

CS 455 – Computer Security Fundamentals

Dr. Chen-Yeou (Charles) Yu

Computer Security Fundamentals

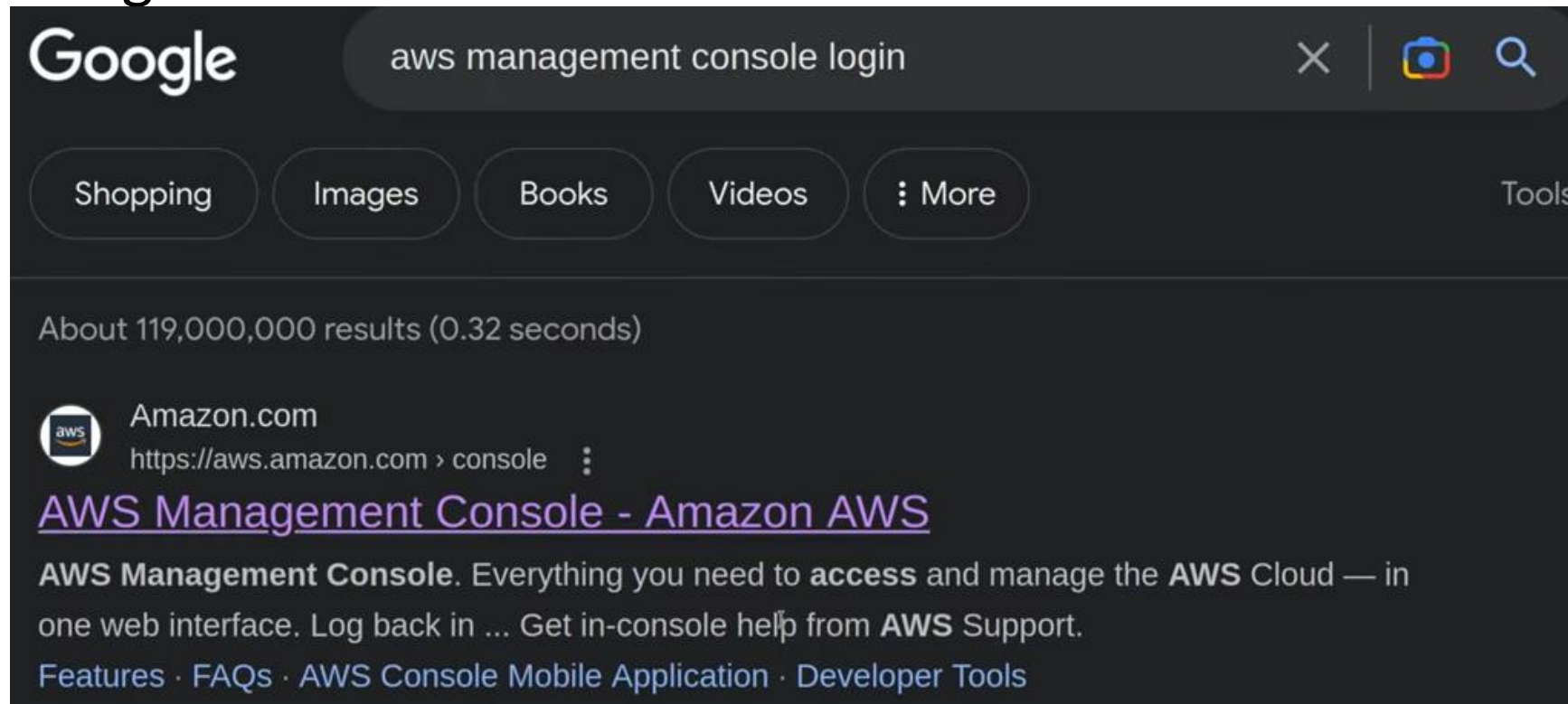
- A Quick Introduction to Kali Linux in AWS
 - We will use this example to do our introduction first
 - Install Kali Linux into AWS!
 - Then, I will show you getting around with AWS (TBD, in the next time)
 - SSH setup
 - RDP setup

A Quick Introduction to Kali Linux in AWS

- Why we want to put Kali Linux into cloud?
 - Faster! Better user experience!
 - Kali Linux is now not get trapped in Virtualbox or Vmware
 - When I change the resolution in the host, Virtualbox is very likely to crash at great chances
 - You can experiment any viruses, trojan you want
 - A 24x7, never shutdown machine
- But of course, you need to have an AWS account
 - Yes, it is for free!
 - If you are not asking special “levels” of services,
 - For example, extra amount of memories, hard drives.
 - Or some other very advanced machine learning related services

