



MICROSOFT WINDOWS 11 22H2

封装教程：不同的系统版本，有着不同的封装方式，封装过程中包含：“语言包：添加、关联、删除”、“驱动：添加、删除”、“累积更新：添加、删除”、“InBox Apps：添加、更新、标记”等。

在这背后藏着很多的隐藏故事，想解开这些，你准备好开始尝试封装了吗？

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章节 1 封装

A. 先决条件

II 正在运行的操作系统

正在运行的操作系统是 Windows 10 或者低于 Windows 11 24H2 时，在某些情况下使用 DISM 命令在制作高版本镜像时，会引发一些未知的问题，例如：在 Windows 10 操作系统里运行 DISM 命令来处理 Windows Server 2025 脱机映像时，在封装过程中也许会收到报错信息：“此应用无法在你的电脑运行”，解决方法：

- 1. 升级正在运行的操作系统或重新安装到更高的版本（建议）；
- 2. 升级或安装新版 ADK 或 PowerShell 版本（不建议）
 - 2.1. 可尝试升级到最新 PowerShell 7 以上的版本；
 - 2.2. 安装最新版 ADK 后并替换 DISM 命令后能解决 DISM 版本低的问题，但是：封装脚本主要使用的命令行是 PowerShell 命令行，所以不建议你使用以上方法，最佳的方法是：升级正在运行的操作系统或重新安装到更高的版本。

III ISO 工具

准备一款可编辑 ISO 文件的软件，例如：[PowerISO](#)、[DAEMON Tools](#)、[ISO Workshop](#)；

IV 要求

1. 系统安装包

关键词：[迭代](#)、[跨版本](#)、[大版本](#)、[累积更新](#)、[初始版本](#)

1.1. 说明

- 1.1.1. 每版本更新时请重新制作镜像，例如从 21H1 跨越到 22H2 时，应避免出现其它兼容性问题请勿在旧镜像基础上制作；
- 1.1.2. 该条例已经在某些 OEM 厂商，通过各种形式向封装师明确传达了该法令，不允许直接从迭代版本里直接升级；
- 1.1.3. 制作中请使用“初始版本”、“开发者版”制作。微软官方文档里曾短暂的出现过在制作中必须使用初始版本，后来这句在官方文档里却被删除了；
- 1.1.4. 安装语言包后，必须重新添加累积更新（可同一版本号），不添加累积更新会出现“乱码”、“界面闪退”等问题。
- 1.1.5. 进化过程：Windows 11 22H2, Build 22261.382 + KB5027303 = OS Build 22621.1928

1.2. 准备下载初始版本或开发者版本

- 1.2.1. x64
 - 1.2.1.1. [en-us_windows_11_business_editions_version_22h2_x64_dvd_17a08ce3.iso](#)

1.2.1.2. [en-us_windows_11_consumer_editions_version_22h2_x64_dvd_e630fafd.iso](#)

1.3. 示例下载 [en-us_windows_11_business_editions_version_22h2_x64_dvd_17a08ce3.iso](#) 后，解压到：[D:\en-us_windows_11_business_editions_version_22h2_x64_dvd_17a08c](#)

注意：解压到 D 盘前，你应该检查是否 ReFS 分区格式，如果是 ReFS 分区格式时：执行部分命令将出现异常。解决方法：请使用 NTFS 格式的磁盘分区。

1.4. 解压完成后，将目录 [en-us_windows_11_business_editions_version_22h2_x64_dvd_17a08c](#) 更改为 [D:\OS_11](#)

1.5. 所有脚本、所有路径，已默认设置为 [D:\OS_11](#) 为映像来源。

1.6. 安装配置

1.6.1. 学习：[Windows 安装版配置和产品 ID 文件 \(EI.cfg 和 PID.txt\)](#)

1.6.2. 已知问题

1.6.2.1. 没有 Ei.cfg 时，ISO 引导安装，选择某些版本时会报错，提示：[Windows 找不到 Microsoft 软件许可条款。](#)
[请确保安装源有效。然后重新启动安装。](#)

1.6.2.2. 如何解决，添加 ei.cfg 到 D:\OS_11\Sources 里，创建 ei.cfg：

```
@"  
  
[Channel]  
  
volume  
  
  
  
[VL]  
  
1  
  
"@ | Out-File -FilePath "D:\OS_11\sources\EI.CFG" -Encoding Ascii
```

2. 语言包

2.1. 学习

阅读时，请了解“蓝色”重要突出部分。

2.1.1. [语言概述](#)

2.1.2. [将语言添加到 Windows 11 映像](#)

2.1.3. [语言和区域按需功能 \(FOD\)](#)

2.2. 语言包：下载

https://software-static.download.prss.microsoft.com/dbazure/988969d5-f34g-4e03-ac9d-1f9786c66749/22621.1.220506-1250.ni_release_amd64fre_CLIENT_LOF_PACKAGES_OEM.iso

2.3. 语言包：修复

2.3.1. 任选一个网站并打开：

2.3.1.1. <https://uupdump.net>

2.3.1.2. <https://uup.ee>

2.3.1.3. <https://osdump.com>

2.3.2. 打开后，搜索关键词：22621.382，在搜索结果选择：Windows 11, version 22H2 (22621.382) amd64

2.3.3. 打开后，选择“全部文件”；

2.3.4. 在“全部文件”页面里依次搜索绿色部分并下载：

2.3.4.1. 适用于：Install.wim（1项）

2.3.4.1.1. MediaPlayer

2.3.4.2. 适用于：WinRE.wim，暂无

2.3.4.3. 适用于：Boot.wim，暂无

2.3.5. 下载所有文件后，拉到到页面下方，下载并运行“生成重命名脚本（Windows）”；

2.3.6. 使用 ISO 编辑软件，编辑 22621.1.220506-1250.ni_release_amd64fre_CLIENT_LOF_PACKAGES_OEM.iso，将下载的文件添加到 [ISO]:\LanguagesAndOptionalFeatures 目录里；

3. InBox Apps

3.1. 下载：https://software-static.download.prss.microsoft.com/dbazure/888969d5-f34g-4e03-ac9d-1f9786c66749/22621.1778.230511-2102.ni_release_svc_prod3_amd64fre_InboxApps.iso

3.2. 下载：https://software-static.download.prss.microsoft.com/dbazure/988969d5-f34g-4e03-ac9d-1f9786c66749/22621.1.220506-1250.ni_release_amd64fre_InboxApps.iso 后，提取：

3.2.1. Microsoft.HEVCVideoExtension

3.2.1.1. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.x64.appx

3.2.1.2. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.x64.xml

3.3. 使用 ISO 编辑工具，编辑 22621.1778.230511-2102.ni_release_svc_prod3_amd64fre_InboxApps.iso，将已提取文件添加到 [ISO]:\packages 目录里；

V Windows 安全中心

- 在处理封装任务时，将产生大量的临时文件，安装 InBox Apps 里的应用时会释放大量的安装文件；
- 开启 Windows 安全中心会扫描文件、会占用大量的 CPU。
- 测试中：未关闭前耗时 1 小时 22 分，关闭后耗时 20 分钟。

如何关闭：

绿色为命令行，按住 Windows 键并按 R 键启动“运行”。

1. 打开“Windows 安全中心”或运行： `windowsdefender:`
2. 选择“病毒和威胁防护”或运行： `windowsdefender://threat`
3. 找到“病毒和威胁防护设置”，点击“管理设置”或运行： `windowsdefender://threatsettings`，建议您关闭部分功能：
 - 3.1. 实时保护
 - 3.2. 云提供的保护
 - 3.3. 自动提交样本
 - 3.4. 篡改防护
4. 未处于封装时，建议您开启 Windows 安全中心。

VI 命令行

1. 可选“Terminal”或“PowerShell ISE”，未安装“Terminal”，请前往 <https://github.com/microsoft/terminal/releases> 后下载；
2. 以管理员身份打开“Terminal”或“PowerShell ISE”，设置 PowerShell 执行策略：绕过，PS 命令行：

`Set-ExecutionPolicy -ExecutionPolicy Bypass -Force`
3. 在本文中，绿色部分属于 PS 命令行，请复制后，粘贴到“Terminal”对话框，按回车键（Enter）后开始运行；
4. 有 `.ps1` 时，点击文件右键，选择以 PowerShell 运行，或复制路径，粘贴到“Terminal ”或“PowerShell ISE”里运行，带冒号的路径，在命令行添加 `&` 字符，示例： `& "D:\YiSolutions\Encapsulation\SIP.ps1"`

B. 语言包：提取

II 语言包：准备

挂载 `22621.1.220506-1250.ni_release_amd64fre_CLIENT_LOF_PACKAGES_OEM.iso` 或解压到任意位置；

