

# *Advance Preparation Guide*

## 187th Parallel Programming Workshop with Trial Account “Supercomputing for Beginners”

---

29 Sep. 2022

Information Technology Center, The Univ. of Tokyo

Contact: [shiba \[at\] cc.u-tokyo.ac.jp](mailto:shiba[at]cc.u-tokyo.ac.jp)

16 Aug. 2022 v1.0

# Table of Contents

- Preparation for Zoom — online video meeting p. 3
- Confirmation of your supercomputer account p. 4
- How to use Supercomputer User Portal p. 5 - 9
  
- Advance environment settings for using Supercomputers
  - A. Windows
    - Option 1 - OpenSSH p. 11 - 14
    - Option 2 - Cygwin p. 15 - 25
  - B. Mac OS p. 26 - 28
  - C. Linux p. 29

# Preparation for Zoom — online video meeting

---

- Download:  
[https://zoom.us/download#client\\_4meeting](https://zoom.us/download#client_4meeting)
- Please install Zoom client software prior to the workshop.
  - It is **NOT** necessary to create your Zoom account.
  - We will announce how to join the session on 26th Sep.
- Please update the Zoom client software to the newest version.
  - Ver. 5.11.5, as of 16th Aug.
  - **Ver. 5.0 or above is required for this workshop !!**
- How to use Zoom:  
<https://utelecon.adm.u-tokyo.ac.jp/en/zoom/usage/>

# Confirm your account for the supercomputer

For the hands-on in the workshop,  
we will use Oakbridge-CX (OBCX) supercomputer system  
at Information Technology Center (ITC), the University of Tokyo.

Your user account:

User ID: tUVXYZ ( "t" + five numerical digits)

Group ID: gt00

Account expiration: 9:00 AM, 29th Oct. 2022.

Your account information will be notified  
on (ca.) 26th Sep by an e-mail.

# Notice of Suspension of Operation

---

Due to the system maintenance,  
Oakbridge-CX (OBCX) System will be suspended  
from 9:00 AM, 22nd Sep.  
to 5:00 PM, 26th Sep.

During this period, OBCX User Portal (see pp.6-9) will be suspended.  
Please test your login to User Portal on 27th or 28th Sep.

OBCX operation schedule

<https://www.cc.u-tokyo.ac.jp/en/supercomputer/schedule.php>

# Confirm OBCX User Portal

---

For using supercomputers at the Information Technology Center, the Univ. of Tokyo, we first make preparation on the "User Portal".

System information

<https://www.cc.u-tokyo.ac.jp/en/supercomputer/obcx/service/>

OBCX User Portal

**Please make sure you can log in before the workshop.**

<https://obcx-www.cc.u-tokyo.ac.jp/cgi-bin/hpcportal.en/index.cgi>

# (1) Login to OBCX User Portal (1/2)

## You receive a PDF file from us

The screenshot shows a PDF viewer window with the title bar 'Oakbridge-CX\_Work...' and '1 page'. The document content is as follows:

Notification of Your Account of Supercomputer System (Oakbridge-CX)

We have registered your account as follows.

August 15, 2022  
Director of Information Technology Center, The University of Tokyo  
Official seal omitted

Period of use	From April 12, 2022 to May 22, 2022				
User ID	tUVXYZ	Password	01234567	Project code	gt00

User ID sent from  
ITC, Univ. of Tokyo  
(tUVXYZ)

Initial password sent  
from ITC, Univ. of Tokyo  
(8 numerical digits)

# (1) Login to OBCX User Portal (2/2)

<https://obcx-www.cc.u-tokyo.ac.jp/cgi-bin/hpcportal.en/index.cgi>

Oakbridge-CX User Portal

[ English/Japanese ]

Login

Login

Enter user ID and password then click [Login] button.

user ID:

password:

Login Reset

Please e

User ID sent from  
ITC, Univ. of Tokyo  
(tUVXYZ)

Initial password sent  
from ITC, Univ. of Tokyo  
(8 numerical digits)

- Support  
· Micro  
· Safari  
· Firefox 66 and over  
· Google Chrome 72 and over

Copyright 2019 FUJITSU LIMITED



# Initial password change

Oakbridge-CX User Portal

Logout

## Change Password

Only Oakbridge-CX User Portal password is supported by this function.

Current password	<input type="password"/>
New password	<input type="password"/>
New password(re-enter)	<input type="password"/>

Change

Information

SSH Public Key

E-mail

Password

Token usage

Disk usage

Prepost reservation

Document

019 FUJITSU LIMITED

Initial password sent from ITC, Univ. of Tokyo

New passwords after change (twice)

## Password policy

- 8 or more characters in length.
- should not contain three or more characters from current password
- should not be the same as the past 2 times.
- should contain all the character types: lower case letters, upper case letters, arabic numbers, and special characters
- not a name or linux dictionary word
- do not contain multi-byte characters

# If your operating system is Windows

---

Please choose from the following two options:

1. OpenSSH Client from PowerShell

Easiest way if you are used to command line.

2. Cygwin

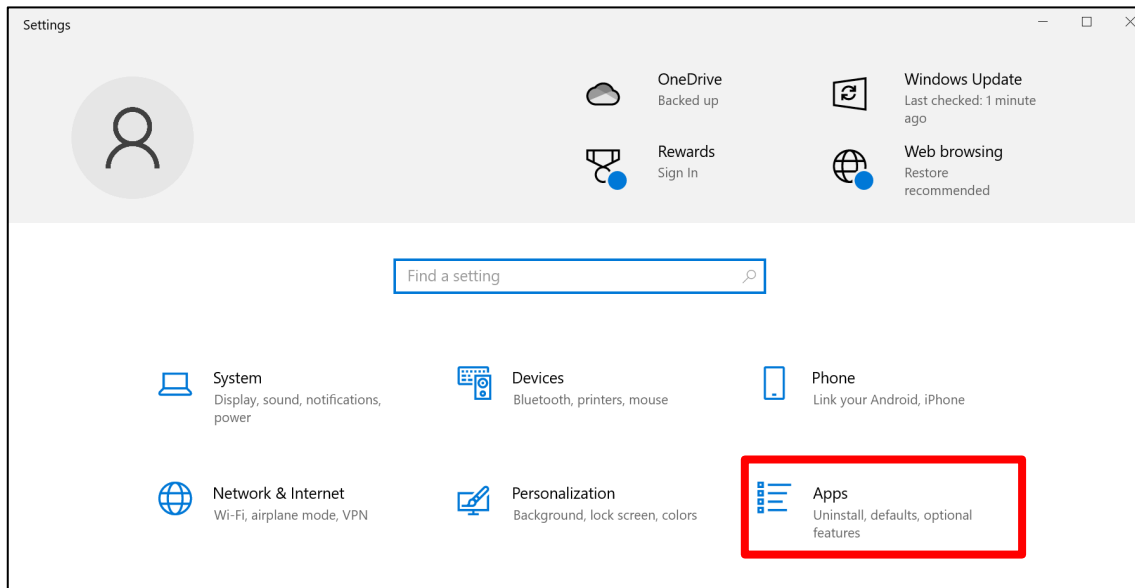
Linux-like environment for Windows which can be prepared without administrator's privilege.

