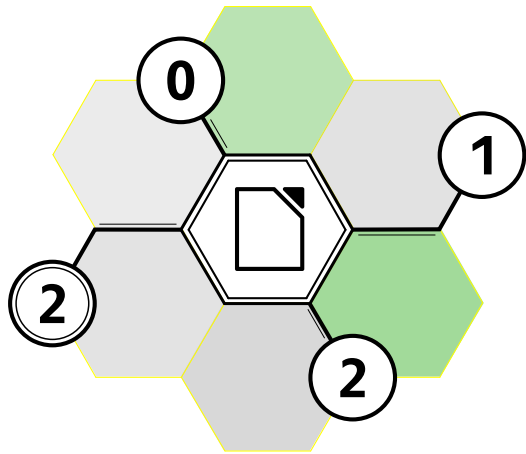


# Getting Started with LibreOffice Development

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Developer Community Architect  
The Document Foundation (TDF)



**LibreOffice**  
Conference 2021

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- **Demo 3...**
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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](mailto: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](http://libreoffice.org) / [documentfoundation.org](http://documentfoundation.org)
- Code            [git.libreoffice.org](http://git.libreoffice.org) - [opengrok.libreoffice.org](http://opengrok.libreoffice.org)
- IRC             [libreoffice-dev](https://libreoffice-dev@libera.chat) → [libera.chat](https://libera.chat) Network
- Mailing Lists   [libreoffice](http://libreoffice@freedesktop.org) → [freedesktop.org](http://freedesktop.org)
- Wiki            [wiki.documentfoundation.org](http://wiki.documentfoundation.org)
- Docs            [docs.libreoffice.org](http://docs.libreoffice.org)
- Blogs           [blog.documentfoundation.org](http://blog.documentfoundation.org) / [dev.blog.documentfoundation.org](http://dev.blog.documentfoundation.org)
- LibOCon        [conference.libreoffice.org](http://conference.libreoffice.org)
- Articles        [wiki](http://wiki.documentfoundation.org) → [Development/Learning\\_Materials](http://wiki.documentfoundation.org/Development/Learning_Materials)
- Books          - - - - - " - - - - -

# Website

The screenshot shows the LibreOffice website homepage. At the top, there is a dark grey navigation bar with language options: English | 中文 (简体) | Deutsch | Español | Français | Italiano | More... Below this is a green navigation bar with the LibreOffice logo and menu items: DISCOVER, DOWNLOAD, GET HELP, IMPROVE IT, EVENTS, ABOUT US, and DONATE. The main content area features a large banner with a fountain pen. The banner text reads: "LIBREOFFICE 7.2 IS HERE" in large white letters, followed by "WITH NEW FEATURES, COMPATIBILITY IMPROVEMENTS, AND PERFORMANCE BOOSTS" in smaller white letters. A prominent green button with white text says "DOWNLOAD NOW". Below the banner, the text "Do more - easier, quicker, smarter" is centered. Underneath, it states: "LibreOffice is a free and powerful office suite, and a successor to OpenOffice.org (commonly known as OpenOffice). Its clean interface and feature-rich tools help you unleash your creativity and enhance your productivity." The bottom section contains three columns, each with a green circular icon: a document icon for "LibreOffice 7.2 is here", a star icon for "Fun Project", and a thumbs-up icon for "Fantastic People". Each column has a short paragraph of text below the icon.

English | 中文 (简体) | Deutsch | Español | Français | Italiano | More...

LibreOffice  
The Document Foundation

DISCOVER ▾ DOWNLOAD ▾ GET HELP ▾ IMPROVE IT ▾ EVENTS ABOUT US ▾ DONATE

LIBREOFFICE 7.2 IS HERE

WITH NEW FEATURES, COMPATIBILITY IMPROVEMENTS, AND PERFORMANCE BOOSTS

DOWNLOAD NOW

Do more - easier, quicker, smarter

LibreOffice is a free and powerful office suite, and a successor to OpenOffice.org (commonly known as OpenOffice).  
Its clean interface and feature-rich tools help you unleash your creativity and enhance your productivity.

**LibreOffice 7.2 is here**  
With new features, compatibility improvements, and performance boosts

**Fun Project**  
LibreOffice is one of the friendliest and fastest-growing projects in the free and open source software world.