III 语言包：提取方案

1. 添加

1.1. 语言名称: 简体中文 - 中国, 区域: zh-CN, 适用范围: Install.Wim, Boot.Wim, WinRE.Wim

2. 删除

2.1. 语言名称: 英语 - 美国, 区域: en-US, 适用范围: Install.Wim, Boot.Wim, WinRE.Wim

IV 执行提取命令

- Auto = 自动搜索本地所有磁盘, 默认;
- 自定义路径, 例如指定为 E 盘: \$ISO = "E:\"
- Extract.ps1
 - \Expand\Extract.ps1
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging/tutorial/OS.11/22H2/Expand/Extract.ps1
- 复制代码

```
$ISO = "Auto"

$SaveTo = "D:\OS_11_Custom"

$Extract_language_Pack = @(

    @{ Tag = "zh-CN"; Act = "Add"; Scope = @( "Install\Install"; "Install\WinRE"; "Boot\Boot" ) }

    @{ Tag = "en-US"; Act = "Del"; Scope = @( "Install\Install"; "Install\WinRE"; "Boot\Boot" ) }

)

Function Extract_Language

{

    param( $Act, $NewLang, $Expand )

    Function Match_Required_Fonts

    {

        param( $Lang )

        $Fonts = @(

            @{ Match = @("as", "ar-SA", "ar", "ar-AE", "ar-BH", "ar-DJ", "ar-DZ", "ar-EG", "ar-ER", "ar-IL", "ar-IQ", "ar-JO", "ar-KM", "ar-KW", "ar-LB", "ar-LY", "ar-MA",
            "ar-MR", "ar-OM", "ar-PS", "ar-QA", "ar-SD", "ar-SO", "ar-SS", "ar-SY", "ar-TD", "ar-TN", "ar-YE", "arz-Arab", "ckb-Arab", "fa", "fa-AF", "fa-IR", "glk-Arab", "ha-
            Arab", "ks-Arab", "ks-Arab-IN", "ku-Arab", "ku-Arab-IQ", "mzn-Arab", "pa-Arab", "pa-Arab-PK", "pnb-Arab", "prs", "prs-AF", "prs-Arab", "ps", "ps-AF", "sd-
            Arab", "sd-Arab-PK", "tk-Arab", "ug", "ug-Arab", "ug-CN", "ur", "ur-IN", "ur-PK", "uz-Arab", "uz-Arab-AF"); Name = "Arab"; }

            @{ Match = @("bn-IN", "as-IN", "bn", "bn-BD", "bpy-Beng"); Name = "Beng"; }

            @{ Match = @("da-dk", "iu-Cans", "iu-Cans-CA"); Name = "Cans"; }

            @{ Match = @("chr-Cher-US", "chr-Cher"); Name = "Cher"; }
```

```
@{ Match = @"(hi-IN", "bh-Deva", "brx", "brx-Deva", "brx-IN", "hi", "ks-Deva", "mai", "mr", "mr-IN", "ne", "ne-IN", "ne-NP", "new-Deva", "pi-Deva", "sa", "sa-Deva", "sa-IN"); Name = "Deva"; }

@{ Match = @"(am", "am-ET", "byn", "byn-ER", "byn-Ethi", "ti", "ti-ER", "ti-ET", "tig", "tig-ER", "tig-Ethi", "ve-Ethi", "wal", "wal-ET", "wal-Ethi"); Name = "Ethi"; }

@{ Match = @"(gu", "gu-IN"); Name = "Gujr"; }

@{ Match = @"(pa", "pa-IN", "pa-Guru"); Name = "Guru"; }

@{ Match = @"(zh-CN", "cmn-Hans", "gan-Hans", "hak-Hans", "wuu-Hans", "yue-Hans", "zh-gan-Hans", "zh-hak-Hans", "zh-Hans", "zh-SG", "zh-wuu-Hans", "zh-yue-Hans"); Name = "Hans"; }

@{ Match = @"(zh-TW", "cmn-Hant", "hak-Hant", "lzh-Hant", "zh-hak-Hant", "zh-Hant", "zh-HK", "zh-lzh-Hant", "zh-MO", "zh-yue-Hant"); Name = "Hant"; }

@{ Match = @"(he", "he-IL", "yi"); Name = "Hebr"; }

@{ Match = @"(ja", "ja-JP"); Name = "Jpan"; }

@{ Match = @"(km", "km-KH"); Name = "Khmr"; }

@{ Match = @"(kn", "kn-IN"); Name = "Knda"; }

@{ Match = @"(ko", "ko-KR"); Name = "Kore"; }

@{ Match = @"(de-de", "lo", "lo-LA"); Name = "Laoo"; }

@{ Match = @"(ml", "ml-IN"); Name = "Mlym"; }

@{ Match = @"(or", "or-IN"); Name = "Orya"; }

@{ Match = @"(si", "si-LK"); Name = "Sinh"; }

@{ Match = @"(tr-tr", "arc-Syrc", "syr", "syr-SY", "syr-Syrc"); Name = "Syrc"; }

@{ Match = @"(ta", "ta-IN", "ta-LK", "ta-MY", "ta-SG"); Name = "Taml"; }

@{ Match = @"(te", "te-IN"); Name = "Telu"; }

@{ Match = @"(th", "th-TH"); Name = "Thai"; }

)

ForEach ($item in $Fonts) {

    if (($item.Match) -Contains $Lang) {

        return $item.Name

    }

}

return "Not_matched"

}

Function Match_Other_Region_Specific_Requirements

{

    param( $Lang )

    $RegionSpecific = @(

        @{ Match = @"(zh-TW"); Name = "Taiwan"; }
```

```

)

ForEach ($item in $RegionSpecific) {

    if (($item.Match) -Contains $Lang) {

        return $item.Name

    }

}

return "Skip_specific_packages"

}

Function Extract_Process

{

    param( $Package, $Name, $NewSaveTo )

    $NewSaveTo = "$($SaveTo)\$($NewSaveTo)\Language\$($Act)\$($NewLang)"

    New-Item -Path $NewSaveTo -ItemType Directory -ErrorAction SilentlyContinue | Out-Null

    if ($ISO -eq "Auto") {

        Get-PSDrive -PSProvider FileSystem -ErrorAction SilentlyContinue | ForEach-Object {

            ForEach ($item in $Package) {

                $TempFilePath = Join-Path -Path $_.Root -ChildPath $item -ErrorAction SilentlyContinue

                if (Test-Path $TempFilePath -PathType Leaf) {

                    Write-host "`n Find: " -NoNewLine; Write-host $TempFilePath -ForegroundColor Green

                    Write-host " Copy to: " -NoNewLine; Write-host $NewSaveTo

                    Copy-Item -Path $TempFilePath -Destination $NewSaveTo -Force

                }

            }

        }

    } else {

        ForEach ($item in $Package) {

            $TempFilePath = Join-Path -Path $ISO -ChildPath $item -ErrorAction SilentlyContinue

            Write-host "`n Find: " -NoNewline; Write-host $TempFilePath -ForegroundColor Green

            if (Test-Path $TempFilePath -PathType Leaf) {

                Write-host " Copy to: " -NoNewLine; Write-host $NewSaveTo

                Copy-Item -Path $TempFilePath -Destination $NewSaveTo -Force

            } else {

                Write-host " Not found"

            }

        }

    }

}

```

```

    }

}

Write-host "`n  Verify the language pack file"

ForEach ($item in $Package) {

    $Path = "$($NewSaveTo)\${[IO.Path]::GetFileName($item))"

    if (Test-Path $Path -PathType Leaf) {

        Write-host "  Discover: " -NoNewLine; Write-host $Path -ForegroundColor Green

    } else {

        Write-host "  Not found: " -NoNewLine; Write-host $Path -ForegroundColor Red

    }

}

}

$AdvLanguage = @(

    @{

        Path = "Install\Install"

        Rule = @(

            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-Fonts-{DiyLang}-Package~31bf3856ad364e35~AMD64~~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-Client-Language-Pack_x64_{Lang}.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-Basic-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-Handwriting-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-OCR-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-Speech-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-TextToSpeech-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-InternetExplorer-Optional-Package~31bf3856ad364e35~AMD64~{Lang}~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~wow64~{Lang}~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-MediaPlayer-Package-AMD64-{Lang}.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-MediaPlayer-Package-wow64-{Lang}.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~wow64~{Lang}~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-Printing-PMCPPC-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~AMD64~{Lang}~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~wow64~{Lang}~.cab"

            "LanguagesAndOptionalFeatures\Microsoft-Windows-WMIC-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab"

```

```
"LanguagesAndOptionalFeatures\Microsoft-Windows-WMIC-FoD-Package~31bf3856ad364e35~wow64~{Lang}~.cab"

"LanguagesAndOptionalFeatures\Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab"

"LanguagesAndOptionalFeatures\Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~wow64~{Lang}~.cab"

"LanguagesAndOptionalFeatures\Microsoft-Windows-InternationalFeatures-{Specific}-Package~31bf3856ad364e35~amd64~~.cab"

)

}

@{

    Path = "Install\WinRE"

    Rule = @(

        "Windows Preinstallation Environment\x64\WinPE_OC\WinPE-FontSupport-{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\lp.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-securestartup_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-atbroker_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-audiocore_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-audiodrivers_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-enhancedstorage_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-narrator_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-scripting_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-speech-tts_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-srh_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-srt_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-wds-tools_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-wmi_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-appxdeployment_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-appxpackaging_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-storagewmi_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-wifi_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-windowsupdate_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-rejuv_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-opcservices_{Lang}.cab"

        "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-hta_{Lang}.cab"

    )

}

@{
```

```

Path = "Boot\Boot"

Rule = @(

    "Windows Preinstallation Environment\x64\WinPE_OC\WinPE-FontSupport-{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\lp.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\WinPE-Setup_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\WINPE-SETUP-CLIENT_{Lang}.CAB"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-securestartup_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-atbroker_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-audiocore_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-audiodrivers_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-enhancedstorage_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-narrator_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-scripting_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-speech-tts_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-srh_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-srt_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-wds-tools_{Lang}.cab"

    "Windows Preinstallation Environment\x64\WinPE_OC\{Lang}\winpe-wmi_{Lang}.cab"

)

}

)

$NewFonts = Match_Required_Fonts -Lang $NewLang

$SpecificPackage = Match_Other_Region_Specific_Requirements -Lang $NewLang

Foreach ($item in $Expand) {

    $Language = @()

    Foreach ($itemList in $AdvLanguage) {

        if ($itemList.Path -eq $item) {

            Foreach ($PrintLang in $itemList.Rule) {

                $Language += "$($PrintLang)".Replace("{Lang}", $NewLang).Replace("{DiyLang}", $NewFonts).Replace("{Specific}", $SpecificPackage)

            }

            Extract_Process -NewSaveTo $itemList.Path -Package $Language -Name $item

        }

    }

}

}

```

```
}  
  
ForEach ($item in $Extract_language_Pack){ Extract_Language -Act $item.Act -NewLang $item.Tag -Expand $item.Scope }
```

C. 自定义封装

II 自定义封装：Install.wim

1. 查看 Install.wim 详细信息

映像名称、映像描述、映像大小、架构、版本、索引号等；

```
$ViewFile = "D:\OS_11\Sources\Install.wim"  
  
Get-WindowsImage -ImagePath $ViewFile | Foreach-Object { Get-WindowsImage -ImagePath $ViewFile -index $_.ImageIndex }
```

循环操作区域，开始，

2. 指定挂载 Install 路径

```
New-Item -Path "D:\OS_11_Custom\Install\Install\Mount" -ItemType directory -ea SilentlyContinue
```

3. 开始挂载 Install.wim

默认索引号：1

```
Mount-WindowsImage -ImagePath "D:\OS_11\sources\install.wim" -Index "1" -Path "D:\OS_11_Custom\Install\Install\Mount"
```

处理 Install.wim 映像内的文件，可选项，开始，

3.1. 自定义封装：WinRE.wim

注意：

- WinRE.wim 属于 Install.wim 映像内的文件；
- Install.wim 有多个索引号时，仅处理任意一个 WinRE.wim 即可；
- 同步至所有索引号即可减少 Install.wim 体积，学习“如何批量替换 Install.wim 里的所有索引号里的 WinRE.wim”。

3.1.1. 查看 WinRE.wim 详细信息

映像名称、映像描述、映像大小、架构、版本、索引号等；

```
$ViewFile = "D:\OS_11_Custom\Install\Install\Mount\Windows\System32\Recovery\WinRE.wim"  
  
Get-WindowsImage -ImagePath $ViewFile | Foreach-Object { Get-WindowsImage -ImagePath $ViewFile -index  
$_ImageIndex }
```


3.1.2. 指定挂载 WinRE.wim 路径

```
New-Item -Path "D:\OS_11_Custom\Install\WinRE\Mount" -ItemType directory -ea SilentlyContinue
```

3.1.3. 开始挂载 WinRE.wim

默认索引号：1

```
Mount-WindowsImage -ImagePath "D:\OS_11_Custom\Install\Install\Mount\Windows\System32\Recovery\WinRE.wim" -
Index "1" -Path "D:\OS_11_Custom\Install\WinRE\Mount"
```

3.1.4. 语言包

- 自动安装语言包：获取“组件：映像中已安装的所有包”后进行匹配，匹配到对应的名称后，再安装本地对应的语言包文件，查看报告“[语言安装包适用于 WinRE.wim](#)”。
- 添加语言时，须对应不同的架构版本，未对应时，添加过程中报错等提示。

3.1.4.1. 语言包：添加

- WinRE.Instl.lang.ps1
 - [\Expand\Install\WinRE\WinRE.Instl.lang.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Install/WinRE/WinRE.Instl.lang.ps1

- 复制代码

```
$Mount = "D:\OS_11_Custom\Install\WinRE\Mount"

$Sources = "D:\OS_11_Custom\Install\WinRE\Language\Add\zh-CN"

$Initl_install_Language_Component = @()

Get-WindowsPackage -Path $Mount | ForEach-Object {

    $Initl_install_Language_Component += $_.PackageName

}

Add-WindowsPackage -Path $Mount -PackagePath "$($Sources)\WinPE-FontSupport-zh-CN.cab"

$Language_List = @(

    @{ Match = "*WinPE-LanguagePack-Package*"; File = "lp.cab"; }

    @{ Match = "*SecureStartup*"; File = "winpe-securestartup_zh-CN.cab"; }

    @{ Match = "*ATBroker*"; File = "winpe-atbroker_zh-CN.cab"; }

    @{ Match = "*AudioCore*"; File = "winpe-audiocore_zh-CN.cab"; }

    @{ Match = "*AudioDrivers*"; File = "winpe-audiodrivers_zh-CN.cab"; }

    @{ Match = "*EnhancedStorage*"; File = "winpe-enhancedstorage_zh-CN.cab"; }
```

```
@{ Match = "*Narrator*"; File = "winpe-narrator_zh-CN.cab"; }

@{ Match = "*scripting*"; File = "winpe-scripting_zh-CN.cab"; }

@{ Match = "*Speech-TTS*"; File = "winpe-speech-tts_zh-CN.cab"; }

@{ Match = "*srh*"; File = "winpe-srh_zh-CN.cab"; }

@{ Match = "*srt*"; File = "winpe-srt_zh-CN.cab"; }

@{ Match = "*wds-tools*"; File = "winpe-wds-tools_zh-CN.cab"; }

@{ Match = "*-WMI-Package*"; File = "winpe-wmi_zh-CN.cab"; }

@{ Match = "*WinPE-AppxPackaging*"; File = "winpe-appxpackaging_zh-CN.cab"; }

@{ Match = "*StorageWMI*"; File = "winpe-storagewmi_zh-CN.cab"; }

@{ Match = "*WiFi*"; File = "winpe-wifi_zh-CN.cab"; }

@{ Match = "*rejuv*"; File = "winpe-rejuv_zh-CN.cab"; }

@{ Match = "*opcservices*"; File = "winpe-opcservices_zh-CN.cab"; }

@{ Match = "*hta*"; File = "winpe-hta_zh-CN.cab"; }

@{ Match = "*windowsupdate*"; File = "winpe-windowsupdate_zh-CN.cab"; }

@{ Match = "*appxdeployment*"; File = "winpe-appxdeployment_zh-CN.cab"; }

)

ForEach ($Rule in $Language_List) {

    Write-host "`n Rule name: $($Rule.Match)" -ForegroundColor Yellow; Write-host "  $('-' * 80)"

    ForEach ($Component in $Initl_install_Language_Component) {

        if ($Component -like "*${$Rule.Match}*" ) {

            Write-host "  Component name: " -NoNewline

            Write-host $Component -ForegroundColor Green

            Write-host "  Language pack file: " -NoNewline

            Write-host "${$Sources}\${$Rule.File}" -ForegroundColor Green

            Write-Host "  Installing ".PadRight(22) -NoNewline

            try{

                Add-WindowsPackage -Path $Mount -PackagePath "${$Sources}\${$Rule.File}" | Out-Null

                Write-host "Finish" -ForegroundColor Green

            } catch {

                Write-host "Failed" -ForegroundColor Red

            }

            break

        }

    }

}
```

```
}
```

