tianocore

UEFI & EDK II Training

PLATFORM BUILD LAB WINDOWS EMULATOR

tianocore.org

tianocore

PLATFORM BUILD LABS

- Pin Visual Studio Command Prompt to Windows Task Bar
- Build a EDK II Platform using Emulator package
- Run the Emulator in Windows

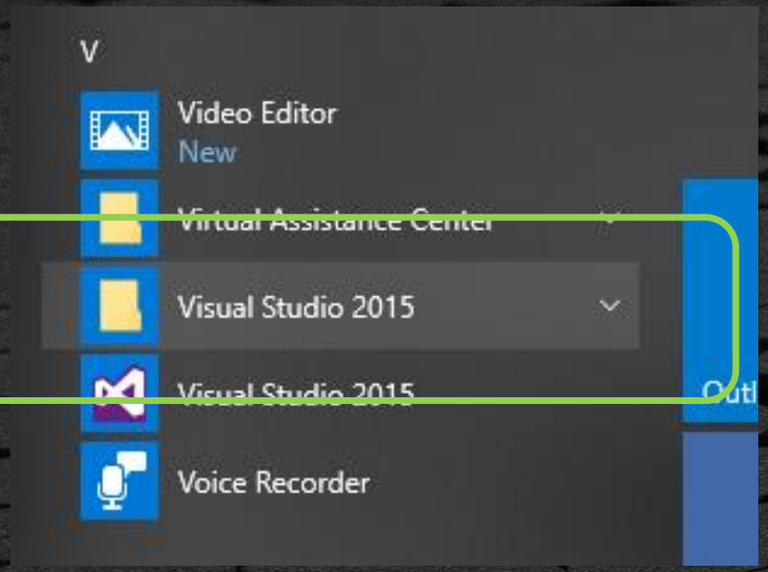
tianocore

PIN VS COMMAND PROMPT

Pin the Visual Studio Command prompt to Windows Task Bar

PIN VS COMMAND PROMPT

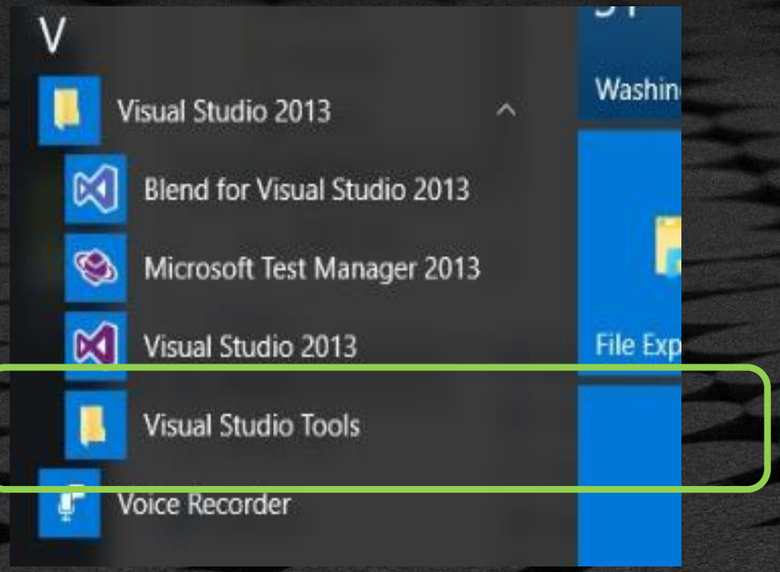
Windows 10



Steps to Pin Visual Studio Command Prompt to task bar for Windows 10

1. Using the Start menu in Windows 10, Left Click on "Windows Key" Lower Left
2. Scroll down from the scroll bar on the right until "**Visual Studio 201*n***"
3. Left Click "**Visual Studio 201*n***"

PIN VS COMMAND PROMPT



VS 2013

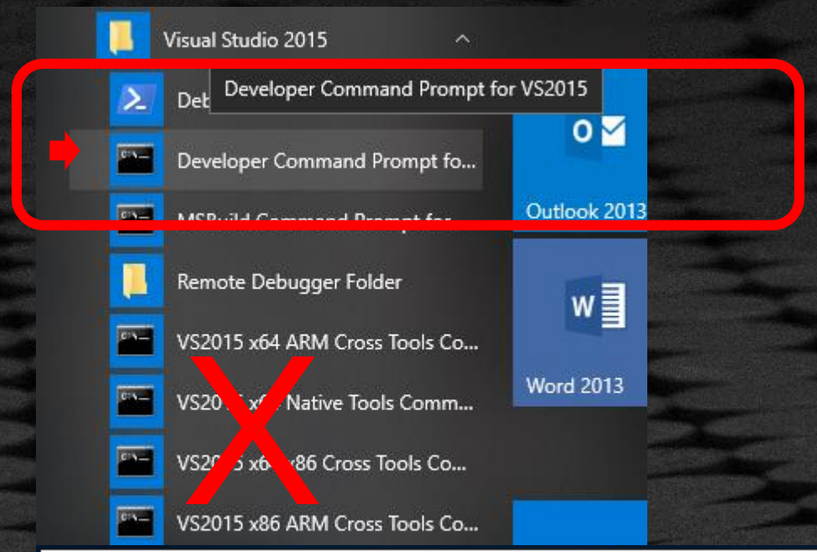
4. Left Click “**Visual Studio Tools**”

