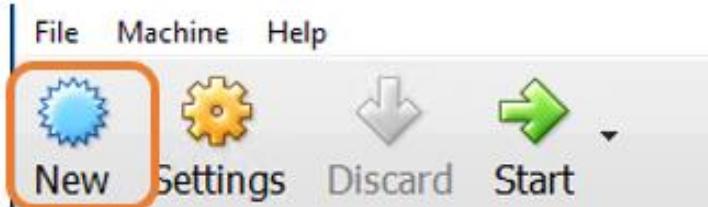


## SPDK Vagrant Box Install Instructions

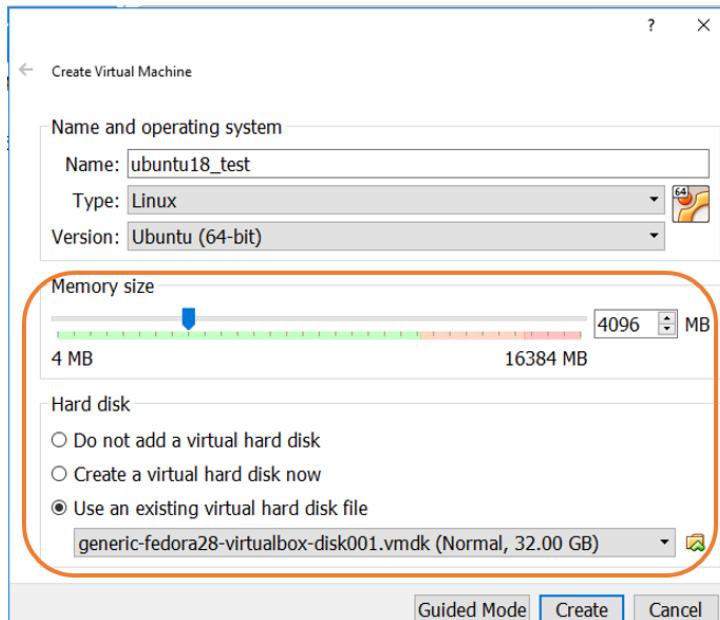
Before attending the SPDK lab, please follow the steps below to install the Vagrant development environment and SPDK on your laptop.

1. Install VirtualBox and its dependencies
  - i. Install [VirtualBox](#) 5.1 or newer (tested on windows os version 1607/mac os 10.13.4, suggested version is 5.1.38)  
**Note:** VirtualBox requires virtualization to be enabled in the BIOS.
  - ii. Install [VirtualBox Extension Pack](#) (tested on windows os version 1607/mac os 10.13.4, suggested version is 5.1.38)  
**Note:** You should disable Hyper-V in Windows RS 3 laptop. Search ‘windows features’, uncheck Hyper-V, restart laptop
2. Install [Vagrant](#) 1.9.4 or newer (tested on windows os version 1607/mac os 10.13.4, suggested version is 1.9.4)
3. Download the \*.vdi file from the baidu network drive link is: [https://pan.baidu.com/s/1ecOg5hp-ijEleeS\\_Y6YBUG](https://pan.baidu.com/s/1ecOg5hp-ijEleeS_Y6YBUG) (retrieve code is “gxce”), you need to download both ubuntu-18\_virtualbox\_5.1.38.vdi and nvme\_disk\_copy.vdi file there.
4. Create the virtual machine using the \*.vdi file

