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UEFI & EDK II Training

UEFI Driver Wizard Lab

Currently only available in Ubuntu 16.04

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Lesson Objective

Linux Ubuntu 16.04 is only supported

Python Version 2.7 and
python-wxgtk V3.0

Non-Ubuntu - Continue to Porting UEFI Driver Lab

- Setup the UEFI Driver Wizard
- Create a UEFI Driver Template

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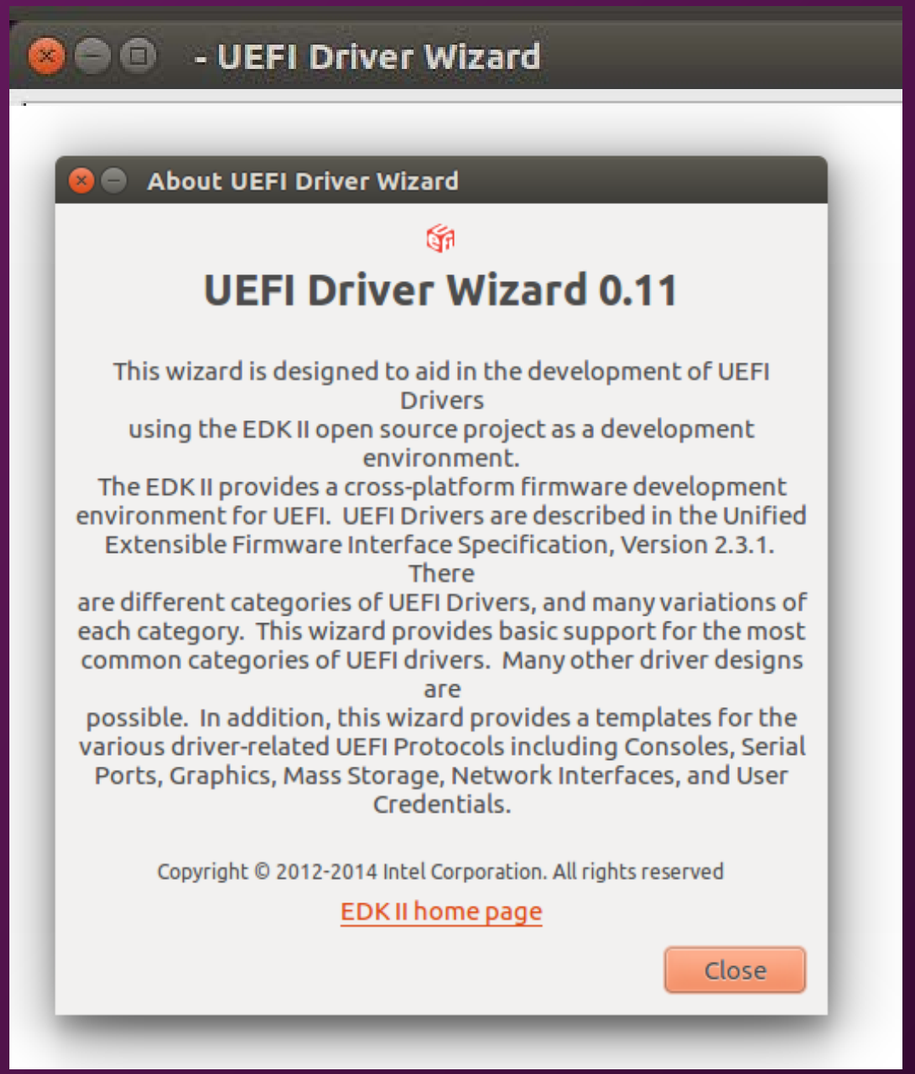
UEFI DRIVER WIZARD

Creating a Template UEFI Driver with the UEFI Driver Wizard

UEFI Driver Wizard Overview

- ✓ Open source tool
- ✓ Based on *Driver Writer's Guide for UEFI 2.3.1* content
- ✓ Intel SSG engineers contributed
- ✓ Located on www.TianoCore.org



Installing Python for UEFI Driver Wizard

Requirements and Options

- Work space must contain BaseTools, MdePkg & MdeModulePkg Packages from UDK2017 for Driver development on Tianocore.org
- Uses previous lab's setup `$HOME/src/edk2-ws`
- Python* scripts from Github Link then use instructions from README for Python and wxPython versions to install then run

```
bash$ python launch.py
```

