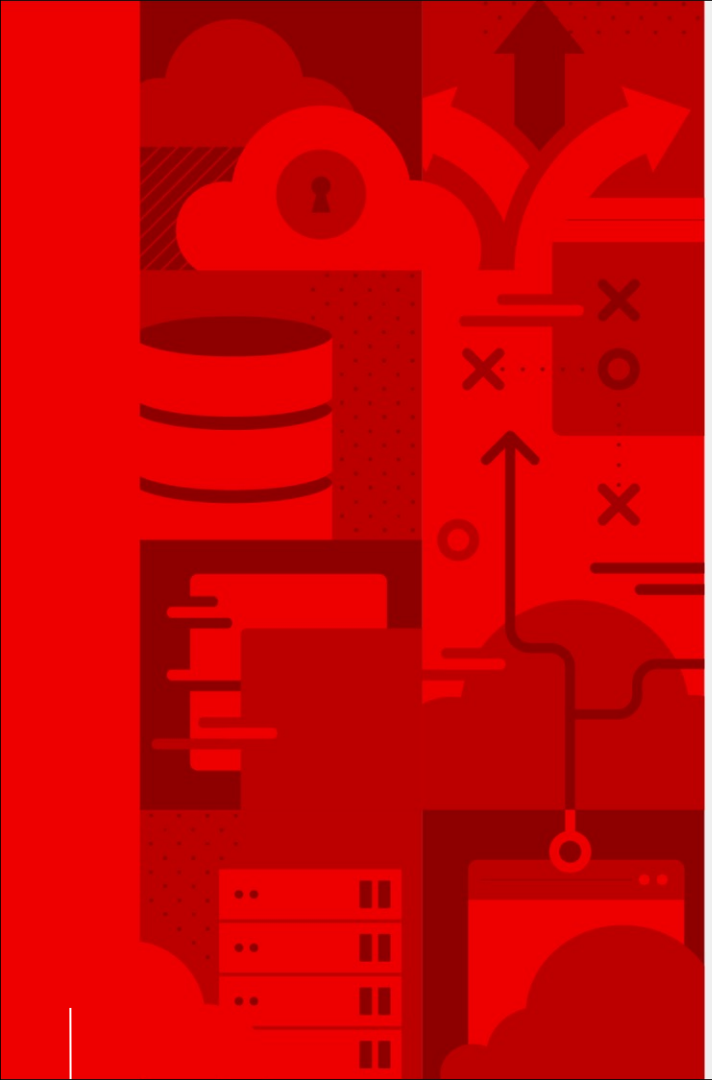


Moving your Physical Red Hat Enterprise Linux Servers to Azure or AWS

Dan Kinkead

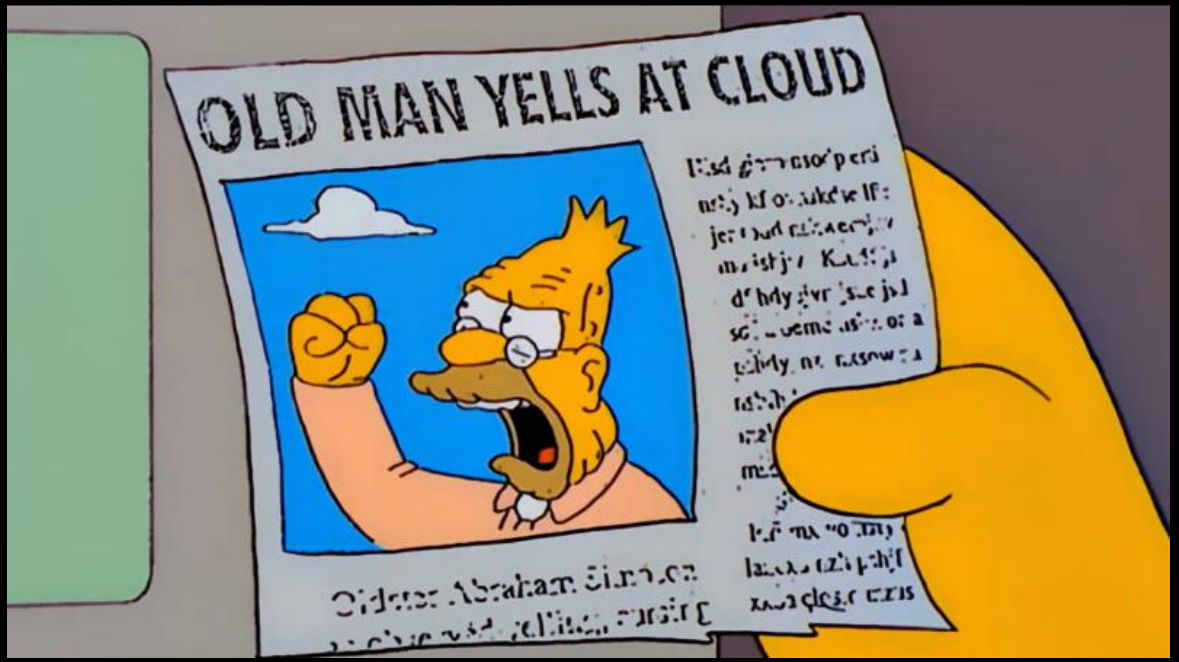
Technical Integrated Support Manager

Red Hat

dkinkead@redhat.com

Red Hat

Before the Migration


OLD MAN YELLS AT CLOUD


NO BACKUPS?
I TOO LIKE TO LIVE DANGEROUSLY
memegenerator.net

Cloud Access Program

Red Hat Cloud Access and migrating your subscriptions between clouds enrollment form

http://aka.ms/rhel-byos-preview

How to Locate Red Hat Cloud Access Gold Images on AWS EC2

Red Hat

Register Image

Please complete all fields in order to register your image to a public cloud.

