Yi' Solutions

Microsoft Windows 11 23H2

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，你准备好开始这场封装之旅了吗？

摘要

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章节 1　　封装

A.　　先决条件

II　　正在运行的系统

1.　　使用 DISM 命令制作高版本镜像时

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：

1.1.　　升级正在运行的操作系统或重新安装到更高的版本（建议）；

1.2.　　升级或安装新版 ADK 或 PowerShell 版本（不建议）

1.2.1.　　可尝试升级到最新 PowerShell 7 以上的版本;

1.2.2.　　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。

2.　　磁盘分区

2.1.　　挂载脱机映像到 REFS 磁盘分区后，执行部分 DISM 命令会出现异常，使用 NTFS 格式的磁盘分区不受此影响。

2.2.　　ISO 解压后，所在的位置不受 REFS 分区影响。

3.　　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"。

3.1.　　打开"Windows 安全中心"或运行：windowsdefender:

3.2.　　选择"病毒和威胁防护"或运行：windowsdefender://threat

3.3.　　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：

3.3.1.　　实时保护

3.3.2.　　云提供的保护

3.3.3.　　自动提交样本

3.3.4.　篡改防护

3.4.　未处于封装时，建议您开启 Windows 安全中心。

4.　ISO 工具

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

5.　命令行

5.1.　可选"Terminal"或"PowerShell ISE"，未安装"Terminal"，请前往 https://github.com/microsoft/terminal/releases 后下载；

5.2.　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

5.3.　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；

5.4.　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"

III　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 23H2, Build 22631.2428 + (KB5027397 + kb5035853) = OS Build 22631.3296

1.2.　准备下载初始版本或开发者版本

1.2.1.　x64

1.2.1.1. 文件名：en-us_windows_11_business_editions_version_23h2_x64_dvd_a9092734.iso

文件列表：https://files.rg-adguard.net/file/4844bd9b-9676-c00e-76d5-31f9be8d968e

1.2.1.2. 文件名：en-us_windows_11_consumer_editions_version_23h2_x64_dvd_8ea907fb.iso

文件列表：https://files.rg-adguard.net/file/fa33f04b-e9f3-0b7a-99e5-cd76085cb069

1.2.1.3. 文件名：en-us_windows_11_iot_enterprise_version_23h2_x64_dvd_fb37549c.iso

文件列表：https://files.rg-adguard.net/file/97a5761d-6736-b102-af2b-488197780556

1.2.2. arm64

1.2.2.1. 文件名：en-us_windows_11_iot_enterprise_version_23h2_arm64_dvd_6cc52d75.iso

文件列表：https://files.rg-adguard.net/file/f2f8c73e-3e4a-de14-e71e-ddae3bc0ef99

1.3. 示例下载 en-us_windows_11_business_editions_version_23h2_x64_dvd_a9092734.iso 后，解压到：D:\en-us_windows_11_business_editions_version_23h2_x64_dvd_a9092734

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 DISM 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 D:\en-us_windows_11_business_editions_version_23h2_x64_dvd_a9092734 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

1.7.　报告

查看映像包里已安装：语言包、已关联的语言包组件、预安装 InBox Apps 应用程序等详细信息，下载报告后，使用 Excel 软件
打开 .xlsx。

1.7.1.　报告：总览

包含：ISO 系统安装包、映像版本、区域、区域关联、已关联的语言包组件等。

Report.Overview.xlsx

- o \Expand\Install\Report\Report.Overview.xlsx

- o https://raw.githubusercontent.com/ilikeyi/solutions/main/_Documents/Attachment/OS.11/23H2/Expand/Install/Report/
  Report.Overview.xlsx

1.7.2.　报告：完整

包容：ISO 系统安装包、映像版本、区域、区域关联、已关联的语言包组件、已安装 InBox Apps 预安装应用程序等。

en-us、 ar-sa、 bg-bg、 cs-cz、 da-dk、 de-de、 el-gr、 en-gb、 es-es、 es-mx、 et-ee、 fi-fi、 fr-ca、 fr-fr、 he-il、 hr-hr、 hu-
hu、 it-it、 ja-jp、 ko-kr、 lt-lt、 lv-lv、 nb-no、 nl-nl、 pl-pl、 pt-br、 pt-pt、 ro-ro、 ru-ru、 sk-sk、 sl-si、 sr-latn-rs、 sv-se、 th-
th、 tr-tr、 uk-ua、 zh-cn、 zh-tw

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)

2.1.3.1.　字体

- 添加语言包时，触发了对应的区域时，需添加所需的字体功能，下载"所有可用语言 FOD 的列表"了
  解更多。

- 在"语言包：提取"时，已加入自动识别功能，可了解函数：Function Match_Required_Fonts

2.1.3.2.　区域关联

区域关联是什么？

- 映像语言仅英文版时，添加 zh-HK 语言包后，映像语言不会新增，应先安装 zh-TW 后，再安装 zh-HK 即可获得对应的关联。

已知区域关联：

2.1.3.2.1. 区域：ar-sa，可选关联区域：en-US，关联安装包：

    2.1.3.2.1.1. Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~31bf3856ad364e35~amd64~~.cab

    2.1.3.2.1.2. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.2. 区域：bg-bg，可选关联区域：en-US，关联安装包：

    2.1.3.2.2.1. Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~31bf3856ad364e35~amd64~~.cab

    2.1.3.2.2.2. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.3. 区域：da-dk，可选关联区域：en-US，关联安装包：

    2.1.3.2.3.1. Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~31bf3856ad364e35~amd64~~.cab

    2.1.3.2.3.2. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.4. 区域：el-gr，可选关联区域：en-US，关联安装包：