Certain amount of free disk space required (100 mb – 2gb).

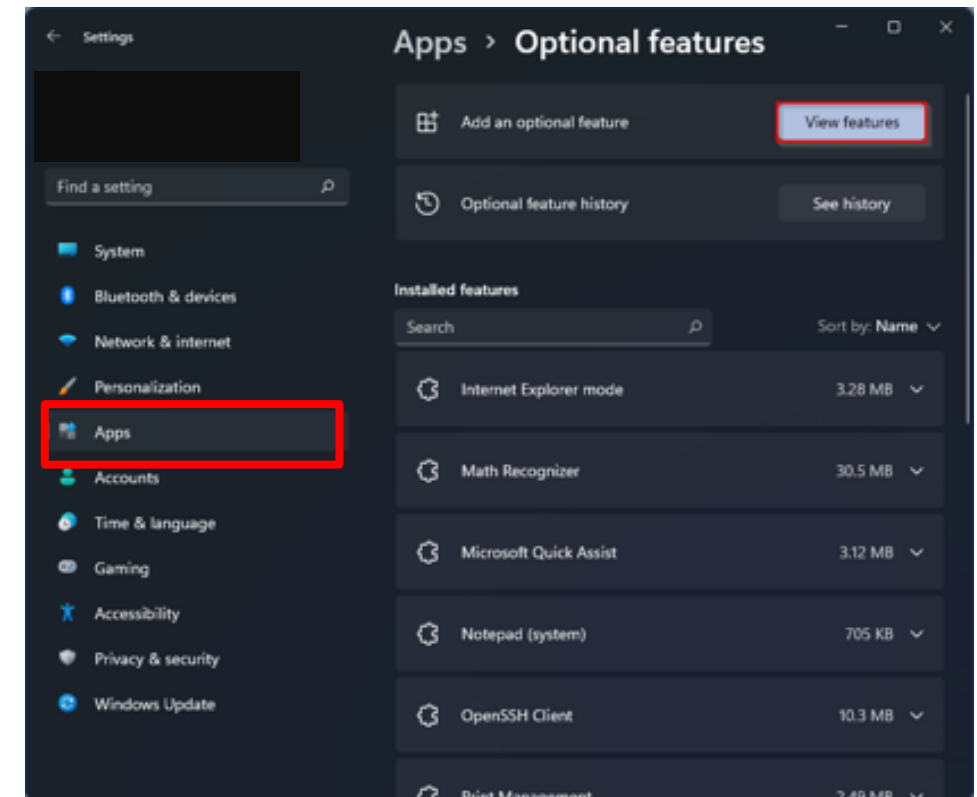
# If you use OpenSSH Client on Windows PowerShell