IBM Cloud Bare Metal offering does not require Cloud Access

Red Hat Login	dkinkead@redhat.com
Email Address	dkinkead@redhat.com
Name	Dan Kinkead
Company Name	Red Hat
Cloud Provider	Microsoft Azure ▾
Microsoft Subscription Number/s	012345 +
Product Name	MW01 - Red Hat JBoss Enterprise Application Platform ▾
Quantity	15

Cancel Submit

Image Import was successfully created.

Image Registration Confirmation

You have successfully registered your image for import.
You may now move your image to your selected cloud provider.
Please access the provider's website for instructions on using their import tools.

Redhat Login	dkinkead@redhat.com
Email Address	dkinkead@redhat.com
Name	Dan Kinkead
Company Name	Red Hat
Cloud Provider	Microsoft Azure
Microsoft Subscription Number/s	012345
Product	MW01 - Red Hat JBoss Enterprise Application Platform
Quantity	15

Please print this certificate for your records.

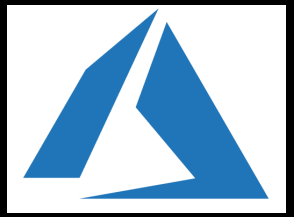
Cloud Access | Import New Image

Red Hat

Prepare Physical Machine for AWS

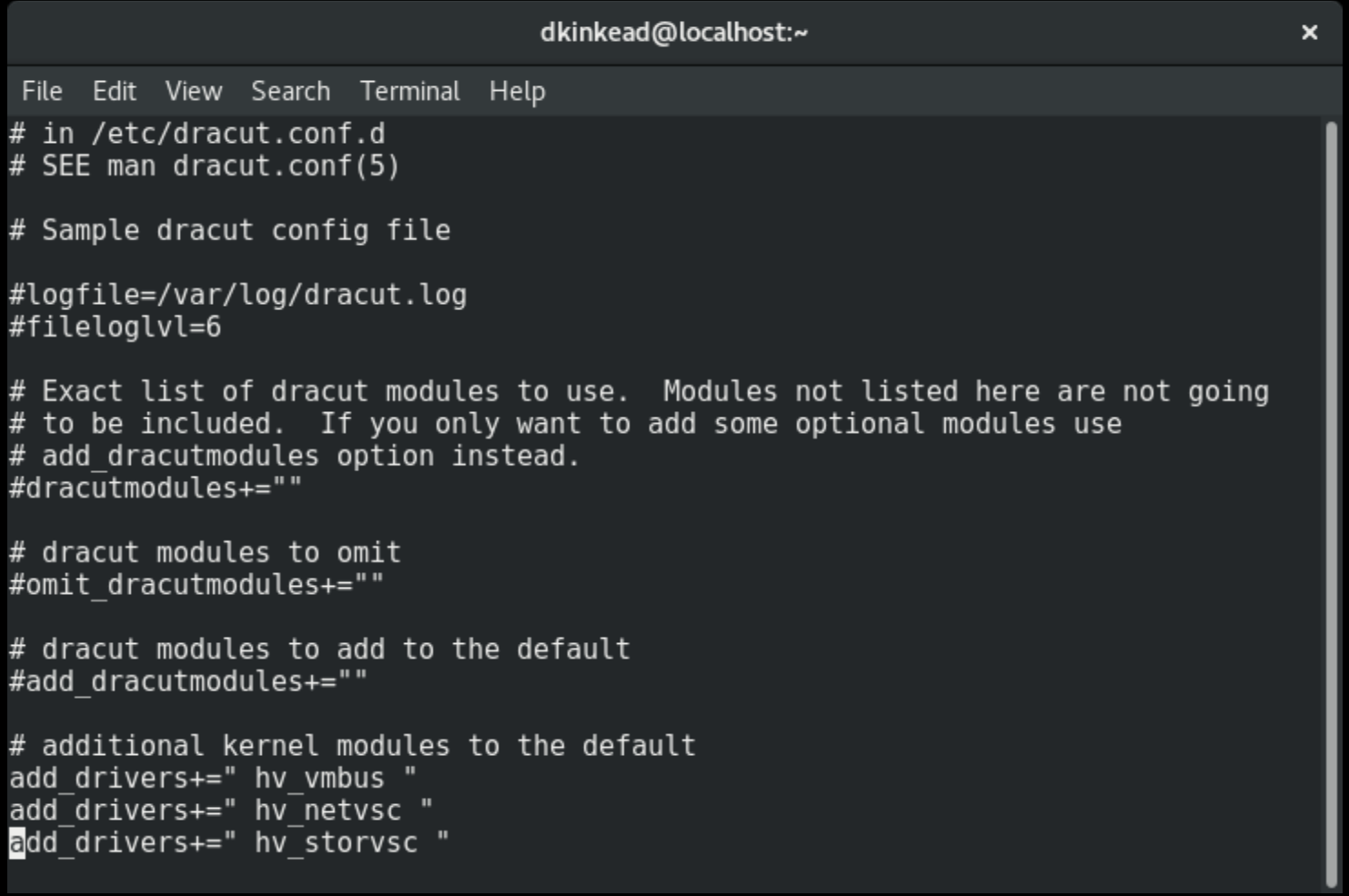
AWS CLI

Prepare Physical Machine for Azure



```
add_drivers+=" hv_vmbus "
add_drivers+=" hv_netvsc "
add_drivers+=" hv_storvsc “
```

