



YI'S SOLUTIONS

MICROSOFT WINDOWS 11 24H2 AND 25H2

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？

[学习更多历史版本](#)

https://github.com/ilikeyi/Solutions/tree/main/_Learn/Packaging.tutorial

摘要

章节 1 封装

章节 2 部署

章节 3 学习

章节 4 常见问题

章节 5 已知问题

目录

章节 1 封装

第 8 页

A. 先决条件 第 8 页

I. 正在运行的系统 第 8 页

1. 检查正在运行的系统是否健康 第 8 页

2. 使用 DISM 命令时 第 8 页

3. 加速 Windows 操作系统的 N 种方法 第 9 页

3.1. 关闭 Windows 防病毒 第 9 页

3.2. 为你的电脑关闭 Device/Credential Guard 第 9 页

3.3. 开启 Windows 原生 NVMe 存储堆栈 第 10 页

4. 禁用常见文件类型安全警告 第 12 页

5. 虚拟内存盘 第 13 页

6. ISO 工具 第 14 页

7. 压缩软件 第 14 页

8. 命令行 第 14 页

II. 要求 第 15 页

1. 系统安装包 第 15 页

2. 语言包 第 19 页

2.1. 学习 第 19 页

2.2. 语言包：下载 第 21 页

3. InBox Apps 第 21 页

B. 语言包：提取 第 24 页

I.	语言包：准备	第 24 页
II.	语言包：提取方案	第 24 页
III.	执行提取命令	第 24 页
C.	自定义封装	第 27 页
I.	自定义封装：Install.wim	第 27 页
1.	查看 Install.wim 详细信息	第 27 页
2.	指定挂载 Install 路径	第 28 页
3.	开始挂载 Install.wim	第 28 页
3.1.	自定义封装：WinRE.wim	第 28 页
3.1.1.	查看 WinRE.wim 详细信息	第 28 页
3.1.2.	指定挂载 WinRE.wim 路径	第 28 页
3.1.3.	开始挂载 WinRE.wim	第 29 页
3.1.4.	语言包	第 29 页
3.1.4.1.	语言包：添加	第 29 页
3.1.4.2.	脱机映像语言：更改	第 30 页
3.1.4.2.1.	更改默认语言、区域设置和其他国际设置	第 30 页
3.1.4.2.2.	查看可用的语言设置	第 30 页
3.1.4.3.	组件：映像中已安装的所有包	第 30 页
3.1.5.	累积更新	第 30 页
3.1.5.1.	添加	第 30 页
3.1.5.2.	固化更新	第 31 页
3.1.5.2.1.	固化更新后清理组件	第 31 页
3.1.6.	驱动	第 31 页

3.1.7. 保存映像: WinRE.wim	第 32 页
3.1.8. 卸载映像: WinRE.wim	第 32 页
3.1.9. 重建 WinRE.wim 后, 可缩小文件大小	第 32 页
3.1.10. 备份 WinRE.wim	第 32 页
3.1.11. 替换 Install.wim 映像内的 WinRE.wim	第 32 页
4. 语言包	第 33 页
4.1. 语言包: 添加	第 33 页
4.2. 脱机映像语言: 更改	第 36 页
4.2.1. 更改默认语言、区域设置和其他国际设置	第 36 页
4.2.2. 查看可用的语言设置	第 36 页
4.3. 组件: 映像中已安装的所有包	第 36 页
5. InBox Apps	第 36 页
5.1. 学习	第 36 页
5.2. InBox Apps: 预安装应用程序	第 37 页
5.3. InBox Apps: 已安装	第 39 页
5.4. 删除已安装的所有预应用程序	第 40 页
5.5. 已安装语言标记: 了解	第 40 页
5.6. 脱机映像已安装语言标记: 添加方式	第 41 页
5.7. InBox Apps: 安装	第 43 页
5.8. 脱机映像已安装语言标记: 删除	第 50 页
5.9. InBox Apps: 优化	第 50 页
6. 累积更新	第 50 页
6.1. 功能启用包	第 50 页

6.2. 初始版本累积更新	第 51 页
6.3. 其它版本	第 52 页
6.4. 固化更新	第 53 页
6.4.1. 固化更新后清理组件	第 53 页
7. 驱动	第 53 页
8. 部署引擎：添加	第 53 页
9. 健康	第 54 页
10. 替换 WinRE.wim	第 54 页
11. 保存映像：Install.wim	第 54 页
12. 卸载映像：Install.wim	第 54 页
13. 如何批量替换 Install.wim 里的所有索引号里的 WinRE.wim	第 54 页
13.1. 获取 WimLib	第 54 页
13.2. 如何在 Install.wim 里提取和更新 WinRE.wim	第 54 页
14. 重建 Install.wim 后可缩小文件大小	第 55 页
15. 拆分、合并、压缩、互转	第 55 页
15.1. 拆分和合并	第 56 页
15.1.1. 拆分	第 56 页
15.1.2. 合并	第 56 页
15.2. 固实压缩 ESD 格式和互转 WIM 格式	第 57 页
15.2.1. 固实压缩	第 57 页
15.2.2. 压缩文件转换为 WIM 文件格式	第 57 页
II. 自定义封装：boot.wim	第 58 页
1. 查看 Boot.wim 文件信息	第 58 页

2. 指定挂载 Boot.wim 路径	第 58 页
3. 开始挂载 Boot.wim	第 58 页
4. 语言包	第 58 页
4.1. 语言包：添加	第 58 页
4.2. 脱机映像语言：更改	第 59 页
4.2.1. 更改默认语言、区域设置和其他国际设置	第 59 页
4.2.2. 查看可用的语言设置	第 59 页
4.3. 组件：映像中已安装的所有包	第 59 页
4.4. 语言包：同步到 ISO 安装程序	第 60 页
4.5. 重新生成 Lang.ini	第 60 页
4.5.1. 重新生成已挂载目录 lang.ini	第 60 页
4.5.2. 重新生成 lang.ini 后，同步到安装程序	第 60 页
5. 累积更新	第 60 页
5.1. 添加	第 60 页
5.2. 删除	第 60 页
5.3. 固化更新	第 60 页
5.3.1. 固化更新后清理组件	第 61 页
6. 驱动	第 61 页
7. 其它	第 61 页
7.1. 绕过 TPM 安装时检查	第 61 页
8. 保存映像：Boot.wim	第 61 页
9. 卸载映像：Boot.wim	第 61 页
III. 部署引擎	第 61 页

1. 添加方式	第 62 页
2. 部署引擎：进阶	第 65 页
D. 生成 ISO	第 68 页

章节 2 部署

第 68 页

A. 部署前应注意	第 68 页
1. 在选择安装 Windows 11 的位置时	第 68 页
2. 运行安装程序时	第 69 页
B. 部署操作系统到物理设备	第 69 页
1. 准备引导安装程序前先决条件	第 69 页
1.1. 创建可引导的安装物理存储介质	第 70 页
1.2. CD-ROM	第 70 页
1.3. 通过网络安装 (PXE 启动)	第 70 页
2. 物理设备进入系统安装引导	第 70 页
C. 部署到正在使用的系统里，将原生启动 VHD 添加到现有启动菜单里	第 70 页
1. 创建 VHD/VHDX 文件	第 70 页
1.1. 磁盘管理交互式	第 70 页
1.2. 命令行创建	第 71 页
2. 应用 Install.wim 里的系统到 VHD/VHDX 文件里	第 71 页
3. 将原生启动 VHD 添加到现有 Windows 10/11 启动菜单中	第 71 页
D. 部署到虚拟机	第 72 页
E. 进阶部署	第 73 页

章节 3 学习

第 76 页

A. 附加版	第 76 页
1. 附加版：仅需制作主要的所需版 ID	第 76 页
2. 附加版：制作可附加版 ID 和所需版 ID 对照	第 76 页
3. 附加版：排序	第 76 页
4. 附加版：事件	第 77 页

章节 4 常见问题

第 78 页

A. 清理所有挂载到	第 78 页
B. 修复挂载出现异常的问题	第 78 页
C. 清理	第 78 页

章节 5 已知问题

第 79 页

章节 1 封装

A. 先决条件

I. 正在运行的系统

1. 检查正在运行的系统是否健康

检查正在运行的系统是否健康尤为重要，如果扫描后提示需要修复，向脱机映像添加累积更新和执行其它操作时会报错。如何检查，

运行：`sfc /scannow`

验证过程完成后，如果问题已发现并纠正，您将在命令提示符窗口中看到类似以下内容：

1.1. Windows 资源保护未发现任何完整性违规情况。

待处理：`无需修复。`

1.2. Windows 资源保护发现了损坏的文件，但无法修复其中一些文件。

待处理：`需要修复`，可使用以下命令尝试修复：

`Dism /Online /Cleanup-Image /CheckHealth`

`Dism /Online /Cleanup-Image /ScanHealth`

`dism /Online /Cleanup-Image /RestoreHealth`

注意：若遇到无法修复，请重新安装系统。

2. 使用 DISM 命令时

2.1. 学习 DISM 概述

<https://learn.microsoft.com/zh-cn/windows-hardware/manufacture/desktop/what-is-dism>

DISM 限制，使用 DISM 维护 Windows 映像时，管理员必须注意其固有的限制。其中之一是它不支持弹性文件系统 (ReFS)。

ReFS 是适用于 Windows Server 2022、Windows Server 2019、Windows Server 2016、Windows Server 2012 R2 和 Windows Server 2012 操作系统的全新文件系统。它可以高效地扩展到大型数据集，并提供比旧文件系统更高的数据可用性和性能。

警告您，磁盘分区，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。

正在运行的操作系统是 Windows 10 或者低于 Windows 11 25H2 时，在某些情况下使用 DISM 命令在制作高版本镜像时，会引发一些未知的问题，例如：在 Windows 10 操作系统里运行 DISM 命令来处理 Windows Server 2025 脱机映像时，在封装过程中也许会收到报错信

息：“此应用无法在你的电脑运行”，解决方法：

- 1) 升级正在运行的操作系统或重新安装到更高的版本（建议）；
 - 2) 升级或安装新版 ADK 或 PowerShell 版本（不建议）
 - 可尝试升级到最新 PowerShell 7 以上的版本；
 - 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。
3. 加速 Windows 操作系统的 N 种方法

在处理封装任务时，安装累积更新、安装驱动、安装 InBox Apps 里的应用时，会产生大量的临时文件，可用以下几种方法加速系统：

3.1. 关闭 Windows 防病毒

- 开启 Windows 防病毒会扫描文件、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”。

3.1.1. 打开“Windows 安全”或运行：[windowsdefender](#):

3.1.2. 选择“病毒和威胁防护”或运行：[windowsdefender://threat](#)

3.1.3. 找到“病毒和威胁防护设置”，点击“管理设置”或运行：[windowsdefender://threatsettings](#)，建议您关闭部分功能：

3.1.3.1. 实时保护

3.1.3.2. 云提供的保护

3.1.3.3. 自动提交样本

3.1.3.4. 篡改防护

3.1.4. 未处于封装时，建议您开启 Windows 防病毒。

3.2. 为你的电脑关闭 Device/Credential Guard

即便是关闭 Windows 安全中心后，基于虚拟化的安全性处于运行中，系统运行速度也会大打折扣，自微软更新 Windows 11 24H2 之后，每次全新安装或者更新都会启用 Device/Credential Guard（或者说 VBS），这就会导致开了嵌套虚拟化的 VMware Workstation 和其它虚拟机软件无法正常使用，以及降速等。

但是，微软提供了一个名为 Device Guard and Credential Guard hardware readiness tool 工具来关闭 Device/Credential Guard，如何关闭：

3.2.1. 下载 Device Guard and Credential Guard hardware readiness tool

打开连接：<https://www.microsoft.com/en-us/download/details.aspx?id=53337> 后点击下载按钮，下载后获得 dgreadiness_v3.6.zip 文件，解压到 C 盘（解压到其它位置请执行时替换路径）。

3.2.2. 执行关闭命令

打开 Terminal（终端），依次运行：

```
Set-ExecutionPolicy -ExecutionPolicy Bypass -Scope LocalMachine -Force  
C:\dgreadiness_v3.6\DG_Readiness_Tool_v3.6.ps1 -Disable
```

3.2.3. 运行后，重新启动计算机

重启后 Windows 会进入 Credential Guard Opt-out Tool，此时按下 Windows 键或 F3 后再按回车即可继续。

3.2.4. 查看状态

重新启动计算机后，运行 msinfo32，在系统摘要查看“基于虚拟化的安全”状态，或运行后查看状态：

```
C:\dgreadiness_v3.6\DG_Readiness_Tool_v3.6.ps1 -Ready
```

3.2.5. 如何恢复

运行命令行后重新启动计算机生效。

```
C:\dgreadiness_v3.6\DG_Readiness_Tool_v3.6.ps1 -Enable
```

使用 Device Guard and Credential Guard hardware readiness tool 工具无法关闭，或者尝试使用雷电模拟器的工具：

<https://res.ldmnq.com/test/HyperV-off.exe>，下载后以管理员身份运行，完成后重新启动计算机。

3.3. 开启 Windows 原生 NVMe 存储堆栈

阅读微软官方新闻：[Windows Server 2025 正式推出原生 NVMe：开启存储性能新时代](#)

开启 Windows 原生 NVMe 存储堆栈，获取至高约 80% 的 IOPS 性能暴涨，如果使用的 NVMe 硬盘，建议您开启此项，开启前需要满足：Windows server 2025 和 Windows 11 26100.6899 / 26200.6899 以上，该特征仅对 NVMe SSD 生效，请查看当前硬盘是否满足。

启用步骤：

3.3.1. 确保当前使用的存储控制器为 Windows 自带的标准 NVM Express 控制器，如目前正在使用其他非 Windows 自带的驱动，建议卸载。

3.3.2. 确保当前使用的操作系统版本号为 26100.6899 / 26200.6899 或更高的版本

3.3.3. 以下两种方式（来自微软官方，本质上操作相同，二选一即可）

3.3.3.1. 运行 PowerShell（管理员），执行以下命令，重启电脑

```
reg add HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Policies\Microsoft\FeatureManagement\Overrides /v 1176759950 /t REG_DWORD /d 1 /f
```

3.3.3.2. 或下载解压并安装以下组策略 MSI 文件，将其设为已启用，重启电脑

```
https://download.microsoft.com/download/123547b0-bff7-419d-96ba-d1cfee92f442/Windows%2011%2024H2,%20Windows%2011%2025H2%20and%20Windows%20Server%202020%20KB5066835%20251014_21251%20Feature%20Preview.msi
```

安装后位于：组策略 > 计算机配置 > 管理模板 > KB5066835 251014_21251 Feature Preview > Windows 11, version 24H2, 25H2

3.3.4. Windows 11 开启方式相对 Windows Server 有所不同，还需在 PowerShell（管理员）添加并执行以下命令：

```
reg add HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Policies\Microsoft\FeatureManagement\Overrides /v 1853569164 /t REG_DWORD /d 1 /f
```

```
reg add HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Policies\Microsoft\FeatureManagement\Overrides /v 156965516 /t REG_DWORD /d 1 /f
```

```
reg add HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Policies\Microsoft\FeatureManagement\Overrides /v 735209102 /t REG_DWORD /d 1 /f
```

3.3.5. 若已使用上述命令并重启电脑后依旧无法开启，也可用 ViveTool 命令强制开启

需要 ViveTool，前往：<https://github.com/thebookisclosed/ViVe/releases> 下载，下载完成后运行：

```
vivetool.exe /enable /id:48433719,49453572,5536923
```

28020 以上还需要运行：<vivetool.exe /enable /id:48613417>

3.3.6. 解决无法进入安全模式

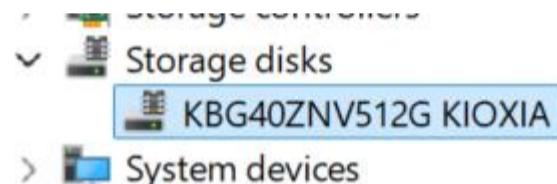
Windows 安全模式默认不加载此 NVMe 驱动，故还需执行以下命令使其加载，生效后安全模式即可正常使用

```
reg add HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SafeBoot\Minimal\{75416E63-5912-4DFA-AE8F-3EFACCAFFB14}
```

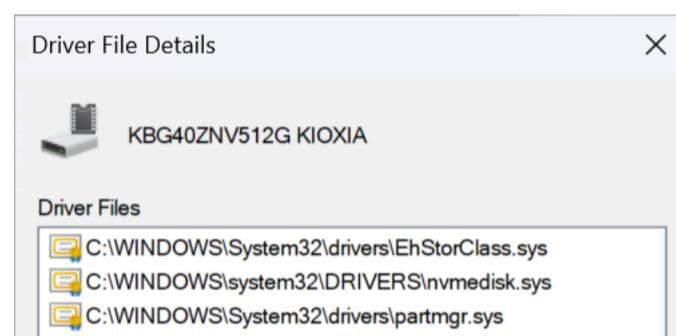
```
reg add HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SafeBoot\Network\{75416E63-5912-4DFA-AE8F-3EFACCAFFB14}
```

3.3.7. 检查该特性是否成功开启的方式与关闭方法

3.3.7.1. 成功开启 Windows 原生 NVMe 模式后，你的 NVMe SSD 在设备管理器中将被归类到全新的 存储磁盘 路径下，如图：



3.3.7.2. 成功开启 Windows 原生 NVMe 模式后，在设备管理器中，右键你的 NVMe SSD 选择属性，驱动程序 > 驱动程序详细信息，会看到驱动程序文件会包含全新的 nvmedisk.sys，如图：



3.3.7.3. 关闭方法

运行：`regedit`（注册表编辑器），进入

`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Policies\Microsoft\FeatureManagement\Overrides` 路径，将
1176759950、156965516、1853569164、735209102 四个键值改为 0 或直接删除，重启电脑即可。

用 Vivetool 开启的 `vivetool.exe /disable /id:48433719,49453572,5536923`

28020 以上还需要运行：`vivetool.exe /disable /id:48613417`

4. 禁用常见文件类型安全警告

- 为什么关闭？选择任意一个 ISO 文件操作时，会弹出“安全警告”，很烦。
- “添加”和“恢复默认策略”后记得“重新启动 Explorer.exe 进程”并立即生效。

