

# WSL2 SSH In Windows 11

To access the server of the Space Environment Information Processing System via the Internet, you need to go through a login server (a Jump\_Server). The login server is accessed by SSH public key authentication. In this article, we install Windows Subsystem for Linux 2 (WSL2) on Windows 11 and connect to the login server via SSH. [How to install Linux on Windows with WSL \(Microsoft\)](#)

Connection settings for this article

	Host Name	Login Name
Server	Jump_Server	Jump_Server_Username
Client	Localhost	Local_Username

## Command install

### Check OS version

Start PowerShell or Command Prompt by selecting "Run as administrator". PowerShell or Command Prompt can also be opened in Windows Terminal<sup>1)</sup>. The command to check the OS version is as follows:

```
PS C:\Windows\System32> winver
```

### Select and install a Linux distribution

Linux distributions that install WSL2 online can be found with "wsl -l -o".

```
PS C:\Windows\System32> wsl -l -o
The following is a list of valid distributions that can be installed.
Install using 'wsl.exe --install <Distro>'.
```

NAME	FRIENDLY NAME
Ubuntu	Ubuntu
Debian	Debian GNU/Linux
kali-linux	Kali Linux Rolling
Ubuntu-18.04	Ubuntu 18.04 LTS
Ubuntu-20.04	Ubuntu 20.04 LTS
Ubuntu-22.04	Ubuntu 22.04 LTS
OracleLinux_7_9	Oracle Linux 7.9
OracleLinux_8_7	Oracle Linux 8.7
OracleLinux_9_1	Oracle Linux 9.1
openSUSE-Leap-15.5	openSUSE Leap 15.5
SUSE-Linux-Enterprise-Server-15-SP4	SUSE Linux Enterprise Server 15 SP4
SUSE-Linux-Enterprise-15-SP5	SUSE Linux Enterprise 15 SP5
openSUSE-Tumbleweed	openSUSE Tumbleweed

It can also be installed from the Microsoft Store rather than by command.

[Here we install Ubuntu-22.04](#)

wsl\_install.jpg

).

```
wsl --install -d Ubuntu-22.04
```

Reboot the system as instructed.

## Ubuntu Linux startup and initial configuration

Ubuntu will start automatically after rebooting, but if it does not, start it from the menu. Enter your client username and password.

```
Enter new UNIX username: Local_Username
New password:
Retype new password:
passwd: password updated successfully
Installation successful!
...
```

Updating Ubuntu.

```
username@localhost:/etc/apt$ sudo apt update
username@localhost:/etc/apt$ sudo apt -y full-upgrade
```

Check the timezone and locale, and change them if necessary.

```
username@localhost:/etc/apt$ timedatectl
    Local time: Fri 2024-01-12 11:51:24 JST
    Universal time: Fri 2024-01-12 02:51:24 UTC
    RTC time: Fri 2024-01-12 02:51:24
    Time zone: Asia/Tokyo (JST, +0900)
System clock synchronized: yes
    NTP service: inactive
    RTC in local TZ: no
username@localhost:/etc/apt$ localectl status
    System Locale: LANG=C.UTF-8
    VC Keymap: n/a
    X11 Layout: us
    X11 Model: pc105
```

## Generate an SSH Key Pair

Generate an ssh key in PowerShell. (After # are comments)

```

username@localhost:~$ ssh-keygen -t ecdsa -b 384
Generating public/private ecdsa key pair.
Enter file in which to save the key (/home/username/.ssh/id_ecdsa):
Created directory '/home/username/.ssh'.
Enter passphrase (empty for no passphrase):          #Enter passphrase
Enter same passphrase again:                        #Enter passphrase
Your identification has been saved in /home/username/.ssh/id_ecdsa
Your public key has been saved in /home/username/.ssh/id_ecdsa.pub
The key fingerprint is:
SHA256:qI0IpGWS430BdmS8b+6ARH5JUoLj+eDZ4LD4ux8gEXA username@Win11
The key's randomart image is:
+---[ECDSA 384]---+
|+ E..+          |
| =  =.          |
|o o= o.         |
|.B+ =...        |
|XoXo +o S       |
|B@o=o..o        |
|+o.o+oo         |
| . .o..         |
| o+. ..         |
+-----[SHA256]-----+

```

## Apply for a key

Please apply for registration of the created public key id\_ecdsa.pub.  
[\[see Jump\\_Server account request\]](#) [\[CIDAS System account request\]](#)

## Add your SSH key to the ssh-agent

Register the created private key with ssh-agent. (After # are comments)

```

username@localhost:~$ eval $(ssh-agent)                # Start ssh-
agent
Agent pid 658
username@localhost:~$ ssh-add ~/.ssh/id_ecdsa         # Register
private key
Enter passphrase for /home/username/.ssh/id_ecdsa:   # pass phrase
Identity added: /home/username/.ssh/id_ecdsa (username@Win11)

```

You can check if it is registered with the following command.

```

username@localhost:~$ ssh-add -l
384 SHA256:qI0IpGWS430BdmS8b+6ARH5JUoLj+eDZ4LD4ux8gEXA username@Win11
(ECDSA)

```

# SSH Connection

Enter the following:

```
username@localhost:~$ ssh Jump_Server_Username@Jump_Server -AX
The authenticity of host 'Jump_Server' can't be established.
ED25519 key fingerprint is
SHA256:TTWvEs781VjJwKrz0LJVDtTbLUn/1Ut00asloihi5QI.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'Jump_Server' (ED25519) to the list of known
hosts.
```

option -A: Enables forwarding of connections from an authentication agent such as ssh-agent. option -X: Enables X11 forwarding. After connecting to the Jump\_Server, you can use the same private key that you used at the first connection to connect to another server.

## About x11 forwarding

WSL 2 enables Linux GUI applications to feel native and natural to use on Windows. There is no need to install a new X server.

[Run Linux GUI apps on the Windows Subsystem for Linux](#)

- [OpenSSH on macOS 10.15](#)

1)

Terminal available by default in Windwos 11. Tabs can be used and it is easy to customize. ([What is Windows Terminal?](#) )

From:  
<https://portal.isee.nagoya-u.ac.jp/stel-it/> - **STEL-IT wiki**

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[https://portal.isee.nagoya-u.ac.jp/stel-it/doku.php?id=public:win11\\_wsl2\\_ssh\\_en](https://portal.isee.nagoya-u.ac.jp/stel-it/doku.php?id=public:win11_wsl2_ssh_en)

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