# Python subprocess module usecases Windows

1. Automating Service Management

- Use Case: Start, stop, or restart Windows services (like IIS, SQL Server, or custom services) as part of deployment pipelines.
- Example:

```
import subprocess

service_name = "wuauserv"  # Windows Update service
subprocess.run(["sc", "stop", service_name], check=True)
subprocess.run(["sc", "start", service_name], check=True)
```

🔷 Useful for deployment workflows, ensuring services are restarted after config changes.

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2. Executing PowerShell Scripts in CI/CD

- Use Case: Run PowerShell scripts (infrastructure setup, package installs, AD user creation, etc.) directly from Python.
- Example:

```
import subprocess

ps_script = "Get-Process | Where-Object {$_.CPU -gt 1000}"
result = subprocess.run(
    ["powershell", "-Command", ps_script],
    capture_output=True,
    text=True
)
print(result.stdout)
```

🔷 Integrates DevOps automation with existing PowerShell scripts in Windows-based environments.

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3. Automated Log Collection and Analysis

- Use Case: Gather logs from Windows Event Viewer or application logs during incident response.
- Example:

```
import subprocess

cmd = ["wevtutil", "qe", "System", "/c:5", "/f:text"]  # Last 5 system logs
```

```
result = subprocess.run(cmd, capture_output=True, text=True)
print(result.stdout)
```

🔷 Helps in troubleshooting failures during deployment or runtime.

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4. Environment Provisioning with Chocolatey

- Use Case: Install and manage software packages using Chocolatey from Python scripts.
- Example:

```
import subprocess

package = "git"
subprocess.run(["choco", "install", package, "-y"], check=True)
```

🔷 Ideal for preparing Windows build agents in CI/CD pipelines.

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5. Running Build/Deployment Commands

- Use Case: Automate execution of build tools like MSBuild, NuGet, or Docker for Windows.
- Example:

```
import subprocess

solution_file = "MyApp.sln"
subprocess.run(
    ["msbuild", solution_file, "/p:Configuration=Release"],
    check=True
)
```

🔷 Useful for integrating Windows-based build processes into DevOps workflows.

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✅ These use cases cover service management, script execution, log collection, environment provisioning, and build automation — all practical DevOps scenarios where Python with `subprocess` shines on Windows.