4.1. 如何添加

4.1.1. 第一步，选择规则

提供了常见的文件类型规则和仅 *.ISO 规则：

4.1.1.1. 常见文件类型规则

```
$SafetyWarningsExclude = ".exe;.reg;.msi;.bat;.cmd;.com;.vbs;.hta;.scr;.pif;.js;.iso;"
```

4.1.1.2. 仅 .iso 规则

```
$SafetyWarningsExclude = ".iso;"
```

4.1.2. 第二步，添加到系统策略

```
if ((Test-Path -LiteralPath "HKCU:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Associations") -ne $true) { New-Item "HKCU:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Associations" -force -ErrorAction SilentlyContinue | Out-Null; New-ItemProperty -LiteralPath 'HKCU:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Associations' -Name 'LowRiskFileTypes' -Value $SafetyWarningsExclude -PropertyType String -force -ErrorAction SilentlyContinue | Out-Null
```

4.2. 如何恢复默认策略

```
Remove-Item -Path "HKCU:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Associations" -Force -Recurse -ErrorAction SilentlyContinue | Out-Null
```

4.3. 重新启动 Explorer.exe 进程并立即生效

```
Stop-Process -ProcessName explorer -force -ErrorAction SilentlyContinue; Start-Sleep 5; $Running = Get-Process explorer -ErrorAction SilentlyContinue; if (-not ($Running)) { Start-Process "explorer.exe" }
```

5. 虚拟内存盘

内存盘是什么？内存盘也被称为虚拟内存盘，它是一种可以提高电脑内存和文件快速访问的技术。但是内存盘会导致电脑在关闭之后会出现数据丢失，内存盘是比较不安全的一种设置。

虽然如此，但是我不这样认为，在封装过程中会频繁的释放安装包文件、生成日志等，挂载到虚拟盘时，这有很多好处，快速格式化。

添加语言包、添加累积更新、添加 InBox Apps 时，安装包存放于内存虚拟盘里，这样会占用大量的内存，建议您存放于非虚拟内存盘。

5.1. 软件推荐

5.1.1. Ultra RAMDisk | <http://ultraramdisk.com>

- 5.1.2. ImDisk | <https://sourceforge.net/projects/imdisk-toolkit>
- 5.1.3. AMD Radeon RAMDisk | <http://www.radeonramdisk.com>
- 5.1.4. Primo Ramdisk | <https://www.romexsoftware.com/en-us/primo-ramdisk/index.html>
- 5.1.5. SoftPerfect RAM Disk | <https://www.softperfect.com/products/ramdisk>
- 5.1.6. StarWind RAM Disk | <https://www.starwindsoftware.com/high-performance-ram-disk-emulator>

5.2. 如何创建

创建内存盘时应计算物理内存未使用率，打开“任务管理器”，“性能”，查看内存剩余率，建议：

- 5.3. 物理内存 16G，系统剩余 10G 时，建议划分：6G 内存 + 40G 交换文件，保留剩余内存 4G 以上；
- 5.4. 物理内存 32G：系统剩余 26G 时，建议划分：20 内存 + 40G 交换文件，保留剩余内存 6G 以上；
- 5.5. 物理内存 64G：系统剩余 54G 时，仅划分 40G 内存，无需创建交换文件，保留剩余内存 8G 以上；
- 5.6. 物理内存 128G：系统剩余 115G 时，划分 40 内存之间，无需创建交换文件。

注意：内存不足时会导致在封装过程中出现问题。

6. ISO 工具

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

7. 压缩软件

准备一款常用的压缩软件：7-Zip、WinRAR 或其它，推荐您下载 7-Zip 并安装，根据架构选择下载：

- 7.1. 7-Zip
 - x64: <https://www.7-zip.org/a/7z2501-x64.exe>
 - x86: <https://www.7-zip.org/a/7z2501.exe>
 - arm64: <https://www.7-zip.org/a/7z2501-arm64.exe>

8. 命令行

- 8.1. 可选“Terminal”或“PowerShell ISE”，未安装“Terminal”，请前往 <https://github.com/microsoft/terminal/releases> 后下载；
- 8.2. 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 -Scope LocalMachine -Force
```

- 8.3. 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；
- 8.4. 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"

II. 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. 制作 Windows 11 24H2 和 25H2 时，请使用 Windows 11 24H2 (26100.1742) 初始版本；
- 1.1.2. 每版本更新时请重新制作镜像，例如从 (22H2 和 23H2) 跨越到 (24H2 和 25H2) 时，应避免出现其它兼容性问题
请勿在旧镜像基础上制作；
22H2 和 23H2 语言包通用，24H2 和 25H2 语言包通用，InBox Apps，可直接使用最新的版本。

微软官方文档 “[向 Windows 11 企业版映像添加语言](#)” 里，在提供的下载连接就已经分类了。

- 1.1.3. 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；
- 1.1.4. 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；
- 1.1.5. 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。
- 1.1.6. 进化历史，

1.1.6.1. 进化为 24H2：Microsoft Windows 11 24H2, Build 26100.1742 +

- 初始版本累积更新 (KB5043080) +
- 服务堆栈更新 (SSU) + 累积更新 (KB5074105)

= OS Build 26100.7705

1.1.6.2. 进化为 25H2：Microsoft Windows 11 24H2, Build 26100.1742 +

- 检查点更新 (KB5054156) +
- 初始版本累积更新 (KB5043080) +

- 服务堆栈更新 (SSU) + 累积更新 (KB5074105)

= OS Build 26200.7705

默认制作 25H2，如需制作 24H2 请前往 Windows 更新目录里下载 24H2 相应的累积更新。

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_consumer_editions_version_24h2_x64_dvd_1d5fcad3.iso](https://files.rg-adguard.net/file/1ebf9c88-803f-636e-ad8a-5b60966dcd64)

文件列表: <https://files.rg-adguard.net/file/1ebf9c88-803f-636e-ad8a-5b60966dcd64>

1.2.1.2. 文件名: [en-us_windows_11_business_editions_version_24h2_x64_dvd_59a1851e.iso](https://files.rg-adguard.net/file/4bfa831a-0073-3bb4-5dde-6c07df68d7e3)

文件列表: <https://files.rg-adguard.net/file/4bfa831a-0073-3bb4-5dde-6c07df68d7e3>

1.2.1.3. 文件名: [en-us_windows_11_iot_enterprise_version_24h2_x64_dvd_3a99b72b.iso](https://files.rg-adguard.net/file/d8ee9445-b9eb-5f45-f75e-e92a057820bf)

文件列表: <https://files.rg-adguard.net/file/d8ee9445-b9eb-5f45-f75e-e92a057820bf>

1.2.1.4. 文件名: [en-us_windows_11_enterprise_ltsc_2024_x64_dvd_965cfb00.iso](https://files.rg-adguard.net/file/142ca376-487f-e858-a606-e120e70b9d02)

文件列表: <https://files.rg-adguard.net/file/142ca376-487f-e858-a606-e120e70b9d02>

1.2.1.5. 文件名: [en-us_windows_11_iot_enterprise_ltsc_2024_x64_dvd_f6b14814.iso](https://files.rg-adguard.net/file/9160d5cf-f480-a1c9-a62c-b75ab0708d2c)

文件列表: <https://files.rg-adguard.net/file/9160d5cf-f480-a1c9-a62c-b75ab0708d2c>

1.2.2. arm64

1.2.2.1. 文件名: [en-us_windows_11_consumer_editions_version_24h2_arm64_dvd_4cc70bf6.iso](https://files.rg-adguard.net/file/9f751f60-0919-4a5a-8fb5-7bd6340a5df6)

文件列表: <https://files.rg-adguard.net/file/9f751f60-0919-4a5a-8fb5-7bd6340a5df6>

1.2.2.2. 文件名: [en-us_windows_11_business_editions_version_24h2_arm64_dvd_ad92e9d8.iso](https://files.rg-adguard.net/file/cfb08972-7f11-f3a5-ae7c-8f084dc1996e)

文件列表: <https://files.rg-adguard.net/file/cfb08972-7f11-f3a5-ae7c-8f084dc1996e>

1.2.2.3. 文件名: [en-us_windows_11_iot_enterprise_version_24h2_arm64_dvd_e9155a10.iso](https://files.rg-adguard.net/file/en-us_windows_11_iot_enterprise_version_24h2_arm64_dvd_e9155a10.iso)

文件列表: <https://files.rg-adguard.net/file/bacf17e5-a307-5a01-1a35-71268dc0c2e3>

1.2.2.4. 文件名: [en-us_windows_11_iot_enterprise_ltsc_2024_arm64_dvd_ec517836.iso](https://files.rg-adguard.net/file/en-us_windows_11_iot_enterprise_ltsc_2024_arm64_dvd_ec517836.iso)

文件列表: <https://files.rg-adguard.net/file/de2234af-1514-ff50-50af-5a3395549c42>

- 1.3. 示例下载 [en-us_windows_11_consumer_editions_version_24h2_x64_dvd_1d5fcad3.iso](https://files.rg-adguard.net/file/en-us_windows_11_consumer_editions_version_24h2_x64_dvd_1d5fcad3.iso) 后, 解压到: D:\en-us_windows_11_consumer_editions_version_24h2_x64_dvd_1d5fcad3

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_consumer_editions_version_24h2_x64_dvd_1d5fcad3 更改为 D:\ISOTEMP

- 1.5. 如何合并多个映像版本? 合并建议:

- 1.5.1. 下载 [en-us_windows_11_business_editions_version_24h2_x64_dvd_59a1851e.iso](https://files.rg-adguard.net/file/en-us_windows_11_business_editions_version_24h2_x64_dvd_59a1851e.iso) 后, 选择此文件后 “双击” 或点右键“挂载”, 例如挂载盘符为 E:\ (如果不是请替换), 建议添加索引号: 3、4, 添加命令:

```
Export-WindowsImage -SourceImagePath "E:\sources\install.wim" -SourceIndex 3 -DestinationImagePath  
"D:\ISOTEMP\sources\install.wim" -CompressionType Max -CheckIntegrity
```

```
Export-WindowsImage -SourceImagePath "E:\sources\install.wim" -SourceIndex 4 -DestinationImagePath  
"D:\ISOTEMP\sources\install.wim" -CompressionType Max -CheckIntegrity
```

- 1.5.2. 下载 [en-us_windows_11_iot_enterprise_version_24h2_x64_dvd_3a99b72b.iso](https://files.rg-adguard.net/file/en-us_windows_11_iot_enterprise_version_24h2_x64_dvd_3a99b72b.iso) 后, 选择此文件后 “双击” 或点右键“挂载”, 例如挂载盘符为 F:\ (如果不是请替换), 建议添加索引号: 2、3, 添加命令:

```
Export-WindowsImage -SourceImagePath "F:\sources\install.wim" -SourceIndex 2 -DestinationImagePath  
"D:\ISOTEMP\sources\install.wim" -CompressionType Max -CheckIntegrity
```

```
Export-WindowsImage -SourceImagePath "F:\sources\install.wim" -SourceIndex 3 -DestinationImagePath  
"D:\ISOTEMP\sources\install.wim" -CompressionType Max -CheckIntegrity
```

- 1.5.3. 下载 [en-us_windows_11_enterprise_ltsc_2024_x64_dvd_965cfb00.iso](https://files.rg-adguard.net/file/en-us_windows_11_enterprise_ltsc_2024_x64_dvd_965cfb00.iso) 后, 选择此文件后 “双击” 或点右键“挂载”, 例如挂载盘符为 G:\ (如果不是请替换), 建议全部添加, 已知索引号: 1、2, 添加命令:

```
Export-WindowsImage -SourceImagePath "G:\sources\install.wim" -SourceIndex 1 -DestinationImagePath  
"D:\ISOTEMP\sources\install.wim" -CompressionType Max -CheckIntegrity
```

```
Export-WindowsImage -SourceImagePath "G:\sources\install.wim" -SourceIndex 2 -DestinationImagePath  
"D:\ISOTEMP\sources\install.wim" -CompressionType Max -CheckIntegrity
```

- 1.5.4. 下载 [en-us_windows_11_iot_enterprise_ltsc_2024_x64_dvd_f6b14814.iso](https://files.rg-adguard.net/file/en-us_windows_11_iot_enterprise_ltsc_2024_x64_dvd_f6b14814.iso) 后, 选择此文件后 “双击” 或点右键“挂

载”，例如挂载盘符为 H:\ (如果不是请替换)，建议添加索引号：2、3，添加命令：

```
Export-WindowsImage -SourceImagePath "H:\sources\install.wim" -SourceIndex 2 -DestinationImagePath  
"D:\ISOTEMP\sources\install.wim" -CompressionType Max -CheckIntegrity
```

```
Export-WindowsImage -SourceImagePath "H:\sources\install.wim" -SourceIndex 3 -DestinationImagePath  
"D:\ISOTEMP\sources\install.wim" -CompressionType Max -CheckIntegrity
```

注意：合并多映像版本时，必须添加 Ei.Cfg

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:\ISOTEMP\Sources 里，创建 ei.cfg：

```
@"
```

```
[Channel]
```

```
volume
```

```
[VL]
```

```
1
```

```
"@ | Out-File -FilePath "D:\ISOTEMP\sources\EI.CFG" -Encoding Ascii
```

1.7. 所有脚本、所有路径，已默认设置为 D:\ISOTEMP 为映像来源。

1.8. 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。

1.8.1. 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.Overview.xlsx

- https://raw.githubusercontent.com/ilikeyi/solutions/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Install/Report.Overview.xlsx

1.8.2. 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：

Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~*~.cab

Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~*~.cab

- 2.1.3.2.2. 区域: [bg-bg](#), 可选关联区域: [en-US](#), 关联安装包:
Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~*~.cab
Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~*~.cab
- 2.1.3.2.3. 区域: [da-dk](#), 可选关联区域: [en-US](#), 关联安装包:
Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~*~.cab
Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~*~.cab
- 2.1.3.2.4. 区域: [el-gr](#), 可选关联区域: [en-US](#), 关联安装包:
Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~*~.cab
Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~*~.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:
Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~*~.cab
Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~*~.cab
Microsoft-Windows-LanguageFeatures-Basic-fr-fr-Package~*~.cab
Microsoft-Windows-LanguageFeatures-Handwriting-fi-fi-Package~*~.cab
- 2.1.3.2.6. 区域: [he-il](#), 可选关联区域: [en-US](#), 关联安装包:
Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~*~.cab
Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~*~.cab
- 2.1.3.2.7. 区域: [ru-ru](#), 可选关联区域: [en-US](#), 关联安装包:
Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~*~.cab
Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~*~.cab
- 2.1.3.2.8. 区域: [th-th](#), 可选关联区域: [en-US](#), 关联安装包:
Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~*~.cab
Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~*~.cab
- 2.1.3.2.9. 区域: [uk-ua](#), 可选关联区域: [en-US](#), 关联安装包:
Microsoft-Windows-LanguageFeatures-Basic-es-us-Package~*~.cab

Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~*~.cab

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

Microsoft-Windows-LanguageFeatures-Basic-zh-hk-Package~*~.cab

Microsoft-Windows-LanguageFeatures-Speech-zh-hk-Package~*~.cab

Microsoft-Windows-LanguageFeatures-TextToSpeech-zh-hk-Package~*~.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历的任何 API 调用失败。

存在争议:

- 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. 下载: https://software-static.download.prss.microsoft.com/dbazure/888969d5-f34g-4e03-ac9d-1f9786c66749/26100.1.240331-1435.ge_release_amd64fre_CLIENT_LOF_PACKAGES_OEM.iso

文件列表: <https://files.rg-adguard.net/file/025cf5d-f5fa-7d00-246e-76c04a40e210>

3. InBox Apps

3.1. 下载最新的 InBox Apps 安装包

下载连接: https://software-static.download.prss.microsoft.com/dbazure/888969d5-f34g-4e03-ac9d-1f9786c66749/26100.6584.250904-1728.ge_release_svc_prod1_amd64fre_InboxApps.iso

文件列表: <https://files.rg-adguard.net/file/ada764e8-717a-d080-099b-d3aa44b84dab>

3.2. 修复缺少项和回退旧版本

3.2.1. Microsoft.SecHealthUI

26100.6584.250904-1728.ge_release_svc_prod1_amd64fre_InboxApps.iso 里安装包

Microsoft.SecHealthUI_8wekyb3d8bbwe.x64.appx 提供的版本号：1000.26100.6584.00，安装此版本后无法汉化，必须使用该版本：1000.26100.1.0，下载时请可通过以下方式获取：

3.2.1.1. 从 Github 里下载

3.2.1.1.1. Microsoft.SecHealthUI_8wekyb3d8bbwe.x64.appx

https://github.com/ilkeyi/Solutions/raw/refs/heads/main/_Learn/Download.Package/Windows.11.25H2/Microsoft.SecHealthUI_8wekyb3d8bbwe.x64.appx

3.2.1.1.2. Microsoft.SecHealthUI_8wekyb3d8bbwe.arm64.appx

https://github.com/ilkeyi/Solutions/raw/refs/heads/main/_Learn/Download.Package/Windows.11.25H2/Microsoft.SecHealthUI_8wekyb3d8bbwe.arm64.appx

3.2.1.2. 从 uupdump.net 里搜索并下载

打开 <https://uupdump.net> 后：在菜单栏选择 Windows 11，下拉菜单选择 24H2，查找或在搜索栏上搜索“26100.2”，未搜索到请选择其它版本里查找，显示所有文件后搜索名称“SecHealthUI”，注意查看 SHA1 是否相同，不是相同就找其它版本。

3.2.1.2.1. x64

- 打开 https://uupdump.net/getfile.php?id=f85d43a4-60e9-4607-8997-a761beb7ef77&file=Microsoft.SecHealthUI_8wekyb3d8bbwe.appx 后显示结果“Microsoft.SecHealthUI_8wekyb3d8bbwe.appx | SHA1: 81e1da943d518a7eddc92fa1bc572b42aa458e28 | 7.01 MiB”
- 选择此文件并进行下载，下载完成后，获得文件“5bf271eb-c77f-4760-b6c8-08de575abc24”，重命名为：Microsoft.SecHealthUI_8wekyb3d8bbwe.x64.appx

3.2.1.2.2. arm64

- 打开 https://uupdump.net/getfile.php?id=a7c6c75e-5d2b-4d77-b7dd-5588614da877&file=Microsoft.SecHealthUI_8wekyb3d8bbwe.appx 后显示结果“Microsoft.SecHealthUI_8wekyb3d8bbwe.appx | SHA1: b1daf2046d448e9d0504661cf4cfdbb7e4cdbea2 | 8 MiB”
- 选择此文件并进行下载，下载完成后，获得文件“1fb6d544-e4ee-470a-8402-76fdc849d97c”，重命名为：Microsoft.SecHealthUI_8wekyb3d8bbwe.arm64.appx

3.2.2. Microsoft.HEVCVideoExtension

26100.6584.250904-1728.ge_release_svc_prod1_amd64fre_InboxApps.iso 里未包含

Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.appxbundle 安装包文件，必须使用该版本：2.4.13.0，下载时请可通过以下方式获取：

3.2.2.1. 无法获得文件时，请通过手动方式下载：

3.2.2.1.1. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.appxbundle

3.2.2.1.1.1. 直连下载

https://github.com/ilikeyi/Solutions/raw/refs/heads/main/_Learn/Download.Package/Windows.11.25H2/Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.appxbundle

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

3.2.2.1.1.2.1. a). 选择 URL (link) , b). 选择频道 (Retail) , c). 输入关键词：

<https://www.microsoft.com/store/productId/9N4WGH0Z6VHQ>

3.2.2.1.1.2.2. 搜索结果：

Microsoft.HEVCVideoExtension_2.4.13.0.*.appxbundle

3.2.2.1.1.2.3. 下载后保存到“桌面”，重命名：

Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.appxbundle

3.2.2.1.2. 许可证

3.2.2.1.2.1. 预保存的许可证

将 {所在位}

置]:\YiSolutions_Learn\Packaging.tutorial\OS.11\25H2\Expand\License\15a6383d188a454ca98e15931ce48dc4_License1.xml 复制到桌面，本地没有就在线下载获取。

3.2.2.1.2.2. 通过在线下载连接，下载文件后，保存到桌面

https://github.com/ilikeyi/Solutions/raw/refs/heads/main/_Learn/Download.Package/Windows.11.25H2/15a6383d188a454ca98e15931ce48dc4_License1.xml

3.2.3. 通过以上方法下载后，将获得以下 4 个文件：

- 3.2.3.1. Microsoft.SecHealthUI_8wekyb3d8bbwe.x64.appx
- 3.2.3.2. Microsoft.SecHealthUI_8wekyb3d8bbwe.arm64.appx
- 3.2.3.3. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.appxbundle
- 3.2.3.4. 15a6383d188a454ca98e15931ce48dc4_License1.xml

3.2.4. 使用 ISO 编辑工具，编辑 [26100.6584.250904-1728.ge_release_svc_prod1_amd64fre_InboxApps.iso](#)，将已准备好的文件添加到 [\[ISO\]:\packages](#) 目录里；

B. 语言包：提取

I. 语言包：准备

挂载 [26100.1.240331-1435.ge_release_amd64fre_CLIENT_LOF_PACKAGES_OEM.iso](#) 或解压到任意位置；

II. 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

III. 执行提取命令

- [Auto](#) = 自动搜索本地所有磁盘，默认；
- 自定义路径，例如指定为 E 盘：\$ISO = "E:\\"
- Extract.ps1
 - [\Expand\Extract.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Extract.ps1
- 复制代码

