

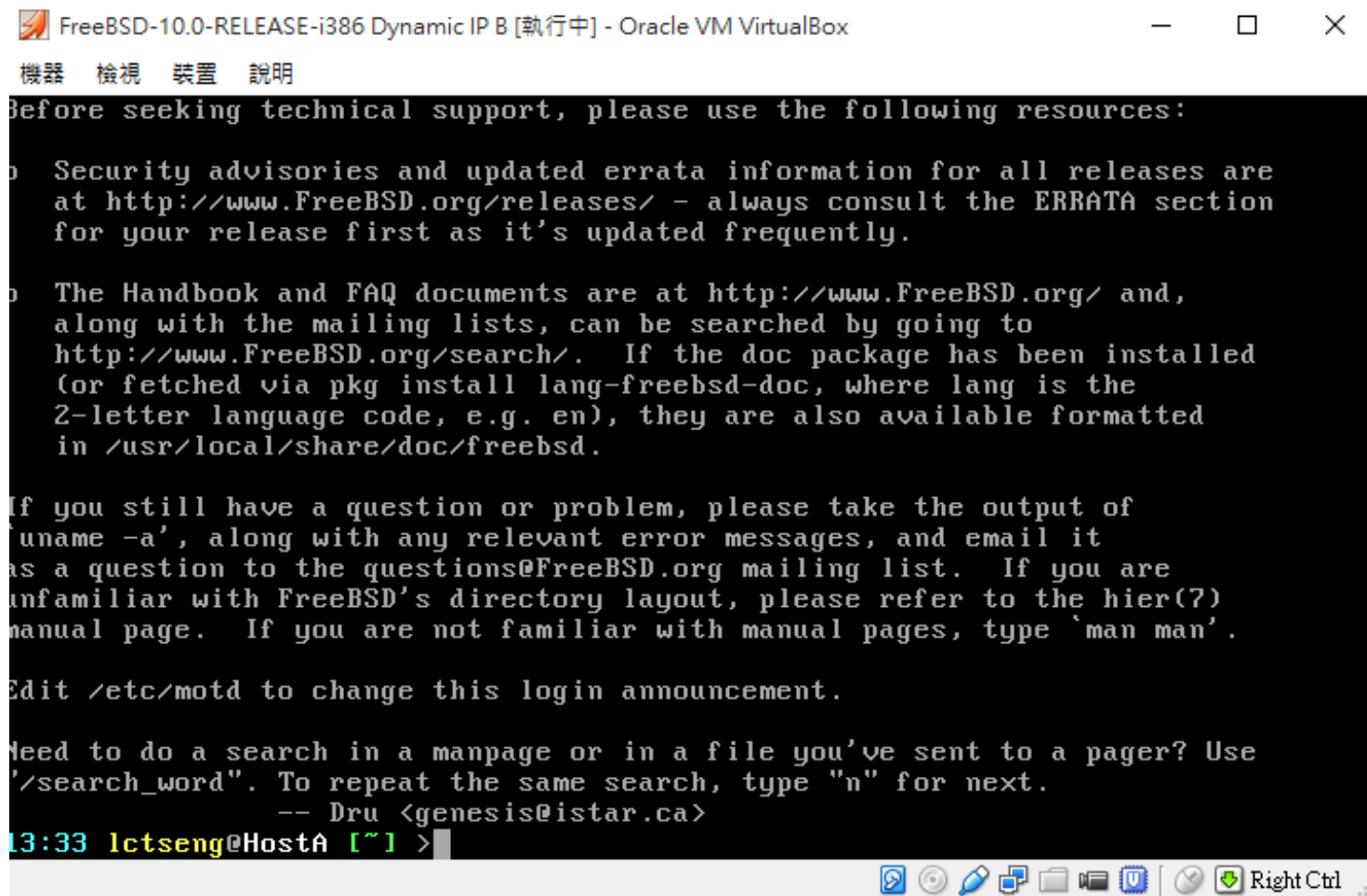


Port Forwarding and Shell Login Essentials

lctseng

The Console

❑ Screen you see when installing the system



The screenshot shows a terminal window titled "FreeBSD-10.0-RELEASE-i386 Dynamic IP B [執行中] - Oracle VM VirtualBox". The terminal output displays instructions for seeking technical support, including links to security advisories, the handbook, and FAQ documents. It also provides information on how to search the manpage and how to repeat searches. The prompt shows the user is logged in as "lctseng" on "HostA".

```
FreeBSD-10.0-RELEASE-i386 Dynamic IP B [執行中] - Oracle VM VirtualBox
機器 檢視 裝置 說明
Before seeking technical support, please use the following resources:

o Security advisories and updated errata information for all releases are
  at http://www.FreeBSD.org/releases/ - always consult the ERRATA section
  for your release first as it's updated frequently.

o The Handbook and FAQ documents are at http://www.FreeBSD.org/ and,
  along with the mailing lists, can be searched by going to
  http://www.FreeBSD.org/search/.  If the doc package has been installed
  (or fetched via pkg install lang-freebsd-doc, where lang is the
  2-letter language code, e.g. en), they are also available formatted
  in /usr/local/share/doc/freebsd.

If you still have a question or problem, please take the output of
'uname -a', along with any relevant error messages, and email it
as a question to the questions@FreeBSD.org mailing list.  If you are
unfamiliar with FreeBSD's directory layout, please refer to the hier(7)
manual page.  If you are not familiar with manual pages, type 'man man'.

Edit /etc/motd to change this login announcement.

Need to do a search in a manpage or in a file you've sent to a pager? Use
'/search_word'.  To repeat the same search, type "n" for next.
-- Dru <genesis@istar.ca>
13:33 lctseng@HostA [~] >
```

The Console

- ❑ The monitor of a computer
- ❑ Enter commands by your hands
- ❑ No interaction with your host OS
 - Host OS: running VirtualBox/VMware
 - No select, copy, paste, etc.

