



Getting Ready Setup

Material for this tutorial

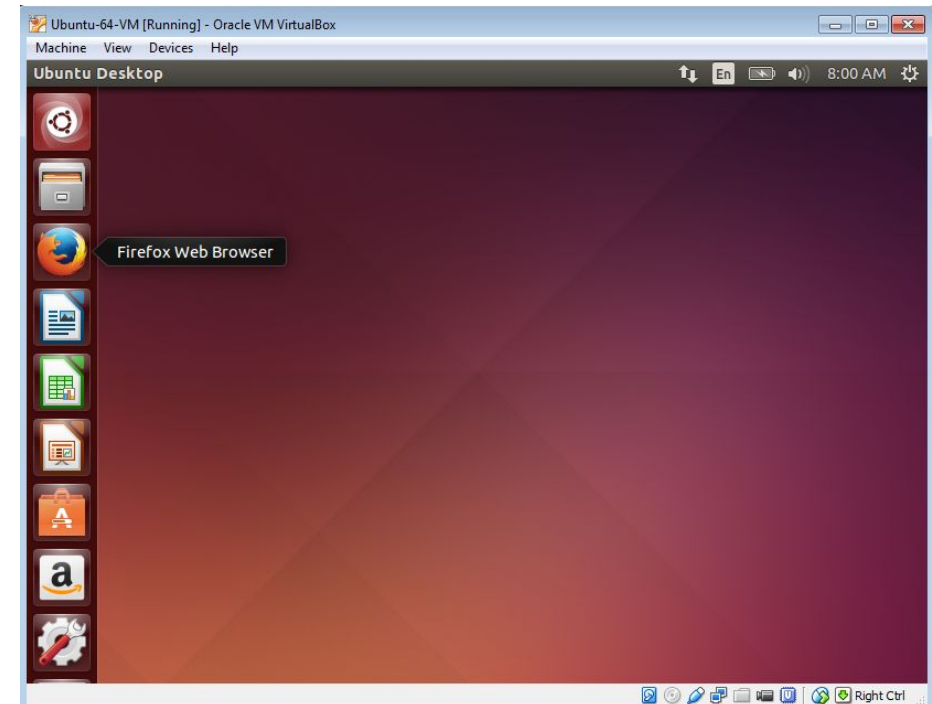
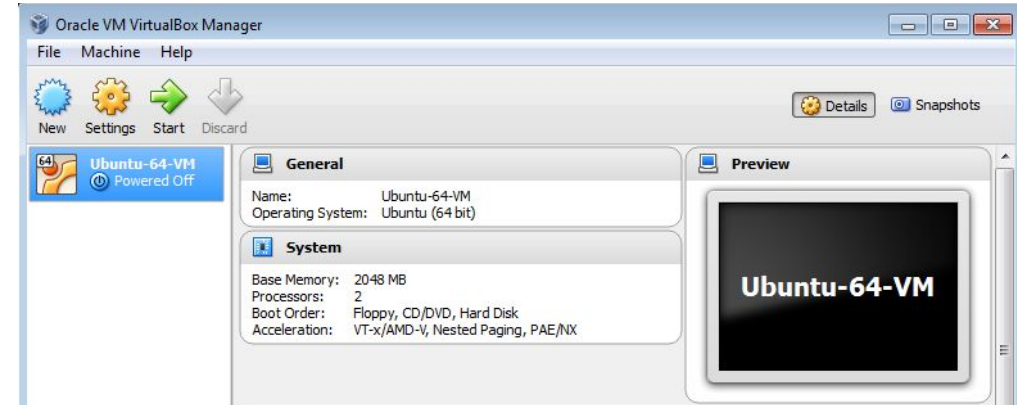
- Utils
 - VirtualBox
- Tutorial VirtualBox image
 - Khronos OpenVX 'Sample' implementation: functional OpenVX implementation
 - Open source OpenVX implementation
 - Source code for the different steps
 - Tutorial Videos
 - OpenVX 1.0.1 specification (pdf)
 - IDE: qtcreator
- OpenVX spec in HTML: www.khronos.org/registry/vx/specs/1.0.1/html

Setup: Booting Ubuntu

- Uncompress Ubuntu-64-OpenVX.zip
- Install & run VirtualBox
- Add & run the VM image
 - Machine -> Add -> Ubuntu-64-OpenVX.vbox
 - Click 'Start'

- *Some useful commands*

- *Tab* *auto-complete a command*
- *Ctrl-Alt-T* *: Open a terminal*
- *ll* *: list files*
- *cd <dir>* *: enter directory*
- *cd ..* *: parent directory*
- *gedit <file>* *: editor*
- *evince <file>.pdf* *: pdf viewer*



