

LibreOffice
The Document Foundation

Improving Developer Experience at LibreOffice

Hossein Nourikhah

DX



Contents

- What is “Developer Experience” (DX)?
- Efforts to improve LibreOffice DX
 - Culture
 - Tools
 - Processes
- The road ahead



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Developer Experience (DX)

- What is the Developer Experience (DX)?
 - Overall experience of developers toward a goal
 - Fixing bugs, implementing features & other changes
 - It's not only about tools, but also culture and processes
- Main Tasks to think about
 - Build
 - Debug
 - Test
 - Run/Deploy

DX



Culture

- **Friendly culture**
 - Accepting and helping newcomers
 - Developer community: Mix of volunteers and employees
 - Balance between individuals and companies
- Interviews and calls with the newcomers
- Regular meetings for important decisions
 - ESC Call
- Annual conference (LibOCon)



Tools

- Continuous Integration (CI) ➔ Jenkins
- Support multiple IDEs
- GUI Design tool ➔ Glade
- Static code checking ➔ Coverity scan
- Code review ➔ Gerrit
- Code search ➔ OpenGrok
- Bug tracking ➔ Bugzilla
- Translation ➔ Weblate
- Code coverage ➔ Icov
- Fuzzers ➔ libfuzzer



Processes

- **Mentoring:** Mentoring is provided for the newcomers
- **EasyHacks:** Simple tasks to get started in LibreOffice development
- **Bug bounty:** Security bugs → Intigrity
- **Tenders:** More complicated tasks to be done by a company or an individual
- **Engineering Steering Committee (ESC):** Important decisions is taken here





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Tools and Processes



Build tools

- **gbuild**
 - Old system was **dmake**, a custom old build tool
 - **gbuild** is the current build system of LibreOffice, based on GNU make
 - Works on Linux, macOS, BSDs and Windows (cygwin)
 - In conjunction with **LODE** (LibreOffice Development Environment) it can automate most of the build tasks
 - LibreOffice can now be built using Visual Studio 2022



Continuous Integration

- CI with Jenkins
 - Build for different platforms
 - Linux, Windows, macOS, Android
 - Unit tests
 - CppUnitTests on every platform
 - UITests on Linux