Using Remote Shell Login

❑ Using Putty

- A secure shell login(ssh) client
- Allows you to login into Unix-like system

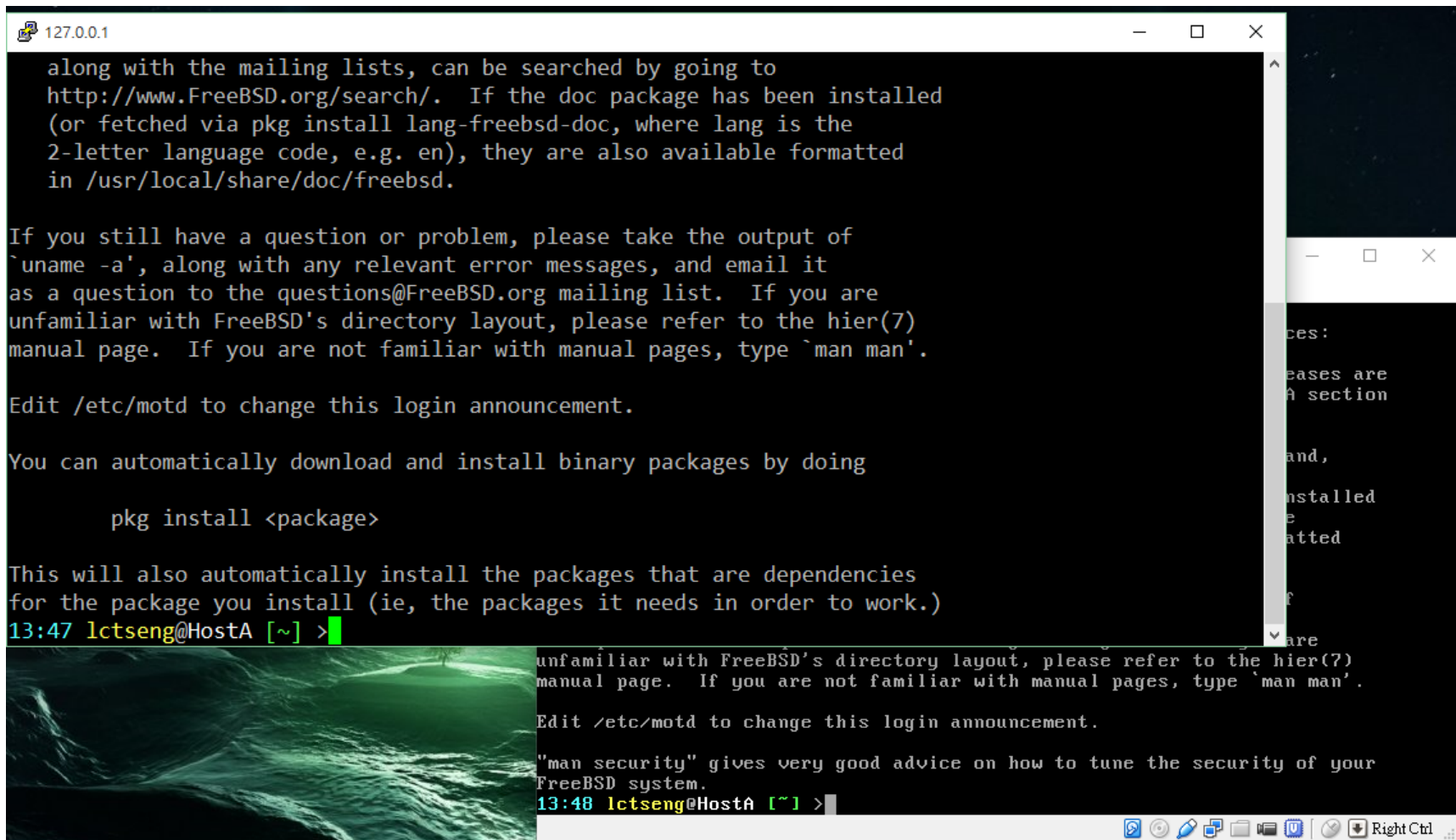
❑ Like connecting to with CS workstations

```
98668 9- S+ 18:49.67 mosh-server new -s -c 8 -l LANG=C.UTF-8
98669 11 Is 0:00.06 -tcsh (tcsh)
98681 11 S+ 0:22.39 ssh linuxhome
19968 29 Is 0:00.05 /bin/tcsh -l
52362 29 I+ 0:00.07 ssh csduty
38118 40 I+ 0:00.13 ssh csduty
75975 40 Is 0:00.06 /bin/tcsh -l
26282 41 I+ 0:00.09 ruby21: irb (ruby21)
76041 41 Is 0:00.04 /bin/tcsh -l
76107 42 Is 0:00.05 /bin/tcsh -l
92356 42 I+ 0:03.07 tin
29182 63 Ss+ 0:00.01 /bin/sh /bin/csShell
29240 63 R+ 0:00.00 ps
= Information =====
Current Time: Sat Sep 19 13:52:01 CST 2015
Online Users: 44
= CSCC Announce =====
2015/09/16 [失物招領] 於 EC324 拾獲深藍色後背包

CS Computer Center <help@cs.nctu.edu.tw>
13:52 lctseng@bsd5(140.113.235.135)[~]
[ ^ _ ] > [ ]
```

Using Remote Shell Login

- ❑ After proper configuration



```
127.0.0.1
along with the mailing lists, can be searched by going to
http://www.FreeBSD.org/search/.  If the doc package has been installed
(or fetched via pkg install lang-freebsd-doc, where lang is the
2-letter language code, e.g. en), they are also available formatted
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unfamiliar with FreeBSD's directory layout, please refer to the hier(7)
manual page.  If you are not familiar with manual pages, type `man man`.

Edit /etc/motd to change this login announcement.

You can automatically download and install binary packages by doing

    pkg install <package>

This will also automatically install the packages that are dependencies
for the package you install (ie, the packages it needs in order to work.)
13:47 lctseng@HostA [~] >
unfamiliar with FreeBSD's directory layout, please refer to the hier(7)
manual page.  If you are not familiar with manual pages, type `man man`.

Edit /etc/motd to change this login announcement.

"man security" gives very good advice on how to tune the security of your
FreeBSD system.
13:48 lctseng@HostA [~] >
```

Using Remote Shell Login

- Interactions: select, copy, paste, etc.
 - Copy commands from your screen
 - Copy some long commands from other place
- Change the appearance
 - Fonts, opacity, encoding, etc.
- Display non-ASCII characters
 - E.g. Chinese
- Allow from remote login
 - Don't need to bring your computer going around
- Text interface only**
 - No GUI, X windows, ...

