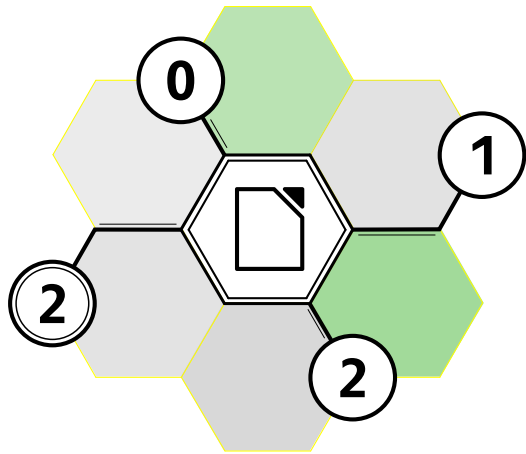# Getting Started with LibreOffice Development

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LibreOffice
Conference 2021

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Self Introduction

Self Introduction

- **I am Hossein Nourikhah**
  - Ph.D. in Information Technology
  - Developer Community Architect for The Document Foundation (TDF)
  - Developer, University Lecturer and FOSS Advocate
- **Any problems getting started with LibreOffice development?**
  - Contact me!
    - **Email:** hossein@libreoffice.org
    - **Wiki:** https://wiki.documentfoundation.org/User:Hossein
    - **IRC:** hossein at libreoffice-dev room in LiberaChat Network
      irc://irc.libera.chat/#libreoffice-dev

How to Learn LibreOffice Development?

Learning Process

- **Contributing to LibreOffice development**
  - One can contribute without code
  - I am here focused on coding
- **Learn at least one programming language**
  - C, C++, Java, Bash, JavaScript, Python, Perl, SQL, XML
- **Use Learning Materials**
  - Learning materials are not inside a single document
  - There are many sources for learning
- **Start from Easy Stuff: EasyHacks**
- **Search, read, ask and code!**

Learning Sources

- **Multiple Sources**
  - Website   libreoffice.org / documentfoundation.org
  - Code   git.libreoffice.org - opengrok.libreoffice.org
  - IRC   libreoffice-dev → libera.chat Network
  - Mailing Lists   libreoffice → freedesktop.org
  - Wiki   wiki.documentfoundation.org
  - Docs   docs.libreoffice.org
  - Blogs   blog.documentfoundation.org / dev.blog.documentfoundation.org
  - LibOCon   conference.libreoffice.org
  - Articles   wiki → Development/Learning_Materials
  - Books   - - - - - - - - - " - - - - - - - - - -

Website

Code

https://opengrok.libreoffice.org/

IRC

Developers' Mailing List

LibreOffice -- LibreOffice development and discussions.

About LibreOffice	English (USA)

List for LibreOffice development - please make sure you've read this before posting.

To see the collection of prior postings to the list, visit the LibreOffice Archives.

Using LibreOffice

To post a message to all the list members, send email to libreoffice@lists.freedesktop.org.

You can subscribe to the list, or change your existing subscription, in the sections below.

Subscribing to LibreOffice

Subscribe to LibreOffice by filling out the following form.

Use of all freedesktop.org lists is subject to our Code of Conduct. How we collect and use information is described in our Privacy Policy.

You will be sent email requesting confirmation, to prevent others from gratuitously subscribing you. This is a hidden list, which means that the list of members is available only to the list administrator.

| Your email address: | |
| Your name (optional): | |

You may enter a privacy password below. This provides only mild security, but should prevent others from messing with your subscription. **Do not use a valuable password** as it will occasionally be emailed back to you in cleartext.

If you choose not to enter a password, one will be automatically generated for you, and it

https://lists.freedesktop.org/mailman/listinfo/libreoffice   11

Wiki

Docs

accessibility

Accessibility Support for LibreOffice

android

LibreOffice for Android

animations

Containers for the css::animation UNO API

apple_remote

Apple Remote Control Support for Mac

avmedia

Audio / video Media Implementation.

basctl

BASIC IDE Controls and Dialogs

basegfx

Algorithms and Data Types for Graphics

basic

StarBASIC Interpreter

bean

API to Use LibreOffice from Java Applications (OfficeBean)

https://docs.libreoffice.org/

Blogs

https://blog.documentfoundation.org/

LibOCon

Online LibreOffice Conference
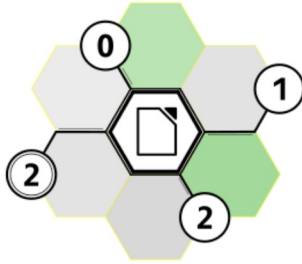
LibreOffice Conference 2021

This year's conference takes place online, from September 23 - 25. Join us!

