LibreOffice SDK Examples Overhaul

Hossein Nourikhah
Developer Community Architect
The Document Foundation (TDF)
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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

• Do you want to get started in 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
Introduction to LibreOffice SDK
Use Cases of LibreOffice SDK

- **Office format applications**
  - Writing applications that work with office formats

- **Extensions**
  - Writing extensions that add functionality to the LibreOffice

- **Convertors**
  - Writing convertors that read/write different formats and convert various formats
Programming Languages

- Python
- C++
- Java
- LibreOffice Basic
- .NET languages
  - C#
  - VB.NET
- OLE/ActiveX
LibreOffice SDK Examples
What are the examples?

- Examples showcase the LibreOffice SDK capabilities
- Written are in many languages
  - Mostly in Java
  - Some are in C++, Python and Basic
  - They work with LibreOffice through API
  - LibreOffice process should be active and listen for the incoming connections
  - Not all of the examples are LibreOffice extensions
Where to find them?

• Distributed both with the LibreOffice source code and the SDK installed alongside binaries

• SDK examples inside source code: git.libreoffice.org
  – core/odk/examples/
  – sdk-examples/

• SDK examples inside LibreOffice/SDK installation
  – sdk/examples
What do they do?

- Various Things
- C++ Examples
  - DocumentLoader: Loads a sample Document
  - Draw: Creates drawings inside LibreOffice Draw
    - https://git.libreoffice.org/core/+/refs/heads/master/odk/examples/cpp/
  - Convertor: Convert ODT to PDF
    - https://github.com/hosseinn/loconvertor
How to compile and run on Linux?

- **Linux**
  - Run LibreOffice
    - libreoffice7.2 "--accept=socket, port=2083; urp;"
  - Go to SDK folder
    - cd /opt/libreoffice7.2/sdk/
  - Setup environment
    - ./setsdkenv_unix
  - Go to example folder and make
    - cd examples/cpp/DocumentLoader && make
  - Run example
    - make DocumentLoader.run
Setup environment for Linux

$ ./setsdkenv_unix

************************************************************************
*
* SDK environment is prepared for Linux
*
* SDK = /home/hossein/Projects/libreoffice/core/instdir/sdk
* Office = /home/hossein/Projects/libreoffice/core/instdir/sdk/..
* Make = /usr/bin
* Zip = /usr/bin
* cat = /usr/bin
* sed = /usr/bin
* C++ Compiler = /usr/bin
* Java = /usr
* SDK Output directory = /home/hossein/libreoffice7.2_sdk
* Auto deployment = YES
*
************************************************************************
How to compile and run on Windows

- **Windows**
  - Run LibreOffice
    - `soffice.exe --accept=socket,port=2083;urp;`
  - Start VS 2019 command prompt, go to SDK folder
    - `cd /d c:\progra~1\Libreoffice\sdk`
  - Setup environment (second line is sometimes needed)
    - `set PATH=%PATH%;c:\cygwin64\bin && setsdkenv_windows.bat`
    - `SET URE_BOOTSTRAP=vnd.sun.star.pathname:C:/Progra~1/LibreOffice/program/fundamental.ini`
  - Go to example folder and make
    - `cd examples\cpp\DocumentLoader && make`
  - Run example
    - `make DocumentLoader.run`
Setup environment for Windows

> setsdkenv_windows.bat

******************************************************************
* SDK environment is prepared for Windows
* SDK = c:\progra~1\Libreoffice\sdk
* Office = c:\progra~1\Libreoffice
* Make = C:\cygwin64\bin
* Zip = C:\cygwin64\bin
* cat = C:\cygwin64\bin
* sed = C:\cygwin64\bin
* C++ Compiler = C:\Progra~2\Micros~2\2019\Community\VC\Tools\MSVC\14.29.30037\bin\Hostx64\x64\n* C# and VB.NET compilers = C:\Windows\Microsoft.NET\Framework64\v2.0.50727
* Java =
* Special Output directory = c:\libreoffice7.2_sdk
* Auto deployment = YES
* 
******************************************************************
Requirements

- LibreOffice + SDK
- C++ Compiler
- Other dependencies (Cygwin is needed for Windows)
  - Make
  - Zip
  - cat
  - sed
  - Shell scripts to set environment variables
Using Modern Build Tools
What if... 

- What if requirement would be only:
  - LibreOffice + SDK
  - C++ Compiler + CMake (or qmake)

- >>>> Yes, it is possible! <<<

- You can use IDE of your choice for the development
  - Visual Studio / VSCode / Qt Creator, Xcode, ... support CMake natively

- You can’t rely on shell scripts to setup things for you anymore!
  - Generating headers / Setting up environment variables / Running the application will be done by CMake/qmake
Important Environment Variables

- export `SAL_USE_VCLPLUGIN=gen`
- export `UNO_PATH=/opt/libreoffice7.2/program`
- export `URE_BOOTSTRAP=vnd.sun.star.pathname:/opt/libreoffice7.1/program/fundamentalrc`
Demo...
Future Works
Road Ahead

• This was only a proof of concept
• Things to do
  – Port other examples to different Languages
    • C++
    • Java
    • Python
  – Defined as **EasyHacks**
    • You can help!
  – Add qmake/CMake support for other examples
Recommended Readings

- Java LibreOffice Programming (JLOP), Dr. Andrew Davison
  - https://fivedots.coe.psu.ac.th/~ad/jlop/
- LibreOffice API Documentation
  - https://api.libreoffice.org/
- LibreOffice Development Tools
  - https://api.libreoffice.org/docs/tools.html
- LibreOffice Extensions Website
  - https://extensions.libreoffice.org/