



KVMInstalation

Cloud Essentials (Lovely Professional University)



Scan to open on Studocu



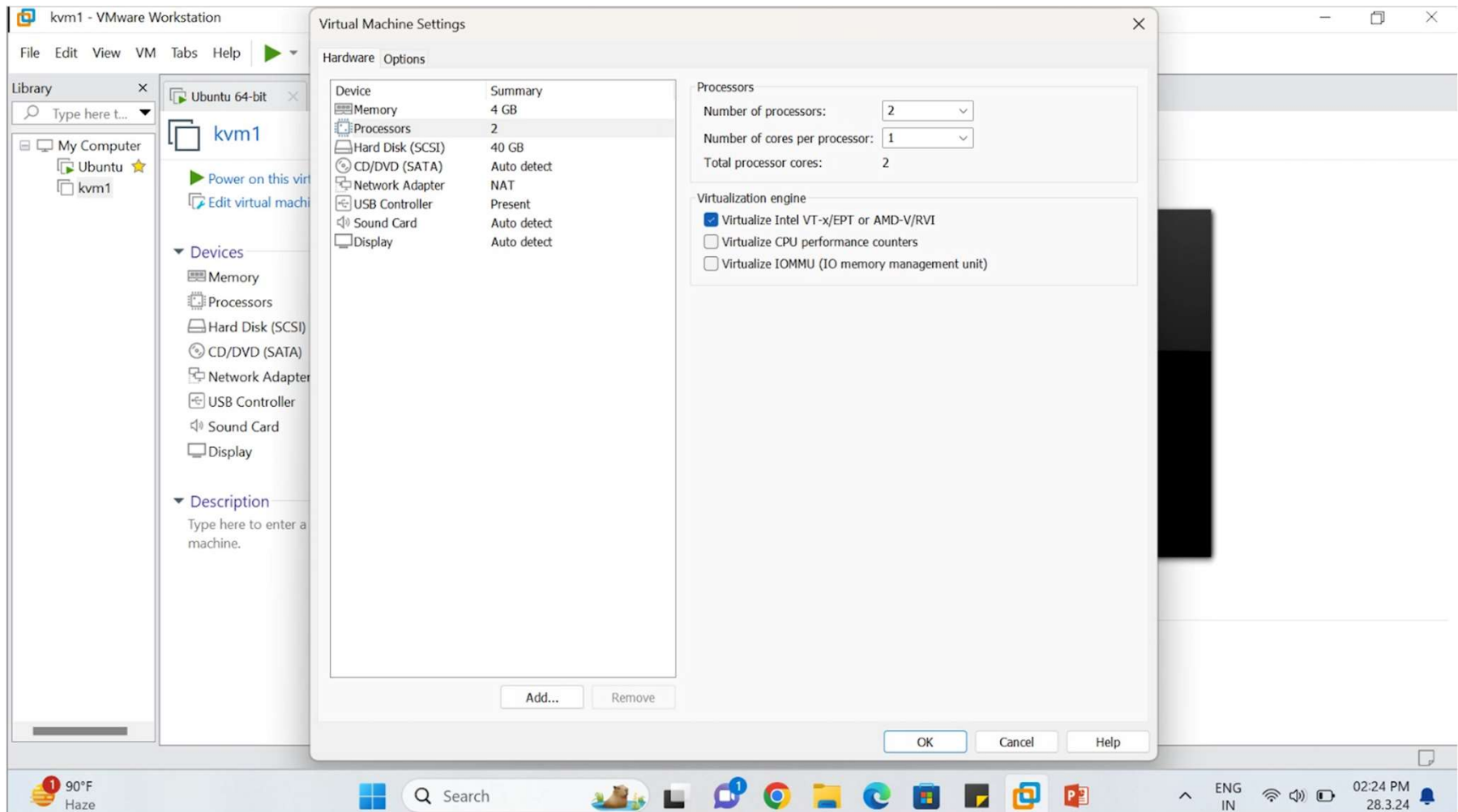
INT-362

KVM install

Set up nested virtualization in VMWare Workstation

1. Navigate to the **VM Settings - Hardware** page for the VM you would like to edit.
2. Click **Edit** in the **Guest OS** settings section.
3. Click the checkbox for **Enable nested virtualization**.