The conference program is now published – **check the schedule** and mark your favorite sessions.

If you attend the conference via Jitsi, please register via the **registration form** on this site.

German speakers: check out the **Hybrid LibreOffice-Konferenz 2021 in Hamburg**!

Click here for conference merchandise!

https://conference.libreoffice.org/

Demo 1...

Setting Up a Development Environment

Manual or Using Distro Tools

- **Installing dependencies**
  - You have to install several libraries and tools
  - Some of them are installed using make
  - Others have to be installed manually or using distro tools
    - Cygwin on Windows
    - apt on Ubuntu
    - dnf or yum on RHEL / CentOS
    - pacman on Arch
    - zypper on openSUSE

Using LODE

- **LODE: LibreOffice Development Environment**
  - Downloads, builds and installs the prerequisites
- **When it is needed?**
  - Suggested for Windows and macOS
  - Suggested for some older versions of Linux
- **Notes**
  - You can use distro tools for newer versions of Ubuntu and RHEL/CentOS
  - You have to install MSVC, SDK and JDK yourself (Windows)
  - You have to install compiler and JDK yourself (Older Linux distros)

Windows Prerequisites

- **C++ Compiler**
  - Visual Studio 2019 / 2022
- **Java**
  - JDK >= 11 from Oracle / Microsoft / Red Hat / etc.
- **Cygwin**
  - cygwin.com
- **Several other dependencies, if building manually**

Linux Prerequisites

- **g++**
- **Java development kit (JDK)**
  - JDK >= 11
- **Dependencies**
  - Ubuntu: `apt-get build-dep libreoffice`
  - RHEL/CentOS: `dnf builddep libreoffice`
- **Recommended way to install dependencies**
  - Use distro tools for most of them

macOS Prerequisites

- **XCode from App Store**
- **Java development kit (JDK)**
  - JDK >= 11
- **Recommended way to install dependencies**
  - Use LODE
- **Use current XCode on the current macOS version**

Compiling on Different OSes

General Compile Instructions

- **General instructions**
  - Install the prerequisites
  - Get the source Code
    `git clone https://git.libreoffice.org/core`
  - Configure
    `./autogen.sh`
  - Build
    `make`
  - Run
    `soffice or soffice.exe`
    - It's inside `instdir/program`

autogen.input

- **Put compile options inside autogen.input**

```
--with-jdk-home=/usr/lib/jvm/java-11-openjdk-amd64/

--enable-python=fully-internal

--enable-dbgutil

--enable-ld=gold

--enable-gdb-index

--enable-online-update

--with-privacy-policy-url=NO_URL
```

Integrated Development Environment (IDE)

- **Usable IDEs**
  - Visual Studio Code (VSCode)
  - Microsoft Visual Studio: make vs2019-ide-integration
  - Qt Creator: make qtcreator-ide-integration
  - KDevelop: make kdevelop-ide-integration
  - Vim   make vim-ide-integration
  - Xcode   make xcode-ide-integration
- **Open the project after it was created!**

Demo 2...

EasyHacks

EasyHack

- **EasyHack: A simple straightforward programming task**
  - Can be solved by a limited effort from the newcomers
  - Code pointers are available
  - Considered a good starting point
  - Available as bugs labled with **EasyHack** in the **Bugzilla**
  - Listed in the wiki:
    https://wiki.documentfoundation.org/Development/EasyHacks#Lists_of_Easy_Hacks
- **Different complexity levels** (examined by the experienced developers)
  - Beginner
  - Medium
  - Interesting!

Sample EasyHack

- **Task: Use pragma once instead of include guards**
  - Difficulty level: Beginner
  - Search for header files with include guards
    ```
    git grep "#ifndef" *.hxx
    ```
  - Remove include guards and possible duplicate new lines
  - Add #pragma once instead
  - Write bug number in commit title and message
    - https://bugs.documentfoundation.org/show_bug.cgi?id=143148
    - Referred to as tdf#143148

Sample EasyHack (continued)

Home | My Bugs | New | Browse | Search | [Search field] Search [?] | Reports | Preferences | Administration | Help
| Log out hossein@libreoffice.org

Bug 143148 - Use pragma once instead of include guards (Episode 2: Endgame) (edit)   Save Changes

Status: NEW (edit)

Alias: None (edit)

Product: LibreOffice

Component: LibreOffice   (show other bugs)

Version: Inherited From OOo
(earliest affected)

Hardware: All   All

Importance: medium   normal

Assignee: Not Assigned (edit) (take)

URL: [ ]

Whiteboard: target:7.3.0

Keywords: difficultyBeginner, easyHack, skillCpp, topicCleanup

Personal Tags: [ ]