Requirements for Your Driver

Using UEFI Driver Wizard

- UEFI Device Driver
- UEFI Version 2.7 (0x00020046)

```
#define EFI_2_70_SYSTEM_TABLE_REVISION ((2<<16)|(70DEC))
```

- Unloadable driver
- Support IA32 & x64 CPUs
- Returns component name information
- Byte stream device (i.e.UART / Serial I/O)
- Option to produce HII strings & forms for setup

Template File Contents

Proper UEFI driver entry point

Basic driver libraries/headers

Skeletons for common driver functions

Error values until ported
EFI_UNSUPPORTED, EFI_DEVICE_ERROR

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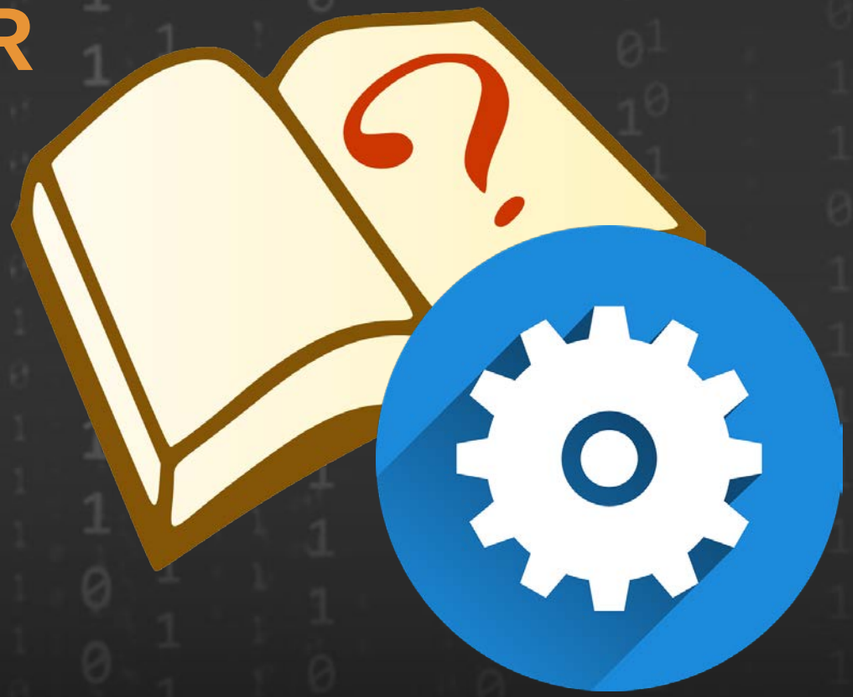
LAB 1: CREATE A UEFI DRIVER WITH THE UEFI DRIVER WIZARD

- In this lab, you'll create a new UEFI driver using the UEFI Driver Wizard.
- This will create a set of "c" code files to be used as a template UEFI Driver used in the subsequent driver labs



Lab 1: Install UEFI Driver Wizard, Python & wxPython

1. Perform Lab Setup from previous Labs
2. From the ~FW/DriverWizard folder, copy and paste folder "~FW/DriverWizard/UefiDriverWizard" to ~$Home
3. Check if version 2.7.x is the default of Python from Terminal Prompt

```
bash$ python –V
Python 2.7.12
```

