Yi’ Solutions

Microsoft Windows Server 2022

Different system versions have different packaging methods. The packaging process includes: "Language pack: add, associate, delete", "Drive: add, delete", "Cumulative update: add, delete" etc.

There are many hidden stories hidden behind this. If you want to unlock these, are you ready to start trying to encapsulate them?

## Summary

1. [Encapsulation](#_Deployment_image)
2. [Report](#_Report)
3. [Common problem](#_Common_problem)
4. [Known issues](#_Known_issues)

Table of contents

1. Encapsulation Page 5
   * 1. Prerequisites Page 5
2. ISO tools Page 5
3. Requirements Page 5
4. System installation package Page 5
5. Language Pack Page 5
   1. Learn Page 5
   2. Language pack: Download Page 5
6. Windows Security Page 5
7. Command line Page 6
   * 1. Language package: extract Page 6
8. Language pack: Ready Page 6
9. Language pack: Extract scheme Page 6
10. Execute the extract command Page 7
    * 1. Custom encapsulation Page 12
11. Custom encapsulation: Install.wim Page 12
12. View Install.wim details Page 12
13. Specify the path to mount install.wim Page 12
14. Start mounting Install.wim Page 13
    1. Custom encapsulation: WinRE.wim Page 13
       1. View WinRE.wim details Page 13
       2. Specify the path to mount WinRE.wim Page 13
       3. Start mounting WinRE.wim Page 13
       4. Language pack Page 13
          1. Language pack: add Page 13
          2. Offline image language: change Page 15
             1. Change default language, regional settings, and other international settings Page 15
             2. View available language settings Page 15
          3. Language packs: Removed Page 15
          4. Components: All packages installed in the image Page 17
       5. Cumulative updates Page 18
          1. Add Page 18
          2. Delete Page 18
          3. Solid update Page 18
             1. Clean components after curing and updating Page 18
       6. Drive Page 18
       7. Save image: WinRE.wim Page 19
       8. Unmount image: WinRE.wim Page 19
       9. After rebuilding WinRE.wim, the file size can be reduced Page 19
       10. Backup WinRE.wim Page 19
       11. Replace WinRE.wim within the Install.wim image Page 20
15. Language pack Page 20
    1. Language pack: add Page 20
    2. Offline image language: change Page 26
       1. Change default language, regional settings, and other international settings Page 26
       2. View available language settings Page 26
    3. Language packs: Removed Page 26
    4. Components: All packages installed in the image Page 29
16. Cumulative updates Page 29
    1. Download Page 29
    2. Add Page 29
    3. Solid update Page 29
       1. Clean up components after curing updates Page 29
17. Drive Page 30
18. Deployment engine: Add Page 30
19. Health Page 30
20. Replace the WinRE.wim Page 30
21. Save image: Install.wim Page 30
22. Unmount image: Install.wim Page 30
23. How to batch replace WinRE.wim in all index numbers in Install.wim Page 30
    1. Get WimLib Page 30
    2. How to extract and update WinRE.wim in Install.wim Page 31
24. Rebuilding Install.wim reduces file size Page 32
25. Custom encapsulation: boot.wim Page 32
26. View Boot.wim details Page 32
27. Specify the path to mount Boot.wim Page 33
28. Start mounting Boot.wim Page 33
29. Language pack Page 33
    1. Language pack: add Page 33
    2. Offline image language: change Page 34
       1. Change default language, regional settings, and other international settings Page 34
       2. View available language settings Page 34
    3. Language packs: Removed Page 35
    4. Components: All packages installed in the image Page 37
    5. Language packs: sync to ISO installer Page 37
    6. Regenerate Lang.ini Page 38
       1. Regenerate the mounted directory lang.ini Page 38
       2. After regenerating lang.ini, synchronize to the installer Page 38
30. Cumulative updates Page 38
    1. Add Page 38
    2. Delete Page 38
    3. Solid update Page 38
       1. Clean components after curing and updating Page 38
31. Drive Page 39
32. Save image: Boot.wim Page 39
33. Unmount image: Boot.wim Page 39
34. Deployment engine Page 39
35. Add method Page 39
36. Deployment Engine: Advanced Page 42
    * 1. Generate ISO Page 44
37. Report Page 45
38. Reports: Different versions Page 45
39. Report: Language installation packages apply to Install.wim Page 46
40. Report: Language installation packages apply to WinRE.wim Page 47
41. Report: Language installation packages apply to Boot.wim Page 49
42. Common problem Page 50
43. Clean all mounts to Page 50
44. Fix the problem of abnormal mounting Page 50
45. Clean directories Page 50
46. Known issues Page 50

## Encapsulation

### Prerequisites

#### ISO tools

Use a software that can edit ISO files, such as: PowerISO, DAEMON Tools, ISO Workshop;

#### Requirements

##### System installation package

* 1. Prepare: [en-us\_windows\_server\_2022\_x64\_dvd\_620d7eac.iso](https://files.rg-adguard.net/file/9a0f4eb7-c3a9-e46b-3fc8-cdb71289dbfb)
  2. Unzip to: D:\en-us\_windows\_server\_2022\_x64\_dvd\_620d7eac
  3. After decompression is complete, change the directory en-us\_windows\_server\_2022\_x64\_dvd\_620d7eac to D:\OS\_2022

Note: Before decompressing to disk D, you should check whether it is a ReFS partition. If it is a ReFS partition, some commands will fail. Solution: Please use a disk partition in NTFS format.

* 1. All scripts and all paths have been set to D:\OS\_2022 by default as the image source.

##### Language Pack

###### Learn

* + 1. [Add languages to a Windows 11 image](https://learn.microsoft.com/en-us/azure/virtual-desktop/windows-11-language-packs)
    2. [Language and region Features on Demand (FOD)](https://learn.microsoft.com/en-us/windows-hardware/manufacture/desktop/features-on-demand-language-fod?view=windows-11)
       1. Fonts

When adding a language pack, when the corresponding region is triggered, the required font functions need to be added, download "[List of all available language FODs](https://download.microsoft.com/download/7/6/0/7600F9DC-C296-4CF8-B92A-2D85BAFBD5D2/Windows-10-1809-FOD-to-LP-Mapping-Table.xlsx)" learn more.

In "[Language Pack: Extraction](#_Language_Pack:_Extraction_1)", the automatic recognition function has been added, and you can understand the functions: Function Match\_Required\_Fonts

* + - 1. Regional association

What are regional connections?

* When the image language is only in English, after adding the zh-HK language pack, the image language will not be added. You should install zh-TW first, and then install zh-HK to obtain the corresponding association.
* Please refer to Microsoft's official original version: Windows 10, Windows 11 Traditional Chinese version.

Known regional associations:

* + - * 1. Region: zh-TW, Optional associated areas: zh-HK

###### Language pack: Download

[20348.1.210507-1500.fe\_release\_amd64fre\_SERVER\_LOF\_PACKAGES\_OEM.iso](https://software-download.microsoft.com/download/sg/20348.1.210507-1500.fe_release_amd64fre_SERVER_LOF_PACKAGES_OEM.iso)

#### Windows Security

* When processing the encapsulation task, a large number of temporary files will be generated, and a large number of installation files will be released when installing the application in InBox Apps;
* Turning on Windows Security scans files and takes up a lot of CPU.
* In test: 1 hour and 22 minutes before shutdown, 20 minutes after shutdown.

How to close:

With the command line in green, hold down the Windows key and press R to launch Run.

1. Open Windows Security or run: windowsdefender:
2. Select "Virus & Threat Protection" or Run: windowsdefender://threat
3. Find "Virus & Threat Protection Settings", click "Manage Settings" or Run: windowsdefender://threatsettings, we recommend that you turn off some features:
   1. Real-time protection
   2. Cloud=delivered protection
   3. Automatic sample submission
   4. Tamper Protection
4. When you're not encapsulated, we recommend that you turn on Windows Security.