This will open another Windows file explorer window

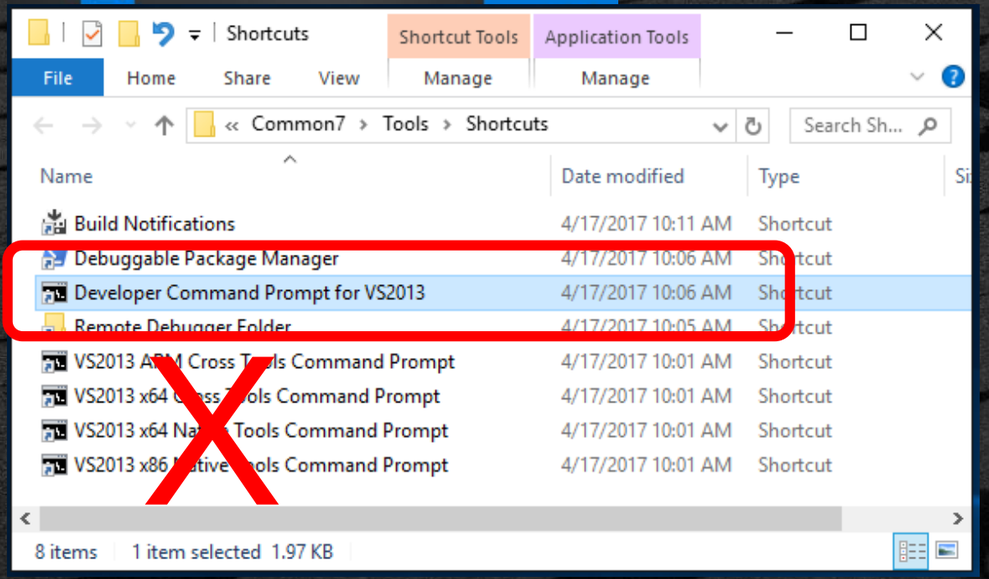
Note: *VS 2013 example, other version of VS maybe different*

PIN VS COMMAND PROMPT

VS 2015 VS 2017 is similar



VS 2013

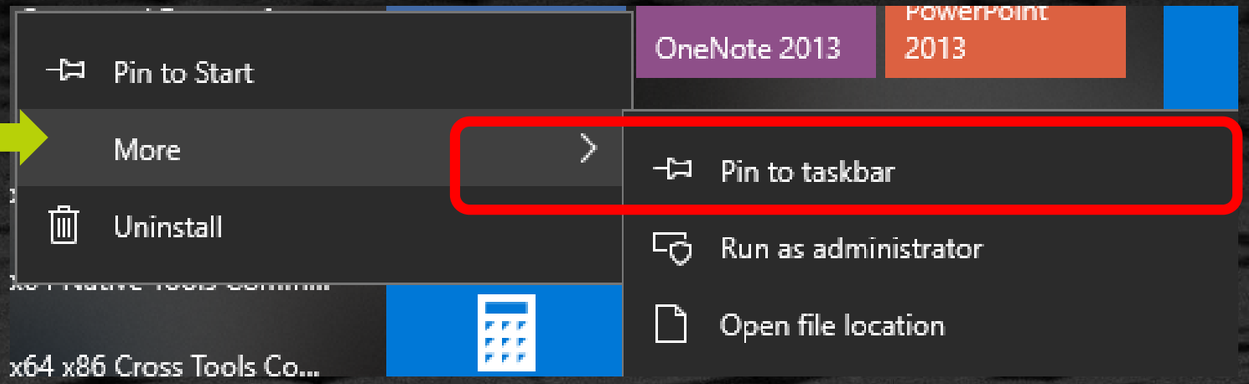


5. Select
“**Developer Command Prompt for VS201n**”

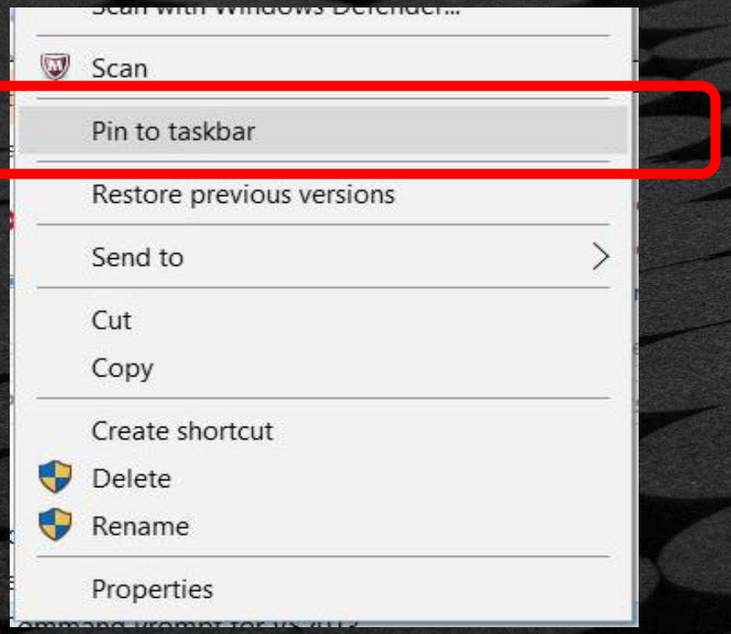
6. Right Click to open Windows dialog box

Do not use any of the other
“.. Command Prompts”