Red Hat


dkinkead@localhost:~
File Edit View Search Terminal Help
in /etc/dracut.conf.d
SEE man dracut.conf(5)
Sample dracut config file
#logfile=/var/log/dracut.log
#fileloglvl=6
Exact list of dracut modules to use. Modules not listed here are not going
to be included. If you only want to add some optional modules use
add_dracutmodules option instead.
#dracutmodules+=""
dracut modules to omit
#omit_dracutmodules+=""
dracut modules to add to the default
#add_dracutmodules+=""
additional kernel modules to the default
add_drivers+=" hv_vmbus "
add_drivers+=" hv_netvsc "
add_drivers+=" hv_storvsc "

```
Provisioning.DeleteRootPassword=n
ResourceDisk.EnableSwap=y
ResourceDisk.SwapSizeMB=<size>
```

```
earlyprintk=ttyS0
console=ttyS0
rootdelay=300
numa=off <only needed in RHEL 6>
```

dkinkead@localhost:~

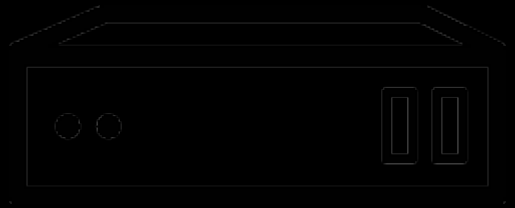
File Edit View Search Terminal Help

```
[dkinkead@localhost ~]$ cat /etc/default/grub
GRUB_TIMEOUT=5
GRUB_DISTRIBUTOR="$(sed 's, release .*$,,g' /etc/system-release)"
GRUB_DEFAULT=saved
GRUB_DISABLE_SUBMENU=true
GRUB_TERMINAL_OUTPUT="console"
GRUB_CMDLINE_LINUX="earlyprintk=ttyS0 console=ttyS0 rootdelay=300"
GRUB_DISABLE_RECOVERY="true"
[dkinkead@localhost ~]$ sudo grub2-mkconfig -o /boot/grub2/grub.cfg
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-3.10.0-693.17.1.el7.x86_64
Found initrd image: /boot/initramfs-3.10.0-693.17.1.el7.x86_64.img
Found linux image: /boot/vmlinuz-3.10.0-693.el7.x86_64
Found initrd image: /boot/initramfs-3.10.0-693.el7.x86_64.img
Found linux image: /boot/vmlinuz-0-rescue-bfdf12c5a69d47159a304e4dfab7d513
Found initrd image: /boot/initramfs-0-rescue-bfdf12c5a69d47159a304e4dfab7d513.im
g
done
[dkinkead@localhost ~]$
```

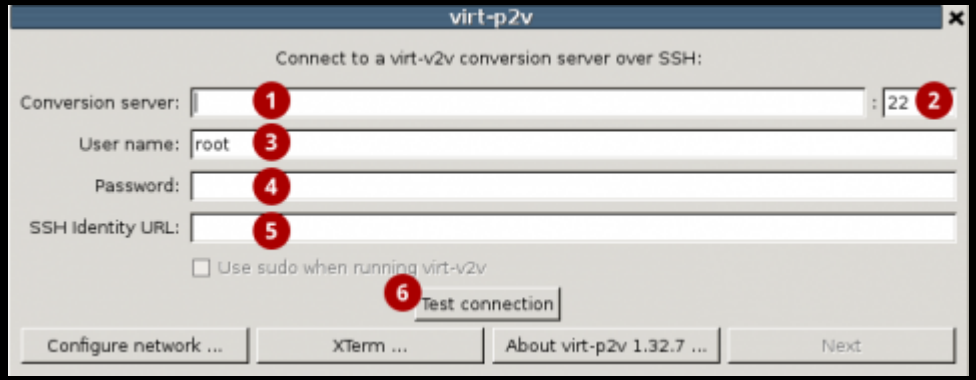
```
DEVICE="eth0"
BOOTPROTO="dhcp"
ONBOOT="yes"
TYPE="Ethernet"
USERCTL="no"
PEERDNS="yes"
IPV6INIT="no"
```