1. Open "Settings" ( [Windows] + i )
2. Click "**Apps**"

## Windows 10



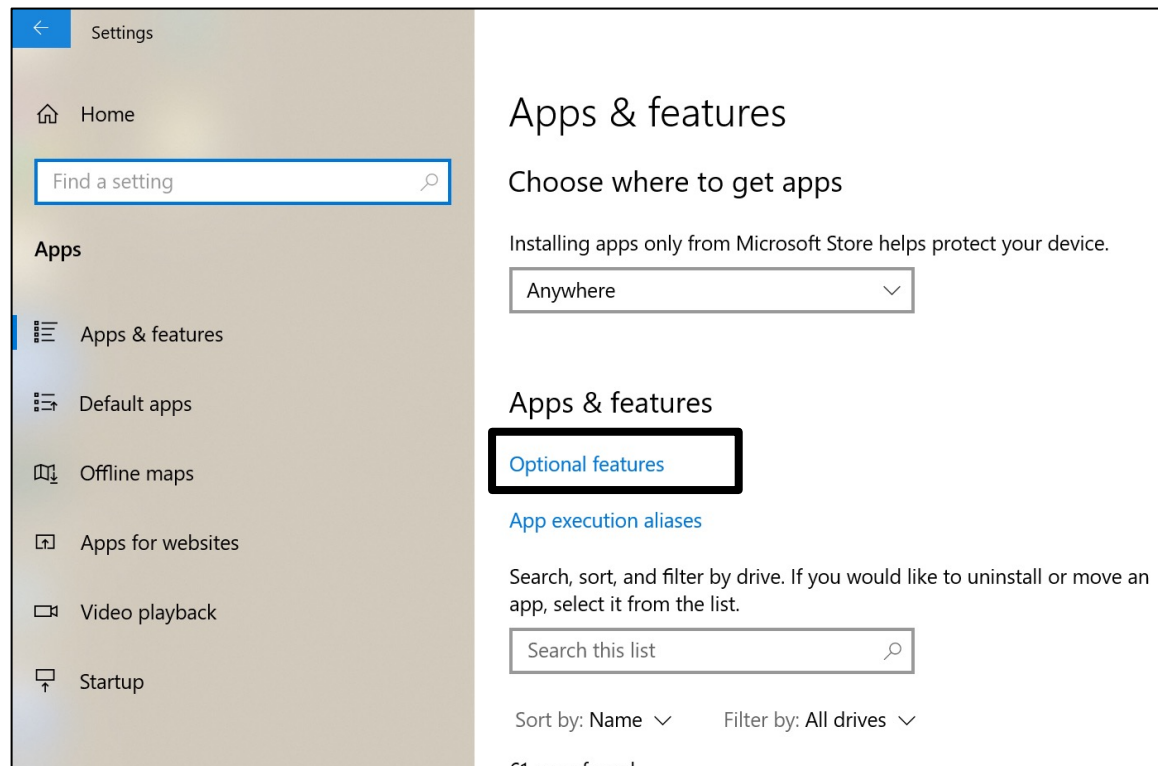
## Windows 11



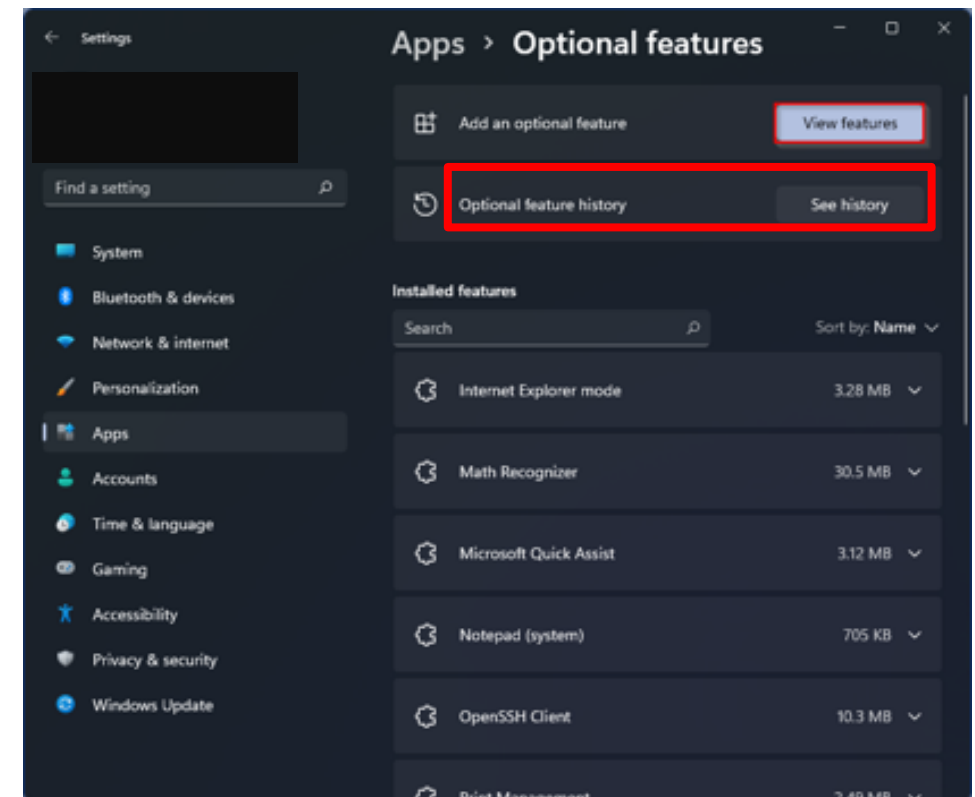
# If you use OpenSSH Client on Windows PowerShell

## 3. Install OpenSSH from "Optional features"

Windows 10



Windows 11



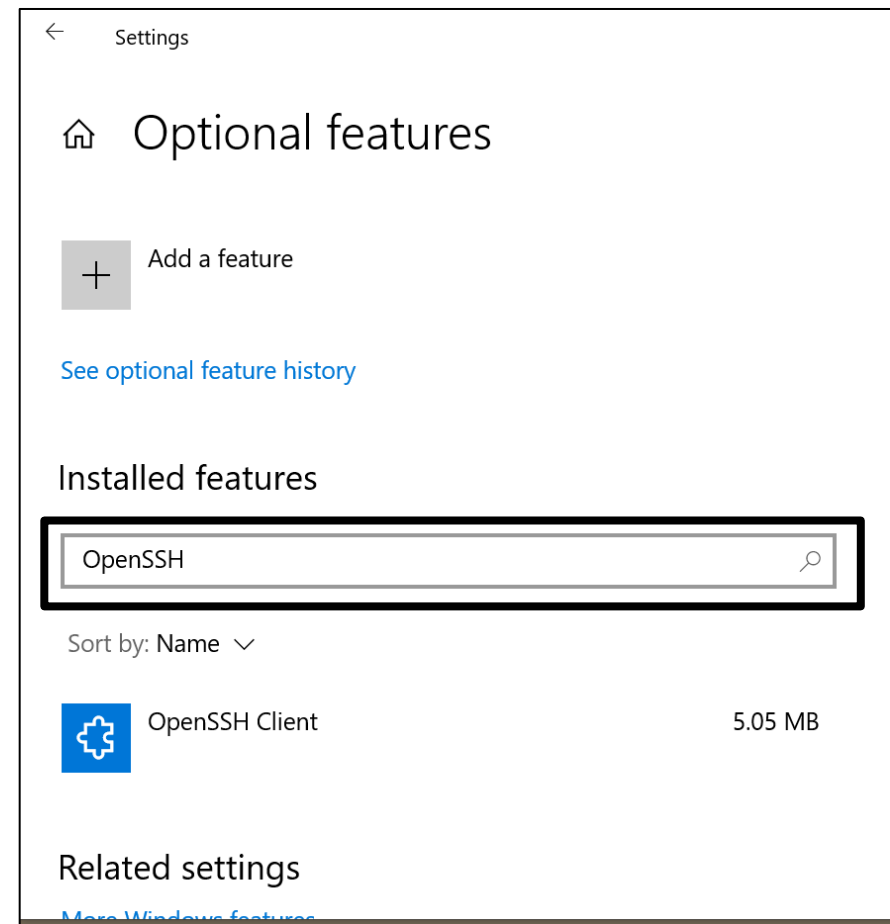
# If you use OpenSSH Client on Windows PowerShell

## 3. Install OpenSSH from "Optional features"

- If "OpenSSH Client" is included as an "installed feature", you are ready.
- If not included, install "OpenSSH Client" by clicking "Add a feature".

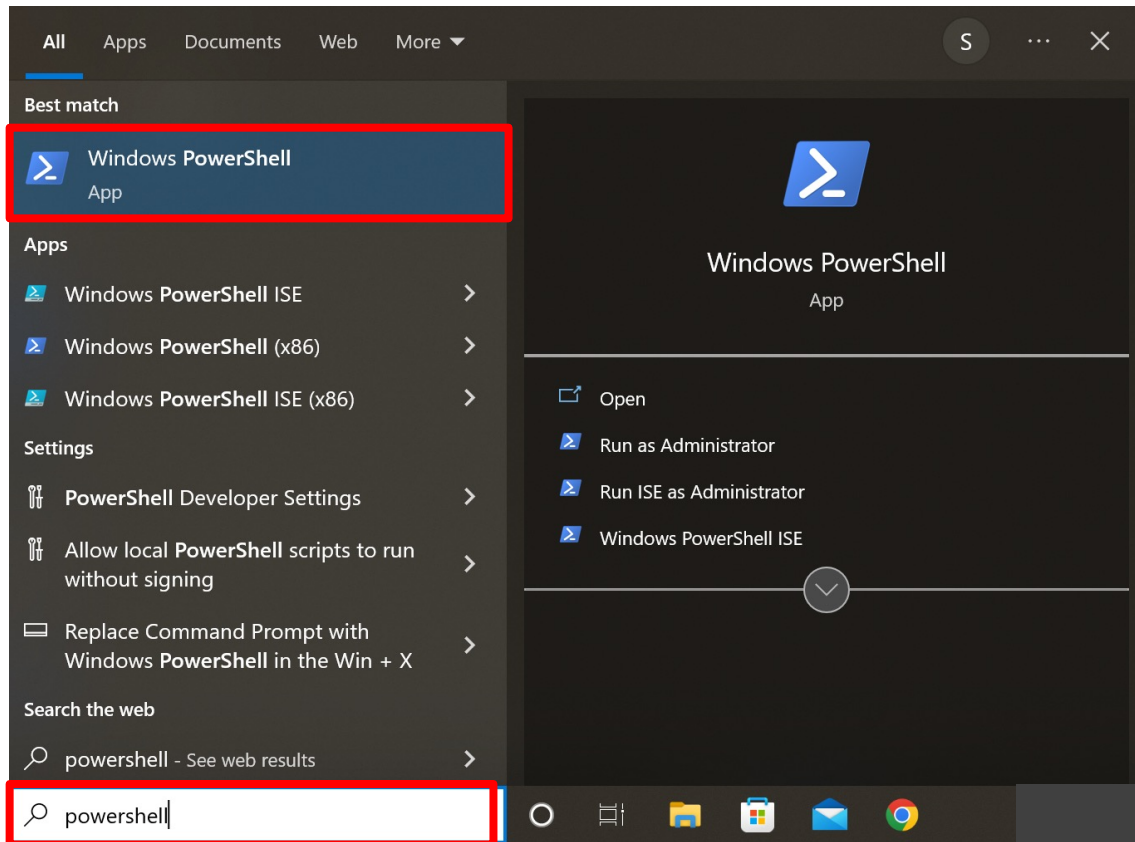
# "OpenSSH Server" is not necessary.

