

MICROSOFT WINDOWS 11 23H2

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

在这背后藏着很多的隐藏故事，想解开这些，你准备好开始这场封装之旅了吗？

摘要

章节 1 部署映像



章节 1	部署映像	第 5 页
A.	先决条件	第 5 页
II	要求	第 5 页
1.	系统安装包	第 5 页
2.	语言包	第 6 页
2.1.	学习	第 6 页
2.2.	语言包：下载	第 6 页
2.3.	语言包：修复	第 6 页
3.	InBox Apps	第 7 页
III	命令行	第 7 页
B.	语言包：提取	第 7 页
II	语言包：准备	第 8 页
III	语言包：提取方案	第 8 页
IV	执行提取命令	第 8 页
C.	自定义部署映像	第 14 页
II	自定义部署映像：Install.wim	第 14 页
1.	查看 Install.wim 详细信息	第 14 页
2.	指定挂载路径：Install.wim	第 14 页
3.	开始挂载 Install.wim	第 14 页
3.1.	自定义部署映像：WinRE.wim	第 14 页
3.1.1.	查看 WinRE.wim 详细信息	第 15 页
3.1.2.	指定挂载路径：WinRE.wim	第 15 页
3.1.3.	开始挂载 WinRE.wim	第 15 页
3.1.4.	语言包	第 15 页

3.1.4.1.	语言包：添加	第 15 页
3.1.4.2.	组件：映像中已安装的所有包	第 17 页
3.1.5.	保存映像	第 17 页
3.1.6.	卸载映像	第 17 页
3.1.7.	重建 WinRE.wim 后，可缩小文件大小	第 17 页
3.1.8.	备份 WinRE.wim	第 18 页
3.1.9.	替换 Install.wim 映像内的 WinRE.wim	第 18 页
4.	语言包	第 19 页
4.1.	语言包：添加	第 19 页
4.2.	组件：映像中已安装的所有包	第 21 页
5.	InBox Apps	第 21 页
5.1.	InBox Apps：已安装	第 21 页
5.2.	删除已安装的所有预应用程序	第 21 页
5.3.	区域标记：添加方式	第 22 页
5.4.	InBox Apps：安装	第 23 页
5.5.	InBox Apps：优化	第 33 页
6.	累积更新	第 33 页
6.1.	专属功能启用包	第 33 页
6.2.	初始版本	第 33 页
6.3.	其它版本	第 34 页
6.4.	固化更新	第 34 页
6.4.1.	固化更新后清理组件	第 34 页
7.	部署引擎：添加	第 35 页
8.	健康	第 35 页

9.	替换 WinRE.wim	第 35 页
10.	保存映像	第 35 页
11.	卸载映像	第 35 页
12.	重建 Install.wim 后可缩小文件大小	第 35 页
13.	如何批量替换 Install.wim 里的所有索引号里的 WinRE.wim	第 36 页
13.1.	获取 WimLib	第 36 页
13.2.	如何在 Install.wim 里提取和更新 WinRE.wim	第 36 页
III	自定义部署映像：boot.wim	第 37 页
1.	查看 Boot.wim 详细信息	第 37 页
2.	指定挂载路径：Boot.wim	第 38 页
3.	开始挂载 Boot.wim	第 38 页
4.	语言包	第 38 页
4.1.	语言包：添加	第 38 页
4.2.	组件：映像中已安装的所有包	第 39 页
4.3.	语言包：修复	第 40 页
4.4.	语言包：同步到 ISO 安装程序	第 40 页
4.5.	重新生成 Lang.ini	第 40 页
4.5.1.	重新生成已挂载目录 lang.ini	第 40 页
4.5.2.	重新生成 lang.ini 后，同步到安装程序	第 40 页
5.	其它	第 40 页
5.1.	绕过 TPM 安装时检查	第 41 页
6.	保存映像	第 41 页
7.	卸载映像	第 41 页
IV	部署引擎	第 41 页
1.	添加方式	第 42 页

2.	部署引擎：进阶	第 45 页
D.	ISO	第 47 页
II	生成 ISO	第 47 页
III	绕过 TPM 安装时检查	第 48 页

章节 1 部署映像

A. 先决条件

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. 每版本更新时请重新制作镜像，例如从 21H1 跨越到 22H2 时，应避免出现其它兼容性问题请勿在旧镜像基础上制作；
- 1.1.2. 该条例已经在某些 OEM 厂商，通过各种形式向封装师明确传达了该法令，不允许直接从迭代版本里直接升级；
- 1.1.3. 制作中请使用“初始版本”、“开发者版”制作。微软官方文档里曾短暂的出现过在制作中必须使用初始版本，后来这句在官方文档里却被删除了；
- 1.1.4. 安装语言包后，必须重新添加累积更新（可同一版本号），不添加累积更新会出现“乱码”、“界面闪退”等问题。
- 1.1.5. 进化过程：Windows 11 23H2, Build 22631.2428 + KB5031455 = OS Build 22631.2506

1.2. 准备下载初始版本或开发者版本

- 1.2.1. [en-us_windows_11_business_editions_version_23h2_x64_dvd_a9092734.iso](#)
- 1.2.2. [en-us_windows_11_consumer_editions_version_23h2_x64_dvd_8ea907fb.iso](#)

1.3. 示例下载 [en-us_windows_11_business_editions_version_23h2_x64_dvd_a9092734.iso](#) 后，解压到：[D:\en-us_windows_11_business_editions_version_23h2_x64_dvd_a9092734](#)

1.4. 解压完成后，将目录 [en-us_windows_11_business_editions_version_23h2_x64_dvd_a9092734](#) 更改为 [D:\OS_11](#)

