CS 455 – Computer Security Fundamentals

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Computer Security Fundamentals

- A Quick Introduction to Kali Linux in AWS
  - ~~We will use this example to do our introduction first~~
    - ~~Install Kali Linux into AWS!~~
  - ~~Then, I will show you getting around with AWS~~
    - ~~SSH setup~~
    - RDP setup (GUI)

A Quick Introduction to Kali Linux in AWS

- RDP setup
- Type the following in your “SSH” you just setup
- Assuming you are now using the SSH to connect the Kali Linux @ AWS
  - sudo apt update
  - sudo apt install xfce4 xfce4-goodies -y
    - You will see a confirmation for keyboard layout. Just use this one
- So for the server side

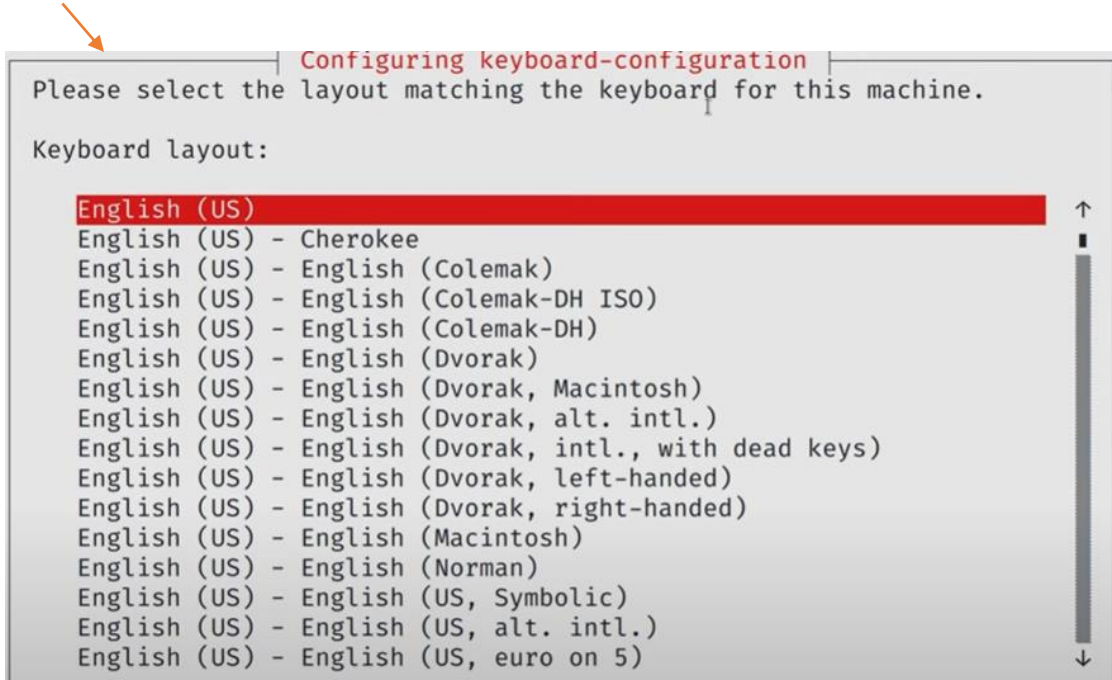
“desktop environment” setup,

we are done. Next up, we want to install

xrdp as a kind of “system service”

  - sudo apt install xrdp
- xrdp is a service to facilitate our

RDP connection



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- Now we are going to add an user who has the access right for this RDP service (in the cloud). Then, we will perform a connection from our local machine, my Kali Linux@VirtualBox to Kali Linux@AWS cloud

```
┌──(kali㉿kali)-[~]
└─$ sudo adduser charlesyu
Adding user `charlesyu' ...
Adding new group `charlesyu' (1002) ...
Adding new user `charlesyu' (1002) with group `charlesyu (1002)' ...
Creating home directory `/home/charlesyu' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for charlesyu
Enter the new value, or press ENTER for the default
        Full Name []: Charles Yu
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] Y
Adding new user `charlesyu' to supplemental / extra groups `users' ...
Adding user `charlesyu' to group `users' ...
```

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- Next up, we want to add this newly added user, “charlesyu” into the xrdp group, for example: (you need to replace my account for yours)
  - sudo usermod -aG xrdp charlesyu
- It’s about the time to start the service!
  - sudo systemctl start xrdp
- If you are not sure if the system is running correctly, here is the command
  - sudo systemctl status xrdp