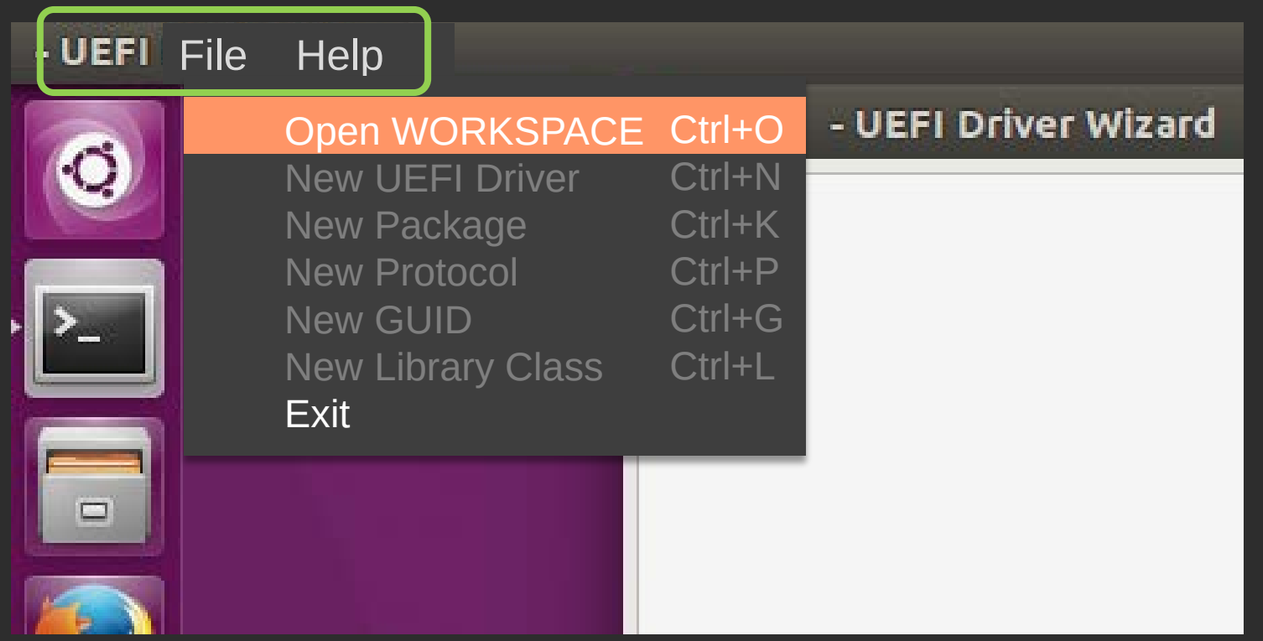
4. Install the wxPython (Version 3.0)

```
bash$ sudo apt-get install python-wxgtk3.0
```

Lab 1: UefiDriverWizard -Select Work Space

Terminal Prompt (Cnt-Alt-T)

```
bash$ cd ~UefiDriverWizard
bash$ python launch.py
```