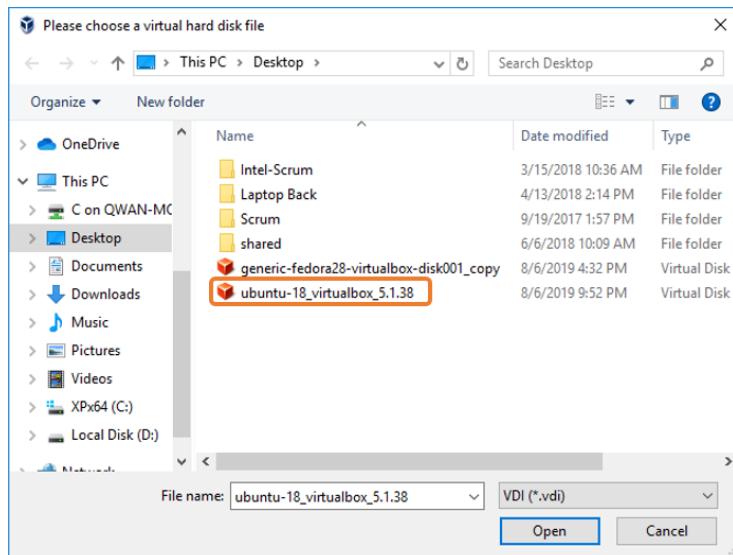
- i. Create the Virtual Machine
  - i Click New button on the menu bar



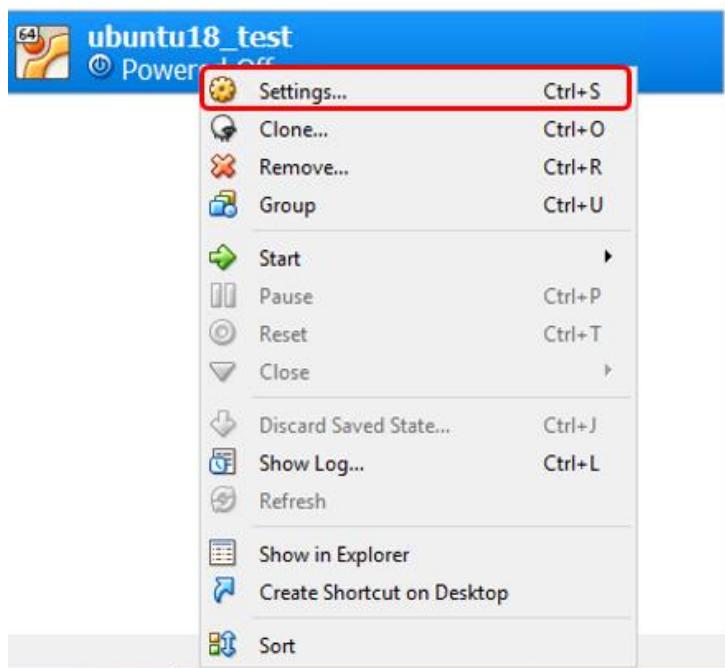
- ii Open the expert mode to configure the virtual machine



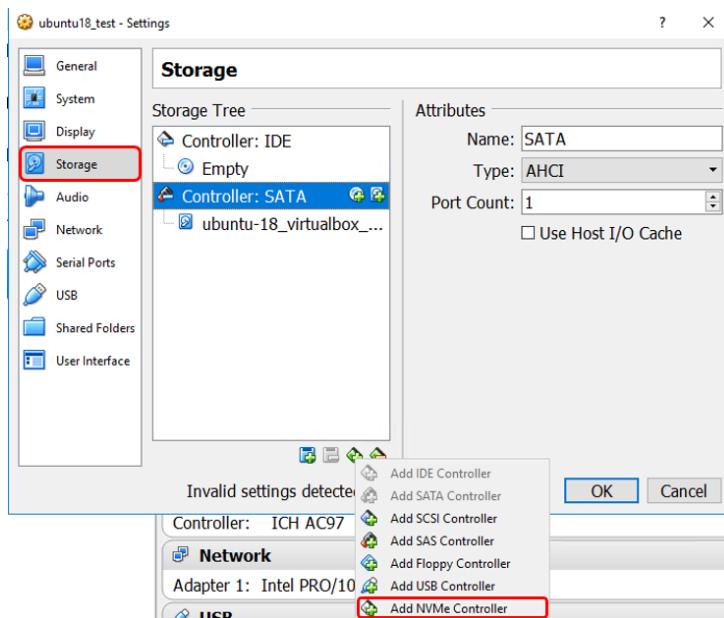
- iii Select the existing virtual hard disk file