Setup: Directory Structure

Khronos Sample Implementation

```
openvx@openvx-VirtualBox:~$ ll
total 1492
drwxrwxr-x  4 openvx openvx  4096 Mar 26 11:30 Archived/
drwxr-xr-x  2 openvx openvx  4096 Mar 26 11:20 Desktop/
drwx----- 2 openvx openvx  4096 Jan 11 21:29 Documents/
drwxr-xr-x  2 openvx openvx  4096 Mar 26 11:29 Downloads/
drwxrwxr-x 16 openvx openvx  4096 Mar 26 09:26 openvx_sample/
-rw-rw-r--  1 openvx openvx 1156845 Jun  5 2015 OpenVX_Specification_1_0_1.pdf
drwxrwxr-x  7 openvx openvx  4096 Mar 27 12:54 openvx_tutorial/
-rw-----  1 openvx openvx  339361 Mar 26 10:57 openvx_tutorial_README.pdf
drwxrwxr-x  7 openvx openvx  4096 Jan 11 19:31 qtcreator-3.6.0/
openvx@openvx-VirtualBox:~$
```

OpenVX specification

Tutorial source code

```
openvx@openvx-VirtualBox:~/openvx_tutorial$ ll
total 28
-rw-r--r--  1 openvx openvx  1082 Mar 15 23:00 LICENSE
-rw-r--r--  1 openvx openvx 11161 Mar 27 19:58 README.md
drwxr-xr-x  2 openvx openvx  4096 Mar 16 22:05 scripts/
drwxr-xr-x 12 openvx openvx  4096 Mar 27 20:06 tutorial_exercises/
drwxr-xr-x  2 openvx openvx  4096 Mar 16 22:06 tutorial_videos/
```

Tutorial video example

```
openvx@openvx-VirtualBox:~/openvx_tutorial/tutorial_exercises$ ll
total 48
drwxr-xr-x  4 openvx openvx  4096 Mar 16 17:30 amdovx-core/
-rw-r--r--  1 openvx openvx  4175 Mar 27 19:26 CMakeLists.txt
drwxr-xr-x  2 openvx openvx  4096 Mar 27 19:13 exercise1/
drwxr-xr-x  2 openvx openvx  4096 Mar 23 22:06 exercise2/
drwxr-xr-x  2 openvx openvx  4096 Mar 23 22:06 exercise3/
drwxr-xr-x  2 openvx openvx  4096 Mar 23 22:06 exercise4/
drwxr-xr-x  3 openvx openvx  4096 Mar 26 10:29 include/
drwxr-xr-x  2 openvx openvx  4096 Mar 27 19:13 solution_exercise1/
drwxr-xr-x  2 openvx openvx  4096 Mar 23 22:07 solution_exercise2/
drwxr-xr-x  2 openvx openvx  4096 Mar 23 22:07 solution_exercise3/
drwxr-xr-x  2 openvx openvx  4096 Mar 23 22:07 solution_exercise4/
```

