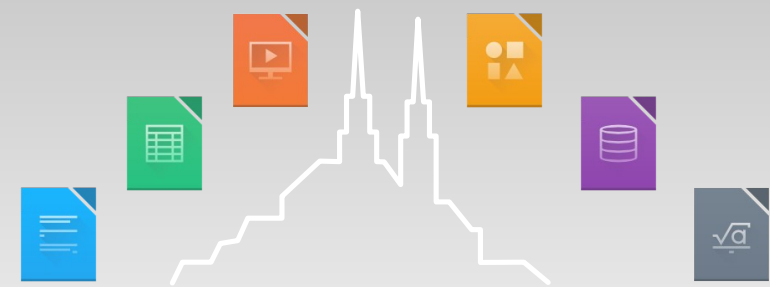
agenda



- ▼ About the speaker.
- ▼ Why this talk.
- ▼ Use cases which go wrong on Linux.
- ▼ Relative vs. absolute file URLs.
- ▼ Document import export.
- ▼ Why does it fail on Linux.
- ▼ 5 options to fix this.
- ▼ Make use of LinkResolver.
- ▼ 7 related bug reports.
- ▼ How to continue?

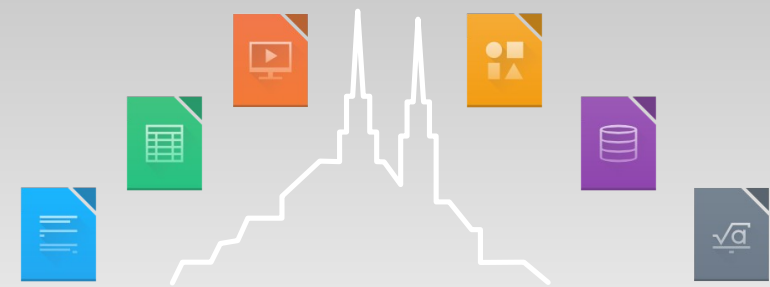


about the speaker



- ▼ IT engineer from Munich
- ▼ 16 yrs HW/SW R&D: CT, POTS/ISDN, (Optical) Networks
- ▼ 8 yrs as indie mobile and WebApp developer
- ▼ LiMux project since October 2015
- ▼ LibreOffice dev since March 2016