Depends on: [ ]

Blocks: Dev-related (edit)
Show dependency tree / graph

Reported: 2021-07-01 15:07 UTC by Buovjaga
Modified: 2021-08-26 17:21 UTC (History)
CC List: ☐ Add me to CC list
1 user (edit)
Ignore Bug Mail: ☐ (never email me about this bug)

See Also: ~~124176~~ ☐ Remove
(add)

Crash report or crash signature: [ ]

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Gerrit

Setting Up for Gerrit Submission

- **Basic setup**
  - Creating key pairs
    - ./logerit setup
      - https://www.unixtutorial.org/how-to-generate-ed25519-ssh-key/
  - Adding key to the Gerrit
  - Test:
    - ./logerrit test
  - Create a commit
    - git commit
  - Submit
    - ./logerrit submit master

Gerrit

- **Submit changes**
  - Submit your changes to Gerrit in order to get reviewed
- **Add a reviewer**
  - If the build was OK, add me or other mentors
- **Repeat after each review comment**

  Do these steps until you get +1 or +2
  - Fix the problems reported by CI (Jenkins) build
  - Fix the suggestions / corrections from the reviewers
  - Respond to the comments
  - Upload the next patchset
- **Get it merged**
  - If you get +2, your code will get merged!

Gerrit (continued)

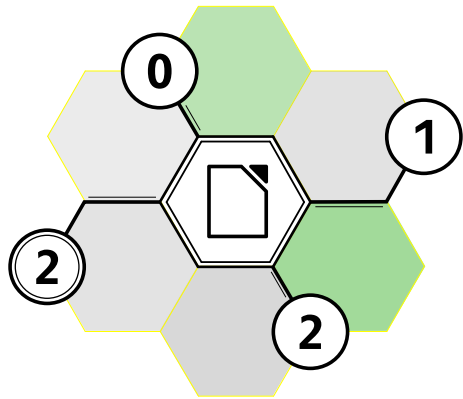| Subject	Status	Owner	Reviewers	Repo	Branch	Updated	Size	CR	V
vcl: test FontMetric construction from Phy...	--	▶ Chris Sherlock	▶ Mike, Caolán	core	master (font)	02:35	M		
use clang-cl's -Zc:dllexportInlines- for Skia ...	--	Luboš Luňák		core	libreoffice-7-1	02:28	S		✓
use clang-cl's -Zc:dllexportInlines- for Skia ...	--	Luboš Luňák		core	libreoffice-7-2	02:17	S		✓
vcl: test PhysicalFontFace and move to vcl...	--	▶ Chris Sherlock		core	master (font)	02:08	L		
vcl: add sal/config.h in preparation for pat...	--	▶ Chris Sherlock		core	master (font)	02:08	M		
avoid division by zero	--	▶ Luboš Luňák		core	distro/collabora/co...	02:00	XS		✗
vcl: remove OutputDevice's GetDevFontSiz...	--	▶ Chris Sherlock	▶ Khaled, ▶ Mike	core	master (font)	01:54	M		
Remove some "Attention" comments of litt...	--	Stephan Bergmann		core	master	01:20	S		✓
Related: tdf#136442 implAppendEntry is a...	--	Caolán McNamara		core	master	00:32	S		✓
Resolves: tdf#136442 don't query siblings ...	--	Caolán McNamara		core	master	00:22	M		✓
tdf#144559 Fix information about docume...	--	Rafael Lima	▶ Adolfo, ▶ Olivier	help	master	Sep 20	M		✓
do not special-case Clang for Skia on Win...	--	Luboš Luňák	Jan-Marek	core	master	Sep 20	XS		
tdf#143591 DOCX import: handle anchore...	--	Miklos Vajna		core	master	Sep 20	S		✓

https://gerrit.libreoffice.org/

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Demo 3...

Path to Growth in Development

Path to Growth in Development

✔ **Understand C++**

✔ **Understand git and gerrit**

- Be able to build LibreOffice

- Submit your first EasyHack with difficulty beginner

- Do at least 10 bug triages

- Do at least 5 EasyHacks with difficulty beginner

- Fix at least 5 regressions

- Write at least 10 unit tests

- Do at least 5 EasyHacks with difficulty medium

Recommended Readings

- **Comprehensive list of learning materials**
  - https://wiki.documentfoundation.org/Development/Learning_Materials
  - Articles / Books / References / Examples / Presentations / Slides
- **LibreOffice API Documentation**
  - https://api.libreoffice.org/
- **LibreOffice Development Tools**
  - https://api.libreoffice.org/docs/tools.html

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Thank You