#### Command line

1. Optional "Terminal" or "PowerShell ISE", if "Terminal" is not installed, please go to: <https://github.com/microsoft/terminal/releases> After downloading;
2. Open "Terminal" or "PowerShell ISE" as administrator, it is recommended to set the PowerShell execution policy: bypass, PS command line:

Set-ExecutionPolicy -ExecutionPolicy Bypass -Force

1. In this article, PS command line, green part, please copy it, paste it into the "Terminal" dialog box, press Enter and start running;
2. When there is .ps1, right-click the file and select Run with PowerShell, or copy the path and paste it into Terminal to run, the path with a colon, add the & character in the command line, example: & "D:\YiSolutions\\_Encapsulation\\_SIP.ps1"

### Language package: extract

#### Language pack: Ready

Mounted 20348.1.210507-1500.fe\_release\_amd64fre\_SERVER\_LOF\_PACKAGES\_OEM.iso or unzip it to any location;

#### Language pack: Extract scheme

##### Add

* 1. Language name: Simplified Chinese - China, language tag: zh-CN, Scope of application: Install.Wim，Boot.Wim，WinRE.Wim

##### Delete

* 1. Language name: English - United States, language tag: en-US, Scope of application: Install.Wim，Boot.Wim，WinRE.Wim

#### Execute the extract command

* Auto = automatically search all local disks, default;
* Customize the path, for example, specify the E drive: $ISO = "E:\"
* Extract.ps1
  + [\Expand\Extract.ps1](Expand/Extract.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Extract.ps1>
* Copy the code

$ISO = "Auto"

$SaveTo = "D:\OS\_2022\_Custom"

$Extract\_language\_Pack = @(

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

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

)

Function Extract\_Language

{

param( $Act, $NewLang, $Expand )

Function Match\_Required\_Fonts

{

param( $Lang )

$Fonts = @(

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

)

ForEach ($item in $Fonts) {

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

return $item.Name

}

}

return "Not\_matched"

}

Function Match\_Other\_Region\_Specific\_Requirements

{

param( $Lang )

$RegionSpecific = @(

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

)

ForEach ($item in $RegionSpecific) {

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

return $item.Name

}

}

return "Skip\_specific\_packages"

}

Function Extract\_Process

{

param( $Package, $Name, $NewSaveTo )

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

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

if ($ISO -eq "Auto") {

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

ForEach ($item in $Package) {

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

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

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

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

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

}

}

}

} else {

ForEach ($item in $Package) {

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

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

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

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

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

} else {

Write-host " Not found"

}

}

}

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

ForEach ($item in $Package) {

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

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

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

} else {

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

}

}

}

$AdvLanguage = @(

@{

Path = "Install\Install"

Rule = @(

"LanguagesAndOptionalFeatures\Microsoft-Windows-LanguageFeatures-Fonts-{DiyLang}-Package~31bf3856ad364e35~amd64~~.cab"

"LanguagesAndOptionalFeatures\Microsoft-Windows-Server-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-MSPaint-FoD-Package~31bf3856ad364e35~amd64~{Lang}~.cab"

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

"LanguagesAndOptionalFeatures\Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~amd64~{Lang}~.cab"

"LanguagesAndOptionalFeatures\Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~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-StepsRecorder-Package~31bf3856ad364e35~amd64~{Lang}~.cab"

"LanguagesAndOptionalFeatures\Microsoft-Windows-StepsRecorder-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"

)

}

@{

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-appxpackaging\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-storagewmi\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-wifi\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-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-Server\_{Lang}.CAB"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-securestartup\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-atbroker\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-audiocore\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-audiodrivers\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-enhancedstorage\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-narrator\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-scripting\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-speech-tts\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-srh\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-srt\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-wds-tools\_{Lang}.cab"

"Windows Preinstallation Environment\x64\WinPE\_OCs\{Lang}\winpe-wmi\_{Lang}.cab"

)

}

)

$NewFonts = Match\_Required\_Fonts -Lang $NewLang

$SpecificPackage = Match\_Other\_Region\_Specific\_Requirements -Lang $NewLang

Foreach ($item in $Expand) {

$Language = @()

Foreach ($itemList in $AdvLanguage) {

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

Foreach ($PrintLang in $itemList.Rule) {

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

}

Extract\_Process -NewSaveTo $itemList.Path -Package $Language -Name $item

}

}

}

}

ForEach ($item in $Extract\_language\_Pack) { Extract\_Language -Act $item.Act -NewLang $item.Tag -Expand $item.Scope }

### Custom encapsulation

#### Custom encapsulation: Install.wim

##### View Install.wim details

Image name, image description, image size, architecture, version, index number, etc.;

$ViewFile = "D:\OS\_2022\Sources\Install.wim"

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

CYCLIC OPERATION AREA, START,

##### Specify the path to mount install.wim

New-Item -Path "D:\OS\_2022\_Custom\Install\Install\Mount" -ItemType directory -ea SilentlyContinue

##### Start mounting Install.wim

Default index number: 1

Mount-WindowsImage -ImagePath "D:\OS\_2022\sources\install.wim" -Index "1" -Path "D:\OS\_2022\_Custom\Install\Install\Mount"

PROCESS FILES INSIDE THE INSTALL.WIM IMAGE, OPTIONALLY, START

###### Custom encapsulation: WinRE.wim

WARNING:

* WinRE.wim is a file within the Install.wim image;
* When Install.wim has multiple index numbers, only process any WinRE.wim;
* Synchronizing to all index numbers reduces the Install.wim volume, Learn "[How to bulk replace WinRE.wim in all index numbers in Install.wim](#_How_to_extract)".
  + 1. View WinRE.wim details

Image name, image description, image size, architecture, version, index number, etc.;

$ViewFile = "D:\OS\_2022\_Custom\Install\Install\Mount\Windows\System32\Recovery\WinRE.wim"

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

* + 1. Specify the path to mount WinRE.wim

New-Item -Path "D:\OS\_2022\_Custom\Install\WinRE\Mount" -ItemType directory -ea SilentlyContinue

* + 1. Start mounting WinRE.wim

Default index number: 1

$FileName = "D:\OS\_2022\_Custom\Install\Install\Mount\Windows\System32\Recovery\WinRE.wim"

Mount-WindowsImage -ImagePath $FileName -Index "1" -Path "D:\OS\_2022\_Custom\Install\WinRE\Mount"

* + 1. Language pack
* Automatically install language packs: Get "Component: All installed packages in the image" and match them. After matching the corresponding names, install the local corresponding language pack files, View the report "[Language installation package for WinRE.wim](#_Report:_Language_installation_1)".
* When adding languages, different schema versions must be corresponded, and if not, errors are reported during the addition process.
  + - 1. Language pack: add

WinRE.Instl.lang.ps1

[\Expand\Install\WinRE\WinRE.Instl.lang.ps1](Expand/Install/WinRE/WinRE.Instl.lang.ps1)

<https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/WinRE/WinRE.Instl.lang.ps1>

Copy the code

$Mount = "D:\OS\_2022\_Custom\Install\WinRE\Mount"

$Sources = "D:\OS\_2022\_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"; }

)

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

}

}

}

* + - 1. Offline image language: change
         1. Change default language, regional settings, and other international settings

Language Tag: zh-CN

Dism /Image:"D:\OS\_2022\_Custom\Install\WinRE\Mount" /Set-AllIntl:zh-CN

* + - * 1. View available language settings

Dism /Image:"D:\OS\_2022\_Custom\Install\WinRE\Mount" /Get-Intl

* + - 1. Language packs: Removed
* After you add languages, if you want to deploy to a non-English locale, you can save space by removing the English language component. When you remove a language, uninstall the language components in the reverse order in which you added them.
* After adding the Chinese, delete "English - United States" in reverse, the language tag: en-US, you need to extract the language pack in advance
* WinRE.Del.Specified.lang.Tag.ps1
  + [\Expand\Install\WinRE\WinRE.Del.Specified.lang.Tag.ps1](Expand/Install/WinRE/WinRE.Del.Specified.lang.Tag.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/WinRE/WinRE.Del.Specified.lang.Tag.ps1>
* Copy the code

$Lang = "en-US"

$Mount = "D:\OS\_2022\_Custom\Install\WinRE\Mount"

$Sources = "D:\OS\_2022\_Custom\Install\WinRE\Language\Del\en-US"

$Initl\_install\_Language\_Component = @()

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

$Initl\_install\_Language\_Component += $\_.PackageName

}

$Language = @(

@{ Match = "\*windowsupdate\*"; File = "winpe-windowsupdate\_$($Lang).cab"; }

@{ Match = "\*appxdeployment\*"; File = "winpe-appxdeployment\_$($Lang).cab"; }

@{ Match = "\*hta\*"; File = "winpe-hta\_$($Lang).cab"; }

@{ Match = "\*opcservices\*"; File = "winpe-opcservices\_$($Lang).cab"; }

@{ Match = "\*rejuv\*"; File = "winpe-rejuv\_$($Lang).cab"; }

@{ Match = "\*WiFi\*"; File = "winpe-wifi\_$($Lang).cab"; }

@{ Match = "\*StorageWMI\*"; File = "winpe-storagewmi\_$($Lang).cab"; }

@{ Match = "\*WinPE-AppxPackaging\*"; File = "winpe-appxpackaging\_$($Lang).cab"; }

@{ Match = "\*-WMI-Package\*"; File = "winpe-wmi\_$($Lang).cab"; }

@{ Match = "\*wds-tools\*"; File = "winpe-wds-tools\_$($Lang).cab"; }

@{ Match = "\*srt\*"; File = "winpe-srt\_$($Lang).cab"; }

@{ Match = "\*srh\*"; File = "winpe-srh\_$($Lang).cab"; }

@{ Match = "\*Speech-TTS\*"; File = "winpe-speech-tts\_$($Lang).cab"; }

@{ Match = "\*scripting\*"; File = "winpe-scripting\_$($Lang).cab"; }

@{ Match = "\*Narrator\*"; File = "winpe-narrator\_$($Lang).cab"; }

@{ Match = "\*EnhancedStorage\*"; File = "winpe-enhancedstorage\_$($Lang).cab"; }

