

Connecting to Karolina cluster and installation of VS Code

Accessing GPU accelerated nodes

- IT4Innovations Documentation: <https://docs.it4i.cz/>
- **What OS do you use?** (Linux, Windows, MacOS)
- **Accessing the Clusters**
 - <https://docs.it4i.cz/general/shell-and-data-access/>
 - Generate SSH key pairs (id_rsa, id_rsa.pub):
 - `ssh-keygen` (preferred): <https://docs.it4i.cz/general/accessing-the-clusters/shell-access-and-data-transfer/ssh-keys/>
 - web: <https://heappeinfra1.it4i.cz/generate-ssh-keys/?p=training>
- **IT4I Account**
 - Training Login Credentials
 - <https://extranet.it4i.cz/ssp/?action=changesshkey>
 - <https://youtu.be/zM1EPE3qw-8>

Accessing GPU accelerated nodes

- SSH configuration
 - Windows: `c:\Users\jarXXX\.ssh\`
 - Linux: `/home/jarXXX/.ssh/`
 - MacOS: `/Users/jarXXX/.ssh/`
- `.ssh/*`
 - `authorized_keys`
 - `config`
 - `id_rsa`
 - `id_rsa.pub`
 - `known_hosts`

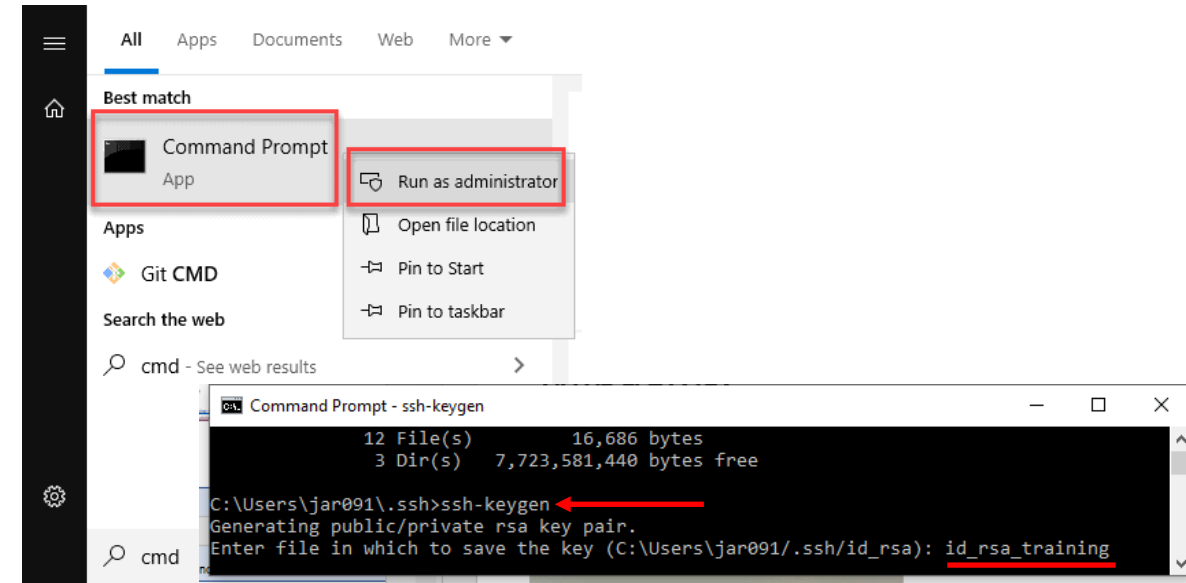
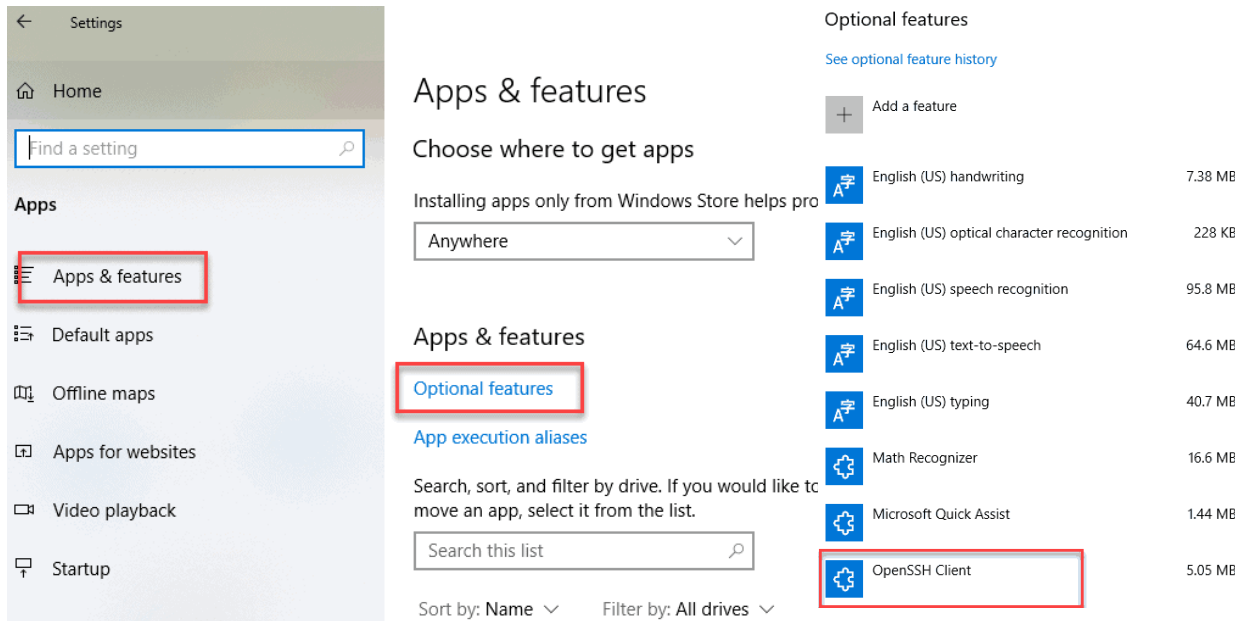
```
host karolina
    HostName karolina.it4i.cz
    IdentityFile ~/.ssh/id_rsa
    User dd-XX-XX-XX

host acn*
    HostName %h
    ProxyJump karolina
    IdentityFile ~/.ssh/id_rsa
    User dd-XX-XX-XX
```