```
Function Extract_Language {
```

```
param($Act, $NewLang, $Expand, $ISO, $SaveTo)
```

```
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"
    );
    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", "wu-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 = "Looo"
  };
  @{
    Match = @(
        "ml", "ml-IN"
    );
    Name = "Mlym"
  };
  @{
    Match = @(
        "or", "or-IN"
    );
    Name = "Orya"
  };
  @{
    Match = @(
        "si", "si-LK"
    );
    Name = "Sinh"
  };
  @{
    Match = @(
        "tr-tr", "arc-Syrc", "syr", "syr-SY", "syr-Syrc"
    );
    Name = "Syrc"
  };
  @{
    Match = @(
        "ta", "ta-IN", "ta-LK", "ta-MY", "ta-SG"
    );
    Name = "Taml"
  };
  @{
    Match = @(
        "te", "te-IN"
    );
    Name = "Telu"
  };
  @{
    Match = @(
        "th", "th-TH"
    );
    Name = "Thai"
  }
}

ForEach ($item in $Fonts) {
  if (($item.Match) -Contains $Lang) {
    return $item.Name
  }
}

return "Not_matched"
}

Function Match_Other_Region_Specific_Requirements {

param($Lang)

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

ForEach ($item in $RegionSpecific) {
  if (($item.Match) -Contains $Lang) {
    return $item.Name
  }
}

return "Skip_specific_packages"
}

Function Extract_Process {

param($Package, $Name, $NewSaveTo)

$NewSaveTo = "$($SaveTo)\$($NewSaveTo)\Language\$($Act)\$($NewLang)";
New-Item -Path $NewSaveTo -ItemType Directory -ErrorAction SilentlyContinue | Out-Null;

if ($ISO -eq "Auto") {

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

    ForEach ($item in $Package) {
      $TempFilePath = Join-Path -Path $_.Root -ChildPath $item -ErrorAction SilentlyContinue;
      if (Test-Path $TempFilePath -PathType Leaf) {
        Write-host "`n Find: " -NoNewLine;
        Write-host $TempFilePath -ForegroundColor Green;
        Write-host " Copy to: " -NoNewLine;
        Write-host $NewSaveTo;
        Copy-Item -Path $TempFilePath -Destination $NewSaveTo -Force;
      }
    }
  }
}

} else {

  ForEach ($item in $Package) {
    $TempFilePath = Join-Path -Path $ISO -ChildPath $item -ErrorAction SilentlyContinue;
    Write-host "`n Find: " -NoNewline;
    Write-host $TempFilePath -ForegroundColor Green;
    if (Test-Path $TempFilePath -PathType Leaf) {
      Write-host " Copy to: " -NoNewLine;
      Write-host $NewSaveTo;
      Copy-Item -Path $TempFilePath -Destination $NewSaveTo -Force;
    } else {
      Write-host " Not found";
    }
  }
}

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

ForEach ($item in $Package) {
  $Path = "$($NewSaveTo)\$([IO.Path]::GetFileName($item))";
  if (Test-Path $Path -PathType Leaf) {
    Write-host " Discover: " -NoNewLine;
    Write-
}

```

```
host $Path -ForegroundColor Green; } else { Write-host " Not found: " -NoNewLine; Write-host $Path -ForegroundColor Red; } }

$AdvLanguage = @(
    @{
        Path = "Install\Install";
        Rule = @(
            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-Fonts-{DiyLang}-Package~31bf3856ad364e35~AMD64~~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-Client-Language-Pack_x64_{Lang}.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-Basic-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-Handwriting-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-OCR-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-Speech-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-TextToSpeech-{Lang}-Package~31bf3856ad364e35~AMD64~~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-InternetExplorer-Optional-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-MediaPlayer-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-MediaPlayer-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-MSPaint-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-MSPaint-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~AMD64~{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-WMIC-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-WMIC-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\HyperV-OptionalFeature-VirtualMachinePlatform-Client-Disabled-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-DirectoryServices-ADAM-Client-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-DirectoryServices-ADAM-Client-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-EnterpriseClientSync-Host-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-EnterpriseClientSync-Host-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-ProjFS-OptionalFeature-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-SenseClient-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-SnippingTool-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-SimpleTCP-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-SmbDirect-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-Telnet-Client-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-TerminalServices-AppServer-Client-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-TerminalServices-AppServer-Client-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-TFTP-Client-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-VBSCRIPT-FoD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-WinOcr-FOD-Package~31bf3856ad364e35~AMD64~{Lang}~.cab";
            "LanguagesAndOptionalFeatures\Microsoft-Windows-WinOcr-FOD-Package~31bf3856ad364e35~AMD64~{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-audiobrokers_{Lang}.cab";
                "Windows Preinstallation Environment\x64\WinPE_OCs\{Lang}\winpe-audiocore_{Lang}.cab";
                "Windows Preinstallation Environment\x64\WinPE_OCs\{Lang}\winpe-connectivity_{Lang}.cab";
                "Windows Preinstallation Environment\x64\WinPE_OCs\{Lang}\winpe-narrator_{Lang}.cab";
                "Windows Preinstallation Environment\x64\WinPE_OCs\{Lang}\winpe-enhancedstorage_{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-srt_{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-storagewmi_{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-windowsupdate_{Lang}.cab";
                "Windows Preinstallation Environment\x64\WinPE_OCs\{Lang}\winpe-wifidriver_{Lang}.cab";
                "Windows Preinstallation Environment\x64\WinPE_OCs\{Lang}\winpe-windowsupdate_{Lang}.cab"
            )
        }
)
```

```

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 = @( "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

        }

    }

}

$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" ) }
)

ForEach ($item in $Extract_language_Pack) { Extract_Language -Act $item.Act -NewLang $item.Tag -Expand $item.Scope -ISO "Auto" -SaveTo "D:\ISOTEMP_Custom"; }

```

C. 自定义封装

I. 自定义封装：Install.wim

1. 查看 Install.wim 详细信息

在开始挂载前，应先分析 Windows 映像的内容结构，通常包含多个不同的版本（如家庭版、企业版、教育版等），使用查看命令可显示：映像名称、映像描述、映像大小、架构、版本、索引号等，然后自定义所需的“索引号”进行挂载。

```
$ViewFile = "D:\ISOTEMP\Sources\Install.wim"; Get-WindowsImage -ImagePath $ViewFile | Foreach-Object { Get-WindowsImage -ImagePath
```

```
$ViewFile -index $_.ImageIndex };
```

循环操作前, 请先学习: 附加版: 仅需制作主要的所需版 ID, 建议您仅需制作 ID: Core、CoreN、Professional、ProfessionalN、EnterpriseS、EnterpriseSN 后进行附加版。

循环操作区域, 开始,

2. 指定挂载 Install 路径

```
New-Item -Path "D:\ISOTEMP_Custom\Install\Install\Mount" -ItemType directory
```

3. 开始挂载 Install.wim

默认索引号: 1

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

- 验证挂载状态

挂载完成后, 查看“已挂载的 Windows 映像信息, 包括挂载目录、映像名称、状态”等, 运行命令:

```
Get-WindowsImage -Mounted
```

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:\ISOTEMP_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:\ISOTEMP_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:\ISOTEMP_Custom\Install\Install\Mount\Windows\System32\Recovery\WinRE.wim" -Index "1" -Path "D:\ISOTEMP_Custom\Install\WinRE\Mount"
```

- 验证挂载状态

挂载完成后，查看“已挂载的 Windows 映像信息，包括挂载目录、映像名称、状态”等，运行命令：

```
Get-WindowsImage -Mounted
```

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.11/24H2/Expand/Install/WinRE/WinRE.Instl.lang.ps1

- 复制代码

```
$Mount = "D:\ISOTEMP_Custom\Install\WinRE\Mount"; $Sources = "D:\ISOTEMP_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 = @( @{ Match = "*WinPE-LanguagePack-Package*"; File = "lp.cab"; } ;@{ Match = "*WinPE-appxdeployment*"; File = "winpe-appxdeployment_zh-CN.cab"; } ;
@{ Match = "*WinPE-AppxPackaging*"; File = "winpe-appxpckaging_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 = "*connectivity*"; File = "winpe-connectivity_zh-CN.cab"; } ;@{ Match = "*EnhancedStorage*"; File = "winpe-enhancedstorage_zh-CN.cab"; } ;@{ Match = "*hta*"; File = "winpe-hta_zh-CN.cab"; } ;@{ Match = "*Narrator*"; File = "winpe-narrator_zh-CN.cab"; } ;@{ Match = "*opcservices*"; File = "winpe-opcservices_zh-CN.cab"; } ;@{ Match = "*rejuv*"; File = "winpe-rejuv_zh-CN.cab"; } ;@{ Match = "*scripting*"; File = "winpe-scripting_zh-CN.cab"; } ;@{ Match = "*SecureStartup*"; File = "winpe-securestartup_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 = "*StorageWMI*"; File = "winpe-storagewmi_zh-CN.cab"; } ;@{ Match = "*wds-tools*"; File = "winpe-wds-tools_zh-CN.cab"; } ;@{ Match = "*WiFi*"; File = "winpe-wifi_zh-CN.cab"; } ;@{ Match = "*windowsupdate*"; File = "winpe-windowsupdate_zh-CN.cab"; } ;@{ Match = "*WinPE-WMI-Package*"; File = "winpe-wmi_zh-CN.cab"; } )
```

```
ForEach ($Rule in $Language) {
    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; Write-host " $($_) " -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:\ISOTEMP_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:\ISOTEMP_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:\ISOTEMP_Custom\Install\WinRE\Mount" | Out-GridView
```

3.1.4.3.2. 导出到 Csv

```
$SaveTo = "D:\ISOTEMP_Custom\Install\WinRE\Report.Components.$(Get-Date -Format
"yyyyMMddHHmmss").csv"; Get-WindowsPackage -Path
"D:\ISOTEMP_Custom\Install\WinRE\Mount" | Export-CSV -NoType -Path $SaveTo; Write-host
$SaveTo -ForegroundColor Green;
```

3.1.5. 累积更新

3.1.5.1. 添加

前往下载页面：<https://www.catalog.update.microsoft.com/Search.aspx?q=KB5070186>，下载后保存到：

D:\ISOTEMP_Custom\Install\WinRE\Update, 或通过直连下载, 根据架构选择下载:

3.1.5.1.1. x64, 默认

- 直连下载

https://catalog.sfdelivery.mp.microsoft.com/filestreamingservice/files/4bbd25e0-ac80-41bc-bd38-1bdba0bb63d6/public/windows11.0-kb5070186-x64_71c4a1f083355193e464c0bd3e538dd34753f8dd.cab

- 安装

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\WinRE\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\WinRE\Update\windows11.0-kb5070186-x64_71c4a1f083355193e464c0bd3e538dd34753f8dd.cab"
```

3.1.5.1.2. arm64

- 直连下载

https://catalog.sfdelivery.mp.microsoft.com/filestreamingservice/files/842afa37-e29b-435c-9c22-36f32e81e5c3/public/windows11.0-kb5070186-arm64_04864c55245d82fec095d6677bc26b4ed70cb1bf.cab

- 安装

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\WinRE\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\WinRE\Update\windows11.0-kb5070186-arm64_04864c55245d82fec095d6677bc26b4ed70cb1bf.cab"
```

3.1.5.2. 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:\ISOTEMP_Custom\Install\WinRE\Mount" /cleanup-image /StartComponentCleanup  
/ResetBase
```

3.1.5.2.1. 固化更新后清理组件

```
$Mount = "D:\ISOTEMP_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:\ISOTEMP_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:\ISOTEMP_Custom\Install\WinRE\Mount" -Discard
```

3.1.9. 重建 WinRE.wim 后，可缩小文件大小

- [WinRE.Rebuild.ps1](#)
 - [\Expand\Install\WinRE\WinRE.Rebuild.ps1](#)
 - https://github.com/ilkeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Install/WinRE/WinRE.Rebuild.ps1
- 复制代码

```
$FileName = "D:\ISOTEMP_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; }
```

3.1.10. 备份 WinRE.wim

- [WinRE.Backup.ps1](#)
 - [\Expand\Install\WinRE\WinRE.Backup.ps1](#)
 - https://github.com/ilkeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Install/WinRE/WinRE.Backup.ps1
- 复制代码