Using Remote Shell Login: Architecture

❑ Connect to CS workstation

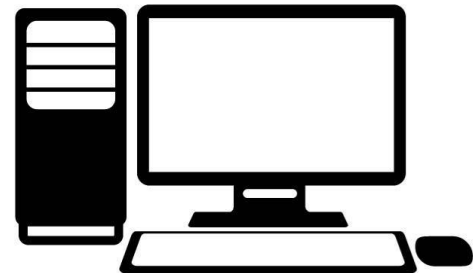
- No problem



Putty
(your computer)



SSH connection
(140.113.235.135)
(TCP 22 port)



bsd5.cs.nctu.edu.tw

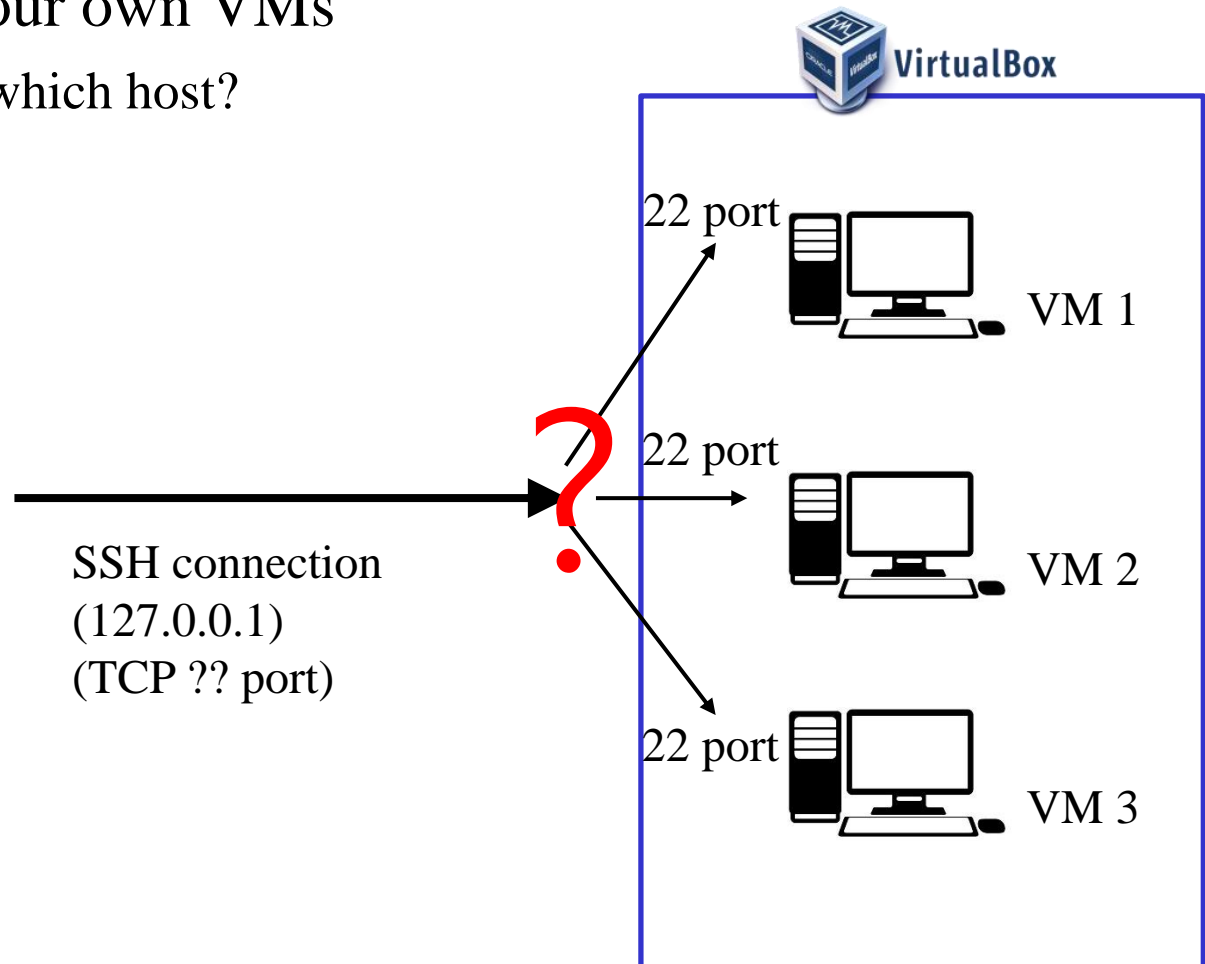
Using Remote Shell Login: Architecture

❑ Connect to your own VMs

- Connect to which host?