Accessing GPU accelerated nodes

Linux: *sudo apt install openssh-client*
cd ~/.ssh
ssh-keygen

Windows: *cd %USERPROFILE%\.ssh*
ssh-keygen



Visual Studio Code

- VSCode

- <https://code.visualstudio.com/download>

Download Visual Studio Code

Free and built on open source. Integrated Git, debugging and extensions.



↓ Windows

Windows 8, 10, 11

User Installer 64 bit 32 bit ARM
System Installer 64 bit 32 bit ARM
.zip 64 bit 32 bit ARM



↓ .deb

Debian, Ubuntu

↓ .rpm

Red Hat, Fedora, SUSE

.deb 64 bit ARM ARM 64
.rpm 64 bit ARM ARM 64
.tar.gz 64 bit ARM ARM 64

Snap Store



↓ Mac

macOS 10.11+

.zip Universal Intel Chip Apple Silicon

- Extensions

- <https://marketplace.visualstudio.com/items?itemName=ms-vscode-remote.remote-ssh>



Remote - SSH

Preview

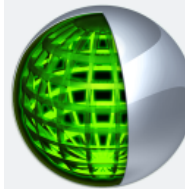
Microsoft | 12,832,868 installs | ★★★★★ (138) | Free

Open any folder on a remote machine using SSH and take advantage of VS Code's full feature set.

Install

[Trouble Installing?](#)

- <https://marketplace.visualstudio.com/items?itemName=NVIDIA.nsight-vscode-edition>



Nsight Visual Studio Code Edition

NVIDIA | 40,418 installs | ★★★★★ (6) | Free

CUDA development and debugging support for VS Code

Install

[Trouble Installing?](#)

Visual Studio Code

The image displays two screenshots of the Visual Studio Code interface, illustrating the process of installing and configuring extensions.