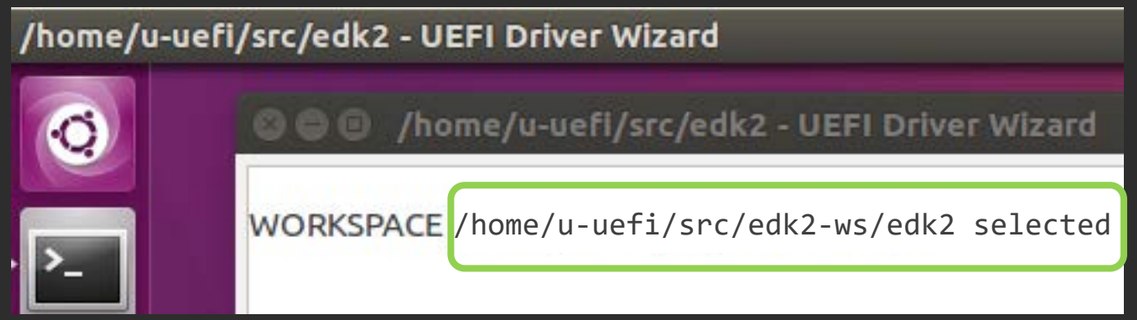


Select a Work Space

Control+O – to browse for a directory

Browse to ~src/edk2-ws/edk2

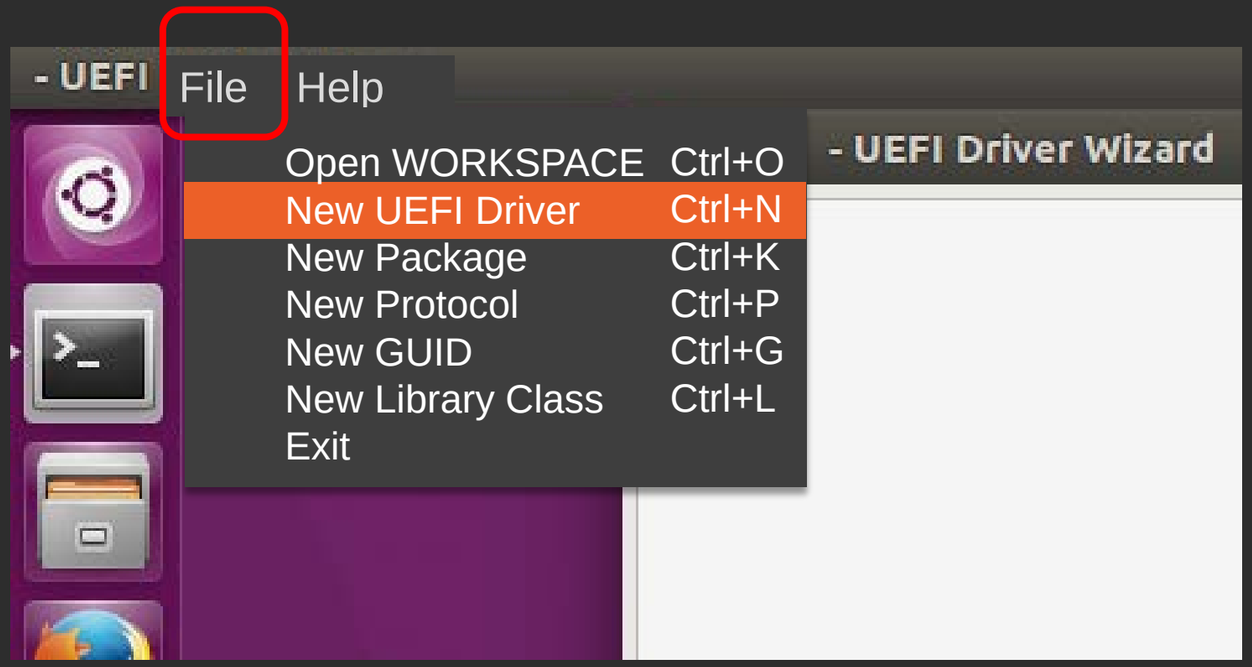
Select Open

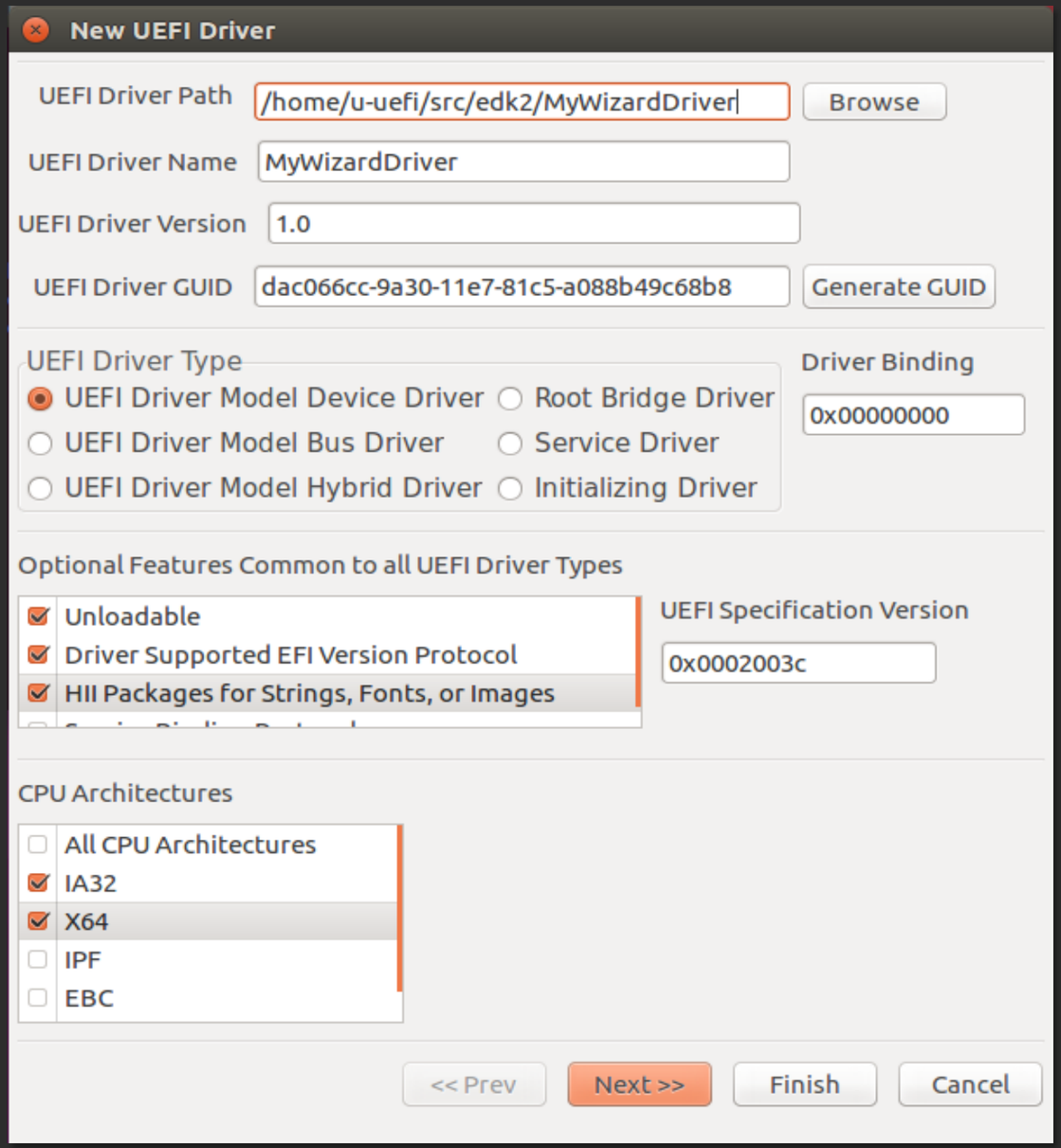