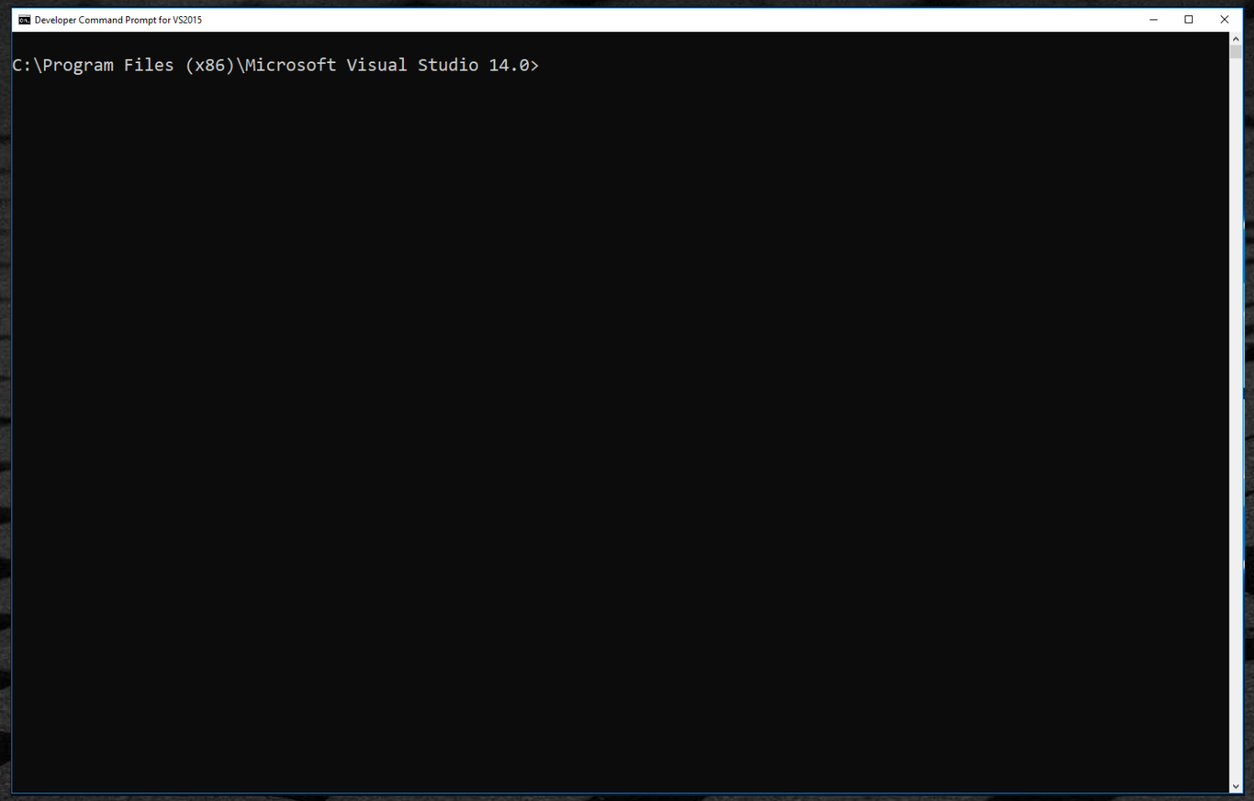
PIN VS COMMAND PROMPT



7. Left Click on
“Pin to taskbar”



PIN VS COMMAND PROMPT



8. Open VS Command Prompt”

All Windows Labs use this short-cut to Build Edk II platforms and projects using Windows Visual Studio :
2010 / 2012 / 2013 / 2015 or 2017

END OF PIN VS PROMPT

tianocore

BUILD EMULATOR

Setup EmulatorPkg to build and run emulation with Windows

Download the EDK II Source - *Optional*

OPTIONAL **- Open a "git" command prompt and create a source working directory**

```
C:\>mkdir edk2-WS
C:\> cd edk2-WS
```

OPTIONAL **- Internet Proxies – (company Firewall used for example)**

```
C:\edk2-WS> git config --global https.proxy <proxyname>.domain.com:<port>
C:\edk2-WS> git config --global http.proxy <proxyname>.domain.com:<port>
```

OPTIONAL **- Download edk2 source tree using Git command prompt**

```
C:\edk2-WS> git clone https://github.com/tianocore/edk2.git
C:\edk2-WS> git clone https://github.com/tianocore/edk2-libc.git
```

NOTE: Lab Material will have a different "edk2 and edk2-libc"

tianocore

SETUP LAB MATERIAL

Lab_Material_FW.zip

DOWN LOAD LAB MATERIAL

Download the Lab_Material_FW.zip from : github.com
Lab_Matrial_FW.zip
OR
Use git clone to download the Lab_Material_FW

```
C:\> git clone https://github.com/tianocore-training/Lab_Material_FW.git
```

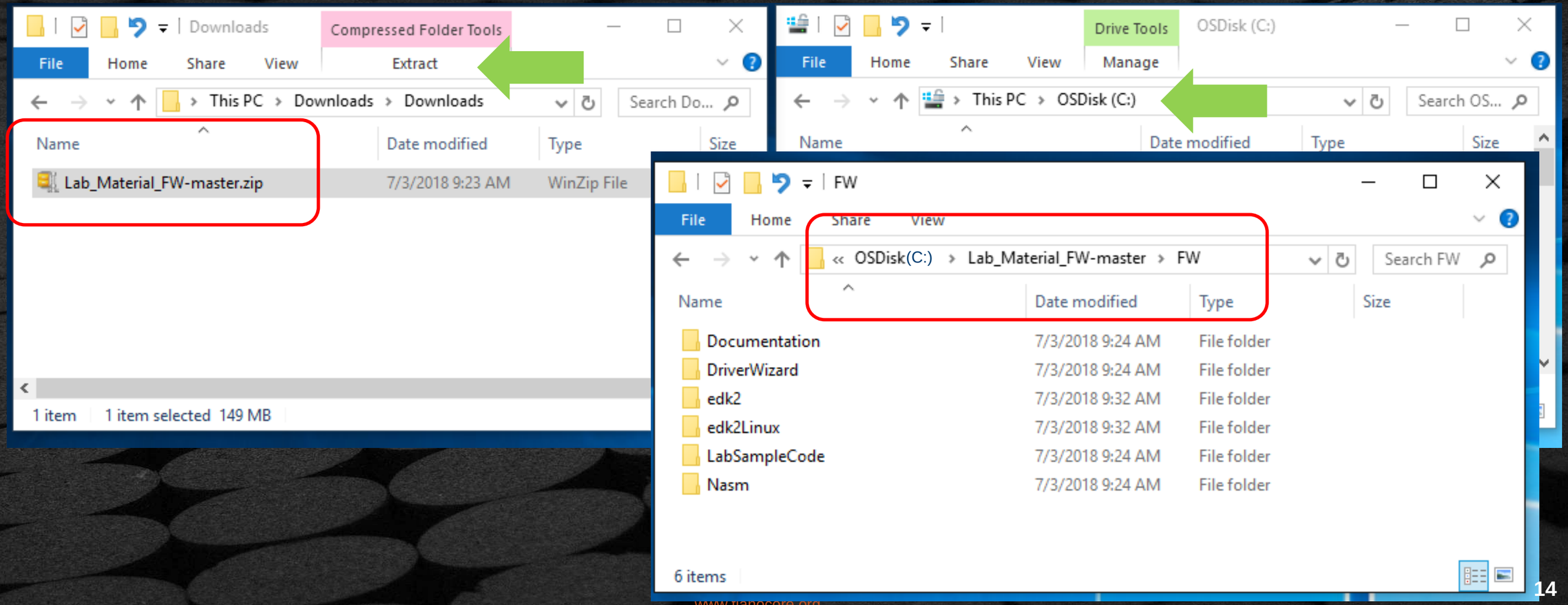
Directory Lab_Material_FW will be created

```
FW
 - Documentation
 - DriverWizard
 - edk2-ws
 - LabSampleCode
 - Nasm
```