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- Here is the status. Active!

```
┌──(kali㉿kali)-[~]
└─$ sudo systemctl start xrdp

┌──(kali㉿kali)-[~]
└─$ sudo systemctl status xrdp
● xrdp.service - xrdp daemon
     Loaded: loaded (/lib/systemd/system/xrdp.service; disabled; preset: disabled)
     Active: active (running) since Fri 2023-04-14 01:18:07 UTC; 1min 17s ago
       Docs: man:xrdp(8)
             man:xrdp.ini(5)
    Process: 21048 ExecStartPre=/bin/sh /usr/share/xrdp/socksetup (code=exited, status=0/SUCCESS)
    Process: 21056 ExecStart=/usr/sbin/xrdp $XRDP_OPTIONS (code=exited, status=0/SUCCESS)
   Main PID: 21057 (xrdp)
      Tasks: 1 (limit: 1125)
     Memory: 1.1M
        CPU: 12ms
     CGroup: /system.slice/xrdp.service
             └─21057 /usr/sbin/xrdp

Apr 14 01:18:06 kali systemd[1]: Starting xrdp.service - xrdp daemon...
Apr 14 01:18:06 kali xrdp[21056]: [INFO ] address [0.0.0.0] port [3389] mode 1
Apr 14 01:18:06 kali xrdp[21056]: [INFO ] listening to port 3389 on 0.0.0.0
Apr 14 01:18:06 kali xrdp[21056]: [INFO ] xrdp_listen_pp done
Apr 14 01:18:06 kali systemd[1]: xrdp.service: Can't open PID file /run/xrdp/xrdp.pid (yet?) after start: Operation not permitted
Apr 14 01:18:07 kali systemd[1]: Started xrdp.service - xrdp daemon.
Apr 14 01:18:08 kali xrdp[21057]: [INFO ] starting xrdp with pid 21057
Apr 14 01:18:08 kali xrdp[21057]: [INFO ] address [0.0.0.0] port [3389] mode 1
Apr 14 01:18:08 kali xrdp[21057]: [INFO ] listening to port 3389 on 0.0.0.0
Apr 14 01:18:08 kali xrdp[21057]: [INFO ] xrdp_listen_pp done
```

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- Next up, you can start the xrdp-sesman, the “session manager”
  - sudo systemctl start xrdp-sesman
- Almost done now! Did you remember the steps when we are going to setup a brand new OS image in AWS?
  - The SSH setting!
  - **Now we are going to add one more entry in the “security group” for RDP**!
- Click the “Security Group” tab
- Try to ignore the one with “default” because it is there along with your account.
- Check the existing one! (See the next page)

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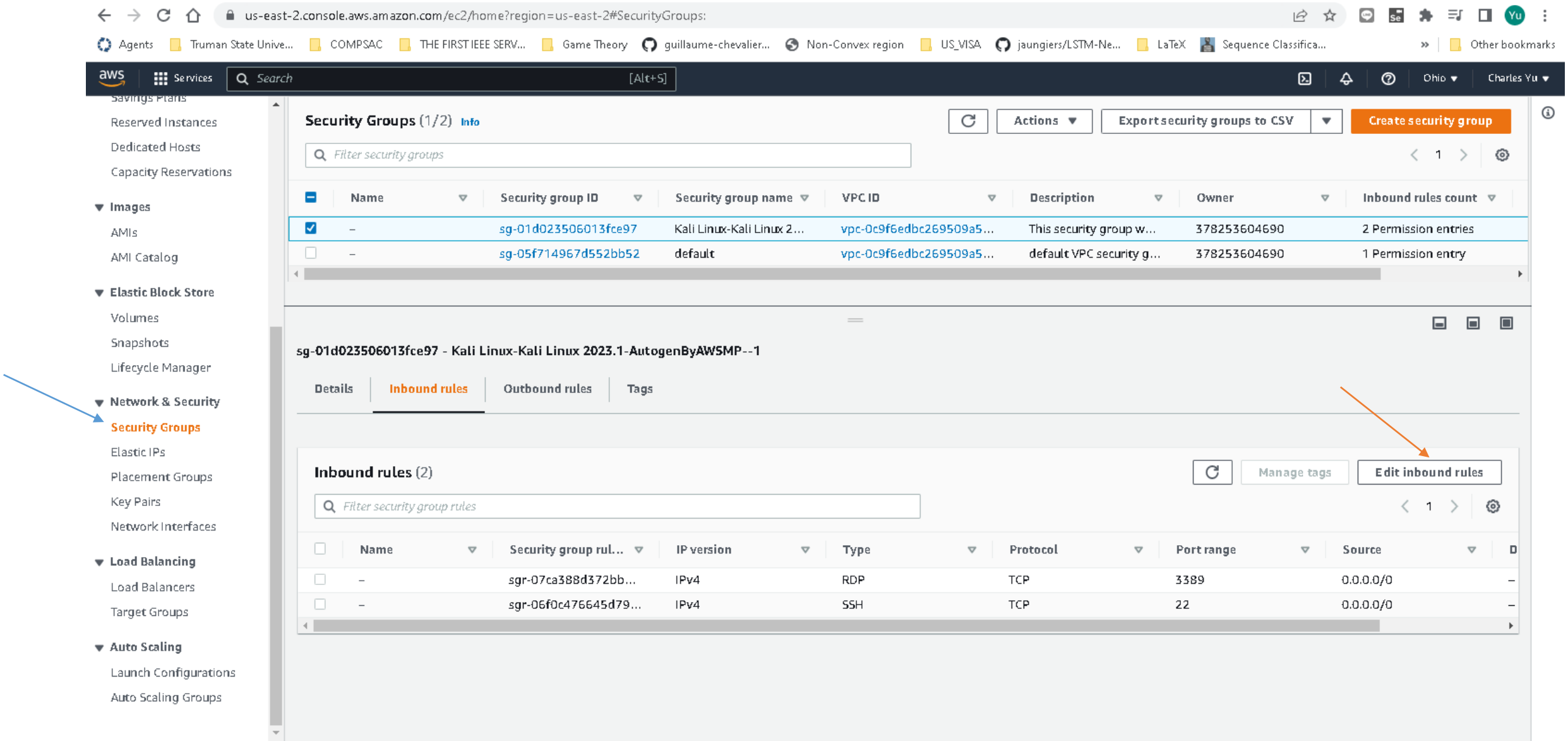