Note: the environment for EDK II must be setup with edksetup.sh

Lab 1: Create a New UEFI Driver

Control+N – to Open Menu





Lab 1: New UEFI Driver Menu

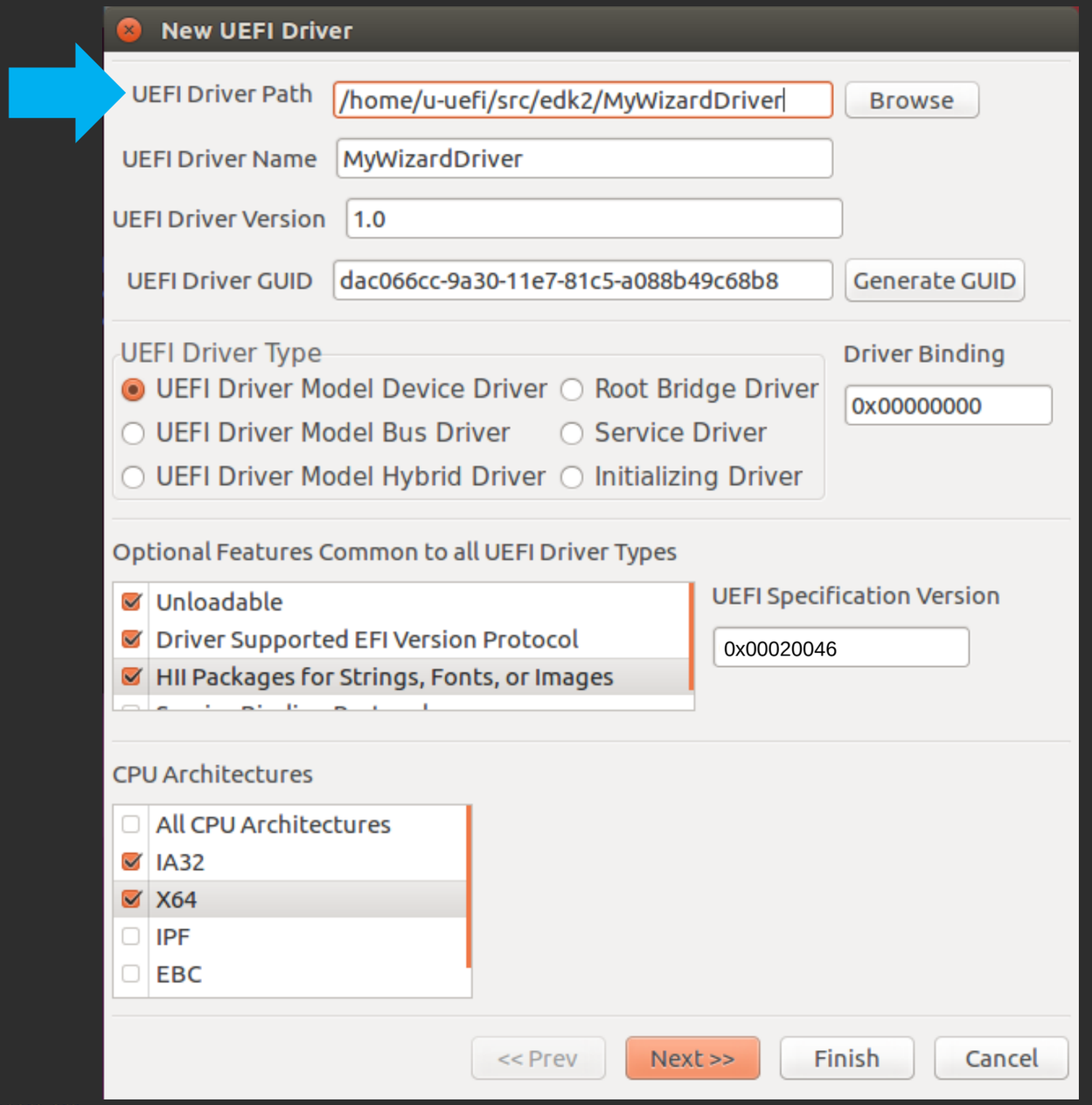
- UEFI Driver Path" – Type: "**MyWizardDriver**"

  Note: "UEFI Driver Name" is filled in.