Set up nested virtualization in VMWare Workstation

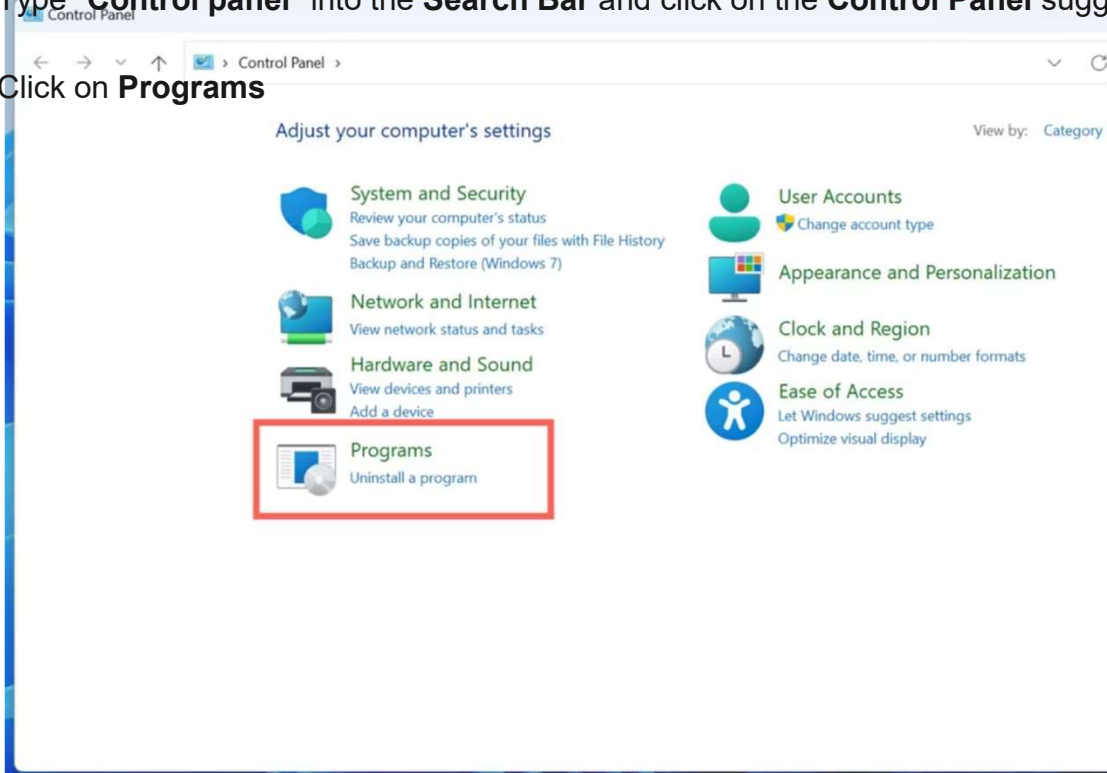


How to disable Hyper-V in Windows 11 using Control Panel

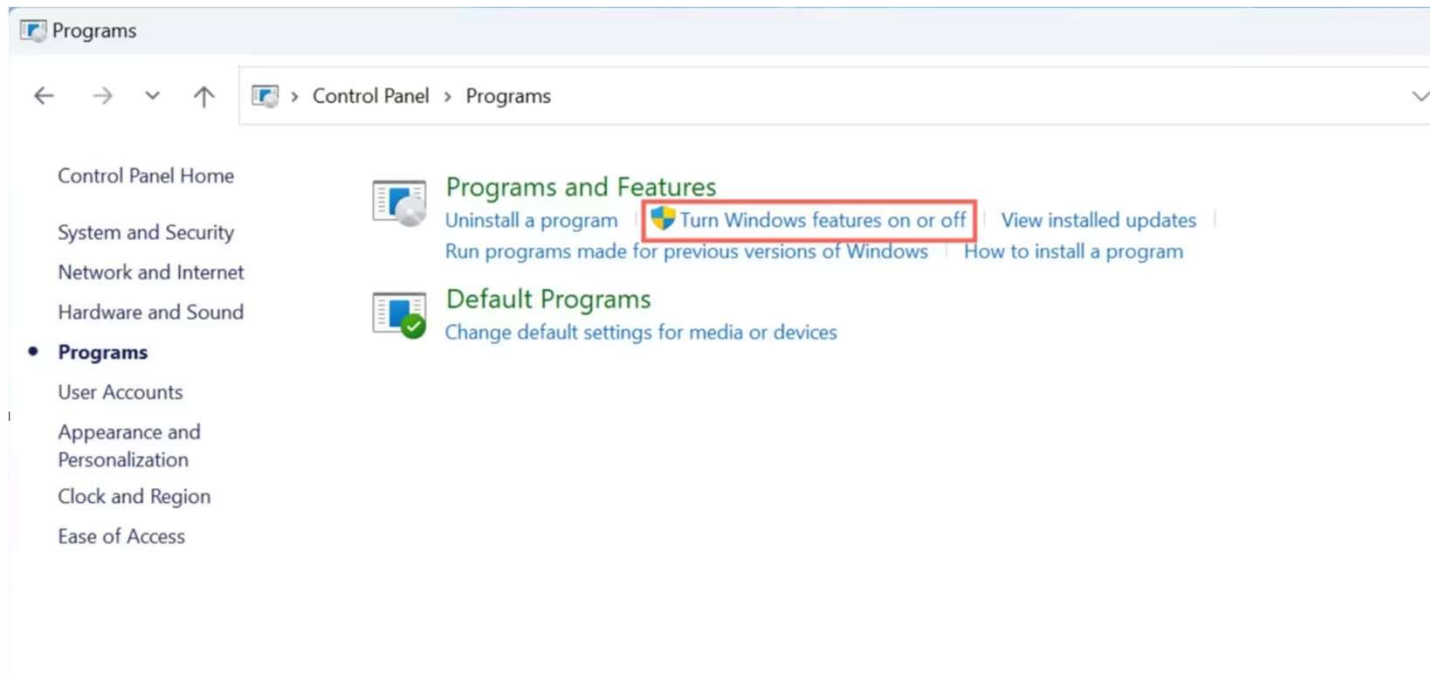
The simplest way to turn off Hyper-V on your PC involves navigating through Windows Features in the Control Panel.

