Application Packaging - Complete Beginner's Guide (Pre-Skilling Training for Wipro Selection)

✅Introduction

Application packaging is the process of creating a software installer (typically MSI) that configures the system to allow an application to run correctly. This includes installing files, setting registry values, creating shortcuts, and more. It is a crucial skill for enterprise environments, especially in support, deployment, and infrastructure roles.

As your trainer, I will explain **each concept from scratch** in **simple language**, with real-life examples, and **hands-on steps**. This guide will make you confident for **Wipro selection**, interviews, and job readiness.

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1. Device Drivers - Handling within MSI

What is a Driver? A driver is software that allows the operating system to communicate with hardware devices like printers, keyboards, or network cards.

Why it matters? Without drivers, hardware will not work properly.

In Application Packaging: You may need to include driver installation (like a printer driver) during app deployment.

Files Involved: `.inf`, `.cat`, `.sys` files

Practice Steps:

1. Download a sample printer driver.
2. Use command:

```
pnputil /add-driver driver.inf /install
```

3. Use tools like Advanced Installer to package it in an MSI.

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2. Identifying and Handling Kernel Drivers

What is a Kernel Driver? Drivers that interact directly with Windows OS kernel (core part of OS). They work in the background at a system level.

Example: Antivirus software, disk encryption tools.

Practice Steps:

1. Use `driverquery` to list all drivers:

```
driverquery /v > drivers.txt
```

2. Use Orca to examine MSI and check if `.sys` files are present.

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3. Handling Services and Printers in MSI

What are Services? Background processes (e.g., Windows Update, Antivirus scanning service)

Example: MySQL runs as a service.

How to handle: Use packaging tools like Advanced Installer or WiseScript to:

- Install a service
- Start/Stop a service
- Set service startup type (auto/manual)

Practice:

1. Use `sc` command:

```
sc create MyService binPath= "C:\\MyApp\\service.exe"
```

2. Test its status:

```
sc query MyService
```

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4. Add-ins: Excel, Word, PowerPoint, COM Add-ins

What is an Add-in? An extension/plugin that adds extra functionality to Office apps (Word, Excel, etc.)

Types:

- Excel/Word/PowerPoint Add-ins (VSTO)
- COM Add-ins (Registered in Registry)

LoadBehavior Value: Defines whether the add-in will load automatically.

- 3 = Load at startup

- 2 = Don't load

Practice:

1. Install an Add-in manually.
2. Open Registry Editor:

```
HKEY_CURRENT_USER\Software\Microsoft\Office\Excel\Addins\YourAddin
```

3. Observe or change LoadBehavior.

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5. Difference: User, Admin, System Context

User Context: Limited permissions, can install only in user profile.

Admin Context: Can install system-wide, change system settings.

System Context: Background execution by Windows. Used by SCCM, GPO, Task Scheduler.

Example: Software installed via SCCM runs under SYSTEM, not user.

Practice:

1. Run a script as admin.
2. Schedule same script via Task Scheduler and observe different behavior.

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6. Logon Scripts for Populating User Profile

What are Logon Scripts? Scripts that run when a user logs into Windows. Used to:

- Map network drives
- Copy files
- Set registry keys

Practice:

1. Create a .bat file:

```
echo Welcome > C:\\Users\\%USERNAME%\\Desktop\\welcome.txt
```

2. Put it in:

```
C:\\Users\\Default\\AppData\\Roaming\\Microsoft\\Windows\\Start Menu\
\Programs\\Startup
```

3. Log in with a new user account.

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7. Active Setup Versioning

What is Active Setup? It's a Windows feature used to run commands for each user the first time they log in — perfect for copying user-specific files or registry.

Why Use It? Ensures first-time setup tasks run only once for each user.

Practice:

1. Open `regedit`.
2. Add key:

```
HKEY_LOCAL_MACHINE\Software\Microsoft\Active Setup\Installed Components\
{YourAppGUID}
```

3. Add `StubPath` with command to run (like a script).

```
StubPath = "cmd /c copyfiles.bat"
```

4. Log in with a new user to test if it executes.

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8. Windows 10 vs Windows 11 Differences in App Packaging

Key Differences:

- Win11 has tighter security policies (e.g., Smart App Control)
- UI and file paths may differ slightly
- Driver signing requirements are stricter

Practice:

1. Test your MSI on both Windows 10 and 11.
2. Check Event Viewer and `msiexec` logs for differences.
3. Observe behavior changes (e.g., UAC prompts, SmartScreen).

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9. Handling Scheduled Tasks and Use Cases

What is a Scheduled Task? Automates launching apps/scripts at logon, startup, daily time, etc.

Real Example: Run a cleanup script at login.

Practice:

1. Open Task Scheduler.
2. Create a task:
3. Trigger: At log on
4. Action: Start a program → `notepad.exe`
5. Save and log off → log back in to test.

OR via CMD:

```
schtasks /create /tn "MyTask" /tr "notepad.exe" /sc onlogon /ru SYSTEM
```

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10. User Prompts (Reboot, Close Apps)

What are Prompts? Messages shown to users — like "Please close Chrome" or "Reboot needed."

Why Important? Avoids installation failures by ensuring user takes action.

Practice: Use PowerShell message box:

```
Add-Type -AssemblyName PresentationFramework
[System.Windows.MessageBox]::Show("Please close Chrome before installing.")
```

Wrap this in a pre-install script.

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11. Windows Debugging Tools

Tools to Learn:

- LogonSessions
- Autologon
- Process Explorer
- PsExec
- PSTools
- RegMon
- Whois

- SysMon

Practice:

1. Download from Microsoft Sysinternals.
2. Run `Process Explorer` to monitor what runs during MSI install.
3. Use `PsExec` to simulate SYSTEM install:

```
psexec -i -s cmd.exe
```

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12. Vulnerability Cleanup

What is it? Remove outdated, insecure apps from system (e.g., Flash, Java).

Practice:

1. List apps:

```
Get-WmiObject Win32_Product | Select Name
```

1. Remove unwanted:

```
Get-WmiObject -Query "SELECT * FROM Win32_Product WHERE Name LIKE '%Java%'" |
ForEach-Object { $_.Uninstall() }
```

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13. Complex Applications: Office 365, SAP

Why Complex? Requires:

- Licensing
- Online activation
- Dependencies

Office 365 Practice:

1. Download Office Deployment Tool (ODT)
2. Create `config.xml`
3. Run:

```
setup.exe /configure config.xml
```

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14. Task Sequence with Multiple Reboots

What is it? Install apps in a specific order with reboots in between (used in SCCM, MDT).

Practice:

1. Create batch:

```
call install1.bat
shutdown /r /t 0
call install2.bat
```

1. Use Task Scheduler or scripts to simulate task sequences.

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15. Logs and Event Viewer for Troubleshooting MSI

Why Important? Helps you identify where and why an install failed.

Practice:

1. Install MSI with log:

```
msiexec /i app.msi /l*v install.log
```

1. Open `install.log`, search for:

```
Return value 3
```

1. Open Event Viewer → Windows Logs → Application → Find MSI Installer errors.

🎯You're now ready to understand, explain, and practice every core concept of Application Packaging — just like a Wipro deployment engineer. Let me know if you want this in PDF or quiz format!