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

1.6. 安装配置

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

1.6.2. 已知问题

- 1.6.2.1. 没有 Ei.cfg 时，ISO 引导安装，选择某些版本时会报错，提示：[Windows 找不到 Microsoft 软件许可条款。请确保安装源有效。然后重新启动安装。](#)
- 1.6.2.2. 如何解决，添加 ei.cfg 到 D:\OS_11\Sources 里，创建 ei.cfg：

[@"](#)

```
[Channel]

volume

[VL]

1

"@ | Out-File -FilePath "D:\OS_11\sources\EI.CFG" -Encoding Ascii
```

2. 语言包

2.1. 学习

阅读时，请了解“蓝色”重要突出部分。

- 2.1.1. [语言概述](#)
- 2.1.2. [将语言添加到 Windows 11 映像](#)
- 2.1.3. [语言和区域按需功能 \(FOD\)](#)

2.2. 语言包：下载

https://software-static.download.prss.microsoft.com/dbazure/988969d5-f34g-4e03-ac9d-1f9786c66749/22621.2501.231009-1937.ni_release_svc_prod3_amd64fre_InboxApps.iso

2.3. 语言包：修复

2.3.1. 任选一个网站并打开：

- 2.3.1.1. <https://uupdump.net>
- 2.3.1.2. <https://uup.ee>
- 2.3.1.3. <https://osdump.com>

2.3.2. 打开后，搜索关键词：22631.2428，在搜索结果选择：Windows 11, version 23H2 (22631.2428) amd64

2.3.3. 打开后，选择“全部文件”；

2.3.4. 在“全部文件”页面里依次搜索绿色部分并下载：

- 2.3.4.1. 适用于：Install.wim（1 项）
 - 2.3.4.1.1. MediaPlayer
- 2.3.4.2. 适用于：WinRE.wim，暂无
- 2.3.4.3. 适用于：Boot.wim，暂无

- 2.3.5. 下载所有文件后，拉动到页面下方，下载并运行“生成重命名脚本（Windows）”；
- 2.3.6. 使用 ISO 编辑软件，编辑 22621.2501.231009-1937.ni_release_svc_prod3_amd64fre_InboxApps.iso，将下载的文件添加到 [ISO]:\LanguagesAndOptionalFeatures 目录里；

3. Inbox Apps

- 3.1. 下载：https://software-static.download.prss.microsoft.com/dbazure/888969d5-f34g-4e03-ac9d-1f9786c66749/22621.2501.231009-1937.ni_release_svc_prod3_amd64fre_InboxApps.iso
- 3.2. 下载：https://software-static.download.prss.microsoft.com/dbazure/988969d5-f34g-4e03-ac9d-1f9786c66749/22621.1.220506-1250.ni_release_amd64fre_InboxApps.iso 后，提取：
 - 3.2.1. Microsoft.HEVCVideoExtension
 - 3.2.1.1. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.x64.appx
 - 3.2.1.2. Microsoft.HEVCVideoExtension_8wekyb3d8bbwe.x64.xml
 - 3.2.2. Microsoft.WindowsTerminal
 - 3.2.2.1. Microsoft.WindowsTerminal_8wekyb3d8bbwe.msixbundle
 - 3.2.2.2. Microsoft.WindowsTerminal_8wekyb3d8bbwe.xml

警告

- 22621.1778.230511-2102.ni_release_svc_prod3_amd64fre_InboxApps.iso 文件里提供的 Microsoft.WindowsTerminal_8wekyb3d8bbwe.msixbundle 安装版本号是：1.17.12191，安装此版本号后无法正常运行。
- Windows 11 23H2 22631.2428 初始版本里提供的版本号是：1.12.10983，安装此版本号可正常运行。

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

III 命令行

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

Set-ExecutionPolicy -ExecutionPolicy Bypass -Force
- 3. 在本文中，绿色部分属于 PS 命令行，请复制后，粘贴到“Terminal”对话框，按回车键（Enter）后开始运行；
- 4. 有 .ps1 时，点击文件右键，选择以 PowerShell 运行，或复制路径，粘贴到“Terminal ”或“PowerShell ISE”里运行。

B. 语言包：提取

II 语言包：准备

挂载 [22621.2501.231009-1937.ni_release_svc_prod3_amd64fre_InboxApps.iso](#) 或解压到任意位置；

III 语言包：提取方案

1. 添加

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

2. 删除

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

IV 执行提取命令

- Auto = 自动搜索本地所有磁盘，默认；
- 自定义路径，例如指定为 E 盘：\$ISO = "E:\"
- Extract.ps1
 - \Expand\Extract.ps1
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Extract.ps1
- 复制代码

```
$ISO = "Auto"

$SaveTo = "D:\OS_11_Custom"

$Extract_language_Pack = @(

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

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

)

Function Extract_Language

{

    param( $Act, $NewLang, $Expand )

    Function Match_Required_Fonts

    {

        param( $Lang )

        $Fonts = @(
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

)

ForEach ($item in $Fonts) {

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

        return $item.Name

    }

}

return "Not_matched"
```

```

}

Function Match_Other_Region_Specific_Requirements

{

    param( $Lang )

    $RegionSpecific = @(

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

    )

    ForEach ($item in $RegionSpecific) {

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

            return $item.Name

        }

    }

    return "Skip_specific_packages"

}

Function Extract_Process

{

    param( $Package, $Name, $NewSaveTo )

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

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

    if ($ISO -eq "Auto") {

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

            ForEach ($item in $Package) {

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

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

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

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

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

                }

            }

        }

    } else {

        ForEach ($item in $Package) {

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

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

```

```

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

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

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

} else {

    Write-host "  Not found"

}

}

}

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

ForEach ($item in $Package) {

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

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

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

    } else {

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

    }

}

}

$AdvLanguage = @(

    @{

        Path = "Install\Install"

        Rule = @(

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

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

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

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

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

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

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

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

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

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

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