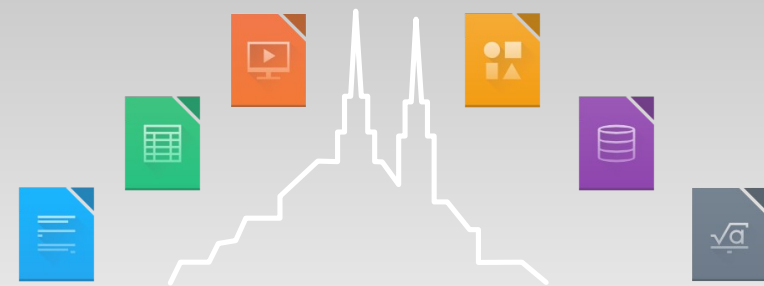
why this talk



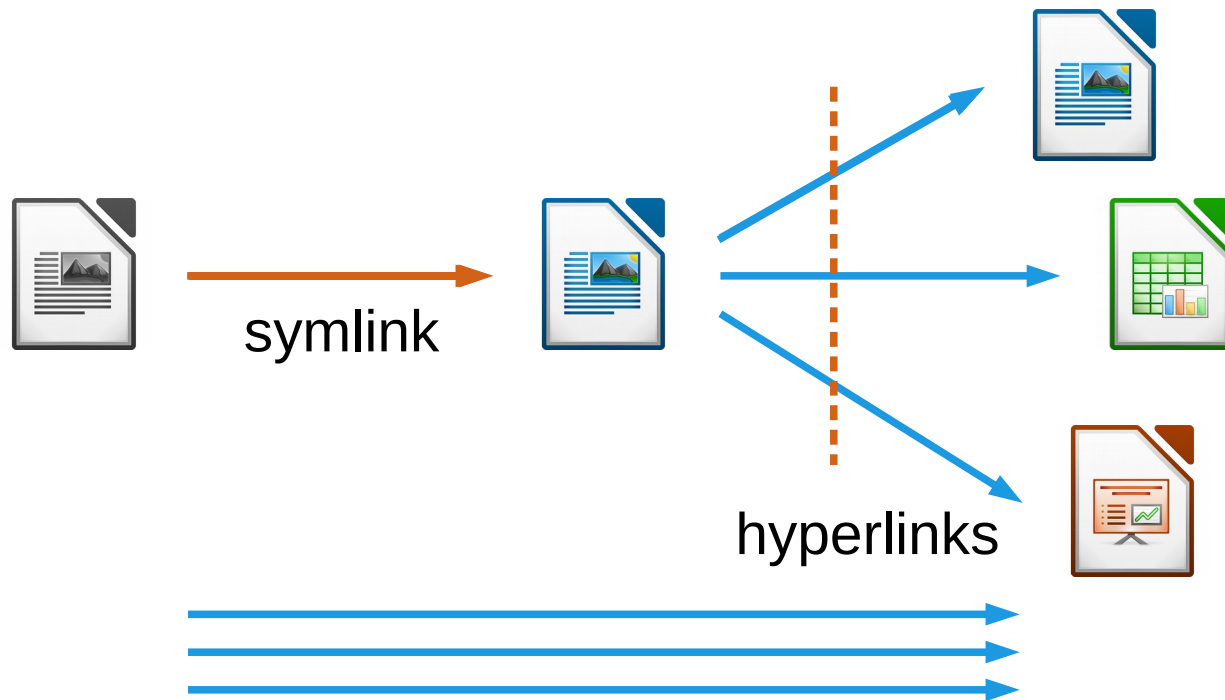
- ▼ Symlink / hyperlink related use cases which work on MS Windows but fail on Linux.
- ▼ User can choose between storing URLs as relative (1) or as absolute (2) file references.
- ▼ Both options can lead to broken links:
 - (1) when a document is opened via shortcut or a symlink or
 - (2) when the linked documents are moved to another folder.
- ▼ This talk analyzes the related failure scenarios and propose solutions.
- ▼ Goal: Fix open bugs and increase the usability of LibreOffice on Linux.



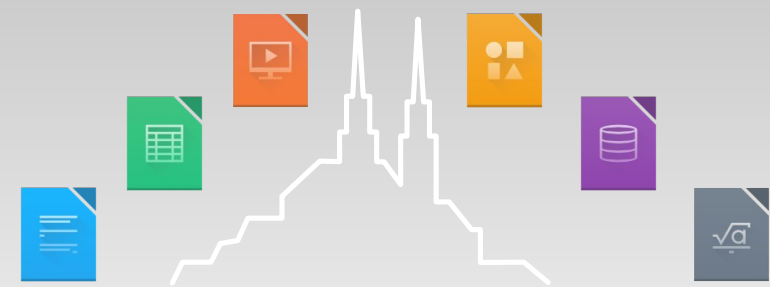
use cases (1)



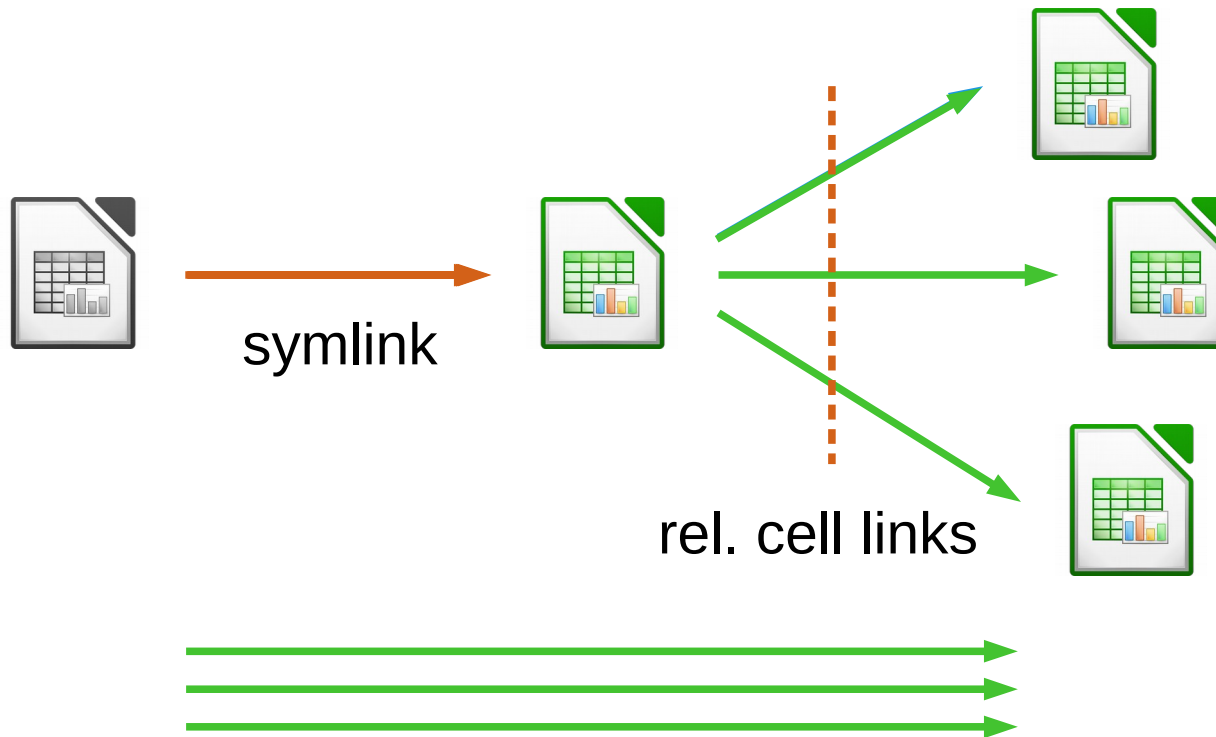
- ▼ Common sym/hyperlink use cases with Calc, Impress, Writer:
 - ▼ document with hyperlinks to other docs or media
 - ▼ desktop shortcut to the base document → all hyperlinks will break (Linux only)