- **Ensure** all the forms, radio buttons, and boxes are filled in and **selected *exactly*** like the image to the right.

- ***Note:*** A new, specific driver GUID will populate, so it will be different than this image

Click Next >>

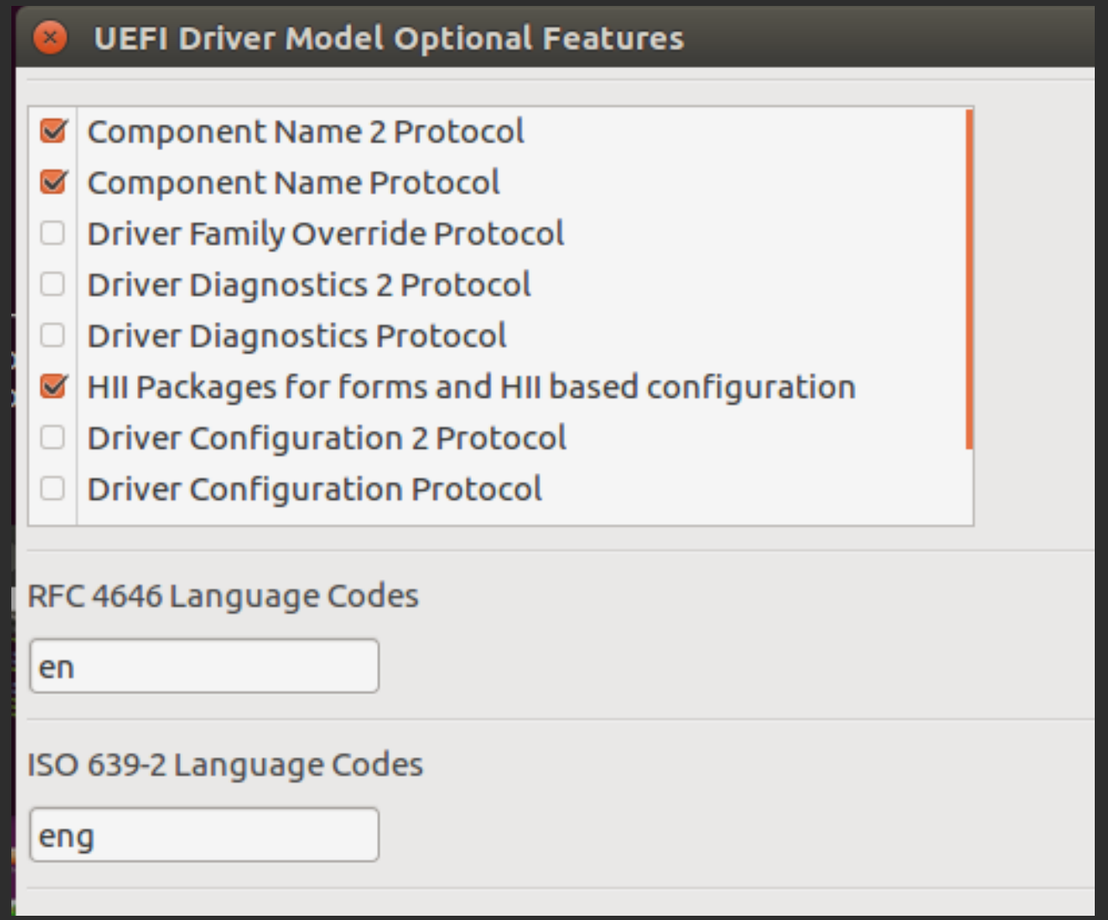


Lab 1: UEFI Driver Model Optional Features

Ensure all the forms, radio buttons, and boxes are filled in and **selected *exactly*** like the image to the right.

- ✓ "Componnt Name 2 Prorocol”
- ✓ "Componnt Name Prorocol”
- ✓ "HII Packages for Forms . . .”