Top Screenshot: The 'EXTENSIONS: MARKETPLACE' view is shown with the search bar containing 'nsight'. The 'Nsight Visual Studio Code Edition' extension by NVIDIA is highlighted with a red box. The extension details page is visible, showing the NVIDIA logo, a rating of 4.5 stars (6 reviews), and a description: 'CUDA development and debugging support for VS Code'.

Bottom Screenshot: The 'EXTENSIONS: MARKETPLACE' view is shown with the search bar containing 'ssh'. The 'Remote - SSH' extension by Microsoft is highlighted with a red box. The extension details page is visible, showing the Microsoft logo, a rating of 4.5 stars (180 reviews), and a description: 'Open any folder on a remote machine using SSH'.

A vertical red box highlights the left sidebar in both screenshots. A red box highlights the 'Run and Debug' icon in the bottom status bar of the bottom screenshot.

Visual Studio Code

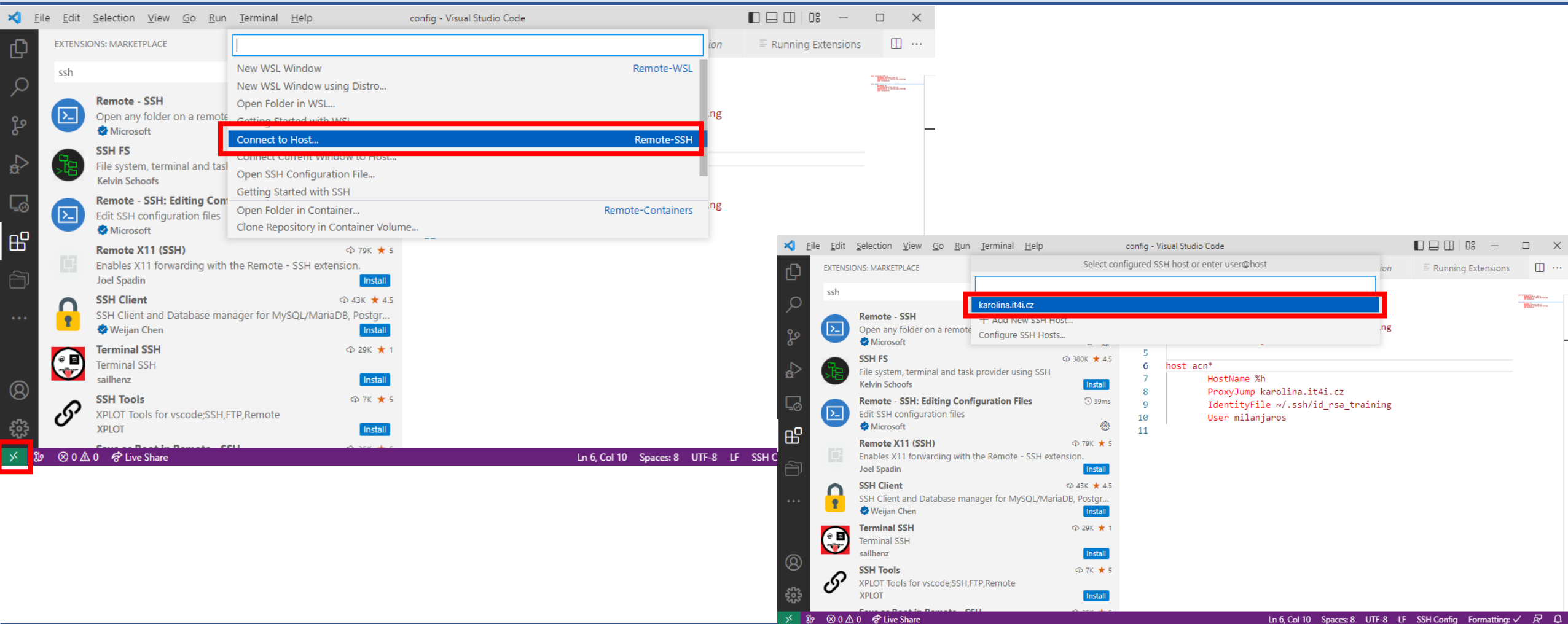
The screenshot illustrates the steps to configure the Nsight Visual Studio Code Edition extension for remote access via SSH. The extension's context menu is open, showing the option 'Open SSH Configuration File...'. The file selection dialog shows the path 'C:\Users\jar091\.ssh\config'.