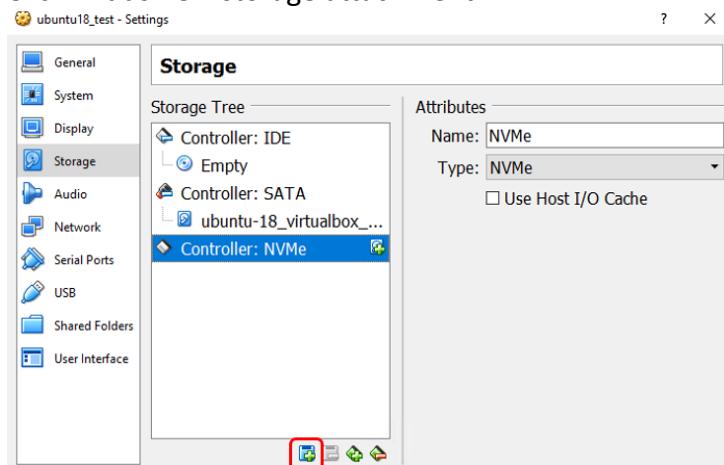
- iv Click "Create" button
- ii. Add the "NVME" device
- i Right click the VM that's created just now. Click "Settings..." button



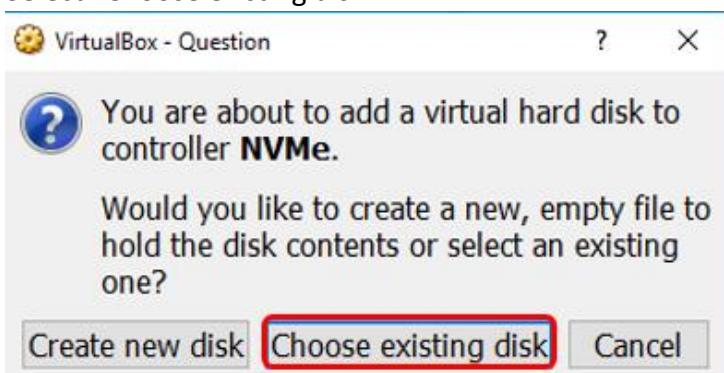
- ii Select "Storage"->"Add NVMe Controller"



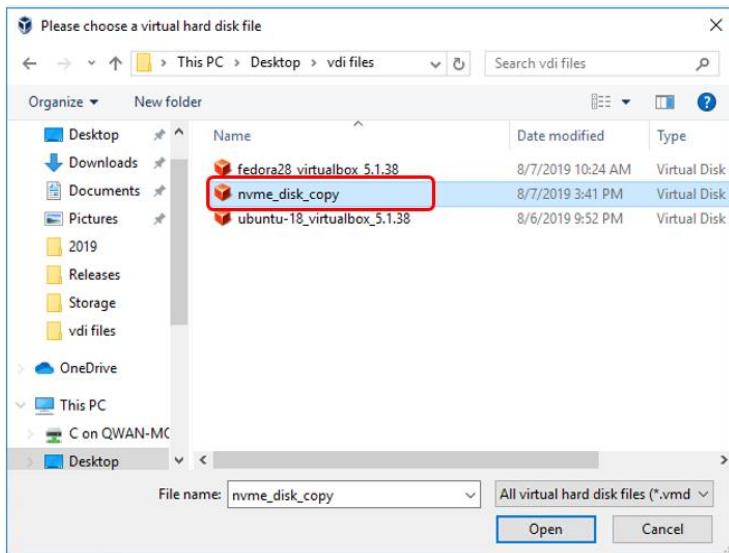
iii Click “Adds new storage attachment.”



