🛠 Troubleshooting & Common Mistakes Manual

For DevOps with Kubernetes Workshop

🔍 Architecture-Specific Notes

💻 Windows (AMD64/ARM64)

- **Issue:** choco is not recognized
  - ✅ **Fix:** Install Chocolatey or use **Scoop** instead. Or download binaries manually.
- **Issue:** docker: error during connect: open //./pipe/dockerDesktopLinuxEngine
  - ✅ **Fix:** Docker Desktop is **not running**. Start it from Start Menu, wait for whale 🐳 icon to say **Running**.
  - If still failing → Ensure **WSL2 is installed and enabled**.
  - wsl --version
- **Issue:** head : The term 'head' is not recognized... when running helm search repo nginx | head -n 5
  - ✅ **Fix:** PowerShell doesn't have head. Use:
  - helm search repo nginx | Select-Object -First 5
- **Architecture note:**
  - Intel/AMD laptops → use **amd64** binaries.
  - ARM laptops (rare on Windows) → some tools don't have ARM builds → use **WSL2 Ubuntu** instead.

🍎 macOS (Intel/AMD64 vs Apple Silicon ARM64)

- **Issue:** Wrong binary downloaded → bad CPU type in executable
  - ✅ **Fix:** Use correct arch in download URL:
    - Intel: .../darwin/amd64/...
    - Apple Silicon: .../darwin/arm64/...
- **Issue:** Docker fails to start with "Rosetta not installed"
  - ✅ **Fix:** Install **Rosetta 2** for x86 compatibility:
  - softwareupdate --install-rosetta
- **Architecture note:**
  - Intel Mac → amd64 binaries.

  - Apple M1/M2/M3 → arm64 binaries.

🐧 Linux (Ubuntu/Debian/Fedora etc.)

- **Issue:** Permission denied when moving binaries
  - ✅ **Fix:** Use sudo when moving to /usr/local/bin. Example:
  - sudo mv kubectl /usr/local/bin/
- **Issue:** docker: Got permission denied while trying to connect to the Docker daemon
  - ✅ **Fix:** Add user to docker group and re-login:
  - sudo usermod -aG docker $USER
  - newgrp docker
- **Issue:** Helm/kubectl/kind: command not found
  - ✅ **Fix:** Ensure the binary is in $PATH. For example:
  - echo $PATH
- **Architecture note:**
  - Most laptops/desktops → amd64.
  - Raspberry Pi/ARM devices → arm64 downloads needed.

⚠️ Common Mistakes to Avoid

1. **Not starting Docker Desktop**
   - Always ensure whale 🐳 icon shows **Running** before running kind/kubectl.
2. **Mixing up architectures (amd64 vs arm64)**
   - Wrong binary gives “illegal instruction” or “bad CPU type” errors.
   - Always check with uname -m (Linux/macOS) or echo $env:PROCESSOR_ARCHITECTURE (Windows).
3. **Running Linux commands on Windows PowerShell**
   - Example: | head -n 5 fails on Windows. Use Select-Object -First 5.
4. **Skipping admin privileges**
   - Windows: run **PowerShell as Administrator** when installing via choco/scoop.
   - Linux/macOS: use sudo when moving binaries.
5. **Kubernetes cluster not Ready yet**
   - After kind create cluster, wait 1–2 minutes before running kubectl get nodes.

6. **Using VPN or firewall blocking localhost**
   - Port-forwarding may fail if VPN/firewall is interfering. Pause VPN temporarily.
7. **Not cleaning up old clusters**
   - Too many clusters can use up system resources. Use:
   - kind delete cluster --name precheck
8. **Mixing up kubectl vs docker**
   - docker manages containers.
   - kubectl manages Kubernetes. Don’t use one in place of the other.

✅ Quick Error → Fix Table

Error message	Likely Cause	Fix
docker: error during connect... open //./pipe/dockerDesktopLinuxEngine	Docker Desktop not running	Start Docker Desktop 🐳
bad CPU type in executable	Wrong arch binary on macOS	Use darwin/arm64 for Apple Silicon
illegal instruction (core dumped)	Wrong arch binary on Linux	Use linux/arm64 on ARM devices
choco is not recognized	Chocolatey not installed	Install Choco or Scoop
head : The term 'head' is not recognized	Using Linux command on Windows	Use Select-Object -First 5
docker: Got permission denied	User not in docker group (Linux)	sudo usermod -aG docker $USER
kubectl get nodes shows NotReady	Cluster still initializing	Wait 1–2 mins, check kubectl get pods -A
Browser can’t reach localhost:8080	Port-forward not running	Ensure kubectl port-forward is active

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