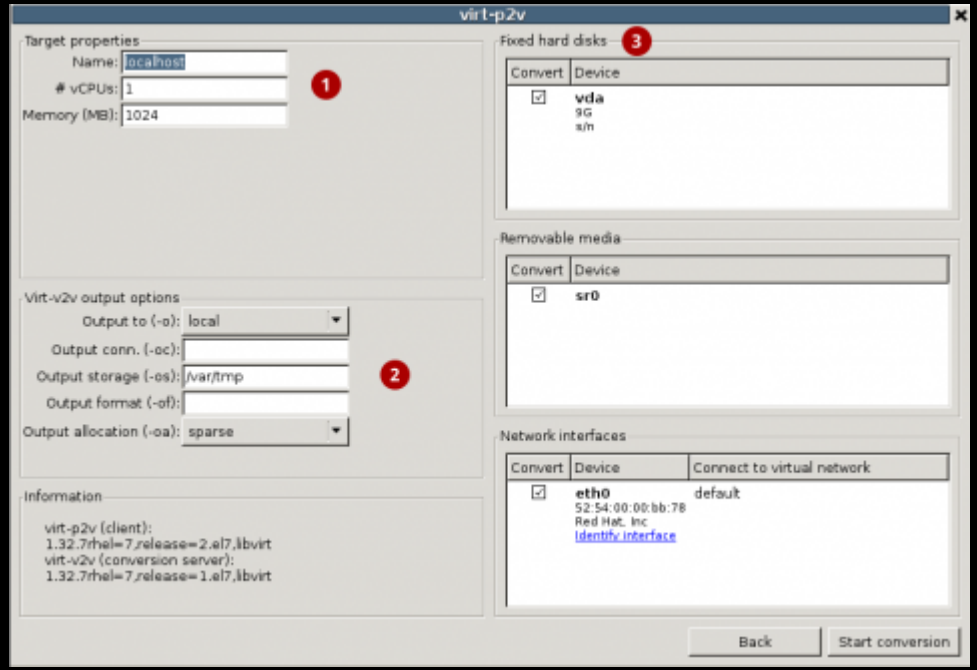
P2V Process

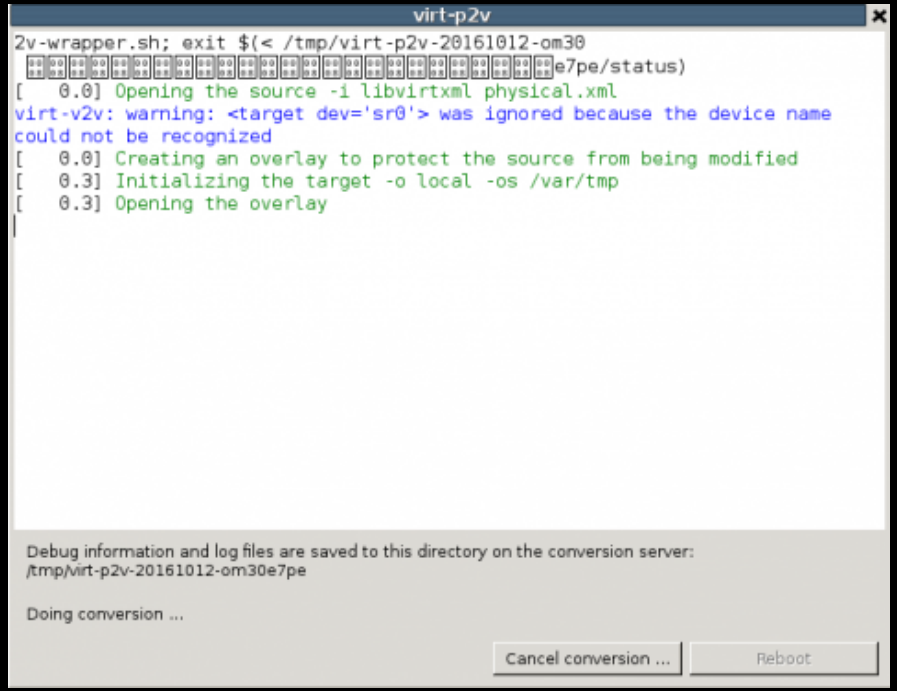
https://access.redhat.com/articles/2702281



Red Hat


virt-p2v
Connect to a virt-v2v conversion server over SSH:
Conversion server:
1
:
22
2
User name:
root
3
Password:
4
SSH Identity URL:
5
Use sudo when running virt-v2v
6
Test connection
Configure network ...
XTerm ...
About virt-p2v 1.32.7 ...
Next


virt-p2v
Target properties
Name: localhost
vCPUs: 1
Memory (MB): 1024
1
Virt-v2v output options
Output to (-o): local
Output conn. (-oc):
Output storage (-os): /var/tmp
Output format (-of):
Output allocation (-oa): sparse
2
Information
virt-p2v (client):
1.32.7rhel=7,release=2.el7,libvirt
virt-v2v (conversion server):
1.32.7rhel=7,release=1.el7,libvirt
Fixed hard disks
3
Convert
Device
vda
9G
s/n
Removable media
Convert
Device
sr0
Network interfaces
Convert
Device
Connect to virtual network
eth0
52:54:00:00:bb:78
Red Hat, Inc
Identify interface
default
Back
Start conversion


virt-p2v
2v-wrapper.sh; exit $(< /tmp/virt-p2v-20161012-om30
e7pe/status)
[0.0] Opening the source -i libvirtxml physical.xml
virt-v2v: warning: <target dev='sr0'> was ignored because the device name
could not be recognized
[0.0] Creating an overlay to protect the source from being modified
[0.3] Initializing the target -o local -os /var/tmp
[0.3] Opening the overlay
Debug information and log files are saved to this directory on the conversion server:
/tmp/virt-p2v-20161012-om30e7pe
Doing conversion ...
Cancel conversion ...
Reboot