SSH Configuration File Content:

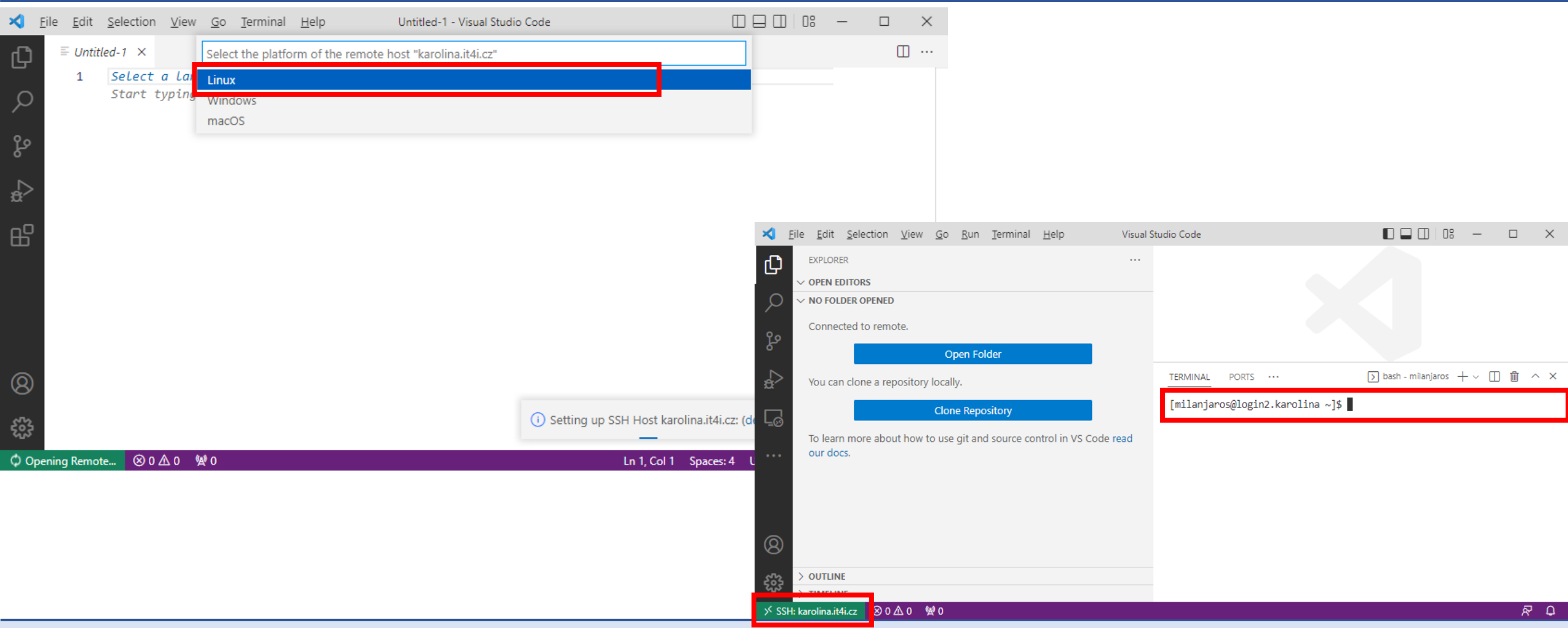
```
host karolina
    HostName karolina.it4i.cz
    IdentityFile ~/.ssh/id_rsa
    User dd-XX-XX-XX

host acn*
    HostName %h
    ProxyJump karolina
    IdentityFile ~/.ssh/id_rsa
    User dd-XX-XX-XX
```

