

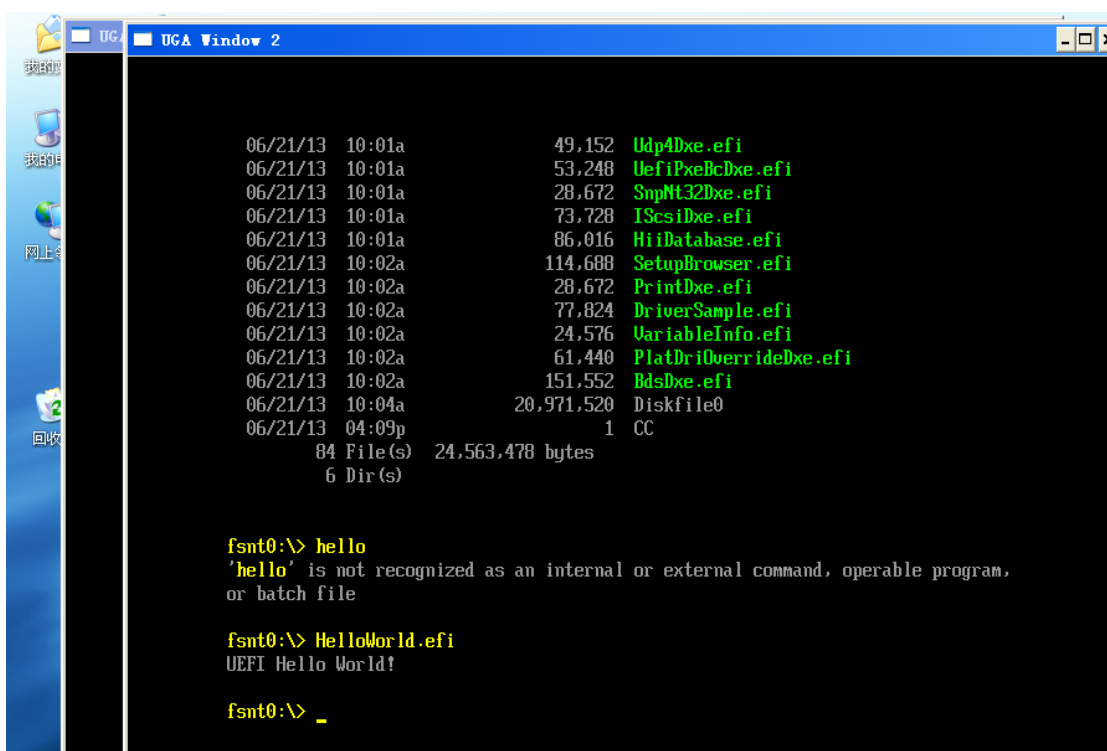
A Way to UEFI Shell(2)

前文介绍了如何创建 UEFI 的编译环境和模拟环境，现在介绍如何编写一个 EFI Application。

首先是最传统的方法：在编译过程中顺便就编译出来 EFI 文件。具体可以参考《EFI_Shell_Developer_Guide_Ver0-91.pdf》。这份文档是官方指南，美中不足就是老了一点，介绍的是 UEFI 1.0 的方法。

目标是： HelloWorld.EFI

Source Code 中已经有一个 Application 的 Demo 程序。使用 build run 启动虚拟机后，进入 fsnt0:，可以看到一个名为 HelloWorld.efi 的程序（fsnt0: 对应 Windows 的目录为 build\NT32\DEBUG_VS2008\IA32）。



The screenshot shows a UEFI Shell window titled 'UCA Window 2'. The window displays a directory listing of files and folders. Below the listing, the user enters the command 'hello', which results in an error message: ''hello' is not recognized as an internal or external command, operable program, or batch file'. The user then enters 'HelloWorld.efi', which results in the output 'UEFI Hello World!'. The user then enters an underscore '_' to indicate the end of the session.

```
06/21/13 10:01a          49,152  Udp4Dxe.efi
06/21/13 10:01a          53,248  UefiPxeBcDxe.efi
06/21/13 10:01a          28,672  SnpNt32Dxe.efi
06/21/13 10:01a          73,728  IScsiDxe.efi
06/21/13 10:01a          86,016  HiDatabase.efi
06/21/13 10:02a         114,688  SetupBrowser.efi
06/21/13 10:02a          28,672  PrintDxe.efi
06/21/13 10:02a          77,824  DriverSample.efi
06/21/13 10:02a          24,576  VariableInfo.efi
06/21/13 10:02a          61,440  PlatDriOverrideDxe.efi
06/21/13 10:02a          151,552 BdsDxe.efi
06/21/13 10:04a        20,971,520 Diskfile0
06/21/13 04:09p              1 CC
      84 File(s) 24,563,478 bytes
       6 Dir(s)
```

```
fsnt0:\> hello
'hello' is not recognized as an internal or external command, operable program,
or batch file

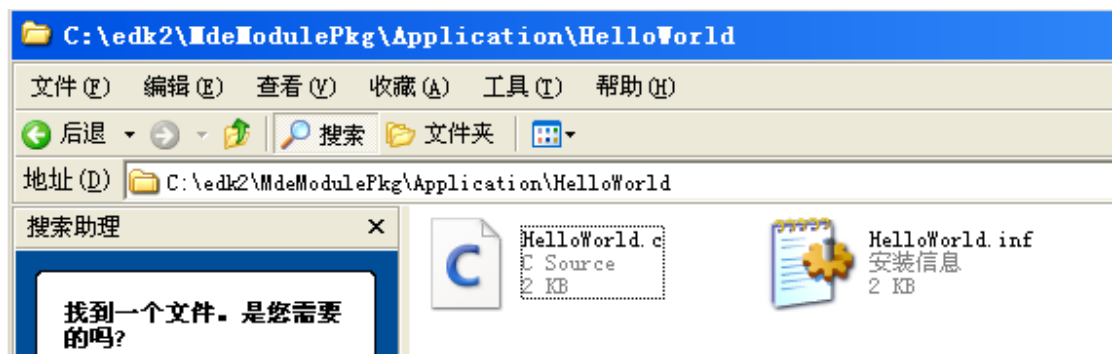
fsnt0:\> HelloWorld.efi
UEFI Hello World!

fsnt0:\> _
```