tianocore

BUILD EDK II
-Extract the Source

1. Extract the Downloaded `Lab_Material_FW-master.zip` to `C:\`

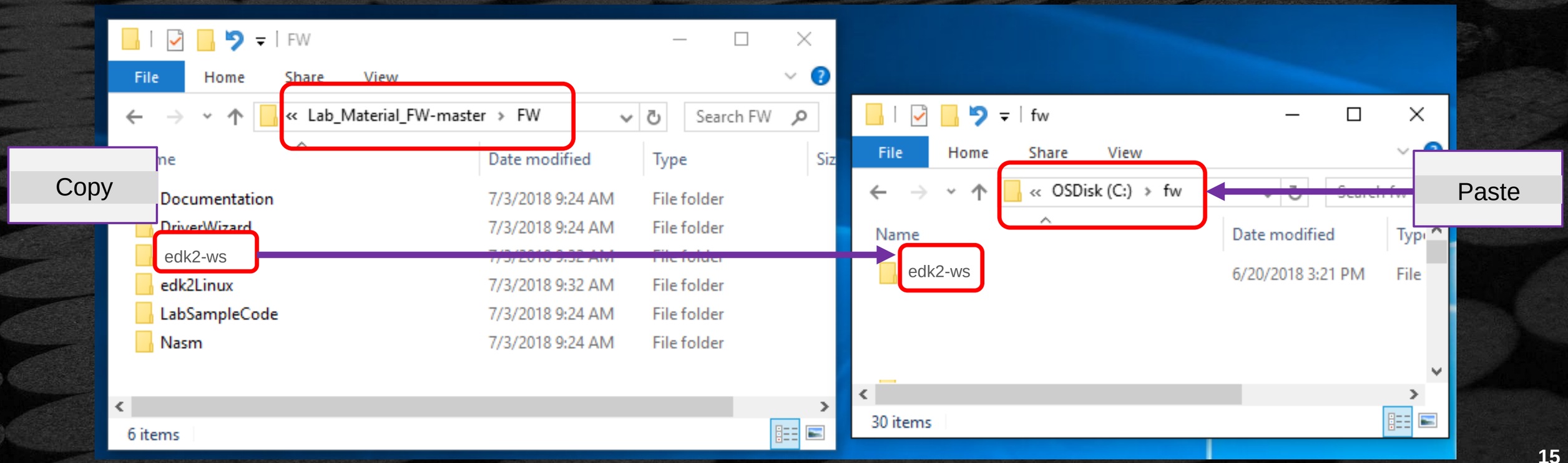


BUILD EDK II
- Copy edk2-ws

2. Open a VS Command prompt
3. Create a working space directory “FW”

```
C:\> mkdir FW
```

4. From the downloaded Lab_Material_FW folder, **copy** and **paste** folder “..\edk2-ws” to C:/FW

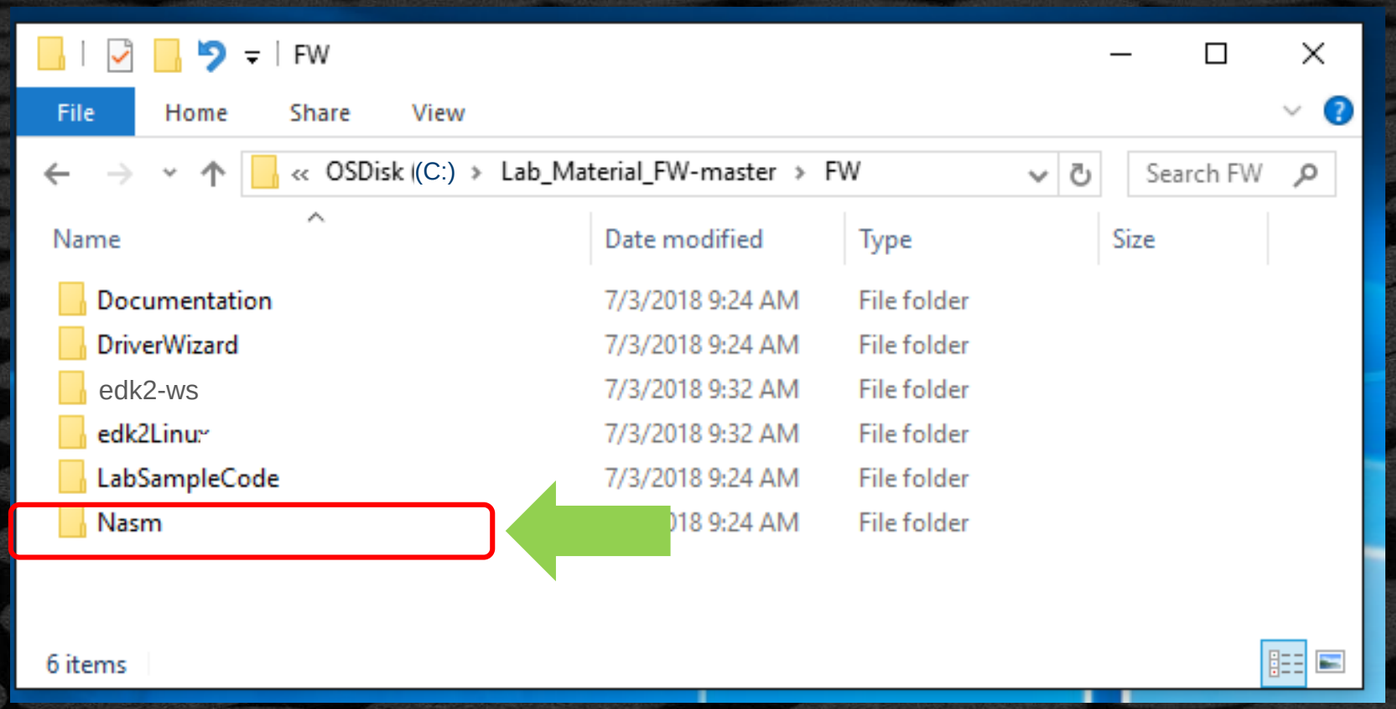


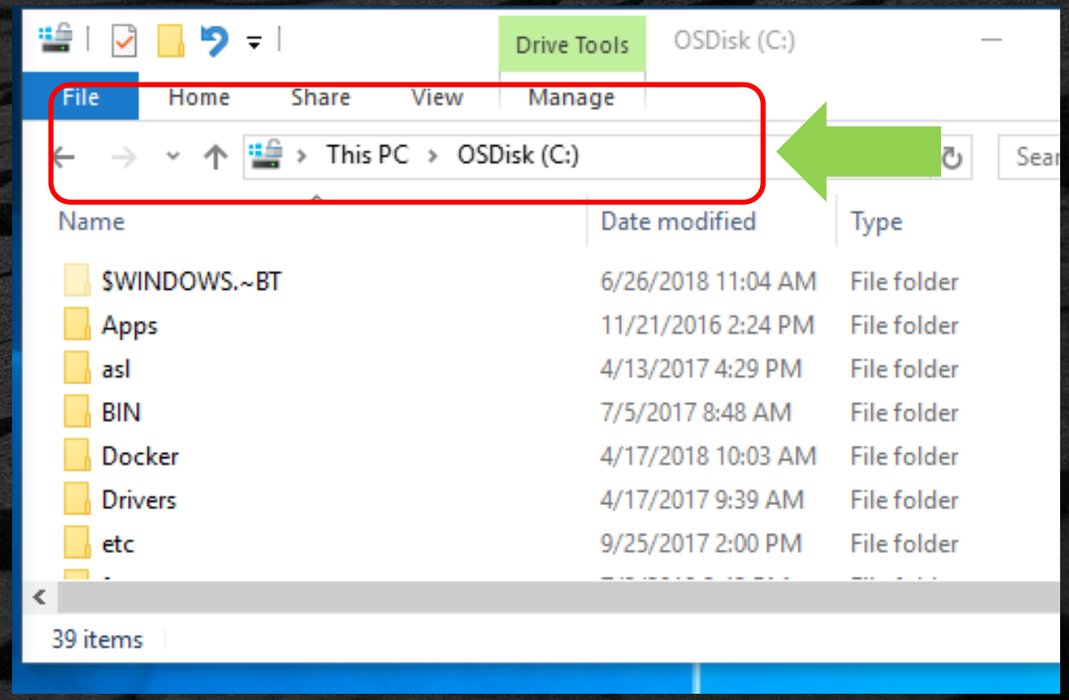
tianocore

BUILD EDK II
-Get Nasm

Copy `Nasm` directory to `C:\`

(creating `C:\Nasm` directory)





BUILD EDK II NT32
-Download & Install Python

Download and install Python 3.7.x for Windows from: https://www.python.org/

To Build `BaseTools` Python 3.7.x is needed

tianocore

BUILD EDK II NT32
- build BaseTools

Open VS Command prompt & Cd to work space directory

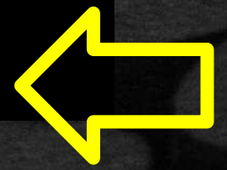