Open source Implementation

Source code for the tutorial

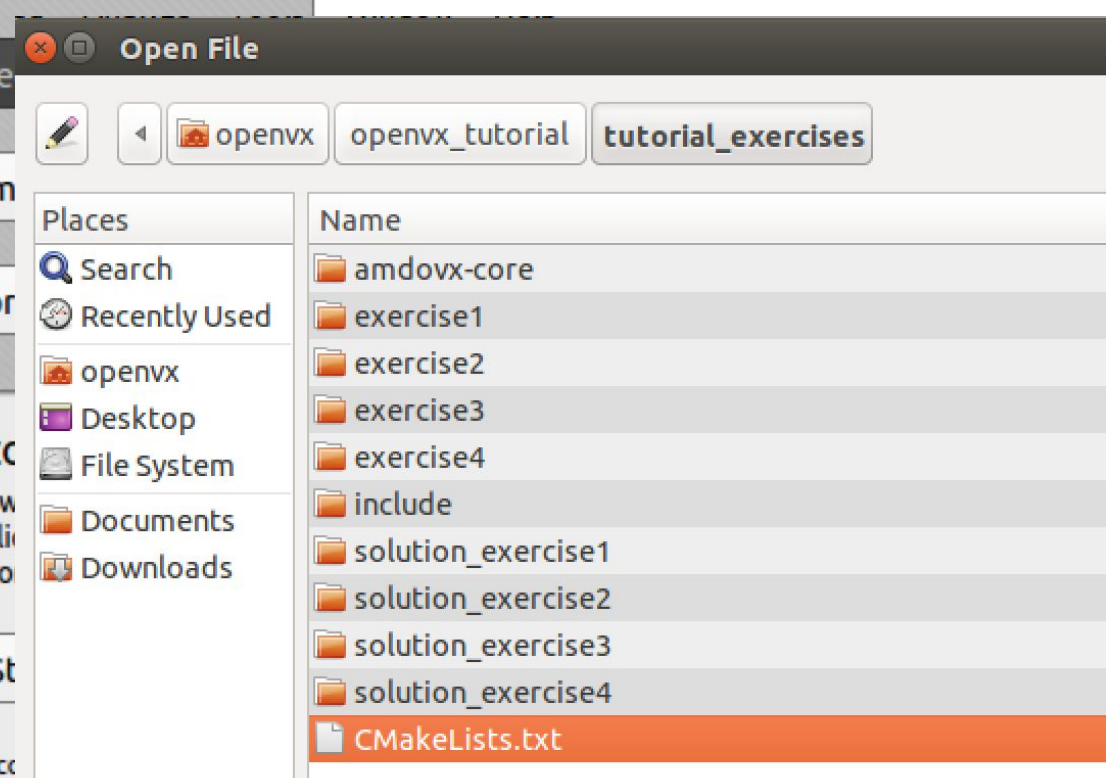
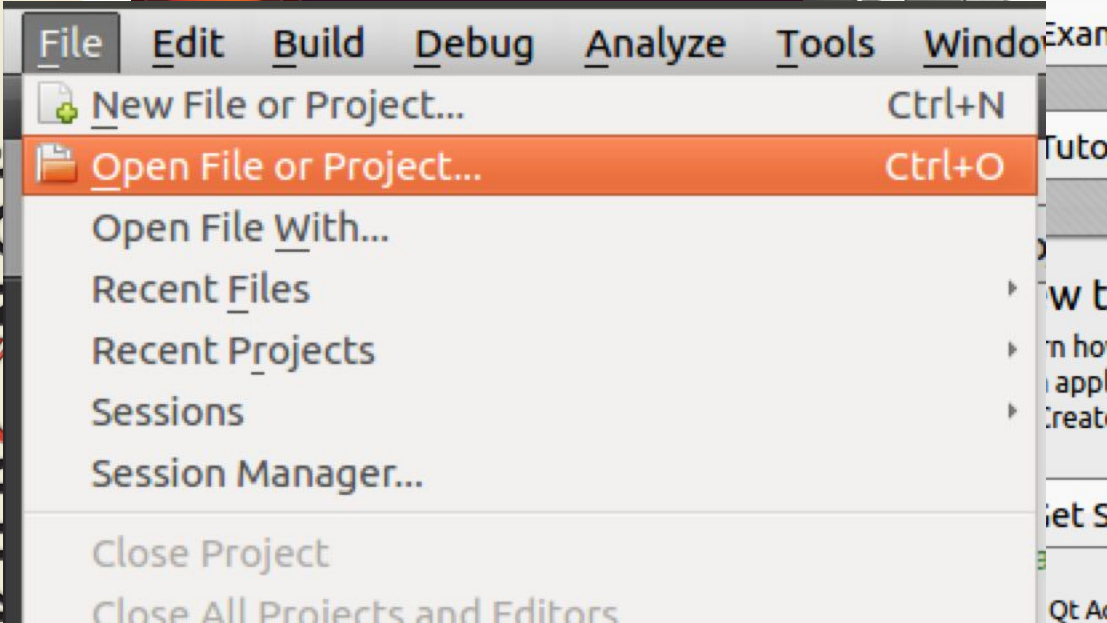
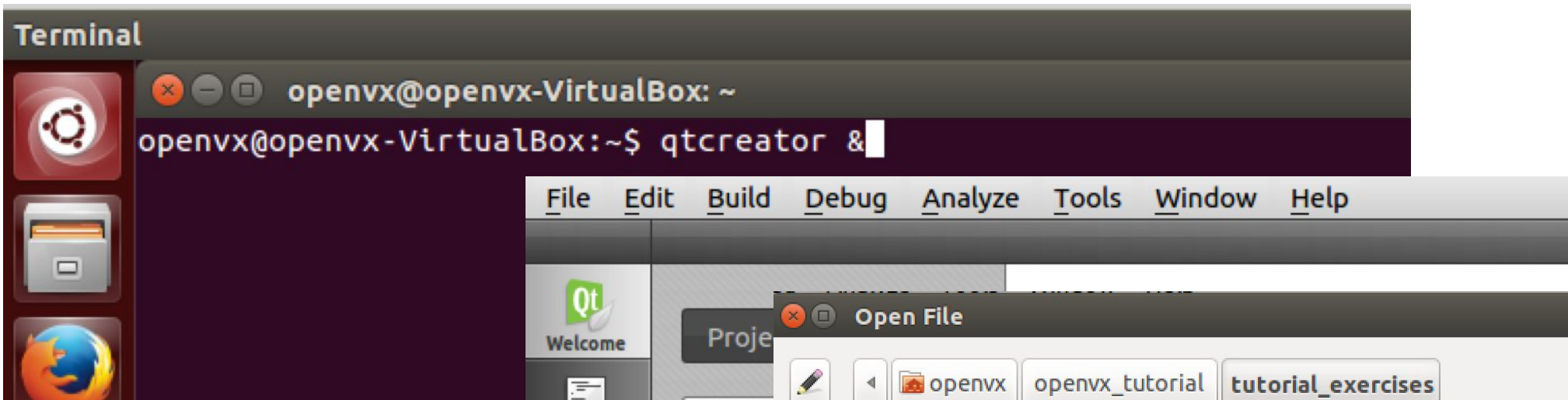
- exercise<n> starting point
- solution_exercise<n> full solution