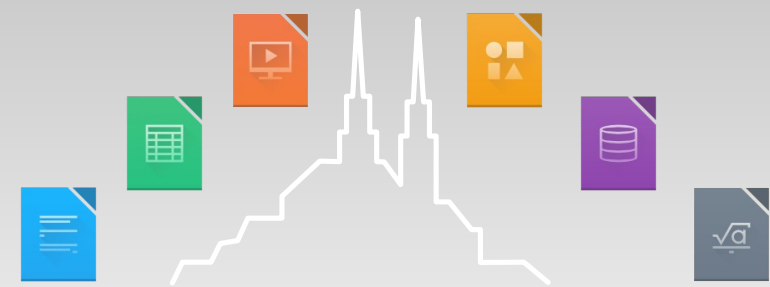
calc use case (2)



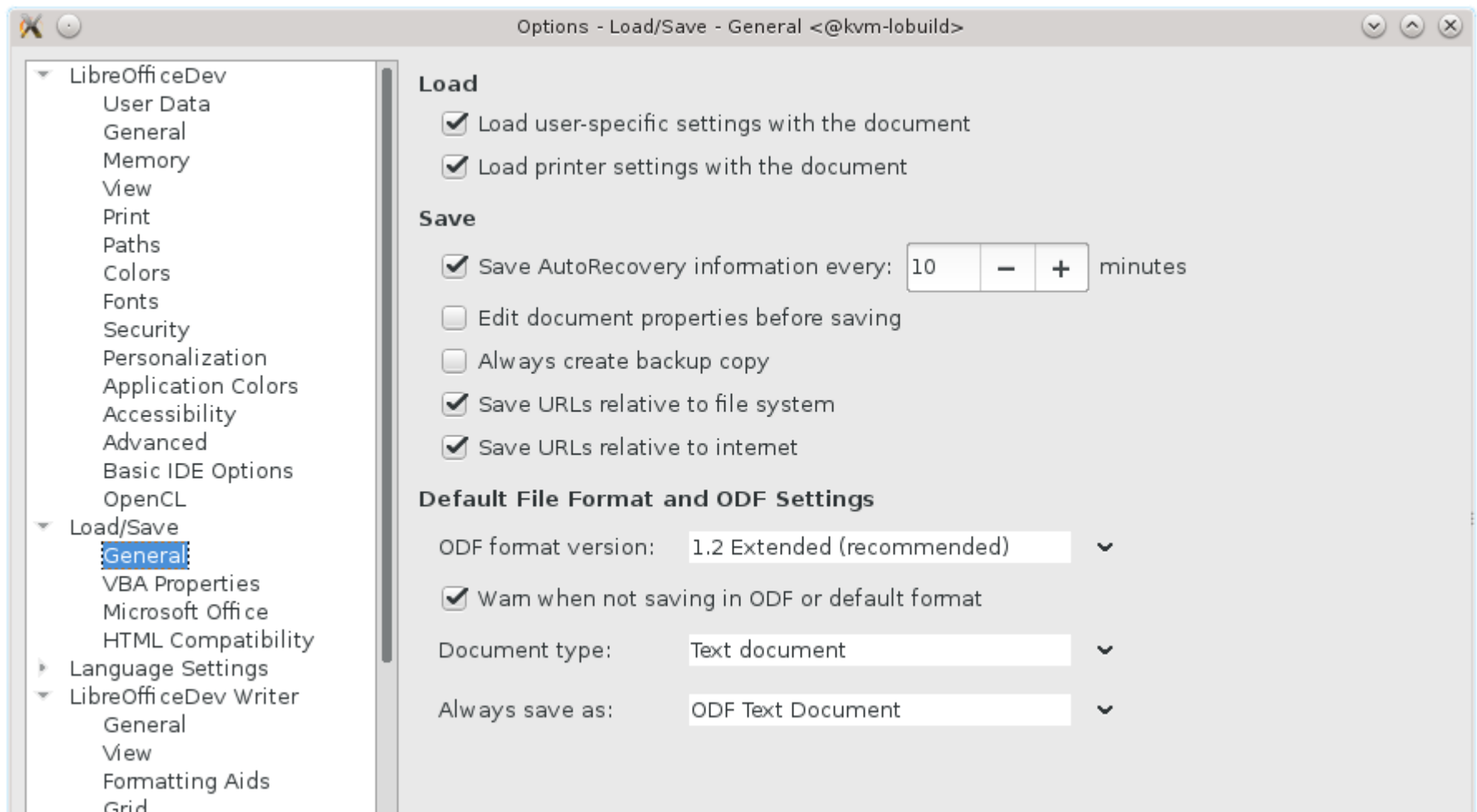
- ▼ Calc document with links to cells of other calc documents
- ▼ Desktop shortcut or symlink to the base document → cell links will break (Linux only)