@{ Match = "\*AudioDrivers\*"; File = "winpe-audiodrivers\_$($Lang).cab"; }

@{ Match = "\*AudioCore\*"; File = "winpe-audiocore\_$($Lang).cab"; }

@{ Match = "\*ATBroker\*"; File = "winpe-atbroker\_$($Lang).cab"; }

@{ Match = "\*SecureStartup\*"; File = "winpe-securestartup\_$($Lang).cab"; }

@{ Match = "\*WinPE-LanguagePack-Package\*"; File = "lp.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 ($Component -like "\*$($Rule.Match)\*$($Lang)\*") {

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 " Deleting ".PadRight(22) -NoNewline

try {

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

Write-host "Finish" -ForegroundColor Green

} catch {

Write-host "Failed" -ForegroundColor Red

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

}

break

}

}

}

$InitlClearLanguagePackage = @()

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

if ($\_.PackageName -like "\*$($Lang)\*") { InitlClearLanguagePackage += $\_.PackageName }

}

if ($InitlClearLanguagePackage.count -gt 0) {

ForEach ($item in $InitlClearLanguagePackage) {

Write-Host "`n $($item)" -ForegroundColor Green

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

try {

Remove-AppxProvisionedPackage -Path $Mount -PackageName $item -ErrorAction SilentlyContinue | Out-Null

Write-host "Finish" -ForegroundColor Green

} catch {

Write-host "Failed" -ForegroundColor Red

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

}

}

}

* + - 1. Components: All packages installed in the image
         1. View

Get-WindowsPackage -Path "D:\OS\_2022\_Custom\Install\WinRE\Mount" | Out-GridView

* + - * 1. Export to Csv

$SaveTo = "D:\OS\_2022\_Custom\Install\WinRE\Report.$(Get-Date -Format "yyyyMMddHHmmss").csv"

Get-WindowsPackage -Path "D:\OS\_2022\_Custom\Install\WinRE\Mount" | Export-CSV -NoType -Path $SaveTo

Write-host $SaveTo -ForegroundColor Green

* + 1. Cumulative updates

To prepare the cumulative updates file available, change the example file name: KB\_WinRE.cab

* + - 1. Add

$KBPath = "D:\OS\_2022\_Custom\Install\WinRE\Update\KB\_WinRE.cab"

Add-WindowsPackage -Path "D:\OS\_2022\_Custom\Install\WinRE\Mount" -PackagePath $KBPath

* + - 1. Delete

$KBPath = "D:\OS\_2022\_Custom\Install\WinRE\Update\KB\_WinRE.cab"

Remove-WindowsPackage -Path "D:\OS\_2022\_Custom\Install\WinRE\Mount" -PackagePath $KBPath

* + - 1. Solid update

It cannot be uninstalled after curing, which cleans the recovery image and resets the basis of any superseded components.

Dism /image:"D:\OS\_2022\_Custom\Install\WinRE\Mount" /cleanup-image /StartComponentCleanup /ResetBase

* + - * 1. Clean components after curing and updating

$Mount = "D:\OS\_2022\_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

}

}

* + 1. Drive
    2. Save image: WinRE.wim

Save-WindowsImage -Path "D:\OS\_2022\_Custom\Install\WinRE\Mount"

* + 1. Unmount image: WinRE.wim

Close any applications that may be accessing files in the image, including File Explorer.

Dismount-WindowsImage -Path "D:\OS\_2022\_Custom\Install\WinRE\Mount" -Discard

* + 1. After rebuilding WinRE.wim, the file size can be reduced
* WinRE.Rebuild.ps1
  + [\Expand\Install\WinRE\WinRE.Rebuild.ps1](Expand/Install/WinRE/WinRE.Rebuild.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/WinRE/WinRE.Rebuild.ps1>
* Copy the code

$FileName = "D:\OS\_2022\_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 Rebuilding ".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

}

* + 1. Backup WinRE.wim
* WinRE.Backup.ps1
  + [\Expand\Install\WinRE\WinRE.Backup.ps1](Expand/Install/WinRE/WinRE.Backup.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/WinRE/WinRE.Backup.ps1>
* Copy the code

$WimLibPath = "D:\OS\_2022\_Custom\Install\Install\Update\Winlib"

$FileName = "D:\OS\_2022\_Custom\Install\Install\Mount\Windows\System32\Recovery\WinRE.wim"

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

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

* + 1. Replace WinRE.wim within the Install.wim image
* After each installation of Install.wim, use item "[Replace the WinRE.wim](#_Replace_the_WinRE.wim)";
* Learning "[After obtaining all the index numbers of Install.wim and replace the old WinRE.wim](#_After_getting_all)".

PROCESS FILES INSIDE THE INSTALL.WIM IMAGE, END

##### Language pack

* Automatically install language packs: Get "Component: All installed packages in the image" and match them. After matching the corresponding names, install the local corresponding language pack files, View the report "[Language installation package for Install.wim](#_Report:_Language_installation)".
* When adding languages, different schema versions must be corresponded, and if not, errors are reported during the addition process.

###### Language pack: add

* Install.Instl.lang.ps1
  + [\Expand\Install\Install.Instl.lang.ps1](Expand/Install/Install.Instl.lang.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/Install.Instl.lang.ps1>
* Copy the code

Function Language\_Install

{

param($Mount, $Sources, $Lang)

$Initl\_install\_Language\_Component = @()

if (Test-Path $Mount -PathType Container) {

Get-WindowsPackage -Path $Mount | ForEach-Object { $Initl\_install\_Language\_Component += $\_.PackageName }

} else {

Write-Host "Not mounted: $($Mount)"

return

}

$Script:Init\_Folder\_All\_File = @()

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 = @()

$Global:Search\_File\_Order = @(

@{

Name = "Fonts"

Description = "Fonts"

Rule = @(

@{ Match\_Name = "\*Fonts\*"; IsMatch = "No"; Capability = ""; }

)

}

@{

Name = "Basic"

Description = "Basic"

Rule = @(

@{ Match\_Name = "\*LanguageFeatures-Basic\*"; IsMatch = "Yes"; Capability = "Language.Basic~~~lb-LU~0.0.1.0"; }

@{ Match\_Name = "\*Server-LanguagePack-Package\*"; IsMatch = "Yes"; Capability = "Language.Basic~~~lb-LU~0.0.1.0"; }

)

}

@{

Name = "OCR"

Description = "Optical character recognition"

Rule = @(

@{ Match\_Name = "\*LanguageFeatures-OCR\*"; IsMatch = "Yes"; Capability = "Language.OCR~~~fr-FR~0.0.1.0"; }

)

}

@{

Name = "Handwriting"

Description = "Handwriting recognition"

Rule = @(

@{ Match\_Name = "\*LanguageFeatures-Handwriting\*"; IsMatch = "Yes"; Capability = "Language.Handwriting~~~fr-FR~0.0.1.0"; }

)

}

@{

Name = "TextToSpeech"

Description = "Text-to-speech"

Rule = @(

@{ Match\_Name = "\*LanguageFeatures-TextToSpeech\*"; IsMatch = "Yes"; Capability = "Language.TextToSpeech~~~fr-FR~0.0.1.0"; }

)

}

@{

Name = "Speech"

Description = "Speech recognition"

Rule = @(

@{ Match\_Name = "\*LanguageFeatures-Speech\*"; IsMatch = "Yes"; Capability = "Language.Speech~~~fr-FR~0.0.1.0"; }

)

}

@{

Name = "RegionSpecific"

Description = "Other region-specific requirements"

Rule = @(

@{ Match\_Name = "\*InternationalFeatures\*zh-TW\*"; IsMatch = "Yes"; Capability = ""; }

)

}

@{

Name = "Retail"

Description = "Retail demo experience"

Rule = @(

@{ Match\_Name = "\*RetailDemo\*"; IsMatch = "Yes"; Capability = ""; }

)

}

@{

Name = "Features\_On\_Demand"

Description = "Features on demand"

Rule = @(

@{ Match\_Name = "\*MSPaint\*amd64\*"; IsMatch = "Yes"; Capability = "Microsoft.Windows.MSPaint~~~~0.0.1.0"; }

@{ Match\_Name = "\*MSPaint\*wow64\*"; IsMatch = "Yes"; Capability = "Microsoft.Windows.MSPaint~~~~0.0.1.0"; }

@{ Match\_Name = "\*Notepad\*amd64\*"; IsMatch = "Yes"; Capability = "Microsoft.Windows.Notepad~~~~0.0.1.0"; }

@{ Match\_Name = "\*Notepad\*wow64\*"; IsMatch = "Yes"; Capability = "Microsoft.Windows.Notepad~~~~0.0.1.0"; }

@{ Match\_Name = "\*PowerShell-ISE-FOD-Package\*amd64\*"; IsMatch = "Yes"; Capability = "Microsoft.Windows.PowerShell.ISE~~~~0.0.1.0"; }

@{ Match\_Name = "\*PowerShell-ISE-FOD-Package\*wow64\*"; IsMatch = "Yes"; Capability = "Microsoft.Windows.PowerShell.ISE~~~~0.0.1.0"; }

@{ Match\_Name = "\*StepsRecorder\*amd64\*"; IsMatch = "Yes"; Capability = "App.StepsRecorder~~~~0.0.1.0"; }