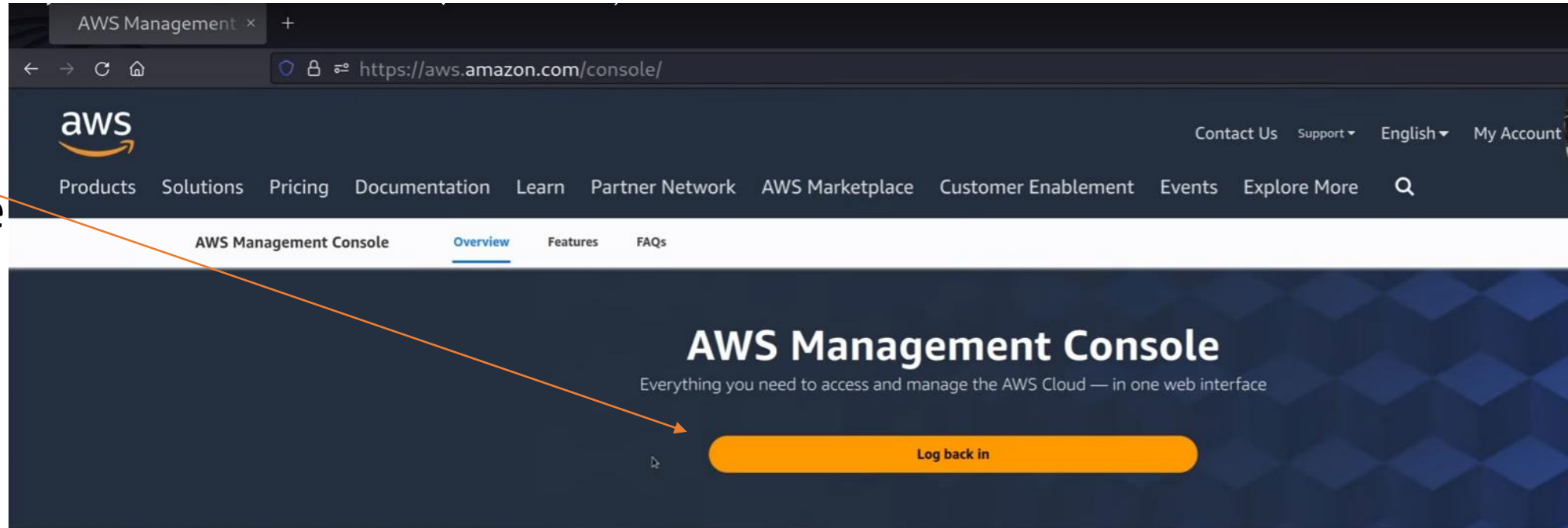
A Quick Introduction to Kali Linux in AWS

- First step, go ahead to Google, search the “aws management console login”



A Quick Introduction to Kali Linux in AWS

- We are in
- Sign in to the console



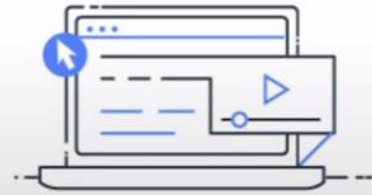
Free AWS Training

Advance your career with AWS Cloud Practitioner Essentials—a free, six-hour, foundational course



AWS Certification

Propel your career forward with AWS Certification.



AWS Free Digital Training

Access 350+ free digital courses with training built by AWS experts



AWS Cloud Training

Comprehensive training that accelerates your cloud journey

A Quick Introduction to Kali Linux in AWS

- Use your registered account/password to login



Sign in to hackerloi

Username: [Forgot username? \(not you?\)](#)

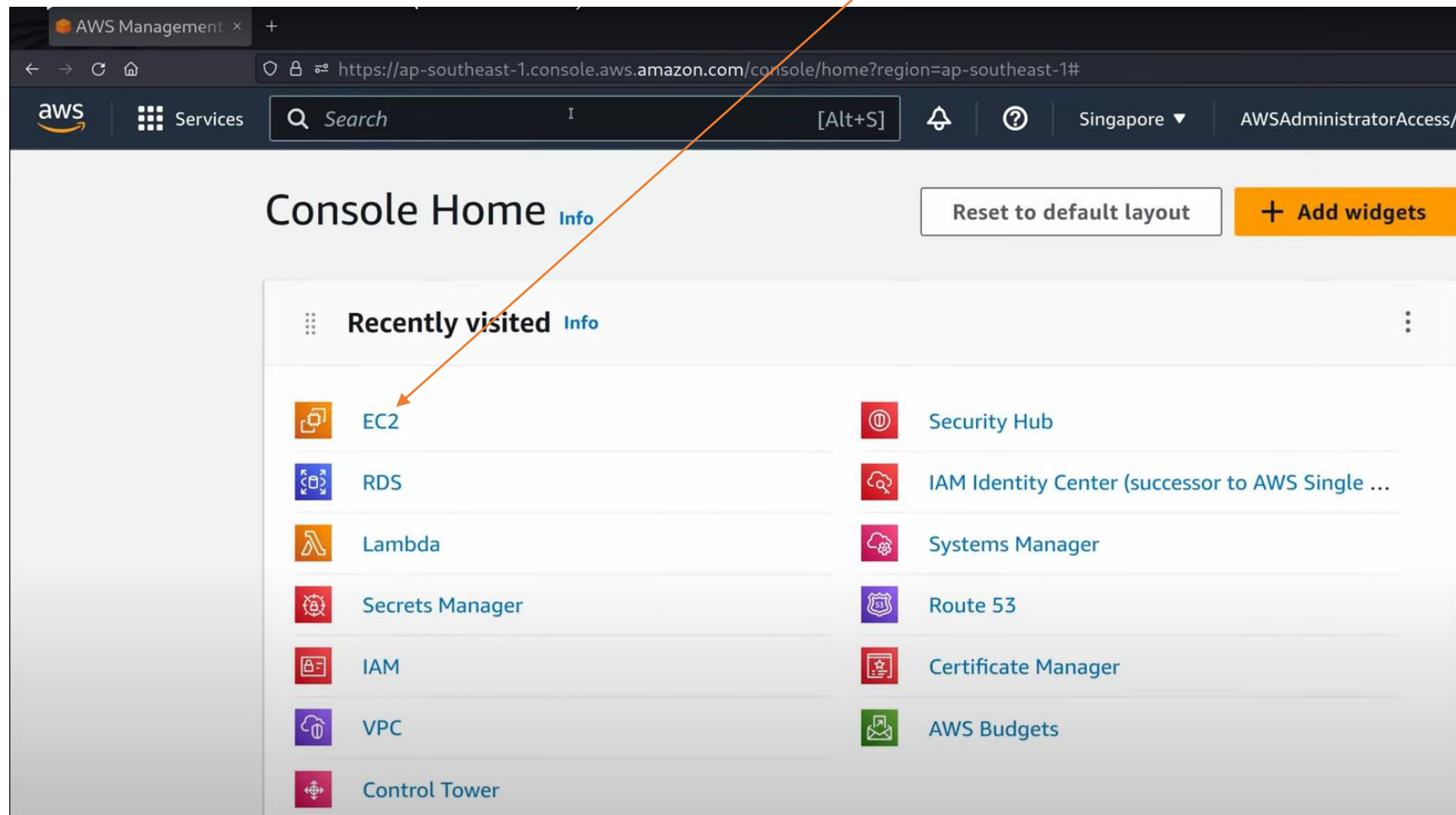
Password:

☐ Show password [Forgot password](#)

Sign in

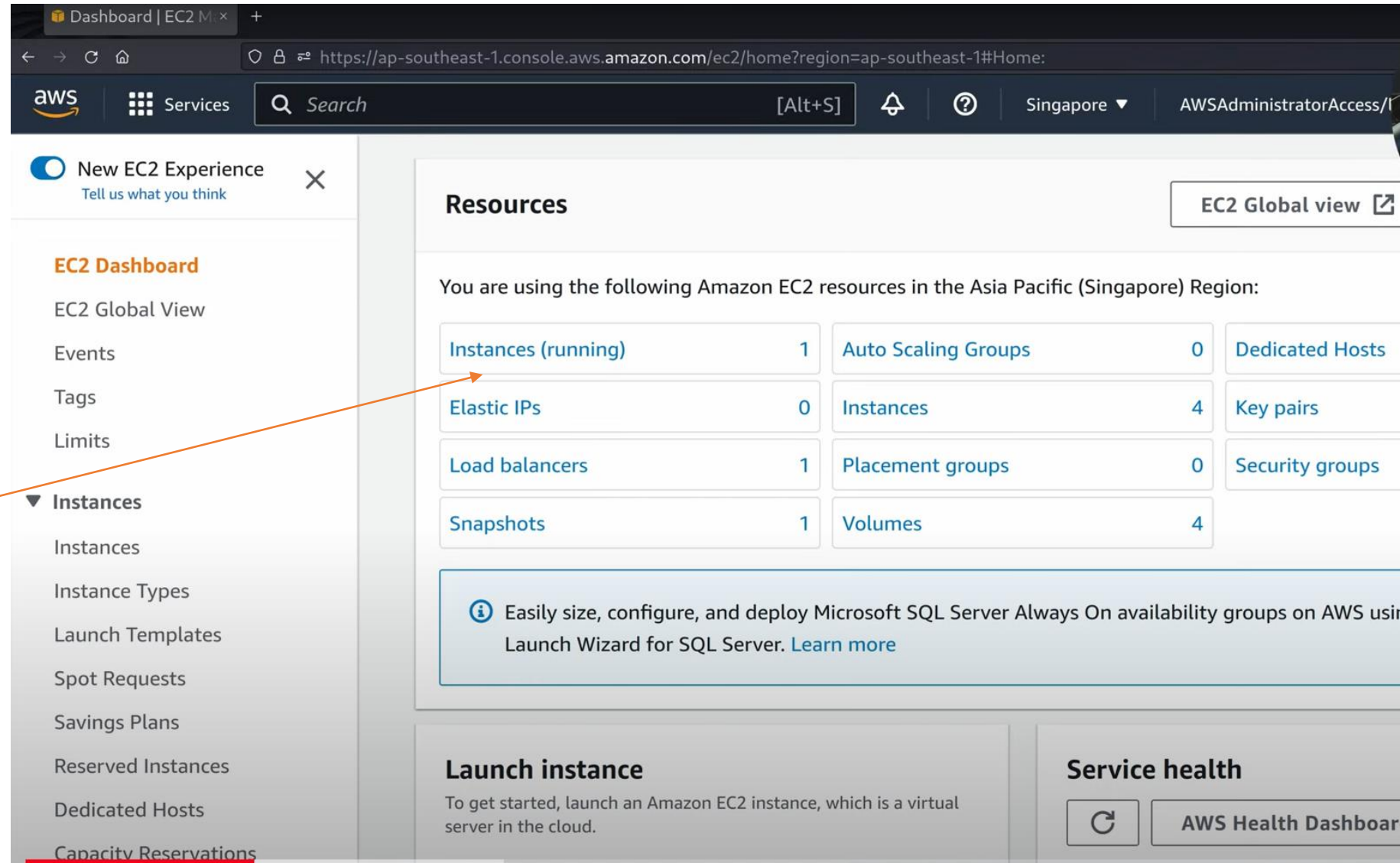
A Quick Introduction to Kali Linux in AWS

- This is the AWS console. Click this.



A Quick Introduction to Kali Linux in AWS

- All we are going to do now is to click onto EC2
- It brings you to EC2 Dashboard



A Quick Introduction to Kali Linux in AWS

- Amazon EC2 stands for Elastic Compute Cloud and this is the virtual server where you are going to deploy
- What we are going to do now is to run that directly in the cloud instead in your own virtualbox
- Check the previous page, click the **Instances (running)**

A Quick Introduction to Kali Linux in AWS

The screenshot displays the AWS Management Console for the 'Instances' page in the 'ap-southeast-1' region. The left sidebar shows the navigation menu with 'Instances' selected. The main content area shows a table with one instance:

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check
<input type="checkbox"/>	loiliangyang.com	i-0cd305d359b2553be	Running	t3.micro	2/2 checks passed

An orange arrow points to the 'Instance state' column header. Below the table, there is a modal window titled 'Select an instance'.