    2.1.3.2.4.1. Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~31bf3856ad364e35~amd64~~.cab

    2.1.3.2.4.2. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.5. 区域：fr-ca，可选关联区域：en-US、fr-fr，关联安装包：

    2.1.3.2.5.1. Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~31bf3856ad364e35~amd64~~.cab

    2.1.3.2.5.2. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~.cab

    2.1.3.2.5.3. Microsoft-Windows-LanguageFeatures-Basic-fr-fr-Package~31bf3856ad364e35~amd64~~.cab

    2.1.3.2.5.4. Microsoft-Windows-LanguageFeatures-Handwriting-fi-fi-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.6. 区域：he-il，可选关联区域：en-US，关联安装包：

2.1.3.2.6.1. Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.6.2. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.7. 区域：ru-ru，可选关联区域：en-US，关联安装包：

2.1.3.2.7.1. Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.7.2. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.8. 区域：th-th，可选关联区域：en-US，关联安装包：

2.1.3.2.8.1. Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.8.2. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.9. 区域：uk-ua，可选关联区域：en-US，关联安装包：

2.1.3.2.9.1. Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.9.2. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.10. 区域：zh-TW，可选关联区域：zh-HK，关联安装包：

2.1.3.2.10.1. Microsoft-Windows-LanguageFeatures-Basic-zh-hk-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.10.2. Microsoft-Windows-LanguageFeatures-Speech-zh-hk-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.2.10.3. Microsoft-Windows-LanguageFeatures-TextToSpeech-zh-hk-Package~31bf3856ad364e35~amd64~~.cab

2.1.3.3. 其它区域特定的要求

触发已知区域时，需添加特定的"程序包"。

2.1.3.3.1. 区域：zh-TW，程序包：Microsoft-Windows-InternationalFeatures-Taiwan-Package~31bf3856ad364e35~amd64~~.cab

说明：对台湾日期格式设置要求的补充支持。 将为位于台湾的客户提供包。

建议：仅在运送到台湾市场的设备上预安装。 未在设备上安装此功能会导致对使用台湾日

<p style="color:red">存在争议：</p>

- 在测试中发现，微软官方原版 Windows 11 里并未发现映像里安装此程序包，但是在建议项里有已知问题，到底是遵循与微软官方原版一致，由封装师自由选择安装与否。

2.2. 语言包：下载

2.2.1. x64:

2.2.1.1. 文件名：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

文件列表：https://files.rg-adguard.net/file/4f7bf45f-9970-e758-44cf-876643f49709

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：22631.2428，在搜索结果选择：Windows 11, version 23H2 (22631.2428) 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，拉动到页面下方，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-1f9786c66749/22621.2501.231009-1937.ni_release_svc_prod3_amd64fre_InboxApps.iso

文件列表：https://files.rg-adguard.net/file/5e7beb23-960d-d328-24f3-ef6378cd139d

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

文件列表：https://files.rg-adguard.net/file/263fed3d-be1f-9307-0c30-259d1027b2bd

下载完成后，提取：

3.2.1. Microsoft.HEVCVideoExtension

3.2.1.1. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.arm64.appx

3.2.1.2. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.arm64.xml

3.2.1.3. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.x64.appx

3.2.1.4. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.x64.xml

3.2.2. Microsoft.WindowsTerminal

3.2.2.1. Microsoft.WindowsTerminal_8wekyb3d8bbwe.msixbundle

3.2.2.2. Microsoft.WindowsTerminal_8wekyb3d8bbwe.xml

警告

- 22621.1778.230511-2102.ni_release_svc_prod3_amd64fre_InboxApps.iso 文件里提供的 Microsoft.WindowsTerminal_8wekyb3d8bbwe.msixbundle 安装版本号是：1.17.12191，安装此版本号后无法正常运行。

- Windows 11 23H2 22631.2428 初始版本里提供的版本号是：1.12.10983，安装此版本号可正常运行。

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；

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

  o \Expand\Extract.ps1

  o https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/23H2/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) {
```

```powershell
      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"

      }

    }

  }
```

```powershell
    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_OCs\WinPE-FontSupport-{Lang}.cab"

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

    )

  }

  @{

    Path = "Boot\Boot"

    Rule = @(
```

```powershell
            "Windows Preinstallation Environment\x64\WinPE_OCs\WinPE-FontSupport-{Lang}.cab"

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

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

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

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

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

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

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

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

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

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

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

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

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

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

            "Windows Preinstallation Environment\x64\WinPE_OCs\{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

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

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。

- 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.11/23H2/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. 脱机映像语言：更改

3.1.4.2.1. 更改默认语言、区域设置和其他国际设置

区域：zh-CN

Dism /Image:"D:\OS_11_Custom\Install\WinRE\Mount" /Set-AllIntl:zh-CN

3.1.4.2.2. 查看可用的语言设置

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

3.1.4.3. 组件：映像中已安装的所有包

3.1.4.3.1. 查看

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

3.1.4.3.2. 导出到 Csv

$SaveTo = "D:\OS_11_Custom\Install\WinRE\Report.Components.$(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. 累积更新

准备可用的累积更新文件，请更改示例文件名：KB_WinRE.cab

3.1.5.1. 添加

$KBPath = "D:\OS_11_Custom\Install\WinRE\Update\KB_WinRE.cab"

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

3.1.5.2. 删除

$KBPath = "D:\OS_11_Custom\Install\WinRE\Update\KB_WinRE.cab"

Remove-WindowsPackage -Path "D:\OS_11_Custom\Install\WinRE\Mount" -PackagePath $KBPath

3.1.5.3. 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\WinRE\Mount" /cleanup-image /StartComponentCleanup /ResetBase