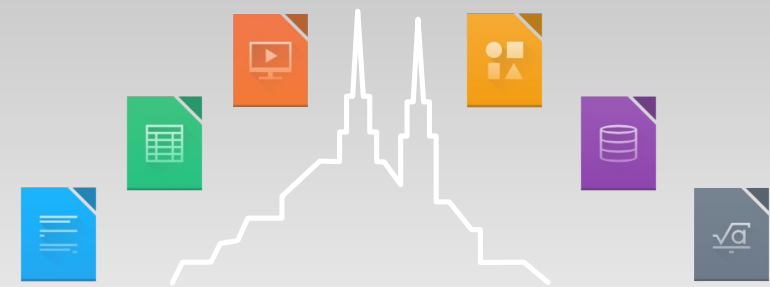
relative vs. absolute paths (1)



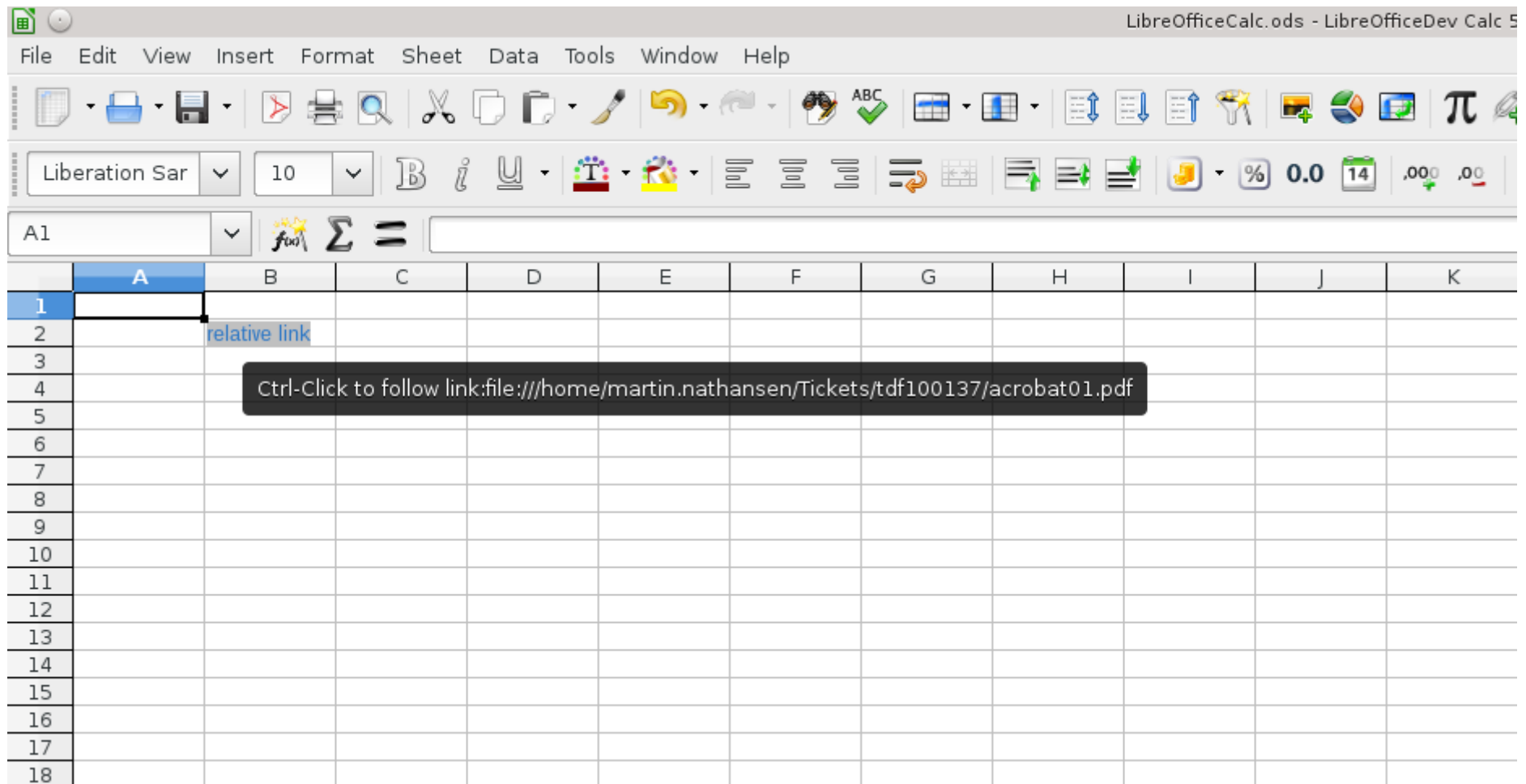
- ▼ The user can choose between relative or absolute URLs:



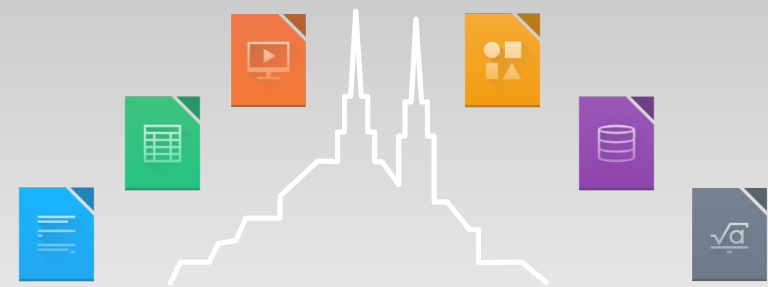
relative vs. absolute paths (2)



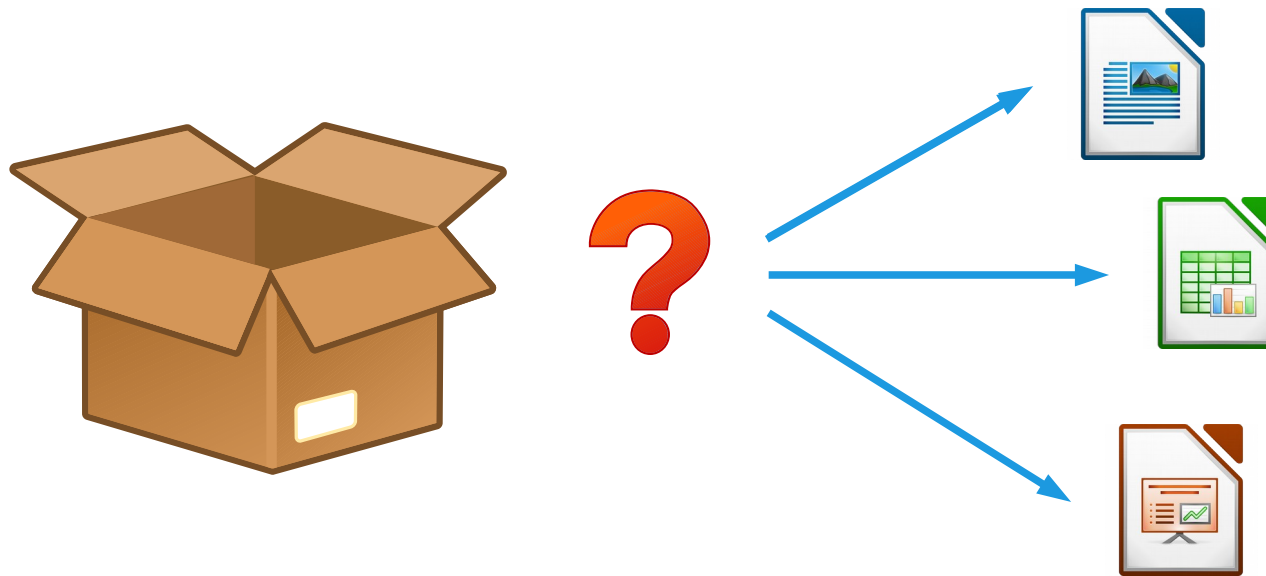
- ▼ The user always see absolute URLs (usability issue):