```
$> cd C:\FW\edk2-ws
```

Setup the local environment: (see batch file setenv.bat)

```
$> set WORKSPACE=%CD%
$> set PACKAGES_PATH=%WORKSPACE%\edk2;%WORKSPACE%\edk2-libc
```

Invoke `Edksetup.bat` from directory `C:/FW/edk2-ws/edk2` to Build `BaseTools`

```
$> cd edk2
$> edksetup.bat Rebuild
```



Building `BaseTools` only needs to be done once but setting up local environment and edksetup.bat needs to be done each new VS prompt session

BUILD EMULATORPKG

BUILD EDK II
-Update Target.txt

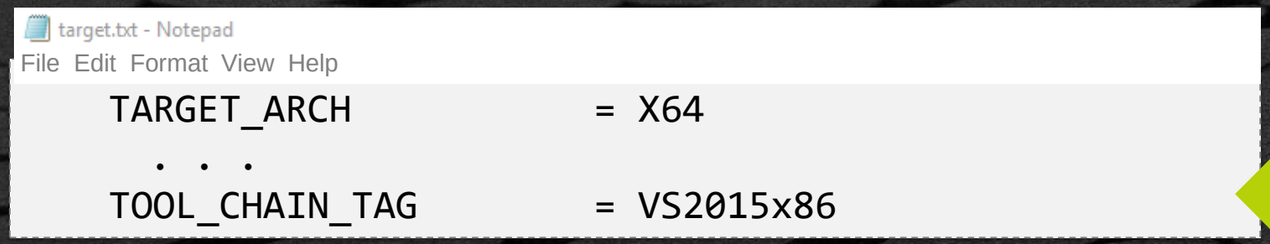
EmulatorPkg - Build with edk2

Invoke Edksetup.bat

```
$> cd C:\FW\edk2-ws\edk2
$> edksetup.bat
```

Edit the file Conf/target.txt ***(change*** TOOL_CHAIN_TAG***)***

notepad Conf/target.txt



VS version	TOOL_CHAIN_TAG
2010	VS2010x86
2012	VS2012x86
2013	VS2013x86
2015	VS2015x86
2017	VS2017