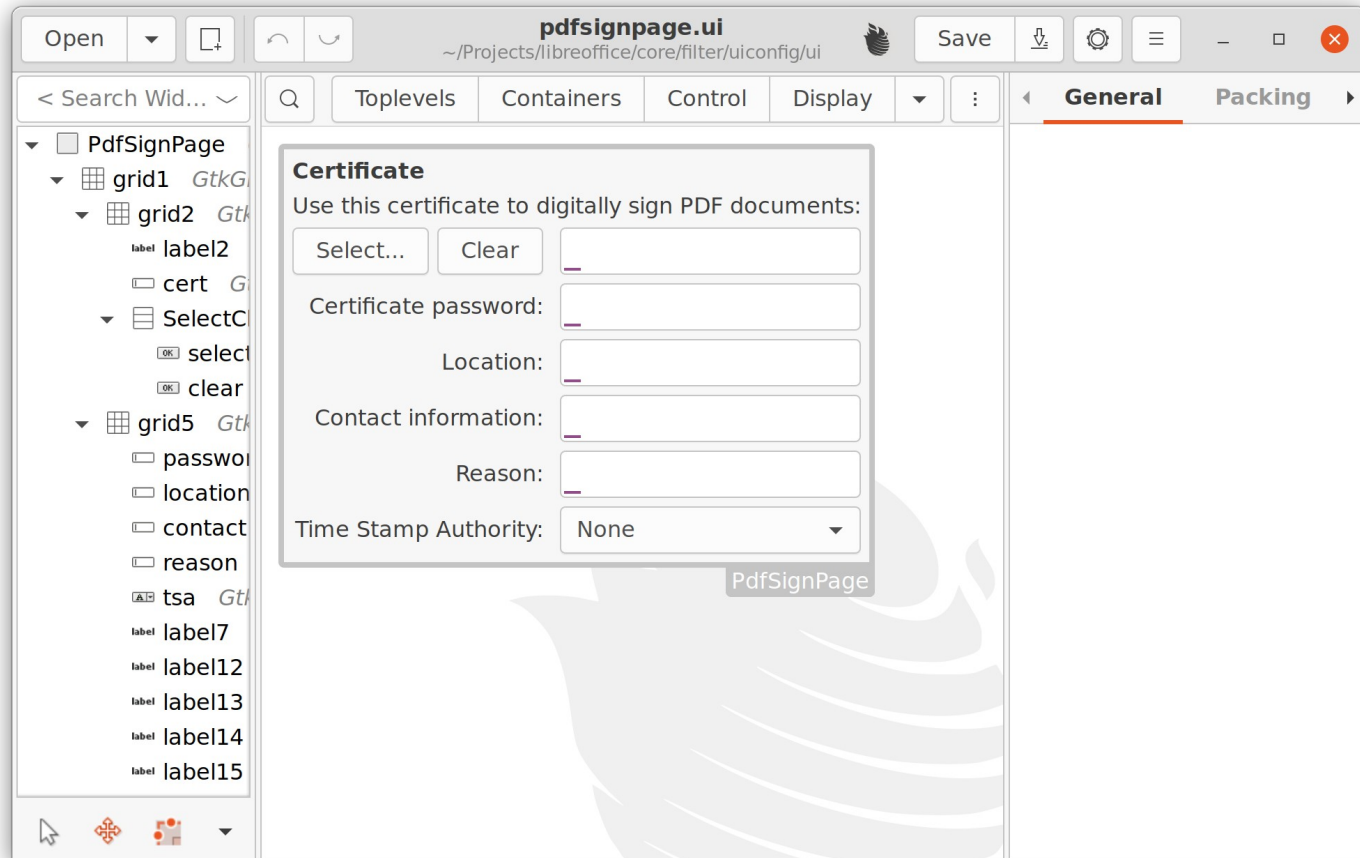


The screenshot shows the Jenkins web interface for a build named "Gerrit for master" with ID #105158. The build is in a successful state, indicated by a green checkmark icon. The build details show it was triggered by Gerrit and started by user Chris Sherlock. The build log indicates that the run spent 11 ms waiting, 33 min in build duration, and 33 min total from scheduled to completion.

S	R	Job	Build #	Duration	Console
		<i>buildstep</i>			
●		gerrit_linux_clang_dbgutil	build #105158	(23 min)	
●		gerrit_mac	build #110259	(23 min)	
●		gerrit_windows	build #116376	(1 hr 1 min)	
●		gerrit_master_android	build #34040	(30 min)	
		<i>buildstep</i>			
●		gerrit_android_x86	build #13299	(6 min 25 sec)	
●		gerrit_android_aarch64	build #13346	(5 min 19 sec)	
●		gerrit_linux_gcc_release	build #108688	(33 min)	

GUI Design Tools

- **GUI Designer**
 - Every GUI is created visually using Glade interface designer
 - The result is usable with every UI backend that VCL supports



Using IDEs

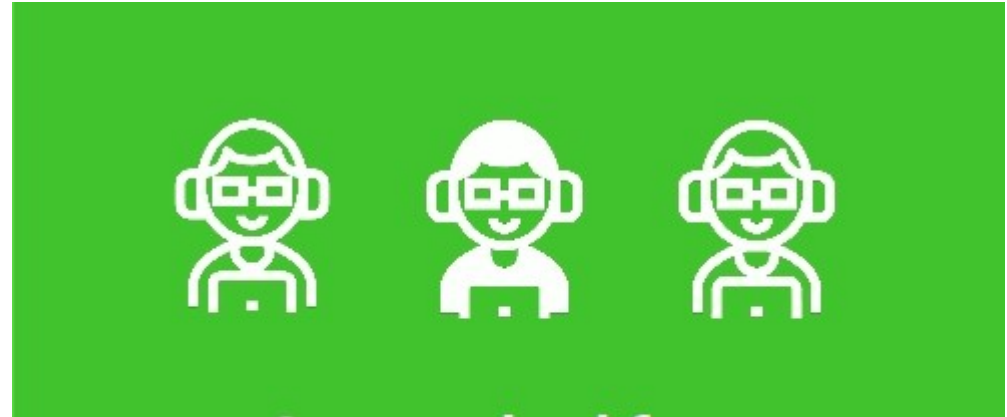
- Many IDEs are Supported
 - Visual Studio
 - VS Code
 - Qt Creator
 - XCode
- Debugging
- Code Completion



```
analysisishelper.cxx (scaddins/source/analysis @ lo) [master] - Qt Creator
File Edit View Build Debug Analyze Tools Window Help
Projects analysisishelper.cxx ScaDate::getDi... Line: 2632, Col: 1
lo [master]
├── lo.pro
├── accessibility
├── animations
├── avmedia
├── basctl
├── basegfx
├── basic
├── bean
├── binaryurp
├── bridges
├── canvas
├── chart2
├── codemaker
├── comphelper
├── configmgr
├── connectivity
├── cppcanvas
├── cppu
├── cppuhelper
├── cputools
├── cui
├── dbaccess
├── desktop
├── drawinglayer
├── editeng
├── embeddedobj
└── emfio
2621         aTo.nDay = ::DaysInMonth( 2, aTo.nYear );
2622     }
2623     // corrections for base 4 (Europe)
2624     else
2625     {
2626         if( (aFrom.nMonth == 2) && (aFrom.nDay == 30) )
2627             aFrom.nDay = ::DaysInMonth( 2, aFrom.nYear );
2628         if( (aTo.nMonth == 2) && (aTo.nDay == 30) )
2629             aTo.nDay = ::DaysInMonth( 2, aTo.nYear );
2630     }
2631 }
2632 |
2633 if( (aFrom.nYear < aTo.nYear) || ((aFrom.nYear == aTo.nYear)
2634 {
2635     // move aFrom to 1st day of next month
2636     nDiff = aFrom.getDaysInMonth() - aFrom.nDay + 1;
2637     aFrom.nOrigDay = aFrom.nDay = 1;
2638     aFrom.bLastDay = false;
2639     aFrom.addMonths( 1 );
2640 }
2641 if( aFrom.nYear < aTo.nYear )
2642 {
2643     // move aFrom to 1st day of next year
2644     nDiff += aFrom.getDaysInMonthRange( aFrom.nMonth
2645     aFrom.addMonths( 13 - aFrom.nMonth
Parsing C/C++ Files
1 Issues 2 Sea... 3 Appl... 4 Co... 5 QML... 6 Gen... 7 Vers... 8 Test...
```