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- You will see 2 inbound rules in there!
- In the beginning, we only have 1 rule which is for SSH, remember that?
- I click the [Edit Inbound Rules] to add 1 more rule for RDP
- For detail, check the next page.
- Yes! For teaching purposes, I open that to the world! 0.0.0.0/0
- For practices, you need to set your own IP address,

or you project co-worker's IP address for better protection

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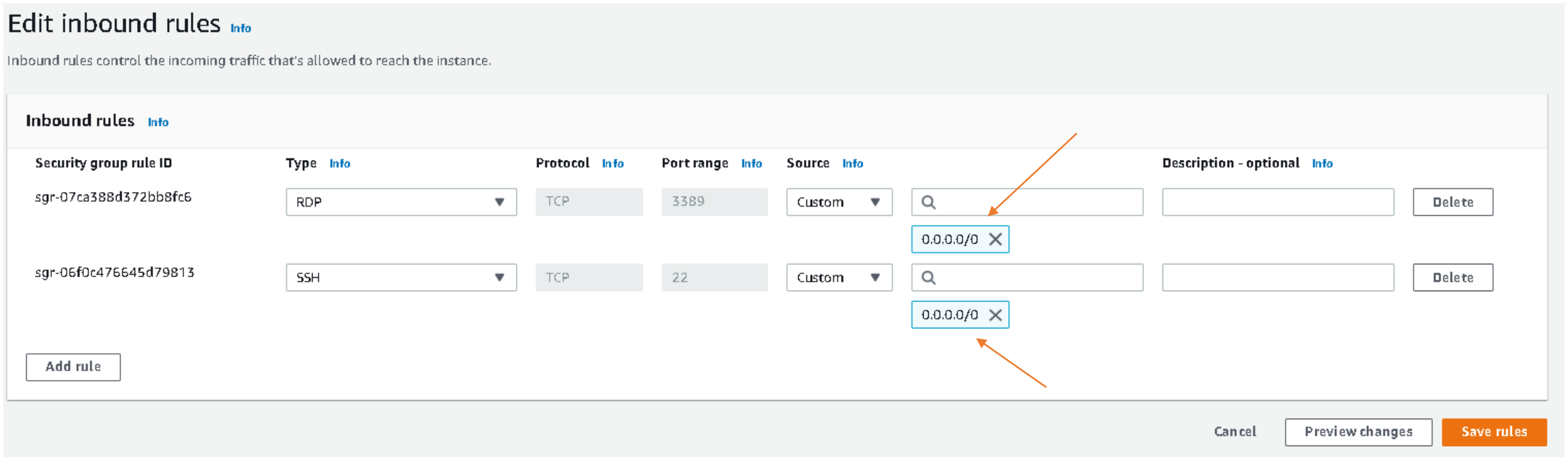