@{ Match\_Name = "\*StepsRecorder\*wow64\*"; IsMatch = "Yes"; Capability = "App.StepsRecorder~~~~0.0.1.0"; }

@{ Match\_Name = "\*WordPad\*amd64\*"; IsMatch = "Yes"; Capability = "Microsoft.Windows.WordPad~~~~0.0.1.0"; }

@{ Match\_Name = "\*WordPad\*wow64\*"; IsMatch = "Yes"; Capability = "Microsoft.Windows.WordPad~~~~0.0.1.0"; }

)

}

)

ForEach ($item in $Global:Search\_File\_Order) {

New-Variable -Scope global -Name "Init\_File\_Type\_$($item.Name)" -Value @() -Force

}

ForEach ($WildCard in $Script:Init\_Folder\_All\_File) {

ForEach ($item in $Global:Search\_File\_Order) {

ForEach ($TTT in $item.Rule) {

if ($WildCard -like "\*$($TTT.Match\_Name)\*") {

Write-host "`n Fuzzy matching: " -NoNewline; Write-host $TTT.Match\_Name -ForegroundColor Green

Write-host " Language pack file: " -NoNewline; Write-host $WildCard -ForegroundColor Green

$OSDefaultUser = (Get-Variable -Scope global -Name "Init\_File\_Type\_$($item.Name)" -ErrorAction SilentlyContinue).Value

$TempSave = @{ Match\_Name = $TTT.Match\_Name; Capability = $TTT.Capability; FileName = $WildCard }

$new = $OSDefaultUser + $TempSave

if ($TTT.IsMatch -eq "Yes") {

ForEach ($Component in $Initl\_install\_Language\_Component) {

if ($Component -like "\*$($TTT.Match\_Name)\*") {

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

New-Variable -Scope global -Name "Init\_File\_Type\_$($item.Name)" -Value $new -Force

$Script:Init\_Folder\_All\_File\_Match\_Done += $WildCard

break

}

}

} else {

Write-host " Do not match, install directly" -ForegroundColor Yellow

New-Variable -Scope global -Name "Init\_File\_Type\_$($item.Name)" -Value $new -Force

$Script:Init\_Folder\_All\_File\_Match\_Done += $WildCard

}

}

}

}

}

Write-host "`n Grouping is complete, pending installation" -ForegroundColor Yellow

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

ForEach ($WildCard in $Global:Search\_File\_Order) {

$OSDefaultUser = (Get-Variable -Scope global -Name "Init\_File\_Type\_$($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 $Global:Search\_File\_Order) {

$OSDefaultUser = (Get-Variable -Scope global -Name "Init\_File\_Type\_$($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 " Language pack file: " -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 " $($\_)" -ForegroundColor Red

}

} else {

Write-host "Does not exist`n"

}

}

} else {

Write-host " Not available`n" -ForegroundColor Red

}

}

}

Language\_Install -Mount "D:\OS\_2022\_Custom\Install\Install\Mount" -Sources "D:\OS\_2022\_Custom\Install\Install\Language\Add" -Lang "zh-CN"

###### Offline image language: change

* Starting Windows 11, the [default System UI Language](https://learn.microsoft.com/en-us/windows/win32/intl/user-interface-language-management) set by DISM is left unaltered on all editions except for Home edition. For all [commercial editions](https://www.microsoft.com/windowsforbusiness/compare) the language chosen during the Out-of-Box Experience (OOBE) is set as the [System Preferred UI language](https://learn.microsoft.com/en-us/windows/win32/intl/user-interface-language-management) and Windows will be displayed in this language and for Home edition the language chosen at OOBE will continue to be the default System UI Language.
* As of Windows 10, version 2004, if an .appx-based Language Experience Pack (LXP) backed language is passed as an argument then the language will be set as the System Preferred UI language and its parent language will be set as the Default System UI language. In prior versions only .cab based language packs were supported.
  + 1. Change default language, regional settings, and other international settings

Language Tag: zh-CN

Dism /Image:"D:\OS\_2022\_Custom\Install\Install\Mount" /Set-AllIntl:zh-CN

* + 1. View available language settings

Dism /Image:"D:\OS\_2022\_Custom\Install\Install\Mount" /Get-Intl

###### Language packs: Removed

* After you add languages, if you want to deploy to a non-English locale, you can save space by removing the English language component. When you remove a language, uninstall the language components in the reverse order in which you added them.
* After adding the Chinese, delete "English - United States" in reverse, the language tag: en-US, you need to extract the language pack in advance
* Install.Del.Specified.lang.Tag.ps1
  + [\Expand\Install\Install.Del.Specified.lang.Tag.ps1](Expand/Install/Install.Del.Specified.lang.Tag.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/Install.Del.Specified.lang.Tag.ps1>
* Copy the code

$Lang = "en-US"

$Mount = "D:\OS\_2022\_Custom\Install\Install\Mount"

$Sources = "D:\OS\_2022\_Custom\Install\Install\Language\Del\en-US"

$Initl\_install\_Language\_Component = @()

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

$Initl\_install\_Language\_Component += $\_.PackageName

}

$Language = @(

@{ Match = "\*WordPad\*wow64\*"; File = "Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*WordPad\*amd64\*"; File = "Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~amd64~$($Lang)~.cab"; }

@{ Match = "\*WMIC\*FoD\*Package\*wow64\*"; File = "Microsoft-Windows-WMIC-FoD-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*WMIC\*FoD\*Package\*amd64\*"; File = "Microsoft-Windows-WMIC-FoD-Package~31bf3856ad364e35~AMD64~$($Lang)~.cab"; }

@{ Match = "\*StepsRecorder\*wow64\*"; File = "Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*StepsRecorder\*amd64\*"; File = "Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~amd64~$($Lang)~.cab"; }

@{ Match = "\*Printing\*PMCPPC\*amd64\*"; File = "Microsoft-Windows-Printing-PMCPPC-FoD-Package~31bf3856ad364e35~AMD64~$($Lang)~.cab"; }

@{ Match = "\*PowerShell\*wow64\*"; File = "Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*PowerShell\*amd64\*"; File = "Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~amd64~$($Lang)~.cab"; }

@{ Match = "\*MediaPlayer\*wow64\*"; File = "Microsoft-Windows-MediaPlayer-Package-wow64-$($Lang).cab"; }

@{ Match = "\*MediaPlayer\*amd64\*"; File = "Microsoft-Windows-MediaPlayer-Package-AMD64-$($Lang).cab"; }

@{ Match = "\*Notepad\*wow64\*"; File = "Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*Notepad\*amd64\*"; File = "Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~AMD64~$($Lang)~.cab"; }

@{ Match = "\*InternetExplorer\*"; File = "Microsoft-Windows-InternetExplorer-Optional-Package~31bf3856ad364e35~AMD64~$($Lang)~.cab"; }

@{ Match = "\*TextToSpeech\*"; File = "Microsoft-Windows-LanguageFeatures-TextToSpeech-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*LanguageFeatures-Speech\*"; File = "Microsoft-Windows-LanguageFeatures-Speech-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*OCR\*"; File = "Microsoft-Windows-LanguageFeatures-OCR-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*Handwriting\*"; File = "Microsoft-Windows-LanguageFeatures-Handwriting-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*LanguageFeatures-Basic\*"; File = "Microsoft-Windows-LanguageFeatures-Basic-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*Client-LanguagePack-Package\*"; File = "Microsoft-Windows-Client-Language-Pack\_x64\_$($Lang).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 ($Component -like "\*$($Rule.Match)\*$($Lang)\*") {

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 " Deleting ".PadRight(22) -NoNewline

try {

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

Write-host "Finish" -ForegroundColor Green

} catch {

Write-host "Failed" -ForegroundColor Red

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

}

break

}

}

}

$InitlClearLanguagePackage = @()

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

if ($\_.PackageName -like "\*$($Lang)\*") {

$InitlClearLanguagePackage += $\_.PackageName

}

}

if ($InitlClearLanguagePackage.count -gt 0) {

ForEach ($item in $InitlClearLanguagePackage) {

Write-Host "`n $($item)" -ForegroundColor Green

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

try {

Remove-AppxProvisionedPackage -Path $Mount -PackageName $item -ErrorAction SilentlyContinue | Out-Null

Write-host "Finish" -ForegroundColor Green

} catch {

Write-host "Failed" -ForegroundColor Red

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

}

}

}

###### Components: All packages installed in the image

* + 1. View

Get-WindowsPackage -Path "D:\OS\_2022\_Custom\Install\Install\Mount" | Out-GridView

* + 1. Export to Csv

$SaveTo = "D:\OS\_2022\_Custom\Install\Install\Report.$(Get-Date -Format "yyyyMMddHHmmss").csv"

Get-WindowsPackage -Path "D:\OS\_2022\_Custom\Install\Install\Mount" | Export-CSV -NoType -Path $SaveTo

Write-host $SaveTo -ForegroundColor Green

##### Cumulative updates

###### Download

Check the "[Windows Server 2022 Update History](https://support.microsoft.com/en-gb/topic/windows-server-2022-update-history-e1caa597-00c5-4ab9-9f3e-8212fe80b2ee) ", for example, install the cumulative update: KB5030216

Go to the download page: <https://www.catalog.update.microsoft.com/Search.aspx?q=Kb5030216> Or "[Direct download](https://catalog.s.download.windowsupdate.com/c/msdownload/update/software/secu/2023/09/windows10.0-kb5030216-x64_cbe587155f9818548b75f65d5cd41d341ed2fc61.msu)" (If you cannot download, please go to the download page), save to

D:\OS\_2022\_Custom\Install\Install\Update\windows10.0-kb5030216-x64\_cbe587155f9818548b75f65d5cd41d341ed2fc61.msu

###### Add

$KBPath = "D:\OS\_2022\_Custom\Install\Install\Update\windows10.0-kb5030216-x64\_cbe587155f9818548b75f65d5cd41d341ed2fc61.msu"

Add-WindowsPackage -Path "D:\OS\_2022\_Custom\Install\Install\Mount" -PackagePath $KBPath

###### Solid update

It cannot be uninstalled after curing, which cleans the recovery image and resets the basis of any superseded components.