Mentoring

- We have dedicated mentors
- We provide help via chats, calls and screen sharing (if needed) with the newcomers to provide help for getting started
- We review the manuals and instructions to make keep them correct, understandable and easy to use



EasyHacks

- **EasyHacks**

- Simple tasks for the newcomers
- Different difficulty levels
- Different languages and skills
- Designed to help newcomers to grow



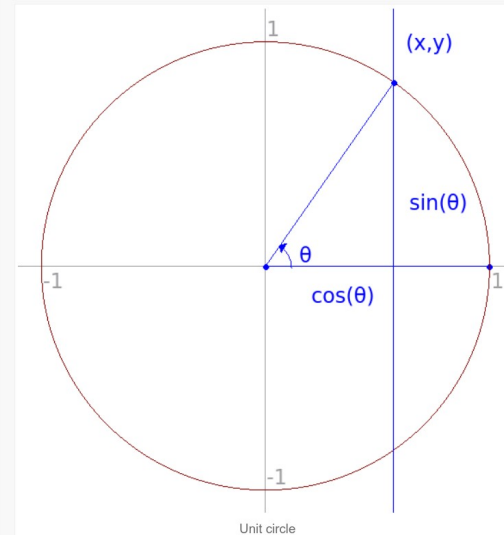
LIBREOFFICE DEVELOPMENT BLOG

[Announcement](#) [Developer Community](#) [EasyHack](#) [Tutorial](#) [Video Tutorial](#)

USE ATAN2 FUNCTION INSTEAD OF ATAN – EASYHACK

By [Hossein Nourikah](#) On 17 November 2021 In [EasyHack](#)

When working with shapes and charts in LibreOffice, there are several occasions that you have to calculate $\tan^{-1}x$. But is atan function always the best choice? Here we discuss using atan2 function instead of atan in C++ code. When used in correct place, atan2 can have a lot of benefits when calculating $\text{atan}(y/x)$.



LATEST POSTS

- [LibreOffice developer community](#)
- [Happy New Year 2022!](#)
- [Use basegfx to convert angle unit – EasyHack](#)
- [Use symbolic constants instead of magic numerical constants – EasyHack](#)
- [Use atan2 function instead of atan – EasyHack](#)

Donate, and let's make LibreOffice even better!
Just click on this image
THANK YOU!

WHAT IS LIBREOFFICE?

LibreOffice is a free and open source office suite, based on OpenOffice, with extra features, improved Microsoft Office compatibility, and regular updates.

SEARCH

IRC and Mailing Lists

- **Rooms**

- #libreoffice: User support / discussion
- #libreoffice-dev: Development discussion
- #libreoffice-design: Design discussion
- #libreoffice-qa: Quality assurance

- **Bridged to Matrix**

- LibreOffice Space
- <https://matrix.to/#/#libreoffice-space:matrix.org>

- **LibreOffice development mailing list**



Video Tutorials

- Getting started to LibreOffice development
- And many more!
 - https://wiki.documentfoundation.org/Development/Learning_Materials



Getting Started with LibreOffice Development - LibreOffice Conference 2021

746 views • 3 months ago

 LibreOffice - The Document Foundation

A session from the online LibreOffice Conference 2021. Presenter: Hossein Nourikhah L
more: ...