3.1.5.3.1. 固化更新后清理组件

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

                                          }

                                        }
```

3.1.6.　驱动

3.1.7.　保存映像：WinRE.wim

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

3.1.8.　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
```

3.1.9.　重建 WinRE.wim 后，可缩小文件大小

- WinRE.Rebuild.ps1

    o \Expand\Install\WinRE\WinRE.Rebuild.ps1

    o https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/23H2/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  Under reconstruction ".PadRight(28) -NoNewline

  try {

     Export-WindowsImage -SourceImagePath "$($Filename)" -SourceIndex "$($_.ImageIndex)" -DestinationImagePath
"$($FileName).New" -CompressionType max | Out-Null

     Write-Host "Finish" -ForegroundColor Green

  } catch {

     Write-Host $_ -ForegroundColor Yellow

     Write-host $Failed -ForegroundColor Red
```

```
            }

        }

        Write-Host "`n  Rename: " -NoNewline -ForegroundColor Yellow

        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

            Write-host "  $($_)" -ForegroundColor Red

        }
```

3.1.10. 备份 WinRE.wim

- WinRE.Backup.ps1

    - \Expand\Install\WinRE\WinRE.Backup.ps1

    - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/23H2/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

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

3.1.11. 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。

- 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.11/23H2/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-
```

```powershell
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. 脱机映像语言：更改

- 从 Windows 11 开始，DISM 设置的默认系统 UI 语言在所有版本中保持不变（家庭版除外）。 对于所有商业版，在开箱即用体验 (OOBE) 期间选择的语言会设置为系统首选 UI 语言，Windows 将以此语言显示；对于家庭版，在 OOBE 期间选择的语言将继续用作默认系统 UI 语言。

- 从 Windows 10 版本 2004 开始，如果将基于 .appx 的语言体验包 (LXP) 支持的语言作为参数传递，则该语言将设置为系统首选 UI 语言，其父语言将设置为默认系统 UI 语言。在以前的版本中，仅支持基于 .cab 的语言包。

4.2.1. 更改默认语言、区域设置和其他国际设置

区域：zh-CN

Dism /Image:"D:\OS_11_Custom\Install\Install\Mount" /Set-AllIntl:"zh-CN"

4.2.2. 查看可用的语言设置

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

4.3. 组件：映像中已安装的所有包

4.3.1. 查看

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

4.3.2. 导出到 Csv

$SaveTo = "D:\OS_11_Custom\Install\Install\Report.Components.$(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. 学习

5.1.1. DISM 应用包（.appx 或 .appxbundle）服务命令行选项

重要：

DISM /add-provisionedappxpackage 从 Windows 10 版本 1803 开始，使用该选项时，可以预安装应用而无需将其固定到"开始"菜单 /region。预安装应用时，您可以选择将应用排除在 LayoutModification.xml 之外，这样应用将成功安装，而不会显示为"开始"菜单磁贴。如果未指定区域列表，则仅当将应用固定到"开始"布局时才会预配应用。

再次警告您，使用命令行添加必须添加参数：/Region

5.2. InBox Apps：预安装应用程序

- 编组缩写

  - 群组 A: 教育版, 专业版, 专业教育版, 专业版工作站, 企业版, IoT 企业版, 适用于虚拟桌面的 Windows 10 企业版

- 群组 B: 企业版 N, 企业版 GN, 企业版 SN, 专业版 N, 教育版 N, 专业版工作站 N, 专业教育版 N

- 群组 C: 家庭版, 家庭版 N, 家庭单语版

	名称	产品 ID	编组
1.	Microsoft.HEIFImageExtension	9PMMSR1CGPWG	A, C
2.	Microsoft.HEVCVideoExtension	9NMZLZ57R3T7	A, C
3.	Microsoft.VP9VideoExtensions	9N4D0MSMP0PT	A, C
4.	Microsoft.WebpImageExtension	9PG2DK419DRG	A, C
5.	Microsoft.GamingApp	9MV0B5HZVK9Z	A, C
6.	Microsoft.ZuneMusic	9WZDNCRFJ3PT	A, C
7.	MicrosoftCorporationII.MicrosoftFamily	9PDJDJS743XF	C
8.	Microsoft.WebMediaExtensions	9N5TDP8VCMHS	A, C
9.	Microsoft.WindowsSoundRecorder	9WZDNCRFHWKN	A, C
10.	Microsoft.Xbox.TCUI	9NKNC0LD5NN6	A, C
11.	Microsoft.ZuneVideo	9WZDNCRFJ3P2	A, C
12.	Microsoft.XboxGamingOverlay	9NZKPSTSNW4P	A, C
13.	Microsoft.RawImageExtension	9NCTDW2W1BH8	A, C
14.	Microsoft.UI.Xaml.2.3		A, B, C
15.	Microsoft.UI.Xaml.2.4		A, B, C
16.	Microsoft.UI.Xaml.2.7		A, B, C
17.	Microsoft.UI.Xaml.2.8		A, B, C
18.	Microsoft.NET.Native.Framework.2.2		A, B, C
19.	Microsoft.NET.Native.Runtime.2.2		A, B, C
20.	Microsoft.VCLibs.140.00		A, B, C
21.	Microsoft.VCLibs.140.00.UWPDesktop		A, B, C
22.	Microsoft.SecHealthUI	9NK0JLZT7JD0	A, B, C
23.	Microsoft.WindowsStore	9WZDNCRFJBMP	A, B, C
24.	Microsoft.Sticky.Notes	9NBLGGH4QGHW	A, B, C
25.	Microsoft.Paint	9PCFS5B6T72H	A, B, C
26.	Microsoft.PowerAutomateDesktop	9NFTCH6J7FHV	A, B, C
27.	Microsoft.ScreenSketch	9MZ95KL8MR0L	A, B, C
28.	Microsoft.WindowsNotepad	9MSMLRH6LZF3	A, B, C
29.	Microsoft.WindowsTerminal	9N0DX20HK701	A, B, C
30.	Clipchamp.Clipchamp	9P1J8S7CCWWT	A, B, C

31.	Microsoft.Solitaire.Collection	9WZDNCRFHWD2	A, B, C
32.	Microsoft.WindowsAlarms	9WZDNCRFJ3PR	A, B, C
33.	Microsoft.WindowsFeedbackHub	9NBLGGH4R32N	A, B, C
34.	Microsoft.WindowsMaps	9WZDNCRDTBVB	A, B, C
35.	Microsoft.BingNews	9WZDNCRFHVFW	A, B, C
36.	Microsoft.DesktopAppInstaller	9NBLGGH4NNS1	A, B, C
37.	Microsoft.WindowsCamera	9WZDNCRFJBBG	A, B, C
38.	Microsoft.Getstarted	9WZDNCRDTBJJ	A, B, C
39.	Microsoft.Cortana	9NFFX4SZZ23L	A, B, C
40.	Microsoft.BingWeather	9WZDNCRFJ3Q2	A, B, C
41.	Microsoft.GetHelp	9PKDZBMV1H3T	A, B, C
42.	Microsoft.MicrosoftOfficeHub	9WZDNCRD29V9	A, B, C
43.	Microsoft.People	9NBLGGH10PG8	A, B, C
44.	Microsoft.StorePurchaseApp	9NBLGGH4LS1F	A, B, C
45.	Microsoft.Todos	9NBLGGH5R558	A, B, C
46.	Microsoft.Windows.Photos	9WZDNCRFJBH4	A, B, C
47.	Microsoft.WindowsCalculator	9WZDNCRFHVN5	A, B, C
48.	Microsoft.Windows.CommunicationsApps	9WZDNCRFHVQM	A, B, C
49.	Microsoft.XboxGameOverlay	9NBLGGH537C2	A, B, C
50.	Microsoft.XboxIdentityProvider	9WZDNCRD1HKW	A, B, C
51.	Microsoft.XboxSpeechToTextOverlay	9P086NHDNB9W	A, B, C
52.	Microsoft.YourPhone	9NMPJ99VJBWV	A, B, C
53.	MicrosoftCorporationII.QuickAssist	9P7BP5VNWKX5	A, B, C
54.	MicrosoftWindows.Client.WebExperience	9MSSGKG348SP	A, B, C

5.3.　InBox Apps：已安装