Putty
(Host OS)



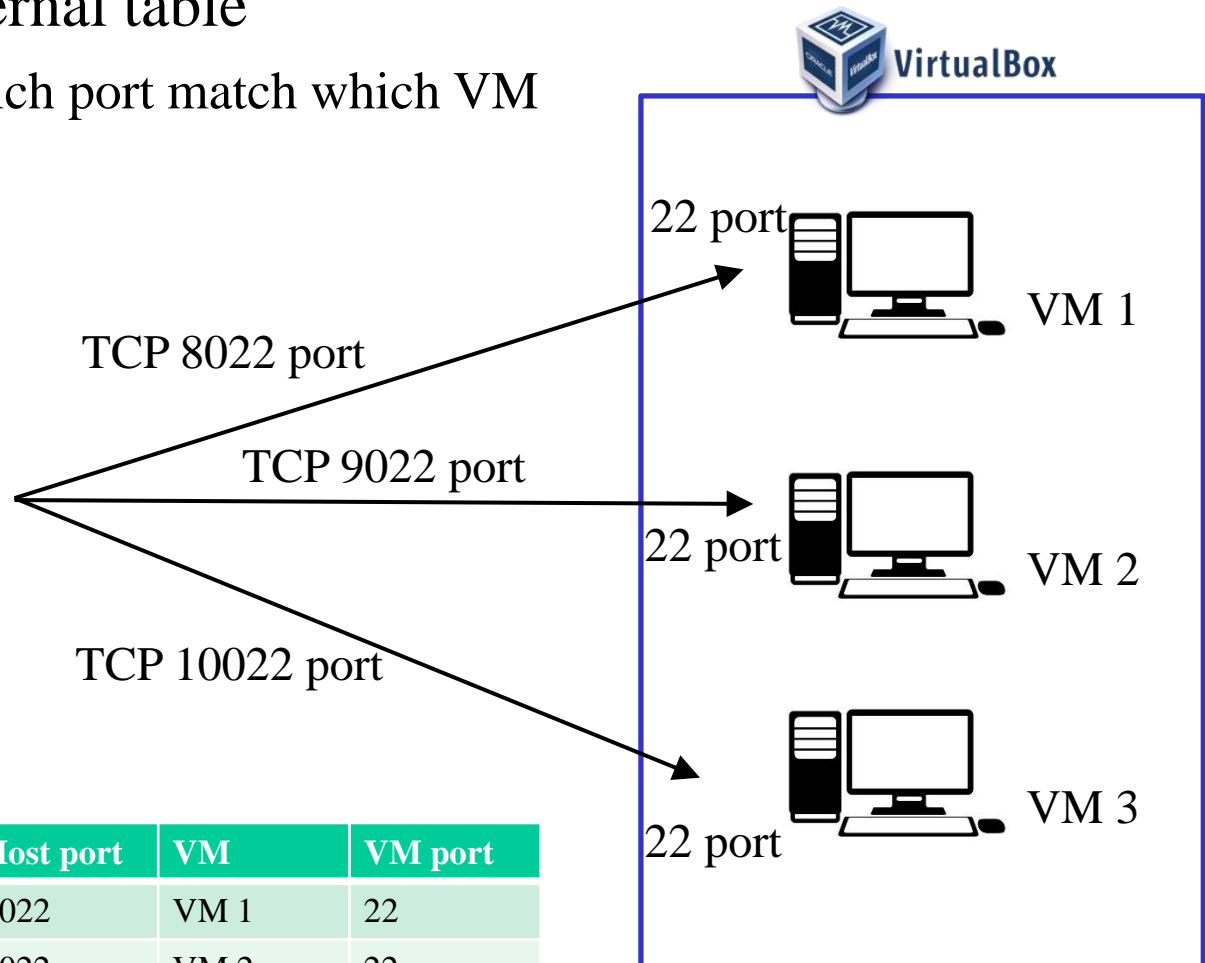
Port Forwarding

❑ Create an internal table

- Specific which port match which VM



Putty
(Host OS)