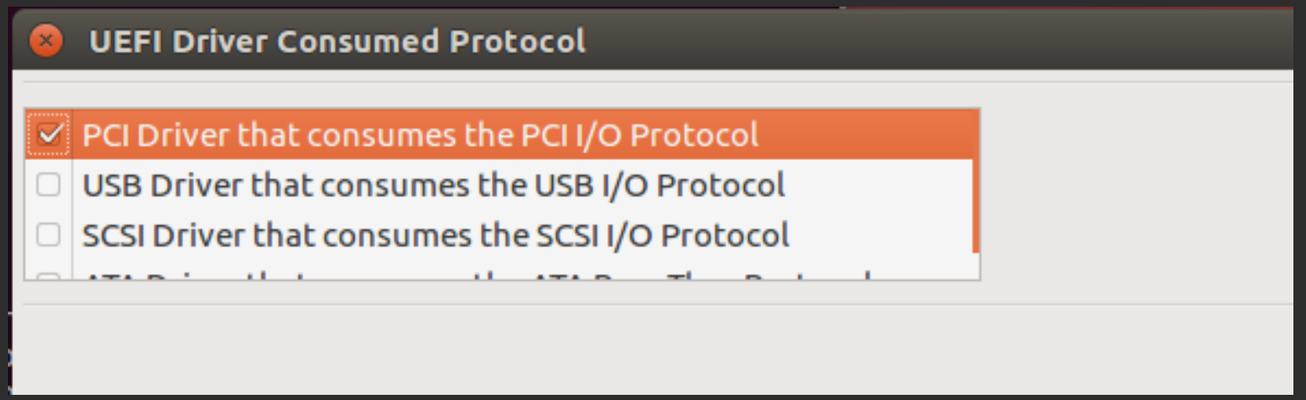
Click Next >>



Lab 1: UEFI Driver Consumed Protocol

Select

✓ “PCI Driver that consumes the PCI I/O Protocol”