Dism /Image:"D:\OS\_2022\_Custom\Install\Install\Mount" /cleanup-image /StartComponentCleanup /ResetBase

* + 1. Clean up components after curing updates
* Install.Update.Curing.ps1
  + [\Expand\Install\Install.Update.Curing.ps1](Expand/Install/Install.Update.Curing.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/Install.Update.Curing.ps1>
* Copy the code

$Mount = "D:\OS\_2022\_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

}

}

##### Drive

##### Deployment engine: Add

* Learn "Deployment Engine", if added to ISO installation media, can skip adding to mounted.
* After adding the deployment engine, continue at the current location.

##### Health

Check whether there is any damage before saving. When the health status is abnormal, abort saving

Repair-WindowsImage -Path "D:\OS\_2022\_Custom\Install\Install\Mount" -ScanHealth

##### Replace the WinRE.wim

WinRE.wim in all index numbers in Install.wim has been replaced in batches. Please skip this step.

$WinRE = "D:\OS\_2022\_Custom\Install\Install\Update\Winlib\WinRE.wim"

$CopyTo = "D:\OS\_2022\_Custom\Install\Install\Mount\Windows\System32\Recovery"

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

##### Save image: Install.wim

Save-WindowsImage -Path "D:\OS\_2022\_Custom\Install\Install\Mount"

##### Unmount image: Install.wim

Close any applications that may be accessing files in the image, including File Explorer.

Dismount-WindowsImage -Path "D:\OS\_2022\_Custom\Install\Install\Mount" -Discard

CYCLIC OPERATION AREA, END.

##### How to batch replace WinRE.wim in all index numbers in Install.wim

###### Get WimLib

After going to the official website of <https://wimlib.net>, select a different version: [arm64](https://wimlib.net/downloads/wimlib-1.14.3-windows-aarch64-bin.zip), [x64](https://wimlib.net/downloads/wimlib-1.14.3-windows-x86_64-bin.zip), [x86](https://wimlib.net/downloads/wimlib-1.14.3-windows-i686-bin.zip), and extract it to: D:Wimlib after downloading.

###### How to extract and update WinRE.wim in Install.wim

* + 1. Extract the WinRE.wim file from Install.wim
* Install.WinRE.Extract.ps1
  + [\Expand\Install\Install.WinRE.Extract.ps1](Expand/Install/Install.WinRE.Extract.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/Install.WinRE.Extract.ps1>
* Copy the code

$Arguments = @(

"extract",

"D:\OS\_2022\sources\install.wim", "1",

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

"--dest-dir=""D:\OS\_2022\_Custom\Install\Install\Update\Winlib"""

)

New-Item -Path "D:\OS\_2022\_Custom\Install\Install\Update\Winlib" -ItemType Directory -ea SilentlyContinue

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

* + 1. Get all index numbers of Install.wim and replace the old WinRE.wim
* Install.WinRE.Replace.wim.ps1
  + [\Expand\Install\Install.WinRE.Replace.wim.ps1](Expand/Install/Install.WinRE.Replace.wim.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/Install.WinRE.Replace.wim.ps1>
* Copy the code

Get-WindowsImage -ImagePath "D:\OS\_2022\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\_2022\sources\install.wim",

$\_.ImageIndex,

"--command=""add 'D:\OS\_2022\_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

}

##### Rebuilding Install.wim reduces file size

* Install.Rebuild.wim.ps1
  + [\Expand\Install\Install.Rebuild.wim.ps1](Expand/Install/Install.Rebuild.wim.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Install/Install.Rebuild.wim.ps1>
* Copy the code

$InstallWim = "D:\OS\_2022\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 Rebuilding".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

}

#### Custom encapsulation: boot.wim

##### View Boot.wim details

Image name, image description, image size, architecture, version, index number, etc.;

$ViewFile = "D:\OS\_2022\Sources\Boot.wim"

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

##### Specify the path to mount Boot.wim

New-Item -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount" -ItemType directory -ea SilentlyContinue

##### Start mounting Boot.wim

Default index number: 2

Mount-WindowsImage -ImagePath "D:\OS\_2022\sources\boot.wim" -Index "2" -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount"

##### Language pack

* Automatically install language packs: Get "Component: All installed packages in the image" and match them. After matching the corresponding names, install the local corresponding language pack files, View the report "[Language installation package for Boot.wim](#_Report:_Language_installation_2)".
* When adding languages, different schema versions must be corresponded, and if not, errors are reported during the addition process.

###### Language pack: add

* Boot.Instl.lang.ps1
  + [\Expand\Boot\Boot.Instl.lang.ps1](Expand/Boot/Boot.Instl.lang.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Boot/Boot.Instl.lang.ps1>
* Copy the code

$Mount = "D:\OS\_2022\_Custom\Boot\Boot\Mount"

$Sources = "D:\OS\_2022\_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 = @(

@{ Match = "\*WinPE\*Setup\*Server\*Package\*"; File = "WINPE-SETUP-Server\_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) {

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

}

}

}

###### Offline image language: change

* + 1. Change default language, regional settings, and other international settings

Language Tag: zh-CN

Dism /Image:"D:\OS\_2022\_Custom\Boot\Boot\Mount" /Set-AllIntl:zh-CN

* + 1. View available language settings

Dism /Image:"D:\OS\_2022\_Custom\Boot\Boot\Mount" /Get-Intl

###### Language packs: Removed

* After you add languages, if you want to deploy to a non-English locale, you can save space by removing the English language component. When you remove a language, uninstall the language components in the reverse order in which you added them.
* After adding the Chinese, delete "English - United States" in reverse, the language tag: en-US, you need to extract the language pack in advance
* Boot.Del.Specified.lang.Tag.ps1
  + [\Expand\Boot\Boot.Del.Specified.lang.Tag.ps1](Expand/Boot/Boot.Del.Specified.lang.Tag.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/Boot/Boot.Del.Specified.lang.Tag.ps1>
* Copy the code

$Lang = "en-US"

$Mount = "D:\OS\_2022\_Custom\Boot\Boot\Mount"

$Sources = "D:\OS\_2022\_Custom\Boot\Boot\Language\Del\en-US"

$Initl\_install\_Language\_Component = @()

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

$Initl\_install\_Language\_Component += $\_.PackageName

}

$Language = @(

@{ Match = "\*WordPad\*wow64\*"; File = "Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*WordPad\*amd64\*"; File = "Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~amd64~$($Lang)~.cab"; }

@{ Match = "\*WMIC\*FoD\*Package\*wow64\*"; File = "Microsoft-Windows-WMIC-FoD-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*WMIC\*FoD\*Package\*amd64\*"; File = "Microsoft-Windows-WMIC-FoD-Package~31bf3856ad364e35~AMD64~$($Lang)~.cab"; }

@{ Match = "\*StepsRecorder\*wow64\*"; File = "Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*StepsRecorder\*amd64\*"; File = "Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~amd64~$($Lang)~.cab"; }

@{ Match = "\*Printing\*PMCPPC\*amd64\*"; File = "Microsoft-Windows-Printing-PMCPPC-FoD-Package~31bf3856ad364e35~AMD64~$($Lang)~.cab"; }

@{ Match = "\*PowerShell\*wow64\*"; File = "Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*PowerShell\*amd64\*"; File = "Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~amd64~$($Lang)~.cab"; }

@{ Match = "\*MediaPlayer\*wow64\*"; File = "Microsoft-Windows-MediaPlayer-Package-wow64-$($Lang).cab"; }

@{ Match = "\*MediaPlayer\*amd64\*"; File = "Microsoft-Windows-MediaPlayer-Package-AMD64-$($Lang).cab"; }

@{ Match = "\*Notepad\*wow64\*"; File = "Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~wow64~$($Lang)~.cab"; }

@{ Match = "\*Notepad\*amd64\*"; File = "Microsoft-Windows-Notepad-System-FoD-Package~31bf3856ad364e35~AMD64~$($Lang)~.cab"; }