```
$custom_array = @(); Get-AppXProvisionedPackage -Path "D:\OS_11_Custom\Install\Install\Mount" | ForEach-Object
{ $custom_array += [PSCustomObject]@{ DisplayName = $_.DisplayName; PackageName = $_.PackageName; Version =
$_.Version; Architecture = $_.Architecture; ResourceId = $_.ResourceId; Regions = $_.Regions; } };
```

- ○ 优先执行以上 PS 代码后，才能选择以下"查看"或"导出到 CSV"。

- ○ 查看已安装 InBox Apps，请了解区域（Region）绑定，未绑定区域在执行完 OOBE 后，将不会出现在应用程序里。

5.3.1.　查看

```
$custom_array | Out-GridView
```

5.3.2. 导出到 Csv

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

$custom_array | Export-CSV -NoType -Path $SaveTo

Write-host $SaveTo -ForegroundColor Green
```

5.4. 删除已安装的所有预应用程序

- Install.InBox.Apps.Clear.all.ps1

    o \Expand\Install\Install.InBox.Apps.Clear.all.ps1

    o https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/23H2/Expand/Install/Install.InBox.Apps.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

  }

}
```

5.5. 安装"本地语言体验包（LXPs）"向脱机映像标记：已安装语言

了解已安装语言标记前，先了解 ZuneMusic 应用程序可用的语言列表：en-us, en-gb, as-in, az-latn-az, bs-latn-ba, bn-in, cs-cz, cy-gb, ar-sa, de-de, af-za, am-et, da-dk, el-gr, es-es, es-mx, ca-es, ca-es-valencia, eu-es, fi-fi, bg-bg, ga-ie, et-ee, gl-es, gu-in, gd-gb, fil-ph, fr-ca, fr-fr, hy-am, fa-ir, hu-hu, id-id, it-it, ja-jp, hr-hr, ka-ge, is-is, he-il, hi-in, kk-kz, lo-la, km-kh, lt-lt, kn-in, kok-in, ko-kr, mk-mk, lv-lv, ms-my, mi-nz, mr-in, mt-mt, ne-np, nl-nl, nb-no, ml-in, nn-no, lb-lu, or-in, ro-ro, sk-sk, ru-ru, pl-pl, quz-pe, pt-br, pt-pt, sq-al, ta-in, th-th, sv-se, pa-in, sr-cyrl-ba, sr-cyrl-rs, sr-latn-rs, ur-pk, ug-cn, tr-tr, uk-ua, tt-ru, zh-cn, vi-vn, uz-latn-uz, sl-si, zh-tw, te-in

查看脱机映像已安装的语言

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

查看结果已安装的语言：en-US、zh-CN，在安装 ZuneMusic 应用时，安装程序会匹配"已安装的语言"，自动过滤未安装的语言列表，这就是语言标记。

5.6. 脱机映像已安装语言标记：添加方式

向脱机映像标记：已安装语言，有二种方法，第一种安装 Microsoft-Windows-Client-Language-Pack_x64_zh-cn.cab，第二种安装 "本地语言体验包（LXPs）"，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：

5.6.1. 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.Apps，文件格式：LanguageExperiencePack.zh-CN.Neutral.Appx

5.6.2. 手动下载

5.6.2.1. 区域

区域	产品 ID	区域	产品 ID
en-US	C9PDSCC711RVF	af-za	9PDW16B5HMXR
am-et	9NGL4R61W3PL	ar-sa	9N4S78P86PKX
as-in	9NTJLXMXX35J	az-latn-az	9P5TFKZHQ5K8
be-by	9MXPBGNNDW3L	bg-bg	9MX54588434F
bn-bd	9PH7TKVXGGM8	bn-in	9P1M44L7W84T
bs-latn-ba	9MVFKLJ10MFL	ca-es	9P6JMKJQZ9S7
ca-es-valencia	9P9K3WMFSW90	chr-cher-us	9MX15485N3RK
cs-cz	9P3WXZ1KTM7C	cy-gb	9NKJ9TBML4HB
da-dk	9NDMT2VKSNL1	de-de	9P6CT0SLW589
el-gr	9N586B13PBLD	en-gb	9NT52VQ39BVN
es-es	9NWVGWLHPB1Z	es-mx	9N8MCM1X3928
et-ee	9NFBHFMCR30L	eu-es	9NMCHQHZ37HZ
fa-ir	9NGS7DD4QS21	fi-fi	9MW3PQ7SD3QK
fil-ph	9NWM2KGTDSSS	fr-ca	9MTP2VP0VL92
fr-fr	9NHMG4BJKMDG	ga-ie	9P0L5Q848KXT
gd-gb	9P1DBPF36BF3	gl-es	9NXRNBRNJN9B
gu-in	9P2HMSWDJDQ1	ha-latn-ng	9N1L95DBGRG3
he-il	9NB6ZFND5HCQ	hi-in	9NZC3GRX8LD3
hr-hr	9NW01VND4LTW	hu-hu	9MWN3C58HL87
hy-am	9NKM28TM6P67	id-id	9P4X3N4SDK8P
ig-ng	9PG4ZFJ48JSX	is-is	9NTHJR7TQXX1

Yi's Solutions

