WSL Internet Connectivity Fix

Problem

WSL cannot access the internet - DNS resolution fails, `apt update` fails, `curl` / `wget` don't work.

Solution

Primary Fix: Enable `networkingMode=mirrored` in Windows `.wslconfig` file. This is the main solution that fixes internet connectivity.

Supporting Configuration: Also configure DNS settings in WSL to prevent DNS issues.

Steps

1. Enable Mirrored Networking Mode (Windows) ? PRIMARY FIX

This is the main fix - enable mirrored networking mode in the Windows `.wslconfig` file:

Location: `C:\Users\<YourUsername>\.wslconfig`

From Windows PowerShell:

```
notepad $env:USERPROFILE\.wslconfig
```

Or from WSL:

```
nano /mnt/c/Users/$USER/.wslconfig
```

Add or update with this content:

```
[wsl2]
networkingMode=mirrored
```

What this does: Enables mirrored networking mode, which fixes DNS and network connectivity issues by using the same network stack as Windows. **This is the key fix that resolves internet connectivity problems.**

2. Disable Auto-Generated DNS Configuration (WSL)

Edit `/etc/wsl.conf` in WSL:

```
sudo nano /etc/wsl.conf
```

Add this content:

```
[network]
generateResolvConf = false
```

What this does: Prevents WSL from automatically overwriting your DNS configuration.

3. Set Static DNS Server (WSL)

Edit `/etc/resolv.conf` in WSL:

```
sudo nano /etc/resolv.conf
```

Add this content:

```
nameserver 8.8.8.8
```

What this does: Uses Google's public DNS server (8.8.8.8) instead of Windows DNS.

Alternative DNS servers (if 8.8.8.8 doesn't work):

- Cloudflare: `1.1.1.1`
- Quad9: `9.9.9.9`
- OpenDNS: `208.67.222.222`

4. Restart WSL

From PowerShell (Windows):

```
wsl --shutdown
```

Then reopen WSL.

5. Verify Fix

```
# Test DNS resolution
ping -c 3 google.com

# Test internet access
curl -I https://www.google.com

# Test package manager
sudo apt update
```

Your Current Configuration

Windows `.wslconfig` (`C:\Users\<YourUsername>\.wslconfig`):

```
[wsl2]
networkingMode=mirrored
memory=16384MB
processors=16
```

WSL `/etc/wsl.conf` :

```
[network]
generateResolvConf = false
```

WSL `/etc/resolv.conf` :

```
nameserver 8.8.8.8
```

Quick Reference

If you need to reapply this fix:

Windows side (create/edit `C:\Users\<YourUsername>\.wslconfig`):

```
[wsl2]
networkingMode=mirrored
```

WSL side:

```
# 1. Disable auto DNS generation
echo -e "[network]\ngenerateResolvConf = false" | sudo tee /etc/wsl.conf

# 2. Set static DNS
echo "nameserver 8.8.8.8" | sudo tee /etc/resolv.conf

# 3. Restart WSL from PowerShell
# wsl --shutdown
```

Troubleshooting

Still not working?

1. **Check if files exist**:

```
cat /etc/wsl.conf
cat /etc/resolv.conf
```

2. **Check if resolv.conf is immutable**:

```
lsattr /etc/resolv.conf
# Should show 'i' flag if immutable
```

3. **Try different DNS server**:

```
sudo chattr -i /etc/resolv.conf  # Remove immutable flag
echo "nameserver 1.1.1.1" | sudo tee /etc/resolv.conf
sudo chattr +i /etc/resolv.conf
wsl --shutdown  # Restart from PowerShell
```

4. **Check Windows DNS** (from PowerShell):

```
ipconfig /all
# Look for DNS servers, try using Windows DNS IP in resolv.conf
```

Why This Works

- `networkingMode=mirrored` ? **PRIMARY FIX**: Uses the same network stack as Windows, fixing DNS and connectivity issues. This is the main solution.
- `generateResolvConf = false` : Prevents WSL from overwriting your DNS configuration
- **Static DNS**: Provides reliable DNS resolution when Windows DNS has issues
- Mirrored mode is especially helpful on corporate networks and VPNs

Note: The `networkingMode=mirrored` setting is the critical fix. The DNS configuration steps are supporting measures that help ensure reliable connectivity.