@{ Match = "\*InternetExplorer\*"; File = "Microsoft-Windows-InternetExplorer-Optional-Package~31bf3856ad364e35~AMD64~$($Lang)~.cab"; }

@{ Match = "\*TextToSpeech\*"; File = "Microsoft-Windows-LanguageFeatures-TextToSpeech-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*LanguageFeatures-Speech\*"; File = "Microsoft-Windows-LanguageFeatures-Speech-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*OCR\*"; File = "Microsoft-Windows-LanguageFeatures-OCR-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*Handwriting\*"; File = "Microsoft-Windows-LanguageFeatures-Handwriting-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*LanguageFeatures-Basic\*"; File = "Microsoft-Windows-LanguageFeatures-Basic-$($Lang)-Package~31bf3856ad364e35~amd64~~.cab"; }

@{ Match = "\*Client-LanguagePack-Package\*"; File = "Microsoft-Windows-Client-Language-Pack\_x64\_$($Lang).cab"; }

@{ Match = "\*Fonts-Hans\*"; File = "Microsoft-Windows-LanguageFeatures-Fonts-Hans-Package~31bf3856ad364e35~amd64~~.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 ($Component -like "\*$($Rule.Match)\*$($Lang)\*") {

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 " Deleting ".PadRight(22) -NoNewline

try {

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

Write-host "Finish" -ForegroundColor Green

} catch {

Write-host "Failed" -ForegroundColor Red

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

}

break

}

}

}

$InitlClearLanguagePackage = @()

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

if ($\_.PackageName -like "\*$($Lang)\*") {

$InitlClearLanguagePackage += $\_.PackageName

}

}

if ($InitlClearLanguagePackage.count -gt 0) {

ForEach ($item in $InitlClearLanguagePackage) {

Write-Host "`n $($item)" -ForegroundColor Green

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

try {

Remove-AppxProvisionedPackage -Path $Mount -PackageName $item -ErrorAction SilentlyContinue | Out-Null

Write-host "Finish" -ForegroundColor Green

} catch {

Write-host "Failed" -ForegroundColor Red

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

}

}

}

###### Components: All packages installed in the image

* + 1. View

Get-WindowsPackage -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount" | Out-GridView

* + 1. Export to Csv

$SaveTo = "D:\OS\_2022\_Custom\Boot\Boot\Report.$(Get-Date -Format "yyyyMMddHHmmss").csv"

Get-WindowsPackage -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount" | Export-CSV -NoType -Path $SaveTo

Write-host $SaveTo -ForegroundColor Green

###### Language packs: sync to ISO installer

Copy-Item -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount\sources\zh-CN" -Destination "D:\OS\_2022\sources\zh-CN" -Recurse -Force

###### Regenerate Lang.ini

After regeneration, you can adjust the "Installation Interface", the order when selecting "Language", open lang.ini, the default preferred value = 3, non-default value = 2.

* + 1. Regenerate the mounted directory lang.ini

Re-generated Lang.ini file location: D:\OS\_2022\_Custom\Boot\Boot\Mount\Sources\lang.ini

Dism /image:"D:\OS\_2022\_Custom\Boot\Boot\Mount" /gen-langini /distribution:"D:\OS\_2022\_Custom\Boot\Boot\Mount"

* + 1. After regenerating lang.ini, synchronize to the installer

Re-generated Lang.ini file location: D:\OS\_2022\Sources\lang.ini

Dism /image:"D:\OS\_2022\_Custom\Boot\Boot\Mount" /gen-langini /distribution:"D:\OS\_2022"

##### Cumulative updates

To prepare the cumulative updates file available, change the example file name: KB\_Boot.cab

###### Add

$KBPath = "D:\OS\_2022\_Custom\Boot\Boot\Update\KB\_Boot.cab"

Add-WindowsPackage -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount" -PackagePath $KBPath

###### Delete

$KBPath = "D:\OS\_2022\_Custom\Boot\Boot\Update\KB\_Boot.cab"

Remove-WindowsPackage -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount" -PackagePath $KBPath

###### Solid update

It cannot be uninstalled after curing, which cleans the recovery image and resets the basis of any superseded components.

Dism /image:"D:\OS\_2022\_Custom\Boot\Boot\Mount" /cleanup-image /StartComponentCleanup /ResetBase

* + 1. Clean components after curing and updating

$Mount = "D:\OS\_2022\_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

}

}

##### Drive

##### Save image: Boot.wim

Save-WindowsImage -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount"

##### Unmount image: Boot.wim

Close any applications that may be accessing files in the image, including File Explorer.

Dismount-WindowsImage -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount" -Discard

#### Deployment engine

* + - * Learn about "Automatically Adding Languages Installed in Windows Systems", learn: <https://github.com/ilikeyi/Multilingual>, how to download:
      * After entering the website, click "Code", "Download Compressed Package", and after the download is completed, you will get the main.zip compressed package file.
      * Go to the <https://github.com/ilikeyi/Multilingual/releases> download page, select the available version: 1.1.1.1, select the download source code format: zip, and get the Multilingual-1.1.1.1.zip compressed package file after the download is completed;
      * Unzip the downloaded main.zip or Multilingual-1.1.1.1.zip to: D:\Multilingual-1.1.1.1, and rename: D:\Multilingual
      * Learn "[Unattended Windows Setup Reference](https://learn.microsoft.com/en-us/windows-hardware/customize/desktop/unattend/)", Intervene in the installation process by leaving it unattended.

##### Add method

###### Add to ISO installation media

* + 1. Unattended
       1. Add to: [ISO]:\Autounattend.xml

Autounattend.xml interferes with the WinPE installer when booting an ISO installation.

Copy D:\Multilingual\\_Learn\Unattend\Mul.Unattend.xml to D:\OS\_2022\Autounattend.xml

Copy-Item "D:\Multilingual\\_Learn\Unattend\Mul.Unattend.xml" -Destination "D:\OS\_2022\Autounattend.xml" -Force

* + - 1. Add to: [ISO]:\Sources\Unattend.xml

When mounting or unpacking an ISO, after running the [ISO]:\Setup.exe installer, [ISO]:\Sources\Unattend.xml will intervene in the installation process.

Copy D:\Multilingual\\_Learn\Unattend\Mul.Unattend.xml to D:\OS\_2022\Sources\Unattend.xml

Copy-Item "D:\Multilingual\\_Learn\Unattend\Mul.Unattend.xml" -Destination "D:\OS\_2022\Sources\Unattend.xml" -Force

* + - 1. Add to: [ISO]:\sources\$OEM$\$$\Panther\unattend.xml

Copy it to the system disk during the installation process, copy to: {system disk}:\Windows\Panther\unattend.xml

* + - * 1. Create $OEM$ path

New-Item -Path "D:\OS\_2022\sources\`$OEM$\`$$\Panther" -ItemType Directory

* + - * 1. Copy

Copy D:\Multilingual\\_Learn\Unattend\Mul.Unattend.xml to D:\OS\_2022\Sources\$OEM$\Panther\Unattend.xml

Copy-Item "D:\Multilingual\\_Learn\Unattend\Mul.Unattend.xml" -Destination "D:\OS\_2022\sources\`$OEM$\`$$\Panther\Unattend.xml" -Force

* + 1. Deployment engine: add

Add "Automatically add installed languages for Windows systems" to D:\OS\_2022\sources\$OEM$\$1\Yi\Engine in the directory.

* + - 1. Deployment Engine: Copy

Copy D:\Multilingual\Engine to D:\OS\_2022\Sources\$OEM$\$1\Yi\Engine

Copy-Item "D:\Multilingual\Engine" -Destination "D:\OS\_2022\sources\`$OEM$\`$1\Yi\Engine" -Recurse -Force

* + - 1. Deployment engine: custom deployment tags

$Flag = @(

"Is\_Mark\_Sync" # Allow global search and synchronization of deployment tags

# Prerequisite deployment

# "Auto\_Update" # Allow automatic updates

# "Use\_UTF8" # Beta: Global language support using Unicode UTF-8

"Disable\_Network\_Location\_Wizard" # Network Location Wizard

"Disable\_Cleanup\_Appx\_Tasks" # Appx Cleanup and maintenance tasks

"Disable\_Cleanup\_On\_Demand\_Language" # Prevent cleanup of unused on-demand feature language packs

"Disable\_Cleanup\_Unsed\_Language" # Prevent cleaning of unused language packs

"Prerequisites\_Reboot" # Restart your computer

# Complete first deployment

# "Popup\_Engine" # Allow the deployment engine main interface to pop up for the first time

# "Allow\_First\_Pre\_Experience" # Allow first preview, as planned

"Reset\_Execution\_Policy" # Restore PowerShell execution policy: Restricted

"Clear\_Solutions" # Delete the entire solution

"Clear\_Engine" # Delete the deployment engine and keep the others

# "First\_Experience\_Reboot" # Restart your computer

)

ForEach ($item in $Flag) {

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

New-Item -Path "D:\OS\_2022\sources\`$OEM$\`$1\Yi\Engine\Deploy\Allow" -ItemType Directory -ErrorAction SilentlyContinue | Out-Null

Out-File -FilePath "D:\OS\_2022\sources\`$OEM$\`$1\Yi\Engine\Deploy\Allow\$($item)" -Encoding utf8 -ErrorAction SilentlyContinue

}

###### Add to mounted

Through "Customized Encapsulation: Install.wim", execute "Start mounting Install.wim" and mount to: D:\OS\_2022\_Custom\Install\Install\Mount

* + 1. Unattended

Copy D:\Multilingual\\_Learn\Unattend\Mul.Unattend.xml to D:\OS\_2022\_Custom\Install\Install\Mount\Panther\Unattend.xml

Copy-Item "D:\Multilingual\\_Learn\Unattend\Mul.Unattend.xml" -Destination "D:\OS\_2022\_Custom\Install\Install\Mount\Panther" -Force

* + 1. Deployment engine: add

Add "Automatically add languages installed on Windows systems" to the D:\OS\_2022\_Custom\Install\Install\Mount\Yi\Engine directory.