```

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

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

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

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

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

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

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

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

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

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

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

)

}

@{

    Path = "Install\WinRE"

    Rule = @(

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```

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

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

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

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

    )

}

@{

    Path = "Boot\Boot"

    Rule = @(

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

    )

}

)

$NewFonts = Match_Required_Fonts -Lang $NewLang

$SpecificPackage = Match_Other_Region_Specific_Requirements -Lang $NewLang

Foreach ($item in $Expand) {

    $Language = @()

    Foreach ($itemList in $AdvLanguage) {

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

```

```

Foreach ($PrintLang in $ItemList.Rule) {

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

}

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

}

}

}

}

}

}

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

```

C. 自定义部署映像

II 自定义部署映像：Install.wim

1. 查看 Install.wim 详细信息

映像名称、映像描述、映像大小、架构、版本、索引号等；

```

$ViewFile = "D:\OS_11\Sources\Install.wim"

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

```

[循环操作区域，开始，](#)

2. 指定挂载 Install 路径

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

3. 开始挂载 Install.wim

默认索引号：1

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

[处理 Install.wim 映像内的文件，可选项，开始，](#)

3.1. 自定义部署映像：WinRE.wim

注意：

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

WinRE.wim”。

3.1.1. 查看 WinRE.wim 详细信息

映像名称、映像描述、映像大小、架构、版本、索引号等；

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

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

3.1.2. 指定挂载 WinRE.wim 路径

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

3.1.3. 开始挂载 WinRE.wim

默认索引号：1

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

3.1.4. 语言包

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

3.1.4.1. 语言包：添加

- WinRE.Instl.lang.ps1
 - [\Expand\Install\WinRE\WinRE.Instl.lang.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Install/WinRE/WinRE.Instl.lang.ps1

- 复制代码

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

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

$Initl_install_Language_Component = @()

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

    $Initl_install_Language_Component += $_.PackageName

}
```



```

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

$Language_List = @(

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

)

ForEach ($Rule in $Language_List) {

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

    ForEach ($Component in $InitL_install_Language_Component) {

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

            Write-host " Component name: " -NoNewline

            Write-host $Component -ForegroundColor Green

            Write-host " Language pack file: " -NoNewline

            Write-host "$($Sources)\$($Rule.File)" -ForegroundColor Green

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

            try {

```

```

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

        Write-host "Finish" -ForegroundColor Green

    } catch {

        Write-host "Failed" -ForegroundColor Red

    }

    break

}

}

}
```

3.1.4.2. 组件：映像中已安装的所有包

3.1.4.2.1. 查看

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

3.1.4.2.2. 导出到 Csv

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

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

Write-host $SaveTo -ForegroundColor Green
```

3.1.5. 保存映像

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

3.1.6. 卸载映像

关闭所有可能正在访问映像中文件的应用程序，包括文件资源管理器。

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

3.1.7. 重建 WinRE.wim 后，可缩小文件大小

- WinRE.Rebuild.ps1
 - `\Expand\Install\WinRE\WinRE.Rebuild.ps1`
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Install/WinRE/WinRE.Rebuild.ps1
- 复制代码

```

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

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

    Write-Host "  Image name: " -NoNewline

    Write-Host $_.ImageName -ForegroundColor Yellow

    Write-Host "  The index number: " -NoNewline

    Write-Host $_.ImageIndex -ForegroundColor Yellow

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

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

    Write-Host "Finish`n" -ForegroundColor Green

}

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

    Remove-Item -Path $Filename

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

    Write-Host "Finish" -ForegroundColor Green

} else {

    Write-host "Failed" -ForegroundColor Red

}

```

3.1.8. 备份 WinRE.wim

- WinRE.Backup.ps1
 - [\Expand\Install\WinRE\WinRE.Backup.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Install/WinRE/WinRE.Backup.ps1
- 复制代码

```

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

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

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

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

```

3.1.9. 替换 Install.wim 映像内的 WinRE.wim

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

处理 Install.wim 映像内的文件，结束。

4. 语言包

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

4.1. 语言包：添加

- Install.Instl.lang.ps1
 - [\Expand\Install\Install.Instl.lang.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Install/Install.Instl.lang.ps1

- 复制代码

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

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

$Initl_install_Language_Component = @()

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

    $Initl_install_Language_Component += $_.PackageName

}

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

$Language_List = @(

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

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

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

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

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

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

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

    @{ Match = "*Notepad*amd64*"; File = "Microsoft-Windows-Notepad-System-FoD-
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

)

ForEach ($Rule in $Language_List) {

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

    ForEach ($Component in $Initl_install_Language_Component) {

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

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

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

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

            try {

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

                Write-host "Finish" -ForegroundColor Green

            } catch {

                Write-host "Failed" -ForegroundColor Red

            }

        }

    }

}
```

```
        break
    }
}
}
```

4.2. 组件：映像中已安装的所有包

4.2.1. 查看

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

4.2.2. 导出到 Csv

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

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

Write-host $SaveTo -ForegroundColor Green
```

5. InBox Apps

5.1. InBox Apps：已安装

5.1.1. 查看

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

5.1.2. 导出到 Csv

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

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

Write-host $SaveTo -ForegroundColor Green
```

5.2. 删除已安装的所有预应用程序

- Install.InBox.Appx.Clear.all.ps1
 - [\Expand\Install\Install.InBox.Appx.Clear.all.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Install/Install.InBox.Appx.Clear.all.ps1

• 复制代码

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

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

```
Write-Host " Deleting ".PadRight(22) -NoNewLine

try{

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

    Write-host "Finish" -ForegroundColor Green

}catch{

    Write-host "Failed" -ForegroundColor Red

}

}
```

