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Introduction to Linux Server



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Outline

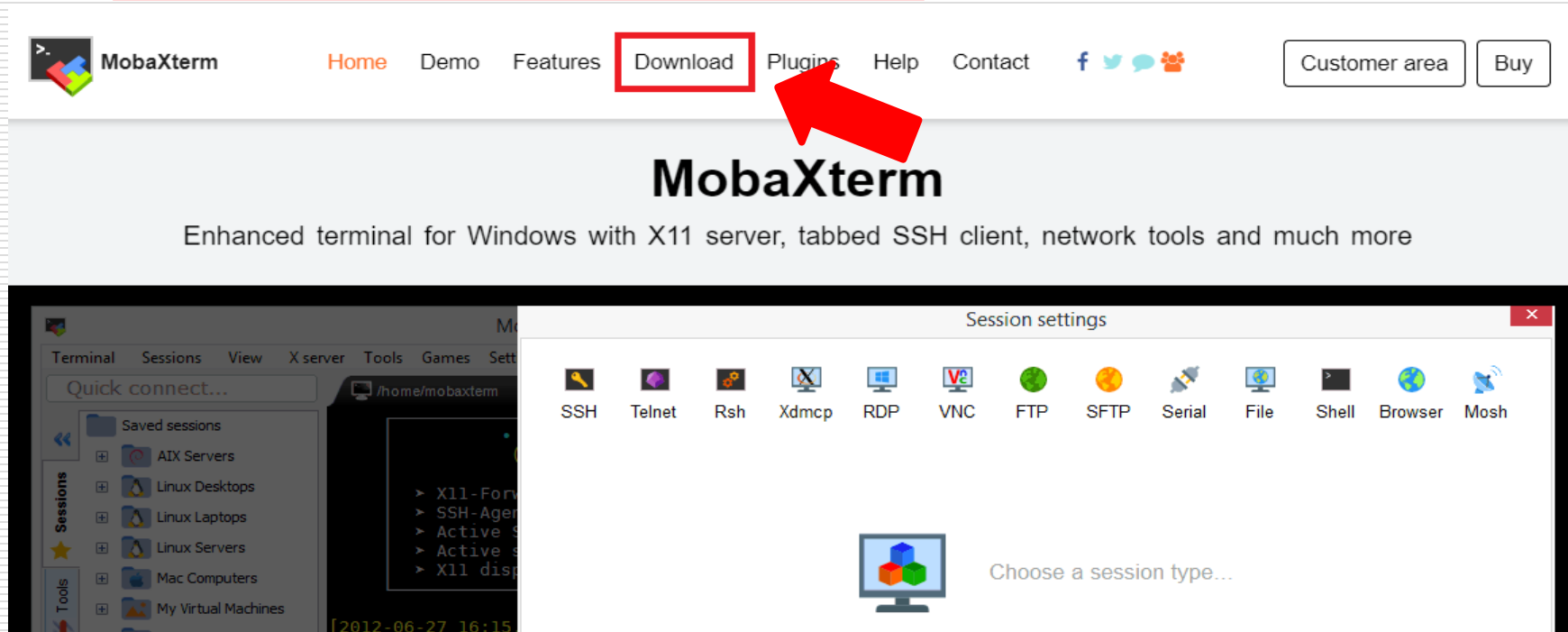
- Installing MobaXterm
- Basic Linux Commands



Installing MobaXterm

Installing MobaXterm (1/3)

- MobaXterm:
 - Enhanced terminal for Windows with X11 server, [tabbed SSH client](#), network tools and much more
- Download from MobaXterm official website
 - <https://mobaxterm.mobatek.net/>




Installing MobaXterm (2/3)

- Download **Home Edition**

Home Edition

Free

Full **X server** and **SSH** support
Remote desktop (RDP, VNC, Xdmcp)
Remote terminal (SSH, telnet, rlogin, Mosh)
X11-Forwarding
Automatic SFTP browser
Master password protection
Plugins support
Portable and installer versions
Full documentation
Max. **12** sessions
Max. **2** SSH tunnels
Max. **4** macros
Max. **360** seconds for Tftp, Nfs and Cr