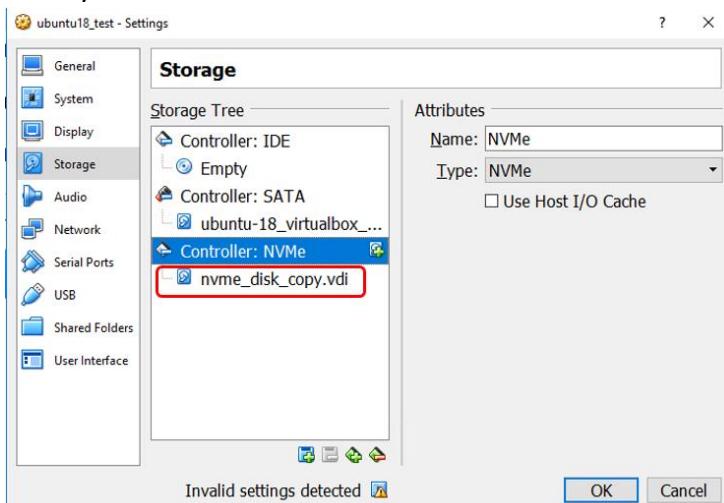
iv Select “Choose existing disk”



v Select the file “nvme\_disk\_copy” and click “Open”



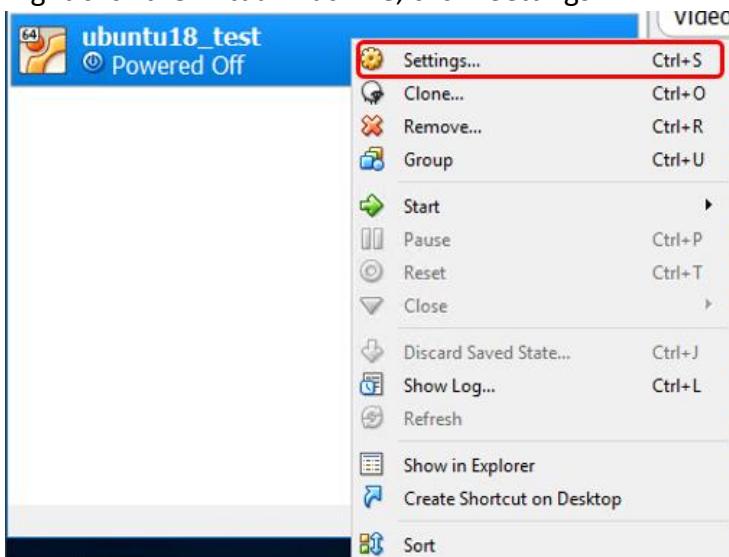
vi Then you will see the nvme device is attached as follows



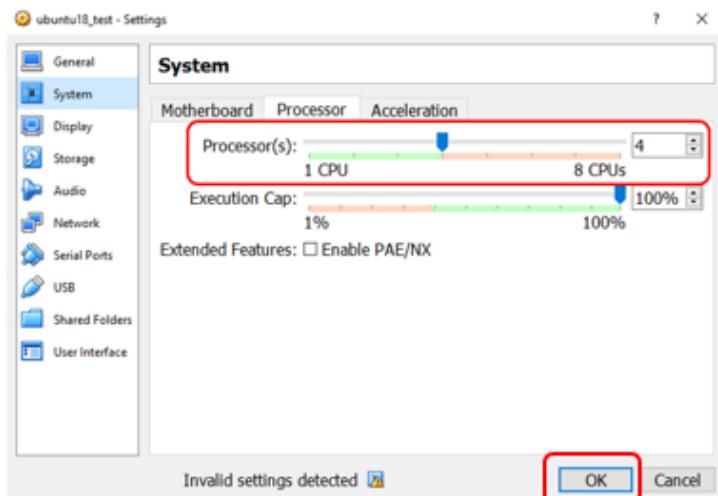
vii Click "OK"