5.3. 区域标记：添加方式

5.3.1. 执行“语言包：添加”

5.3.2. 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：

5.3.2.1. 使用“Windows 本地语言体验包（LXPs）下载器”下载

了解：<https://github.com/ilikeyi/LXPs>

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

5.3.2.2. 手动下载

5.3.2.2.1. 区域

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

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

5.3.2.2.2.1. 搜索关键词：

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

5.3.2.2.2.2. 网页内搜索 22621 内容，搜索结果：

Microsoft.LanguageExperiencePackzh-CN_22621.*.
neutral__8wekyb3d8bbwe.appx

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

5.3.2.3. 执行安装命令安装本地语言体验包（LXPs）

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

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

5.3.2.4. InBox Apps：已安装的应用程序包

5.3.2.4.1. 查看

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

5.3.2.4.2. 导出出 Csv

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

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

Write-host $SaveTo -ForegroundColor Green
```

5.4. InBox Apps：安装

5.4.1. 挂载或解压 InBox Apps 安装文件

挂载 `22621.1.220506-1250.ni_release_amd64fre_InboxApps.iso` 或解压到任意位置；

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

- `Auto` = 自动搜索本地所有磁盘，默认；
- 自定义路径，例如指定为 F 盘：`$ISO = "F:\packages"`
- 架构：`x64`
- `Install.Inst.InBox.Appx.ps1`
 - `\Expand\Install\Install.Inst.InBox.Appx.ps1`
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Install/Install.Inst.InBox.Appx.ps1
- 复制代码

```
$ISO = "Auto"

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

$Arch = "x64"
```



```

try {

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

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

    Write-Host $Current_Edition_Version -ForegroundColor Green

} catch {

    Write-Host "Error" -ForegroundColor Red

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

    return

}

$Pre_Config_Rules = @{

    Edition = @(

        @{

            Name = @( "CloudEdition"; )

            Apps = @(

                "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.UI.Xaml.2.8";
                "Microsoft.NET.Native.Framework.2.2"; "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00";
                "Microsoft.VCLibs.140.00.UWPDesktop"; "Microsoft.Services.Store.Engagement";
                "Microsoft.VP9VideoExtensions"; "Clipchamp.Clipchamp"; "Microsoft.BingNews"; "Microsoft.BingWeather";
                "Microsoft.DesktopAppInstaller"; "Microsoft.GetHelp"; "Microsoft.Getstarted"; "Microsoft.HEIFImageExtension";
                "Microsoft.HEVCVideoExtension"; "Microsoft.MicrosoftOfficeHub"; "Microsoft.MicrosoftStickyNotes";
                "Microsoft.MinecraftEducationEdition"; "Microsoft.Paint"; "Microsoft.RawImageExtension";
                "Microsoft.ScreenSketch"; "Microsoft.SecHealthUI"; "Microsoft.StorePurchaseApp"; "Microsoft.Todos";
                "Microsoft.WebMediaExtensions"; "Microsoft.WebplImageExtension"; "Microsoft.Whiteboard";
                "Microsoft.Windows.Photos"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsCalculator";
                "Microsoft.WindowsCamera"; "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsMaps";
                "Microsoft.WindowsNotepad"; "Microsoft.WindowsSoundRecorder"; "Microsoft.Xbox.TCUI";
                "Microsoft.XboxIdentityProvider"; "Microsoft.XboxSpeechToTextOverlay"; "Microsoft.ZuneMusic";
                "Microsoft.ZuneVideo"; "MicrosoftCorporationII.QuickAssist";

            )

        }

        @{

            Name = @( "CloudEditionN"; )

            Apps = @(

                "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.UI.Xaml.2.8";
                "Microsoft.NET.Native.Framework.2.2"; "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00";
                "Microsoft.VCLibs.140.00.UWPDesktop"; "Microsoft.Services.Store.Engagement";
                "Microsoft.XboxSpeechToTextOverlay"; "Clipchamp.Clipchamp"; "Microsoft.BingNews"; "Microsoft.BingWeather";
                "Microsoft.DesktopAppInstaller"; "Microsoft.GetHelp"; "Microsoft.Getstarted"; "Microsoft.MicrosoftOfficeHub";
                "Microsoft.MicrosoftStickyNotes"; "Microsoft.MinecraftEducationEdition"; "Microsoft.Paint";
                "Microsoft.ScreenSketch"; "Microsoft.SecHealthUI"; "Microsoft.StorePurchaseApp"; "Microsoft.Whiteboard";
                "Microsoft.Windows.Photos"; "Microsoft.WindowsAlarms"; "Microsoft.WindowsCalculator";
                "Microsoft.WindowsCamera"; "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsMaps";

```

```

"Microsoft.WindowsNotepad"; "Microsoft.XboxIdentityProvider"; "MicrosoftCorporationII.QuickAssist";

    )

}

@{

    Name = @( "Core"; "CoreN"; "CoreSingleLanguage"; )