Uploading to AWS

AWS CLI

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": { "Service": "vmie.amazonaws.com" },
      "Action": "sts:AssumeRole",
      "Condition": {
        "StringEquals":{
          "sts:Externalid": "vmimport"
        }
      }
    }
  ]
}
```

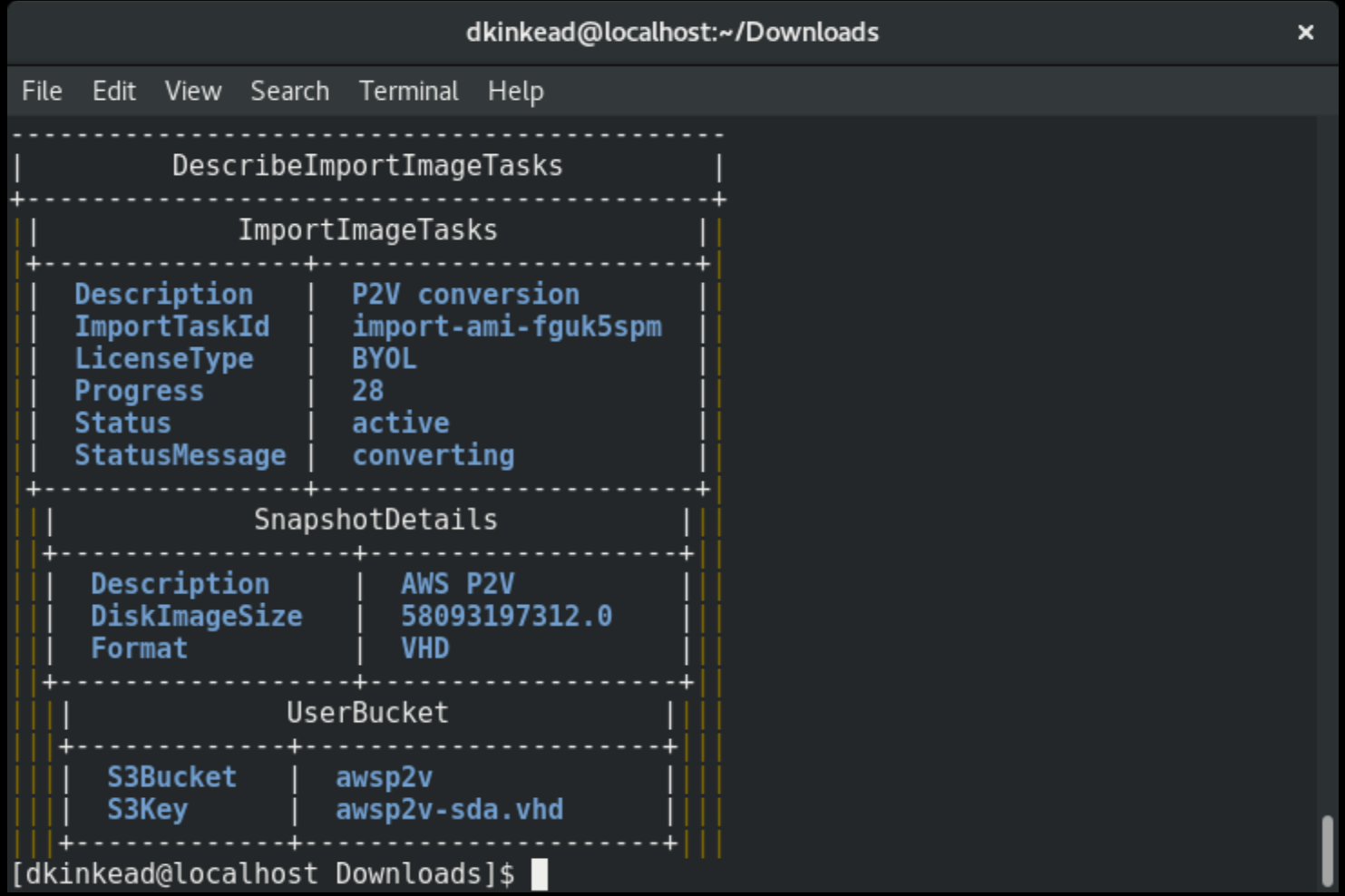
```
{
  "Version":"2012-10-17",
  "Statement":[
    {
      "Effect":"Allow",
      "Action":[
        "s3:GetBucketLocation",
        "s3:GetObject",
        "s3:ListBucket"
      ],
      "Resource":[
        "arn:aws:s3:::<bucket-name>",
        "arn:aws:s3:::<bucket-name>/*"
      ]
    },
    {
      "Effect":"Allow",
      "Action":[
        "ec2:ModifySnapshotAttribute",
        "ec2:CopySnapshot",
        "ec2:RegisterImage",
        "ec2:Describe*"
      ],
      "Resource":"*"
    }
  ]
}
```


aws

```
[dkinkead@localhost Downloads]$ aws iam create-role --role-name vmimport --assume-role-policy-document file://trust-policy.json
------------------------------------------------------------
|                        CreateRole                        |
+----------------------------------------------------------+
||                          Role                          ||
|+------------+-------------------------------------------+|
||  Arn       |  arn:aws:iam::590955868845:role/vmimport  ||
||  CreateDate|  2018-05-03T21:07:55.278Z                 ||
||  Path      |  /                                        ||
||  RoleId    |  AROAIU2CJ4SRQI5AYUJCA                    ||
||  RoleName  |  vmimport                                 ||
|+------------+-------------------------------------------+|
|||               AssumeRolePolicyDocument               |||
||+-----------------------+------------------------------+||
|||  Version              |  2012-10-17                  |||
||+-----------------------+------------------------------+||
|||                      Statement                       |||
||+------------------+-----------------------------------+||
|||  Action          |  sts:AssumeRole                   |||
|||  Effect          |  Allow                            |||
||+------------------+-----------------------------------+||
||||                     Condition                      ||||
|||+----------------------------------------------------+|||
|||||                  StringEquals                    |||||
||||+-----------------------------+------------------+||||
|||||  sts:Externalid             |  vmimport        |||||
||||+-----------------------------+------------------+||||
||||                     Principal                      ||||
|||+---------------+------------------------------------+|||
||||  Service      |  vmie.amazonaws.com                ||||
|||+---------------+------------------------------------+|||
[dkinkead@localhost Downloads]$ aws iam put-role-policy --role-name vmimport --policy-name vmimport --policy-document file://role-policy.json
[dkinkead@localhost Downloads]$
```