3.1.4.2. 组件：映像中已安装的所有包

3.1.4.2.1. 查看

```
Get-WindowsPackage -Path "D:\OS_11_Custom\Install\WinRE\Mount" | Out-GridView
```

3.1.4.2.2. 导出到 Csv

```
$SaveTo = "D:\OS_11_Custom\Install\WinRE\Report.$(Get-Date -Format
"yyyyMMddHHmmss").csv"
```

```
Get-WindowsPackage -Path "D:\OS_11_Custom\Install\WinRE\Mount" | Export-CSV -NoType
-Path $SaveTo
```

```
Write-host $SaveTo -ForegroundColor Green
```

3.1.5. 保存映像：WinRE.wim

```
Save-WindowsImage -Path "D:\OS_11_Custom\Install\WinRE\Mount"
```

3.1.6. 卸载映像：WinRE.wim

关闭所有可能正在访问映像中文件的应用程序，包括文件资源管理器。

```
Dismount-WindowsImage -Path "D:\OS_11_Custom\Install\WinRE\Mount" -Discard
```

3.1.7. 重建 WinRE.wim 后，可缩小文件大小

- WinRE.Rebuild.ps1
 - \Expand\Install\WinRE\WinRE.Rebuild.ps1
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Install/WinRE/WinRE.Rebuild.ps1

复制代码

```
$FileName = "D:\OS_11_Custom\Install\Install\Mount\Windows\System32\Recovery\WinRE.wim"
```

```
Get-WindowsImage -ImagePath $Filename -ErrorAction SilentlyContinue | ForEach-Object {
```

```
Write-Host " Image name: " -NoNewline
```

```
Write-Host $_.ImageName -ForegroundColor Yellow
```

```
Write-Host " The index number: " -NoNewline
```

```
Write-Host $_.ImageIndex -ForegroundColor Yellow
```

```
Write-Host "`n Rebuild".PadRight(28) -NoNewline
```

```
Export-WindowsImage -SourceImagePath $Filename -SourceIndex $_.ImageIndex -DestinationImagePath
```

```
"$($FileName).New" -CompressionType max

Write-Host "Finish`n" -ForegroundColor Green
}

if (Test-Path "$($FileName).New" -PathType Leaf) {

    Remove-Item -Path $Filename

    Move-Item -Path "$($FileName).New" -Destination $Filename

    Write-Host "Finish" -ForegroundColor Green

} else {

    Write-host "Failed" -ForegroundColor Red

}
```

3.1.8. 备份 WinRE.wim

- WinRE.Backup.ps1
 - [\Expand\Install\WinRE\WinRE.Backup.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Install/WinRE/WinRE.Backup.ps1
- 复制代码

```
$WimLibPath = "D:\OS_11_Custom\Install\Install\Update\Winlib"

$FileName = "D:\OS_11_Custom\Install\Install\Mount\Windows\System32\Recovery\WinRE.wim"

New-Item -Path $WimLibPath -ItemType Directory -ea SilentlyContinue

Copy-Item -Path $FileName -Destination $WimLibPath -Force
```

3.1.9. 替换 Install.wim 映像内的 WinRE.wim

- 每次挂载 Install.wim 后“[替换 WinRE.wim](#)”；
- 学习“[获取 Install.wim 所有索引号后并替换旧的 WinRE.wim](#)”。

[处理 Install.wim 映像内的文件](#)，结束。

4. 语言包

- 自动安装语言包：获取“组件：映像中已安装的所有包”后进行匹配，匹配到对应的名称后，再安装本地对应的语言包文件，查看报告“[语言安装包适用于 Install.wim](#)”。
- 添加语言时，须对应不同的架构版本，未对应时，添加过程中报错等提示。

4.1. 语言包：添加

- Install.Instl.lang.ps1
 - [\Expand\Install\Install.Instl.lang.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Install/Install.Instl.lang.ps1

- 复制代码

```
$Mount = "D:\OS_11_Custom\Install\Install\Mount"

$Sources = "D:\OS_11_Custom\Install\Install\Language\Add\zh-CN"

$Initl_install_Language_Component = @()

Get-WindowsPackage -Path $Mount | ForEach-Object {

    $Initl_install_Language_Component += $_.PackageName

}

Add-WindowsPackage -Path $Mount -PackagePath "$($Sources)\Microsoft-Windows-LanguageFeatures-Fonts-Hans-
Package~31bf3856ad364e35~amd64~~.cab"

$Language_List = @(

    @{ Match = "*Client-LanguagePack-Package*"; File = "Microsoft-Windows-Client-Language-Pack_x64_zh-CN.cab"; }

    @{ Match = "*LanguageFeatures-Basic*"; File = "Microsoft-Windows-LanguageFeatures-Basic-zh-CN-
Package~31bf3856ad364e35~amd64~~.cab"; }

    @{ Match = "*Handwriting*"; File = "Microsoft-Windows-LanguageFeatures-Handwriting-zh-CN-
Package~31bf3856ad364e35~amd64~~.cab"; }

    @{ Match = "*OCR*"; File = "Microsoft-Windows-LanguageFeatures-OCR-zh-CN-Package~31bf3856ad364e35~amd64~~.cab"; }

    @{ Match = "*LanguageFeatures-Speech*"; File = "Microsoft-Windows-LanguageFeatures-Speech-zh-CN-
Package~31bf3856ad364e35~amd64~~.cab"; }

    @{ Match = "*TextToSpeech*"; File = "Microsoft-Windows-LanguageFeatures-TextToSpeech-zh-CN-
Package~31bf3856ad364e35~amd64~~.cab"; }

    @{ Match = "*InternetExplorer*"; File = "Microsoft-Windows-InternetExplorer-Optional-Package~31bf3856ad364e35~AMD64~zh-
CN~.cab"; }

    @{ Match = "*Notepad*amd64*"; File = "Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~AMD64~zh-
CN~.cab"; }

    @{ Match = "*Notepad*wow64*"; File = "Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~wow64~zh-
CN~.cab"; }

    @{ Match = "*MediaPlayer*amd64*"; File = "Microsoft-Windows-MediaPlayer-Package-AMD64-zh-CN.cab"; }

    @{ Match = "*MediaPlayer*wow64*"; File = "Microsoft-Windows-MediaPlayer-Package-wow64-zh-CN.cab"; }

    @{ Match = "*PowerShell*amd64*"; File = "Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~amd64~zh-
CN~.cab"; }

    @{ Match = "*PowerShell*wow64*"; File = "Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~wow64~zh-
CN~.cab"; }

    @{ Match = "*Printing*PMCPPC*amd64*"; File = "Microsoft-Windows-Printing-PMCPPC-FoD-
```

```
Package~31bf3856ad364e35~AMD64~zh-CN~.cab"; }

    @{ Match = "*StepsRecorder*amd64*"; File = "Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~amd64~zh-CN~.cab"; }

    @{ Match = "*StepsRecorder*wow64*"; File = "Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~wow64~zh-CN~.cab"; }

    @{ Match = "*WMIC*FoD*Package*amd64*"; File = "Microsoft-Windows-WMIC-FoD-Package~31bf3856ad364e35~AMD64~zh-CN~.cab"; }

    @{ Match = "*WMIC*FoD*Package*wow64*"; File = "Microsoft-Windows-WMIC-FoD-Package~31bf3856ad364e35~wow64~zh-CN~.cab"; }

    @{ Match = "*WordPad*amd64*"; File = "Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~amd64~zh-CN~.cab"; }

    @{ Match = "*WordPad*wow64*"; File = "Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~wow64~zh-CN~.cab"; }

    @{ Match = "*Client*LanguagePack*zh-TW*"; File = "Microsoft-Windows-InternationalFeatures-Taiwan-Package~31bf3856ad364e35~amd64~~.cab"; }

)

ForEach ($Rule in $Language_List) {

    Write-host "`n Rule name: $($Rule.Match)" -ForegroundColor Yellow; Write-host "  $('-' * 80)"

    ForEach ($Component in $InitL_install_Language_Component) {

        if ($Component -like "*$($Rule.Match)*") {

            Write-host "  Component name: " -NoNewline; Write-host $Component -ForegroundColor Green

            Write-host "  Language pack file: " -NoNewline; Write-host "$($Sources)\$($Rule.File)" -ForegroundColor Green

            Write-Host "  Installing ".PadRight(22) -NoNewline

            try {

                Add-WindowsPackage -Path $Mount -PackagePath "$($Sources)\$($Rule.File)" | Out-Null

                Write-host "Finish" -ForegroundColor Green

            } catch {

                Write-host "Failed" -ForegroundColor Red

            }

            break

        }

    }

}

}
```

4.2. 组件：映像中已安装的所有包

4.2.1. 查看

```
Get-WindowsPackage -Path "D:\OS_11_Custom\Install\Install\Mount" | Out-GridView
```

4.2.2. 导出到 Csv

```
$SaveTo = "D:\OS_11_Custom\Install\Install\Report.$(Get-Date -Format "yyyyMMddHHmmss").csv"

Get-WindowsPackage -Path "D:\OS_11_Custom\Install\Install\Mount" | Export-CSV -NoType -Path $SaveTo

Write-host $SaveTo -ForegroundColor Green
```

5. InBox Apps

5.1. InBox Apps：已安装

5.1.1. 查看

```
Get-AppXProvisionedPackage -Path "D:\OS_11_Custom\Install\Install\Mount" | Out-GridView
```

5.1.2. 导出到 Csv

```
$SaveTo = "D:\OS_11_Custom\Install\Install\Report.$(Get-Date -Format "yyyyMMddHHmmss").csv"

Get-AppXProvisionedPackage -Path "D:\OS_11_Custom\Install\Install\Mount" | Export-CSV -NoType -Path $SaveTo

Write-host $SaveTo -ForegroundColor Green
```

5.2. 删除已安装的所有预应用程序

- Install.InBox.Appx.Clear.all.ps1
 - [\Expand\Install\Install.InBox.Appx.Clear.all.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging/tutorial/OS.11/22H2/Expand/Install/Install.InBox.Appx.Clear.all.ps1

• 复制代码

```
Get-AppXProvisionedPackage -path "D:\OS_11_Custom\Install\Install\Mount" -ErrorAction SilentlyContinue | ForEach-Object {

    Write-host "`n $($_.DisplayName)"

    Write-Host "  Deleting ".PadRight(22) -NoNewline

    try{

        Remove-AppxProvisionedPackage -Path "D:\OS_11_Custom\Install\Install\Mount" -PackageName $_.PackageName -ErrorAction SilentlyContinue | Out-Null

        Write-host "Finish" -ForegroundColor Green

    } catch {

        Write-host "Failed" -ForegroundColor Red

    }

}
```

5.3. 区域标记：添加

微软官方向 Windows 10 提供了本地语言体验包（LXPS）安装文件，Windows 11 不再提供，想获取：

5.3.1. 使用“Windows 本地语言体验包（LXPs）下载器”下载

了解：<https://github.com/ilikeyi/LXPs>

下载后保存到：D:\OS_11_Custom\Install\Install\InBox.Appx，文件格式：[LanguageExperiencePack.zh-CN.Neutral.Appx](#)