    Apps = @(

        "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.UI.Xaml.2.8";
"Microsoft.NET.Native.Framework.2.2"; "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00";
"Microsoft.VCLibs.140.00.UWPDesktop"; "Microsoft.Services.Store.Engagement";
"Microsoft.HEIFImageExtension"; "Microsoft.HEVCVideoExtension"; "Microsoft.SecHealthUI";
"Microsoft.VP9VideoExtensions"; "Microsoft.WebpImageExtension"; "Microsoft.WindowsStore";
"Microsoft.GamingApp"; "Microsoft.MicrosoftStickyNotes"; "Microsoft.Paint";
"Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch"; "Microsoft.WindowsNotepad";
"Microsoft.WindowsTerminal"; "Clipchamp.Clipchamp"; "Microsoft.MicrosoftSolitaireCollection";
"Microsoft.WindowsAlarms"; "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsMaps";
"Microsoft.ZuneMusic"; "Microsoft.BingNews"; "Microsoft.BingWeather"; "Microsoft.DesktopAppInstaller";
"Microsoft.WindowsCamera"; "Microsoft.Getstarted"; "Microsoft.Cortana"; "Microsoft.GetHelp";
"Microsoft.MicrosoftOfficeHub"; "Microsoft.People"; "Microsoft.StorePurchaseApp"; "Microsoft.Todos";
"Microsoft.WebMediaExtensions"; "Microsoft.Windows.Photos"; "Microsoft.WindowsCalculator";
"Microsoft.windowscommunicationsapps"; "Microsoft.WindowsSoundRecorder"; "Microsoft.Xbox.TCUI";
"Microsoft.XboxGameOverlay"; "Microsoft.XboxGamingOverlay"; "Microsoft.XboxIdentityProvider";
"Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone"; "Microsoft.ZuneVideo";
"MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience";
"Microsoft.RawImageExtension"; "MicrosoftCorporationII.MicrosoftFamily";

    )

}

@{

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

    Apps = @(

        "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.UI.Xaml.2.8";
"Microsoft.NET.Native.Framework.2.2"; "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00";
"Microsoft.VCLibs.140.00.UWPDesktop"; "Microsoft.Services.Store.Engagement";
"Microsoft.HEIFImageExtension"; "Microsoft.HEVCVideoExtension"; "Microsoft.SecHealthUI";
"Microsoft.VP9VideoExtensions"; "Microsoft.WebpImageExtension"; "Microsoft.WindowsStore";
"Microsoft.GamingApp"; "Microsoft.MicrosoftStickyNotes"; "Microsoft.Paint";
"Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch"; "Microsoft.WindowsNotepad";
"Microsoft.WindowsTerminal"; "Clipchamp.Clipchamp"; "Microsoft.MicrosoftSolitaireCollection";
"Microsoft.WindowsAlarms"; "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsMaps";
"Microsoft.ZuneMusic"; "Microsoft.BingNews"; "Microsoft.BingWeather"; "Microsoft.DesktopAppInstaller";
"Microsoft.WindowsCamera"; "Microsoft.Getstarted"; "Microsoft.Cortana"; "Microsoft.GetHelp";
"Microsoft.MicrosoftOfficeHub"; "Microsoft.People"; "Microsoft.StorePurchaseApp"; "Microsoft.Todos";
"Microsoft.WebMediaExtensions"; "Microsoft.Windows.Photos"; "Microsoft.WindowsCalculator";
"Microsoft.windowscommunicationsapps"; "Microsoft.WindowsSoundRecorder"; "Microsoft.Xbox.TCUI";
"Microsoft.XboxGameOverlay"; "Microsoft.XboxGamingOverlay"; "Microsoft.XboxIdentityProvider";
"Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone"; "Microsoft.ZuneVideo";
"MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience";
"Microsoft.RawImageExtension";

```

```

    )

}

@{

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

    Apps = @(

        "Microsoft.UI.Xaml.2.3"; "Microsoft.UI.Xaml.2.4"; "Microsoft.UI.Xaml.2.7"; "Microsoft.UI.Xaml.2.8";
"Microsoft.NET.Native.Framework.2.2"; "Microsoft.NET.Native.Runtime.2.2"; "Microsoft.VCLibs.140.00";
"Microsoft.VCLibs.140.00.UWPDesktop"; "Microsoft.Services.Store.Engagement"; "Microsoft.SecHealthUI";
"Microsoft.WindowsStore"; "Microsoft.MicrosoftStickyNotes"; "Microsoft.Paint";
"Microsoft.PowerAutomateDesktop"; "Microsoft.ScreenSketch"; "Microsoft.WindowsNotepad";
"Microsoft.WindowsTerminal"; "Clipchamp.Clipchamp"; "Microsoft.MicrosoftSolitaireCollection";
"Microsoft.WindowsAlarms"; "Microsoft.WindowsFeedbackHub"; "Microsoft.WindowsMaps";
"Microsoft.BingNews"; "Microsoft.BingWeather"; "Microsoft.DesktopAppInstaller"; "Microsoft.WindowsCamera";
"Microsoft.Getstarted"; "Microsoft.Cortana"; "Microsoft.GetHelp"; "Microsoft.MicrosoftOfficeHub";
"Microsoft.People"; "Microsoft.StorePurchaseApp"; "Microsoft.Todos"; "Microsoft.Windows.Photos";
"Microsoft.WindowsCalculator"; "Microsoft.windowscommunicationsapps"; "Microsoft.XboxGameOverlay";
"Microsoft.XboxIdentityProvider"; "Microsoft.XboxSpeechToTextOverlay"; "Microsoft.YourPhone";
"MicrosoftCorporationII.QuickAssist"; "MicrosoftWindows.Client.WebExperience";

    )

}

)

Rule=@(

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

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

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

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

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

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

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

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

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

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

```

```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```

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

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

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

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

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

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

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

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

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

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

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

```
@{ Name="Microsoft.Todos"; Match="Todos"; License="Todos";  
Dependencies=@("Microsoft.UI.Xaml.2.8","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.WebMediaExtensions"; Match="WebMediaExtensions"; License="WebMediaExtensions";  
Dependencies=@("Microsoft.VCLibs.140.00"); }
```

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

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

```
@{ Name="Microsoft.WindowsSoundRecorder"; Match="WindowsSoundRecorder";
```

```

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

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

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

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

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

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

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

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

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

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

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

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

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

)

}

$Allow_Install_App = @()

ForEach ($item in $Pre_Config_Rules.Edition) {

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

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

        $Allow_Install_App = $item.Apps

        break

    }

}

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

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