it-it	9P8PQWNS6VJX	ja-jp	9N1W692FV4S1
ka-ge	9P60JZL05WGH	kk-kz	9PHV179R97LV
km-kh	9PGKTS4JS531	kn-in	9NC6DB7N95F9
kok-in	9MV3P55CMZ6P	ko-kr	9N4TXPCVRNGF
ku-arab-iq	9P1C18QL3D7H	ky-kg	9P7D3JJGZM48
lb-lu	9N0ST1WBZ9D9	lo-la	9N8X352G5NZV
lt-lt	9NWWD891H6HN	lv-lv	9N5CQDPH6SQT
mi-nz	9P2GDFB3JPSX	mk-mk	9P1X6XB1K3RN
ml-in	9NWDTV8FFV7L	mn-mn	9PG1DHC4VTZW
mr-in	9MWXCKHJVR1J	ms-my	9NPXL8ZSDDQ7
mt-mt	9PDG96SQ6BN8	nb-no	9N6J0M5DHCK0
ne-np	9P7CHPLWDQVN	nl-nl	9PF1C9NB5PRV
nn-no	9PK7KM3Z06KH	nso-za	9NS49QLX5CDV
or-in	9NTHCXCXSJDH	pa-arab-pk	9NJRL03WH6FM
pa-in	9NSNC0ZJX69B	pl-pl	9NC5HW94R0LD
prs-af	9P3NGC6X5ZQC	pt-br	9P8LBDM4FW35
pt-pt	9P7X8QJ7FL0X	quc-latn-gt	9P2V6MNNQZ0B
quz-pe	9NHTX8NVQ04K	ro-ro	9MWXGPJ5PJ3H
ru-ru	9NMJCX77QKPX	rw-rw	9NFW0M20H9WG
sd-arab-pk	9NB9JSCXW9X5	si-lk	9NVF9QSLGTL0
sk-sk	9N7LSNN099WB	sl-si	9NV27L34J4ST
sq-al	9MWLRGNMDGK7	sr-cyrl-ba	9MXGN7V65C7B
sr-cyrl-rs	9PPD6CCK9K5H	sr-latn-rs	9NBZ0SJDPPVT
sv-se	9P0HSNX08177	sw-ke	9NFF2M19DQ55
ta-in	9PDZB1WT1B34	te-in	9PMQJJGF63FW
tg-cyrl-tj	9MZHLBPPT2HC	th-th	9MSTWFRL0LR4
ti-et	9NC8C9RDNK2S	tk-tm	9NKHQ4GL6VLT
tn-za	9NFSXM123DHT	tr-tr	9NL1D3T5HG9R
tt-ru	9NV90Q1X1ZR2	ug-cn	9P52C5D7VL5S
uk-ua	9PPPMZRSGHR8	ur-pk	9NDWFTFW12BQ
uz-latn-uz	9P5P2T5P5L9S	vi-vn	9P0W68X0XZPT
wo-sn	9NH3SW1CR90F	xh-za	9NW3QWSLQD17
yo-ng	9NGM3VPPZS5V	zh-cn	9NRMNT6GMZ7
zh-tw	9PCJ4DHCQ1JQ	zu-za	9NNRM7KT5NB0

下载区域：zh-CN，应用程序 ID：9NRMNT6GMZ70，商店连接：

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

5.6.2.2. 打开网站：https://store.rg-adguard.net

5.6.2.2.1. 搜索关键词：https://www.microsoft.com/store/productId/9NRMNT6GMZ70

5.6.2.2.2. 网页内搜索 22621 内容，搜索结果：Microsoft.LanguageExperiencePackzh-CN_22621.*.
neutral__8wekyb3d8bbwe.appx

5.6.2.2.3. 下载后保存到 D:\OS_11_Custom\Install\Install\InBox.Apps 目录里，重命名：
LanguageExperiencePack.zh-cn.Neutral.Appx

5.6.3. 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.appx 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.apps\LanguageExperiencePack.zh-cn.Neutral.appx" -SkipLicense

5.6.4. 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。

5.6.4.1. InBox Apps：已安装的应用程序包

$custom_array = @(); Get-AppXProvisionedPackage -Path "D:\OS_11_Custom\Install\Install\Mount" |
ForEach-Object { $custom_array += [PSCustomObject]@{ DisplayName = $_.DisplayName;
PackageName = $_.PackageName; Version = $_.Version; Architecture = $_.Architecture; ResourceId =
$_.ResourceId; Regions = $_.Regions; } };

○ 优先执行以上 PS 代码后，才能选择以下"查看"或"导出到 CSV"。

5.6.4.1.1. 查看

$custom_array | Out-GridView

5.6.4.1.2. 导到出 Csv

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

$custom_array | Export-CSV -NoType -Path $SaveTo

Write-host $SaveTo -ForegroundColor Green

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

5.7. InBox Apps：安装

5.7.1. 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；

5.7.2. 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.Apps.ps1

  o \Expand\Install\Install.Inst.InBox.Apps.ps1

  o https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/23H2/Expand/Install/Install.Inst.InBox.Apps.ps1

- 复制代码