 Download now


Professional Edition

\$69 / 49€ per user*

* Excluding tax. Volume discounts [available](#)

Every feature from Home Edition +

- Customize your startup message and logo
- Modify your profile script
- Remove unwanted games, screensaver or tools
- Unlimited number of sessions
- Unlimited number of tunnels and macros
- Unlimited run time for network daemons
- Enhanced security settings
- 12-months updates included
- Deployment inside company
- Lifetime right to use

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Installing MobaXterm (3/3)

- Choose [Portable edition](#) or [installer edition](#) according to your preferences



MobaXterm

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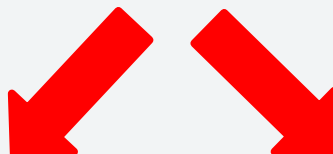
MobaXterm Home Edition

Download MobaXterm Home Edition (current version):



MobaXterm Home Edition v20.2

[\(Portable edition\)](#)

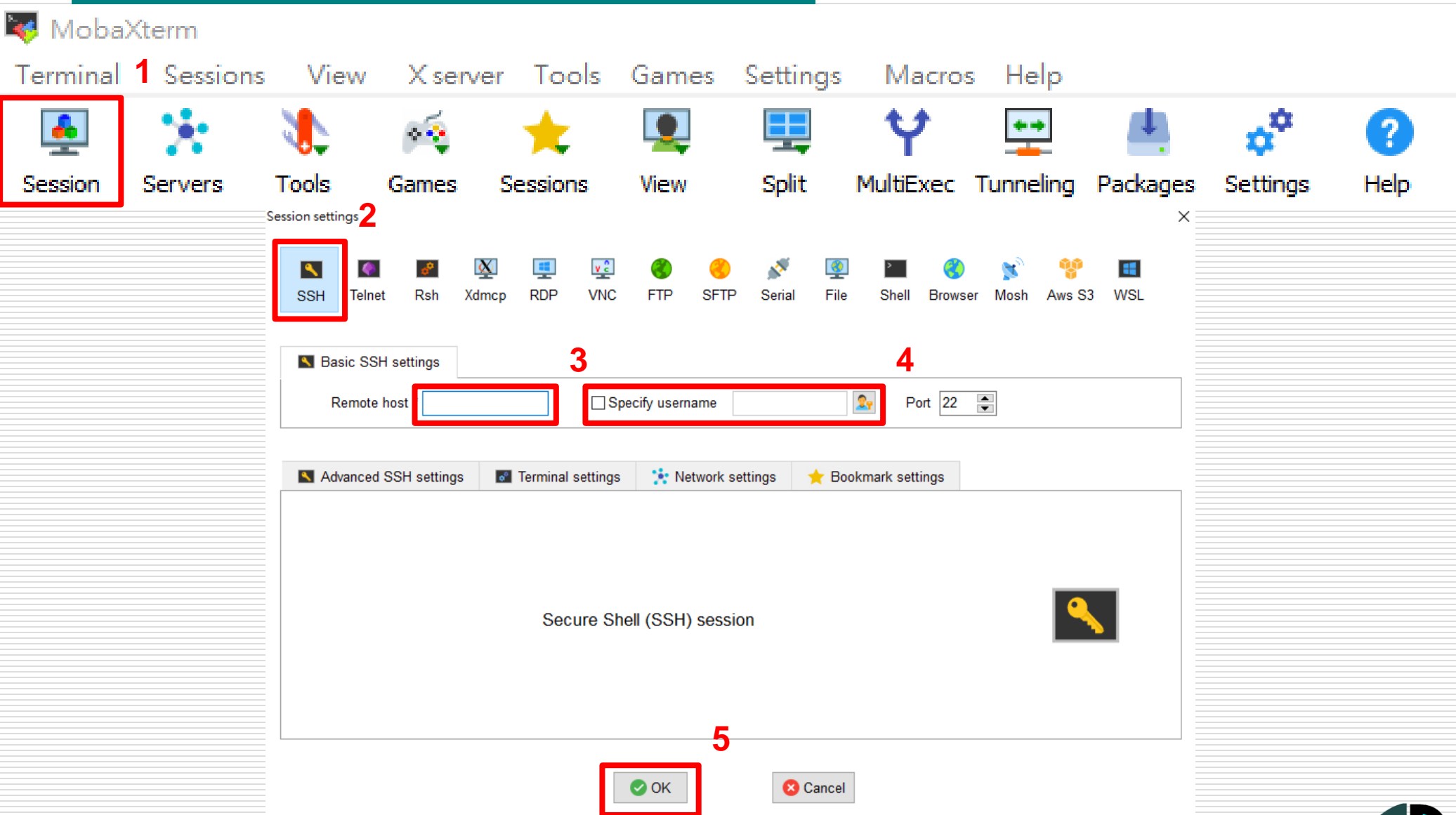


MobaXterm Home Edition v20.2

[\(Installer edition\)](#)



Connect to Server with MobaXterm (1/3)



Connect to Server with MobaXterm (2/3)

- Server IP (Remote host) is
 - 140.113.225.241 (eng01)
 - 140.113.225.242 (eng02, main data storage)
 - 140.113.225.243 (eng03)
- Accounts are announced in new e3
- Default password is “adar”
- Remember to **change password** after first time login