A Quick Introduction to Kali Linux in AWS

- As you can see in the previous page, there is one instance is running
- Now, we are outside of the cloud but how do we work remotely?
 - First step, command line capability has to be built up.
 - Working remotely under command lines (port 22, the SSH)
 - SSH is still loved by many people because
 - We don't need GUI all the time
 - Fast speed
 - Reduce loading of networks
 - ...
 - Later on, you might be interested to setup port 3389 for RDP (remote desktop). GUI interface

A Quick Introduction to Kali Linux in AWS

- Click on the Launch Instances to launch a “brand new” instance

The screenshot shows the AWS Management Console interface for the EC2 Instances page. The browser address bar indicates the URL: <https://ap-southeast-1.console.aws.amazon.com/ec2/home?region=ap-southeast-1#LaunchInstances:>. The console header includes the AWS logo, a search bar, and the user's profile (AWSAdministratorAccess/loiliangyang@loiliangyang.com). The main content area displays the 'Instances (1)' section with a search bar and a filter for 'Instance state = running'. A table lists the instance details:

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check
<input type="checkbox"/>	loiliangyang.com	i-0cd305d359b2553be	Running	t3.micro	2/2 checks passed

At the bottom of the console, there is a section titled 'Select an instance'.

A Quick Introduction to Kali Linux in AWS

- You might give it a nice name if you want

Name and tags [Info](#)

Name

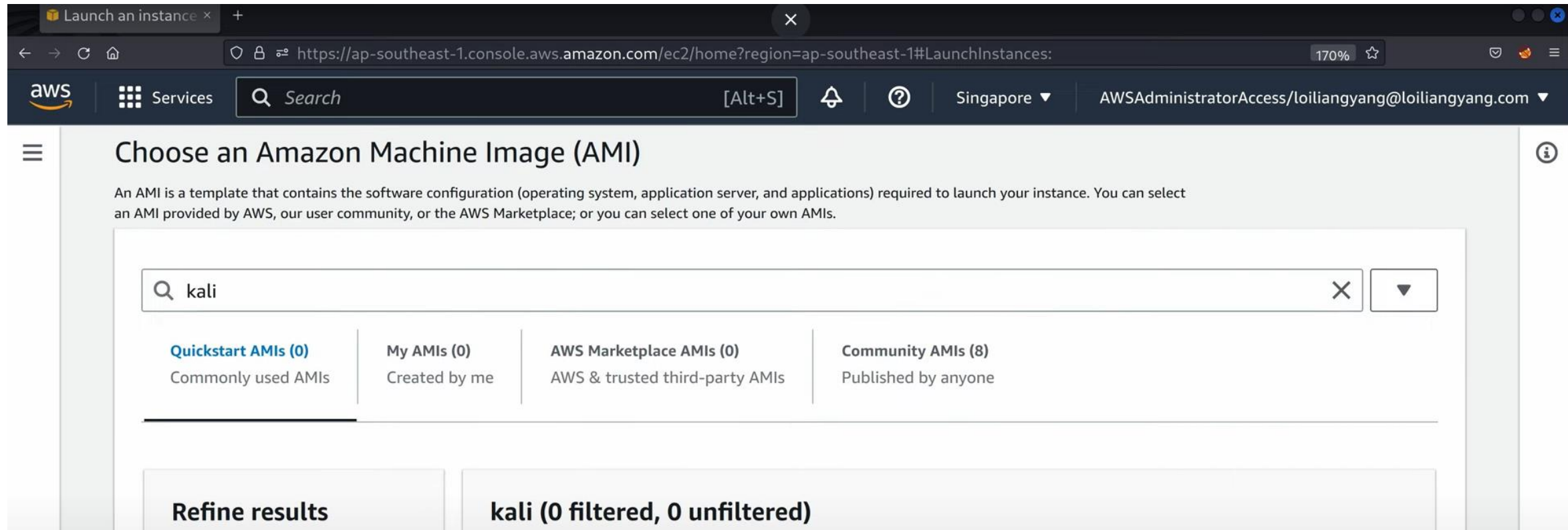
[Add additional tags](#)

▼ **Application and OS Images (Amazon Machine Image)** [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