* + - 1. Deployment Engine: Copy

Copy D:\Multilingual\Engine to D:\OS\_2022\_Custom\Install\Install\Mount\Yi\Engine

Copy-Item "D:\Multilingual\Engine" -Destination "D:\OS\_2022\_Custom\Install\Install\Mount\Yi\Engine" -Recurse -Force

* + - 1. Deployment engine: custom deployment tags

$Flag = @(

"Is\_Mark\_Sync" # Allow global search and synchronization of deployment tags

# Prerequisite deployment

# "Auto\_Update" # Allow automatic updates

# "Use\_UTF8" # Beta: Global language support using Unicode UTF-8

"Disable\_Network\_Location\_Wizard" # Network Location Wizard

"Disable\_Cleanup\_Appx\_Tasks" # Appx Cleanup and maintenance tasks

"Disable\_Cleanup\_On\_Demand\_Language" # Prevent cleanup of unused on-demand feature language packs

"Disable\_Cleanup\_Unsed\_Language" # Prevent cleaning of unused language packs

"Prerequisites\_Reboot" # Restart your computer

# Complete first deployment

# "Popup\_Engine" # Allow the deployment engine main interface to pop up for the first time

# "Allow\_First\_Pre\_Experience" # Allow first preview, as planned

"Reset\_Execution\_Policy" # Restore PowerShell execution policy: Restricted

"Clear\_Solutions" # Delete the entire solution

"Clear\_Engine" # Delete the deployment engine and keep the others

# "First\_Experience\_Reboot" # Restart your computer

)

ForEach ($item in $Flag) {

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

New-Item -Path "D:\OS\_2022\sources\`$OEM$\`$1\Yi\Engine\Deploy\Allow" -ItemType Directory -ErrorAction SilentlyContinue | Out-Null

Out-File -FilePath "D:\OS\_2022\sources\`$OEM$\`$1\Yi\Engine\Deploy\Allow\$($item)" -Encoding utf8 -ErrorAction SilentlyContinue

}

##### Deployment Engine: Advanced

###### Deployment engine: adding process

After copying the deployment engine, you can add deployment tags to intervene in the installation process.

###### Unattended solution

When the customization is unattended, please modify it simultaneously if the following files exist:

* D:\OS\_2022\Autounattend.xml
* D:\OS\_2022\Sources\Unattend.xml
* D:\OS\_2022\sources\$OEM$\$$\Panther\unattend.xml
* D:\OS\_2022\_Custom\Install\Install\Mount\Panther\Unattend.xml
  + 1. Multilingual or monolingual

In multi-language and monolingual, you can switch between each other. When replacing, please replace all the same ones in the file.

* + - 1. Multi-language

<UILanguage>%OSDUILanguage%</UILanguage>

<InputLocale>%OSDInputLocale%</InputLocale>

<SystemLocale>%OSDSystemLocale%</SystemLocale>

<UILanguage>%OSDUILanguage%</UILanguage>

<UILanguageFallback>%OSDUILanguageFallback%</UILanguageFallback>

<UserLocale>%OSDUserLocale%</UserLocale>

* + - 1. Monolingual

A single language needs to specify a language tag, for example, specify a language tag: 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>

* + 1. User plan

By default, the self-created user Administrator is used and logged in automatically. It can be switched by modifying the following configuration: self-created or customized user.

* + - 1. Self-created user Administrator

By default, the self-created user: Administrator is used and logged in automatically, inserted between <OOBE> and </OOBE>.

<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>

* + - 1. Custom user

After setting up a custom user and installing the system, in OOBE, you can choose settings such as local and online users.

* + - 1. Delete

Username: Removed from start <UserAccounts> to </UserAccounts>

Autologin: Remove from start <AutoLogon> to </AutoLogon>

* + - 1. Replace

From the beginning <OOBE> to </OOBE>

<OOBE>

<ProtectYourPC>3</ProtectYourPC>

<HideEULAPage>true</HideEULAPage>

<HideWirelessSetupInOOBE>true</HideWirelessSetupInOOBE>

</OOBE>

### Generate ISO

#### Download OScdimg

Select the Oscdimg version according to the architecture, and save it to: D:\ after downloading. To save in other paths, please enter the absolute path of OScdimg.exe;

* 1. x64

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

* 1. x86

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

* 1. arm64

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

#### Use the oscdimg command line to generate an ISO file and save it to: D:\WS2022.iso

* ISO.ps1
  + [\Expand\ISO.ps1](Expand/ISO.ps1)
  + <https://github.com/ilikeyi/solutions/blob/main/_Learn/Packaging.tutorial/OS.2022/Expand/ISO.ps1>
* Copy the code

$Oscdimg = "D:\Oscdimg.exe"

$ISO = "D:\Win2022"

$Volume = "Win2022"

$SaveTo = "D:\Win2022.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

## Report

* Group abbreviations:
* Group A: Windows Server 2022 Standard (Desktop Experience), Windows Server 2022 Datacenter (Desktop Experience)
* Group B: Windows Server 2022 Standard Core, Windows Server 2022 Datacenter Core
* Marked green, installed; Not marked green: Not installed.

### Reports: Different versions

1. Downlevel-NLS-Sorting-Versions-Server-FoD-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
2. Downlevel-NLS-Sorting-Versions-Server-FoD-Package~31bf3856ad364e35~wow64~~10.0.20348.1 A, B
3. Microsoft-OneCore-DirectX-Database-FOD-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
4. Microsoft-OneCore-RasSstp-Api-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
5. Microsoft-Windows-FodMetadata-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
6. Microsoft-Windows-Foundation-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
7. Microsoft-Windows-InternetExplorer-Optional-Package~31bf3856ad364e35~amd64~~11.0.20348.1 A
8. Microsoft-Windows-InternetExplorer-Optional-Package~31bf3856ad364e35~amd64~~11.0.20348.75 A
9. Microsoft-Windows-LanguageFeatures-Basic-en-us-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
10. Microsoft-Windows-LanguageFeatures-Handwriting-en-us-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A
11. Microsoft-Windows-LanguageFeatures-OCR-en-us-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A
12. Microsoft-Windows-LanguageFeatures-Speech-en-us-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
13. Microsoft-Windows-LanguageFeatures-TextToSpeech-en-us-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
14. Microsoft-Windows-MediaPlayer-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A
15. Microsoft-Windows-MediaPlayer-Package~31bf3856ad364e35~amd64~~10.0.20348.169 A, B
16. Microsoft-Windows-MSPaint-FoD-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B

Microsoft-Windows-MSPaint-FoD-Package~31bf3856ad364e35~amd64~en-US~10.0.20348.1

1. Microsoft-Windows-MSPaint-FoD-Package~31bf3856ad364e35~wow64~~10.0.20348.1 A, B

Microsoft-Windows-MSPaint-FoD-Package~31bf3856ad364e35~wow64~en-US~10.0.20348.1

1. Microsoft-Windows-Networking-RemoteAccess-PowerShell-Base-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B

Microsoft-Windows-Networking-RemoteAccess-PowerShell-Base-Package~31bf3856ad364e35~amd64~~10.0.20348.143 A, B

Microsoft-Windows-Networking-RemoteAccess-PowerShell-Base-Package~31bf3856ad364e35~amd64~en-US~10.0.20348.1

1. Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B

Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~amd64~en-US~10.0.20348.1

1. Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~wow64~~10.0.20348.1 A, B

Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~wow64~en-US~10.0.20348.1

1. Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A

Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~amd64~en-US~10.0.20348.1

1. Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~wow64~~10.0.20348.1 A

Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~wow64~en-US~10.0.20348.1

1. Microsoft-Windows-Server-LanguagePack-Package~31bf3856ad364e35~amd64~en-US~10.0.20348.1 A, B
2. Microsoft-Windows-Server-LanguagePack-Package~31bf3856ad364e35~amd64~en-US~10.0.20348.169 A, B
3. Microsoft-Windows-ServerCore-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
4. Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A

Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~amd64~en-US~10.0.20348.1

1. Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~wow64~~10.0.20348.1 A

Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~wow64~en-US~10.0.20348.1

1. Microsoft-Windows-TabletPCMath-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A
2. Microsoft-Windows-TabletPCMath-Package~31bf3856ad364e35~amd64~~10.0.20348.143 A
3. Microsoft-Windows-UserExperience-Desktop-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A
4. Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B

Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~amd64~en-US~10.0.20348.1

1. Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~wow64~~10.0.20348.1 A, B

Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~wow64~en-US~10.0.20348.1

1. Microsoft-Windows-Xps-Xps-Viewer-Opt-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A
2. OpenSSH-Client-Package~31bf3856ad364e35~amd64~~10.0.20348.1 A, B
3. Package\_for\_DotNetRollup~31bf3856ad364e35~amd64~~10.0.4400. A, B
4. Package\_for\_RollupFix~31bf3856ad364e35~amd64~~20348.169.1.7 A, B
5. Package\_for\_ServicingStack~31bf3856ad364e35~amd64~~20348.169.1.1 A, B

### Report: Language installation packages apply to Install.wim

1. Microsoft-Windows-LanguageFeatures-Fonts-Hans-Package~31bf3856ad364e35~AMD64~~.cab A, B

Microsoft-Windows-LanguageFeatures-Fonts-Hans-Package~31bf3856ad364e35~amd64~~10.0.20348.1

1. Microsoft-Windows-Server-Language-Pack\_x64\_zh-CN.cab A, B

Microsoft-Windows-Server-LanguagePack-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. Microsoft-Windows-LanguageFeatures-Basic-zh-CN-Package~31bf3856ad364e35~AMD64~~.cab A, B

Microsoft-Windows-LanguageFeatures-Basic-zh-cn-Package~31bf3856ad364e35~amd64~~10.0.20348.1

1. Microsoft-Windows-LanguageFeatures-Handwriting-zh-CN-Package~31bf3856ad364e35~AMD64~~.cab A

Microsoft-Windows-LanguageFeatures-Handwriting-zh-cn-Package~31bf3856ad364e35~amd64~~10.0.20348.1

1. Microsoft-Windows-LanguageFeatures-OCR-zh-CN-Package~31bf3856ad364e35~AMD64~~.cab A

Microsoft-Windows-LanguageFeatures-OCR-zh-cn-Package~31bf3856ad364e35~amd64~~10.0.20348.1

1. Microsoft-Windows-LanguageFeatures-Speech-zh-CN-Package~31bf3856ad364e35~AMD64~~.cab A, B

Microsoft-Windows-LanguageFeatures-Speech-zh-cn-Package~31bf3856ad364e35~amd64~~10.0.20348.1

1. Microsoft-Windows-LanguageFeatures-TextToSpeech-zh-CN-Package~31bf3856ad364e35~AMD64~~.cab A, B

Microsoft-Windows-LanguageFeatures-TextToSpeech-zh-cn-Package~31bf3856ad364e35~amd64~~10.0.20348.1

1. Microsoft-Windows-MSPaint-FoD-Package~31bf3856ad364e35~amd64~zh-CN~.cab A, B

Microsoft-Windows-MSPaint-FoD-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. Microsoft-Windows-MSPaint-FoD-Package~31bf3856ad364e35~wow64~zh-CN~.cab A, B

Microsoft-Windows-MSPaint-FoD-Package~31bf3856ad364e35~wow64~zh-CN~10.0.20348.1

1. Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~amd64~zh-CN~.cab A, B

Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~wow64~zh-CN~.cab A, B

Microsoft-Windows-Notepad-FoD-Package~31bf3856ad364e35~wow64~zh-CN~10.0.20348.1

1. Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~amd64~zh-CN~.cab A

Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~wow64~zh-CN~.cab A

Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~wow64~zh-CN~10.0.20348.1

1. Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~amd64~zh-CN~.cab A

Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~wow64~zh-CN~.cab A

Microsoft-Windows-StepsRecorder-Package~31bf3856ad364e35~wow64~zh-CN~10.0.20348.1

1. Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~amd64~zh-CN~.cab A, B

Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~wow64~zh-CN~.cab A, B

Microsoft-Windows-WordPad-FoD-Package~31bf3856ad364e35~wow64~zh-CN~10.0.20348.1

### Report: Language installation packages apply to WinRE.wim

1. WinPE-FontSupport-zh-CN.cab

Microsoft-Windows-WinPE-FontSupport-ZH-CN-Package~31bf3856ad364e35~amd64~~10.0.20348.1

1. lp.cab

Microsoft-Windows-WinPE-LanguagePack-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-appxpackaging\_zh-CN.cab

Microsoft-Windows-WinPE-AppxPackaging-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-atbroker\_zh-CN.cab

WinPE-ATBroker-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-audiocore\_zh-CN.cab

WinPE-AudioCore-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-audiodrivers\_zh-CN.cab

WinPE-AudioDrivers-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-enhancedstorage\_zh-CN.cab

WinPE-EnhancedStorage-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-hta\_zh-CN.cab

WinPE-HTA-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-narrator\_zh-CN.cab

WinPE-Narrator-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-opcservices\_zh-CN.cab

WinPE-OpcServices-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-rejuv\_zh-CN.cab

WinPE-Rejuv-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-scripting\_zh-CN.cab

WinPE-Scripting-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-securestartup\_zh-CN.cab

WinPE-SecureStartup-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-speech-tts\_zh-CN.cab

WinPE-Speech-TTS-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-srh\_zh-CN.cab

WinPE-SRH-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-srt\_zh-CN.cab

WinPE-SRT-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-storagewmi\_zh-CN.cab

WinPE-StorageWMI-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-wds-tools\_zh-CN.cab

WinPE-WDS-Tools-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-wifi\_zh-CN.cab

WinPE-WiFi-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-wmi\_zh-CN.cab

WinPE-WMI-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

### Report: Language installation packages apply to Boot.wim

1. WinPE-FontSupport-zh-CN.cab

Microsoft-Windows-WinPE-FontSupport-ZH-CN-Package~31bf3856ad364e35~amd64~~10.0.20348.1

1. lp.cab

Microsoft-Windows-WinPE-LanguagePack-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-atbroker\_zh-CN.cab

WinPE-ATBroker-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-audiocore\_zh-CN.cab

WinPE-AudioCore-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-audiodrivers\_zh-CN.cab

WinPE-AudioDrivers-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-enhancedstorage\_zh-CN.cab

WinPE-EnhancedStorage-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-narrator\_zh-CN.cab

WinPE-Narrator-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-scripting\_zh-CN.cab

WinPE-Scripting-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-securestartup\_zh-CN.cab

WinPE-SecureStartup-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. WINPE-SETUP-Server\_zh-CN.CAB

WinPE-Setup-Server-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. WinPE-Setup\_zh-CN.cab

WinPE-Setup-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-speech-tts\_zh-CN.cab

WinPE-Speech-TTS-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-srh\_zh-CN.cab

WinPE-SRH-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-srt\_zh-CN.cab

WinPE-SRT-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-wds-tools\_zh-CN.cab

WinPE-WDS-Tools-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

1. winpe-wmi\_zh-CN.cab

WinPE-WMI-Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1

## Common problem

### Clean all mounts to

Close any applications that may be accessing files in the image, including File Explorer.

Dismount-WindowsImage -Path "D:\OS\_2022\_Custom\Install\Install\Mount" -Discard

Dismount-WindowsImage -Path "D:\OS\_2022\_Custom\Install\WinRE\Mount" -Discard

Dismount-WindowsImage -Path "D:\OS\_2022\_Custom\Boot\Boot\Mount" -Discard

### Fix the problem of abnormal mounting

1. View mounted

Get-WindowsImage -Mounted

1. Delete the DISM mount record saved in the registry

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

1. Delete all resources associated with the corrupted mounted image

Clear-WindowsCorruptMountPoint

Dism /cleanup-wim

### Clean directories

Remove-Item "D:\OS\_2022\_Custom" -Force -Recurse

Remove-Item "D:\OS\_2022\Sources\`$OEM$" -Force -Recurse

Remove-Item -Path "D:\OS\_2022\Autounattend.xml" -Force

Remove-Item -Path "D:\OS\_2022\Sources\Unattend.xml" -Force

## Known issues

1. Add Microsoft-Windows-PowerShell-ISE-FOD-Package~31bf3856ad364e35~amd64~zh-CN~.cab to Windows Server 2022 Standard Core, Windows Server 2022 Datacenter Core will add Microsoft-Windows-PowerShell-ISE-FOD -Package~31bf3856ad364e35~amd64~zh-CN~10.0.20348.1, an error will be reported when deleting it, and the operation is not recommended for the time being.

Yi’ Solutions

This copy packaging tutorial is part of Yi’s Solutions content, learn more:

* Yi's official website | <https://fengyi.tel/solutions>
* Github | <https://github.com/ilikeyi/solutions>

Author: Yi

EMail: [775159955@qq.com](mailto:775159955@qq.com), [ilikeyi@outlook.com](mailto:ilikeyi@outlook.com)

Document version: 1.1

Documentation model: Full version

Translation: Chinese to English version

Updated: 2024 - 6

Suggestions or feedback: <https://github.com/ilikeyi/solutions/issues>