

Concise Guide: Install & Configure Debian on WSL (with Docker Compatibility)

For SysAdmin Students – Windows 10/11

Prerequisites

- Windows 10 (any) or Windows 11
- Admin rights
- CPU with virtualization support
- Internet connection

Step 1: Enable Required Features (Do This First – Critical for Docker)

Run PowerShell as **Administrator** → Execute both commands:

PowerShell

```
dism.exe /online /enable-feature /featurename:VirtualMachinePlatform /all /no  
dism.exe /online /enable-feature /featurename:Microsoft-Windows-Subsystem-Lin
```

Restart the computer (mandatory)

Step 2: Install Debian

Option A – Modern Windows (recommended – build 2004+ or Windows 11)

PowerShell

```
wsl --install -d Debian
```

→ Reboot if asked → Debian launches and prompts for username/password

Option B – Older Windows or manual method

```
PowerShell

# Update WSL2 kernel
wsl --update

# Set WSL2 as default
wsl --set-default-version 2

# Install Debian from Microsoft Store (search "Debian") or run:
wsl --install -d Debian
```

If wsl command not found → open Microsoft Store → install “Debian” manually

Step 3: First Boot & Basic Setup (inside Debian)

```
Bash

sudo apt update && sudo apt upgrade -y
sudo apt install -y curl wget git vim net-tools htop tree
```

Step 4: Verify Everything Works

In PowerShell:

```
PowerShell

wsl -l -v
# Should show: Debian Running 2
```

Key Integration Tips

- Windows files → /mnt/c

```
Bash  
  
ls /mnt/c/Users  
code /mnt/c/path/to/project    # opens VS Code
```

- Linux web server → accessible from Windows

```
Bash  
  
python3 -m http.server 8080  
# → open http://localhost:8080 in Chrome
```

- Run Windows apps from Linux

```
Bash  
  
notepad.exe file.txt  
explorer.exe .
```

Troubleshooting (Most Common Student Errors)

Error / Problem	Cause	Fix
0x80370114	Virtualization disabled in BIOS	Reboot → BIOS → Enable VT-x (Intel) or AMD-V → Save & exit
WSL 2 requires kernel update	Missing/outdated kernel	<code>wsl --update</code> in Admin PowerShell → Restart
'wsl' is not recognized	Very old Windows (<1903) or feature off	Upgrade Windows or manually install Debian from Store
Docker says “WSL 2 installation incomplete”	Virtual Machine Platform not enabled	Re-enable via <code>optionalfeatures</code> → Reboot
Debian stuck on first launch	Normal unpacking (can take 5–10 min)	Wait or close + relaunch from Start Menu

Final Student Checklist

- ☐ Virtual Machine Platform enabled
- ☐ WSL feature enabled + rebooted
- ☐ `wsl -l -v` shows Debian with Version 2
- ☐ `sudo apt update && sudo apt upgrade` completed
- ☐ Tested `http://localhost` from Windows browser

Done! You now have a fast, Docker-ready Debian system under WSL 2.