```powershell
$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 = @( "Core"; "CoreN"; "CoreSingleLanguage"; )
```

```
        Apps = @(

            "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.UI.Xaml.2.8";
"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.HEIFImageExtension"; "Microsoft.HEVCVideoExtension"; "Microsoft.SecHealthUI";
"Microsoft.VP9VideoExtensions"; "Microsoft.WebpImageExtension"; "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.UI.Xaml.2.8";
"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.HEIFImageExtension"; "Microsoft.HEVCVideoExtension"; "Microsoft.SecHealthUI";
"Microsoft.VP9VideoExtensions"; "Microsoft.WebpImageExtension"; "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.UI.Xaml.2.8";
"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.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*{ARCHC}*2.3"; License="UI.Xaml*{ARCHC}*2.3"; Region="All";
Dependencies=@(); }

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

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

    @{ Name="Microsoft.UI.Xaml.2.8"; Match="UI.Xaml*{ARCHTag}*2.8"; License="UI.Xaml*{ARCHTag}*2.8"; Region="All";
Dependencies=@(); }

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

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

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

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

    @{ Name="Microsoft.Services.Store.Engagement"; Match="Services.Store.Engagement*{ARCHC}";
License="Services.Store.Engagement*{ARCHC}"; Region="All"; Dependencies=@(); }

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

    @{ Name="Microsoft.HEVCVideoExtension"; Match="HEVCVideoExtension*{ARCHC}";
```

```
License="HEVCVideoExtension*{ARCHC}*xml"; Region="All"; Dependencies=@("Microsoft.VCLibs.140.00"); }

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

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

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

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

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

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

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

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

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

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

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

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

    @{ Name="Microsoft.WindowsAlarms"; Match="WindowsAlarms"; License="WindowsAlarms"; Region="All";
Dependencies=@("Microsoft.UI.Xaml.2.8","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Micr
osoft.VCLibs.140.00","Microsoft.VCLibs.140.00.UWPDesktop"); }

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

    @{ Name="MicrosoftCorporationII.MicrosoftFamily"; Match="MicrosoftFamily"; License="MicrosoftFamily";
Region="All"; Dependencies=@("Microsoft.VCLibs.140.00.UWPDesktop"); }
```

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

@{ Name="Microsoft.WindowsCamera"; Match="WindowsCamera"; License="WindowsCamera"; Region="All";
Dependencies=@("Microsoft.UI.Xaml.2.8","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Micr
osoft.VCLibs.140.00"); }

@{ Name="Microsoft.Getstarted"; Match="Getstarted"; License="Getstarted"; Region="All";
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.Cortana"; Match="Cortana"; License="Cortana"; Region="All";
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"; Region="All";
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"; Region="All";
Dependencies=@("Microsoft.VCLibs.140.00","Microsoft.VCLibs.140.00.UWPDesktop"); }

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

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

@{ Name="Microsoft.Todos"; Match="Todos"; License="Todos"; Region="All";
Dependencies=@("Microsoft.UI.Xaml.2.8","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Micr
osoft.VCLibs.140.00","Microsoft.VCLibs.140.00.UWPDesktop","Microsoft.Services.Store.Engagement"); }

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

@{ Name="Microsoft.Windows.Photos"; Match="Windows.Photos"; License="Windows.Photos"; Region="All";
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"; Region="All";
Dependencies=@("Microsoft.UI.Xaml.2.8","Microsoft.NET.Native.Framework.2.2","Microsoft.NET.Native.Runtime.2.2","Micr
osoft.VCLibs.140.00","Microsoft.VCLibs.140.00.UWPDesktop"); }

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

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

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

@{ Name="Microsoft.XboxGameOverlay"; Match="XboxGameOverlay"; License="XboxGameOverlay"; Region="All";
```

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

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

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

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

    @{ Name="Microsoft.YourPhone"; Match="YourPhone"; License="YourPhone"; Region="All";
Dependencies=@("Microsoft.VCLibs.140.00","Microsoft.VCLibs.140.00.UWPDesktop"); }