```
$WimLibPath = "D:\ISOTEMP_Custom\Install\Install\Update\Winlib"; $FileName =  
"D:\ISOTEMP_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/ilkeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Install/Install.Instl.lang.ps1
- 复制代码

```
Function Language_Install {
    param($Mount, $Sources, $Lang)

    $Initl_install_Language_Component = @(); $Script:Init_Folder_All_File = @();

    if (Test-Path $Mount -PathType Container) { Get-WindowsPackage -Path $Mount | ForEach-Object { $Initl_install_Language_Component += $_.PackageName }; } else { Write-Host "Not mounted: $($Mount)"; return; }

    if (Test-Path "$($Sources)\$($Lang)" -PathType Container) {
        Get-ChildItem -Path $Sources -Recurse -Include "*.cab" -ErrorAction SilentlyContinue | ForEach-Object { $Script:Init_Folder_All_File += $_.FullName }

        Write-host ```n Available language pack installation files`

        if ($Script:Init_Folder_All_File.Count -gt 0) { ForEach ($item in $Script:Init_Folder_All_File) { Write-host " $($item)"; } } else { Write-host "There are no language pack files locally"; return; } } else { Write-Host "Path does not exist: $($Sources)\$($Lang)"; return; }

    $Script:Init_Folder_All_File_Match_Done = @(); $Script:Init_Folder_All_File_Exclude = @();

    $Script:Search_File_Order = @(
        @{ Name = "Fonts"; Description = "Fonts"; Rule = @( "*Fonts*"; ); }
        @{ Name = "Basic"; Description = "Basic"; Rule = @( "*LanguageFeatures-Basic*"; "*Client*Language*Pack*"; ); }
        @{ Name = "OCR"; Description = "Optical character recognition"; Rule = @( "*LanguageFeatures-OCR*"; ); }
        @{ Name = "Handwriting"; Description = "Handwriting recognition"; Rule = @( "*LanguageFeatures-Handwriting*"; ); }
        @{ Name = "TextToSpeech"; Description = "Text-to-speech"; Rule = @( "*LanguageFeatures-TextToSpeech*"; ); }
        @{ Name = "Speech"; Description = "Speech recognition"; Rule = @( "*LanguageFeatures-Speech*"; ); }
    )
}
```

```

@{ Name = "RegionSpecific"; Description = "Other region-specific requirements"; Rule = @("(*InternationalFeatures*"); }

@{ Name = "Retail"; Description = "Retail demo experience"; Rule = @("(*RetailDemo*"); }

@{ Name = "Features_On_Demand"; Description = "Features on demand"; Rule = @("(*InternetExplorer*x86~*"; "*InternetExplorer*x64~*";
"**InternetExplorer*~amd64~*"; "**InternetExplorer*~wow64~*"; "**InternetExplorer*~arm64.x86~*"; "**InternetExplorer*~arm64~*"; "MSPaint*x86~*"; "MSPaint*x64~*";
"**MSPaint*~amd64~*"; "**MSPaint*~wow64~*"; "**MSPaint*~arm64.x86~*"; "**MSPaint*~arm64~*"; "Notepad-FoD-Package*x86~*"; "Notepad-FoD-Package*x64~*";
"**Notepad-FoD-Package*~amd64~*"; "**Notepad-FoD-Package*~wow64~*"; "**Notepad-FoD-Package*~arm64.x86~*"; "**Notepad-FoD-Package*~arm64~*"; "Notepad-
System-FoD-Package*x86~*"; "Notepad-System-FoD-Package*x64~*"; "Notepad-System-FoD-Package*~amd64~*"; "Notepad-System-FoD-Package*~wow64~*";
"**Notepad-System-FoD-Package*~arm64.x86~*"; "Notepad-System-FoD-Package*~arm64~*"; "MediaPlayer*x86~*"; "MediaPlayer*x64~*";
"**MediaPlayer*~amd64~*"; "**MediaPlayer*~wow64~*"; "**MediaPlayer*~arm64.x86~*"; "MediaPlayer*~arm64~*"; "PowerShellISE*x86~*";
"**PowerShellISE*~x64~*"; "**PowerShellISE*~amd64~*"; "**PowerShellISE*~wow64~*"; "**PowerShellISE*~arm64.x86~*"; "**PowerShellISE*~arm64~*";
"StepsRecorder*x86~*"; "StepsRecorder*x64~*"; "StepsRecorder*~amd64~*"; "StepsRecorder*~wow64~*"; "StepsRecorder*~arm64.x86~*",
"**StepsRecorder*~arm64~*"; "SnippingTool*x86~*"; "SnippingTool*x64~*"; "SnippingTool*~amd64~*"; "SnippingTool*~wow64~*"; "SnippingTool*~arm64.x86~*";
"**SnippingTool*~arm64~*"; "WMIC*x86~*"; "WMIC*x64~*"; "WMIC*~amd64~*"; "WMIC*~wow64~*"; "WMIC*~arm64.x86~*"; "WMIC*~arm64~*";
"WordPad*x86~*"; "WordPad*x64~*"; "WordPad*~amd64~*"; "WordPad*~wow64~*"; "WordPad*~arm64.x86~*"; "WordPad*~arm64~*"; "Printing-WFS*x86~*";
"**Printing-WFS*~x64~*"; "Printing-WFS*~amd64~*"; "Printing-WFS*~wow64~*"; "Printing-WFS*~arm64.x86~*"; "Printing-WFS*~arm64~*"; "Printing-PMCPPC*x86~*";
"**Printing-PMCPPC*~x64~*"; "Printing-PMCPPC*~amd64~*"; "Printing-PMCPPC*~wow64~*"; "Printing-PMCPPC*~arm64.x86~*"; "Printing-PMCPPC*~arm64~*";
"Telnet-Client*x86~*"; "Telnet-Client*x64~*"; "Telnet-Client*~amd64~*"; "Telnet-Client*~wow64~*"; "Telnet-Client*~arm64.x86~*"; "Telnet-Client*~arm64~*";
"**TFTP-Client*~x86~*"; "TFTP-Client*x64~*"; "TFTP-Client*~amd64~*"; "TFTP-Client*~wow64~*"; "TFTP-Client*~arm64.x86~*"; "TFTP-Client*~arm64~*";
"VBSCRIPT*x86~*"; "VBSCRIPT*x64~*"; "VBSCRIPT*~amd64~*"; "VBSCRIPT*~wow64~*"; "VBSCRIPT*~arm64.x86~*"; "VBSCRIPT*~arm64~*"; "WinOcr-FOD-
Package*x86~*"; "WinOcr-FOD-Package*x64~*"; "WinOcr-FOD-Package*~amd64~*"; "WinOcr-FOD-Package*~wow64~*"; "WinOcr-FOD-Package*~arm64.x86~*";
"**WinOcr-FOD-Package*~arm64~*"; "ProjFS-OptionalFeature-FOD-Package*x86~*"; "ProjFS-OptionalFeature-FOD-Package*x64~*"; "ProjFS-OptionalFeature-FOD-
Package*~amd64~*"; "ProjFS-OptionalFeature-FOD-Package*~wow64~*"; "ProjFS-OptionalFeature-FOD-Package*~arm64.x86~*"; "ProjFS-OptionalFeature-FOD-
Package*~arm64~*"; "ServerCoreFonts-NonCritical-Fonts-BitmapFonts-FOD-Package*x86~*"; "ServerCoreFonts-NonCritical-Fonts-BitmapFonts-FOD-Package*x64~*";
"**ServerCoreFonts-NonCritical-Fonts-BitmapFonts-FOD-Package*~amd64~*"; "ServerCoreFonts-NonCritical-Fonts-BitmapFonts-FOD-Package*~wow64~*";
"**ServerCoreFonts-NonCritical-Fonts-BitmapFonts-FOD-Package*~arm64.x86~*"; "ServerCoreFonts-NonCritical-Fonts-BitmapFonts-FOD-Package*~arm64~*";
"**ServerCoreFonts-NonCritical-Fonts-Support-FOD-Package*~x86~*"; "ServerCoreFonts-NonCritical-Fonts-Support-FOD-Package*x64~*"; "ServerCoreFonts-NonCritical-
Fonts-Support-FOD-Package*~amd64~*"; "ServerCoreFonts-NonCritical-Fonts-Support-FOD-Package*~wow64~*"; "ServerCoreFonts-NonCritical-Fonts-Support-FOD-
Package*~arm64.x86~*"; "ServerCoreFonts-NonCritical-Fonts-Support-FOD-Package*~arm64~*"; "ServerCoreFonts-NonCritical-Fonts-TrueType-FOD-Package*x86~*";
"**ServerCoreFonts-NonCritical-Fonts-TrueType-FOD-Package*x64~*"; "ServerCoreFonts-NonCritical-Fonts-TrueType-FOD-Package*~amd64~*"; "ServerCoreFonts-
NonCritical-Fonts-TrueType-FOD-Package*~wow64~*"; "ServerCoreFonts-NonCritical-Fonts-TrueType-FOD-Package*~arm64.x86~*"; "ServerCoreFonts-NonCritical-Fonts-
TrueType-FOD-Package*~arm64~*"; "SimpleTCP-FOD-Package*x86~*"; "SimpleTCP-FOD-Package*x64~*"; "SimpleTCP-FOD-Package*~amd64~*"; "SimpleTCP-FOD-
Package*~wow64~*"; "SimpleTCP-FOD-Package*~arm64.x86~*"; "SimpleTCP-FOD-Package*~arm64~*"; "VirtualMachinePlatform-Client-Disabled-FOD-
Package*x86~*"; "VirtualMachinePlatform-Client-Disabled-FOD-Package*x64~*"; "VirtualMachinePlatform-Client-Disabled-FOD-Package*~amd64~*";
"**VirtualMachinePlatform-Client-Disabled-FOD-Package*~wow64~*"; "VirtualMachinePlatform-Client-Disabled-FOD-Package*~arm64.x86~*"; "VirtualMachinePlatform-
Client-Disabled-FOD-Package*~arm64~*"; "DirectoryServices-ADAM-Client-FOD-Package*x86~*"; "DirectoryServices-ADAM-Client-FOD-Package*x64~*";
"**DirectoryServices-ADAM-Client-FOD-Package*~amd64~*"; "DirectoryServices-ADAM-Client-FOD-Package*~wow64~*"; "DirectoryServices-ADAM-Client-FOD-
Package*~arm64.x86~*"; "DirectoryServices-ADAM-Client-FOD-Package*~arm64~*"; "EnterpriseClientSync-Host-FOD-Package*x86~*"; "EnterpriseClientSync-Host-
FOD-Package*x64~*"; "EnterpriseClientSync-Host-FOD-Package*~amd64~*"; "EnterpriseClientSync-Host-FOD-Package*~wow64~*"; "EnterpriseClientSync-Host-FOD-
Package*~arm64.x86~*"; "EnterpriseClientSync-Host-FOD-Package*~arm64~*"; "SenseClient-FoD-Package*x86~*"; "SenseClient-FoD-Package*x64~*";
"**SenseClient-FoD-Package*~amd64~*"; "SenseClient-FoD-Package*~wow64~*"; "SenseClient-FoD-Package*~arm64.x86~*"; "SenseClient-FoD-Package*~arm64~*";
"SmbDirect-FOD-Package*x86~*"; "SmbDirect-FOD-Package*x64~*"; "SmbDirect-FOD-Package*~amd64~*"; "SmbDirect-FOD-Package*~wow64~*"; "SmbDirect-
FOD-Package*~arm64.x86~*"; "SmbDirect-FOD-Package*~arm64~*"; "TerminalServices-AppServer-Client-FOD-Package*x86~*"; "TerminalServices-AppServer-Client-
FOD-Package*x64~*"; "TerminalServices-AppServer-Client-FOD-Package*~amd64~*"; "TerminalServices-AppServer-Client-FOD-Package*~wow64~*";
"**TerminalServices-AppServer-Client-FOD-Package*~arm64.x86~*"; "TerminalServices-AppServer-Client-FOD-Package*~arm64~*"; })}

ForEach ($item in $Script:Search_File_Order) { New-Variable -Name "Init_File_Type_$($item.Name)" -Value @() -Force }

$ExcludeNameItem = @("Fonts"; "RegionSpecific"; )

ForEach ($WildCard in $Script:Init_Folder_All_File) {

ForEach ($item in $Script:Search_File_Order) {

```

```
ForEach ($item in $Script:Search_File_Order) { New-Variable -Name "Init_File_Type_$($item.Name)" -Value @() -Force }
```

```
$ExcludeNameItem = @("Fonts"; "RegionSpecific"; )
```

```
ForEach ($WildCard in $Script:Init_Folder_All_File) {
```

```
ForEach ($item in $Script:Search_File_Order) {
```

```
ForEach ($NewRule in $item.Rule) {  
  
    if ($WildCard -like "*$($NewRule)*") {  
  
        Write-host "`n Fuzzy matching: " -NoNewline; Write-host $NewRule -ForegroundColor Green;  
  
        Write-host " File name: " -NoNewline; Write-host $WildCard -ForegroundColor Green  
  
        $OSDefaultUser = (Get-Variable -Name "Init_File_Type_$($item.Name)" -ErrorAction SilentlyContinue).Value  
  
        $TempSave = @{ Match_Name = $NewRule; FileName = $WildCard }  
  
        $new = $OSDefaultUser + $TempSave  
  
        if ($item.name -Contains $ExcludeNameItem) { Write-host " Do not match, install directly" -ForegroundColor Yellow; New-Variable -Name "Init_File_Type_$($item.Name)" -Value $new -Force; $Script:Init_Folder_All_File_Match_Done += $WildCard; } else { ForEach ($Component in $Init_Install_Language_Component) { if ($Component -like "*$($NewRule)*") { Write-host " Component name: " -NoNewline; Write-host $Component -ForegroundColor Green; New-Variable -Name "Init_File_Type_$($item.Name)" -Value $new -Force; $Script:Init_Folder_All_File_Match_Done += $WildCard; break; }}}}}}  
  
Write-host "`n Grouping is complete, pending installation" -ForegroundColor Yellow; Write-host " `-' * 80";  
  
ForEach ($WildCard in $Script:Search_File_Order) {  
  
    $OSDefaultUser = (Get-Variable -Name "Init_File_Type_$($WildCard.Name)" -ErrorAction SilentlyContinue).Value  
  
    Write-host "`n $($WildCard.Description) ( $($OSDefaultUser.Count) item )"  
  
    if ($OSDefaultUser.Count -gt 0) {  
  
        ForEach ($item in $OSDefaultUser) { Write-host " $($item.FileName)" -ForegroundColor Green }  
  
    } else { Write-host " Not available" -ForegroundColor Red; }  
  
    Write-host "`n Not matched, no longer installed" -ForegroundColor Yellow; Write-host " `-' * 80";  
  
    ForEach ($item in $Script:Init_Folder_All_File) { if ($Script:Init_Folder_All_File_Match_Done -notcontains $item) { $Script:Init_Folder_All_File_Exclude += $item; Write-host " $($item)" -ForegroundColor Red; }}  
  
    Write-host "`n Install" -ForegroundColor Yellow; Write-host " `-' * 80";  
  
    ForEach ($WildCard in $Script:Search_File_Order) {  
  
        $OSDefaultUser = (Get-Variable -Name "Init_File_Type_$($WildCard.Name)" -ErrorAction SilentlyContinue).Value  
  
        Write-host "`n $($WildCard.Description) ( $($OSDefaultUser.Count) item )"; Write-host " `-' * 80"  
  
        if ($OSDefaultUser.Count -gt 0) {  
  
            ForEach ($item in $OSDefaultUser) {  
  
                Write-host " File name: " -NoNewline; Write-host $item.FileName -ForegroundColor Green; Write-Host " Installing ".PadRight(22) -NoNewline;  
  
                if (Test-Path $item.FileName -PathType Leaf) {  
  
                    try {  
  
                        Add-WindowsPackage -Path $Mount -PackagePath $item.FileName | Out-Null  
  
                        Write-host "Finish`n" -ForegroundColor Green  
  
                    } catch { Write-host "Failed" -ForegroundColor Red; Write-host " $($_)`n" -ForegroundColor Red; }  
  
                } else { Write-host "Does not exist`n" }  
            }  
        }  
    }  
}
```

```
Language_Install -Mount "D:\ISOTEMP_Custom\Install\Install\Mount" -Sources "D:\ISOTEMP_Custom\Install\Install\Language\Add" -Lang "zh-CN"
```

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:\ISOTEMP_Custom\Install\Install\Mount" /Set-AllIntl:"zh-CN"
```

4.2.2. 查看可用的语言设置

```
Dism /Image:"D:\ISOTEMP_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:\ISOTEMP_Custom\Install\Install\Mount" | Out-GridView
```

4.3.2. 导出到 Csv

```
$SaveTo = "D:\ISOTEMP_Custom\Install\Install\Report.Components.$(Get-Date -Format "yyyyMMddHHmmss").csv"; Get-WindowsPackage -Path "D:\ISOTEMP_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

- 群组 A: Core, CoreSingleLanguage
- 群组 B: CoreN
- 群组 C: Education, Professional, ProfessionalEducation, ProfessionalWorkstation, Enterprise, IoTEnterprise, IoTEnterpriseK, ServerRdsh, ServerStandard, ServerDatacenter
- 群组 D: EducationN, ProfessionalN, ProfessionalEducationN, ProfessionalWorkstationN, EnterpriseN, EnterpriseGN, EnterpriseSN, CloudN, CloudEN, CloudEditionLN, StarterN

序号	软件包名称	产品ID	群组	区域范围
1	Microsoft.AV1VideoExtension	9MVZQVXJBQ9V	A, C	All
2	Microsoft.AVCEncoderVideoExtension	9PB0TRCNRFHX	A, C	All
3	Microsoft.GamingApp	9MV0B5HZVK9Z	A, C	All
4	Microsoft.HEIFImageExtension	9PMMSR1CGPWG	A, C	All
5	Microsoft.HEVCVideoExtension	9NMZLZ57R3T7	A, C	All
6	Microsoft.RawImageExtension	9NCTDW2W1BH8	A, C	All
7	Microsoft.VP9VideoExtensions	9N4D0MSMP0PT	A, C	All
8	Microsoft.WebMediaExtensions	9N5TDP8VCMHS	A, C	All
9	Microsoft.WebpImageExtension	9PG2DK419DRG	A, C	All
10	Microsoft.MPEG2VideoExtension	9N95Q1ZZPMH4	A, C	All
11	Microsoft.Windows.DevHome	9N8MHTPHNGVV	A, C	
12	Microsoft.WindowsSoundRecorder	9WZDNCRFHWKN	A, C	All
13	Microsoft.Xbox.TCUI	9NKNC0LD5NN6	A, C	All
14	Microsoft.XboxGamingOverlay	9NZKPSTSNW4P	A, C	All
15	Microsoft.ZuneMusic	9WZDNCRFJ3PT	A, C	All
16	Microsoft.CrossDevice	9NTXGKQ8P7N0	A, C, D	All
17	MSTeams	XP8BT8DW290MPQ	A, C, D	AD;AE;AF;AG;AI;AL;AM;AO;AQ;AR;AS;AT;AU;AW;AX;AZ;BA;BB;BD;BE;BF;BG;BH;BI;BJ;BL;BM;BN;BO;BQ;BR;BS;BT;BV;BW;BY;BZ;CA;CC;CD;CF;CG;CH;CI;CK;CL;CM;CO;CR;CU;CV;CW;CX;CY;CZ;DE;DJ;DK;DM;DO;DZ;EC;EE;EG;ER;ES;ET;FI;FJ;FK;FM;FO;FR;GA;GB;GD;GE;GF;GG;GH;GI;GL;GM;GN;GP;GQ;GR;GS;GT;GU;GW;GY;HK;HM;H