5.3.2. 手动下载

5.3.2.1. 区域

下载区域：zh-CN，应用程序 ID：[9NRMNT6GMZ70](#)，商店连接：
<https://www.microsoft.com/store/productId/9NRMNT6GMZ70>

5.3.2.2. 打开网站：<https://store.rg-adguard.net>

5.3.2.2.1. 搜索关键词：

<https://www.microsoft.com/store/productId/9NRMNT6GMZ70>

5.3.2.2.2. 网页内搜索 22621 内容，搜索结果：[Microsoft.LanguageExperiencePackzh-CN_22621.*.neutral__8wekyb3d8bbwe.appx](#)

5.3.2.2.3. 下载后保存到 D:\OS_11_Custom\Install\Install\InBox.Appx 目录里，重命名：
[LanguageExperiencePack.zh-cn.Neutral.Appx](#)

5.3.3. 执行安装命令安装本地语言体验包（LXPs）

了解区域标记添加方式后，获得 [LanguageExperiencePack.zh-cn.Neutral](#) 后，执行安装命令：

```
Add-AppxProvisionedPackage -Path "D:\OS_11_Custom\Install\Install\Mount" -PackagePath  
"D:\OS_11_Custom\Install\Install\InBox.appx\LanguageExperiencePack.zh-cn.Neutral.appx" -SkipLicense
```

5.3.4. 区域标记：新增变化

脱机映像已安装的语言将成为默认，例如已安装语言：en-US、zh-CN，那么重新安装或更新 InBox Apps 应用程序
时，将参考已安装语言来进行匹配，自动添加对应的语言包，可通过以下方式查看变化。

5.3.4.1. InBox Apps：已安装的应用程序包

5.3.4.1.1. 查看

```
Get-AppXProvisionedPackage -Path "D:\OS_11_Custom\Install\Install\Mount" | Out-GridView
```


5.3.4.1.2. 导出出 Csv

```
$SaveTo = "D:\OS_11_Custom\Install\Install\Report.${Get-Date -Format
"yyyyMMddHHmmss").csv"

Get-AppXProvisionedPackage -Path "D:\OS_11_Custom\Install\Install\Mount" | Export-CSV -
NoType -Path $SaveTo

Write-host $SaveTo -ForegroundColor Green
```

5.3.4.2. 查看可用的语言设置

```
Dism /Image:"D:\OS_11_Custom\Install\Install\Mount" /Get-Intl
```

5.4. InBox Apps：安装

5.4.1. 挂载或解压 InBox Apps 安装文件

挂载 [22621.1.220506-1250.ni_release_amd64fre_InboxApps.iso](#) 或解压到任意位置；

5.4.2. 执行安装命令后安装 InBox Apps 到： Install.wim

- [Auto](#) = 自动搜索本地所有磁盘，默认；
- 自定义路径，例如指定为 F 盘：[\\$ISO = "F:\packages"](#)
- 架构：[x64](#)
- [Install.Inst.InBox.Appx.ps1](#)
 - [\Expand\Install\Install.Inst.InBox.Appx.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Install/Install.Inst.InBox.Appx.ps1
- 复制代码

```
$ISO = "Auto"

$Mount = "D:\OS_11_Custom\Install\Install\Mount"

$Arch = "x64"

try {

    Write-host "`n  Offline image version: " -NoNewline

    $Current_Edition_Version = (Get-WindowsEdition -Path $Mount).Edition

    Write-Host $Current_Edition_Version -ForegroundColor Green

} catch {

    Write-Host "Error" -ForegroundColor Red

    Write-Host " $($_) " -ForegroundColor Yellow
```

```

        return
    }

$Pre_Config_Rules = @{

    Edition = @(

        @{

            Name = @( "CloudEdition"; )

            Apps = @(

                "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.NET.Native.Framework.2.2";
                "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00"; "Microsoft.VCLibs.140.00.UWPDesktop";
                "Microsoft.Services.Store.Engagement"; "Microsoft.VP9VideoExtensions"; "Clipchamp.Clipchamp"; "Microsoft.BingNews";
                "Microsoft.BingWeather"; "Microsoft.DesktopAppInstaller"; "Microsoft.GetHelp"; "Microsoft.Getstarted";
                "Microsoft.HEIFImageExtension"; "Microsoft.HEVCVideoExtension"; "Microsoft.MicrosoftOfficeHub";
                "Microsoft.MicrosoftStickyNotes"; "Microsoft.MinecraftEducationEdition"; "Microsoft.Paint";
                "Microsoft.RawImageExtension"; "Microsoft.ScreenSketch"; "Microsoft.SecHealthUI"; "Microsoft.StorePurchaseApp";
                "Microsoft.Todos"; "Microsoft.WebMediaExtensions"; "Microsoft.WebpImageExtension"; "Microsoft.Whiteboard";
                "Microsoft.Windows.Photos"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsCalculator"; "Microsoft.WindowsCamera";
                "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsMaps"; "Microsoft.WindowsNotepad";
                "Microsoft.WindowsSoundRecorder"; "Microsoft.Xbox.TCUI"; "Microsoft.XboxIdentityProvider";
                "Microsoft.XboxSpeechToTextOverlay"; "Microsoft.ZuneMusic"; "Microsoft.ZuneVideo";
                "MicrosoftCorporationII.QuickAssist";

            )

        }

    @{

        Name = @( "CloudEditionN"; )

        Apps = @(

            "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.NET.Native.Framework.2.2";
            "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00"; "Microsoft.VCLibs.140.00.UWPDesktop";
            "Microsoft.Services.Store.Engagement"; "Microsoft.XboxSpeechToTextOverlay"; "Clipchamp.Clipchamp";
            "Microsoft.BingNews"; "Microsoft.BingWeather"; "Microsoft.DesktopAppInstaller"; "Microsoft.GetHelp";
            "Microsoft.Getstarted"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.MicrosoftStickyNotes";
            "Microsoft.MinecraftEducationEdition"; "Microsoft.Paint"; "Microsoft.ScreenSketch"; "Microsoft.SecHealthUI";
            "Microsoft.StorePurchaseApp"; "Microsoft.Whiteboard"; "Microsoft.Windows.Photos"; "Microsoft.WindowsAlarms";
            "Microsoft.WindowsCalculator"; "Microsoft.WindowsCamera"; "Microsoft.WindowsFeedbackHub";
            "Microsoft.WindowsMaps"; "Microsoft.WindowsNotepad"; "Microsoft.XboxIdentityProvider";
            "MicrosoftCorporationII.QuickAssist";

        )

    }

    @{

        Name = @(

            "Core"; "CoreN"; "CoreSingleLanguage";

        )

        Apps = @(

            "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.NET.Native.Framework.2.2";

```

```
"Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00"; "Microsoft.VCLibs.140.00.UWPDesktop";
"Microsoft.HEIFImageExtension"; "Microsoft.HEVCVideoExtension"; "Microsoft.SecHealthUI";
"Microsoft.VP9VideoExtensions"; "Microsoft.WebplImageExtension"; "Microsoft.WindowsStore"; "Microsoft.GamingApp";
"Microsoft.MicrosoftStickyNotes"; "Microsoft.Paint"; "Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch";
"Microsoft.WindowsNotepad"; "Microsoft.WindowsTerminal"; "Clipchamp.Clipchamp";
"Microsoft.MicrosoftSolitaireCollection"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsFeedbackHub";
"Microsoft.WindowsMaps"; "Microsoft.ZuneMusic"; "Microsoft.BingNews"; "Microsoft.BingWeather";
"Microsoft.DesktopAppInstaller"; "Microsoft.WindowsCamera"; "Microsoft.Getstarted"; "Microsoft.Cortana";
"Microsoft.GetHelp"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.People"; "Microsoft.StorePurchaseApp";
"Microsoft.Todos"; "Microsoft.WebMediaExtensions"; "Microsoft.Windows.Photos"; "Microsoft.WindowsCalculator";
"Microsoft.windowscommunicationsapps"; "Microsoft.WindowsSoundRecorder"; "Microsoft.Xbox.TCUI";
"Microsoft.XboxGameOverlay"; "Microsoft.XboxGamingOverlay"; "Microsoft.XboxIdentityProvider";
"Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone"; "Microsoft.ZuneVideo";
"MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience"; "Microsoft.RawImageExtension";
"MicrosoftCorporationII.MicrosoftFamily";
```

```
    )
}

@{
    Name = @(
        "Education"; "Professional"; "ProfessionalEducation"; "ProfessionalWorkstation"; "Enterprise"; "IoTEnterprise";
        "ServerRdsh";
    )
}

Apps = @(
    "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.NET.Native.Framework.2.2";
    "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00"; "Microsoft.VCLibs.140.00.UWPDesktop";
    "Microsoft.HEIFImageExtension"; "Microsoft.HEVCVideoExtension"; "Microsoft.SecHealthUI";
    "Microsoft.VP9VideoExtensions"; "Microsoft.WebplImageExtension"; "Microsoft.WindowsStore"; "Microsoft.GamingApp";
    "Microsoft.MicrosoftStickyNotes"; "Microsoft.Paint"; "Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch";
    "Microsoft.WindowsNotepad"; "Microsoft.WindowsTerminal"; "Clipchamp.Clipchamp";
    "Microsoft.MicrosoftSolitaireCollection"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsFeedbackHub";
    "Microsoft.WindowsMaps"; "Microsoft.ZuneMusic"; "Microsoft.BingNews"; "Microsoft.BingWeather";
    "Microsoft.DesktopAppInstaller"; "Microsoft.WindowsCamera"; "Microsoft.Getstarted"; "Microsoft.Cortana";
    "Microsoft.GetHelp"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.People"; "Microsoft.StorePurchaseApp";
    "Microsoft.Todos"; "Microsoft.WebMediaExtensions"; "Microsoft.Windows.Photos"; "Microsoft.WindowsCalculator";
    "Microsoft.windowscommunicationsapps"; "Microsoft.WindowsSoundRecorder"; "Microsoft.Xbox.TCUI";
    "Microsoft.XboxGameOverlay"; "Microsoft.XboxGamingOverlay"; "Microsoft.XboxIdentityProvider";
    "Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone"; "Microsoft.ZuneVideo";
    "MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience"; "Microsoft.RawImageExtension";
    )
}
```

```
@{
    Name = @(
        "EnterpriseN"; "EnterpriseGN"; "EnterpriseSN"; "ProfessionalN"; "EducationN"; "ProfessionalWorkstationN";
        "ProfessionalEducationN"; "CloudN"; "CloudEN"; "CloudEditionLN"; "StarterN";
    )
}

Apps = @(
    "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.NET.Native.Framework.2.2";
    "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00"; "Microsoft.VCLibs.140.00.UWPDesktop";
    "Microsoft.HEIFImageExtension"; "Microsoft.HEVCVideoExtension"; "Microsoft.SecHealthUI";
    "Microsoft.VP9VideoExtensions"; "Microsoft.WebplImageExtension"; "Microsoft.WindowsStore"; "Microsoft.GamingApp";
    "Microsoft.MicrosoftStickyNotes"; "Microsoft.Paint"; "Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch";
    "Microsoft.WindowsNotepad"; "Microsoft.WindowsTerminal"; "Clipchamp.Clipchamp";
    "Microsoft.MicrosoftSolitaireCollection"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsFeedbackHub";
    "Microsoft.WindowsMaps"; "Microsoft.ZuneMusic"; "Microsoft.BingNews"; "Microsoft.BingWeather";
    "Microsoft.DesktopAppInstaller"; "Microsoft.WindowsCamera"; "Microsoft.Getstarted"; "Microsoft.Cortana";
    "Microsoft.GetHelp"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.People"; "Microsoft.StorePurchaseApp";
    "Microsoft.Todos"; "Microsoft.WebMediaExtensions"; "Microsoft.Windows.Photos"; "Microsoft.WindowsCalculator";
    "Microsoft.windowscommunicationsapps"; "Microsoft.WindowsSoundRecorder"; "Microsoft.Xbox.TCUI";
    "Microsoft.XboxGameOverlay"; "Microsoft.XboxGamingOverlay"; "Microsoft.XboxIdentityProvider";
    "Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone"; "Microsoft.ZuneVideo";
    "MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience"; "Microsoft.RawImageExtension";
    )
}
```

```
@{
    Name = @(
        "EnterpriseN"; "EnterpriseGN"; "EnterpriseSN"; "ProfessionalN"; "EducationN"; "ProfessionalWorkstationN";
        "ProfessionalEducationN"; "CloudN"; "CloudEN"; "CloudEditionLN"; "StarterN";
    )
}

Apps = @(
    "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.NET.Native.Framework.2.2";
    "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00"; "Microsoft.VCLibs.140.00.UWPDesktop";
    "Microsoft.HEIFImageExtension"; "Microsoft.HEVCVideoExtension"; "Microsoft.SecHealthUI";
    "Microsoft.VP9VideoExtensions"; "Microsoft.WebplImageExtension"; "Microsoft.WindowsStore"; "Microsoft.GamingApp";
    "Microsoft.MicrosoftStickyNotes"; "Microsoft.Paint"; "Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch";
    "Microsoft.WindowsNotepad"; "Microsoft.WindowsTerminal"; "Clipchamp.Clipchamp";
    "Microsoft.MicrosoftSolitaireCollection"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsFeedbackHub";
    "Microsoft.WindowsMaps"; "Microsoft.ZuneMusic"; "Microsoft.BingNews"; "Microsoft.BingWeather";
    "Microsoft.DesktopAppInstaller"; "Microsoft.WindowsCamera"; "Microsoft.Getstarted"; "Microsoft.Cortana";
    "Microsoft.GetHelp"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.People"; "Microsoft.StorePurchaseApp";
    "Microsoft.Todos"; "Microsoft.WebMediaExtensions"; "Microsoft.Windows.Photos"; "Microsoft.WindowsCalculator";
    "Microsoft.windowscommunicationsapps"; "Microsoft.WindowsSoundRecorder"; "Microsoft.Xbox.TCUI";
    "Microsoft.XboxGameOverlay"; "Microsoft.XboxGamingOverlay"; "Microsoft.XboxIdentityProvider";
    "Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone"; "Microsoft.ZuneVideo";
    "MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience"; "Microsoft.RawImageExtension";
    )
}
```

```

        "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.NET.Native.Framework.2.2";
"Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00"; "Microsoft.VCLibs.140.00.UWPDesktop";
"Microsoft.SecHealthUI"; "Microsoft.WindowsStore"; "Microsoft.MicrosoftStickyNotes"; "Microsoft.Paint";
"Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch"; "Microsoft.WindowsNotepad";
"Microsoft.WindowsTerminal"; "Clipchamp.Clipchamp"; "Microsoft.MicrosoftSolitaireCollection";
"Microsoft.WindowsAlarms"; "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsMaps"; "Microsoft.BingNews";
"Microsoft.BingWeather"; "Microsoft.DesktopAppInstaller"; "Microsoft.WindowsCamera"; "Microsoft.Getstarted";
"Microsoft.Cortana"; "Microsoft.GetHelp"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.People";
"Microsoft.StorePurchaseApp"; "Microsoft.Todos"; "Microsoft.Windows.Photos"; "Microsoft.WindowsCalculator";
"Microsoft.windowscommunicationsapps"; "Microsoft.XboxGameOverlay"; "Microsoft.XboxIdentityProvider";
"Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone"; "MicrosoftCorporationII.QuickAssist";
"MicrosoftWindows.Client.WebExperience";

    )

}

)

Rule = @(

    @{ Name="Microsoft.UI.Xaml.2.3"; Match="UI.Xaml*{ARCHTag}*2.3";License="UI.Xaml*{ARCHTag}*2.3";
Dependencies=@(); }

    @{ Name="Microsoft.UI.Xaml.2.4"; Match="UI.Xaml*{ARCHTag}*2.4";License="UI.Xaml*{ARCHTag}*2.4";
Dependencies=@(); }

    @{ Name="Microsoft.UI.Xaml.2.7"; Match="UI.Xaml*{ARCHTag}*2.7";License="UI.Xaml*{ARCHTag}*2.7";
Dependencies=@(); }

    @{ Name="Microsoft.NET.Native.Framework.2.2";
Match="Native.Framework*{ARCHTag}*2.2";License="Native.Framework*{ARCHTag}*2.2"; Dependencies=@(); }

    @{ Name="Microsoft.NET.Native.Runtime.2.2";
Match="Native.Runtime*{ARCHTag}*2.2";License="Native.Runtime*{ARCHTag}*2.2"; Dependencies=@(); }

    @{ Name="Microsoft.VCLibs.140.00"; Match="VCLibs*{ARCHTag}";License="VCLibs*{ARCHTag}"; Dependencies=@(); }

    @{ Name="Microsoft.VCLibs.140.00.UWPDesktop";
Match="VCLibs*{ARCHTag}*Desktop";License="VCLibs*{ARCHTag}*Desktop"; Dependencies=@(); }

    @{ Name="Microsoft.HEIFImageExtension"; Match="HEIFImageExtension";License="HEIFImageExtension*";
Dependencies=@("Microsoft.VCLibs.140.00"); }

    @{ Name="Microsoft.HEVCVideoExtension";
Match="HEVCVideoExtension*{ARCHC}";License="HEVCVideoExtension*{ARCHC}*xml";
Dependencies=@("Microsoft.VCLibs.140.00"); }

    @{ Name="Microsoft.SecHealthUI"; Match="SecHealthUI*{ARCHC}";License="SecHealthUI*{ARCHC}";
Dependencies=@("Microsoft.UI.Xaml.2.4","Microsoft.VCLibs.140.00"); }

    @{ Name="Microsoft.VP9VideoExtensions";
Match="VP9VideoExtensions*{ARCHC}";License="VP9VideoExtensions*{ARCHC}";
Dependencies=@("Microsoft.VCLibs.140.00"); }

    @{ Name="Microsoft.WebplImageExtension";
Match="WebplImageExtension*{ARCHC}";License="WebplImageExtension*{ARCHC}";
Dependencies=@("Microsoft.VCLibs.140.00"); }

    @{ Name="Microsoft.WindowsStore"; Match="WindowsStore";License="WindowsStore";
Dependencies=@("Microsoft.UI.Xaml.2.3","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Micr
rosoft.VCLibs.140.00"); }