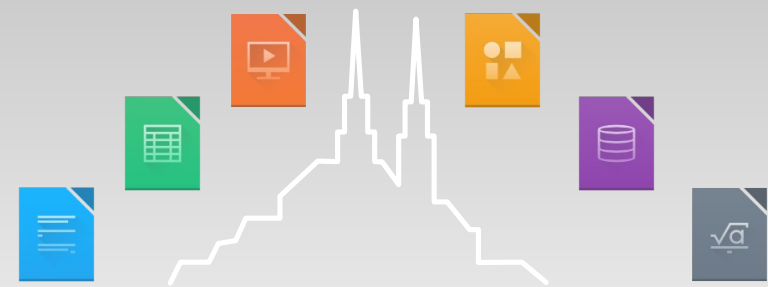
relative vs. absolute paths (3)



- ▼ Configuring absolute URLs internally is not a good option because other use cases will break:



doc import export



- ▼ Relative paths in content.xml are converted to absolute file URLs during document import:

`../folder/doc.odt`

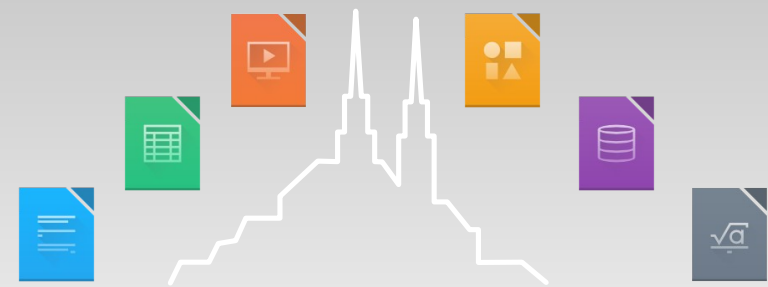
→ `file:///home/user1/folder/doc.odt`

- ▼ Absolute file URLs are converted back to relative paths during doc export:

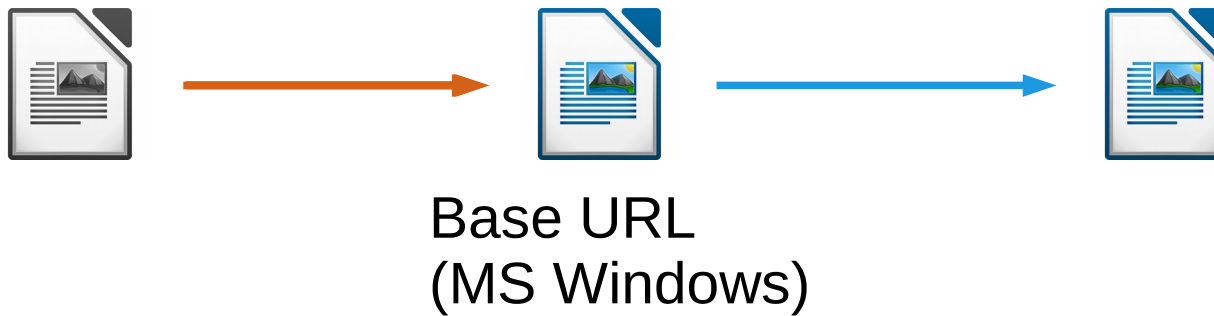
`file:///home/user1/folder/doc.odt`

→ `../folder/doc.odt`

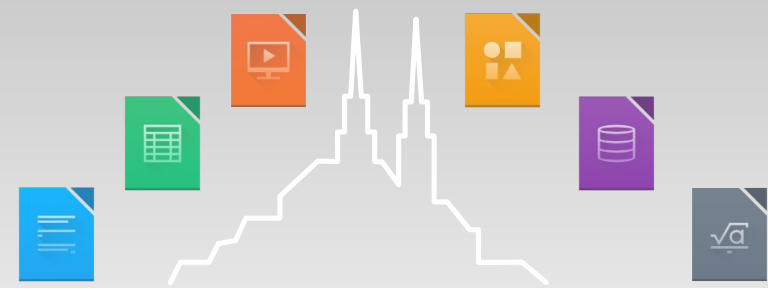
Why does it fail on Linux



- ▼ Base URL for the conversion is different on MS Windows and Linux:

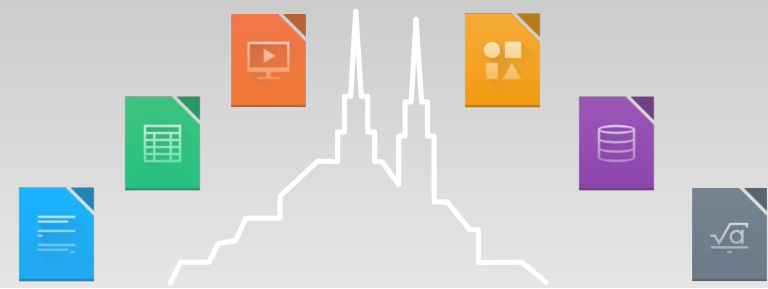


Is this a bug or a feature?