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

    @{ Name="MicrosoftCorporationII.QuickAssist"; Match="QuickAssist"; License="QuickAssist"; Region="All";
Dependencies=@("Microsoft.VCLibs.140.00.UWPDesktop"); }

    @{ Name="MicrosoftWindows.Client.WebExperience"; Match="WebExperience"; License="WebExperience";
Region="All"; Dependencies=@("Microsoft.VCLibs.140.00"); }

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

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

    @{ Name="Microsoft.RawImageExtension"; Match="RawImageExtension"; License="RawImageExtension"; Region="All";
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",
"*.msix" -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

             Region        = $itemInBoxApps.Region

             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: ".PadRight(22) -NoNewline; Write-host $Rule.Name -ForegroundColor Yellow

        Write-host "   Region: ".PadRight(22) -NoNewline; Write-host $Rule.Region -ForegroundColor Yellow

        Write-host "   Apps installer: ".PadRight(22) -NoNewline; Write-host $Rule.InstallPacker -ForegroundColor Yellow

        Write-host "   License: ".PadRight(22) -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) {

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

                if ([string]::IsNullOrEmpty($Rule.Certificate)) {
```

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

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

                try {

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

                    Write-Host "Done`n" -ForegroundColor Green

                } catch {

                    Write-Host "Failed" -ForegroundColor Red

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

                }

            } else {

                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 -
Regions $Rule.Region -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 -Regions
$Rule.Region -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 }

        }
```

5.8.　　脱机映像已安装语言标记：删除

- 完成安装 InBox Apps 应用后，区域标记已不再重要，可删除或不删除，删除"本地语言体验包（LXPs），简体中文 - 中国）"，区域标记： zh-CN，可更改为其它区域标记。

- Install.Clear.Flag.ps1

    o \Expand\Install\Install.Clear.Flag.ps1

    o https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/23H2/Expand/Install/Install.Clear.Flag.ps1

- 复制代码

```
$Lang = "zh-CN"

Get-AppXProvisionedPackage -Path "D:\OS_11_Custom\Install\Install\Mount" | Foreach-object {

    if ($_.DisplayName -Like "*LanguageExperiencePack*$($Lang)*") {

      Write-host "  $($_.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

      }

    }

}
```

5.9.　　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. 专属功能启用包

- 学习：KB5027397：使用启用包对 Windows 11 版本 23H2 的功能更新

- 制作 Windows 11 版本 22H2、23H2 时，需提前安装"功能启用包"后才能安装 22631.* 的累积更新，下载后保存到：

  D:\OS_11_Custom\Install\Install\Update，根据架构选择下载：

6.1.1. x64，默认

- 直连下载

  https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/caa3ff4a-6420-4341-aeae-
  33b2d7f463be/public/windows11.0-kb5027397-x64_3a9c368e239bb928c32a790cf1663338d2cad472.msu

- 添加

  $KBPath = "D:\OS_11_Custom\Install\Install\Update\windows11.0-kb5027397-
  x64_3a9c368e239bb928c32a790cf1663338d2cad472.msu"

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

6.1.2. Arm64

- 直连下载

  https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/c29dd4ea-7f6a-4636-a991-
  29ba8ae70658/public/windows11.0-kb5027397-arm64_bacb74fba9077a5b7ae2f74a3ebb0b506f9708f3.msu

- 添加

  $KBPath = "D:\OS_11_Custom\Install\Install\Update\windows11.0-kb5027397-
  arm64_bacb74fba9077a5b7ae2f74a3ebb0b506f9708f3.msu"

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

6.2. 初始版本

- 微软官方已提供了 Windows 11 23H2 22631.2428 初始版本专属功能启用包，文件名：X23-59425_Windows11-23H2-
  FeatureEnablement.zip，压缩包里包含了以下文件：KB5031354、KB5027397。

- 优先添加"专属功能启用包"后再添加"初始版本"，前往下载页面：
  https://www.catalog.update.microsoft.com/Search.aspx?q=KB5031354，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/885dcacb-fb29-4536-88f6-4fd4792a4a65/public/windows11.0-kb5031354-x64_3391407e62562e0e48a437c5c7115667305d788c.msu

- 添加

  $KBPath = "D:\OS_11_Custom\Install\Install\Update\windows11.0-kb5031354-x64_3391407e62562e0e48a437c5c7115667305d788c.msu"

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

6.2.2. Arm64

- 直连下载

  https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/e3e1d074-cfde-4c2d-ba0c-f6887db3b166/public/windows11.0-kb5031354-arm64_3848ce9f925f15d07ad1dd06fe976e6719634653.msu

- 添加

  $KBPath = "D:\OS_11_Custom\Install\Install\Update\windows11.0-kb5031354-arm64_3848ce9f925f15d07ad1dd06fe976e6719634653.msu"

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

6.3. 其它版本

- 安装前，下载专属功能启用包 KB5027397 后并优先后添加，再依次添加其它版本。

- 查阅"Windows 11 版本信息"，例如下载累积更新：KB5035853，版本号：22631.3296，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：

6.3.1. 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

6.3.2. Arm64

- 直连下载

  https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/72ba502a-7982-471c-aad2-355efddbff61/public/windows11.0-kb5035853-arm64_076c009bca80cfa85272bd50d65951c2f663fcc5.msu

- 添加

```
$KBPath = "D:\OS_11_Custom\Install\Install\Update\windows11.0-kb5035853-arm64_076c009bca80cfa85272bd50d65951c2f663fcc5.msu"

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

6.4. 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
```