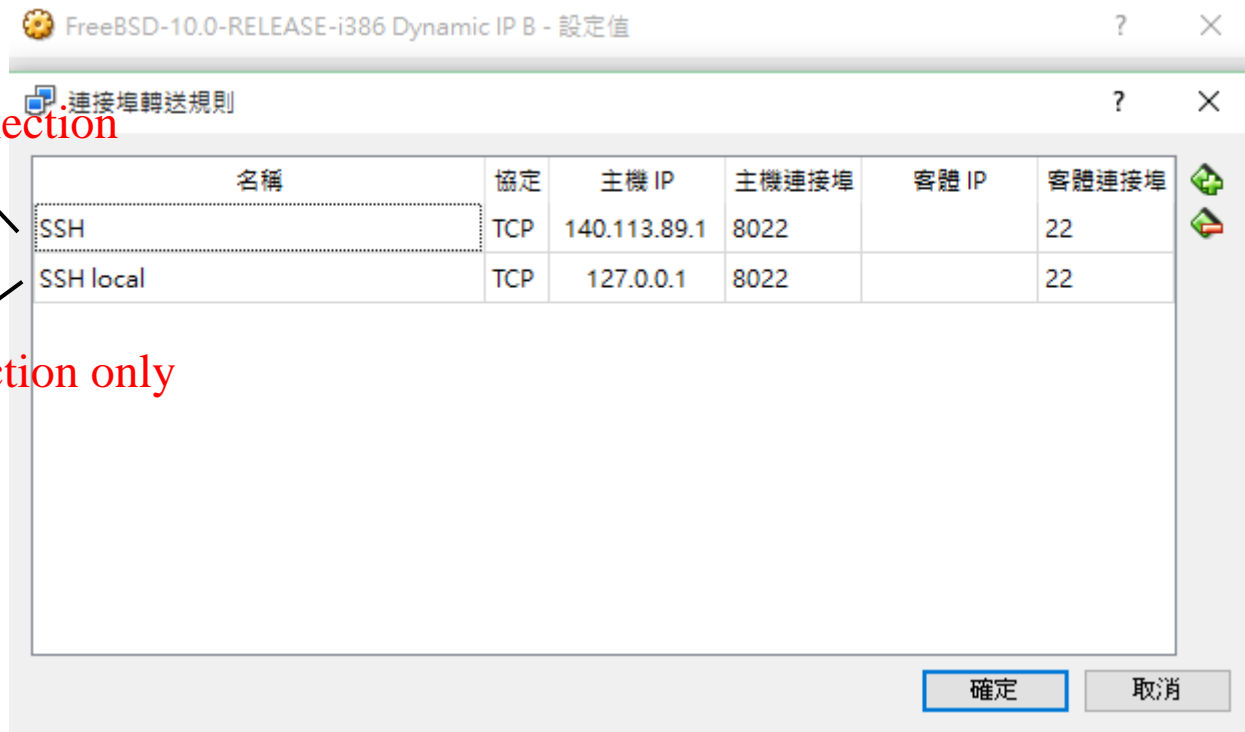


Usage	Host IP	Host port	VM	VM port
SSH #1	127.0.0.1	8022	VM 1	22
SSH #2	127.0.0.1	9022	VM 2	22
SSH #3	127.0.0.1	10022	VM 3	22

Setup Port Forwarding in VirtualBox

❑ What we want:

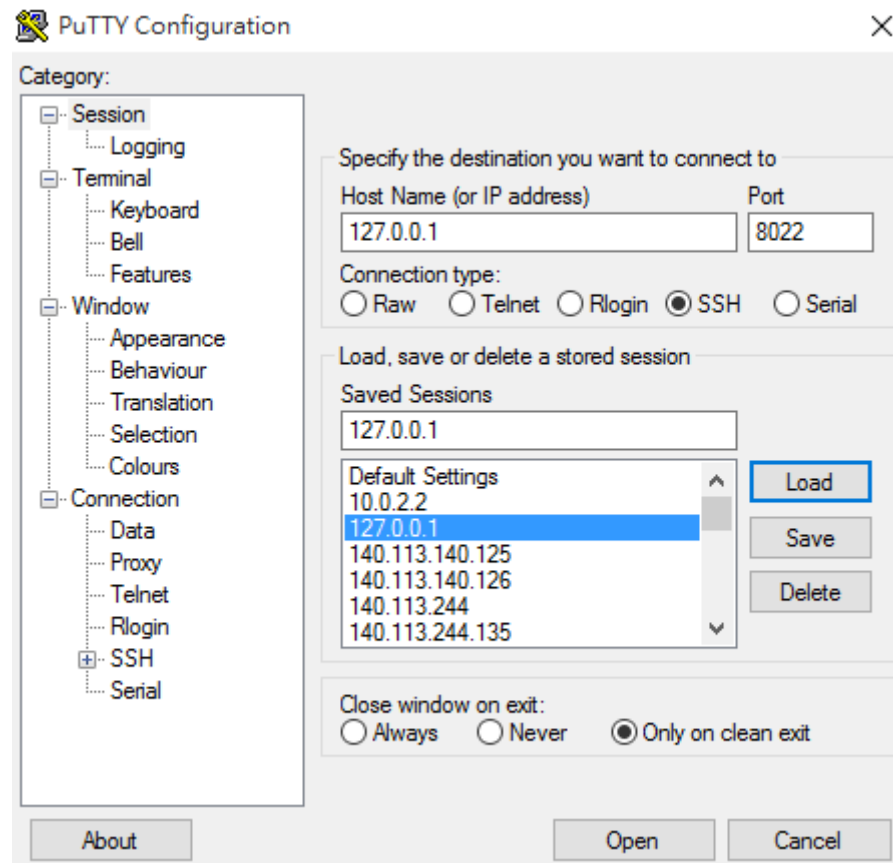
- Open a port to connect to VM's TCP 22 port
- Choose an unused port and pair them
- Some versions of VirtualBox need only one entry (specific no IP)