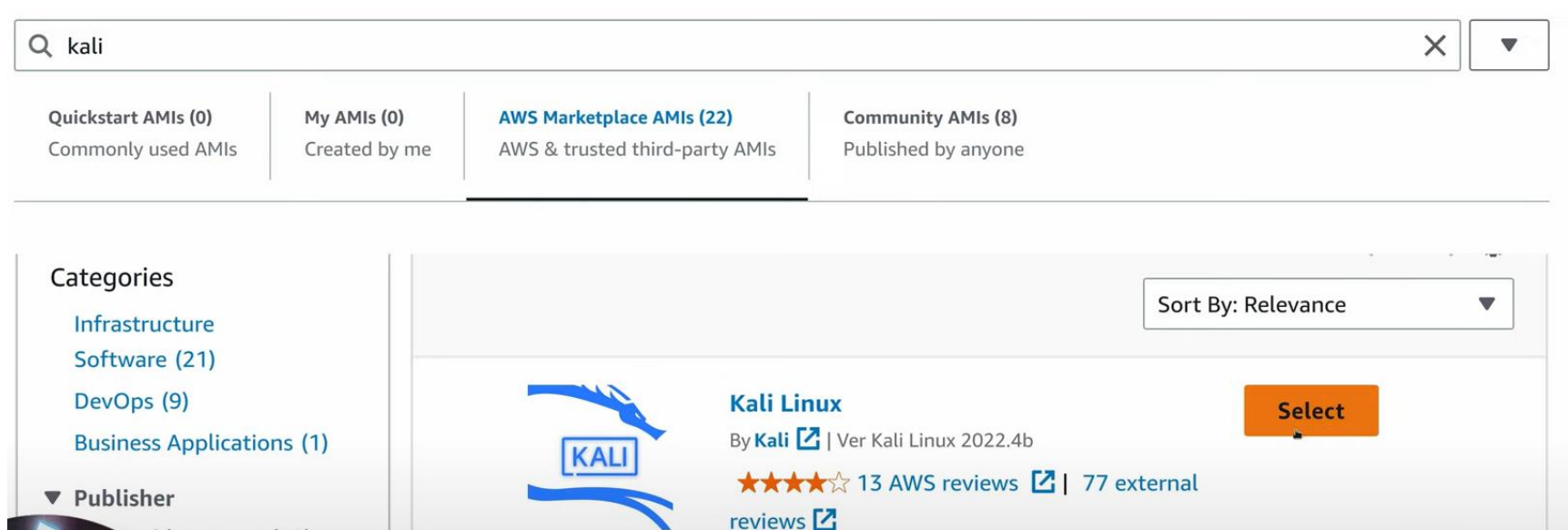
A Quick Introduction to Kali Linux in AWS

- Scroll down little bit further
 - You might be interested to setup the OS image. Try to pick up one you like
 - Search the Kali from this “box”



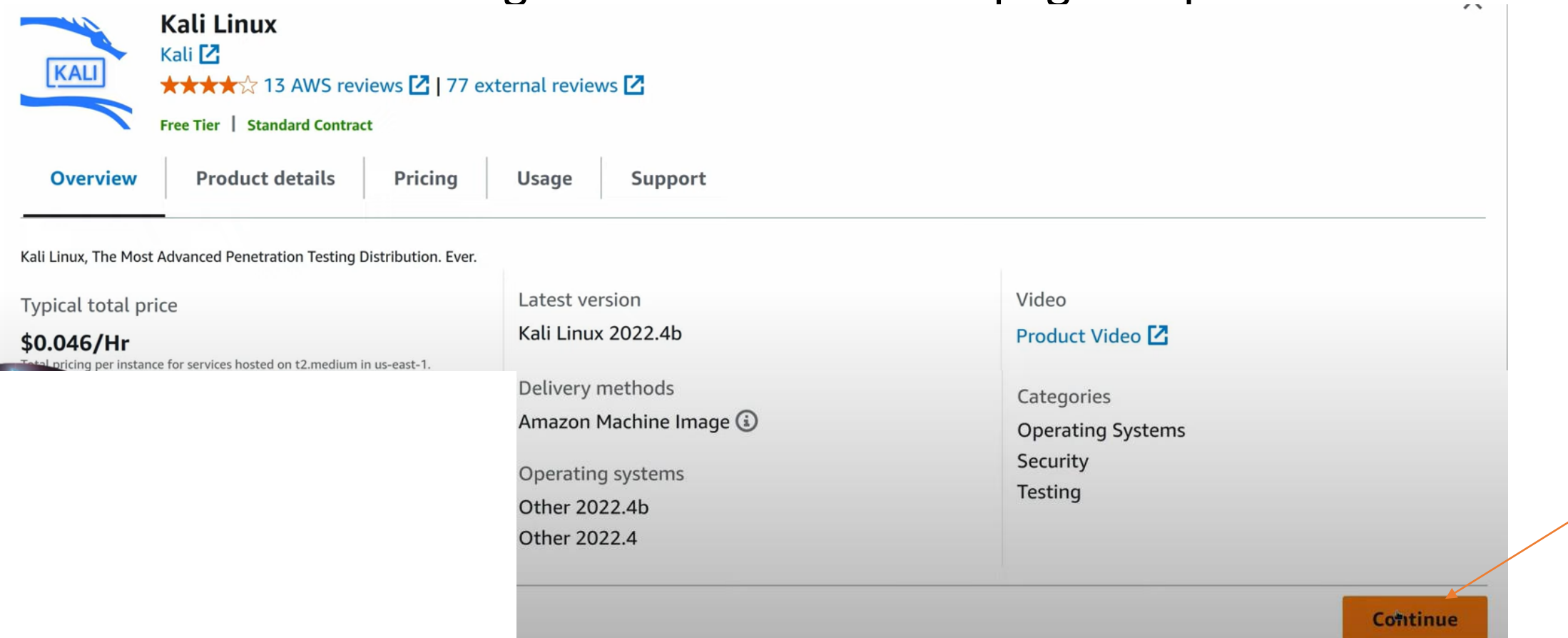
A Quick Introduction to Kali Linux in AWS

- You will see that from the 1st returned searched result
- Go ahead and select that



A Quick Introduction to Kali Linux in AWS

- You will be brought to a more “detailed” page for product details.