```
[
  {
    "Description": "<description>",
    "Format": "VHD",
    "UserBucket": {
        "S3Bucket": "<bucket-name>",
        "S3Key": "<image-name>"
    }
}]
```

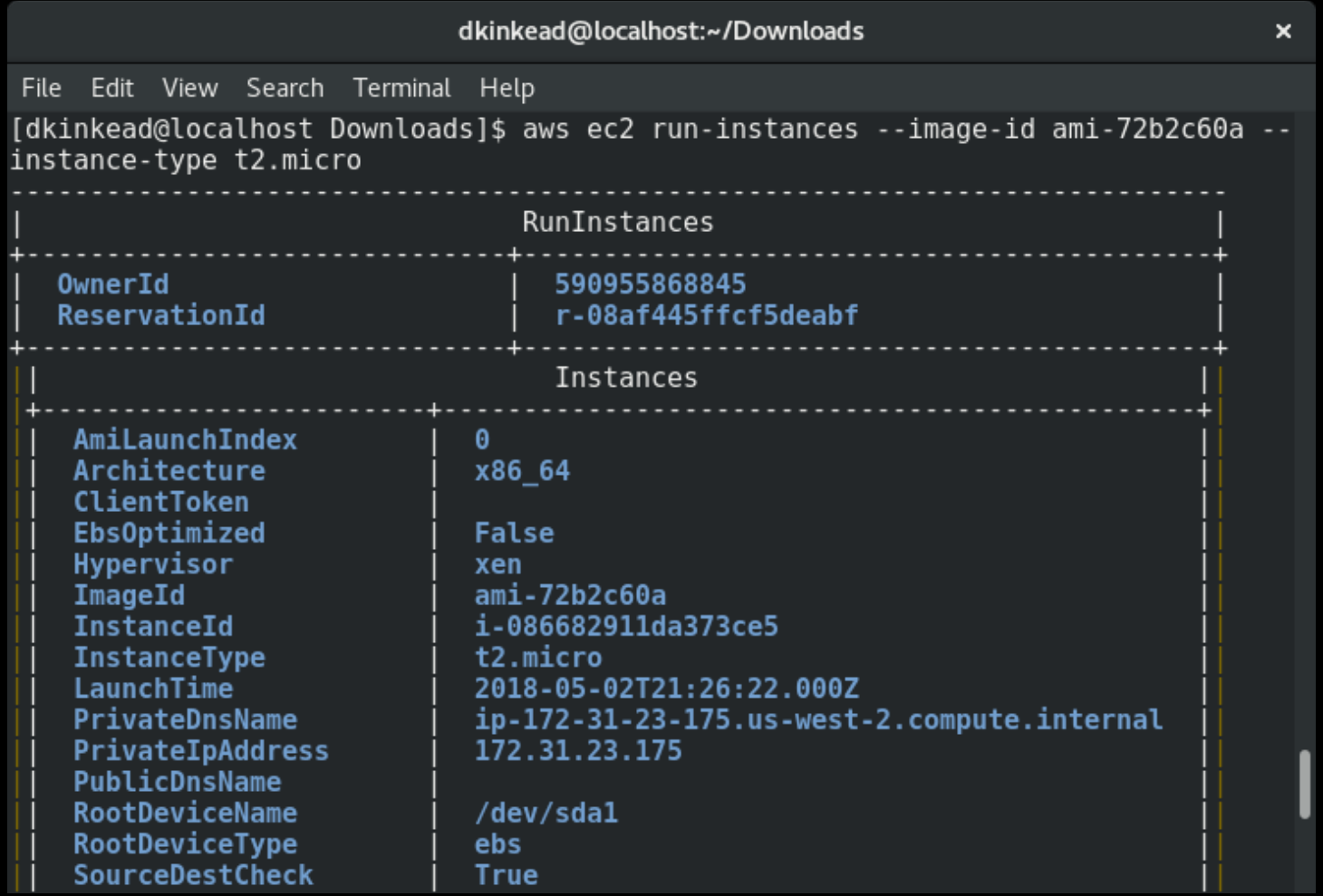
Red Hat


dkinkead@localhost:~/Downloads
File Edit View Search Terminal Help
DescribeImportImageTasks
ImportImageTasks
Description | P2V conversion
ImportTaskId | import-ami-fguk5spm
LicenseType | BYOL
Progress | 28
Status | active
StatusMessage | converting
SnapshotDetails
Description | AWS P2V
DiskImageSize | 58093197312.0
Format | VHD
UserBucket
S3Bucket | awsp2v
S3Key | awsp2v-sda.vhd
[dkinkead@localhost Downloads]$

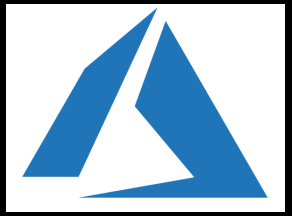
dkinkead@localhost:~/Downloads

File Edit View Search Terminal Help