序号	软件包名称	产品ID	群组	区域范围
				N;HR;HT;HU;ID;IE;IL;IM;IN;IO;IQ;IR;IS;IT;JE;JM;JO;JP;KE;KG;KH;KI;KM;KN;KP;KR;KW;KY;KZ;LA;LB;LC;LI;LK;LR;LS;LT;LU;LV;LY;MA;MC;MD;ME;MF;MG;MH;MK;ML;MM;MN;MO;MP;MQ;MR;MS;MT;MU;MV;MW;MX;MY;MZ;NA;NC;NE;NF;NG;NI;NL;NO;NP;NR;NU;NZ;OM;PA;PE;PF;PG;PH;PK;PL;PM;PN;PR;PS;PT;PW;PY;QA;RE;RO;RS;RU;RW;SA;SB;SC;SD;SE;SG;SH;SI;SJ;SK;SL;SM;SN;SO;SR;SS;ST;SV;SX;SY;SZ;TC;TD;TF;TG;TH;TJ;TK;TL;TM;TN;TO;TR;TT;TV;TW;TZ;UA;UG;UM;US;UY;UZ;VA;VC;VE;VG;VI;VN;VU;WF;WS;XK;YE;YT;ZA;ZM;ZW
18	MicrosoftCorporationII.MicrosoftFamily	9PDJDJS743XF	A, B	All
19	Microsoft.UI.Xaml.2.8		A, B, C, D	All
20	Microsoft.WindowsAppRuntime.1.5		A, B, C, D	All
21	Microsoft.WindowsAppRuntime.1.6		A, B, C, D	All
22	Microsoft.WindowsAppRuntime.1.7		A, B, C, D	All
23	Microsoft.NET.Native.Framework.2.2		A, B, C, D	All
24	Microsoft.NET.Native.Runtime.22		A, B, C, D	All
25	Microsoft.VCLibs.140.00		A, B, C, D	All
26	Microsoft.VCLibs.140.00.UWPDesktop		A, B, C, D	All
27	Microsoft.Services.Store.Engagement		A, B, C, D	All
28	Microsoft.DesktopAppInstaller	9NBLGGH4NNS1	A, B, C, D	All
29	Microsoft.WindowsStore	9WZDNCRFJBMP	A, B, C, D	All
30	MicrosoftWindows.Client.WebExperience	9MSSGKG348SP	A, B, C, D	All
31	Clipchamp.Clipchamp	9P1J8S7CCWWT	A, B, C, D	All
32	ApplicationCompatibilityEnhancements	9PCSD6N03BKV	A, B, C, D	All
33	Microsoft.BingNews	9WZDNCRFHVFW	A, B, C, D	All
34	Microsoft.BingSearch	9NZBF4GT040C	A, B, C, D	All
35	Microsoft.BingWeather	9WZDNCRFJ3Q2	A, B, C, D	All
36	Microsoft.Copilot	9NHT9RB2F4HD	A, B, C, D	AD;AE;AF;AG;AI;AL;AM;AO;AQ;AR;AS;AT;AU;AW;AX;AZ;BA;BB;BD;BE;BF;BG;BH;BI;BJ;BL;BM;BN;BO;BQ;BR;BS;BT;BV;BW;BZ;CA;CC;CD;CF;CG;CH;CI;CK;CL;CM;CO;CR;CV;CW;CX;CY;CZ;DE;DJ;DK;DM;DO;DZ;EC;EE;EG;ER;ES;ET;FI;FJ;FK;FM;FO;FR;GA;GB;GD;GE;GF;GG;GH;GI;GL;GM;GN;GP;GQ;GR;GS;GT;GU;GW;GY;HK;HM;HN;HR;HT;HU;ID;IE;IL;IM;IN;IO;IQ;IS;IT;JE;JM;JO;JP;KE;KG;KH;KI;KM;KN;KR;KW;KY;KZ;LA;LB;LC;LI;LK;LR;LS;LT;LU;LV;LY;MA;MC;MD;ME;MF;MG;MH;MK;ML;MM;MN;MO;MP;MQ;MR;MS;MT;MU;MV;MW;MX;MY;MZ;NA;NC;NE;NF;NG;NI;NL;NO;NP;NR;NU;NZ;OM;PA;PE;PF;PG;PH;PK;PL;PM;PN;PR;PS;PT;PW;PY;QA;RE;RO;RS;RW;SA;SB;SC;SD;SE;SG;SH;SI;SJ;SK;SL;SM;SN;SO;SR;SS;ST;SV;SX;SY;SZ;TC;TD;TF;TG;TH;TJ;TK;TL;TM;TN;TO;TR;TT;TV;TW;TZ;UA;UG;UM;US;UY;UZ;VA;VC;VE;VG;VI;VN;VU;WF;WS;XK;YE;YT;ZA;ZM;ZW
37	Microsoft.GetHelp	9PKDZBMV1H3T	A, B, C, D	All
38	Microsoft.MicrosoftOfficeHub	9WZDNCRD29V9	A, B, C, D	All

序号	软件包名称	产品ID	群组	区域范围
39	Microsoft.MicrosoftSolitaireCollection	9WZDNCRFHWD2	A, B, C, D	All
40	Microsoft.StickyNotes	9NBLGGH4QGHW	A, B, C, D	All
41	Microsoft.OutlookForWindows	9NRX63209R7B	A, B, C, D	AD;AE;AF;AG;AI;AL;AM;AO;AQ;AR;AS;AT;AU;AW;AX;AZ;BA;BB;BD;BE;BF;BG;BH;BI;BJ;BL;BM;BN;BO;BQ;BR;BS;BT;BV;BW;BY;BZ;CA;CC;CD;CF;CG;CH;CI;CK;CL;CM;CO;CR;CU;CV;CW;CX;CY;CZ;DE;DJ;DK;DM;DO;DZ;EC;EE;EG;ER;ES;ET;FI;FJ;FK;FM;FO;FR;GA;GB;GD;GE;GF;GG;GH;GI;GL;GM;GN;GP;GQ;GR;GS;GT;GU;GW;GY;HK;HM;HN;HR;HT;HU;ID;IE;IL;IM;IN;IO;IQ;IR;IS;IT;JE;JM;JO;JP;KE;KG;KH;KI;KM;KN;KP;KR;KW;KY;KZ;LA;LB;LC;LI;LK;LR;LS;LT;LU;LV;LY;MA;MC;MD;ME;MF;MG;MH;MK;ML;MM;MN;MO;MP;MQ;MR;MS;MT;MU;MV;MW;MX;MY;MZ;NA;NC;NE;NF;NG;NI;NL;NO;NP;NR;NU;NZ;OM;PA;PE;PF;PG;PH;PK;PL;PM;PN;PR;PS;PT;PW;PY;QA;RE;RO;RS;RU;RW;SA;SB;SC;SD;SE;SG;SH;SI;SJ;SK;SL;SM;SN;SO;SR;SS;ST;SV;SX;SY;SZ;TC;TD;TF;TG;TH;TJ;TK;TL;TM;TN;TO;TR;TT;TV;TW;TZ;UA;UG;UM;US;UY;UZ;VA;VC;VE;VG;VI;VN;VU;WF;WS;XK;YE;YT;ZA;ZM;ZW
42	Microsoft.Paint	9PCFS5B6T72H	A, B, C, D	All
43	Microsoft.PowerAutomateDesktop	9NFTCH6J7FHV	A, B, C, D	All
44	Microsoft.ScreenSketch	9MZ95KL8MR0L	A, B, C, D	All
45	Microsoft.SecHealthUI	9NK0JLZT7JD0	A, B, C, D	All
46	Microsoft.StorePurchaseApp	9NBLGGH4LS1F	A, B, C, D	All
47	Microsoft.Todos	9NBLGGH5R558	A, B, C, D	All
48	Microsoft.Windows.Photos	9WZDNCRFJBH4	A, B, C, D	All
49	Microsoft.WindowsAlarms	9WZDNCRFJ3PR	A, B, C, D	All
50	Microsoft.WindowsCalculator	9WZDNCRFHVN5	A, B, C, D	All
51	Microsoft.WindowsCamera	9WZDNCRFJBBG	A, B, C, D	All
52	Microsoft.WindowsFeedbackHub	9NBLGGH4R32N	A, B, C, D	All
53	Microsoft.WindowsNotepad	9MSMLRH6LZF3	A, B, C, D	All
54	Microsoft.WindowsTerminal	9N0DX20HK701	A, B, C, D	All
55	Microsoft.XboxIdentityProvider	9WZDNCRD1HKB	A, B, C, D	All
56	Microsoft.XboxSpeechToTextOverlay	9P086NHDB9W	A, B, C, D	All
57	Microsoft.YourPhone	9NMPJ99VJBWV	A, B, C, D	All
58	MicrosoftCorporationII.QuickAssist	9P7BP5VNWKX5	A, B, C, D	All

5.3. InBox Apps: 已安装

```
$custom_array = @(); Get-AppXProvisionedPackage -Path "D:\ISOTEMP_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](#)

```
$SaveTo = "D:\ISOTEMP_Custom\Install\Install\Report.InBox.Apps.$(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](#)
 - [\Expand\Install\Install.Inbox.apps.Clear.all.ps1](#)
 - https://github.com/ilkeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Install/Install.InBox.Apps.Clear.all.ps1
- [复制代码](#)

```
Get-AppXProvisionedPackage -path "D:\ISOTEMP_Custom\Install\Install\Mount" -ErrorAction SilentlyContinue | ForEach-Object  
{ Write-host `n $($_.DisplayName)"; Write-Host " Deleting ".PadRight(22) -NoNewline; try { Remove-AppxProvisionedPackage -  
Path "D:\ISOTEMP_Custom\Install\Install\Mount" -PackageName $_.PackageName -ErrorAction SilentlyContinue | Out-Null; Write-  
host "Finish" -ForegroundColor Green; } catch { Write-host "Failed" -ForegroundColor Red; }}
```

5.5. [已安装语言标记：了解](#)

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:\ISOTEMP_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/ikeyli/LXPs>

下载后保存到：D:\ISOTEMP_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. 了解区域

区域	产品 ID
en-US	C9PDSCC711RVF
ar-sa	9N4S78P86PKX
be-by	9MXPBGNNDW3L
bn-in	9P1M44L7W84T
ca-es-valencia	9P9K3WMFSW90
cy-gb	9NKJ9TBML4HB
el-gr	9N586B13PBBL
es-mx	9N8MCM1X3928
fa-ir	9NGS7DD4QS21
fr-ca	9MTP2VP0VL92
gd-gb	9P1DBPF36BF3
ha-latn-ng	9N1L95DBGRG3
hr-hr	9NW01VND4LTW
id-id	9P4X3N4SDK8P
it-it	9P8PQWNS6VJX
kk-kz	9PHV179R97LV
kok-in	9MV3P55CMZ6P
ky-kg	9P7D3JJGZM48

区域	产品 ID
af-za	9PDW16B5HMXR
as-in	9NTJLXMXX35J
bg-bg	9MX54588434F
bs-latn-ba	9MVFKLJ10MFL
chr-cher-us	9MX15485N3RK
da-dk	9NDMT2VKSNL1
en-gb	9NT52VQ39BVN
et-ee	9NFBHFMCR30L
fi-fi	9MW3PQ7SD3QK
fr-fr	9NHMG4BJKMDG
gl-es	9NXRNBRNJN9B
he-il	9NB6ZFND5HCQ
hu-hu	9MWN3C58HL87
ig-ng	9PG4ZFJ48JSX
ja-jp	9N1W692FV4S1
km-kh	9PGKTS4JS531
ko-kr	9N4TXPCVRNGF
lb-lu	9N0ST1WBZ9D9

区域	产品 ID
am-et	9NGL4R61W3PL
az-latn-az	9P5TFKZH5K8
bn-bd	9PH7TKVXGGM8
ca-es	9P6JMKJQZ9S7
cs-cz	9P3WXZ1KTM7C
de-de	9P6CT0SLW589
es-es	9NWVGWLHPB1Z
eu-es	9NMCHQHZ37HZ
fil-ph	9NWM2KGTDSSS
ga-ie	9P0L5Q848KXT
gu-in	9P2HMSWDJDQ1
hi-in	9NZC3GRX8LD3
hy-am	9NKM28TM6P67
is-is	9NTHJR7TQXX1
ka-ge	9P60JZL05WGH
kn-in	9NC6DB7N95F9
ku-arab-iq	9P1C18QL3D7H
lo-la	9N8X352G5NZV

lt-lt	9NWWWD891H6HN
mk-mk	9P1X6XB1K3RN
mr-in	9MWXCKHJVR1J
nb-no	9N6J0M5DHCK0
nn-no	9PK7KM3Z06KH
pa-arab-pk	9NJRL03WH6FM
prs-af	9P3NGC6X5ZQC
quc-latn-gt	9P2V6MNNQZ0B
ru-ru	9NMJCX77QKPX
si-lk	9NVF9QSLGTL0
sq-al	9MWLRGNMDGK7
sr-latn-rs	9NBZ0SJDPPVT
ta-in	9PDZB1WT1B34
th-th	9MSTWFRL0LR4
tn-za	9NFSXM123DHT
ug-cn	9P52C5D7VL5S
uz-latn-uz	9P5P2T5P5L9S
xh-za	9NW3QWSLQD17
zh-tw	9PCJ4DHCQ1JQ

lv-lv	9N5CQDPH6SQT
ml-in	9NWDTV8FFV7L
ms-my	9NPXL8ZSDDQ7
ne-np	9P7CHPLWDQVN
nso-za	9NS49QLX5CDV
pa-in	9NSNC0ZJX69B
pt-br	9P8LBDM4FW35
quz-pe	9NHTX8NVQ04K
rw-rw	9NFW0M20H9WG
sk-sk	9N7LSNN099WB
sr-cyrl-ba	9MXGN7V65C7B
sv-se	9P0HSNX08177
te-in	9PMQJJGF63FW
ti-et	9NC8C9RDNK2S
tr-tr	9NL1D3T5HG9R
uk-ua	9PPPMZRSGHR8
vi-vn	9P0W68X0XZPT
yo-ng	9NGM3VPPZS5V
zu-za	9NNRM7KT5NB0

mi-nz	9P2GDFB3JPSX
mn-mn	9PG1DHC4VTZW
mt-mt	9PDG96SQ6BN8
nl-nl	9PF1C9NB5PRV
or-in	9NTHCXCXSJDH
pl-pl	9NC5HW94R0LD
pt-pt	9P7X8QJ7FL0X
ro-ro	9MWXGPJ5PJ3H
sd-arab-pk	9NB9JSCXW9X5
sl-si	9NV27L34J4ST
sr-cyrl-rs	9PPD6CCK9K5H
sw-ke	9NFF2M19DQ55
tg-cyrl-tj	9MZHLBPPT2HC
tk-tm	9NKHQ4GL6VLT
tt-ru	9NV90Q1X1ZR2
ur-pk	9NDWFTFW12BQ
wo-sn	9NH3SW1CR90F
zh-cn	9NRMNT6GMZ7

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. a). 选择 URL (link) , b). 选择频道 (RP) , c). 输入关键词:

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

5.6.2.2.2. 网页内搜索 26200 内容, 搜索结果: Microsoft.LanguageExperiencePackzh-CN_26200.*.

[neutral__8wekyb3d8bbwe.appx](#)

5.6.2.2.3. 下载后保存到 D:\ISOTEMP_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:\ISOTEMP_Custom\Install\Install\Mount" -PackagePath  
"D:\ISOTEMP_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:\ISOTEMP_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. 导出到 Csv

```
$SaveTo = "D:\ISOTEMP_Custom\Install\Install\Report.InBox.Apps.$(Get-Date -Format  
"yyyyMMddHHmmss").csv"; $custom_array | Export-Csv -NoType -Path $SaveTo; Write-host  
$SaveTo -ForegroundColor Green;
```

5.6.4.2. 查看可用的语言设置

```
Dism /Image:"D:\ISOTEMP_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 [26100.6584.250904-1728.ge_release_svc_prod1_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
 - \Expand\Install\Install.Inst.Inbox.apps.ps1
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging/tutorial/OS.11/24H2/Expand/Install/Install.Inst.InBox.Apps.ps1
 - 复制代码

```

$ISO = "Auto"; $Mount = "D:\ISOTEMP_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"; "CoreSingleLanguage"); Apps = @("Microsoft.UI.Xaml.2.8"; "Microsoft.WindowsAppRuntime.1.5"; "Microsoft.WindowsAppRuntime.1.6";
        "Microsoft.WindowsAppRuntime.1.7"; "Microsoft.NET.Native.Framework.2.2"; "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00";
        "Microsoft.VCLibs.140.00.UWPDesktop"; "Microsoft.Services.Store.Engagement"; "Clipchamp.Clipchamp"; "Microsoft.ApplicationCompatibilityEnhancements";
        "Microsoft.AV1VideoExtension"; "Microsoft.AVCEncoderVideoExtension"; "Microsoft.BingNews"; "Microsoft.BingSearch"; "Microsoft.BingWeather"; "Microsoft.Copilot";
        "Microsoft/DesktopAppInstaller"; "Microsoft.GamingApp"; "Microsoft.GetHelp"; "Microsoft.HEIFImageExtension"; "Microsoft.HEVCVideoExtension";
        "Microsoft.MicrosoftOfficeHub"; "Microsoft.MicrosoftSolitaireCollection"; "Microsoft.MicrosoftStickyNotes"; "Microsoft.MPEG2VideoExtension";
        "Microsoft.OutlookForWindows"; "Microsoft.Paint"; "Microsoft.PowerAutomateDesktop"; "Microsoft.RawImageExtension"; "Microsoft.ScreenSketch"; "Microsoft.SecHealthUI";
        "Microsoft.StorePurchaseApp"; "Microsoft.Todos"; "Microsoft.VP9VideoExtensions"; "Microsoft.WebMediaExtensions"; "Microsoft.WebpImageExtension";
        "Microsoft.Windows.DevHome"; "Microsoft.Windows.Photos"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsCalculator"; "Microsoft.WindowsCamera";
        "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsNotepad"; "Microsoft.WindowsSoundRecorder"; "Microsoft.WindowsStore"; "Microsoft.WindowsTerminal";
        "Microsoft.Xbox.TCUI"; "Microsoft.XboxGamingOverlay"; "Microsoft.XboxIdentityProvider"; "Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone";
        "Microsoft.ZuneMusic"; "MicrosoftCorporationII.MicrosoftFamily"; "MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience"; "Microsoft.CrossDevice";
        "MSTeams"; ) };
        @{ Name = @("CoreN" ); Apps = @("Microsoft.UI.Xaml.2.8"; "Microsoft.WindowsAppRuntime.1.3"; "Microsoft.WindowsAppRuntime.1.4";
        "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"; "Clipchamp.Clipchamp"; "Microsoft.ApplicationCompatibilityEnhancements"; "Microsoft.BingNews"; "Microsoft.BingSearch";
        "Microsoft.BingWeather"; "Microsoft.Copilot"; "Microsoft/DesktopAppInstaller"; "Microsoft.GetHelp"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.MicrosoftSolitaireCollection";
        "Microsoft.MicrosoftStickyNotes"; "Microsoft.OutlookForWindows"; "Microsoft.Paint"; "Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch"; "Microsoft.SecHealthUI";
        "Microsoft.StorePurchaseApp"; "Microsoft.Todos"; "Microsoft.Windows.Photos"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsCalculator"; "Microsoft.WindowsCamera";
        "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsNotepad"; "Microsoft.WindowsStore"; "Microsoft.WindowsTerminal"; "Microsoft.XboxIdentityProvider";
        "Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone"; "MicrosoftCorporationII.MicrosoftFamily"; "MicrosoftCorporationII.QuickAssist";
        "MicrosoftWindows.Client.WebExperience"; "Microsoft.CrossDevice"; "MSTeams"; ) };
        @{ Name = @("Education"; "Professional"; "ProfessionalEducation";
        "ProfessionalWorkstation"; "Enterprise"; "IoTEnterprise"; "IoTEnterpriseK"; "ServerRdsh"; "ServerStandard"; "ServerDatacenter"; ) ; Apps = @("Microsoft.UI.Xaml.2.8";
        "Microsoft.WindowsAppRuntime.1.3"; "Microsoft.WindowsAppRuntime.1.4"; "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"; "Clipchamp.Clipchamp";
        "Microsoft.ApplicationCompatibilityEnhancements"; "Microsoft.AV1VideoExtension"; "Microsoft.AVCEncoderVideoExtension"; "Microsoft.BingNews"; "Microsoft.BingSearch";
        "Microsoft.BingWeather"; "Microsoft.Copilot"; "Microsoft/DesktopAppInstaller"; "Microsoft.GamingApp"; "Microsoft.GetHelp"; "Microsoft.HEIFImageExtension";
        "Microsoft.HEVCVideoExtension"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.MicrosoftSolitaireCollection"; "Microsoft.MicrosoftStickyNotes";
        "Microsoft.MPEG2VideoExtension"; "Microsoft.OutlookForWindows"; "Microsoft.Paint"; "Microsoft.PowerAutomateDesktop"; "Microsoft.RawImageExtension";
        "Microsoft.ScreenSketch"; "Microsoft.SecHealthUI"; "Microsoft.StorePurchaseApp"; "Microsoft.Todos"; "Microsoft.VP9VideoExtensions"; "Microsoft.WebMediaExtensions";
        "Microsoft.WebpImageExtension"; "Microsoft.Windows.DevHome"; "Microsoft.Windows.Photos"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsCalculator";
        "Microsoft.WindowsCamera"; "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsNotepad"; "Microsoft.WindowsSoundRecorder"; "Microsoft.WindowsStore";
        "Microsoft.WindowsTerminal"; "Microsoft.Xbox.TCUI"; "Microsoft.XboxGamingOverlay"; "Microsoft.XboxIdentityProvider"; "Microsoft.XboxSpeechToTextOverlay";
        "Microsoft.YourPhone"; "Microsoft.ZuneMusic"; "MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience"; "Microsoft.CrossDevice"; "MSTeams"; ) };
        @{ Name = @("EducationN"; "ProfessionalIN"; "ProfessionalEducationN"; "ProfessionalWorkstationN"; "EnterpriseN"; "EnterpriseGN"; "EnterpriseSN"; "CloudN"; "CloudEN"; ) };
}

```

