Lxplus and Visual Studio Code   ☆   KB0008901

SE LXPLUS Service • **FE** LXPLUS • 👁 Visibility: CERN

📁 Category: Computing / Linux / LXPLUS

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Using Visual Studio Code against LxPlus

Visual Studio Code can be run locally on a desktop or laptop accessing LxPlus and its filesystems over SSH.

Advice on how to use Visual Studio Code is limited from the lxplus service apart from a few tips on the basic connection and re-connection to LxPlus.

The best help is almost certainly available from other VScode users https://mattermost.web.cern.ch/it-dep/channels/visual-studio-code

Improvements to these guidelines from regular users of VSCode users are most welcome.

Before Starting

Many of the online tutorials for VSCode and SSH very sensibly suggest using public key authentication with PubkeyAuthentication. Use of PubkeyAuthentication onto lxplus is essentially impossible for this use case so do not attempt to use it.

Verify you can login to LxPlus with Kerberos (see link below) to avoid multiple password entries when connecting and re-connecting to LxPlus. For this you should use the following in your ssh configuration on your local computer:

```
Host lxplus*.cern.ch
User your-username
GSSAPIAuthentication yes
GSSAPIDelegateCredentials yes
```

Visual Studio SSH Plugin

Install the plugin **Visual Studio Code Remote - SSH** or '"ms-vscode--remote.remote.ssh"' after installing VScode on your computer.

Configure Visual Studio SSH Plugin

The following VSCode settings have at times been found improve how VScode works with LxPlus.

Remote.SSH: Lockfiles in Tmp

Maintaining lock files in AFS especially when multiple machines are in play is a challenge - Enable **Lockfile in Tmp** to maintain lockfiles in **/tmp**. This is almost certainly a good idea. After making this configuration change *rm -rf ~/.vscode-server* to reset things.

Remote.SSH: Server Install Path

Running this remote service in **$HOME/.vscode-server** on AFS can be problematic. In particular a log file is created as **~/.vscode-server/.cli<hash>.log** which is also read back as well. This is a challenge for AFS. This is the cause of the common problem **Failed to parse remote port from server output**

There are two solutions to this:

1. Avoid AFS - Set the **Server Install Path** for lxplus.cern.ch to either **/tmp/username** or to your EOS home directory **/eos/user/u/username**

2. Configure the SSH plugin to not **Use Local Server** untick the box. With this no attempt seems to be made to parse the above log file and things work again.

Using a shared directory such as EOS may work until you try running two instances of vscode on different lxplus nodes. WIth that both instances will be deleting and writing to the same log file in .vscode-server. Using **/tmp/<username>** will be the most reliable.

Remote.SSH: Show Login Terminal

If you are connecting to LxPlus from outside of CERN's network you will be prompted with your 2FA code.

Enable this option to get the interactive prompt.

Control Master

Using an SSH ControlMaster is recommended to avoid multiple authentications

- https://cern.service-now.com/service-portal?id=kb_article&n=KB0009800
- https://code.visualstudio.com/blogs/2019/10/03/remote-ssh-tips-and-tricks#_controlmaster

In particular when vscode is started against lxplus two connections are made. The first sets up the server and then the second connects to it. Using a control master will ensure the two connections hit the same lxplus host.

Connection

Finally connect to lxplus.cern.ch.

Possible Problems

If using the sftp plugin it defaults to using "password" authentication. Since 1st October 2024 you must enable "keyboard-interactive" auth to use a password. - https://github.com/Natizyskunk/vscode-sftp/wiki/SFTP-only-Configuration#interactiveauth

Users have reported that use of Mac clients with password authentication can fail with: **can't open /dev/tty: Device not configured**. Use Kerberos or set up a ControlMaster via the command line and then VScode can just use that connection.

Links

- Visual Studio Code - https://code.visualstudio.com/
- CERN Mattermost VSCode channel - https://mattermost.web.cern.ch/it-dep/channels/visual-studio-code
- Remote VSCode https://code.visualstudio.com/docs/remote/ssh
- Accessing CERN with Kerberos - https://linux.web.cern.ch/docs/kerberos-access/
- Atlas VSCode docs https://atlas-software.docs.cern.ch/athena/ide/
- Remote Singularity and VScode https://umami-docs.web.cern.ch/setup/development/VS_code/
- VSCode for Debian - https://wiki.debian.org/VisualStudioCode
- VSCode for Arch https://wiki.archlinux.org/title/Visual_Studio_Code
- VSCode https://github.com/microsoft/vscode
- VSCode ssh plugin https://github.com/microsoft/vscode-remote-release
- VSCODE ssh issue discussing AFS - https://github.com/microsoft/vscode-remote-release/issues/10445