```

```
@{ Name="Microsoft.GamingApp"; Match="GamingApp";License="GamingApp";
Dependencies=@("Microsoft.UI.Xaml.2.3","Microsoft.VCLibs.140.00","Microsoft.VCLibs.140.00.UWPDesktop"); }

@{ Name="Microsoft.MicrosoftStickyNotes"; Match="Microsoft.Sticky.Notes";License="MicrosoftStickyNotes";
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }

@{ Name="Microsoft.Paint"; Match="Paint";License="Paint";
Dependencies=@("Microsoft.VCLibs.140.00","Microsoft.VCLibs.140.00.UWPDesktop","Microsoft.UI.Xaml.2.7"); }

@{ Name="Microsoft.PowerAutomateDesktop"; Match="PowerAutomateDesktop";License="PowerAutomateDesktop";
Dependencies=@("Microsoft.VCLibs.140.00.UWPDesktop"); }

@{ Name="Microsoft.ScreenSketch"; Match="ScreenSketch";License="ScreenSketch";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.VCLibs.140.00"); }

@{ Name="Microsoft.WindowsNotepad"; Match="WindowsNotepad";License="WindowsNotepad";
Dependencies=@("Microsoft.VCLibs.140.00","Microsoft.VCLibs.140.00.UWPDesktop","Microsoft.UI.Xaml.2.7"); }

@{ Name="Microsoft.WindowsTerminal"; Match="WindowsTerminal";License="WindowsTerminal";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.VCLibs.140.00.UWPDesktop"); }

@{ Name="Clipchamp.Clipchamp"; Match="Clipchamp.Clipchamp";License="Clipchamp.Clipchamp";
Dependencies=@(); }

@{ Name="Microsoft.MicrosoftSolitaireCollection";
Match="MicrosoftSolitaireCollection";License="MicrosoftSolitaireCollection";
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }

@{ Name="Microsoft.WindowsAlarms"; Match="WindowsAlarms";License="WindowsAlarms";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }

@{ Name="Microsoft.WindowsFeedbackHub"; Match="WindowsFeedbackHub";License="WindowsFeedbackHub";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }

@{ Name="Microsoft.WindowsMaps"; Match="WindowsMaps";License="WindowsMaps";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }

@{ Name="Microsoft.ZuneMusic"; Match="ZuneMusic";License="ZuneMusic";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.VCLibs.140.00"); }

@{ Name="MicrosoftCorporationII.MicrosoftFamily"; Match="MicrosoftFamily";License="MicrosoftFamily";
Dependencies=@(); }

@{ Name="Microsoft.BingNews"; Match="BingNews";License="BingNews";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }

@{ Name="Microsoft.BingWeather"; Match="BingWeather";License="BingWeather";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }

@{ Name="Microsoft.DesktopAppInstaller"; Match="DesktopAppInstaller";License="DesktopAppInstaller";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.VCLibs.140.00.UWPDesktop"); }

@{ Name="Microsoft.WindowsCamera"; Match="WindowsCamera";License="WindowsCamera";
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }

@{ Name="Microsoft.Getstarted"; Match="Getstarted";License="Getstarted";
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.Cortana"; Match="Cortana";License="Cortana";  
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00","  
Microsoft.VCLibs.140.00.UWPDesktop"); }
```

```
@{ Name="Microsoft.GetHelp"; Match="GetHelp";License="GetHelp";  
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Micr  
osoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.MicrosoftOfficeHub"; Match="MicrosoftOfficeHub";License="MicrosoftOfficeHub";  
Dependencies=@("Microsoft.VCLibs.140.00","Microsoft.VCLibs.140.00.UWPDesktop"); }
```

```
@{ Name="Microsoft.People"; Match="People";License="People";  
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.StorePurchaseApp"; Match="StorePurchaseApp";License="StorePurchaseApp";  
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.Todos"; Match="Todos";License="Todos";  
Dependencies=@("Microsoft.UI.Xaml.2.4","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Micr  
osoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.WebMediaExtensions"; Match="WebMediaExtensions";License="WebMediaExtensions";  
Dependencies=@("Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.Windows.Photos"; Match="Windows.Photos";License="Windows.Photos";  
Dependencies=@("Microsoft.UI.Xaml.2.4","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Micr  
osoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.WindowsCalculator"; Match="WindowsCalculator";License="WindowsCalculator";  
Dependencies=@("Microsoft.UI.Xaml.2.4","Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.windowscommunicationsapps";  
Match="WindowsCommunicationsApps";License="WindowsCommunicationsApps";  
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.WindowsSoundRecorder"; Match="WindowsSoundRecorder";License="WindowsSoundRecorder";  
Dependencies=@("Microsoft.UI.Xaml.2.3","Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.Xbox.TCUI"; Match="Xbox.TCUI";License="Xbox.TCUI";  
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.XboxGameOverlay"; Match="XboxGameOverlay";License="XboxGameOverlay";  
Dependencies=@("Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.XboxGamingOverlay"; Match="XboxGamingOverlay";License="XboxGamingOverlay";  
Dependencies=@("Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.XboxIdentityProvider"; Match="XboxIdentityProvider";License="XboxIdentityProvider";  
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.XboxSpeechToTextOverlay";  
Match="XboxSpeechToTextOverlay";License="XboxSpeechToTextOverlay"; Dependencies=@("Microsoft.VCLibs.140.00"); }
```

```
@{ Name="Microsoft.YourPhone"; Match="YourPhone";License="YourPhone";  
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00","  
Microsoft.VCLibs.140.00.UWPDesktop"); }
```

```
@{ Name="Microsoft.ZuneVideo"; Match="ZuneVideo";License="ZuneVideo";  
Dependencies=@("Microsoft.UI.Xaml.2.7","Microsoft.VCLibs.140.00"); }
```

```
@{ Name="MicrosoftCorporationII.QuickAssist"; Match="QuickAssist";License="QuickAssist"; Dependencies=@(); }
```

```
@{ Name="MicrosoftWindows.Client.WebExperience"; Match="WebExperience";License="WebExperience";
```

```
Dependencies=@("Microsoft.VCLibs.140.00"); }

    @{ Name="Microsoft.MinecraftEducationEdition";
Match="MinecraftEducationEdition";License="MinecraftEducationEdition";
Dependencies=@("Microsoft.VCLibs.140.00.UWPDesktop"); }

    @{ Name="Microsoft.Whiteboard"; Match="Whiteboard";License="Whiteboard";
Dependencies=@("Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Microsoft.VCLibs.140.00"); }

    @{ Name="Microsoft.RawImageExtension"; Match="RawImageExtension"; License="RawImageExtension";
Dependencies=@(); }

)

}

$Allow_Install_App = @()

ForEach ($item in $Pre_Config_Rules.Edition) {

    if ($item.Name -contains $Current_Edition_Version) {

        Write-host "`n  Match to: "-NoNewline; Write-host $Current_Edition_Version -ForegroundColor Green

        $Allow_Install_App = $item.Apps

        break

    }

}

Write-host "`n  The app to install ( $($Allow_Install_App.Count) item )" -ForegroundColor Yellow

Write-host "  $('-' * 80)"

ForEach ($item in $Allow_Install_App) {

    Write-host "  $($item)" -ForegroundColor Green

}

Function Match_InBox_Apps_Install_Pack

{

    param ( $NewPath )

    $NewArch = $Arch

    $NewArchC = $Arch.Replace("AMD64", "x64")

    $NewArchCTag = $Arch.Replace("AMD64", "x64")

    if ($Arch -eq "arm64") { $NewArchCTag = "arm" }

    if ($Pre_Config_Rules.Rule.Count -gt 0) {

        ForEach ($itemInBoxApps in $Pre_Config_Rules.Rule){

            $InstallPacker = ""

            $InstallPackerCert = ""

            $SearchNewStructure = $itemInBoxApps.Match.Replace("{ARCH}", $NewArch).Replace("{ARCHC}",
$NewArchC).Replace("{ARCHTag}", $NewArchCTag)
```

```

        $SearchNewLicense = $itemInBoxApps.License.Replace("{ARCH}", $NewArch).Replace("{ARCHC}",
$NewArchC).Replace("{ARCHTag}", $NewArchCTag)

        Get-ChildItem -Path $NewPath -Filter "*$($SearchNewStructure)*" -Include "*.appx", "*.appxbundle", "*.msixbundle"
-Recurse -Force -ErrorAction SilentlyContinue | ForEach-Object {

            if (Test-Path -Path $_.FullName -PathType Leaf) {

                $InstallPacker = $_.FullName

                Get-ChildItem -Path $NewPath -Filter "*$($SearchNewLicense)*" -Include *.xml -Recurse -Force -ErrorAction
SilentlyContinue | ForEach-Object {

                    $InstallPackerCert = $_.FullName

                }

                $Script:InBoxAppx += @{

                    Name      = $itemInBoxApps.Name;

                    Depend    = $itemInBoxApps.Dependencies;

                    Search    = $SearchNewStructure;

                    InstallPacker = $InstallPacker;

                    Certificate = $InstallPackerCert

                    CertificateRule = $SearchNewLicense

                }

                return

            }

        }

    }

}

Write-host "`n InBox Apps: Installation packages, automatic search for full disk or specified paths" -ForegroundColor
Yellow

Write-host " $('-' * 80)"

$Script:InBoxAppx = @()

if ($ISO -eq "Auto") {

    Get-PSDrive -PSProvider FileSystem -ErrorAction SilentlyContinue | ForEach-Object {

        $AppPath = Join-Path -Path $_.Root -ChildPath "packages" -ErrorAction SilentlyContinue

        Match_InBox_Apps_Install_Pack -NewPath $AppPath

    }

} else {

    Match_InBox_Apps_Install_Pack -NewPath $ISO

}