下面分析这个程序的来源和编写方法。在 Nt32Pkg.dsc 中有下面这样字样：



其中对应的文件有两个



看了一下文件内容，暂时还无法理解。EDK2 和前一代相比，引入了 PCD 的概念，目前还不知道这个东西怎么使用。

因为据说 EDK2 是向下兼容的，我们不妨按照上面提到的 Spec 指引，自己动手写一个 HelloMyWorld。

```
#HelloMyWorld.inf
[Defines]
  INF_VERSION           = 0x00010005
  BASE_NAME             = HelloMyWorld
  FILE_GUID             = 6987936E-ED34-44db-AE97-1FA5E4ED2117
  MODULE_TYPE          = UEFI_APPLICATION
  VERSION_STRING       = 1.0
  ENTRY_POINT         = UefiMain

[Sources]
  HelloMyWorld.c

[Packages]
  MdePkg/MdePkg.dec
  MdeModulePkg/MdeModulePkg.dec
```

```
[LibraryClasses]
  UefiApplicationEntryPoint
  UefiLib
```

```
#HelloMyWorld.c
```

```
#include <Uefi.h>
#include <Library/PcdLib.h>
#include <Library/UefiLib.h>
#include <Library/UefiApplicationEntryPoint.h>
```

```
/**
```

The user Entry Point for Application. The user code starts with this function as the real entry point for the application.

@param[in] ImageHandle The firmware allocated handle for the EFI image.
@param[in] SystemTable A pointer to the EFI System Table.

@retval EFI_SUCCESS The entry point is executed successfully.
@retval other Some error occurs when executing this entry point.

```
**/
```

```
EFI_STATUS
```

```
EFIAPI
```

```
UefiMain (
```

```
    IN EFI_HANDLE            ImageHandle,
```

```
    IN EFI_SYSTEM_TABLE     *SystemTable
```

```
  )
```

```
{
```

```
    Print (L"Hello, my world!");
```

```
    return EFI_SUCCESS;
```

```
}
```

之后，要在 Nt32Pkg.dsc 中多加入一句

```
Nt32Pkg/WinNtGopDxe/WinNtGopDxe.inf
Nt32Pkg/WinNtSimpleFileSystemDxe/WinNtSimpleFileSystemDxe.inf
MdeModulePkg/Application/HelloWorld/HelloWorld.inf
#LabZ_Start
MdeModulePkg/HelloMyWorld/HelloMyWorld.inf
#LabZ_End

#
```

之后，“build”重新编译，“build run”运行模拟环境，“fsnt0:”切换到盘中，运行“hellomyworld”即可看到如下结果

```
06/21/13 10:01a 40,960 UlanConfigDxe.efi
06/21/13 10:01a 45,056 Mtftp4Dxe.efi
06/21/13 10:01a 77,824 Tcp4Dxe.efi
06/21/13 10:01a 49,152 Udp4Dxe.efi
06/21/13 10:01a 53,248 UefiPxeBcDxe.efi
06/21/13 10:01a 28,672 SnpNt32Dxe.efi
06/21/13 10:01a 73,728 IScsiDxe.efi
06/21/13 10:01a 86,016 HiiDatabase.efi
06/21/13 10:02a 114,688 SetupBrowser.efi
06/21/13 10:02a 28,672 PrintDxe.efi
06/21/13 10:02a 77,824 DriverSample.efi
06/21/13 10:02a 24,576 VariableInfo.efi
06/21/13 10:02a 61,440 PlatDriOverrideDxe.efi
06/21/13 10:02a 151,552 BdsDxe.efi
06/21/13 10:04a 20,971,520 Diskfile0
06/21/13 04:09p 1 CC
07/02/13 02:35p 18,816 pollz.txt
07/02/13 03:44p 24,576 HelloMyWorld.efi
      86 File(s) 24,607,151 bytes
       6 Dir(s)
```

```
fsnt0:\> hellomyworld
Hello, my world!
fsnt0:\> _
```

在*.INF 中加入欲编译的 Module，这就是编译 UEFI Application 的最传统的方法。

www.lab-z.com

2013-9-17

Zoologist