```
+-------------------------------------------------+
||              ImportImageTasks                   ||
|+-----------------+---------------------------+|
||  Architecture   |  x86_64                    ||
||  Description    |  P2V conversion            ||
||  ImageId        |  ami-72b2c60a              ||
||  ImportTaskId   |  import-ami-fguk5spm       ||
||  LicenseType    |  BYOL                      ||
||  Platform       |  Linux                     ||
||  Status         |  completed                 ||
|+-----------------+---------------------------+|
|||              SnapshotDetails                |||
||+----------------+--------------------------+||
|||  Description   |  AWS P2V                 |||
|||  DeviceName    |  /dev/sda1               |||
|||  DiskImageSize |  58093197312.0           |||
|||  Format        |  VHD                     |||
|||  SnapshotId    |  snap-046f9f30072178071  |||
||+----------------+--------------------------+||
||||              UserBucket                   ||||
|||+---------------+-------------------------+|||
||||  S3Bucket     |  awsp2v                  ||||
||||  S3Key        |  awsp2v-sda.vhd          ||||
|||+---------------+-------------------------+|||
[dkinkead@localhost Downloads]$
```


dkinkead@localhost:~/Downloads
File Edit View Search Terminal Help
[dkinkead@localhost Downloads]$ aws ec2 run-instances --image-id ami-72b2c60a --instance-type t2.micro
RunInstances
OwnerId 590955868845
ReservationId r-08af445ffcf5deabf
Instances
AmiLaunchIndex 0
Architecture x86_64
ClientToken
EbsOptimized False
Hypervisor xen
ImageId ami-72b2c60a
InstanceId i-086682911da373ce5
InstanceType t2.micro
LaunchTime 2018-05-02T21:26:22.000Z
PrivateDnsName ip-172-31-23-175.us-west-2.compute.internal
PrivateIpAddress 172.31.23.175
PublicDnsName
RootDeviceName /dev/sda1
RootDeviceType ebs
SourceDestCheck True

Uploading to Azure



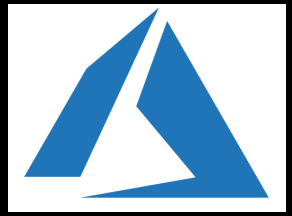
```
#!/bin/bash
MB=$((1024 * 1024))
size=$(qemu-img info -f vpc --output json "$1" | gawk 'match($0, /"virtual-size": ([0-9]+),/, val) {print val[1]}')
rounded_size=$((($size/$MB + 1) * $MB))
if [ $(($size % $MB)) -eq  0 ]
then
 echo "Your image is already aligned. You do not need to resize."
 exit 1
fi
echo "rounded size = $rounded_size"
export rounded_size
```

Red Hat

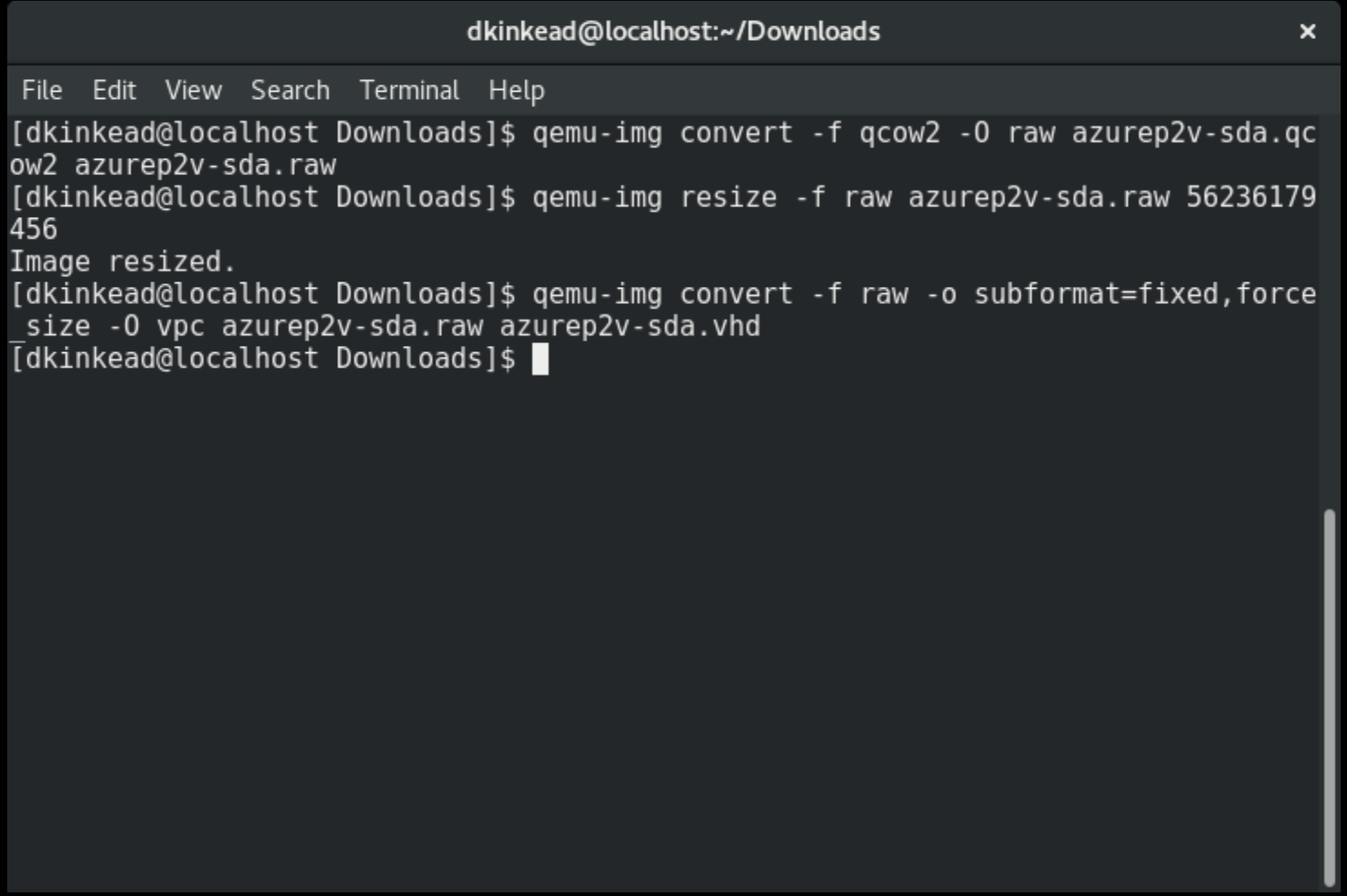
dkinkead@localhost:~/Downloads

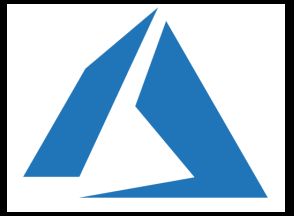
File Edit View Search Terminal Help