### Windows 10

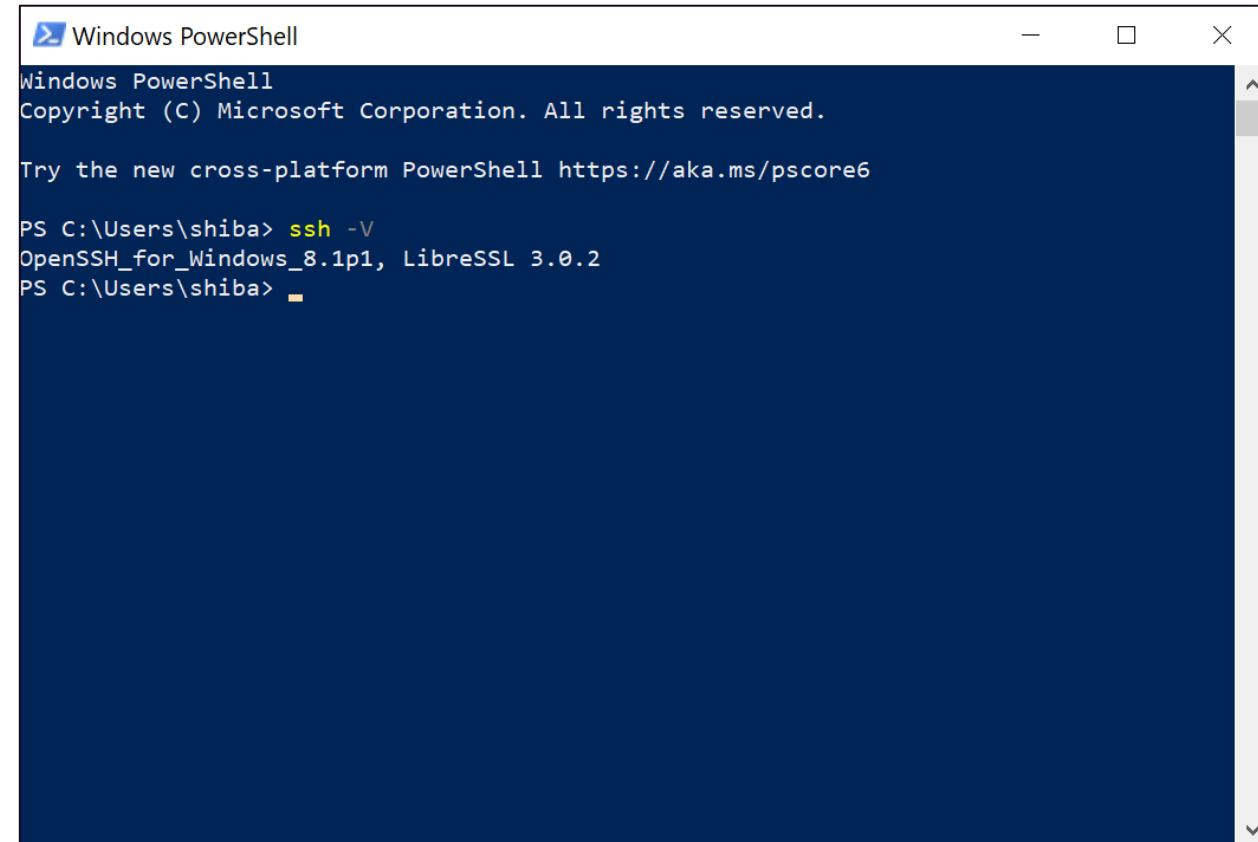


# If you use OpenSSH Client on Windows PowerShell

## 4. Launch Windows PowerShell



## 5. Verify availability of OpenSSH



# Installation of Cygwin

---

- Cygwin = Linux-like environment for Windows

- Cygwin User's Guide

<https://cygwin.com/cygwin-ug-net.html>

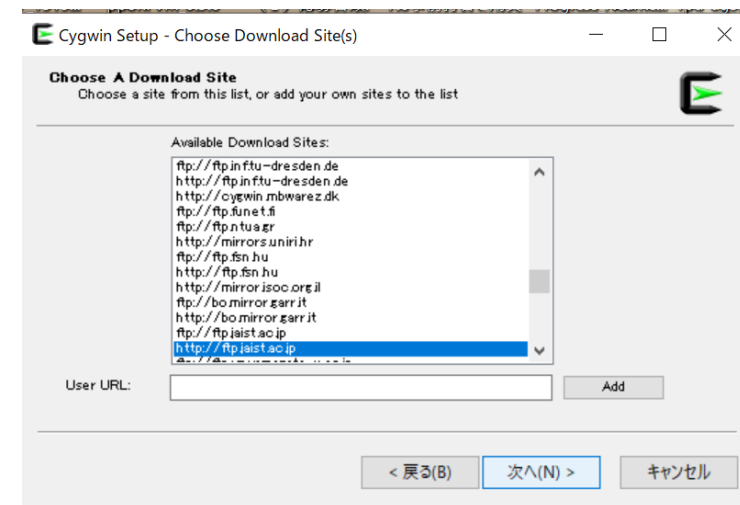
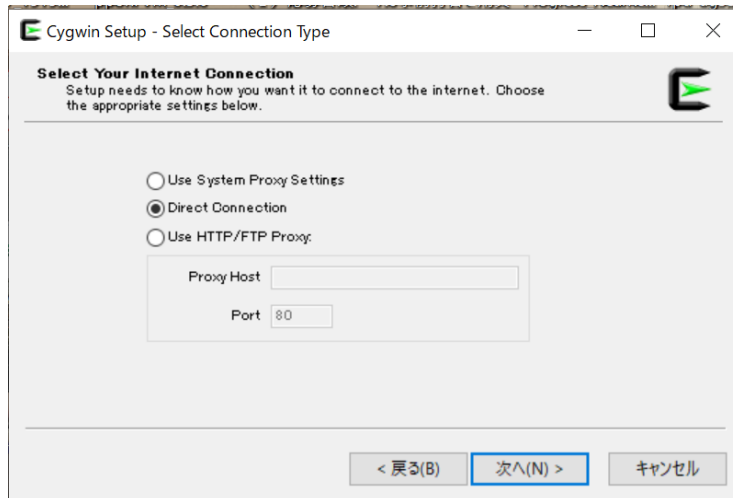
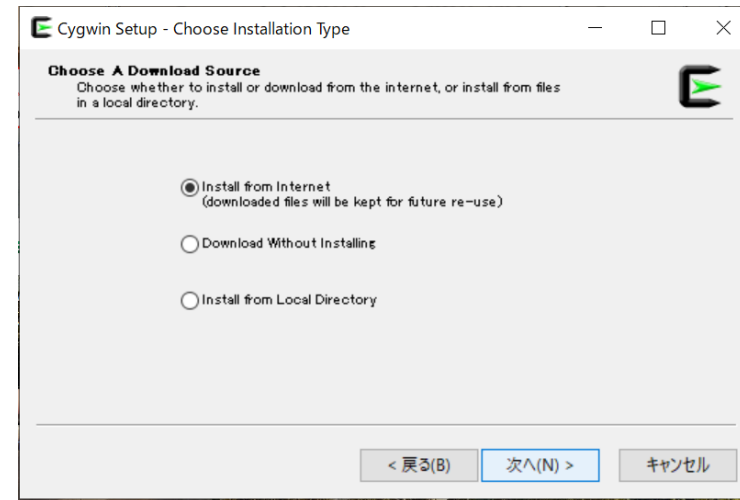
- First things to do for using Cygwin