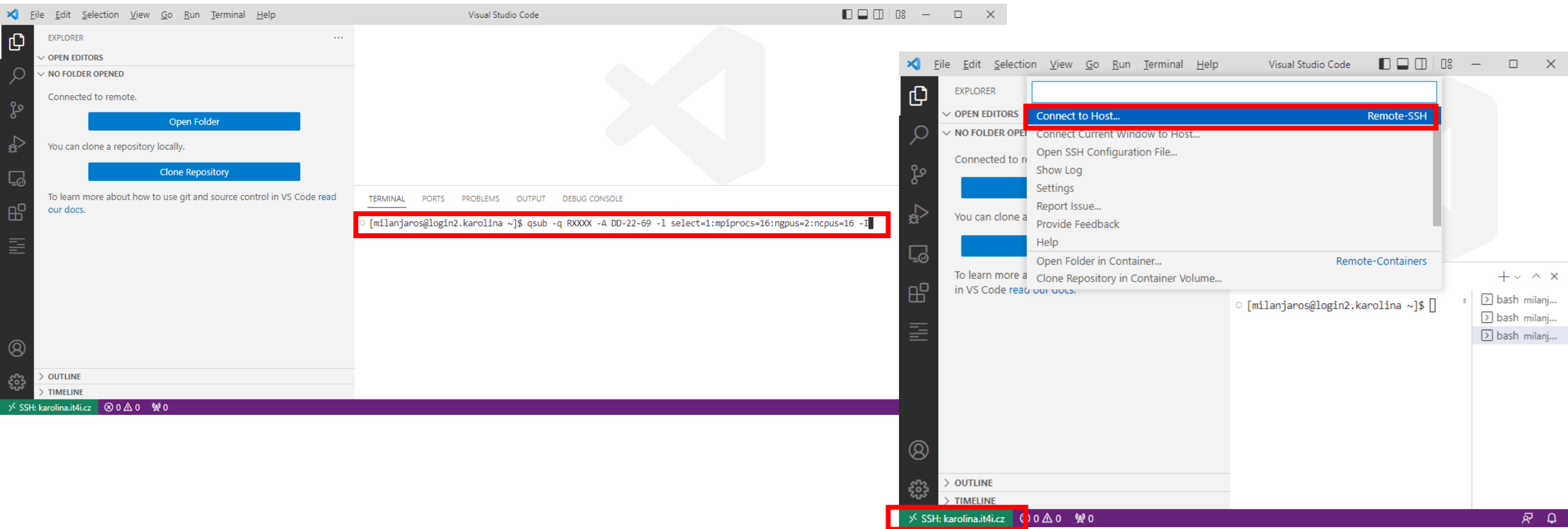
Visual Studio Code



Visual Studio Code



Benchmark Hardware Properties – run a job



Benchmark Hardware Properties – connect and open a remote folder

The image is a collage of four screenshots from the Visual Studio Code interface, illustrating the process of connecting to a remote host and opening a folder.

- Top Left Screenshot:** Shows the Explorer sidebar with the 'acn04' host selected in the 'SSH Hosts' list. The terminal displays the command `ssh -q qsub -q qsub: waiting for job 1518317.infra-pbs to qsub: job 1518317.infra-pbs ready`. The user is logged in as `milanjaros@acn04.karolina.cz`.
- Top Right Screenshot:** Shows a dialog box titled 'Select the platform of the remote host "cn719"'. The 'Linux' option is selected.
- Bottom Left Screenshot:** Shows the 'Open Folder' dialog box with the path `/home/milanjaros/cuda_2022/benchmarks/` entered. The 'Open Folder' button is highlighted.
- Bottom Right Screenshot:** Shows a security warning dialog box titled 'Do you trust the authors of the files in this folder?'. The checkbox 'Trust the authors of all files in the parent folder "/code>

Benchmark Hardware Properties – open terminal