```

```

ForEach ($item in $Allow_Install_App){

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

}

Function Match_InBox_Apps_Install_Pack

{

    param ( $NewPath )

    $NewArch = $Arch

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

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

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

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

        ForEach ($itemInBoxApps in $Pre_Config_Rules.Rule){

            $InstallPacker = ""

            $InstallPackerCert = ""

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

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

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

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

                    $InstallPacker = $_.FullName

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

                        $InstallPackerCert = $_.FullName

                    }

                    $Script:InBoxAppx += @{

                        Name = $itemInBoxApps.Name;

                        Depend = $itemInBoxApps.Dependencies;

                        Search = $SearchNewStructure;

                        InstallPacker = $InstallPacker;

                        Certificate = $InstallPackerCert

                        CertificateRule = $SearchNewLicense

                    }

                    return

                }

            }

        }

    }

}

```



```

    }

    }

}

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

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

$Script:InBoxAppx = @()

if ($ISO -eq "Auto") {

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

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

        Match_InBox_Apps_Install_Pack -NewPath $AppPath

    }

} else {

    Match_InBox_Apps_Install_Pack -NewPath $ISO

}

Write-host " Search Complete" -ForegroundColor Green

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

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

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

    Write-host " Match successful" -ForegroundColor Green

} else {

    Write-host " Failed match" -ForegroundColor Red

    return

}

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

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

ForEach ($Rule in $Script:InBoxAppx) {

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

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

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

    Write-host ""

}

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

```



```

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

ForEach ($Rule in $Script:InBoxAppx) {

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

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

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

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

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

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

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

                Write-host "    License: " -NoNewline

                Write-host $Rule.Certificate -ForegroundColor Yellow

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

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

                try {

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

                    Write-Host "Done`n" -ForegroundColor Green

                } catch {

                    Write-Host "Failed" -ForegroundColor Red

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

                }

            } else {

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

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

                try {

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

                    Write-Host "Done`n" -ForegroundColor Green

                } catch {

                    Write-Host "Failed" -ForegroundColor Red

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

                }

            }

        } else {

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

```

```
    }

    } else {

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

    }

}
```

5.5. InBox Apps：优化

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

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

6. 累积更新

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

6.1. 专属功能启用包

- 学习：[KB5027397：使用启用包对 Windows 11 版本 23H2 的功能更新](#)
- 制作 Windows 11 版本 22H2、23H2 时，需提前安装“功能启用包”后才能安装 22631.* 的累积更新，下载后保存到：
[D:\OS_11_Custom\Install\Install\Update](#)，根据架构选择下载：

6.1.1. x64，默认

- 直连下载

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

- 添加

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

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

6.2. 初始版本

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

- 优先添加 “专属功能启用包” 后再添加 “初始版本” ，前往下载页面：
<https://www.catalog.update.microsoft.com/Search.aspx?q=KB5031354>，下载后保存到：
[D:\OS_11_Custom\Install\Install\Update](#)，或通过直连下载，根据架构选择下载：

6.2.1. x64, 默认

- 直连下载

https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/885dcacb-fb29-4536-88f6-4fd4792a4a65/public/windows11.0-kb5031354-x64_3391407e62562e0e48a437c5c7115667305d788c.msu

- 添加

```
$KBPath = "D:\OS_11_Custom\Install\Install\Update\windows11.0-kb5031354-x64_3391407e62562e0e48a437c5c7115667305d788c.msu "  
  
Add-WindowsPackage -Path "D:\OS_11_Custom\Install\Install\Mount" -PackagePath $KBPath
```

6.3. 其它版本

- 安装前，下载专属功能启用包 [KB5032288](#) 后并优先后添加，再依次添加其它版本。
- 查阅 “[Windows 11 版本信息](#)” ，例如下载累积更新：[KB5032288](#)，前往下载页面：
<https://www.catalog.update.microsoft.com/Search.aspx?q=KB5032288>，下载后保存到：
[D:\OS_11_Custom\Install\Install\Update](#)，或通过直连下载，根据架构选择下载：

6.3.1. x64, 默认

- 直连下载

https://catalog.sf.dl.delivery.mp.microsoft.com/filestreamingservice/files/d44c2ec3-2179-4305-9f27-fe303f81a9b6/public/windows11.0-kb5032288-x64_04212175664d85ed0f439f8f1f883e9f383b84cf.msu

- 添加

```
$KBPath = "D:\OS_11_Custom\Install\Install\Update\windows11.0-kb5032288-x64_04212175664d85ed0f439f8f1f883e9f383b84cf.msu"  
  
Add-WindowsPackage -Path "D:\OS_11_Custom\Install\Install\Mount" -PackagePath $KBPath
```

6.4. 固化更新, 可选项

固化后不可卸载，固化时将清理恢复映像并重置任何被取代的组件的基础。

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

6.4.1. 固化更新后清理组件, 可选项

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

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

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

        Write-Host "  ${_.PackageName}" -ForegroundColor Green

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

    }

}
```

7. 部署引擎：添加，可选

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

8. 健康

保存前应检查是否损坏，健康状态异常时，中止保存

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

9. 替换 WinRE.wim

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

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

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

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

10. 保存映像

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

11. 卸载映像

关闭所有可能正在访问映像中文件的应用程序，包括文件资源管理器。

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

[循环操作区域](#)，结束。

12. 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/_Documents/Attachment/OS.11/23H2/Expand/Install/Install.Rebuild.wim.ps1

- 复制代码

```
$InstallWim = "D:\OS_11\sources\install.wim"