1. Type "**Control panel**" into the **Search Bar** and click on the **Control Panel** suggestion.

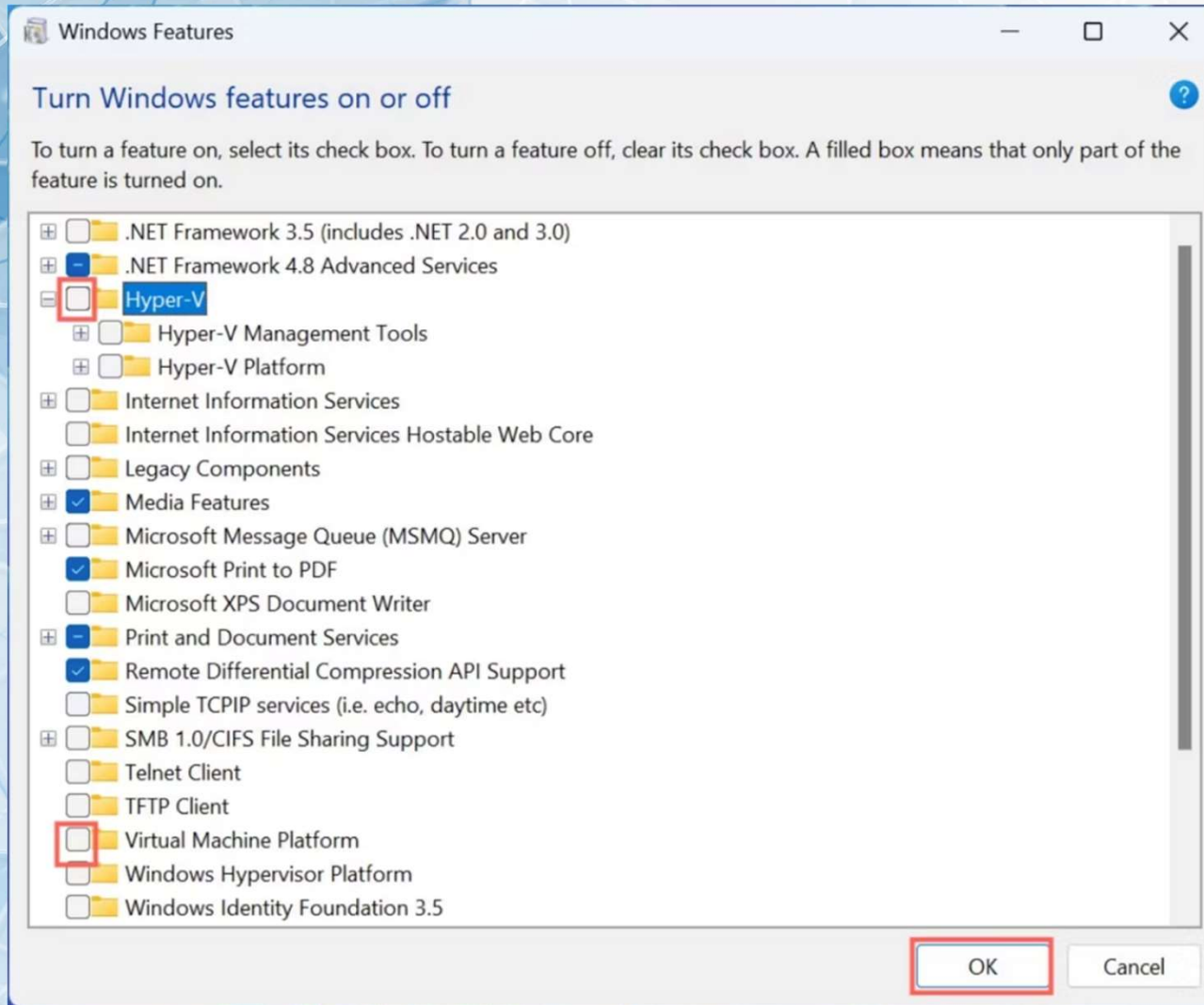
2. Click on **Programs**



Select Turn Windows features on or off



1. Scroll down until you spot **Hyper-V** in the **Windows Features** window and click on the checkmark next to it to disable Hyper-V.