iii. Increase the CPU# from 1 to 4

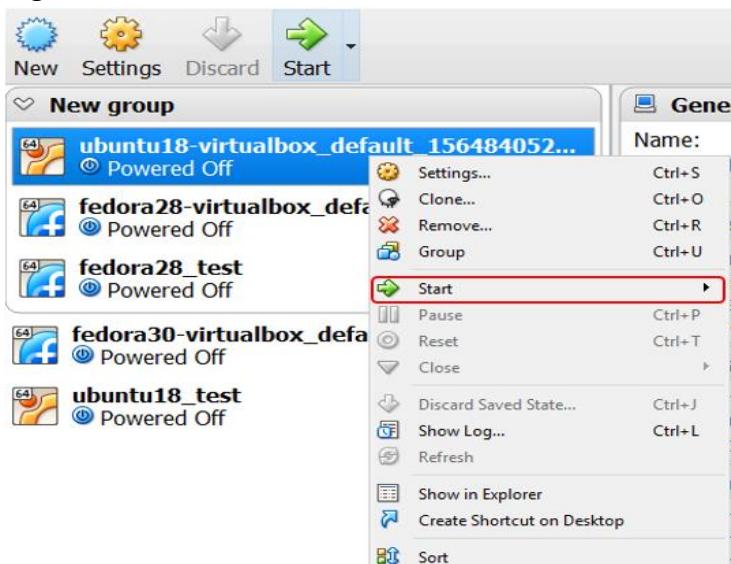
i Right click the virtual machine, click "Settings"



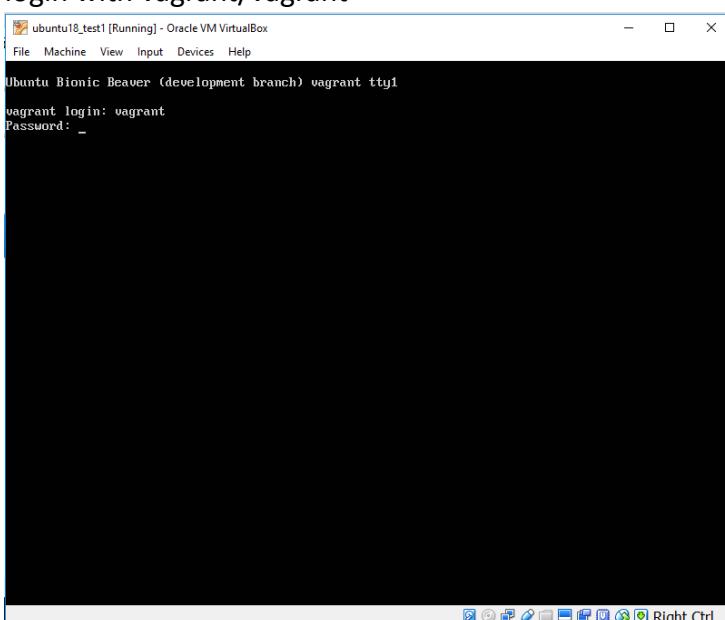
ii Change the CPU# from 1 to 4, click "OK"