Save and Exit

Build EmulatorPkg

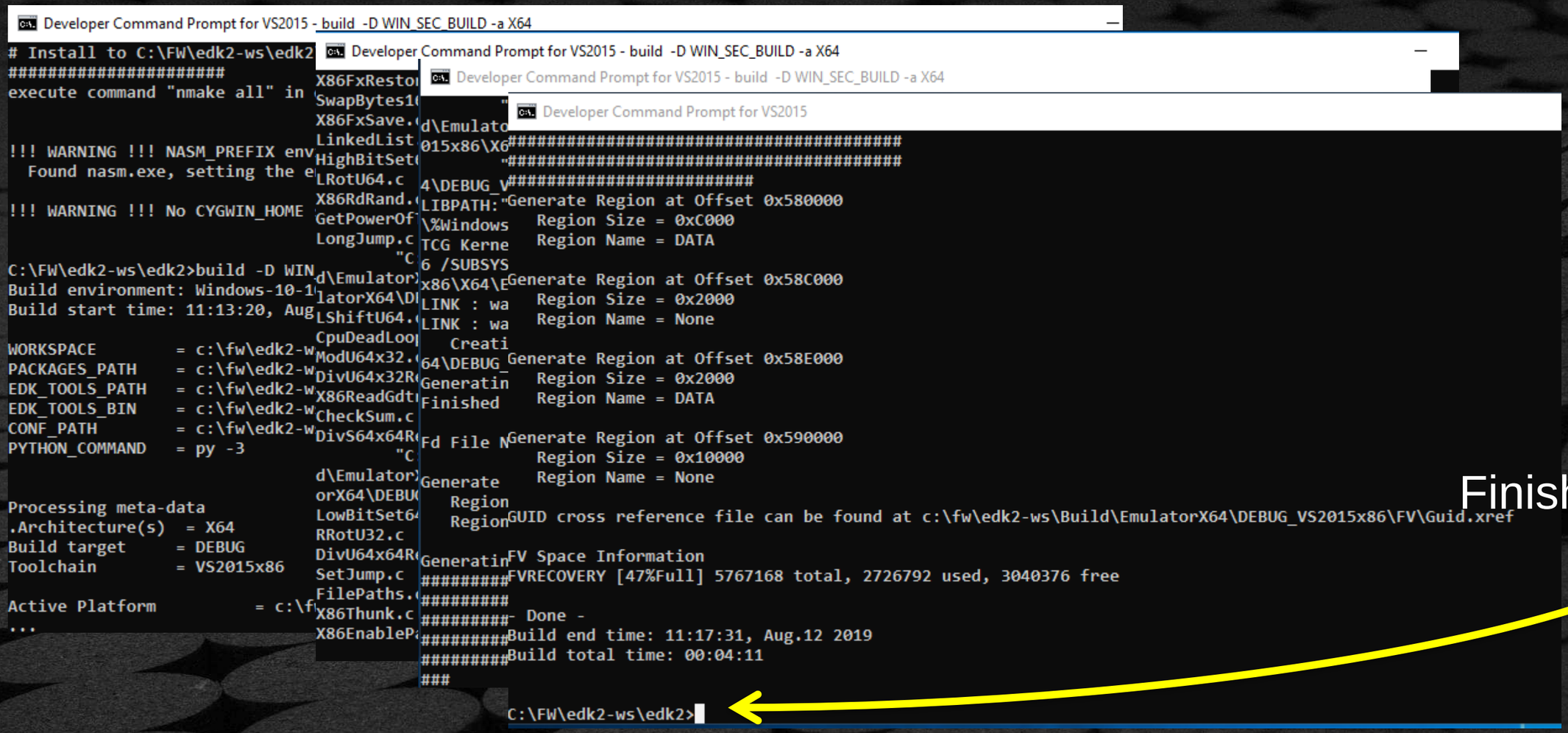
```
$> build -D ADD_SHELL_STRING -a X64
```

POSSIBLE BUILD ERRORS

1. If you get a BUILD Error: Error “`C:/Program` “ not found
   - First check that you have opened Visual Studio and installed the “C++”
   - Open Visual Studio and create a “C++” project
   - (This will take some time to install)
2. If you get a BUILD Error: Check if RC.Exe compiler not found is the error -here
3. If you get a BUILD Error: fatal error C1041: cannot open program database … Check here