6.4.1. 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. 驱动

8. 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。

9. 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
```

10. 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

11.　　保存映像：Install.wim

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

12.　　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。

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

　　13.1.　　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

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

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

- Install.WinRE.Replace.wim.ps1

  o \Expand\Install\Install.WinRE.Replace.wim.ps1

  o https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/23H2/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

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

13.2.2. 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.11/23H2/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

}
```

14. 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.11/23H2/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

15.   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 }
```

16.   指定挂载 Boot.wim 路径

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

17.   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"
```

18.   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。

- 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。

18.1.   语言包：添加

- Boot.Instl.lang.ps1

  o   \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

                Write-host "Finish" -ForegroundColor Green

            } catch {

                Write-host "Failed" -ForegroundColor Red

            }

            break

        }

    }

}
```

18.2. 脱机映像语言：更改

18.2.1. 更改默认语言、区域设置和其他国际设置

区域标记：zh-CN

```
Dism /Image:"D:\OS_11_Custom\Boot\Boot\Mount" /Set-AllIntl:zh-CN
```

18.2.2. 查看可用的语言设置

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

18.3. 组件：映像中已安装的所有包

18.3.1. 查看

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

18.3.2. 导出到 Csv

```
$SaveTo = "D:\OS_11_Custom\Boot\Boot\Report.Components.$(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
```

18.4. 语言包：修复

18.4.1. 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：

18.4.1.1. arunres.dll.mui

18.4.2.　复制

将提取的文件复制到：D:\OS_11_Custom\Boot\Boot\Mount\sources\zh-CN

18.5.　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

18.6.　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。

18.6.1.　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"

18.6.2.　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"

19.　累积更新

准备可用的累积更新文件，请更改示例文件名：KB_Boot.cab

19.1.　添加

$KBPath = "D:\OS_11_Custom\Boot\Boot\Update\KB_Boot.cab"

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

19.2.　删除

$KBPath = "D:\OS_11_Custom\Boot\Boot\Update\KB_Boot.cab"

Remove-WindowsPackage -Path "D:\OS_11_Custom\Boot\Boot\Mount" -PackagePath $KBPath

19.3.　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\Boot\Boot\Mount" /cleanup-image /StartComponentCleanup /ResetBase
```

19.3.1. 固化更新后清理组件

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

  }

}
```

20.   驱动

21.   其它

21.1.   绕过 TPM 安装时检查

- Boot.Bypass.TPM.ps1

  o \Expand\Boot\Boot.Bypass.TPM.ps1

  o https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/23H2/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
```

22. 保存映像：Boot.wim

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

23. 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 OOBE 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 OScdimg

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

1.1. x64

https://github.com/ilikeyi/solutions/raw/main/_Software/Oscdimg/amd64/oscdimg.exe

1.2. x86

https://github.com/ilikeyi/solutions/raw/main/_Software/Oscdimg/x86/oscdimg.exe

1.3. arm64

https://github.com/ilikeyi/solutions/raw/main/_Software/Oscdimg/arm64/oscdimg.exe

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

- ISO.ps1

  o \Expand\ISO.ps1

  o https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/23H2/Expand/ISO.ps1

- 复制代码

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

$ISO = "D:\OS_11"

$Volume = "OS_11"

$SaveTo = "D:\OS_11.iso"

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

Start-Process -FilePath $Oscdimg -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。

章节 2   常见问题

II   清理所有挂载到

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

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

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

III   修复挂载出现异常的问题

1.   查看已挂载

Get-WindowsImage -Mounted

2.   删除保存在注册表里的 DISM 挂载记录

Remove-Item -Path "HKLM:\SOFTWARE\Microsoft\WIMMount\Mounted Images*" -Force -Recurse -ErrorAction SilentlyContinue | Out-Null

3.   删除与已损坏的已装载映像关联的所有资源。

Clear-WindowsCorruptMountPoint

Dism /cleanup-wim

IV   清理

封装过程中会产生大量的临时文件，安装 InBox Apps 应用、安装累积更新、安装语言包时会临时释放安装文件，所以不定期清理过时的会长期占用
大量的磁盘空间，建议您尝试以下方法来实现清理计划，以达到释放更多的空间：

1.   常见日志

1.1.   使用命令行清理

$TempPaths = @($env:Temp; "$($env:SystemRoot)\Logs\DISM";)

foreach ($TempPath in $TempPaths) {

  if (Test-Path -Path $TempPath) {

    write-host " $($TempPath)" -ForegroundColor Green

    Get-ChildItem -Path $TempPath -Recurse -Force | ForEach-Object {

      try {

        Remove-Item $_.FullName -Force -Recurse -ErrorAction SilentlyContinue | Out-Null

```
        } catch {

          write-host $_ -ForegroundColor Red

        }

      }

    }

  }
```

1.2. 手动删除

1.2.1. DISM 日志

使用"磁盘清理"功能，无法清理 DISM 产生的日志，需手动删除，路径：{系统盘}:\Windows\Logs\DISM

1.2.2. 临时目录

使用"磁盘清理"功能，无法清理临时目录的文件，需要手动操作，运行：%Temp% 可快速定位并打开临时目录，路径：{系统盘}:\Users\{用户名}\AppData\Local\Temp

1.2.3. 清理"终端"运行的命令行记录

Remove-Item -Path (Get-PSReadlineOption).HistorySavePath -ErrorAction SilentlyContinue

执行清理命令行记录后，需重新启动"终端"生效。

2. 磁盘清理

运行 cleanmgr，选择要清理的磁盘和类型。

章节 3   已知问题

暂无

Yi' Solutions

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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建议或反馈：https://github.com/ilikeyi/solutions/issues