Getting Ready

Using QtCreator IDE

Open a terminal with CTRL + ALT + T



File Edit Build Debug Analyze Tools Window Help

tutorial_exercises

Configure Project | Editor | Code Style | Dependencies

Configure Project

Qt Creator can use the following kits for project **CMakeLists**:

The project **tutorial_exercises** is not yet configured.
Qt Creator uses the kit **Desktop** to parse the project.

Select all kits

Desktop Details ▾

all

Run Ctrl+R

Run CMake

The directory "/home/openvx/tutorial_sources/build-step1_start-Desktop-Default" specified in build configuration "Default", for target "Desktop" does not contain a CMakeLists.txt file. Qt Creator needs to recreate this file by running CMake. Some projects require command line arguments to the initial CMake call. Note that CMake remembers command line arguments from the previous runs.

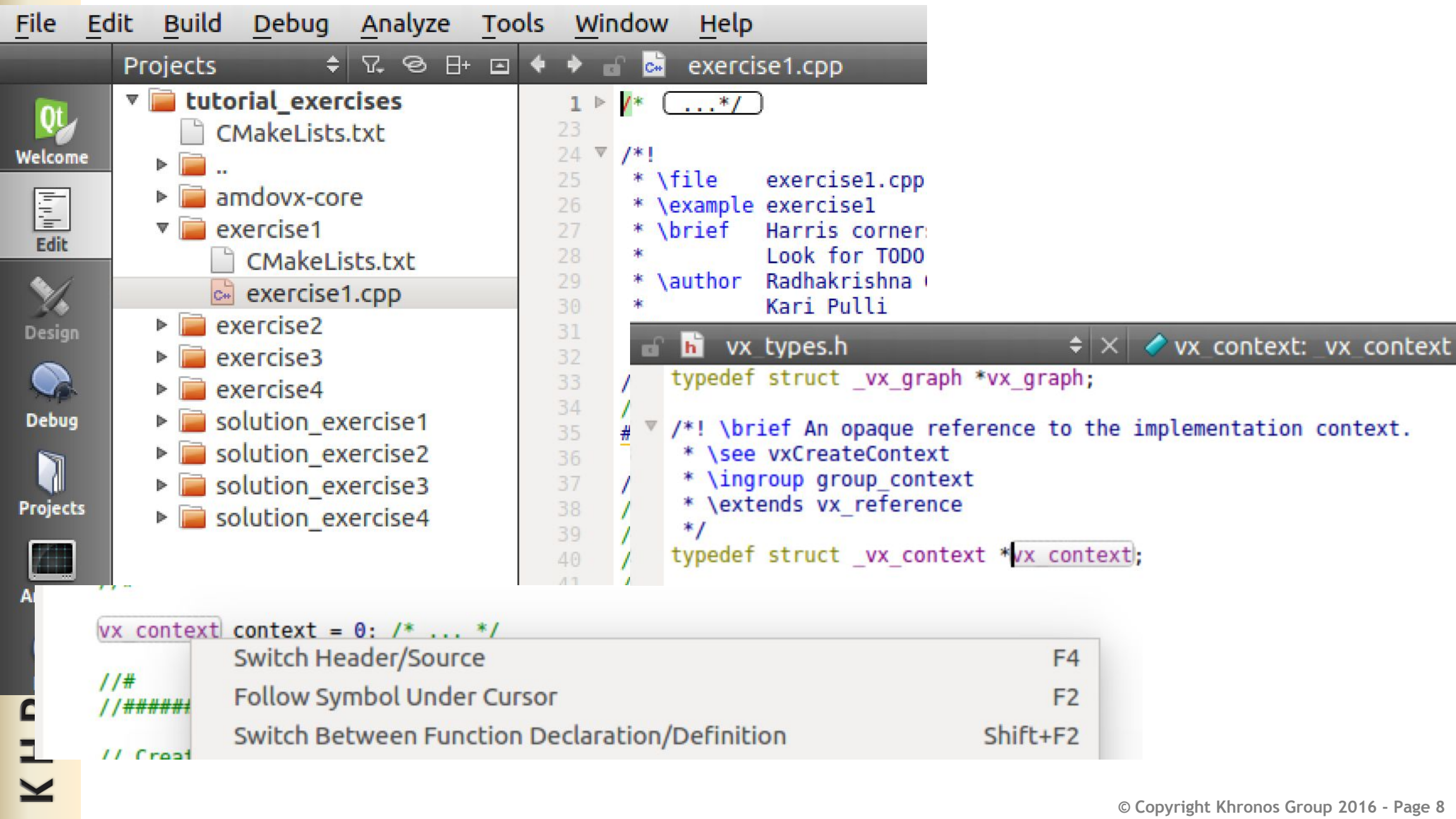
Arguments:

Generator:

```
-- The C compiler identification is GNU 4.8.4
-- The CXX compiler identification is GNU 4.8.4
-- Check for working C compiler: /usr/bin/cc
-- Check for working C compiler: /usr/bin/cc -- works
-- Detecting C compiler ABI info
```



KUDONC



```
1  /* ... */  
23  
24  /*!  
25  * \file   exercisel.cpp  
26  * \example exercisel  
27  * \brief  Harris corner:  
28  *         Look for TODO  
29  * \author Radhakrishna  
30  *         Kari Pulli  
31  
32  vx_types.h  
33  typedef struct _vx_graph *vx_graph;  
34  //  
35  /*! \brief An opaque reference to the implementation context.  
36  * \see vxCreateContext  
37  * \ingroup group_context  
38  * \extends vx_reference  
39  */  
40  typedef struct _vx_context *vx_context;  
41
```

```
vx_context context = 0; /* ... */
```

```
//#  
#####  
// creat
```

- Switch Header/Source F4
- Follow Symbol Under Cursor F2
- Switch Between Function Declaration/Definition Shift+F2

226

Open Documents ▾ [+] [x] Application

main_feature_tracker.cpp

vx_types.h

step1_s

1_start

Starting /home/op

```
vx_context context = vxCre; /* ... */
//#
//#####
... ..
```

- vxCreateArray
- vxCreateContext**
- vxCreateConvolution
- vxCreateDistribution

vx_api.h vxCreateContext(): VX API CALL

```

33 extern "C" {
34 #endif
35
36 /*=====
37 CONTEXT
38 =====*/
39
40 /*! \brief Creates a <tt>\ref vx_context</tt>.
41 * \details This creates a top-level object context for OpenVX.
42 * \note This is required to do anything else.
43 * \returns The reference to the implementation context <tt>\ref vx_context</tt>. Any possible errors
44 * preventing a successful creation should be checked using <tt>\ref vxGetStatus</tt>.
45 * \ingroup group_context
46 * \post <tt>\ref vxReleaseContext</tt>
47 */
48 VX API ENTRY vx_context VX API CALL vxCreateContext();
49

```

CTRL-T

Project: tutorial_exercises Kit: Desktop Deploy: Deploy locally	
Build	Run
Debug	exercise1
Default	exercise2
Minimum Size Release	exercise3
Release	exercise4
Release with Debug Information	solution_exercise1
	solution_exercise2
	solution_exercise3
	solution_exercise4

```

99 // It defaults to the video sequence in VIDEO_SEQUENCE
100 int main( int argc, char * argv[] )
101 {
102     // Get default video sequence when nothing is spe
103     // instantiate OpenCV GUI module for reading input
104     // the image with OpenVX results.
105     const char * video_sequence = argv[1];
106     CGuiModule gui( video_sequence );
107
108     // Try to grab the first video frame from the seque
109     // and check if a video frame is available.
110     if( !gui.Grab() )
111     {

```

Run CMake

Refreshing the .cbp file in "/home/opencv/opencv_tutorial/build-tutorial_exercises-Desktop-Debug" for build configuration "Debug" for target "Desktop".

Arguments:

Generator:

tutori...rcises

Debug

Start Debugging F5