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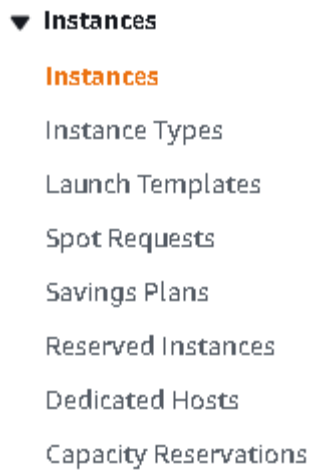
- All right, once you have this setting done, we can connect our Kali Linux @ AWS EC2
- In my use case, for the demonstration purpose, I just type this from my Kali Linux in the VirtualBox:
  - rdesktop [*ip address*]
  - The ip address here means your IP Address in EC2 instance (Kali Linux)
- Have problem with IP address?
  - There is an “instances”
  - Choose the [Networking] tab



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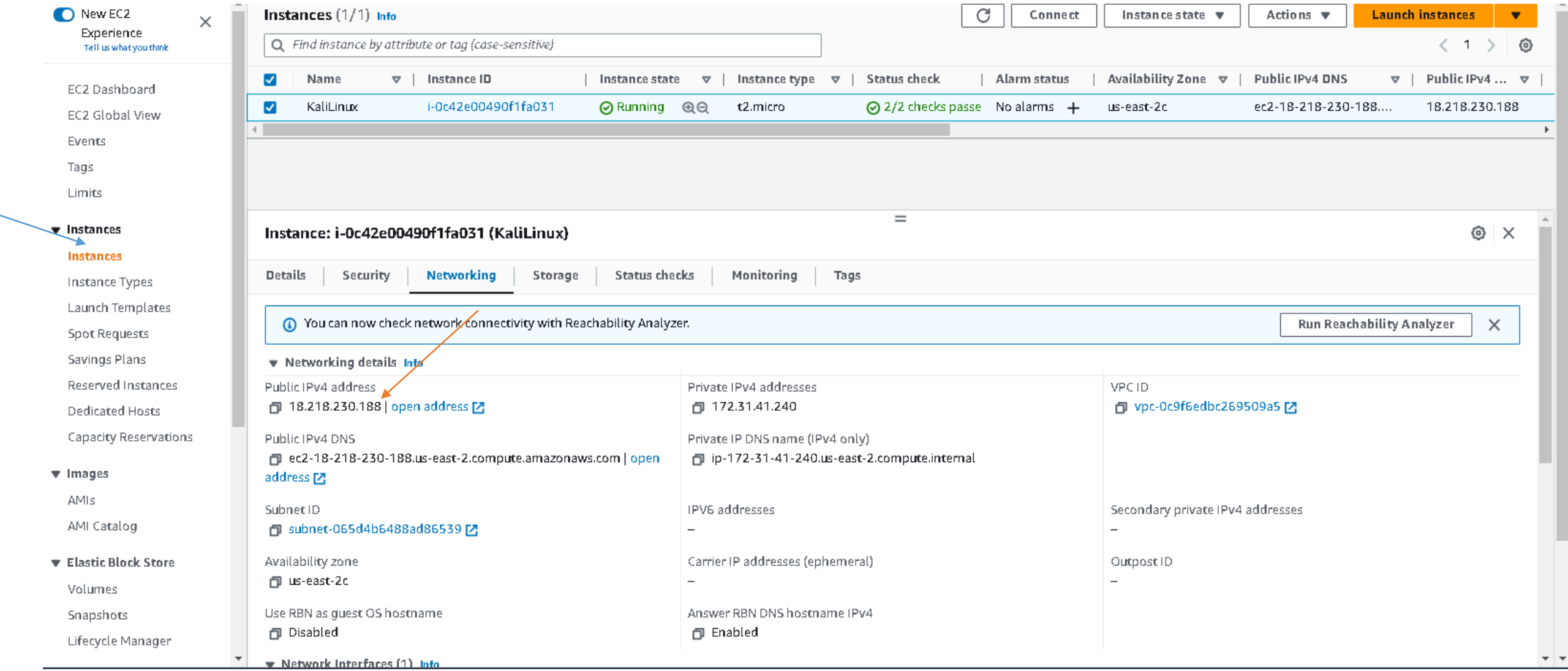