```
"CloudEditionLN"; "StarterN"; ); Apps = @("Microsoft.UI.Xaml.2.8"; "Microsoft.WindowsAppRuntime.1.3"; "Microsoft.WindowsAppRuntime.1.4";  
"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"; "Clipchamp.Clipchamp"; "Microsoft.ApplicationCompatibilityEnhancements"; "Microsoft.BingNews"; "Microsoft.BingSearch";  
"Microsoft.BingWeather"; "Microsoft.Copilot"; "Microsoft/DesktopApplInstaller"; "Microsoft.GetHelp"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.MicrosoftSolitaireCollection";  
"Microsoft.MicrosoftStickyNotes"; "Microsoft.OutlookForWindows"; "Microsoft.Paint"; "Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch"; "Microsoft.SecHealthUI";  
"Microsoft.StorePurchaseApp"; "Microsoft.Todos"; "Microsoft.Windows.Photos"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsCalculator"; "Microsoft.WindowsCamera";  
"Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsNotepad"; "Microsoft.WindowsStore"; "Microsoft.WindowsTerminal"; "Microsoft.XboxIdentityProvider";  
"Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone"; "MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience"; "Microsoft.CrossDevice";  
"MSTeams"; ) }; @{ Name = @("EnterpriseS"; "EnterpriseSN"; "IoTEnterpriseS"; "IoTEnterpriseSK"; ); Apps = @("Microsoft.SecHealthUI"; ) } )
```

Rule = @(

```
    @{ Name = "Microsoft.UI.Xaml.2.8"; Match = "UI.Xaml*{ARCTag}*2.8"; License = "UI.Xaml*{ARCTag}*2.8"; Region = "All"; Dependencies = @(); }  
  
    @{ Name = "Microsoft.WindowsAppRuntime.1.5"; Match = "WindowsAppRuntime.{ARHC}.1.5"; License = "WindowsAppRuntime.{ARHC}.1.5"; Region = "All";  
    Dependencies = @(); }  
  
    @{ Name = "Microsoft.WindowsAppRuntime.1.6"; Match = "WindowsAppRuntime.{ARHC}.1.6"; License = "WindowsAppRuntime.{ARHC}.1.6"; Region = "All";  
    Dependencies = @(); }  
  
    @{ Name = "Microsoft.WindowsAppRuntime.1.7"; Match = "WindowsAppRuntime.{ARHC}.1.7"; License = "WindowsAppRuntime.{ARHC}.1.7"; Region = "All";  
    Dependencies = @(); }  
  
    @{ Name = "Microsoft.NET.Native.Framework.2.2"; Match = "Native.Framework*{ARCTag}*2.2"; License = "Native.Framework*{ARCTag}*2.2"; Region = "All";  
    Dependencies = @(); }  
  
    @{ Name = "Microsoft.NET.Native.Runtime.2.2"; Match = "Native.Runtime*{ARCTag}*2.2"; License = "Native.Runtime*{ARCTag}*2.2"; Region = "All"; Dependencies =  
    @(); }  
  
    @{ Name = "Microsoft.VCLibs.140.00"; Match = "Microsoft.VCLibs.{ARCTag}.14.00.appx"; License = "VCLibs.{ARCTag}.14.00.appx"; Region = "All"; Dependencies = @(); }  
  
    @{ Name = "Microsoft.VCLibs.140.00.UWPDesktop"; Match = "Microsoft.VCLibs.{ARCTag}.14.00.UWPDesktop"; License =  
    "Microsoft.VCLibs.{ARCTag}.14.00.UWPDesktop"; Region = "All"; Dependencies = @(); }  
  
    @{ Name = "Microsoft.Services.Store.Engagement"; Match = "Services.Store.Engagement*{ARHC}"; License = "Services.Store.Engagement*{ARHC}"; Region = "All";  
    Dependencies = @(); }  
  
    @{ Name = "Microsoft/DesktopApplInstaller"; Match = "DesktopApplInstaller"; License = "DesktopApplInstaller"; Region = "All"; Dependencies = @("Microsoft.UI.Xaml.2.8",  
    "Microsoft.VCLibs.140.00.UWPDesktop"); }  
  
    @{ Name = "Microsoft.WindowsStore"; Match = "WindowsStore"; License = "WindowsStore"; Region = "All"; Dependencies = @("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"); }  
  
    @{ Name = "MicrosoftWindows.Client.WebExperience"; Match = "WebExperience"; License = "WebExperience"; Region = "All"; Dependencies =  
    @("Microsoft.VCLibs.140.00"); }  
  
    @{ Name = "Clipchamp.Clipchamp"; Match = "Clipchamp.Clipchamp"; License = "Clipchamp.Clipchamp"; Region = "All"; Dependencies = @(); }  
  
    @{ Name = "Microsoft.ApplicationCompatibilityEnhancements"; Match = "ApplicationCompatibilityEnhancements"; License = "ApplicationCompatibilityEnhancements";  
    Region = "All"; Dependencies = @(); }  
  
    @{ Name = "Microsoft.AV1VideoExtension"; Match = "AV1VideoExtension"; License = "AV1VideoExtension"; Region = "All"; Dependencies = @(); }  
  
    @{ Name = "Microsoft.AVCEncoderVideoExtension"; Match = "AVCEncoderVideoExtension"; License = "AVCEncoderVideoExtension"; Region = "All"; Dependencies = @(); }  
  
    @{ Name = "Microsoft.BingNews"; Match = "BingNews"; License = "BingNews"; Region = "All"; Dependencies = @("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"); }  
  
    @{ Name = "Microsoft.BingSearch"; Match = "BingSearch"; License = "BingSearch"; Region = "All"; Dependencies = @("Microsoft.VCLibs.140.00"); }
```

```
@{ Name = "Microsoft.BingWeather"; Match = "BingWeather"; License = "BingWeather"; Region = "All"; Dependencies = @("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"); }

{@ Name = "Microsoft.Copilot"; Match = "Copilot"; License = "Copilot"; Region =
"AD;AE;AF;AG;AI;AL;AM;AO;AQ;AR;AS;AT;AU;AW;AX;AZ;BA;BB;BD;BE;BF;BG;BH;BI;BJ;BL;BM;BN;BO;BQ;BR;BS;BT;BV;BW;BZ;CA;CC;CD;CF;CG;CH;CI;CK;CL;CM;CO;CR;CV;CW
;CX;CY;CZ;DE;DJ;DK;DM;DO;DZ;EC;EE;EG;ER;ES;ET;FI;FJ;FM;FO;FR;GA;GB;GD;GE;GF;GG;GH;GI;GL;GM;GN;GP;GQ;GR;GS;GT;GU;GW;GY;HK;HM;HN;HR;HT;HU;ID;IE;IL;IM;I
N;IO;IQ;IS;IT;JE;JM;JO;JP;KE;KG;KH;KI;KM;KN;KR;KW;KY;KZ;LA;LB;LC;LI;LK;LR;LS;LT;LU;LV;LY;MA;MC;MD;ME;MF;MG;MH;MK;ML;MM;MN;MO;MP;MQ;MR;MS;MT;MU;MV;MW;MX
;MY;MZ;NA;NC;NE;NF;NG;NI;NL;NO;NP;NR;NU;NZ;OM;PA;PE;PF;PG;PH;PK;PL;PM;PN;PR;PS;PT;PW;PY;QA;RE;RO;RS;RW;SA;SB;SC;SD;SE;SG;SH;SI;SJ;SK;SL;SM;SN;SO;SR;SS
;ST;SV;SX;SZ;TC;TD;TF;TG;TH;TJ;TK;TL;TM;TN;TO;TR;TT;TV;TW;TZ;UA;UG;UM;US;UY;UZ;VA;VC;VE;VG;VI;VN;VU;WF;WS;XK;YE;YT;ZA;ZM;ZW"; Dependencies =
@("Microsoft.VCLibs.140.00"); }

{@ Name = "Microsoft.GamingApp"; Match = "GamingApp"; License = "GamingApp"; Region = "All"; Dependencies = @("Microsoft.UI.Xaml.2.8", "Microsoft.VCLibs.140.00",
"Microsoft.VCLibs.140.00.UWPDesktop"); }

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

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

{@ Name = "Microsoft.HEVCVideoExtension"; Match = "HEVCVideoExtension"; License = "15a6383d188a454ca98e15931ce48dc4_License1"; Region = "All"; Dependencies
= @("Microsoft.VCLibs.140.00"); }

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

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

{@ 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.MPEG2VideoExtension"; Match = "MPEG2VideoExtension"; License = "MPEG2VideoExtension"; Region = "All"; Dependencies = @(); }

{@ Name = "Microsoft.OutlookForWindows"; Match = "Microsoft.OutlookForWindows_8wekyb3d8bbwe"; License = "Microsoft.OutlookForWindows_8wekyb3d8bbwe";
Region =
"AD;AE;AF;AG;AI;AL;AM;AO;AQ;AR;AS;AT;AU;AW;AX;AZ;BA;BB;BD;BE;BF;BG;BH;BI;BJ;BL;BM;BN;BO;BQ;BR;BS;BT;BV;BW;BY;BZ;CA;CC;CD;CF;CG;CH;CI;CK;CL;CM;CO;CR;CU
;CV;CW;CX;CY;CZ;DE;DJ;DK;DM;DO;DZ;EC;EE;EG;ER;ES;ET;FI;FJ;FM;FO;FR;GA;GB;GD;GE;GF;GG;GH;GI;GL;GM;GN;GP;GQ;GR;GS;GT;GU;GW;GY;HK;HM;HN;HR;HT;HU;ID;I
E;IL;IM;IN;IO;IQ;IR;IS;IT;JE;JM;JO;JP;KE;KG;KH;KI;KM;KN;KP;KR;KW;KY;KZ;LA;LB;LC;LI;LK;LR;LS;LT;LU;LV;LY;MA;MC;MD;ME;MF;MG;MH;MK;ML;MM;MN;MO;MP;MQ;MR;MS;MT;M
U;MV;MW;MX;MY;MZ;NA;NC;NE;NF;NG;NI;NL;NO;NP;NR;NU;NZ;OM;PA;PE;PF;PG;PH;PK;PL;PM;PN;PR;PS;PT;PW;PY;QA;RE;RO;RS;RU;RW;SA;SB;SC;SD;SE;SG;SH;SI;SJ;SK;SL
;SM;SN;SO;SR;SS;ST;SV;SX;SY;SZ;TC;TD;TF;TG;TH;TJ;TK;TL;TM;TN;TO;TR;TT;TV;TW;TZ;UA;UG;UM;US;UY;UZ;VA;VC;VE;VG;VI;VN;VU;WF;WS;XK;YE;YT;ZA;ZM;ZW"; Dependencies
= @(); }

{@ Name = "Microsoft.Paint"; Match = "Paint"; License = "Paint"; Region = "All"; Dependencies = @("Microsoft.VCLibs.140.00", "Microsoft.VCLibs.140.00.UWPDesktop",
"Microsoft.UI.Xaml.2.8"); }

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

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

{@ Name = "Microsoft.ScreenSketch"; Match = "ScreenSketch"; License = "ScreenSketch"; Region = "All"; Dependencies = @("Microsoft.UI.Xaml.2.8",
"Microsoft.WindowsAppRuntime.1.3", "Microsoft.VCLibs.140.00", "Microsoft.VCLibs.140.00.UWPDesktop"); }

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

{@ Name = "Microsoft.StorePurchaseApp"; Match = "StorePurchaseApp"; License = "StorePurchaseApp"; Region = "All"; Dependencies = @("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"); }
```

```
@{ 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", "Microsoft.VCLibs.140.00", "Microsoft.VCLibs.140.00.UWPDesktop", "Microsoft.Services.Store.Engagement"); }

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

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

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

{@ Name = "Microsoft.Windows.DevHome"; Match = "DevHome"; License = "DevHome"; Region = "All"; Dependencies = @("Microsoft.WindowsAppRuntime.1.3", "Microsoft.VCLibs.140.00.UWPDesktop"); }

{@ Name = "Microsoft.Windows.Photos"; Match = "Windows.Photos"; License = "Windows.Photos"; Region = "All"; Dependencies = @("Microsoft.UI.Xaml.2.8", "Microsoft.VCLibs.140.00", "Microsoft.VCLibs.140.00.UWPDesktop"); }

{@ 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", "Microsoft.VCLibs.140.00", "Microsoft.VCLibs.140.00.UWPDesktop", "Microsoft.WindowsAppRuntime.1.3"); }

{@ 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", "Microsoft.VCLibs.140.00", "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", "Microsoft.VCLibs.140.00"); }

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

{@ Name = "Microsoft.WindowsNotepad"; Match = "WindowsNotepad"; License = "WindowsNotepad"; Region = "All"; Dependencies = @("Microsoft.UI.Xaml.2.8", "Microsoft.VCLibs.140.00", "Microsoft.VCLibs.140.00.UWPDesktop"); }

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

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

{@ 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.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.WindowsAppRuntime.1.4", "Microsoft.VCLibs.140.00", "Microsoft.VCLibs.140.00.UWPDesktop"); }

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

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

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



```
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)) {

                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; }

                }

            }

        }

    }

}
```

```
} 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`
 - `\Expand\Install\Install.Clear.Flag.ps1`
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Install/Install.Clear.Flag.ps1

- 复制代码

```
$Lang = "zh-CN"; Get-AppXProvisionedPackage -Path "D:\ISOTEMP_Custom\Install\Install\Mount" | Foreach-object { if  
($_.DisplayName -Like "*LanguageExperiencePack*($Lang)*") { Write-host " $($_.DisplayName)"; Write-Host " Deleting  
.PadRight(22) -NoNewline; try { Remove-AppxProvisionedPackage -Path "D:\ISOTEMP_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。

```
Optimize-AppXProvisionedPackages -Path "D:\ISOTEMP_Custom\Install\Install\Mount"
```

6. 累积更新

- 不同版本、旧版本升级到最新版时，需优先添加“检查点更新”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. 功能启用包

- 你添加最新累积更新前，需要优先添加功能启用包，否则无法添加最新的累积更新，前往下载页面：
<https://www.catalog.update.microsoft.com/Search.aspx?q=KB5054156>，下载后保存到：
`D:\ISOTEMP_Custom\Install\Install\Update`，或通过直连下载，根据架构选择下载：

6.1.1. x64 eKB, 默认

- 直连下载

https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/67731ce0-1988-426a-afa3-044a032eb6c6/public/windows11.0-kb5054156-x64_9fd13360d2c5af23ec4f591b86f1c1db37aada37.msu

- 添加

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\Install\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\Install\Update\windows11.0-kb5054156-  
x64_9fd13360d2c5af23ec4f591b86f1c1db37aada37.msu"
```

6.1.2. Arm64 eKB

- 直连下载

https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/2e42e2b9-993c-4cc5-a8c5-6e20fc64b17e/public/windows11.0-kb5054156-arm64_e57cf6837a8b9877786ec3e7a366503a6072f5e5.msu

- 添加

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\Install\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\Install\Update\windows11.0-kb5054156-  
arm64_e57cf6837a8b9877786ec3e7a366503a6072f5e5.msu"
```

6.2. 初始版本累积更新

- 安装此更新脱机下报错误代码: **0x80070228**, 不用管, 你不重新安装此更新, 安装其它累积更新会遇到无法添加。
- 累积更新 [KB5043080](#) 已无法从 <https://www.catalog.update.microsoft.com/Search.aspx?q=KB5043080> 里搜索到, 通过直连方式下载后保存到: D:\ISOTEMP_Custom\Install\Install\Update, 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/d8b7f92b-bd35-4b4c-96e5-46ce984b31e0/public/windows11.0-kb5043080-x64_953449672073f8fb99badb4cc6d5d7849b9c83e8.msu