The screenshot shows the Kali Linux product page on the AWS Marketplace. At the top left is the Kali Linux logo, a blue dragon head with the word 'KALI' in a blue box. To its right, the text 'Kali Linux' is displayed, followed by a 'Kali' link with an external icon. Below this are five stars (the fifth is a half star) and the text '13 AWS reviews' with an external icon, followed by '77 external reviews' with an external icon. Underneath are links for 'Free Tier' and 'Standard Contract'. A navigation bar contains five tabs: 'Overview' (active), 'Product details', 'Pricing', 'Usage', and 'Support'. The main content area has a header 'Kali Linux, The Most Advanced Penetration Testing Distribution. Ever.' Below this, on the left, is a box for 'Typical total price' showing '\$0.046/Hr' with a note 'Total pricing per instance for services hosted on t2.medium in us-east-1.' To the right of this are three columns: 'Latest version' (Kali Linux 2022.4b), 'Delivery methods' (Amazon Machine Image with an info icon), and 'Operating systems' (Other 2022.4b, Other 2022.4). Further right are 'Video' (Product Video with an external icon) and 'Categories' (Operating Systems, Security, Testing). At the bottom right is an orange 'Continue' button, which is pointed to by an orange arrow from the right edge of the image.

Kali Linux
Kali [Kali](#)
★★★★☆ 13 AWS reviews [13 AWS reviews](#) | 77 external reviews [77 external reviews](#)
[Free Tier](#) | [Standard Contract](#)

[Overview](#) | [Product details](#) | [Pricing](#) | [Usage](#) | [Support](#)

Kali Linux, The Most Advanced Penetration Testing Distribution. Ever.

Typical total price
\$0.046/Hr
Total pricing per instance for services hosted on t2.medium in us-east-1.

Latest version
Kali Linux 2022.4b

Delivery methods
Amazon Machine Image ⓘ

Operating systems
Other 2022.4b
Other 2022.4

Video
[Product Video](#) [Product Video](#)

Categories
Operating Systems
Security
Testing

[Continue](#)

A Quick Introduction to Kali Linux in AWS

- Don't be afraid of the price. It is totally free if we can “reduce” the scale in our setting in the later steps
- t2.medium has lots of services in it! We don't need such a kind of level of service
- Click the continue button in the previous page

A Quick Introduction to Kali Linux in AWS

- Here's the detail

Amazon Machine Image (AMI)

kali-rolling-
amd64-2022.4.1-804fcc46-63fc-
4eb6-85a1-50e66d6c7215
ami-023bd86f4c2bf12c5

Verified provider

[Browse more AMIs](#)

Including AMIs from
AWS, Marketplace and
the Community

Catalog	Published	Architecture	Virtualization	Root device type	ENA Enabled
AWS	2022-12-09T2	x86_64	hvm		Yes
Marketplace	0:54:16.000Z			ebs	
AMIs					

If you have an existing license entitlement to use this software, then you can launch this software without creating a new subscription. If you do not have an existing entitlement, then by launching this software, you will be subscribed to this software and agree that your use of this software is subject to the pricing terms and the seller's [End User License Agreement](#) [↗](#)

▼ Summary

Number of instances [Info](#)

1

[Software Image \(AMI\)](#)

Kali Linux
ami-023bd86f4c2bf12c5

[Virtual server type \(instance type\)](#)

t2.medium

[Firewall \(security group\)](#)

New security group

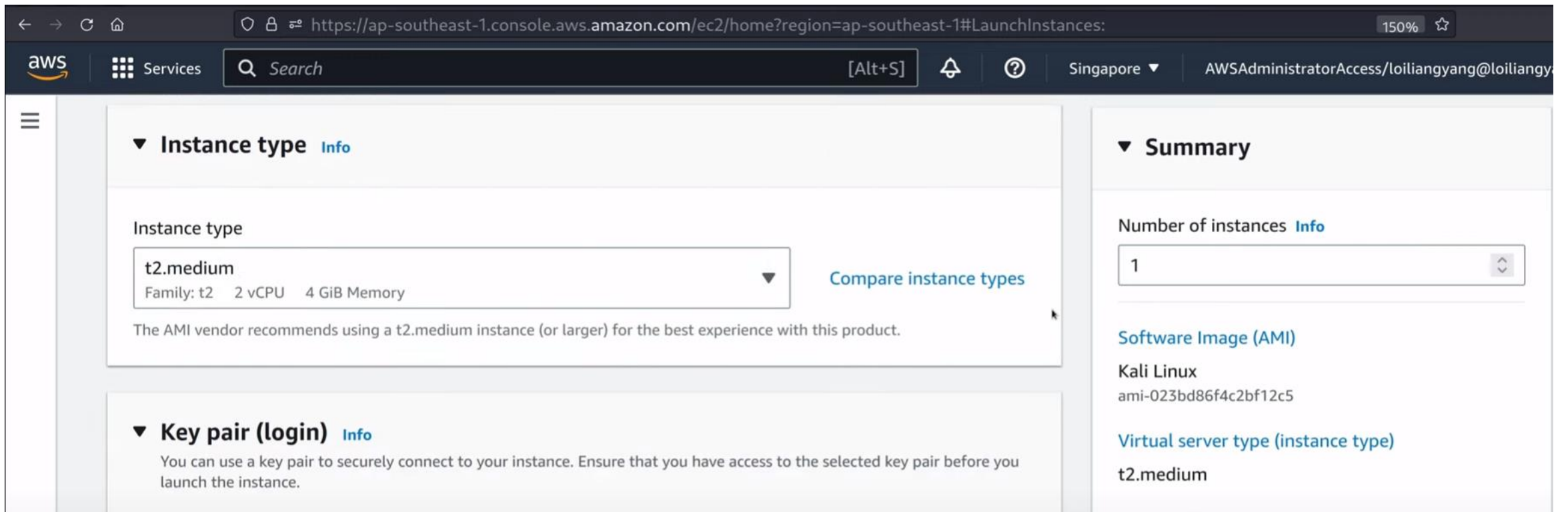
[Storage \(volumes\)](#)

1 volume(s) - 12 GiB

Cancel Launch instance

A Quick Introduction to Kali Linux in AWS

- Let's scroll down little bit further. Here is the detail, the instance type, the is the most important info about the service level (how much \$ you are going to pay).