 - \$ *passwd*

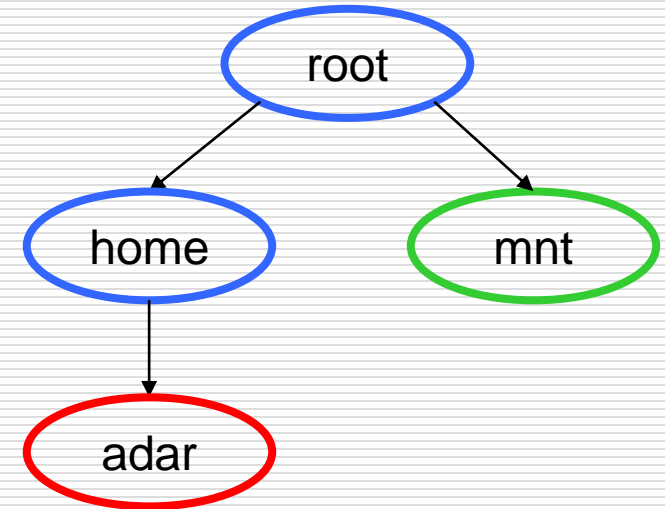


Basic Linux Commands

Paths (1/2)

- Absolute path
 - Specifying location from root directory
 - › */home/adar*
- Relative path
 - Specifying location related to current working directory
 - › *../home/adar*
- Print working directory
 - \$ *pwd*
 - › */root/mnt*

```
(base) [M108wcchou@eng05 ~]$ pwd
/home/M108wcchou
```

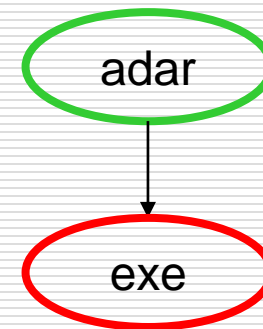


Green: Current working directory
Red: Target directory

Paths (2/2)

- “~” stands for the home directory
- “..” stands for the parent directory
- “.” stands for the current working directory
- “./**exe**” equals to “exe” when specifying location
 - “.” can be omitted when specifying location
- But only “./**exe**” can be used to run binary files

```
(base) [M108wcchou@eng05 week_1]$ ls
main  main.cpp
(base) [M108wcchou@eng05 week_1]$ main
bash: main: command not found...
(base) [M108wcchou@eng05 week_1]$ ./main
Hello world!
```



Manipulating Directories and Files (1/3)

- Change the working directory
 - \$ **cd** *[path]* (Absolute path or relative path)

```
(base) [M108wcchou@eng05 ~]$ cd AI_Training
AI_Training/      AI_Training_2020/  AI_Training_Week6/
(base) [M108wcchou@eng05 ~]$ cd AI_Training_2020/
(base) [M108wcchou@eng05 AI_Training_2020]$
```