- 添加

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\Install\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\Install\Update\windows11.0-kb5043080-  
x64_953449672073f8fb99badb4cc6d5d7849b9c83e8.msu"
```

6.2.2. Arm64

- 直连下载

https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/f263aa64-f367-42f0-9cad-328f342b93f7/public/windows11.0-kb5043080-arm64_df540a05f9b118e339c5520f4090bb5d450f090b.msu

- 添加

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\Install\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\Install\Update\windows11.0-kb5043080-  
arm64_df540a05f9b118e339c5520f4090bb5d450f090b.msu"
```

6.3. 其它版本

安装其它版本前请按顺序添加：检查点更新（KB5054156）+初始版本累积更新（KB5043080）+服务堆栈更新（SSU）+累积更新（KB5074105）。

查阅“[Windows 11 版本信息](#)”，例如下载累积更新：KB5074105，版本号：26200.7705，前往下载页面：

<https://www.catalog.update.microsoft.com/Search.aspx?q=KB5074105>，下载后保存到：

D:\ISOTEMP_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/1f3ba14b-3831-4dd8-8839-b63b795497e4/public/windows11.0-kb5074105-x64_74e1f93136eef7114e2bed8ff032b049ec62992a.msu

优先安装 [7Zip](#) 压缩软件，下载完成后，选择文件后点击“鼠标右键”后选择菜单：[7Zip -> 打开压缩包](#)，找到 SSU-*-.cab 开头的文件，拖动到 D:\ISOTEMP_Custom\Install\Install\Update

- 添加

优先安装服务堆栈更新（SSU）“[SSU-26100.7704-x64.cab](#)”，如果不优先安装服务堆栈更新（SSU）则无法继续安装此更新。

- 服务堆栈更新（SSU）

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\Install\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\Install\Update\SSU-26100.7704-x64.cab"
```

- 累积更新

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\Install\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\Install\Update\windows11.0-kb5074105-  
x64_74e1f93136eef7114e2bed8ff032b049ec62992a.msu"
```

6.3.2. Arm64

- 直连下载

https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/c0006a9a-e5f4-4ac8-8399-2fd5b0af9d47/public/windows11.0-kb5074105-arm64_e07308c4ec1ad810544f6cddd3e7c1cb50373e9f.msu

优先安装 7Zip 压缩软件，下载完成后，选择文件后点击“鼠标右键”后选择菜单：7Zip -> 打开压缩包，找到 SSU-*-.arm64.cab 开头的文件，拖动到 D:\ISOTEMP_Custom\Install\Install\Update

- 添加

优先安装服务堆栈更新 (SSU) “SSU-26100.7704-arm64.cab”，如果您不优先安装服务堆栈更新 (SSU) 则无法继续安装此更新。

- 服务堆栈更新 (SSU)

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\Install\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\Install\Update\SSU-26100.7704-arm64.cab"
```

- 累积更新

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Install\Install\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Install\Install\Update\windows11.0-kb5074105-  
arm64_e07308c4ec1ad810544f6cddd3e7c1cb50373e9f.msu"
```

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:\ISOTEMP_Custom\Install\Install\Mount" /cleanup-image /StartComponentCleanup /ResetBase
```

6.4.1. 固化更新后清理组件

```
$Mount = "D:\ISOTEMP_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:\ISOTEMP_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:\ISOTEMP_Custom\Install\Install\Update\Winlib\WinRE.wim"; $CopyTo =
"D:\ISOTEMP_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:\ISOTEMP_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:\ISOTEMP_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`
 - `\Expand\Install\Install.WinRE.Replace.wim.ps1`
 - https://github.com/ilkeyi/solutions/blob/main/_Learn/Packaging/tutorial/OS.11/24H2/Expand/Install/Install.WinRE.Replace.wim.ps1

- 复制代码

```
Get-WindowsImage -ImagePath "D:\ISOTemp\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";
$Arguments = @("update", "D:\ISOTemp\sources\install.wim", "$($_.ImageIndex)", "--command=""add
'D:\ISOTemp_Custom\Install\Install\Update\Winlib\WinRE.wim' '\Windows\System32\Recovery\WinRe.wim"""); Start-
Process -FilePath "d:\wimlib\wimlib-imaged.exe" -ArgumentList $Arguments -wait -nonewwindow; Write-Host "
Finish`n" -ForegroundColor Green; }
```

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.11/24H2/Expand/Install/Install.WinRE.Replace.wim.ps1

- 复制代码

```
Get-WindowsImage -ImagePath "D:\ISOTEMP\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:\ISOTEMP\sources\install.wim", $_.ImageIndex, "--command=""add
'D:\ISOTEMP_Custom\Install\Install\Update\Winlib\WinRE.wim' '\Windows\System32\Recovery\WinRe.wim"""); Start-
Process -FilePath "d:\wimlib\wimlib-imaged.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.11/24H2/Expand/Install/Install.Rebuild.wim.ps1

- 复制代码

```
$InstallWim = "D:\ISOTEMP\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; }
```

15. 拆分、合并、压缩、互转

固实压缩为 ESD 文件格式，如果文件超过 4GB 时：无法使用拆分、无法复制到 FAT32 格式的磁盘，这是缺点。

使用 FAT32 格式存放 Windows 安装引导是最佳的解决方案，如果遇到 Install.wim 文件超过 4GB 时无法复制到 FAT32 格式的磁盘时，这时你需要将 Install.wim 拆分，小于 4GB 文件大小后才能复制到 FAT32 格式的磁盘里。

学会如何拆分和合并，固实压缩和互转，尤为重要。

15.1. 拆分和合并

15.1.1. 拆分

将 Install.wim 拆分为 4GB 文件大小后，获得新的文件名 Install.*.swm 后，删除旧的 Install.wim。

- [Install.Split.ps1](#)
 - [\Expand\Install\Install.Split.ps1](#)
 - https://github.com/ikeyi/solutions/blob/main/_Learn/Packaging/tutorial/OS.11/24H2/Expand/Install/Install.Split.ps1
- 复制代码

```
Write-host "Split Install.wim into Install.*.swm"; Write-host "Splitting" -NoNewline; Split-WindowsImage -ImagePath "D:\ISOTEMP\sources\install.wim" -SplitImagePath "D:\ISOTEMP\sources\install.swm" -FileSize "4096" -CheckIntegrity -ErrorAction SilentlyContinue | Out-Null; Write-Host "Split Complete`n" -ForegroundColor Green; Write-host "`nVerify completion and delete old files"; if (Test-Path -Path "D:\ISOTEMP\sources\install.swm" -PathType leaf) { Remove-Item -Path "D:\ISOTEMP\sources\install.wim"; Write-Host "Done" -ForegroundColor Green; } else { Write-Host "Failed" -ForegroundColor Red; }
```

15.1.2. 合并

把所有 Install.*.swm 合并为 Install.wim 后，删除旧的 Install.*.swm。

- [Install.Merging.ps1](#)
 - [\Expand\Install\Install.Merging.ps1](#)
 - https://github.com/ikeyi/solutions/blob/main/_Learn/Packaging/tutorial/OS.11/24H2/Expand/Install/Install.Merging.ps1
- 复制代码

```
Write-host "Merge all Install.*.swm files into Install.wim"; Get-WindowsImage -ImagePath "D:\ISOTEMP\Sources\install.swm" -ErrorAction SilentlyContinue | ForEach-Object { Write-Host "Image Name: " -NoNewline; Write-Host $_.ImageName -ForegroundColor Yellow; Write-Host "Index Number: " -NoNewline; Write-Host $_.ImageIndex -ForegroundColor Yellow; Write-Host "Exporting".PadRight(28) -NoNewline; dism /export-image /SourceImageFile:"D:\ISOTEMP\Sources\install.swm" /swmfile:"D:\ISOTEMP\sources\install*.swm" /SourceIndex:"$($_.ImageIndex)" /DestinationImageFile:"D:\ISOTEMP\Sources\install.wim" /Compress:"Max" /CheckIntegrity; Write-Host "Export Complete`n" -ForegroundColor Green; }; Write-host "`nVerify completion and delete
```

```
old files"; if (Test-Path -Path "D:\ISOTEMP\Sources\install.wim" -PathType leaf) { Get-ChildItem -Path "D:\ISOTEMP\sources" -Recurse -include "*.swm" | ForEach-Object { Write-Host "Delete: $($_.fullname)" -ForegroundColor Green; Remove-Item -Path $_.fullname; }; Write-Host "Done" -ForegroundColor Green; } else { Write-Host "Failed" -ForegroundColor Green; }
```

15.2. 固实压缩 ESD 格式和互转 WIM 格式

15.2.1. 固实压缩

固实压缩后可以编辑版本信息和应用文件等；不可以挂载映像等，获得新的文件 install.esd 后，删除旧的 Install.wim。

- [Install.Compress.ps1](#)

- [\Expand\Install\Install.Compress.ps1](#)
- https://github.com/ilkeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Install/Install.Compress.ps1

- [复制代码](#)

```
Write-host "Solid compressed Install.wim"; Get-WindowsImage -ImagePath "D:\ISOTEMP\Sources\install.wim" -ErrorAction SilentlyContinue | ForEach-Object { Write-Host "Image Name: " -NoNewline; Write-Host $_.ImageName -ForegroundColor Yellow; Write-Host "Index Number: " -NoNewline; Write-Host $_.ImageIndex -ForegroundColor Yellow; Write-Host "Compressing".PadRight(28) -NoNewline; dism /export-image /SourceImageFile:"D:\ISOTEMP\Sources\install.wim" /SourceIndex:"$($_.ImageIndex)" /DestinationImageFile:"D:\ISOTEMP\Sources\install.esd" /Compress:recovery /CheckIntegrity; Write-Host "Compression completed`n" -ForegroundColor Green; }; Write-host "`nVerify completion and delete old files"; if (Test-Path -Path "D:\ISOTEMP\Sources\install.esd" -PathType leaf) { Remove-Item -Path "D:\ISOTEMP\Sources\install.wim"; Write-Host "Done" -ForegroundColor Green; } else { Write-Host "Failed" -ForegroundColor Green; }
```

15.2.2. 压缩文件转换为 WIM 文件格式

- [Install.Convert.ps1](#)

- [\Expand\Install\Install.Convert.ps1](#)
- https://github.com/ilkeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Install/Install.Convert.ps1

- [复制代码](#)

```
Write-host "Convert ESD to WIM"; Get-WindowsImage -ImagePath "D:\ISOTEMP\Sources\install.esd" -ErrorAction SilentlyContinue | ForEach-Object { Write-Host "Image Name: " -NoNewline; Write-Host $_.ImageName -ForegroundColor Yellow; Write-Host "Index Number: " -NoNewline; Write-Host $_.ImageIndex -ForegroundColor Yellow; Write-Host "Exporting".PadRight(28) -NoNewline; try { Export-WindowsImage -SourceImagePath "D:\ISOTEMP\Sources\install.esd" -SourceIndex $_.ImageIndex -DestinationImagePath "D:\ISOTEMP\Sources\install.wim" -CompressionType "Max" -CheckIntegrity -ErrorAction SilentlyContinue | Out-Null; Write-Host "Done`n" -ForegroundColor Green; } catch { Write-Host $_ -ForegroundColor Yellow; Write-host "Failed`n" -ForegroundColor Red; }; Write-host "`nVerify completion and delete old files"; if (Test-Path -Path
```

```
"D:\ISOTEMP\Sources\install.wim" -PathType leaf) { Remove-Item -Path "D:\ISOTEMP\Sources\install.esd"; Write-Host  
"Done" -ForegroundColor Green; } else { Write-Host "Failed" -ForegroundColor Green; }
```

II. 自定义封装：boot.wim

1. 查看 Boot.wim 文件信息

映像名称、映像描述、映像大小、架构、版本、索引号等；

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

2. 指定挂载 Boot.wim 路径

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

3. 开始挂载 Boot.wim

默认索引号：2

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

- 验证挂载状态

挂载完成后，查看“已挂载的 Windows 映像信息，包括挂载目录、映像名称、状态”等，运行命令：

```
Get-WindowsImage -Mounted
```

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

- Boot.Instl.lang.ps1
 - \Expand\Boot\Boot.Instl.lang.ps1
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Boot/Boot.Instl.lang.ps1
- 复制代码

```
$Mount = "D:\ISOTEMP_Custom\Boot\Boot\Mount"; $Sources = "D:\ISOTEMP_Custom\Boot\Boot\Language\Add\zh-CN"; $InitInstallLanguageComponent = @();
```

```

Get-WindowsPackage -Path $Mount | ForEach-Object { $Initl_install_Language_Component += $_.PackageName; }

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

$Language = @(
    @{
        Match = "*WinPE-LanguagePack-Package*";
        File = "lp.cab";
    };
    @{
        Match = "*WinPE*Setup*Client*Package*";
        File = "WINPE-SETUP-CLIENT_zh-CN.CAB";
    };
    @{
        Match = "*WinPE*Setup*Package*";
        File = "WinPE-Setup_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 = "*SecureStartup*";
        File = "winpe-securestartup_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 = "*WinPE-WMI-Package*";
        File = "winpe-wmi_zh-CN.cab";
    };
)

ForEach ($Rule in $Language) {
    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;
                Write-host " $($_) " -ForegroundColor Red;
            }
            break
        }
    }
}

```

4.2. 脱机映像语言：更改

4.2.1. 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:\ISOTEMP_Custom\Boot\Boot\Mount" /Set-AllIntl:zh-CN
```

4.2.2. 查看可用的语言设置

```
Dism /Image:"D:\ISOTEMP_Custom\Boot\Boot\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:\ISOTEMP_Custom\Boot\Boot\Mount" | Out-GridView
```

4.3.2. 导出到 Csv

```
$SaveTo = "D:\ISOTEMP_Custom\Boot\Boot\Report.Components.$(Get-Date -Format "yyyyMMddHHmmss").csv"; Get-  
WindowsPackage -Path "D:\ISOTEMP_Custom\Boot\Boot\Mount" | Export-Csv -NoType -Path $SaveTo; Write-host $SaveTo -  
ForegroundColor Green;
```

4.4. 语言包：同步到 ISO 安装程序

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

4.5. 重新生成 Lang.ini

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

4.5.1. 重新生成已挂载目录 lang.ini

重新生成的 Lang.ini 文件位置：[D:\ISOTEMP_Custom\Boot\Boot\Mount\Sources\lang.ini](#)

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

4.5.2. 重新生成 lang.ini 后，同步到安装程序

重新生成的 Lang.ini 文件位置：[D:\ISOTEMP\Sources\lang.ini](#)

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

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_Boot.cab](#)

5.1. 添加

```
Add-WindowsPackage -Path "D:\ISOTEMP_Custom\Boot\Boot\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Boot\Boot\Update\KB_Boot.cab"
```

5.2. 删除

```
Remove-WindowsPackage -Path "D:\ISOTEMP_Custom\Boot\Boot\Mount" -PackagePath  
"D:\ISOTEMP_Custom\Boot\Boot\Update\KB_Boot.cab"
```

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:\ISOTEMP_Custom\Boot\Boot\Mount" /cleanup-image /StartComponentCleanup /ResetBase
```

5.3.1. 固化更新后清理组件

```
$Mount = "D:\ISOTEMP_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; }}
```

6. 驱动

7. 其它

7.1. 绕过 TPM 安装时检查

- Boot.Bypass.TPM.ps1
 - \Expand\Boot\Boot.Bypass.TPM.ps1
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Boot/Boot.Bypass.TPM.ps1
- 复制代码

```
$RegSystem = "D:\ISOTEMP_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:\$($RandomGuid)\Setup\LabConfig" -Name "BypassSecureBootCheck" -Value 1 -  
PropertyName DWord -Force -ea SilentlyContinue | Out-Null; [gc]::collect(); Start-Process reg -ArgumentList "unload  
""HKLM\$($RandomGuid)"" -Wait -WindowStyle Hidden -ErrorAction SilentlyContinue; Remove-PSDrive -Name OtherTasksTPM;
```

8. 保存映像：Boot.wim

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

9. 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:\ISOTEMP_Custom\Boot\Boot\Mount" -Discard
```

III. 部署引擎

- 了解“自动添加 Windows 系统已安装的语言”，学习：<https://github.com/ilkeyi/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/ilkeyi/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:\ISOTEMP\Autounattend.xml

```
Copy-Item "D:\Multilingual\_Learn\Unattend\Mul.Unattend.xml" -Destination "D:\ISOTEMP\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:\ISOTEMP\Sources\Unattend.xml

```
Copy-Item "D:\Multilingual\_Learn\Unattend\Mul.Unattend.xml" -Destination "D:\ISOTEMP\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:\ISOTEMP\sources\$OEM$\$\$Panther" -ItemType Directory
```

1.1.1.3.2. 复制

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

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

Copy-Item "D:\Multilingual\Learn\Unattend\Mul.Unattend.xml" -Destination

"D:\ISOTEMP\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:\ISOTEMP\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:\ISOTEMP\Sources\\$OEM\$\\$1\Yi\Engine

Copy-Item "D:\Multilingual\Engine" -Destination "D:\ISOTEMP\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:\ISOTEMP\sources\$OEM\$1\Yi\Engine\Deploy\Allow" -ItemType Directory -ErrorAction
    SilentlyContinue | Out-Null

    Out-File -FilePath "D:\ISOTEMP\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:\ISOTEMP_Custom\Install\Install\Mount](#)

1.2.1. 无人值守

复制 [D:\Multilingual\Learn\Unattend\Mul.Unattend.xml](#) 到 [D:\ISOTEMP_Custom\Install\Install\Mount\Panther\Unattend.xml](#)

```
Copy-Item "D:\Multilingual\Learn\Unattend\Mul.Unattend.xml" -Destination
"D:\ISOTEMP_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:\ISOTEMP_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:\ISOTEMP_Custom\Install\Install\Mount\Yi\Engine](#)

```
Copy-Item "D:\Multilingual\Engine" -Destination "D:\ISOTEMP_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:\ISOTEMP_Custom\Install\Install\Mount\Yi\Engine\Deploy\Allow" -ItemType Directory -
    ErrorAction SilentlyContinue | Out-Null

    Out-File -FilePath "D:\ISOTEMP_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:\ISOTEMP\Autounattend.xml
- D:\ISOTEMP\Sources\Unattend.xml

- D:\ISOTEMP\sources\\$OEM\$\\$\$\Panther\unattend.xml
- D:\ISOTEMP_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>%OSDSysSystemLocale%</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. 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/refs/heads/main/_Encapsulation/Modules/AIO/Oscdimg/amd64/oscdimg.exe

1.2. x86

https://github.com/ilikeyi/Solutions/raw/refs/heads/main/_Encapsulation/Modules/AIO/Oscdimg/x86/oscdimg.exe

1.3. arm64

https://github.com/ilikeyi/Solutions/raw/refs/heads/main/_Encapsulation/Modules/AIO/Oscdimg/arm64/oscdimg.exe

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

- ISO.ps1

- \Expand\ISO.ps1

- https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/ISO.ps1

- 复制代码