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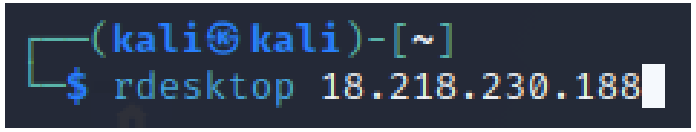
- This is it! This is the command I typed from my Kali Linux in my VirtualBox



- Kali Linux (VirtualBox) –(Connect to)→ Kali Linux @ AWS EC2

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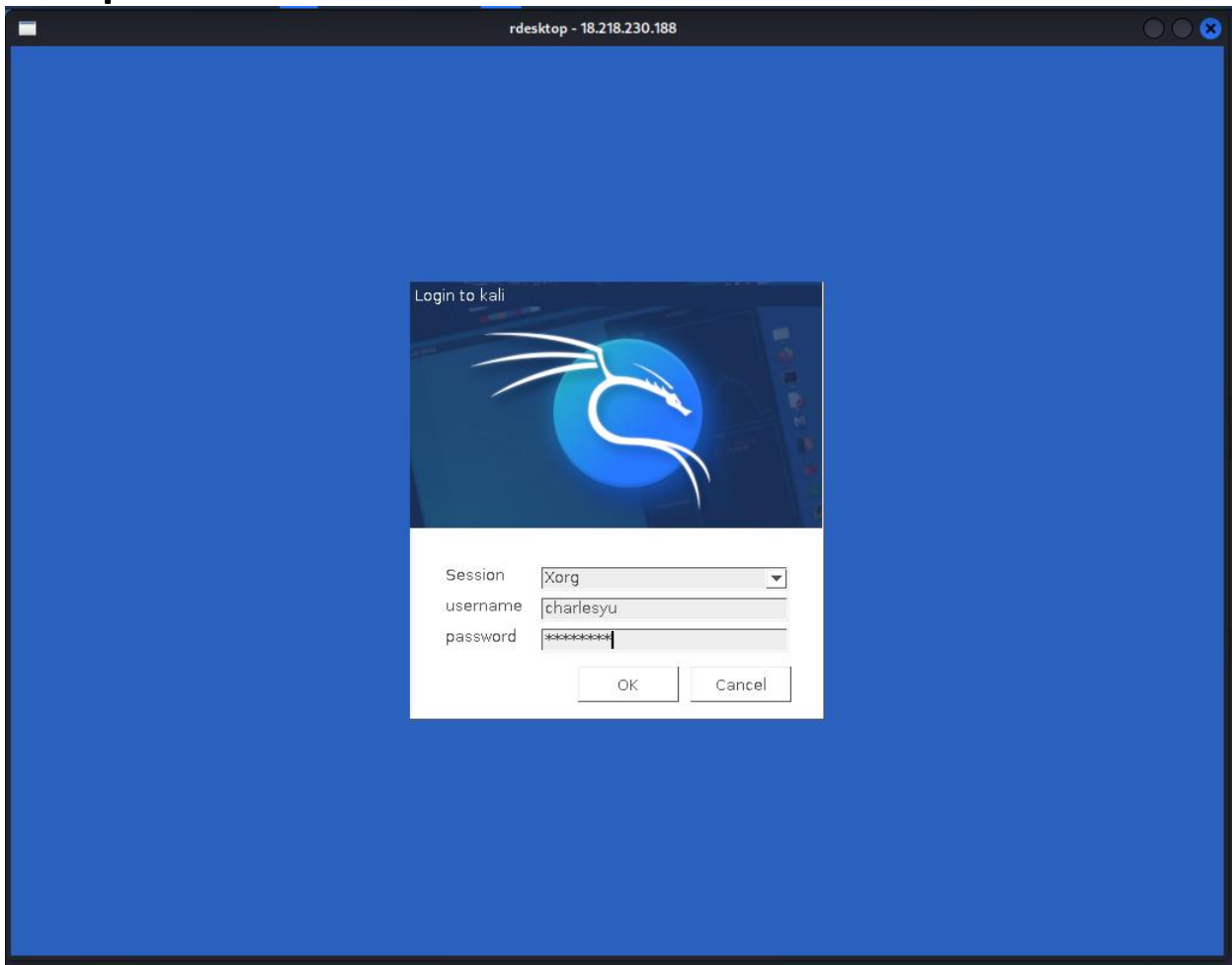
- There we go. This is the remote desktop
- I use the account / password,
- I just setup the login account / password info. in slide #4 and #5
- Use this info. to login to the RDP



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- Cool! Isn't it?
- Well, the ugly truth is that, it is not very cool ☺
- Actually, it is very slow in the UI responses
- There is another thing called VNC. If we have enough time, we will go through it.