**Fantastic People**  
LibreOffice is about more than software. It's about people, culture, creation, sharing and collaboration.

<https://www.libreoffice.org/>

<https://www.documentfoundation.org/>



# Code



OpenGrok search

Project(s)

Full Search

Definition

Symbol

File Path

History

Type

Repository	SCM Type: Parent (branch)	Current version
core	git: <a href="https://git.libreoffice.org/core">https://git.libreoffice.org/core</a> (master)	2021-09-19 19:45 +0000 770d <a href="#">show more ...</a>
cppunit	git: <a href="https://git.libreoffice.org/cppunit">https://git.libreoffice.org/cppunit</a> (master)	2020-08-31 17:51 +0000 9429 <a href="#">show more ...</a>
dev-tools	git: <a href="https://git.libreoffice.org/dev-tools">https://git.libreoffice.org/dev-tools</a> (master)	2021-09-17 11:25 +0000 71ff <a href="#">show more ...</a>
dictionaries	git: <a href="https://git.libreoffice.org/dictionaries">https://git.libreoffice.org/dictionaries</a> (master)	2021-07-31 23:29 +0000 e991 <a href="#">show more ...</a>

# IRC

The screenshot shows the Libera.Chat interface for the #libreoffice-dev channel. The left sidebar displays the channel name and a list of other channels. The main chat area contains a welcome message for the developer channel, a list of users, and a message input field at the bottom.

**Channel: #libreoffice-dev**

**Message:** ⓘ This is the DEVELOPER channel. For user questions & problems without code go to #libreoffice, bug reports/feature requests: <http://tdf.io/bugs> | 7.1.6 and 7.2.1 are out, master is for 7.3 | <http://wiki.documentfoundation.org/Development> | <https://paste.debian.net/> for build logs | dev list: libreoffice@lists.freedesktop.org

**Users (46 people here):**

- @buovjaga
- @ChanServ
- @erAck\_[m]atrix
- @guilhem
- @Hossein
- @mmeeks
- @moggi
- @ohallot
- @thorsten
- @x1sc0
- \_rene\_
- andytr
- APic
- arranna
- calcmandan
- chris\_wot
- cloph
- Company

**Activity:**

- Guest99 has joined
- ← Guest2766 has left (Client Quit)

**Input:** ● Guest99 ▲ Send a message...

# 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](mailto: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

# Wiki



Main page  
Get Involved  
Recent changes  
Random page  
Support LibreOffice!

Editing the wiki  
Help resources

Tools

What links here  
Related changes  
Special pages  
Printable version  
Permanent link  
Page information

English Log in

Page Discussion

Read

View source

View history

Search The Document Found

## Development

TDF LibreOffice Document Liberation Project Community Blogs Weblate Nextcloud  
Redmine Ask LibreOffice Donate

Wiki Home **Development** | Design | QA | Events | Documentation | Website | Localization  
| Accessibility | Marketing | Diversity | Wiki Help

**Overview** | Reporting Bugs | How to build | Code Overview | Git Commands | Debugging | EasyHacks | Release Plan | FAQ  
Developers | Extensions | → Open Issues

EN AN AR AST BE BG BN BRX CA CS DA DE EL EO ES ET FA FI FR GD GL GUG HE HI HR  
HU ID IS IT JA JV KO KU LO-LA LT MN MR NE NL NO OC OM PA PL PT PT-BR RO RU SAH  
SK SL SQ SV TA TE ไทย (TH) TR UK UZ VI 正體 (ZH-TW) 简体 (ZH-CN)

### Getting Started with Development

- [Get Involved](#)
- [LibreOffice Learning Materials](#)
- [Building LibreOffice - Video Tutorial](#)
- [Using an IDE to work on LibreOffice](#)
- [Pick a Task:](#)
  - [EasyHacks](#)
  - [UI and design related Easy Hacks](#)
  - [Most Annoying Bugs](#)
  - [GSoC Ideas](#)
  - [Crazy Ideas \(suggestions and enhancement\)](#)

### General Programming Guidelines

- [Building LibreOffice -- Tips and Tricks:](#)
  - [... on Linux and \\*BSD systems](#)
  - [... on macOS](#)
  - [... on Windows](#)
  - [... for Android](#)
  - [... on any platform \(platform-independent hints\)](#)
  - [... GTK4 interface](#)
  - [... online](#)
  - [ClangTidy](#)