```
$Oscdimg = "D:\Oscdimg.exe"; $ISO = "D:\ISOTemp"; $Volume = "ISOTemp"; $SaveTo = "D:\ISOTemp.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;
```

章节 2 部署

A. 部署前应注意

1. 在选择安装 Windows 11 的位置时

先选择“**磁盘分区**”，再选择“**格式化分区**”，再“**下一步**”，如果未格式化磁盘，覆盖安装会导致已知问题：

- 使用 Administrator 用户：

- 应用程序图标会出现 UAC 安全提示;
 - 点右键运行 PS1 以管理员身份运行无效;
2. 运行安装程序时
- 你不得在正在使用的系统里运行 ISO 下的 Setup.exe 进入安装程序，否则会导致安装过程中复制 \$OEM\$ 目录异常，此问题属于安装程序的 BUG。
 - 安装系统到物理设备时，您只能使用 [U 盘、CD-ROM、PE、通过网络安装（PXE 启动）](#) 等方式进入安装程序，必须 “[全新安装](#)”。

B. 部署操作系统到物理设备

物理设备进入系统安装引导前，你必须选择 “[准备引导安装程序前先决条件](#)” 中的 “[创建可引导的安装物理存储介质、CD-ROM、通过网络安装（PXE 启动）](#)” 其中一项并完成。

1. 准备引导安装程序前先决条件

部署系统安装文件到物理存储设备时，应准备可移动驱动器、CD-ROM 来存放 Windows 操作系统的安装文件。

1.1. 创建可引导的安装物理存储介质

准备存储大于 16G 的可移动硬盘、USB 驱动器，购买可移动驱动器时，应选择双接口（Type-C、USB3.1），选择带有 Type-C、USB3.1 双接口的好处有：

- 在安装系统过程中若缺少驱动时：可通过“手机”下载后，插上带有 Type-C 的可移动驱动器进行文件管理，将已下载的“驱动”复制到“可移动驱动器”里；
- 在日常过程中，可使用 Type-C 连接至手机用于存储临时文件和备份数据等操作。

1.1.1. 磁盘分区

- 在 MacOS (除 M 系列)、PC 里安装 Windows 系统，使用 [FAT32](#) 格式存放 Windows 系统安装文件是最佳的解决方案。
- 存储设备小于 16G 时，建议您直接划分 1 个分区；
- 存储设备大于 32G 以上时，建议您划分 3 个分区，划分方案：

分区 1，分配第 2 分区 6 GB 后，剩余的所有磁盘空间用于：[存放 Windows 系统安装文件（将 Yi.Deploy.Rule.iso 解压后可自定义部署）](#)、日常可用于[存储临时文件和备份数据](#)等操作。

分区 2：划分磁盘空间 6G，用于存放 PE 系统，推荐：

部署到正在使用的系统里，将原生启动 VHD 添加到现有启动菜单里

页 70 | 80

- Sergei Strelec | <https://sergeistrelec.name/winpe-10-8-sergei-strelec-english>
- Hiren's BootCD | <https://www.hirensbootcd.org>

1.1.2. 复制系统安装文件到磁盘分区里

格式化分区请选择 **Fat32** 后，再复制 ISO 下的所有文件到 U 盘根目录即可完成创建。

1.2. CD-ROM

1.2.1. 准备一台 “**可刻录光盘机**”

1.2.2. 准备 “**空白光盘**”

1.2.3. 选择 “**ISO 文件**” 后，选择右键 “**刻录**” 功能后点击开始刻录，等待完成。

1.3. 通过网络安装 (PXE 启动)

每软件使用方法不同，使用前请学习，可选择：

- 1.3.1. Serva | <https://www.vercot.com/~serva>
- 1.3.2. TinyPXE Server | http://labalec.fr/erwan/?page_id=958
- 1.3.3. iventory | <https://www.iventoy.com>

2. 物理设备进入系统安装引导

- 开机时，根据不同的主板按不同的键进入“启动菜单”“BIOS 菜单里选择磁盘引导”，常见的 BIOS 启动热键：**F2**、**F8**、**F9**、**F11**、**F12**、**ESC**
- 根据启动介质选择不同的菜单：**CD-ROM**、**PXE**、选择 U 盘已识别出来的分区。

C. 部署到正在使用的系统里，将原生启动 VHD 添加到现有启动菜单里

1. 创建 VHD/VHDX 文件

1.1. 磁盘管理交互式

打开 “**磁盘管理 (diskmgmt.msc)**” ，选择 “**动作**” ，选择 “**创建 VHD**” ，弹出 “**创建或附加虚拟磁盘**” 对话框后：

- 设置 “位置： **D:\OS.vhdx**”
- 设置 “**虚拟磁盘大小：120**，选择：**GB**”
- 选择 “**虚拟磁盘格式：VHDX**”

部署到正在使用的系统里，将原生启动 VHD 添加到现有启动菜单里

页 71 | 80

- 选择“动态扩展”

点击“确定”后，显示磁盘区域会新增一个磁盘，依次：

- 选择“磁盘 2（选择时请查看是否选择正确的磁盘）”后点击“右键”，选择“初始化磁盘”
- 选择“磁盘 2 分区”后点击“右键”，选择“新建简单卷向导”并完成。

1.2. 命令行创建

快速创建（保存到：D:\OS.vhdx，虚拟磁盘大小：120GB，动态扩展，分配盘符：Q），命令行：

- 输入 Diskpart 后“回车”，在此对话框里依次运行：

```
Create Vdisk File="D:\OS.vhdx" Maximum=122880 Type=expandable
```

```
Select Vdisk file="D:\OS.vhdx"
```

```
Attach Vdisk
```

```
Create Partition Primary
```

```
Format Fs=NTFS Label="VOS" Quick
```

```
Assign Letter=Q
```

```
Exit
```

2. 应用 Install.wim 里的系统到 VHD/VHDX 文件里

完成“[创建 VHD/VHDX 文件](#)”后，可应用 Install.wim 里指定的索引号到指定的盘符，已设置：映像文件：D:\ISOTEMP\Sources\Install.wim，索引号：1，应用到盘符：Q，命令行：

```
Expand-WindowsImage -ImagePath "D:\ISOTEMP\Sources\install.wim" -ApplyPath "Q:\\" -Index 1
```

3. 将原生启动 VHD 添加到现有 Windows 10/11 启动菜单中

3.1. 备份 BCD

使用 BCDEDIT 工具 /export 选项备份您的 BCD 存储。在命令提示符下，运行：`bcdedit /export c:\bcdbackup`

3.2. 复制一个现有的 Windows 10/11 安装启动项。然后修改副本，使其用作 VHD 启动项。在命令提示符下，运行：

```
bcdedit /copy {default} /d "VHD New Windows 11"
```

当 BCDEDIT 命令成功完成时，它会在命令提示符窗口中返回 {GUID} 作为输出。

3.3. 在上一个命令的命令提示符输出中找到 {GUID}。复制 {GUID}（包括大括号），以便在后续步骤中使用。

3.4. 设置 VHD 启动项的设备和操作系统设备选项，必须替换 {GUID}。在命令提示符下，运行：

```
bcdedit /set {default} device vhd="[D:]\OS.vhdx"
```

```
bcdedit /set {default} osdevice vhd="[D:]\OS.vhdx"
```

3.5. 可选项：

3.5.1. 将 VHD 的启动项设置为默认启动项。计算机重启后，启动菜单将显示计算机上所有 Windows 安装，并在操作系统选择倒计时结束后启动 VHD。在命令提示符下，输入：

```
bcdedit /default {guid}
```

3.5.2. 某些基于 x86 的系统需要内核的启动配置选项，以便检测某些硬件信息并成功地从 VHD 进行本地启动。在命令提示符下，输入：

```
bcdedit /set {guid} detecthal on
```

有关如何使用 BCDEDIT 工具的更多信息，请参阅此 [Microsoft 网站](#)。

D. 部署到虚拟机

常见的有 Windows 自带的 Hyper-V、VMware Workstation Pro、VirtualBox 等。

1. 启用 Hyper-V

- 确保您的系统符合要求：Windows 10/11 专业版或企业版，配备具有二级地址转换（SLAT）的 64 位处理器，并且至少有 4 GB 内存。Hyper-V 不适用于 Windows 家庭版。
- 启用 Hyper-V 后，您可以使用 Hyper-V 管理器或 PowerShell 命令开始创建虚拟机。
- Hyper-V 是内置于 Windows 的虚拟化平台，允许您创建和管理虚拟机。以下是在系统上启用 Hyper-V 的方法。

1.1. 使用 PowerShell

以管理员身份打开 Windows PowerShell：按 Win + S，输入“PowerShell”，右键点击，然后选择“以管理员身份运行”，运行以下命令以启用 Hyper-V：

```
Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All
```

当系统提示时，输入 Y 重启计算机以完成安装，当系统提示时，重启计算机。

1.2. 在“启用或关闭 Windows 功能”里选择

1.2.1. 打开“启用或关闭 Windows 功能”对话框

1.2.1.1. 运行 [OptionalFeatures](#) 后弹出“[启用或关闭 Windows 功能](#)”。

1.2.1.2. 使用控制面板

- 打开控制面板：按下 [Win](#) 键 + [S](#)，输入“[控制面板](#)”，然后打开它。

- 导航到[程序 > 程序和功能 > 启用或关闭 Windows 功能](#)。

1.2.2. 打开后勾选 [Hyper-V](#) 复选框，然后点击确定。

1.2.3. 重启计算机以完成安装。

2. VMware Workstation Pro

官方网站 | <https://www.vmware.com/products/desktop-hypervisor/workstation-and-fusion>

3. VirtualBox

官方网站 | <https://www.virtualbox.org>

E. 进阶部署

1. 全自动安装

- 批量部署过程中，想实现全自动安装，需要修改应预答配置；
- 多硬盘

批量安装优先判断多少个硬盘并初始化，根据不同的硬盘需求去实现不同的解决方案。

2. 部署引擎

如果添加了部署引擎（[Multilingual](#)、[YiSuite](#)），在部署中，您可以“自定义”部署过程，下载模板：[Yi.Engine.Deploy.Rule.iso](#)，下载完成后，解压到任意磁盘，或在首次部署时，挂载 ISO 或修改 ISO 内容，了解更多：

- Multilingual | <https://github.com/ilikeyi/Multilingual>
- YiSuite | <https://github.com/ilikeyi/YiSuite>

2.1. 自定义部署 Office

下载模板 [Yi.Engine.Deploy.Rule.iso](#) 后，解压到任意磁盘，示例解压到：[D:\Yi](#)，选择版本后运行下载脚本：

2.1.1. Office 365

```
& "D:\Yi\Office\365\amd64\Download.Office.amd64.ps1"  
& "D:\Yi\Office\365\amd64\Download.Office.x86.ps1"
```

2.1.2. Office 2024

```
& "D:\Yi\Office\2024\amd64\Download.Office.amd64.ps1"  
& "D:\Yi\Office\2024\amd64\Download.Office.x86.ps1"
```

2.1.3. Office 2021

```
& "D:\Yi\Office\2021\amd64\Download.Office.amd64.ps1"  
& "D:\Yi\Office\2021\amd64\Download.Office.x86.ps1"
```

安装前请下载 Office 安装包，下载完成后：按此顺序搜索：365、2024、2021；

发现了可用的安装包：首次部署会搜索 `Yi.ps1` 文件并执行 Office 安装进程；

手动运行：`D:\Yi\Office\{ 365 | 2024 | 2021 }\{ amd64 | x86 }\Office\Install.Office.ps1` 可进入安装进程。

可持续性：

自定义部署：在使用移动 U 盘，可将 `Yi` 目录保存到 U 盘分区，在安装系统过程中，一直保持连接状态，自动运行自定义部署策略。

2.2. 应预答用户方案

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。

2.2.1. 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. OOBE 交互式创建新用户

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。

2.2.2.1. 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. 替换

从开始处 `<OOBE>` 到 `</OOBE>`

```
<OOBE>

<ProtectYourPC>3</ProtectYourPC>

<HideEULAPage>true</HideEULAPage>

<HideWirelessSetupInOOBE>true</HideWirelessSetupInOOBE>

</OOBE>
```

章节 3 学习

A. 附加版

Install.wim 里有多个版本时，常规操作是依次挂载后自定义操作，在制作过程中减少反复的流程，制作好所需版后，可附加为其它的版本。

1. 附加版：仅需制作主要的所需版 ID

版本 ID：Core、CoreN、Professional、ProfessionalN、EnterpriseS、EnterpriseSN，差异：内置 InBox Apps 分配不同等。

2. 附加版：制作可附加版 ID 和所需版 ID 对照

编组	所需版 ID	可附加版 ID	备注
1	Core	Core, CoreSingleLanguage, Professional, EducationN, ProfessionalEducationN, ProfessionalWorkstationN, EnterpriseN, CloudEditionN	
2	CoreN	CoreN, CoreSingleLanguage, Professional, Education, ProfessionalCountrySpecific, ProfessionalEducation, ProfessionalSingleLanguage, ProfessionalWorkstation, Enterprise, IoTEnterprise, IoTEnterpriseK, ServerRdsh, CloudEdition	
3	Professional	Professional, Education, ProfessionalCountrySpecific, ProfessionalEducation, ProfessionalSingleLanguage, ProfessionalWorkstation, Enterprise, IoTEnterprise, IoTEnterpriseK, ServerRdsh, CloudEdition	
4	ProfessionalN	ProfessionalN, EducationN, ProfessionalEducationN, ProfessionalWorkstationN, EnterpriseN, CloudEditionN	
5	EnterpriseS	EnterpriseS, IoTEnterpriseS, IoTEnterpriseSK	
6	EnterpriseSN	EnterpriseSN	

3. 附加版：排序

排序	操作系统名称	所需版 ID	可附加版 ID	备注
1	Windows 11 Home	Core	Core	
2	Windows 11 Home N	CoreN	CoreN	
3	Windows 11 Home Single Language	Core	CoreSingleLanguage	
4	Windows 11 Education	Professional	Education	
5	Windows 11 Education N	ProfessionalN	EducationN	
6	Windows 11 Pro	Professional	Professional	
7	Windows 11 Pro N	ProfessionalN	ProfessionalN	
8	Windows 11 Pro Education	Professional	ProfessionalEducation	

排序	操作系统名称	所需版 ID	可附加版 ID	备注
9	Windows 11 Pro Education N	ProfessionalN	ProfessionalEducationN	
10	Windows 11 Pro for Workstations	Professional	ProfessionalWorkstation	
11	Windows 11 Pro N for Workstations	ProfessionalN	ProfessionalWorkstationN	
12	Windows 11 Enterprise	Professional	Enterprise	
13	Windows 11 Enterprise multi-session / Virtual Desktops	Professional	ServerRdsh	
14	Windows 11 Enterprise N	ProfessionalN	EnterpriseN	
15	Windows 11 IoT Enterprise	Professional	IoTEnterprise	
16	Windows 11 IoT Enterprise Subscription	Professional	IoTEnterpriseK	
17	Windows 11 Enterprise LTSC	EnterpriseS	EnterpriseS	
18	Windows 11 Enterprise N LTSC	EnterpriseS	IoTEnterpriseS	
19	Windows 11 IoT Enterprise LTSC	EnterpriseS	IoTEnterpriseSK	
20	Windows 11 IoT Enterprise Subscription LTSC	EnterpriseSN	EnterpriseSN	

4. 附加版：事件

4.1. 规则

脚本制作规则，根据“附加版：排序”的顺序，追加 install.wim 里的索引号到 Install.AE.Temp.wim 里。依次：

- 1) 挂载
- 2) 脱机更改版本 ID
- 3) 脱机更改序列号
- 4) 保存后卸载已挂载

依次循环完成以上后：

- 1) 重建 Install.AE.Temp.wim 文件
- 2) 移动 Install.wim 到备份目录
- 3) 重命名 Install.AE.Temp.wim 为 Install.wim

4.2. 附加版：开始

需要依赖 Wimblı 才能生成，不提供代码复制。

- Install.Additional.Edition.ps1
 - \Expand\Install\Install.Additional.Edition.ps1
 - https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.11/24H2/Expand/Install/Install.Additional.Edition.ps1

- 复制以下代码到文本编辑框里，请输入绝对路径后再复制到终端里运行。

```
& "D:\YiSolutions\_Learn\Packaging.tutorial\OS.11\24H2\Expand\Install\Install.Additional.Edition.ps1"
```

章节 4 常见问题

A. 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:\ISOTEMP_Custom\Install\Install\Mount" -Discard
```

```
Dismount-WindowsImage -Path "D:\ISOTEMP_Custom\Install\WinREMount" -Discard
```

```
Dismount-WindowsImage -Path "D:\ISOTEMP_Custom\Boot\Boot\Mount" -Discard
```

B. 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
```

C. 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 5 已知问题

1. 使用 Windows 11 25H2 (26200.6584) 初始版本添加“累积更新”后“固化更新”会导致“健康”问题

测试文件：[en-us_windows_11_business_editions_version_25h2_x64_dvd_41c521e7.iso](#)，在封装过程中添加累积更新 (KB5072033 “26200.7462”) 后，检查组件健康是正常的，未固化更新前无任何问题。

使用固化更新命令 “[Dism /Image:"D:\ISOTEMP" /cleanup-image /StartComponentCleanup /ResetBase](#)” 后，检查健康状态为“损坏”。已知解决方案：

- 使用 Windows 11 24H2 (26100.1742) 初始版本制作即可解决固化更新后的健康问题。

2. Windows 安全中心

在测试全新安装初始版本 Windows 11 25H2 26200.6584 中文版时，映像文件：[zh-cn_windows_11_consumer_editions_version_25h2_x64_dvd_0549fc93.iso](#)，安装系统完成后打开 Windows 安全中心是英文版，语言包未汉化。该

问题从 Windows 11 24H2 的 5 月 6 月份的镜像就已经开始出现，打开 Windows 更新，更新推送后即可解决。



Yi's 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>