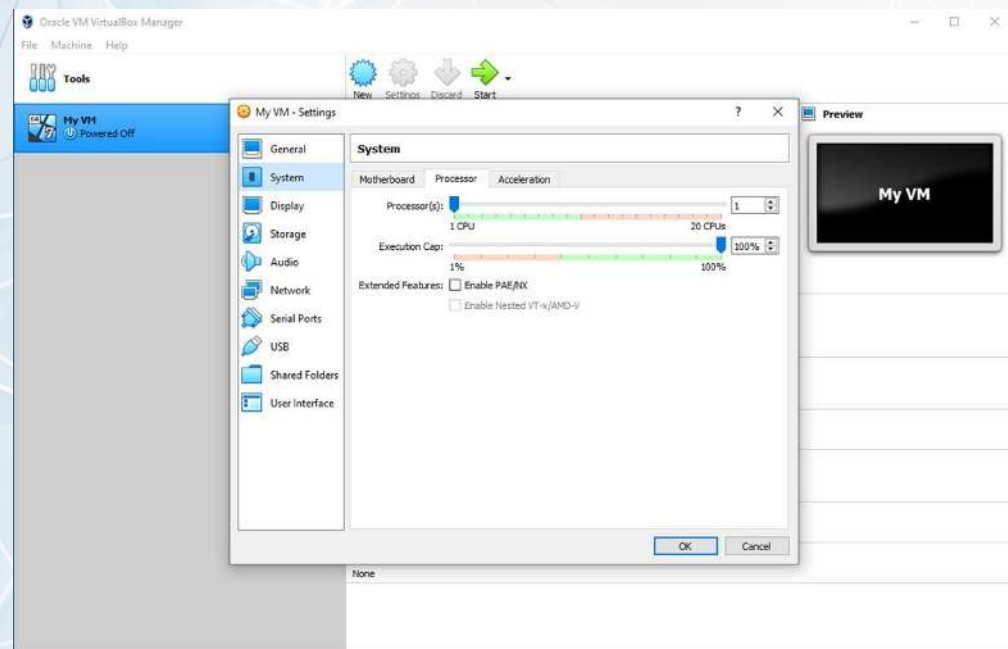
Set up VirtualBox nested virtualization

The system settings are divided into a series of tabs. Select the Processor tab, then the Enable Nested VT-x/AMD-V checkbox

open the settings of (powered off) virtual machine and go to **System -> Processor**, the option "**Enable Nested VT-x/AMD-V**" is greyed out and if it cannot be enabled.

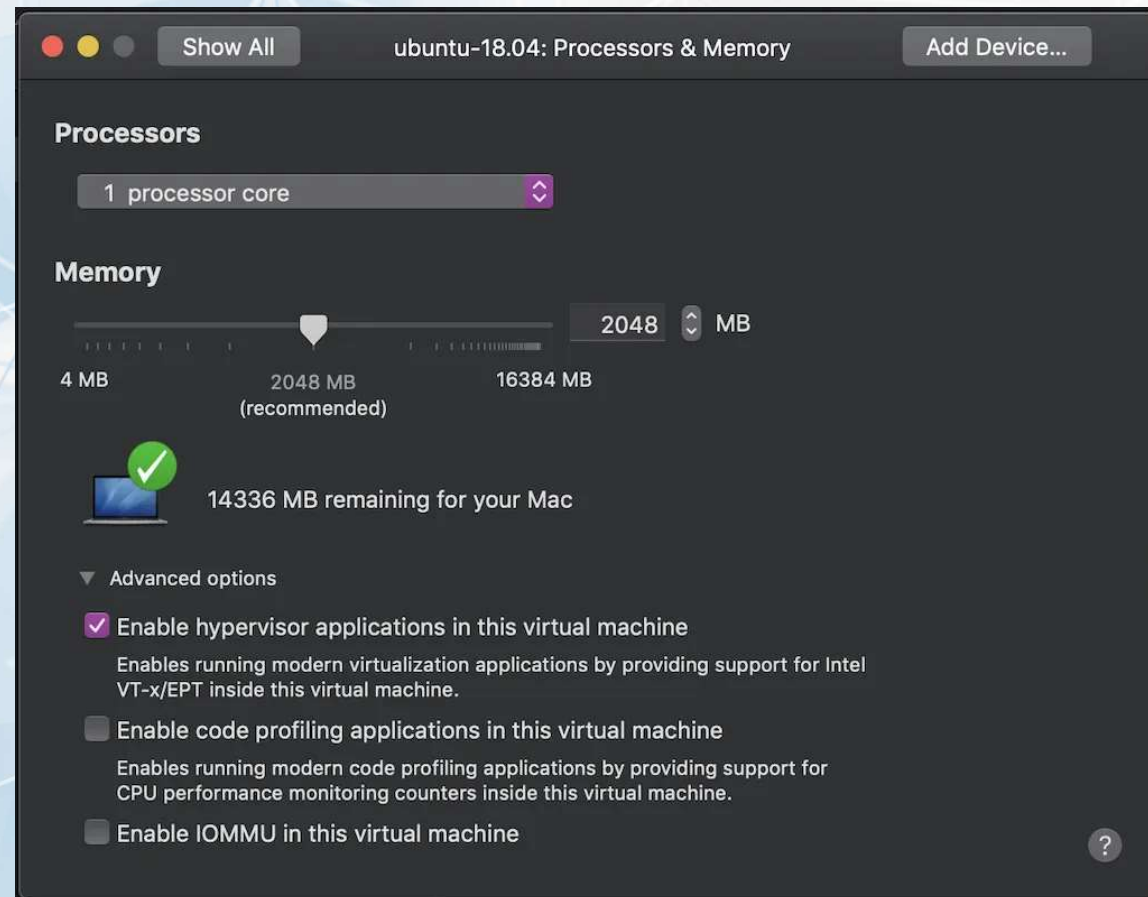
open a new *PowerShell* in your VB installation folder and type:

`./VBoxManage modifyvm "Virtual Machine Name" --nested-hw-virt on`



Set up nested virtualization in VMWare Fusion in MAC

It can be enabled by ticking the **Enable hypervisor applications in this virtual machine** option. This is found in the advanced options of the **Processors & Memory** screen for the virtual machine you want to run nested virtualization on.



KVM install

In Ubuntu:

Install KVM and CloudStack agent, configure libvirt:

```
# apt install qemu-kvm cloudstack-agent
```

Enable VNC for console proxy:

```
# sed -i -e 's/\#vnc_listen.*$/vnc_listen = "0.0.0.0"/g'  
/etc/libvirt/qemu.conf
```

KVM install

Installation of KVM and Cloud Stack Agent in Ubuntu

For the sake of completeness, the user should check if KVM is running ok on the machine using the following command:

```
# lsmod | grep kvm  
kvm_intel      55496 0  
kvm           337772 1 kvm_intel  
kvm_amd # if you are in AMD cpu
```

Sudo kvm-ok

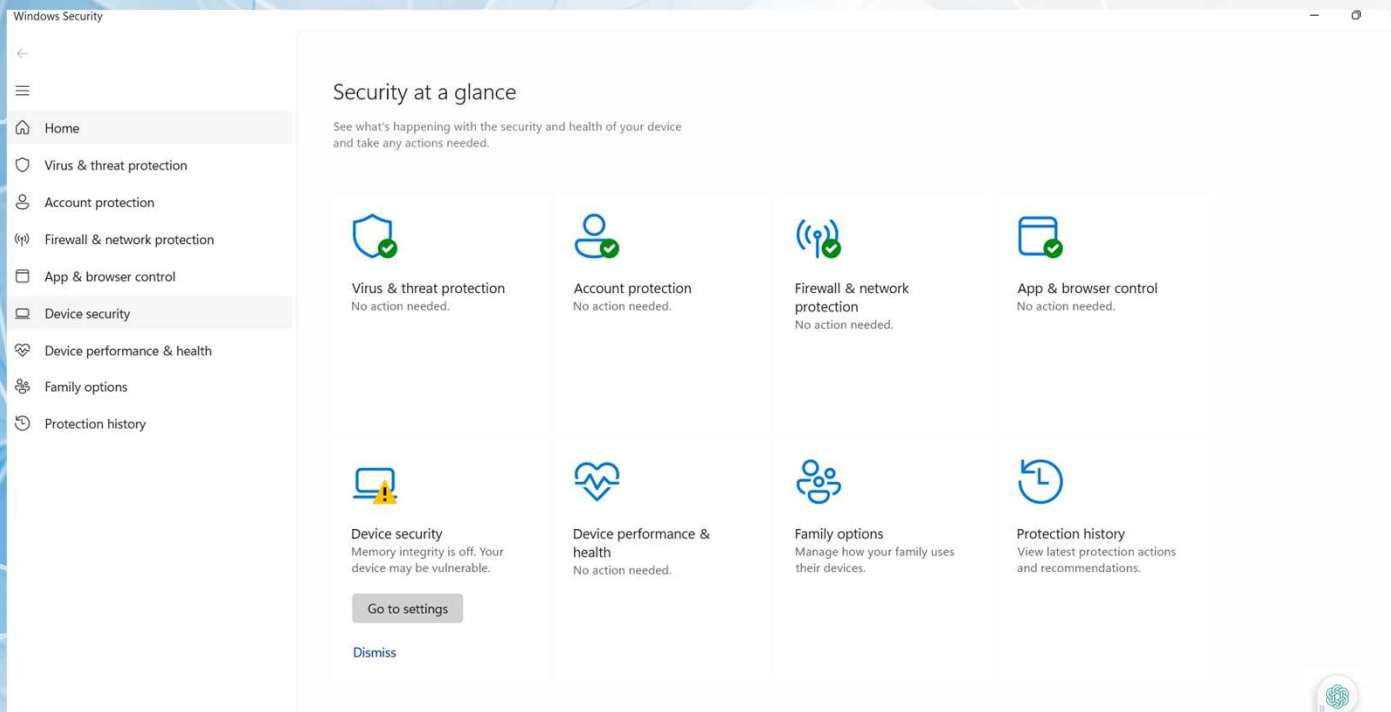
KVM install

Note:

Perform the following steps:

1. Go to: **settings** → **windows security** → **Device Security** → **core isolation** → **memory integrity off**

Step1: window security → device security →

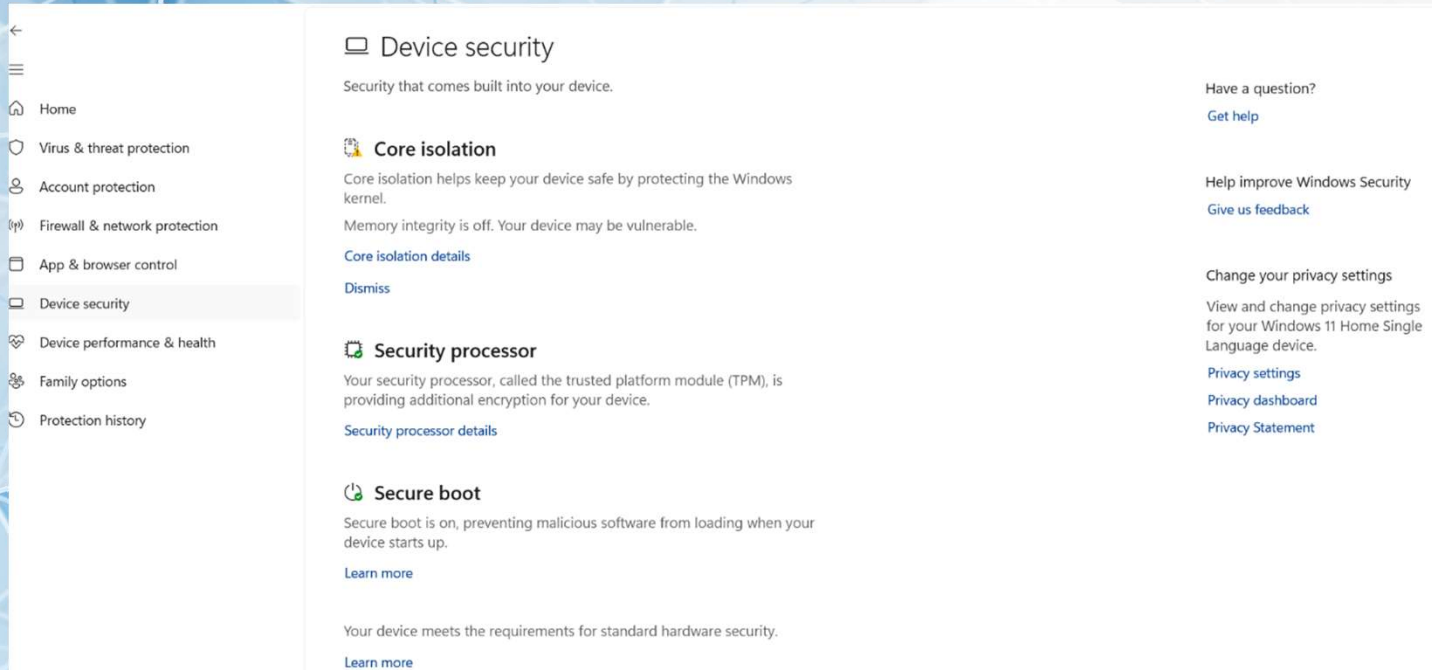


KVM install

Note:

Perform the following steps:

1. Go to: **settings**→**windows security**→**Device Security**→**core isolation**→**memory integrity off**

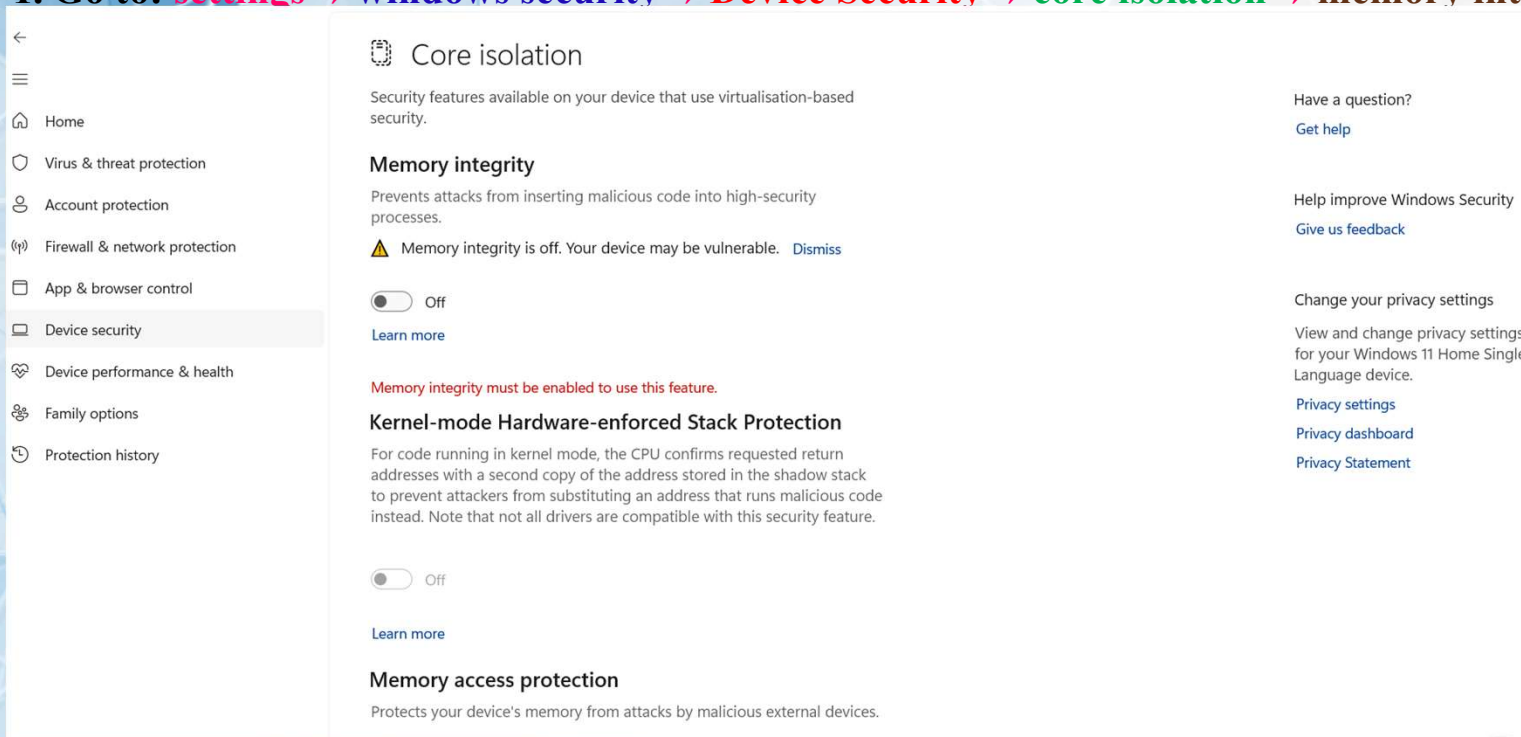


KVM install

Note:

Perform the following steps:

1. Go to: **settings**→**windows security**→**Device Security**→**core isolation**→**memory integrity off**



Preparation for KVM install

In your Virtualbox or VMWare workstation

- Turn on nested virtualization —processor enable vtx
- Ensure windows allows nested virtualization
- Ensure core isolation is turned OFF
- Add a new adapter for host-only networks
- check using `sudo kvm-ok`
- `egrep -c '(vmx|svm)' /proc/cpuinfo`

```
int362@cloud362:~$ kvm-ok
INFO: /dev/kvm exists
KVM acceleration can be used
int362@cloud362:~$ egrep -c '(vmx|svm)' /proc/cpuinfo
4
int362@cloud362:~$
```

Preparation for KVM install

After ensuring cloudstack is up and running you will need to install a few new packages

on your terminal run the following

- `apt install -y openssh-server`
- `apt install -y cpu-checker`
- `apt install -y cloudstack-agent`

```

int362@cloud362:~$ kvm-ok
INFO: /dev/kvm exists
KVM acceleration can be used
int362@cloud362:~$ egrep -c '(vmx|svm)' /proc/cpuinfo
4
int362@cloud362:~$ sudo systemctl status cloudstack-management
[sudo] password for int362:
● cloudstack-management.service - CloudStack Management Server
   Loaded: loaded (/lib/systemd/system/cloudstack-management.service; enabled>
   Active: active (running) since Tue 2024-03-26 12:14:16 IST; 6min ago
     Main PID: 1508 (java)
       Tasks: 179 (limit: 4489)
      Memory: 1.0G
         CPU: 1min 2.122s
        CGroup: /system.slice/cloudstack-management.service
                └─1508 /usr/bin/java -Djava.security.properties=/etc/cloudstack/ma>

Mar 26 12:17:53 cloud362 java[1508]: INFO [c.c.s.StatsCollector] (StatsCollect>
Mar 26 12:17:53 cloud362 java[1508]: INFO [c.c.s.StatsCollector] (StatsCollect>
Mar 26 12:17:53 cloud362 java[1508]: INFO [c.c.s.StatsCollector] (StatsCollect>
Mar 26 12:18:53 cloud362 java[1508]: INFO [c.c.s.StatsCollector] (StatsCollect>
Mar 26 12:18:53 cloud362 java[1508]: INFO [c.c.s.StatsCollector] (StatsCollect>
Mar 26 12:18:53 cloud362 java[1508]: INFO [c.c.s.StatsCollector] (StatsCollect>
Mar 26 12:19:52 cloud362 java[1508]: INFO [c.c.r.ResourceLimitManagerImpl] (Re>