Wiki

- **Wiki**

- Main source of information related to development
- Build instructions
- Updated regularly to reflect the recent changes
- Translated



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There are multiple and various ways in which you can join and help the LibreOffice project.

- [Are you a developer?](#) You can help out with development.
- Do you want to propose a new feature or report a bug? [Report it at our bugzilla instance!](#)
- Are you a copywriter or translator?
 - [The wiki needs you](#)
 - [Translate LibreOffice](#)
 - [Translate](#) [Ask-bot](#) at [transifex.com](#)
- [Are you trying to help developers?](#) The QA (Quality Assurance) team needs you.
- Are you a (UX) designer? The [design team](#) would love to hear from you.
- Help users answering their questions at [ASK.Libreoffice](#) and the localized version (put a /LANGUAGECODE at the end of the url)

Code Review

- Code Review
- Done via Gerrit
- Each and every submissions goes through gerrit
- Improves code quality & helps newcomers



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CHANGES YOUR DOCUMENTATION BROWSE

Merged ☆ 127734 tdf#145538 : Using range-based for loops REVERT

Change Info SHOW ALL REPLY

Submitted Dec 30

Owner Ramreiso

Uploader Hossein

Reviewers Hossein Jenkins

CC Mike Kaganski

Repo | Branch core | master

Topic

Submit requirements

✓ Code-Review +2 Hossein

✓ Verified +1 Jenkins

tdf#145538 : Using range-based for loops

Change-Id: I9674eff3e2572ffef7ee19af12befc8a9b6b1c06

Reviewed-on: <https://gerrit.libreoffice.org/c/core/+127734>

Tested-by: Jenkins

Reviewed-by: Hossein <hossein@libreoffice.org>

Comments 2 resolved

Files Comments Findings

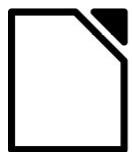
Base → Patchset 3 7886b6a DOWNLOAD INCLUDED IN EXPAND ALL

File	Comments	Size	Delta	
Commit message				
drawinglayer/source/primitive2d/animatedprimitive2d.cxx		<div style="width: 100%;"><div style="width: 50%; background-color: green;"></div><div style="width: 50%; background-color: red;"></div></div>	+2 -2	Reviewed
drawinglayer/source/primitive2d/markerarrayprimitive2d.cxx	1 comment	<div style="width: 100%;"><div style="width: 50%; background-color: green;"></div><div style="width: 50%; background-color: red;"></div></div>	+2 -2	Reviewed
			+4 -4	

Change Log

Show all entries (4 hidden) EXPAND ALL

- Jenkins Build queued https://ci.libreoffice.org/job/gerrit_master/104356/ Patchset 1 | Dec 30 12:25 PM
- Jenkins **Verified +1** Build Successful https://ci.libreoffice.org/job/gerrit_master/104356/ : SUCCESS Patchset 1 | Dec 30 1:38 PM
- Hossein Patch Set 1 was rebased [VIEW DIFF](#) Patchset 2 | Dec 30 2:28 PM
- Jenkins Build queued https://ci.libreoffice.org/job/gerrit_master/104378/ Patchset 2 | Dec 30 2:28 PM
- Jenkins **Verified +1** Build Successful https://ci.libreoffice.org/job/gerrit_master/104378/ : SUCCESS Patchset 2 | Dec 30 5:17 PM
- Hossein **Code-Review +2** 1 comment Looks good to me. Patchset 2 | Dec 30 5:19 PM



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The Road Ahead



New APIs and platforms

- **LibreOffice Kit**
 - New API for LibreOffice using tile rendering
 - Easy to use API with no dependencies on LO libraries
 - Easier to use compared to UNO API
- **WASM**
 - Web assembly, allows to run LO in a browser
- **ScriptForge**
 - New API for automation using Basic and Python



New Build Tools

- The **gbuild** will continue to be in use
 - There is no plan to change the main build tools
- There are preliminary works on adding other build tools
 - **meson**: Preliminary works shows the feasibility of using it for the core
 - **cmake**: Used successfully for the SDK examples, no plan for using it in the LibreOffice core



New Developer Documentation

- Java LibreOffice development (JLOP)
 - Author: Dr. Andrew Davison
 - Focused on UNO API
 - Recently released as CC BY-SA 4.0
 - Good platform for adding code snippets for other languages
 - Python, BASIC
 - C++ (probably)



Thanks

hossein@libreoffice.org

DX?