```
[dkinkead@localhost Downloads]$ cat align.sh
#!/bin/bash
MB=$((1024 * 1024))
size=$(qemu-img info -f raw --output json "$1" | gawk 'match($0, /"virtual-size"
: ([0-9]+),/, val) {print val[1]}')
rounded_size=$((($size/$MB + 1) * $MB))
if [ $(($size % $MB)) -eq  0 ]
then
 echo "Your image is already aligned. You do not need to resize."
 exit 1
fi
echo "rounded size = $rounded_size"
export rounded_size
[dkinkead@localhost Downloads]$ ./align.sh azurep2v-sda.qcow2
rounded size = 56236179456
[dkinkead@localhost Downloads]$
```



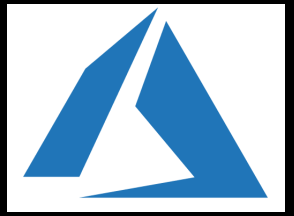
Red Hat


dkinkead@localhost:~/Downloads
File Edit View Search Terminal Help
[dkinkead@localhost Downloads]$ qemu-img convert -f qcow2 -O raw azurep2v-sda.qcow2 azurep2v-sda.raw
[dkinkead@localhost Downloads]$ qemu-img resize -f raw azurep2v-sda.raw 56236179456
Image resized.
[dkinkead@localhost Downloads]$ qemu-img convert -f raw -o subformat=fixed,force_size -O vpc azurep2v-sda.raw azurep2v-sda.vhd
[dkinkead@localhost Downloads]$

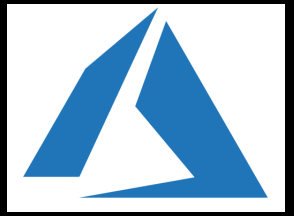


Azure CLI

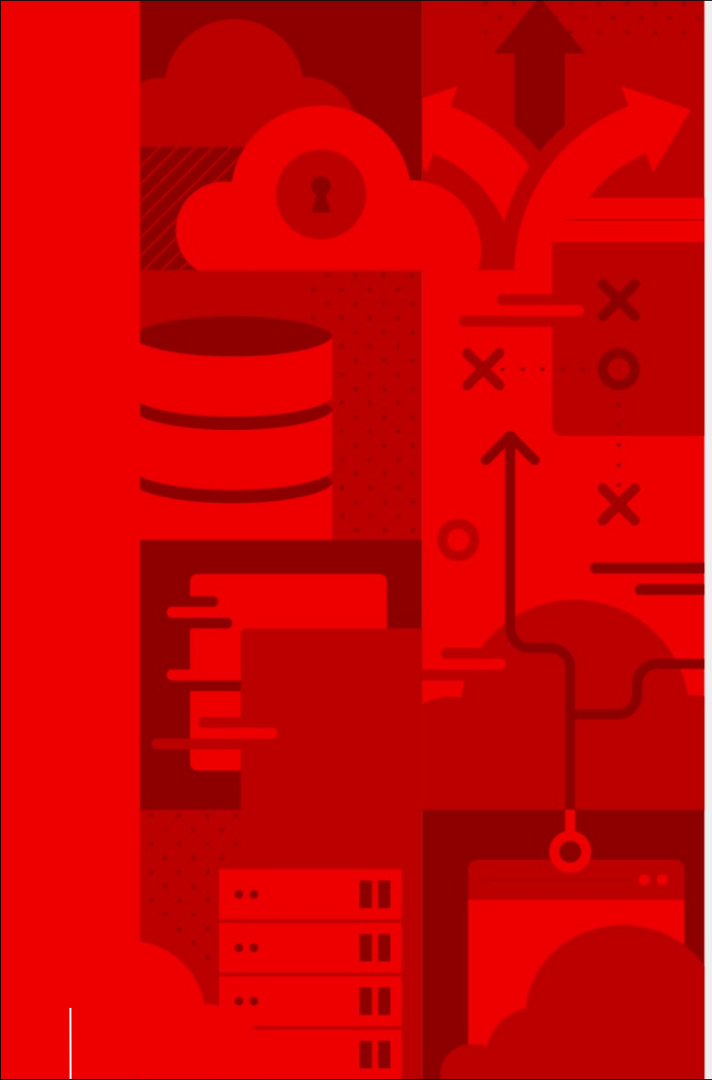
https://packages.microsoft.com/keys/microsoft.asc



Red Hat



Red Hat



Thanks Y’all

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