```



```
Write-host " Search Complete" -ForegroundColor Green

Write-host "`n InBox Apps: Installer Match Results" -ForegroundColor Yellow

Write-host " $('-' * 80)"

if ($Script:InBoxAppx.Count -gt 0) {

    Write-host " Match successful" -ForegroundColor Green

} else {

    Write-host " Failed match" -ForegroundColor Red

    return

}

Write-host "`n InBox Apps: Details of the application to be installed ( $($Script:InBoxAppx.Count) item )" -ForegroundColor Yellow

Write-host " $('-' * 80)"

ForEach ($Rule in $Script:InBoxAppx) {

    Write-host " Apps name: " -NoNewline; Write-host $Rule.Name -ForegroundColor Yellow

    Write-host " Apps installer: " -NoNewline; Write-host $Rule.InstallPacker -ForegroundColor Yellow

    Write-host " License: " -NoNewline; Write-host $Rule.Certificate -ForegroundColor Yellow

    Write-host ""

}

Write-host "`n InBox Apps: Installation" -ForegroundColor Yellow

Write-host " $('-' * 80)"

ForEach ($Rule in $Script:InBoxAppx) {

    Write-host " Name: " -NoNewline; Write-host $Rule.Name -ForegroundColor Yellow

    Write-host " $('-' * 80)"

    if($Allow_Install_App -contains $Rule.Name) {

        Write-host " Search for apps: " -NoNewline; Write-host $Rule.InstallPacker -ForegroundColor Yellow

        Write-host " Search for License: " -NoNewline; Write-host $Rule.Certificate -ForegroundColor Yellow

        if (Test-Path -Path $Rule.InstallPacker -PathType Leaf) {

            if (Test-Path -Path $Rule.Certificate -PathType Leaf) {

                Write-host " License: " -NoNewline

                Write-host $Rule.Certificate -ForegroundColor Yellow

                Write-host " With License".PadRight(22) -NoNewline -ForegroundColor Green

                Write-host " Installing".PadRight(22) -NoNewline

                try{

                    Add-AppxProvisionedPackage -Path $Mount -PackagePath $Rule.InstallPacker -LicensePath $Rule.Certificate -

ErrorAction SilentlyContinue | Out-Null
```

```

        Write-Host "Done`n" -ForegroundColor Green

    } catch {

        Write-Host "Failed" -ForegroundColor Red

        Write-Host "  $($_)`n" -ForegroundColor Red

    }

} else {

    Write-host "  No License".PadRight(22) -NoNewline -ForegroundColor Red

    Write-host "  Installing".PadRight(22) -NoNewline

    try {

        Add-AppxProvisionedPackage -Path $Mount -PackagePath $Rule.InstallPacker -SkipLicense -ErrorAction
        SilentlyContinue | Out-Null

        Write-Host "Done`n" -ForegroundColor Green

    } catch {

        Write-Host "Failed" -ForegroundColor Red

        Write-Host "  $($_)`n" -ForegroundColor Red

    }

}

} else {

    Write-host "  The installation package does not exist" -ForegroundColor Red

}

} else {

    Write-host "  Skip the installation`n" -ForegroundColor Red

}

}

```

5.5. InBox Apps：优化

在安装应用后，应优化预配 Appx 包，通过用硬链接替换相同的文件来减少应用的磁盘使用量，仅针对脱机映像。

```
Dism /Image:"D:\OS_11_Custom\Install\Install\Mount" /Optimize-ProvisionedAppxPackages
```

6. 累积更新

- 不同版本、旧版本升级到最新版时，需优先添加“功能启用包”后才能添加最新版累积更新；
- 添加语言包后，可安装与初始版本相同的累积更新，以解决安装后未刷新“组件：映像中已安装的所有包”状态的已知问题；
- 为保持最新，推荐您下载最新版。

6.1. 初始版本

6.1.1. 如何下载

累积更新 KB5016632 已无法从 <https://www.catalog.update.microsoft.com/Search.aspx?q=KB5016632> 里搜索到。

6.1.1.1. 任选一个网站并打开：

6.1.1.1.1. <https://uupdump.net>

6.1.1.1.2. <https://uup.ee>

6.1.1.1.3. <https://osdump.com>

6.1.1.2. 打开后，搜索关键词：22621.382，在搜索结果选择：Windows 11, version 22H2 (22621.382) amd64 或 Windows 11, version 22H2 (22621.382) arm64

6.1.1.3. 打开后，选择“全部文件”；

6.1.1.4. 在“全部文件”页面里搜索：KB5016632，下载：

- Windows11.0-KB5016632-x64.cab
- Windows11.0-KB5016632-x64.psf

6.1.1.5. 累积更新：合并

6.1.1.5.1. 前往 <https://github.com/abbodi1406/WHd/tree/master/scripts> 后下载 PSFX_Repack_6.zip

6.1.1.5.2. 下载后解压到：D:\PSFX_Repack_6

6.1.1.5.3. 复制 Windows11.0-KB5016632-x64.cab、Windows11.0-KB5016632-x64.psf 到：
D:\PSFX_Repack_6

6.1.1.5.4. 运行：psfx2cab_GUI.cmd 后，将得到一个新的文件：

Windows11.0-KB5016632-x64-full_psfx.cab

6.1.1.5.5. 将 Windows11.0-KB5016632-x64-full_psfx.cab 保存到：

D:\OS_11_Custom\Install\Install\Update\Windows11.0-KB5016632-x64-full_psfx.cab

6.1.2. 添加

```
$KBPath = "D:\OS_11_Custom\Install\Install\Update\Windows11.0-KB5016632-x64-full_psfx.cab"
```

```
Add-WindowsPackage -Path "D:\OS_11_Custom\Install\Install\Mount" -PackagePath $KBPath
```

6.2. 其它版本

查阅“Windows 11 版本信息”，例如下载累积更新：KB5035853，版本号：22621.3296，前往下载页面：

<https://www.catalog.update.microsoft.com/Search.aspx?q=KB5035853>，下载后保存到：D:\OS_11_Custom\Install\Install\Update，

或通过直连下载，根据架构选择下载：

6.2.1. x64, 默认

- 直连下载

https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/594b22d5-84c3-4665-bdc7-3167c91759b9/public/windows11.0-kb5035853-x64_8ca1a9a646dbe25c071a8057f249633a61929efa.msu

- 添加

```
$KBPath = "D:\OS_11_Custom\Install\Install\Update\windows11.0-kb5035853-x64_8ca1a9a646dbe25c071a8057f249633a61929efa.msu"

Add-WindowsPackage -Path "D:\OS_11_Custom\Install\Install\Mount" -PackagePath $KBPath
```

6.3. 固化更新

固化后不可卸载，固化时将清理恢复映像并重置任何被取代的组件的基础。

```
Dism /Image:"D:\OS_11_Custom\Install\Install\Mount" /cleanup-image /StartComponentCleanup /ResetBase
```

6.3.1. 固化更新后清理组件

```
$Mount = "D:\OS_11_Custom\Install\Install\Mount"

Get-WindowsPackage -Path $Mount -ErrorAction SilentlyContinue | ForEach-Object {

    if ($_.PackageState -eq "Superseded"){

        Write-Host " $($_.PackageName)" -ForegroundColor Green

        Remove-WindowsPackage -Path $Mount -PackageName $_.PackageName | Out-Null

    }

}
```

7. 部署引擎：添加

- 了解“[部署引擎](#)”，如果添加到 ISO 安装介质，可跳过添加到已挂载；
- 如果添加部署引擎到已挂载里，请继续在当前位置执行下一步。

8. 健康

保存前应检查是否损坏，健康状态异常时，中止保存

```
Repair-WindowsImage -Path "D:\OS_11_Custom\Install\Install\Mount" -ScanHealth
```

9. 替换 WinRE.wim

已批量替换 Install.wim 里的所有索引号里的 WinRE.wim 请跳过该步骤。

```
$WinRE = "D:\OS_11_Custom\Install\Install\Update\Winlib\WinRE.wim"

$CopyTo = "D:\OS_11_Custom\Install\Install\Mount\Windows\System32\Recovery"

Copy-Item -Path $WinRE -Destination $CopyTo -Force
```

10. 保存映像：Install.wim

```
Save-WindowsImage -Path "D:\OS_11_Custom\Install\Install\Mount"
```

11. 卸载映像：Install.wim

关闭所有可能正在访问映像中文件的应用程序，包括文件资源管理器。

```
Dismount-WindowsImage -Path "D:\OS_11_Custom\Install\Install\Mount" -Discard
```

循环操作区域，结束。

12. 如何批量替换 Install.wim 里的所有索引号里的 WinRE.wim

12.1. 获取 WimLib

前往 <https://wimlib.net> 官方网站后，选择不同的版本：[arm64](#), [x64](#), [x86](#)，下载完成后解压到：[D:\Wimlib](#)

12.2. 如何在 Install.wim 里提取和更新 WinRE.wim

12.2.1. 从 Install.wim 里提取 WinRE.wim 文件 Install.wim

- Install.WinRE.Replace.wim.ps1
 - [\Expand\Install\Install.WinRE.Replace.wim.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Install/Install.WinRE.Replace.wim.ps1