Setup Port Forwarding in VirtualBox

❑ Local connection

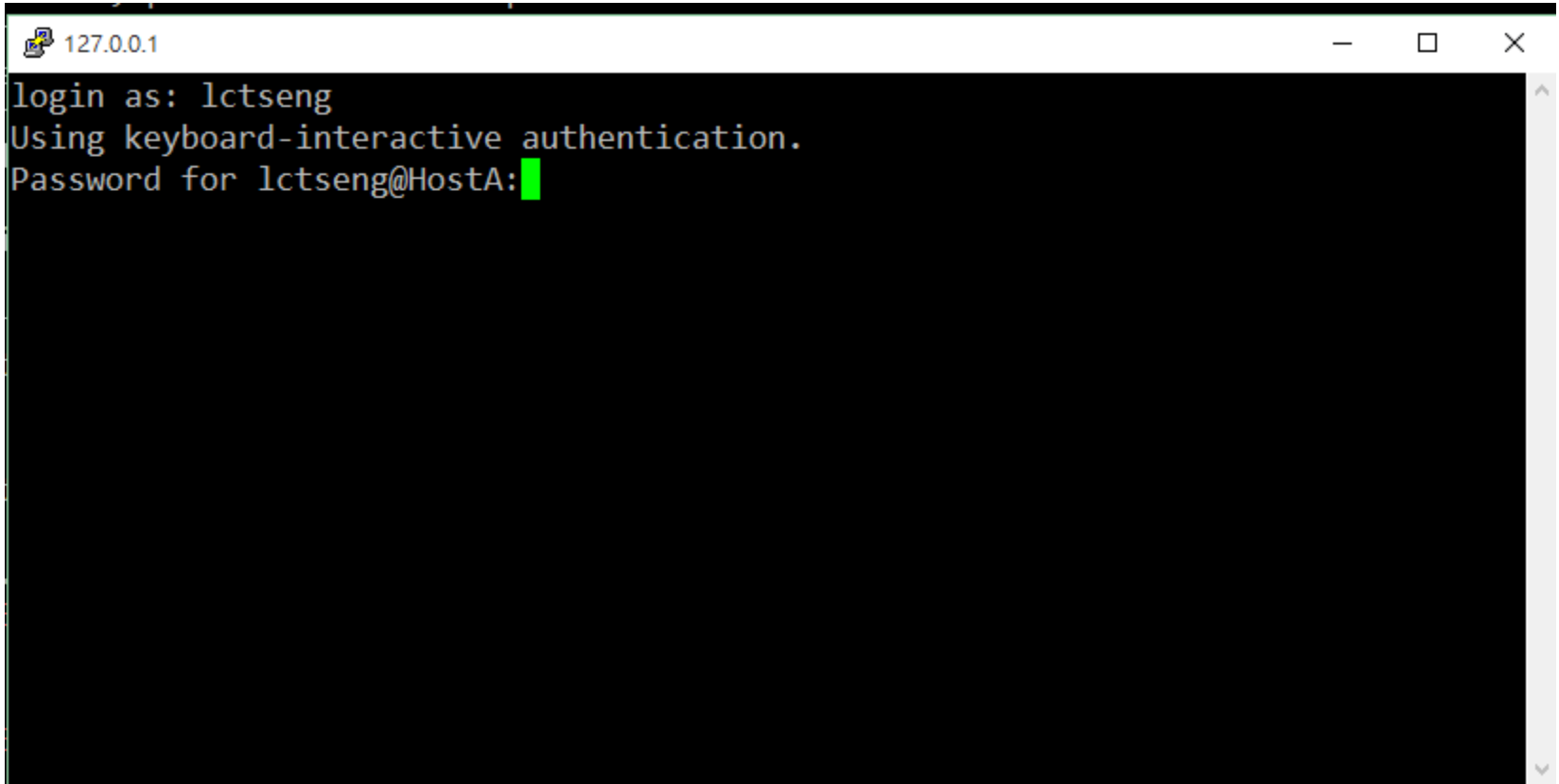
- After setting an entry with IP 127.0.0.1 (assume port = 8022)