tianocore

BUILD EDK II
-Inside VS Prompt



Finished build

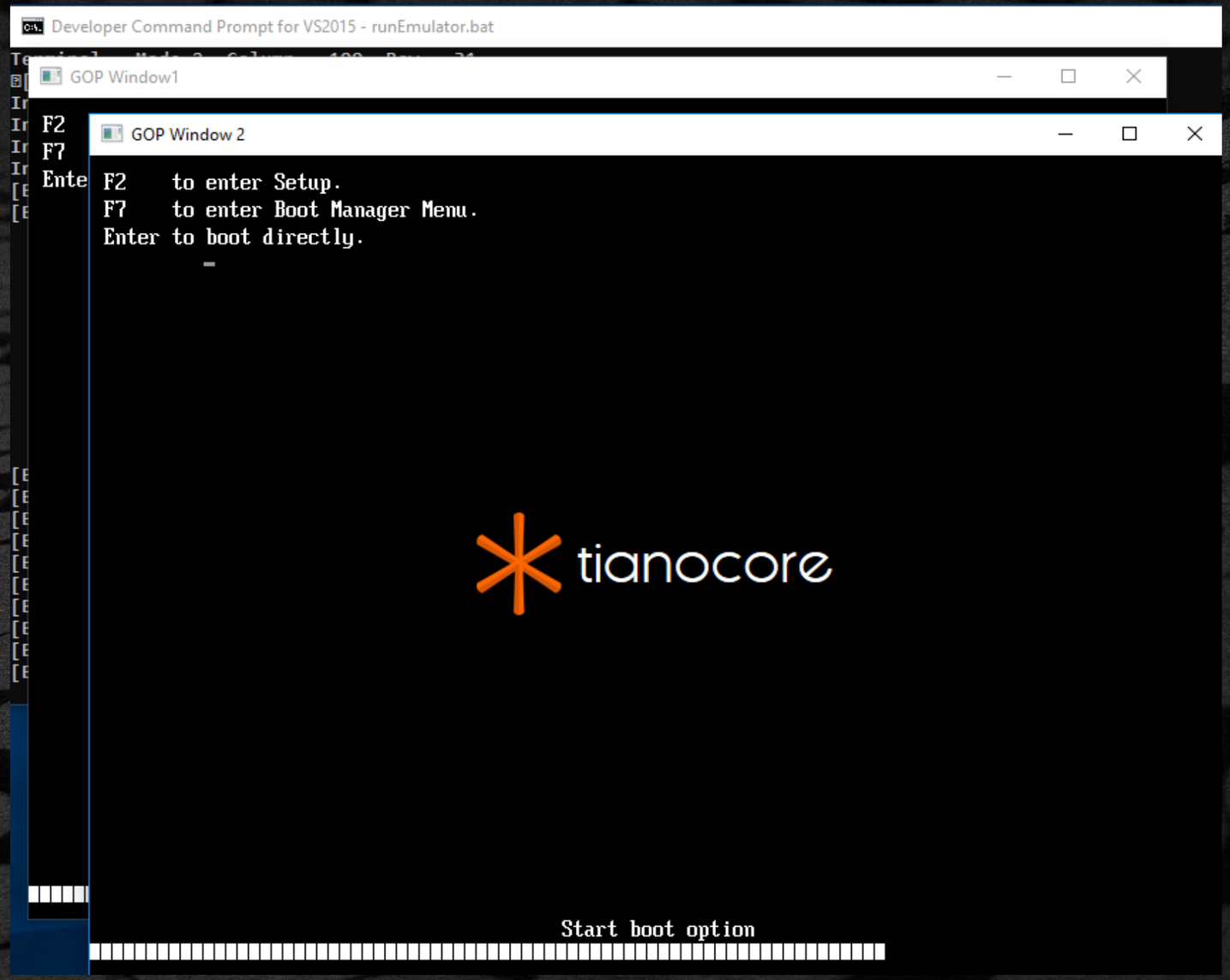
INVOKE EMULATION

From the command prompt

```
$> RunEmulator.bat
```

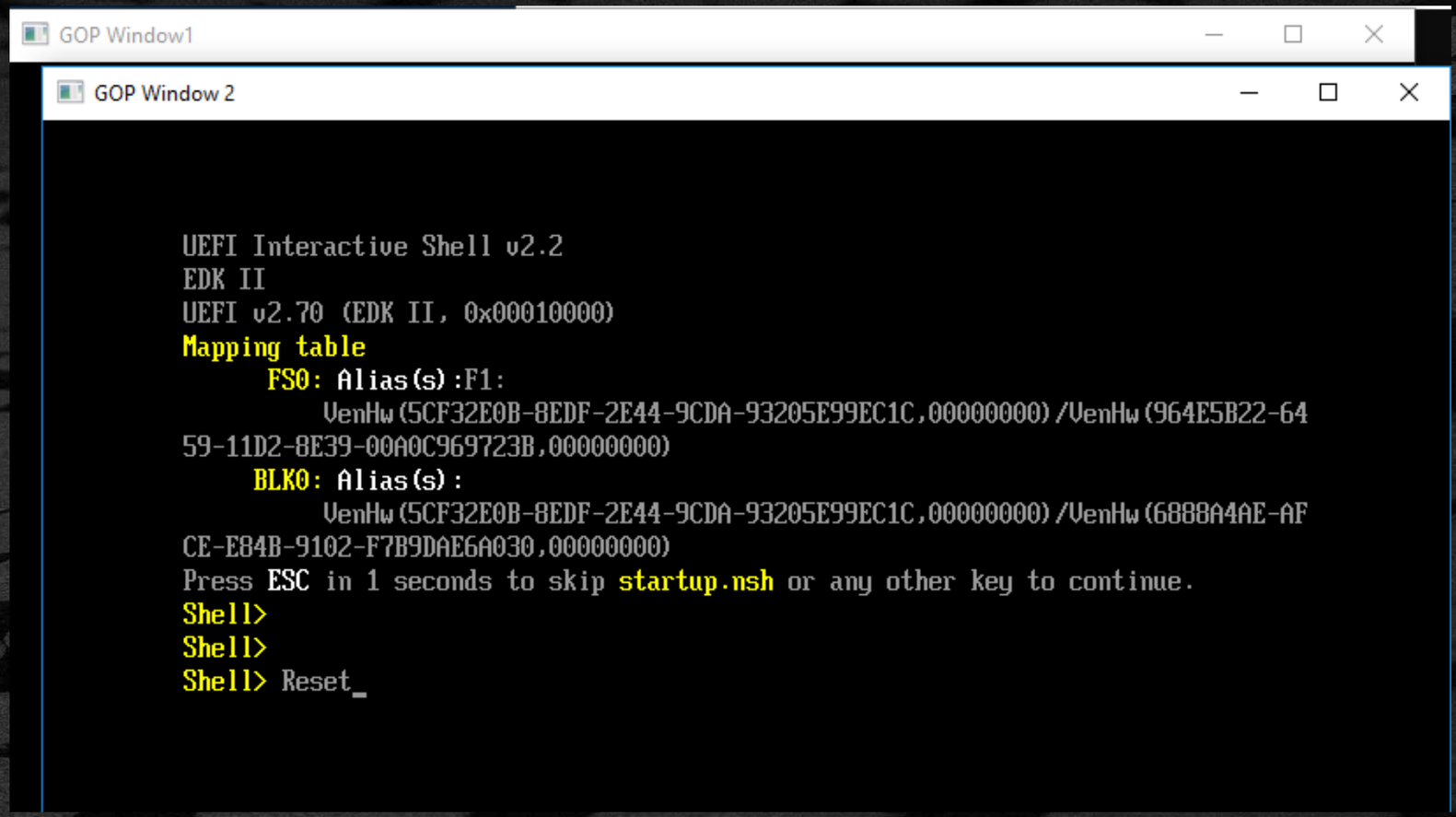
Or
run `WinHost.exe` from:
Build/ . . ./X64 directory