Get-WindowsImage -ImagePath $InstallWim -ErrorAction SilentlyContinue | ForEach-Object {

    Write-Host "  Image name: " -NoNewline

    Write-Host $_.ImageName -ForegroundColor Yellow

    Write-Host "  The index number: " -NoNewline

    Write-Host $_.ImageIndex -ForegroundColor Yellow

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

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

    Write-Host "Finish`n" -ForegroundColor Green

}

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

    Remove-Item -Path $InstallWim

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

    Write-Host "Finish" -ForegroundColor Green

} else {

    Write-host "Failed" -ForegroundColor Red

}
```

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/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Install/Install.WinRE.Replace.wim.ps1

- 复制代码

```
$Arguments = @(

    "extract",

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

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

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

)

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

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

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

- Install.WinRE.Replace.wim.ps1
 - \Expand\Install\Install.WinRE.Replace.wim.ps1
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Install/Install.WinRE.Replace.wim.ps1

- 复制代码

```
Get-WindowsImage -ImagePath "D:\OS_11\sources\install.wim" -ErrorAction SilentlyContinue | ForEach-Object {

    Write-Host "  Image name: " -NoNewline; Write-Host $_.ImageName -ForegroundColor Yellow

    Write-Host "  The index number: " -NoNewline; Write-Host $_.ImageIndex -ForegroundColor Yellow

    Write-Host "`n  Replacement "

    $Arguments = @(

        "update",

        "D:\OS_11\sources\install.wim", $_.ImageIndex,

        "--command=""add 'D:\OS_11_Custom\Install\Install\Update\Winlib\WinRE.wim'

        '\Windows\System32\Recovery\WinRe.wim'""

    )

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

    Write-Host "  Finish`n" -ForegroundColor Green

}
```

III 自定义部署映像：boot.wim

1. 查看 Boot.wim 文件信息

映像名称、映像描述、映像大小、架构、版本、索引号等；

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

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

2. 指定挂载 Boot.wim 路径

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

3. 开始挂载 Boot.wim

默认索引号：2

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

4. 语言包

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

4.1. 语言包：添加

- Boot.Instl.lang.ps1
 - [\Expand\Boot\Boot.Instl.lang.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Boot/Boot.Instl.lang.ps1

- 复制代码

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

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

```
$InitL_install_Language_Component = @()
```

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

```
    $InitL_install_Language_Component += $_.PackageName
```

```
}
```

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

```
$Language_List = @(
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

)

ForEach ($Rule in $Language_List) {

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

    ForEach ($Component in $Initl_install_Language_Component) {

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

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

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

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

            try {

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

                Write-host "Finish" -ForegroundColor Green

            } catch {

                Write-host "Failed" -ForegroundColor Red

            }

            break

        }

    }

}

}
```

4.2. 组件：映像中已安装的所有包

4.2.1. 查看

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


4.2.2. 导出到 Csv

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

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

Write-host $SaveTo -ForegroundColor Green
```

4.3. 语言包：修复

4.3.1. 提取

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

- 4.3.1.1. arunres.dll.mui
- 4.3.1.2. spwizres.dll.mui
- 4.3.1.3. w32uires.dll.mui

4.3.2. 复制

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

4.4. 语言包：同步到 ISO 安装程序

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

4.5. 重新生成 Lang.ini

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

4.5.1. 重新生成已挂载目录 lang.ini

```
重新生成的 Lang.ini 文件位置： D:\en-us_windows_server_2022_x64_dvd_620d7eac_Custom\Boot\Boot\Mount\Sources\lang.ini

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

4.5.2. 重新生成 lang.ini 后，同步到安装程序

```
重新生成的 Lang.ini 文件位置： D:\en-us_windows_server_2022_x64_dvd_620d7eac\Sources\lang.ini

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

5. 其它

5.1. 绕过 TPM 安装时检查

- Boot.Bypass.TPM.ps1
 - [\Expand\Boot\Boot.Bypass.TPM.ps1](#)
 - https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/Boot/Boot.Bypass.TPM.ps1

- 复制代码

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

$RandomGuid = [guid]::NewGuid()

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

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

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

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

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

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

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

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

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

[gc]::collect()

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

Remove-PSDrive -Name OtherTasksTPM
```

6. 保存映像

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

7. 卸载映像

关闭所有可能正在访问映像中文件的应用程序，包括文件资源管理器。

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

IV 部署引擎

- 了解“自动添加 Windows 系统已安装的语言”，学习：<https://github.com/ilikeyi/Multilingual>，如何下载：
 - 进入网站后，点击“代码”，“下载压缩包”，下载完成后得到 main.zip 压缩包文件。
 - 前往 <https://github.com/ilikeyi/Multilingual/releases> 下载页面，选择可用版本：1.1.0.4，选择下载源代码格式：zip，下载完成后得到 Multilingual-1.1.0.4.zip 压缩包文件；
- 将已下载的 main.zip 或 Multilingual-1.1.0.4.zip，解压到：D:\Multilingual-1.1.0.4，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\Unattend\Mul.Unattend.xml 到 D:\OS_11\Autounattend.xml

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

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

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

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

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

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

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

1.1.1.3.1. 创建 \$OEM\$ 路径

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

1.1.1.3.2. 复制

复制 D:\Multilingual\Unattend\Mul.Unattend.xml 到
D:\OS_11\Sources\\$\OEM\$\Panther\Unattend.xml