Get installer (setup-x86\_64.exe)

Connect your computer to the internet and double click installer icon

Follow the installer instructions

# Installation of Cygwin





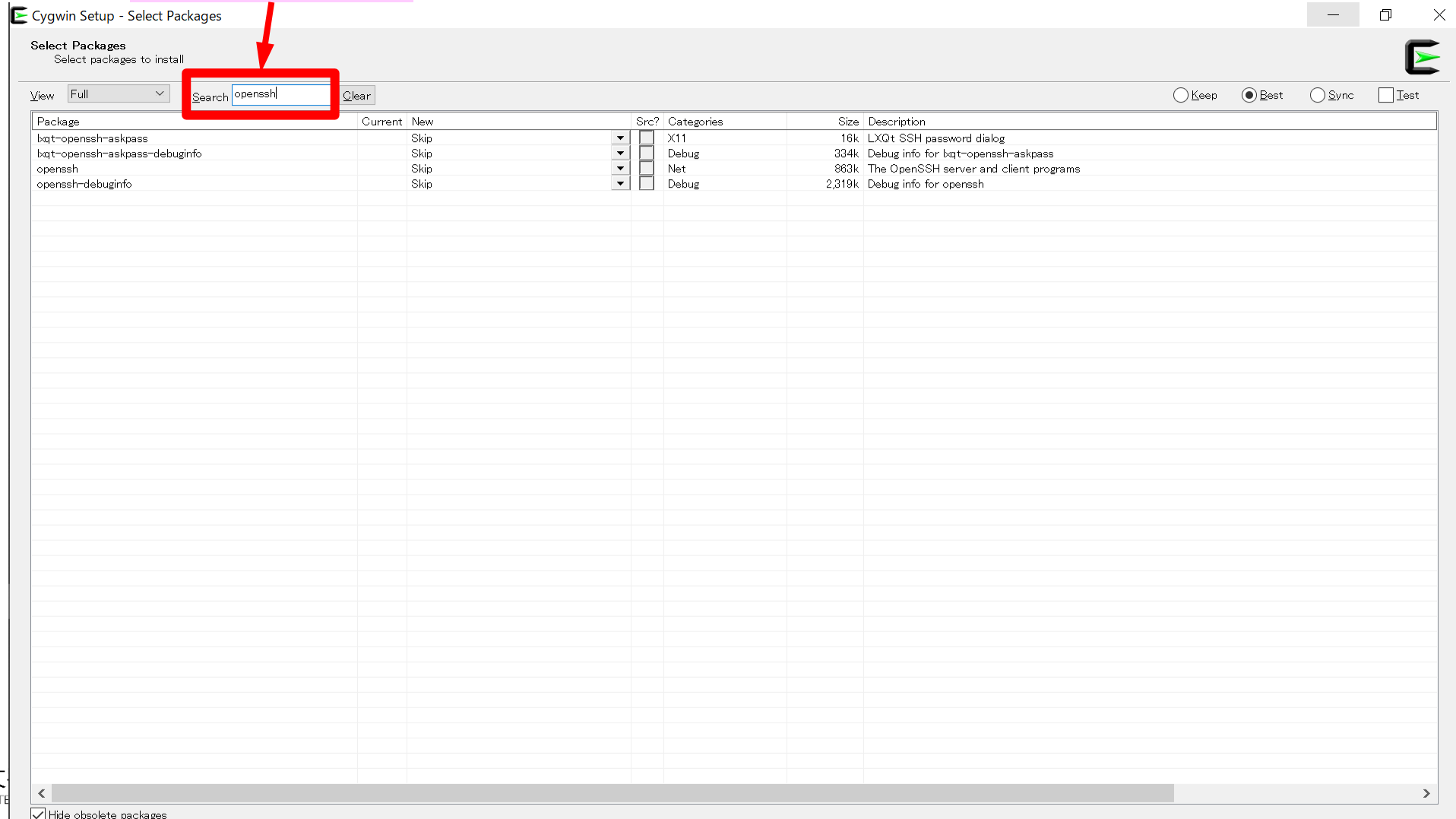
# Installation of Cygwin

- Basic packages are automatically installed as default.
- On the installer, each package can be added by double clicking the corresponding item.
- **In this workshop, the following packages are required.**
  - openssh (for all users)**
  - openssl (for all users)**