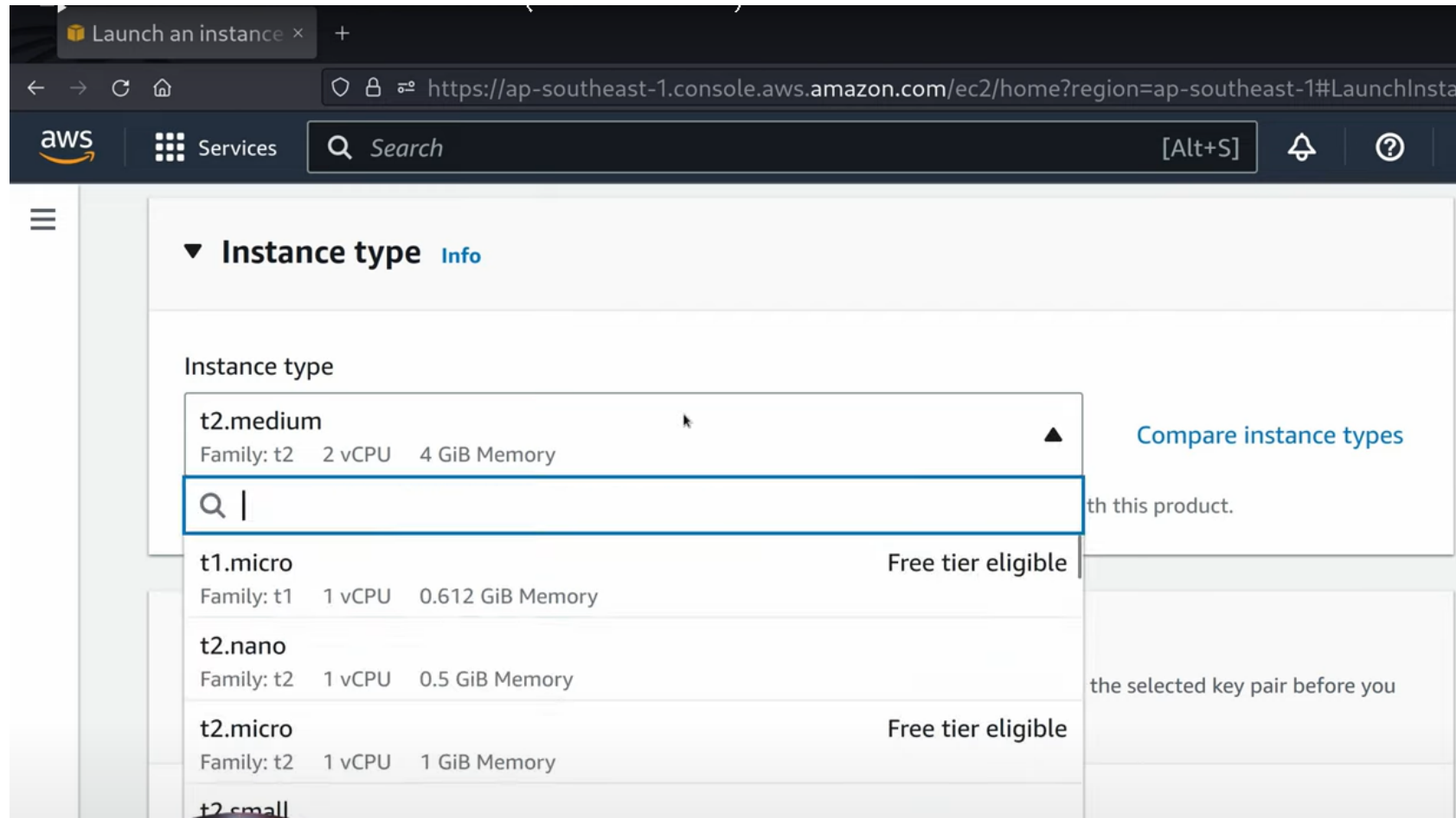
The screenshot displays the AWS Management Console interface for launching an EC2 instance. The browser address bar shows the URL: `https://ap-southeast-1.console.aws.amazon.com/ec2/home?region=ap-southeast-1#LaunchInstances:`. The console header includes the AWS logo, a search bar, and the user's session information: `AWSAdministratorAccess/loiliangyang@loiliangy`.

The main content area is divided into two columns. The left column contains the 'Instance type' section, which is expanded to show the 't2.medium' instance type. Below the dropdown menu, it specifies 'Family: t2', '2 vCPU', and '4 GiB Memory'. A blue link 'Compare instance types' is visible. A note states: 'The AMI vendor recommends using a t2.medium instance (or larger) for the best experience with this product.' Below this is the 'Key pair (login)' section, which is also expanded, showing instructions on how to use a key pair to securely connect to the instance.

The right column contains the 'Summary' section, which is also expanded. It shows the 'Number of instances' set to '1'. Below this, the 'Software Image (AMI)' is listed as 'Kali Linux' with the AMI ID 'ami-023bd86f4c2bf12c5'. The 'Virtual server type (instance type)' is listed as 't2.medium'.