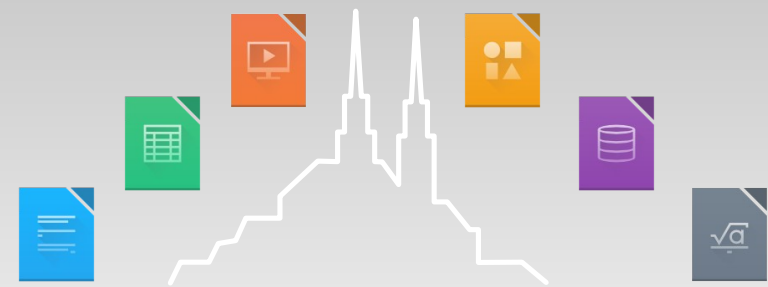
- ▼ “Expected behavior” on Linux for LO developers,
- ▼ but users expect same behavior as on MS Windows,
- ▼ or as with other applications like Firefox,
- ▼ so it is at least a user bug.
- ▼ Who do we develop LibreOffice for?

5 options to fix this



1. Tell the Linux user not to use desktop shortcuts or symlinks
 - bad usability
2. Tell the user to disable option “Save URLs relative to File system”
 - will break other use cases
3. Fix the problem optionally and ask the user to make a decision
 - user confusing pop up dialog
4. Fix the problem for desktop shortcuts only
 - some use cases will remain broken
5. Fix the problem in general
 - other (Linux only) use cases might break

make use of LinkResolver

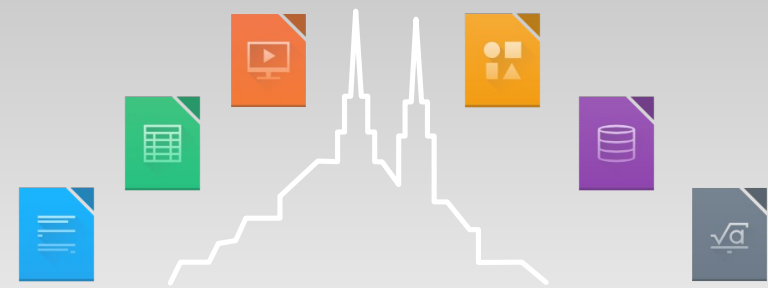


- ▼ Resolving the file path of the base document with the help of `salhelper::LinkResolver` (1)
- ▼ This resolved file path will be the base URL for converting the relative paths (2)

[tools/source/fsys/urlobj.cxx](#)

```
OUString INetURLObject::ResolveFilePath( DecodeMechanism eMechanism, rtl_TextEncoding
eCharset ) const
{
    OUString rTheAbsURIRef(INetURLObject(*this).GetMainURL(eMechanism, eCharset));
    if (rTheAbsURIRef.endsWith("/content.xml"))
    {
        salhelper::LinkResolver aResolver(osl_FileStatus_Mask_FileName);
        osl::FileBase::RC eStatus = aResolver.fetchFileStatus(
            rTheAbsURIRef.replaceFirst("/content.xml", ""));
        if (eStatus == osl::FileBase::E_NOTDIR || eStatus == osl::FileBase::E_None)
        {
            rTheAbsURIRef = aResolver.m_aStatus.getFileURL(); // (1)
            rTheAbsURIRef += "/content.xml";
        }
    }
    return rTheAbsURIRef; // (2)
}
```

fix document import



- ▼ Resolve file path of the base document (1)
- ▼ Convert relative to absolute file path (2)

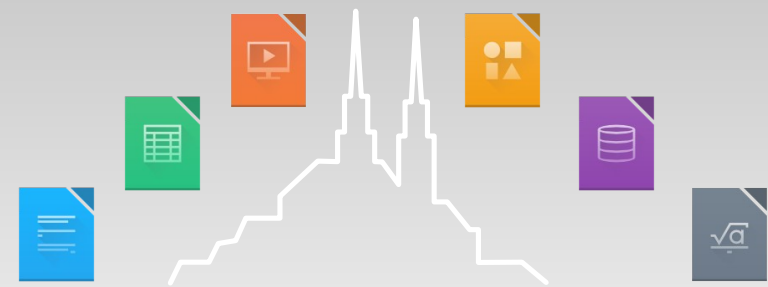
```
include/tools/urlobj.hxx
```

```
inline INetURLObject
INetURLObject::smartRel2Abs(OUString const & rTheRelURIRef,
...
{
    ...
    if (rTheRelURIRef.startsWith("../"))
    {
        OUString rTheResolvedURIRef( INetURLObject(
            m_aAbsURIRef.getStr()).ResolveFilePath()); // (1)

        bResolveBaseURI = INetURLObject(rTheResolvedURIRef, eMechanism, eCharset).
            ConvertRelToAbs( rTheRelURIRef, aTheAbsURIRef, rWasAbsolute, // (2)
                eMechanism, eCharset, bIgnoreFragment, true,
                bRelativeNonURIs, eStyle);
    }
}
```