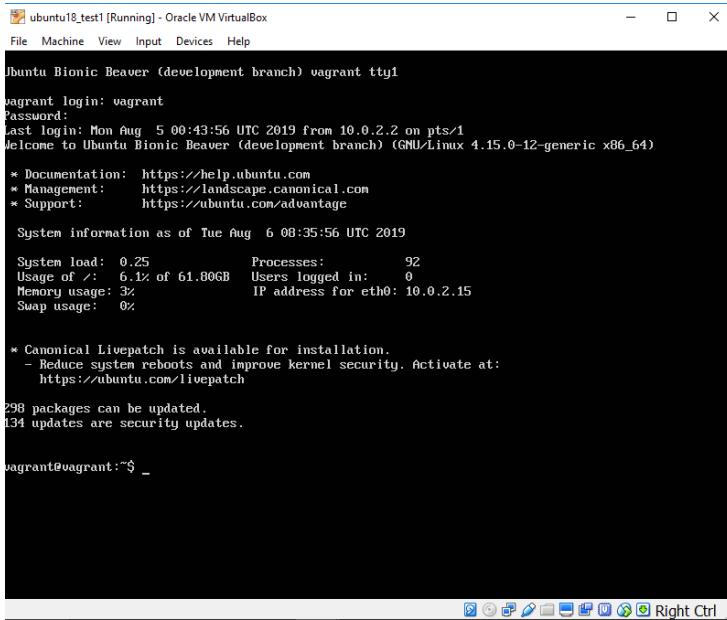
- iv. Start the newly created virtual machine, when virtual machine finished initialization
- Right click the virtual machine and click "Start"



- login with vagrant/vagrant



iii After login successfully, you may see the welcome message as follows



A screenshot of a terminal window titled "ubuntu18\_test1 [Running] - Oracle VM VirtualBox". The window shows the following text:

```
Jbuntu Bionic Beaver (development branch) vagrant ttym1
vagrant login: vagrant
Password:
Last login: Mon Aug  5 00:43:56 UTC 2019 from 10.0.2.2 on pts/1
Welcome to Ubuntu Bionic Beaver (development branch) (GNU/Linux 4.15.0-12-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Tue Aug  6 08:35:56 UTC 2019

System load: 0.25      Processes:         92
Usage of /: 6.1% of 61.00GB  Users logged in: 0
Memory usage: 3%
Swap usage:  0%

* Canonical Livepatch is available for installation.
- Reduce system reboots and improve kernel security. Activate at:
https://ubuntu.com/livepatch

298 packages can be updated.
134 updates are security updates.

vagrant@vagrant:~$ _
```

iv Then type in “*sudo su*” command to change to root user

**Note: Congratulations!! Start from now, you are working in the virtual machine**

- i. Verify you have an emulated NVMe device *vagrant@localhost:~\$ lspci | grep "Non-Volatile"*  
*00:0e.0 Non-Volatile memory controller: InnoTek Systemberatung GmbH Device 4e56*
- ii. If you are behind a corporate firewall, configure the following proxy settings
  - i. Set the http\_proxy and https\_proxy  
*vagrant@localhost:/# export http\_proxy=....*  
*vagrant@localhost:/# export https\_proxy=....*
- iii. Download and build SPDK.  
*vagrant@localhost:~/# cd /home/vagrant*  
*vagrant@localhost:/# git clone <https://github.com/spdk/spdk>*  
*vagrant@localhost:/# cd /spdk*  
*vagrant@localhost:/# git checkout remotes/origin/v19.07.x*  
*vagrant@localhost:/spdk# git submodule update --init*  
*vagrant@localhost:/spdk# ./configure*  
*vagrant@localhost:/spdk# make*
- iv. Run the hello\_world example to validate the environment is set up correctly.  
*vagrant@localhost:/spdk# scripts/setup.sh*  
*vagrant@localhost:/spdk# cd examples/bdev/hello\_world/*  
*vagrant@localhost:/spdk# ./hello\_bdev -c bdev.conf*
- v. Download and install the fio tool to run performance test.  
*vagrant@localhost:/vagrant# git clone https://github.com/axboe/fio*  
*vagrant@localhost:/vagrant# cd fio && git checkout fio-3.3*  
*vagrant@localhost:/vagrant# ./configure*  
*vagrant@localhost:/vagrant# make*  
*vagrant@localhost:/vagrant# make install*

Contact: When you have any issue that not solved with this document.  
You may also escalate to the following contact for further help. Thanks.

Cao, Gang: [gang.cao@intel.com](mailto:gang.cao@intel.com)

Wan, Qun: [qun.wan@intel.com](mailto:qun.wan@intel.com)