Press “Tab”: show all possible

- List directories and files
 - \$ **ls** *[option] [path]*
 - › “-l” : Show detailed information
 - › “-a” : Show hidden files and directories

```
(base) [M108wcchou@eng05 AI_Training_2020]$ ls .
week_1
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
week_1
(base) [M108wcchou@eng05 AI_Training_2020]$ ls -l
total 8
drwxrwxr-x. 2 M108wcchou M108wcchou 4096 Jul  9 12:50 week_1
(base) [M108wcchou@eng05 AI_Training_2020]$ ls -a
.  ..  week_1
(base) [M108wcchou@eng05 AI_Training_2020]$ ls -al
total 24
drwxrwxr-x.  3 M108wcchou M108wcchou 4096 Jul  9 2020 .
drwx----- 27 M108wcchou M108wcchou 4096 Jul  9 16:19 ..
drwxrwxr-x.  2 M108wcchou M108wcchou 4096 Jul  9 12:50 week_1
```

Fill in “.” automatically

Manipulating Directories and Files (2/3)

- Copy files or directories
 - \$ ***cp [option] [source] [target]***
 - › “-r” : Recursive copy, using for copying directory

```
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
test_1.txt  week_1
(base) [M108wcchou@eng05 AI_Training_2020]$ cp test_1.txt test_2.txt
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
test_1.txt  test_2.txt  week_1
(base) [M108wcchou@eng05 AI_Training_2020]$ cp -r week_1 week_2
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
test_1.txt  test_2.txt  week_1  week_2
```

- Move files or directories
 - \$ ***mv [source] [target]***

```
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
test_1.txt  test_2.txt  week_1  week_2
(base) [M108wcchou@eng05 AI_Training_2020]$ cd week_2
(base) [M108wcchou@eng05 week_2]$ ls
main  main.cpp
(base) [M108wcchou@eng05 week_2]$ mv ../test_2.txt ./
(base) [M108wcchou@eng05 week_2]$ ls
main  main.cpp  test_2.txt
```

Manipulating Directories and Files (3/3)

- Remove files or directories
 - \$ ***rm [option] [file or dir]***
 - › “-r”: Recursive remove, using for removing directory

```
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
test_1.txt  week_1  week_2
(base) [M108wcchou@eng05 AI_Training_2020]$ rm test_1.txt
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
week_1  week_2
(base) [M108wcchou@eng05 AI_Training_2020]$ rm -r week_2
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
week_1
```

- Create directory
 - \$ ***mkdir [directory]***

```
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
week_1  week_2
(base) [M108wcchou@eng05 AI_Training_2020]$ mkdir week_3
(base) [M108wcchou@eng05 AI_Training_2020]$ ls
week_1  week_2  week_3
```



File Editor

- Command line interface file editor
 - \$ ***vim*** ***[file]*** : Edit file in CLI
 - › “**i**” : Go to insert mode (Press “**Esc**” to quit insert mode)
 - › “**V**” : Visual line mode
 - › “**:w**” : Save file
 - › “**:q**” : Exit vim
 - › “**:q!**” : Exit vim without saving file
- Graphical user interface
 - \$ ***gedit*** ***[file]*** : Edit file in GUI
- View the content of a file on the terminal
 - \$ ***cat*** ***[file]***

```
(base) [test_245@eng05 ~]$ cat test.sh
#!/bin/bash
echo "Hello world!"
```



Compile & Execute C++ Code

- Compile C++ code file into execute file:
 - \$ ***g++ <file> -O3***
 - › Compile <file> into a.out
 - \$ ***g++ <file> -o <execute file> -O3***
 - › Compile <file> into <execute file>
- Execute:
 - \$ ***./<execute file>***

```
(base) [M108wcchou@eng02 ~/Algorithm_2020/Lab_1]$ g++ main.cpp -O3
(base) [M108wcchou@eng02 ~/Algorithm_2020/Lab_1]$ ./a.out
Hello world!
(base) [M108wcchou@eng02 ~/Algorithm_2020/Lab_1]$ g++ main.cpp -o main -O3
(base) [M108wcchou@eng02 ~/Algorithm_2020/Lab_1]$ ./main
Hello world!
```



Thank you