- 复制代码

```
$Arguments = @(

    "extract",

    "D:\OS_11\sources\install.wim", "1",

    "\Windows\System32\Recovery\Winre.wim",

    "--dest-dir=""D:\OS_11_Custom\Install\Install\Update\Winlib""")

New-Item -Path "D:\OS_11_Custom\Install\Install\Update\Winlib" -ItemType Directory -ea SilentlyContinue

Start-Process -FilePath "d:\wimlib\wimlib-imagex.exe" -ArgumentList $Arguments -wait -nonewwindow
```

12.2.2. 获取 Install.wim 所有索引号后并替换旧的 WinRE.wim

- Install.WinRE.Replace.wim.ps1
 - [\Expand\Install\Install.WinRE.Replace.wim.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Install/Install.WinRE.Replace.wim.ps1
- 复制代码

```
Get-WindowsImage -ImagePath "D:\OS_11\sources\install.wim" -ErrorAction SilentlyContinue | ForEach-Object {  
  
    Write-Host "  Image name: " -NoNewline; Write-Host $_.ImageName -ForegroundColor Yellow  
  
    Write-Host "  The index number: " -NoNewline; Write-Host $_.ImageIndex -ForegroundColor Yellow  
  
    Write-Host "`n  Replacement "  
  
    $Arguments = @(  
  
        "update",  
  
        "D:\OS_11\sources\install.wim", $_.ImageIndex,  
  
        "--command=""add 'D:\OS_11_Custom\Install\Install\Update\Winlib\WinRE.wim'  
        '\Windows\System32\Recovery\WinRe.wim'"""  
  
    )  
  
    Start-Process -FilePath "d:\wimlib\wimlib-imagex.exe" -ArgumentList $Arguments -wait -nonewwindow  
  
    Write-Host "  Finish`n" -ForegroundColor Green  
  
}
```

13. 重建 Install.wim 后可缩小文件大小

- Install.Rebuild.wim.ps1
 - [\Expand\Install\Install.Rebuild.wim.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Install/Install.Rebuild.wim.ps1
- 复制代码

```
$InstallWim = "D:\OS_11\sources\install.wim"  
  
Get-WindowsImage -ImagePath $InstallWim -ErrorAction SilentlyContinue | ForEach-Object {  
  
    Write-Host "  Image name: " -NoNewline  
  
    Write-Host $_.ImageName -ForegroundColor Yellow  
  
    Write-Host "  The index number: " -NoNewline  
  
    Write-Host $_.ImageIndex -ForegroundColor Yellow  
  
    Write-Host "`n  Under reconstruction".PadRight(28) -NoNewline  
  
    Export-WindowsImage -SourceImagePath $InstallWim -SourceIndex $_.ImageIndex -DestinationImagePath "$($InstallWim).New" -
```

```
CompressionType max | Out-Null

Write-Host "Finish`n" -ForegroundColor Green

}

if (Test-Path "$($InstallWim).New" -PathType Leaf) {

    Remove-Item -Path $InstallWim

    Move-Item -Path "$($InstallWim).New" -Destination $InstallWim

    Write-Host "Finish" -ForegroundColor Green

} else {

    Write-host "Failed" -ForegroundColor Red

}
```

III 自定义封装：boot.wim

1. 查看 Boot.wim 文件信息

映像名称、映像描述、映像大小、架构、版本、索引号等；

```
$ViewFile = "D:\OS_11\Sources\Boot.wim"

Get-WindowsImage -ImagePath $ViewFile | Foreach-Object { Get-WindowsImage -ImagePath $ViewFile -index $_.ImageIndex }
```

2. 指定挂载 Boot.wim 路径

```
New-Item -Path "D:\OS_11_Custom\Boot\Boot\Mount" -ItemType directory -ea SilentlyContinue
```

3. 开始挂载 Boot.wim

默认索引号：2

```
Mount-WindowsImage -ImagePath "D:\OS_11\sources\boot.wim" -Index "2" -Path "D:\OS_11_Custom\Boot\Boot\Mount"
```

4. 语言包

- 自动安装语言包：获取“组件：映像中已安装的所有包”后进行匹配，匹配到对应的名称后，再安装本地对应的语言包文件，查看报告“[语言安装包适用于 Boot.wim](#)”。
- 添加语言时，须对应不同的架构版本，未对应时，添加过程中报错等提示。

4.1. 语言包：添加

- Boot.Instl.lang.ps1
 - [\Expand\Boot\Boot.Instl.lang.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Boot/Boot.Instl.lang.ps1

- 复制代码

```
$Mount = "D:\OS_11_Custom\Boot\Boot\Mount"

$Sources = "D:\OS_11_Custom\Boot\Boot\Language\Add\zh-CN"

$Initl_install_Language_Component = @()

Get-WindowsPackage -Path $Mount | ForEach-Object {

    $Initl_install_Language_Component += $_.PackageName

}

Add-WindowsPackage -Path $Mount -PackagePath "$($Sources)\WinPE-FontSupport-zh-CN.cab"

$Language_List = @(

    @{ Match = "*WinPE*Setup*Client*Package*"; File = "WINPE-SETUP-CLIENT_zh-CN.CAB"; }

    @{ Match = "*WinPE*Setup*Package*"; File = "WinPE-Setup_zh-CN.cab"; }

    @{ Match = "*WinPE-LanguagePack-Package*"; File = "lp.cab"; }

    @{ Match = "*SecureStartup*"; File = "winpe-securestartup_zh-CN.cab"; }

    @{ Match = "*ATBroker*"; File = "winpe-atbroker_zh-CN.cab"; }

    @{ Match = "*AudioCore*"; File = "winpe-audiocore_zh-CN.cab"; }

    @{ Match = "*AudioDrivers*"; File = "winpe-audiodrivers_zh-CN.cab"; }

    @{ Match = "*EnhancedStorage*"; File = "winpe-enhancedstorage_zh-CN.cab"; }

    @{ Match = "*Narrator*"; File = "winpe-narrator_zh-CN.cab"; }

    @{ Match = "*scripting*"; File = "winpe-scripting_zh-CN.cab"; }

    @{ Match = "*Speech-TTS*"; File = "winpe-speech-tts_zh-CN.cab"; }

    @{ Match = "*srh*"; File = "winpe-srh_zh-CN.cab"; }

    @{ Match = "*srt*"; File = "winpe-srt_zh-CN.cab"; }

    @{ Match = "*wds-tools*"; File = "winpe-wds-tools_zh-CN.cab"; }

    @{ Match = "*-WMI-Package*"; File = "winpe-wmi_zh-CN.cab"; }

)

ForEach ($Rule in $Language_List) {

    Write-host "`n Rule name: $($Rule.Match)" -ForegroundColor Yellow; Write-host "  $('-' * 80)"

    ForEach ($Component in $Initl_install_Language_Component) {

        if ($Component -like "*$($Rule.Match)*") {

            Write-host "  Component name: " -NoNewline; Write-host $Component -ForegroundColor Green

            Write-host "  Language pack file: " -NoNewline; Write-host "$($Sources)\$($Rule.File)" -ForegroundColor Green

            Write-Host "  Installing ".PadRight(22) -NoNewline

            try{

                Add-WindowsPackage -Path $Mount -PackagePath "$($Sources)\$($Rule.File)" | Out-Null

            } catch {

            }

        }

    }

}
```



```
Write-host "Finish" -ForegroundColor Green

} catch {

Write-host "Failed" -ForegroundColor Red

}

break

}

}

}
```

4.2. 组件：映像中已安装的所有包

4.2.1. 查看

```
Get-WindowsPackage -Path "D:\OS_11_Custom\Boot\Boot\Mount" | Out-GridView
```

4.2.2. 导出到 Csv

```
$SaveTo = "D:\OS_11_Custom\Boot\Boot\Report.${(Get-Date -Format "yyyyMMddHHmmss")}.csv"

Get-WindowsPackage -Path "D:\OS_11_Custom\Boot\Boot\Mount" | Export-CSV -NoType -Path $SaveTo

Write-host $SaveTo -ForegroundColor Green
```

4.3. 语言包：修复

4.3.1. 提取

打开：[D:\OS_11_Custom\Install\Install\Language\Add\zh-CN\Microsoft-Windows-Client-Language-Pack_x64_zh-CN.cab](#)，进入目录：[Setup\sources\zh-cn\cli](#)，复制以下文件到桌面：

- 4.3.1.1. [arunres.dll.mui](#)
- 4.3.1.2. [spwizres.dll.mui](#)
- 4.3.1.3. [w32uires.dll.mui](#)

4.3.2. 复制

将提取的文件复制到：[D:\OS_11_Custom\Boot\Boot\Mount\sources\zh-CN](#)

4.4. 语言包：同步到 ISO 安装程序

```
Copy-Item -Path "D:\OS_11_Custom\Boot\Boot\Mount\sources\zh-CN" -Destination "D:\OS_11\sources\zh-CN" -Recurse -Force
```

4.5. 重新生成 Lang.ini

重新生成后，可调整“安装界面”，选择“语言”时的顺序，打开 lang.ini，默认首选值 = 3，非默认值 = 2。

4.5.1. 重新生成已挂载目录 lang.ini

重新生成的 Lang.ini 文件位置：D:\OS_11_Custom\Boot\Boot\Mount\Sources\lang.ini

```
Dism /image:"D:\OS_11_Custom\Boot\Boot\Mount" /gen-langini /distribution:"D:\OS_11_Custom\Boot\Boot\Mount"
```

4.5.2. 重新生成 lang.ini 后，同步到安装程序

重新生成的 Lang.ini 文件位置：D:\OS_11\Sources\lang.ini

```
Dism /image:"D:\OS_11_Custom\Boot\Boot\Mount" /gen-langini /distribution:"D:\OS_11"
```

5. 其它

5.1. 绕过 TPM 安装时检查

- Boot.Bypass.TPM.ps1
 - \Expand\Boot\Boot.Bypass.TPM.ps1
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/Boot/Boot.Bypass.TPM.ps1

- 复制代码

```
$RegSystem = "D:\OS_11_Custom\Boot\Boot\Mount\Windows\System32\Config\SYSTEM"

$RandomGuid = [guid]::NewGuid()

Write-Host " HKLM:\$($RandomGuid)"

New-PSDrive -PSProvider Registry -Name OtherTasksTPM -Root HKLM -ErrorAction SilentlyContinue | Out-Null

Start-Process reg -ArgumentList "Load ""HKLM\$($RandomGuid)"" ""$($RegSystem)"" -Wait -WindowStyle Hidden -ErrorAction SilentlyContinue

New-Item "HKLM:\$($RandomGuid)\Setup\LabConfig" -force -ea SilentlyContinue | Out-Null

New-ItemProperty -LiteralPath "HKLM:\$($RandomGuid)\Setup\LabConfig" -Name "BypassCPUCheck" -Value 1 -PropertyType DWord -Force -ea SilentlyContinue | Out-Null

New-ItemProperty -LiteralPath "HKLM:\$($RandomGuid)\Setup\LabConfig" -Name "BypassStorageCheck" -Value 1 -PropertyType DWord -Force -ea SilentlyContinue | Out-Null

New-ItemProperty -LiteralPath "HKLM:\$($RandomGuid)\Setup\LabConfig" -Name "BypassRAMCheck" -Value 1 -PropertyType DWord -Force -ea SilentlyContinue | Out-Null

New-ItemProperty -LiteralPath "HKLM:\$($RandomGuid)\Setup\LabConfig" -Name "BypassTPMCheck" -Value 1 -PropertyType DWord -Force -ea SilentlyContinue | Out-Null

New-ItemProperty -LiteralPath "HKLM:\$($RandomGuid)\Setup\LabConfig" -Name "BypassSecureBootCheck" -Value 1 -PropertyType DWord -Force -ea SilentlyContinue | Out-Null

[gc]::collect()

Start-Process reg -ArgumentList "unload ""HKLM\$($RandomGuid)"" -Wait -WindowStyle Hidden -ErrorAction SilentlyContinue
```

Remove-PSDrive -Name OtherTasksTPM

6. 保存映像：Boot.wim

Save-WindowsImage -Path "D:\OS_11_Custom\Boot\Boot\Mount"