# Docs

## LibreOffice Modules

### [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)

# Blogs

The screenshot shows the LibreOffice website header with the logo and navigation menu. The main content area features a blog post titled "LibreOffice 2021 Schedule Mobile App" by Italo Vignoli, dated 20 Sep 2021. The post includes a featured image of three smartphones displaying the mobile app's interface, which shows a conference schedule and a list of favorites. The text of the post explains that the app is available on Google Play and F-Droid and provides instructions on how to use it. A "Read More" button is visible at the bottom of the post. To the right of the post is a sidebar with a section titled "What is LibreOffice?" and a search bar. Below the search bar is a "CII Badge" section showing a "passing" status for "cli best practices". At the bottom of the sidebar is a "TDF Planet" section with a list of recent posts.

**LibreOffice**  
The Document Foundation

TDF Home LibreOffice Home Documents Pictures Tenders Grants Media Hub Merchandise

Donate

20 Sep 2021

## LibreOffice 2021 Schedule Mobile App

By Italo Vignoli | Announcements, Conference | 0 Comments

The LibreOffice 2021 Schedule Mobile App is immediately available on [Google Play](#) and [F-Droid](#). From the F-Droid page is also possible to download the **APK**, although by installing that way you will not receive update notifications.

The mobile app, for Android smartphones and tablets, shows the conference schedule: by swiping right and left, the user can switch between the three rooms, while a drop down menu allows to chose one of the three days...

[Read More](#)

### 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

Search this site...

### CII Badge

cli best practices passing

### TDF Planet

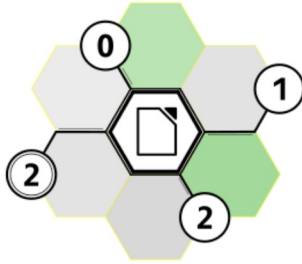
- LibreOffice 2021 Schedule Mobile App
- LibreOffice 7.2.1 Community available for download

# LibOCon



ONLINE LIBREOFFICE CONFERENCE ▾ ONLINE CONFERENCE 2020 PREVIOUS CONFERENCES

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.

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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!](#)

**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  $\geq$  11 from Oracle / Microsoft / Red Hat / etc.
- **Cygwin**
  - [cygwin.com](http://cygwin.com)
- **Several other dependencies, if building manually**

# Linux Prerequisites

- **g++**
- **Java development kit (JDK)**
  - JDK  $\geq$  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  $\geq$  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 labeled with **EasyHack** in the **Bugzilla**
  - Listed in the wiki:  
[https://wiki.documentfoundation.org/Development/EasyHacks#Lists\\_of\\_Easy\\_Hacks](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](https://bugs.documentfoundation.org/show_bug.cgi?id=143148)
    - Referred to as `tdf#143148`

# Sample EasyHack (continued)

Bugzilla – Bug 143148

Use pragma once instead of include guards (Episode 2: Endgame)

Last modified: 2021-08-26 17:21:55 UTC

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

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

**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:**

**Gerrit**



# Setting Up for Gerrit Submission

- **Basic setup**

- Creating key pairs

- `./logerrit 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)

 LibreOffice The Document Foundation		CHANGES ▾	DOCUMENTATION ▾	BROWSE ▾	Q status:open -is:wip			?	Sign in
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		✓

**Demo 3...**

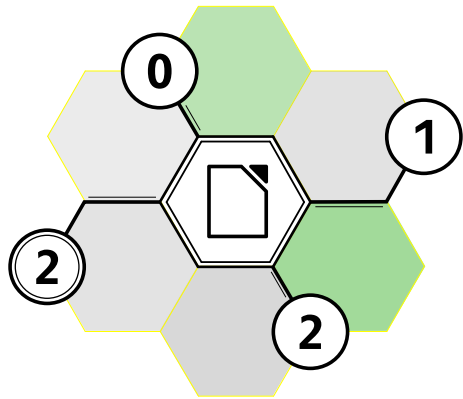
# **Path to Growth in Development**

# 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](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>



# LibreOffice

## Conference 2021



# Thank You



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