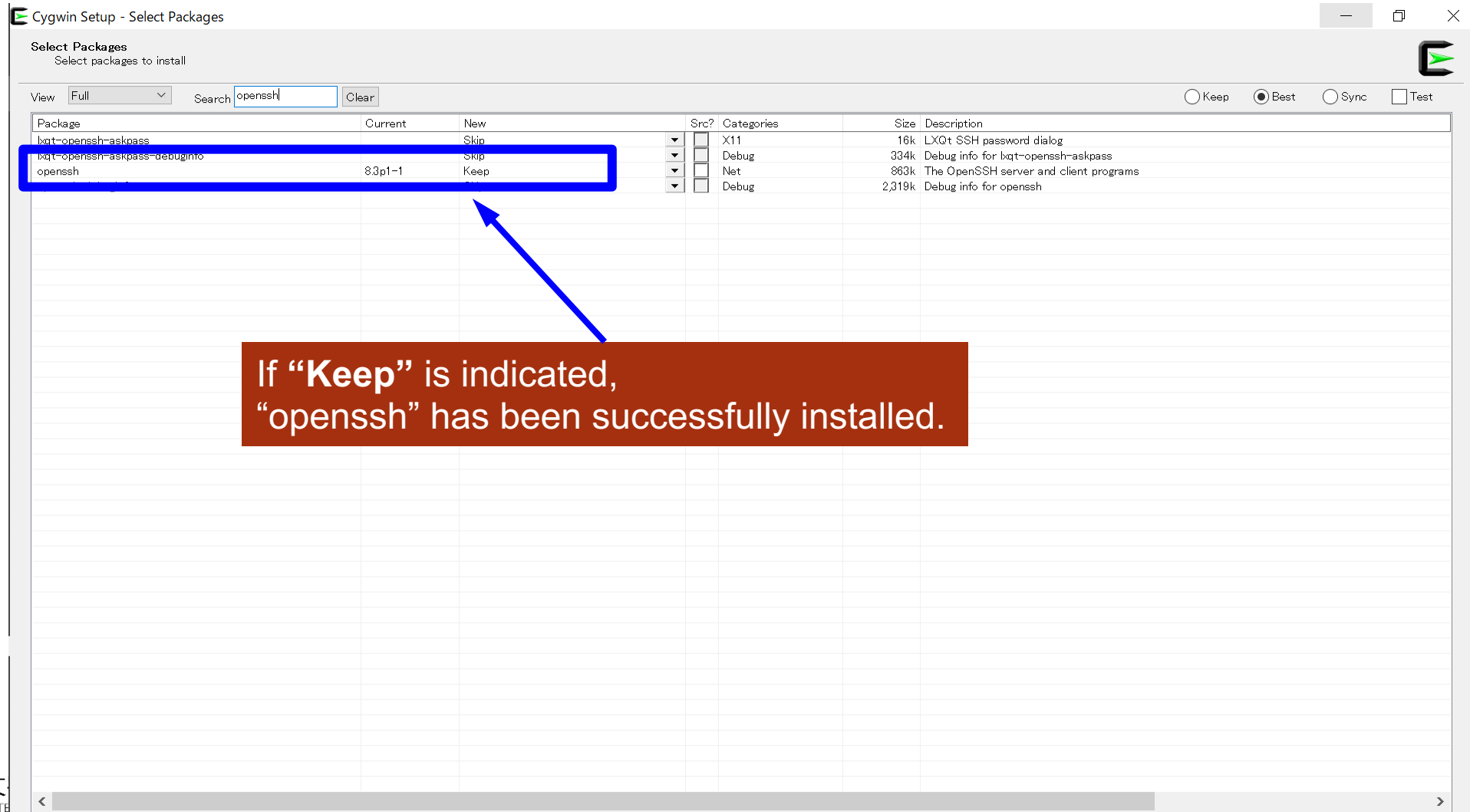
**You can check if they are installed.**

# Cygwin – check if “openssh” installed as a package (1/3)

Type “openssh”



# Cygwin – check if “openssh” installed as a package (2/3)



The screenshot shows the 'Cygwin Setup - Select Packages' window. The search bar contains 'openssh'. The table below shows the search results:

Package	Current	New	Src?	Categories	Size	Description
lxqt-openssh-askpass		Skip	<input type="checkbox"/>	X11	16k	LXQt SSH password dialog
lxqt-openssh-askpass-debuginfo		Skip	<input type="checkbox"/>	Debug	334k	Debug info for lxqt-openssh-askpass
openssh	8.3p1-1	Keep	<input type="checkbox"/>	Net	863k	The OpenSSH server and client programs
openssh-debuginfo		Skip	<input type="checkbox"/>	Debug	2,319k	Debug info for openssh

A blue box highlights the 'openssh' row, and a blue arrow points from a text box to the 'Keep' status in the 'New' column.

If “**Keep**” is indicated, “openssh” has been successfully installed.

# Cygwin – check if “openssh” installed as a package (3/3)

Cygwin Setup - Select Packages

Select packages to install

View: Full Search: openssh Clear

Keep Best Sync Test

Package	Current	New	Src?	Categories	Size	Description
bqt-openssh-askpass		Skip	<input type="checkbox"/>	X11	16k	LXQt SSH password dialog
bqt-openssh-askpass-debuginfo		Skip	<input type="checkbox"/>	Debug	334k	Debug info for bqt-openssh-askpass
openssh		Skip	<input type="checkbox"/>	Net	863k	The OpenSSH server and client programs
openssh-debuginfo		Skip	<input type="checkbox"/>	Debug	2,319k	Debug info for openssh

If “Skip”, the package has not yet been installed

In the subsequent slides, we will introduce how to “openSSH” manually

Hide obsolete packages

# Install "openssh" (1/3)

Cygwin Setup - Select Packages

Select Packages  
Select packages to install

View Full Search openssh Clear

Keep  Best  Sync  Test

Package	Current	New	Src?	Categories	Size	Description
bqt-openssh-askpass		Skip	<input type="checkbox"/>	X11	16k	LXQt SSH password dialog
bqt-openssh-askpass-debuginfo		Skip	<input type="checkbox"/>	Debug	334k	Debug info for bqt-openssh-askpass
openssh		Skip	<input type="checkbox"/>	Net	863k	The OpenSSH server and client programs
openssh-debuginfo		Skip	<input type="checkbox"/>	Debug	2,319k	Debug info for openssh

Click the pull-down menu

Hide obsolete packages

# Install "openssh" (2/3)

Cygwin Setup - Select Packages

Select Packages  
Select packages to install

View: Full Search: openssh Clear

Keep  Best  Sync  Test

Package	Current	New	Src?	Categories	Size	Description
bqt-openssh-askpass		Skip	<input type="checkbox"/>	X11	16k	LXQt SSH password dialog
bqt-openssh-askpass-debuginfo		Skip	<input type="checkbox"/>	Debug	334k	Debug info for bqt-openssh-askpass
openssh		Skip	<input type="checkbox"/>	Net	863k	The OpenSSH server and client programs
openssh-debuginfo		Skip	<input type="checkbox"/>		2,319k	Debug info for openssh

Uninstall  
✓ Skip  
8.1p1-1  
8.2p1-1  
8.3p1-1

**Choose an appropriate version (usually the latest)**

Hide obsolete packages

# Install "openssh" (3/3)

Cygwin Setup - Select Packages

Select Packages  
Select packages to install

View Full Search openssh Clear  Keep  Best  Sync  Test

Package	Current	New	Src?	Categories	Size	Description
lxdm-openssh-askpass		Skip	<input type="checkbox"/>	X11	16k	LXQt SSH password dialog
lxdm-openssh-askpass-debuginfo		Skip	<input type="checkbox"/>	Debug	334k	Debug info for lxdm-openssh-askpass
openssh		8.3p1-1	<input type="checkbox"/>	Net	863k	The OpenSSH server and client programs
openssh-debuginfo		Skip	<input type="checkbox"/>	Debug	2,319k	Debug info for openssh

If version number is indicated instead of "Skip", ready for installation of "openSSH".  
((note that installation has not yet finished))