Setup Port Forwarding in VirtualBox

Local connection

- Now you can login into your VM

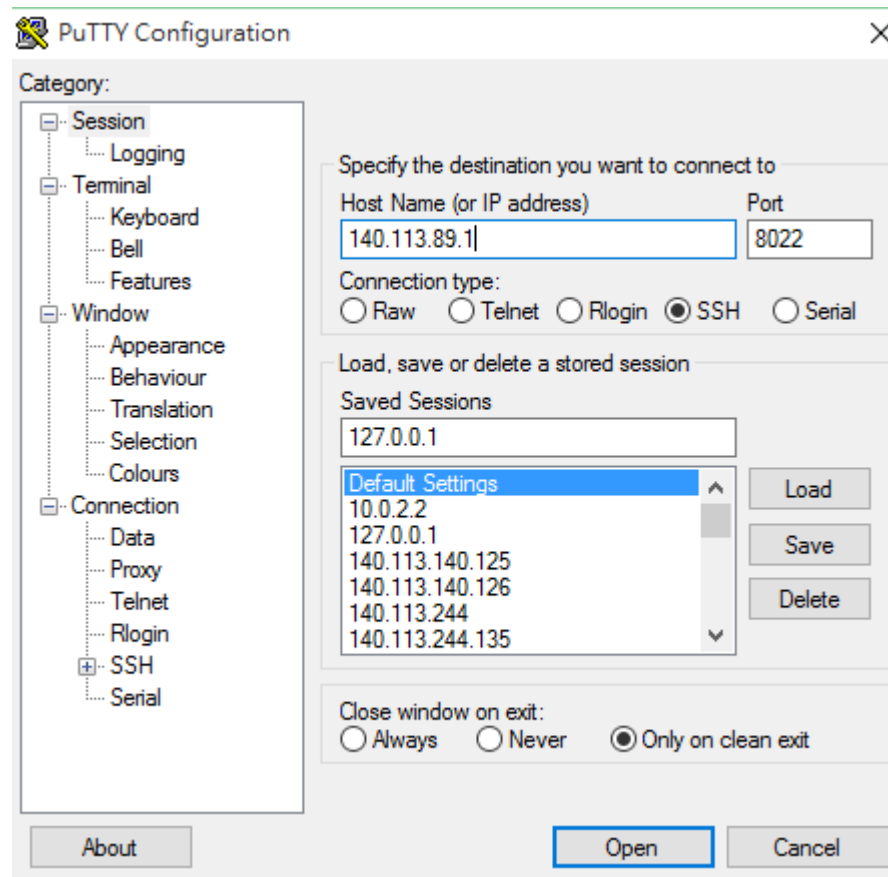


```
127.0.0.1
login as: lctseng
Using keyboard-interactive authentication.
Password for lctseng@HostA: █
```

Setup Port Forwarding in VirtualBox

❑ Remote connection

- After setting an entry with IP 140.113.89.1 (assume port = 8022)



Setup Port Forwarding in VirtualBox

Remote connection problems

- Connection refused
- Connection timeout

Firewall

- Allow 8022/9022/<ports you set> for inbound traffic
- Turn off firewall

➤ **DANGER!! DO ON YOUR OWN RISK!**