```

Preparation for KVM install

Setup domain name because you have to install kvm and management server to same machine

- `hostname --fqdn`

this command tells you your complete name, for ex it is `server.cloud.c1`, then do

- `sudo nano /etc/ldapd.conf`
- here uncomment domain and write the domain name from your hostname
- now my domain name will be `cloud.c1`

Edit permission

You should run these in root mode by entering
su root and your password

- `sed -i -e 's/#vnc_listen.*$/vnc_listen = "0.0.0.0"/g' /etc/libvirt/qemu.conf`
- `systemctl mask libvirtd.socket libvirtd-ro.socket libvirtd-admin.socket libvirtd-tls.socket libvirtd-tcp.socket`
- `systemctl restart libvirtd`
- `apt-get install uuid`
- `UUID=$(uuid)`
- `echo host_uuid = \"$UUID\" >> /etc/libvirt/libvirtd.conf`

Edit permission

You should run these in root mode by entering
su root and your password

Sudo nano /etc/libvirt/libvirtd.conf

- echo host_uuid = \"\$UUID\" >> /etc/libvirt/libvirtd.conf

Edit permission

You should make these settings in `/etc/libvirt/libvirtd.conf`,
uncomment the lines

- `listen_tls=0`
- `listen_tcp=0`
- `tcp_port = "16509"`
- `tls_port = "16514"`
- `listen_addr = "192.168.0.1" # set as your gateway`
- `mdns_adv = 0 # this line needs to be added separately`
- `auth_tcp = "none"`
- Save and exit
- `systemctl restart libvirtd`

Edit permission

You should make these settings in

`/etc/cloudstack/agent/agent.properties`, change these lines

- `host=[give your management server ip here]@static`

This should look like `host=10.0.2.15@static`

Uncomment the lines

- `private.network.device=cloudbr0`
- `public.network.device=cloudbr0`
- `guest.network.device=cloudbr0`

Make sure all use `cloudbr0`

After making these changes, restart `libvirt`, restart `cloudstack-agent`

Edit permission

You should run these in root mode by entering
su root and your password

- `ln -s /etc/apparmor.d/usr.sbin.libvirt /etc/apparmor.d/disable/`
- `ln -s /etc/apparmor.d/usr.lib.libvirt.virt-aa-helper /etc/apparmor.d/disable/`
- `apparmor_parser -R /etc/apparmor.d/usr.sbin.libvirt`
- `apparmor_parser -R /etc/apparmor.d/usr.lib.libvirt.virt-aa-helper`

Configure Networks

Bridging will be needed between management server and KVM

- Go to `sudo nano /etc/netplan/01-network-manager-all.yaml`
- Visit tinyurl.com/int362cp to find contents of this file
- you should know by now what needs to be replaced in this, close and exit
- `sudo netplan apply` or `netplan --debug apply`
- `sudo systemctl restart NetworkManager`

Configure Firewall

Your firewall needs information on working ports so run these

- `$ ufw allow proto tcp from any to any port 22`

did you get permission denied.... who will give sudo in front?

- `$ ufw allow proto tcp from any to any port 1798`
- `$ ufw allow proto tcp from any to any port 16514`
- `$ ufw allow proto tcp from any to any port 5900:6100`
- `$ ufw allow proto tcp from any to any port 49152:49216`

or you could get rid of it using

- `sudo ufw disable`

Configure additional settings

Now check status of a few services if they are functional

- In an extreme case you might need to pick up host_uuid without quotes from
- `nano /etc/libvirt/libvirtd.conf`
- find the host-uuid in end of file, copy the uuid
- then open `sudo nano /etc/cloudstack/agent/agent.properties`
- paste in from of guid=

Try adding host Unable to add host?

Troubleshoot!!! Check logs

- `sudo systemctl status libvirtd`
- `sudo systemctl status cloudstack-agent`
- `sudo journalctl -xe cloudstack-agent`

Everything seems fine ?
Go to management server in browser and
add host

setup the ip addresses properly