Click "Next", then installation starts

< 戻る(B) 次へ(N) > キャンセル

# “ssh-keygen (OpenSSH)” : confirm installation

```
$ ssh-keygen --h
ssh-keygen: unknown option -- -
usage: ssh-keygen [-q] [-b bits] [-C comment] [-f output_keyfile] [-m format]
                 [-t dsa | ecdsa | ecdsa-sk | ed25519 | ed25519-sk | rsa]
                 [-N new_passphrase] [-O option] [-w provider]
ssh-keygen -p [-f keyfile] [-m format] [-N new_passphrase]
             [-P old_passphrase]
ssh-keygen -i [-f input_keyfile] [-m key_format]
ssh-keygen -e [-f input_keyfile] [-m key_format]
ssh-keygen -y [-f input_keyfile]
(...)
ssh-keygen -L [-f input_keyfile]
ssh-keygen -A [-f prefix_path]
ssh-keygen -k -f krl_file [-u] [-s ca_public] [-z version_number]
             file ...
ssh-keygen -Q -f krl_file file ...
ssh-keygen -Y find-principals -s signature_file -f allowed_signers_file
ssh-keygen -Y check-novalidate -n namespace -s signature_file
ssh-keygen -Y sign -f key_file -n namespace file ...
ssh-keygen -Y verify -f allowed_signers_file -I signer_identity
             -n namespace -s signature_file [-r revocation_file]
```



# “ssh-keygen (OpenSSH)” : confirm installation

```
$ ssh  
usage: ssh [-46AaCfGgKkMnqsTtVvXxYy] [-B bind_interface]  
          [-b bind_address] [-c cipher_spec] [-D [bind_address:]port]  
          [-E log_file] [-e escape_char] [-F configfile] [-I pkcs11]  
          [-i identity_file] [-J [user@]host[:port]] [-L address]  
          [-l login_name] [-m mac_spec] [-O ctl_cmd] [-o option] [-p port]  
          [-Q query_option] [-R address] [-S ctl_path] [-W host:port]  
          [-w local_tun[:remote_tun]] destination [command]
```

# Mac OS (1)

On Mac OS 10.12 or later, "Terminal" is pre-installed as a utility application, which can be used for connecting to supercomputers.

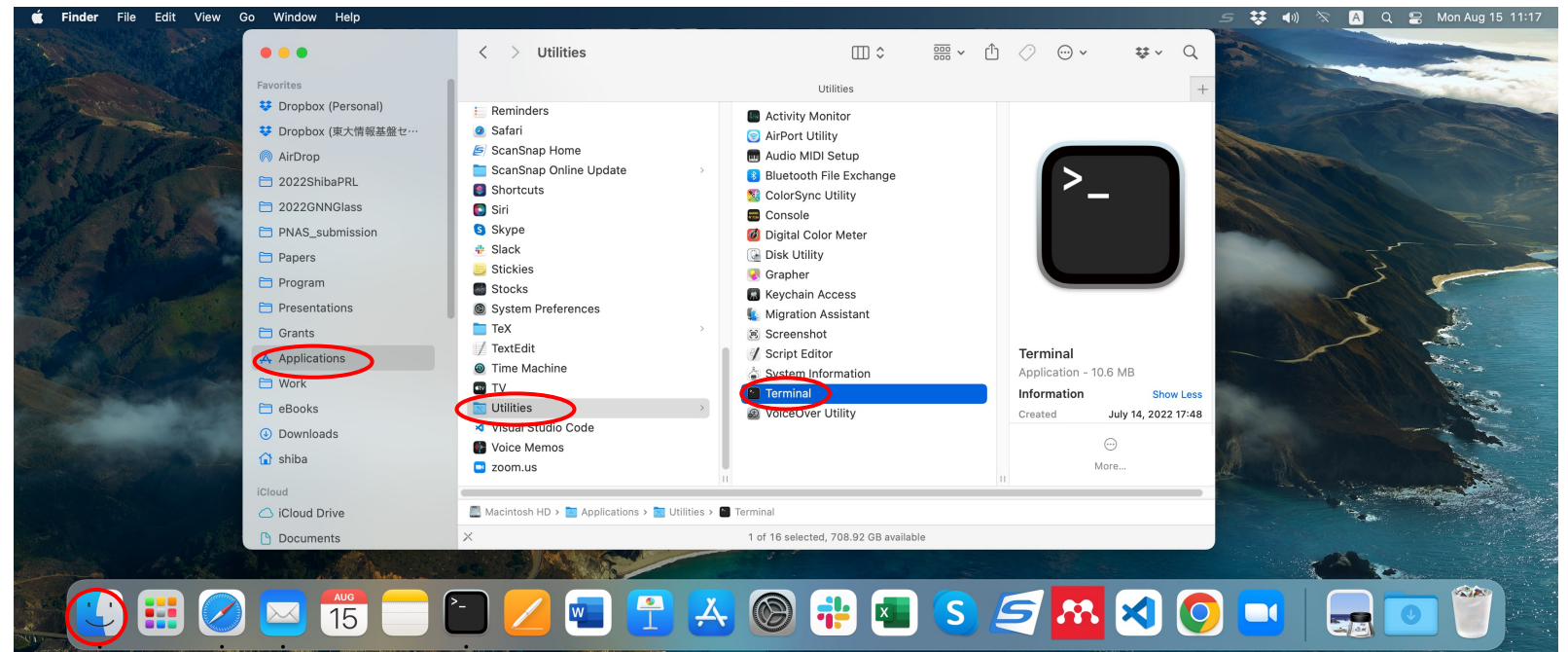
## How to launch

"Finder"

→ "Applications"