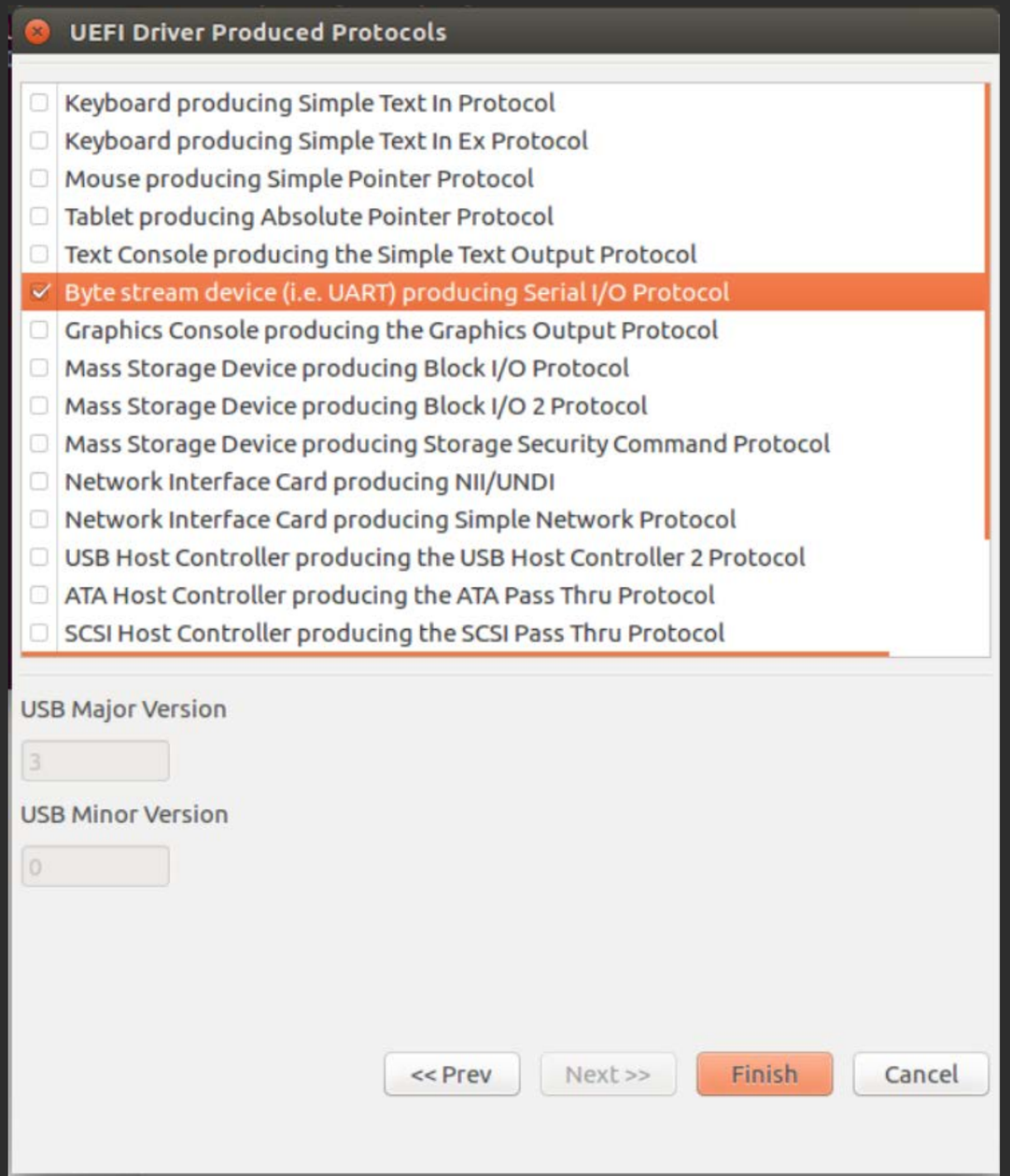
Click Next >>

Lab1: UEFI Driver Produced Protocols

Select

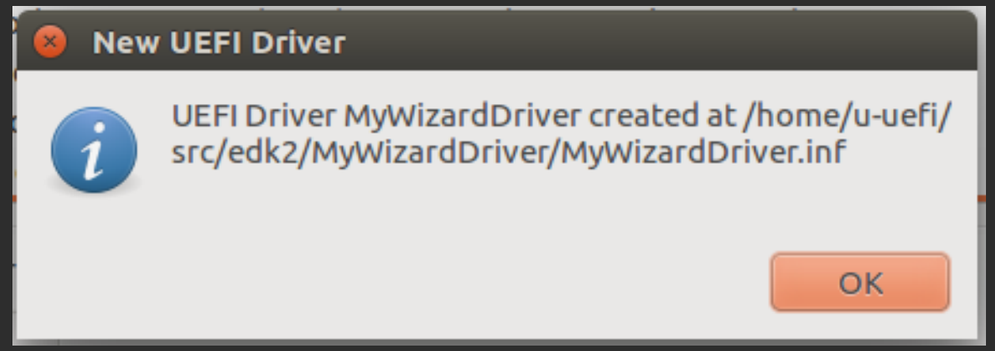
✓ "Byte stream device (i.e.UART) producing Serial I/O Protocol”

Click Finish



Lab 1: UEFI Driver Created

UEFI Driver template created




```
/home/u-uefi/src/edk2 - UEFI Driver Wizard

WORKSPACE /home/u-uefi/src/edk2 selected

Create UEFI Driver MyWizardDriver
  Create file /home/u-uefi/src/edk2/MyWizardDriver/MyWizardDriver.inf
  Create file /home/u-uefi/src/edk2/MyWizardDriver/MyWizardDriver.c
  Create file /home/u-uefi/src/edk2/MyWizardDriver/MyWizardDriver.h
  Create file /home/u-uefi/src/edk2/MyWizardDriver/MyWizardDriverExtra.uni
  Create file /home/u-uefi/src/edk2/MyWizardDriver/MyWizardDriverModStrs.uni
  Create file /home/u-uefi/src/edk2/MyWizardDriver/DriverBinding.h
  Create file /home/u-uefi/src/edk2/MyWizardDriver/ComponentName.c
  Create file /home/u-uefi/src/edk2/MyWizardDriver/ComponentName.h
  Create file /home/u-uefi/src/edk2/MyWizardDriver/MyWizardDriver.uni
  Create file /home/u-uefi/src/edk2/MyWizardDriver/MyWizardDriver.vfr
  Create file /home/u-uefi/src/edk2/MyWizardDriver/HiiConfigAccess.c
  Create file /home/u-uefi/src/edk2/MyWizardDriver/HiiConfigAccess.h
  Create file /home/u-uefi/src/edk2/MyWizardDriver/SerialIo.c
  Create file /home/u-uefi/src/edk2/MyWizardDriver/SerialIo.h
```

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Summary

- Setup the UEFI Driver Wizard
- Create a UEFI Driver Template

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Questions?

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