7. 卸载映像：Boot.wim

关闭所有可能正在访问映像中文件的应用程序，包括文件资源管理器。

Dismount-WindowsImage -Path "D:\OS_11_Custom\Boot\Boot\Mount" -Discard

IV 部署引擎

- 了解“自动添加 Windows 系统已安装的语言”，学习：<https://github.com/ilikeyi/Multilingual>，如何下载：
 - 进入网站后，点击“代码”，“下载压缩包”，下载完成后得到 main.zip 压缩包文件。
 - 前往 <https://github.com/ilikeyi/Multilingual/releases> 下载页面，选择可用版本：1.1.1.1，选择下载源代码格式：zip，下载完成后得到 Multilingual-1.1.1.1.zip 压缩包文件；
- 将已下载的 main.zip 或 Multilingual-1.1.1.1.zip，解压到：D:\Multilingual-1.1.1.1，重命名：D:\Multilingual
- 学习“无人值守 Windows 安装参考”，通过无人值守来干预安装过程。

1. 添加方式

1.1. 添加到 ISO 安装介质

1.1.1. 无人值守

1.1.1.1. 添加到：[ISO]:\Autounattend.xml

引导 ISO 安装时，Autounattend.xml 干预 WinPE 安装程序。

复制 D:\Multilingual_Learn\Unattend\Mul.Unattend.xml 到 D:\OS_11\Autounattend.xml

Copy-Item "D:\Multilingual_Learn\Unattend\Mul.Unattend.xml" -Destination "D:\OS_11\Autounattend.xml" -Force

1.1.1.2. 添加到：[ISO]:\Sources\Unattend.xml

挂载或解压 ISO 时，运行 [ISO]:\Setup.exe 安装程序后，[ISO]:\Sources\Unattend.xml 将干预安装过程。

复制 D:\Multilingual_Learn\Unattend\Mul.Unattend.xml 到 D:\OS_11\Sources\Unattend.xml

Copy-Item "D:\Multilingual_Learn\Unattend\Mul.Unattend.xml" -Destination "D:\OS_11\Sources\Unattend.xml" -Force

1.1.1.3. 添加到: [ISO]:\sources\\$OEM\$\\$\$\Panther\unattend.xml

安装过程中复制到系统盘里, 复制到: {系统盘}:\Windows\Panther\unattend.xml

1.1.1.3.1. 创建 \$OEM\$ 路径

```
New-Item -Path "D:\OS_11\sources\`$OEM$\`$$\Panther" -ItemType Directory
```

1.1.1.3.2. 复制

复制 D:\Multilingual\Learn\Unattend\Mul.Unattend.xml 到

D:\OS_11\Sources\\$OEM\$\Panther\Unattend.xml

```
Copy-Item "D:\Multilingual\Learn\Unattend\Mul.Unattend.xml" -Destination  
"D:\OS_11\sources\`$OEM$\`$$\Panther\Unattend.xml" -Force
```

1.1.2. 部署引擎: 添加

添加“自动添加 Windows 系统已安装的语言”到 D:\OS_11\sources\\$OEM\$\\$1\Yi\Engine 目录里。

1.1.2.1. 部署引擎: 复制

复制 D:\Multilingual\Engine 到 D:\OS_11\Sources\\$OEM\$\\$1\Yi\Engine

```
Copy-Item "D:\Multilingual\Engine" -Destination "D:\OS_11\sources\`$OEM$\`$1\Yi\Engine" -Recurse -Force
```

1.1.2.2. 部署引擎: 自定义部署标记

```
$Flag = @(

    "Is_Mark_Sync" # 允许全盘搜索并同步部署标记

    # 先决部署

    # "Auto_Update" # 允许自动更新

    # "Use_UTF8" # Beta 版: 使用 Unicode UTF-8 提供全球语言支持

    "Disable_Network_Location_Wizard" # 网络位置向导

    "Disable_Cleanup_Appx_Tasks" # Appx 清理维护任务

    "Disable_Cleanup_On_Demand_Language" # 阻止清理未使用的按需功能语言包

    "Disable_Cleanup_Unsed_Language" # 阻止清理未使用的语言包

    "Prerequisites_Reboot" # 重新启动计算机

    # 完成首次部署

    # "Popup_Engine" # 允许首次弹出部署引擎主界面
```

```
# "Allow_First_Pre_Experience" # 允许首次预体验，按计划

"Reset_Execution_Policy" # 恢复 PowerShell 执行策略：受限

"Clear_Solutions" # 删除整个解决方案

"Clear_Engine" # 删除部署引擎，保留其它

# "First_Experience_Reboot" # 重新启动计算机

)

ForEach ($item in $Flag) {

    Write-host " $($item)" -ForegroundColor Green

    New-Item -Path "D:\OS_11\sources\`$OEM$\`$1\Yi\Engine\Deploy\Allow" -ItemType Directory -ErrorAction SilentlyContinue | Out-Null

    Out-File -FilePath "D:\OS_11\sources\`$OEM$\`$1\Yi\Engine\Deploy\Allow\$( $item)" -Encoding utf8 -ErrorAction SilentlyContinue

}
```

1.2. 添加到已挂载

通过“自定义封装：Install.wim”，执行“开始挂载 Install.wim”，挂载到：D:\OS_11_Custom\Install\Install\Mount

1.2.1. 无人值守

复制 D:\Multilingual\Learn\Unattend\Mul.Unattend.xml 到 D:\OS_11_Custom\Install\Install\Mount\Panther\Unattend.xml

```
Copy-Item "D:\Multilingual\Learn\Unattend\Mul.Unattend.xml" -Destination "D:\OS_11_Custom\Install\Install\Mount\Panther" -Force
```

1.2.2. 部署引擎

添加“自动添加 Windows 系统已安装的语言”到 D:\OS_11_Custom\Install\Install\Mount\Yi\Engine 目录里。

1.2.2.1. 部署引擎：复制

复制 D:\Multilingual\Engine 到 D:\OS_11_Custom\Install\Install\Mount\Yi\Engine

```
Copy-Item "D:\Multilingual\Engine" -Destination "D:\OS_11_Custom\Install\Install\Mount\Yi\Engine" -Recurse -Force
```

1.2.2.2. 部署引擎：自定义部署标记

```
$Flag = @(

    "Is_Mark_Sync" # 允许全盘搜索并同步部署标记
```

```
# 先决部署

# "Auto_Update" # 允许自动更新

# "Use_UTF8" # Beta 版： 使用 Unicode UTF-8 提供全球语言支持

"Disable_Network_Location_Wizard" # 网络位置向导

"Disable_Cleanup_Appx_Tasks" # Appx 清理维护任务

"Disable_Cleanup_On_Demand_Language" # 阻止清理未使用的按需功能语言包

"Disable_Cleanup_Unsed_Language" # 阻止清理未使用的语言包

"Prerequisites_Reboot" # 重新启动计算机

# 完成首次部署

# "Popup_Engine" # 允许首次弹出部署引擎主界面

# "Allow_First_Pre_Experience" # 允许首次预体验，按计划

"Reset_Execution_Policy" # 恢复 PowerShell 执行策略：受限

"Clear_Solutions" # 删除整个解决方案

"Clear_Engine" # 删除部署引擎，保留其它

# "First_Experience_Reboot" # 重新启动计算机

)

ForEach ($item in $Flag) {

    Write-host " $($item)" -ForegroundColor Green

    New-Item -Path "D:\OS_11_Custom\Install\Install\Mount\Yi\Engine\Deploy\Allow" -ItemType Directory -
    ErrorAction SilentlyContinue | Out-Null

    Out-File -FilePath "D:\OS_11_Custom\Install\Install\Mount\Yi\Engine\Deploy\Allow\${$item)" -Encoding utf8 -
    ErrorAction SilentlyContinue

}
```

2. 部署引擎：进阶

2.1. 部署引擎：添加过程中

在复制部署引擎后，可添加部署标记来干预安装过程。

2.2. 无人值守方案

自定义无人值守时，以下文件存在时请同步修改：

- [D:\OS_11\Autounattend.xml](#)

- D:\OS_11\Sources\Unattend.xml
- D:\OS_11\sources\\$\OEM\$\\$\$\Panther\unattend.xml
- D:\OS_11_Custom\Install\Install\Mount\Panther\Unattend.xml

2.2.1. 多语言或单语

多语言时，单语时，可互相切换，替换时，请替换文件里所有相同的。

2.2.1.1. 多语言

```
<UILanguage>%OSDUILanguage%</UILanguage>

<InputLocale>%OSDInputLocale%</InputLocale>

<SystemLocale>%OSDSystemLocale%</SystemLocale>

<UILanguage>%OSDUILanguage%</UILanguage>

<UILanguageFallback>%OSDUILanguageFallback%</UILanguageFallback>

<UserLocale>%OSDUserLocale%</UserLocale>
```

2.2.1.2. 单语

单语需指定区域，例如指定区域：zh-CN

```
<UILanguage>zh-CN</UILanguage>

<InputLocale>zh-CN</InputLocale>

<SystemLocale>zh-CN</SystemLocale>

<UILanguage>zh-CN</UILanguage>

<UILanguageFallback>zh-CN</UILanguageFallback>

<UserLocale>zh-CN</UserLocale>
```

2.2.2. 用户方案

默认使用自建用户 Administrator 并自动登录，可通过修改以下配置切换：自建、自定义用户。

2.2.2.1. 自建用户 Administrator

默认使用自建用户：Administrator 并自动登录，插入到 <OOBE> 和 </OOBE> 之间。

```
<UserAccounts>

<LocalAccounts>

<LocalAccount wcm:action="add">

<Password>
```

```
<Value></Value>

<PlainText>true</PlainText>

</Password>

<Description>Administrator</Description>

<DisplayName>Administrator</DisplayName>

<Group>Administrators</Group>

<Name>Administrator</Name>

</LocalAccount>

</LocalAccounts>

</UserAccounts>

<AutoLogon>

  <Password>

    <Value></Value>

    <PlainText>true</PlainText>

  </Password>

  <Enabled>true</Enabled>

  <Username>Administrator</Username>

</AutoLogon>
```

2.2.2.2. 自定义用户

设置自定义用户后，安装系统完成后，在 OOB 里，可选择本地、在线用户等设置。

2.2.2.2.1. 删除

用户名：从开始处删除 <UserAccounts> 到 </UserAccounts>

自动登录：从开始处删除 <AutoLogon> 到 </AutoLogon>

2.2.2.2.2. 替换

从开始处 <OOBE> 到 </OOBE>

```
<OOBE>

  <ProtectYourPC>3</ProtectYourPC>

  <HideEULAPage>true</HideEULAPage>

  <HideWirelessSetupInOOBE>true</HideWirelessSetupInOOBE>

</OOBE>
```


D. ISO

II 生成 ISO

1. 下载 OScding

根据架构选择 OScding 版本，下载后保存到：D:\，保存在其它路径请输入 OScding.exe 绝对路径；

1.1. x64

https://github.com/ilikeyi/solutions/raw/main/_Software/Oscding/amd64/oscding.exe

1.2. x86

https://github.com/ilikeyi/solutions/raw/main/_Software/Oscding/x86/oscding.exe

1.3. arm64

https://github.com/ilikeyi/solutions/raw/main/_Software/Oscding/arm64/oscding.exe

2. 使用 oscding 命令行生成一个 ISO 文件，保存到：D:\Win11.iso

- ISO.ps1
 - [\Expand\ISO.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/22H2/Expand/ISO.ps1

- 复制代码

```
$Oscding = "D:\Oscding.exe"

$ISO = "D:\OS_11"

$Volume = "OS_11"

$SaveTo = "D:\OS_11.iso"

$Arguments = @("-m", "-o", "-u2", "-udfver102", "-l" "$($Volume)", "-bootdata:2#p0,e,b" "$($ISO)\boot\efisys\boot.com" "#pEF,e,b" "$($ISO)\efi\microsoft\boot\efisys.bin", $ISO, $SaveTo)

Start-Process -FilePath $Oscding -ArgumentList $Arguments -wait -nonewwindow
```

III 绕过 TPM 安装检查

1. 了解 <https://github.com/AveYo/MediaCreationTool.bat/tree/main/bypass11> 并下载：Quick_11_iso_esd_wim_TPM_toggle.bat
2. 将 D:\OS_11.iso 文件托到 Quick_11_iso_esd_wim_TPM_toggle.bat 里，反序“添加”或“删除”TPM 安装时检查功能。



此副本封装教程隶属于 Yi's Solutions 内容，学习更多：

- Yi 的官方网站 | <https://fengyi.tel/solutions>
- Github | <https://github.com/ilikeyi/solutions>

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