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

1.1.2. 部署引擎：添加

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

1.1.2.1. 部署引擎：复制

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

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

1.1.2.2. 部署引擎：自定义部署标记

```
$Flag = @(

    "Is_Mark_Sync" # 允许全盘搜索并同步部署标记

    # 先决部署

    # "Auto_Update" # 允许自动更新

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

    "Disable_Network_Location_Wizard" # 网络位置向导

    "Disable_Cleanup_Appx_Tasks" # Appx 清理维护任务

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

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

    "Prerequisites_Reboot" # 重新启动计算机

    # 完成首次部署

    # "Popup_Engine" # 允许首次弹出部署引擎主界面

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

    "Reset_Execution_Policy" # 恢复 PowerShell 执行策略：受限

    "Clear_Solutions" # 删除整个解决方案

    "Clear_Engine" # 删除部署引擎，保留其它

    # "First_Experience_Reboot" # 重新启动计算机

)

ForEach ($item in $Flag) {
```

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

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

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

}
```

1.2. 添加到已挂载

通过“自定义部署映像：Install.wim”，执行“开始挂载 Install.wim”，挂载到：D:\OS_11_Custom\Install\Install\Mount

1.2.1. 无人值守

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

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

1.2.2. 部署引擎

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

1.2.2.1. 部署引擎：复制

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

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

1.2.2.2. 部署引擎：自定义部署标记

```
$Flag = @(

    "Is_Mark_Sync" # 允许全盘搜索并同步部署标记

    # 先决部署

    # "Auto_Update" # 允许自动更新

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

    "Disable_Network_Location_Wizard" # 网络位置向导

    "Disable_Cleanup_Appx_Tasks" # Appx 清理维护任务

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

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

```
"Prerequisites_Reboot" # 重新启动计算机

# 完成首次部署

# "Popup_Engine" # 允许首次弹出部署引擎主界面

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

"Reset_Execution_Policy" # 恢复 PowerShell 执行策略：受限

"Clear_Solutions" # 删除整个解决方案

"Clear_Engine" # 删除部署引擎，保留其它

# "First_Experience_Reboot" # 重新启动计算机

)

ForEach ($item in $Flag) {

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

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

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

}
```

2. 部署引擎：进阶

2.1. 部署引擎：添加过程中

在复制部署引擎后，可添加部署标记来干预安装过程。

2.2. 无人值守方案

自定义无人值守时，以下文件存在时请同步修改：

- [D:\OS_11\Autounattend.xml](#)
- [D:\OS_11\Sources\Unattend.xml](#)
- [D:\OS_11\sources\\\$\OEM\\$\\\$\\$\Panther\unattend.xml](#)
- [D:\OS_11_Custom\Install\Install\Mount\Panther\Unattend.xml](#)

2.2.1. 多语言或单语

多语言时，单语时，可互相切换，替换时，请替换文件里所有相同的。

2.2.1.1. 多语言

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

<InputLocale>%OSDInputLocale%/InputLocale>

<SystemLocale>%OSDSystemLocale%/SystemLocale>

<UILanguage>%OSDUILanguage%/UILanguage>

<UILanguageFallback>%OSDUILanguageFallback%/UILanguageFallback>

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

2.2.1.2. 单语

单语需指定区域，例如指定区域：zh-CN

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

<InputLocale>zh-CN</InputLocale>

<SystemLocale>zh-CN</SystemLocale>

<UILanguage>zh-CN</UILanguage>

<UILanguageFallback>zh-CN</UILanguageFallback>

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

2.2.2. 用户方案

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

2.2.2.1. 自建用户 Administrator

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

```
<UserAccounts>

  <LocalAccounts>

    <LocalAccount wcm:action="add">

      <Password>

        <Value></Value>

        <PlainText>true</PlainText>

      </Password>

      <Description>Administrator</Description>

      <DisplayName>Administrator</DisplayName>

      <Group>Administrators</Group>

      <Name>Administrator</Name>

    </LocalAccount>

  </LocalAccounts>
```

```
</UserAccounts>

<AutoLogon>

  <Password>

    <Value></Value>

    <PlainText>true</PlainText>

  </Password>

  <Enabled>true</Enabled>

  <Username>Administrator</Username>

</AutoLogon>
```

2.2.2.2. 自定义用户

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

2.2.2.2.1. 删除

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

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

2.2.2.2.2. 替换

从开始处 <OOBE> 到 </OOBE>

```
<OOBE>

  <ProtectYourPC>3</ProtectYourPC>

  <HideEULAPage>true</HideEULAPage>

  <HideWirelessSetupInOOBE>true</HideWirelessSetupInOOBE>

</OOBE>
```

D. ISO

II 生成 ISO

1. 下载 OScding

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

1.1. x64

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

1.2. x86

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

1.3. arm64

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

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

- ISO.ps1

- \Expand\ISO.ps1

- https://github.com/ilikeyi/solutions/blob/main/_Documents/Attachment/OS.11/23H2/Expand/ISO.ps1

- 复制代码

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

```
$ISO = "D:\OS_11"
```

```
$Volume = "OS_11"
```

```
$SaveTo = "D:\OS_11.iso"
```

```
$Arguments = @("-m", "-o", "-u2", "-udfver102", "-l"("$($Volume)"), "-
```

```
bootdata:2#p0,e,b"($ISO)\boot\efisysboot.com"#pEF,e,b"($ISO)\efi\microsoft\boot\efisys.bin", $ISO, $SaveTo)
```

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

III 绕过 TPM 安装检查，可选

1. 了解 <https://github.com/AveYo/MediaCreationTool.bat/tree/main/bypass11> 并下载：Quick_11_iso_esd_wim_TPM_toggle.bat

2. 将 D:\OS_11.iso 文件托到 Quick_11_iso_esd_wim_TPM_toggle.bat 里，反序“添加”或“删除”TPM 安装时检查功能。

作者: Yi

网站: <https://fengyi.tel>

邮箱: 775159955@qq.com, ilikeyi@outlook.com

文档版本: 1.0

文档模型: 完整版

更新日期: 2024 - 1

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