fix document export

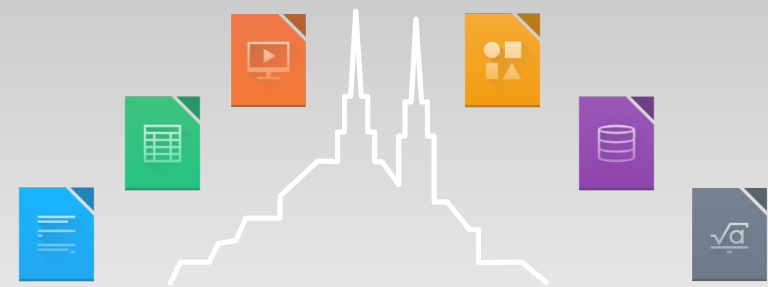


- ▼ Resolve file path of the base document (1)
- ▼ Convert absolute to relative file path (2)

```
include/tools/urlobj.hxx
```

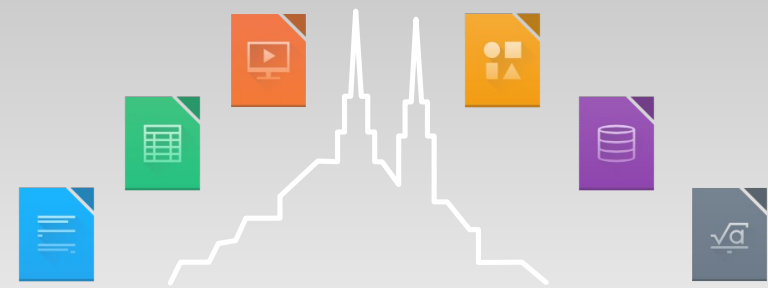
```
inline OUString INetURLObject::GetRelURL(OUString const & rTheBaseURIRef,  
...  
{  
    ...  
    if (bResolveBaseURI)  
    {  
        OUString aTheResolvedURIRef(rTheBaseURIRef);  
        aTheResolvedURIRef = INetURLObject(rTheBaseURIRef).ResolveFilePath(); // (1)  
        bResolveBaseURI = INetURLObject(aTheResolvedURIRef,  
                                        eEncodeMechanism, eCharset).  
            convertAbsToRel(rTheAbsURIRef, aTheRelURIRef, eEncodeMechanism, // (2)  
                          eDecodeMechanism, eCharset, eStyle);  
    }  
}
```

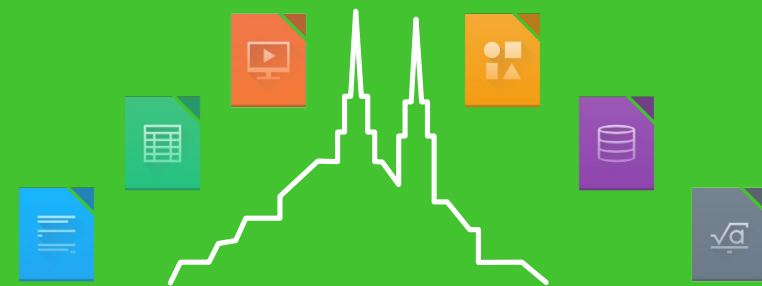

related bug reports



- ▼ [Bug 100137](#) - Wrong Hyperlinks in Calc when opening the Calc document over a Symlink
- ▼ [Bug 56137](#) - LO uses absolute pathes to other document, even with "use relative pathes"-option checked
- ▼ [Bug 86087](#) - FILESAVE FILEOPEN VIEWING: Can't open or save relative links in docx
- ▼ [Bug 64431](#) - FILESAVE: Broken hyperlink to another file in PPT
 - ▼ [Bug 51940](#) - : Relative path are not well managed in ppt files
- ▼ [Bug 45435](#) - XSLX format breaks relative hyperlink path when document is moved
 - ▼ [Bug 97509](#) - Path of inserted linked image breaks after file is moved

how to continue





Thank you ... for listening!



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