Notice 2 “GOP Window n" opened



EMULATOR AT SHELL PROMPT

Type : “Reset” to exit



tianocore

SUMMARY

- Pin Visual Studio Command Prompt to Windows Task Bar
- Build a EDK II Platform using Emulator package
- Run the Emulator in Windows

tianocore

Questions?

Return to Main Training Page

Return to Training Table of contents for next presentation

Link


tianocore

tianocore

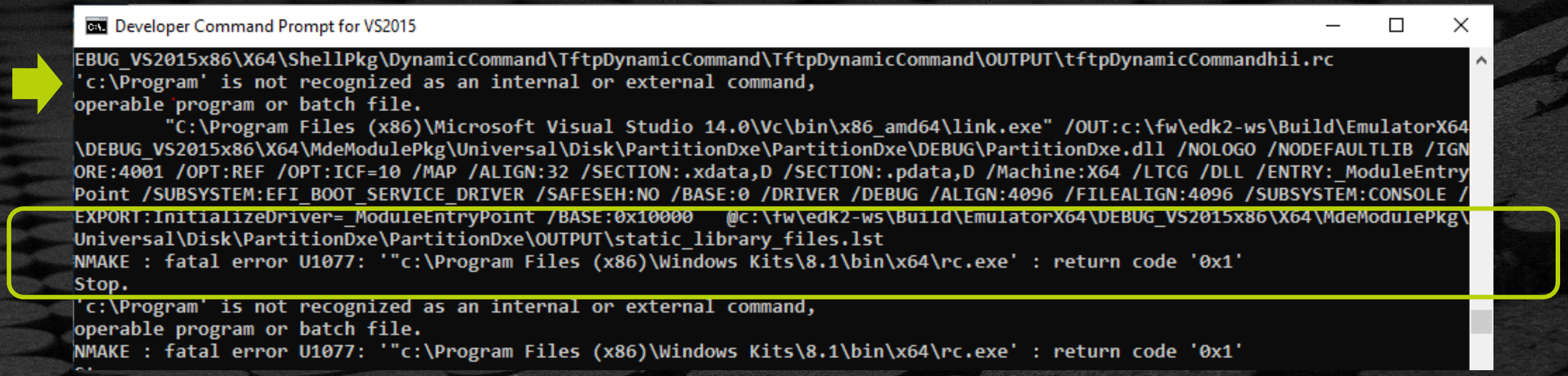
BACKUP

tianocore

BUILD ERRORS

Build Error- RC.exe

Error message:



Find where the RC.EXE is located on your VS Installation:

Example (VS 2015): The RC.exe is located on this machine:

```
C:\Program Files (x86)\Windows Kits\8.1\bin\x64
```

Edit Conf\tools_def.txt

Build Error- RC.exe Cont.

Edit Conf\tools_def.txt

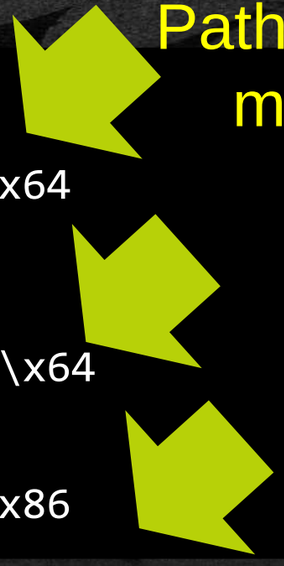
Search for your installation of Visual Studio (2013, 2015, 2017) “RC.EXE”
Probably in path C:\Program Files (x86)\Windows Kits\

Update according to the path for where the RC.EXE is found

```
# Microsoft Visual Studio 2013 Professional Edition
DEFINE WINSDK8_BIN       = c:\Program Files\Windows Kits\8.1\bin\x86\
DEFINE WINSDK8x86_BIN    = c:\Program Files (x86)\Windows Kits\8.1\bin\x64

# Microsoft Visual Studio 2015 Professional Edition
DEFINE WINSDK81_BIN       = c:\Program Files\Windows Kits\8.1\bin\x86\
DEFINE WINSDK81x86_BIN    = c:\Program Files (x86)\Windows Kits\8.1\bin\x64

# Microsoft Visual Studio 2017 Professional Edition
DEFINE WINSDK10_BIN       = C:\Program Files (x86)\Windows Kits\10\bin\x86
```



Copy and Paste RC error: Link

tianocore

Build Error: fatal error C1041:

Build Error from fatal error C1041: cannot open program database

This Error is usually because the location you are building is being shared by another application in Windows. Example: Syncplicity may cause this

Error Message:

```
k:\fw\edk2\MdePkg\Library\BaseLib\LinkedList.c : fatal error C1041: cannot open program
database
'k:\fw\edk2\build\nt32ia32\debug_vs2013x86\ia32\mdepkg\library\baselib\baselib\vc120.pdb'; if
multiple CL.EXE write to the same .PDB file, please use /FS
NMAKE : fatal error U1077: '"C:\Program Files (x86)\Microsoft Visual Studio
12.0\Vc\bin\cl.exe"' : return code '0x2'
Stop.
```

Solution: Try using a Workspace that is not shared