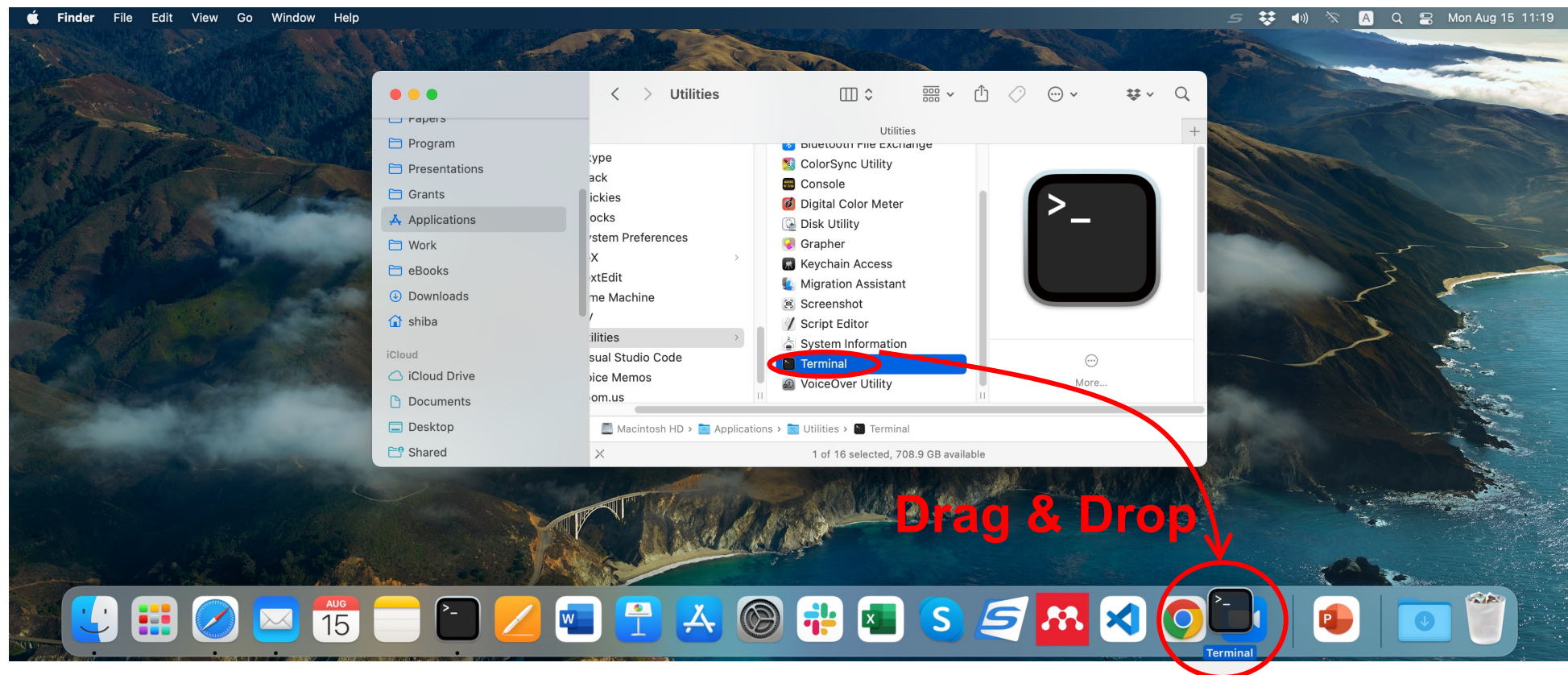
→ "Utilities"

→ "Terminal"



## Mac OS (2)

It is recommended to add Terminal into "Dock" so that it can be launched at any time.

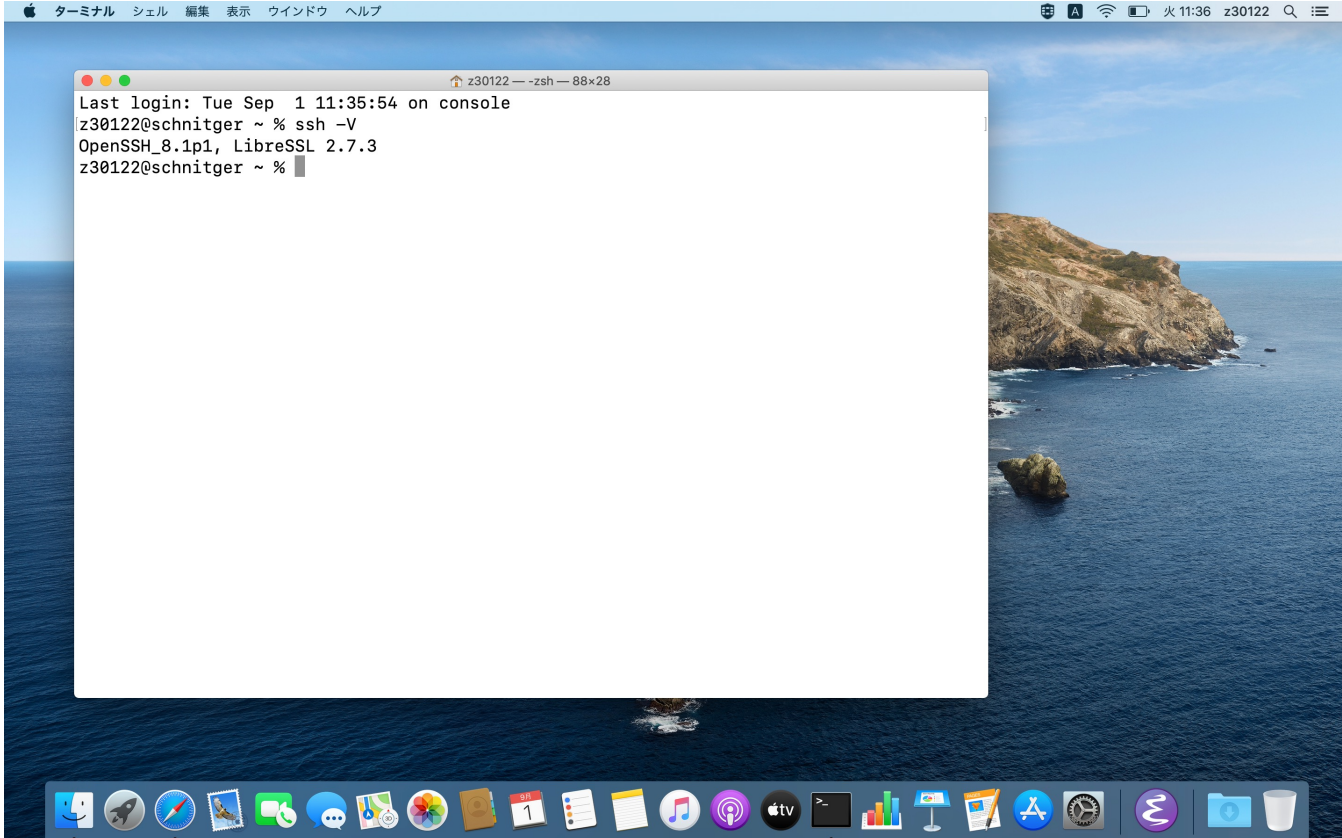




## Mac OS (3)

When launched, command line is displayed.  
Therein you can verify availability of OpenSSH  
by typing

**> ssh -V**

A screenshot of a Mac OS desktop environment. A terminal window is open in the center, displaying the output of the 'ssh -V' command. The terminal title bar reads 'z30122 -- zsh -- 88x28'. The output text is: 'Last login: Tue Sep 1 11:35:54 on console', 'z30122@schnitger ~ % ssh -V', 'OpenSSH\_8.1p1, LibreSSL 2.7.3', and 'z30122@schnitger ~ %'. The desktop background is a scenic view of a rocky coastline with blue water. The dock at the bottom contains various application icons including Finder, Safari, Mail, Messages, Photos, Music, and others. The top of the screen shows the menu bar with 'ターミナル' (Terminal) selected, and system status icons on the right including the clock showing 11:36 and the user name 'z30122'.

# Linux OS

---

If you are experienced, you can participate in the workshop using Linux. However, please try to solve any technical troubles by yourself whenever possible.

Please install openSSH and openSSL in advance.

- Ubuntu (v18.04 and later), Debian (v9 and later)
  - > `sudo apt install openssh-server openssh-client`
  
- Red Hat · CentOS (v6 and later), Fedora (v22 and later)
  - > `yum install openssh-server openssh-client`