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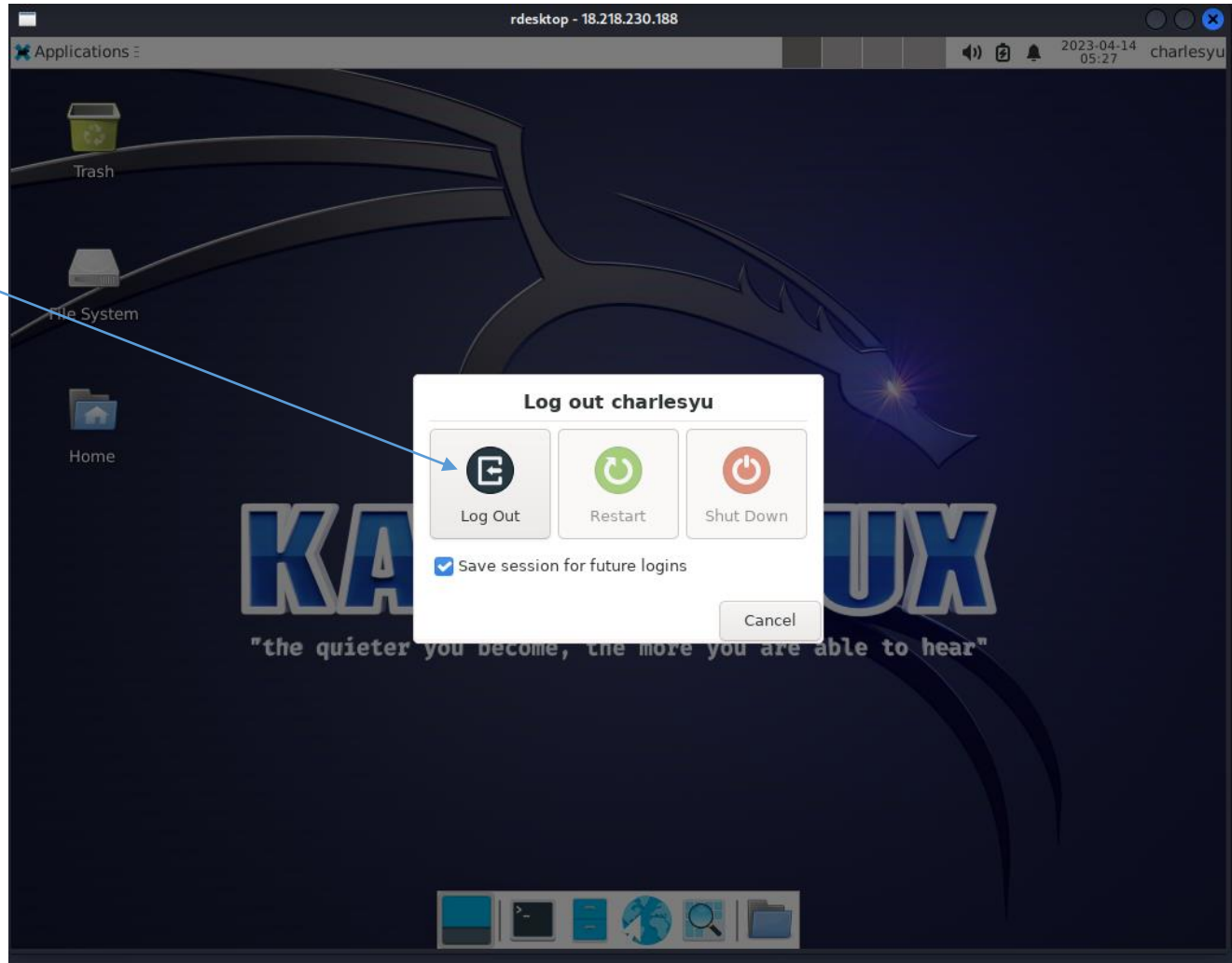
- We can log out first
- Then, we will go back to the Kali Linux in our VirtualBox
- This small screen will close up quickly



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- We are not satisfied! Change the resolution from the command line
  - rdesktop 18.218.230.188 -u charlesyu -g 1920x1080
- This looks Good. The resolution is much better

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- In the next 2 meeting, we will go through detail security settings in our EC2 instance.
- Then, we will quickly head to cryptography / key management