A Quick Introduction to Kali Linux in AWS

- Click the drop down menu and select some other solutions.



A Quick Introduction to Kali Linux in AWS


- Scroll down and you will find this
- Now, this is an important setup, key pair.
- Go ahead and click the [Create new key pair]

▼ **Key pair (login)** [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

Select ▼

 [Create new key pair](#)

A Quick Introduction to Kali Linux in AWS

- We are going to use keys to verify our identity in the connection to SSH or RDP
- Click the “Create key pair”
- In the next step, it will give you a prompt to save it locally
- The machine we are using is Windows

Key pairs allow you to connect to your instance securely.

Enter the name of the key pair below. When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** [Learn more](#)

Key pair name

kalilinuxhackerloi

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

☒ RSA

RSA encrypted private and public key pair

☐ ED25519

ED25519 encrypted private and public key pair (Not supported for Windows instances)

Private key file format

☒ .pem

For use with OpenSSH

☐ .ppk

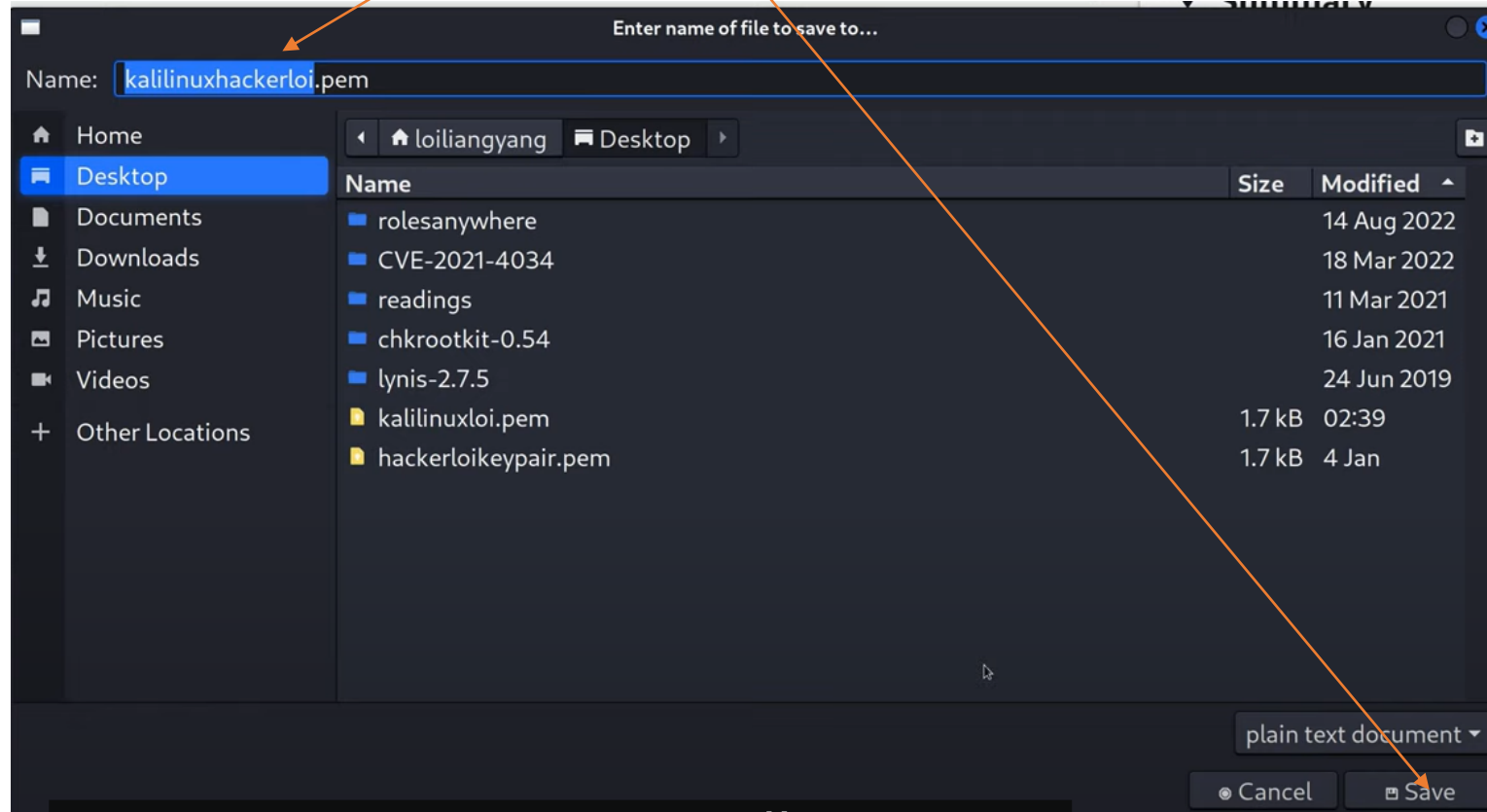
For use with PuTTY

Cancel

Create key pair

A Quick Introduction to Kali Linux in AWS

- See? Our key! Just save it to desktop for demo purpose



A Quick Introduction to Kali Linux in AWS

- Next up, what we have here is the network settings.
- This one is more important because this is related with “security”

▼ Network settings [Info](#)

Edit

Network [Info](#)

vpc-1743bf71

Subnet [Info](#)

No preference (Default subnet in any availability zone)

Auto-assign public IP [Info](#)

Enable

Firewall (security groups) [Info](#)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group

☐ Select existing security group

A Quick Introduction to Kali Linux in AWS

- I will talk about it in the next time, before our Kali instance is launched in the AWS cloud.